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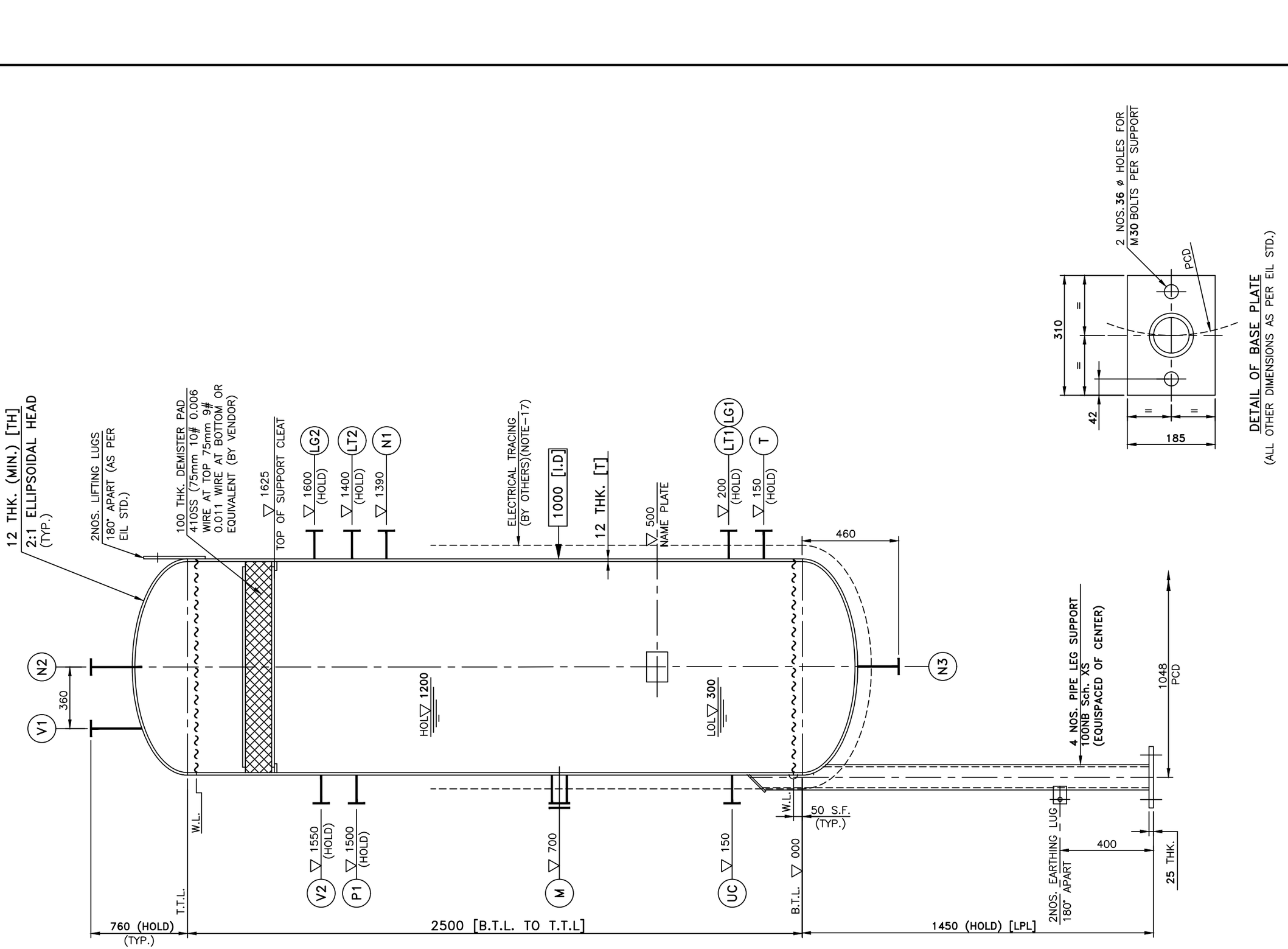

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	10.12.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SA	PB	

VESSEL DESIGN DATA
REGENERATION KO DRUM
ITEM NO. 303-VV-VI-3610

वेसेल डिजाइन डाटा
रिजेनरेशन को ड्रम
आइटम नम्बर 303-वीवी-वीआई-3610

DRAWING NO.	REV.
B957-303-80-42-DS-3122	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

1	**EIL JOB NO.**	**B957**									
2	Unit No.			Package Tag							
3	Service of Unit	Maintenance		CUSTOMER :				BPCL			
				PROJECT				BPREP			
				LOCATION				Bina, Madhya Pradesh, India			
4	Item no.	*		Quantity							
5	Manufacturer:	*		Model no. :				*			
6	■	Denotes Applicability									
7	**Applicable Specification : IS 3832 along with ammendment Dec 2005 & EIL spec 6-61-0015**										
8	Applicable to	Proposal	☐	Purchase	☐	As Built	☐				
9	**OPERATING DATA**										
10	Mounting Type:			Hook	☐	Lug push Trolley	☐	Geared Trolley	☐		
11	Capacity (T) :			*							
12	Mechanism Class :			M1	☐	M2	■	M3	☐	M4	☐
13	Factor of Safety:			Min.4							
14	Location :										
15	Area classification :										
16	Overtravel restraint :			Required	■	Not required	☐				
17	Distance between operating level and suspension level,m:			*							
18	Hoist lifting height (minimum) ,m :			*							
19	Headroom(maximum) ,m :			*							
20	Chain pull for hoisting and traversing ,kgs:			*							
21	Location of Lowest point of hand chain loop			0.4 m above operating level							
22	Bottom hook swivelling with thrust bearing:			Yes	☐	No	☐				
23	**MANUFACTURER DATA:**										
24	Capacity(T) :			*							
25	Velocity ratio :			*							
26	Range of lift ,m :			*							
27	Headroom ,m:			*							
28	Pull for hoisting under full load ,kgs :			*							
29	Pull for traversing under full load ,kgs :			*							
30	No. of falls (load chain) :			*							
31	Type of Gear :			Spur Gear	■	Worm gear	☐				
32	Type of automatic mechanical load brake :			*							
33	Size and no. of trolley wheel			*							
34	Base material of trolley wheel			*							
35	Hardness (BHN) of trolley wheel base and rim			*							
36	Diameter			*							
37	Bottom hook :			As per IS 15560							
38	Top hook :			As per IS 15560							
39	Load chain trough (Type) :			*							
40	Length of hand chain (hoist and traverse separately) ,m :			For hoist :	*	For traverse :	*				
41	Hardness of Ratchet			*							
42	Hardness of pawl			*							
43	F.O.S on load chain :			*							
44	Load chain :			Pitched	■	Polished	■				
45	Hand Chain :			Pitched	■	Polished	■				
46	Safety latches on bottom hook :			Required	■	Not required	☐				
47	Safety latches on top hook :			Required	■	Not required	☐				
48	Total weight,kg :			*							
49	**MONORAIL DETAILS:**			**APPLICABLE**	☐	**NOT APPLICABLE**	☐				
50	Mono Rail Size			*							
51	**MATERIALS OF CONSTRUCTION:**										
52	Load chain (Hoist) ,T(8) as per IS 6216 :			*							
53	Hand chain (Hoist) , L(3) as per IS 2429 (part 1) :			*							
54	Hand chain (Traverse) :			*							
55	Load chain wheel :			*							
56	Gear (hoist) :			*							
57	Gear (Traverse) :			*							
58	Ratchet wheel, chain guides :			*							
59	Pawl :			*							
60	Hand chain wheel (hoist) :			*							
61	Hand chain wheel (traverse) :			*							
62	Bottom hook :			*							
64	Load chain trough:			*							

65	Trolley Frame	*								
66	Ungeared/Geared Wheels	*								
67	Tyres of Ungeared/Geared Wheels	*								
68	Hand chain /Load chain Guide :	*								
69	Load pin/Suspension shaft :	*								
70	Brake :	*								
71	**OTHER REQUIREMENTS:**									
72	Anti spark design :	Yes	☐	No	☐	Galvanisation of chain :		Yes	☐	No	☐
73	Painting :					As per vendor standard	■	As per EIL paint spec.	☐		
74	Paint system environment					Corrosive	■	Highly corrosive	☐		
75	Marking					As per IS 3832					
76	**TESTING AND INSPECTION:**									
77	Operational Proof Test					Required	■	Not required	☐		
78	Design Test					Required	☐	Not required	☐		
79	Light load test					Required	☐	Not required	☐		
80	Endurance Type Test					Required	☐	Not required	☐		

Note-1: Vendor to fill up * marked spaces.

Note-2: Contractor/ Vendor to submit filled-in data sheet of each chain pulley block separately.

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
B 1A	1	600	14 THK.	150	WN	RF	1930	300x T	MANHOLE + BF + GASKET + BOLTING + DAVIT
B 1B	1	600	14 THK.	150	WN	RF	1230	300x T	MANHOLE + BF + GASKET + BOLTING + DAVIT
6	1	1050	20 THK.	150	WN	RF	SEE DWG.	530x T	VAPOR OUTLET TO 300-CC-00-1202
8A	1	50	160	600	WN	RF	SEE DWG.	-	VENT
8B	1	50	160	600	WN	RF	1820	-	VENT
11	1	1050	20 THK.	300	WN	RF	SEE DWG.	#	FEED FROM 300-JS-00-1202 (NOTE-23)
B 12	1	150	120	300	WN	RF	1050	85x T	FEED FROM 300-CC-00-1201
18	1	200	80	300	WN	RF	SEE DWG.	110x T	LIQUID OUTLET TO 300-GN-00-1204 A/B
B 29	1	300	14 THK.	300	WN	RF	1180	160x T	MP STEAM
31A	1	80	160	300	WN	RF	SEE DWG.	45x T	DRAIN
31B	1	80	160	300	WN	RF	SEE DWG.	-	DRAIN + B.F.
35	1	50	160	600	WN	RF	1130	-	UTILITY CONNECTION
36	1	80	160	300	WN	RF	1180	45xT	PRESSURE GAUGE
40	1	50	160	300	WN	RF	1130	-	TEMPERATURE INDICATOR
45 A-B	2	50	160	300	WN	RF	1130	-	LEVEL GAUGE ON STANDPIPE WITH HHLL ALARN
46 A-B	2	80	160	300	WN	RF	1180	45xT	LEVEL INDICATOR
47 A-B	2	80	160	300	WN	RF	1180	45xT	LEVEL CONTROLLER
AO	1	500 ID	18 THK.	AS PER EIL STD.				255xT	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/CONE/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

'#' INSERT PLATE 2500 SQ. X 32 THK. EXCLUDING 1:3 TAPPER

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	656000	23000
WIND	706000	26000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.
B 10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 VENDOR SHALL DESIGN AND PROVIDE LIFTING HOOK FOR TOP ELBOW ASSEMBLY CONSIDERING IMPACT FACTOR OF 1.5.
12 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13 SURFACE PREPARATION, APPLICATION OF PRIMER & FINISH PAINT AS PER PAINTING SPEC. IS IN EQUIPMENT VENDOR SCOPE.
14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
15 VESSEL SHALL BE SUBJECTED TO STEAM OUT AT 0.5 Kg/cm2(g) @190°C.
16 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT FOR 1.25 TIMES OF ACTUAL ERECTION HEIGHT AND CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
17 AT TOP, MAXIMUM PRESSURE DROP OF 0.22 kg/cm2 & LIQUID LEVEL OF 22000mm DUE TO LIQUID OVER FILL CASE (i.e TOTAL 6.53kg/cm2(g) IS CONSIDERED FOR MECHANICAL DESIGN.
18 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED CS INTERNAL SHALL BE 12mm , BOLTED CS INTERNAL SHALL BE 9mm & BOLTED SS INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
19 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
20 EQUIPMENT MAY BE ERECTED IN DRESSED UP CONDITION (BY OTHERS). DRESSED UP IMPLIES THAT THE EQUIPMENT WILL BE ERECTED AFTER INSTALLATION OF INSULATION, PLATFORM/LADDERS AND PIPING SPOOLS. CORRESPONDINGLY EQUIPMENT VENDOR SHALL SELECT LIFTING LUG BASED ON 1.25 TIMES THE ACTUAL ERECTION WEIGHT.
21 LIQUID DENSITY AT OPERATING TEMPERATURE IS :
TOP = 960.6 Kg/m3
BOTTOM = 934.9 Kg/m3
22 COLUMN VENDOR SHALL PERFORM MECHANICAL STRENGTH CALCULATIONS BASED ON THE DATA AVAILABLE IN THE PDS AND DEVELOP ALL ENGINEERING DRAWINGS FOR THE BAFFLE TRAYS. VENDOR SHALL CONSIDER A LOADING OF 490 KG/M² WHILE CARRYING OUT THE MECHANICAL STRENGTH CALCULATIONS. VENDOR SHALL SUBMIT ENGINEERING DRAWINGS & CALCULATION TO EIL FOR REVIEW AND ACCEPTANCE. HOWEVER, FOLLOWING MINIMUM THICKNESS SHALL BE CONSIDERED
- TRAY #1 TO #8 : 10 MM
- 4 NOS. VERTICAL ANTI-SWIRL BAFFLES: 12 MM
- 1 NO. CONICAL BAFFLE: 18 MM
23 COLUMN SHALL BE FIRST COMPLETELY FABRICATED & HYDROTESTED AT SHOP. THEREAFTER IT SHALL BE CUT INTO MAXIMUM TWO SECTIONS (PROVIDE ADDITIONAL LENGTH TO TAKE CARE OF CUTTING & REJOINING ALLOWANCES) BEFORE TRANSPORTATION FROM SHOP TO SITE (WHERE FINAL C-SEAM SHALL BE CARRIED OUT). SECTION LENGTH OF COLUMN SHALL BE DECIDED BASED ON TRANSPORTATION FEASIBILITY (BY VENDOR). COLUMN SHALL BE ASSEMBLED AT SITE IN HORIZONTAL POSITION COMPLETE IN ALL RESPECTS. DP EXAMINATION SHALL BE CARRIED OUT ON SITE JOINT FOR ROOT RUN & FINAL RUNS (INSIDE & OUTSIDE) BY COLUMN FABRICATOR. 100% RADIOGRAPHY SHALL BE CARRIED OUT ON SITE JOINT BY COLUMN FABRICATOR. NDT SHALL BE CARRIED OUT AS PER MDS. ONLY LOCAL BOX TYPE (INSIDE) HYDROTEST SHALL BE CARRIED OUT FOR SITE CIRC. SEAM. COMPLETE HYDROTEST OF THE ENTIRE COLUMN AT SITE IS NOT ENVISAGED.
B 24 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
B 25 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
X	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
X	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
	DEMISTER DATA SHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010
X	PROCESS DATA SHEET	300-CC-00-1202

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
X	DETAILS OF INTERNALS	X	TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	TOP:0.94 BOTTOM:1.16
DESIGN PRESSURE (kg/cm²g)	INT. 4.2 (NOTE-17) EXT. 0.53
WORKING TEMPERATURE (°C)	TOP: 288 BOTTOM:195
DESIGN TEMPERATURE (°C)	340
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD / CONE 1
B RADIOGRAPHY	SHELL FULL HEAD / CONE FULL
B POST WELD HEAT TREATMENT	YES (NOTE-24)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	NOTE-21
WIND SPECIFICATION	IS 875 PART-3
SEISMIC	IS 1893 + SITE SPECTRA
CAPACITY (M^3)	123
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-13)
INSULATION THICKNESS (mm) (IH)	90 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	5.46
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/~~BOOT~~	SA 516 Gr.70
REINFORCEMENT PAD/INSERT PLATE	SA 516 Gr.70
HEADS	SA 516 Gr.70
~~SHELL FLANGES~~/SR/LWN	SA 105
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE #
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 Gr.70 / IS 2062 GR. E250 QUALITY BR
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR
INTERNAL PARTS (WELDED)	SA 516 Gr.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 Gr.70/ SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.70
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SA 516 Gr.70
PIPE DAVIT	SA 106 GR. B
VACUUM STIFFENER	SA 516 Gr.70
LIFTING LUG	SA 516 Gr.70
TAILING LUG	SA 516 Gr.70

INTERNAL GASKET SHALL BE SUITABLE FOR DESIGN TEMPERATURE AND OPERATING FLUID.

SITE ASSEMBLED COLUMN

SPECIAL SERVICE : BENZENE B

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	62000	OPERATING	310000
HYDROTEST(SHOP)	185000	HYDROTEST (FIELD)	320000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	06.11.2025	REVISED & REISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB
A	27.06.2025	ISSUED FOR BIDS / ENGG.	AS	CS/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER डाईग नम्बर	REV
PYROLYSIS FUEL OIL STRIPPER	पायरोलिसिस फयूल ऑयल स्टीपर	B957-300-80-42-DS-3002	B
ITEM NO. 300-CC-00-1202	आइटम नम्बर 300-सीसी-00-1202	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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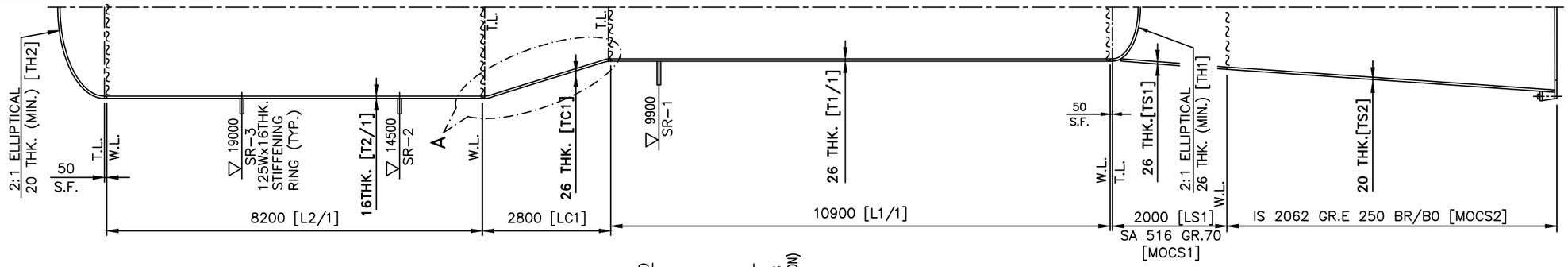
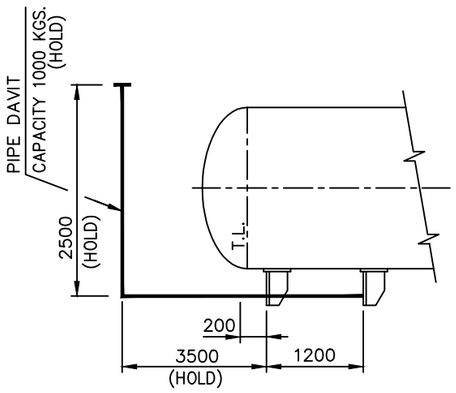
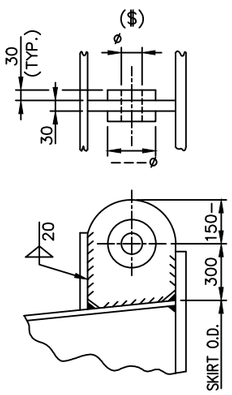




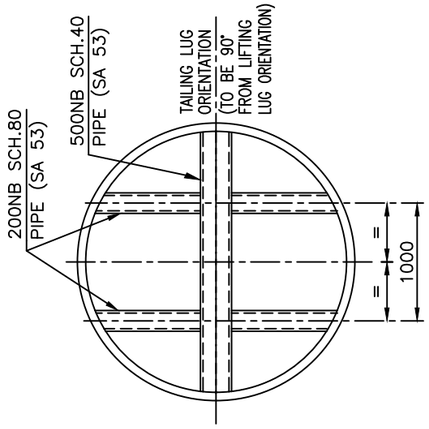
PIPE DAVIT (HOLD)

(ALL OTHER DIMENSIONS AS PER EIL STD.)
7-12-0023

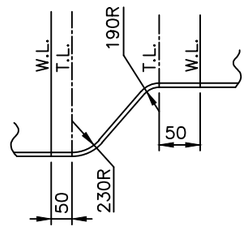


TAILING LUG DETAIL

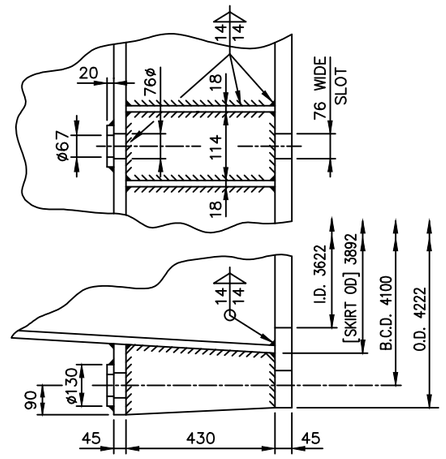
($) VENDOR TO ENSURE EDEQUACY OF HOLE DIA.



STIFFENING DETAIL OF SKIRT

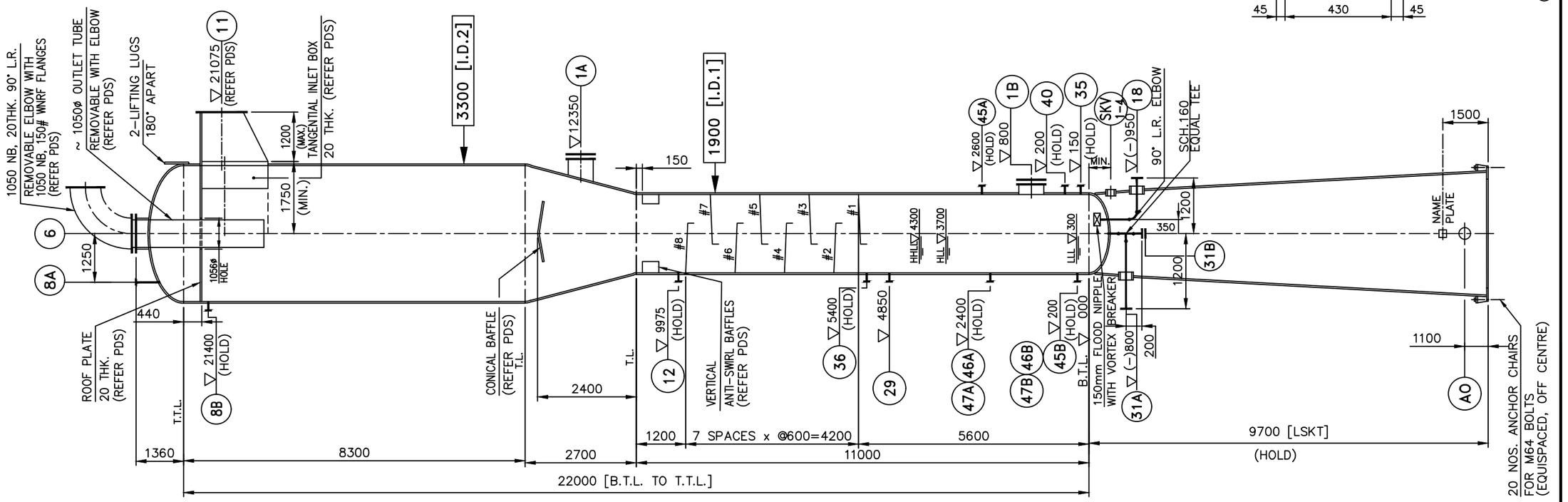


DETAIL–A



SKIRT BASE DETAIL

(ALL OTHER DIMENSIONS AS PER EIL STD.)



ENGINEERS INDIA LIMITED, NEW DELHI	BHARAT PETROLEUM CORP. LTD. BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)					
B	06.11.2025	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
A	27.06.2025	ISSUED FOR BIDS/ENGG.	AS	CS/VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

VESSEL DESIGN DATA
PYROLYSIS FUEL OIL STRIPPER
ITEM NO. 300-CC-00-1202

वेसल डिजाइन डाटा
पायरोलिसिस फयूल ऑयल स्ट्रिपर
आइटम नम्बर 300-सीसी-00-1202

DRAWING NO. B957-300-80-42-DS-3002 | REV. B

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1A	1	750	14 THK.	150	WN	RF	1870	325X T	MANHOLE + BF + GASKET + BOLTING
1B	1	600	14 THK.	150	WN	RF	1870	255X T	MANHOLE + BF + GASKET + BOLTING
7	1	500	14 THK.	150	WN	RF	SEE DWG.	250X T	VAPOR OUTLET TO 300-CC-00-1301
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	400	16 THK	150	WN	RF	1870	170X T	FEED FROM 300-EE-00-1203
14	1	250	80	150	WN	RF	SEE DWG.	135X T	TO REBOILER 300-EE-00-1401
15	1	600	24 THK	150	WN	RF	1870	$	FROM REBOILER 300-EE-00-1401 (NOTE-14)
17	1	400	14 THK	150	WN	RF	SEE DWG.	225X T	LIQUID BOTTOM OUTLET TO 300-PA-CF-1402A/B
20	1	200 (H)	80	300	WN	RF	1820	95X T	MIN. FLOW. RETURN FROM 300-PA-CF-1402A/B
29	1	500	16 THK	150	WN	RF	1870	$$	LP STEAM (NOTE-14)
31	1	80	160	300	WN	RF	SEE DWG.	45X T	DRAIN
35	1	50	160	300	WN	RF	1770	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	1770	-	PRESSURE GAUGE (NOTE-13)
39 A-B	2	50	160	300	WN	RF	1770	-	PRESSURE DIFFERENTIAL INDICATOR (NOTE-13)
45 A-B	2	50	160	300	WN	RF	1770	-	STAND PIPE
46 A-B	2	50	160	300	WN	RF	1770	-	LEVEL TXMR (DP)
47 A-B	2	50	160	300	WN	RF	1770	-	LEVEL TXMR (DP)
AO 1-2	2	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

$' INESERT PLATE OF 1300 DIA. X 28 THK.

$$' INESERT PLATE OF 1100 DIA. X 28 THK.

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडेशन लोडिंग डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	519000	26000
WIND	311000	16000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION & SHOP PRIMER AND FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
12. NOZZLES SHOWN WITH BLIND FLANGES / REDUCING FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13. ALL PRESSURE INSTRUMENTS TO BE LOCATED IN THE VAPOR SPACE.
14. THE NOZZLES 15 & 29 ARE ORIENTED 180° FROM EACH APART.
15. DELETED.
16. DELETED.
17. ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
18. UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED CS INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
19. VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190ºC.
20. VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
21. AT TOP, MAXIMUM PRESSURE DROP OF 0.15 Kg/SQcm & LIQUID LEVEL OF 16500 MM DUE TO LIQUID OVERFILL CASE (I.E. TOTAL 5.9 KG/SQ.CM (g)) IS CONSIDERED FOR MECHANICAL DESIGN.
22. VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
23. STANDARD FLANGE SHALL BE PRODUCED TO FINE GRAIN PRACTICE MEETING REQUIREMENT OF UCS 66(c)(1)(a) OF ASME SEC VIII DIV.1
24. BEAM SUPPORT FOR PIPE DISTRIBUTOR OF NOZZLE 11 SHALL BE DESIGNED & SUPPLIED BY VESSEL VENDOR.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43004
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
	DEMISTER DATA SHEET	NOT APPLICABLE
X	PROCESS DATA SHEET	300-CC-00-1401
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
X	DETAILS OF INTERNALS	X	TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 ED. 2023
WORKING PRESSURE (kg/cm²g)	TOP: 0.86 BOTTOM: 1.01
DESIGN PRESSURE (kg/cm²g)	INT. 4.2 (NOTE-21) EXT. 0.53
WORKING TEMPERATURE (°C)	TOP:118 BOTTOM:120
DESIGN TEMPERATURE (°C)	190
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 0.85 HEAD 1
RADIOGRAPHY	SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	PROCESS WATER (HOLD)
SP. GRAVITY	TOP: 0.86 BOTTOM: 1.01
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	142
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-10)
INSULATION THICKNESS (mm) (IH)	25 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	5.46
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL ~~/ BOOT~~	SA 516 Gr.70
REINFORCEMENT PAD / INSERT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES /~~LWN~~	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE @
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~-SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/SA 106 GR.B
INTERNAL PARTS (BOLTED)	SS 304/SA 516 GR.70
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY B R/B0 OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 516 GR.70
TAILING LUG	IS 2062 GR. E 250 QUALITY BR/B0

@ INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	40000	OPERATING	265000
HYDROTEST(SHOP)	182000	HYDROTEST (FIELD)	278000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
1	11.03.2026	REVISED FOR ENGG.	AS	CSM/VIVEK	PB
0	10.03.2026	ISSUED FOR PURCHASE	AS	CSM/VIVEK	PB
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB
A	24.05.2025	ISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
PROCESS WATER STRIPPER	प्रोसेस वॉटर स्ट्रिपर	B957-300-80-42-DS-3004	1
ITEM NO. 300-CC-00-1401	आइटम नम्बर 300-सीसी-00-1401	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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14 THK. (MIN.) [TH]
2:1 ELLIPTICAL HEAD
(TYP.)

50 S.F.
T.L.
W.L.

ST-5 ▽14700 (HOLD)
VACUUM STIFFENER (TYP.) REFER DETAIL

ST-4 ▽11900 (HOLD)

14 THK. [T]

ST-3 ▽7900 (HOLD)

ST-2 ▽4400 (HOLD)

ST-1 ▽1600 (HOLD)

50 S.F.
W.L.
T.L.

1000[LS1]

12 THK. [TS2]
IS:2062 GR.E 250 QUALITY BR/B0 [MOCS2]

12 THK. [TS1]
SA 516 GR.70
[MOCS1]

PIPE DAVIT
CAPACITY 1000 KGS.

1500
T.L.
200
3700
1200

PIPE DAVIT
(ALL OTHER DIMENSIONS AS PER EIL STD.)

2NOS. LIFTING LUGS 180° APART

▽ 16000 (11)

400NB x 16 THK. DISTRIBUTOR (BY VENDOR) (REFER SHT. 2 OF 8 PDS.

3200 [I.D.]

SHELL I/D
REFERENCE ELEVATION
14 THK.
INSULATION THK.
100ø DRAIN HOLES AT 1000 PITCH
THIS AREA IS ALSO TO BE FILLED WITH THE INSULATION MAT
RING CAP FOR INS.
VACUUM STIFFENER
60ø HOLES @600 PITCH. ALSO TACK WELD G.I. BOLTS AS PER EIL SKETCH
6 THK. INSULATION SUPPORT RING
110
75(TYP.)

VACUUM STIFFENER DETAIL
(TYP.)

- VACUUM STIFFENERS SHALL BE USED AS INSULATION SUPPORT.
- ADDITIONAL INSULATION SUPPORTS TO BE PROVIDED AS PER 7-12-0025 WHEREVER REQUIRED.

20 (TYP.)
FPW
$ 65ø
30
130ø
14
14

TAILING LUG DETAIL
$ VENDOR TO ENSURE ADEQUACY OF HOLE DIA.

14
190
200
SKIRT O.D.

200NB SCH.80 PIPE
300NB SCH.60 PIPE
TAILING LUG ORIENTATION
1500

STIFFENING DETAIL OF SKIRT

20
60ø
14
51ø
120
60 WIDE SLOT
14
14
3006 I.D.
3226 [SKIRT OD]
3392 B.C.D.
3526 O.D.
14
75
100ø
34
400
45

SKIRT BASE DETAIL
(ALL OTHER DIMENSIONS AS PER EIL STD.)

▽ 7150 (36)
▽ 5700 (46A) (47A)
▽ 5400 (45A)
▽ 775 (20)
▽ 300 (47B) (46B)
▽ 200 (45B)
DETAIL-A
(-)2148 (14)

HHLL▽5400
HLL▽4800
LLL▽300
##
600
600
#
1000
1400
1915
1915
90° LR ELBOW
NAME PLATE
1200
AO (1-2)

T.T.L.
▽ 16350 (39A)
▽ 15525 (1A)
▽ 7150 (39B)
▽ 6130 (29)
(15)
▽ 800 (1B)
▽ 150 (35)
B.T.L. ▽ 0.00
SKV (1-4)
(-)MIN.
(-)1100 (31)
(-)1600 (17)

1500
14 SPACES @ 550 = 7700
7300
6700 [LSKT]
16500 [B.T.L. TO T.T.L.]

24 NOS. ANCHOR CHAIRS FOR M48 ANCHOR BOLTS (EQUISPACED, OFF-CENTER)

30°
SKIRT I.D.
75 X 6 THK. RAIN SHIELD JUST BELOW BOTTOM OF INSULATION RING ON SKIRT

DETAIL-"A"

#: 150mm FLOOD NIPPLE WITH VORTEX BREAKER
##: 150mm FLOOD NIPPLE

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
1	11.03.2026	REVISED FOR ENGG.	AS	CSM/VIVEK	PB	
0	10.03.2026	ISSUED FOR PURCHASE	AS	CSM/VIVEK	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	
A	24.05.2025	ISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	

VESSEL DESIGN DATA
PROCESS
WATER STRIPPER
ITEM NO. 300-CC-00-1401

वेसल डिजाइन डाटा
प्रोसेस वॉटर स्ट्रिपर
आइटम नम्बर 300-सीसी-00-1401

DRAWING NO. B957-300-80-42-DS-3004
REV. 1
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA / नामिनल डायां	SCH./THK. / शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
1A-D	4	600	16 THK.	150	WN	RF	1620	300X T	MANHOLE + BF + GASKET + BOLTING
1E-G	3						1980		
1H	1	600	16 THK.	150	WN	RF	2780	300X T	MANHOLE + BF + GASKET + BOLTING
7	1	500	16 THK.	150	WN	RF	SEE DWG.	250X T	VAPOR OUTLET TO 300-LZ-00-3001-EP-00-11
8	1	80	80S	300	WN	RF	SEE DWG.	45X T	VENT
10	1	50	80S	300	WN	RF	1520	-	REFLUX IN FROM 300-PA-CF-3002A/B
11	1	100	80S	300	WN	RF	1570	60X T	FEED FROM 300-VV-VW-3006
12	1	250	16 THK.	150	WN	RF	1570	135X T	FEED FROM 300-VV-VW-3005
13	1	450	16 THK.	150	WN	RF	1980	225X T	FEED FROM 300-VV-VW-3004
14	1	750	16 THK.	150	WN	RF	SEE DWG.	380X T	TO REBOILER 300-EE-00-3009
15	1	750	16 THK.	150	WN	RF	2730	380X T	FROM REBOILER
17	1	500	16 THK.	150	WN	RF	SEE DWG.	250X T	BOTTOM OUTLET TO 300-PA-CF-3001A/B
19	1	450	16 THK.	150	WN	RF	1980	225X T	LIQUID DRAWOFF TO 300-EE-00-3003
20	1	250 (H)	16 THK.	150 (H)	WN	RF	2220	135xT	MIN FLOW RETURN FROM 300-PA-CF-3001 A/B
22	1	150 (H)	16 THK.	300 (H)	WN	RF	2220	85xT	PUMP VENT RETURN FROM 300-PA-CF-3001 A/B
24 A-B	2	100	80S	300	WN	RF	1930	60X T	BR/ETHYLENE VENT FROM 300-VV-VW-6006/HW-6004
26	1	450	16 thk.	150	WN	RF	1980	225X T	FROM SIDE REBOILER 300-EE-00-3003
31	1	100	80S	300	WN	RF	SEE DWG.	60X T	DRAIN
35	1	50	80S	300	WN	RF	2625	-	UTILITY CONNECTION
36	1	50	80S	300	WN	RF	1870	-	PRESSURE GAUGE
37	1	50	80S	300	WN	RF	1870	-	PRESSURE CONTROLLER
38A-D	4	50	80S	300	WN	RF	1520	-	PRESSURE DIFFERENTIAL INDICATOR
38E-H	4						1870		
40A-C	3	50	80S	300	WN	RF	1520	-	TEMPERATUR INDICATOR
40D-F	3	50	80S	300	WN	RF	1870	-	TEMPERATURE INDICATOR
41	1	50	80S	300	WN	RF	1870	-	TEMPERATURE CONTROLLER
45A-B	2	50	80S	300	WN	RF	2625	-	STAND PIPE
46A	1	50	80S	300	WN	RF	2625	-	LEVEL TXMR (DP)
46B	1	50	80S	300	WN	RF	2475	45X T	LEVEL TXMR (DP)
47A-B	2	50	80S	300	WN	RF	2625	-	LEVEL TXMR (DP)
50A-B	2	50	80S	300	WN	RF	1520	-	METHANOL INJECTION
50C	1	50	80S	300	WN	RF	1870	-	METHANOL INJECTION
5A-H	8	200	16 THK.	150	WN	RF	1580	110X T	HANDHOLE + BF + GASKET + BOLTING
5I-N	6						1930		
AO	2	450 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-6	6	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

T' DENOTES CORRESPONDING SHELL/CONE/DISH END/SKIRT NOMINAL THICKNESS & (H) DENOTES HOLD

LICENSOR'S SPECIFICATION / लाईसेन्सर स्पेसिफिकश्सन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) / फॉऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	950000	33500
WIND	2659500	66000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125-250 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
12 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13 VESSEL IS SUBJECTED TO DRY OUT CONDITION OF 7 Kg/cm^2(g) @80°C.
14 SURFACE PREPARATION & SHOP PRIMER AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE (FIELD COATING SYSTEM IS BY OTHERS)
15 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
16 FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
17 COLUMN SHALL BE FIRST COMPLETELY FABRICATED & HYDROTESTED AT SHOP. THEREAFTER IT SHALL BE CUT INTO MAXIMUM THREE SECTIONS (PROVIDE ADDITIONAL LENGTH TO TAKE CARE OF CUTTING & REJOINING ALLOWANCES) BEFORE TRANSPORTATION FROM SHOP TO SITE (WHERE FINAL C-SEAM SHALL BE CARRIED OUT). SECTION LENGTH OF COLUMN SHALL BE DECIDED BASED ON TRANSPORTATION FEASIBILITY (BY VENDOR). COLUMN SHALL BE ASSEMBLED AT SITE IN HORIZONTAL POSITION COMPLETE IN ALL RESPECTS. DP EXAMINATION SHALL BE CARRIED OUT ON SITE JOINT FOR ROOT RUN & FINAL RUNS (INSIDE & OUTSIDE) BY COLUMN FABRICATOR.100% RADIOGRAPHY SHALL BE CARRIED OUT ON SITE JOINT BY COLUMN FABRICATOR. NDT SHALL BE CARRIED OUT AS PER MDS. ONLY LOCAL BOX TYPE (INSIDE) HYDROTEST SHALL BE CARRIED OUT FOR SITE CIRC. SEAM. COMPLETE HYDROTEST OF THE ENTIRE COLUMN AT SITE IS NOT ENVISAGED.
18 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
19(a) LIFTING TRUNION SHALL BE DESIGNED BY VENDOR. MECHANICAL DESIGN OF LIFTING TRUNNION SHALL BE CARRIED OUT CONSIDERING ACTUAL EQUIPMENT WEIGHT WITH ADDITIONAL25% MARGIN CONSIDERING ERECTION IN DRESSED-UP CONDITION AND AN IMPACT FACTOR OF 1.5. THE INDUCED STRESS IN SHELL & TRUNNION SHALL BE WITHIN 0.9 OF YIELD. VENDOR TO PROVIDE INSERT PLATE OF SUITABLE SIZE AND THICKNESS WHEREVER LIFTING TRUNIONS ARE WELDED TO SHELL.
19(b) TAILING LUG AND BRACING ARRANGEMENT FOR SKIRT SHALL BE DESIGNED BY VENDOR CONSIDERING AN IMPACT FACTOR OF 1.5. FOR DRESSED UP CONDITION (REFER NOTE-19(a)). ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE.
20 ALL STAINLESS STEEL SURFACES (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A380.
21 ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
22 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
23 AT TOP OF TOWER, MAXIMUM PRESSURE DROP OF 0.2 KG/SQ CM & LIQUID LEVEL OF 44660MM DUE TO LIQUID OVERALL CASE (I.E. TOTAL 11.5 KG/SQ CM(g) IS CONSIDERED FOR MECHANICAL DESIGN.
24 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
25 ALL INTERNALS TO BE DEGREASED WITH STEAM FOR STAINLESS INTERNALS OR WITH APPROPRIATE SOLVENT FOR ALUMINUM PACKING.
26 EQUIPMENT SHALL BE ERECTED SINGLE PIECE IN DRESSED UP CONDITION (BY OTHERS). DRESSED UP IMPLIES THAT THE EQUIPMENT WILL BE ERECTED AFTER INSTALLATION OF INSULATION, PLATFORM/LADDERS ETC. (BY OTHERS). CORRESPONDINGLY EQUIPMENT VENDOR SHALL SELECT LIFTING LUG BASED ON 1.25 TIMES THE ACTUAL ERECTION WEIGHT.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENITIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B018-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
X	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034

REFERENCE DRAWINGS(रेफरेन्स डाईंग)

X	NOZZLE ORIENTATIONS	
X	LADDERS/PLATFORM CLEATS	
X	PIPE SUPPORT CLEATS	
X	TRAY SUPPORT AND BOLTING BARS	
X	DEMISTER DATA SHEET	
X	MONKEY LADDER SKETCH	B957-000-80-42-SK-0010
X	PROCESS DATA SHEET	300-CC-00-3001

HOLD UPS (होल्ड अप्स)

0

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
		X	PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm^{2}g)	TOP:7.0 BOTTOM: 7.2
DESIGN PRESSURE (kg/cm^{2}g)	INT. 9.0(NOTE-23) EXT. --
WORKING TEMPERATURE (°C)	TOP:(-)128 BOTTOM:(-)49
DESIGN TEMPERATURE (°C)	(-)145/65
MDMT (°C)	(-) 145
CORROSION ALLOWANCE (mm)	NIL
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD / CONE 1
RADIOGRAPHY	SHELL FULL HEAD / CONE FULL
POST WELD HEAT TREATMENT	NIL
HEAT TREATMENT	AS PER CODE / SPEC.
OPERATING MEDIUM	HYDROCARBON
SP. GRAVITY	TOP: 0.386 BOTTOM: 0.515
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M^3)	527
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-14)
INSULATION THICKNESS (mm) (PIR) 0	SEE DWG. ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	11.7
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 240 GR. 304
REINFORCEMENT PAD/INSERT PLATE	SA 240 GR. 304
HEADS	SA 240 GR. 304
SHELL FLANGES	-
LWN NOZZLES	SA 182 F 304
NOZZLE FLANGES	SA 182 F 304
NOZZLE NECK UPTO 100 NB	SA 312 TP 304
NOZZLE NECK ABOVE 100 NB	SA 240 TP 304
PIPE FITTINGS	SA 403 WP 304
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH SS INNER & OUTER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE #
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.B8(STRAIN HARDENED)/ SA 194 GR.8
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/ SUPPORT~~	SA 240 TP 304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SA 240 TP 304/SA 312 TP304
INTERNAL PARTS (BOLTED)	SA 240 TP 304/SA 312 TP304
CLIPS & ATTACHMENTS DIRECTLY WELDED (EXTERNAL)	SA 240 TP 304
CLIPS & ATTACHMENTS WELDED OVER PAD (EXTERNAL)	SA 240 TP 304
TAILING LUG ON SKIRT/SHELL	SA 516 GR. 70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SA 240 TP 304
PIPE DAVIT	SA 106 GR.B
LIFTING TRUNION	SA 240 GR. 304

INTERNAL GASKET SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SITE ASSEMBLED COLUMN
EQUIPMENT TO BE TRANSPORTED IN MAXIMUM THREE SECTIONS

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- INDIAN BOILER REGULATIONS (IBR)
- DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

0

ERECTION	168000	OPERATING	489000
HYDROTEST(SHOP)	695000	HYDROTEST (FIELD)	843000

NUMBER OF ITEMS : ONE

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	03.04.2026	ISSUED FOR PURCHASE	AS	SRIKANTH/VIVEK	PB
C	18.09.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SRIKANTH/VIVEK	PB
B	04.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SRIKANTH/VIVEK	PB
A	22.05.2025	ISSUED FOR BIDS / ENGG.	AS	SRIKANTH/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईंग नम्बर	REV
DEMETHANIZER	डिमैथनाइजर	B957-300-80-42-DS-3008	0
ITEM NO. 300-CC-00-3001	आइटम नम्बर 300-सीसी-00-3001	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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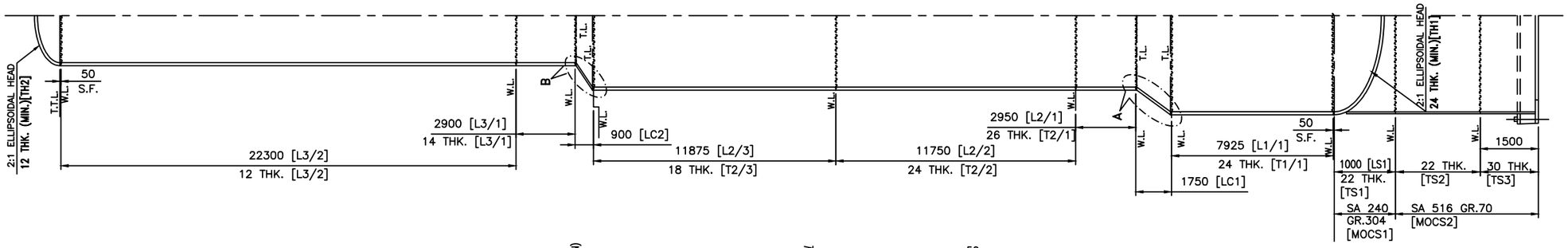
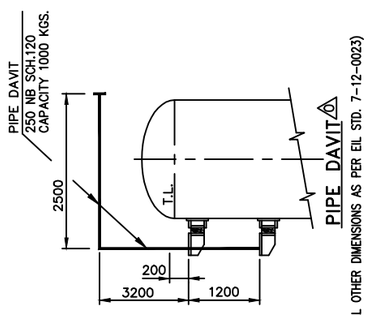
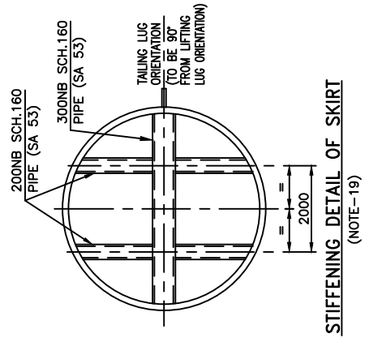
250

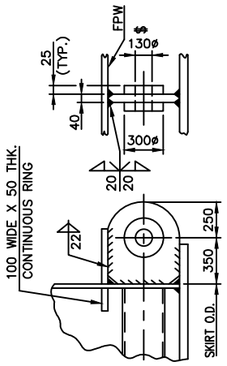




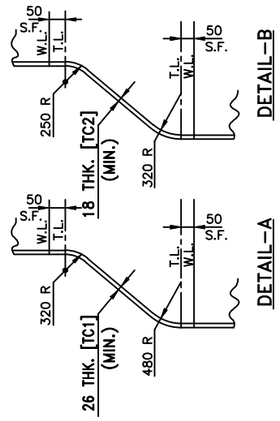
PIPE DAVIT △6
(ALL OTHER DIMENSIONS AS PER EIL STD. 7-12-0023)

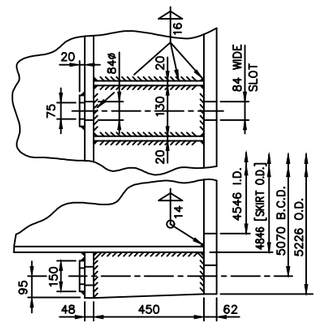


STIFFENING DETAIL OF SKIRT
(NOTE-19)



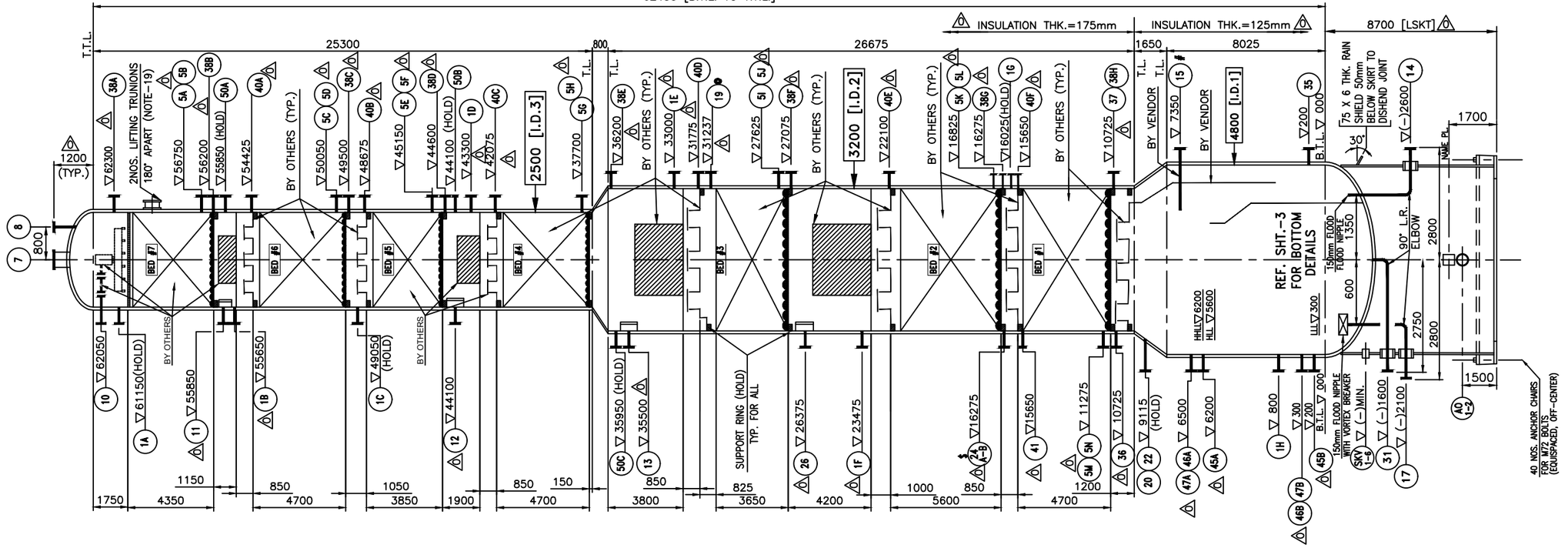
TAILING LUG DETAIL
VENDOR TO ENSURE ADEQUACY OF HOLE DIA.
(NOTE-19)





SKIRT BASE DETAIL △6
(ALL OTHER DIMENSIONS AS PER EIL STD. 7-12-0004)

△6 $ NOZZLE 24A & 24B SHALL BE PLACED OPPOSITE EACH OTHER.
@:- NOZZLE-19 TO FLUSH WITH BOTTOM OF DRAIN OFF SUMP.
#:- OFFSET NOZZLE



0	03.04.2026	ISSUED FOR PURCHASE	AS	SRIKANTH/VIVEK	PB	
C	18.08.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SRIKANTH/VIVEK	PB	
B	04.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SRIKANTH/VIVEK	PB	
A	22.05.2025	ISSUED FOR BIDS/ENGG.	AS	SRIKANTH/VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

VESSEL DESIGN DATA | वेसल डिजाइन डाटा
DEMETHANIZER | डिमैथनाइजर
ITEM NO. 300-CC-00-3001 | आइटम नम्बर 300-सीसी-00-3001

DRAWING NO. B957-300-80-42-DS-3008 | REV. 0
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

42.5
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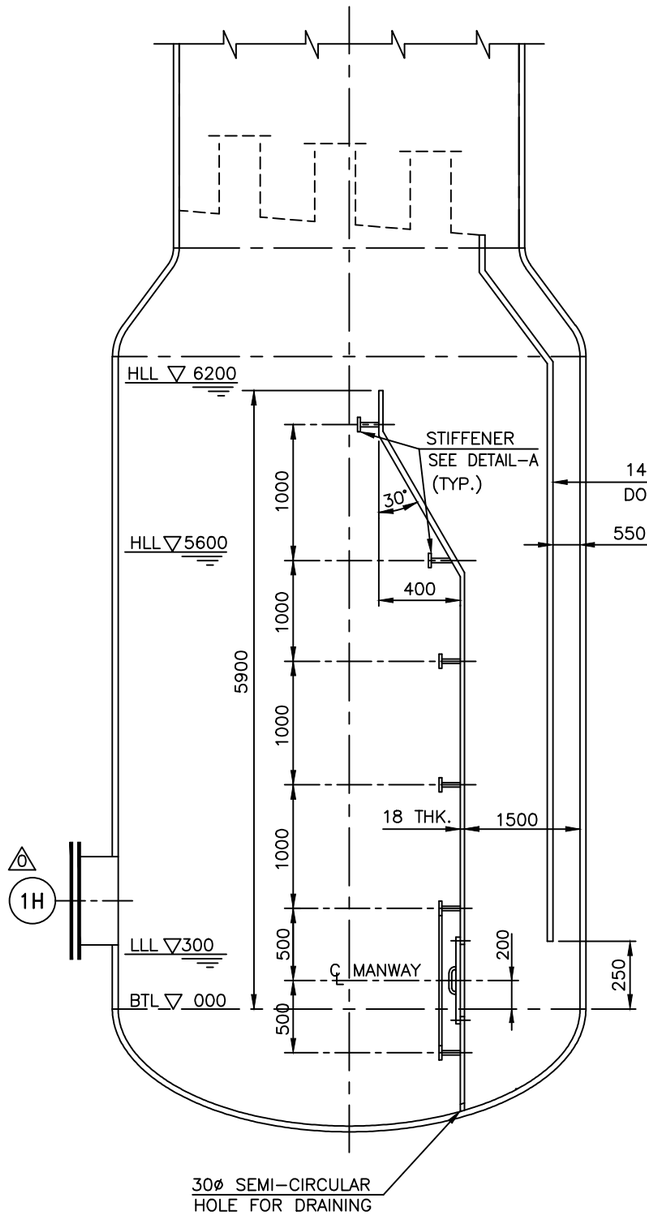
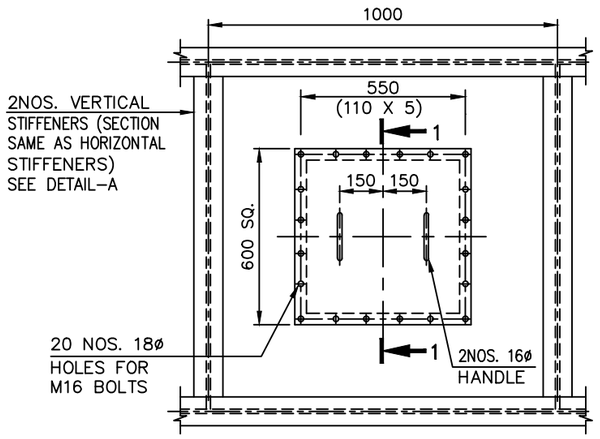


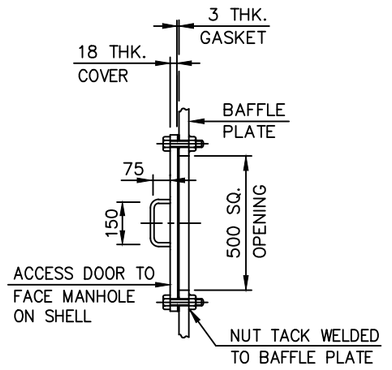
COLUMN BOTTOM DETAIL
(FOR OTHER DETAILS REFER PDS)

DETAIL–'A'

APPROXIMATE WEIGHT OF 2200 KG TO BE CONSIDERED FOR QUOTATION PURPOSE. THICKNESS & OTHER DETAILS SHALL BE FURNISHED POST ORDER.



DETAIL OF MANWAY
ON BAFFLE



SECTION 1–1

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	03.04.2026	ISSUED FOR PURCHASE	AS	SRIKANTH/VIVEK	PB	
C	18.08.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SRIKANTH/VIVEK	PB	
B	04.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SRIKANTH/VIVEK	PB	
A	22.05.2025	ISSUED FOR BIDS/ENGG.	AS	SRIKANTH/VIVEK	PB	

VESSEL DESIGN DATA
DEMETHANIZER
ITEM NO. 300-CC-00-3001

वेसल डिजाइन डाटा
डिमैथनाइजर
आइटम नम्बर 300-सीसी-00-3001

DRAWING NO. B957–300–80–42–DS–3008 | REV. 0
SHEET 3 OF 3

1–1641–0503 REV.0 A3–420x297

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PDS REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1A	1	900	$	300	SRWN	RF	$	-	MANHOLE + BF + GASKET + BOLTING
1 B-J	9	600	$	300	SRWN	RF	$	-	MANHOLE + BF + GASKET + BOLTING
7	1	1050	$	300	SRWN	RF	$	-	VAPOUR OUTLET TO 300-EE-004105A/B
8	1	80	$	300	SRWN	RF	$	-	VENT
10	1	600	$	300	SRWN	RF	$	-	REFLUX IN FROM 300-PA-CF-4102A/B
11 A-B	2	200	$	300	SRWN	RF	$	-	FEED FROM 300-RB-00-4101A
12	1	900	$	300	SRWN	RF	$	-	FEED FROM 300-CC-00-4102
14	1	800	$	300	SRWN	RF	SEE DWG.	-	TO REBOILER 300-EE-00-4103A/B
15 A-B	2	600	$	300	SRWN	RF	$	-	FROM REBOILER 300-EE-00-4103A/B
17	1	750	$	300	SRWN	RF	$	-	OUTLET TO 300-PA-CF-4103A/B
21 A-B	2	250	$	300	SRWN	RF	$	-	DRAWOFF TO 300-PA-CF-4103A/B
22	1	300	$	300	SRWN	RF	$	-	MIN. FLOW RETURN FROM
DELETED									
31	1	100	$	300	SRWN	RF	$	-	DRAIN
35	1	80	$	300	SRWN	RF	$	-	UTILITY CONNECTION
36	1	50.8 I.D.	16.6 THK.	300	LWN	RF	4230	-	PRESSURE GAUGE
38 A-D	4	50.8 I.D	16.6 THK.	300	LWN	RF	4230	-	PRESSURE DIFFERENTIAL INIDCATOR
40	1	50.8 I.D.	16.6 THK.	300	LWN	RF	4230	-	TEMPERATURE INDICATOR
45 A-B	2	50.8 I.D.	16.6 THK.	300	LWN	RF	4230	-	STAND PIPE
46 A-B	2	50.8 I.D.	16.6 THK.	300	LWN	RF	4230	-	LEVEL TXMR (DP)
47 A-B	2	50.8 I.D.	16.6 THK.	300	LWN	RF	4230	-	LEVEL TXMR (DP)
AO 1-2	2	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

'$' REFER SHEET 3 OF 3

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडेशन लोडिंग डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	7725500	216000
	-	-
WIND	9835000	173000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.

2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.

3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.

4 FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.

5 FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.

6 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.

7 FLANGE GASKET FACE SHALL HAVE 125AARH FINISH.

8 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.

9 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.

10 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.

11 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.

12 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.

13 SURFACE PREPARATION, PRIMER & FINISH PAINT SHALL BE CARRIED OUT AT YARD BY EQUIPMENT VENDOR AS PER PAINTING SPEC.

14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.

15 EQUIPMENT SHALL BE SUBJECTED TO DRY OUT AT 7 $Kg/cm^2(g)$ @80°C.

16 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.

17 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.

18 LIFTING TRUNNION & TAILING LUGS SHALL BE DESIGNED BY VENDOR FOR ALL THE SECTIONS IN DRESSED UP CONDITION (CONSIDERING AN IMPACT FACTOR OF 1.5).CALCULATION TO BE SUBMITTED FOR REVIEW. VENDOR TO PROVIDE INSERT PLATE OF SUITABLE SIZE AND THICKNESS WHEREVER TAILING LUGS & LIFTING TRUNNIONS ARE WELDED TO SHELL. DESIGN CALCULATION SHALL INCLUDE CHECK FOR SKIRT THK., SHELL THK., BASE BLOCK FOR LIFTING/TAILING FORCES. ANY ADDITIONAL REQUIREMENT OF INCREASE THICKNESS OF ANY COMPONENT OR PROVIDING STIFFENERS, INSERT PLATE OVER AND ABOVE WHICH IS INDICATED IN DATASHEET SHALL BE PROVIDED BY VENDOR WITHOUT ANY TIME & COST IMPLICATION. INDUCED STRESSES AT THE JUNCTION OF SHELL & TRUNNION SHALL BE LIMITED TO 0.9 OF YIELD STRESS.TAILING LUG SHALL BE PROVIDED 90° TO THE LIFTING LUG/LIFTING TRUNNION. VENDOR SHALL INDICATE C.G. OF EQUIPMENT IN FABRICATION DRAWING.

21 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.

22 **AT YARD:** EQUIPMENT SHALL BE FIRST COMPLETELY FABRICATED, HYDROTESTED IN SINGLE PIECE AND PAINTED. THEREAFTER IT SHALL BE CUT IN MAXIMUM FOUR (4) SECTION. FABRICATOR SHALL PROVIDE ADDITIONAL LENGTH TO TAKE CARE OF CUTTING AND REJOINING ALLOWANCE.
AT SITE: EQUIPMENT SHALL BE ERECTED IN SECTIONS AND CIRCUMFERENTIAL SEAMS SHALL BE COMPLETED IN IN-SITU POSITION. LOCAL PWHT & NDT SHALL BE CARRIED OUT AS PER DRAWING. LOCAL BOX TYPE HYDROTESTING FROM INSIDE SHALL BE CARRIED OUT FOR IN-SITU CIRCUMFERENTIAL SEAMS. COMPLETE HYDROTEST OF ENTIRE COLUMN IS NOT ENVISAGED AFTER ERECTION AT SITE.

23 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.

24 AT TOP, MAXIMUM PRESSURE DROP OF 0.91 KG/SQ.CM & LIQUID LEVEL OF 35490 MM DUE TO LIQUID OVER FILL CASE (I.E. TOTAL 27 KG/SQ.CM (g)) IS CONSIDERED FOR MECHANICAL DESIGN.

25 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE IMPACT TESTED AT (-)29ºC WITH MIN. ENERGY VALUE AS PER FIG. UG84.1 OF ASME SEC. VIII DIV.1.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
X	PAD NOZZLES FOR VESSELS	7-12-0014
	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43011
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
	DEMISTER DATA SHEET	NOT APPLICABLE
X	PROCESS DATASHEEET	300-CC-00-4101-01
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-DS-0010

HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
X	NOZZLE ELEVATIONS 10	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS	X	TRAY SUPPORT/BOLTING BARS
	NOZZLE PROJECTIONS	X	PIPE DAVIT
	NOZZLE RATING		PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 ED.2023
WORKING PRESSURE (kg/cm^2g)	TOP: 20.71 BOTTOM: 21.62
DESIGN PRESSURE (kg/cm^2g)	INT. 24.5 (NOTE-24) EXT. --
WORKING TEMPERATURE (°C)	TOP: 51.4 BOTTOM: 54.4
DESIGN TEMPERATURE (°C)	-29/85 (NOTE-23)
MDMT (°C)	(-)29
CORROSION ALLOWANCE (mm)	1.5
TYPE OF HEAD	HEMISPERICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTE-16)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	0 HYDROCARBON
SP. GRAVITY (HOLD)	TOP: 0.47 BOTTOM: 0.448
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M^3)	4248
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-14)
INSULATION THICKNESS (mm) (IH)	25 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	31.85
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70 *
REINFORCEMENT PAD/INSERT PLATE	-
HEADS	SA 516 Gr.70 *
SHELL FLANGES/SR/LWN	SA 350 Gr. LF2 CL.1
NOZZLE FLANGES	SA 350 Gr. LF2 CL.1
NOZZLE NECK UPTO 250 NB	SA 333 GR.6 / SA 350 GR.LF2 CL.1
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70 * / SA 350 GR.LF2 CL.1
PIPE FITTINGS	SA 420 WPL6
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE #
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70 / IS 2062 GR. E250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70 */ SA 333 GR.6
INTERNAL PARTS (BOLTED)	SA 516 GR.70 */ SA 333 GR.6
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70 */ IS 2062 GR. E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70 *
PIPE DAVIT	SA 106 GR. B
VACUUM STIFFENER	-
LIFTING TRUNNION	SA 516 GR.70
TAILING LUG	SA 516 GR.70 / IS 2062 GR. E 250 QUALITY BR/B0

* IMPACT TESTED AS PER SA 20 S(5). REFER NOTE-25

@ ERECTION WEIGHT EXCLUDING INTERNALS, PLATFORMS, INSULATION AND PIPING SPOOL.

INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SITE FABRICATED COLUMN

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	1600000 @	OPERATING	3947000
HYDROTEST(SHOP)	5848000	HYDROTEST (FIELD)	7376500
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA_PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
1	17.03.2026	REISSUED FOR ENGG.	AS	CSM/VIVEK	PB
0	19.09.2025	ISSUED FOR PURCHASE	AS	CSM/VIVEK	PB
C	23.05.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB
B	13.05.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB
A	28.02.2025	ISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
PROPYLENE FRACTIONATOR NO.1	प्रोपलीन फ्रैक्शनेटर नं0 1	B957-300-80-42-DS-3011	1
ITEM NO. 300-CC-00-4101	आइटम नम्बर 300-सीसी-00-4101	SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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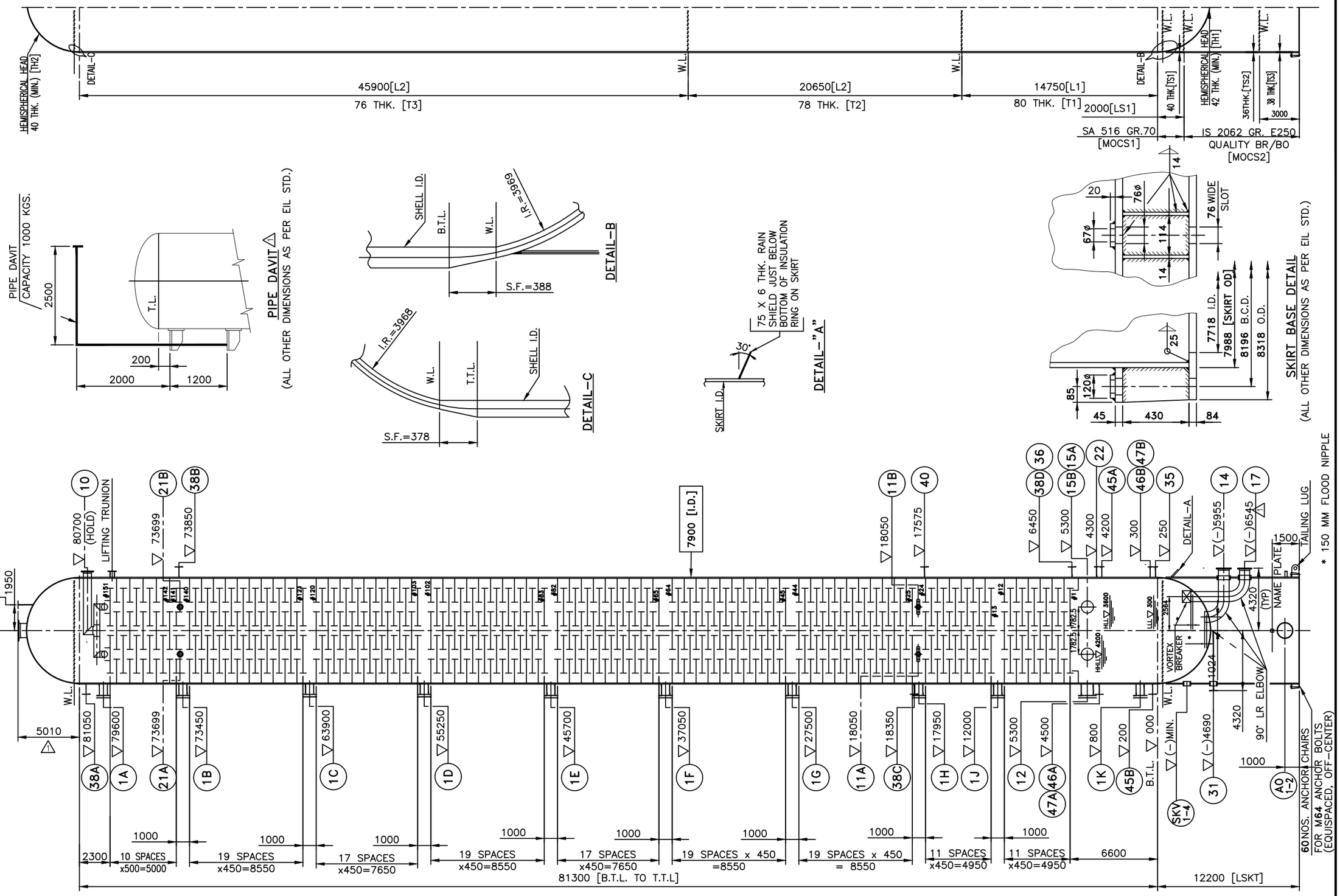
265
250



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REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

VESSEL DESIGN DATA
PROPYLENE
FRACTIONATOR NO.1
ITEM NO. 300-CC-00-4101

वेसेल डिजाइन डाटा
प्रोपलीन
फ्रैक्शनेटर नं0 1
आइटम नम्बर 300-सीसी-00-4101

DRAWING NO. B957-300-80-42-DS-3011
REV. 1
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

120

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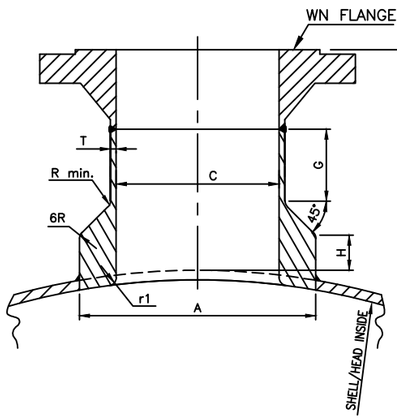

FIG.–1

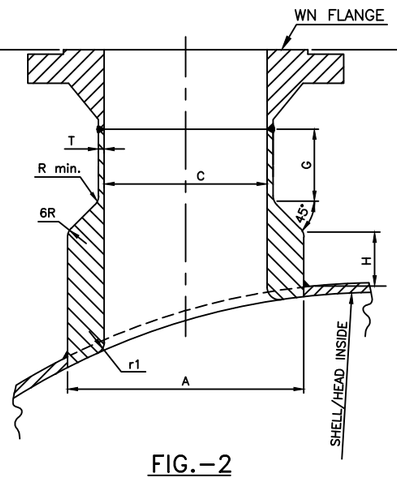

FIG.–2

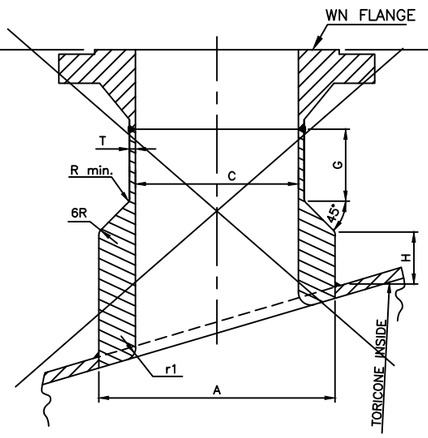

FIG.–3

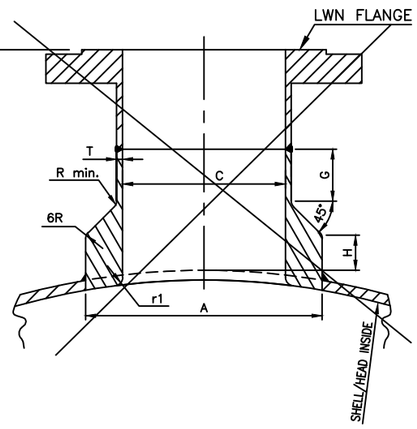

FIG.–4

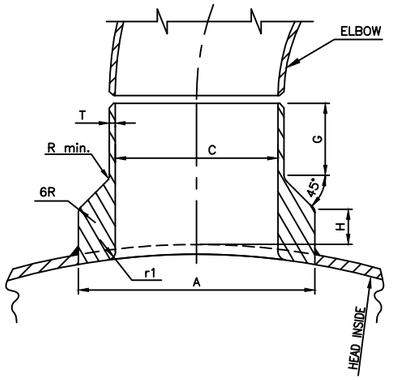

FIG.–5

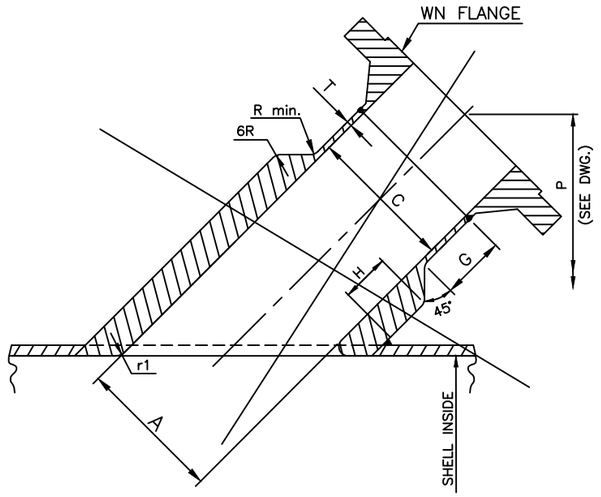

FIG.–6

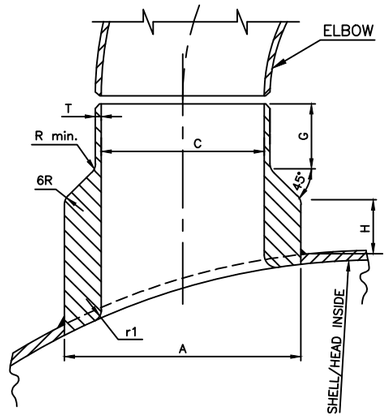

FIG.–7

NOZZLE MARK	SIZE (NB) NOTE–(1,2)	P (MM)	A (MM)	C (MM)	H (MM) (MIN.)	T (MM)	G (MM)(MIN.) NOTE–(3)	FIG.
1 A	900	4650	1266.4	886.4	170	14 THK.	50	1
1 B–H	600	4520	921.6	581.6	80	14 THK.	50	1
7	1050	SEE DWG.	1598.8	1038.8	100	14 THK.	50	1
8	80	SEE DWG.	146.64	66.64	40	SCH.80	50	2
10	600	4520	881.6	581.6	110	14 THK.	50	1
11A/B	200	4370	373.7	193.7	70	SCH.80	50	2
12	900	5000	1126.4	886.4	100	14 THK.	50	1
14	800	SEE SHT.2	1184.8	784.8	100	14 THK.	50	7
15 A–B	600	4510	921.6	581.6	80	14 THK.	50	2
17	750	SEE SHT.2	1134	734	100	14 THK.	50	7
21A/B	250	4390	447.7	247.7	70	SCH.60	50	2
22	400	4430	658.4	378.4	70	14 THK.	50	1
35	80	4270	173.66	73.66	40	SCH.80	50	1
31	100	SEE SHT.2	177.18	97.18	40	SCH.80	50	5

DETAIL OF SELF REINFORCED NOZZLE

NOTE:–

1. ALL NOZZLE TO SHELL JOINTS ARE TO BE FULLY RADIOGRAPHED EXCEPT FOR 80 NB NOZZLES.
2. NOZZLE OF SIZE 80 NB ARE SRWN WITHOUT LIP.
3. PROJECTION 'P' SHALL BE MAINTAINED. 'G' VALUE FURNISHED ARE MINIMUM AND SHALL BE SUITABLY INCREASE TO MAINTAIN PROJECTION 'P'.
4. RADIUS 'R min','r1' TO BE FINALISED IN ACCORDANCE WITH DESIGN CODE.

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

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VESSEL DESIGN DATA
PROPYLENE FRACTIONATOR No. 1
ITEM NO. 300–CC–00–4101

वेसेल डिजाइन डाटा
प्रोपलीन फ्रैक्शनेटर नं0 1
आइटम नम्बर 300–सीसी–00–4101

DRAWING NO. B957–300–80–42–DS–3011
REV. 1
SHEET 3 OF 3

1–1641–0503 REV.0 A3–420x297

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pds rev.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेशन	पैड	सर्विस
1 A-H	8	600	12 THK.	150	WN	RF	1000	255X T	MANHOLE + B.F. + DAVIT + GASKET + BOLTING
HH 1-2	2	200	80	150	WN	RF	900	95X T	HANDHOLE + B.F. +RETAINING PLATE + GASKET + BOLTING
3	1	200	80	300	WN	RF	900	95X T	VAPOR OUTLET TO 300-EE-00-2403
7	1	200	80	300	WN	RF	SEE DWG.	110X T	VAPOR OUTLET TO 300-EE-00-2402
8A	1	80	160	300	WN	RF	SEE DWG.	45X T	VENT
8B	1	80	160	300	WN	RF	900	45X T	VENT
11	1	200	80	300	WN	RF	900	95X T	FEED FROM 300-VV-VI-2402
12	1	200	80	300	WN	RF	900	95xT	FEED FROM 300-VV-VI-2405
17	1	50	160	300	WN	RF	SEE DWG.	-	SPENT CAUSTIC BOTTOM OUTLET TO 300-JS-00-2101
18	1	100	120	300	WN	RF	SEE DWG.	60X T	WEAK CAUSTIC LIQUID OUTLET TO 300-PA-CF-2401 A/B
19 A-B	2	50	XXS	300	WN	RF	850	-	WATER DRAWOFF TO 300-LZ-00-9001 (NOTE-22)
20 A-B	2	50	160	300	WN	RF	850	-	WATER FROM 300-EE-00-1181
22	1	80	160	300	WN	RF	900	45X T	STRONG CAUSTIC RETURN FROM 300-PA-CF-2402 A/B
25	1	100	160	300	WN	RF	900	50X T	STRONG CAUSTIC DRAWOFF TO 300-PA-CF-2402 A/B
26	1	80	160	300	WN	RF	900	45X T	WEAK CAUSTIC RETURN FROM 300-PA-CF-2401A/B
27	1	50	160	300	WN	RF	850	-	YELLOW/RED OIL DRAWOFF TO 300-JS-00-2101
31 A-C	3	80	XXS	300	WN	RF	900	45X T	DRAIN
31 D-E	2	80	160	300	WN	RF	SEE DWG.	45X T	DRAIN
35 A-D	4	50	160	300	WN	RF	850	-	UTILITY CONNECTION
36 A-B	2	50(H)	160	300	WN	RF	850	-	PRESSURE GAUGE
39 A-F	6	50(H)	160	300	WN	RF	850	-	PRESSURE DIFFERENTIAL INDICATOR
40 A-B	2	50(H)	160	300	WN	RF	850	-	TEMPERATURE INDICATOR
LT 1-8	8	80 (H)	160	300	WN	RF	900	45xT	LEVEL TXMR (DIA SEAL)
LG 1-4	4	50(H)	160	300	WN	RF	850	-	LEVEL GAUGE (MAG)
LG 5-6	2	50(H)	160	300	WN	RF	850	-	LEVEL GAUGE (MAG)-INT
LG 7-12	6	50(H)	160	300	WN	RF	850	-	LEVEL GAUGE (MAG)
LS1	1	50(H)	160	300	WN	RF	850	-	LEVEL SWITCH (CAPACITANCE)
SP 1-2	2	50(H)	160	300	WN	RF	850	-	STAND PIPE
SKV 1-3	3	100	SCH.40	AS PER EIL STANDARD					SKIRT VENT
AO 1-2	1	450 I.D.	14 THK.	AS PER EIL STANDARD				225xT	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/CONE/DISH END/SKIRT NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	295000	10500
WIND	552000	21500

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 900 APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, PRIMER & FINISH PAINT SHALL BE CARRIED OUT AT YARD BY EQUIPMENT VENDOR AS PER PAINTING SPEC.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
14 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190ºC
15 EQUIPMENT MAY BE ERECTED IN SINGLE PIECE IN DRESSED UP CONDITION (BY OTHERS). DRESSED UP IMPLIES THAT THE EQUIPMENT WILL BE ERECTED AFTER INSTALLATION OF INSULATION, PLATFORM/LADDERS ETC. (BY OTHERS). CORRESPONDINGLY EQUIPMENT VENDOR SHALL SELECT LIFTING LUG BASED ON 1.25 TIMES THE ACTUAL ERECTION WEIGHT.
16 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT BASED ON 1.25 TIMES THE ACTUAL ERECTION WEIGHT AND CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
17 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
18 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
19 COLUMN SHALL BE FIRST COMPLETELY FABRICATED, HYDROTESTED & PWHT AT SHOP. THEREAFTER IT SHALL BE CUT INTO MAXIMUM TWO SECTIONS (PROVIDE ADDITIONAL LENGTH TO TAKE CARE OF CUTTING & REJOINING ALLOWANCES) BEFORE TRANSPORTATION FROM SHOP TO SITE (WHERE FINAL C-SEAM SHALL BE CARRIED OUT). SECTION LENGTH OF COLUMN SHALL BE DECIDED BASED ON TRANSPORTATION FEASIBILITY (BY VENDOR). COLUMN SHALL BE ASSEMBLED AT SITE IN HORIZONTAL POSITION COMPLETE IN ALL RESPECTS. DP EXAMINATION SHALL BE CARRIED OUT ON SITE JOINT FOR ROOT RUN & FINAL RUNS (INSIDE & OUTSIDE) BY COLUMN FABRICATOR. 100% RADIOGRAPHY SHALL BE CARRIED OUT ON SITE JOINT BY COLUMN FABRICATOR. NDT SHALL BE CARRIED OUT AS PER MDS. ONLY LOCAL BOX TYPE (INSIDE) HYDROTEST SHALL BE CARRIED OUT FOR SITE CIRC. SEAM. COMPLETE HYDROTEST OF THE ENTIRE COLUMN AT SITE IS NOT ENVISAGED SITE SEAMS SHALL BE PWHT.
20 AT TOP, MAXIMUM PRESSURE DROP OF1.45 KG/SQ.CM & LIQUID LEVEL OF 2350 MM DUE TO LIQUID OVERALL CASE (I.E. TOTAL 15.7 KG/SQ.CM (g)) IS CONSIDERED FOR MECHANICAL DESIGN.
21 DENSITY OF LIQUID AT OPERATING TEMPERATURE
WATER WASH SECTION (BOTH) = 987 Kg/m3
STRONG CAUSTIC SECTION = 1078 Kg/m3
WEAK CAUSTIC SECTION = 1085Kg/m3
22 NOZZLE-20 A/B IS DESIGNED FOR 230°C.
23 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	STD. SPEC. FOR DEMISTER	6-14-0017
X	STD. SPEC. FOR HARDNESS REQUIREMENT OF STATIC EQUIPMENT	6-15-0091
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
X	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
X	SUPPORT RING AND BOLTING BAR	7-12-0021
X	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
X	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
X	DEMISTER DATA SHEET	REFER PROCESS DATA SHEET
	SKETCH FOR MONKEY LADDER	
X	PROCEES DATASHEET	300-CC-00-2401
X	MONKEY LADDER	B957-000-80-42-SK-0010

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
X	DETAILS OF INTERNALS	X	TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
		X	PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 ED. 2023
WORKING PRESSURE (kg/cm²g)	TOP: 10.22 BOTTOM: 11.67
DESIGN PRESSURE (kg/cm²g)	INT. 14.0 (NOTE-20) EXT. --
WORKING TEMPERATURE (°C)	45
DESIGN TEMPERATURE (°C)	100 (NOTE-22)
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTE-23)
HEAT TREATMENT	AS PER CODE/SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	NOTE-21
WIND SPECIFICATION	IS 875 (PART-3)
SEISMIC	IS 1893 + SITE SPECTRA (PART-4)
CAPACITY (M³)	49
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IH)	25 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	18.2
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / ~~TORICONE~~	SA 516 Gr.60
REINFORCEMENT PAD / ~~INSERT PAD~~	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES / ~~LWN~~	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND WITH SS SS304 METAL
	WINDING & GRAFOIL FILLER WITH
	CS OUTER RING & SS304 INNER RING
	AS PER ASME B16.20
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE @
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 GR.60/ IS 2062 GR. E 250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.60 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 GR.60 / SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.60/ IS 2062 GR. E 250 QUALITY BR/B0 OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	SS 304 / SS410
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.60
PIPE DAVIT	SA 106 GR. B
TAILING LUG	IS 2062 GR. E 250 QUALITY BR/B0
LIFTING LUG	SA 516 GR.60

@INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

NO PLATFORM/LADDER/PIPING SHALL BE SUPPORTED ON THIS EQUIPMENT

SITE ASSEMBLED COLUMN
THIS IS A GUIDED COLUMN

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)
- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	40000	OPERATING	80000
HYDROTEST(SHOP)	89000	HYDROTEST (FIELD)	120000
NUMBER OF ITEMS :	ONE		

REV	DATE	REVISION	BY	CHECKED	APPROVED
C	30.10.2025	REVISED &REISSUED FOR BIDS / ENGG.	AS	SA/VIVEK	PB
B	25.07.2025	REVISED &REISSUED FOR BIDS / ENGG.	AS	SA/VIVEK	PB
A	23.07.2025	ISSUED FOR BIDS / ENGG.	AS	SA/VIVEK	PB

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
DCU OFF GAS CAUSTIC/WATER WASH TOWER	डीसीयू ऑफ गैस कास्टिक/वाटर वॉश टॉवर	B957-300-80-42-DS-3014	C
ITEM NO. 300-CC-00-2401	आइटम नम्बर 300-सीसी-00-2401	SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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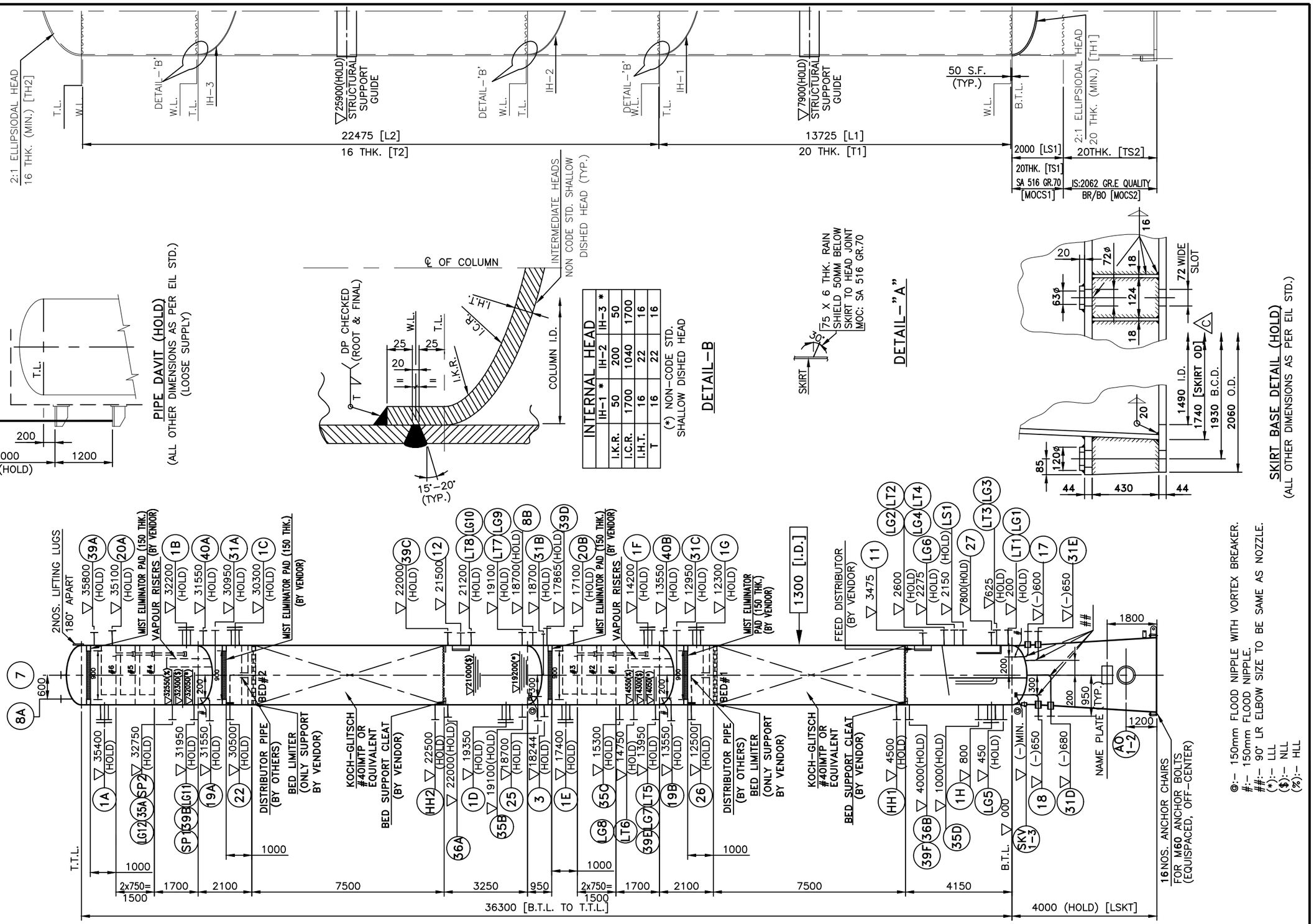

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
C	30.10.2025	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
B	25.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SA/VIVEK	PB	
A	23.07.2025	ISSUED FOR BIDS/ENGG.	AS	SA/VIVEK	PB	

VESSEL DESIGN DATA
DCU OFF GAS CAUSTIC/WATER WASH TOWER
ITEM NO. 300-CC-00-2401

वेसल डिजाइन डाटा
डीसीयू ऑफ गैस कास्टिक/वाटर वॉश टॉवर
आइटम नम्बर 300-सीसी-00-2401

DRAWING NO. B957-300-80-42-DS-3014 | REV. C

SHEET 2 OF 3

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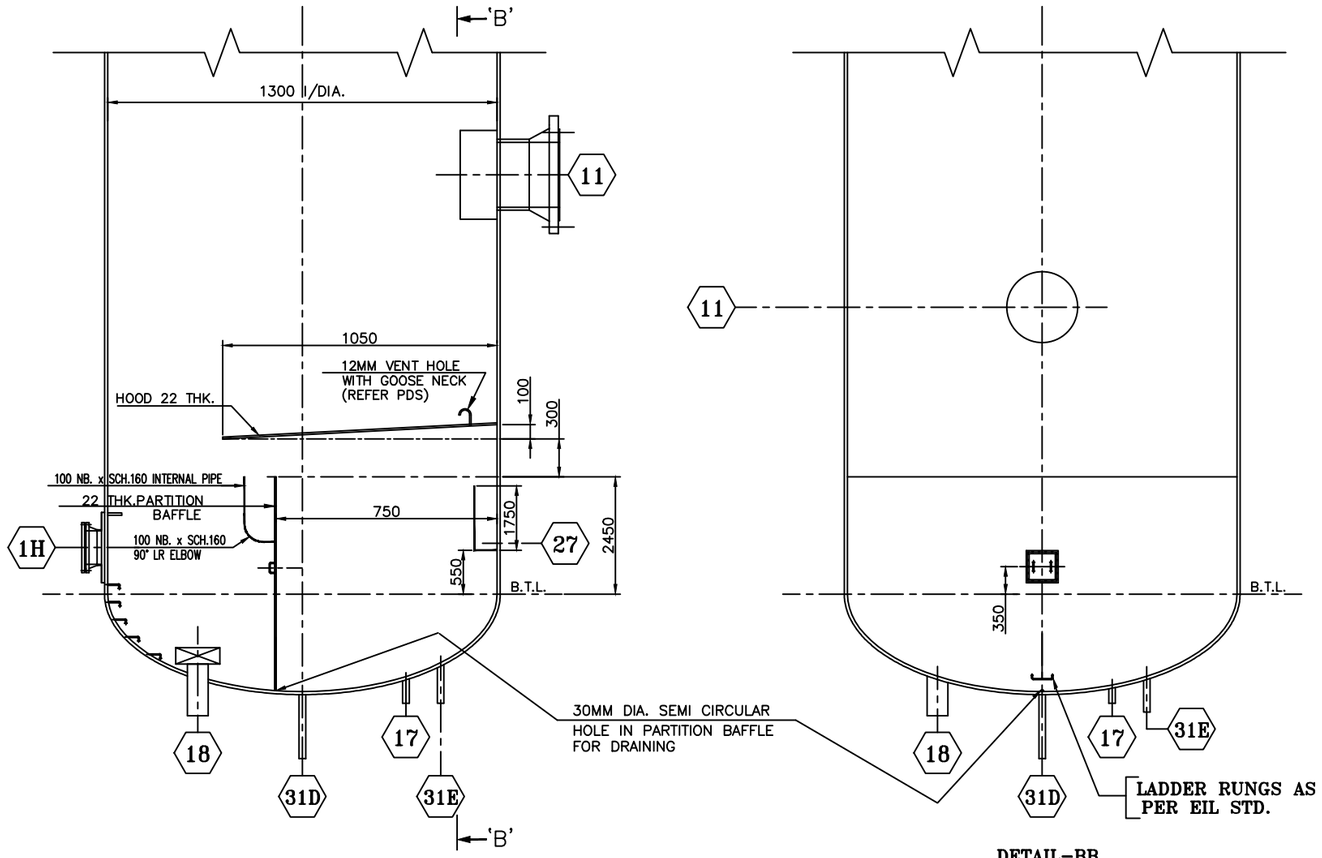
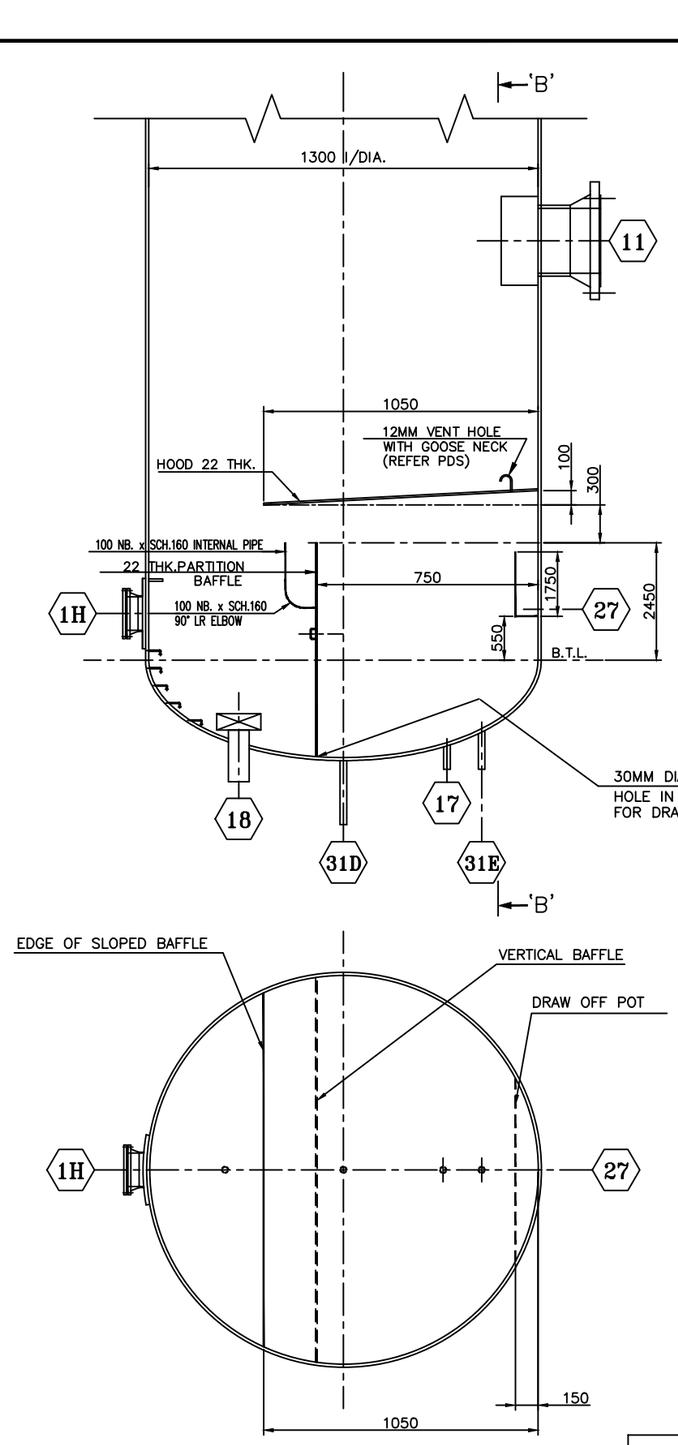
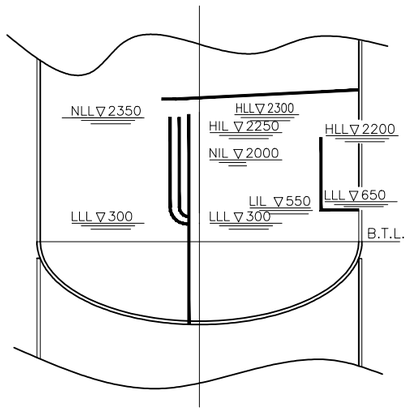


DETAIL-BB

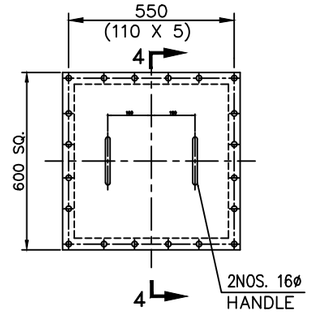


TOP VIEW
DETAIL OF BAFFLE PLATE

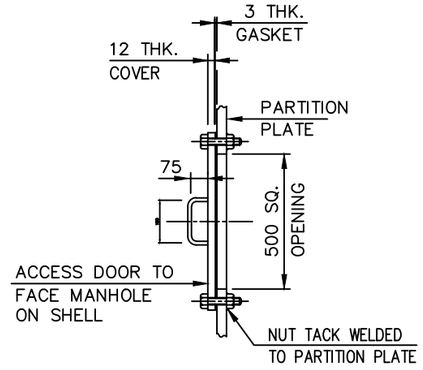
ALL OTHER DETAILS AS PER PDS.



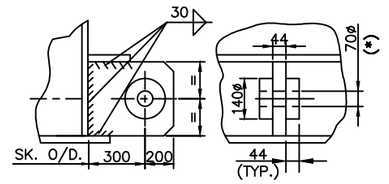
LEVEL INDICATOR



DETAIL OF MANWAY
ON PARTITION PLATE



SECTION 4-4



DETAIL OF TAILING LUG (HOLD)
(*)VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
C	30.10.2025	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
B	25.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SA/VIVEK	PB	
A	23.07.2025	ISSUED FOR BIDS/ENGG.	AS	SA/VIVEK	PB	

VESSEL DESIGN DATA
DCU OFF GAS
CAUSTIC/WATER
WASH TOWER
ITEM NO. 300-CC-00-2401

वेसल डिजाइन डाटा
डीसीयू ऑफ गैस
कास्टिक/वाटर
वॉश टॉवर
आइटम नम्बर 300-सीसी-00-2401

DRAWING NO.	REV.
B957-300-80-42-DS-3014	C
SHEET 3 OF 3	

1-1641-0503 REV.0 A3-420x297

1	**EIL JOB NO.**	**B957**										
2	Unit No.			Package Tag								
3	Service of Unit	Maintenance		CUSTOMER :				BPCL				
				PROJECT				BPREP				
				LOCATION				Bina, Madhya Pradesh, India				
4	Item no.	*		Quantity								
5	Manufacturer:	*		Model no. :				*				
6	■	Denotes Applicability										
7	**Applicable Specification : IS 3832 along with ammendment Dec 2005 & EIL spec 6-61-0015**											
8	Applicable to	Proposal	☐	Purchase	☐	As Built	☐					
9	**OPERATING DATA**											
10	Mounting Type:			Hook	☐	Lug push Trolley	☐	Geared Trolley	☐			
11	Capacity (T) :			*								
12	Mechanism Class :			M1	☐	M2	■	M3	☐	M4	☐	
13	Factor of Safety:			Min.4								
14	Location :											
15	Area classification :											
16	Overtravel restraint :			Required	■	Not required	☐					
17	Distance between operating level and suspension level,m:			*								
18	Hoist lifting height (minimum) ,m :			*								
19	Headroom(maximum) ,m :			*								
20	Chain pull for hoisting and traversing ,kgs:			*								
21	Location of Lowest point of hand chain loop			0.4 m above operating level								
22	Bottom hook swivelling with thrust bearing:			Yes	☐	No	☐					
23	**MANUFACTURER DATA:**											
24	Capacity(T) :			*								
25	Velocity ratio :			*								
26	Range of lift ,m :			*								
27	Headroom ,m:			*								
28	Pull for hoisting under full load ,kgs :			*								
29	Pull for traversing under full load ,kgs :			*								
30	No. of falls (load chain) :			*								
31	Type of Gear :			Spur Gear	■	Worm gear	☐					
32	Type of automatic mechanical load brake :			*								
33	Size and no. of trolley wheel			*								
34	Base material of trolley wheel			*								
35	Hardness (BHN) of trolley wheel base and rim			*								
36	Diameter			*								
37	Bottom hook :			As per IS 15560								
38	Top hook :			As per IS 15560								
39	Load chain trough (Type) :			*								
40	Length of hand chain (hoist and traverse separately) ,m :			For hoist :	*	For traverse :	*					
41	Hardness of Ratchet			*								
42	Hardness of pawl			*								
43	F.O.S on load chain :			*								
44	Load chain :			Pitched	■	Polished	■					
45	Hand Chain :			Pitched	■	Polished	■					
46	Safety latches on bottom hook :			Required	■	Not required	☐					
47	Safety latches on top hook :			Required	■	Not required	☐					
48	Total weight,kg :			*								
49	**MONORAIL DETAILS:**			**APPLICABLE**	☐	**NOT APPLICABLE**	☐					
50	Mono Rail Size			*								
51	**MATERIALS OF CONSTRUCTION:**											
52	Load chain (Hoist) ,T(8) as per IS 6216 :			*								
53	Hand chain (Hoist) , L(3) as per IS 2429 (part 1) :			*								
54	Hand chain (Traverse) :			*								
55	Load chain wheel :			*								
56	Gear (hoist) :			*								
57	Gear (Traverse) :			*								
58	Ratchet wheel, chain guides :			*								
59	Pawl :			*								
60	Hand chain wheel (hoist) :			*								
61	Hand chain wheel (traverse) :			*								
62	Bottom hook :			*								
64	Load chain trough:			*								

65	Trolley Frame	*							
66	Ungeared/Geared Wheels	*							
67	Tyres of Ungeared/Geared Wheels	*							
68	Hand chain /Load chain Guide :	*							
69	Load pin/Suspension shaft :	*							
70	Brake :	*							
71	**OTHER REQUIREMENTS:**								
72	Anti spark design :	Yes	☐	No	☐	Galvanisation of chain :	Yes	☐	No ☐
73	Painting :					As per vendor standard	■	As per EIL paint spec.	☐
74	Paint system environment					Corrosive	■	Highly corrosive	☐
75	Marking					As per IS 3832			
76	**TESTING AND INSPECTION:**								
77	Operational Proof Test					Required	■	Not required	☐
78	Design Test					Required	☐	Not required	☐
79	Light load test					Required	☐	Not required	☐
80	Endurance Type Test					Required	☐	Not required	☐

Note-1: Vendor to fill up * marked spaces.

Note-2: Contractor/ Vendor to submit filled-in data sheet of each chain pulley block separately.

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PDS B957-300-79-41-DS-1201 REV-3

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	150	WN	RF	1880	255xT	MANHOLE + B.F + DAVIT
7	1	450	14 THK.	150	WN	RF	SEE DWG.	225xT	VAPOR OUTLET TO 300-EE-00-1005/WET FLARE
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	250	80	150	WN	RF	1825	115xT	FEED FROM OSBL/301-VV-HW-1602//305-GN-00-5707 A/B
14	1	600	20 THK.	150	WN	RF	SEE DWG.	300xT	TO (REBOILER) 300-EE-00-1003
0 15	1	600	20 THK.	150	WN	RF	1880	255xT	FROM REBOILER 300-EE-00-1003
17	1	50	160	300	WN	RF	SEE DWG.	-	BOTTOM OUTLET TO 300-CC-00-1301 (NNF)
19	1	600	20 THK.	150	WN	RF	SEE DWG.	300xT	DRAWOFF TO 300-EE-00-1004
20	1	750	20 THK.	150	WN	RF	1925	325xT	RETURN FROM 300-EE-00-1004
31	1	80	160	300	WN	RF	SEE DWG.	45xT	DRAIN
35	1	50	160	300	WN	RF	1775	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	1775	-	PRESSURE GAUGE
0 45 A-B	2	50	160	300	WN	RF	1775	-	STAND PIPE
0 46 A-B	2	50	160	300	WN	RF	1775	-	LEVEL TXMR (DP TYPE)
0 47 A-B	2	50	160	300	WN	RF	1775	-	LEVEL TXMR (DP TYPE)
LS1	1	50	160	300	WN	RF	1775	-	LEVEL SWITCH (TURNING FORK)
SKV 1-4	4	100	AS PER STANDARD						SKIRT VENT
AO	2	500 I.D.	AS PER STANDARD						ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) 0
फॉऊडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	180000	14000
WIND	92000	8000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER AND FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE
13 VENDOR SHALL PROVIDE 2NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
14 IT SHALL BE ENSURE BY VENDOR THAT FOR NOZZLE AND ABOVE 600NB, NOZZLE PIPE O.D. SHALL MATCH WITH CORRESPONDING STANDARD FLANGE O.D.
15 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO
16 EQUIPMENT IS SUBJECT TO STEAM OUT AT 0.5 KG/CM2(G) @ 190°C.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

0	X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43101
		LADDERS/PLATFORM CLEATS	
		PIPE SUPPORT CLEATS	
		TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
		DEMISTER DATA SHEET	NOT APPLICABLE
	X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

0 HOLD UPS (होल्ड अप्स)

		NOZZLE ORIENTATIONS	SIZE OF NOZZLES LS, LT, SP
	X	NOZZLE ELEVATIONS LS, LT, SP	PIPE SUPPORT CLEATS
	X	SUPPORT HEIGHT	LADDER/PLATFORM CLEATS
		DETAILS OF INTERNALS	TRAY SUPPORT/BOLTING BARS
		NOZZLE PROJECTION	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	6.8
DESIGN PRESSURE	(kg/cm^2g)	INT. 15 EXT. --
WORKING TEMPERATURE	(°C)	66
DESIGN TEMPERATURE	(°C)	85
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.538 AT OPERATING TEMP.
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	59.5
PAINTING/CLEANING		AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm) (IH)		25(IH) [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)		19.5
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 GR.70
REINFORCEMENT PAD	SA 516 GR.70
HEADS	SA 516 GR.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR.WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SKIRT/ ~~SUPPORT~~	SA 516 GR.70/IS 2062 GR.E250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR.E250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/IS 2062 GR.E250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70
TAILINGLUG	IS 2062 GR.E250 QUALITY BR/B0

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) 0

ERECTION	32000	OPERATING	91000
HYDROTEST(SHOP)	91500	HYDROTEST (FIELD)	136000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	04.04.2026	ISSUED FOR PURCHASE	ROHIT	AD/VIVEK	PB
A	21.08.2025	ISSUED FOR BIDS / ENGG.	AS	AD/VIVEK	PB

DESIGN DATA	LPG VAPORIZER DRUM
ITEM NO.	300-VV-VW-1001
डिजाइन डाटा	एलपीजी वापोराइजर ड्रम
आइटम नम्बर	300-वीवी-वीडब्ल्यू-1001
DRAWING NUMBER / डाईग नम्बर	B957-300-80-42-DS-3101
REV	0
	SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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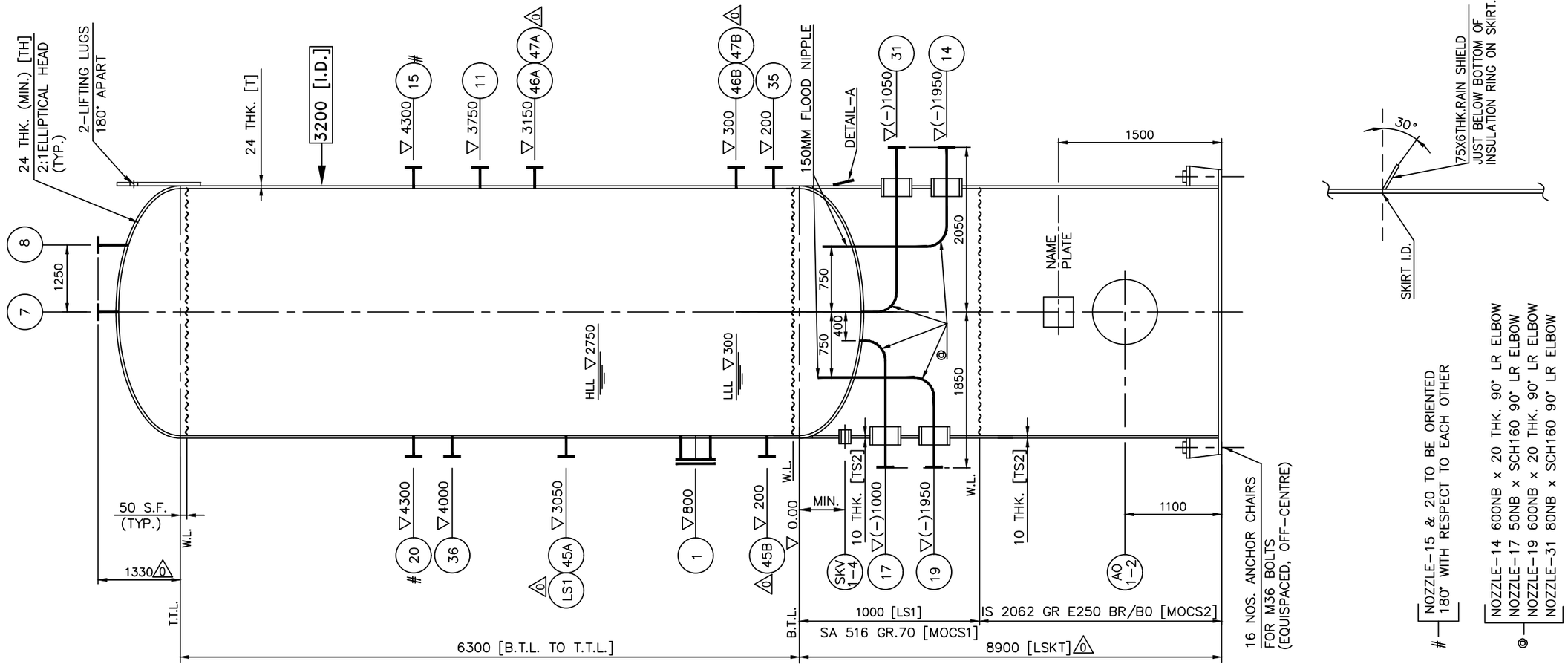
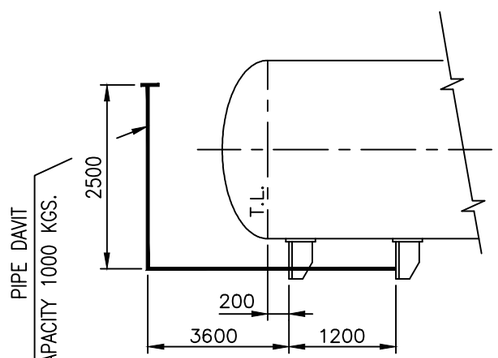
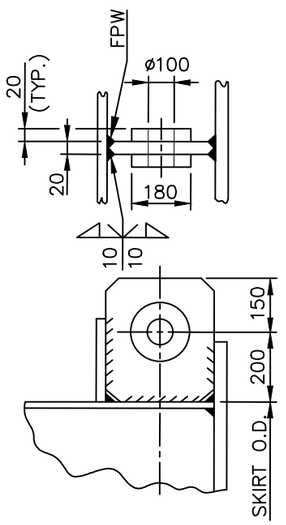




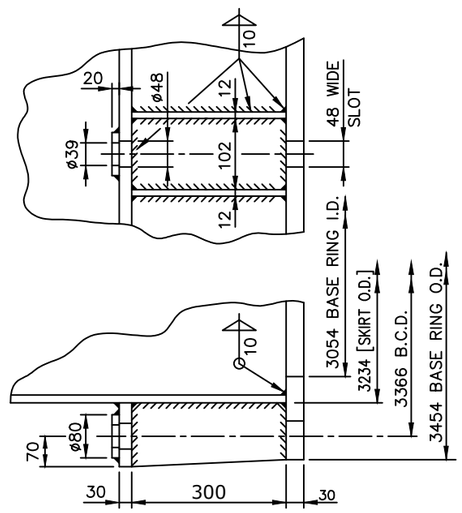
PIPE DAVIT Δ0

(ALL OTHER DIMENSIONS AS PER EIL STD.)



TAILING LUG DETAIL

($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL Δ0

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	04.04.2026	ISSUED FOR PURCHASE	ROHIT	AD/VIVEK	PB	
A	20.08.2024	ISSUED FOR BIDS/ENGG.	AS	AD/VIVEK	PB	

VESSEL DESIGN DATA
LPG VAPORIZER DRUM
ITEM NO. 300-VV-VW-1001

वेसल डिजाइन डाटा
एलपीजी वापोराइजर ड्रम
आइटम नम्बर 300-वीवी-वीडब्ल्यू-1001

DRAWING NO. B957-300-80-42-DS-3101 | REV. 0

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1202 REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	300	WN	RF	870	300XT	MANHOLE+B.F.+DAVIT
3	1	100	120	300	WN	RF	1530	50XT	FUEL GAS BLANKETING/ OUTLET TO WET FLARE
4	1	150	80	300	WN	RF	1530	70XT	VENTILATION NOZZLE
7	1	150 (H)	80	300	WN	RF	1530	70XT	VAPOR OUTLET TO WET FLARE / PSV
8	1	50	160	600	WN	RF	1530	40XT	VENT
11	1	200	80	300	WN	RF	1530	95XT	FEED FROM OSBL
17	1	250	80	300	WN	RF	1330	115XT	HC BOTTOM OUTLET TO 300-PA-CF-1004A/B
20	1	150	80	300	WN	RF	1530	70XT	PUMP MIN FLOW RETURN FROM 300-PA-CF-1004A/B
30	1	50	160	600	WN	RF	SEE DWG.	-	CONDENSATE OUTLET
31	1	80	160	300	WN	RF	1330	40XT	DRAIN
35	1	50	160	600	WN	RF	580	40XT	UTILITY CONNECTION
46A 46B	2	50	160	300	WN	RF	SEE DWG.	-	LEVEL GUAGE (MAG)-INT
45A 45B	2	50	160	300	WN	RF	950 1150	40XT	LEVEL GUAGE (MAG)
48E 48F	2	50	160	300	WN	RF	950 1150	40XT	LEVEL TRANSMITTER (DP)
48C 48D	2	50	160	300	WN	RF	950 1150	40XT	LEVEL TRANSMITTER (DP)
48A 48B	2	50	160	300	WN	RF	950 1150	40XT	LEVEL TRANSMITTER (DP)
47A 47B	2	50	160	300	WN	RF	950 1150	40XT	LEVEL TRANSMITTER (DP)
50A 50B	2	50	160	300	WN	RF	SEE DWG.	-	LEVEL TRANSMITTER (GWR)-INT
'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS									
'H' DENOTES HOLD									

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडेशन लोडिंग डाटा (ऑपरटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	-	-
SEISMIC	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
~~2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.~~
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90° APART.
10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13 EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43102
	LADDERS/PLATFORM CLEATS	-
	PIPE SUPPORT CLEATS	-
	TRAY SUPPORT AND BOLTING BARS	-
	DEMISTER DATA SHEET	NOT APPLICABLE
	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-1010

HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES 7
	NOZZLE ELEVATIONS LT,LG	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	FIXED/ SLIDING END		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE	(kg/cm²g)	3
DESIGN PRESSURE	(kg/cm²g)	INT. 21 EXT. -
WORKING TEMPERATURE	(°C)	40
DESIGN TEMPERATURE	(°C)	85
MDMT	(°C)	1.1
CORROSION ALLLOWANCE	(MM)	3
TYPE OF HEAD		2:1 ELLIPSOIDAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE /SPEC
HEAT TREATMENT		HEAD: AS PER CODE /SPEC
OPERATING MEDIUM		-
SP. GRAVITY		0.761
WIND SPECIFICATION		IS 875 (PART-3)
SEISMIC		IS 1893 + SITE SPECTRA (PART-4)
CAPACITY	(M^3)	31.91
PAINTING/CLEANING		AS PER JOB SPEC.
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☐ YES ☒ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)		27.3
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 516 GR.70
REINFORCEMENT PAD	SA 516 GR.70
HEADS	SA 516 GR.70
SHELL FLANGES/SR/LWN	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	SA 516 GR.70
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.60/ IS 2062 GR.E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	SA 516 GR.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70
PIPE DAVIT	-
VACUUM STIFFENER	-

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	16500	OPERATING	43000
HYDROTEST(SHOP)	48500	HYDROTEST (FIELD)	54000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
2	08.04.2026	REVISED & REISSUED FOR ENGG.	ROHIT	AD/ VIVEK	PB
1	04.04.2026	REVISED & REISSUED FOR ENGG.	ROHIT	AD/ VIVEK	PB
0	05.03.2026	ISSUED FOR PURCHASE	ROHIT	AD/ VIVEK	PB
A	21.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	AD/ VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER डाईग नम्बर	REV
KEROSENE FEED SURGE DRUM	केरोसीन फीड सर्ज ड्रम	**B957-300-80-42-DS-3102**	2
ITEM NO. 300-VV-HW-1002	आइटम नम्बर 300-वीवी-एचडब्लू-1002	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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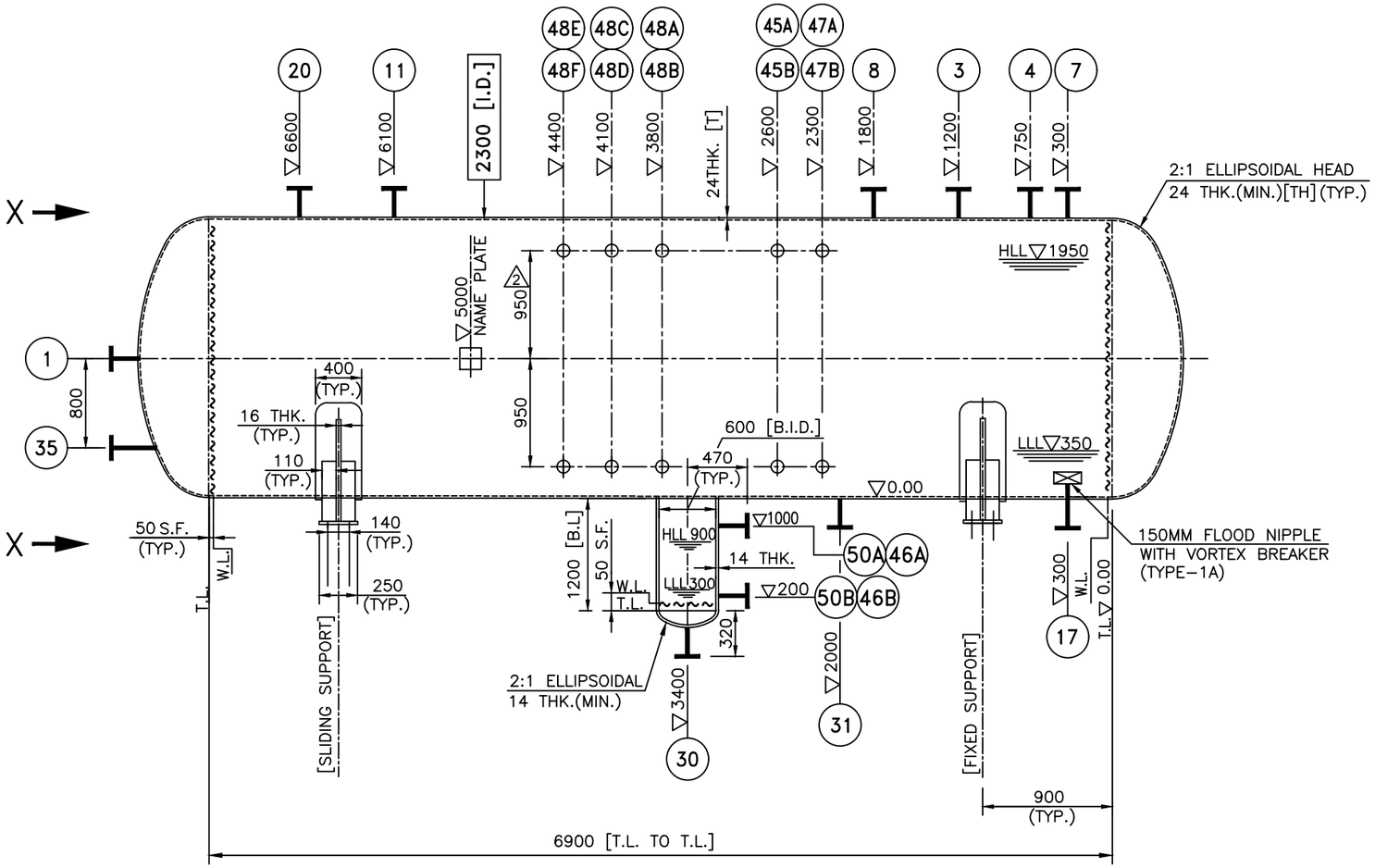
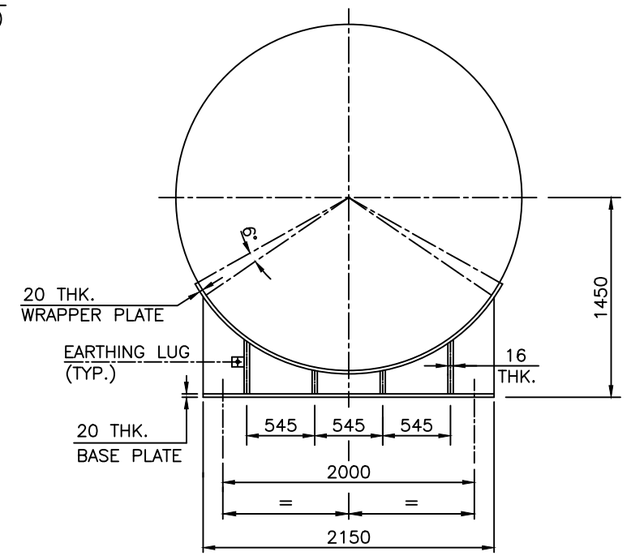
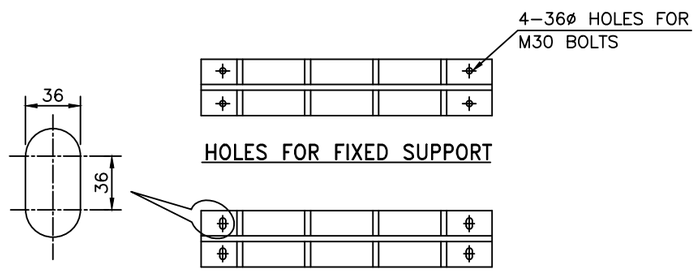




VIEW X–X

(OTHER NOZZLES NOT SHOWN)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



HOLES FOR FIXED SUPPORT

HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
2	08.04.2026	REVISED & REISSUED FOR ENGG.	ROHIT	AD/VIVEK	PB	
1	04.04.2026	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	AD/VIVEK	PB	
0	05.03.2026	ISSUED FOR PURCHASE	ROHIT	AD/VIVEK	PB	
A	21.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	AD/VIVEK	PB	

VESSEL DESIGN DATA
KEROSENE FEED SURGE DRUM
ITEM NO. 300-VV-HW-1002

वेसल डिजाइन डाटा
केरोसीन फीड सर्ज ड्रम
आइटम नम्बर. 300-वीवी-एचडब्लू-1002

DRAWING NO. B957-300-80-42-DS-3102

REV. 2

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1203 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	12 THK.	300	WN	RF	SEE DWG.	300X T	MANHOLE + BF + GASKET + BOLTING
3	1	100	160	300	WN	RF	2540	60X T	FUEL GAS BLANKETING / OUTLET TO WET FLARE
4	1	200	80	300	WN	RF	2540	110X T	VENTILATION NOZZLE
7	1	150 (H)	80	300	WN	RF	2540	85X T	VAPOR OUTLET TO WET FLARE/PSV
8	1	50	160	300	WN	RF	2540	-	VENT
11	1	350	12 THK.	300	WN	RF	2540	175X T	FEED FROM OSBL
17	1	400	12 THK.	300	WN	RF	2400	200X T	HC BOTTOM OUTLET TO 300-PA-CF-1001 A/B
20	1	200	80	300	WN	RF	2540	110X T	PUMP MIN FLOW RETURN FROM 300-PA-CF-1001 A/B
30	1	50	160	600	WN	RF	SEE DWG.	-	CONDENSATE OUTLET
31	1	80	160	300	WN	RF	2340	45xT	DRAIN
35	1	50	160	600	WN	RF	SEE DWG.	-	UTILITY CONNECTION
SP1	2	50 (H)	160	300	WN	RF	1100	-	STAND PIPE
SP2							1450		
LG 1-2	2	50 (H)	160	300	WN	RF	SEE DWG.	-	LEVEL TRANSMITTER (GWR) - INT.
LT 1-2	2	50 (H)	160	300	WN	RF	SEE DWG.	-	LEVEL GAUGE (MAG) - INT.
LT3,5, 7,9	4	50 (H)	160	300	WN	RF B	1600	-	LEVEL TRANSMITTER (DP)
LT4,6, 8,10	4	50 (H)	160	300	WN	RF B	1700	-	LEVEL TRANSMITTER (DP)

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190ºC
12 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
13 B EQUIPMENT SHALL BE FIRST COMPLETELY FABRICATED, HYDROTESTED AND PWHT AT SHOP. THEREAFTER EQUIPMENT BOOT MAY BE CUT (i.e. IN MAXIMUM TWO SECTIONS) (REFER CUTTING LOCATION MARKED IN SHEET.2) (PROVIDE ADDITIONAL LENGTH TO TAKE CARE OF CUTTING & REJOINING ALLOWANCES) BEFORE TRANSPORTATION FROM SHOP TO SITE (WHERE FINAL C-SEAM SHALL BE CARRIED OUT). EQUIPMENT SHALL BE ASSEMBLED AT SITE IN HORIZONTAL POSITION COMPLETE IN ALL RESPECTS. DP EXAMINATION SHALL BE CARRIED OUT ON SITE JOINT FOR ROOT RUN & FINAL RUNS (INSIDE & OUTSIDE) BY EQUIPMENT FABRICATOR. 100% RADIOGRAPHY SHALL BE CARRIED OUT ON SITE JOINT BY EQUIPMENT FABRICATOR. NDT & PWHT SHALL BE CARRIED OUT AS PER MDS. ONLY LOCAL BOX TYPE (INSIDE) HYDROTEST SHALL BE CARRIED OUT FOR SITE CIRC.SEAM. COMPLETE HYDROTEST OF THE ENTIRE EQUIPMENT AT SITE IS NOT ENVISAGED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
X	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	
PIPE SUPPORT CLEATS	
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES SP, LT, LG
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	FIXED AND SLIDING SUPPORT		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	3
DESIGN PRESSURE (kg/cm²g)	INT. 23 EXT. --
WORKING TEMPERATURE (°C)	40
DESIGN TEMPERATURE (°C)	85
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTE-12)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	NAPTHA FEED
SP. GRAVITY	0.686
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	195
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	29.9
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 516 Gr.70
REINFORCEMENT PAD / INSERT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT~~/ SUPPORT	SA 516 Gr.70
~~SKIRT~~/ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 GR.70/ SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR/B0 B
WRAPPER PLATE	SA 516 GR.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70

B **EQUIPMENT SHALL BE TRANSPORTED IN MAXIMUM TWO PIECES**

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	80500	OPERATING	212000
HYDROTEST(SHOP)	276000	HYDROTEST (FIELD)	285500

NUMBER OF ITEMS : ONE

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	03.12.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB
A	04.09.2025	ISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
NAPHTHA FEED SURGE DRUM	नाफ्था फीड सर्ज ड्रम
ITEM NO. 300-VV-HW-1003	आइटम नम्बर 300-वीवी-एचडब्ल्यू-1003

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3103	B
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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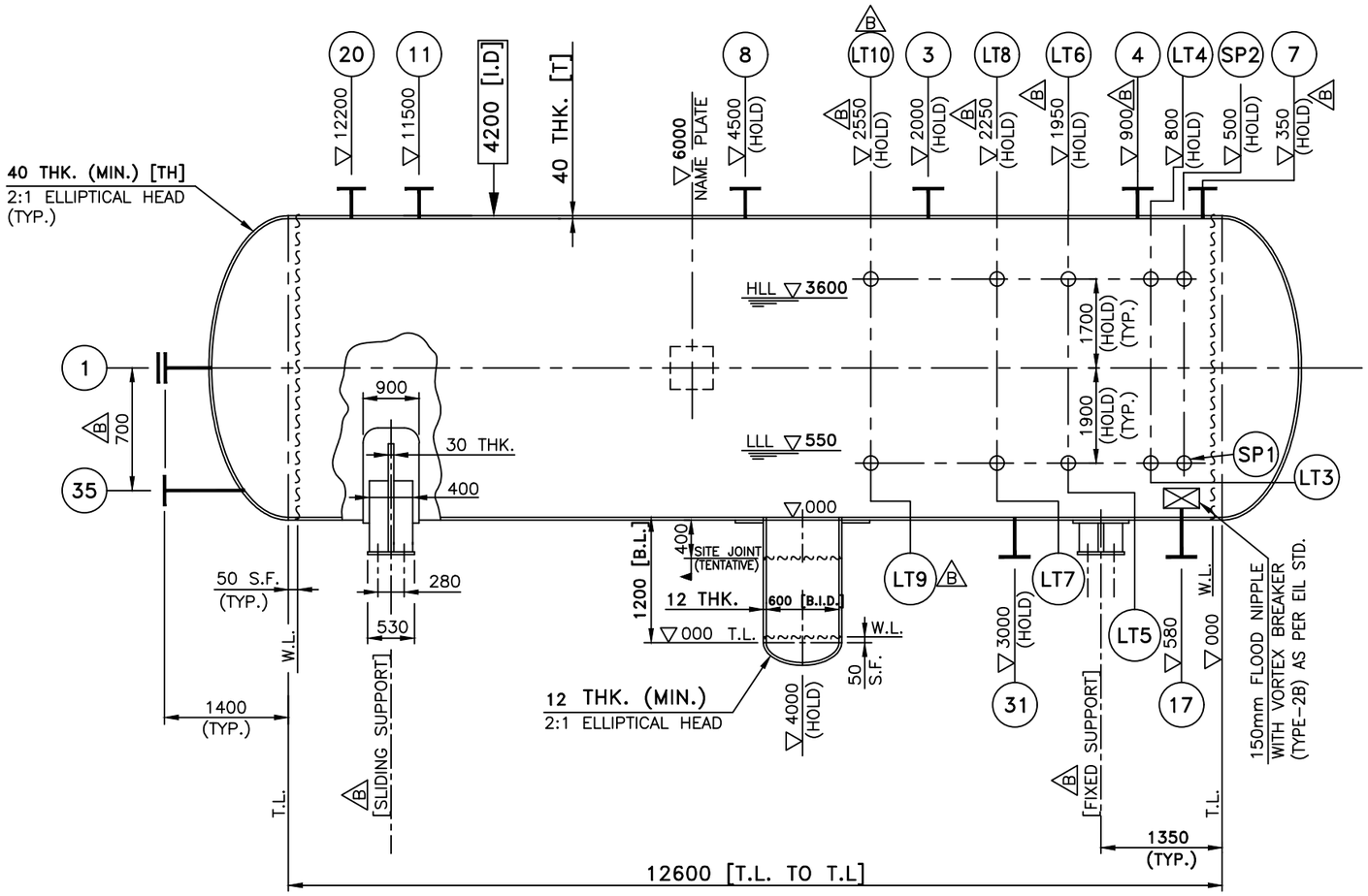
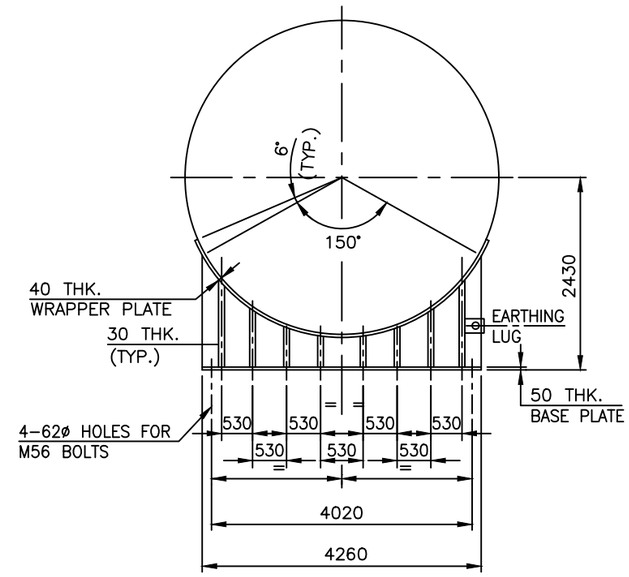
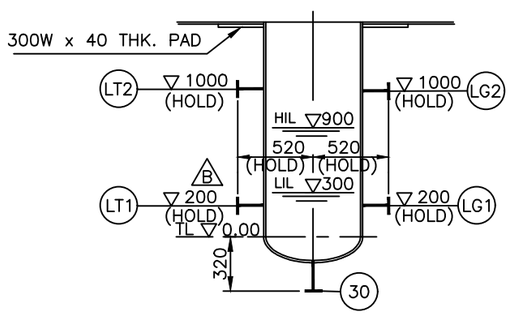




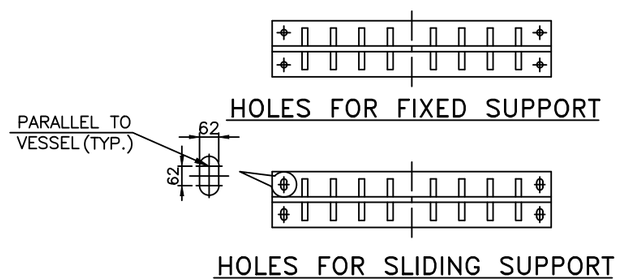
END VIEW

(NOZZLES NOT SHOWN)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



BOOT DETAIL



B	03.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	
A	05.09.2025	ISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

VESSEL DESIGN DATA
NAPHTHA FEED SURGE DRUM
ITEM NO. 300-VV-HW-1003

वेसेल डिजाइन डाटा
नाफ्था फीड सर्ज ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-1003

DRAWING NO. B957-300-80-42-DS-3103
REV. B
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1204 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
5 A-B	2	200	80	150	WN	RF	510	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	150	80	300	WN	RF	510	70X T	FEED FROM 300-EE-00-1003
17	1	150	80	300	WN	RF	SEE DWG.	85X T	LIQUID BOTTOM OUTLET TO LP COND. HEADER
35	1	50	160	600	WN	RF	460	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
LT1	1	50(H)	160	300	WN	RF	460	-	LEVEL TRANSMITTER (DP)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT1
X	NOZZLE ELEVATIONS LG 1-2 & LT1		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.3
DESIGN PRESSURE	(kg/cm^2g)	INT. 12.5 EXT. F.V.
WORKING TEMPERATURE	(°C)	146
DESIGN TEMPERATURE	(°C)	240
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.921 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.45
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		40 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		16.25
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	700	OPERATING	950
HYDROTEST(SHOP)	1150	HYDROTEST (FIELD)	1150
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	10.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1003	कन्डनसेट पॉट फॉर 300-ईई-00-1003
ITEM NO. 300-VV-VW-1004	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1004

DRAWING NUMBER डाईग नम्बर: **B957-300-80-42-DS-3104** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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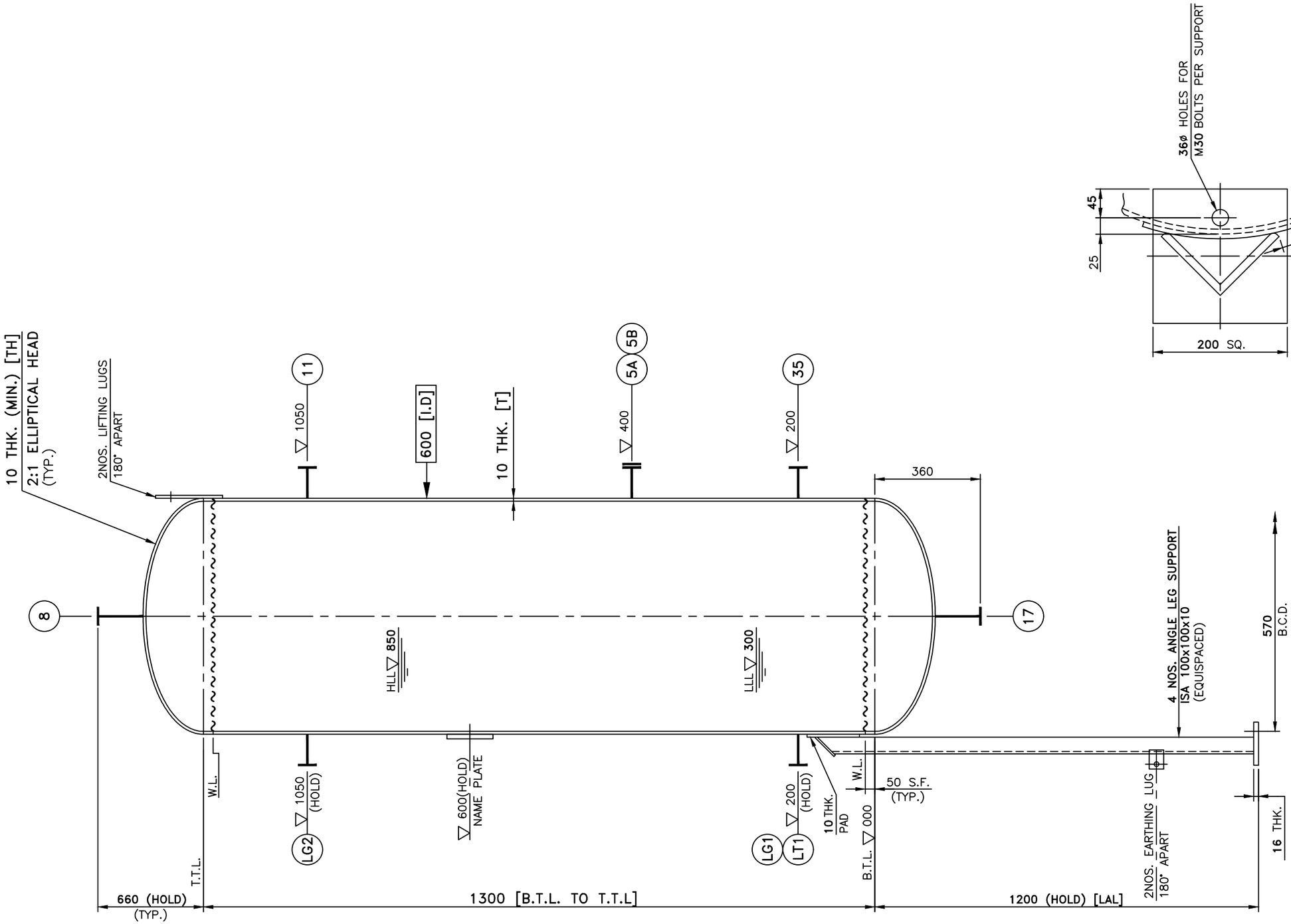

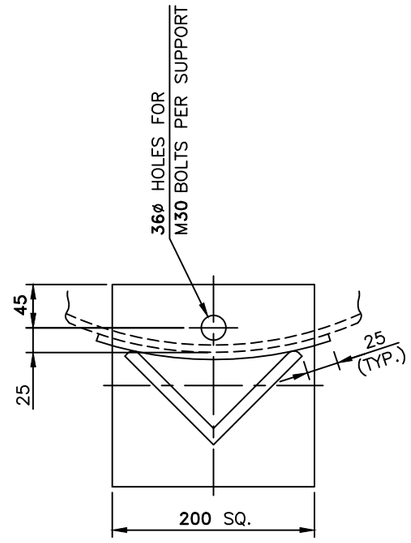

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	10.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1003	कन्डनसेट पॉट फॉर 300-ईई-00-1003
ITEM NO. 300-VV-VW-1004	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1004

DRAWING NO.	REV.
B957-300-80-42-DS-3104	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1205 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेशन	पैड	सर्विस
5 A-B	2	200	80	150	WN	RF	510	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	80	160	300	WN	RF	510	40X T	FEED FROM 300-EE-00-1005
17	1	80	160	300	WN	RF	SEE DWG.	45X T	LIQUID BOTTOM OUTLET TO LP COND. HEADER
35	1	50	160	600	WN	RF	460	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.3
DESIGN PRESSURE	(kg/cm^2g)	INT. 12 EXT. F.V.
WORKING TEMPERATURE	(°C)	146
DESIGN TEMPERATURE	(°C)	240
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.921 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.4
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		40 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		15.6
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	650	OPERATING	800
HYDROTEST(SHOP)	1050	HYDROTEST (FIELD)	1050
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	10.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1005	कन्डनसेट पॉट फॉर 300-ईई-00-1005
ITEM NO. 300-VV-VW-1005	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1005

DRAWING NUMBER डाईग नम्बर: **B957-300-80-42-DS-3105** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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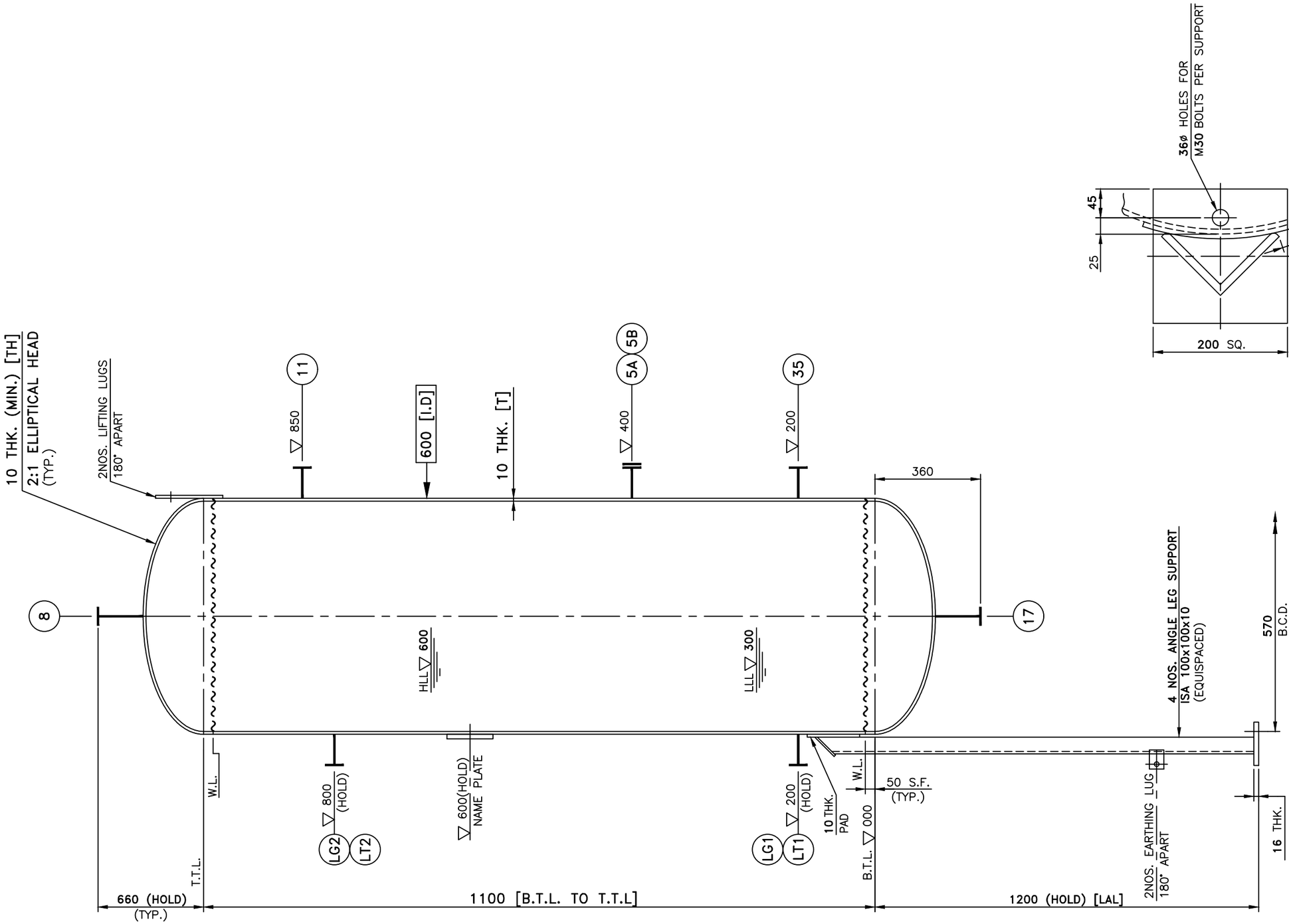

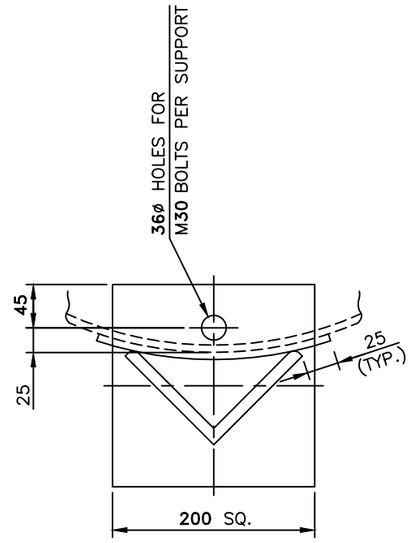

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	10.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1005	कन्डनसेट पॉट फॉर 300-ईई-00-1005
ITEM NO. 300-VV-VW-1005	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1005

DRAWING NO.	REV.
B957-300-80-42-DS-3105	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1206 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेशन	पैड	सर्विस
5 A-B	2	200	80	300	WN	RF	510	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	80	160	600	WN	RF	510	40X T	FEED FROM 300-EE-00-1007
17	1	80	160	600	WN	RF	SEE DWG.	45X T	LIQUID BOTTOM OUTLET TO LP COND. HEADER
35	1	50	160	600	WN	RF	460	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.3
DESIGN PRESSURE	(kg/cm^2g)	INT. 22.5 EXT. F.V.
WORKING TEMPERATURE	(°C)	146
DESIGN TEMPERATURE	(°C)	240
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.921 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.4
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		40 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		29.25
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	700	OPERATING	850
HYDROTEST(SHOP)	1100	HYDROTEST (FIELD)	1100
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	11.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1007	कन्डनसेट पॉट फॉर 300-ईई-00-1007
ITEM NO. 300-VV-VW-1006	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1006

DRAWING NUMBER डाईग नम्बर: **B957-300-80-42-DS-3106** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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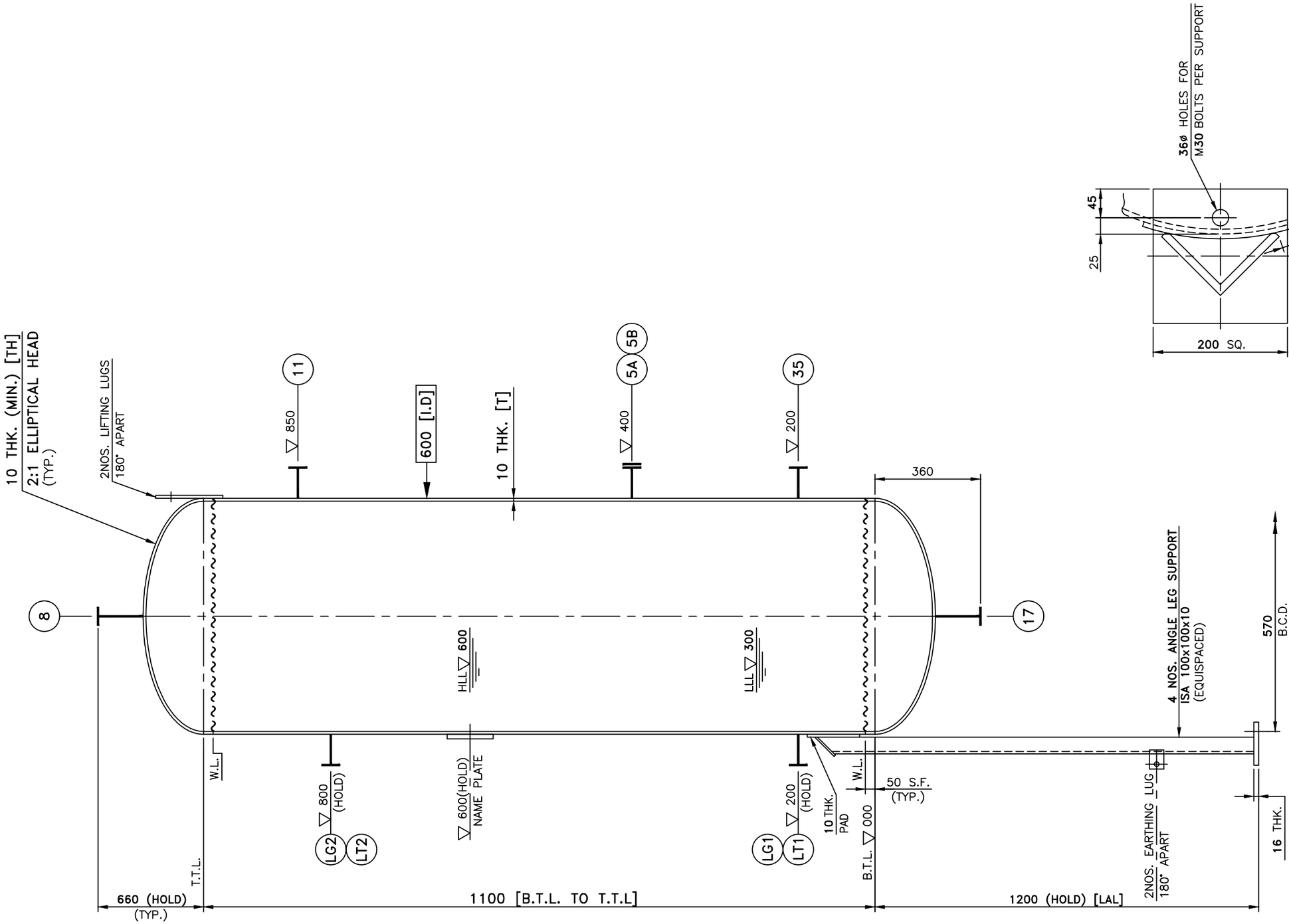

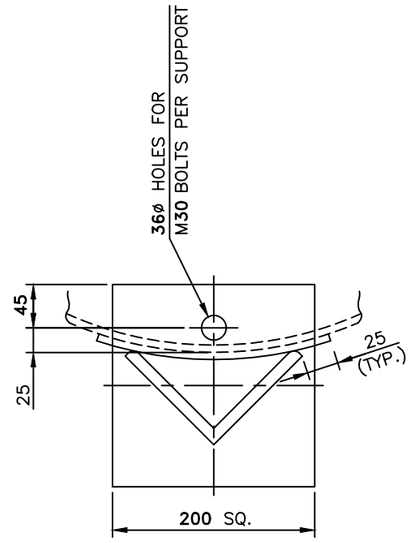

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	11.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा	DRAWING NO.	REV.
CONDENSATE POT FOR 300-EE-00-1007	कन्डनसेट पॉट फॉर 300-ईई-00-1007	B957-300-80-42-DS-3106	A
ITEM NO. 300-VV-VW-1006	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1006	SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1207 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेशन	पैड	सर्विस
5 A-B	2	200	80	300	WN	RF	510	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	50	160	600	WN	RF	460	-	FEED FROM 300-EE-00-1009
17	1	50	160	600	WN	RF	SEE DWG.	-	LIQUID BOTTOM OUTLET TO LP COND. HEADER
35	1	50	160	600	WN	RF	460	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.3
DESIGN PRESSURE	(kg/cm^2g)	INT. 22.5 EXT. F.V.
WORKING TEMPERATURE	(°C)	146
DESIGN TEMPERATURE	(°C)	240
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.921 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.35
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		40 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		29.25
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	650	OPERATING	800
HYDROTEST(SHOP)	1000	HYDROTEST (FIELD)	1000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	11.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1009	कन्डनसेट पॉट फॉर 300-ईई-00-1009
ITEM NO. 300-VV-VW-1007	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1007

DRAWING NUMBER डाईग नम्बर: **B957-300-80-42-DS-3107** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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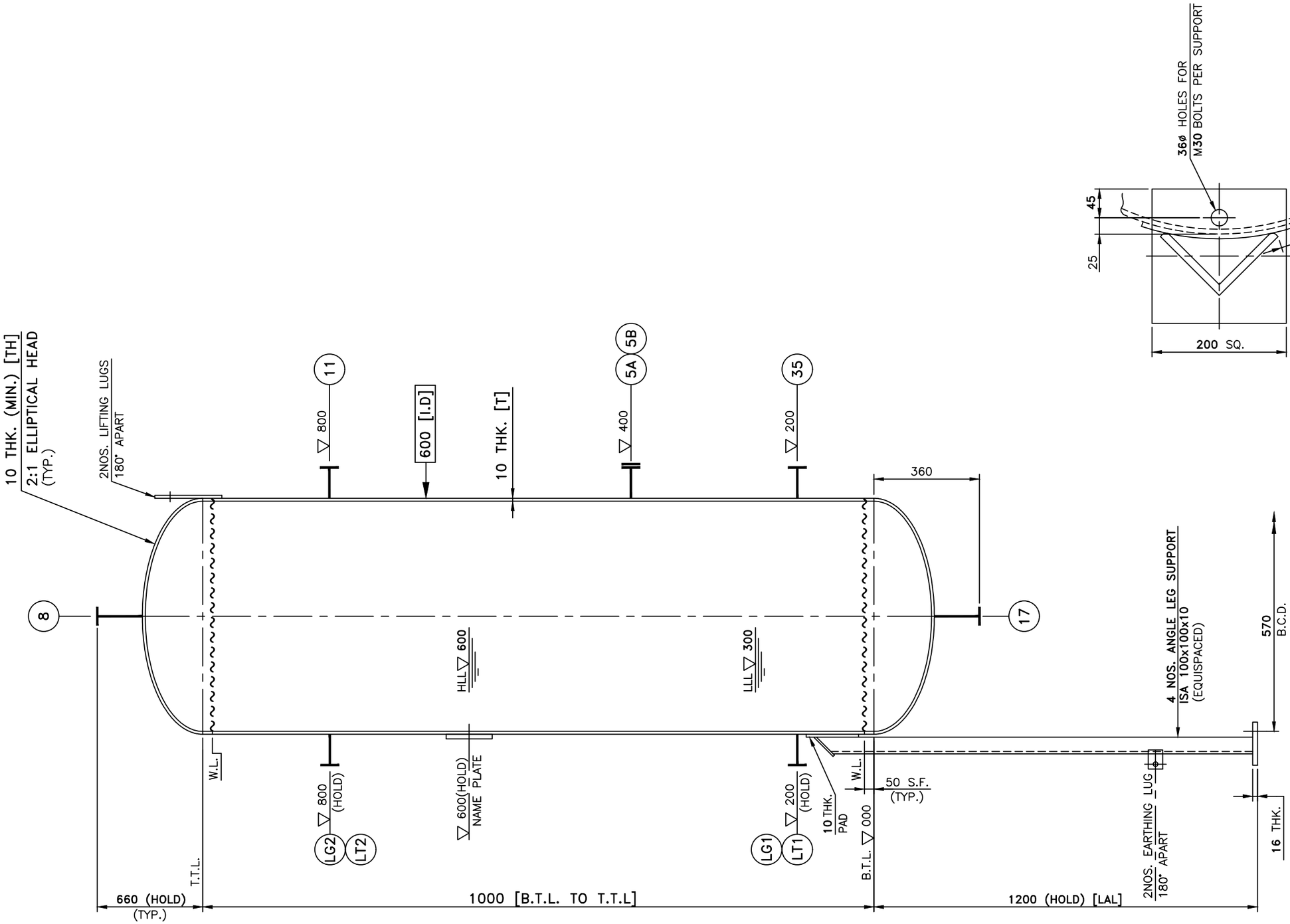

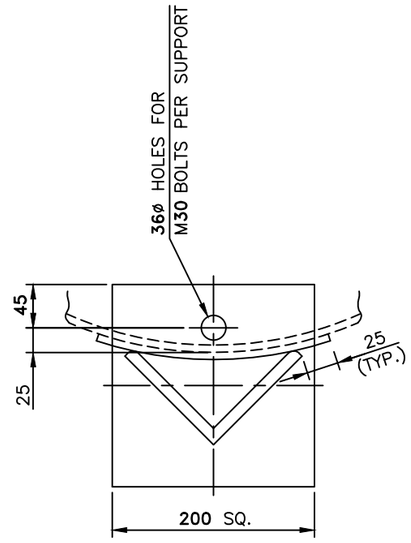

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	11.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1009	कन्डनसेट पॉट फॉर 300-ईई-00-1009
ITEM NO. 300-VV-VW-1007	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1007

DRAWING NO.	REV.
B957-300-80-42-DS-3107	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डायां	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	500	14 THK.	300	WN	RF	920	250X T	MANHOLE + BF + GASKET + BOLTING
7	1	150	80	300	WN	RF	SEE DWG.	85X T	VAPOR OUTLET TO MP STEAM HEADER
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	200	80	300	WN	RF	820	110X T	FEED FROM HP CONDENSATE HEADER AND 300-VV-HW-1111 THRU 300-VV-HW-1118, FUTURE HEATERS
17	1	150	80	300	WN	RF	SEE DWG.	85X T	LIQUID BOTTOM OUTLET TO 300-EE-00-1181
31	1	50	160	600	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	600	WN	RF	770	-	UTILITY CONNECTION
SP 1-2	2	50 (H)	160	300	WN	RF	770	-	STAND PIPE
LT 1-2	2	50 (H)	160	300	WN	RF	770	-	LEVEL TRANSMITTER (DP)
AO	1	450 ID	14 THK.	AS PER EIL STD.				225 X T	ACCESS OPENING
SKV 1-3	3	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
C फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	23500	3100
WIND	20200	3100

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINTAS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
12 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
13 NOZZLE SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKET.
14 VENDOR SHALL CARRY OUT COMPLETE MECHANICAL DESIGN AS PER IBR & MODIFY THE THICKNESS, IF NECESSARY, WITHOUT ANY COST AND TIME IMPLICATION. HOWEVER, INDICATED THK. ARE MINIMUM TO BE PROVIDED. IT IS SOLE RESPONSIBILITY OF VENDOR TO GET APPROVAL OF ALL DOCUMENTS & DESIGN CALCULATION FROM CIB & ALSO GET THE EQUIPMENT INSPECTED BY CIB.
15 ALL MATERIAL / FABRICATION / TESTING (INCLUDING HYDROTEST) / INSPECTION SHALL MEET IBR REQUIREMENTS.
16 ALL PRESSURE BEARING WELDS SHALL BE CHECKED BY MP/DP TESTED AFTER HYDROTEST.
17 PARTS NOT COVERED BY IBR SHALL BE DESIGNED AS PER ASME SEC. VIII DIV.1.
18 WELD FOR ALL PRESSURE BEARING COMPONENTS SHALL BE FULL PENETRATION WELD. TEST FOR IBR CLASS FUSION WELDED SEAMS SHALL COMPLY WITH REQUIREMENTS OF IBR.
19 ALL CIRCUMFERENTIAL, LONGITUDINAL WELDS SHALL BE WELD FROM BOTH SIDE. WHEREVER WELDING IS NOT POSSIBLE FROM OTHER SIDE FIRST TWO (2) ROOT RUNS SHALL BE CARRIED OUT BY TIG.
20 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (SP & LT)
X	NOZZLE ELEVATIONS (SP & LT)	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	IBR (NOTE-17)
WORKING PRESSURE (kg/cm^2g)	19.0
DESIGN PRESSURE (kg/cm^2g)	INT. 22.0 EXT. FV
WORKING TEMPERATURE (°C)	212
DESIGN TEMPERATURE (°C)	230
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL AS PER IBR HEAD AS PER IBR
RADIOGRAPHY	SHELL AS PER IBR HEAD AS PER IBR
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.851 (AT OPERATING TEMP.)
WIND SPECIFICATION	IS-875
SEISMIC	SITE SPECTRA + IS-1893
CAPACITY (M^3)	5.3
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-10)
INSULATION THICKNESS (mm) (IH)	80 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	AS PER IBR
INSPECTION BY	[ ] EIL [X] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / ~~BOOT~~	SA 516 Gr.70
REINFORCEMENT PAD / ~~INSERT PAD~~	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SKIRT/ ~~SUPPORT~~	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR/B0
SKIRT/~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL) DIRECTLY WELDED OVER VESSEL	SA 516 GR.70
CLIPS & ATTACHMENTS (EXTERNAL) WELDED OVER PAD	IS 2062 GR. E 250 QUALITY BR/B0
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
LIFTING LUG	SA 516 GR.70

SPECIAL SERVICE : VESSEL IS UNDER IBR

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

X **INDIAN BOILER REGULATIONS (IBR)**
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	5200	OPERATING	17000
HYDROTEST(SHOP)	10500	HYDROTEST (FIELD)	19000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
C	18.12.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB
B	12.09.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB
A	27.08.2025	ISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB

DESIGN DATA
VHP STEAM CONTINUOUS BLOWDOWN DRUM
ITEM NO. 300-VV-VW-1184

डिजाइन डाटा
वीएचपी स्टीम कंटीन्यूअस ब्लोडाउन ड्रम
आइटम नम्बर 300–वीवी–वीडब्ल्यू–1184

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3110** REV: C
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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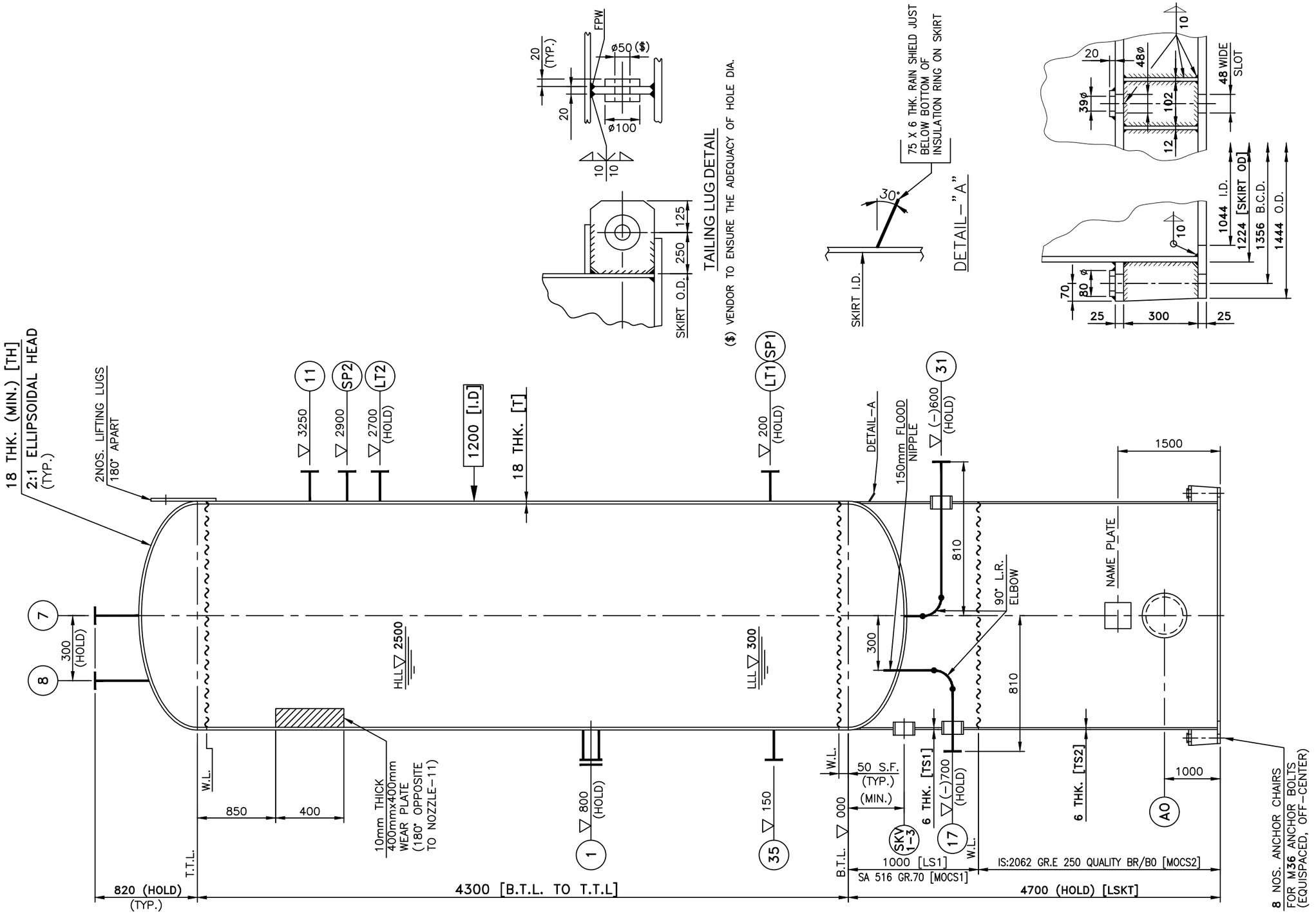

TAILING LUG DETAIL

($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.

DETAIL–"A"

SKIRT BASE DETAIL

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
C	18.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
B	12.09.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	27.08.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
VHP STEAM CONTINUOUS BLOWDOWN DRUM
ITEM NO. 300–VV–VW–1184

वेसेल डिज़ाइन डाटा
वीएचपी स्टीम कंटीन्यूअस ब्लोडाउन ड्रम
आइटम नम्बर 300–वीवी–वीडब्ल्यू–1184

DRAWING NO. B957–300–80–42–DS–3110
REV. C
SHEET 2 OF 2

1–1641–0503 REV.0 A3–420x297

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PDS B957-300-79-41-DS-1222 REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1 A-B	2	600	14 THK.	150	WN	RF	SEE DWG.	200X T	MANHOLE+BF+GASKET+BOLTING+HINGE
C 3 A-B	2	600 (H)	14 THK.	300 (H)	WN	RF	SEE DWG.	200 X T	MOUNT FLANGE FOR PUMP 300-PA-CF-1204A/B
4	1	150	120	300	WN	RF	SEE DWG.	85xT	VENTILATION NOZZLE
7	1	50	160	300	WN	RF	SEE DWG.	-	VAPOR OUTLET TO 300-VV-VW-1202
11	1	300	14 THK	300	WN	RF	SEE DWG.	160X T	FEED FROM QUENCH OIL DRAIN HEADER
19 A-B	2	80 (H)	BY PUMP VENDOR						LIQUID DRAW OFF TO 300-CC-001201
29	1	50	XXS	300	WN	RF	SEE DWG.	-	PROCESS STEAM TO HEATING COIL
30	1	50	XXS	300	WN	RF	SEE DWG.	-	CONDENSATE OUTLER
31	1	80	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
36	1	50(H)	160	300	WN	RF	SEE DWG.	-	PRESSURE INDICATOR
39	1	50	160	300	WN	RF	SEE DWG.	-	NITROGEN INLET (BLANKETING)
44	1	50	160	300	WN	RF	SEE DWG.	-	TEMPERATURE INDICATOR
LT1	1	150 (H)	160	300	WN	RF	SEE DWG.	60XT	LEVEL TRANSMITTER (RADAR)
LT2	1	100 (H)	120	300	WN	RF	SEE DWG.	60XT	LEVEL TRANSMITTER (GWR)
S1	1	450	14 THK.	150	WN	RF	SEE DWG.	200xT	MOUNTING NOZZLE + BF + GASKET + BOLTING FOR 7,36
S2	1	150	120	150	WN	RF	SEE DWG.	50xT	MOUNTING NOZZLE + BF + GASKET + BOLTING FOR 39

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ~~ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.~~
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES SHALL BE STIFFENED WITH 4 NOS. 100 x 10 THK FLATS AT 90 DEG.APART. MANHOLE,PUMP NOZZLE AND MOUNTING NOZZLES SHALL BE STIFFENED WITH 8 NOS 10THKx R.F PAD WIDE FLATS EQUISPACED.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES / REDUCING FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.EXTERNAL COATING SHALL BE AS PER TABLE 10.2 OF JOB SPECIFICATION.
13 THE VESSEL SHALL BE LOCATED IN RCC PIT ~~AND SAND PACKED WITH VIBRO COMPRESSION WITH 100mm THK OF LEAN CONCRETE ON TOP (BY OTHERS).~~
14 (a) SIZE OF SUMP1-2 & NOZZLE 3A-B IS UNDER HOLD & SHALL BE AS CONFIRMED BY PUMP VENDOR.
14 (b) PUMP NOZZLE COVER / BLIND FLANGE WITH PUMP ASSEMBLY, NOZZLES 19A-B,BOLTING & GASKET SHALL BE SUPPLIED BY PUMP SUPPLIER.
15 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED/BOLTED CS INTERNAL SHALL BE 12mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
16 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190 ºC.
18 LIFTING LUG FOR HANDLING OF VESSEL SHALL BE DESIGNED (CONSIDERING IMPACT FACTOR 1.5) AND PROVIDED BY VENDOR. INDICATIVE DETAILS ARE FURNISHED ON SHEET-3.
19 COOLING COIL DESIGN DATA;
SIZE OF COIL : 50 NB SCH XXS PIPE , HYDROTEST PRESSURE: 10.5 Kg/Cm2g.
LENGTH OF COIL.: 8 M (MIN.)
MOC : SA 106 GR.B, RADIOGRAPHY - FULL
WORKING PRESSURE/TEMP.: 4.0 kg/Cm2g / 175°C
DESIGN PRESSURE/TEMP.: 7.0 kg/Cm2g & FV/ 240ºC.
VENDOR TO ENSURE HEATING COIL TO BE LOCATED AT MINIMUM ELEVATION FROM VESSEL BOTTOM AND COIL SHALL COVER FULL LENGTH OF THE VESSEL INCLUDING AREA NEAR PUMP IMPELLER.
20 VENDOR TO DEVELOPED HEATING COIL LAYOUT AND SUPPORTING ARRANGEMENT BY CLEARING SUMP & INSTRUMENT NOZZLE. NUMBER & SIZE OF THE NOZZLE SHALL BE CONFIRMED BASED ON COIL DESIGN.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	STD. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038
X	STILL WELL FOR LEVEL TRANSMITTER (RADAR TYPE) FOR BURIED VESSEL	7-12-0039

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	STILL WELL		PIPE DAVIT
	SUMP DIAMETER, LENGTH		PACKING SUPPORT
	BURIED HEIGHT		

DESIGN DATA (डिजाइन डाटा)

CODE				ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)				ATM
DESIGN PRESSURE (kg/cm²g)	INT. 3.5		EXT.	0.53
WORKING TEMPERATURE (°C)				AMB./195
DESIGN TEMPERATURE (°C)				225
MDMT (°C)				1.1
CORROSION ALLLOWANCE (MM)				3
TYPE OF HEAD				2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL 0.85	HEAD		1
RADIOGRAPHY	SHELL SPOT	HEAD		FULL
POST WELD HEAT TREATMENT				AS PER CODE/SPEC.
HEAT TREATMENT				HEAD: AS PER CODE /SPEC.
OPERATING MEDIUM				QUENCH OIL
SP. GRAVITY				0.93 TO 0.97
WIND SPECIFICATION				IS 875
SEISMIC				IS 1893 + SITE SPECTRA
CAPACITY (M³)				26
PAINTING/CLEANING				REFER AS PER JOB SPEC.
INSULATION THICKNESS (mm)	65	[X] HOT	[ ] COLD	
FIRE PROOFING CLEATS	[ ] YES	[X] NO		
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~			(AT TOP)
PRESSURE (NEW & COLD)				4.55
INSPECTION BY	[X] EIL	[ ] CIB	[ ] TPIA	

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

C SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / BLIND FLANGE	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SUPPORT	SA 516 Gr.70
SUPPORT BASE	-
INTERNAL PARTS (WELDED)	SA 516 Gr.70 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.70
WRAPPER PLATE	SA 516 Gr.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.70
LIFTING LUG	SA 516 Gr.70
STIFFENER	SA 516 Gr.70
STILL WELL FOR LT2	SS304L

@ **WITHOUT PUMP ASSEMBLY**

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

C APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	16500@	OPERATING	50500@
HYDROTEST(SHOP)	54100@	HYDROTEST (FIELD)	54500@
NUMBER OF ITEMS :	ONE		

REV	DATE	REVISION	BY	CHECKED	APPROVED
C	24.03.2026	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB
B	06.01.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB
A	15.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
QUENCH OIL DRAIN DRUM	क्वेन्च ऑइल ड्रैन ड्रम	B957-300-80-42-DS-3112	C
ITEM NO. 300-VV-HW-1201	आइटम नम्बर 300-वीवी-एचडब्ल्यू-1201	SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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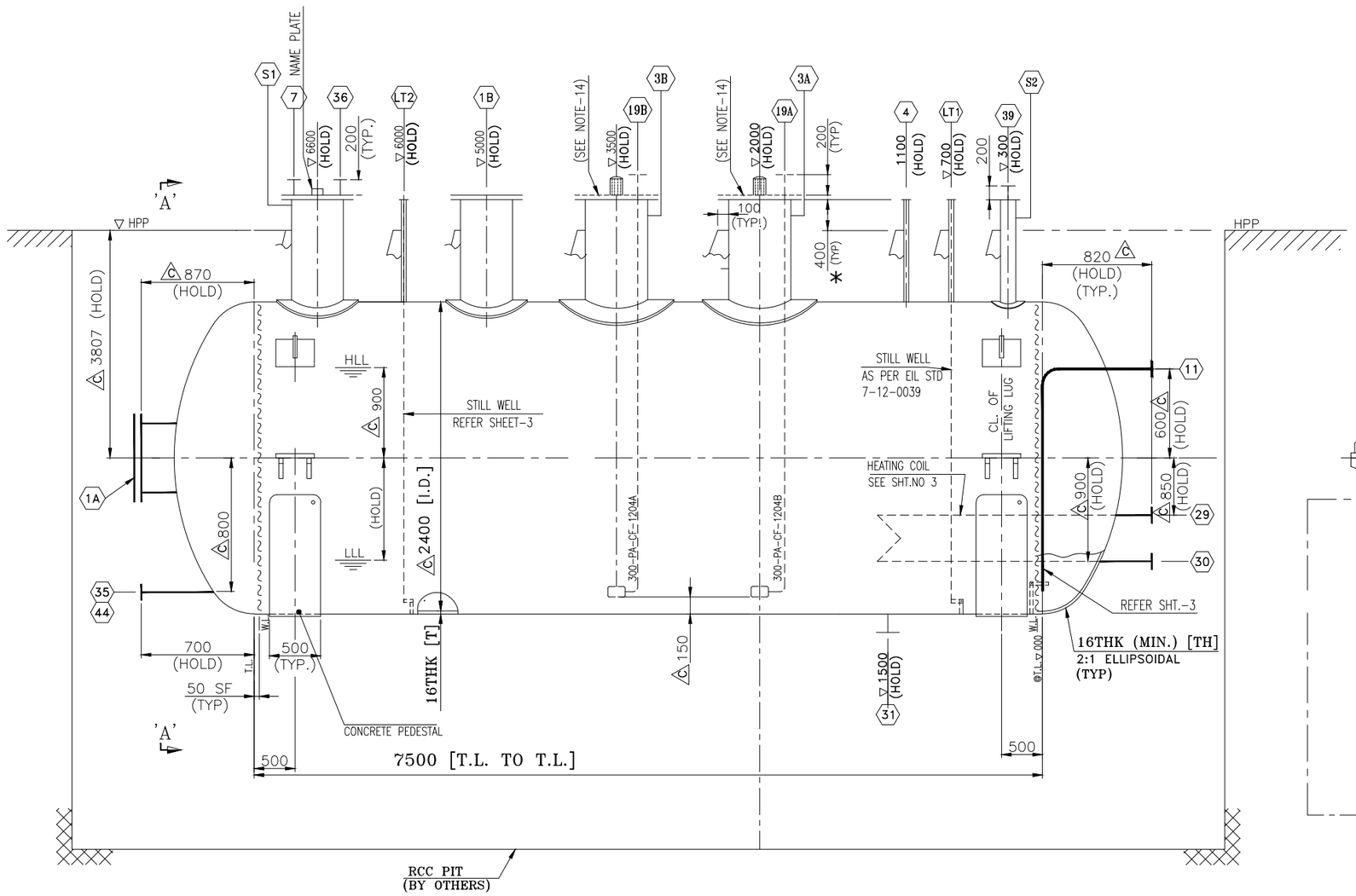
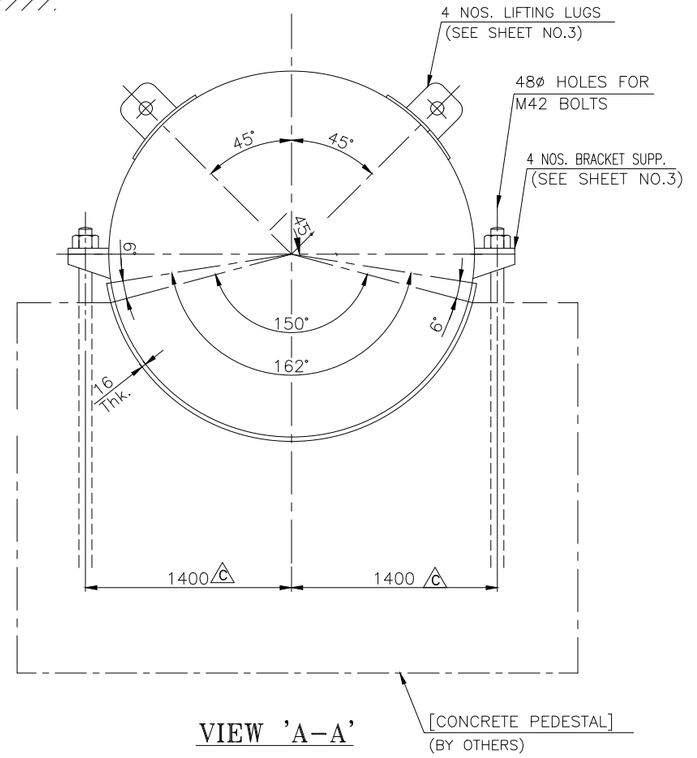
* NOZZLES MAY BE SUITABLY CUT WITH WELD EDGE PREPARATION (WITH SUITABLE COVER)FOR TRANSPORTATION. SUITABLE CUTTING ALLOWANCE IN NOZZLES SHALL BE CONSIDERED TO MAINTAIN THE GIVEN PROJECTION.FINAL ASSEMBLY OF NOZZLES AT SITE SHALL BE BY OTHERS (NOT BY VESSEL FABRICATOR)





VIEW 'A-A'

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
C	24.03.2026	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
B	30.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	15.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
QUENCH OIL DRAIN DRUM
ITEM NO. 300-VV-HW-1201

वेसेल डिजाइन डाटा
क्वेन्च ऑइल ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-1201

DRAWING NO. B957-300-80-42-DS-3112
REV. C
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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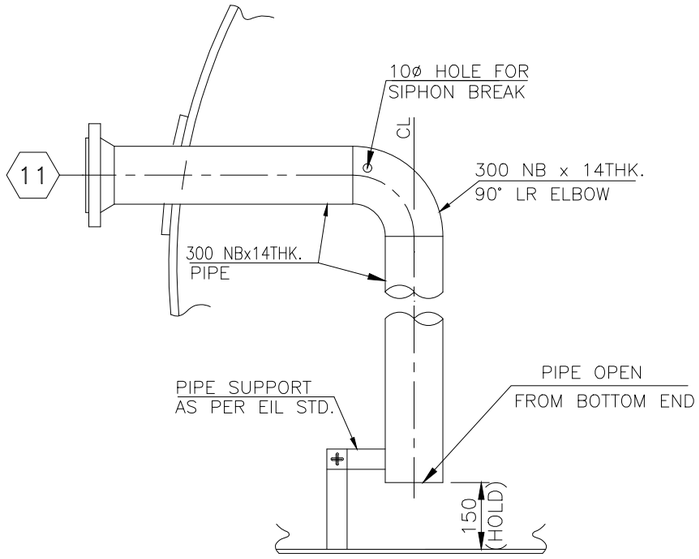
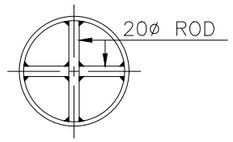
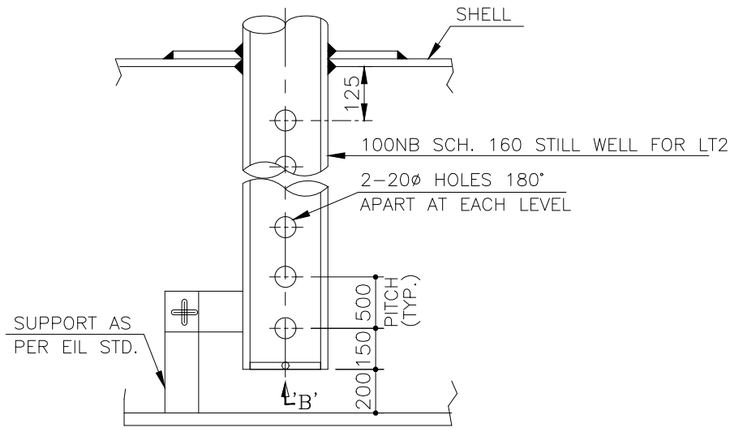


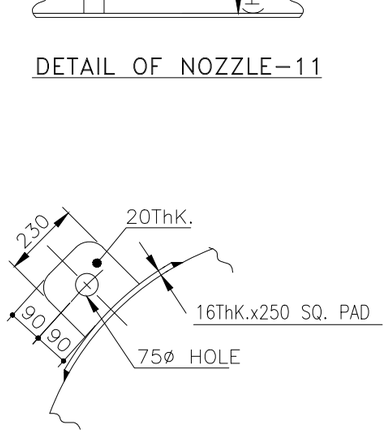
DETAIL OF NOZZLE–11



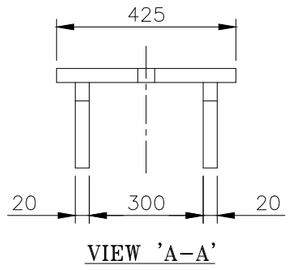
VIEW 'B' (TYP)



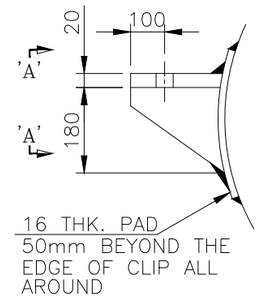
DETAIL OF STILL WELL FOR NOZZLE LT2 (HOLD)



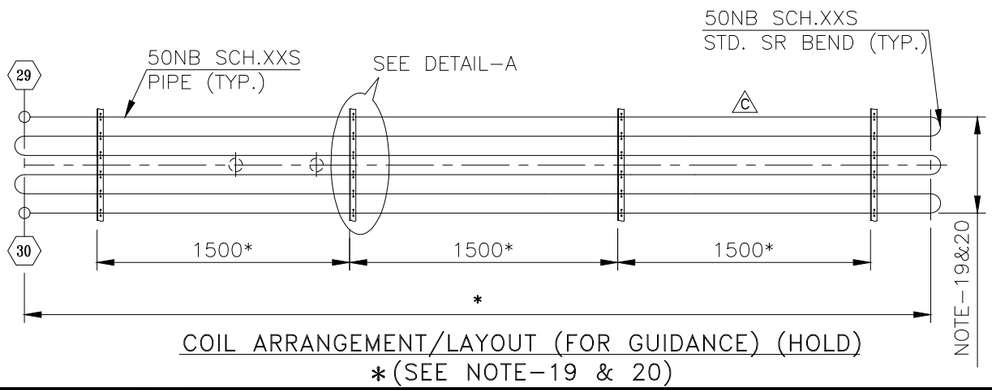
DETAIL OF LIFTING LUG (TYP)



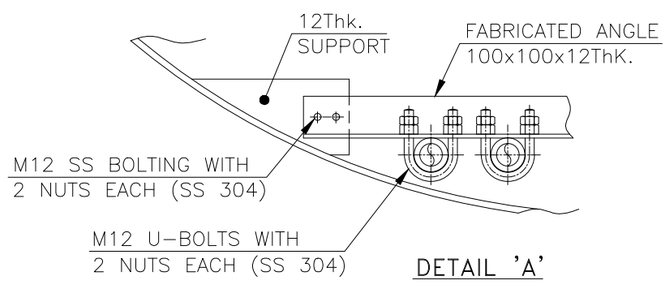
VIEW 'A–A'



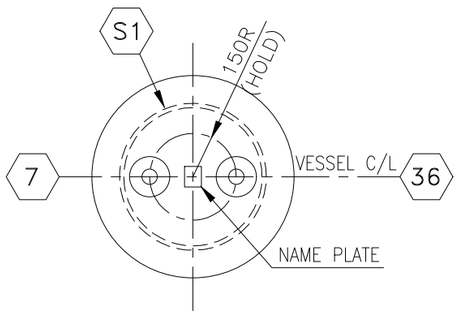
DETAIL OF BRACKET SUPPORT (TYP)



COIL ARRANGEMENT/LAYOUT (FOR GUIDANCE) (HOLD)
*(SEE NOTE–19 & 20)



DETAIL 'A'



PLAN FOR MOUNTING NOZZLE S1 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
C	24.03.2026	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
B	06.01.2026	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	12.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA QUENCH OIL DRAIN DRUM
ITEM NO. 300-VV-HW-1201

वेसेल डिजाइन डाटा क्वेन्च ऑइल ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-1201

DRAWING NO.	REV.
B957-300-80-42-DS-3112	C
SHEET 3 OF 3	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1223 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेक्शन	पैड	सर्विस
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	50	160	300	WN	RF	460	-	FEED FROM 300-VV-HW-1201
12	1	50	160	300	WN	RF	460	-	FEED FROM COOLING WATER SUPPLY HEADER
19	1	50	160	300	WN	RF	460	-	DRAWOFF TO LIQ.SEAL/DRAIN
31	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	460	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	460	-	PRESSURE GAUGE
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
STEAM TRACING CONNECTION (NOT TO BE PUNCTURED ON VESSEL)									
C	1	20	XXS	300	WN	RF	BY VENDOR		CONDENSATE OUTLET (NOTE-12)
ST	1	20	XXS	300	WN	RF	BY VENDOR		MP STEAM INLET (NOTE-12)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
12. VESSEL IS TO BE PROVIDED WITH MP STEAM TRACING ALL AROUND WITH FOLLOWING DETAILS:
COIL SIZE (HOLD) : 0.75 INCH X SCH 160, COIL PITCH (HOLD) : 500MM
DESIGN PRESSURE @ DESIGN TEMP.: 22 /F.V. kg/Cm2(g) @ 350°C.
HYDROTEST PRESSURE: 38.59 kg/Cm2(g).
MOC : SA 106 GR.B, RADIOGRAPHY - FULL
VENDOR TO ENSURE STEAM COIL SHALL COVER FULL LENGTH OF VESSEL.
13. 2 NO. OF LIFTING LUGS SHALL BE DESIGNED & PROVIDED BY VENDOR ON VESSEL SHELL FOR COMPLETE EQUIPMENT WEIGHT CONSIDERING AN IMPACT FACTOR OF 1.5. THE INDUCED STRESS IN SHELL & LUG SHALL BE WITHIN 90% OF YIELD. MINIMUM THICKNESS OF LUG SHALL BE 20 MM. TOP DAVIT SHALL CLEAR THE TOP NOZZLE FACE BY ATLEAST 400MM (REFER EIL STD 7-12-0010 FOR GUIDANCE). IN CASE OF A CENTRAL NOZZLE VENDOR SHALL PROVIDE 2 NOS. OF HOOKS ON BLIND FLANGE TO LIFT THE BLIND. VENDOR TO DESIGN THE DAVIT & HOOK CONSIDERING AN IMPACT FACTOR OF 2.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
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X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
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	SKIRT OPENING DETAILS	7-12-0005
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	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
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	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
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	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
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	VORTEX BREAKERS	7-12-0019
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	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2
X	NOZZLE ELEVATIONS 36, 19 & LG 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	ATM
DESIGN PRESSURE	(kg/cm^2g)	INT. 3.5 EXT. -
WORKING TEMPERATURE	(°C)	195
DESIGN TEMPERATURE	(°C)	225
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		BOTTOM: 2:1 ELLIPTICAL TOP: FLANGED
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.93-1
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.5
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		65 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		4.55
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	SA 105
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	SA 234 GR.WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70
INTERNAL PARTS (BOLTED)	SA 516 GR.70
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	SA 516 GR.70
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	1100	OPERATING	1500
HYDROTEST(SHOP)	1600	HYDROTEST (FIELD)	1600
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	25.03.2026	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	
QUENCH OIL DRAIN DRUM VENT SEAL POT	
ITEM NO.	300-VV-VW-1202

डिजाइन डाटा	
क्वेन्च आयल ड्रेन ड्रम वेंट सील पॉट	
आइटम नम्बर	300-वीवी-वीडब्ल्यू-1202

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3113	A
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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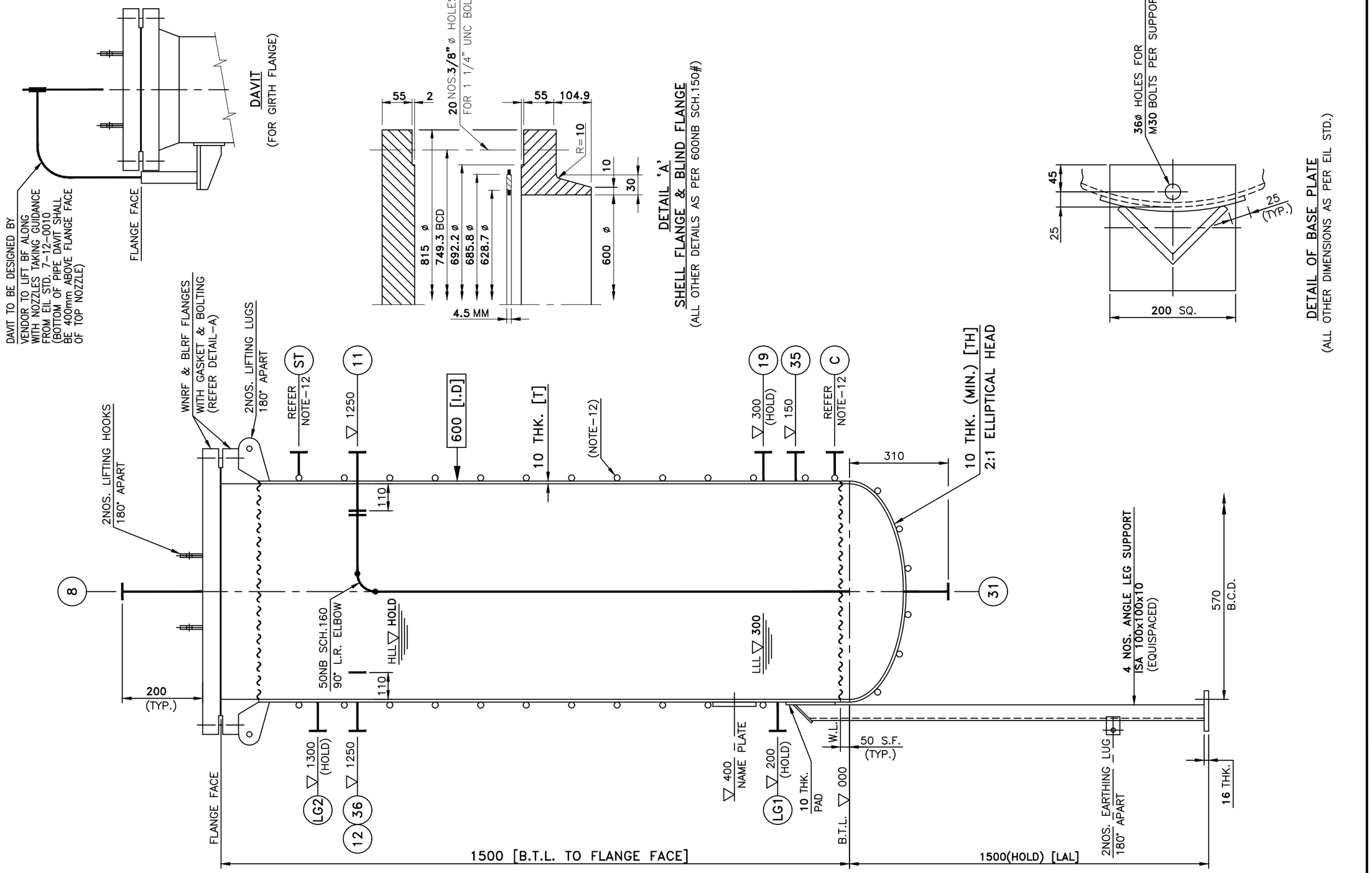

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	25.03.2026	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA
QUENCH OIL DRAIN DRUM
VENT SEAL POT
ITEM NO. 300-VV-VW-1202

वेसल डिजाइन डाटा
क्वेन्च आयल ड्रेन ड्रम
वेंट सील पॉट
आइटम नम्बर 300-वीवी-वीडब्ल्यू-1202

DRAWING NO. B957-300-80-42-DS-3113 | REV. A

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1226 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्ल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिग	PROJECTION NOTE-4 प्रोजेशन	PAD W x T पैड	SERVICE सर्विस
5 A-B	2	200	80	150	WN	RF	560	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	150	80	300	WN	RF	560	70X T	FEED FROM 300-EE-00-1401
17	1	150	80	300	WN	RF	SEE DWG.	85X T	LIQUID BOTTOM OUTLET TO LP COND. HEADER
35	1	50	160	300	WN	RF	510	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	510	-	LEVEL GAUGE MAGNETIC (SS)
LT1	1	50(H)	160	300	WN	RF	510	-	LEVEL TRANSMITTER (DP)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT1
X	NOZZLE ELEVATIONS LG 1-2 & LT1		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.3
DESIGN PRESSURE	(kg/cm^2g)	INT. 7 EXT. F.V.
WORKING TEMPERATURE	(°C)	145.8
DESIGN TEMPERATURE	(°C)	240
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.921 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.6
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		40 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		9.1
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	800	OPERATING	1100
HYDROTEST(SHOP)	1400	HYDROTEST (FIELD)	1400
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	09.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1401	कन्डनसेट पॉट फॉर 300-ईई-00-1401
ITEM NO. 300-VV-VW-1402	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1402

DRAWING NUMBER डाईग नम्बर: **B957-300-80-42-DS-3115** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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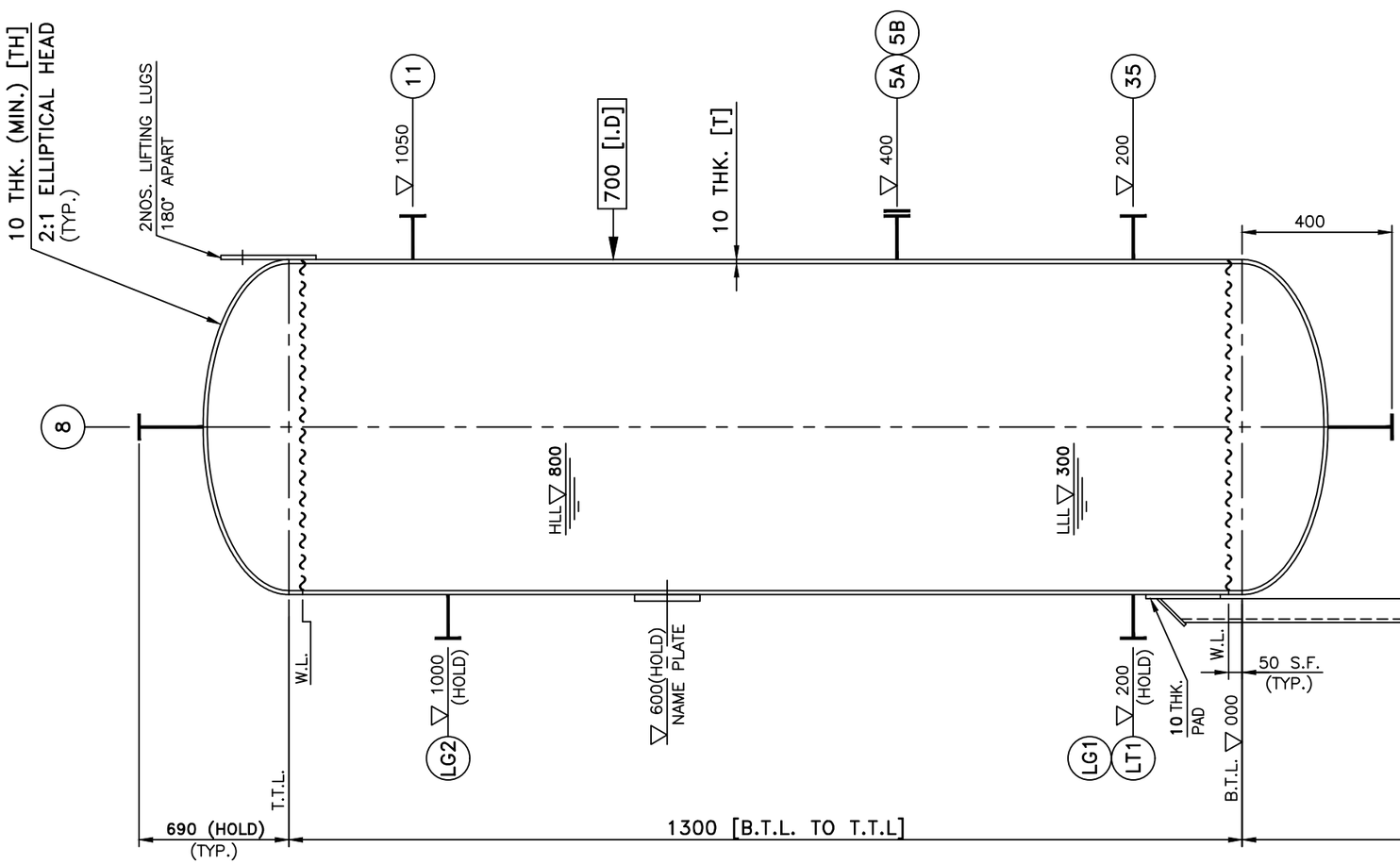

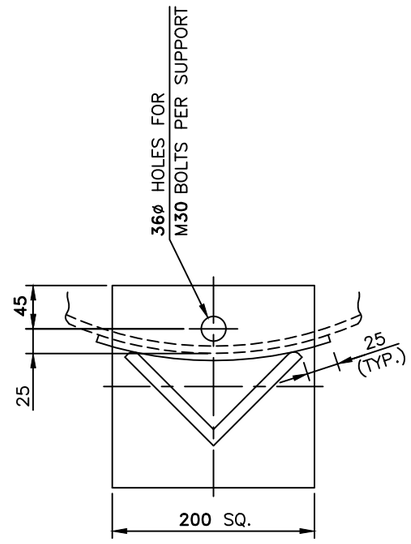

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	09.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा	DRAWING NO.	REV.
CONDENSATE POT FOR 300-EE-00-1401	कन्डनसेट पॉट फॉर 300-ईई-00-1401	B957-300-80-42-DS-3115	A
ITEM NO. 300-VV-VW-1402	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1402	SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	500	14 THK.	300	WN	RF	920	250X T	MANHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	300	14 THK.	300	WN	RF	870	160X T	FEED FROM 300-EE-00-1402 A/B
17	1	400	14 THK.	300	WN	RF	SEE DWG.	200X T	LIQUID BOTTOM OUTLET TO MP CONDENSATE HEADER
35	1	50	160	600	WN	RF	770	-	UTILITY CONNECTION
LG 1-2	2	50 (H)	160	300	WN	RF	770	-	LEVL GAUGE MAGNETIC (SS)
LT1	1	50 (H)	160	300	WN	RF	770	-	LEVEL TRANSMITTER (DP)

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

B

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC		
WIND		

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
B 11. DELETED
12. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
13. NOZZLE SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKET.
14. VENDOR SHALL CARRY OUT COMPLETE MECHANICAL DESIGN AS PER IBR & MODIFY THE THICKNESS, IF NECESSARY, WITHOUT ANY COST AND TIME IMPLICATION. HOWEVER, INDICATED THK. ARE MINIMUM TO BE PROVIDED. IT IS SOLE RESPONSIBILITY OF VENDOR TO GET APPROVAL OF ALL DOCUMENTS & DESIGN CALCULATION FROM CIB & ALSO GET THE EQPT. INSPECTED BY CIB.
15. EIL INSPECTION SHALL BE LIMITED TO EXPEDITING ONLY.
16. ALL MATERIAL / FABRICATION / TESTING (INCLUDING HYDROTEST) / INSPECTION SHALL MEET IBR REQUIREMENTS.
17. ALL PRESSURE BEARING WELDS SHALL BE CHECKED BY MP/DP TESTED AFTER HYDROTEST.
18. PARTS NOT COVERED BY IBR SHALL BE DESIGNED AS PER ASME SEC. VIII DIV.1.
19. WELD FOR ALL PRESSURE BEARING COMPONENTS SHALL BE FULL PENETRATION WELD. TEST FOR FUSION WELDED SEAMS SHALL COMPLY WITH REQUIREMENTS OF IBR.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS B	7-12-0004
	SKIRT OPENING DETAILS B	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
X	PIPE LEG SUPPORT B	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

B REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

B HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (LG & LI)
X	NOZZLE ELEVATIONS (LG & LT)		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	IBR (NOTE-18)
WORKING PRESSURE (kg/cm^2g)	15.6
DESIGN PRESSURE (kg/cm^2g)	INT. 22 EXT. FV
WORKING TEMPERATURE (°C)	350
DESIGN TEMPERATURE (°C)	201.5
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL AS PER IBR HEAD AS PER IBR
RADIOGRAPHY	SHELL AS PER IBR HEAD AS PER IBR
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.863 (AT OPERATING TEMP.)
WIND SPECIFICATION	IS-875
SEISMIC	SITE SPECTRA + IS-1893
CAPACITY (M^3)	3.1
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm) (IH)	80 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	AS PER IBR
INSPECTION BY	[ ] EIL [X] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT~~/ SUPPORT B	SA 106 GR. B
~~SKIRT~~/ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL) DIRECTLY WELDED OVER VESSEL	SA 516 GR.70
CLIPS & ATTACHMENTS (EXTERNAL) WELDED OVER PAD	IS 2062 GR. E 250 QUALITY BR/B0
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
LIFTING LUG	SA 516 GR.70

B PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : IBR

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

X	**INDIAN BOILER REGULATIONS (IBR)**
	DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	3100	OPERATING	5100
HYDROTEST(SHOP)	6200	HYDROTEST (FIELD)	6200
NUMBER OF ITEMS :	ONE		

PDS:B957-300-79-41-DS-1227 REV.1

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	18.12.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB
A	11.09.2025	ISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-1402A/B	कैडेंसैट पोट फोर 300-इइ-00-1402ए/बी
ITEM NO. 300-VV-VW-1403	आइटम नम्बर 300-वीवी-वीडब्ल्यू-1403

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3116	B
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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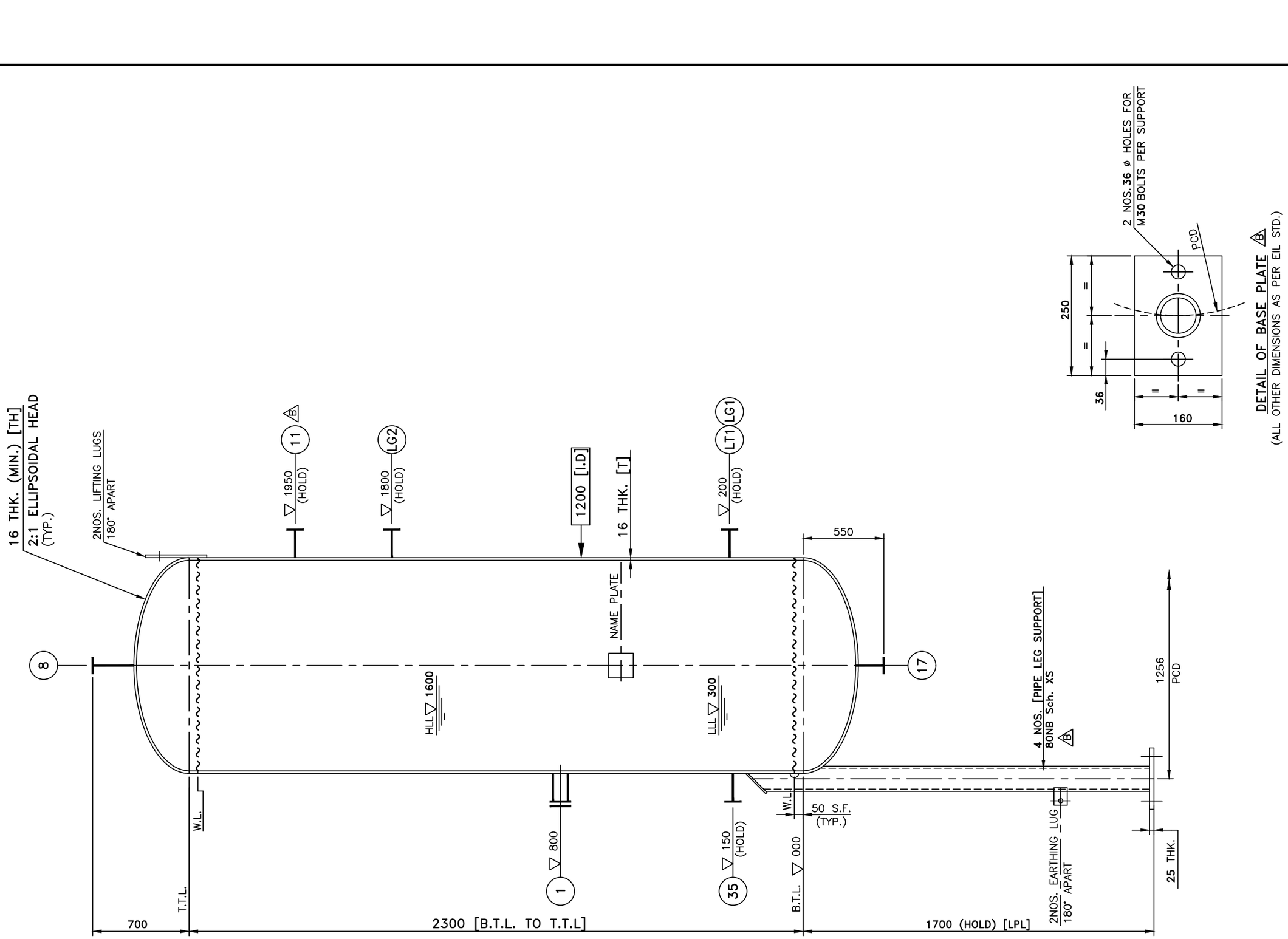

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	18.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	11.09.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
CONDENSATE POT
FOR 300-EE-00-1402A/B
ITEM NO. 300-VV-VW-1403

वेसेल डिजाइन डाटा
कैंडेसैट पोट फार
300-इई-00-1402ए/बी
आइटम नम्बर 300-वीवी-वीडब्ल्यू-1403

DRAWING NO. B957-300-80-42-DS-3116
REV. B
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS: B957-300-79-41-DS-1231 REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्ल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिग	PROJECTION NOTE-4 प्रोजेशन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK	150	WN	RF	2650	300 X T	MANHOLE + BF + DAVIT
7	1	1200	14 THK	150	WN	RF	SEE DWG.	610 X T	VAPOUR OUTLET TO 300-EE-00-2005
8	1	50	160	600	WN	RF	1650	–	VENT
11	1	1200	34 THK	150	WN	RF	2700	##	FEED FROM 300-EE-00-2002A/B / 300-EE-00-4106 / OSBL OFF GASES
17	1	150	80	300	WN	RF	SEE DWG.	85 X T	LIQUID BOTTOM OUTLET TO 300-VV-VI-2003
31	1	80	160	300	WN	RF	SEE DWG.	45 X T	DRAIN
34	1	150 (H)	80	300	WN	RF	2600	85 X T	SAFETY VALVE
35	1	50	160	600	WN	RF	2540	–	UTILITY CONNECTION
36	1	50	160	600	WN	RF	2540	–	PRESSURE GAUGE
LT 1-2	2	50 (H)	160	300	WN	RF	2540	–	LEVEL TRANSMITTER (GWR)
LT 3-4	2	50 (H)	160	300	WN	RF	2540	–	LEVEL TRANSMITTER (GWR)
LG 1-2	2	50 (H)	160	300	WN	RF	2540	–	LEVEL GAUGE MAGNETIC (SS)
SKV 1-4	4	100	40	AS PER EIL STANDARD				–	SKIRT VENT
AO 1-2	2	500 I.D.	14 THK	AS PER EIL STANDARD				255 X T	ACCESS OPENING

68 THK X Ø2950 INCLUDING 1:3 TAPER

'T' DENOTES CORRESPONDING SHELL/DISH/SKIRT END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) (HOLD)
फॉऊडशन लोडिगं डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	442000	29500
WIND	340000	17500

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13. ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14. VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
15. COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
16. ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.
17. EQUIPMENT SHALL BE SUBJECTED TO STEAM OUT AT 0.5 kg/cm²(g) @ 190°C.
18. IT SHALL BE ENSURED BY VENDOR THAT FOR NOZZLE ABOVE 600 NB NOZZLE PIPE O.D. SHALL MATCH WITH CORRESPONDING STANDARD FLANGE O.D .
19. VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPEC. FOR WIRE-MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010
X	PROCESS DATASHEET	300-VV-VI-2004

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES 34, LT, LG
X	NOZZLE ELEVATIONS 34, LT, LG	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
X	DETAILS OF BAFFLE (NZ.-11)		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	10.2
DESIGN PRESSURE (kg/cm²g)	INT. 18 EXT. -
WORKING TEMPERATURE (°C)	39
DESIGN TEMPERATURE (°C)	100
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTR-15)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.825 (AT OPERATING TEMP.)
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	143.5
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	23.4
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/INSERT PLATE	SA 516 GR.70
REINFORCEMENT PAD	SA 516 GR.70
HEADS	SA 516 GR.70
~~SHELL FLANGES/SR~~/LWN	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70 /IS 2062 GR. E250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 GR.70/ SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	SS304
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
TAILING LUG	IS 2062 GR. E 250 QUALITY BR/B0
LIFTING LUG	SA 516 GR.70

SPECIAL SERVICE : BENZENE

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) (HOLD)

ERECTION	58500	OPERATING	135000
HYDROTEST(SHOP)	202000	HYDROTEST (FIELD)	255000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	04.09.2025	ISSUED FOR BIDS / ENGG.	AS	AD/VIVEK	PB

DESIGN DATA
CHARGE GAS COMPRESSOR 2ND STAGE DISCHARGE DRUM

ITEM NO. 300-VV-VI-2004

डिजाइन डाटा
चार्ज गैस कम्प्रैसर सैकन्ड स्टेज डिस्चार्ज ड्रम

आइटम नम्बर 300-वीवी-वीआई-2004

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3119** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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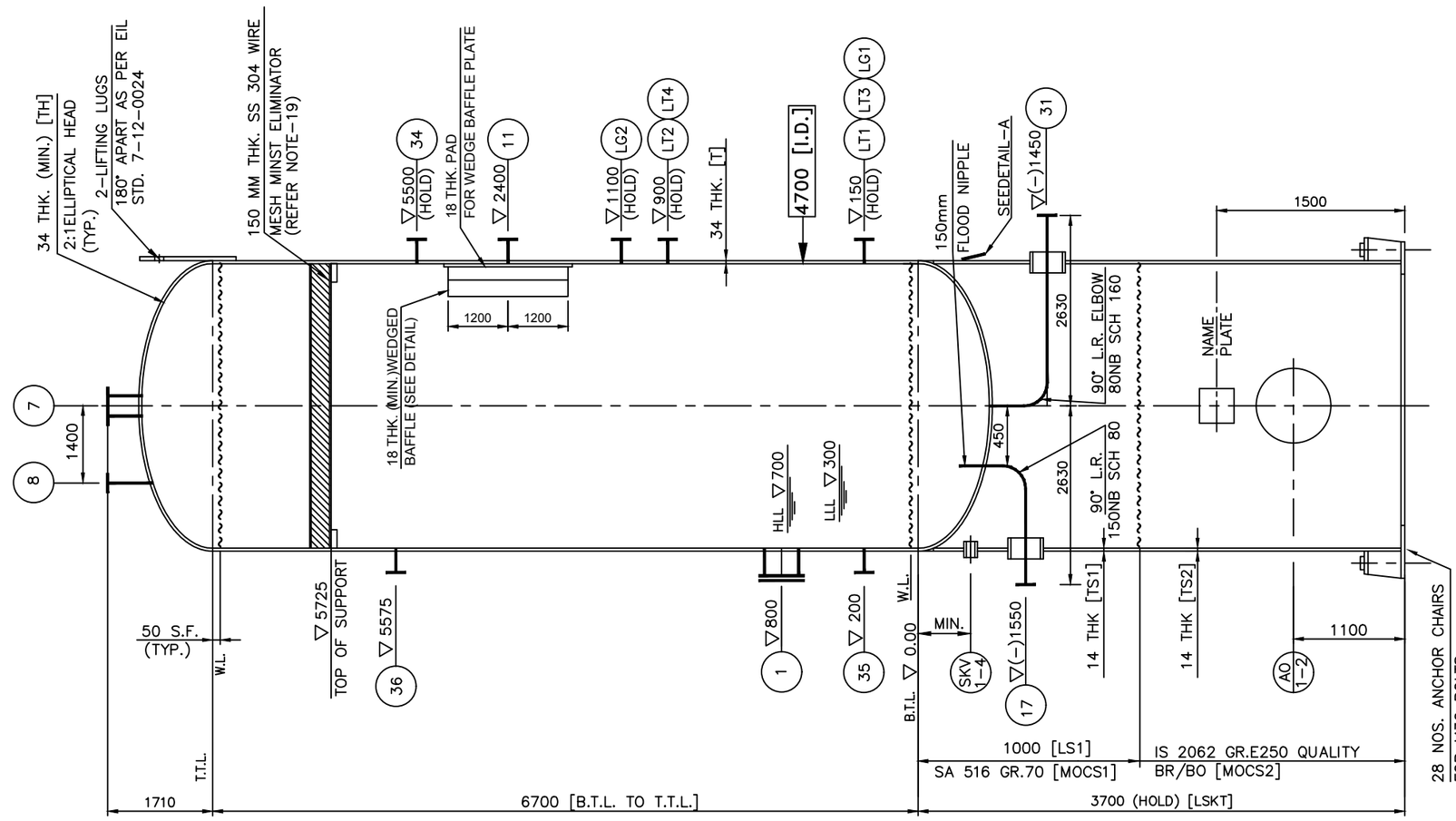
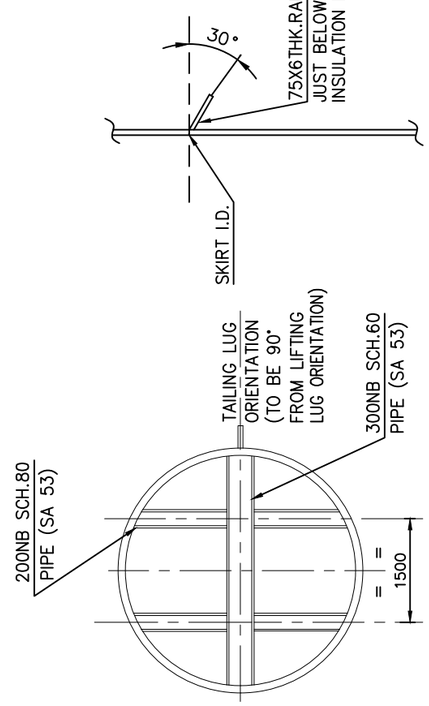
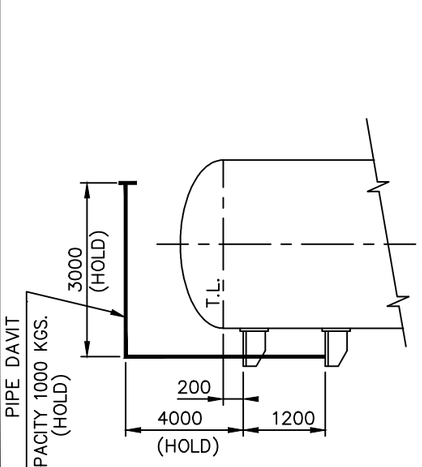




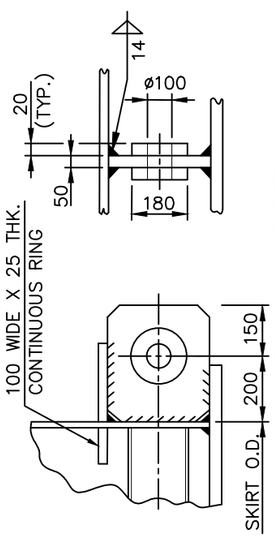
DETAIL - A

STIFFENING DETAIL OF SKIRT



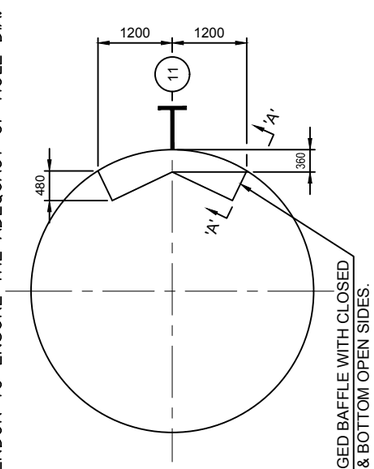
PIPE DAVIT

(ALL OTHER DIMENSIONS AS PER EIL STD.)

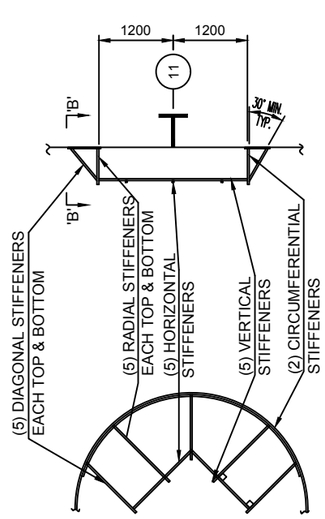


TAILING LUG DETAIL

(S) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



WEDGED BAFFLE DETAIL



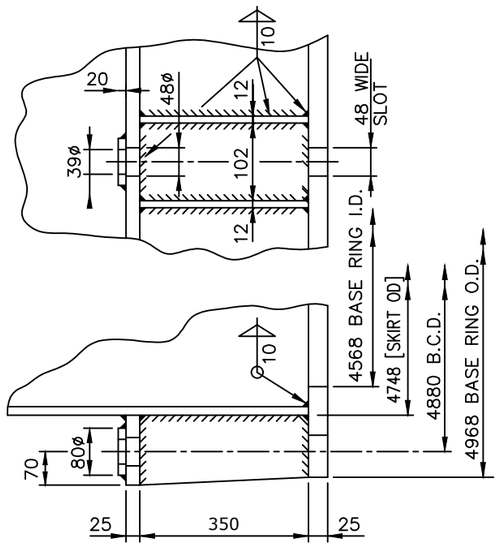
ALL STIFFENER SHALL BE 18 THK. x 100 WIDE

SECTION 'A-A'

(HOLD)

SECTION 'B-B'

(HOLD)



SKIRT BASE DETAIL (HOLD)

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	04.09.2025	ISSUED FOR BIDS/ENGG.	AS	AD/VIVEK	PB	

VESSEL DESIGN DATA
CHARGE GAS COMPRESSOR
2ND STAGE DISCHARGE DRUM
ITEM NO. 300-VV-VI-2004

वेसल डिजाइन डाटा
चार्ज गैस कम्प्रैसर
2 स्टेज डिस्चार्ज ड्रम
आइटम नम्बर 300-वीवी-वीआई-2004

DRAWING NO.	REV.
B957-300-80-42-DS-3119	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1232 REV-2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेक्शन	पैड	सर्विस
1 A-B	2	600	12 THK.	300	WN	RF	2470	300 X T	MANHOLE + B.F + DAVIT
7	1	1200	14 THK.	300	WN	RF	SEE DWG.	610 X T	VAPOR OUTLET TO 300-KA-CF-2001 (3RD STAGE)
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	1200	28 THK.	300	WN	RF	2635	@	FEED FROM 300-EE-00-2006A/B / 300-GN-00-2401A/B
12	1	100	80	300	WN	RF	2435	60 X T	FEED FROM 300-VD-00-2002 A/B (DEIN VENTORY) (NOTE-22)
17	1	100	80	300	WN	RF	SEE DWG.	60 X T	WATER BOTTOM OUTLET TO 300-CC-00-1301
19	1	150	80	300	WN	RF	2435	85 X T	HYDROCARBON DRAWOFF TO 300-PA-CF-2002A/B
20	1	80	160	300	WN	RF	2435	45 X T	MIN. FLOW RETURN FROM 300-PA-CF-2002A/B
31	1	80	160	300	WN	RF	SEE DWG.	45 X T	DRAIN
34	1	200 (H)	80	300	WN	RF	2435	110 X T	SAFETY VALVE
35	1	50	160	600	WN	RF	2435	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	2435	-	PRESSURE GAUGE
LG 3-4	2	50 (H)	160	300	WN	RF	2435	-	LEVEL GAUGE (MAG)
LG 1-2	2	50 (H)	160	300	WN	RF	2435	-	LEVEL GAUGE-(MAG) INTERFACE
LT 3-10	8	50 (H)	160	300	WN	RF	2435	-	LEVEL TXMR (GWR)
LT 1-2	2	50 (H)	160	300	WN	RF	2435	-	LEVEL TXMR (GWR) INTERFACE
SKV 1-4	4	100	40	AS PER STANDARD					SKIRT VENT
AO 1-2	2	500 I.D.	14 THK.	AS PER STANDARD					ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH/SKIRT END NOMINAL THICKNESS

'H' DENOTES (HOLD)

@ INSERT PLATE OF 2625 DIA. 68 THK. (INCLUDING TAPER)

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) (HOLD)
फॉऊडेशन लोडिंगं डाटा (आपरटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	585000	40000
WIND	365900	22900

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
15 EQUIPMENT SHALL BE SUBJECTED TO STEAM OUT AT 0.5 kg/cm²(g) @ 190°C.
16 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17 IT SHALL BE ENSURED BY VENDOR THAT FOR NOZZLE ABOVE 600 NB NOZZLE PIPE O.D. SHALL MATCH WITH CORRESPONDING STANDARD FLANGE O.D .
18 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
19 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
20 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
21 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPEC. FOR WIRE-MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
X	SKETCH FOR MONKEY LADDER	B957-00-80-42-SK-0010
X	PROCESS DATASHEET	300-VV-VI-2005

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG, LT & 34
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
X	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	9.43
DESIGN PRESSURE (kg/cm²g)	INT. 18 EXT. -
WORKING TEMPERATURE (°C)	15
DESIGN TEMPERATURE (°C)	100
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTE-20)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	LIGHT: 0.731 HEAVY: 0.999 AT OPERATING TEMP.
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	151
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	23.4
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/INSERT PLATE	SA 516 GR.70
REINFORCEMENT PAD	SA 516 GR.70
HEADS	SA 516 GR.70
~~SHELL FLANGES/SR~~/LWN	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70 /IS 2062 GR. E250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 GR.70/ SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	SS304
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
TAILING LUG	IS 2062 GR. E 250 QUALITY BR
LIFTING LUG	SA 516 GR.70

SPECIAL SERVICE : BENZENE

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) (HOLD)

ERECTION	72000	OPERATING	191000
HYDROTEST(SHOP)	233000	HYDROTEST (FIELD)	296000
NUMBER OF ITEMS :	ONE		

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	04.09.2025	ISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA
CHARGE GAS COMPRESSOR 3RD STAGE SUCTION DRUM

ITEM NO. 300-VV-VI-2005

डिजाइन डाटा
चार्ज गैस कम्प्रैसर थर्ड स्टेज सक्शन ड्रम

आइटम नम्बर 300-वीवी-वीआई-2005

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3120** REV: A

SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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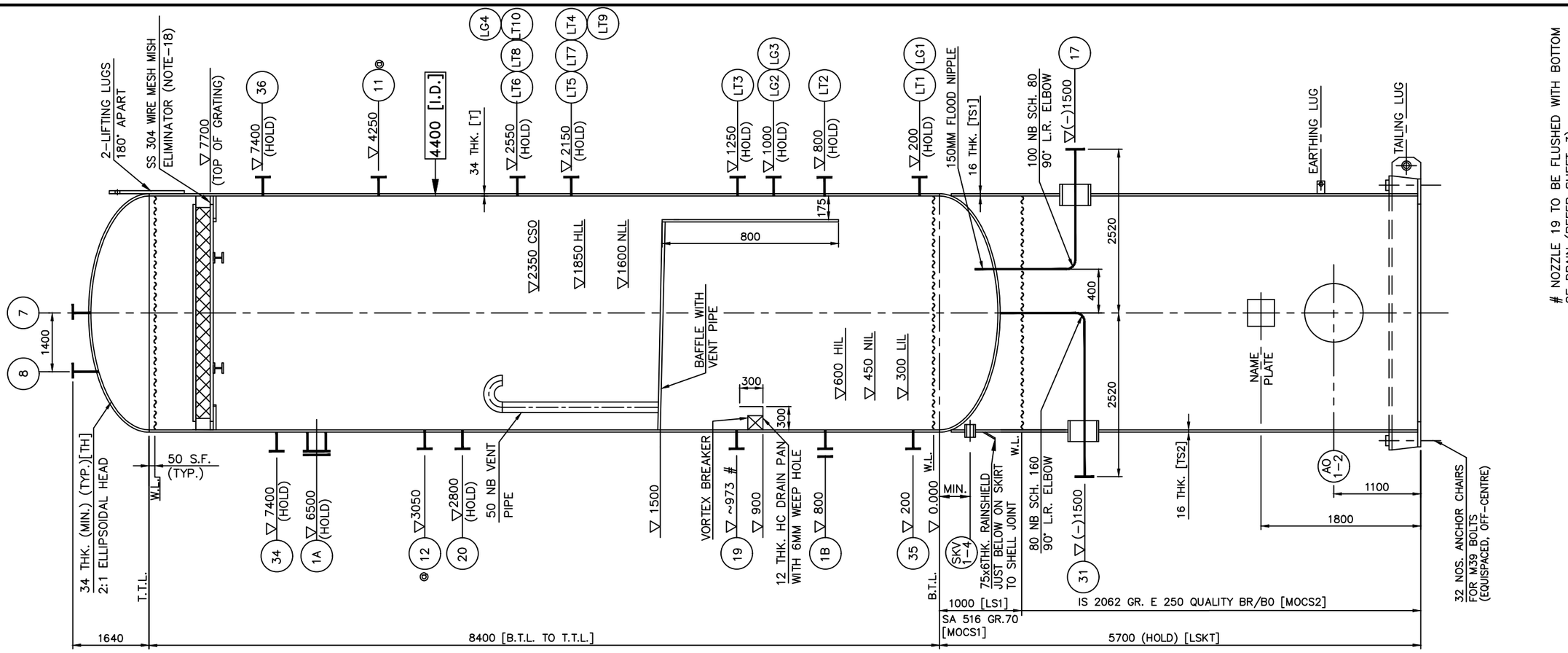
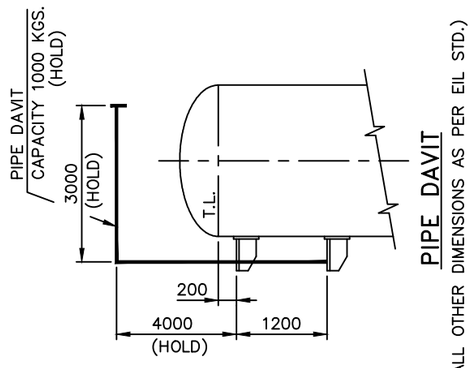
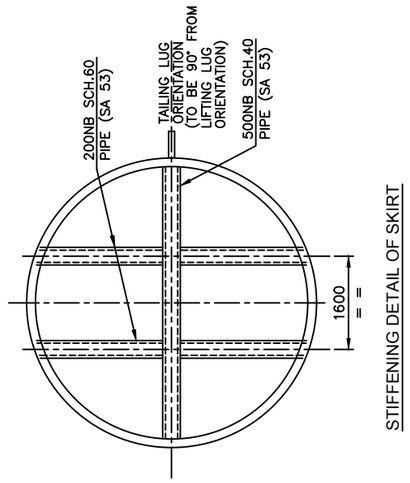
© NOZZLE #12 TO BE ORIENTED EITHER 90° OR 180° FROM NOZZLE #11.



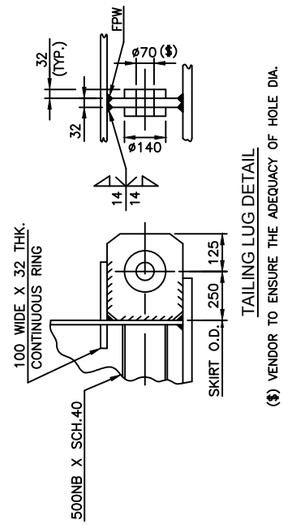
NOZZLE 19 TO BE FLUSHED WITH BOTTOM OF DRAIN (REFER SHEET-3)



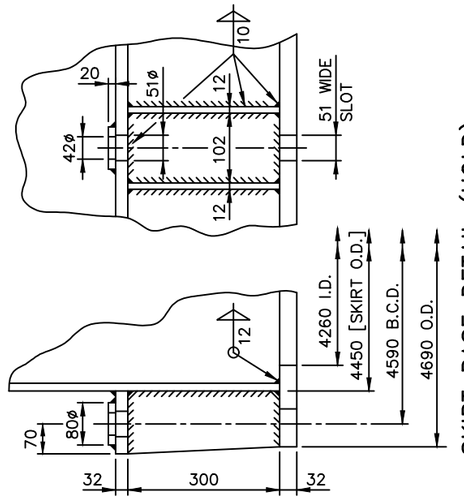
PIPE DAVIT
(ALL OTHER DIMENSIONS AS PER EIL STD.)



STIFFENING DETAIL OF SKIRT



TAILING LUG DETAIL
($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL (HOLD)
(ALL OTHER DIMENSIONS AS PER EIL STD.)

A	04.09.2025	ISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB		
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

VESSEL DESIGN DATA
CHARGE GAS COMPRESSOR 3RD STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-2005

वेसल डिजाइन डाटा
चार्ज गैस कम्प्रेसर थर्ड स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-2005

DRAWING NO. B957-300-80-42-DS-3120 | REV. A

SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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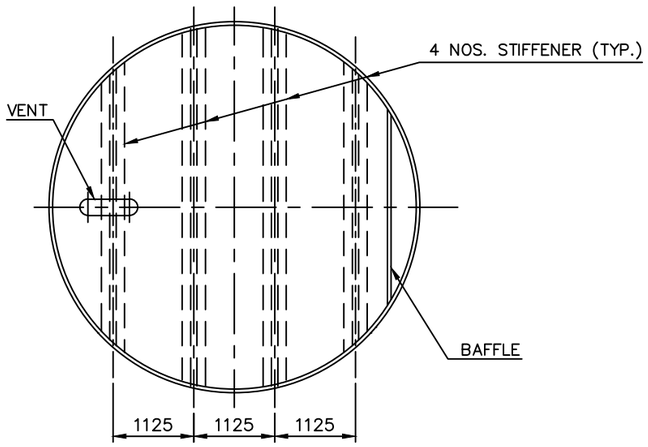
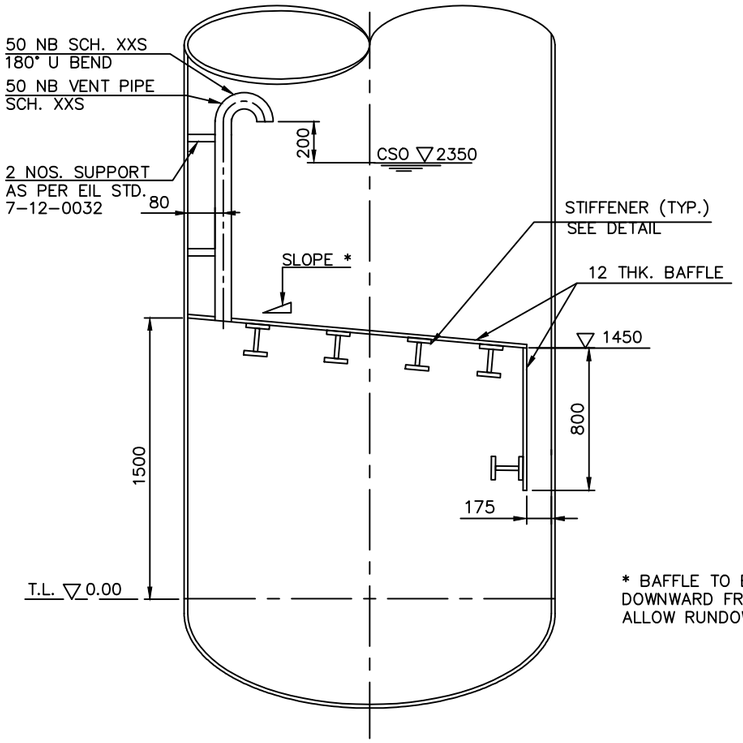
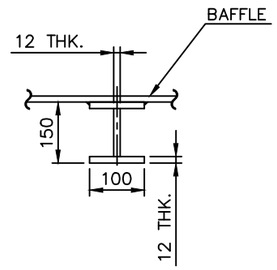


PLAN

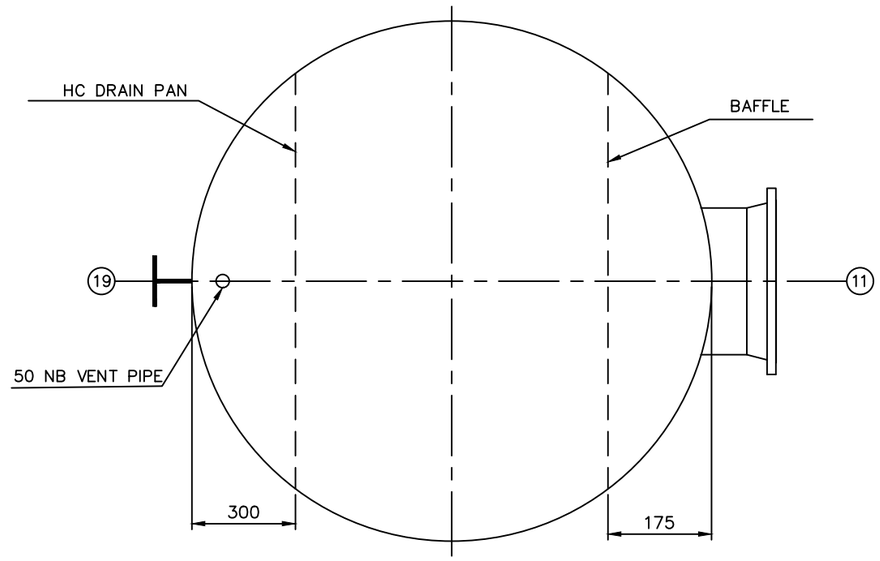


BAFFLE DETAIL

* BAFFLE TO BE SLOPED 50mm DOWNWARD FROM HORIZONTAL TO ALLOW RUNDOWN ON SHUT DOWN.



DETAIL OF STIFFENER (TYP.)



TOP VIEW

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	04.09.2025	ISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	

VESSEL DESIGN DATA
CHARGE GAS COMPRESSOR 3RD STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-2005

वेसल डिजाइन डाटा
चार्ज गैस कम्प्रैसर थर्ड स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-2005

DRAWING NO. B957-300-80-42-DS-3120 | REV. A

SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1233 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्ल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1 A-B	2	600	12 THK.	300	WN	RF	2150	300 X T	MANHOLE + B.F + DAVIT
7	1	900	16 THK.	300	WN	RF	SEE DWG.	455 X T	VAPOR OUTLET TO 300-VD-00-2001 A-C
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	900	16 THK.	300	WN	RF	2200	455xT	FEED FROM 300-EE-002005
17	1	50	160	600	WN	RF	SEE DWG.	-	WATER BOTTOM OUTLET TO 300-VV-VI-2005
19	1	200	80	300	WN	RF	2050	110 X T	HYDROCARBON DRAWOFF TO 300-PA-CF-2003A/B
20	1	80	160	600	WN	RF	2050	45 X T	MIN. FLOW RETURN FROM 300-PA-CF-2003A/B
31	1	80	160	600	WN	RF	SEE DWG.	45 X T	DRAIN
34	1	200 (H)	80	300	WN	RF	2050	110 X T	SAFETY VALVE
35	1	50	160	600	WN	RF	2050	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	2050	-	PRESSURE GAUGE
LG 3-4	2	50 (H)	160	300	WN	RF	2050	-	LEVEL GAUGE (MAG)
LG 1-2	2	50 (H)	160	300	WN	RF	2050	-	LEVEL GAUGE (MAG) INTERFACE
LT 3-4	2	50 (H)	160	300	WN	RF	2050	-	LEVEL TXMR (DP)
LT 1-2	2	50 (H)	160	300	WN	RF	2050	-	LEVEL TXMR (GWR) INTERFACE
SKV 1-4	4	100	40	AS PER STANDARD					SKIRT VENT
AO 1-2	2	500 I.D.	14 THK.	AS PER STANDARD					ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH/SKIRT END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) (HOLD)
फॉऊडशन लोडिगं डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	512500	34500
WIND	295800	19000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13. ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14. VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
15. EQUIPMENT SHALL BE SUBJECTED TO STEAM OUT AT 0.5 kg/cm²(g) @ 190°C.
16. UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17. IT SHALL BE ENSURED BY VENDOR THAT FOR NOZZLE ABOVE 600 NB NOZZLE PIPE O.D. SHALL MATCH WITH CORRESPONDING STANDARD FLANGE O.D .
18. VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
19. VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
20. COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
21. ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPEC. FOR WIRE-MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
X	SKETCH FOR MONKEY LADDER	B957-00-80-42-SK-0010
X	PROCESS DATASHEET	300-VV-VI-2006

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG, LT & 34
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
X	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	25
DESIGN PRESSURE (kg/cm²g)	INT. 31.5 EXT. -
WORKING TEMPERATURE (°C)	12
DESIGN TEMPERATURE (°C)	150
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTE-20)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	LIGHT: 0.558 HEAVY: 0.999 AT OPERATING TEMP.
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	90
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm) (IC)	50 ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	40.95
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/INSERT PLATE	SA 516 GR.70
REINFORCEMENT PAD	SA 516 GR.70
HEADS	SA 516 GR.70
~~SHELL FLANGES/SR~~/LWN	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70 /IS 2062 GR. E250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 GR.70/ SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	SS304
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
TAILING LUG	IS 2062 GR. E 250 QUALITY BR
LIFTING LUG	SA 516 GR.70

SPECIAL SERVICE : BENZENE

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

☐ **INDIAN BOILER REGULATIONS (IBR)**

☐ **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) (HOLD)

ERECTION	90000	OPERATING	172000
HYDROTEST(SHOP)	168500	HYDROTEST (FIELD)	225500
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	04.09.2025	ISSUED FOR BIDS / ENGG.	AS	CSM/VIVEK	PB

DESIGN DATA
CHARGE GAS COMPRESSOR 3RD STAGE DISCHARGE DRUM

ITEM NO. 300-VV-VI-2006

डिजाइन डाटा
चार्ज गैस कम्प्रैसर थर्ड स्टेज डिस्चार्ज ड्रम

आइटम नम्बर 300-वीवी-वीआई-2006

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3121** REV: A

SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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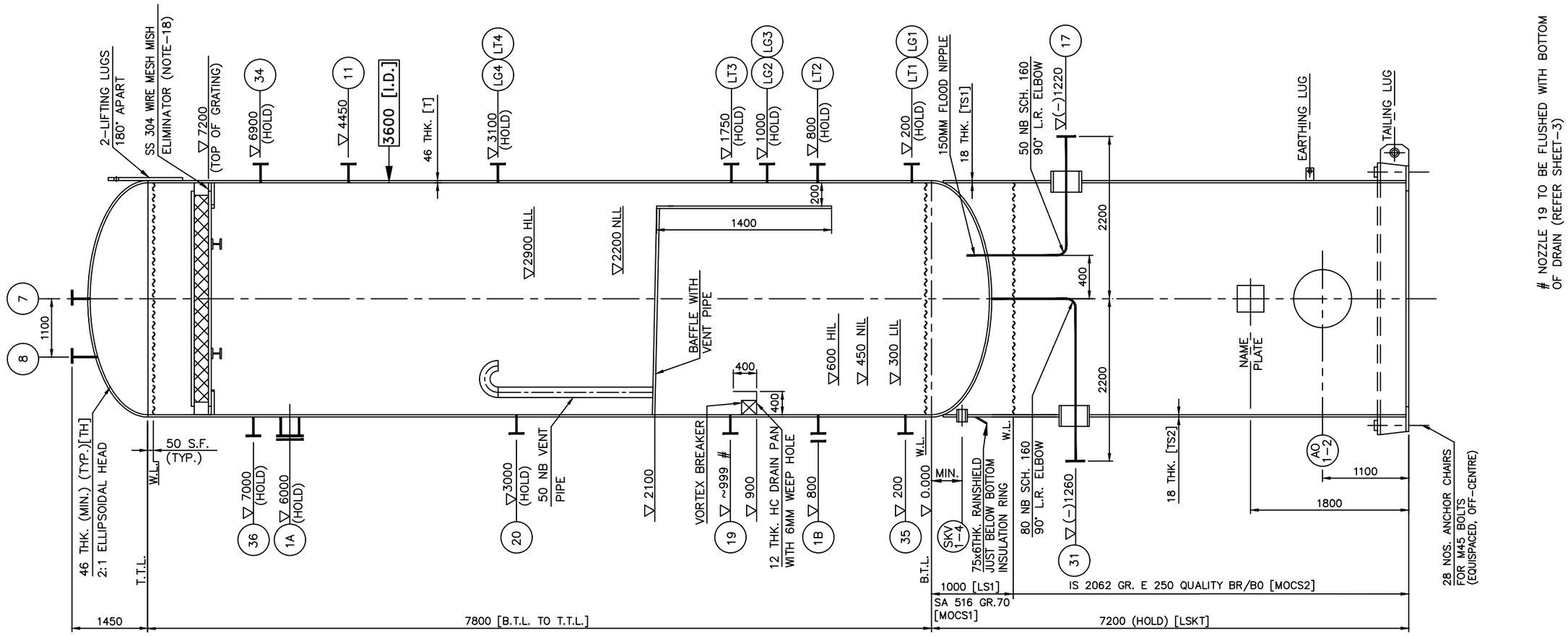
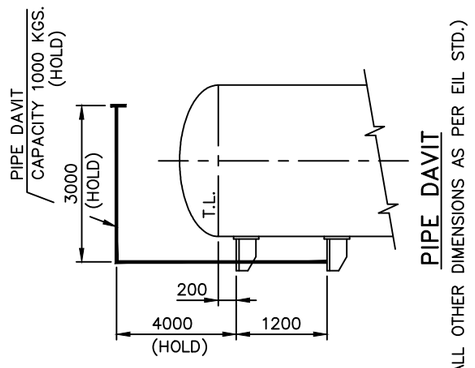
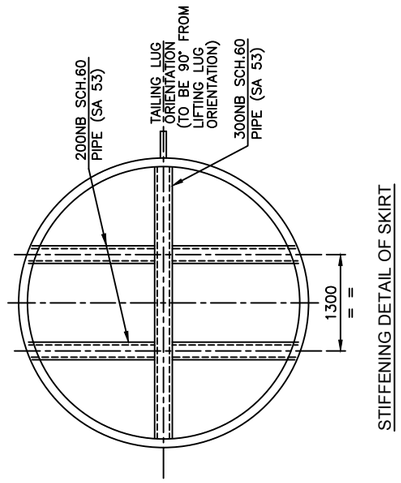


NOZZLE 19 TO BE FLUSHED WITH BOTTOM OF DRAIN (REFER SHEET-3)

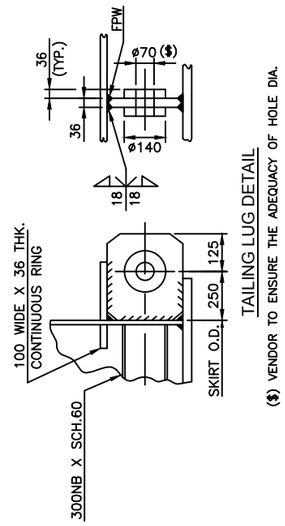


PIPE DAVIT

(ALL OTHER DIMENSIONS AS PER EIL STD.)

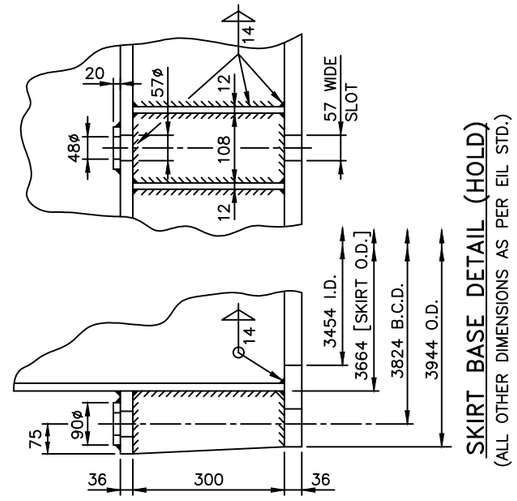


STIFFENING DETAIL OF SKIRT



TAILING LUG DETAIL

($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL (HOLD)

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	04.09.2025	ISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	

VESSEL DESIGN DATA
CHARGE GAS COMPRESSOR 3RD STAGE DISCHARGE DRUM
ITEM NO. 300-VV-VI-2006

वेसल डिजाइन डाटा
चार्ज गैस कम्प्रेसर थर्ड स्टेज डिस्चार्ज ड्रम
आइटम नम्बर 300-वीवी-वीआई-2006

DRAWING NO. B957-300-80-42-DS-3121 | REV. A

SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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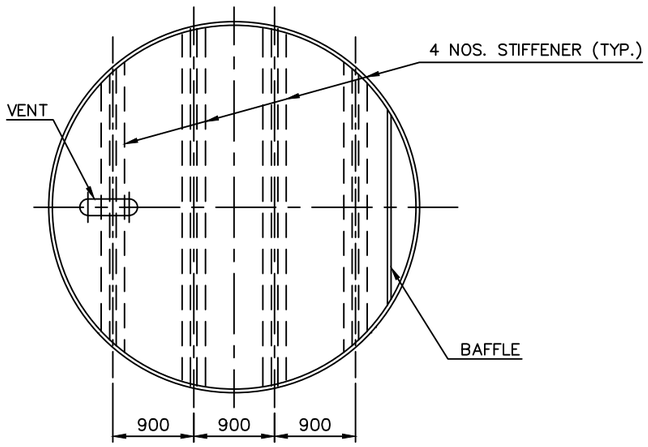
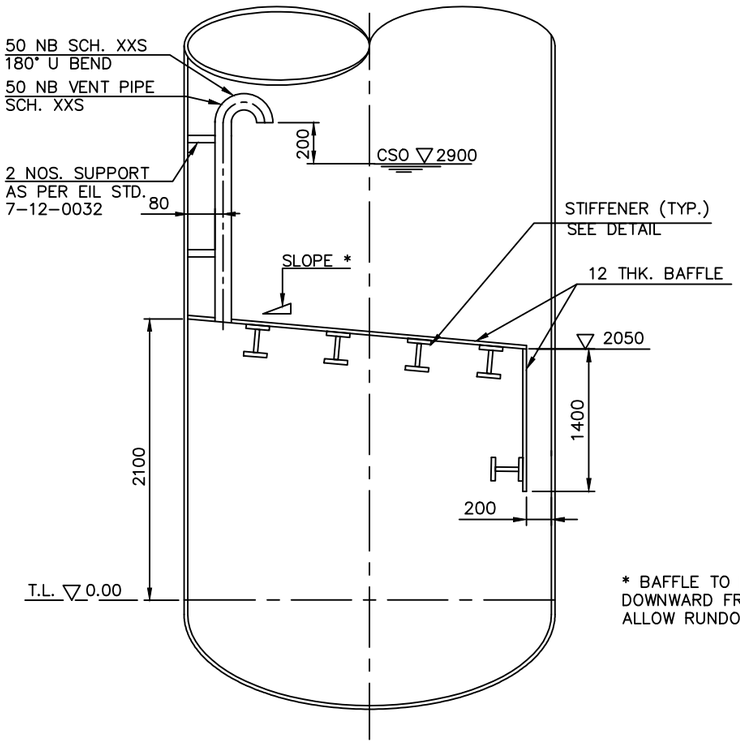
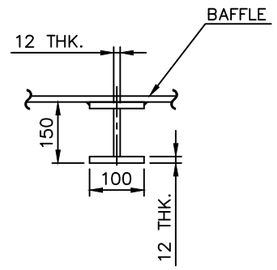


PLAN

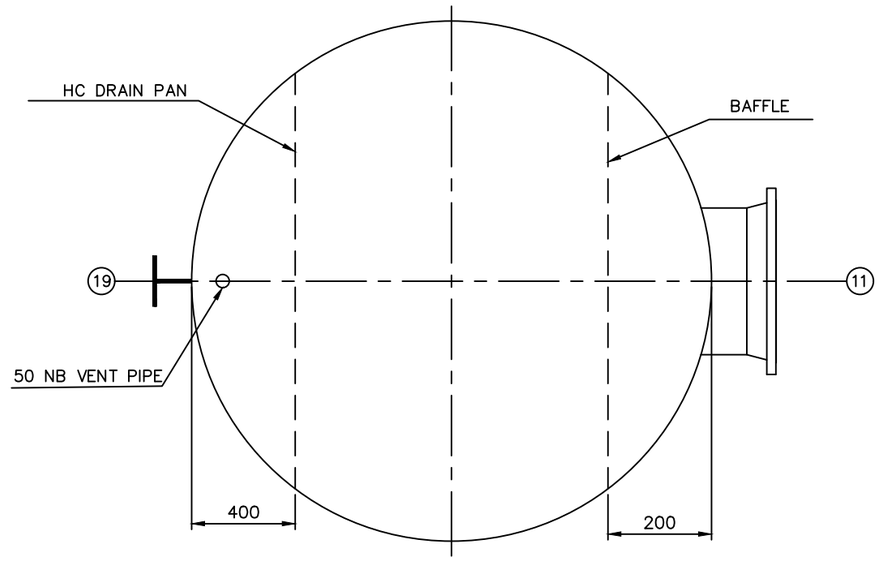


BAFFLE DETAIL

* BAFFLE TO BE SLOPED 50mm DOWNWARD FROM HORIZONTAL TO ALLOW RUNDOWN ON SHUT DOWN.



DETAIL OF STIFFENER (TYP.)



TOP VIEW

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	04.09.2025	ISSUED FOR BIDS/ENGG.	AS	CSM/VIVEK	PB	

VESSEL DESIGN DATA
CHARGE GAS COMPRESSOR 3RD STAGE DISCHARGE DRUM
ITEM NO. 300-VV-VI-2006

वेसल डिजाइन डाटा
चार्ज गैस कम्प्रैसर थर्ड स्टेज डिस्चार्ज ड्रम
आइटम नम्बर 300-वीवी-वीआई-2006

DRAWING NO.	REV.
B957-300-80-42-DS-3121	A
SHEET 3 OF 3	

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
5 A-B	2	200	80	300	WN	RF	SEE DWG.	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	50	160	600	WN	RF	720	-	FEED FROM 300-KA-CF-2001 CASING DRAINS
17	1	80	160	600	WN	RF	600	40X T	LIQUID BOTTOM OUTLET TO 300-CC-00-1301
31	1	50	160	600	WN	RF	SEE DWG.	-	DRAIN
33	1	50 (H)	160	600	WN	RF	720	-	SAFETY VALVE
35	1	50	160	600	WN	RF	SEE DWG.	40X T	UTILITY CONNECTION
50	1	50	160	600	WN	RF	720	-	NITROGEN INLET
45 A-B	2	50 (H)	160	300	WN	RF	450	-	LEVEL GUAGE / GLASS

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
SEISMIC (MC)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. LIQUID DENSITY AT OPERATING CONDITIONS IS 550 KG/M3 TO 810 KG/M3 FOR HYDROCARBON AND 970 KG/M3 TO 1000 KG/M3 FOR WATER.
11. SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
12. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5Kg/cm2(g) @190°C.
13. INSULATION (TYPE `IS' - WIRE MESH) BY OTHERS.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	-
LADDERS/PLATFORM CLEATS	-
PIPE SUPPORT CLEATS	-
TRAY SUPPORT AND BOLTING BARS	-
DEMISTER DATA SHEET	-
SKETCH FOR MONKEY LADDER	-

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES 45A-B,33
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	FIXED/SLIDING SUPPORT		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm²g)	AMB/25.6
DESIGN PRESSURE	(kg/cm²g)	INT. 31.5 EXT. --
WORKING TEMPERATURE	(°C)	AMB/90
DESIGN TEMPERATURE	(°C)	150
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		(NOTE-10)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.34
PAINTING/CLEANING		(NOTE-11)
INSULATION THICKNESS (mm) (IS)		(NOTE-13) [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[ ] YES [X] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)		40.95
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / ~~BOOT~~	SA 516 Gr.70
REINFORCEMENT PAD ~~/ INSERT PAD~~	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	SA 516 GR.70
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/IS 2062 GR.E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	SA 516 GR.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	800	OPERATING	1200
HYDROTEST(SHOP)	1140	HYDROTEST (FIELD)	1200
NUMBER OF ITEMS :	ONE		

B957-300-79-41-DS-1234 REV 1

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	13.03.2026	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CHARGE GAS COMPRESSOR CASING DRAIN DRUM	चार्ज गैस कंप्रेसर केसिंग ड्रेन ड्रम
ITEM NO. 300-VV-HW-2007	आइटम नम्बर 300-वीवी-एचडब्लू-2007

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3122	A
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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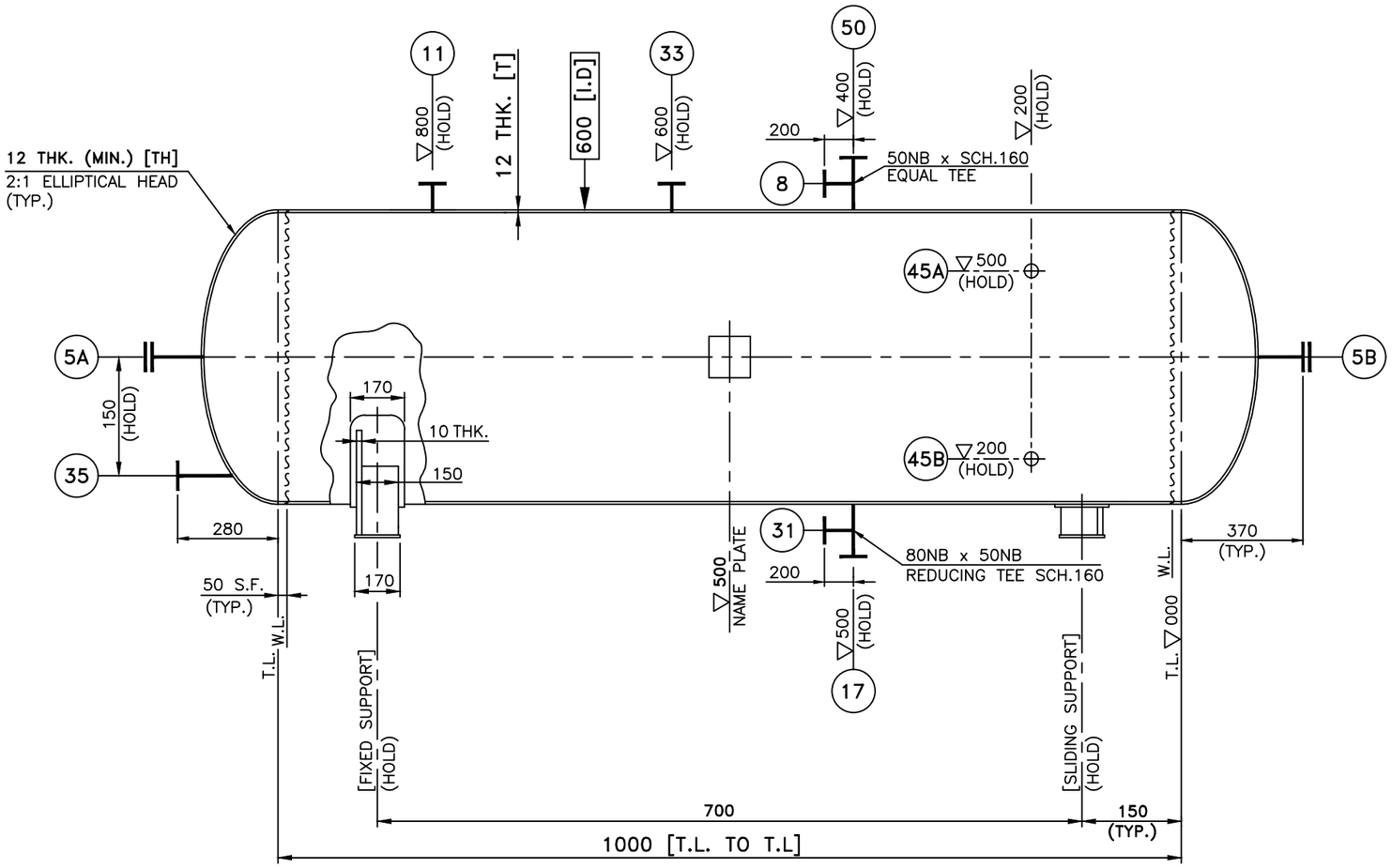
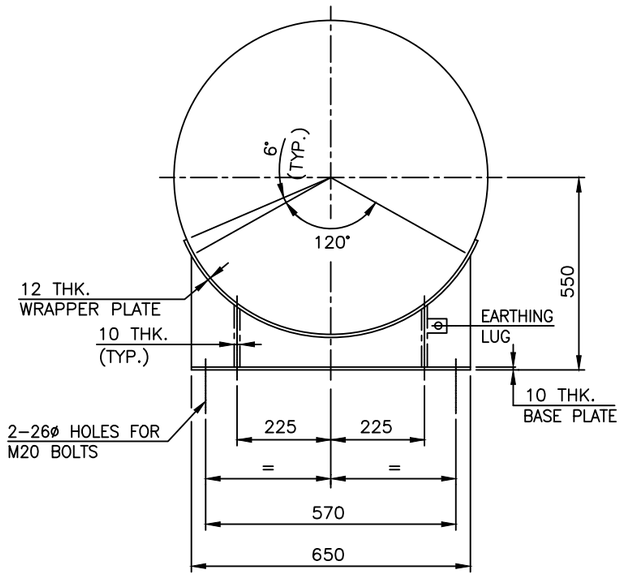
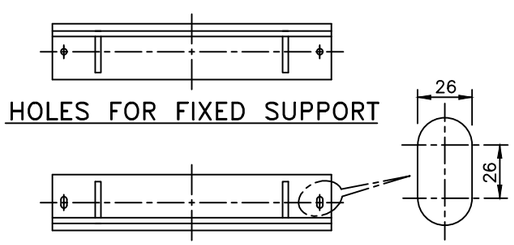




END VIEW

(NOZZLES NOT SHOWN)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



HOLES FOR FIXED SUPPORT

HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	13.03.2026	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA
CHARGE GAS COMPRESSOR CASING DRAIN DRUM
ITEM NO. 300-VV-HW-2007

वेसेल डिजाइन डाटा
चार्ज गैस कंप्रेसर केसिंग ड्रेन ड्रम
आइटम नम्बर 300-वीवी-एचडब्लू-2007

DRAWING NO.	REV.
B957-300-80-42-DS-3122	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1235 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	150	WN	RF	1170	300X T	MANHOLE + BF + GASKET + BOLTING
7	1	400	14 THK.	150	WN	RF	SEE DWG.	200X T	VAPOR OUTLET TO 300-CC-00-1301
8	1	80	160	300	WN	RF	SEE DWG.	45X T	VENT
11	1	200	80	300	WN	RF	1170	110X T	FEED FROM 300-VV-VI-2003
12 A-B	2	600	18 THK.	150	WN	RF	1170	300X T	FEED FROM 300-EE-00-2007A/B
17	1	200	80	300	WN	RF	SEE DWG.	110X T	LIQUID OUTLET TO 300-PA-CF-2004A/B
18	1	400	14 THK.	150	WN	RF	SEE DWG.	200X T	LIQUID OUTLET TO 300-EE-00-2007A/B
31	1	80	160	300	WN	RF	SEE DWG.	45X T	DRAIN
35	1	50	160	300	WN	RF	1070	-	UTILITY CONNECTION
SP 1-2	2	50(H)	160	300	WN	RF	1070	-	STAND PIPE
LT 1-4	4	50(H)	160	300	WN	RF	1070	-	LEVEL TRANSMITTER (DP)
AO	1	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-3	3	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	67500	7000
WIND	54500	6750

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
12. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
13. COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
14. ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
15. VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED. □

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-4 & LT 1-4
X	NOZZLE ELEVATIONS LG 1-4 & LT 1-4	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	0.9
DESIGN PRESSURE	(kg/cm^2g)	INT. 9.5 EXT. 0.53
WORKING TEMPERATURE	(°C)	114
DESIGN TEMPERATURE	(°C)	150
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1 HEAD 1
RADIOGRAPHY		SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT		YES (NOTE-13)
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.767 (AT OPERATING TEMPERATURE)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	14.8
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		25 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		12.35
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.60
REINFORCEMENT PAD	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 Gr.60/ IS 2062 GR. E 250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 Gr.60
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60
PIPE DAVIT	-
LIFTING LUG	SA 516 Gr.60

SPECIAL SERVICE : BENZENE / AROMATIC

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	13500	OPERATING	40000
HYDROTEST(SHOP)	28300	HYDROTEST (FIELD)	48800
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	27.03.2026	REVISED & REISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB
A	19.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
MEDIUM GASOLINE FLASH DRUM	मीडियम गैसोलीन फ्लॅश ड्रम	**B957-300-80-42-DS-3123**	B
ITEM NO. 300-VV-VW-2008	आइटम नम्बर 300-वीवी-वीडब्लू-2008	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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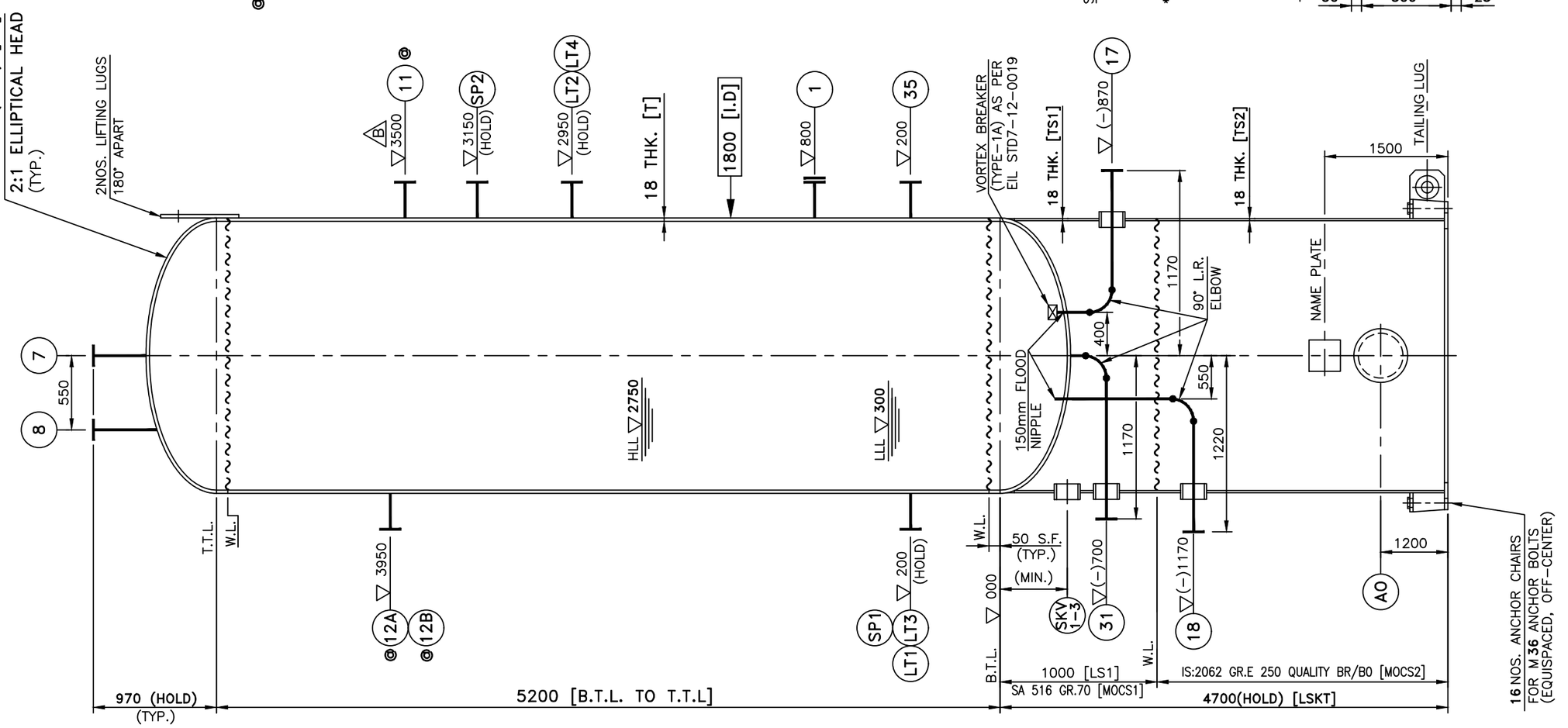
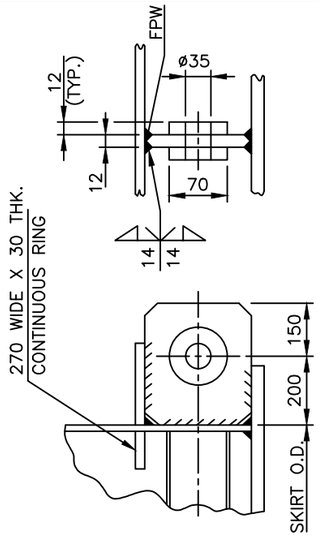
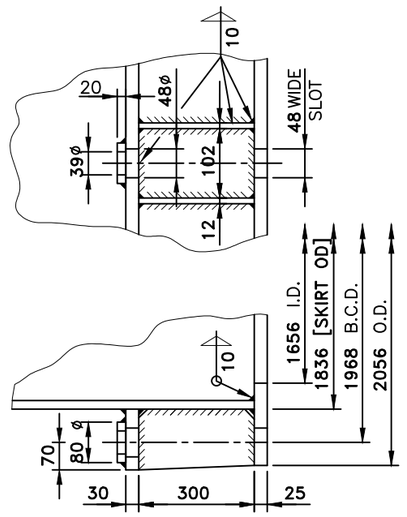
@ NOZZLE #12A AND #12B TO BE ORIENTED 90° AND 270°, RESPECTIVELY, FROM NOZZLE #11.





DETAIL OF TAILING LUG

* VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	27.03.2026	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
A	14.11.2026	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा	DRAWING NO.	REV.
MEDIUM GASOLINE FLASH DRUM	मीडियम गैसोलीन फ्लॅश ड्रम	B957-300-80-42-DS-3123	B
ITEM NO. 300-VV-VW-2008	आइटम नम्बर 300-वीवी-वीडब्लू-2008	SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1236 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेशन	पैड	सर्विस
5 A-B	2	200	80	150	WN	RF	510	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	100	120	300	WN	RF	510	50X T	FEED FROM 300-EE-00-2007A/B
17	1	80	160	300	WN	RF	SEE DWG.	45X T	LIQUID BOTTOM OUTLET TO LP CONDENSATE HEADER
35	1	50	160	600	WN	RF	460	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
LT1	1	50(H)	160	300	WN	RF	460	-	LEVEL TRANSMITTER (DP)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT1
X	NOZZLE ELEVATIONS LG 1-2 & LT1		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3
DESIGN PRESSURE	(kg/cm^2g)	INT. 8.5 EXT. F.V.
WORKING TEMPERATURE	(°C)	143.2
DESIGN TEMPERATURE	(°C)	240
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.923 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.4
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS (mm) (IH)		40 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		11.05
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	600	OPERATING	800
HYDROTEST(SHOP)	1000	HYDROTEST (FIELD)	1000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	11.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-2007A/B	कन्डनसेट पॉट फॉर 300-ईई-00-2007ए/बी
ITEM NO. 300-VV-VW-2009	आइटम नम्बर 300-वीवी-वीडब्ल्यू-2009

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3124** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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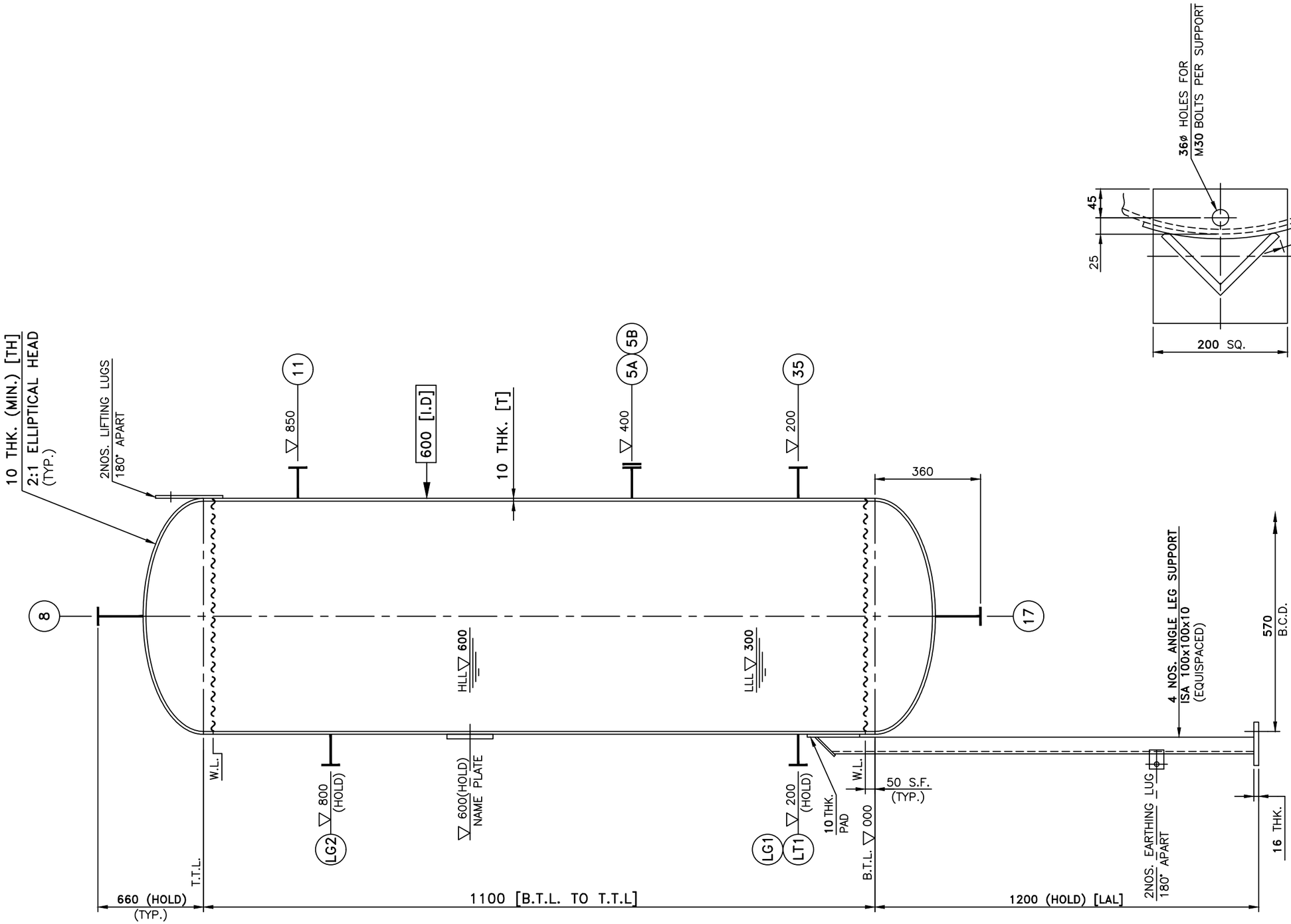

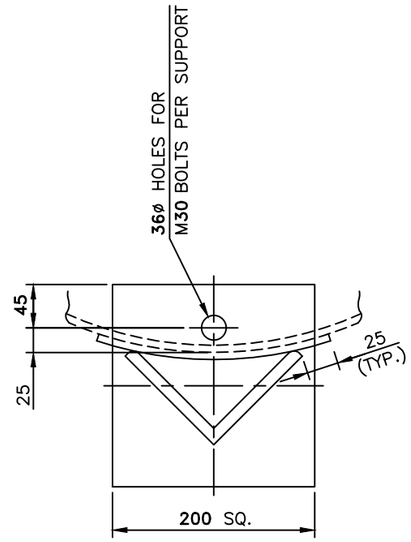

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	11.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-2007A/B	कन्डनसेट पॉट फॉर 300-ईई-00-2007ए/बी
ITEM NO. 300-VV-VW-2009	आइटम नम्बर 300-वीवी-वीडब्ल्यू-2009

DRAWING NO.	REV.
B957-300-80-42-DS-3124	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1237 REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	150	WN	RF	SEE DWG.	200X T	MANHOLE+BF+GASKET+BOLTING+HINGE
3 A-B	2	600 (H)	14 THK.	150	WN	RF	SEE DWG.	200 X T	PUMP 300-PA-CF-2010A/B MOUNT, EXTENDED
PD A-B	2	100 (H)	BY PUMP VENDOR						PUMP DISCHARGE
4	1	200	80	150	WN	RF	SEE DWG.	95X T	VENTILATION NOZZLE
7	1	80	160	300	WN	RF	SEE DWG.	-	VAPOR OUTLET TO WET FLARE
B 11	1	300	14 THK.	150	WN	RF	SEE DWG.	150X T	FEED FROM HC DRAIN HEADER
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	SEE DWG.	-	PRESSURE GAUGE
40	1	50	160	300	WN	RF	SEE DWG.	-	TEMPERATURE INDICATOR
LT1	1	100 (H)	120	300	WN	RF	SEE DWG.	50xT	LEVEL TRANSMITTER (GWR)
LT2	1	150 (H)	160	300	WN	RF	SEE DWG.	70xT	LEVEL INDICATOR (RADAR)
50	1	50	160	300	WN	RF	SEE DWG.	-	NITROGEN INLET (BLANKETING
S1	1	450	14 THK.	150	WN	RF	SEE DWG.	215xT	MOUNTING NOZZLE BF + GASKET + BOLTING FOR 40 & 50
S2	1	500	14 THK.	150	WN	RF	SEE DWG.	195xT	MOUNTING NOZZLE BF + GASKET + BOLTING FOR 7, 35 & 36

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ~~ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.~~
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER B LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO B FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES SHALL BE STIFFENED WITH 4 NOS. 100 x 10 THK FLATS AT 90 DEG.APART. MANHOLE,PUMP NOZZLE AND MOUNTING NOZZLES SHALL BE STIFFENED WITH 8 NOS 10THKx R.F PAD WIDE FLATS EQUISPACED.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES / REDUCING FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.EXTERNAL COATING SHALL BE AS PER TABLE 10.2 OF JOB SPECIFICATION.
13. THE VESSEL SHALL BE LOCATED IN RCC PIT AND SAND PACKED WITH VIBRO COMPRESSION WITH 100mm THK OF LEAN CONCRETE ON TOP (BY OTHERS).
14 (a) SIZE OF SUMP1-2 & NOZZLE P1-2 IS UNDER HOLD & SHALL BE AS CONFIRMED BY PUMP VENDOR.
14 (b) PUMP NOZZLE COVER / BLIND FLANGE WITH PUMP ASSEMBLY, NOZZLES PD1-2,BOLTING & GASKET SHALL BE SUPPLIED BY PUMP SUPPLIER.
15. CATHODIC PROTECTION IS BY OTHERS. HOWEVER,CLIP FOR THE SAME TO BE PROVIDED BY VENDOR.
16. UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED/BOLTED CS INTERNAL SHALL BE 12mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17. VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190 ºC.
18. LIFTING LUG FOR HANDLING OF VESSEL SHALL BE DESIGNED (CONSIDERING IMPACT FACTOR 1.5) AND PROVIDED BY VENDOR. INDICATIVE DETAILS ARE FURNISHED ON SHEET-3.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	STD. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038
X	STILL WELL FOR LEVEL TRANSMITTER (RADAR TYPE) FOR BURIED VESSEL	7-12-0039

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	STILL WELL		PIPE DAVIT
X	SUMP DIAMETER, LENGTH		PACKING SUPPORT
X	BURIED HEIGHT		

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.2
DESIGN PRESSURE (kg/cm²g)	INT. 3.5 EXT. -
WORKING TEMPERATURE (°C)	120
DESIGN TEMPERATURE (°C)	150
MDMT (°C)	1.1
CORROSION ALLLOWANCE (MM)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL 0.85 HEAD 1
RADIOGRAPHY	SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE/SPEC.
HEAT TREATMENT	HEAD: AS PER CODE /SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	1
WIND SPECIFICATION	IS 875
SEISMIC	IS 1893 + SITE SPECTRA
CAPACITY (M^3)	52
PAINTING/CLEANING	REFER AS PER JOB SPEC.
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	4.55
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / BLIND FLANGE	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SUPPORT	SA 516 Gr.70
SUPPORT BASE	-
INTERNAL PARTS (WELDED)	SA 516 Gr.70 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.70
WRAPPER PLATE	SA 516 Gr.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.70
LIFTING LUG	SA 516 Gr.70
STIFFENER	SA 516 Gr.70
STILL WELL FOR LT2	SS304L

CATHODIC PROTECTION REQUIRED

@ WITHOUT PUMP ASSEMBLY

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	23600@	OPERATING	72100@
HYDROTEST(SHOP)	75200@	HYDROTEST (FIELD)	75200@
NUMBER OF ITEMS :	ONE		

B	22.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB		
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB		
REV	DATE	REVISION	BY	CHECKED	APPROVED		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
CGC AREA HYDROCARBON DRAIN DRUM	सीजीसी एरीआ हाइड्रोकार्बन ड्रैन ड्रम	B957-300-80-42-DS-3125	B
ITEM NO. 300-VV-HW-2010	आइटम नम्बर 300-वीवी-एचडब्ल्यू-2010	SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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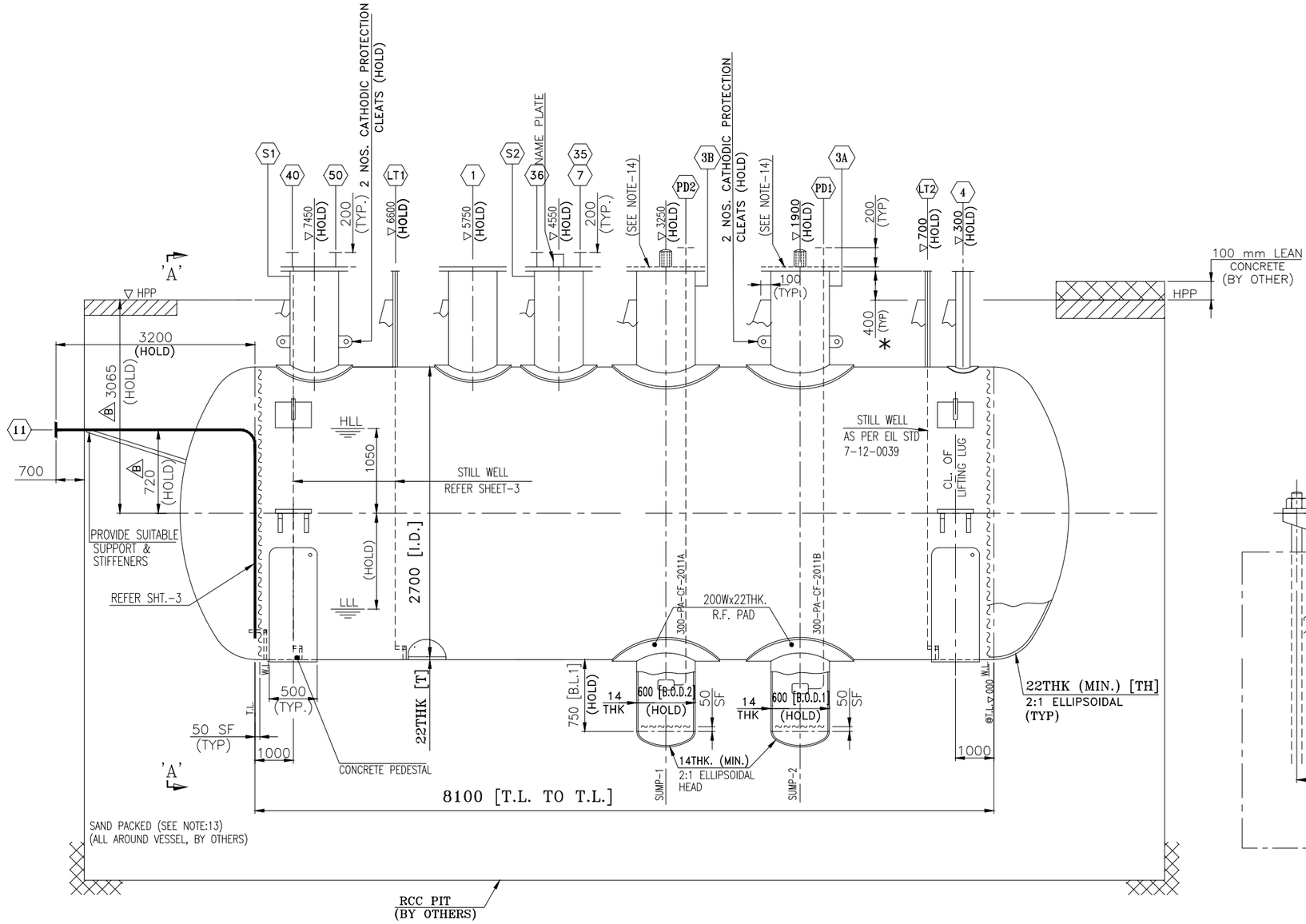
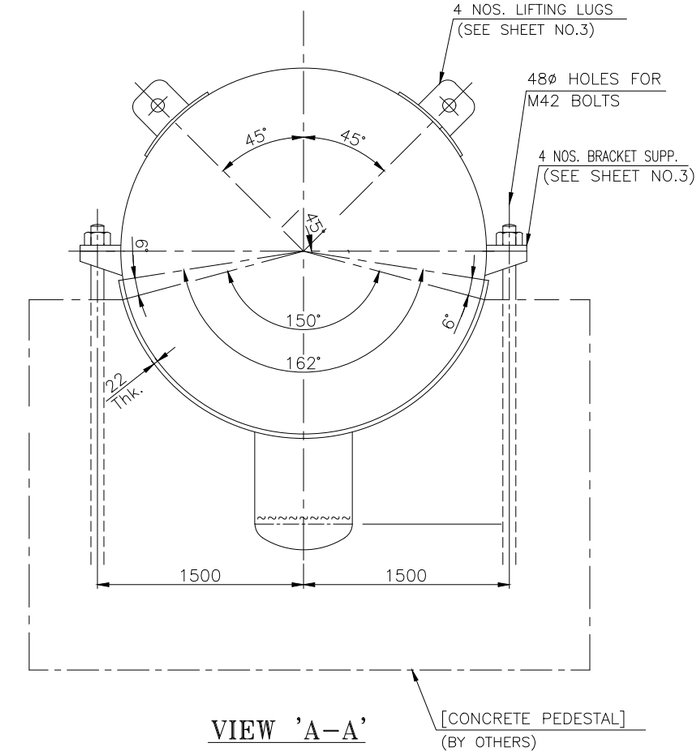
* NOZZLES MAY BE SUITABLY CUT WITH WELD EDGE PREPARATION (WITH SUITABLE COVER)FOR TRANSPORTATION. SUITABLE CUTTING ALLOWANCE IN NOZZLES SHALL BE CONSIDERED TO MAINTAIN THE GIVEN PROJECTION.FINAL ASSEMBLY OF NOZZLES AT SITE SHALL BE BY OTHERS (NOT BY VESSEL FABRICATOR)





VIEW 'A-A'

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	22.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
CGC AREA HYDROCARBON DRAIN DRUM
ITEM NO. 300-VV-HW-2010

वेसेल डिजाइन डाटा
सीजीसी एरीआ हाइड्रोकार्बन ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-2010

DRAWING NO. B957-300-80-42-DS-3125
REV. B
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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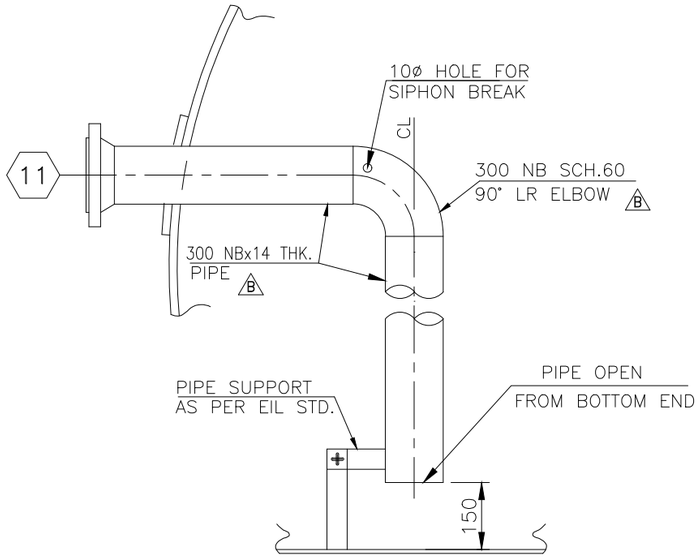
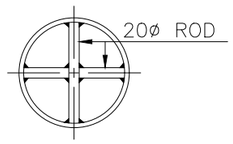
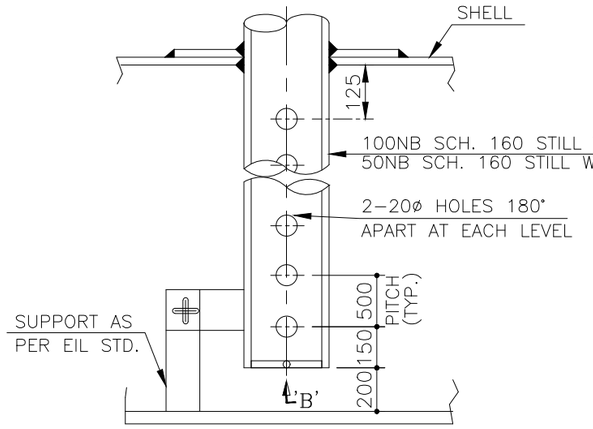


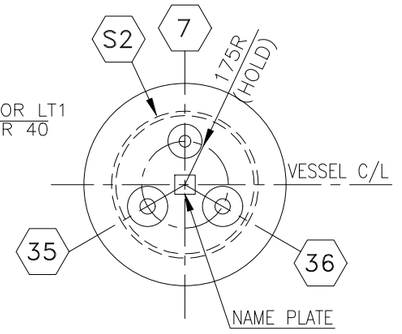
DETAIL OF NOZZLE–F



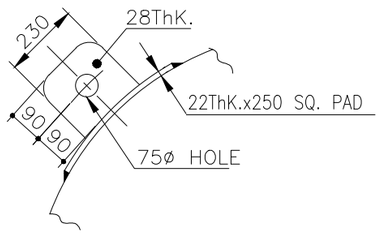
VIEW 'B'
(TYP)



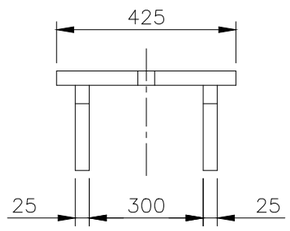
DETAIL OF STILL WELL FOR NOZZLE LT1 & 40
(HOLD)



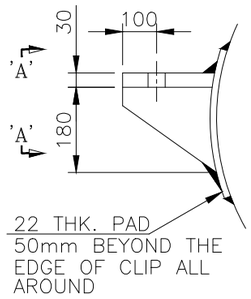
PLAN FOR
MOUNTING NOZZLE S2 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)



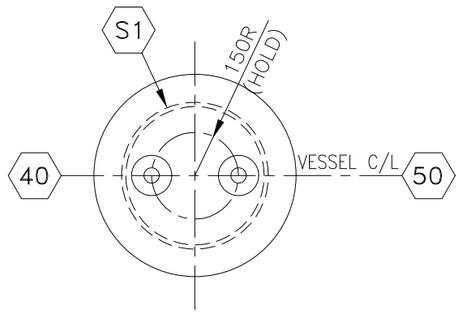
DETAIL OF LIFTING LUG (TYP)



VIEW 'A–A'



DETAIL OF BRACKET SUPPORT (TYP)



PLAN FOR
MOUNTING NOZZLE S1 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	22.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
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VESSEL DESIGN DATA
CGC AREA HYDROCARBON
DRAIN DRUM
ITEM NO. 300-VV-HW-2010

वेसेल डिजाइन डाटा
सीजीसी एरीआ
हाइड्रोकार्बन ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-2010

DRAWING NO. B957-300-80-42-DS-3125
REV. B
SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेक्शन	पैड	सर्विस
1A	1	600	14 THK.	150	WN	RF	SEE DWG.	300X T	MANHOLE + BF + GASKET + BOLTING
1B	1	600	14 THK.	150	WN	RF	1420	300X T	MANHOLE + BF + GASKET + BOLTING
1C	1	600	14 THK.	150	WN	RF	SEE DWG.	300X T	MANHOLE + BF + GASKET + BOLTING
3	1	150	80	300	WN	RF	1420	85X T	VENTILLATION NOZZLE
7A	1	300 I.D.	12 THK.	150	WN	RF	1914	160xT	NOZZLE FOR DEMISTER WITH B.F. (NOTE-23)
7	1	50(H)	160	150	WN	RF	SEE DWG.	-	VAPOR OUTLET TO PSV/FLARE/N2 PADDING
11	1	80	160	300	WN	RF	1420	45X T	FEED FROM 300-JS-00-2101
18	1	80	160	300	WN	RF	1220	45X T	SPENT CAUSTIC OUTLET TO NOZZ. 20 (SPENT CAUSTIC COMP.)
19	1	80	160	300	WN	RF	1220	45X T	GASOLINE DRAWOFF TO 300-JS-00-2102
20	1	80	160	300	WN	RF	1220	45X T	SPENT CAUSTIC RETURN FROM NOZZ. 18 (SETTLING COMP.)
21	1	80	160	300	WN	RF	1220	45X T	SPENT CAUSTIC DRAWOFF TO 300-TT-00-9001
31 A-C	3	80	160	300	WN	RF	1220	45X T	DRAIN
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION+ BF
LT1	2	80(H)	160	300	WN	RF	1220	45X T	LEVEL TRANSMITTER (DP DIA SEAL)
LT2							1220		
LG1	2	50(H)	160	300	WN	RF	1220	-	LEVEL GAUGE (MAG)
LG2							1220		
LT3	2	80(H)	160	300	WN	RF	1220	45X T	LEVEL TRANMITTER (DP DIA SEAL)
LT4							1220		
LG3	2	50(H)	160	300	WN	RF	1220	-	LEVEL GAUGE (MAG)
LG4							1220		
LG5	2	50(H)	160	300	WN	RF	1220	-	LEVEL GAUGE (MAG)-INT
LG6							1220		

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	-	-
WIND	-	-

PDS B957-300-79-41-DS-1238 REV-1

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.

2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.

3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.

4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.

4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.

5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.

6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.

7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.

8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.

9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.

10 SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACEPREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.

12 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.

13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.

14 DEMISTER SHALL BE AS PER PDS. REFER EIL SPEC 6-14-0017.

16 COMPLETE EQUIPMENT INCLUDING SUPPORT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELD & HAZ SHALL NOT EXCEED 200BHN.

17 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.

18 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED CS INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.

19 EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm^2(g) @150^{0}C.

20 LIQUID HOLD UP BETWEEN HLL AND LLL IS AS FOLLOWS:
GASOLINE 20 MINUTES
CAUSTIC 17 MINUTES

21 COALECER BED TO CONSIST OF 25MM SS PALL RING PACKING RETAINED BETWEEN TWO PERFORATED VERTICAL PLATES (WITH 19 MM HOLES AT 38 MM TRIANGULAR PITCH) AND SCREEN COVER OR SUBWAY TYPE GRATING ON TOP.

22 STAINLESS STEEL MIST ELIMINATOR TO BE A KOCH-GLITSCH STYLE 431 OR AMACS STYLE 4CA OR EQUIVALENT. WIRE MESH PAD THICKNESS TO BE 150 MM. VENDOR TO ENSURE THAT THE BLOCKAGE BY THE SUPPORT RING AND BEAMS IS LESS THAN 14% OF THE MIST ELIMINATOR PAD CROSS-SECTIONAL AREA.

23 NOZZLE SHALL BE OF INSIDE DIA. 300mm WITH 300 NB 150# FLANGE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPEC. FOR WIRE MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm^{2}g)	5.50
DESIGN PRESSURE (kg/cm^{2}g)	INT. 10.5 EXT. --
WORKING TEMPERATURE (°C)	45
DESIGN TEMPERATURE (°C)	65
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (COMPLETE EQUIPMENT)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	CAUSTIC-1.089; GASOLINE-0.883
WIND SPECIFICATION	IS-875
SEISMIC	SITE SPECTRA + IS-1893
CAPACITY (M^3)	21
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm)	- ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	13.65
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.60
REINFORCEMENT PAD / ~~INSERT PAD~~	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE #
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT~~/ SUPPORT	SA 516 GR.60/IS 2062 GR.E250 QUALITY BR/B0
~~SKIRT~~/ SUPPORT BASE	IS 2062 GR.E250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.60/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SA 516 GR.60/ SA 106 GR.B
CLIPS & ATTACHMENTS (EXTERNAL) DIRECTLY WELDED OVER VESSEL	SA 516 GR.60
CLIPS & ATTACHMENTS (EXTERNAL) WELDED OVER PAD	IS 2062 GR. E 250 QUALITY BR/B0
WRAPPER PLATE	SA 516 GR.60
COALECER BED/GRID/PERFORATED PLATE	SS 304
MIST ELIMINATOR	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.60

INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	8600	OPERATING	28500
HYDROTEST(SHOP)	29600	HYDROTEST (FIELD)	32000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	20.08.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
SPENT CAUSTIC COALESCER	स्पैन्ट कॉस्टिक कोलेसर
ITEM NO. 300-VV-HI-2101	आइटम नम्बर 300-वीवी-एचआई-2101

DRAWING NUMBER / डाईग नम्बर	REV
B957-300-80-42-DS-3126	A
SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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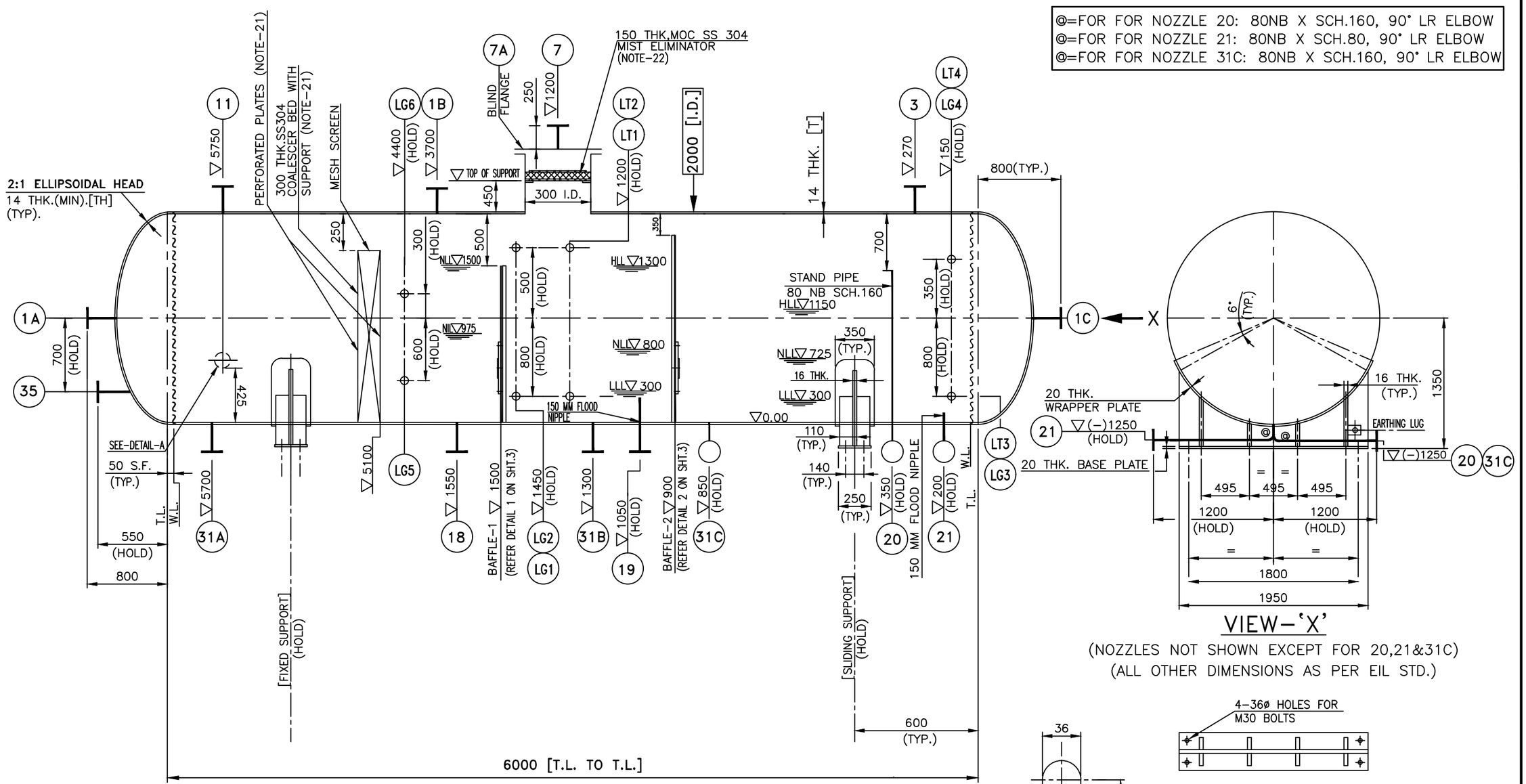
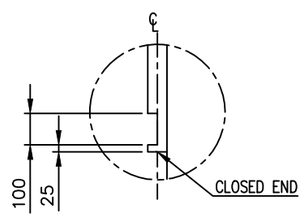
@=FOR FOR NOZZLE 20: 80NB X SCH.160, 90° LR ELBOW
@=FOR FOR NOZZLE 21: 80NB X SCH.80, 90° LR ELBOW
@=FOR FOR NOZZLE 31C: 80NB X SCH.160, 90° LR ELBOW

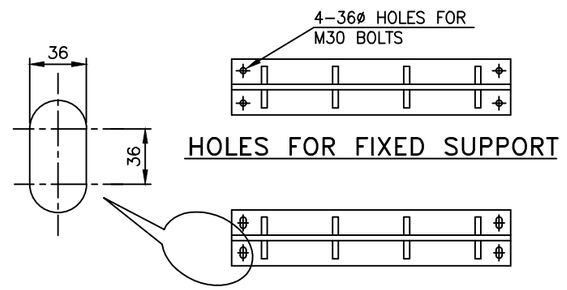


VIEW–'X'

(NOZZLES NOT SHOWN EXCEPT FOR 20,21&31C)
(ALL OTHER DIMENSIONS AS PER EIL STD.)



DETAIL–A



HOLES FOR FIXED SUPPORT

HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED, NEW DELHI	BHARAT PETROLEUM CORP. LTD. BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)						
A	20.08.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB		
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

VESSEL DESIGN DATA
SPENT CAUSTIC COALECER
ITEM NO. 300-VV-HI-2101

वेसेल डिजाइन डाटा
स्पैन्ट कॉस्टिक कोलेसर
आइटम नम्बर 300-वीवी-एचआई-2101

DRAWING NO.	REV.
B957-300-80-42-DS-3126	A
SHEET 2 OF 3	

1-1641-0503 REV.0 A3-420x297

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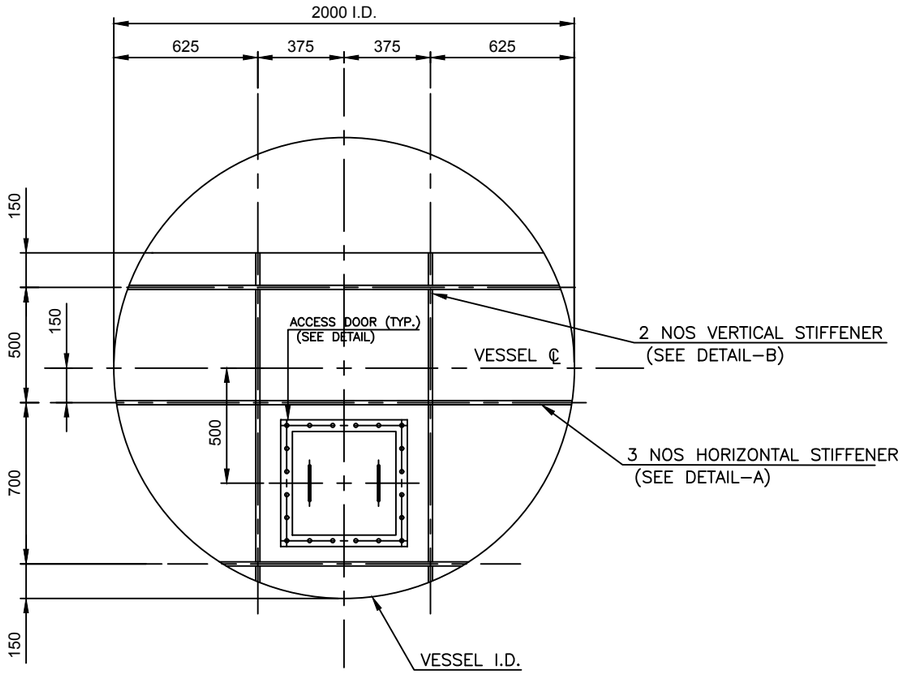
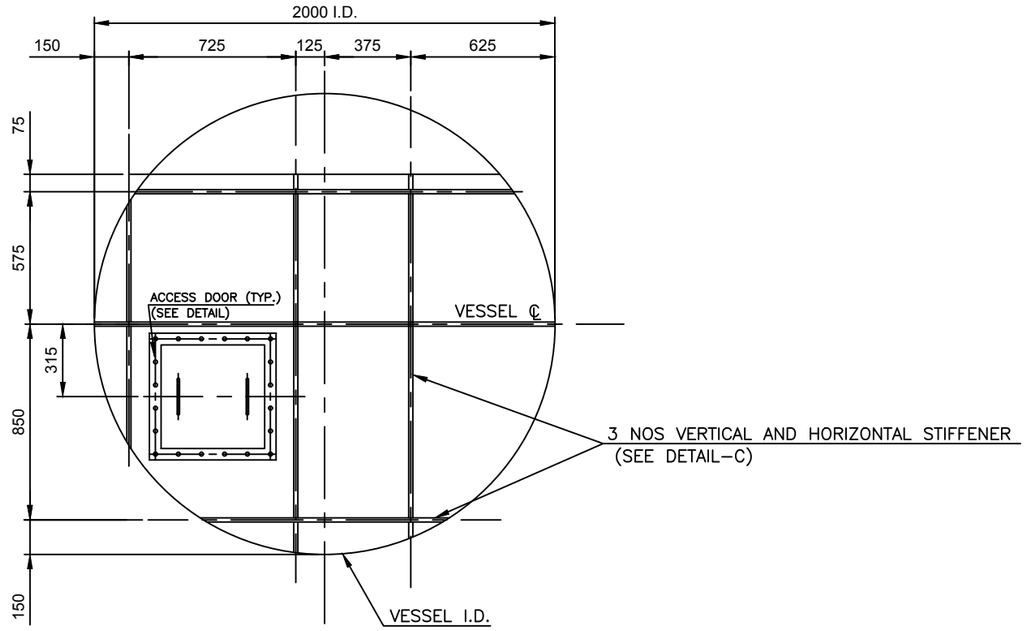
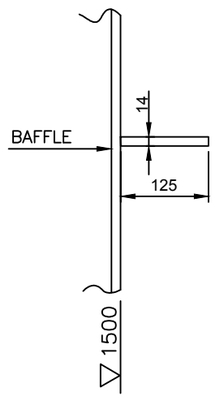


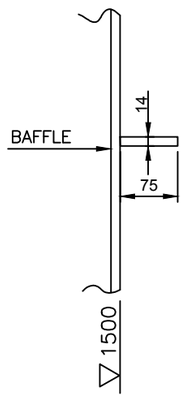
BAFFLE –1 DETAIL
BAFFLE THK–14MM.



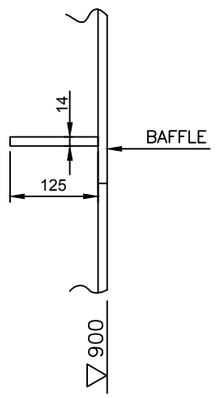
BAFFLE –2 DETAILS
BAFFLE THK–14MM.



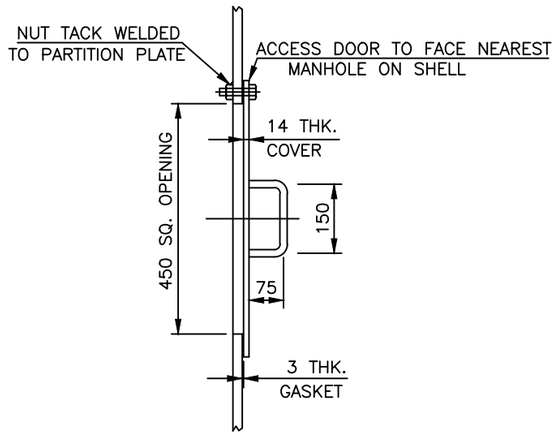
DETAIL–A
(TYP.)



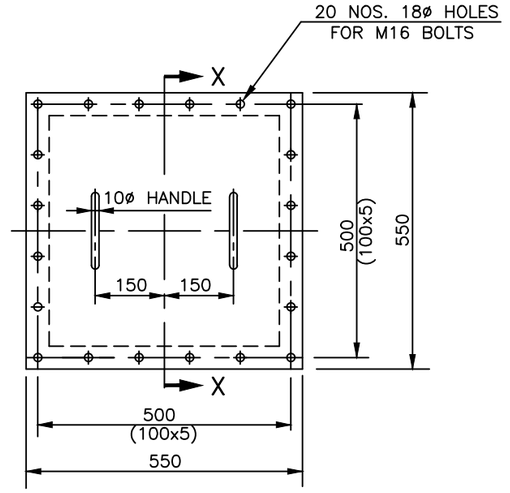
DETAIL–B
(TYP.)



DETAIL–C
(TYP.)



SECTION – XX



ACCESS DOOR DETAIL

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	20.08.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
SPENT CAUSTIC COALECER
ITEM NO. 300-VV-HI-2101

वेसेल डिजाइन डाटा
स्पैन्ट कॉस्टिक कोलेसर
आइटम नम्बर 300-वीवी-एचआई-2101

DRAWING NO. B957-300-80-42-DS-3126
REV. A
SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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B957-300-79-41-DS-1239 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1 A-C	2	600	14 THK	150	WN	RF	SEE DWG.	-	MANHOLE + BF + GASKET + BOLTING + DAVIT
1B	1	600	14 THK	150	WN	RF	1024	-	MANHOLE + BF + GASKET + BOLTING + DAVIT
3	1	150	80	300	WN	RF	1024	-	VENTILATION NOZZLE
6	1	80 (H)	160	300	WN	RF	1024	-	VAPOR OUTLET TO PSV/FLARE/N2 PADDING
11	1	50	XXS	300	WN	RF	1024	-	FEED FROM 300-JS-00-2102
18	1	50	160	300	WN	RF	870	-	WASH WATER OUTLET TO NOZZLE 20 (WASH WATER COMP.)
19	1	80	160	300	WN	RF	SEE DWG.	-	GASOLINE DRAWOFF TO 300-PA-CF-2106A/B
20	1	50	XXS	300	WN	RF	870	-	WASH WATER RETURN FROM NOZZLE 18 (SETTLING COMP.)
21	1	50	160	300	WN	RF	870	-	WASH WATER DRAWOFF TO 300-TT-00-9001
22	1	50	160	300	WN	RF	-	-	MIN FLOW RETURN FROM 300-PA-CF-2106A/B
31 A-C	2	50	160	300	WN	RF	870	-	DRAIN
31B	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
LG 1-4	4	50 (H)	160	300	WN	RF	1024	-	LEVEL GUAGE (MAG)
LG 5-6	2	50 (H)	160	300	WN	RF	1024	-	LEVEL GUAGE (MAG)-INT
LT 1-4	4	80 (H)	160	300	WN	RF	1024	-	LEVEL TRANSMITTER (DP DIA SEAL)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
SEISMIC (MC)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
12. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13. FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
14. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5Kg/cm2(g) @190°C.
15. COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	-
	LADDERS/PLATFORM CLEATS	-
	PIPE SUPPORT CLEATS	-
	TRAY SUPPORT AND BOLTING BARS	-
	DEMISTER DATA SHEET	-
	SKETCH FOR MONKEY LADDER	-
X	PROCESS DATASHEET	B957-300-79-41-DS-1239

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LT 1-4 & LG 1-6, 6
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	FIXED/SLIDING SUPPORT		PIPE DAVIT
X	STAND PIPE 20		PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.5
DESIGN PRESSURE	(kg/cm^2g)	INT. 10.5 EXT. --
WORKING TEMPERATURE	(°C)	70
DESIGN TEMPERATURE	(°C)	150
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1 HEAD / CONE 1
RADIOGRAPHY		SHELL FULL HEAD / CONE FULL
POST WELD HEAT TREATMENT		YES (NOTE-15)
HEAT TREATMENT		AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.883 (GASOLINE) / 0.996 (WATER)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	7.2
PAINTING/CLEANING		(NOTE-11)
INSULATION THICKNESS (mm) (IH)		25 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[ ] YES [X] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)		13.65
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / ~~BOOT~~	SA 516 Gr.60
REINFORCEMENT PAD ~~/ INSERT PAD~~	-
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/~~ SUPPORT	SA 516 Gr.60
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 Gr.60/ SA 106 Gr B
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.60/IS 2062 GR.E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	SA 516 Gr.60
COALESCER / GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	7000	OPERATING	14000
HYDROTEST(SHOP)	14200	HYDROTEST (FIELD)	15400
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	27.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	SPENT GASOLINE COALESCER
ITEM NO.	300-VV-HI-2102
डिजाइन डाटा	स्पेंट गैसोलीन कलेसेर
आइटम नम्बर	300-वीवी-एचआई-2102
DRAWING NUMBER / डाईग नम्बर	**B957-300-80-42-DS-3127**
REV	A
	SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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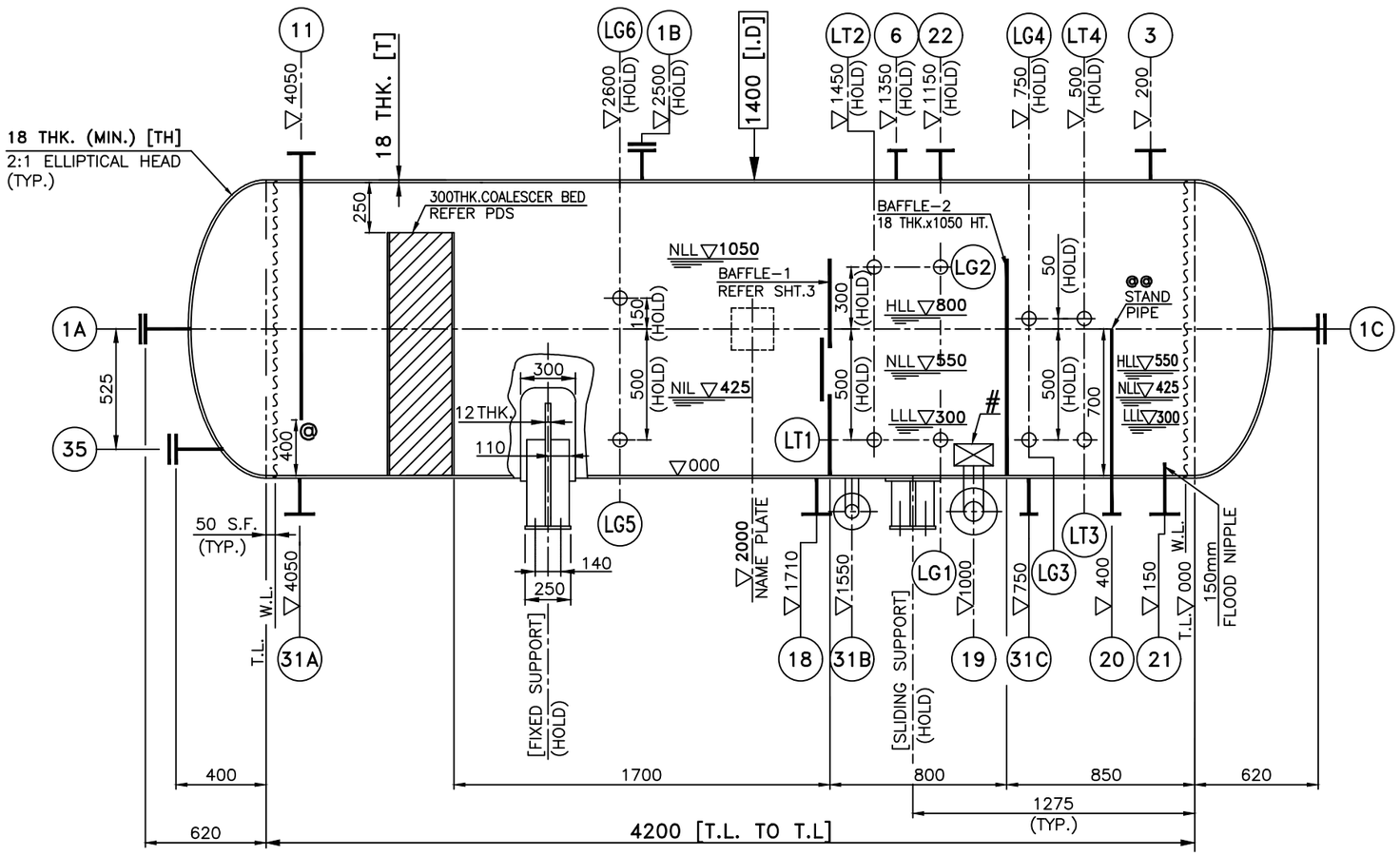
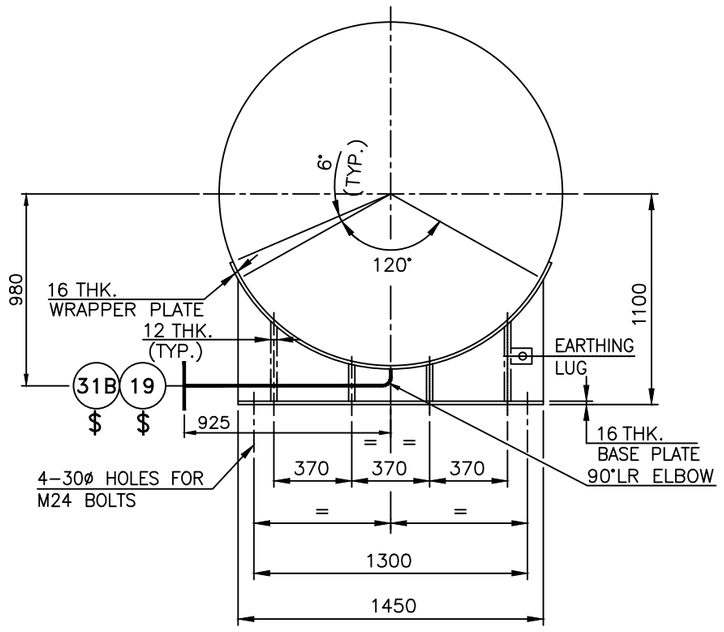
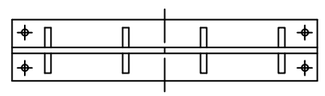




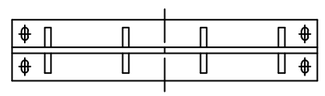
END VIEW

(NOZZLES NOT SHOWN)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



HOLES FOR FIXED SUPPORT



HOLES FOR SLIDING SUPPORT

@ 50NB SCH.XXS PIPE REFER DETAIL 'A' OF PDS

@@ 50NB SCH.XXS PIPE. (TOP OPEN)

150mm FLOOD NIPPLE WITH VORTEX BREAKER (TYPE-1B) AS PER EIL STD7-12-0019

$ NOZZLE SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90° APART.

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	27.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA
SPENT GASOLINE COALESCER
ITEM NO. 300-VV-HI-2102

वेसेल डिजाइन डाटा
स्पेंट गैसोलीन कलेसेर
आइटम नम्बर 300-वीवी-एचआई-2102

DRAWING NO.	REV.
B957-300-80-42-DS-3127	A
SHEET 2 OF 3	

1-1641-0503 REV.0 A3-420x297

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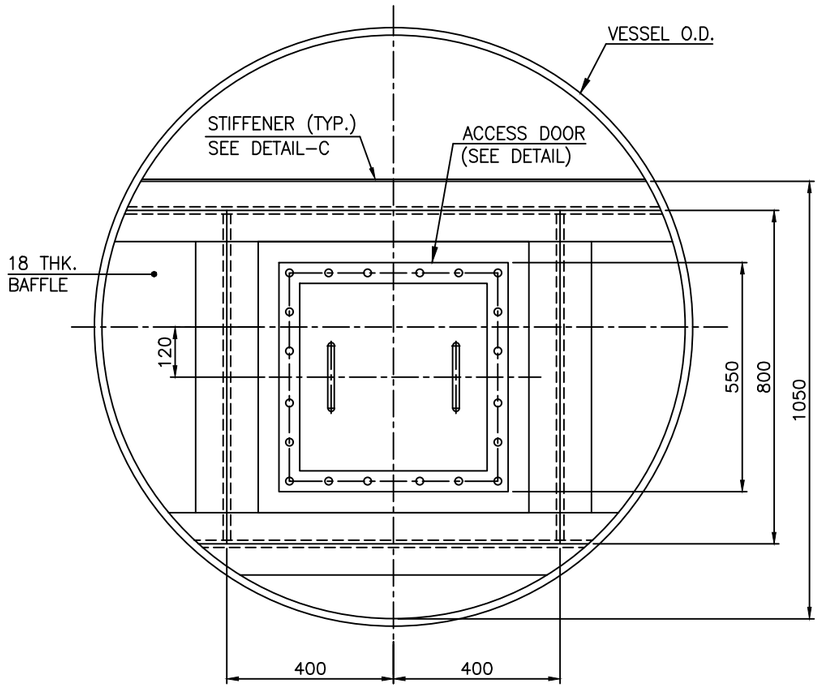
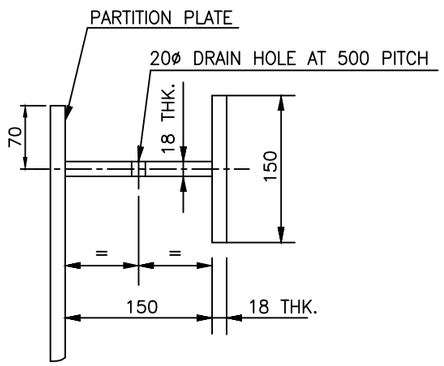
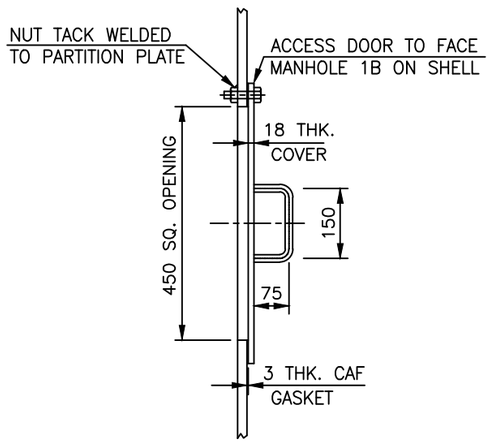


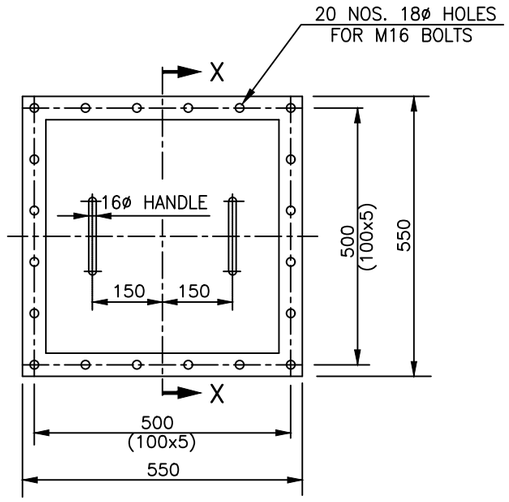
DETAIL OF BAFFLE-1



STIFFENER DETAIL-C



SECTION - XX



ACCESS DOOR DETAIL

ENGINEERS INDIA LIMITED, NEW DELHI	BHARAT PETROLEUM CORP. LTD. BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)						
A	27.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB		
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

VESSEL DESIGN DATA SPENT GASOLINE COALESCER	वेसेल डिजाइन डाटा स्पेंट गैसोलीन कलेसेर	DRAWING NO.	REV.
ITEM NO. 300-VV-HI-2102	आइटम नम्बर 300-वीवी-एचआई-2102	B957-300-80-42-DS-3127	A
		SHEET 3 OF 3	

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK	150	WN	RF	SEE DWG.	300X T	MANHOLE + BF + GASKET + BOLTING + DAVIT
3	1	100	120	300	WN	RF	1070	60X T	VENTILATION NOZZLE
6	1	80 (H)	160	300	WN	RF	1070	45X T	VAPOR OUTLET TO ATMOSPHERE
11	1	50	160	300	WN	RF	1070	-	FEED FROM OSBL
17	1	80	160	300	WN	RF	870	45X T	LIQUID BOTTOM OUTLET TO 300-PA-CF-2104 A/B
31	1	50	160	300	WN	RF	820	-	DRAIN
34	1	50 (H)	160	300	WN	RF	1070	-	SAFETY VALVE
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
LG 1-2	2	50 (H)	160	300	WN	RF	720	-	LEVEL GUAGE MAGNETIC (SS)
LT 1-4	4	80 (H)	160	300	WN	RF	780	45X T	LEVEL TRANSMITTER (DIA SEAL)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
SEISMIC (MC)	-	-
WIND	-	-

B957-300-79-41-DS-1240 REV.1

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
12. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13. FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
14. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5Kg/cm2(g) @190°C.
15. COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	-
	LADDERS/PLATFORM CLEATS	-
	PIPE SUPPORT CLEATS	-
	TRAY SUPPORT AND BOLTING BARS	-
	DEMISTER DATA SHEET	-
	SKETCH FOR MONKEY LADDER	-

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES 6, 34, LT 1-4 & LG 1-2
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	FIXED/SLIDING SUPPORT		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3
DESIGN PRESSURE	(kg/cm^2g)	INT. 15 EXT. --
WORKING TEMPERATURE	(°C)	45
DESIGN TEMPERATURE	(°C)	65
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1 HEAD / CONE 1
RADIOGRAPHY		SHELL FULL HEAD / CONE FULL
POST WELD HEAT TREATMENT		YES (NOTE-15)
HEAT TREATMENT		AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		1.074 (AT OPERATING TEMP.)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	5.75
PAINTING/CLEANING		(NOTE-11)
INSULATION THICKNESS	(mm)	NA ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☐ YES ☒ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)		19.5
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / ~~BOOT~~	SA 516 Gr.60
REINFORCEMENT PAD ~~/ INSERT PAD~~	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	SA 516 Gr.60
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR
INTERNAL PARTS (WELDED)	SA 516 Gr.60/ SA 106 Gr B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.60/IS 2062 GR.E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	SA 516 Gr.60
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	3300	OPERATING	7300
HYDROTEST(SHOP)	9050	HYDROTEST (FIELD)	9050
NUMBER OF ITEMS :	ONE		

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	19.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
8% CAUSTIC SURGE DRUM	8% कास्टिक सर्ज ड्रम	**B957-300-80-42-DS-3128**	A
ITEM NO. 300-VV-HW-2103	आइटम नम्बर 300-वीवी-एचडब्लू-2103	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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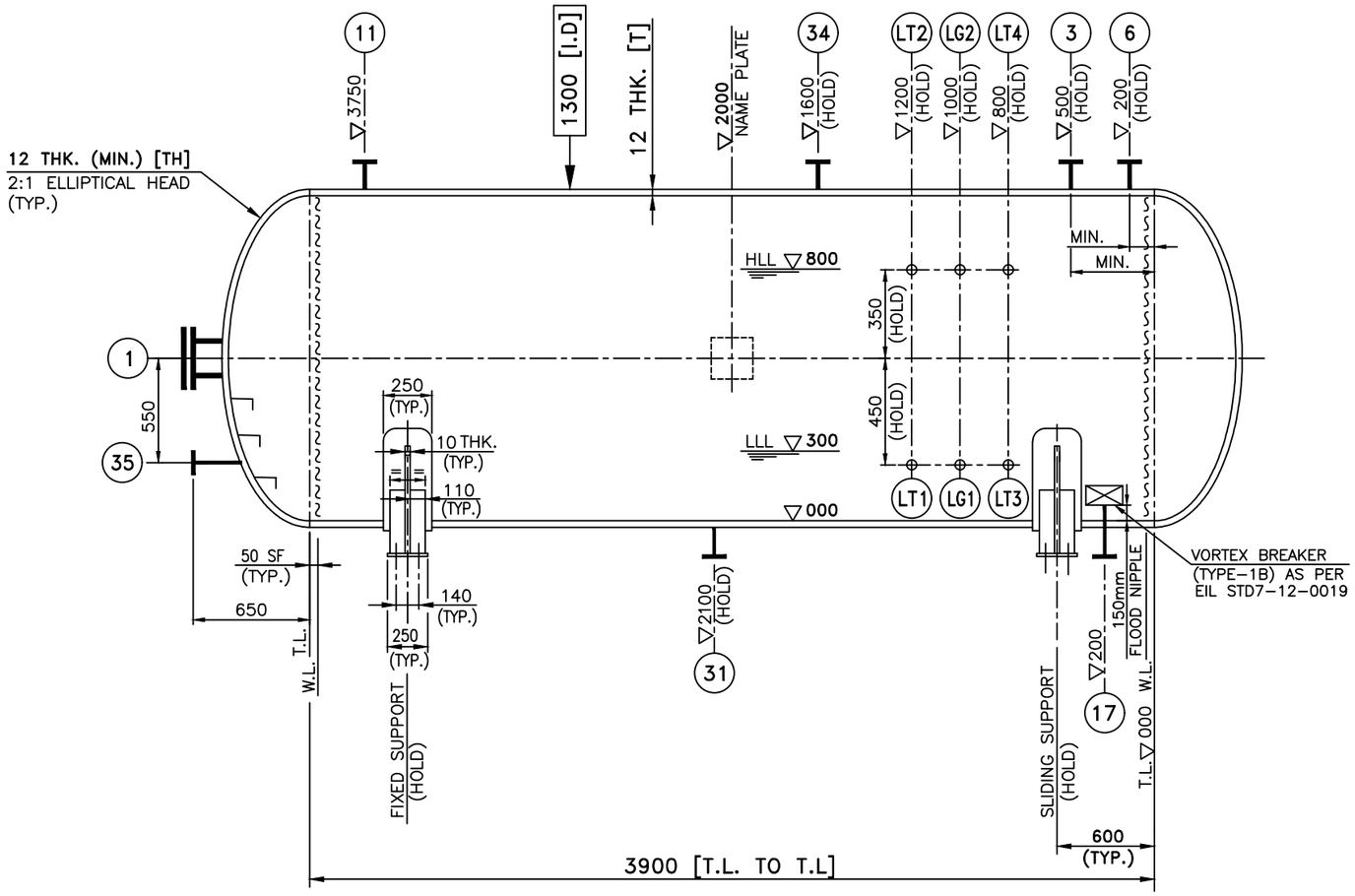
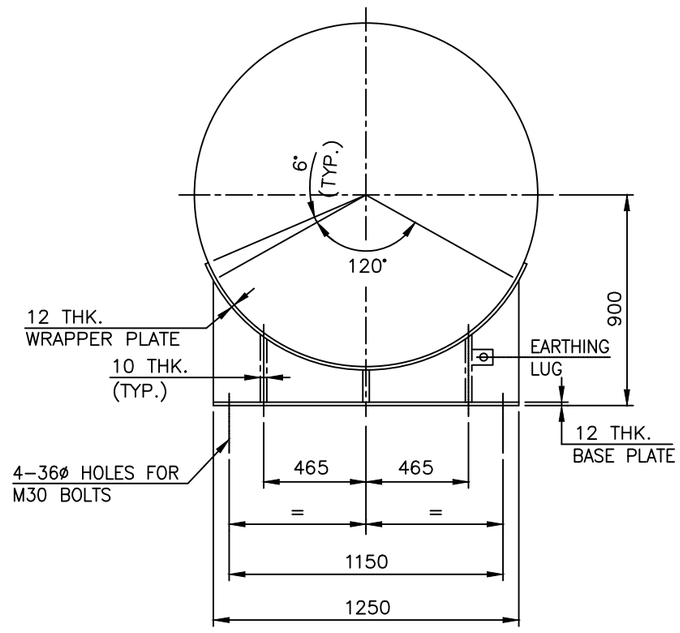
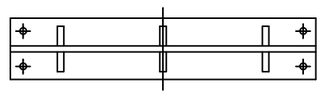




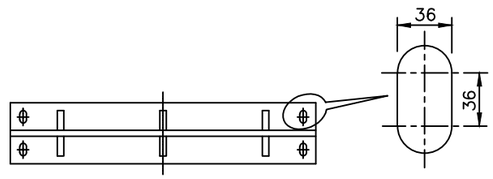
END VIEW

(NOZZLES NOT SHOWN)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



HOLES FOR FIXED SUPPORT



HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	19.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA
8% CAUSTIC
SURGE DRUM
ITEM NO. 300-VV-HW-2103

वेसेल डिजाइन डाटा
8% कास्टिक
सर्ज ड्रम
आइटम नम्बर 300-वीवी-एचडब्लू-2103

DRAWING NO.	REV.
B957-300-80-42-DS-3128	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	150	WN	RF	SEE DWG.	200X T	MANHOLE+BF+GASKET+BOLTING+HINGE
3 A-B	2	600 (H)	14 THK.	150	WN	RF	SEE DWG.	200 X T	PUMP 300-PA-CF-2011A/B MOUNT, EXTENDED
PD A-B	2	80 (H)	BY PUMP VENDOR						PUMP DISCHARGE
4	1	200	80	150	WN	RF	SEE DWG.	95X T	VENTILATION DISCHARGE
7	1	80	160	300	WN	RF	SEE DWG.	-	VAPOR OUTLET TO WET FLARE
B 11	1	200	80	150	WN	RF	SEE DWG.	100X T	FEED FROM CAUSTIC DRAIN HEADER
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	SEE DWG.	-	PRESSURE GAUGE
40	1	50	160	300	WN	RF	SEE DWG.	-	TEMPERATURE INDICATOR
LT1	1	100 (H)	160	300	WN	RF	SEE DWG.	50x T	LEVEL TRANSMITTER (GWR)
LT2	1	150 (H)	160	300	WN	RF	SEE DWG.	70x T	LEVEL TRANSMITTER (RADAR)
50	1	50	160	300	WN	RF	SEE DWG.	-	NITROGEN INLET
S1	1	450	14 THK.	150	WN	RF	SEE DWG.	215xT	MOUNTING NOZZLE + BF + GASKET + BOLTING FOR 40 & 50
S2	1	500	14 THK.	150	WN	RF	SEE DWG.	195xT	MOUNTING NOZZLE + BF + GASKET + BOLTING FOR 7, 35 & 36

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ~~ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.~~
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE. B
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE. B
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES SHALL BE STIFFENED WITH 4 NOS. 100 x 10 THK FLATS AT 90 DEG.APART. MANHOLE,PUMP NOZZLE AND MOUNTING NOZZLES SHALL BE STIFFENED WITH 8 NOS 10THKx R.F PAD WIDE FLATS EQUISPACED.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES / REDUCING FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.EXTERNAL COATING SHALL BE AS PER TABLE 10.2 OF JOB SPECIFICATION.
13 THE VESSEL SHALL BE LOCATED IN RCC PIT AND SAND PACKED WITH VIBRO COMPRESSION WITH 100mm THK OF LEAN CONCRETE ON TOP (BY OTHERS).
14 (a) SIZE OF SUMP1-2 & NOZZLE P1-2 IS UNDER HOLD & SHALL BE AS CONFIRMED BY PUMP VENDOR.
14 (b) PUMP NOZZLE COVER / BLIND FLANGE WITH PUMP ASSEMBLY, NOZZLES PDA-B,BOLTING & GASKET SHALL BE SUPPLIED BY PUMP SUPPLIER.
15 CATHODIC PROTECTION IS BY OTHERS. HOWEVER,CLIP FOR THE SAME TO BE PROVIDED BY VENDOR.
16 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED/BOLTED CS INTERNAL SHALL BE 12mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190 ºC.
18 LIFTING LUG FOR HANDLING OF VESSEL SHALL BE DESIGNED (CONSIDERING IMPACT FACTOR 1.5) AND PROVIDED BY VENDOR. INDICATIVE DETAILS ARE FURNISHED ON SHEET-3.
19 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
20 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	STD. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038
X	STILL WELL FOR LEVEL TRANSMITTER (RADAR TYPE) FOR BURIED VESSEL	7-12-0039

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	STILL WELL		PIPE DAVIT
X	SUMP DIAMETER, LENGTH		PACKING SUPPORT
X	BURIED HEIGHT		

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.2
DESIGN PRESSURE (kg/cm²g)	INT. 3.5 EXT.
WORKING TEMPERATURE (°C)	AMB.
DESIGN TEMPERATURE (°C)	100
MDMT (°C)	1.1
CORROSION ALLLOWANCE (MM)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE/SPEC.
HEAT TREATMENT	HEAD: AS PER CODE /SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	1.075-1.333
WIND SPECIFICATION	IS 875
SEISMIC	IS 1893 + SITE SPECTRA
CAPACITY (M^3)	51.6
PAINTING/CLEANING	REFER AS PER JOB SPEC.
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL /~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	4.55
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 516 Gr.60
REINFORCEMENT PAD	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES / BLIND FLANGE	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SUPPORT	SA 516 Gr.60
SUPPORT BASE	-
INTERNAL PARTS (WELDED)	SA 516 Gr.60 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.60
WRAPPER PLATE	SA 516 Gr.60
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60
LIFTING LUG	SA 516 Gr.60
STIFFENER	SA 516 Gr.60
STILL WELL FOR LT2	SS304L

CATHODIC PROTECTION REQUIRED

@ WITHOUT PUMP ASSEMBLY

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	23600@	OPERATING	88300@
HYDROTEST(SHOP)	75200@	HYDROTEST (FIELD)	75200@
NUMBER OF ITEMS :	ONE		

P0S B957-300-79-41-DS-1241 REV.1

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	22.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB

DESIGN DATA
CAUSTIC DRAIN DRUM
ITEM NO. 300-VV-HW-2104

डिजाइन डाटा
कॉस्टिक ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-2104

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3129** REV: B
SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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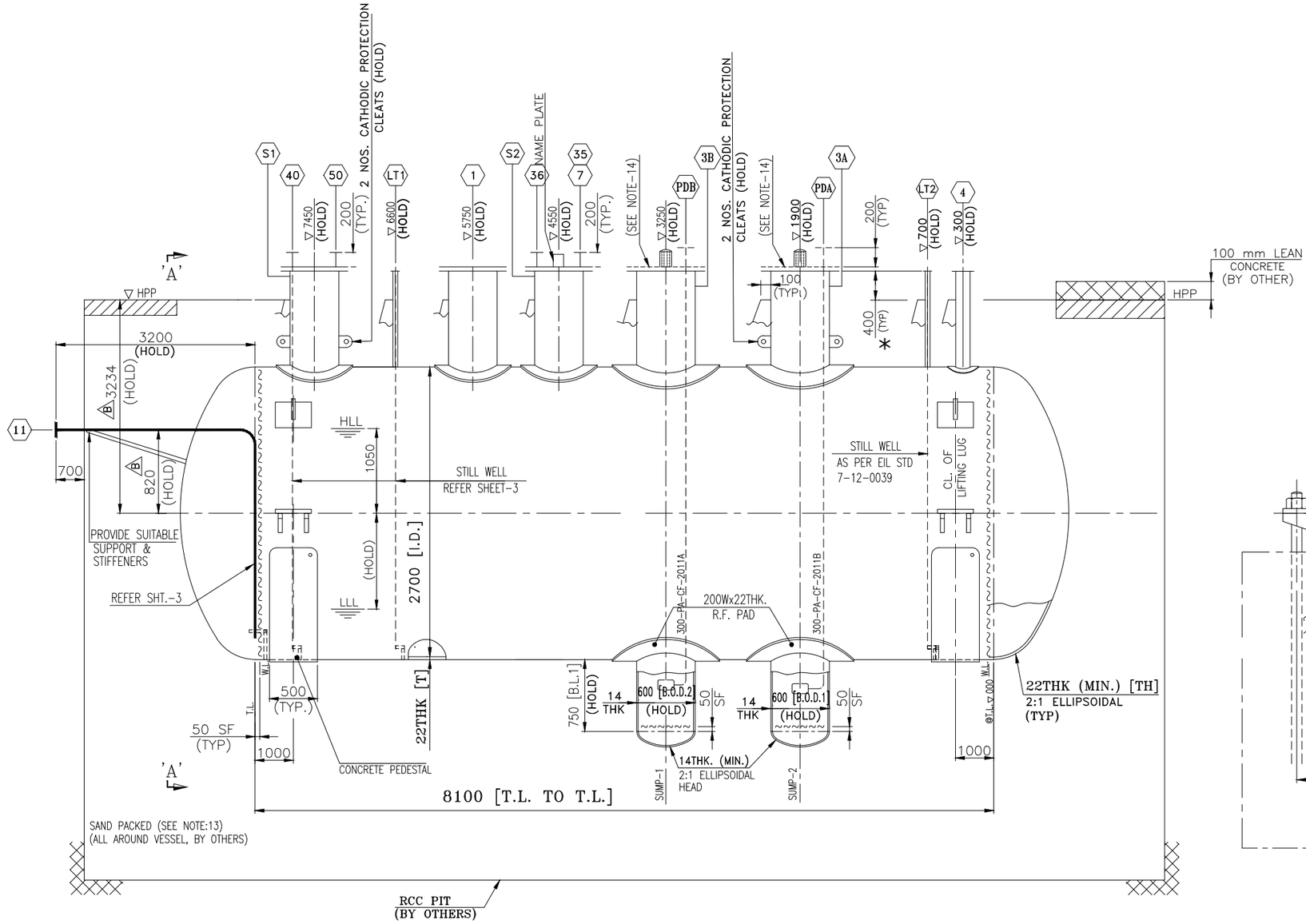
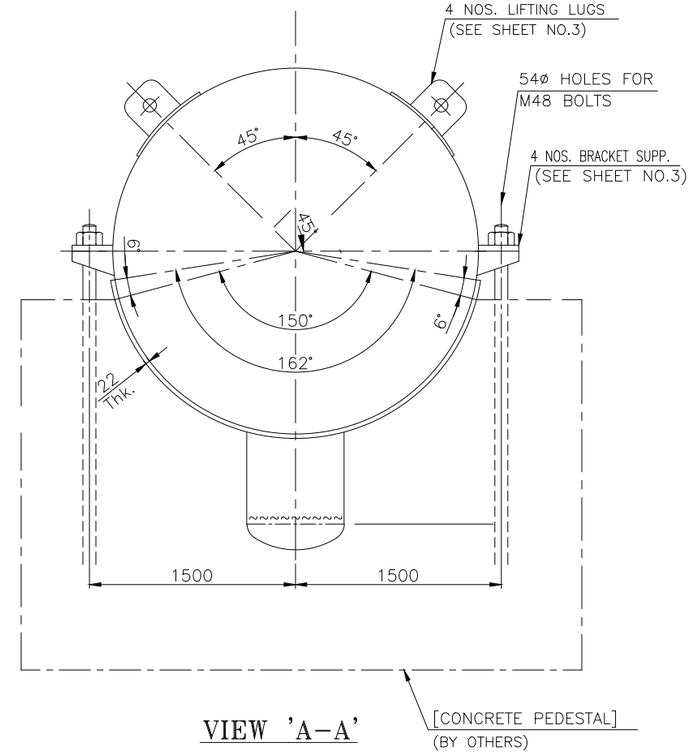
* NOZZLES MAY BE SUITABLY CUT WITH WELD EDGE PREPARATION (WITH SUITABLE COVER)FOR TRANSPORTATION. SUITABLE CUTTING ALLOWANCE IN NOZZLES SHALL BE CONSIDERED TO MAINTAIN THE GIVEN PROJECTION.FINAL ASSEMBLY OF NOZZLES AT SITE SHALL BE BY OTHERS (NOT BY VESSEL FABRICATOR)





VIEW 'A-A'

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	22.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
CAUSTIC DRAIN DRUM
ITEM NO. 300-VV-HW-2104

वेसेल डिजाइन डाटा
कॉस्टिक ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-2104

DRAWING NO. B957-300-80-42-DS-3129
REV. B
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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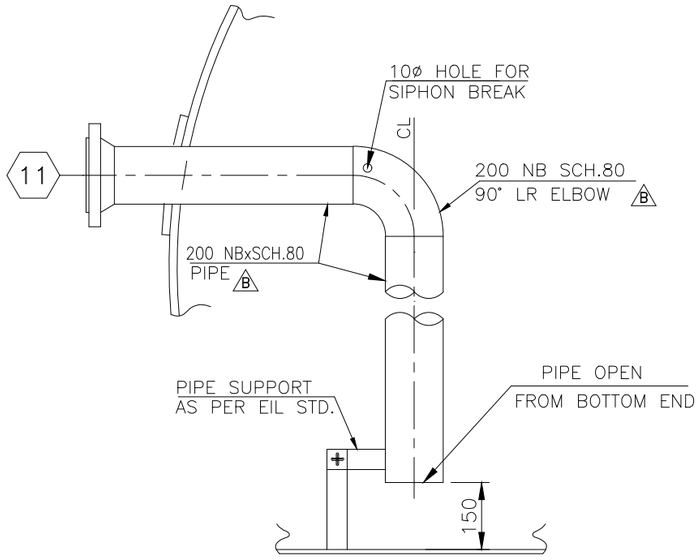
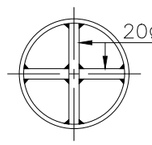
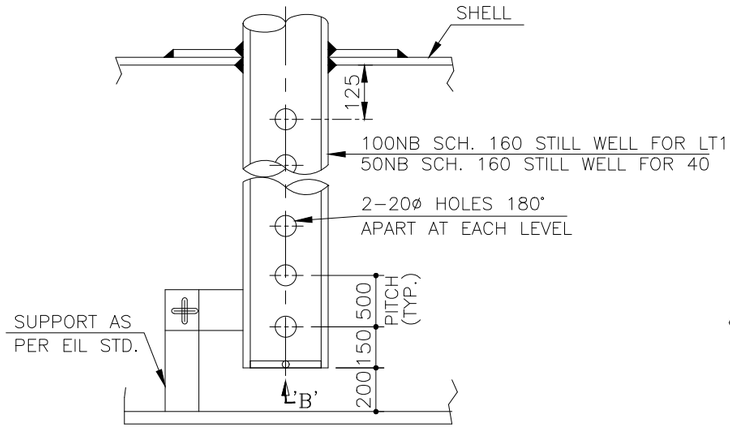


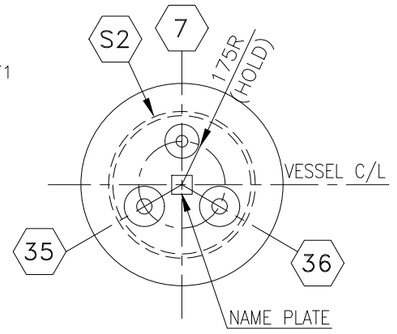
DETAIL OF NOZZLE–F



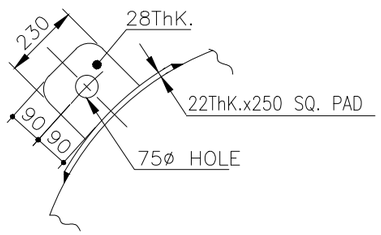
VIEW 'B'
(TYP)



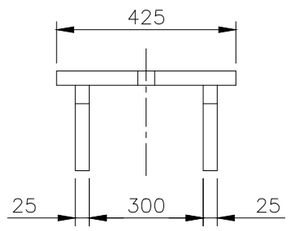
DETAIL OF STILL WELL FOR NOZZLE LT1 & 40
(HOLD)



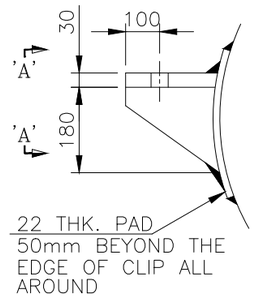
PLAN FOR
MOUNTING NOZZLE S2 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)



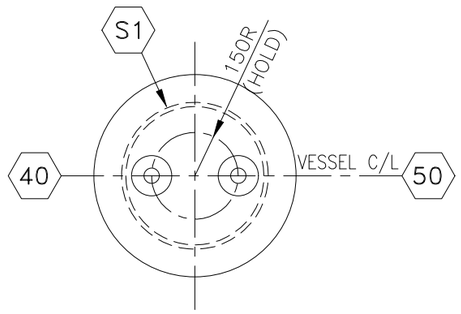
DETAIL OF LIFTING LUG (TYP)



VIEW 'A–A'



DETAIL OF BRACKET SUPPORT (TYP)



PLAN FOR
MOUNTING NOZZLE S1 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	22.12.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
CAUSTIC DRAIN DRUM
ITEM NO. 300-VV-HW-2104

वेसेल डिजाइन डाटा
कॉस्टिक ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-2104

DRAWING NO. B957-300-80-42-DS-3129
REV. B
SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	500	14 THK.	150	WN	RF	870	215X T	MANHOLE + BF + GASKET + BOLTING
7	1	250	80	150	WN	RF	SEE DWG.	135X T	VAPOR OUTLET TO 300-KA-CF-2401
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	300	14 THK.	150	WN	RF	770	135X T	FEED FROM OSBL
17	1	50	160	300	WN	RF	SEE DWG.	-	LIQUID BOTTOM OUTLET TO CLOSED BLOWDOWN
31	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	720	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	720	-	PRESSURE GAUGE
LG 1-2	2	50(H)	160	300	WN	RF	720	-	LEVEL GAUGE (MAG)
LT 1-8	8	50(H)	160	300	WN	RF	720	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11 EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
12 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
13 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPECIFICATION FOR WIRE MESH DEMISTERS	6-14-0017
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
X	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	PROCESS DATA SHEET	B957-300-79-41-DS-1256

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-8
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-8		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.6
DESIGN PRESSURE	(kg/cm^2g)	INT. 7 EXT. -
WORKING TEMPERATURE	(°C)	40
DESIGN TEMPERATURE	(°C)	155
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		YES (NOTE-13)
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.992
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	3.4
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☒ YES ☐ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		9.1
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.60
REINFORCEMENT PAD	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/~~ SUPPORT	SA 106 GR.B
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60
PIPE DAVIT	-
LIFTING LUG	SA 516 Gr.60

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	3100	OPERATING	4100
HYDROTEST(SHOP)	6500	HYDROTEST (FIELD)	6500
NUMBER OF ITEMS :	ONE		

PDS B957-300-79-41-DS-1256 REV.1

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	11.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA
DCU OFFGAS COMPRESSOR SUCTION DRUM

ITEM NO. 300-VV-VI-2401

डिजाइन डाटा
डीसीयु ऑफगैस कंप्रेसर सक्शन ड्रम

आइटम नम्बर 300-वीवी-वीआई-2401

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3138** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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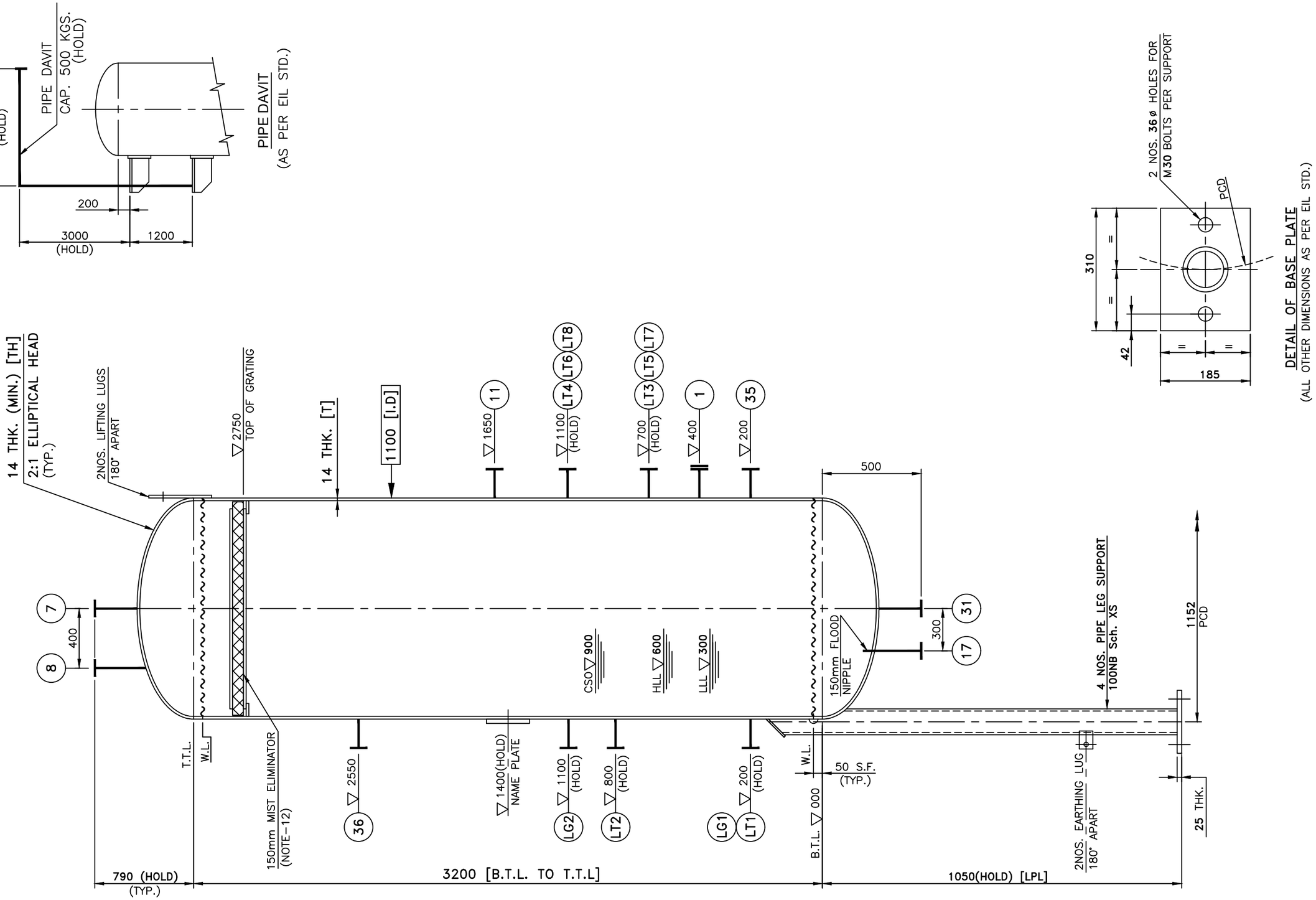
PIPE DAVIT
(AS PER EIL STD.)



DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	11.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA
DCU OFFGAS COMPRESSOR
SUCTION DRUM
ITEM NO. 300-VV-VI-2401

वेसल डिजाइन डाटा
डीसीयु ऑफगैस कंप्रेसर
सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-2401

DRAWING NO. B957-300-80-42-DS-3138 | REV. A
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	500	14 THK.	150	WN	RF	770	215X T	MANHOLE + BF + GASKET + BOLTING
7	1	200	80	300	WN	RF	SEE DWG.	110X T	VAPOR OUTLET TO 300-CC-00-2401
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	250	80	300	WN	RF	720	115X T	FEED FROM 300-EE-00-2401
17	1	50	160	300	WN	RF	SEE DWG.	-	LIQUID BOTTOM OUTLET TO WASTE WATER TREATMENT PLANT (OSBL)
31	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	670	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	670	-	PRESSURE GAUGE
LG 1-2	2	50(H)	160	300	WN	RF	670	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	670	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
12. VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
13. COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPECIFICATION FOR WIRE MESH DEMISTERS	6-14-0017
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
X	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	PROCESS DATA SHEET	B957-300-79-41-DS-1257

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm²g)	11.8
DESIGN PRESSURE	(kg/cm²g)	INT. 14 EXT. -
WORKING TEMPERATURE	(°C)	45
DESIGN TEMPERATURE	(°C)	100
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		YES (NOTE-13)
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.991
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	2.6
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☒ YES ☐ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		18.2
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.60
REINFORCEMENT PAD	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/~~ SUPPORT	SA 106 GR.B
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60
PIPE DAVIT	-
LIFTING LUG	SA 516 Gr.60

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	2700	OPERATING	3500
HYDROTEST(SHOP)	5300	HYDROTEST (FIELD)	5300
NUMBER OF ITEMS :	ONE		

PDS B957-300-79-41-DS-1257 REV.1

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	10.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA

DCU OFFGAS CAUSTIC TOWER FEED KO DRUM

ITEM NO. 300-VV-VI-2402

डिजाइन डाटा

डीसीयु ऑफगैस कॉस्टिक टावर फीड केओ ड्रम

आइटम नम्बर 300-वीवी-वीआई-2402

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3139** REV: A

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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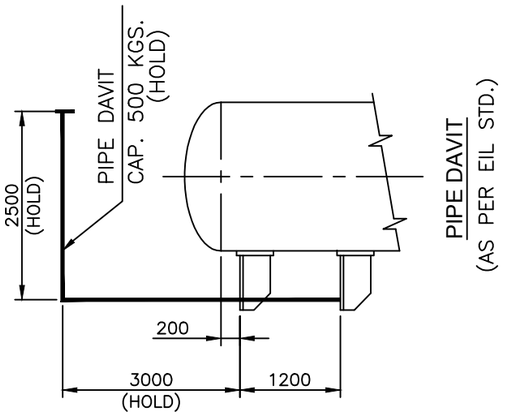
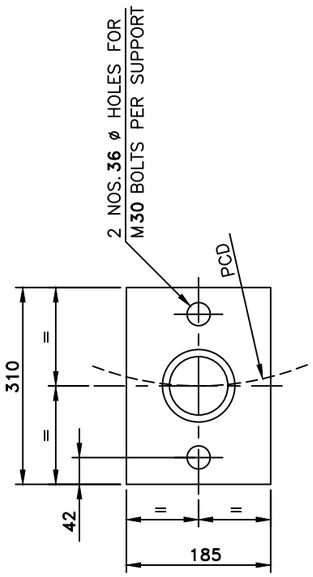
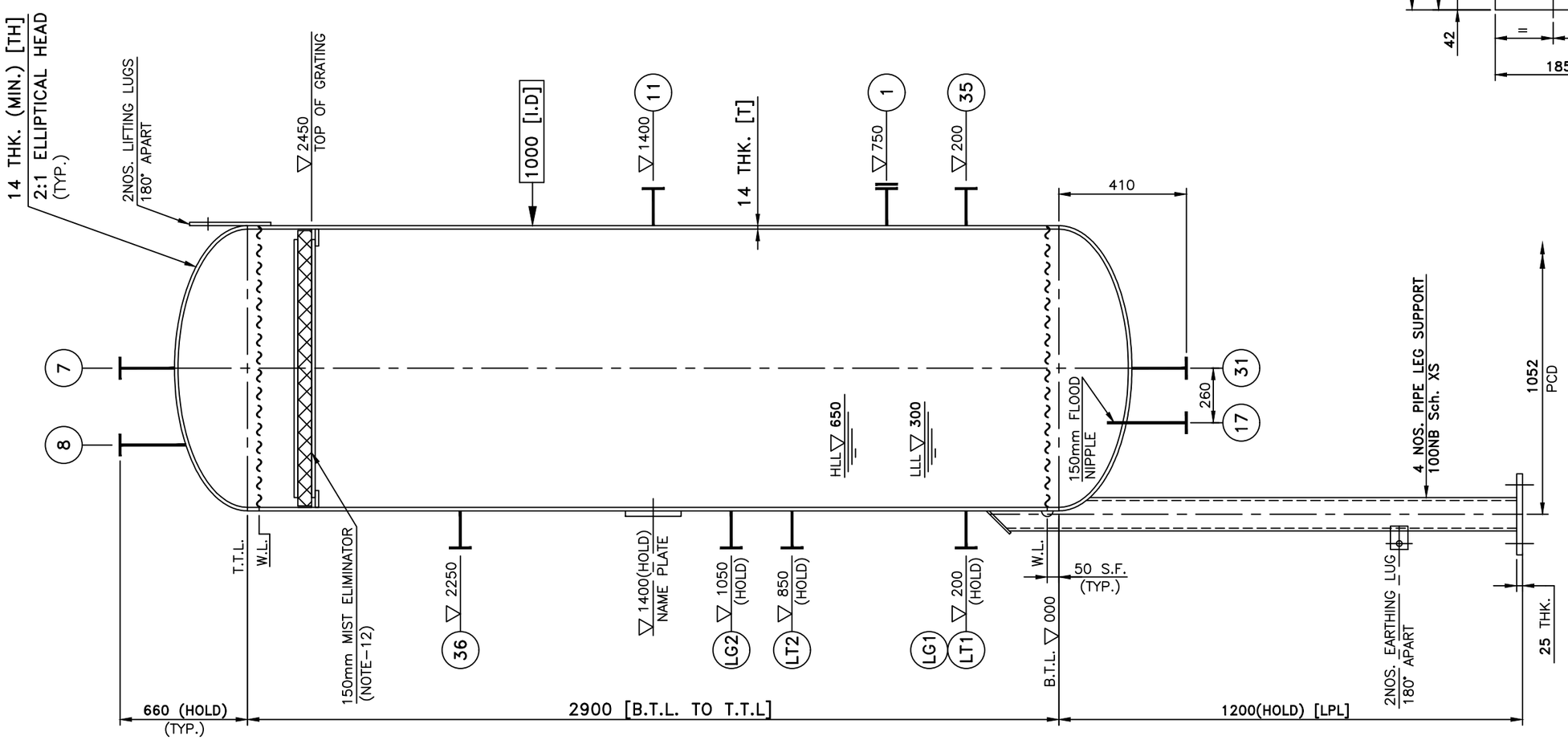


PIPE DAVIT
(AS PER EIL STD.)



DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)



A	10.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	APPROVED
REV.	DATE	REVISION	BY	CHK	APPROVED	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

VESSEL DESIGN DATA
DCU OFFGAS CAUSTIC
TOWER FEED KO DRUM
ITEM NO. 300-VV-VI-2402

वेसल डिजाइन डाटा
डीसीयु ऑफगैस कॉस्टिक
टावर फीड केओ ड्रम
आइटम नम्बर 300-वीवी-वीआई-2402

DRAWING NO. B957-300-80-42-DS-3139 | REV. A

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1258 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेशन	पैड	सर्विस
1	1	500	14 THK.	150	WN	RF	770	215X T	MANHOLE + BF + GASKET + BOLTING
7	1	200	80	300	WN	RF	SEE DWG.	110X T	VAPOR OUTLET TO 300-VD-00-2401 A/B
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	250	80	300	WN	RF	720	115X T	FEED FROM 300-EE-00-2402
17	1	50	160	300	WN	RF	SEE DWG.	-	LIQUID BOTTOM OUTLET TO SPENT CAUSTIC NEUTRALIZATION
31	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	670	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	670	-	PRESSURE INDICATOR
LG 1-2	2	50(H)	160	300	WN	RF	670	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	670	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
12. VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPECIFICATION FOR WIRE MESH DEMISTERS	6-14-0017
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
X	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	PROCESS DATA SHEET	B957-300-79-41-DS-1258

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023	
WORKING PRESSURE	(kg/cm²g)	10	
DESIGN PRESSURE	(kg/cm²g)	INT. 14	EXT. -
WORKING TEMPERATURE	(°C)	12	
DESIGN TEMPERATURE	(°C)	65	
MDMT	(°C)	1.1	
CORROSION ALLOWANCE	(mm)	3	
TYPE OF HEAD		2:1 ELLIPTICAL	
JOINT EFFICIENCY		SHELL 0.85	HEAD 1
RADIOGRAPHY		SHELL SPOT	HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.	
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.	
OPERATING MEDIUM		-	
SP. GRAVITY		1 (AT OPERATING TEMPERATURE)	
WIND SPECIFICATION		IS-875 (PART-3)	
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)	
CAPACITY	(M^3)	2.55	
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)	
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD	
FIRE PROOFING CLEATS		☒ YES ☐ NO	
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL	(AT TOP)
PRESSURE (NEW & COLD)		18.2	
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA	

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/~~ SUPPORT	SA 106 GR.B
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.70
PIPE DAVIT	-
LIFTING LUG	SA 516 Gr.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	2500	OPERATING	3200
HYDROTEST(SHOP)	5050	HYDROTEST (FIELD)	5050
NUMBER OF ITEMS :	ONE		

A	12.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB		
REV	DATE	REVISION	BY	CHECKED	APPROVED		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA	DCU OFFGAS DRYER/ TREATER FEED GAS KO DRUM
ITEM NO.	300-VV-VI-2403
डिजाइन डाटा	डी सी यु ऑफ गैस ड्रायर/ ट्रेटर फीड गैस केओ ड्रम
आइटम नम्बर	300-वीवी-वीआई-2403
DRAWING NUMBER / डाईग नम्बर	**B957-300-80-42-DS-3140** REV A
	SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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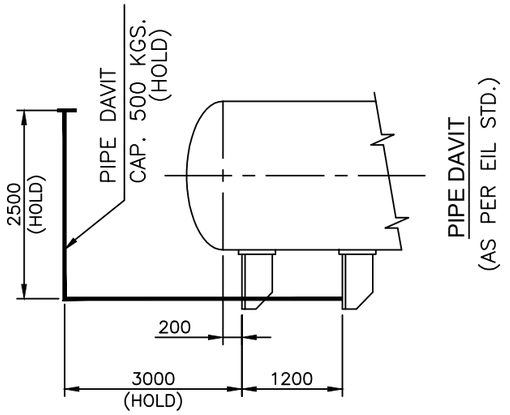
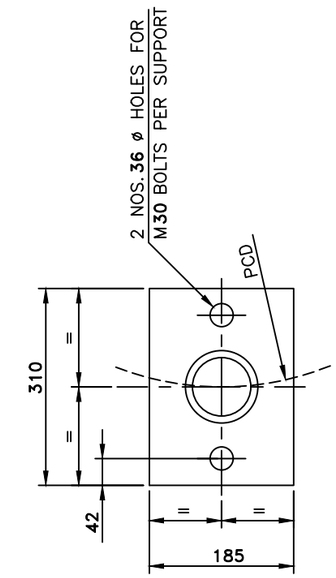
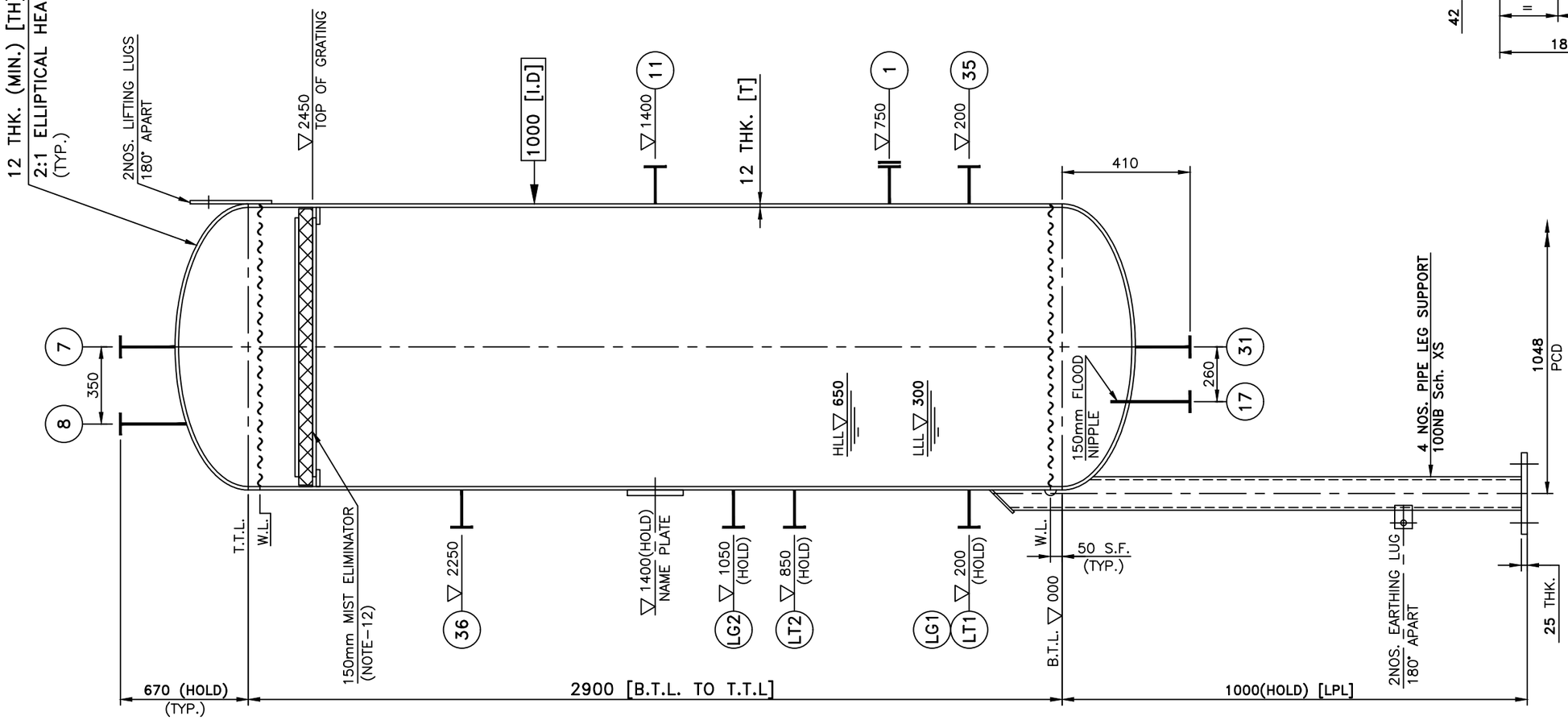


PIPE DAVIT
(AS PER EIL STD.)



DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)



A	12.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB		
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

VESSEL DESIGN DATA
DCU OFFGAS DRYER/
TREATER FEED GAS KO DRUM
ITEM NO. 300-VV-VI-2403

वेसल डिजाइन डाटा
डी सी यू ऑफ गैस ड्रायर/
ट्रेटर फीड गैस कंओ ड्रम
आइटम नम्बर 300-वीवी-वीआई-2403

DRAWING NO. B957-300-80-42-DS-3140
REV. A
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1260 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेशन	पैड	सर्विस
1	1	500	14 THK.	150	WN	RF	770	215X T	MANHOLE + BF + GASKET + BOLTING
7	1	200	80	300	WN	RF	SEE DWG.	110X T	VAPOR OUTLET TO 300-CC-00-2401
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	250	80	300	WN	RF	720	115X T	FEED FROM 300-EE-00-2405
17	1	50	160	300	WN	RF	SEE DWG.	-	LIQUID BOTTOM OUTLET TO SPENT CAUSTIC NEUTRALIZATION
31	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	300	WN	RF	670	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	670	-	PRESSURE INDICATOR
LG 1-2	2	50(H)	160	300	WN	RF	670	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	670	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11 EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
12 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPECIFICATION FOR WIRE MESH DEMISTERS	6-14-0017
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
X	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	PROCESS DATA SHEET	B957-300-79-41-DS-1260

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm²g)	10.5
DESIGN PRESSURE	(kg/cm²g)	INT. 14 EXT. -
WORKING TEMPERATURE	(°C)	45
DESIGN TEMPERATURE	(°C)	65
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.991 (AT OPERATING TEMPERATURE)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	2.55
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☒ YES ☐ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		18.2
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/~~ SUPPORT	SA 106 GR.B
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.70
PIPE DAVIT	-
LIFTING LUG	SA 516 Gr.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	2500	OPERATING	3200
HYDROTEST(SHOP)	5050	HYDROTEST (FIELD)	5050
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	12.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
DCU OFFGAS TOP CAUSTIC FEED KO DRUM	डीसीयु ऑफगैस टॉप कास्टिक फीड केओ ड्रम	B957-300-80-42-DS-3142	A
ITEM NO. 300-VV-VI-2405	आइटम नम्बर 300-वीवी-वीआई-2405	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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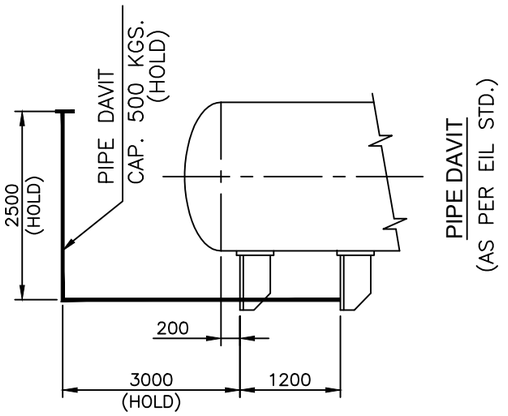
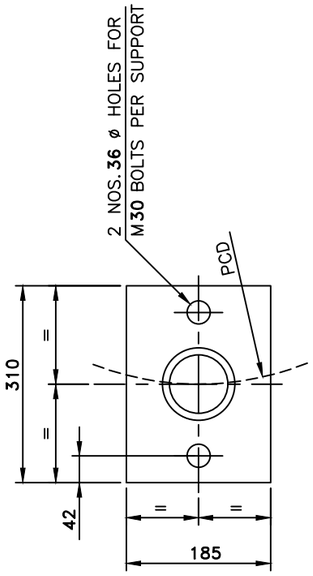
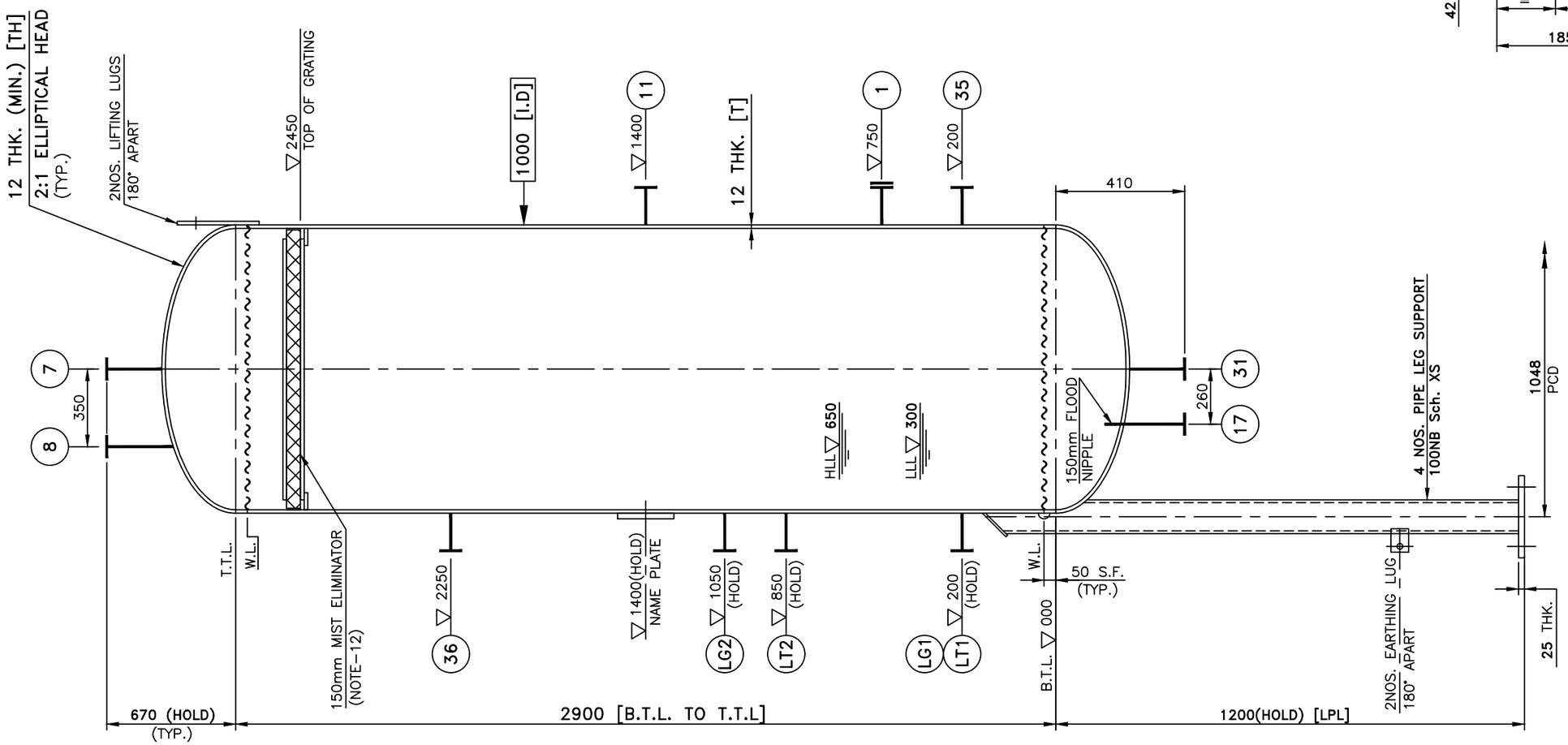


PIPE DAVIT
(AS PER EIL STD.)



DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)



A	12.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB		
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

VESSEL DESIGN DATA
DCU OFFGAS TOP CAUSTIC
FEED KO DRUM
ITEM NO. 300-VV-VI-2405

वेसल डिजाइन डाटा
डीसीयु ऑफगैस टॉप
कास्टिक फीड केओ ड्रम
आइटम नम्बर 300-वीवी-वीआई-2405

DRAWING NO.	REV.
B957-300-80-42-DS-3142	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1243 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेशन	पैड	सर्विस
5 A-B	2	200	80	300	WN	RF	510	95X T	HANDHOLE + BF + GASKET + BOLTING
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	100	120	600	WN	RF	510	50X T	FEED FROM 300-EE-00-2502
17	1	100	120	600	WN	RF	SEE DWG.	60X T	LIQUID BOTTOM OUTLET TO MP CONDENSATE HEADER
35	1	50	160	600	WN	RF	460	-	UTILITY CONNECTION
LG 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	460	-	LEVEL TRANSMITTER (GWR)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90° APART.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13. VENDOR SHALL CARRY OUT COMPLETE MECHANICAL DESIGN AS PER IBR & MODIFY THE THICKNESS, IF NECESSARY, WITHOUT ANY COST AND TIME IMPLICATION. HOWEVER, INDICATED THK. ARE MINIMUM TO BE PROVIDED. IT IS SOLE RESPONSIBILITY OF VENDOR TO GET APPROVAL OF ALL DOCUMENTS & DESIGN CALCULATION FROM CIB & ALSO GET THE EQPT. INSPECTED BY CIB.
14. ALL MATERIAL / FABRICATION / TESTING (INCLUDING HYDROTEST) / INSPECTION SHALL MEET IBR REQUIREMENTS.
15. ALL PRESSURE BEARING WELDS SHALL BE CHECKED BY MP/DP TESTED AFTER HYDROTEST.
16. PARTS NOT COVERED BY IBR SHALL BE DESIGNED AS PER ASME SEC. VIII DIV.1.
17. WELD FOR ALL PRESSURE BEARING COMPONENTS SHALL BE FULL PENETRATION WELD. TEST FOR FUSION WELDED SEAMS SHALL COMPLY WITH REQUIREMENTS OF IBR.
18. ALL CIRCUMFERENTIAL, LONGITUDINAL WELDS SHALL BE WELD FROM BOTH SIDE. WHEREVER WELDING IS NOT POSSIBLE FROM OTHER SIDE FIRST TWO (2) ROOT RUNS SHALL BE CARRIED OUT BY TIG.
19. HYDROTEST SHALL BE CARRIED OUT AS PER IBR REQUIREMENTS.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
X	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		IBR (NOTE-16)
WORKING PRESSURE	(kg/cm^2g)	15
DESIGN PRESSURE	(kg/cm^2g)	INT. 22 EXT. F.V.
WORKING TEMPERATURE	(°C)	200.5
DESIGN TEMPERATURE	(°C)	350
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL AS PER IBR HEAD SINGLE PIECE
RADIOGRAPHY		SHELL AS PER IBR HEAD SINGLE PIECE
POST WELD HEAT TREATMENT		AS PER CODE/SPEC.
HEAT TREATMENT		HEAD: AS PER CODE/SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.864 AT OPERATING TEMPERATURE
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	0.4
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-12)
INSULATION THICKNESS	(mm) (IH)	80 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		AS PER IBR
INSPECTION BY		[ ] EIL [X] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	-
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	IS 2062 GR. E 250 QUALITY BR/B0
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : IBR

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

[X] **INDIAN BOILER REGULATIONS (IBR)**

[ ] **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	700	OPERATING	900
HYDROTEST(SHOP)	1100	HYDROTEST (FIELD)	1100
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	25.09.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-2502	कन्डनसेट पॉट फॉर 300-ईई-00-2502
ITEM NO. 300-VV-VW-2502	आइटम नम्बर 300-वीवी-वीडब्ल्यू-2502

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3144	A
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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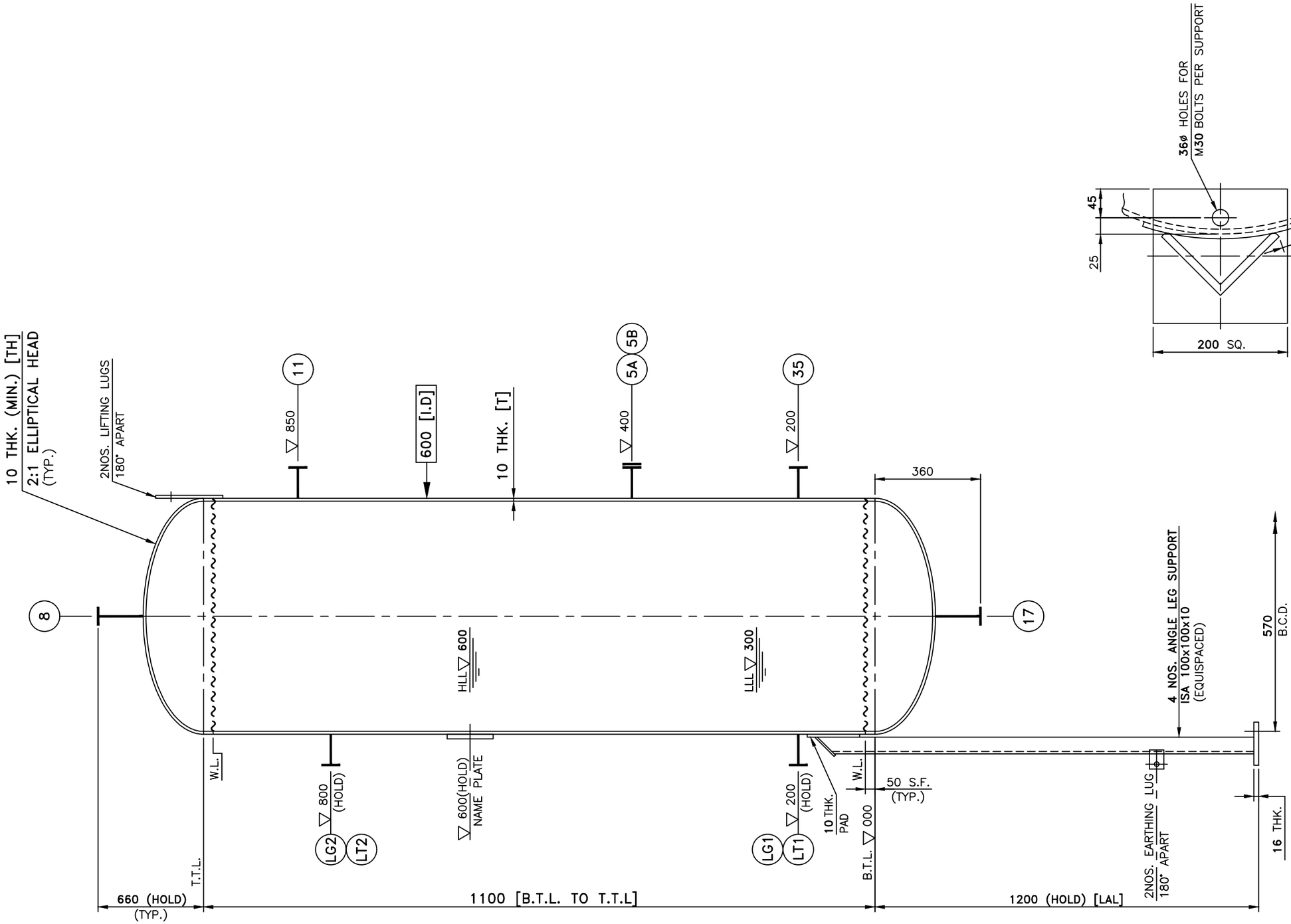

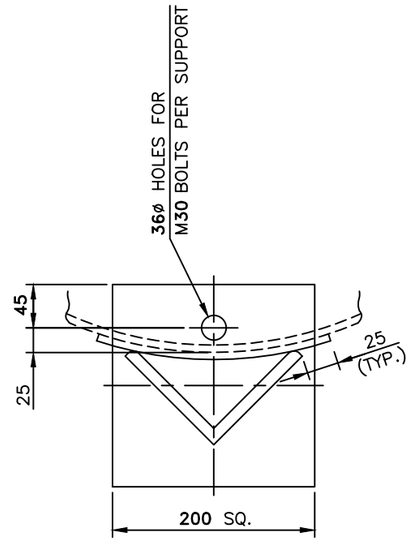

DETAIL OF BASE PLATE
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	25.09.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा
CONDENSATE POT FOR 300-EE-00-2502	कन्डनसेट पॉट फॉर 300-ईई-00-2502
ITEM NO. 300-VV-VW-2502	आइटम नम्बर 300-वीवी-वीडब्ल्यू-2502

DRAWING NO.	REV.
B957-300-80-42-DS-3144	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1245 REV.3

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	150	WN	RF	SEE DWG.	200X T	MANHOLE+BF+GASKET+BOLTING+HINGE
3 A-B	2	600 (H)	14 THK.	150	WN	RF	SEE DWG.	200 X T	PUMP 300-PA-CF-2504A/B MOUNT, EXTENDED
PD A-B	2	100 (H)	BY PUMP VENDOR						PUMP DISCHARGE
4	1	200	80	150	WN	RF	SEE DWG.	95X T	VENTILATION NOZZLE
7	1	50	160	300	WN	RF	SEE DWG.	-	VAPOR OUTLET TO ACID GAS FLARE
11	1	150	120	150	WN	RF	SEE DWG.	70X T	FEED FROM MEA DRAIN HEADER
12	1	50	160	300	WN	RF	SEE DWG.	-	FEED FROM MEA MAKE-UP FROM DRUMS
19 A-B	2	50	160	300	WN	RF	SEE DWG.	-	DRAW OFF TO VACUUM TRUCK
20	1	50	160	300	WN	RF	SEE DWG.	-	MIN FLOW RETURN FROM 300-PA-CF-2504A/B
35	1	50	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
37	1	50	160	300	WN	RF	SEE DWG.	-	PRESSURE INDICATOR
40	1	50	160	300	WN	RF	SEE DWG.	-	TEMPERATURE INDICATOR
LT 1-2	2	150 (H)	120	300	WN	RF	SEE DWG.	-	LEVEL TRANSMITTER (RADAR)
50	1	80	160	300	WN	RF	SEE DWG.	-	NITROGEN INLET
S1	1	600	14 THK.	150	WN	RF	SEE DWG.	215xT	MOUNTING NOZZLE BF + GASKET + BOLTING FOR 7,12,20 &50
S2	1	500	14 THK.	150	WN	RF	SEE DWG.	195xT	MOUNTING NOZZLE BF + GASKET + BOLTING FOR 35,37 & 40

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ~~ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.~~
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES SHALL BE STIFFENED WITH 4 NOS. 100 x 10 THK FLATS AT 90 DEG.APART. MANHOLE,PUMP NOZZLE AND MOUNTING NOZZLES SHALL BE STIFFENED WITH 8 NOS 10THKx R.F PAD WIDE FLATS EQUISPACED.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES / REDUCING FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.EXTERNAL COATING SHALL BE AS PER TABLE 10.2 OF JOB SPECIFICATION.
13 THE VESSEL SHALL BE LOCATED IN RCC PIT AND SAND PACKED WITH VIBRO COMPRESSION WITH 100mm THK OF LEAN CONCRETE ON TOP (BY OTHERS).
14 (a) SIZE OF SUMP1-2 & NOZZLE P1-2 IS UNDER HOLD & SHALL BE AS CONFIRMED BY PUMP VENDOR.
14 (b) PUMP NOZZLE COVER / BLIND FLANGE WITH PUMP ASSEMBLY, NOZZLES PDA-B,BOLTING & GASKET SHALL BE SUPPLIED BY PUMP SUPPLIER.
15 CATHODIC PROTECTION IS BY OTHERS. HOWEVER,CLIP FOR THE SAME TO BE PROVIDED BY VENDOR.
16 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED/BOLTED CS INTERNAL SHALL BE 12mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190 ºC.
18 LIFTING LUG FOR HANDLING OF VESSEL SHALL BE DESIGNED (CONSIDERING IMPACT FACTOR 1.5) AND PROVIDED BY VENDOR. INDICATIVE DETAILS ARE FURNISHED ON SHEET-3.
19 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
20 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	STD. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038
X	STILL WELL FOR LEVEL TRANSMITTER (RADAR TYPE) FOR BURIED VESSEL	7-12-0039

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	STILL WELL		PIPE DAVIT
X	SUMP DIAMETER, LENGTH		PACKING SUPPORT
X	BURIED HEIGHT		

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.15
DESIGN PRESSURE (kg/cm²g)	INT. 3.5 EXT. F.V.
WORKING TEMPERATURE (°C)	53-135
DESIGN TEMPERATURE (°C)	150
MDMT (°C)	1.1
CORROSION ALLLOWANCE (MM)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE/SPEC.
HEAT TREATMENT	HEAD: AS PER CODE /SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.932-0.992
WIND SPECIFICATION	IS 875
SEISMIC	IS 1893 + SITE SPECTRA
CAPACITY (M^3)	65
PAINTING/CLEANING	REFER AS PER JOB SPEC.
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL /~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	4.55
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 516 Gr.60
REINFORCEMENT PAD	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES / BLIND FLANGE	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SUPPORT	SA 516 Gr.60
SUPPORT BASE	-
INTERNAL PARTS (WELDED)	SA 516 Gr.60 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.60
WRAPPER PLATE	SA 516 Gr.60
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.60
LIFTING LUG	SA 516 Gr.60
STIFFENER	SA 516 Gr.60
STILL WELL FOR LT1 & LT2	SS304L

CATHODIC PROTECTION REQUIRED

@ WITHOUT PUMP ASSEMBLY

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	32000@	OPERATING	102000@
HYDROTEST(SHOP)	105400@	HYDROTEST (FIELD)	105400@
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	15.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईग नम्बर	REV
MEA DRAIN DRUM	एमईऐ ड्रैन ड्रम	B957-300-80-42-DS-3146	A
ITEM NO. 300-VV-HW-2505	आइटम नम्बर 300-वीवी-एचडब्ल्यू-2505	SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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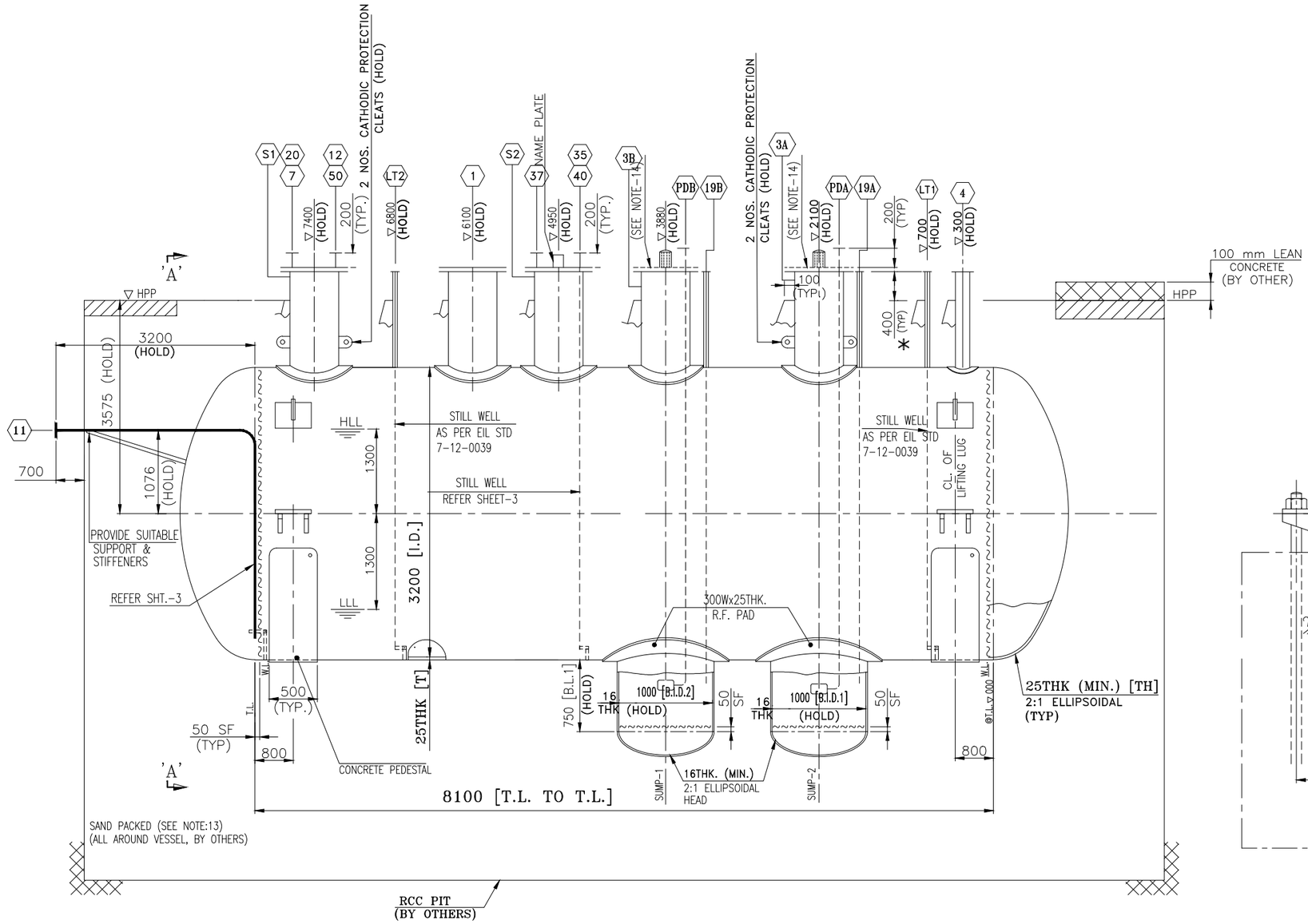
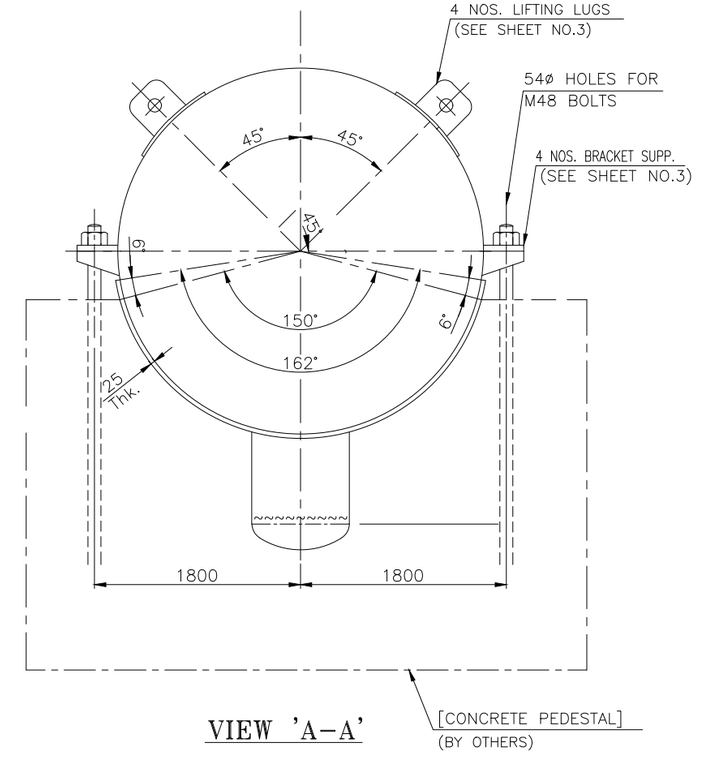
* NOZZLES MAY BE SUITABLY CUT WITH WELD EDGE PREPARATION (WITH SUITABLE COVER)FOR TRANSPORTATION. SUITABLE CUTTING ALLOWANCE IN NOZZLES SHALL BE CONSIDERED TO MAINTAIN THE GIVEN PROJECTION.FINAL ASSEMBLY OF NOZZLES AT SITE SHALL BE BY OTHERS (NOT BY VESSEL FABRICATOR)





VIEW 'A-A'

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	15.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
MEA DRAIN DRUM
ITEM NO. 300-VV-HW-2505

वेसेल डिजाइन डाटा
एमईऐ ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-2505

DRAWING NO. B957-300-80-42-DS-3146
REV. A
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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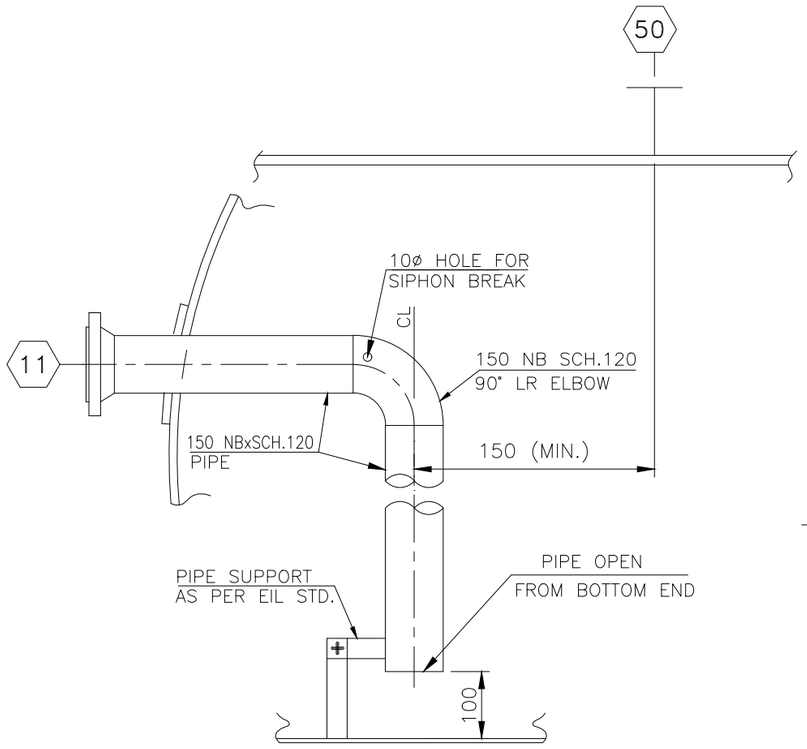
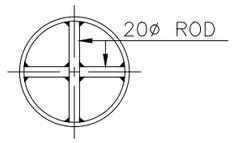
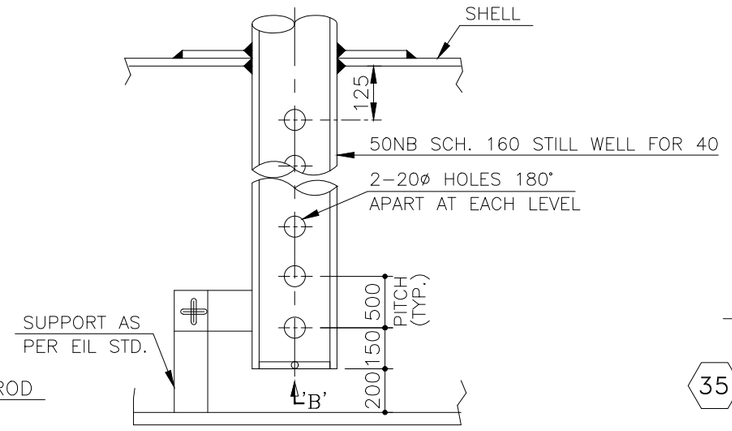


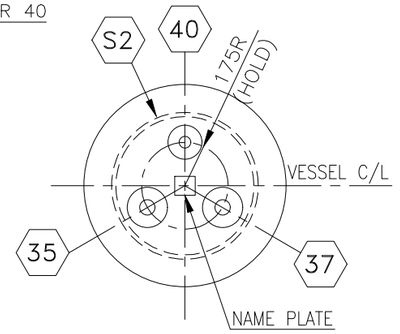
DETAIL OF NOZZLE–11



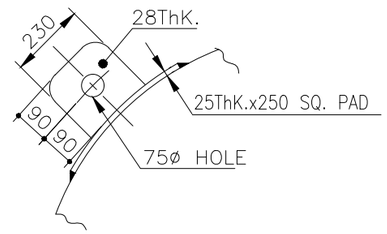
VIEW 'B'
(TYP)



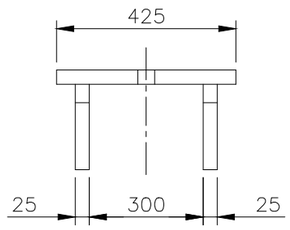
DETAIL OF STILL WELL FOR NOZZLE 40
(HOLD)



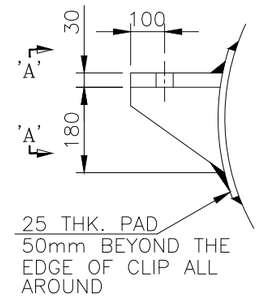
PLAN FOR
MOUNTING NOZZLE S2 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)



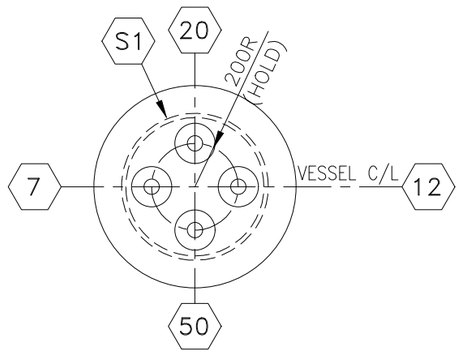
DETAIL OF LIFTING LUG (TYP)



VIEW 'A–A'



DETAIL OF BRACKET SUPPORT (TYP)



PLAN FOR
MOUNTING NOZZLE S1 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	15.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA	वेसेल डिजाइन डाटा	DRAWING NO.	REV.
MEA DRAIN DRUM	एमईऐ ड्रैन ड्रम	B957-300-80-42-DS-3146	A
ITEM NO. 300-VV-HW-2505	आइटम नम्बर 300-वीवी-एचडब्ल्यू-2505	SHEET 3 OF 3	

1-1641-0503 REV.0 A3-420x297

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PDS REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	10 THK.	150	WN	RF	1610	300 X T	MANHOLE + B.F + DAVIT
7	1	400	12 THK.	150	WN	RF	SEE DWG.	200 X T	VAPOR OUTLET TO 300-LZ-00-3001-EP-00-13
8	1	50	80S	300	WN	RF	SEE DWG.	-	VENT
11	1	500	14 THK.	150	WN	RF	1610	@	FEED FROM 300-LZ-00-3001-EP-00-11
17	1	100	80S	300	WN	RF	SEE DWG.	60 X T	LIQUID BOTTOM OUTLET TO 300-PA-CF-3002A/B
20	1	50	80S	300	WN	RF	1510	-	MIN. FLOW RETURN FROM 300-PA-CF-3002A/B
22	1	50	80S	300	WN	RF	1510	-	PUMP VENT RETURN FROM 300-PA-CF-3002A/B
31	1	80	80S	300	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	80S	300	WN	RF	1510	-	UTILITY CONNECTION
47 A-B	2	50	80S	300	WN	RF	1510	-	LEVEL TRANSMITTER (GWR)
45 A-B	2	50	80S	300	WN	RF	1510	-	LEVEL GAUGE MAGNETIC (SS)
SKV 1-4	4	100	40	AS PER STANDARD					SKIRT VENT
AO	1	500 I.D.	14 THK.	AS PER STANDARD					ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH/SKIRT END NOMINAL THICKNESS

'@' INSERT PLATE OF 1080 DIA. X 20 THK.

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडेशन लोडिंग डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	63000	6500
WIND	57000	7000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINAL PAINTING AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
14 EQUIPMENT SHALL BE SUBJECTED TO DRY OUT AT 7.0 kg/cm²(g) @ 80°C.
15 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED/BOLTED INTERNAL SHALL BE 12mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
16 ALL STAINLESS STEEL SURFACES (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A380.
17 ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
18 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
19 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT BASED ON 1.25 TIMES THE ACTUAL ERECTION WEIGHT AND CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
20 EQUIPMENT MAY BE ERECTED IN SINGLE PIECE IN DRESSED UP CONDITION (BY OTHERS). DRESSED UP IMPLIES THAT THE EQUIPMENT WILL BE ERECTED AFTER INSTALLATION OF INSULATION, PLATFORM/LADDERS ETC. (BY OTHERS). CORRESPONDINGLY EQUIPMENT VENDOR SHALL SELECT LIFTING LUG BASED ON 1.25 TIMES THE ACTUAL ERECTION WEIGHT.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS (रेफरेन्स डाईंग)

X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43149
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
X	SKETCH FOR MONKEY LADDER	B957-00-80-42-SK-0010
	PROCESS DATASHEET	

⚠1 HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	6.92
DESIGN PRESSURE (kg/cm²g)	INT. 9 EXT. -
WORKING TEMPERATURE (°C)	(-)130
DESIGN TEMPERATURE (°C)	(-)145/65
MDMT (°C)	(-)145
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.376 (AT OPERATING TEMP.)
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	19.8
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	175 ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	11.7
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/INSERT PLATE	SA 240 GR.304
REINFORCEMENT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH SS304 OUTER &
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.B8 CL.2 (STRAIN HARDENED) /SA194 GR.8
INTERNAL STUDS/BOLTS/NUTS	-
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SA 240 GR.304
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	-
LIFTING LUG	SA 240 GR.304
TAILING LUG	SA 516 GR.70

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	9500	OPERATING	30000
HYDROTEST(SHOP)	29300	HYDROTEST (FIELD)	48000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
1	10.04.2026	REVISED FOR ENGG.	AS	CRG/SRIKANTH	PB
0	23.01.2026	ISSUED FOR PURCHASE	AS	CRG/SRIKANTH	PB
A	03.07.2025	ISSUED FOR BIDS / ENGG.	AS	CRG/SRIKANTH	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER / डाईंग नम्बर	REV
DEMETHANIZER REFLUX DRUM	डिमीथनाइजर रिफ्लक्स ड्रम	B957-300-80-42-DS-3149	1
ITEM NO. 300-VV-VW-3001	आइटम नम्बर 300-वीवी-वीडब्ली-3001	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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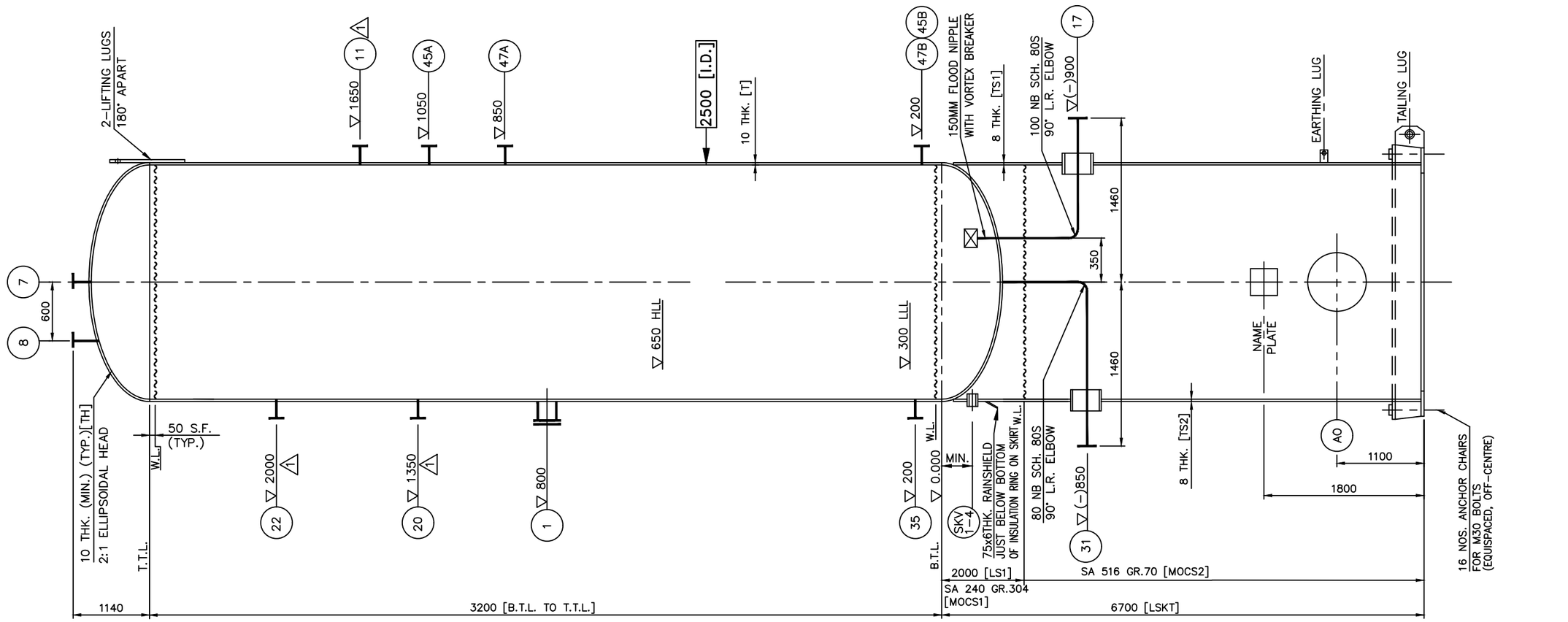
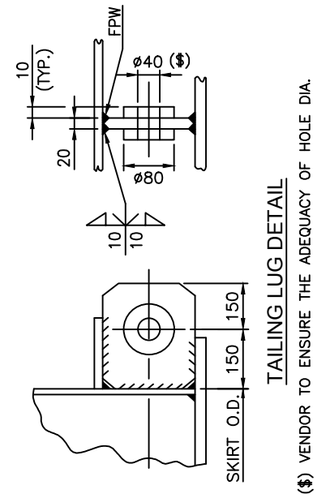
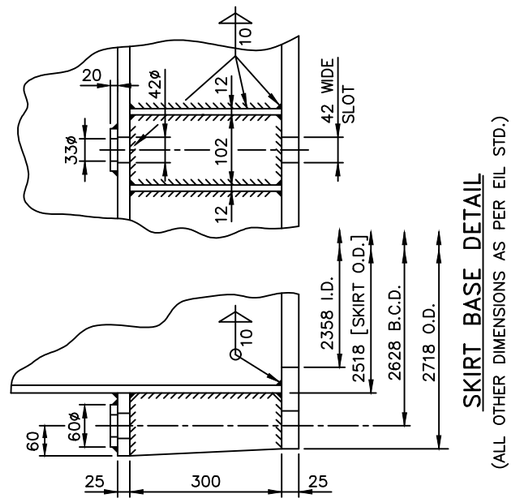




TAILING LUG DETAIL

($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
1	10.04.2026	REVISED FOR ENGG.	AS	CRG/VIVEK	PB	
0	23.01.2026	ISSUED FOR PURCHASE	AS	CRG/VIVEK	PB	
A	03.07.2025	ISSUED FOR BIDS/ENGG.	AS	CRG/VIVEK	PB	

VESSEL DESIGN DATA
DEMETHANIZER REFLUX DRUM
ITEM NO. 300-VV-VW-3001

वेसल डिजाइन डाटा
डिमीथनाइजर रिफ्लक्स ड्रम
आइटम नम्बर 300-वीवी-वीडब्ल्यू-3001

DRAWING NO.	REV.
B957-300-80-42-DS-3149	1
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1262 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	150	WN	RF	1370	255X T	MANHOLE + BF + GASKET + BOLTING
7	1	750	14 THK.	150	WN	RF	SEE DWG.	380X T	VAPOR OUTLET TO 300-GN-00-3001A/B/300-CC-00-1301/FLARE
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	750	14 THK.	150	WN	RF	1370	325X T	#
17	1	80	160	300	WN	RF	SEE DWG.	45X T	LIQUID BOTTOM OUTLET TO 300-CC-00-1301
31	1	80	160	300	WN	RF	SEE DWG.	45X T	DRAIN
35	1	50	160	300	WN	RF	1270	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	1270	-	PRESSURE GAUGE
LG 1-2	2	50(H)	160	300	WN	RF	1270	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	1270	-	LEVEL TRANSMITTER (GWR)
AO	1	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES (HOLD)

'#' FEED FROM 300-LZ-00-3001-EP-00-18/ 300-LZ-00-3002/ 300-EE-00-1005/ BACK-UP LPG VAPOR/ BACK-UP RLNG VAPOR (OSBL)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	98000	10000
WIND	81000	9000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
12. VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
13. VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
X	PROCESS DATA SHEET	B957-300-79-41-DS-1262

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	3.7
DESIGN PRESSURE	(kg/cm^2g)	INT. 7.5 EXT. F.V
WORKING TEMPERATURE	(°C)	40
DESIGN TEMPERATURE	(°C)	100
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.992 (AT OPERATING TEMPERATURE)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	16.5
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☒ YES ☐ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		9.75
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 Gr.70 / IS 2062 GR. E 250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70
WRAPPER PLATE	-
DEMISTER/GRID	SS 304L (HOLD)
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 516 GR.70

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	13000	OPERATING	38000
HYDROTEST(SHOP)	29500	HYDROTEST (FIELD)	50700
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	24.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
FUEL GAS KNOCK OUT DRUM	फ्यूल गैस नाकआउट ड्रम
ITEM NO. 300-VV-VI-3002	आइटम नम्बर 300-वीवी-वीआई-3002

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3150	A
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 [28.02.2024) A3-420 X 297

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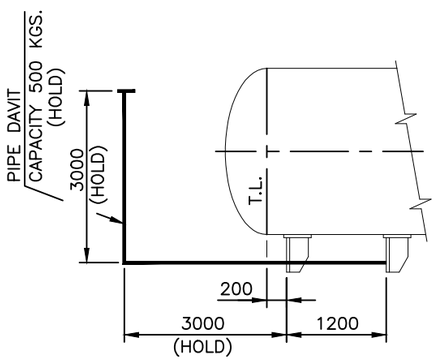
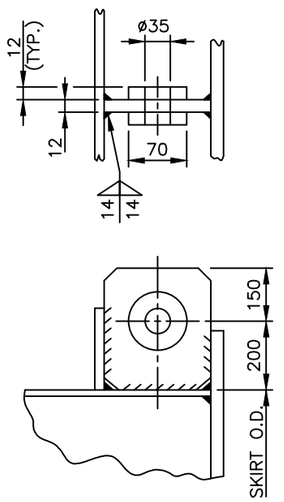
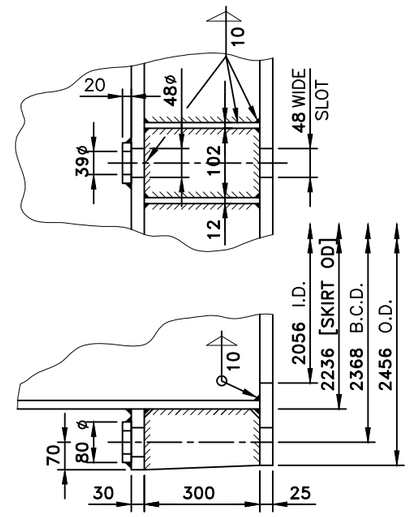


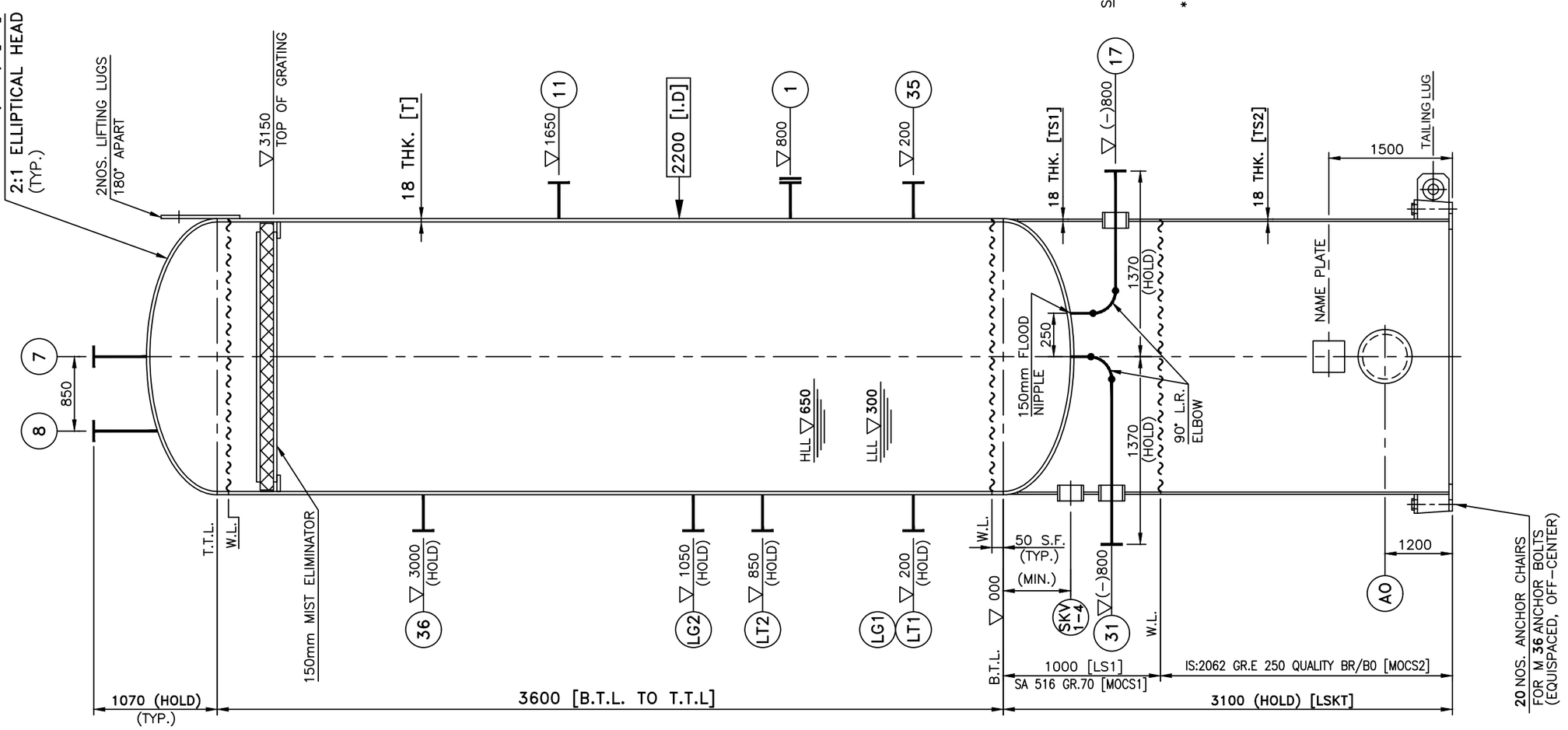
PIPE DAVIT
(ALL OTHER DIMENSIONS AS PER EIL STD.)



DETAIL OF TAILING LUG
* VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL
(ALL OTHER DIMENSIONS AS PER EIL STD.)



A	24.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

VESSEL DESIGN DATA	वेसल डिजाइन डाटा	DRAWING NO.	REV.
FUEL GAS KNOCK OUT DRUM	फ्यूल गैस नाकआउट ड्रम	B957-300-80-42-DS-3150	A
ITEM NO. 300-VV-VI-3002	आइटम नम्बर 300-वीवी-वीआई-3002	SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
1	1	600	14 THK.	300	WN	RF	1960	300 X T	MANHOLE + BL. FLG.+HINGE
7	1	500	14 THK.	300	WN	RF	SEE DWG.	250 X T	VAPOUR OUTLET TO 300-LZ-00-3001-EP-00-14
8	1	50	80S	600	WN	RF	SEE DWG.	–	VENT
11	1	900	14 THK.	300	WN	RF	2010	455 X T	FEED FROM 300-LZ-00-3001-EP-00-15
17	1	400	14 THK.	300	WN	RF	SEE DWG.	200 X T	LIQUID BOTTOM OUTLET TO 300-CC-00-3001
31	1	80	80S	600	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	80S	600	WN	RF	1810	–	UTILITY CONNECTION
0 45 A-B	2	50	80S	300	WN	RF	1760	–	STAND PIPE
0 47 A-B	2	50	80S	300	WN	RF	1760	–	LEVEL TRANSMITTER (DP)
SKV 1-4	4	100	40S	AS PER EIL STANDARD				–	SKIRT VENT
AO 1-2	2	500 ID	14 THK	AS PER EIL STANDARD				250 X 14	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

0 FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	300500	21600
WIND	154600	12200

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT SHALL BE AS PER JOB SPECIFICATION.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
14 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
15 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 AFTER COMPLETION OF FABRICATION AND TESTING ALL SS CLAD SURFACES ALONG WITH SS INTERNALS SHALL BE PICKLED AND PASSIVATED.
17 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
18 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
19 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
20 ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
21 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
22 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
23 TAILING LUG AND BRACING ARRANGEMENT FOR SKIRT SHALL BE DESIGNED BY VENDOR CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE.
0 24 STAINLESS STEEL VESSEL HEADS SHOULD UNDERGO HEAT TREATMENT IF THEY COLD FORMED (WHETHER PRESSED OR SPUN) IF THE HEAD DIAMETER TO THICKNESS RATIO IS LESS THAN 100.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
0	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
	PROCESS DATASHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

0 HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	16.55
DESIGN PRESSURE (kg/cm²g)	INT. 31.5 EXT. --
WORKING TEMPERATURE (°C)	(-)76
DESIGN TEMPERATURE (°C)	(-)100/65
MDMT (°C)	(-)100
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	DEMETHANIZER FEED
SP. GRAVITY	0.532
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	90
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	145 ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	40.95
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.B8 CL.2 (STRAIN HARDENED)/SA194 GR.B
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SA 240 GR.304/SA 312 TP.304
INTERNAL PARTS (BOLTED)	SA 240 GR.304/SA 312 TP.304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILING LUG	SA 516 GR.70

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)
- INDIAN BOILER REGULATIONS (IBR)
- DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

0 APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	56000	OPERATING	136000
HYDROTEST(SHOP)	145500	HYDROTEST (FIELD)	191500

NUMBER OF ITEMS : ONE

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED	
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	

DESIGN DATA	DEMETHANIZER FEED SEPARATOR NO 1
ITEM NO.	300-VV-VW-3004
डिजाइन डाटा	डिमीथेनाईजर फीड सैपरेटर नम्बर 1
आइटम नम्बर	16-वीवी-वीडब्ल्यू-3004
DRAWING NUMBER / डाईग नम्बर	B957-300-80-42-DS-3151 REV 0
	SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024) A3-420 X 297

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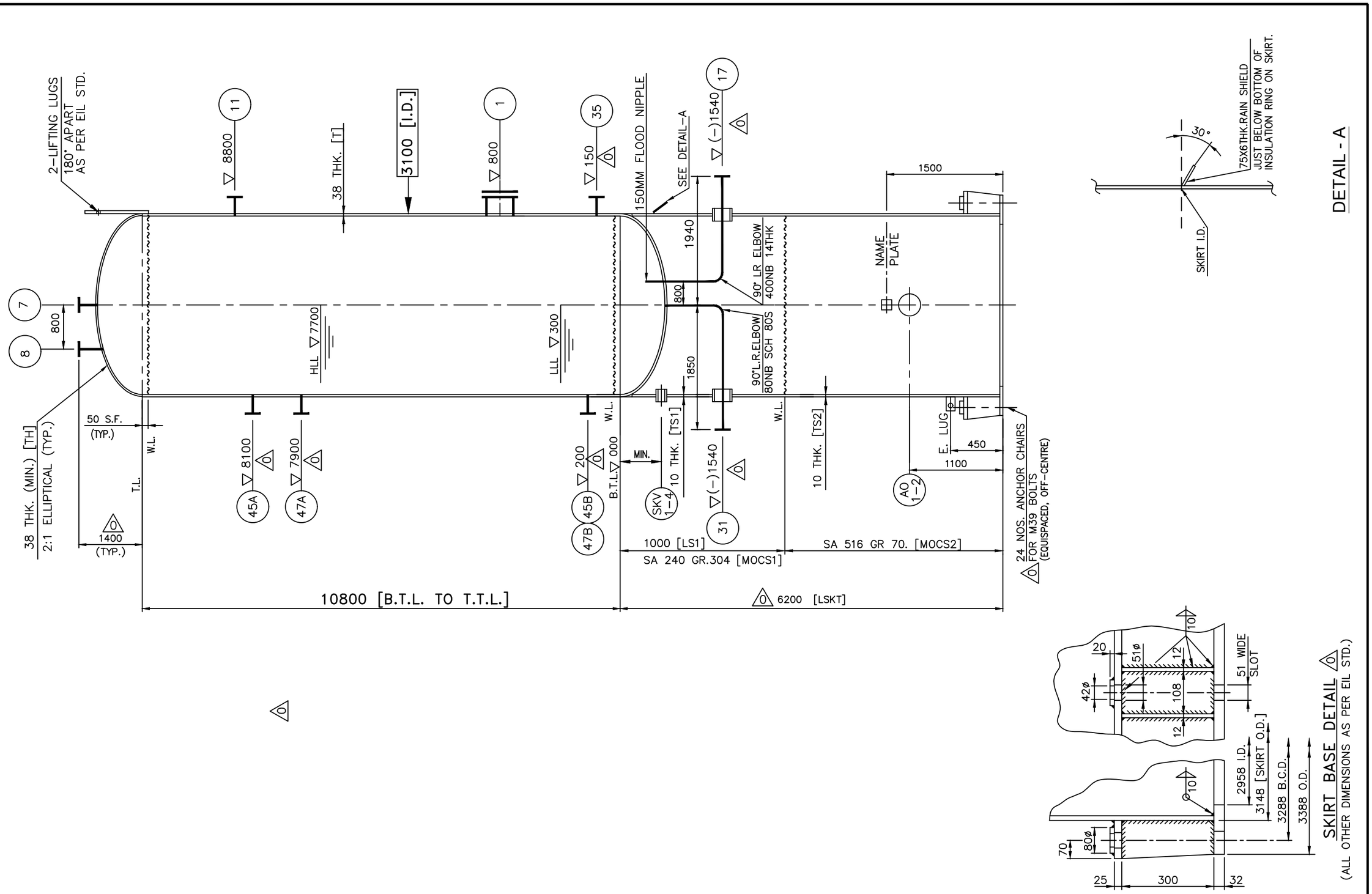

0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	VIVEK	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	VIVEK	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

VESSEL DESIGN DATA
DEMETHANIZER FEED SEPARATOR NO 1
ITEM NO. 300-VV-VW-3004

वेसल डिज़ाइन डाटा
डिमीथेनाईजर फीड सैपरेटर नम्बर 1
आइटम नम्बर 300-वीवी-वीडब्ल्यू-3004

DRAWING NO. B957-300-80-42-DS-3151
REV. 0
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
				CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	नामिनल डायां	शड्यूल व थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	300	WN	RF	1480	300 X T	MANHOLE + BL. FLG.+HINGE
7	1	450	14 THK.	300	WN	RF	SEE DWG.	225 X T	VAPOUR OUTLET TO 300-LZ-00-3001-EP-00-13
8	1	50	80S	600	WN	RF	SEE DWG.	45 xT	VENT
11	1	500	14 THK.	300	WN	RF	1480	250 X T	FEED FROM 300-LZ-00-3001-EP-00-14
17	1	250	14 THK.	300	WN	RF	SEE DWG.	135 X T	LIQUID BOTTOM OUTLET TO 300-CC-00-3001
31	1	80	80S	600	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	80S	600	WN	RF	1330	–	UTILITY CONNECTION
45 A-B	2	50	80S	300	WN	RF	1330	–	STAND PIPE
47 A-B	2	50	80S	300	WN	RF	1330	–	LEVEL TRANSMITTER (DP)
SKV 1-4	4	100	AS PER EIL STANDARD					–	SKIRT VENT
AO	1	500 ID	AS PER EIL STANDARD					250 X 10	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	138500	10700
WIND	95500	8500

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINTING SHALL BE AS PER JOB SPECIFICATION.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
14 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
15 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 AFTER COMPLETION OF FABRICATION AND TESTING ALL SS CLAD SURFACES ALONG WITH SS INTERNALS SHALL BE PICKLED AND PASSIVATED.
17 TAILING LUG AND BRACING ARRANGEMENT FOR SKIRT SHALL BE DESIGNED BY VENDOR CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE.
18 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
19 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
20 ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
21 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
22 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
23 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
24 STAINLESS STEEL VESSEL HEADS SHOULD UNDERGO HEAT TREATMENT IF THEY COLD FORMED (WHETHER PRESSED OR SPUN) IF THE HEAD DIAMETER TO THICKNESS RATIO IS LESS THAN 100.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
	PROCESS DATASHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	NOZZLE PROJECTION		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	16.18
DESIGN PRESSURE (kg/cm²g)	INT. 31.5 EXT. --
WORKING TEMPERATURE (°C)	(-)121
DESIGN TEMPERATURE (°C)	(-)145/65
MDMT (°C)	(-)145
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.477
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	30
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	175 ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	40.95
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.B8 CL.2 (STRAIN HARDENED)/SA194 GR.B
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SS 304
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILING LUG	SA 516 GR.70

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	21500	OPERATING	54000
HYDROTEST(SHOP)	51500	HYDROTEST (FIELD)	74500
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB
A	04.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB

DESIGN DATA	DEMETHANIZER FEED SEPARATOR NO 2
ITEM NO.	300-VV-VW-3005
डिजाइन डाटा	डिमीथेनाईजर फीड सैपरेटर नम्बर 2
आइटम नम्बर	300–वीवी–वीडब्ल्यू–3005
DRAWING NUMBER / डाईग नम्बर	B957-300-80-42-DS-3152
REV	0
	SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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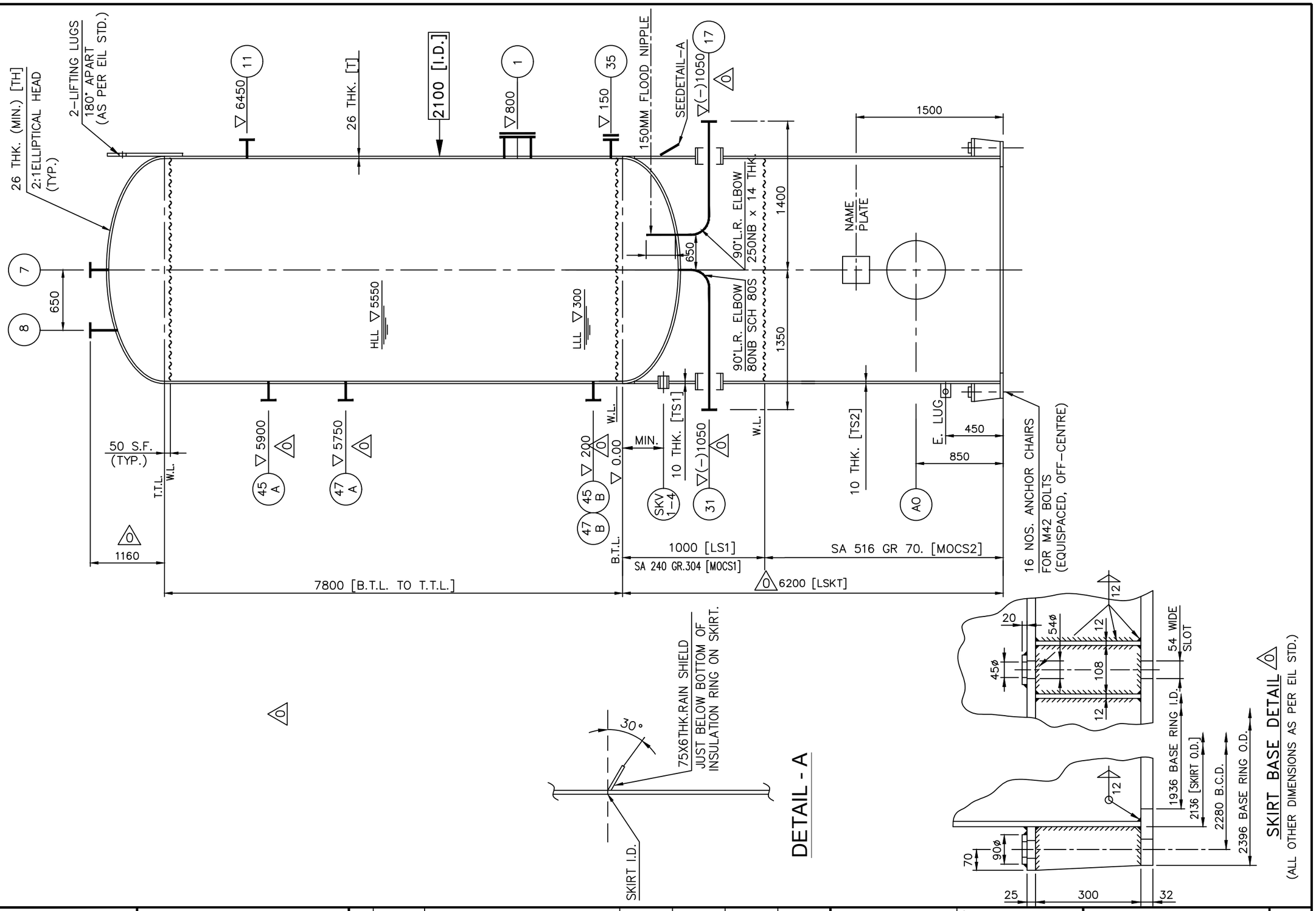

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	VIVEK	PB
B	10.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	VIVEK	PB
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	VIVEK	PB

VESSEL DESIGN DATA
DEMETHANIZER FEED SEPARATOR NO 2
ITEM NO. 300-VV-VW-3005

वेसल डिज़ाइन डाटा
डिमीथेनाईजर फीड सैपरेटर नम्बर 2
आइटम नम्बर 300-वीवी-वीडब्ल्यू-3005

DRAWING NO. B957-300-80-42-DS-3152 | REV. 0

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
1	1	600	14 THK.	300	WN	RF	1440	300 X T	MANHOLE + B.F.+ DAVIT
7	1	400	14 THK.	300	WN	RF	SEE DWG.	200 X T	VAPOUR OUTLET TO 300-LZ-00-3001-EP-00-13
0 8	1	50	80S	600	WN	RF	SEE DWG.	45 X T	VENT
11	1	450	14 THK.	300	WN	RF	1440	225 X T	FEED FROM 300-LZ-00-3001-EP-00-13
17	1	150	14 THK.	300	WN	RF	SEE DWG.	85 X T	LIQUID BOTTOM OUTLET TO 300-CC-00-3001
0 31	1	50	80S	600	WN	RF	SEE DWG.	45 X T	DRAIN
0 35	1	50	80S	600	WN	RF	1290	–	UTILITY CONNECTION
0 45 A-B	2	50	80S	300	WN	RF	1290	–	LEVEL GAUGE MAGNETIC (SS)
0 47 A-B	2	50	80S	300	WN	RF	1290	–	LEVEL TRANSMITTER (DP)
SKV 1-4	4	100	AS PER EIL STANDARD					–	SKIRT VENT
AO	1	500 ID	AS PER EIL STANDARD					250 X 14	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

0 FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिगं डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	76100	8200
WIND	52500	6000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE RTJ, 63 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
14 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
15 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 TAILING LUG AND BRACING ARRANGEMENT FOR SKIRT SHALL BE DESIGNED BY VENDOR CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE.
17 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
18 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
19 ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
20 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
21 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
22 AFTER COMPLETION OF FABRICATION AND TESTING ALL SS CLAD SURFACES ALONG WITH SS INTERNALS SHALL BE PICKLED AND PASSIVATED.
23 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
0 24 STAINLESS STEEL VESSEL HEADS SHOULD UNDERGO HEAT TREATMENT IF THEY COLD FORMED (WHETHER PRESSED OR SPUN) IF THE HEAD DIAMETER TO THICKNESS RATIO IS LESS THAN 100.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
	PROCESS DATASHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

0 HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	NOZZLE PROJECTION		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	15.61
DESIGN PRESSURE (kg/cm²g)	INT. 31.5 EXT. --
WORKING TEMPERATURE (°C)	(-)134
DESIGN TEMPERATURE (°C)	(-)160/65
MDMT (°C)	(-)160
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.411
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	15
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	190 ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	40.95
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304L
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304L
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.B8CL.2 (STRAIN HARFENED)/SA194 GR.B
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SS 304
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILING LUG	SA 516 GR.70

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

0 APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	13500	OPERATING	39000
HYDROTEST(SHOP)	28000	HYDROTEST (FIELD)	49000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB
A	04.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB

DESIGN DATA	DEMETHANIZER FEED SEPARATOR NO 3
ITEM NO.	300-VV-VW-3006
डिजाइन डाटा	डिमीथेनाईजर फीड सैपरेटर नम्बर 3
आइटम नम्बर	300–वीवी–वीडब्ल्यू–3006
DRAWING NUMBER / डाईग नम्बर	B957-300-80-42-DS-3153
REV	0
	SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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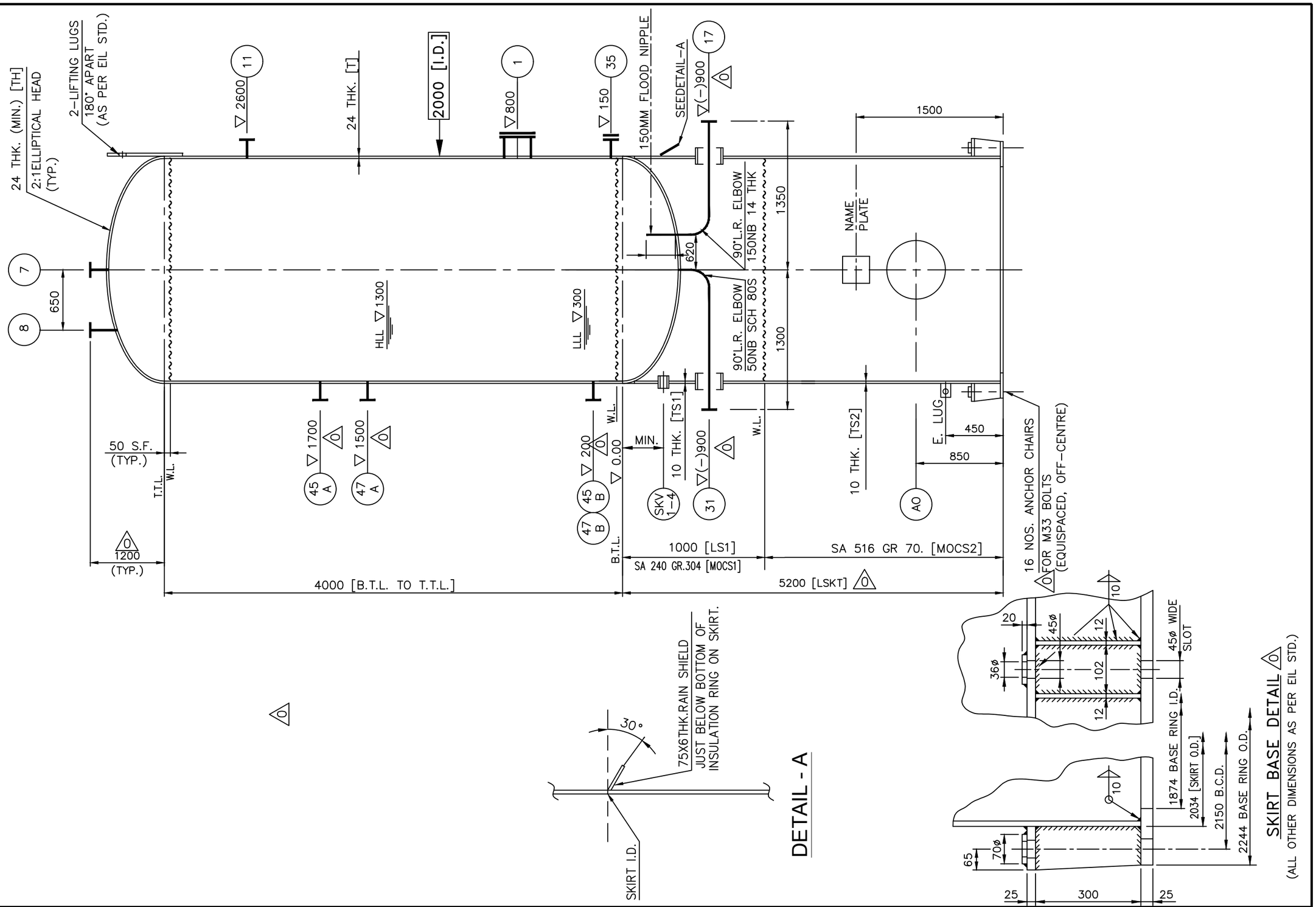

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

VESSEL DESIGN DATA
DEMETHANIZER FEED SEPARATOR NO 3
ITEM NO. 300-VV-VW-3006

वेसल डिज़ाइन डाटा
डिमीथेनाईजर फीड सैपरेटर नम्बर 3
आइटम नम्बर 300-वीवी-वीडब्ल्यू-3006

DRAWING NO. B957-300-80-42-DS-3153
REV. 0
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS NO. B957-300-79-41-DS-1273 REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्ल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
B 1	1	600	14 THK.	300	WN	RF	2640	300 X T	MANHOLE + B.F + HINGE
B 7	1	450	14 THK.	300	WN	RF	SEE DWG.	225 X T	VAPOR OUTLET TO 300-EE-00-4003A/B
8	1	50	160	600	WN	RF	SEE DWG.	40xT	VENT
11	1	150	80	300	WN	RF	2540	85xT	FEED FROM 300-VV-VI-5714
12	1	900 (H)	20 THK.	300	WN	RF	2690	455xT	FEED FROM 300-VV-VW-5006/ 300-LZ-00-3001-EP-00-18
17	1	750	20 THK.	300	WN	RF	SEE DWG.	380 X T	LIQUID BOTTOM OUTLET TO 300-LZ-00-3001-EP-00-18
18	1	200	80	300	WN	RF	SEE DWG.	110 X T	LIQUID BOTTOM OUTLET TO 300-PA-CF-5001
31	1	80	160	300	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	160	600	WN	RF	2490	40 X T	UTILITY CONNECTION
B 36	1	50	160	300	WN	RF	2490	40 X T	PRESSURE GAUGE
SP 1-4	4	50 (H)	160	300	WN	RF	2490	40 X T	STAND PIPE
LT 1-2	2	80 (H)	160	300	WN	RF	2540	45 X T	LEVEL TKMR (DP)
LT 3-8	6	80 (H)	160	300	WN	RF	2540	45 X T	LEVEL TXMR (GWR)
SKV 1-4	4	100	40	AS PER STANDARD					SKIRT VENT
AO 1-2	2	500 I.D.	14 THK.	AS PER STANDARD					ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH/SKIRT END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) (HOLD)
B फॉऊडशन लोडिगं डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	560000	36000
WIND	225000	16000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINTAS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
B 15 DELETED.
16 EQUIPMENT SHALL BE SUBJECTED TO DRY OUT AT 7.0 kg/cm²(g) @ 80°C.
17 IT SHALLL BE ENSURED BY VENDOR THAT FOR NOZZLE ABOVE 600 NB NOZZLE PIPE O.D. SHALL MATCH WITH CORROSPONDING STANDARD FLANGE O.D.
B 18 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
19 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
20 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE IMPACT TESTED AT (-) 29°C WITH MIN. EMERGY VALUE AS PER FIG. UG 84.1 OF ASME SEC-VII DIV.1.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPEC. FOR WIRE-MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
X	SKETCH FOR MONKEY LADDER	B957-00-80-42-SK-0010
B X	PROCESS DATASHEET (300-VV-VI-5003)	B957-300-79-41-DS-1273

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
B	INSULATION THK.	X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	4.38
DESIGN PRESSURE (kg/cm²g)	INT. 18 EXT. -
WORKING TEMPERATURE (°C)	(-)3
DESIGN TEMPERATURE (°C)	(-)29/100
MDMT (°C)	(-)29
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.549 AT OPERATING TEMP.
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	250
PAINTING/CLEANING	AS PER JOB SPECIFICATION (NOTE-12)
B INSULATION THICKNESS (mm)	65 (IC) ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	23.4
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/INSERT PLATE	SA 516 GR.70 *
REINFORCEMENT PAD	SA 516 GR.70 *
HEADS	SA 516 GR.70 *
~~SHELL FLANGES/SR~~/LWN	-
NOZZLE FLANGES	SA 350 LF.2
NOZZLE NECK UPTO 250 NB	SA 333 GR.6
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70*
PIPE FITTINGS	SA 420 GR. WPL6
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70 /IS 2062 GR. E250 QUALITY BR/B0
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70*/ SS 333 GR.6
INTERNAL PARTS (BOLTED)	SA 516 GR.70*/ SS 333 GR.6
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70*
WRAPPER PLATE	-
DEMISTER/GRID	SS304
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70 *
PIPE DAVIT	SA 106 GR. B
TAILING LUG	IS 2062 GR. E 250 QUALITY BR
LIFTING LUG	SA 516 GR.70

*** MATERIAL SHALL BE IMPACT TESTED AS PER SPEC./CODE REQUIREMENT.**

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)(HOLD)

ERECTION	89500	OPERATING	249000
HYDROTEST(SHOP)	339500	HYDROTEST (FIELD)	395000

NUMBER OF ITEMS : ONE

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	02.09.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	AD/VIVEK	PB
A	31.07.2025	ISSUED FOR BIDS / ENGG.	AS	AD/VIVEK	PB

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA	PROPYLENE REFRIG. COMPRESSOR 3ND STAGE SUCTION DRUM
ITEM NO.	300-VV-VI-5003
डिजाइन डाटा	प्रोपलीन रिफरिग कम्प्रेसर थर्ड स्टेज सक्शन ड्रम
आइटम नम्बर	300-वीवी-वीआई-5003
DRAWING NUMBER / डाईग नम्बर	B957-300-80-42-DS-3162
REV	B
SHEET	1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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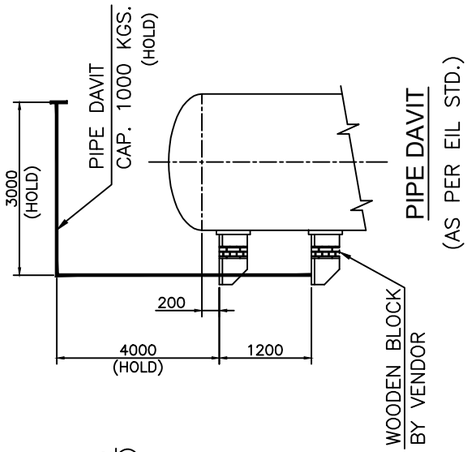
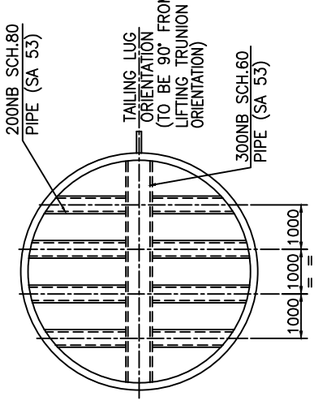
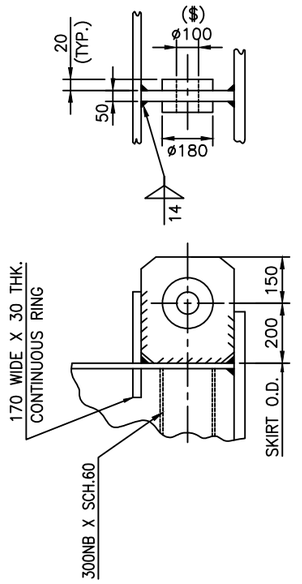


PIPE DAVIT
(AS PER EIL STD.)

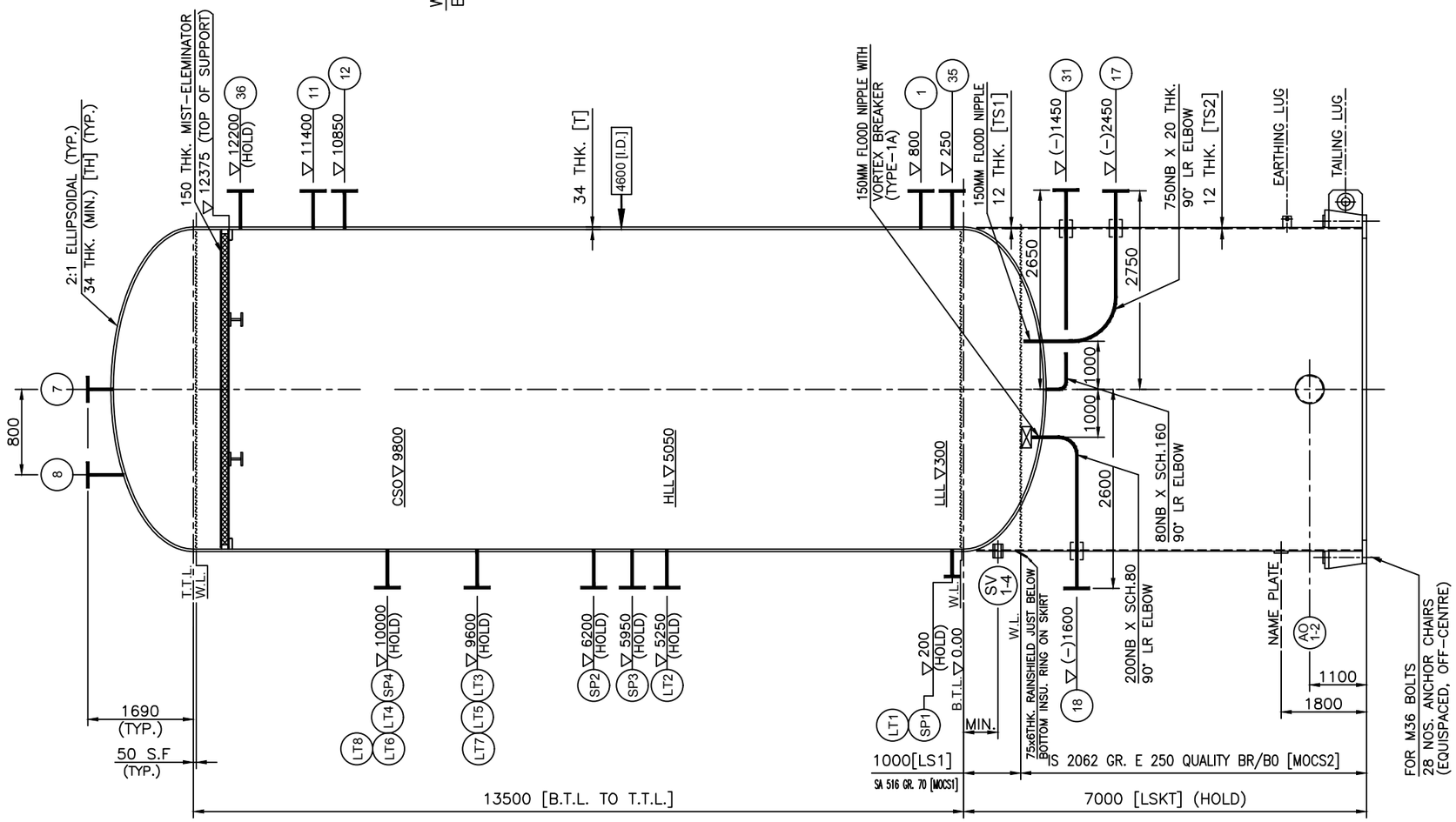


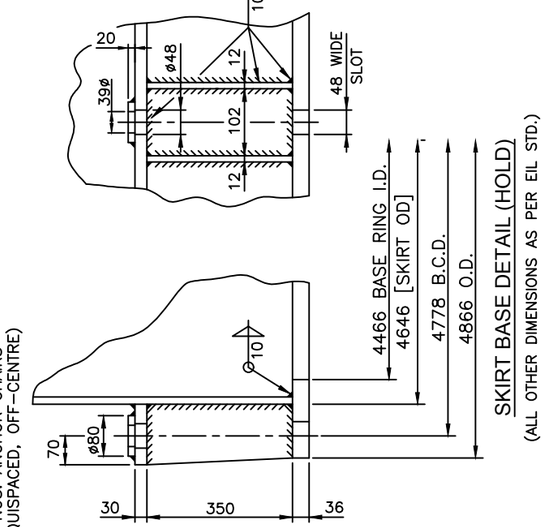
STIFFENING DETAIL OF SKIRT



TAILING LUG DETAIL

($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.





SKIRT BASE DETAIL (HOLD)
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	05.09.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	AD/VIVEK	PB	
A	31.07.2025	ISSUED FOR BIDS/ENGG.	AS	AD/VIVEK	PB	

VESSEL DESIGN DATA
PROPYLENE REFRIG.
COMPRESSOR 3ND STAGE
SUCTION DRUM
ITEM NO. 300-VV-VI-5003

वेसल डिजाइन डाटा
प्रोपलीन रिफ्रिग
कम्प्रेसर थर्ड स्टेज
सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-5003

DRAWING NO.	REV.
B957-300-80-42-DS-3162	B
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	300	WN	RF	SEE DWG.	300xT	MANHOLE+B.F.+ DAVIT
6	1	250 (H)	80	300	WN	RF	1980	135xT	VAPOR OUTLET TO DRY FLARE
8	1	250	80	300	WN	RF	1980	135xT	VENTILATION NOZZLE
11	1	1050	30 THK.	300	WN	RF	1980	600xT	FEED FROM 300-EE-00-5001 A~D
17	1	1050	30 THK.	300	WN	RF	1980	600xT	LIQUID BOTTOM OUTLET TO 305-EE-00-5708/ 300-LZ-00-3001-EP-00-18
31	1	80	160	300	WN	RF	1780	45xT	DRAIN
35	1	50	160	600	WN	RF	SEE DWG.	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	1980	-	PRESSURE GAUGE
LT 1-2	2	50 (H)	160	300	WN	RF	1200 (H)	-	LEVEL TRANSMITTER (DP)
SP 1-2	2	50 (H)	160	300	WN	RF	1200 (H)	-	STAND PIPE

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
SEISMIC (MC)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
14 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.
15 VENDOR TO PROVIDE WOODEN PILLOW FOR SADDLE SUPPORT AS PER EIL STD. 7-12-0003.
16 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE IMPACT TESTED AT (-)29ºC WITH MIN. ENERGY VALUE AS PER FIG. UG84.1 OF ASME SEC. VIII DIV.1.
17 STANDARD FLANGES SHALL BE PRODUCED TO FINE GRAIN PRACTICE MEETING REQUIREMENT OF UCS 66 (C)(1)(-a) OF ASME SEC VIII DIV.1.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABILITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
X	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS.	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	-
	LADDERS/PLATFORM CLEATS	-
	PIPE SUPPORT CLEATS	-
	TRAY SUPPORT AND BOLTING BARS	-
	DEMISTER DATA SHEET	-
	SKETCH FOR MONKEY LADDER	-
	PROCESS DATA SHEET	-

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES- SP,LT
X	NOZZLE ELEVATIONS- SP,LT	X	PIPE SUPPORT CLEATS
X	FIXED / SLIDING SUPPORT	X	LADDER/PLATFORM CLEATS
	NOZZLE RATING		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE (kg/cm^2g)	17.97
DESIGN PRESSURE (kg/cm^2g)	INT. 22.5 EXT. -
WORKING TEMPERATURE (°C)	43
DESIGN TEMPERATURE (°C)	(-) 29 / 120
MDMT (°C)	(-) 29
CORROSION ALLLOWANCE (MM)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD:AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.473 (AT OPERATING TEMP.)
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	IS-1893 (PART-4) + SITE SPECTRA
CAPACITY (M^3)	78
PAINTING/CLEANING	AS PER JOB SPEC.(REFER NOTE-12)
INSULATION THICKNESS (mm)	NIL [ ] HOT [ ] COLD
FIRE PROOFING CLEATS	[ ] YES [X] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	29.25
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 516 Gr.70*
REINFORCEMENT PAD/ ~~INSERT PLATE~~	SA 516 Gr.70*
HEADS	SA 516 Gr.70*
SHELL FLANGES/ SR/ LWN	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR.B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70*
PIPE FITTINGS	SA 234 Gr.WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT~~/ SUPPORT	SA 516 Gr.70*
~~SKIRT~~/ SUPPORT BASE	SA 516 Gr.70*
INTERNAL PARTS (WELDED)	SA 516 Gr.70* / SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.70*
WRAPPER PLATE	SA 516 Gr.70*
PAD FOR EXTERNAL ATTACHMENT	SA 516 Gr.70*

* MATERIAL SHALL BE IMPACT TESTED AS PER SPEC./ CODE REQUIREMENT

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	37500	OPERATING	78000
HYDROTEST(SHOP)	115500	HYDROTEST (FIELD)	121300
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	07.08.2025	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	CRG/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
PROPYLENE REFRIGERANT ACCUMULATOR	प्रोपेलीन रेफ्रिजरेंट अक्युमुलेटर
ITEM NO. 300-VV-HW-5005	आइटम नम्बर 300-वीवी-एचडब्लू-5005

DRAWING NUMBER / डाईग नम्बर	REV
B957-300-80-42-DS-3164	A
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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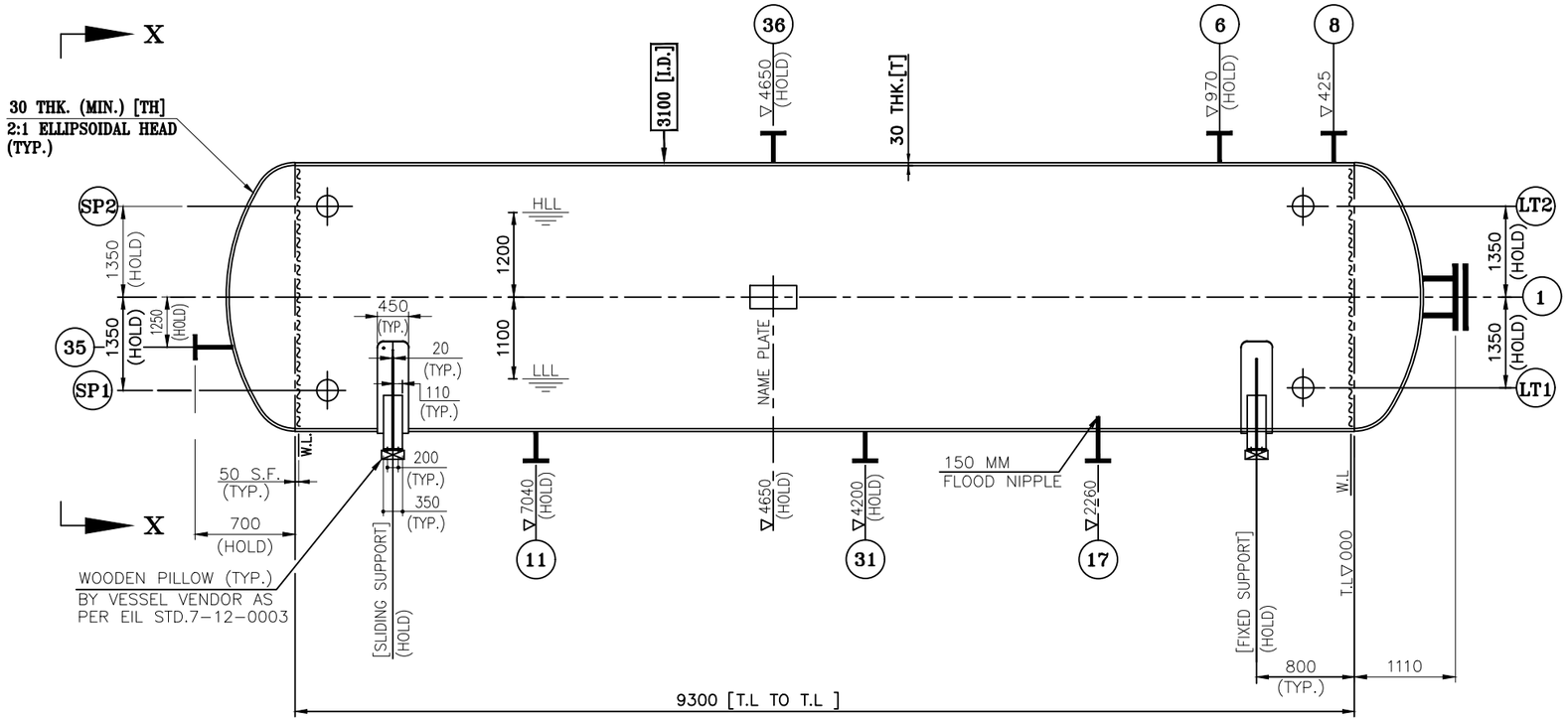
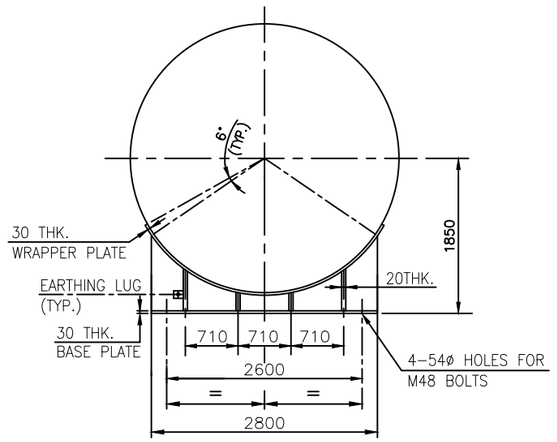
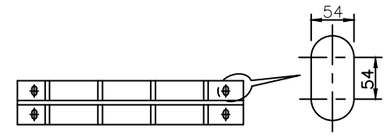




VIEW X-X
(NOZZLES NOT SHOWN)
(ALL OTHER DIMENSIONS AS PER EIL STD.)

HOLES FOR FIXED SUPPORT



HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	06.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	CRG/VIVEK	PB	

VESSEL DESIGN DATA
PROPYLENE REFRIGERANT ACCUMULATOR
ITEM NO. 300-VV-HW-5005

वेसल डिजाइन डाटा
प्रोपेलीन रेफ्रिजरेंट अक्युमुलेटर
आइटम नम्बर 300-वीवी-एचडब्लू-5005

DRAWING NO.	REV.
B957-300-80-42-DS-3164	A
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	300	WN	RF	1290	300 X T	MANHOLE + B.F. + DAVIT
7	1	450	14 THK.	300	WN	RF	REFER SHT. 2	225 X T	VAPOUR OUTLET TO 300-VV-VI-5001
8	1	50	160	600	WN	RF	REFER SHT. 2	40 X T	VENT
11	1	200	80	300	WN	RF	1200	95 X T	FEED FROM 3001-VV-VI-5002
12	1	600	16 THK.	300	WN	RF	1300	@	FEED FROM 300-LZ-00-3001-EP-00-17
17	1	250	14 THK.	300	WN	RF	REFER SHT. 2	135 X T	LIQUID BOTTOM OUTLET TO 300-LZ-00-3001-EP-0017
31	1	50	160	600	WN	RF	REFER SHT. 2	-	DRAIN
35	1	50	160	600	WN	RF	1150	-	UTILITY CONNECTION
36	1	50	160	300	WN	RF	1150	-	PRESSURE GAUGE
0 45 A-B	2	50	160	300	WN	RF	1150	-	LEVEL GAUGE MAGNETIC (SS)
0 47 A-B	2	50	160	300	WN	RF	1150	-	LEVEL TRANSMITTER (GWR)
AO	1	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-3	3	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'@' INDICATE INSERT PLATE 36THK. x 1350 INCLUDING 1:3 TAPER

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) 0
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	51000	6100
SEISMIC	-	-
WIND	35000	4200

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125-250 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.
10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE IMPACT TESTED AT (-) 45°C WITH MIN ENERGY VALUES AS PER FIG.UG-84.1 OF ASME SEC.VIII DIV-1.
15 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 7 Kg/cm2(g) @80°C.
17 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
18 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO COLD INSULATION (IC) OF 100mm PIR (POLYISOCYANURATE).
19

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	GENERAL SPEC. FOR WIRE MESH DEMISTER	6-14-0017
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-0001

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

0 X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43167.
	LADDERS/PLATFORM CLEATS	-
	PIPE SUPPORT CLEATS	-
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	-
X	SKETCH FOR MONKEY LADDER	B957-911-80-42-SK-0010
X	PDS OF 300-VV-VI-5008	300-VV-VI-5008

0 HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES LG,LT
	NOZZLE ELEVATIONS LG,LT	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	0.41
DESIGN PRESSURE	(kg/cm^2g)	INT. 18 EXT. -
WORKING TEMPERATURE	(°C)	(-) 40
DESIGN TEMPERATURE	(°C)	-45 / 100
MDMT	(°C)	(-) 45
CORROSION ALLLOWANCE	(MM)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.599
WIND SPECIFICATION		IS 875 (PART-3)
SEISMIC		IS 1893 + SITE SPECTRA (PART-4)
CAPACITY	(M^3)	13.42
PAINTING/CLEANING		AS PER JOB SPEC.
INSULATION THICKNESS	(mm)	100 (IC) ☐ HOT ☒ COLD
FIRE PROOFING CLEATS		☒ YES ☐ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		23.4
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/~~BOOT~~	SA 516 Gr.70*
REINFORCEMENT PAD/ INSERT PLATE	SA 516 Gr.70*
HEADS	SA 516 Gr.70 *
SHELL FLANGES/SR/LWN	-
NOZZLE FLANGES	SA 350 GR.LF2 CL1
NOZZLE NECK UPTO 250 NB	SA 333 GR.6
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70*
PIPE FITTINGS	SA 420 GR. WPL6
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 L7/ SA 194 GR.7
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 516 GR.70*
SKIRT/ ~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70* / SA 333 GR.6
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70*
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70*
PIPE DAVIT	SA 106 GR.B
VACUUM STIFFENER	-
DEMISTER/ GRID	SS 304

* MATERIAL SHALL BE IMPACT TESTED AS PER SPEC./ CODE REQUIREMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- INDIAN BOILER REGULATIONS (IBR)
- DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) 0

ERECTION	8800	OPERATING	30000
HYDROTEST(SHOP)	22300	HYDROTEST (FIELD)	41000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	24.03.2026	ISSUED FOR PURCHASE	ROHIT	AD	PB
B	25.08.2025	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	AD	PB
A	11.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	AD	PB

DESIGN DATA	डिजाइन डाटा
LIQUID PROPYLENE ACCUMULATOR FOR 300-LZ-00-3001-EP-00-17	लिक्विड प्रोपाइलिन अक्युमुलेटर फॉर 300-ऐलझेड-00-3001-ईपी-00-17
ITEM NO. 300-VV-VI-5008	आइटम नम्बर 300-वीवी-वीआई-5008

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3167** REV: 0
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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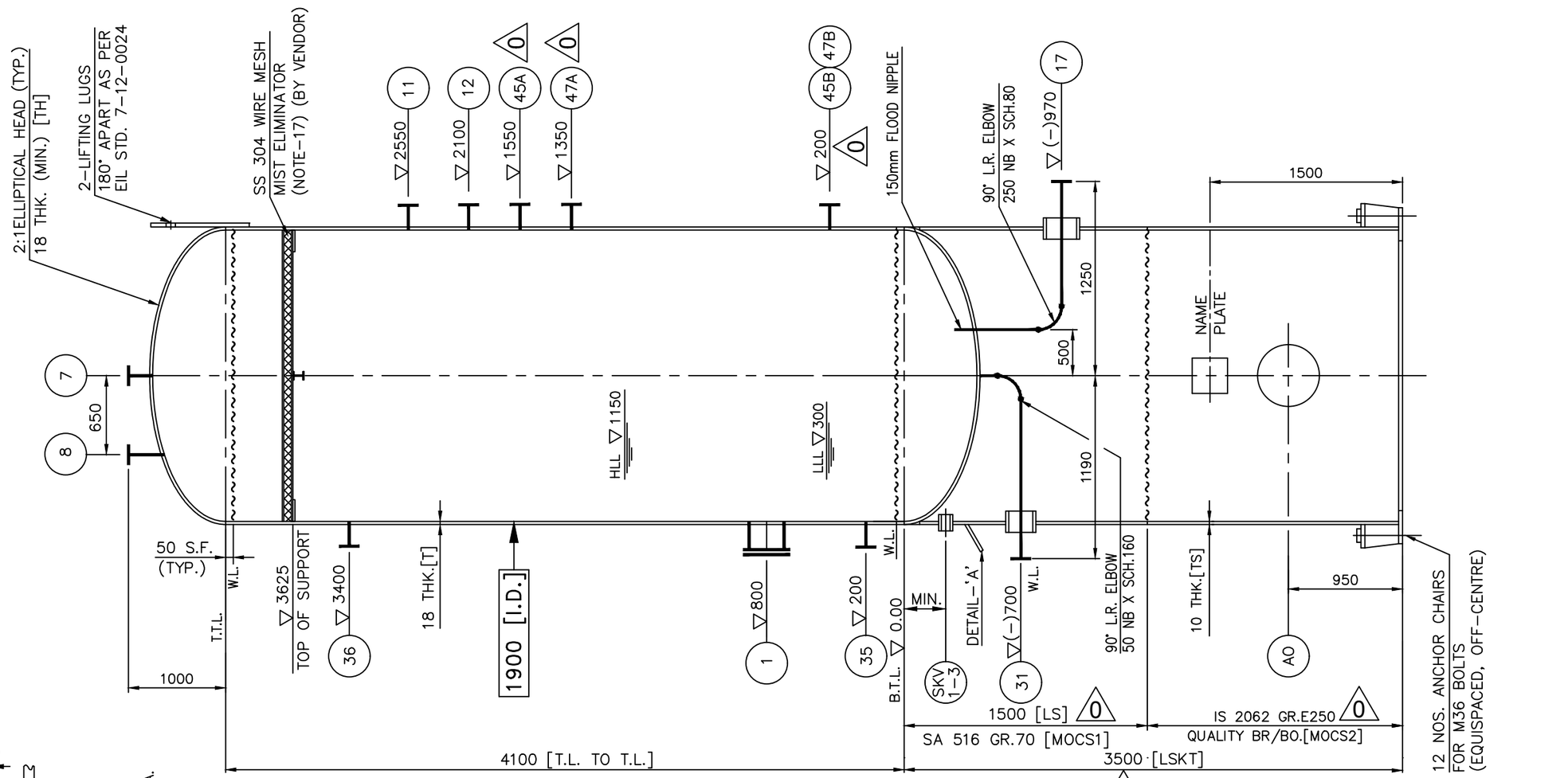
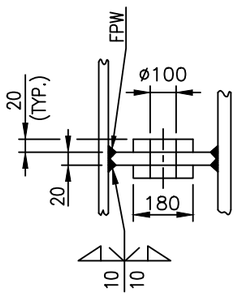
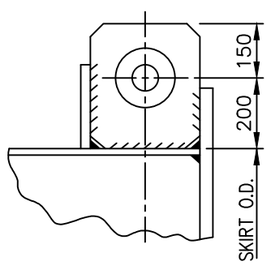
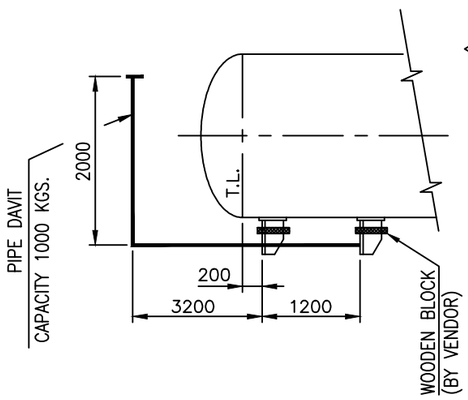




DETAIL OF TAILING LUG

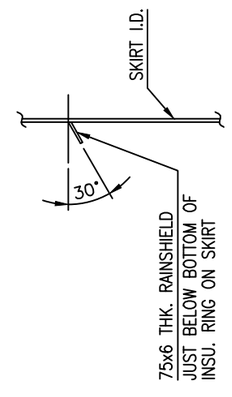
VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



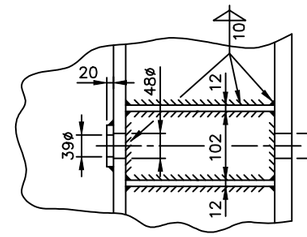


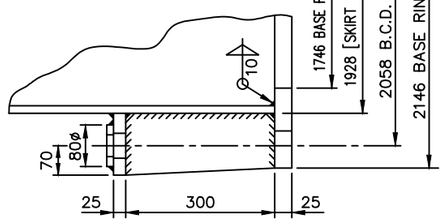
PIPE DAVIT ◇0

(ALL OTHER DIMENSIONS AS PER EIL STD.)



DETAIL-'A'





SKIRT BASE DETAIL ◇0

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	24.03.2026	ISSUED FOR PURCHASE	ROHIT	AD/VIVEK	PB	
B	25.08.2025	REVISED & REISSUED FOR BIDS/ENGG.	ROHIT	AD/VIVEK	PB	
A	11.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	AD/VIVEK	PB	

VESSEL DESIGN DATA
LIQUID PROPYLENE ACCUMULATOR
FOR 300-LZ-00-3001-EP-00-17
ITEM NO. 300-VV-VI-5008

वेसल डिजाइन डाटा
लिक्विड प्रोपाइलिन अक्यूमुलेटर
फॉर 300-एलझेड-00-3001-ईपी-00-17
आइटम नम्बर 300-वीवी-वीआई-5008

DRAWING NO. B957-300-80-42-DS-3167
REV. 0
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
1	1	600	14 THK.	300	WN	RF	1990	300 X T	MANHOLE + B.F.+ DAVIT
7	1	900	14 THK.	300	WN	RF	SEE DWG.	455 X T	VAPOUR OUTLET TO 300-KA-CF-6001
8	1	50	80S	600	WN	RF	SEE DWG.	45 X T	VENT
11	1	900 (H)	14THK.	300	WN	RF	2040	455 X T	FEED FROM 300-LZ-00-3001-EP-00-14 /300-JS-00-6001
12	1	150	14THK.	600	WN	RF	1890	85 X T	FEED FROM 300-VV-VI-6002 / 300-VV-VI-6003
16	1	150	14THK.	600	WN	RF	1890	85 X T	EQUALIZING LINE WITH 300-VV-HW-6005
17	1	150	14THK.	600	WN	RF	SEE DWG.	85 X T	LIQUID BOTTOM OUTLET TO 300-VV-HW-6005
31	1	80	80S	600	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	80S	600	WN	RF	1840	–	UTILITY CONNECTION
36	1	50	80S	600	WN	RF	1840	–	PRESSURE GAUGE
0 45 A-B	2	50	80S	300	WN	RF	1840	–	LEVEL GAUGE (MAG)
0 46 A-B	2	50	80S	300	WN	RF	1840	–	LEVEL TRANSMITTER (GWR)
0 48 A-F	6	50	80S	300	WN	RF	1840	–	LEVEL TRANSMITTER (GWR)
50	1	350	14 THK.	300	WN	RF	1990	175 X T	SPARGER
SKV 1-4	4	100	AS PER EIL STANDARD					–	SKIRT VENT
AO 1-2	2	500 ID	AS PER EIL STANDARD					250 X T	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	194000	17000
WIND	127000	11000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT SHALL BE AS PER JOB SPECIFICATION.
13 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
15 VENDOR SHALL PROVIDE 1 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
17 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
18 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
19 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
20 FULL RAIDIOGRAPHY WHERE SPECIFIED SHALL IMPLY 100% RADIOGRAPHY.
21 STAINLESS STEEL MIST ELIMINATOR TO BE A KOCH-GLITSCH STYLE 431 OR AMACS STYLE 4CA OR EQUIVALENT. THE WIRE MESH PAD THICKNESS TO BE 150 MM. THE DETAILED ENGINEERING CONTRACTOR TO ENSURE THAT THE BLOCKAGE BY THE SUPPORT RING AND BEAMS IS LESS THAN 14% OF THE DEMISTER PAD CROSS-SECTIONAL AREA.
22 ALL SS SURFACE (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A 380.
23 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
24 ALL PLATES,WELDS AND HAZ SHALL BE (IGC) TESTED AS PER ASTM A 262 PRACTICE E.
25 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
26 ALL PRESSURE INSTRUMENT TO BE LOCATED IN VAPOR SPACE.
0 27 INSULATION: PIR + CELLULAR GLASS (125+50) MM.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	JOB SPEC FOR WIRE MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
0 X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	DEMISTER DATA SHEET	300-VV-VI-6001
X	PROCESS DATASHEET	300-VV-VI-6001
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

0 HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	NOZZLE PROJECTION	X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.52
DESIGN PRESSURE (kg/cm²g)	INT. 33 EXT. --
WORKING TEMPERATURE (°C)	(-)99
DESIGN TEMPERATURE (°C)	(-)115/100
MDMT (°C)	(-)115
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.577
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M^3)	46
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	0 125+50 (NOTE-27) ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	43.2
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304L
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE @
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR B8 CL.2 (STRAIN HARDENED) / SA 194 GR.8
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SS 304
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILINGLUG	SA 516 GR.70

@ INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	39000	OPERATING	72500
HYDROTEST(SHOP)	85000	HYDROTEST (FIELD)	114000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED	
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	

DESIGN DATA
BINARY REFRIG. COMPRESSOR 1st STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6001

डिजाइन डाटा
बाईनरी रेफ्रीजेरेंट कम्प्रेसर फर्स्ट स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-6001

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3169** REV: 0
SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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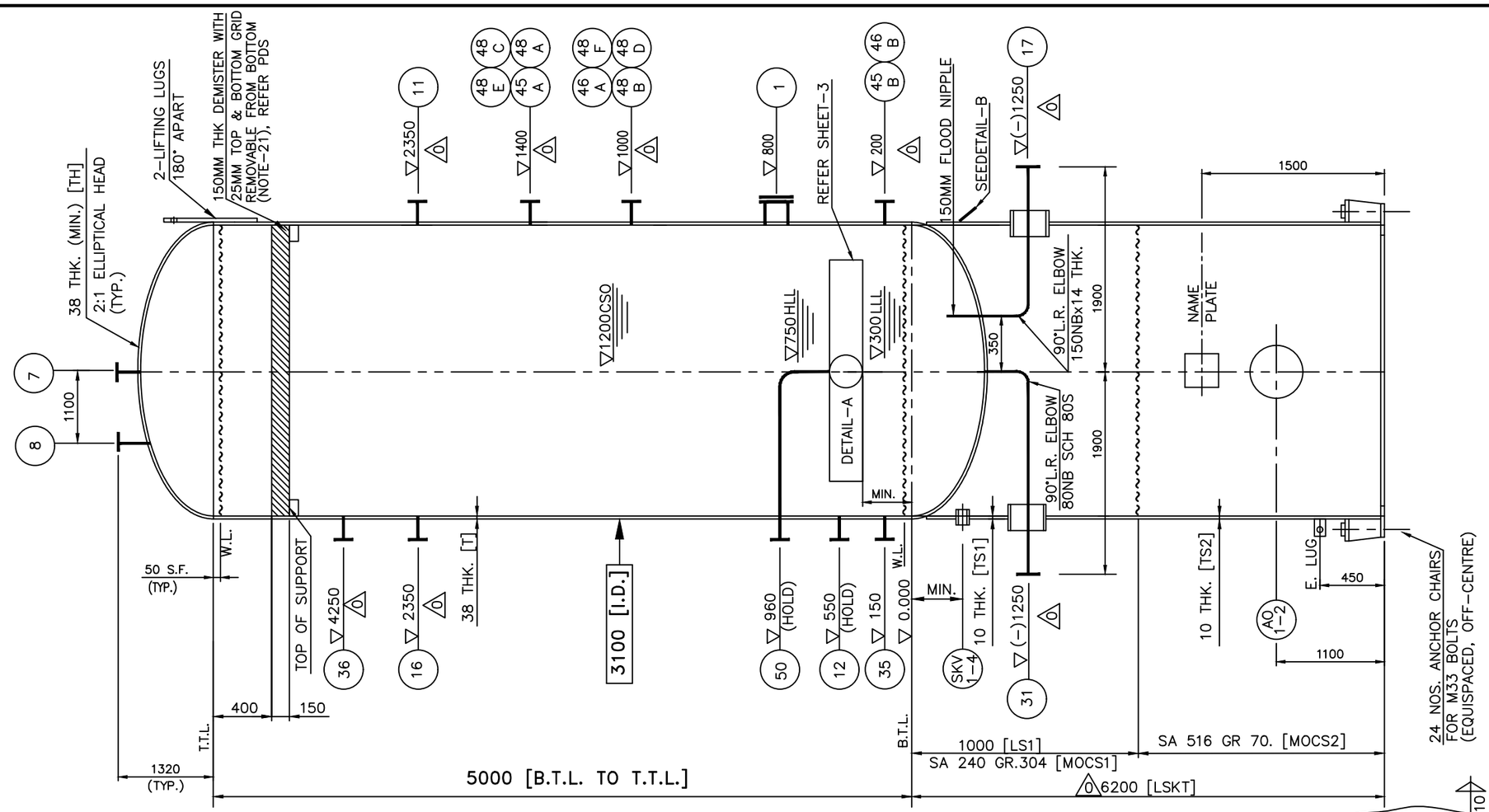
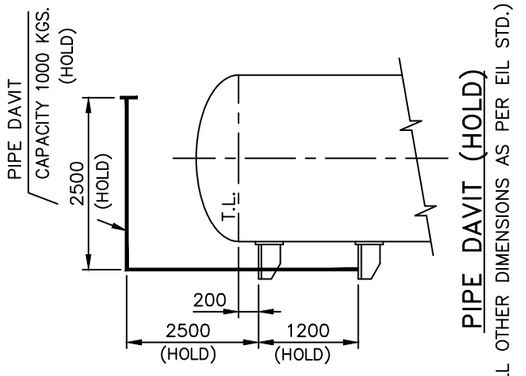
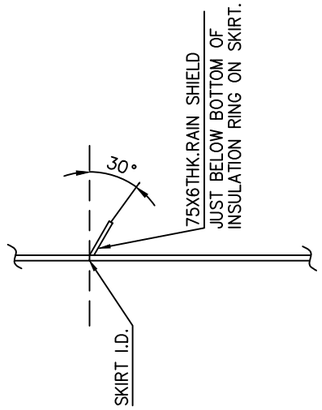


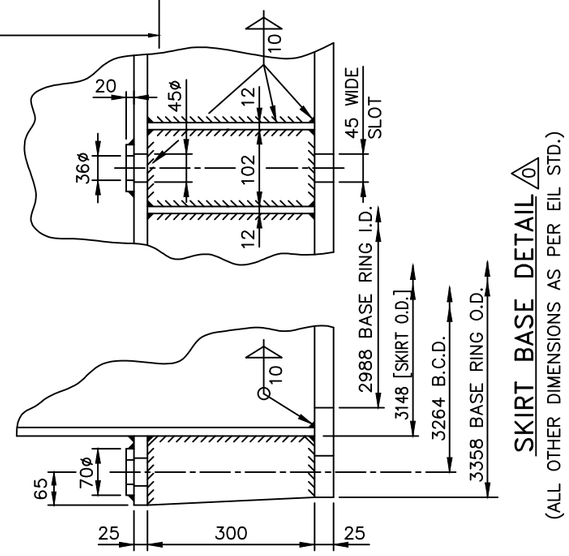


PIPE DAVIT (HOLD)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



DETAIL - B



SKIRT BASE DETAIL 0

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

VESSEL DESIGN DATA
BINARY REFRIG. COMPRESSOR 1st STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6001

वेसल डिजाइन डाटा
बाईनरी रेफरीजरेंट कम्प्रेसर फर्स्ट स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-6001

DRAWING NO. B957-300-80-42-DS-3169
REV. 0
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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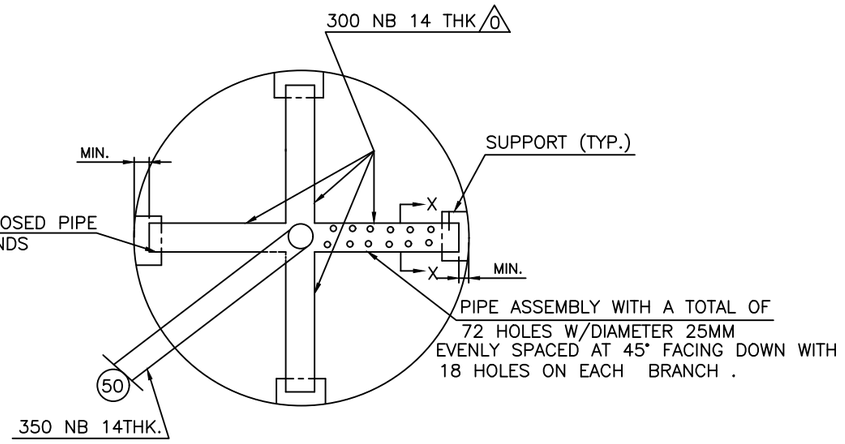
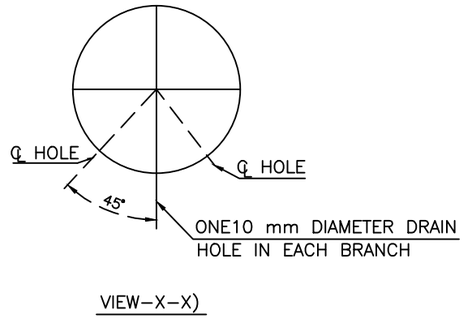


DETAIL –A

(TOP VIEW)



VIEW–X–X)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

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VESSEL DESIGN DATA
BINARY REFRIG.
COMPRESSOR 1st STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6001

वेसल डिजाइन डाटा
बाईनरी रेफ्रीजरेंट कम्प्रेसर फर्स्ट स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-6001

DRAWING NO.	REV.
B957–300–80–42–DS–3169	0
SHEET 3 OF 3	

1–1641–0503 REV.0 A3–420x297

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PDS REV.

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA / नामिनल डांया	SCH./THK. / शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सॉवंस
1	1	600	14 THK.	300	WN	RF	1660	300xT	MANHOLE + B.F + DAVIT
7	1	600	14 THK.	300	WN	RF	SEE DWG.	300xT	VAPOR OUTLET TO 300-KA-CF-6001
8	1	50	80S	600	WN	RF	SEE DWG.	45xT	VENT
11	1	750 (H)	14 THK.	300	WN	RF	1660	380xT	FEED FROM 300-LZ-00-3001-EP-00-15 /300-JS-00-6002/305-LZ-00-5701-EP-00-12 / 300-EP-00-4007
17	1	150	14 THK.	600	WN	RF	SEE DWG.	85xT	LIQUID BOTTOM OUTLET TO 300-VV-VI-6001
31	1	80	80S	600	WN	RF	SEE DWG.	45xT	DRAIN
35	1	50	80S	600	WN	RF	1510	-	UTILITY CONNECTION
36	1	50	80S	600	WN	RF	1510	-	PRESSURE GAUGE
0 45 A-B	2	50	80S	300	WN	RF	1510	-	LEVEL GAUGE (MAG)
0 47 A-B	2	50	80S	300	WN	RF	1510	-	LEVEL TRANSMITTER (GWR)
0 48 A-F	6	50	80S	300	WN	RF	1510	-	LEVEL TRANSMITTER (GWR)
SKV 1-4	4	100	AS PER STANDARD						SKIRT VENT
AO	1	500 I.D.	AS PER STANDARD						ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	121000	12800
WIND	85000	8500

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT SHALL BE AS PER JOB SPECIFICATION.
13 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
15 VENDOR SHALL PROVIDE 1 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
17 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
18 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
19 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
20 FULL RAIDIOGRAPHY WHERE SPECIFIED SHALL IMPLY 100% RADIOGRAPHY.
21 STAINLESS STEEL MIST ELIMINATOR TO BE A KOCH-GLITSCH STYLE 431 OR AMACS STYLE 4CA OR EQUIVALENT. THE WIRE MESH PAD THICKNESS TO BE 150 MM. THE DETAILED ENGINEERING CONTRACTOR TO ENSURE THAT TH BLOCKAGE BY THE SUPPORT RING AND BEAMS IS LESS THAN 14% OF THE DEMISTER PAD CROSS-SECTIONAL AREA.
22 ALL SS SURFACE (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A 380.
23 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
24 ALL PLATES,WELDS AND HAZ SHALL BE (IGC) TESTED AS PER ASTM A 262 PRACTICE E.
25 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
26 ALL PRESSURE INSTRUMENT TO BE LOCATED IN VAPOR SPACE.
0 27 INSULATION: PIR + CELLULAR GLASS (100 + 50) mm.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	JOB SPEC FOR WIRE MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
0 X	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईंग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	DEMISTER DATA SHEET	300-VV-VI-6002
X	PROCESS DATASHEET	300-VV-VI-6002
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

0 HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	NOZZLE PROJECTION	X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	6.29
DESIGN PRESSURE (kg/cm²g)	INT. 33 EXT. --
WORKING TEMPERATURE (°C)	(-)67
DESIGN TEMPERATURE (°C)	(-)90/100
MDMT (°C)	(-)90
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.52
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	29
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE)
0 INSULATION THICKNESS (mm) (IC)	100+50 (NOTE-27) ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☒ YES ☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	43.2
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304L
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE @
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR B8 CL.2 (STRAIN HARDENED) / SA 194 GR.8
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SS 304
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILINGLUG	SA 516 GR.70

@ INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

☐ **INDIAN BOILER REGULATIONS (IBR)**
☐ **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	25000	OPERATING	48500
HYDROTEST(SHOP)	54000	HYDROTEST (FIELD)	74000
NUMBER OF ITEMS :	ONE		

REV	DATE	REVISION	BY	CHECKED	APPROVED
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ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

DESIGN DATA
BINARY REFRIG. COMPRESSOR 2nd STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6002

डिजाइन डाटा
बाईनरी रेफरीजरेंट कम्प्रसर 2 स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-6002

DRAWING NUMBER / डाईंग नम्बर: **B957-300-80-42-DS-3170** REV: 0
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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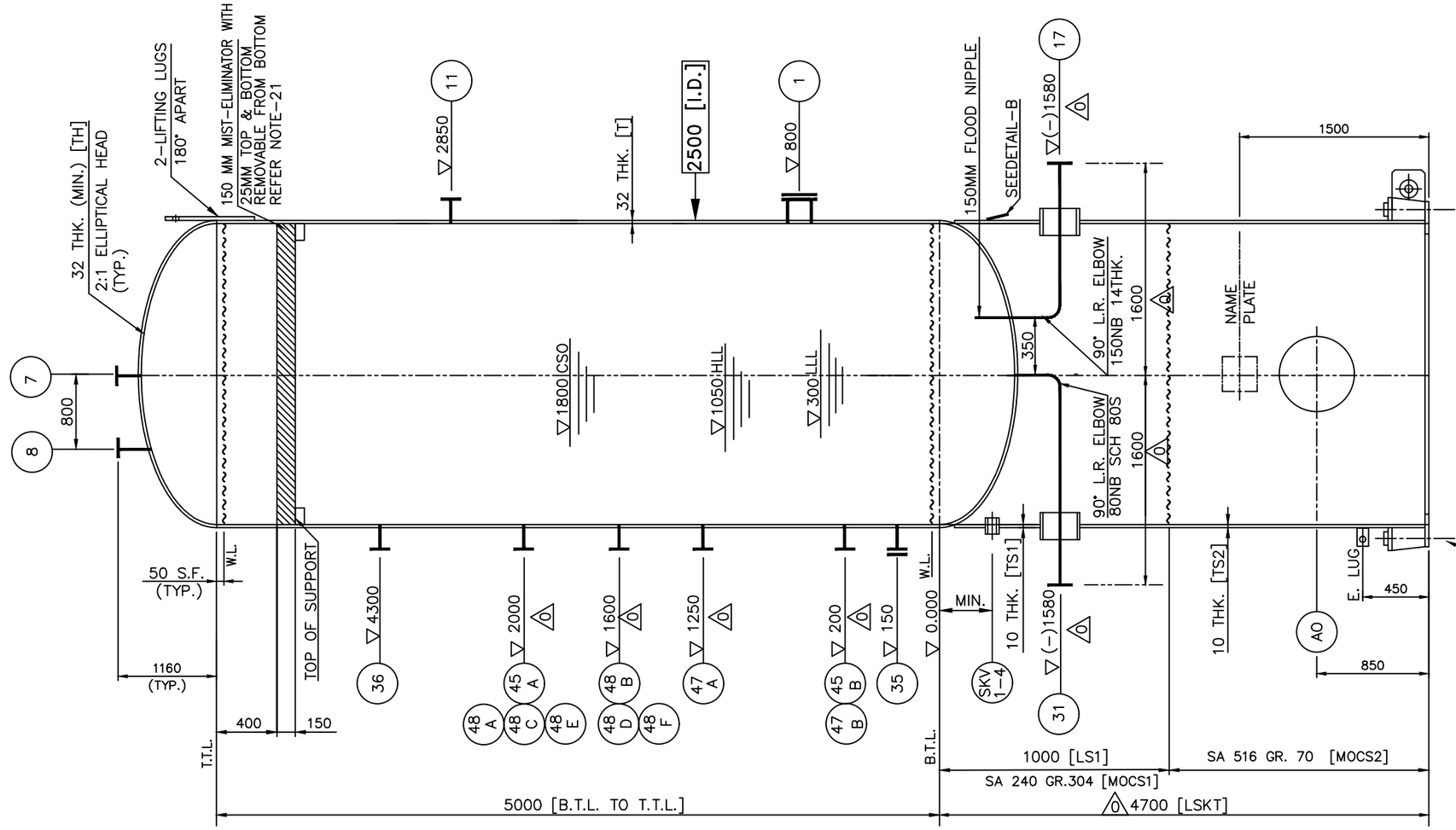
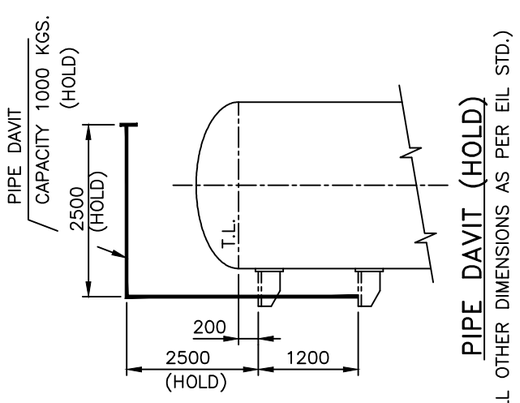
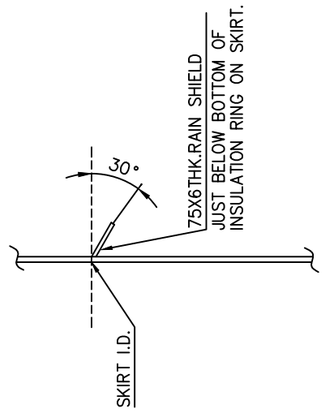


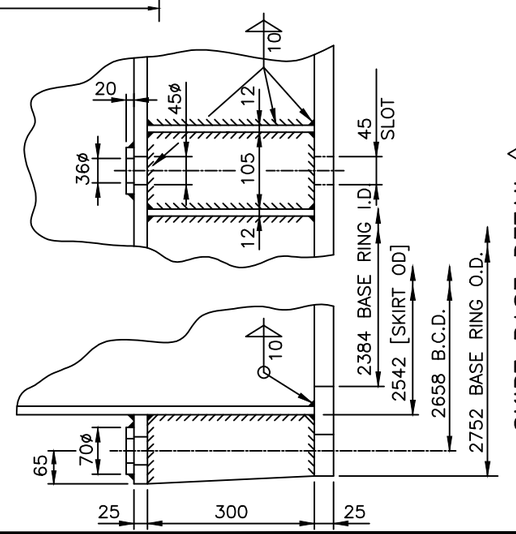


PIPE DAVIT (HOLD)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



DETAIL - B



SKIRT BASE DETAIL

(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

VESSEL DESIGN DATA
BINARY REFRIG. COMPRESSOR 2nd STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6002

वेसल डिजाइन डाटा
बाईनरी रेफरीजरेंट कम्प्रेसर 2 स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-6002

DRAWING NO. B957-300-80-42-DS-3170 | REV. 0

SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	300	WN	RF	1840	300xT	MANHOLE + B.F + DAVIT
7	1	700	14 THK.	300	WN	RF	SEE DWG.	365xT	VAPOR OUTLET TO 300-KA-CF-6001
8	1	50	80S	600	WN	RF	SEE DWG.	45xT	VENT
11	1	600 (H)	14 THK.	300	WN	RF	1840	300xT	FEED FROM 300-LZ-00-3001-EP-00-15 /300-JS-00-6003/305-LZ-00-5701-EP-00-12 / 300-EP-00-4007
17	1	150	14 THK.	600	WN	RF	SEE DWG.	85xT	LIQUID BOTTOM OUTLET TO 300-VV-VI-6001
31	1	80	80S	600	WN	RF	SEE DWG.	45xT	DRAIN
35	1	50	80S	600	WN	RF	1690	-	UTILITY CONNECTION
36	1	50	80S	600	WN	RF	1690	-	PRESSURE GAUGE
0 45 A-B	2	50	80S	300	WN	RF	1690	-	STAND PIPE
0 47 A-B	2	50	80S	300	WN	RF	1690	-	LEVEL TRANSMITTER (DP)
0 48 A-F	6	50	80S	300	WN	RF	1690	-	LEVEL TRANSMITTER (GWR)
SKV 1-4	4	100	AS PER STANDARD						SKIRT VENT
AO	1	500 I.D.	AS PER STANDARD						ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	125600	13000
WIND	82700	9000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT SHALL BE AS PER JOB SPECIFICATION.
13 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
15 VENDOR SHALL PROVIDE 1 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
16 VENDOR SHALL CARRY OUT SIZING OF DEMISTER AS PER PROCESS DATA FURNISHED IN PDS & SUBMIT THE SAME FOR EIL REVIEW AND SAME SHALL BE INCLUDED IN QUOTED PRICE. PERFORMANCE GUARANTEE OF DEMISTER SHALL BE BY VESSEL VENDOR. REFER EIL SPEC 6-14-0017.
17 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
18 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
19 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
20 FULL RAIDIOGRAPHY WHERE SPECIFIED SHALL IMPLY 100% RADIOGRAPHY.
21 STAINLESS STEEL MIST ELIMINATOR TO BE A KOCH-GLITSCH STYLE 431 OR AMACS STYLE 4CA OR EQUIVALENT. THE WIRE MESH PAD THICKNESS TO BE 150 MM. THE DETAILED ENGINEERING CONTRACTOR TO ENSURE THAT THE BLOCKAGE BY THE SUPPORT RING AND BEAMS IS LESS THAN 14% OF THE DEMISTER PAD CROSS-SECTIONAL AREA.
22 ALL SS SURFACE (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A 380.
23 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
24 ALL PLATES,WELDS AND HAZ SHALL BE (IGC) TESTED AS PER ASTM A 262 PRACTICE E.
25 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
26 ALL PRESSURE INSTRUMENT TO BE LOCATED IN VAPOR SPACE.
0 27 INSULATION: PIR + CELLILAR GLASS (75 + 50) mm.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	JOB SPEC FOR WIRE MESH DEMISTER	6-14-0017
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
X	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
X	DEMISTER DATA SHEET	300-VV-VI-6003
X	PROCESS DATASHEET	300-VV-VI-6003
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

0 HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	NOZZLE PROJECTION		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)		17.69
DESIGN PRESSURE (kg/cm²g)	INT. 33	EXT. --
WORKING TEMPERATURE (°C)		(-)42
DESIGN TEMPERATURE (°C)		(-)75/100
MDMT (°C)		(-)75
CORROSION ALLOWANCE (mm)		0
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1	HEAD 1
RADIOGRAPHY	SHELL FULL	HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.465
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)		52
PAINTING/CLEANING		AS PER JOB SPECIFICATION (REFER NOTE)
INSULATION THICKNESS (mm) (IC)	0 75+50 (NOTE-27) ☐ HOT	☒ COLD
FIRE PROOFING CLEATS	☒ YES	☐ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL	(AT TOP)
PRESSURE (NEW & COLD)		43.2
INSPECTION BY	☒ EIL ☐ CIB	☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304L
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE @
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR B8 CL.2 (STRAIN HARDENED) / SA 194 GR.8
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SS 304
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	SS 304
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILINGLUG	SA 516 GR.70

@ INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

	INDIAN BOILER REGULATIONS (IBR)
	DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	35000	OPERATING	66000
HYDROTEST(SHOP)	85000	HYDROTEST (FIELD)	110600
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED	
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	

DESIGN DATA
BINARY REFRIG. COMPRESSOR 3RD STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6003

डिजाइन डाटा
बाईनरी रेफरीजरेंट कम्प्रेसर 3 स्टेज सक्शन ड्रम
आइटम नम्बर 300-वीवी-वीआई-6003

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3171** REV: 0
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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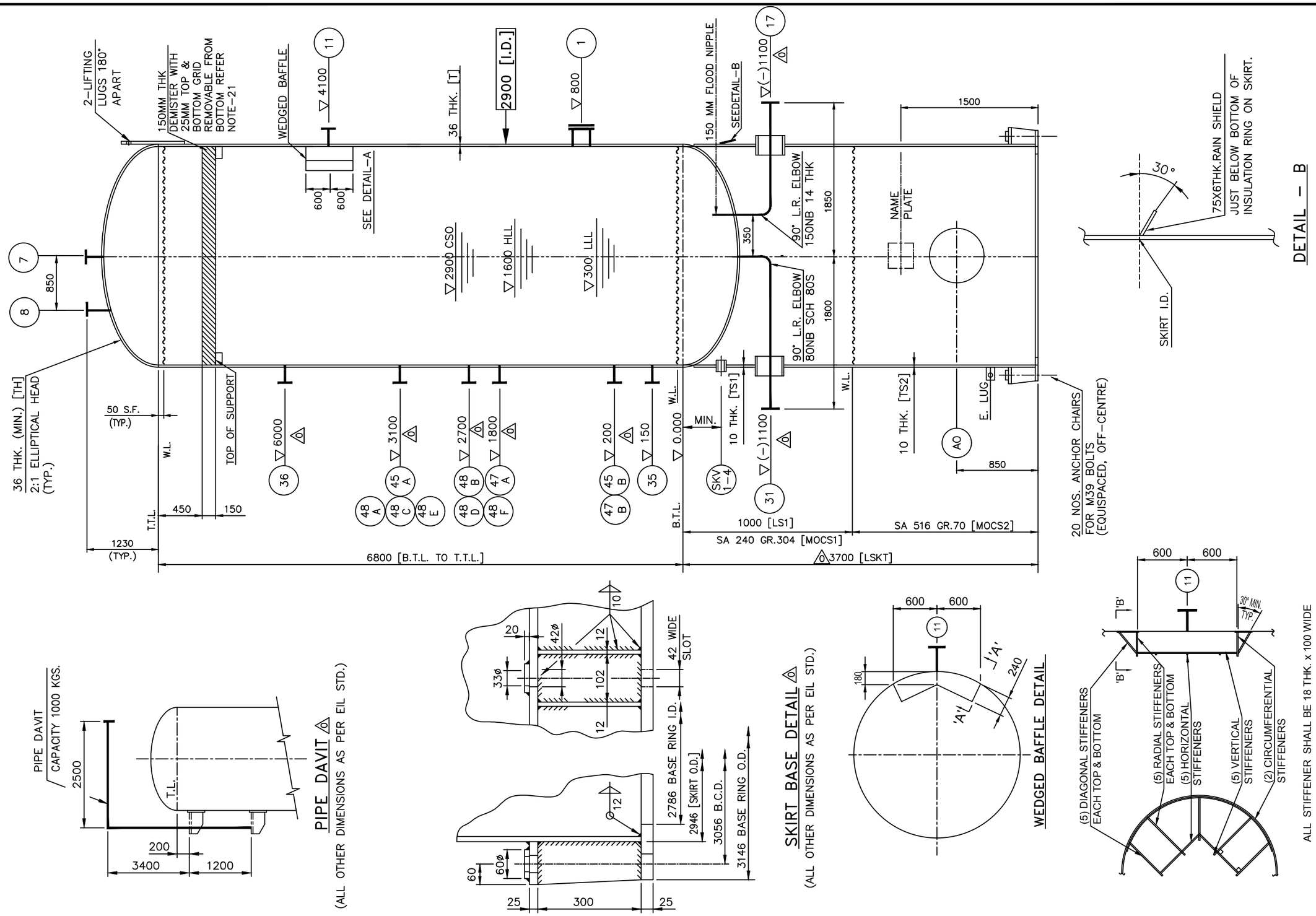

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2025	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

VESSEL DESIGN DATA
BINARY REFRIG. COMPRESSOR 3rd STAGE SUCTION DRUM
ITEM NO. 300-VV-VI-6003

वेसल डिजाइन डाटा
बाइनरी रेफ्रीजरेंट कम्प्रेसर 3 स्टेज सक्शन ड्रम
आइटम नम्बर 300-विवि-विआय-6003

DRAWING NO.	REV.
B957-300-80-42-DS-3171	0
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	#	600	SRWN	RF	#	-	MANHOLE + B.F. + HINGE
3	1	200	#	600	SRWN	RF	#	-1	VENTILLATION NOZZLE + B.F.
6	1	250	#	600	SRWN	RF	#		VAPOR OUTLET TO 300-CC-3001/COLD FLARE
11	1	750	#					-	FEED FROM 300-LZ-00-3001-EP-00-17
12	1	150	#	600	SRWN	RF	#	-	FEED FROM 300-VV-HW-6005
13	1	250	#	600	SRWN	RF	#	-	FEED FROM 300-PA-CF-4004A/B
17	1	750	#					-	LIQUID HC BOTTOM OUTLET TO 300-LZ-00-3001-EP-00-15 / 300-
31	1	80	#	600	SRWN	RF	#	-	DRAIN
35	1	50	#	600	SRWN	RF	#	-	UTILITY CONNECTION + B.F.
36	1	50	#	600	SRWN	RF	#	-	PRESSURE GAUGE
45 A-B	2	50	#	600	SRWN	RF	#	-	STAND PIPE
47 A-B	2	50	#	600	SRWN	RF	#	-	LEVEL TRANSMITTER (DP)
1 N8	1	50	SCH.160	600	WN	RF	SEE DWG.	-	VENT

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

'#' REFER SHEET-3

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125-250 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90° APART.
10. ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
14. FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
15. ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
16. EQUIPMENT SHALL BE SUBJECT TO DRY OUT AT 7 Kg/cm2(g) @80C.
17. ALL SS SURFACES INSIDE AND OUTSIDE SHALL BE PICKLED & PASSIVATED AS PER ASTM A 380.
18. ALL PLATES, WELDS & HAZ SHALL BE IGC TESTED AS PER THE ASTM A262 PRACTICE-E.
19. AFTER HYDRO TEST . ALL WELDS IN PRESSURE PART SHALL BE CHECKED BY DP EXAMINATION.
20. VENDOR TO PROVIDE WOODEN PILLOW FOR SADDLE SUPPORT

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
X	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43172
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES AS MARKED
	NOZZLE ELEVATIONS (AS MARKED)	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
	FIXED AND SLIDING END		PIPE DAVIT
	NOZZLE RATINGS		PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	49.85
DESIGN PRESSURE	(kg/cm^2g)	INT. 58 EXT. -
WORKING TEMPERATURE	(°C)	(-)37
DESIGN TEMPERATURE	(°C)	(-)60/65
MDMT	(°C)	(-)60
CORROSION ALLLOWANCE	(MM)	0
TYPE OF HEAD		2:1 ELLIPSOIDAL
JOINT EFFICIENCY		SHELL 1 HEAD 1
RADIOGRAPHY		SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE /SPEC.
HEAT TREATMENT		AS PER CODE /SPEC.
OPERATING MEDIUM		BINARY REFRIGENT
SP. GRAVITY		0.365 (AT OPERATING TEMP.)
WIND SPECIFICATION		IS 875 (PART-3)
SEISMIC		IS 1893 + SITE SPECTRA (PART-4)
CAPACITY	(M^3)	290
PAINTING/CLEANING		REFER AS PER JOB SPEC.
INSULATION THICKNESS	(mm)	100 IC ☐ HOT ☒ COLD
FIRE PROOFING CLEATS		☐ YES ☒ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		75.4
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 240 Gr.304
REINFORCEMENT PAD/INSERT PLATE	-
HEADS	SA 240 Gr.304
SHELL FLANGES/SR/LWN	SA 182 F 304
NOZZLE FLANGES	SA 182 F 304
NOZZLE NECK UPTO 100 NB	-
NOZZLE NECK ABOVE 100 NB	-
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIALWITH SS304 OUTER RING & SS 304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.L7/SA 194 GR.7
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ SUPPORT	SA 240 Gr.304
SKIRT/ SUPPORT BASE	SA 240 Gr 304.
INTERNAL PARTS (WELDED)	SA 240 Gr.304/SS 304
INTERNAL PARTS (BOLTED)	SA 240 Gr.304/SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SS 240 GR.304
WRAPPER PLATE	SA 204 GR 304.
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SA 240 Gr 304.
PIPE DAVIT	-
VACUUM STIFFENER	-

$ ERECTION WEIGHT INDICATED EXCLUSIVE OF WEIGHT OF INTERNALS, PLATFORMS, INSULATION, PIPING, SPOOL, ETC.

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	268500 $	OPERATING	392000
HYDROTEST(SHOP)	558500	HYDROTEST (FIELD)	578500
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
1	27.02.2026	ISSUED FOR PURCHASE	ROHIT	AD/VIVEK	PB
0	13.11.2025	ISSUED FOR PURCHASE	ROHIT	SM/VIVEK	PB
B	02.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	AD/VIVEK	PB
A	01.05.2025	ISSUED FOR BIDS/ENGG.	AS	AD/VIVEK	PB

DESIGN DATA
BINARY REFRIGERANT ACCUMULATOR
ITEM NO. 300-VV-HW-6004

डिजाइन डाटा
बाईनरी रेफरीजेरेन्ट एक्यूमुलेटर
आइटम नम्बर 300-वीवी-एचडब्ल्यू-6004

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3172** REV: 1
SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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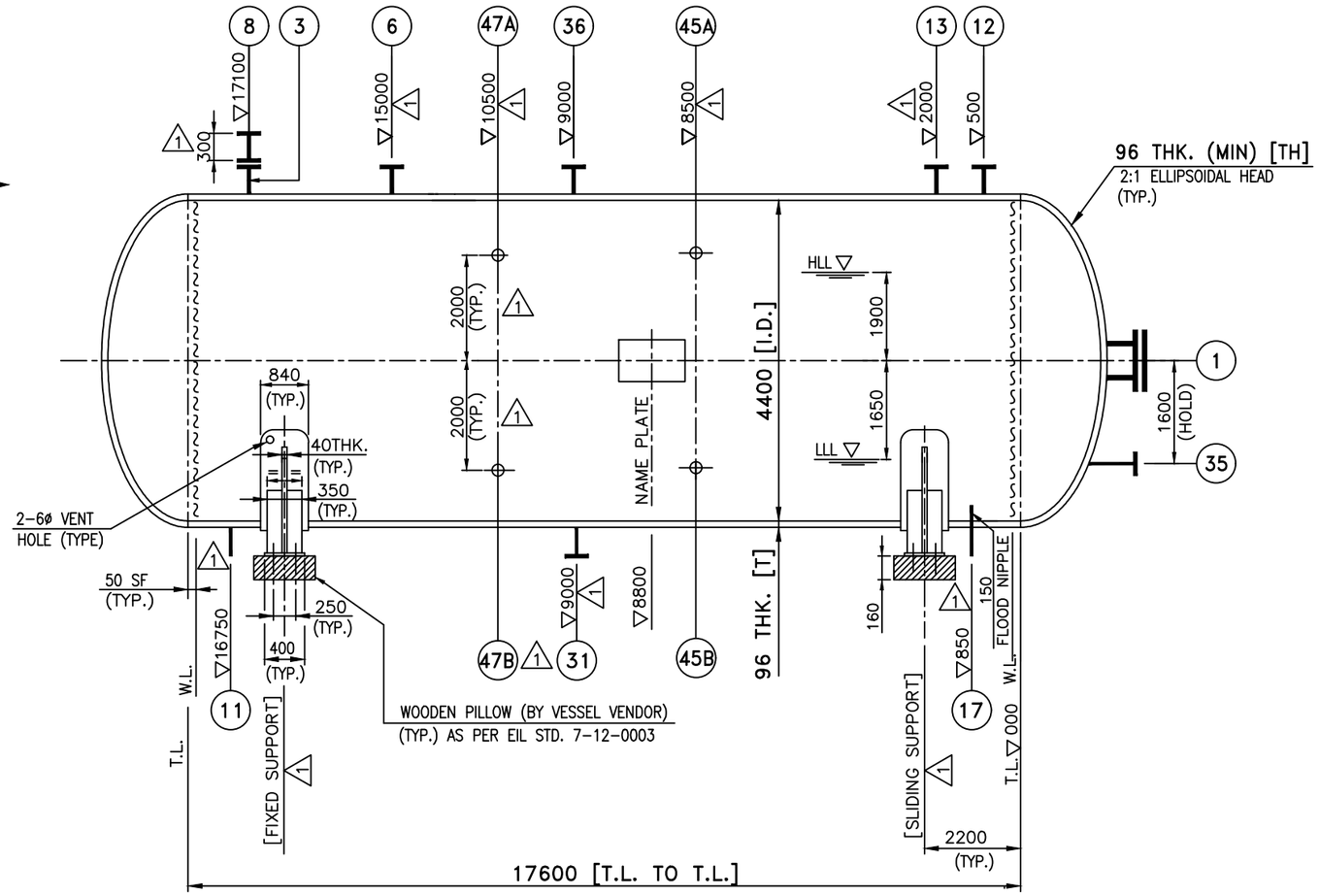
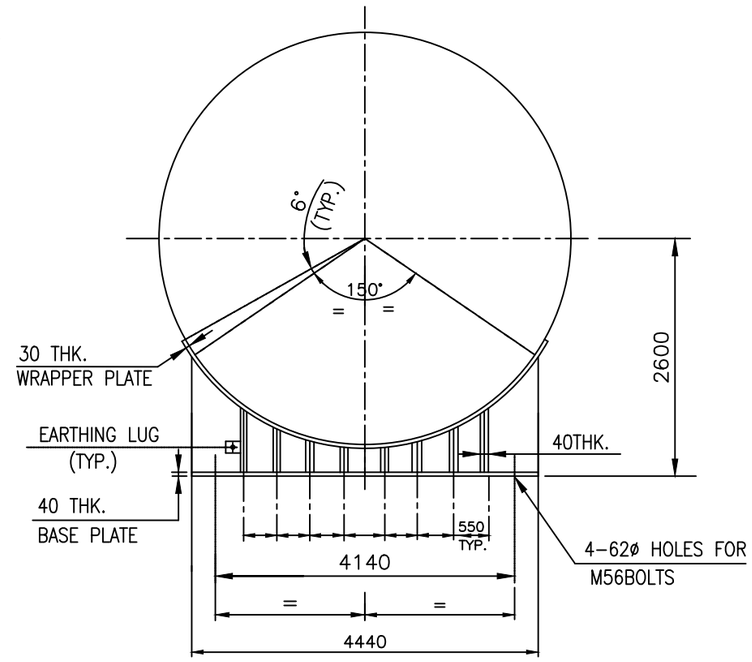
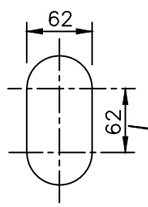


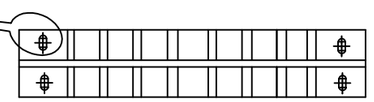


VIEW X-X

(NOZZLES NOT SHOWN)
(ALL OTHER DIMENSIONS AS PER EIL STD.)



HOLES FOR FIXED SUPPORT



HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

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ITEM NO. : 300-VV-HW-6004

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बाईनरी रेफरीजेरेन्ट एक्यूमुलेटर
आइटम नम्बर: 300-वीवी-एचडब्ल्यू-6004

DRAWING NO. B957-300-80-42-DS-3172 | REV. 1

SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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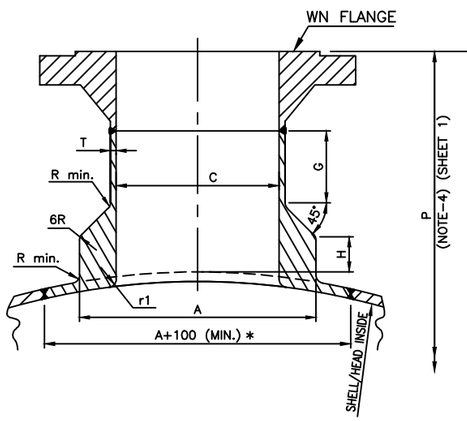

FIG.–1

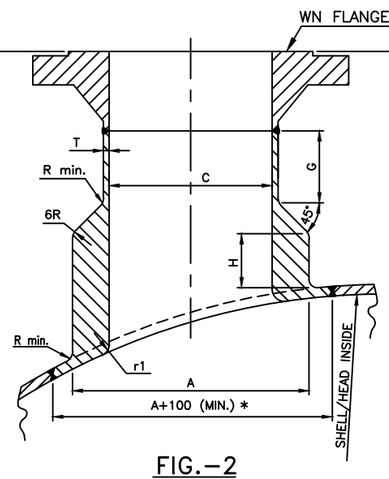

FIG.–2

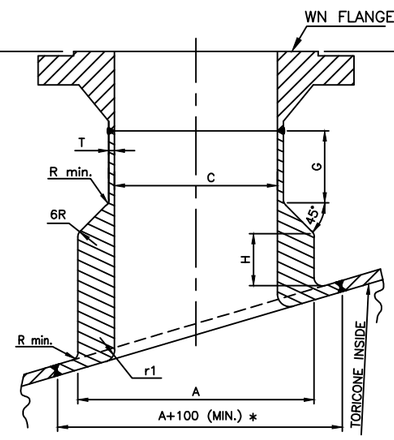

FIG.–3

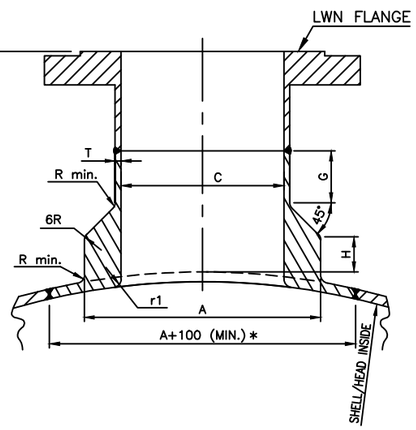

FIG.–4

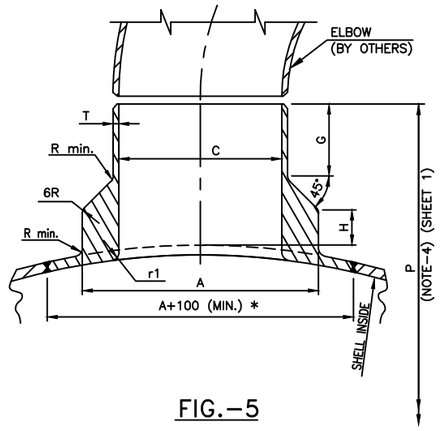

FIG.–5

FIG.–6

FIG.–7

NOTE:–

1. ALL NOZZLE TO SHELL JOINTS ARE TO BE FULLY RADIOGRAPHED EXCEPT FOR 80 NB & 50 NB NOZZLES.
2. NOZZLE OF SIZE 80 NB & 50 NB ARE SRWN WITHOUT LIP.
3. PROJECTION 'P' SHALL BE MAINTAINED. 'G' VALUE FURNISHED ARE MINIMUM AND SHALL BE SUITABLY INCREASE TO MAINTAIN PROJECTION 'P'.
4. RADIUS 'R min','r1' TO BE FINALISED IN ACCORDANCE WITH DESIGN CODE.

* REQUIREMENTS OF ASME SEC VIII DIV–1 FIG UW–16.1f(4) SHALL BE FOLLOWED.
VENDOR TO INCREASE THE LIP DIMENSION IF REQUIRED.

NOZZLE MARK	SIZE (NB) (NOTE–1,2)	P (MM)	A (MM)	C (MM)	H (MM)	T (MM)	G (MM) (MIN.) (NOTE–3)	FIG.
1	600	1800	1062	582	100	14	50	1
3	200	2730	360	200	160	10	50	1
1 6 & 13	250	2760	449	249	160	12	50	1
1 11 & 17	750	2740	1122	722	210	20	50	5
12	150	2700	310	148.3	120	10	50	1
31	80	2600	174	73.66	100	SCH. 80S	50	1
35	50	SEE DWG.	130	49.25	75	SCH. 80S	50	2
36	50	2700	170	49.25	60	SCH. 80S	50	1
45A–B & 47A–B	50	1800	210	49.25	60	SCH. 80S	50	2

DETAIL OF SELF REINFORCED WELD NECK NOZZLE

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DRAWING NO. B957–300–80–42–DS–3172
REV. 1
SHEET 3 OF 3

1–1641–0503 REV.0 A3–420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	600	WN	RF △D	920	300xT	MANHOLE + B.F + DAVIT
3	1	150	14 THK.	600	WN	RF	1400	85xT	VENTILATION NOZZLE
6	1	150 (H)	14 THK.	600	WN	RF	1400	85xT	VAPOR OUTLET TO DRY FLARE
11	1	100	80S	600	WN	RF	1400	60xT	FEED FROM 300-VV-VI-6001
12	1	100	80S	600	WN	RF	1400	60xT	FEED FROM 300-KA-CF-6001 DISCHARGE
17	1	150	14 THK.	600	WN	RF △D	1300	85xT	LIQUID BOTTOM OUTLET TO 300-VV-HW-6004
31	1	80	80S	600	WN	RF	1400	45xT	DRAIN
35	1	50	80S	600	WN	RF	770	-	UTILITY CONNECTION
36	1	50(H)	80S	600	WN	RF △D	1400	-	PRESSURE GAUGE
△D 45 A-B	2	50	80S	600	WN	RF	1200	45xT	LEVEL GAUGE MAGNETIC (SS)
△D 46 A-B	2	50	80S	600	WN	RF	1200	45xT	LEVEL TRANSMITTER (DP)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE RTJ, 63 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT SHALL BE AS PER JOB SPECIFICATION.
13 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
14 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
15 ALL PLATES AND WELDS INCLUDING HAZ SHALL BE MEET THE IMPACT TEST REQUIREMENTS OF CODE/SPEC.
16 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
17 ALL SS SURFACE (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A 380.
18 ALL PLATES,WELDS AND HAZ SHALL BE (IGC) TESTED AS PER ASTM A 262 PRACTICE E.
19 AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
X	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	NOT APPLICABLLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLLE
	DEMISTER DATA SHEET	NOT APPLICABLLE
	PROCESS DATASHEET	

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	NOZZLE PROJECTION		PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.52-51.10
DESIGN PRESSURE (kg/cm²g)	INT. 58 EXT. --
WORKING TEMPERATURE (°C)	(-)99 TO (-)42
DESIGN TEMPERATURE (°C)	(-)115/100
MDMT (°C)	(-)115
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.465-0.577
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	24
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	175 ☐ HOT ☒ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL ~~/ VERTICAL (AT TOP)~~
PRESSURE (NEW & COLD)	75.4
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304L
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR. B8 CL.2 (STRAIN HARDENED)/SA194 GR.B
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT~~/ SUPPORT	SA 240 GR.304/SA 516 GR.70
~~SKIRT~~/ SUPPORT BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SS 304
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	SA 240 GR.304
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	-
LIFTING LUG	SA 240 GR.304
TAILING LUG	-

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

☐ **INDIAN BOILER REGULATIONS (IBR)**
☐ **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	25000	OPERATING	43000
HYDROTEST(SHOP)	49000	HYDROTEST (FIELD)	54000
NUMBER OF ITEMS :	ONE		

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DESIGN DATA
BINARY REFRIGERANT COMPRESSOR SUCTION DRUM BLOW CASE
ITEM NO. 300-VV-HW-6005

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बाईनरी रेफरीजेरेन्ट कम्प्रेशर सक्शन ड्रम ब्लोकेस
आइटम नम्बर 300-वीवी-एचडब्ल्यू-6005

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3173** REV: 0
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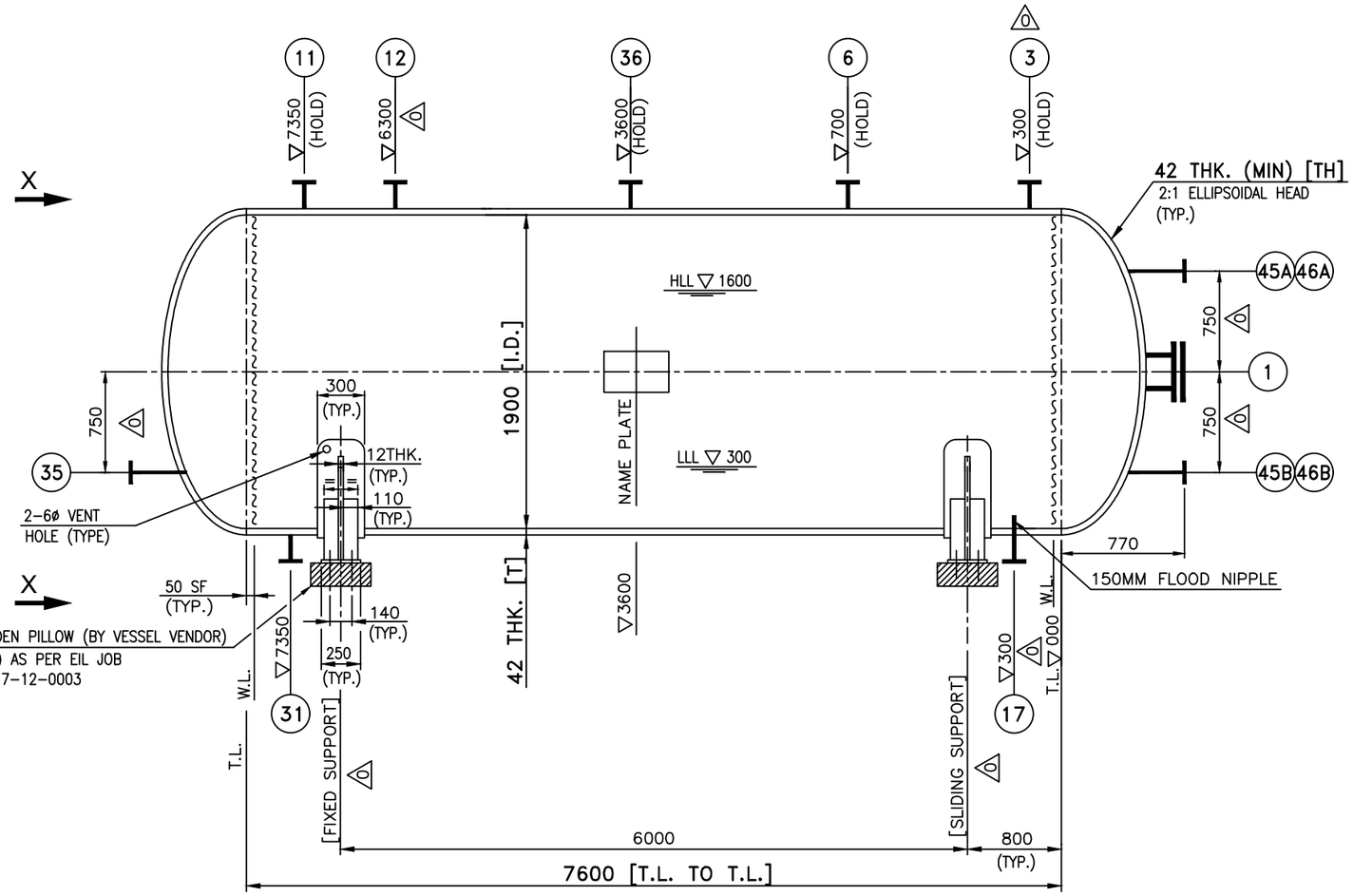

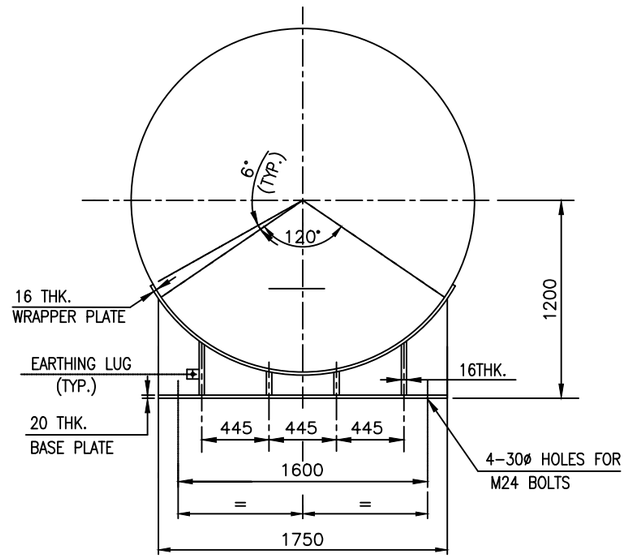

VIEW X-X

(NOZZLES NOT SHOWN)

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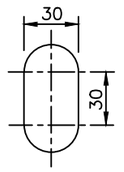

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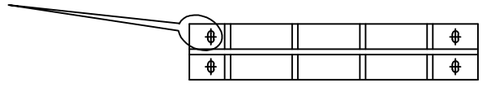

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REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

VESSEL DESIGN DATA
BINARY REFRIGERANT COMPRESSOR SUCTION DRUM BLOW CASE
ITEM NO. : 300-VV-HW-6005

वेसेल डिजाइन डाटा
बाईनरी रेफरीजेरेन्ट कम्प्रेशर सक्शन ड्रम ब्लोकेस
आइटम नम्बर: 300-वीवी-एचडब्ल्यू-6005

DRAWING NO. B957-300-80-42-DS-3173
REV. 0
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
1	1	500	14 THK.	600	WN	RF	1050	250 X T	MANHOLE + BL. FLG.+HINGE
7	1	150(H)	10 THK.	600	WN	RF	SEE DWG.	110 X T	VAPOUR OUTLET TO 300-CC-00-3001/COLD FLARE
8	1	50	80S	600	WN	RF	SEE DWG.	45 X T	VENT
11	1	350	14 THK.	600	WN	RF	1000	150 X T	FEED FROM 300-LZ-00-3001-EP-00-13
17	1	350	14 THK.	600	WN	RF	SEE DWG.	175 X T	LIQUID BOTTOM OUTLET TO 300-LZ-00-3001-EP-00-13 / /300-LZ-00-3001-EP-00-11
31	1	50	80S	600	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	80S	600	WN	RF	900	–	UTILITY CONNECTION
0 45A	1	50	80S	600	WN	RF	SEE DWG.	–	STAND PIPE
0 45B	1	50	80S	600	WN	RF	900	–	STAND PIPE
0 46A	1	50	80S	600	WN	RF	SEE DWG.	–	LEVEL TRANSMITTER (DP)
0 46B	1	50	80S	600	WN	RF	900	–	LEVEL TRANSMITTER (DP)
SKV 1-3	3	100	AS PER EIL STANDARD					–	SKIRT VENT
AO	1	450 ID	AS PER EIL STANDARD					225 X 10	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	43000	4800
WIND	33000	4200

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT SHALL BE AS PER JOB SPECIFICATION.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH NEAREST MANHOLE.
14 VESSEL SHALL BE SUBJECTED TO DRY OUT CONDITIONS OF 7.0 Kg/Cm²(g) AT 80ºC.
15 VENDOR SHALL PROVIDE LADDER RUNGS INSIDE THE SKIRT FROM ACCESS OPENING TO BOTTOM HEAD FOR INSPECTION.
16 TAILING LUG AND BRACING ARRANGEMENT FOR SKIRT SHALL BE DESIGNED BY VENDOR CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE.
17 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL & BOLTED INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
18 ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
19 VENDOR TO PROVIDE WOODEN BLOCK FOR PIPE DAVIT SUPPORT AS PER EIL STD.7-12-0034.
20 ALL BUTT WELD(CIRCUFERENTIAL AND LONGITUDINAL SEAM) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE,PIPE TO PIPE,PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
0	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
	PROCESS DATASHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	48.86
DESIGN PRESSURE (kg/cm²g)	INT. 58 EXT. --
WORKING TEMPERATURE (°C)	(-)133
DESIGN TEMPERATURE (°C)	(-)165/65
MDMT (°C)	(-)165
CORROSION ALLOWANCE (mm)	0
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.544
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	5
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)	190 [ ] HOT [X] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	75.4
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL / BOOT	SA 240 GR.304
REINFORCEMENT PAD / INSERT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 182 F304
NOZZLE NECK UPTO 100 NB	SA 312 TP.304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304 (SEAMLESS)
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR.B8 CL.2 (STRAIN HARDENED) /SA194 GR.B
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ ~~SUPPORT~~	SA 240 GR.304/SA 516 GR.70
SKIRT/ ~~SUPPORT~~ BASE	SA 516 GR.70
INTERNAL PARTS (WELDED)	SA 240 GR.304/SA 312 TP 304
INTERNAL PARTS (BOLTED)	SA 240 GR.304/SA 312 TP 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 240 GR.304
PIPE DAVIT	SA 106 GR. B
LIFTING LUG	SA 240 GR.304
TAILING LUG	SA 516 GR.70

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	9500	OPERATING	20000
HYDROTEST(SHOP)	14500	HYDROTEST (FIELD)	24000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB
B	11.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB
A	04.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB

DESIGN DATA
BINARY REFRIGERANT RETROGRADE DRUM
ITEM NO. 300-VV-VW-6006

डिजाइन डाटा
बाईनरी रैफरीजरैट रैटरोग्रेड ड्रम
आइटम नम्बर 300–वीवी–वीडब्ल्यू–6006

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3174** REV: 0
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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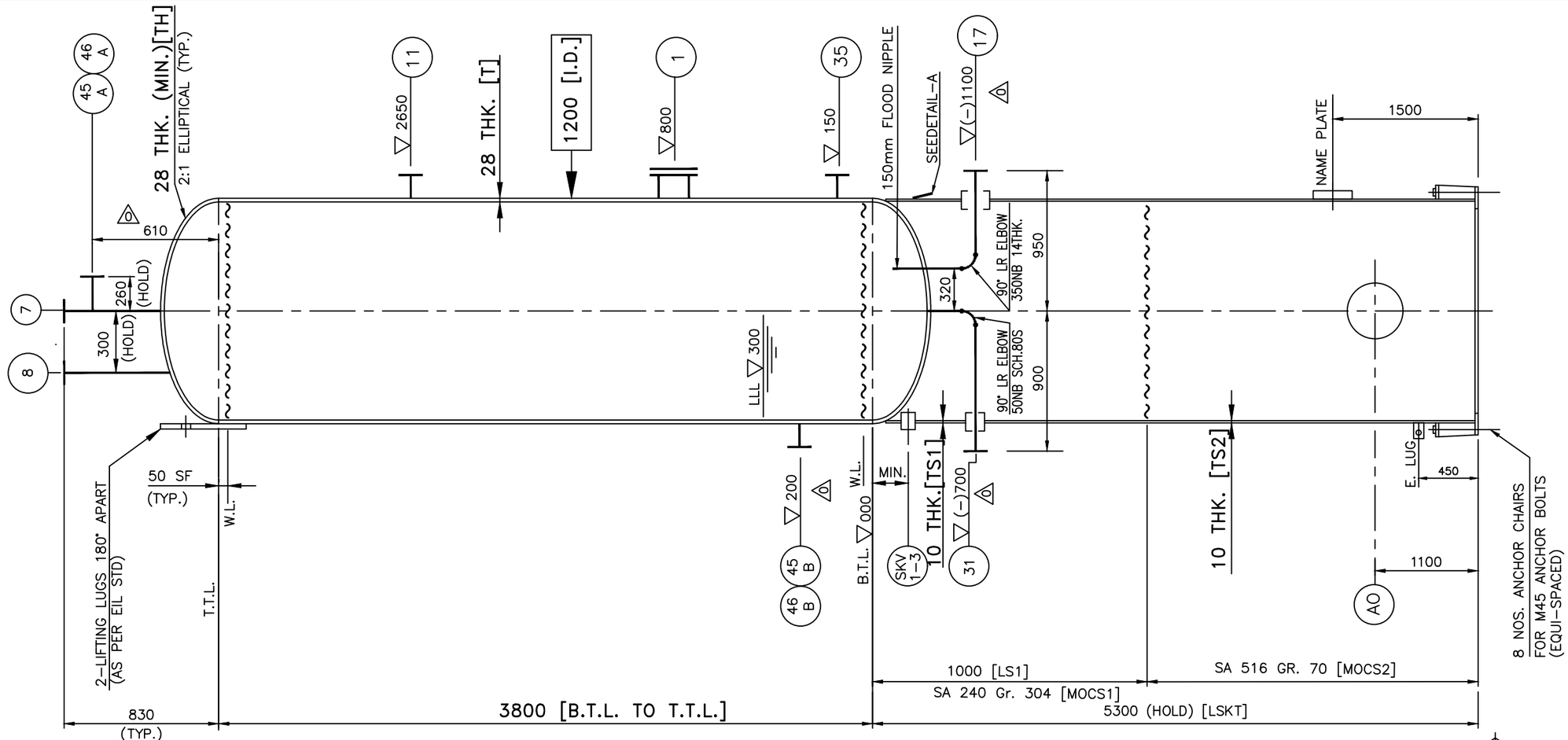

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	26.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	11.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	04.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

VESSEL DESIGN DATA
BINARY REFRIGERANT RETROGRADE DRUM
ITEM NO. 300-VV-VW-6006

वेसल डिज़ाइन डाटा
बाईनरी रैफरीजरैंट रैटरोग्रेड ड्रम
आइटम नम्बर 300-वीवी-वीडब्ल्यू-6006

DRAWING NO.	REV.
B957-300-80-42-DS-3174	0
SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
3	1	100	80S	600	WN	RF	720	60X T	VENTILATION NOZZLE
5	1	200	10 THK.	600	WN	RF	SEE DWG.	110X T	HANDHOLE + BF + GASKET + BOLTING
11	1	50	80S	600	WN	RF	720	40xT	FEED FROM 300-KA-CF-5001/300-KA-CF-6001 CASING DRAING
31	1	50	80S	600	WN	RF	540	40xT	DRAIN
34	1	80	80S	600	WN	RF	720	40xT	SAFETY VALVE
35	1	50	80S	600	WN	RF	1 530	40xT	UTILITY CONNECTION
39	1	50	80S	600	WN	RF	720	40xT	NITROGEN INLET
45 A-B	2	50	80S	600	WN	RF	540	40xT	LEVEL GAUGE-MAGNETIC (SS)

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

1 (SCH./THK.)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINAL PAINTING AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13. ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.
14. EQUIPMENT SHALL BE SUBJECT TO DRY OUT AT 7.0 Kg/cm2(g) @80°C.
15. VENDOR TO PROVIDE WOODEN PILLOW FOR SADDLE SUPPORT AS PER EIL STD. 7-12-0003.
16. ALL STAINLESS STEEL SURFACES (BOTH INSIDE & OUTSIDE) SHALL BE PICKLED AND PASSIVATED AS PER ASTM A380.
17. ALL PLATES, WELDS AND HAZ SHALL BE IGC TESTED AS PER ASTM A262 PRACTICE-E.
18. AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSEL	6-12-0001
X	SUPP. SPEC. FOR AUSTENITIC SS VESSELS	6-12-0006
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
X	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

1	X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43175
		LADDERS/PLATFORM CLEATS	
		PIPE SUPPORT CLEATS	
		TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
		DEMISTER DATA SHEET	NOT APPLICABLE

1 HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
	NOZZLE ELEVATIONS		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE			ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)		42.97 (MAX.)
DESIGN PRESSURE	(kg/cm^2g)	INT. 58.0	EXT. --
WORKING TEMPERATURE	(°C)		(-)99 (LOWEST)
DESIGN TEMPERATURE	(°C)		(-)115/120
MDMT	(°C)		(-) 115
CORROSION ALLOWANCE	(mm)		0
TYPE OF HEAD			2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1	HEAD 1
RADIOGRAPHY		SHELL FULL	HEAD FULL
POST WELD HEAT TREATMENT			AS PER CODE / SPEC.
HEAT TREATMENT			HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM			-
SP. GRAVITY			0.464 TO 0.577
WIND SPECIFICATION			IS-875 (PART-3)
SEISMIC			SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)		0.4
PAINTING/CLEANING			AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IC)		150	☐ HOT ☒ COLD
FIRE PROOFING CLEATS			☐ YES ☒ NO
HYDROSTATIC TEST	(kg/cm2g)		HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)			75.4
INSPECTION BY			☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 240 GR.304
REINFORCEMENT PAD	SA 240 GR.304
HEADS	SA 240 GR.304
SHELL FLANGES	_
NOZZLE FLANGES	SA 182 F 304
NOZZLE NECK UPTO 100 NB	SA 312 TP 304
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304
PIPE FITTINGS	SA 403 WP 304
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 WINDING AND GRAFOIL FILLER MATERIAL WITH SS 304 INNER AND OUTER RING AS PER ASME B16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR. B8 CL. 2(STRAIN HARDENED) /SA 194 GR. 8
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT~~/ SUPPORT	SA 240 GR. 304
~~SKIRT~~/ SUPPORT BASE	SA 240 GR. 304
INTERNAL PARTS (WELDED)	-
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 240 GR.304
WRAPPER PLATE	SA 240 GR. 304
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SA 240 GR.304
PIPE DAVIT	-
VACUUM STIFFENER	-
LIFTING LUG	-
TAILING LUG	-

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- INDIAN BOILER REGULATIONS (IBR)
- DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	1000	OPERATING	1200
HYDROTEST(SHOP)	1400	HYDROTEST (FIELD)	1600
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
1	27.03.2026	REVISED & REISSUED FOR ENGG.	ROHIT	CRG/VIVEK	PB
0	23.01.2026	ISSUED FOR PURCHASE	AS	CRG/VIVEK	PB
A	02.07.2025	ISSUED FOR BIDS / ENGG.	AS	CRG/VIVEK	PB

DESIGN DATA
BINARY REFRIGERANT COMPRESSOR CASING DRAIN POT
ITEM NO. 300-VV-HW-6007

डिजाइन डाटा
बाईनरी रेफ्रीजेरेंट कम्प्रेसर केसिंग ड्रेन पॉट
आइटम नम्बर 300-वीवी-एचडब्लू-6007

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3175** REV: 1
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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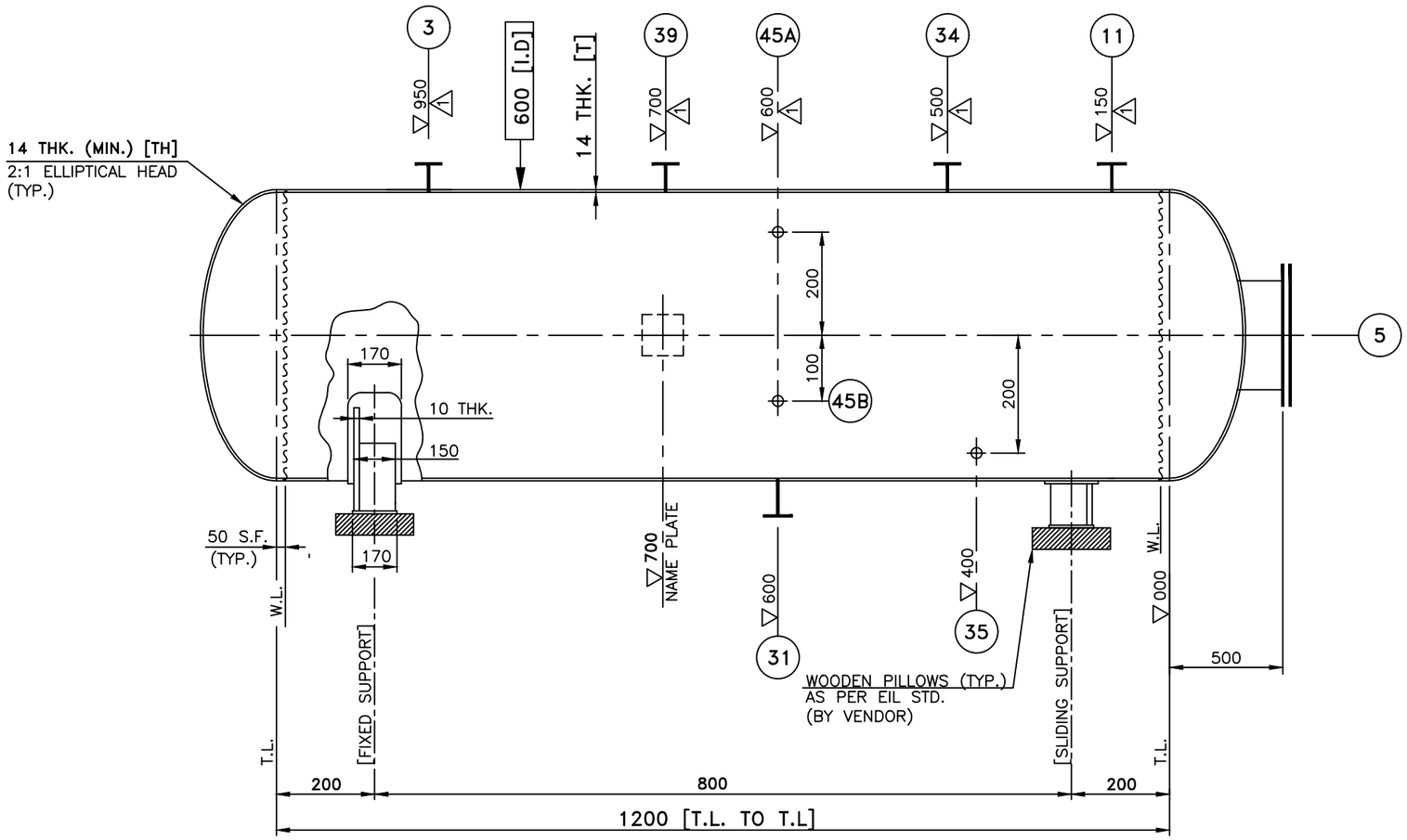
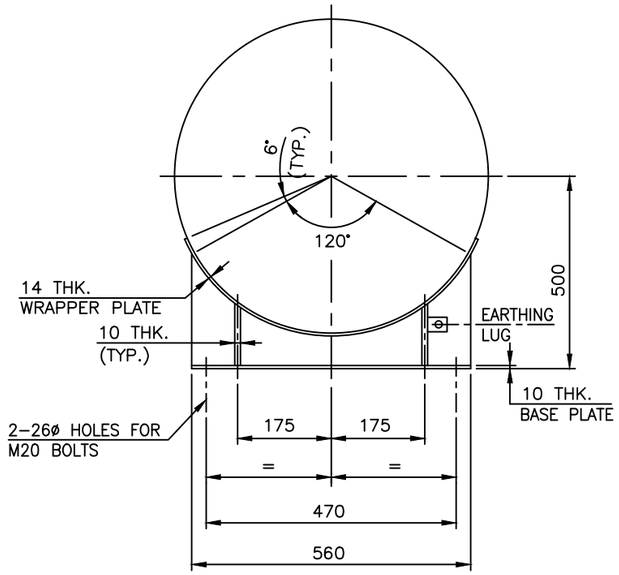
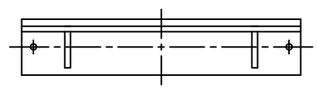




END VIEW

(NOZZLES NOT SHOWN)

(ALL OTHER DIMENSIONS AS PER EIL STD.)



HOLES FOR FIXED SUPPORT

HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
1	27.03.2026	REVISED & REISSUED FOR ENGG.	ROHIT	CRG/SRIKANTH	PB	
0	23.01.2025	ISSUED FOR PURCHASE	AS	CRG/SRIKANTH	PB	
A	02.07.2025	ISSUED FOR BIDS/ENGG.	AS	CRG/SRIKANTH	PB	

VESSEL DESIGN DATA
BINARY REFRIGERANT COMPRESSOR CASING DRAIN POT
ITEM NO. 300-VV-HW-6007

वेसेल डिजाइन डाटा
बाईनरी रेफ्रीजेरेंट कम्प्रेसर केसिंग ड्रेन पॉट
आइटम नम्बर 300-वीवी-एचडब्लू-6007

DRAWING NO. B957-300-80-42-DS-3175
REV. 1
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA / नामिनल डांया	SCH./THK. / शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
0 1	1	600	16 THK.	300	WN	RF	1500	300 X T	MANHOLE + B.F. + HINGE
3	1	200	16 THK.	300	WN	RF	2670	95 X T	VENTILATION NOZZLE + B.F
0 7	1	1350	36 THK.	BUTT WELDED			2670	@	VAPOR OUTLET TO 300-EE-00-7002
0 11 A-B	2	1200	20 THK.	BUTT WELDED			2670	610 X T	FEED FROM DRY FLARE HEADER
0 12	1	400	16 THK.	150	WN	RF	2670	200 X T	FEED FROM COLD LIQUID BLOWDOWN HEADER
15	1	450	16 THK.	150	WN	RF	2670	320 X T	FROM VAPORIZER 300-EE-00-7001
17	1	200	16 THK.	150	WN	RF	2470	95 X T	LIQUID BOTTOM OUTLET TO 300-EE-00-7001
0 31	1	100	80S	300	WN	RF	2470	80 X T	DRAIN
0 35	1	50	80S	600	WN	RF	1250	-	UTILTY CONNECTION
44	1	50	80S	300	WN	RF	2470	-	TRMPERATURE GAUGE
0 45A	2	50	80S	300	WN	RF	2380		LEVEL GAUGE MAGNETIC (SS)
45B							1280		
0 46A	2	50	80S	300	WN	RF	2320		LEVEL TRANSMITTER (DP)
46B							1280		
0 8	1	50	80S	600	WN	RF	SEE DWG.	-	VENT (NOTE-12 & 24)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

@' SQ. 2900 x 40 THK. INSERT PLATE INCLDUING TAPER

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.
10. ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. 0 2" VENT NOZZLE TO BE WELDED TO THE BLIND FLANGE OF 8" VENTILATION NOZZLE.
13. ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14. FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
15. EQUIPMENT SHALL BE SUBJECT DRY OUT AT 7.0 Kg/cm²(g) @80°C.
16. UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF INTERNAL SHALL BE 6MM. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17. INTERNAL ELBOWS AT NOZZLE #11A AND #11B TO TERMINATE FLUSH WITH TANGENT LINE.
18. ALL STAINLESS STEEL SUFACES INSIDE & OUTSIDE SURFACES SHALL BE PICKLED AND PASSIVATED AS PER ASTM A380.
19. ALL PLATES, WELDS & HAZ SHALL BE IGC TESTED AS PER THE ASTM A262 PRACTICE-E.
20. VENDOR TO PROVIDE WOODEN PILLOWS FOR SADDLE SUPPORT AS PER EIL STD. 7-12-0003 WITH 14 THK. STEEL CASING.
21. AFTER HYDROTEST ALL WELDS IN PRESSURE PARTS SHALL BE CHECKED BY DP EXAMINATION.
22. WIRE MESH SHALL BE USED FOR INSULATION (BY OTHERS).
23. EQUIPMENT SHALL BE FIRST COMPLETELY FABRICATED, HYDROTESTED & PAINTED AT SHOP. THEREAFTER IT SHALL BE CUT INTO TWO SECTIONS (TENTATIVE LOCATION MARKED & TO BE FINALISED BY VENDOR) (PROVIDE ADDITIONAL LENGTH TO TAKE CARE OF CUTTING & REJOINING ALLOWANCES) BEFORE TRANSPORTATION FROM SHOP TO SITE (WHERE FINAL C-SEAM SHALL BE CARRIED OUT). AT SITE THE CIRCUMFERENTIAL SEAM SHALL BE COMPLETED IN HORIZONTAL POSITION ON GROUND. SITE SEAMS SHALL BE 100% RADIOGRAPHED. NDT SHALL BE CARRIED OUT AS PER MDS. LOCAL BOX / HALF PIPE TYPE HYDROTEST SHALL BE CARRIED OUT FOR SITE CIRC. SEAM. HYDROTEST OF THE ENTIRE VESSEL AT SITE IS NOT ENVISAGED.
24. 0 8" VENTILATION NOZZLE SHALL BE INSTALLED AT THE END OPPOSITE TO 24" MANHOLE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR AUSTENTICSS VESSELS	6-12-0006
X	STD. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-SP-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
X	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

0

X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43177
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
	PROCESS DATASHEET	-

HOLD UPS (होल्ड अप्स)

0

	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.1-1.5
DESIGN PRESSURE (kg/cm²g)	INT. 3.5 EXT. --
WORKING TEMPERATURE (°C)	AMB. TO (-)170
DESIGN TEMPERATURE (°C)	(-)180/100
MDMT (°C)	(-)180
CORROSION ALLOWANCE (mm)	NIL
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 0.85 HEAD 1
RADIOGRAPHY	SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.472
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M^3)	454
PAINTING/CLEANING	-
INSULATION THICKNESS (mm)	NOTE-22 ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL ~~/ VERTICAL (AT TOP)~~
PRESSURE (NEW & COLD)	
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/~~BOOT~~	SA 240 GR.304L
REINFORCEMENT PAD/INSERT PLATE	SA 240 GR.304L
HEADS	SA 240 GR.304L
~~SHELL FLANGES/SR~~/LWN	SA 182 F 304L
NOZZLE FLANGES	SA 182 F 304L
NOZZLE NECK UPTO 100 NB	SA 312 TP 304L
NOZZLE NECK ABOVE 100 NB	SA 240 GR.304L
PIPE FITTINGS	SA 403 WP 304L
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304L WINDING AND GRAFOIL FILLER MATERIAL WITH SS 304L INNER AND OUTER RING AS PER ASME B16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE @
EXTERNAL STUDS/BOLTS/NUTS	SA 320 GR. B8 (STRAIN HARDENED) /SA 194 GR. 8
INTERNAL STUDS/BOLTS/NUTS	SS 304L
~~SKIRT~~/ SUPPORT	SA 240 GR. 304L
~~SKIRT~~/ SUPPORT BASE	SA 240 GR. 304L
INTERNAL PARTS (WELDED)	SS 304L
INTERNAL PARTS (BOLTED)	SS 304L
CLIPS & ATTACHMENTS (EXTERNAL)	SS 304L
WRAPPER PLATE	SA 240 GR. 304L
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENT	SS 304L
PIPE DAVIT	-
VACUUM STIFFENER	-
TAILING LUG	-

@ INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE :

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	83000	OPERATING	134000
HYDROTEST(SHOP)	537000	HYDROTEST (FIELD)	537000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED	
0	19.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	07.07.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	
A	06.06.2025	ISSUED FOR BIDS / ENGG.	AS	SSR/SRIKANTH	PB	

DESIGN DATA	डिजाइन डाटा
DRY FLARE KNOCK OUT DRUM	ड्राई फलेयर नॉक आउट ड्रम
ITEM NO. 300-VV-HW-7002	आइटम नम्बर 300-वीवी-एचडब्लू-7002

DRAWING NUMBER / डाईग नम्बर	REV
B957-300-80-42-DS-3177	0
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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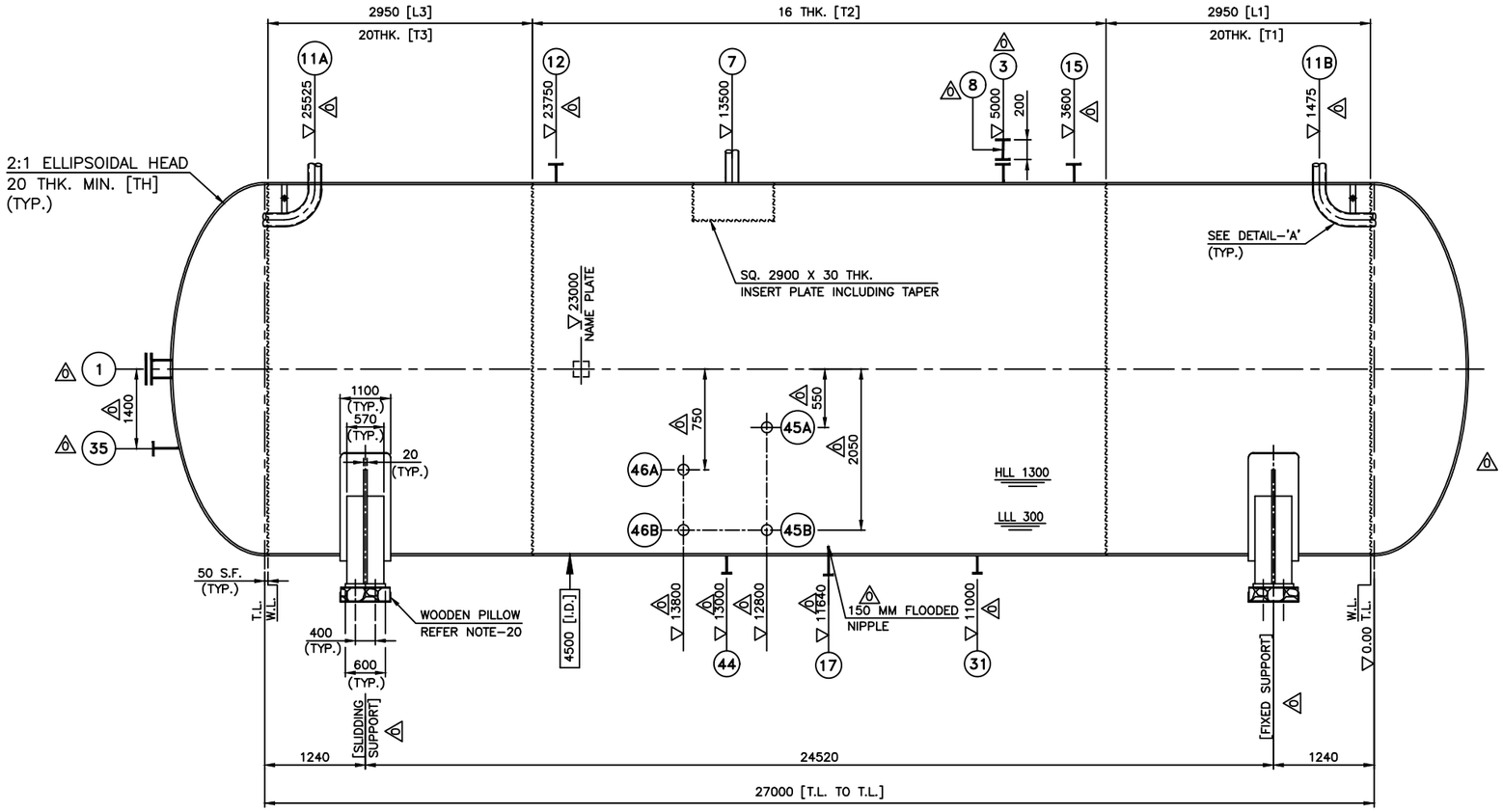
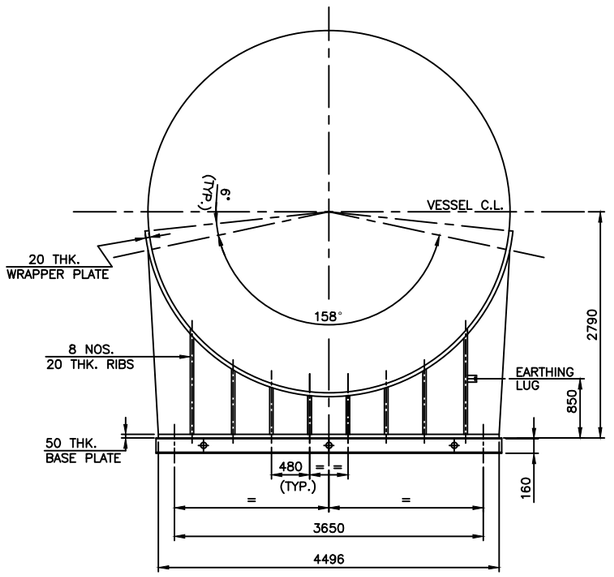
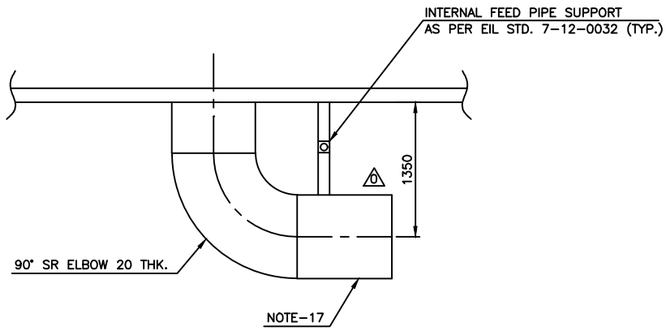




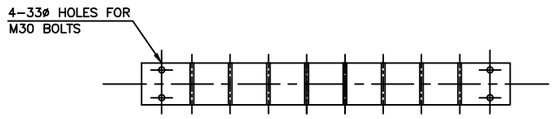
VIEW–'X'

(ALL NOZZLES NOT SHOWN)

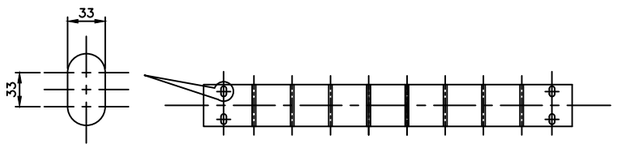
(ALL OTHER DIMENSIONS AS PER EIL STD.)



SEE DETAIL–'A'



HOLES FOR FIXED SUPPORT



HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	19.02.2026	ISSUED FOR PURCHASE	AS	SSR/SRIKANTH	PB	
B	07.07.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	
A	06.06.2025	ISSUED FOR BIDS/ENGG.	AS	SSR/SRIKANTH	PB	

VESSEL DESIGN DATA
DRY FLARE KNOCK OUT DRUM
ITEM NO. 300-VV-HW-7002

वेसेल डिजाइन डाटा
ड्राई फलेयर नॉक आउट ड्रम
आइटम नम्बर. 300-वीवी-एचडब्लू-7002

DRAWING NO. B957–300–80–42–DS–3177
REV. 0
SHEET 2 OF 2

1–1641–0503 REV.0 A3–420x297

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POS: B957-300-79-41-DS-1298- REV.-2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	600	14 THK.	150	WN	RF	1780	255X T	MANHOLE + BF + DAVIT
7	1	500	28 THK.	150	WN	RF	1920	#	VAPOUR OUTLET TO 300-EE-00-8001
8	1	50	160	300	WN	RF	SEE DWG.	40x14	VENT
8A	1	200	80	150	WN	RF	1920	95X T	VENTILATION NOZZLE + BF
11	1	600	30 THK.	150	WN	RF	1920	@	FEED FROM LP CONDENSATE HEADER
12	1	100	120	300	WN	RF	1920	50X T	FEED FROM 300-PA-CF-8003A/B (START-UP ONLY)
17	1	300	14 THK.	150	WN	RF	1720	135X T	LP COND. BOTTOM OUTLET TO 300-PA-CF-8002A/B
20	1	150 (H)	80	150	WN	RF	1920	70X T	RETURN FROM 300-PA-CF-8002 A/B
22	1	100	120	300	WN	RF	SEE DWG.	60X T	RETURN FROM 300-EE-00-8001
24	1	100	120	300	WN	RF	1920	50X T	RETURN FROM 300-LZ-00-8001
31	1	80	160	300	WN	RF	1720	40xT	DRAIN
35	1	80	160	300	WN	RF	SEE DWG.	45xT	UTILITY CONNECTION
36	1	50 (H)	160	300	WN	RF	1920	-	PRESSURE GAUGE
45A	2	50 (H)	160	300	WN	RF	1680	-	LEVEL GAUGE/GLASS
45B							1050		
47A	2	50 (H)	160	300	WN	RF	1680	-	LEVEL CONTROLLER WITH ALARMS
47B							1050		
50	1	80	160	300	WN	RF	1920	40xT	CONDENSATE FROM 300-VV-HW-8011

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

@' INSET PLATE OF 1350 x 1350 x 35THK.

#' INSET PLATE OF DIA. 1100 x 28THK.

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. NOZZLE SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS, NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13. VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190ºC
14. UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED CS INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
15. VENTILATION NOZZLE(8A) IS TO BE LOCATED AT THE END OPPOSITE TO THE MANHOLE(1) AND UTILITY CONNECTION(35). 2 INCH VENT NOZZLE (8) SHALL BE INSTALLED ON 8 INCH VENTILATION NOZZLE(8A)BLIND FLANGE.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
X	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
X	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	
PIPE SUPPORT CLEATS	
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES- 20,36,45,47
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV.1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.4
DESIGN PRESSURE (kg/cm²g)	INT. 3.5 EXT. F.V.
WORKING TEMPERATURE (°C)	109.4
DESIGN TEMPERATURE (°C)	150
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 0.85 HEAD 1
RADIOGRAPHY	SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT	AS PER SPEC./CODE
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.951
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M³)	81.3
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IH)	25 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	4.55
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)
(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT~~/ SUPPORT	IS 2062 GR.E250 QUALITY BR/BO
~~SKIRT~~/ SUPPORT BASE	IS 2062 GR.E250 QUALITY BR/BO
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR/BO WELDED OVER BQCS PAD
WRAPPER PLATE	SA 516 GR.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
VACCUM STIFFENER	SA 516 GR.70

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	19000	OPERATING	65000
HYDROTEST(SHOP)	100300	HYDROTEST (FIELD)	107000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	25.03.2026	REVISED & REISSUED FOR BIDS / ENGG.	AS	ROHIT/CRG/VIVEK	PB
A	29.09.2025	ISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB

DESIGN DATA	LP CONDENSATE FLASH DRUM
ITEM NO.	300-VV-HW-8001
डिजाइन डाटा	एलपी कंडेनसेट फ्लैश ड्रम
आइटम नम्बर	300-वीवी-एचडब्ल्यू-8001
DRAWING NUMBER / डाईग नम्बर	**B957-300-80-42-DS-3178** REV: B
	SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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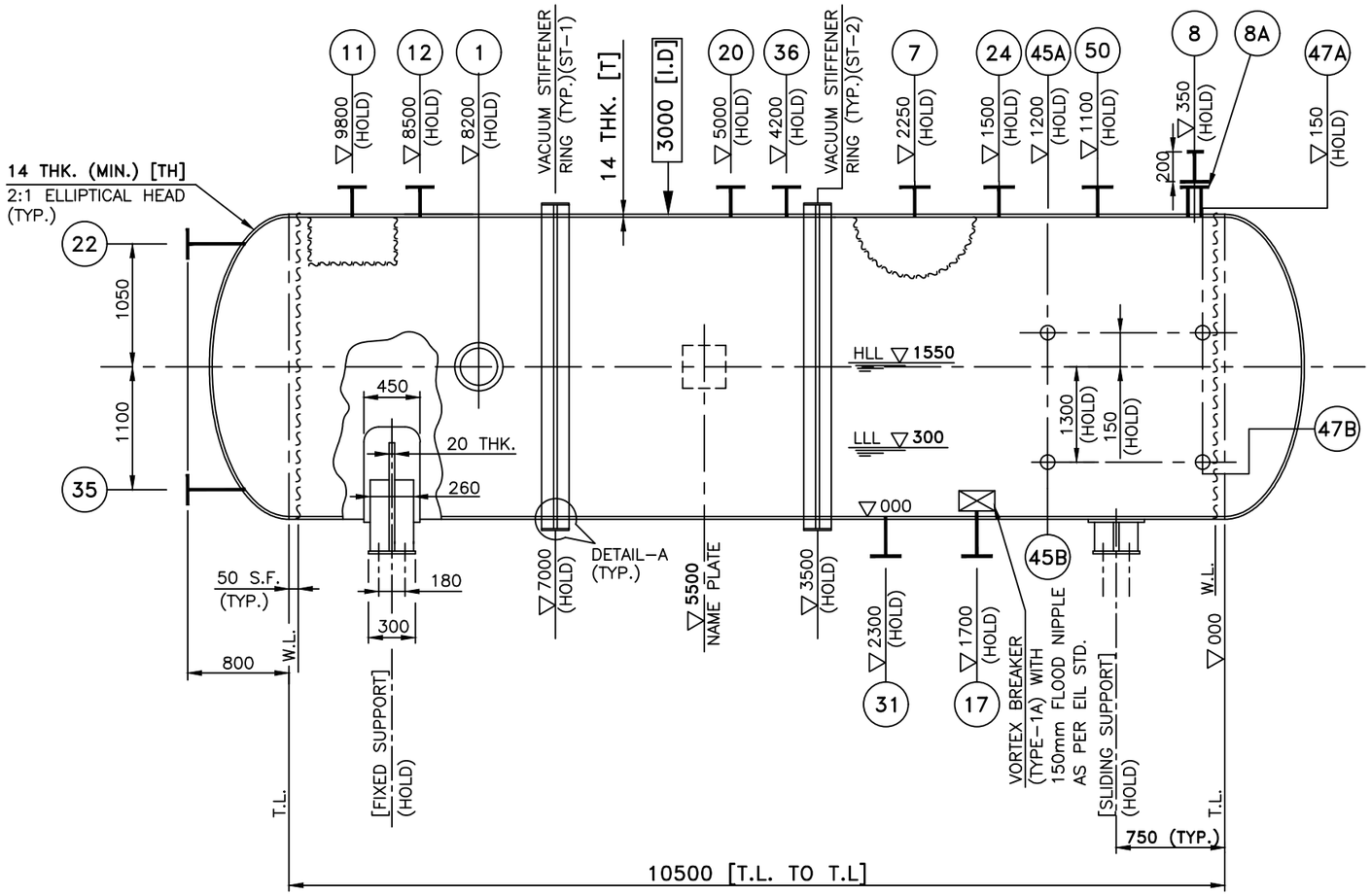
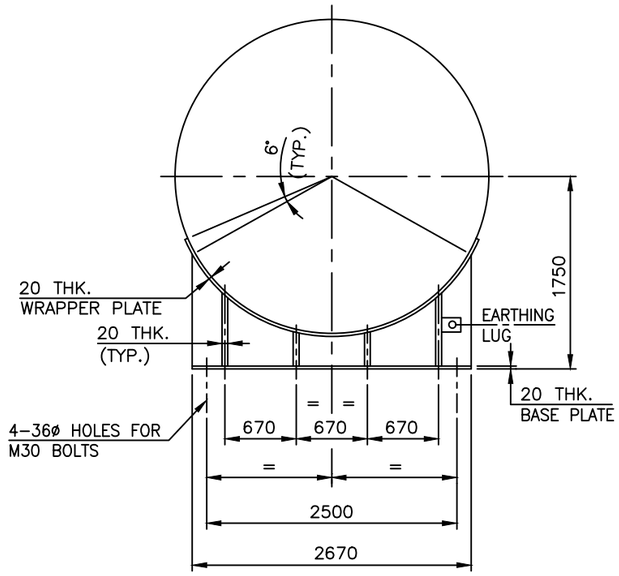
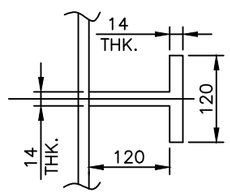
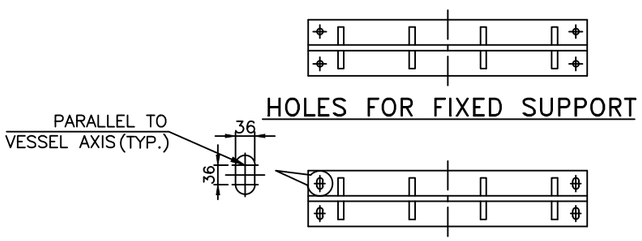




END VIEW
(NOZZLES NOT SHOWN)
(ALL OTHER DIMENSIONS AS PER EIL STD.)



DETAIL-A
(VACUUM STIFFENER RING)
(ST-1 & ST-2)



HOLES FOR FIXED SUPPORT

HOLES FOR SLIDING SUPPORT

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	25.03.2026	REVISED & REISSUED FOR BIDS/ENGG.	AS	ROHIT/CRG/VIVEK	PB	
A	29.09.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
LP CONDENSATE FLASH DRUM
ITEM NO. 300-VV-HW-8001

वेसेल डिजाइन डाटा
एलपी कंडेनसेट फ्लैश ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-8001

DRAWING NO. B957-300-80-42-DS-3178 | REV. B
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS: B957-300-79-41-DS-1296 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1	1	600	14 THK.	150	WN	RF	2080	300X T	MANHOLE + BF + GASKET + BOLTING
7	1	450	14 THK.	300	WN	RF	SEE DWG.	225X T	VAPOR OUTLET TO LP STEAM HEADER
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	600	14 THK.	150	WN	RF	2080	300X T	FEED FROM MP CONDENSATE HEADER
17	1	400	14 THK.	150	WN	RF	SEE DWG.	200X T	MP COND. BOTTOM OUTLET TO 300-PA-CF-8003A/B
20	1	200 (H)	100	300	WN	RF	2030	110X T	MIN. FLOW RETURN FROM 300-PA-CF-8003A/B
31	1	80	160	300	WN	RF	SEE DWG.	45X T	DRAIN
35	1	80	160	300	WN	RF	1980	45X T	UTILITY CONNECTION
36	1	50 (H)	160	300	WN	RF	1980	-	PRESSURE GAUGE
SP 1-2	2	50 (H)	160	300	WN	RF	1980	-	STAND PIPE
LT 1-2	2	50 (H)	160	300	WN	RF	1980	-	LEVEL TRANSMITTER (DP)
AO 1-2	2	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	340700	25800
WIND	225600	17000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINTAS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
12 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
13 NOZZLE SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKET.
14 VENDOR SHALL CARRY OUT COMPLETE MECHANICAL DESIGN AS PER IBR & MODIFY THE THICKNESS, IF NECESSARY, WITHOUT ANY COST AND TIME IMPLICATION. HOWEVER, INDICATED THK. ARE MINIMUM TO BE PROVIDED. IT IS SOLE RESPONSIBILITY OF VENDOR TO GET APPROVAL OF ALL DOCUMENTS & DESIGN CALCULATION FROM CIB & ALSO GET THE EQUIPMENT INSPECTED BY CIB.
15 ALL MATERIAL / FABRICATION / TESTING (INCLUDING HYDROTEST) / INSPECTION SHALL MEET IBR REQUIREMENTS.
16 ALL PRESSURE BEARING WELDS SHALL BE CHECKED BY MP/DP TESTED AFTER HYDROTEST.
17 PARTS NOT COVERED BY IBR SHALL BE DESIGNED AS PER ASME SEC. VIII DIV.1.
18 WELD FOR ALL PRESSURE BEARING COMPONENTS SHALL BE FULL PENETRATION WELD. TEST FOR IBR CLASS FUSION WELDED SEAMS SHALL COMPLY WITH REQUIREMENTS OF IBR.
19 ALL CIRCUMFERENTIAL, LONGITUDINAL WELDS SHALL BE WELD FROM BOTH SIDE. WHEREVER WELDING IS NOT POSSIBLE FROM OTHER SIDE FIRST TWO (2) ROOT RUNS SHALL BE CARRIED OUT BY TIG.
20 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190ºc.
21 ALL PRESSURE INSTRUMENT SHALL BE LOCATED IN THE VAPOR SPACE.
B 22 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010

B HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	IBR (NOTE-17)
WORKING PRESSURE (kg/cm²g)	6
DESIGN PRESSURE (kg/cm²g)	INT. 8 EXT. FV
WORKING TEMPERATURE (°C)	164.4
DESIGN TEMPERATURE (°C)	180
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL AS PER IBR HEAD AS PER IBR
RADIOGRAPHY	SHELL AS PER IBR HEAD AS PER IBR
POST WELD HEAT TREATMENT	AS PER CODE / SPEC.
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	-
SP. GRAVITY	0.903
WIND SPECIFICATION	IS-875
SEISMIC	SITE SPECTRA + IS-1893
CAPACITY (M^3)	120
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-10)
INSULATION THICKNESS (mm) (IH)	50 [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	AS PER IBR
INSPECTION BY	[ ] EIL [X] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SKIRT/ ~~SUPPORT~~	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY BR/B0
SKIRT/-~~SUPPORT~~ BASE	IS 2062 GR. E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL) DIRECTLY WELDED OVER VESSEL	SA 516 GR.70
CLIPS & ATTACHMENTS (EXTERNAL) WELDED OVER PAD	IS 2062 GR. E 250 QUALITY BR/B0
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
LIFTING LUG	SA 516 GR.70

SPECIAL SERVICE : VESSEL IS UNDER IBR

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

X **INDIAN BOILER REGULATIONS (IBR)**
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	35000	OPERATING	132600
HYDROTEST(SHOP)	155000	HYDROTEST (FIELD)	175000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
B	21.11.2025	REVISED & REISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB
A	15.10.2025	ISSUED FOR BIDS / ENGG.	AS	RR/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
MP CONDENSATE FLASH DRUM	एमपी कंडेनसेट फ्लैश ड्रम
ITEM NO. 300-VV-VW-8002	आइटम नम्बर 300–वीवी–वीडब्ल्यू–8002

DRAWING NUMBER डाईग नम्बर: **B957-300-80-42-DS-3179** REV: B
SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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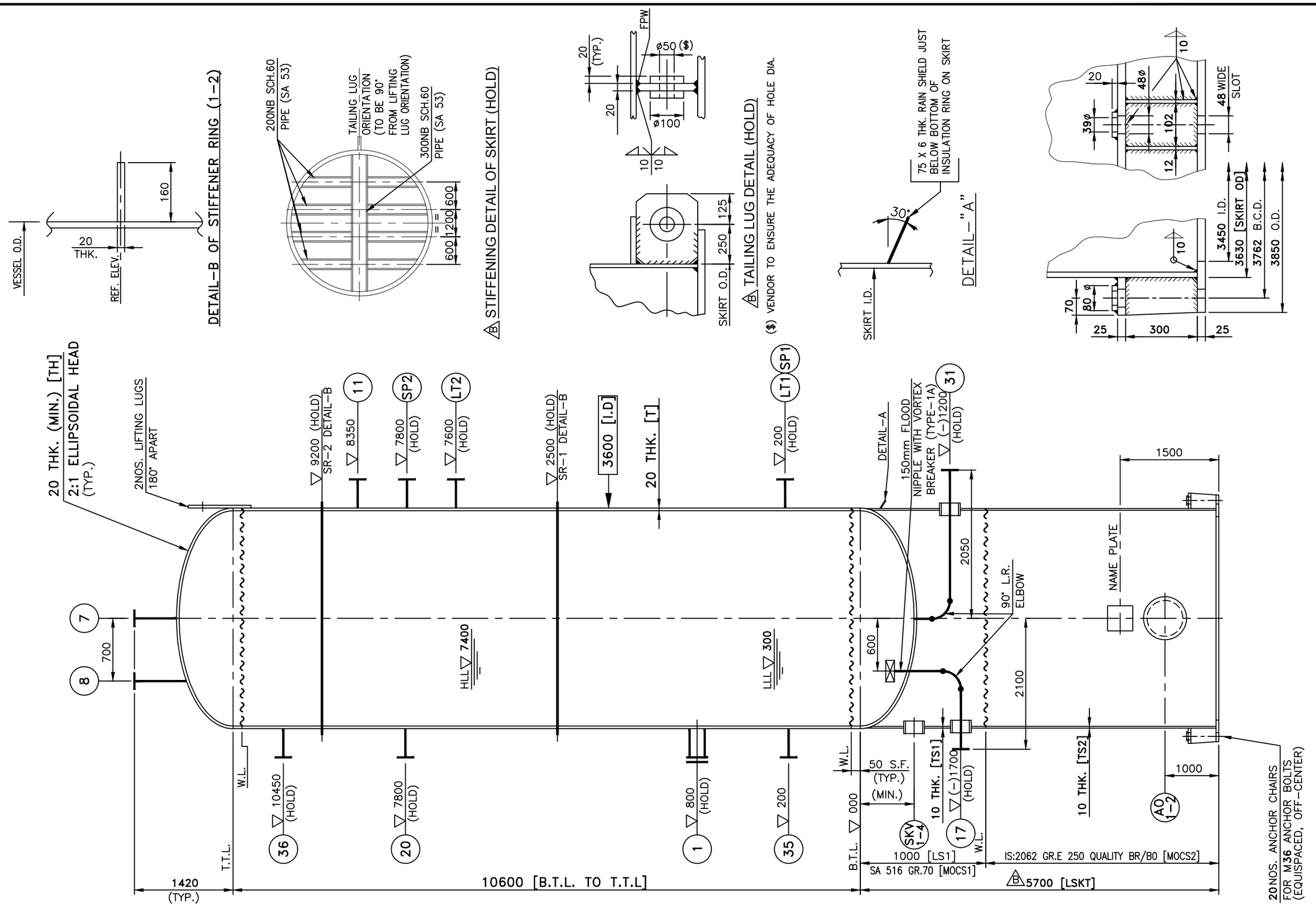

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
B	21.11.2025	REVISED & REISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	
A	15.10.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
MP CONDENSATE FLASH DRUM
ITEM NO. 300-VV-VW-8002

वेसेल डिजाइन डाटा
एमपी कंडेनसेट फ्लैश ड्रम
आइटम नम्बर 300-वीवी-वीडब्ल्यू-8002

DRAWING NO. B957-300-80-42-DS-3179
REV. B
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1299 REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
1	1	500	14 THK.	150	WN	RF	760	215X T	MANHOLE + BF + GASKET + BOLTING
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
11	1	50	160	300	WN	RF	660	-	FEED FROM 300-TT-00-9001 (NOTE-13)
12	1	50	160	300	WN	RF	660	-	FEED FROM 300-CC-00-2501 (NOTE-13)
17	1	50	160	300	WN	RF	SEE DWG.	-	LIQUID BOTTOM OUTLET TO 300-PA-CF-9001
31	1	50	160	300	WN	RF	SEE DWG.	-	DRAIN
34	1	50(H)	160	300	WN	RF	SEE DWG.	-	SAFETY VALVE
35	1	50	160	300	WN	RF	660	-	UTILITY CONNECTION
39	1	50	160	300	WN	RF	SEE DWG.	-	NITROGEN OUTLET
LG 1-2	2	50(H)	160	300	WN	RF	660	-	LEVEL GAUGE MAGNETIC (SS)
LT 1-2	2	50(H)	160	300	WN	RF	660	-	LEVEL TRANSMITTER (DP)

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउन्डेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
11. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
12. EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5 Kg/cm²(g) @190°C.
13. NOZZLE #11 AND NOZZLE #12 TO BE ORIENTED 90° WITH RESPECT TO EACH OTHER.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
X	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
X	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

NOZZLE ORIENTATIONS	
LADDERS/PLATFORM CLEATS	NOT APPLICABLE
PIPE SUPPORT CLEATS	NOT APPLICABLE
TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES 34, LG 1-2 & LT 1-2
X	NOZZLE ELEVATIONS LG 1-2 & LT 1-2		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	ATM.
DESIGN PRESSURE	(kg/cm^2g)	INT. 10.5 EXT. -
WORKING TEMPERATURE	(°C)	AMB
DESIGN TEMPERATURE	(°C)	100
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 0.85 HEAD 1
RADIOGRAPHY		SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE / SPEC.
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.85-1.0 (AT OPERATING TEMPERATURE)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	2.55
PAINTING/CLEANING		AS PER JOB SPECIFICATION (NOTE-10)
INSULATION THICKNESS	(mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS		☒ YES ☐ NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		13.65
INSPECTION BY		☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	-
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
~~SKIRT/~~ SUPPORT	SA 106 GR. B
~~SKIRT/~~ SUPPORT BASE	IS 2062 GR.E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 Gr.70
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	-
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	-
LIFTING LUG	SA 516 GR.70

PLATFORM OR PIPE CLIPS NOT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	2000	OPERATING	2600
HYDROTEST(SHOP)	4550	HYDROTEST (FIELD)	4550
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	13.11.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा
SKIMMED YELLOW OIL DRUM	स्किम्ड येलो ऑइल ड्रम
ITEM NO. 300-VV-VW-9002	आइटम नम्बर 300–वीवी–वीडब्ल्यू–9002

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3180	A
SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 [28.02.2024] A3-420 X 297

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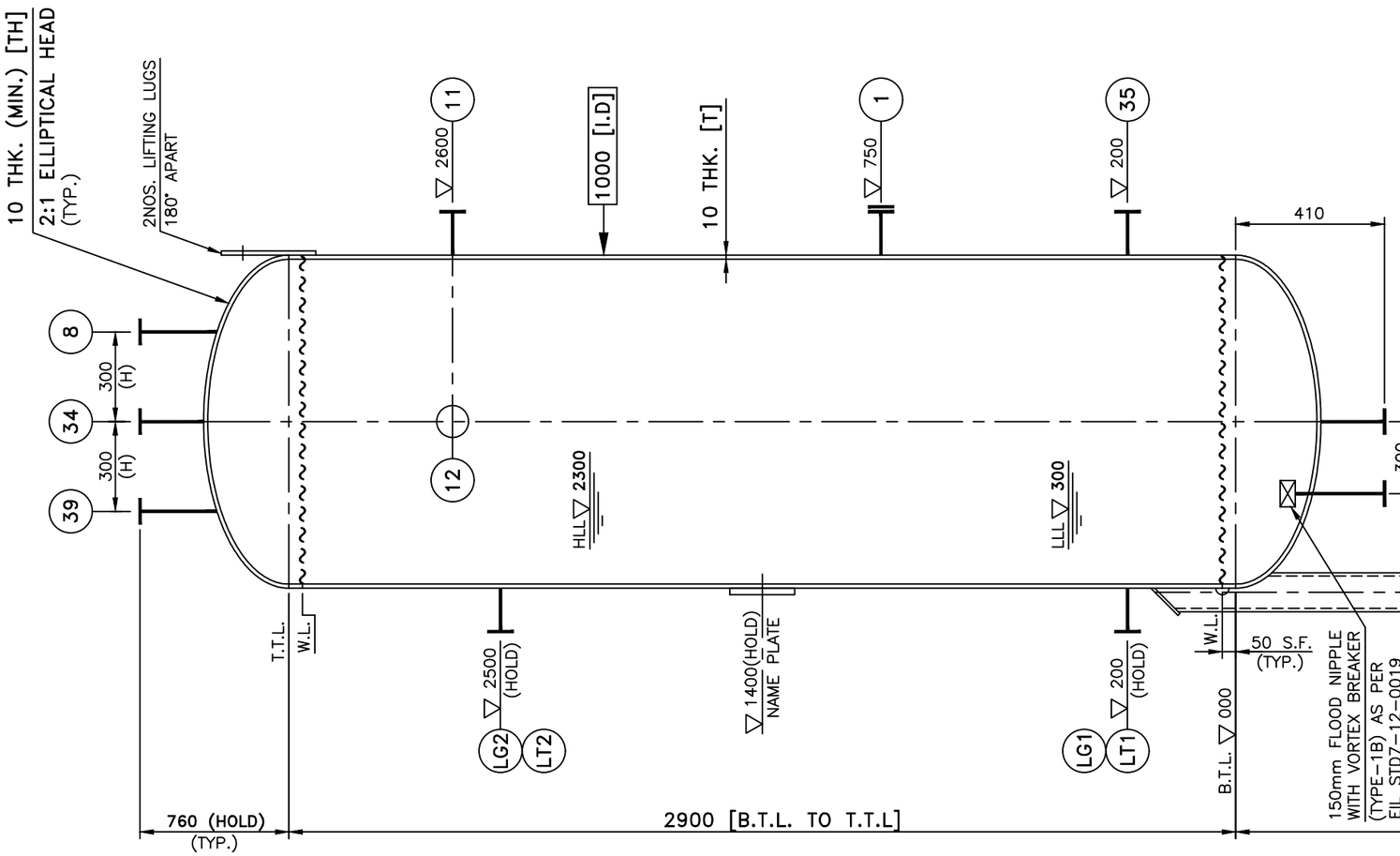

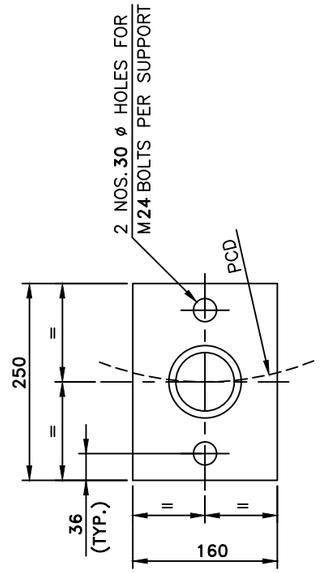

DETAIL OF BASE PLATE (HOLD)
(ALL OTHER DIMENSIONS AS PER EIL STD.)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	13.11.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	

VESSEL DESIGN DATA	वेसल डिजाइन डाटा	DRAWING NO.	REV.
SKIMMED YELLOW OIL DRUM	स्किम्ड येलो ऑइल ड्रम	B957-300-80-42-DS-3180	A
ITEM NO. 300-VV-VW-9002	आइटम नम्बर 300-वीवी-वीडब्ल्यू-9002	SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-8010 REV.0

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शेड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिंग	प्रोजेक्शन	पैड	सर्विस
F	1	300	14 THK.	150	WN	RF	SEE DWG.	160X T	FEED
LT1	1	100	160	300	WN	RF	SEE DWG.	60XT	LEVEL TRANSMITTER (GWR)
P 1-2	2	750 (H)	14 THK.	150	WN	RF	SEE DWG.	300 X T	PUMP NOZZLE
T 1-2	2	100 (H)	BY PUMP VENDOR						TOP OUTLET PUMP DISCHARGE
VO	1	80	160	300	WN	RF	SEE DWG.	-	VAPOR OUTLET TO FLARE
V	1	50	160	300	WN	RF	SEE DWG.	-	VENT
UC	1	80	160	300	WN	RF	SEE DWG.	-	UTILITY CONNECTION
LT2	1	150 (H)	120	300	WN	RF	SEE DWG.	85XT	LEVEL TRANSMITTER (RADAR)
N	1	50	160	300	WN	RF	SEE DWG.	-	NITROGEN
TI	1	50	160	300	WN	RF	SEE DWG.	-	TEMPERATURE INSTRUMENT
MH	1	600	14 THK.	150	WN	RF	SEE DWG.	200X T	MANHOLE+BF+GASKET+BOLTING+HINGE
D	1	80	160	300	WN	RF	SEE DWG.	-	DRAIN
V1	1	200	80	80	WN	RF	SEE DWG.	110XT	VENTILATION + BF GASKET + BOLTING + NOZZLE V
S1	1	450	14 THK.	150	WN	RF	SEE DWG.	215xT	MOUNTING NOZZLE + BF + GASKET + BOLTING FOR VO, UC
S2	1	500	14 THK.	150	WN	RF	SEE DWG.	195xT	MOUNTING NOZZLE + BF + GASKET + BOLTING FOR D,N & TI

T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

H' DENOTES (HOLD)

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फाऊंडेशन लोडिंग डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	-	-
WIND	-	-

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ~~ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.~~
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) ~~FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.~~
4 (B) ~~FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.~~
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES-B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES SHALL BE STIFFENED WITH 4 NOS. 100 x 10 THK FLATS AT 90 DEG.APART. MANHOLE,PUMP NOZZLE AND MOUNTING NOZZLES SHALL BE STIFFENED WITH 8 NOS 10THKx R.F PAD WIDE FLATS EQUISPACED.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES / REDUCING FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.EXTERNAL COATING SHALL BE AS PER TABLE 10.2 OF JOB SPECIFICATION.
13 THE VESSEL SHALL BE LOCATED IN RCC PIT AND SAND PACKED WITH VIBRO COMPRESSION WITH 100mm THK OF LEAN CONCRETE ON TOP (BY OTHERS).
14 (a) SIZE OF SUMP1-2 & NOZZLE P1-2 IS UNDER HOLD & SHALL BE AS CONFIRMED BY PUMP VENDOR.
14 (b) PUMP NOZZLE COVER / BLIND FLANGE WITH PUMP ASSEMBLY, NOZZLES T1-2,BOLTING & GASKET SHALL BE SUPPLIED BY PUMP SUPPLIER.
15 CATHODIC PROTECTION IS BY OTHERS. HOWEVER,CLIP FOR THE SAME TO BE PROVIDED BY VENDOR.
16 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED/BOLTED CS INTERNAL SHALL BE 12mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
17 VESSEL SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190 ºC.
18 LIFTING LUG FOR HANDLING OF VESSEL SHALL BE DESIGNED (CONSIDERING IMPACT FACTOR 1.5) AND PROVIDED BY VENDOR. INDICATIVE DETAILS ARE FURNISHED ON SHEET-3.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	STD. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
	SKIRT BASE DETAILS	7-12-0004
	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
X	MANHOLE WITH HINGED COVER	7-12-0009
	MANHOLE WITH DAVIT	7-12-0010
	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
	PIPE DAVIT	7-12-0023
	LIFTING LUG TOP HEAD TYPE	7-12-0024
	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038
X	STILL WELL FOR LEVEL TRANSMITTER (RADAR TYPE) FOR BURIED VESSEL	7-12-0039

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES (AS MARKED)
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
X	STILL WELL FOR LI 1-2 & TI		PIPE DAVIT
X	SUMP DIAMETER, LENGTH		PACKING SUPPORT
X	BURIED HEIGHT		

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	0.1
DESIGN PRESSURE (kg/cm²g)	INT. 3.5 EXT. F.V
WORKING TEMPERATURE (°C)	AMB.-85
DESIGN TEMPERATURE (°C)	150
MDMT (°C)	1.1
CORROSION ALLLOWANCE (MM)	3
TYPE OF HEAD	2:1 ELLIPSOIDAL
JOINT EFFICIENCY	SHELL 0.85 HEAD 1
RADIOGRAPHY	SHELL SPOT HEAD FULL
POST WELD HEAT TREATMENT	AS PER CODE/SPEC.
HEAT TREATMENT	HEAD: AS PER CODE /SPEC.
OPERATING MEDIUM	QUENCH WATER
SP. GRAVITY	0.969
WIND SPECIFICATION	IS 875
SEISMIC	IS 1893 + SITE SPECTRA
CAPACITY (M^3)	65
PAINTING/CLEANING	REFER AS PER JOB SPEC.
INSULATION THICKNESS (mm)	NIL ☐ HOT ☐ COLD
FIRE PROOFING CLEATS	☐ YES ☒ NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / ~~VERTICAL~~ (AT TOP)
PRESSURE (NEW & COLD)	4.55
INSPECTION BY	☒ EIL ☐ CIB ☐ TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL/BOOT	SA 516 Gr.70
REINFORCEMENT PAD	SA 516 Gr.70
HEADS	SA 516 Gr.70
SHELL FLANGES	-
NOZZLE FLANGES / BLIND FLANGE	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	-
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	-
SUPPORT	SA 516 Gr.70
SUPPORT BASE	-
INTERNAL PARTS (WELDED)	SA 516 Gr.70 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	-
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 Gr.70
WRAPPER PLATE	SA 516 Gr.70
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 Gr.70
LIFTING LUG	SA 516 Gr.70
STIFFENER	SA 516 Gr.70
STILL WELL FOR LT2	SS304L

CATHODIC PROTECTION REQUIRED

@ WITHOUT PUMP ASSEMBLY

SPECIAL SERVICE : -

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	30900@	OPERATING	84600@
HYDROTEST(SHOP)	95300@	HYDROTEST (FIELD)	95300@
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER डाईग नम्बर	REV
QUENCH WATER DRAIN DRUM	क्वेन्च वॉटर ड्रैन ड्रम	B957-300-80-42-DS-3181	A
ITEM NO. 300-VV-HW-8010	आइटम नम्बर 300-वीवी-एचडब्ल्यू-8010	SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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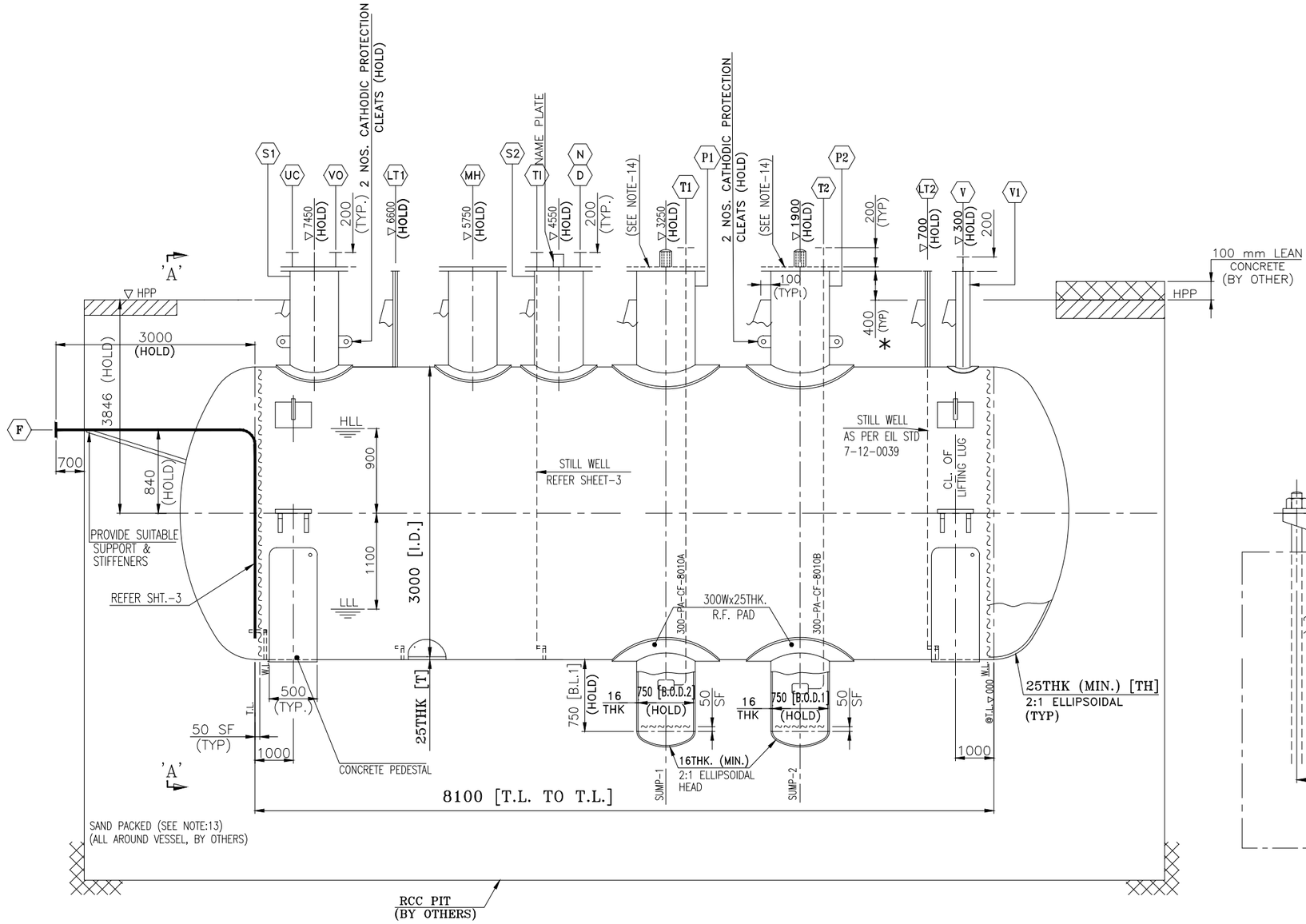
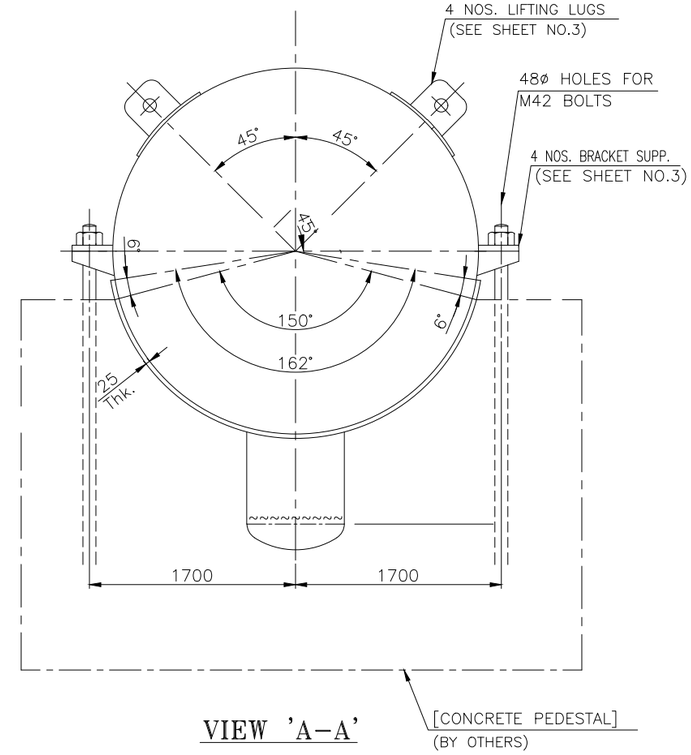
* NOZZLES MAY BE SUITABLY CUT WITH WELD EDGE PREPARATION (WITH SUITABLE COVER)FOR TRANSPORTATION. SUITABLE CUTTING ALLOWANCE IN NOZZLES SHALL BE CONSIDERED TO MAINTAIN THE GIVEN PROJECTION.FINAL ASSEMBLY OF NOZZLES AT SITE SHALL BE BY OTHERS (NOT BY VESSEL FABRICATOR)





ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
QUENCH WATER DRAIN DRUM
ITEM NO. 300-VV-HW-8010

वेसेल डिजाइन डाटा
क्वेन्च वॉटर ड्रैन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-8010

DRAWING NO. B957-300-80-42-DS-3181
REV. A
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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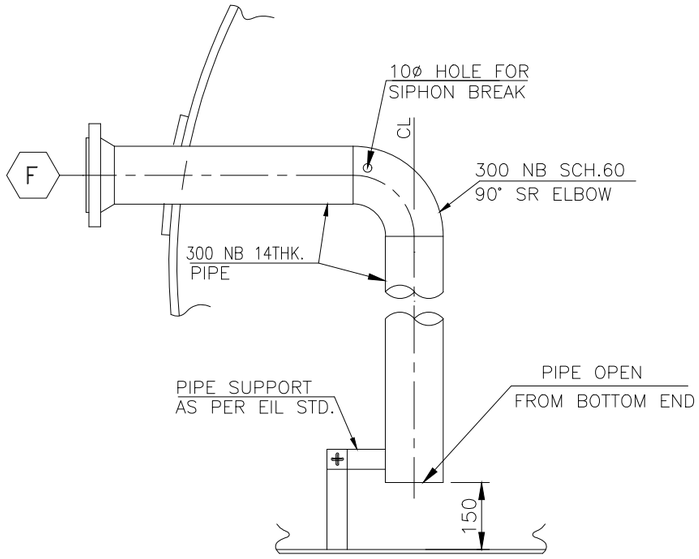
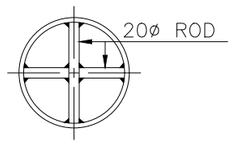
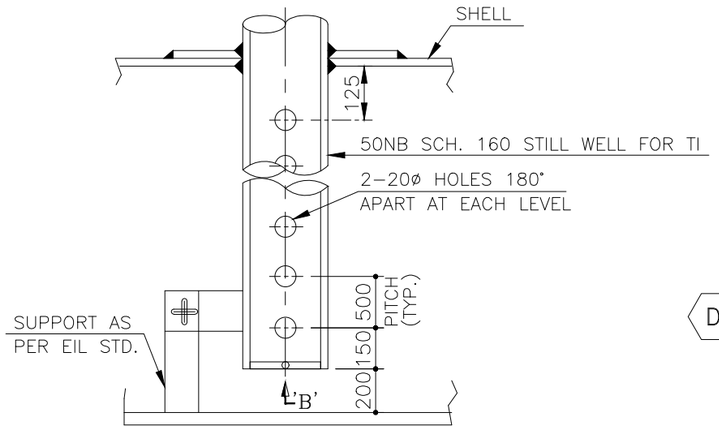


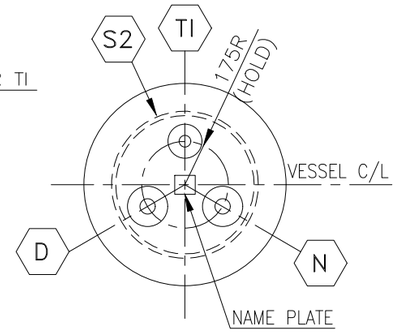
DETAIL OF NOZZLE–F



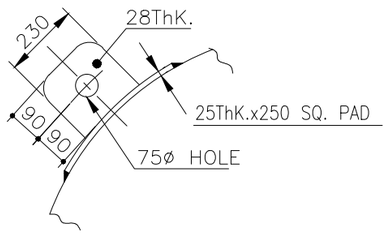
VIEW 'B'
(TYP)



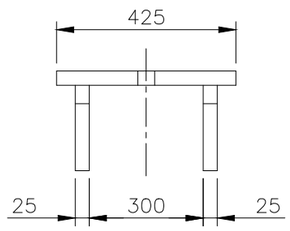
DETAIL OF STILL WELL FOR NOZZLE TI
(HOLD)



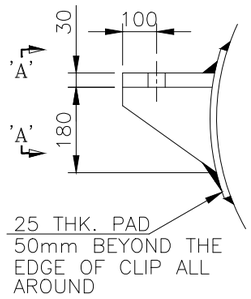
PLAN FOR
MOUNTING NOZZLE S2 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)



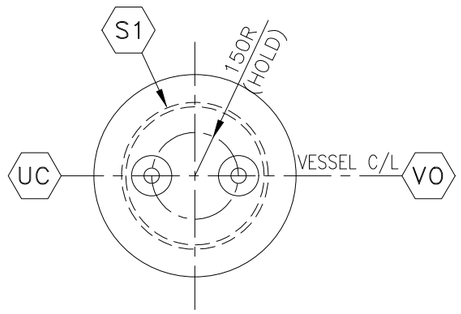
DETAIL OF LIFTING LUG (TYP)



VIEW 'A–A'



DETAIL OF BRACKET SUPPORT (TYP)



PLAN FOR
MOUNTING NOZZLE S1 (HOLD)
(FOLLOW AS PER NOZZLE ORIENTATION)

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
A	08.12.2025	ISSUED FOR BIDS/ENGG.	AS	RR/VIVEK	PB	

VESSEL DESIGN DATA
QUENCH WATER DRAIN DRUM
ITEM NO. 300-VV-HW-8010

वेसेल् डिजाइन डाटा
क्वेन्च वॉटर ड्रेन ड्रम
आइटम नम्बर 300-वीवी-एचडब्ल्यू-8010

DRAWING NO. B957-300-80-42-DS-3181
REV. A
SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK	QTY	NOM. DIA	SCH./THK.	FLANGES			PROJECTION NOTE-4	PAD W x T	SERVICE
		नामिनल	शड्यूल व	CLASS	TYPE	FACING			
मार्क	क्वान्टिटी	डांया	थिकनैस	क्लास	टाईप	फेसिग	प्रोजेक्शन	पैड	सर्विस
1	1	600	16	300	WN	RF	SEE DWG.	300xT	MANHOLE + BF + GASKET + BOLTING + DAVIT
2	1	600	16	300	WN	RF	1420	300xT	MANHOLE + BF + GASKET + BOLTING + DAVIT
5	1	200	80	300	WN	RF	1320	110xT	HANDHOLE + PLUG + B.F. (NOTE-20)
7	1	250	80	300	WN	RF	1320	135xT	VAPOR OUTLET TO 300-EE-00-2403
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
11	1	250	80	300	WN	RF	1320	135xT	FEED FROM 300-EE-00-2404
31	1	80	160	300	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	600	WN	RF	1270	-	UTILITY CONNECTION
39 A-B	2	50(H)	160	300	WN	RF	1270	-	PRESSURE DIFFERENTIAL INDICATOR
40 A-C	3	50(H)	160	300	WN	RF	1270	-	TEMPERATURE INDICATOR
50	1	100	120	300	WN	RF	SEE DWG.	60xT	CLEANOUT + B.F.
SKV 1-4	4	100	40	AS PER STANDARD					SKIRT VENT
AO	1	500 I.D.	14 THK.	AS PER STANDARD				250xT	ACCESS OPENING

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊडेशन लोडिंग डाटा (आपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	96000	9500
SEISMIC (MC)	-	-
WIND	68500	6600

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.

2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.

3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.

4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.

4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.

5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.

6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.

7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ANSI B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.

8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.

9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.

10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.

11 IN CASE INTERNAL GASKET ARE REQUIRED SAME SHALL BE FULL FACED. VENDOR TO ENSURE THAT MOC FOR INTERNAL GASKET SHALL BE SUITABLE FOR DESIGN TEMPERATURE & OPERATING FLUID.

12 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.

13 SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.

14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.

15 FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.

16 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.

17 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL SHALL BE 12mm & BOLTED SS INTERNAL SHALL BE 6mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.

18 EQUIPMENT SHALL BE SUBJECT TO STEAM OUT AT 0.5Kg/cm^{2}g @190°C.

19 OPERATING AND DESIGN CONDITIONS :

	OPERATING		DESIGN	
	TEMP.	PRESSURE	TEMP.	PRESSURE
	^{0}C	Kg/cm^{2}g	^{0}C	Kg/cm^{2}g
NORMAL OPERATION	205-215(TOP) 247-262 (BOTT.)	11.1 (TOP) 10.9 (BOTTOM)	280	14.0
REGENERATION (OXIDATION)	400-480	1.0	500	3.5
REGENERATION (HEATING-STEAM)			150	F.V.
REGENERATION (HEATING-REGEN. GAS)			250	7.5

20 BOTTOM OF NOZZLE # 5 TO BE FLUSH WITH BOTTOM OF CATALYST BED AND ANGLED DOWNWARD AT 450 FROM THE VERTICAL. PROVIDE FLUSH COVER / PLUG INSIDE NOZZLE FLUSH WITH VESSEL WALL. DETAILS OF FLUSH COVER / PLUG TO BE DEVELOPED BY EQUIPMENT VENDOR.

21 ALL INERNALS & ITS SUPPORTS EXCEPT CATALYST AND INERT BALLS SHALL BE DESIGNED & SUPPLIED BY EQUIPMENT VENDOR.

22 COMPLETE EQUIPMENT INCLUDING SUPPORT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELD & HAZ SHALL NOT EXCEED 200BHN.

23 WELD QUALITY FOR SKIRT-SHELL/HEAD JUNCTION : NDT SHALL BE CARRIED OUT AS PER TABLE 5.12 (FATIGUE STRENGTH REDUCTION FACTOR OF 1.5, QUALITY LEVEL OF 3.0) OF ASME SEC VIII DIV.2.

24 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATES	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SUPP. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
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X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
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X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
X	RETAINING PLATE	7-12-0012
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	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
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	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
X	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
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	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
	DEMISTER DATA SHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010
X	PDS FOR VESSEL	300-RB-00-2401

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
X	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
		X	PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^{2}g)	NOTE-19
DESIGN PRESSURE	(kg/cm^{2}g)	INT. NOTE-19 EXT. NOTE-19
WORKING TEMPERATURE	(°C)	NOTE-19
DESIGN TEMPERATURE	(°C)	NOTE-19
MDMT	(°C)	1.1
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1 HEAD / CONE 1
RADIOGRAPHY		SHELL FULL HEAD / CONE FULL
POST WELD HEAT TREATMENT		YES (NOTE-23)
HEAT TREATMENT		HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		-
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	21
PAINTING/CLEANING		(NOTE-13)
INSULATION THICKNESS	(mm)	175(IH) [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		18.28
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 GR.70
REINFORCEMENT PAD	-
HEADS	SA 516 GR.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN / SR	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR.B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR.WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER RING & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	(NOTE-11)
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.4
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/ SUPPORT~~	SA 516 GR.70
~~SKIRT/ SUPPORT~~ BASE	IS 2062 GR.E 250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.70 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/IS 2062 GR.E250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
VACUUM STIFFENER	-
LIFTING LUG	SA 516 GR.70
TAILING LUG	IS 2062 GR. E 250 QUALITY BR /B0

NO PIPING / LADDER / PLATFORMS / PIPE DAVIT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : CYCLIC SERVICE

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	13000	OPERATING	42000
HYDROTEST(SHOP)	34000	HYDROTEST (FIELD)	44000
NUMBER OF ITEMS :	ONE		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
A	29.08.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA	डिजाइन डाटा	DRAWING NUMBER डाईग नम्बर	REV
DCU OFFGAS OXYGEN CONVERTER	डीसीयू औफगैस आक्सीजन कनवर्टर	B957-300-80-42-DS-3202	A
ITEM NO. 300-RB-00-2401	आइटम नम्बर 300-आरबी-00-2401	SHEET 1 OF 2	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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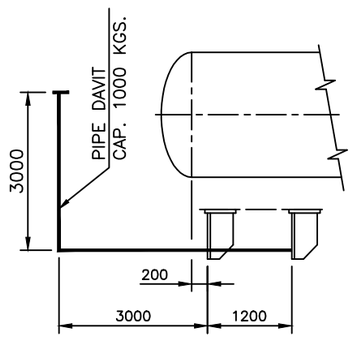
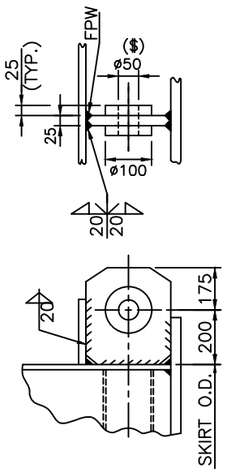


PIPE DAVIT (HOLD)

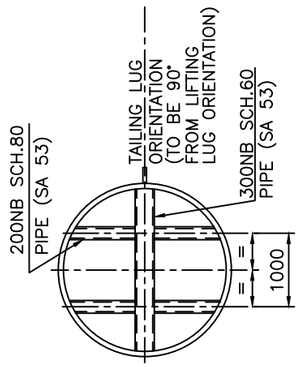
(AS PER EIL STD.)

(DAVIT TO BE LOOSE SUPPLIED ALONG WITH BRACKETS)

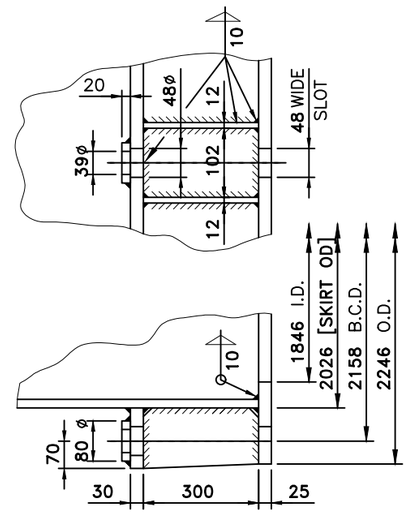


TAILING LUG DETAIL (HOLD)

($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.

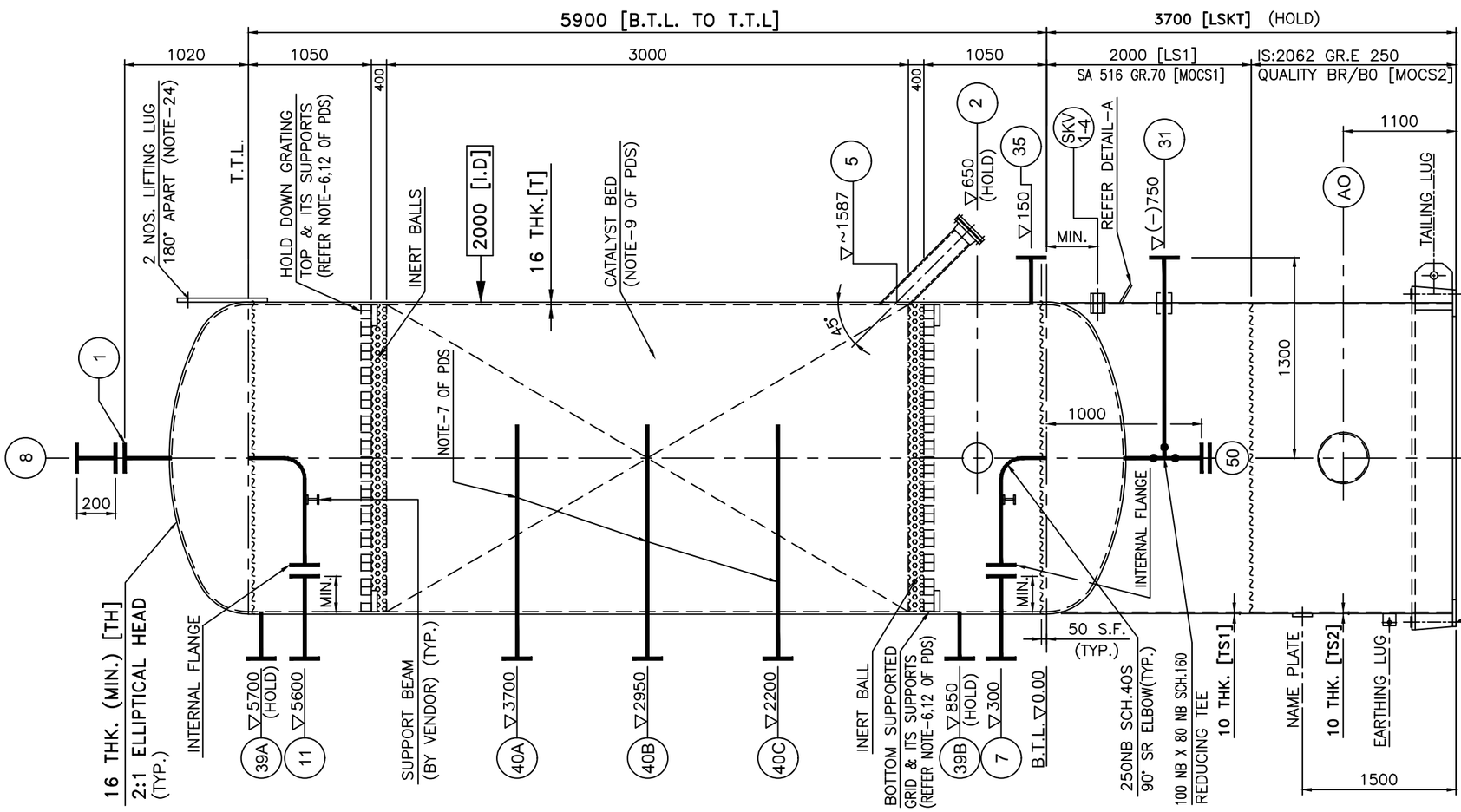


STIFFENING DETAIL OF SKIRT (HOLD)



SKIRT BASE DETAIL

(ALL OTHER DIMENSIONS AS PER EIL STD.)



ENGINEERS INDIA LIMITED, NEW DELHI	BHARAT PETROLEUM CORP. LTD. BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)					
A	29.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

VESSEL DESIGN DATA	वेसेल डिजाइन डाटा	DRAWING NO.	REV.
DCU OFFGAS OXYGEN CONVERTER	डीसीयू औफगैस आक्सीजन कनवर्टर	B957-300-80-42-DS-3202	A
ITEM NO. 300-RB-00-2401	आइटम नम्बर 300-आरबी-00-2401	SHEET 2 OF 2	

1-1641-0503 REV.0 A3-420x297

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PDS B957-300-79-41-DS-1901 REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1A	1	600	#	300	SRWN	RF	#	-	MANHOLE + BF + GASKET + BOLTING
1B	1	600	#	300	SRWN	RF	#	-	MANHOLE + BF + GASKET + BOLTING + DAVIT
5	1	200	#	300	SRWN	RF	#	-	DUMP NOZZLE + PLUG + B.F. (NOTE-23)
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
9	1	80	XXS	600	WN	RF	SEE DWG.	-	FILLING VENT
11	1	200	#	300	SRWN	RF	#	-	FEED FROM 300-LZ-00-2001
17	1	100	120	600	WN	RF	SEE DWG.	-	BOTTOM OUTLET TO 300-VV-VI-2005
18	1	200	#	300	SRWN	RF	#	-	LIQUID OUTLET TO 300-GN-00-2003A/B
31	1	80	XXS	600	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	600	LWN	RF	1320	-	UTILITY CONNECTION
40	1	50	160	300	LWN	RF	1320	-	TEMPERATURE INDICATOR
1 45A	2	50	160	300	WN	RF	1300	-	LEVEL GAUGE (MAG)
45B							SEE DWG.		
1 45C	2	50	160	300	WN	RF	SEE DWG.	-	LEVEL GAUGE (MAG)
45D							1300		
1 46A	2	50	160	300	WN	RF	1300	-	LEVEL TRANSMITTER (DP)
46B							SEE DWG.		
1 46C	2	50	160	300	WN	RF	SEE DWG.	-	LEVEL TRANSMITTER (DP)
46D							1300		
49	1	50	160	300	LWN	RF	1320	-	MOISTURE PROBE NOZZLE +MOISTURE PROBE FILLER FLANGE (NOTE-30)
50	1	100	#	600	SRWN	RF	#	-	CLEANOUT + B.F.
AO	1	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END NOMINAL THICKNESS

'H' DENOTES HOLD

- REFER SHEET-3

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉउंडेशन लोडिंग डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	271000	19000
SEISMIC (MC)	-	-
WIND	128000	9200

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ANSI B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10. ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11. IN CASE INTERNAL GASKET ARE REQUIRED SAME SHALL BE FULL FACED. VENDOR TO ENSURE THAT MOC FOR INTERNAL GASKET SHALL BE SUITABLE FOR DESIGN TEMPERATURE & OPERATING FLUID.
12. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13. SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
14. ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
15. FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
16. ALL INTERNALS & ITS SUPPORTS EXCEPT MOLECULAR SIEVE AND INERT BALLS SHALL BE DESIGNED & SUPPLIED BY EQUIPMENT VENDOR.
17. VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
18. COMPLETE EQUIPMENT INCLUDING SUPPORT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELD & HAZ SHALL NOT EXCEED 200BHN.
19. ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
20. EQUIPMENT PRESSURE DROP OF 0.2 Kg/cm^2 IS CONSIDERD FOR MECHANICAL DESIGN.
21. EQUIPMENT SHALL BE SUBJECT TO DRY OUT AT 80°C AND 7 Kg/cm2(g).
22. OPERATING AND DESIGN CONDITIONS :

	NORMAL		REGENERATION	
	TEMPERATURE °C	PRESSURE Kg/cm2g	TEMPERATURE °C	PRESSURE Kg/cm2g
OPERATING	13.6	27.2	232	4.33
DESIGN	-29/65	47.5	255 1	7.5

23. BOTTOM OF NOZZLE #5 TO BE FLUSH WITH BOTTOM OF MOLECULAR SIEVEBED AND ANGLED DOWNWARD AT 45° FROM VERTICAL .PROVIDE COVER / PLUG INSIDE NOZZLE FLUSH WITH VESSEL WALL.
24. VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.
25. UNLESS OTHERWISE SPECIFIED, MINIMUM THICKNESS OF WELDED INTERNAL SHALL BE 12MM AND BOLTED INTERNAL SHALL BE 9MM. IN CASE OF PIPE AND PIPE FITTING, SCHEDULE TO BE SELECTED ACCORDINGLY.
26. WELD QUALITY FOR SKIRT-SHELL/HEAD JUNCTION : NDT SHALL BE CARRIED OUT AS PER TABLE 5.12 (FATIGUE STRENGTH REDUCTION FACTOR OF 1.5, QUALITY LEVEL OF 3.0) OF ASME SEC VIII DIV.2.
27. SCREEN SHALL BE PROVIDED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATES	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01
X	SUPP. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
X	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
X	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
X	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
X	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
	DEMISTER DATA SHEET	
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010
X	PDS FOR VESSEL	B957-300-79-41-DS-1901

HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^{2}g)	REFER NOTE-22
DESIGN PRESSURE	(kg/cm^{2}g)	INT. NOTE-22 EXT. -
WORKING TEMPERATURE	(°C)	NOTE-22
DESIGN TEMPERATURE	(°C)	NOTE-22
MDMT	(°C)	(-)29
CORROSION ALLOWANCE	(mm)	3
TYPE OF HEAD		2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1 HEAD / CONE 1
RADIOGRAPHY		SHELL FULL HEAD / CONE FULL
POST WELD HEAT TREATMENT		YES (NOTE-20)
HEAT TREATMENT		AS PER CODE / SPEC.
OPERATING MEDIUM		-
SP. GRAVITY		0.638 (AT OPERATING TEMP.)
WIND SPECIFICATION		IS-875 (PART-3)
SEISMIC		SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)	47
PAINTING/CLEANING		(NOTE-13)
INSULATION THICKNESS (mm) (IK)		80 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		61.75
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 GR.70 *
REINFORCEMENT PAD	SA 516 GR.70 *
HEADS	SA 516 GR.70 *
SHELL FLANGES	-
NOZZLE FLANGES / LWN / SR	SA 350 GR.LF2 CL1
NOZZLE NECK UPTO 250 NB	SA 333 GR.6
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70 *
PIPE FITTINGS	SA 420 GR.WPL6
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER RING & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	(NOTE-11)
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.4
INTERNAL STUDS/BOLTS/NUTS	SS 304
~~SKIRT/ SUPPORT~~	SA 516 GR.70 */IS 2062 GR.E 250 QUALITY BR
~~SKIRT/ SUPPORT~~ BASE	IS 2062 GR.E 250 QUALITY BR
INTERNAL PARTS (WELDED)	SA 516 GR.70 * / SA 333 GR.6
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70 */IS 2062 GR.E250 QUALITY BR WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70 *
PIPE DAVIT	SA 106 GR. B
VACUUM STIFFENER	-
LIFTING LUG	SA 516 GR.70
TAILING LUG	IS 2062 GR. E 250 QUALITY BR
SUPPORTS FOR INTERNALS	SA 516 GR.70*

*** MATERIAL SHALL BE IMPACT TESTED AS PER SPEC./CODE REQUIREMENTS.**

NO PIPING / LADDER / PLATFORMS / PIPE DAVIT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : CYCLIC SERVICE

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- INDIAN BOILER REGULATIONS (IBR)
- DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	46000	OPERATING	114000
HYDROTEST(SHOP)	93000	HYDROTEST (FIELD)	132500
NUMBER OF ITEMS :	TWO		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
1	10.04.2026	REVISED & REISSUED FOR ENGG.	ROHIT	SA/VIVEK	PB
0	17.03.2026	ISSUED FOR PURCHASE	ROHIT	SA/VIVEK	PB
A	29.08.2025	ISSUED FOR BIDS / ENGG.	ROHIT	SA/VIVEK	PB

DESIGN DATA

LIQUID CONDENSATE DRYERS

ITEM NO. 300-VD-00-2002 A/B

डिजाइन डाटा

लिक्विड कन्डन्सेट ड्रायर

आइटम नम्बर 300-वीडी-00-2002 ए/बी

DRAWING NUMBER / डाईग नम्बर: **B957-300-80-42-DS-3302** REV: 1

SHEET 1 OF 3

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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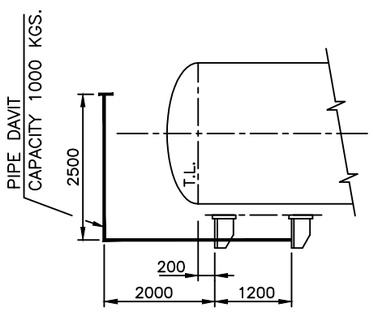
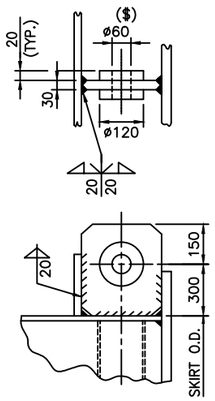
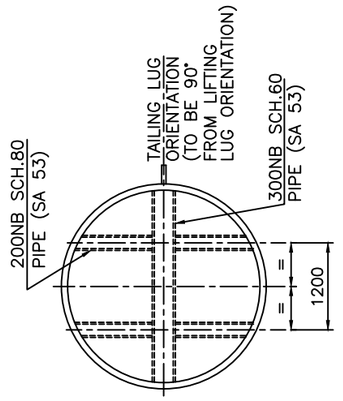


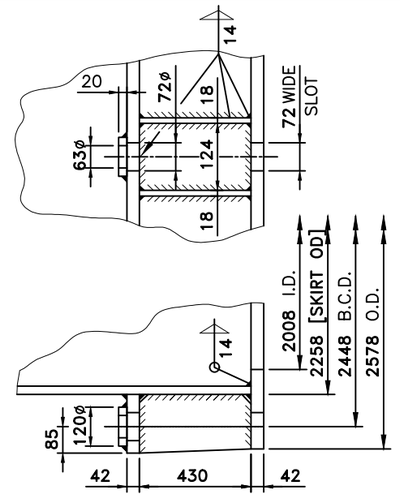
PIPE DAVIT
(ALL OTHER DIMENSIONS AS PER EIL STD.)
(DAVIT TO BE LOOSE SUPPLIED ALONG WITH BRACKETS)



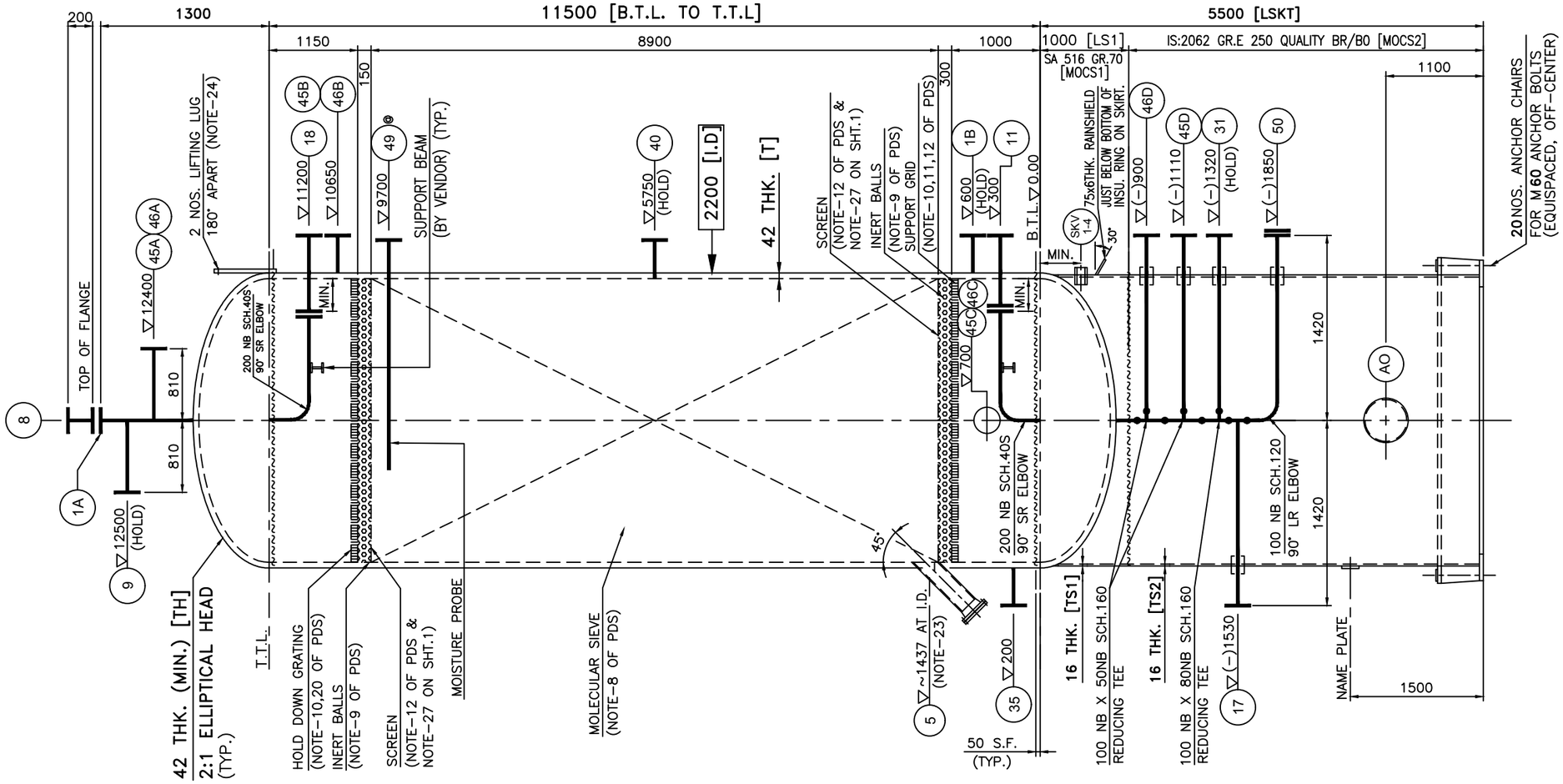
TAILING LUG DETAIL
($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA. (REFER SHEET-1)



STIFFENING DETAIL OF SKIRT



SKIRT BASE DETAIL
(ALL OTHER DIMENSIONS AS PER EIL STD.)



© WITH MOISTURE PROBE AS PER PDS (BY VENDOR)

ENGINEERS INDIA LIMITED, NEW DELHI	BHARAT PETROLEUM CORP. LTD. BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)					
1	10.04.2026	REVISED & REISSUED FOR PURCHASE	ROHIT	SA/VIVEK	PB	
0	17.03.2026	ISSUED FOR PURCHASE	ROHIT	SA/VIVEK	PB	
A	29.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	SA/VIVEK	PB	
REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED

VESSEL DESIGN DATA
LIQUID CONDENSATE DRYERS
ITEM NO. 300-VD-00-2002 A/B

वेसेल डिजाइन डाटा
लिक्विड कन्डेन्सेट ड्रायर
आइटम नम्बर 300-वीडी-00-2002ए/बी

DRAWING NO. B957-300-80-42-DS-3302 | REV. 1

SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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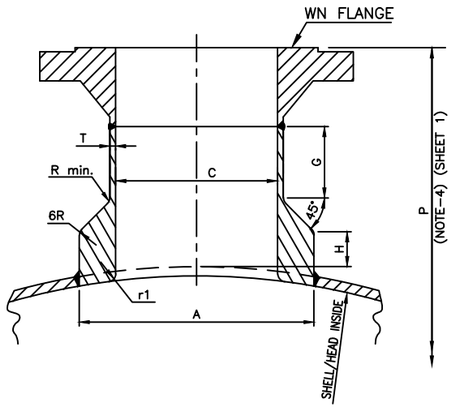

FIG.–1

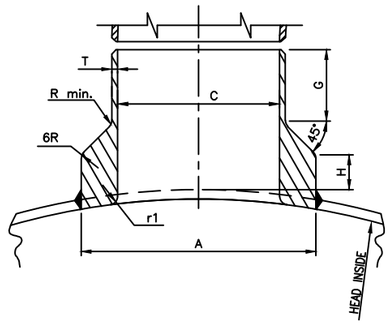

FIG.–2

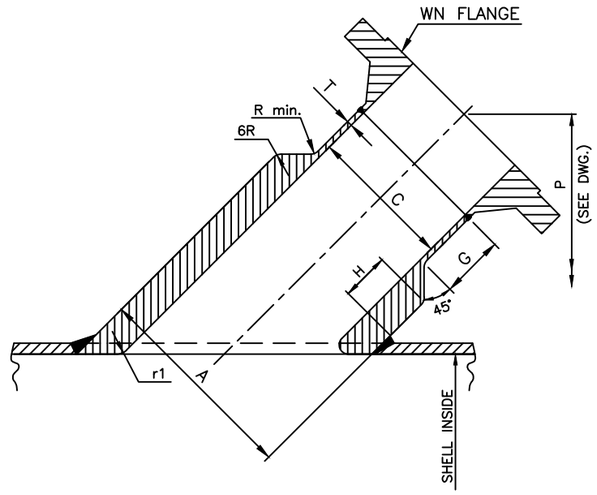

FIG.–3

NOZZLE MARK	SIZE (NB)	P (MM)	A (MM)	C (MM)	H (MM) (MIN.)	T (MM)	G (MM) (MIN.) NOTE–(1)	FIG.
1A	600	SEE DWG.	858	578	95	16	50	1
1B	600	1590	858	578	95	16	50	1
5	200	1520	363.7	193.7	90	SCH.80	50	3
11,18	200	1450	323.7	193.7	80	SCH.80	50	1
50	100	SEE DWG.	172.04	92.04	70	SCH.120	50	2

DETAIL OF SELF REINFORCED NOZZLE

NOTE:–

1. PROJECTION 'P' SHALL BE MAINTAINED. 'G' VALUE FURNISHED ARE MINIMUM AND SHALL BE SUITABLY INCREASED TO MAINTAIN PROJECTION 'P'.
2. RADIUS 'R min','r1' TO BE FINALISED IN ACCORDANCE WITH DESIGN CODE.

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
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VESSEL DESIGN DATA
LIQUID CONDENSATE DRYERS
ITEM NO. 300-VD-00-2002 A/B

वेसेल डिजाइन डाटा
लिक्विड कन्डेन्सेट ड्रायर
आइटम नम्बर 300-वीडी-00-2002ए/बी

DRAWING NO. B957-300-80-42-DS-3302 | REV. 1

SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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PDS REV-1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1A	1	600	14 THK.	150	WN	RF	1225	300 X T	MANHOLE + B.F. + LIFTING LUG (NOTE-22)
1B	1	600	14 THK.	150	WN	RF	1675	255 X T	MANHOLE + B.F. + DAVIT
5	1	200	SCH. 80	150	WN	RF	SEE DWG.	150 X T	DUMP NOZZLE
7	1	200	SCH. 80	150	WN	RF	1625	95 X T	VAPOR OUTLET TO 300-GN-00-2401A/B
8	1	50	SCH. 160	300	WN	RF	SEE DWG.	-	VENT
11	1	200	SCH. 80	150	WN	RF	1625	95 X T	FEED FROM 300-VV-VI-2403
31	1	80	SCH. 160	300	WN	RF	SEE DWG.	45 X T	DRAIN
35	1	50	SCH. 160	300	WN	RF	1575	-	UTILITY CONNECTION
0 49	1	50	SCH. 160	150	WN	RF	1575	-	MOISTURE PROBE NOZZLE
50	1	100	SCH. 120	300	WN	RF	SEE DWG.	60 X T	CLEANOUT + B.F.
0 45B	1	50	SCH. 160	300	WN	RF	SEE DWG.	-	LEVEL GAUGE (MAG)
0 45A	1	50	SCH. 160	300	WN	RF	1575	-	LEVEL GAUGE (MAG)
AO	1	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकेशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION) (HOLD)
फॉउन्डेशन लोडिंग डाटा (ऑपरटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC	176000	14000
SEISMIC	-	-
WIND	63000	6000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3. NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A). FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B). FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5. THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6. FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7. DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8. ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9. NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90° APART.
10. ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11. NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12. SURFACE PREPARATION, SHOP PRIMER & FINISH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13. FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
14. VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
15. OPERATING AND DESIGN CONDITIONS :

	OPERATING TEMP. ^0C	OPERATING PRESSURE Kg/cm^2g	DESIGN TEMP. ^0C	DESIGN PRESSURE Kg/cm^2g
NORMAL OPERATION	11.9	10	65	14.0
REGENERATION	250	4.33	305	7.5

16. EQUIPMENT SHALL BE SUBJECT TO DRY OUT AT 7.0 Kg/cm2(g) @80°C.
17. ALL THE INTERNAL & ITS SUPPORTS (EXCEPT CATALYST & INERT BALLS) SHALL BE DESIGNED AND SUPPLIED BY VENDOR.
18. ALL REMOVBALE INTERNALS SHALL BE SIZED TO PASS THROUGH NEAREST MANHOLE.
19. COMPLETE TOP & BOTTOM GRIDS & SCREENS INCLUDING NUT, BOLT, GASKET & ITS SUPPORTING ARRANGEMENT TO BE DESIGNED & SUPPLIED BY EQUIPMENT VENDOR.
20. WIRE MESH SHALL BE PROVIDED.
21. WELD QUALITY FOR SKIRT-SHELL/HEAD JUNCTION : NDT SHALL BE CARRIED OUT AS PER TABLE 5.12 (FATIGUE STRENGTH REDUCTION FACTOR OF 1.5, QUALITY LEVEL OF 3.0) OF ASME SEC VIII DIV.2.
22. VENDOR SHALL DESIGN AND SUPPLY 4 NOS.LIFTING LUG FOR COMPLETE ASSEMBLY OF NOZZLE 1A.
23. VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC. FOR SURFACE PREPARATION & PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
X	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
X	SUPPORT RING SIZES FOR PACKED TOWERS (GUIDANCE)	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORT	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
X	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

0 X	NOZZLE ORIENTATIONS	B957-300-16-43-NZ-43304
	LADDERS/PLATFORM CLEATS	NOT APPLICABLE
	PIPE SUPPORT CLEATS	NOT APPLICABLE
	TRAY SUPPORT AND BOLTING BARS	NOT APPLICABLE
	DEMISTER DATA SHEET	NOT APPLICABLE
X	SKETCH FOR MONKEY LADDER	B957-300-80-42-SK-1010
X	PDS 300-VD-00-2401 A/B	300-VD-00-2401 A/B

0 HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATION		PIPE SUPPORT CLEATS
	NOZZLE ELEVATIONS- LG		LADDER/PLATFORM CLEATS
	SUPPORT HEIGHT		TRAY SUPPORT/BOLTING BARS
	DETAILS OF INTERNALS		PIPE DAVIT
	INSULATION THICKNESS		PACKING SUPPORT
	NOZZLE RATING		NOZZLE SIZE
	MDMT		

DESIGN DATA (डिजाइन डाटा)

CODE		ASME SEC.-VIII DIV.-1 EDITION 2023
WORKING PRESSURE	(kg/cm^2g)	NOTE-15
DESIGN PRESSURE	(kg/cm^2g)	INT. NOTE-5 EXT. -
WORKING TEMPERATURE	(°C)	NOTE-15
DESIGN TEMPERATURE	(°C)	NOTE-15
MDMT	(°C)	1.1
CORROSION ALLLOWANCE	(MM)	3
TYPE OF HEAD		2:1 ELLIPSOIDAL
JOINT EFFICIENCY		SHELL 1 HEAD 1
RADIOGRAPHY		SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT		AS PER CODE
HEAT TREATMENT		AS PER CODE
OPERATING MEDIUM		-
SP. GRAVITY		-
WIND SPECIFICATION		IS 875 (PART-3)
SEISMIC		IS 1893 + SITE SPECTRA (PART-4)
CAPACITY	(M^3)	88.3
PAINTING/CLEANING		AS PER JOB SPEC.
INSULATION THICKNESS	(mm)	80 [X] HOT [ ] COLD
FIRE PROOFING CLEATS		- [X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)		18.2
INSPECTION BY		[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 GR.70
REINFORCEMENT PAD	SA 516 GR.70
HEADS	SA 516 GR.70
SHELL FLANGES/SR/LWN	-
NOZZLE FLANGES	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS304 METAL WINDING & GRAFOIL FILLER WITH CS OUTER RING & SS304 INNER RING AS PER ASME B16.20
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE@
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7/SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 304
SKIRT/ SUPPORT	SA 516 GR.70
SKIRT/ SUPPORT BASE	IS 2062 GR. E 250 QUALITY B
INTERNAL PARTS (WELDED)	SA 516 GR.70/ SA 106 GR.B / SA 105
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/ IS 2062 GR. E 250 QUALITY B WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
LIFTING LUG	SA 516 GR.70
TAILING LUG	SA 2062 GR.E250 QUALITY BR/B0
PAD FOR EXTERNAL ATTACHMENT	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
VACUUM STIFFENER	-

@ INTERNAL GASKET SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

NO PLATFORM/LADDER/PIPING SHALL BE SUPPORTED IN THIS EQUIPMENT

SPECIAL SERVICE : --

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)

DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) 0

ERECTION	30000	OPERATING	101000
HYDROTEST(SHOP)	118300	HYDROTEST (FIELD)	282800

NUMBER OF ITEMS : TWO

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL &
REFINERY EXPANSION
PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	04.04.2026	ISSUED FOR PURCHASE	ROHIT	AD/VIVEK	PB
A	22.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	AD/VIVEK	PB

DESIGN DATA

DCU OFFGAS DRYERS/TREATERS

ITEM NO. 300-VD-00-2401A/B

डिजाइन डाटा

डिसीयु ऑफगैस ड्रायर्स/ट्रीटर्स

आइटम नम्बर 300-वीडी-00-2401ए/बी

DRAWING NUMBER
डाईग नम्बर
B957-300-80-42-DS-3304 REV 0

SHEET 1 OF 2

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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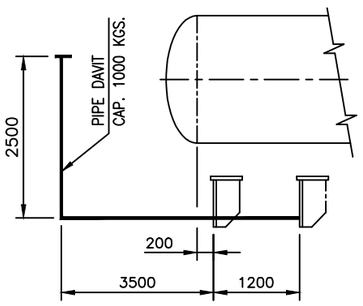
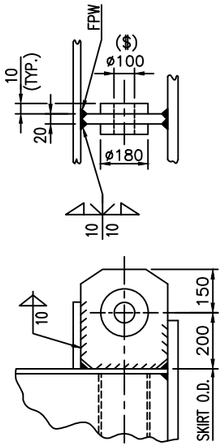
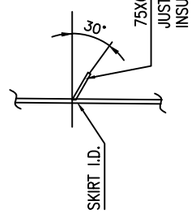


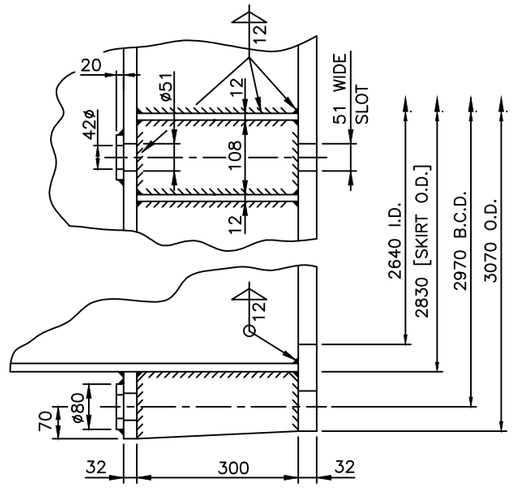
PIPE DAVIT △0
(AS PER EIL STD.)
(DAVIT TO BE LOOSE SUPPLIED ALONG WITH BRACKETS)



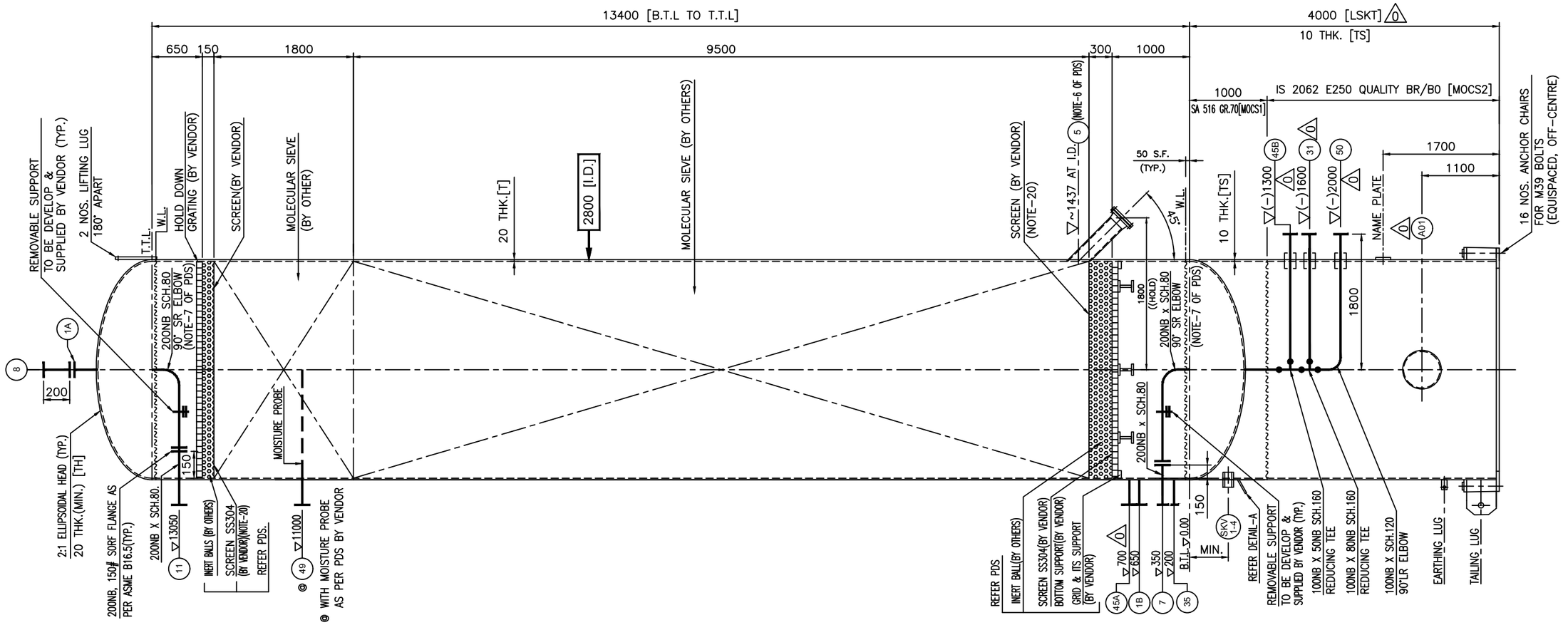
TAILING LUG DETAIL
($) VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



DETAIL - A



SKIRT BASE DETAIL △0
(ALL OTHER DIMENSIONS AS PER EIL STD.)



ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
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A	22.08.2025	ISSUED FOR BIDS/ENGG.	ROHIT	AD/VIVEK	PB	

VESSEL DESIGN DATA
DCU OFFGAS DRYERS/TREATERS
ITEM NO. 300-VD-00-2401A/B

वेसल डिजाइन डाटा
डिसीयु ऑफगैस ड्रायर्स/ट्रीटर्स
आइटम नम्बर. 300-वीडी-00-2401ए/बी

DRAWING NO. B957-300-80-42-DS-3304
REV. 0
SHEET 2 OF 2

1-1641-0503 REV.0 A3-420x297

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PDS REV.1

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK मार्क	QTY क्वान्टिटी	NOM. DIA नामिनल डांया	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS क्लास	FLANGES TYPE टाईप	FLANGES FACING फेसिंग	PROJECTION NOTE-4 प्रोजेक्शन	PAD W x T पैड	SERVICE सर्विस
1 A-B	2	600	#	600	SRWN	RF	#	-	MANHOLE + BF + GASKET + BOLTING + DAVIT
5	1	200	#	600	SRWN	RF	#	-	ADSORBENT DUMP NOZZLE + PLUG (NOTE-23)
8	1	50	160	600	WN	RF	SEE DWG.	-	VENT
9	1	50	160	600	WN	RF	SEE DWG.	-	TO DEPRESSURIZATION AND FLARE
11	1	200	#	600	SRWN	RF	#	-	FEED FROM 300-EE-00-4107
18	1	200	#	600	SRWN	RF	#	-	LIQUID OUTLET TO 300-GN-00-4101A/B
31	1	50	160	600	WN	RF	SEE DWG.	-	DRAIN
35	1	50	160	600	WN	RF	1020	-	UTILITY CONNECTION
0 45C 45D	2	50	160	600	WN	RF	1060 SEE DWG.	-	LEVEL GAUGE (MAG)
0 46C 46D	2	50	160	600	WN	RF	1040 SEE DWG.	-	LEVEL TRANSMITTER (DP)
0 46A 46B	2	50	160	600	WN	RF	SEE DWG. 1040	-	LEVEL TRANSMITTER (DP)
0 45A 45B	2	50	160	600	WN	RF	1040 SEE DWG.	-	STAND PIPE
50	1	80	#	600	SRWN	RF	SEE DWG.	-	CLEANOUT + B.F.
SKV 1-3	3	100	40	AS PER STANDARD				-	SKIRT VENT
AO	1	500 I.D.	14 THK.	AS PER STANDARD				250 X T	ACCESS OPENING

 # REFER SHEET-3.

'T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES HOLD

LICENSOR'S SPECIFICATION
लाईसेन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
फॉऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	142000	11000
SEISMIC (MC)	-	-
WIND	91000	7500

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (A) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (B) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125 AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ANSI B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES B UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90º APART.
10 ALL FABRICATED NOZZLES SHALL BE FULLY RADIOGRAPHED.
11 IN CASE INTERNAL GASKET ARE REQUIRED SAME SHALL BE FULL FACED. VENDOR TO ENSURE THAT MOC FOR INTERNAL GASKET SHALL BE SUITABLE FOR DESIGN TEMPERATURE & OPERATING FLUID.
12 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
13 SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
14 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
15 FULL RADIOGRAPHY WHEREVER SPECIFIED SHALL IMPLY 100% RADIOGRAPHY OF ALL BUTT WELDS.
16 ALL INTERNALS & ITS SUPPORTS EXCEPT CATALYST AND INERT BALLS SHALL BE DESIGNED & SUPPLIED BY EQUIPMENT VENDOR.
17 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
18 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE FULLY RADIOGRAPHED.
19 EQUIPMENT SHALL BE SUBJECT TO DRY OUT AT 7.0 Kg/cm2(g) @80^{0}C.
20 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED INTERNAL SHALL BE 12mm & BOLTED INTERNAL SHALL BE 9mm. IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
21 OPERATION AND DESIGN CONDITIONS :

	OPERATING CONDITION		DESIGN CONDITION	
	TEMP. ^{0}C	PRESSURE Kg/cm^{2}g	TEMP. ^{0}C	PRESSURE Kg/cm^{2}g
NORMAL	40	44.8	65	60.5
REGENERATION	290	4.50	305	7.5

22 EQUIPMENT INCLUDING SUPPORT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELD & HAZ SHALL NOT EXCEED 200BHN.
23 NOZZLE #5 TO BE FLUSH WITH BOTTOM OF ADSORBENT BED AND ANGLED DOWNWARD AT 45° FROM THE VERTICAL. PROVIDE FLUSH COVER INSIDE NOZZLE.
24 WELD QUALITY FOR SKIRT-SHELL/HEAD JUNCTION: NDT SHALL BE CARRIED OUT AS PER TABLE 5.12 (FATIGUE STRENGTH REDUCTION FACTOR OF 1.5, QUALITY LEVEL 3) OF ASME SEC VIII DIV-2
25 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS / TRUNNIONS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABLITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATES	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SUPP. SPEC. FOR STAINLESS STEEL PLATES	6-12-0020
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
X	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
	SUPPORT RING AND BOLTING BAR	7-12-0021
X	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
X	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

REFERENCE DRAWINGS(रेफरेन्स डाईग)

	NOZZLE ORIENTATIONS	-
	LADDERS/PLATFORM CLEATS	-
	PIPE SUPPORT CLEATS	-
	TRAY SUPPORT AND BOLTING BARS	-
	DEMISTER DATA SHEET	-
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-SK-0010
X	PDS FOR VESSEL	300-VD-00-4101A/B

⚠0 HOLD UPS (होल्ड अप्स)

X	NOZZLE ORIENTATIONS		SIZE OF NOZZLES
X	NOZZLE ELEVATIONS (AS MARKED)		PIPE SUPPORT CLEATS
	SUPPORT HEIGHT		LADDER/PLATFORM CLEATS
	DETAILS OF INTERNALS		TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE			ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE	(kg/cm^{2}g)		NOTE-21
DESIGN PRESSURE	(kg/cm^{2}g)	INT. NOTE-21	EXT. -
WORKING TEMPERATURE	(°C)		NOTE-21
DESIGN TEMPERATURE	(°C)		NOTE-21
MDMT	(°C)		1.1
CORROSION ALLOWANCE	(mm)		3
TYPE OF HEAD			2:1 ELLIPTICAL
JOINT EFFICIENCY		SHELL 1	HEAD / CONE 1
RADIOGRAPHY		SHELL FULL	HEAD / CONE FULL
POST WELD HEAT TREATMENT			YES (NOTE-22)
HEAT TREATMENT			HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM			-
SP. GRAVITY			0.479
WIND SPECIFICATION			IS-875 (PART-3)
SEISMIC			SITE SPECTRA + IS-1893 (PART-4)
CAPACITY	(M^3)		12.6
PAINTING/CLEANING			AS PER JOB SPECIFICATION (REFER NOTE-13)
INSULATION THICKNESS	(mm)		90 (IH) [X] HOT [ ] COLD
FIRE PROOFING CLEATS			[X] YES [ ] NO
HYDROSTATIC TEST	(kg/cm2g)		HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)			78.65
INSPECTION BY			[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL	SA 516 GR.70
~~REINFORCEMENT PAD / INSERT PAD~~	-
HEADS	SA 516 GR.70
SHELL FLANGES	-
NOZZLE FLANGES / LWN / SR	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR.B
NOZZLE NECK ABOVE 250 NB	SA 516 GR.70
PIPE FITTINGS	SA 234 GR.WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304 METAL WINDING AND GRAFOIL FILLER MATERIAL WITH CS OUTER RING & SS 304 INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	(NOTE-11)
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.4
INTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.8
~~SKIRT/ SUPPORT~~	SA 516 GR.70/IS 2062 GR.E 250 QUALITY BR
~~SKIRT/ SUPPORT~~ BASE	IS 2062 GR.E 250 QUALITY BR
INTERNAL PARTS (WELDED)	SA 516 GR.70 / SA 106 GR.B
INTERNAL PARTS (BOLTED)	SS 304
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.70/IS 2062 GR.E250 QUALITY BR WELDED OVER BQCS PAD
WRAPPER PLATE	-
DEMISTER/GRID	-
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.70
PIPE DAVIT	SA 106 GR. B
VACUUM STIFFENER	-
LIFTING LUG	SA 516 GR.70
TAILING LUG	IS 2062 GR. E 250 QUALITY BR
SUPPORTS FOR INTERNALS	SA 516 GR.70

NO PIPING / LADDER / PLATFORMS / PIPE DAVIT TO BE SUPPORTED ON THE EQUIPMENT

SPECIAL SERVICE : CYCLIC SERVICE

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

- **INDIAN BOILER REGULATIONS (IBR)**
- **DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)**

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन)

ERECTION	26000	OPERATING	51000
HYDROTEST(SHOP)	39000	HYDROTEST (FIELD)	57500
NUMBER OF ITEMS :	TWO		

ENGINEERS INDIA LIMITED
NEW DELHI
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV	DATE	REVISION	BY	CHECKED	APPROVED
0	30.03.2026	ISSUED FOR PURCHASE	ROHIT	SA/VIVEK	PB
A	28.08.2025	ISSUED FOR BIDS / ENGG.	NS	SA/VIVEK	PB

DESIGN DATA		डिजाइन डाटा	
PG PROPYLENE TREATERS		पीजी प्रोपलेन ट्रीटर्स	
ITEM NO.	300-VD-00-4101 A/B	आइटम नम्बर	300-वीडी-00-4101 ए/बी

DRAWING NUMBER डाईग नम्बर	REV
B957-300-80-42-DS-3305	0
SHEET 1 OF 3	

FORMAT NO.3-8042-0501 REV.0 (28.02.2024) A3-420 X 297

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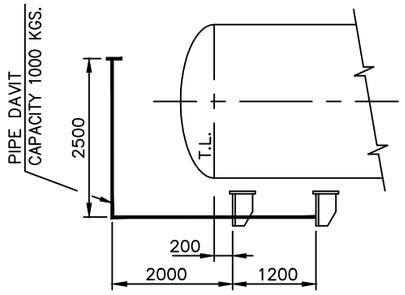
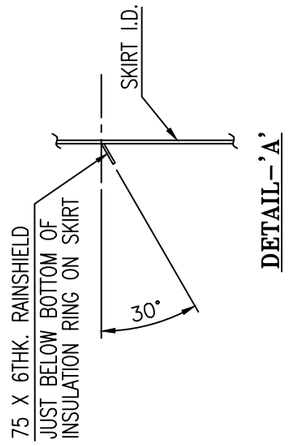
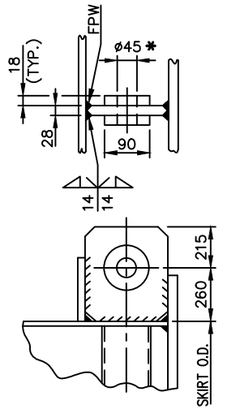


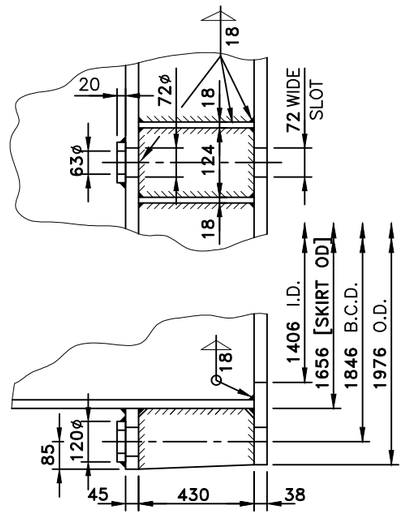
PIPE DAVIT ⚠0
(ALL OTHER DIMENSIONS AS PER EIL STD. 7-12-0023)
(DAVIT TO BE LOOSE SUPPLIED ALONG WITH BRACKETS)



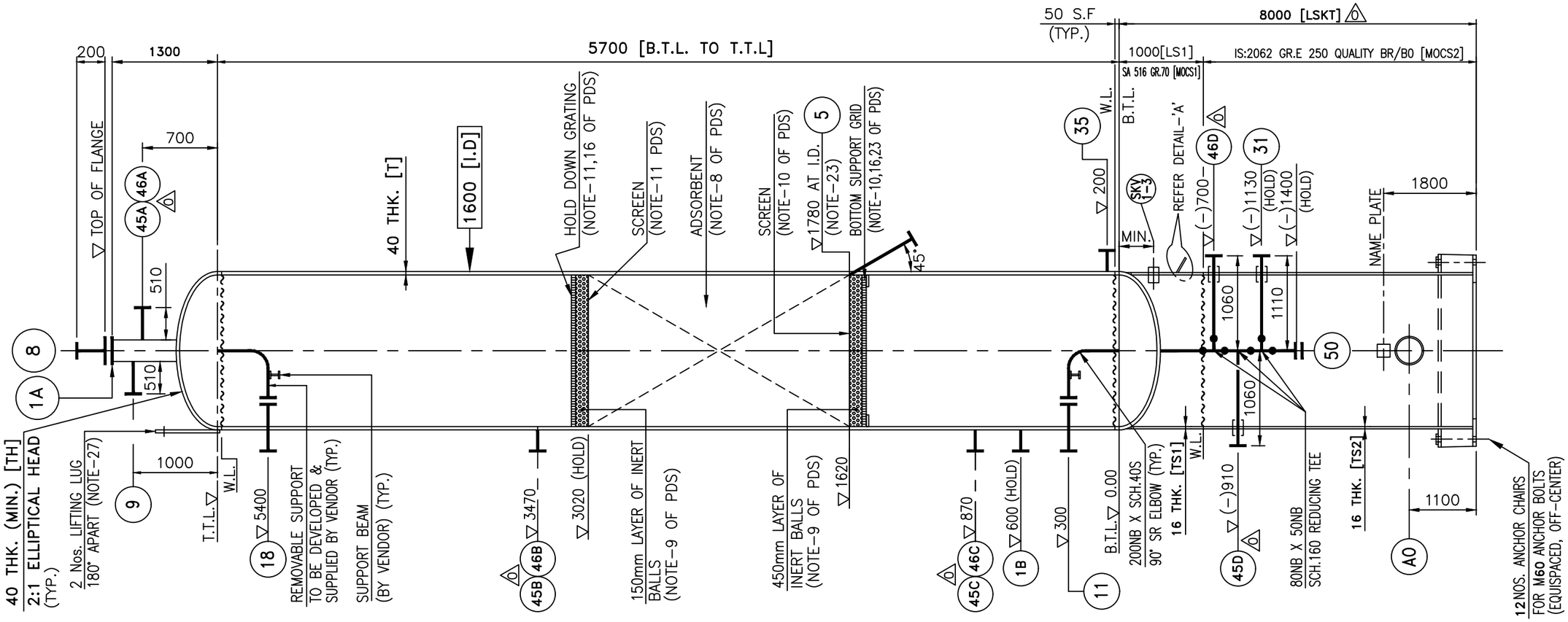
DETAIL–'A'



DETAIL OF TAILING LUG (HOLD)
*VENDOR TO ENSURE THE ADEQUACY OF HOLE DIA.



SKIRT BASE DETAIL
(ALL OTHER DIMENSIONS AS PER EIL STD.)



ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	30.03.2026	ISSUED FOR PURCHASE	ROHIT	SA/VIVEK	PB	
A	28.08.2025	ISSUED FOR BIDS/ENGG.	NS	SA/VIVEK	PB	

VESSEL DESIGN DATA
PG PROPYLENE TREATERS
ITEM NO. 300-VD-00-4101 A/B

वेसेल डिजाइन डाटा
पी जी प्रोपलीन ट्रीटर
आइटम नम्बर 300-वीडी-00-4101 ए/बी

DRAWING NO. B957-300-80-42-DS-3305
REV. 0
SHEET 2 OF 3

1-1641-0503 REV.0 A3-420x297

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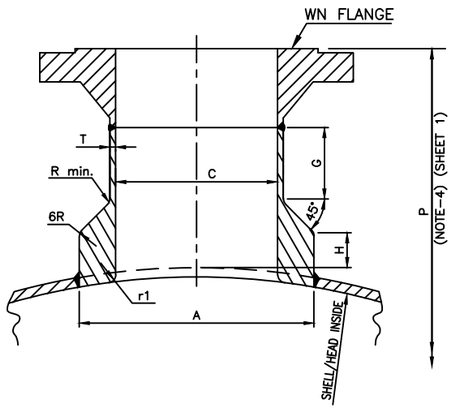

FIG.–1

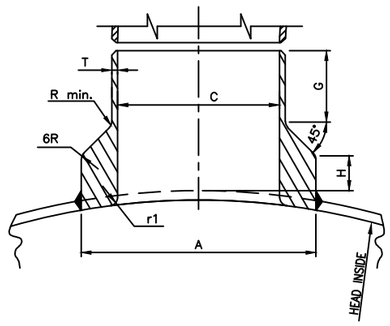

FIG.–2

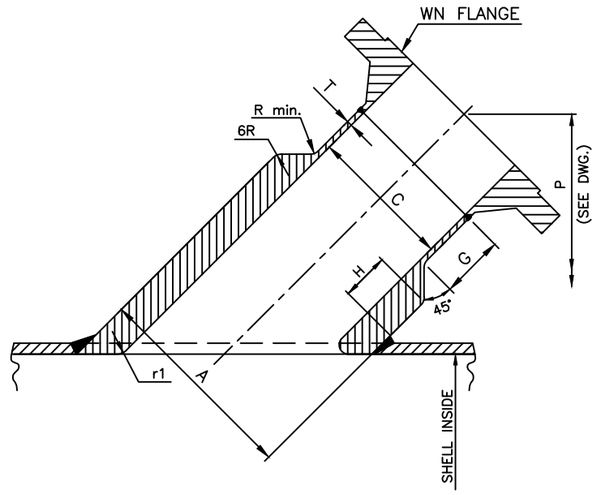

FIG.–3

NOZZLE MARK	SIZE (NB)	P (MM)	A (MM)	C (MM)	H (MM) (MIN.)	T (MM)	G (MM) (MIN.) NOTE–(1)	FIG.
1A	600	REF. SHT.–2	858	578	90	18	50	1
1B	600	1320	858	578	90	18	50	1
5	200	1250	363.7	193.7	90	SCH.80	80	3
11	200	1160	313.7	193.7	80	SCH.80	50	1
18	200	1160	313.7	193.7	80	SCH.80	50	1
50	80	REF. SHT.–2	136.64	66.64	60	SCH.160	50	2

DETAIL OF SELF REINFORCED NOZZLE

NOTE:–

1. PROJECTION 'P' SHALL BE MAINTAINED. 'G' VALUE FURNISHED ARE MINIMUM AND SHALL BE SUITABLY INCREASED TO MAINTAIN PROJECTION 'P'.
2. RADIUS 'R min','r1' TO BE FINALISED IN ACCORDANCE WITH DESIGN CODE.

ENGINEERS INDIA LIMITED
NEW DELHI

BHARAT PETROLEUM CORP. LTD.
BINA PETROCHEMICAL & REFINERY EXPANSION PROJECT (BPREP)

REV.	DATE	REVISION	BY	CHK	APPROVED	APPROVED
0	30.03.2026	ISSUED FOR PURCHASE	ROHIT	SA/VIVEK	PB	
A	28.08.2025	ISSUED FOR BIDS/ENGG.	NS	SA/VIVEK	PB	

VESSEL DESIGN DATA
PG PROPYLENE TREATERS
ITEM NO. 300-VD-00-4101 A/B

वेसेल डिजाइन डाटा
पी जी प्रोपलीन ट्रीटर
आइटम नम्बर 300-वीडी-00-4101 ए/बी

DRAWING NO. B957-300-80-42-DS-3305
REV. 0
SHEET 3 OF 3

1-1641-0503 REV.0 A3-420x297

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PDS REV.2

NOZZLES AND CONNECTIONS (नोजल व कनैक्शन)

MARK / मार्क	QTY / क्वान्टिटी	NOM. DIA नामिनल डायां	SCH./THK. शड्यूल व थिकनैस	FLANGES CLASS / क्लास	FLANGES TYPE / टाईप	FLANGES FACING / फेसिंग	PROJECTION NOTE-4 / प्रोजेक्शन	PAD W x T / पैड	SERVICE / सर्विस
1A-C	3	600	12 THK.	150	WN	RF	1470	300X T	MANHOLE + BF + GASKET + BOLTING
0 7	1	250 (H)	80	150	WN	RF	SEE DWG.	135X T	VAPOUR OUTLET TO 302-EE-00-2706
8	1	50	160	300	WN	RF	SEE DWG.	-	VENT
0 11	1	200	120	300	WN	RF	1420	@	FEED FROM 302-EE-00-2704 / 302-PA-CF-2701 A/B
12	1	80	160	300	WN	RF	1420	45X T	FEED FROM OSBL NAPHTHA TANK (START-UP)
14	1	350	12 THK	150	WN	RF	SEE DWG.	175X T	TO REBOILER 302-EE-00-2705
15	1	400	18 THK	150	WN	RF	1470	#	FROM REBOILER 302-EE-00-2705
17	1	250	80	150	WN	RF	SEE DWG.	135X T	LIQUID BOTTOM OUTLET TO 302-EE-00-2704
31	1	80	160	300	WN	RF	SEE DWG.	45X T	DRAIN
35	1	50	160	300	WN	RF	1370	-	UTILITY CONNECTION
0 36	1	50	160	300	WN	RF	1370	-	PRESSURE GAUGE
0 38 A-B	2	50	160	300	WN	RF	1370	-	PRESSURE DIFFERENTIAL/TRANSMITTER
0 40 A-B	2	50	160	300	WN	RF	1370	-	TEMPERATURE INDICATOR
0 45 A-B	2	50	160	300	WN	RF	1370	-	STAND PIPE
0 46 A-B	2	50	160	300	WN	RF	1370	-	LEVEL TXMR (DP)
0 47 A-B	2	50	160	300	WN	RF	1370	-	LEVEL TXMR (DP)
AO	1	500 ID	14 THK.	AS PER EIL STD.				250 X T	ACCESS OPENING
SKV 1-4	4	100	Sch 40	AS PER EIL STD.				-	SKIRT VENT

T' DENOTES CORRESPONDING SHELL/DISH END/SKIRT NOMINAL THICKNESS

'H' DENOTES (HOLD)

'@' INSERT PLATE OF 400x400x24 THK.

#' INSERT PLATE OF DIA.880 x24 THK.

LICENSOR'S SPECIFICATION
लाईसन्सर स्पेसिफिकशन्स

FOUNDATION LOADING DATA (OPERATING CONDITION)
0 फाऊंडशन लोडिगं डाटा (ऑपरेटिंग कनडिशन)

TYPE	MAX MOMENT AT BASE (M) (kgm)	MAX. SHEAR FORCE AT BASE (H) (kg)
SEISMIC (DB)	194000	9500
WIND	216000	12000

GENERAL NOTES (जनरल नोट्स)

UNLESS STATED OTHER WISE

1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2 ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTRE LINE.
3 NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
4 (a) FOR NOZZLES ON SHELL PROJECTIONS ARE REFERRED FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE.
4 (b) FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED FROM HEAD T.L TO FLANGE CONTACT FACE.
5 THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
6 FLANGE GASKET FACE SHALL HAVE 125AARH FINISH.
7 DIMENSIONS OF FLANGES FOR NOZZLES UPTO 600NB SHALL BE AS PER ASME B16.5 AND FOR NOZZLE ABOVE 600NB SHALL BE AS PER ASME B16.47 SERIES 'B' UNLESS SPECIFIED OTHERWISE.
8 ID OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE PIPE/SHELL.
9 NOZZLES 50NB AND BELOW SHALL BE STIFFENED WITH 2 NOS. 40 x 6 THK FLATS 90^0 APART.
10 ALL FABRICATED NOZZLES SHALL BE 100% RADIOGRAPHED.
11 NOZZLES SHOWN WITH BLIND FLANGES SHALL BE PROVIDED WITH BOLTS/NUTS AND GASKETS.
12 SURFACE PREPARATION, SHOP PRIMER & FINSH PAINT AS PER JOB SPECIFICATION FOR SURFACE PREPARATION AND PROTECTIVE COATING IS IN VENDOR'S SCOPE.
13 ALL REMOVABLE INTERNALS SHALL BE SIZED SO AS TO PASS THROUGH MANHOLE.
14 COLUMN SHALL BE SUBJECTED TO STEAM OUT CONDITIONS OF 0.5 Kg/Cm²(g) AT 190ºC.
15 COMPLETE EQUIPMENT SHALL BE POST WELD HEAT TREATED. HARDNESS OF BASE METAL, WELDS AND HAZ AFTER PWHT SHALL BE LIMITED TO VALUES SPECIFIED IN 6-15-0091.
16 VENDOR SHALL PROVIDE 2 NOS. PERMANENT SLOPING STEEL MONKEY LADDERS INSIDE THE SKIRT TO ACCESS THE BOTTOM HEAD FOR INSPECTION.
17 ALL BUTT WELD (CIRCUMFERENTIAL AND LONGITUDINAL SEAMS) IN PRESSURE PART INCLUDING NOZZLE NECK TO FLANGE, PIPE TO PIPE, PIPE TO PIPE FITTING SHALL BE 100% RADIOGRAPHED.
18 UNLESS OTHERWISE SPECIFIED MINIMUM THICKNESS OF WELDED / BOLTED SS INTERNAL SHALL BE 6 mm & IN CASE OF PIPE AND PIPE FITTINGS SCHEDULE TO BE SELECTED ACCORDINGLY.
19 AT TOP, MAXIMUM PRESSURE DROP OF 0.2 KG/SQ.CM & LIQUID LEVEL OF 11330 MM DUE TO LIQUID OVER FILL CASE (I.E. TOTAL 7.5 KG/SQ.CM (g)) IS CONSIDERED FOR MECHANICAL DESIGN.
20 VENDOR TO DESIGN AND PROVIDE TAILING LUG (AT 90° TO LIFTING LUGS) AND BRACING ARRANGEMENT CONSIDERING AN IMPACT FACTOR OF 1.5. ANY MODIFICATION (IF REQUIRED DUE TO DESIGN OF TAILING LUG) ENVISAGED IN TAILING LUG, BRACING AND BASE BLOCK SHALL BE CARRIED OUT BY VENDOR. COST OF THE SAME SHALL BE INCLUDED IN BASE PRICE. DETAILS PROVIDED IN THE MDS ARE MINIMUM TO BE FOLLOWED.

SPECIFICATIONS (स्पेसिफिकेशन्स)

X	DENOTES APPLICABILITY	
X	GENERAL SPEC. FOR PRESSURE VESSELS	6-12-0001
X	SUPP. SPEC. FOR CS VESSELS	6-12-0002
X	STD. SPEC. FOR BQCS PLATE	6-12-0011
X	STD. SPEC. FOR STRUCTRAL QUALITY PLATES	6-12-0014
X	SPEC.FOR SURFACE PREPARATION&PROTECTIVE COATING	B957-000-06-42-PLS-01

STANDARDS (स्टैण्डर्डस)

X	VESSEL TOLERANCES	7-12-0001
	SUPPORT FOR HORIZONTAL VESSEL	7-12-0002
	WOODEN PILLOWS FOR SADDLE SUPPORT	7-12-0003
X	SKIRT BASE DETAILS	7-12-0004
X	SKIRT OPENING DETAILS	7-12-0005
	ANGLE LEG SUPPORT	7-12-0006
	PIPE LEG SUPPORT	7-12-0007
	BRACKET SUPPORT FOR VERTICAL VESSEL	7-12-0008
	MANHOLE WITH HINGED COVER	7-12-0009
X	MANHOLE WITH DAVIT	7-12-0010
X	LADDER RUNGS FOR MANHOLE/DEMISTER	7-12-0011
	RETAINING PLATE	7-12-0012
X	NOZZLE REINFORCEMENT AND PROJECTION	7-12-0013
	PAD NOZZLES FOR VESSELS	7-12-0014
X	STANDARD BOLT HOLE ORIENTATION	7-12-0015
	ALLOY LINER DETAILS	7-12-0016
	SIGHT GLASSES FOR PRESSURE VESSELS	7-12-0017
X	INTERNAL FLANGES	7-12-0018
	VORTEX BREAKERS	7-12-0019
	INLET DEFLECTOR BAFFLE	7-12-0020
X	SUPPORT RING AND BOLTING BAR	7-12-0021
	SUPPORT RING SIZES FOR PACKED TOWERS	7-12-0022
X	PIPE DAVIT	7-12-0023
X	LIFTING LUG TOP HEAD TYPE	7-12-0024
X	FIRE PROOFING AND INSULATION SUPPORTS	7-12-0025
X	EARTHING LUG	7-12-0026
X	NAME PLATE	7-12-0027
X	MANUFACTURER NAME PLATE	7-12-0028
X	BRACKET FOR NAME PLATE	7-12-0029
	NAME PLATE FOR SMALL EQUIPMENT	7-12-0030
	DETAILS OF FORGED NOZZLES	7-12-0031
X	SUPPORTS FOR INTERNAL FEED PIPE	7-12-0032
	HOT INSULATION SUPPORT FOR HORIZONTAL VESSEL	7-12-0033
	PIPE DAVIT SUPPORT FOR COLD INS. VESSELS	7-12-0034
	TYP. DETAILS OF WIRE MESH DEMISTER SUPPORTS	7-12-0036
	S.R NOZZLE NECK	7-12-0037
X	ALLOWABLE NOZZLE LOADS	7-12-0038

0 REFERENCE DRAWINGS(रेफरेन्स डाईग)

X	NOZZLE ORIENTATIONS	B957-302-16-43-NZ-43003
	LADDERS/PLATFORM CLEATS	
	PIPE SUPPORT CLEATS	
	TRAY SUPPORT AND BOLTING BARS	
	DEMISTER DATA SHEET	
	PROCESS DATASHEEET	-
X	SKETCH FOR MONKEY LADDER	B957-000-80-42-DS-0010

0 HOLD UPS (होल्ड अप्स)

	NOZZLE ORIENTATIONS	X	SIZE OF NOZZLES
X	NOZZLE ELEVATIONS	X	PIPE SUPPORT CLEATS
	SUPPORT HEIGHT	X	LADDER/PLATFORM CLEATS
X	DETAILS OF INTERNALS	X	TRAY SUPPORT/BOLTING BARS
			PIPE DAVIT
			PACKING SUPPORT

DESIGN DATA (डिजाइन डाटा)

CODE	ASME SECTION VIII DIV-1 EDITION 2023
WORKING PRESSURE (kg/cm²g)	TOP:4.44 BOTTOM:4.64
DESIGN PRESSURE (NOTE-19)(kg/cm²g)	INT. 6.5 (NOTE-19) EXT. --
WORKING TEMPERATURE (°C)	TOP:140 BOTTOM:164
DESIGN TEMPERATURE (°C)	180
MDMT (°C)	1.1
CORROSION ALLOWANCE (mm)	3
TYPE OF HEAD	2:1 ELLIPTICAL
JOINT EFFICIENCY	SHELL 1 HEAD 1
RADIOGRAPHY	SHELL FULL HEAD FULL
POST WELD HEAT TREATMENT	YES (NOTE-15)
HEAT TREATMENT	HEAD: AS PER CODE / SPEC.
OPERATING MEDIUM	HYDROCARBON
SP. GRAVITY	TOP:0.714 BOTTOM:0.706
WIND SPECIFICATION	IS-875 (PART-3)
SEISMIC	SITE SPECTRA + IS-1893 (PART-4)
CAPACITY (M^3)	89.5
PAINTING/CLEANING	AS PER JOB SPECIFICATION (REFER NOTE-12)
INSULATION THICKNESS (mm) (IH)	SEE DWG. [X] HOT [ ] COLD
FIRE PROOFING CLEATS	[X] YES [ ] NO
HYDROSTATIC TEST (kg/cm2g)	HORIZONTAL / VERTICAL (AT TOP)
PRESSURE (NEW & COLD)	8.45
INSPECTION BY	[X] EIL [ ] CIB [ ] TPIA

MATERIAL OF CONSTRUCTION (मैटिरियल ऑफ कन्सट्रक्शन)

(AS PER ASME / IS ~~OR EQUIVALENT~~)

SHELL ~~/ BOOT~~	SA 516 Gr.60
REINFORCEMENT PAD / INSERT PAD	SA 516 Gr.60
HEADS	SA 516 Gr.60
SHELL FLANGES	-
NOZZLE FLANGES ~~/ LWN~~	SA 105
NOZZLE NECK UPTO 250 NB	SA 106 GR. B
NOZZLE NECK ABOVE 250 NB	SA 516 Gr.60
PIPE FITTINGS	SA 234 GR. WPB
GASKET EXTERNAL	SPIRAL WOUND GASKET WITH SS 304
	METAL WINDING AND GRAFOIL FILLER
	MATERIAL WITH CS OUTER & SS 304
	INNER RING AS PER ASME B 16.20.
GASKET INTERNAL	COMPRESSED FIBRE ASBESTOS FREE #
EXTERNAL STUDS/BOLTS/NUTS	SA 193 GR.B7 / SA 194 GR.2H
INTERNAL STUDS/BOLTS/NUTS	SS 410
SKIRT/~~-SUPPORT~~	SA 516 GR.60 / IS 2062 GR.E250 QUALITY BR/B0
SKIRT/~~-SUPPORT~~ BASE	IS 2062 GR.E250 QUALITY BR/B0
INTERNAL PARTS (WELDED)	SA 516 GR.60/ SA 106 GR.B
INTERNAL PARTS (BOLTED)	SS 410
CLIPS & ATTACHMENTS (EXTERNAL)	SA 516 GR.60/ IS 2062 GR. E 250 QUALITY BR/B0 WELDED OVER BQCS PAD
WRAPPER PLATE	-
PIPE DAVIT	SA 106 GR. B
DEMISTER/GRID	-
LIFTING LUG	SA 516 GR.60
PAD FOR EXTERNAL ATTACHMENTS	SA 516 GR.60
TAILING LUG	IS 2062 GR. E 250 QUALITY BR/B0

INTERNAL GASKETS SHALL BE SUITABLE FOR DESIGN TEMP. AND OPERATING LIQUID.

SPECIAL SERVICE : 0 **BENZENE/AROMATIC**

STATUTORY REGULATIONS (स्टैचुअरी रेगुलेशन्स)

INDIAN BOILER REGULATIONS (IBR)
DEPARTMENT OF EXPLOSIVES, NAGPUR (CCOE)

APPROXIMATE WEIGHT (kgs) (PER ITEM) (एपरौक्सिमेंट वजन) (HOLD)
0

ERECTION	30500	OPERATING	120000
HYDROTEST(SHOP)	120000	HYDROTEST (FIELD)	191000
NUMBER OF ITEMS :	ONE		

0	0	0	0	0	0	0	0	0