

LINE DIA.	MINIMUM CLEARANCE FOR REMOVAL
4"	630
6"	630
8"	670
10"	670
12"	670
14"	670
16"	670
18"	670
20" AND LARGER	750
VESSELS	750

NOTES:-

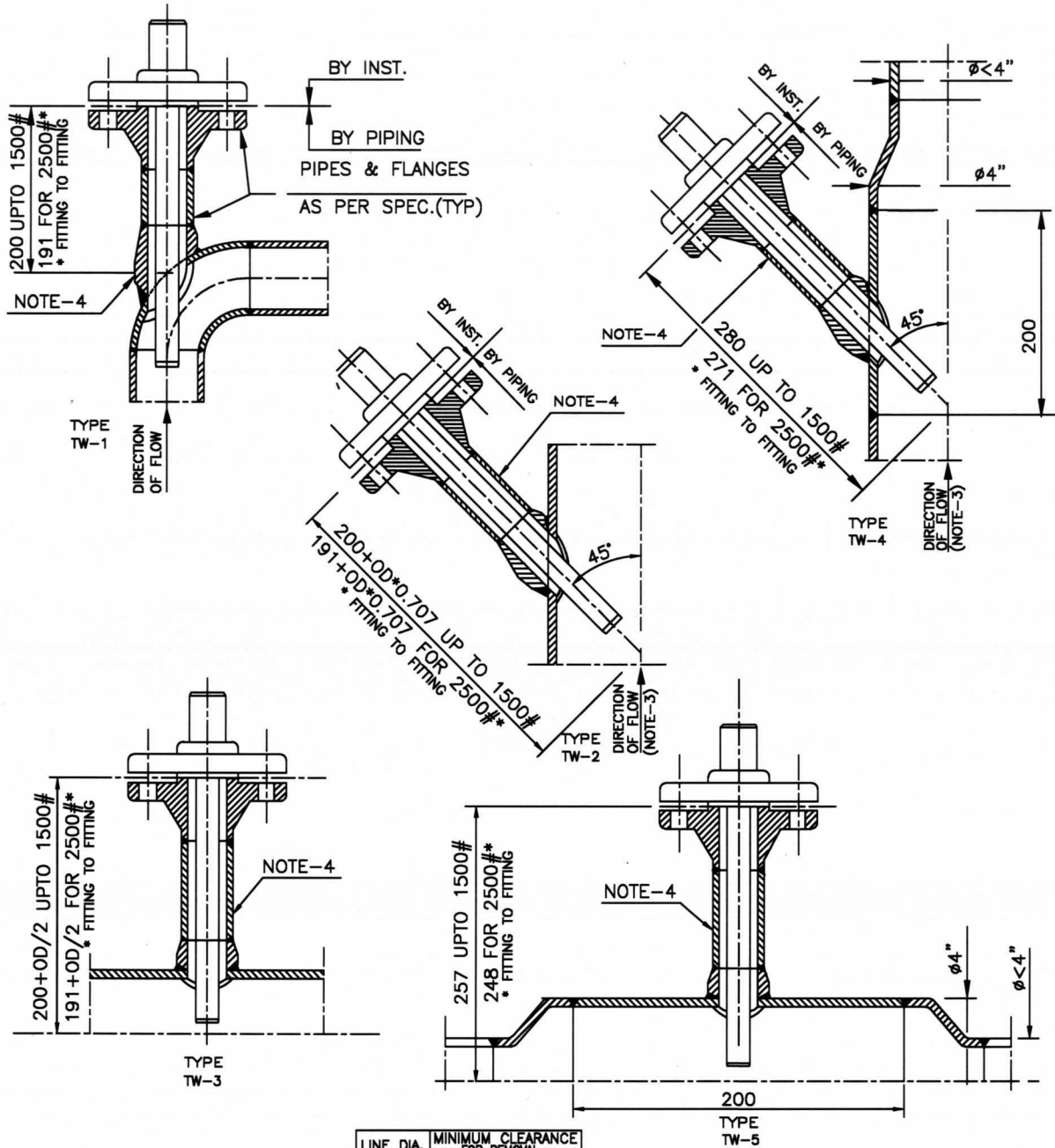
- 1 BOLTS, NUTS AND GASKETS BY PIPING.
- 2 BRANCH FITTING SHALL BE AS PER PMS
- 3 IF BRANCH FITTING IS A COUPLING, IT SHALL BE OF SPECIAL LENGTH.
- 4 THE ARRANGEMENT CAN BE USED FOR DOWNWARD FLOW ALSO, IF CONFIRMED BY INSTRUMENTATION.
- 5 SIZE AND DETAIL OF TAPPING SHALL BE AS PER APPLICABLE SPECIFICATION FOR CLADDED/LINED/JACKETED PIPING.

OD : OUTSIDE DIA IN MM

- TYPE TW-6 : ELBOW MIN. 4" DIA. OR LARGER
- TYPE TW-7 : VERTICAL LINE 4" DIA. OR LARGER
- TYPE TW-8 : HORIZONTAL LINE 4" DIA. OR LARGER
- TYPE TW-9 : VERTICAL LINE DIA. LESS THAN 4"
- TYPE TW-10: HORIZONTAL LINE DIA. LESS THAN 4"

6	20.06.22	REVISED & ISSUED AS STANDARD	PK	SH	GB	SM
5	24.01.20	REVISED & ISSUED AS STANDARD	SG	SH	MI	RKT

Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau
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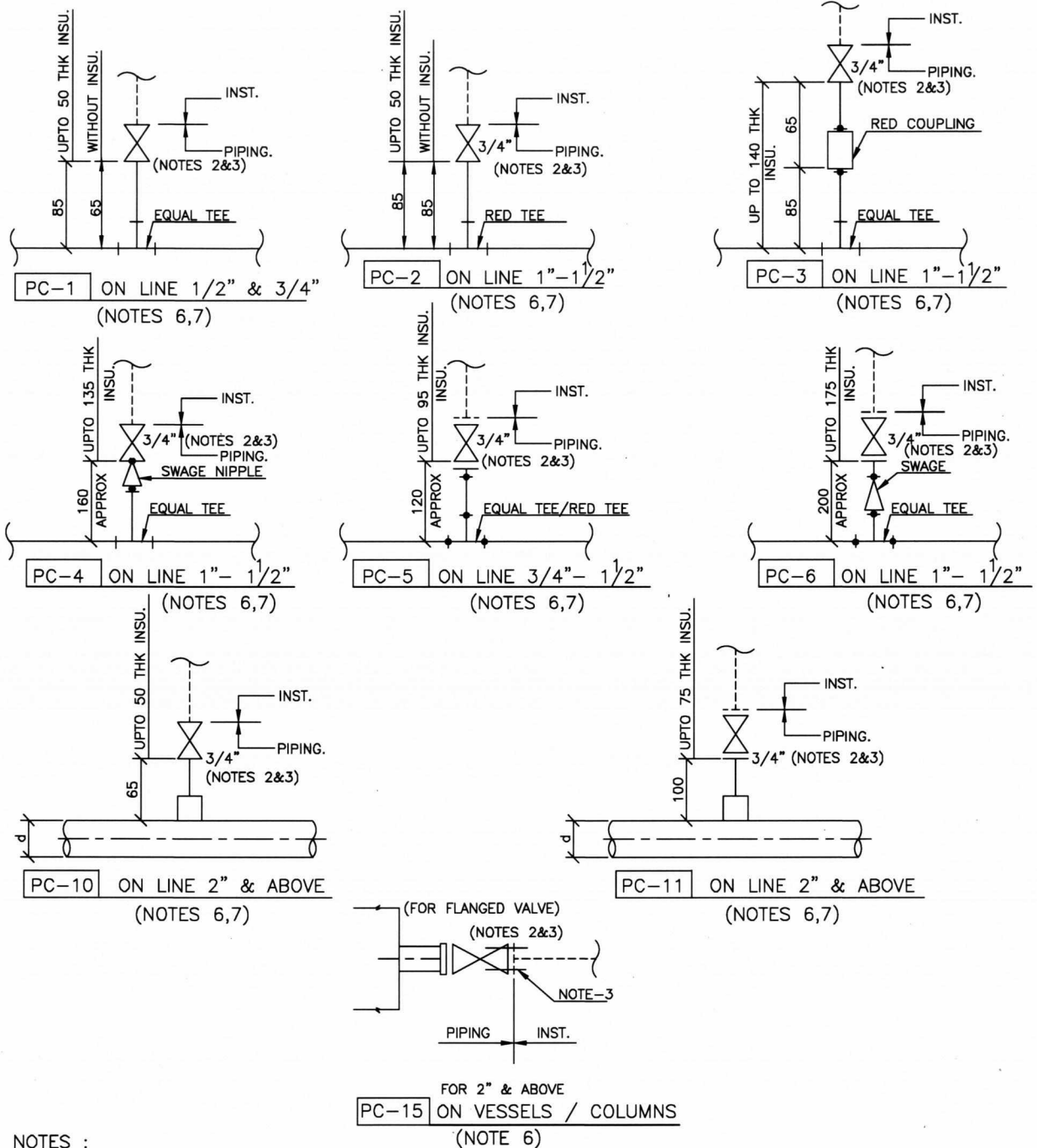
NOTES:-

- 1 BOLTS, NUTS AND GASKETS BY PIPING.
- 2 BRANCH FITTING SHALL BE AS PER PMS.
- 3 THE ARRANGEMENT CAN BE USED FOR DOWNWARD FLOW ALSO, IF CONFIRMED BY INSTRUMENTATION.
- 4 SIZE AND DETAIL OF TAPPING SHALL BE AS PER APPLICABLE SPECIFICATION FOR CLADDED/LINED/JACKETED PIPING.

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20" & ABV VESSELS	750

- OD : OUTSIDE DIA IN MM
- TYPE TW-1 : ELBOW MIN. 4" Ø OR LARGER
- TYPE TW-2 : VERTICAL LINE 4" Ø OR LARGER
- TYPE TW-3 : HORIZONTAL LINE 4" Ø OR LARGER
- TYPE TW-4 : VERTICAL LINE DIA. LESS THAN 4"
- TYPE TW-5 : HORIZONTAL LINE DIA. LESS THAN 4"

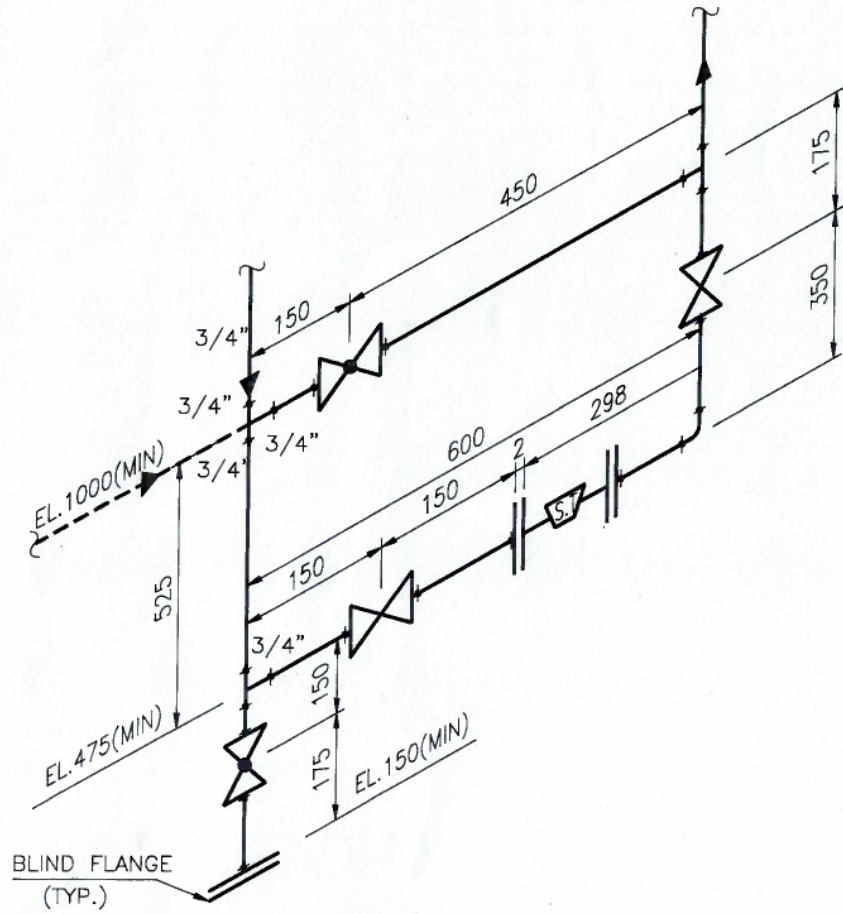
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6	20.06.22	REVISED & ISSUED AS STANDARD	PK	SH	GB	SM
5	24.01.20	REVISED & ISSUED AS STANDARD	SG	SH	MI	RKT



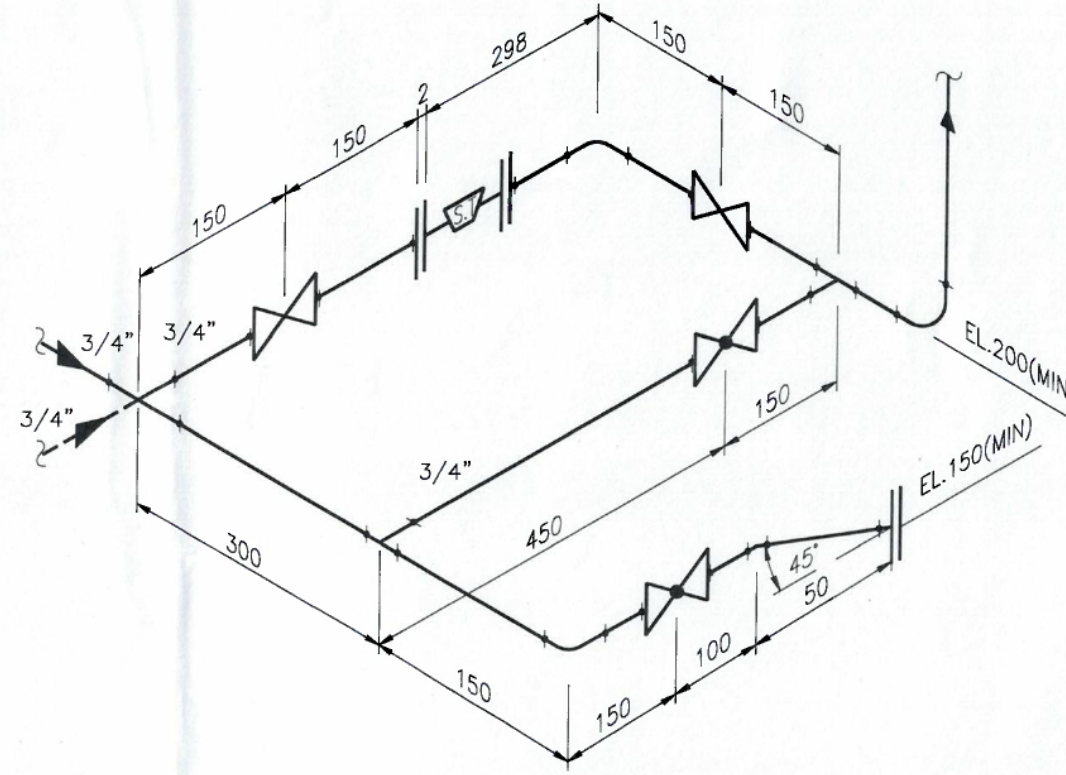
NOTES :

1. THE INDICATED DIMENSIONS ARE MINIMUM WHICH ALSO COVER INSULATION TO THE EXTENT SHOWN ABOVE. IN CASE OF HIGHER THICKNESS OF INSULATION THAN INDICATED THE DIFFERENCE SHALL BE ADDED IN THE DIMENSIONS SHOWN ABOVE.
2. PRESSURE TAPPING SHALL BE PROVIDED WITH VALVE SIMILAR TO LINE ISOLATION VALVE (GATE, BALL OR PLUG VALVE ETC., WITH FLGD, S.W. OR SCR'D ENDS) UNLESS OTHERWISE SPECIFIED IN PMS, TEE(EQUAL OR REDUCING)/HALF COUPLING(S.W. OR SCR'D)/STUB IN/SOCKOLET/WELDOLET SHALL BE AS PER PIPING MATERIAL SPECS. DOUBLE ISOLATION VALVE SHALL BE USED FOR CLASS 900 & ABOVE.
3. IN CASE OF FLGD VALVES BOLTING & GASKET ON BOTH SIDES OF VALVE SHALL BE IN PIPING SCOPE
4. IN CASE OF TAPPING PROVIDED OTHER THAN INDICATED IN THIS STD FOR LAYOUT REASONS DETAILED DIMENSIONS WILL BE CALLED OUT.
5. IN CASE OF PRE-FABRICATED HOOKUP, ISOLATION VALVE WITH NIPPLE SHALL BE SUPPLIED BY PREFABRICATION VENDOR HOWEVER, 3/4" WELDOLET/SOCKOLET/HALF COUPLING/EQUAL TEE/RED. TEE ETC. AS PER PMS SHALL BE IN PIPING SCOPE.
6. VALVE STEM ORIENTATION TO BE AT OR ABOVE 45° ABOVE THE HORIZONTAL POSITION IN LIQUID CRYOGENIC SERVICE.
7. FOR LIQUID CRYOGENIC SERVICE ADDITIONAL 45°/90° ELBOW TO BE INTRODUCED TO ENSURE REQUIREMENT GIVEN IN NOTE-6 IS MET.

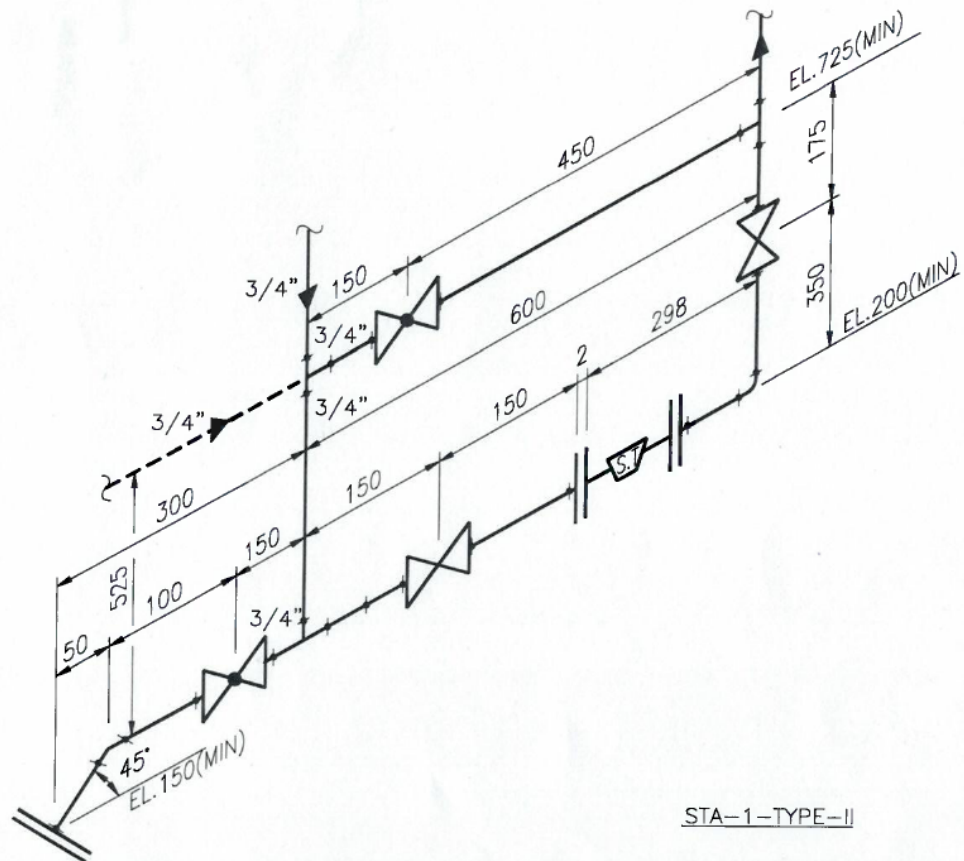
6	20.06.22	REVISED & ISSUED AS STANDARD	PK	SH	GB	SM
5	24.01.20	REAFFIRMED & ISSUED AS STANDARD	SG	SH	MI	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
						Approved by



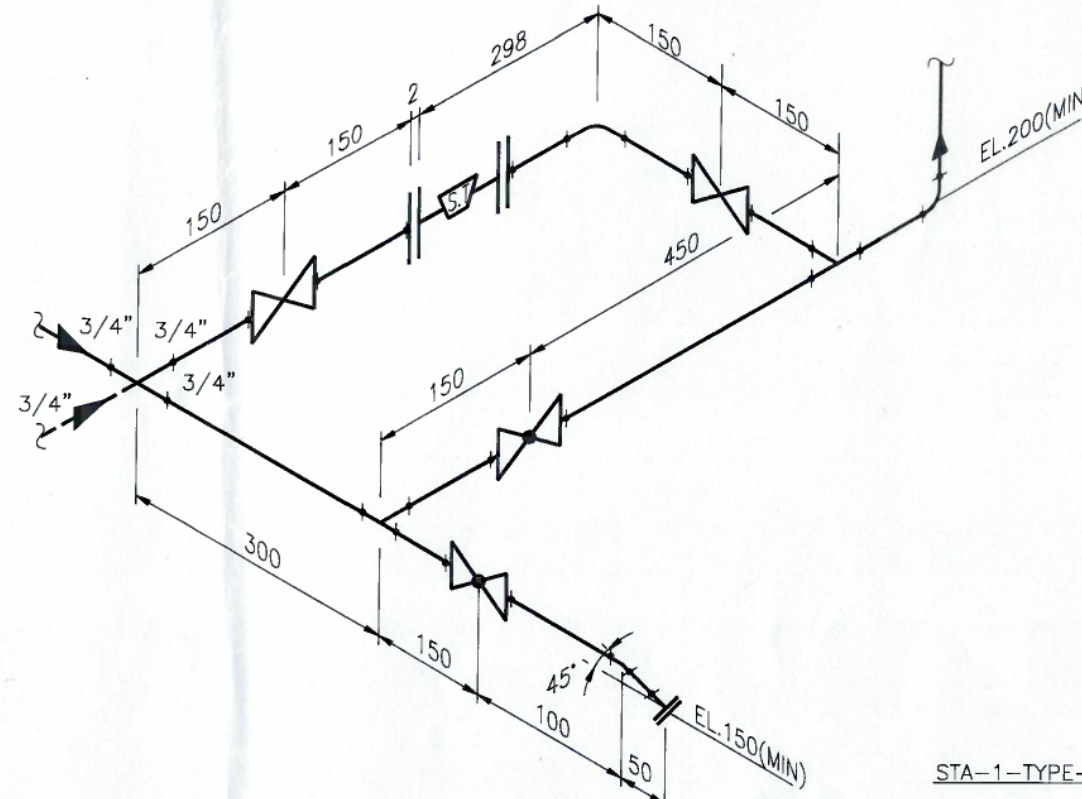
STA-1-TYPE-I



STA-1-TYPE-III



STA-1-TYPE-II



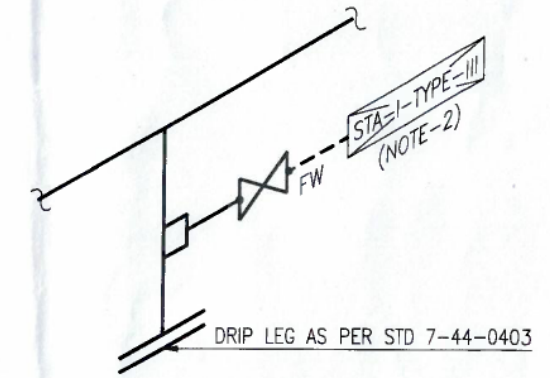
STA-1-TYPE-IV

NOTE-

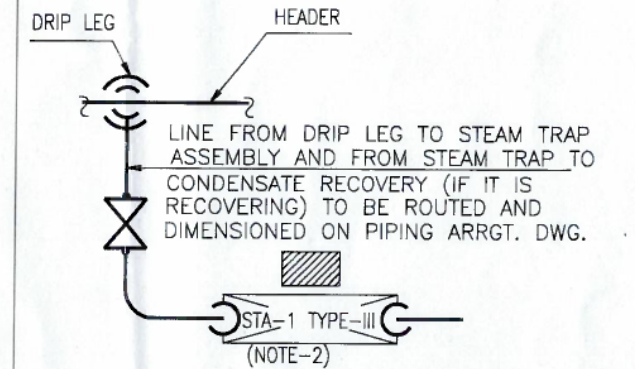
- 1 INPUT CODE-STA1/211.(APPLICABLE UPTO CLASS 600 ONLY)
- 2 COMPACT STEAM TRAP ASSEMBLY WITH BREAK UP FLANGES SHALL BE USED FOR UPTO CLASS 600 RATING UNLESS OTHERWISE AGREED.
3. DOUBLE VALVES SHALL BE PROVIDED IN PLACE OF SINGLE VALVE SHOWN IN FIGURES FOR CLASS 900 AND ABOVE.

SYMBOL OF REPRESENTATION

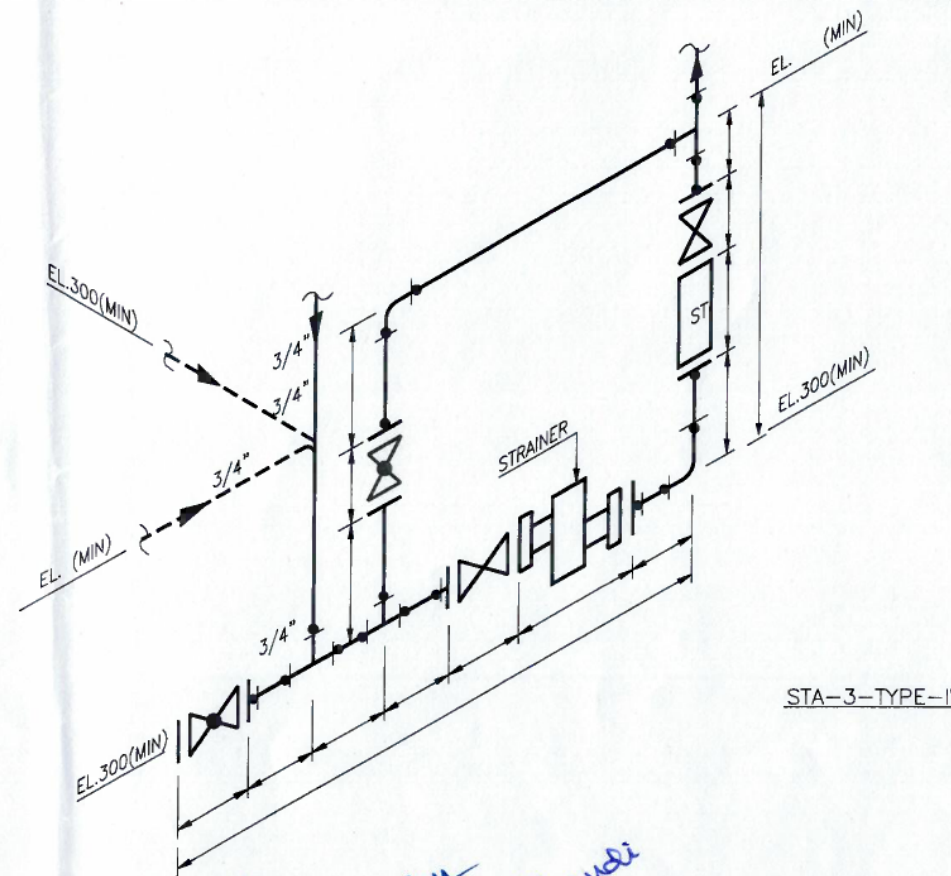
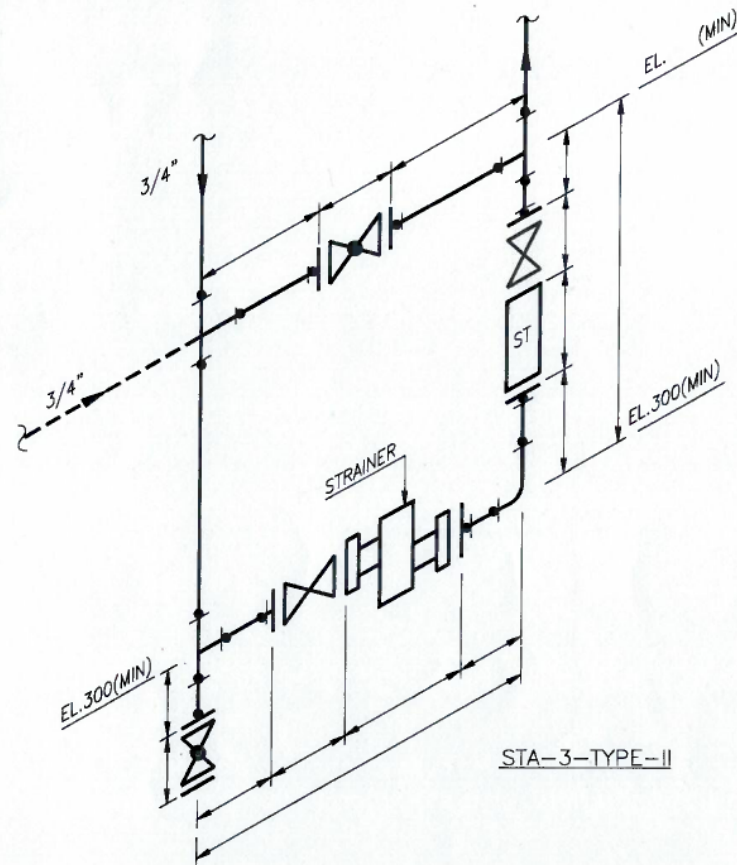
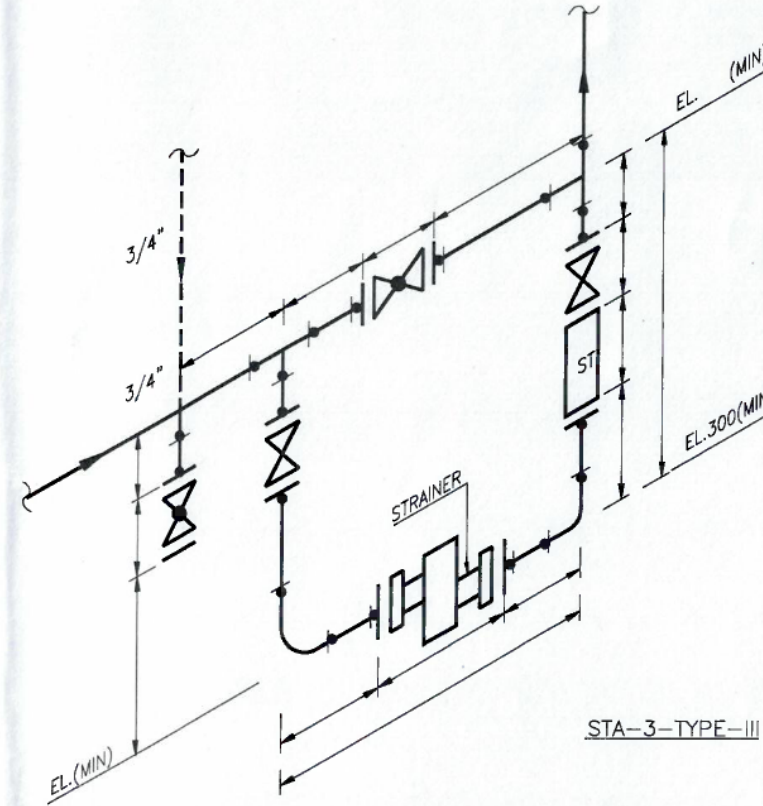
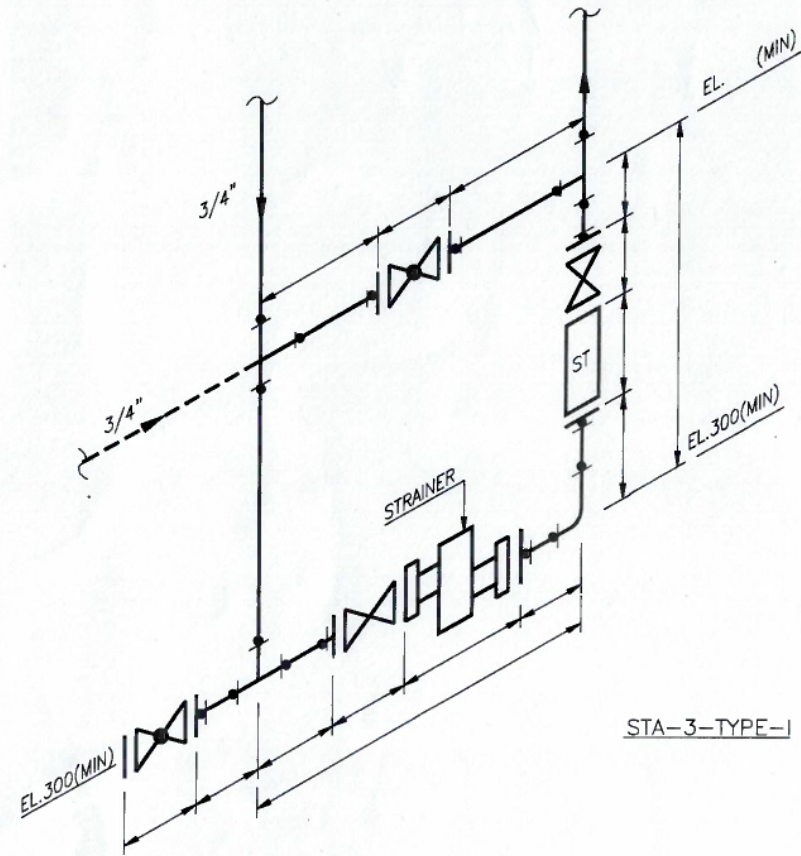
(a) IN ISOMETRIC



(b) IN ARRANGEMENT DWG.



7	12.09.2025	REVISED AND ISSUED AS STANDARD	glsrsg	mpk	sh	MN
6	30.12.2020	REVISED AND ISSUED AS STANDARD	SG	SH	GB	SM
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
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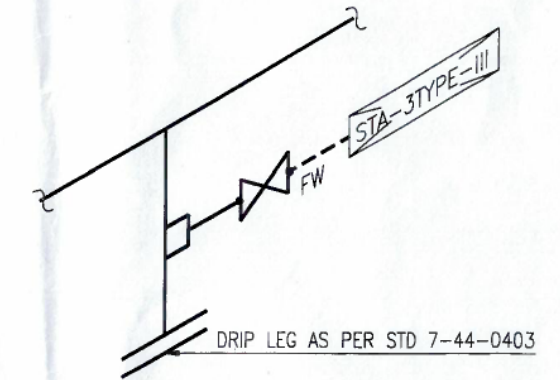


NOTES:-

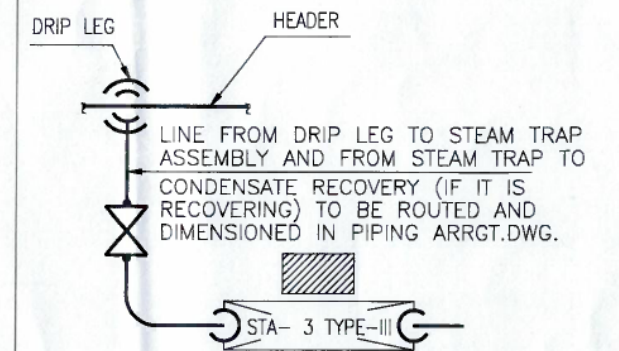
1. INPUT CODE STA 3/213(APPLICABLE UPTO CLASS 600 ONLY)
2. TRAP TYPE IS INVERTED BUCKET. BOTTOM INLET/TOP OUTLET WITH SEPARATE STRAINER AS PER JOB SPECIFICATION
3. DOUBLE VALVES SHALL BE PROVIDED IN PLACE OF SINGLE VALVE SHOWN IN FIGURES FOR CLASS 900 AND ABOVE.

SYMBOL OF REPRESENTATION

(a) IN ISOMETRIC

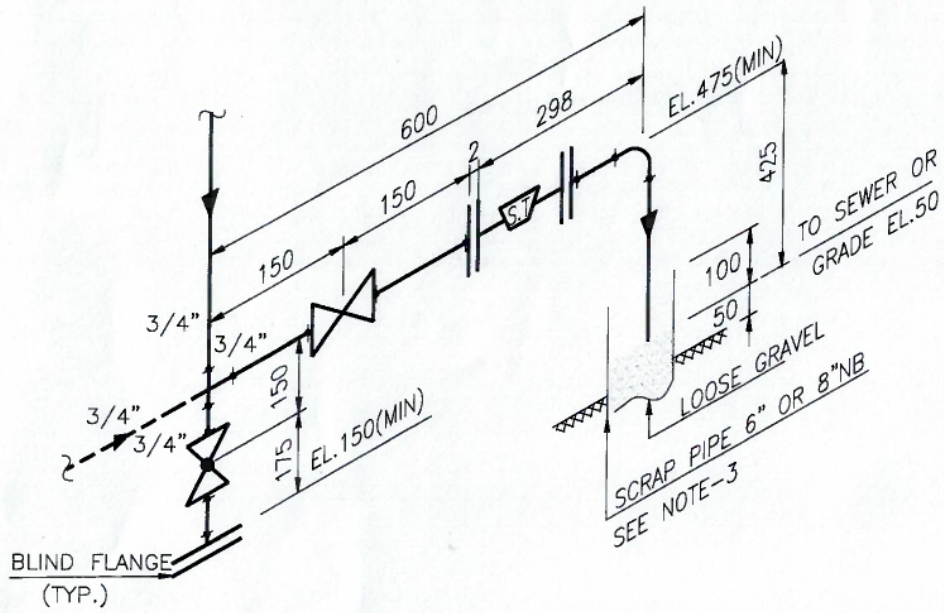


(b) IN ARRANGEMENT DRG.

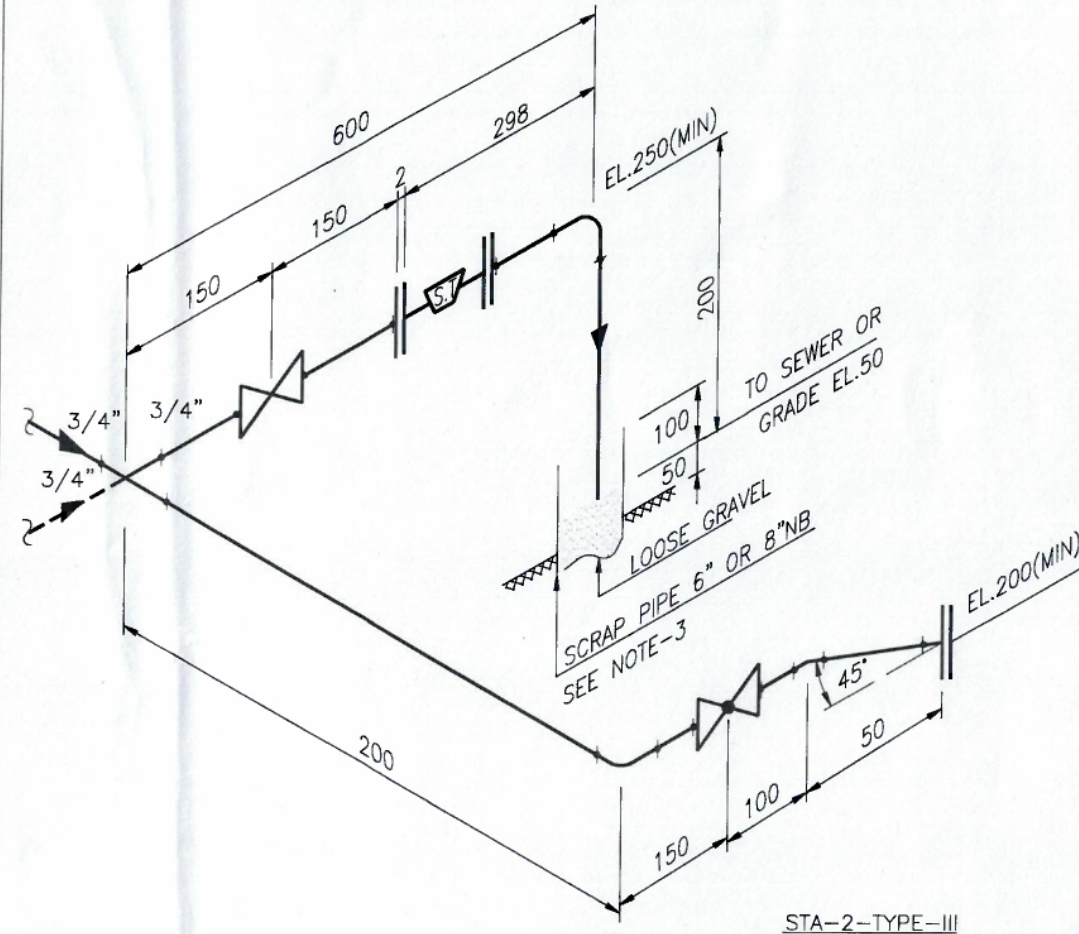


7	12.09.2025	REVISED AND ISSUED AS STANDARD
6	30.12.2020	REVISED AND ISSUED AS STANDARD
Rev. No.	Date	Purpose

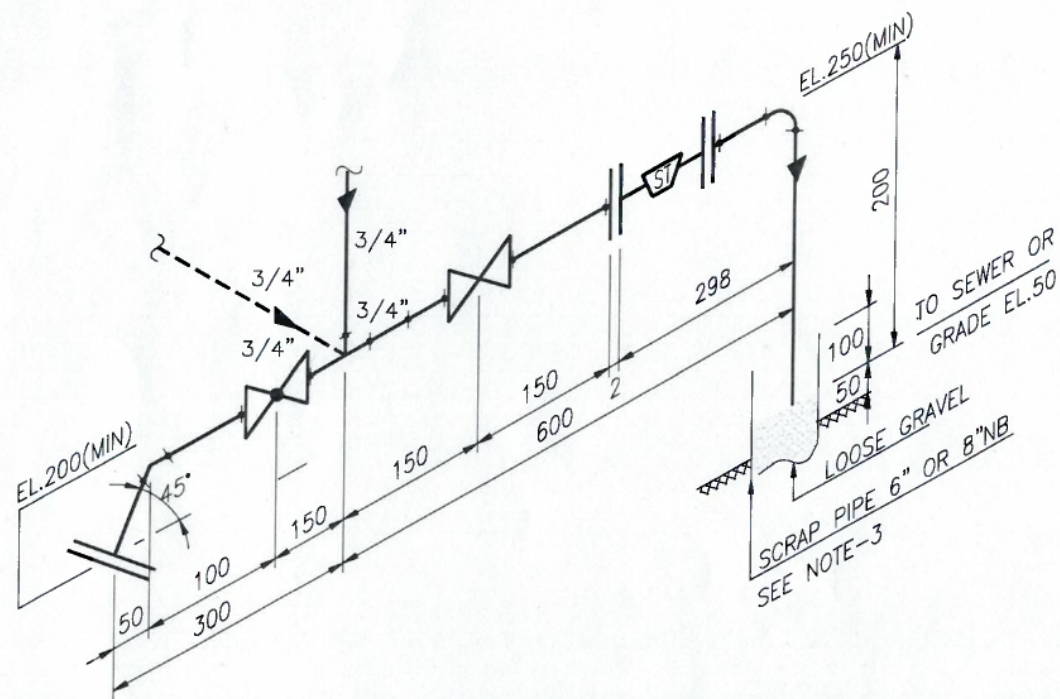
SH SRG	PK	SH	MN
SG	SH	GB	SM
Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
Approved by			



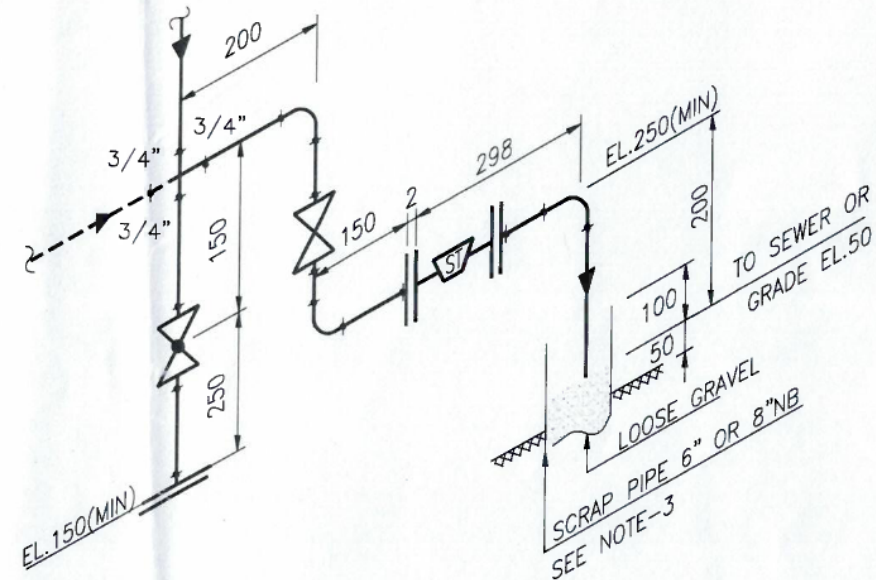
STA-2-TYPE-I



STA-2-TYPE-III



STA-2-TYPE-II



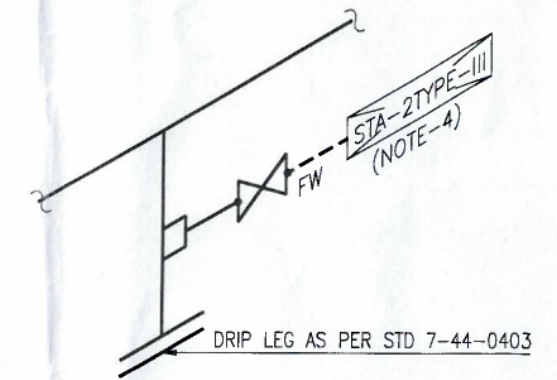
STA-2-TYPE-IV

NOTES:-

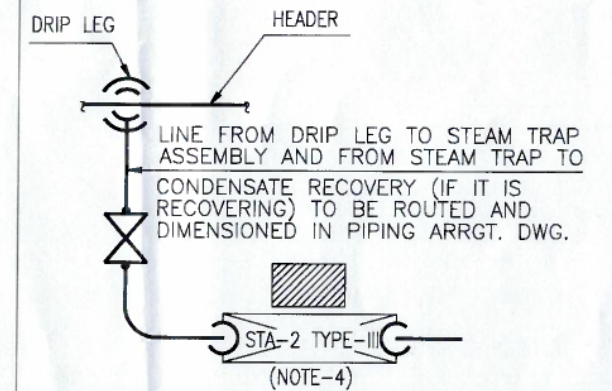
- 1 STEAM TRAP 3/4" S.W, TD TRAP WITH INTEGRAL STRAINER
- 2 INPUT CODE- STA 2/212(APPLICABLE UPTO CLASS 600 ONLY)
- 3 SCRAP PIPE TO BE PROVIDED FOR OFF SITE FOR LOCATION WITH NO DITCHES NEARBY AND AREAS WHICH ARE NOT PAVED FOR UNITS AND OTHER PAVED AREAS, DRAIN LINES TO O.W.S. FUNNEL LOCATED NEAREST TO MANIFOLD (FIELD RUN)
- 4 COMPACT STEAM TRAP ASSEMBLY WITH BREAK UP FLANGES SHALL BE USED FOR UPTO CLASS 600 RATING. UNLESS OTHERWISE AGREED.
5. DOUBLE VALVES SHALL BE PROVIDED IN PLACE OF SINGLE VALVE SHOWN IN FIGURES FOR CLASS 900 AND ABOVE.

SYMBOL OF REPRESENTATION

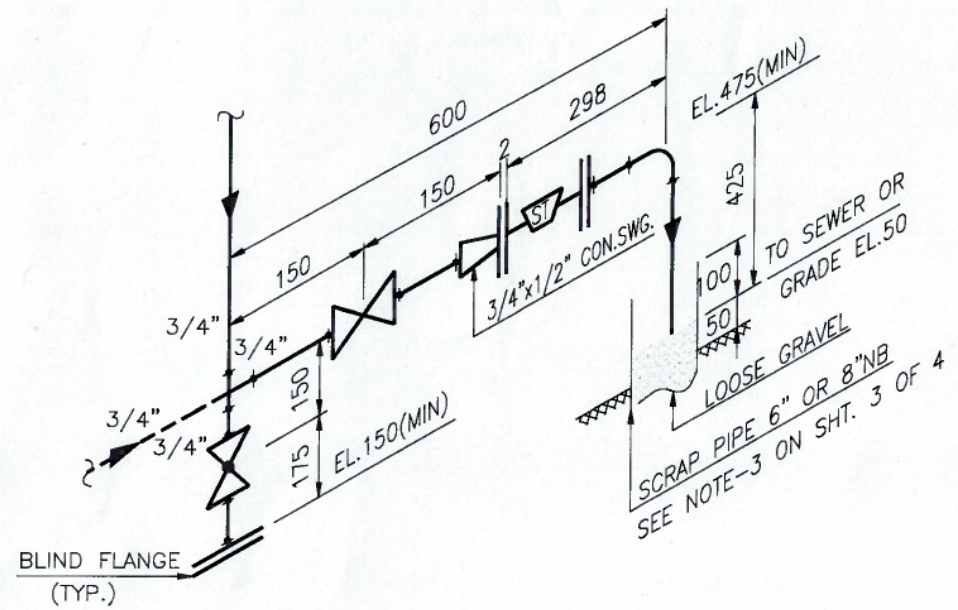
(a) IN ISOMETRIC



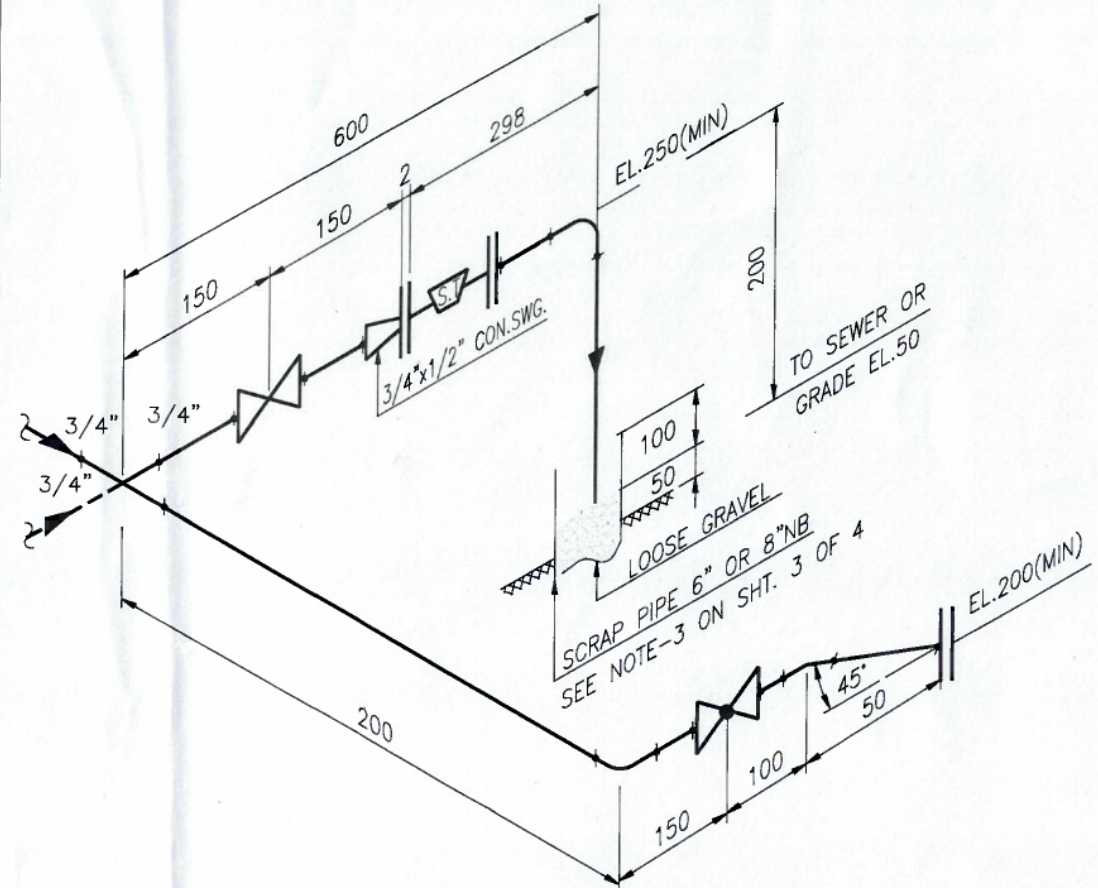
(b) IN ARRANGEMENT DRG.



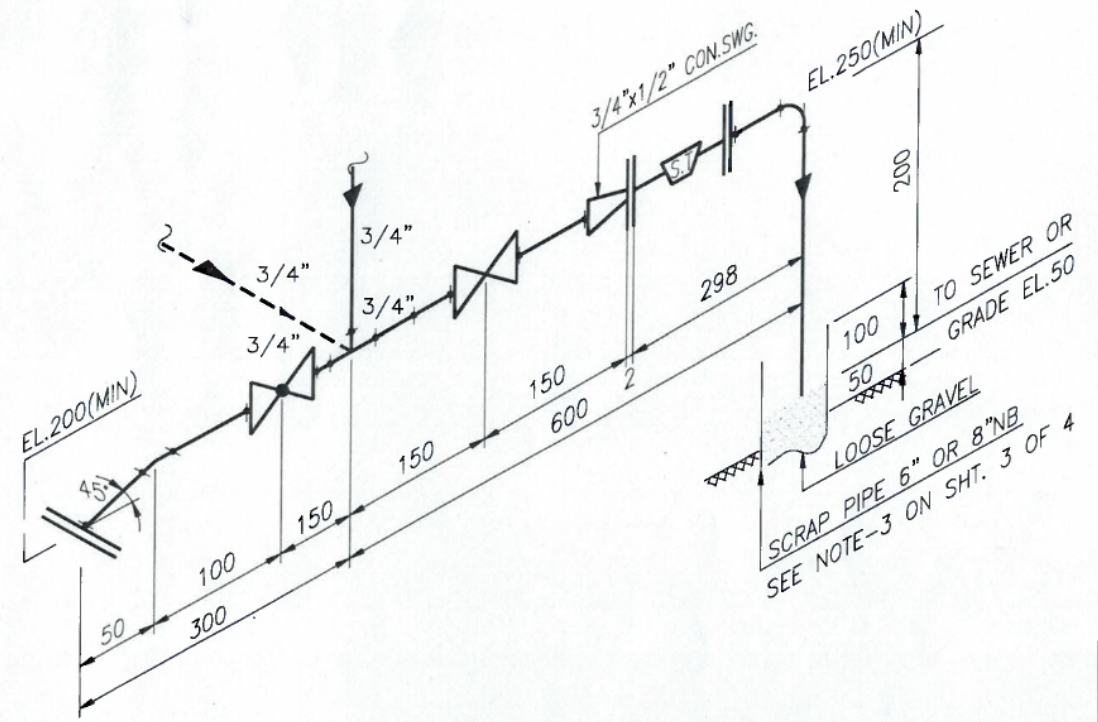
7	12.09.2025	REVISED AND ISSUED AS STANDARD	SG	PK	SH	MN
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Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
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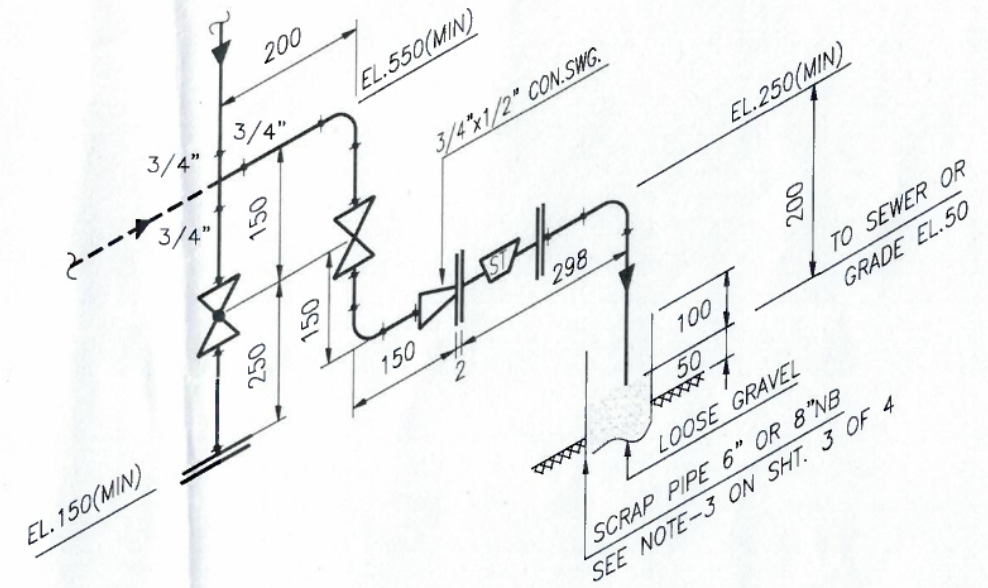
STA-9-TYPE-I



STA-9-TYPE-III



STA-9-TYPE-II



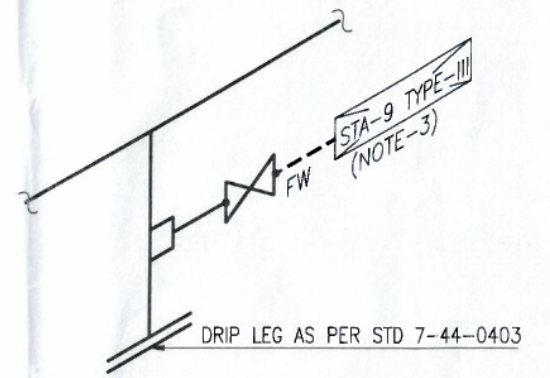
STA-9-TYPE-IV

NOTES:-

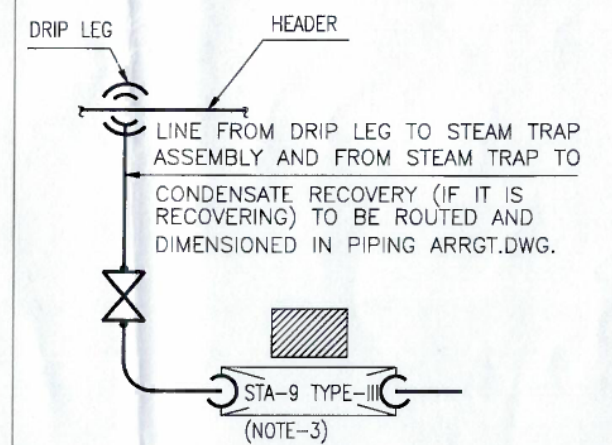
- 1 STEAM TRAP 1/2" SW TD TRAP WITH INTEGRAL STRAINER.
- 2 INPUT CODE- STA-9/186 (APPLICABLE UPTO CLASS 600 ONLY)
- 3 COMPACT STEAM TRAP ASSEMBLY WITH BREAK UP FLANGES SHALL BE USED FOR UPTO CLASS 600 RATING, UNLESS OTHERWISE AGREED.
4. DOUBLE VALVES SHALL BE PROVIDED IN PLACE OF SINGLE VALVE SHOWN IN FIGURES FOR CLASS 900 AND ABOVE.

SYMBOL OF REPRESENTATION

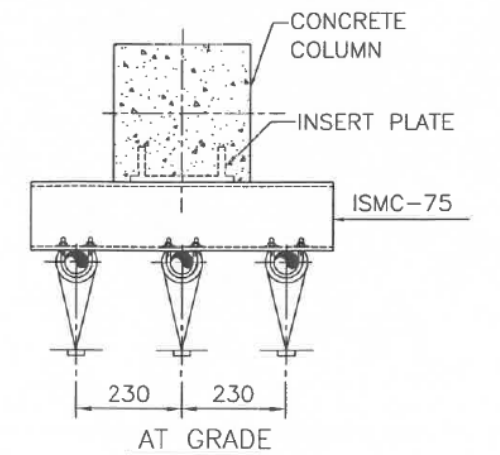
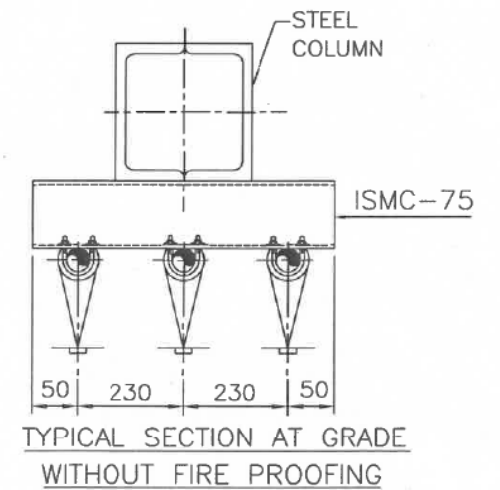
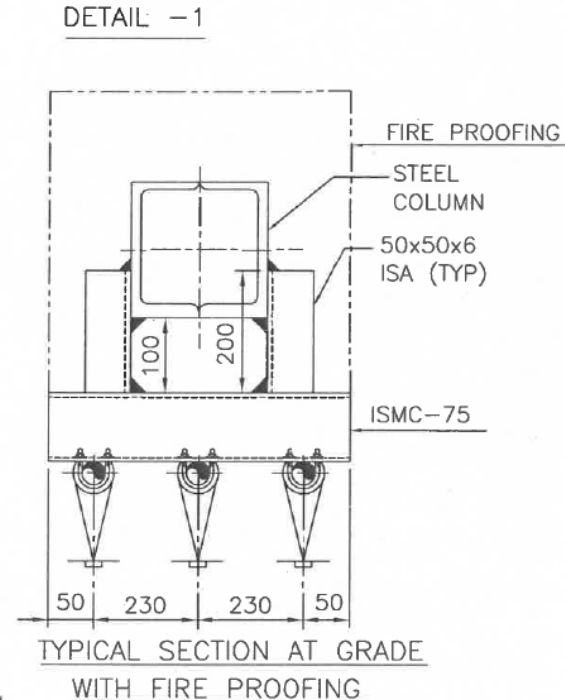
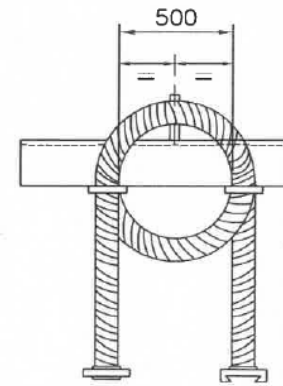
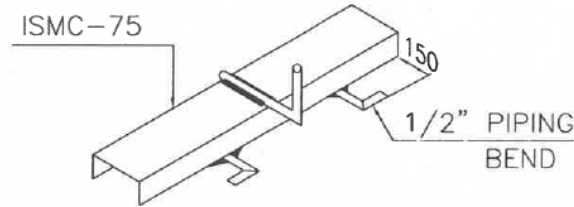
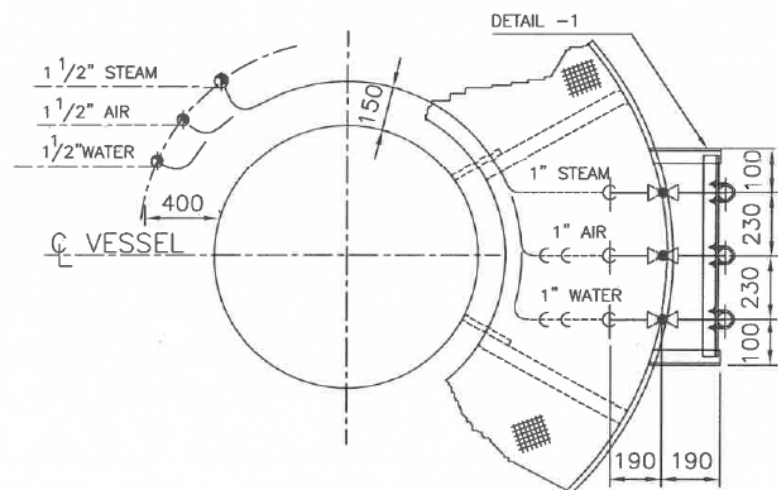
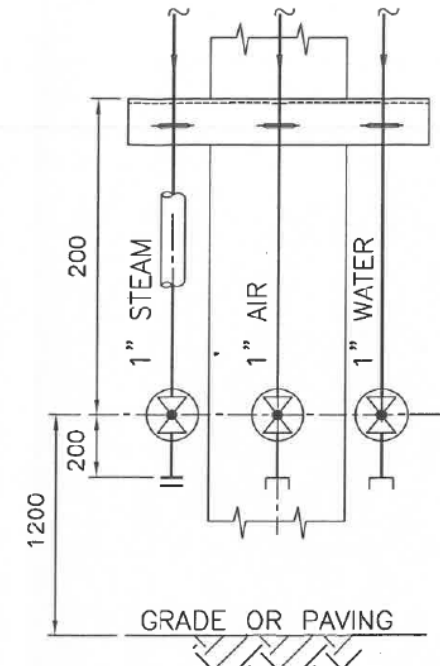
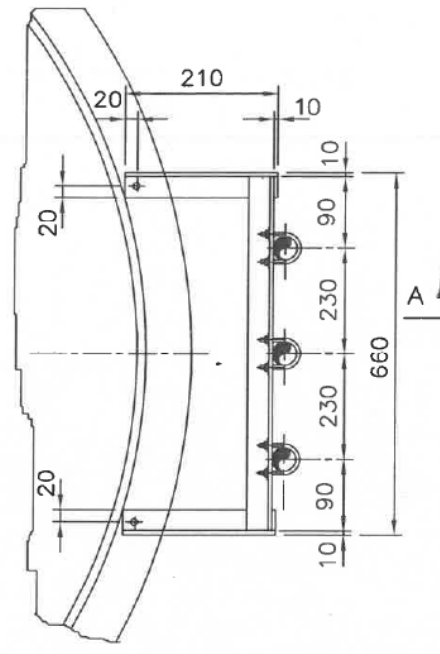
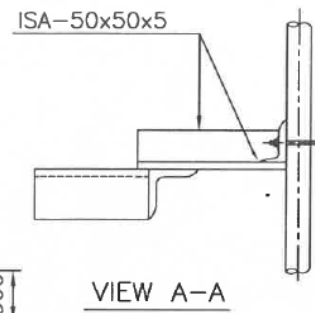
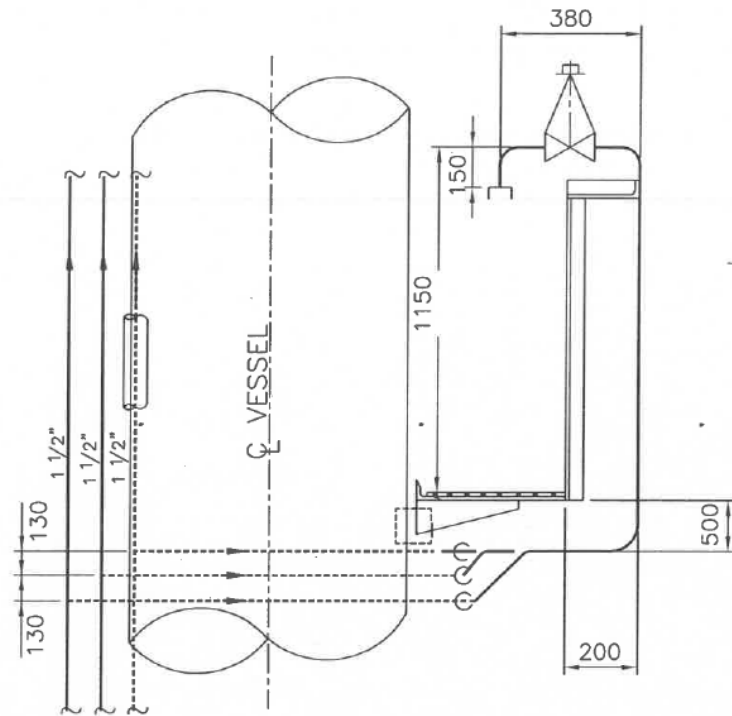
(a) IN ISOMETRIC



(b) IN ARRANGEMENT DWG.



7	12.09.2025	REVISED AND ISSUED AS STANDARD	glrSRG	PK	SH	MN
6	30.12.2020	REVISED AND ISSUED AS STANDARD	SG	SH	GB	SM
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UTILITY HOSE STATION ON VESSEL PLATFORM

TYPICAL SECTION AT GRADE WITH FIRE PROOFING

TYPICAL SECTION AT GRADE WITHOUT FIRE PROOFING

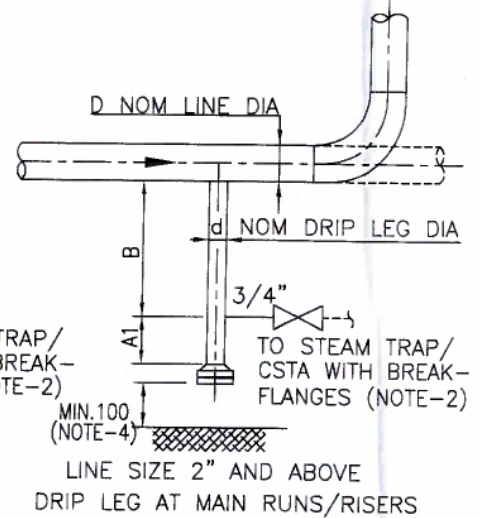
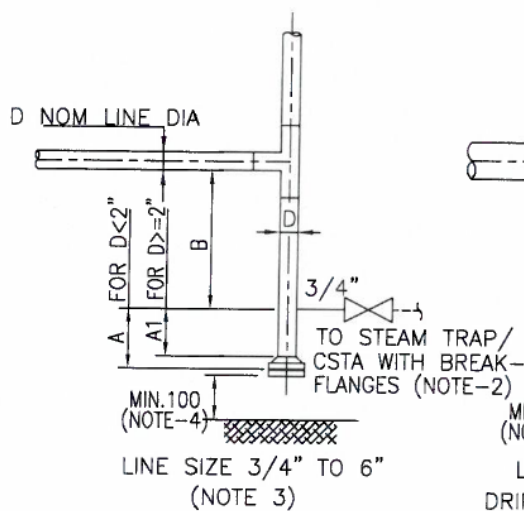
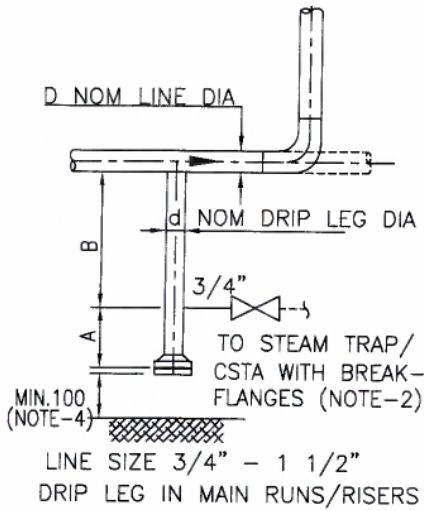
AT GRADE

NOTES:

- HOSE STATIONS AT GRADE SHALL BE SO LOCATED THAT AREAS TO BE SERVED CAN BE REACHED WITH A 15M HOSE.
- SERVICE POINTS SHALL ALWAYS BE GROUPED STEAM, AIR & WATER IN THAT ORDER FROM LEFT TO RIGHT.
- THE SIZE OF LINES SHALL BE AS GIVEN IN THIS STD. UNLESS OTHERWISE SPECIFIED ON P&ID.

THE HOSE SUPPORT WHEN REQD. SHALL BE MOUNTED AS CLOSE AS POSSIBLE. HOSE STATION ORIENTATION AND POSITION SHALL BE DECIDED CASE BY CASE.

6	31.12.24	REAFFIRMED & ISSUED AS STANDARD	PK	SH	GB	MN
5	06.12.19	REAFFIRMED & ISSUED AS STANDARD	SG	SH	MI	RKT
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NOM LINE DIA D INCH	NOM DRIP LEG DIA d INCH	A MM	A1 MM	B MM
3/4"	3/4"	125	X	100
1"	1"	125		100
1 1/2"	1 1/2"	125		125
2"	2"	X	75	150
3"	3"		75	150
4"	4"		75	175
6"	4"		75	175
8"	4"		75	175
10"	6"		75	175
12"	6"		75	175
14"	8"		75	175
16"	8"		75	175
18"	10"		75	175
20"	10"		75	175
24" & ABOVE	12"		75	175

NOTES :-

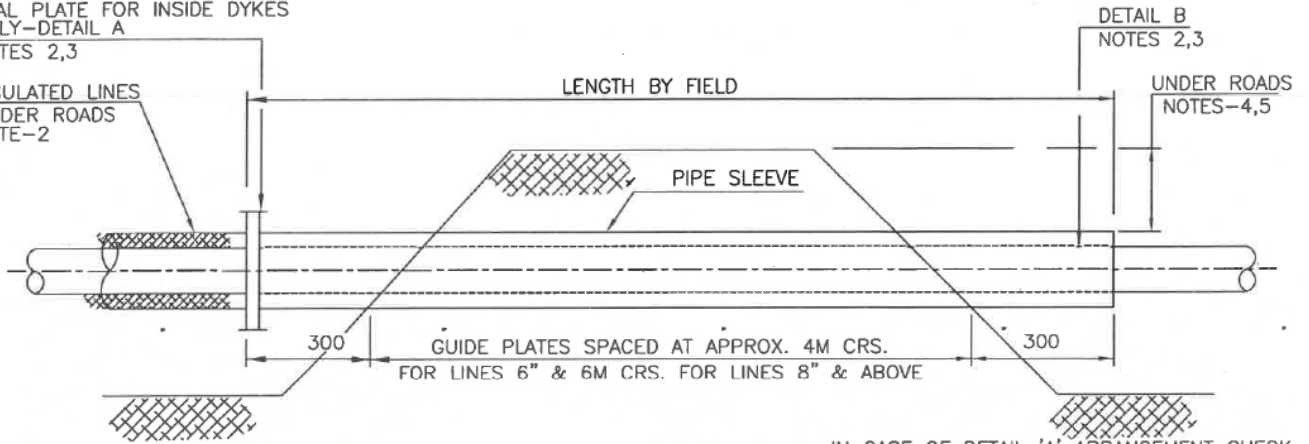
- DELETED
- ALL PIPES, VALVES, FLANGES, FITTINGS, BRANCH-OFFS ETC. SHALL BE IN ACCORDANCE WITH PROJECT PIPING MATERIAL SPECIFICATIONS.
- THIS ARRANGEMENT MAY BE USED ONLY IN CASE OF SPACE CONSTRAINT. SUPPORTING ARRANGEMENT SHALL BE REVIEWED IN DETAIL TO ENSURE THAT THERE IS NO FOULING BETWEEN SUPPORT PEDESTAL AND BLIND FLANGE ASSEMBLY.
- BOTTOM OF PIPE ELEVATION SHALL BE MINIMUM 600MM FROM GRADE. IN CASE OF RATINGS BEYOND CLASS 600 AND SIZES BEYOND 8", BOTTOM OF PIPE SHALL BE FIXED TO ENSURE MINIMUM 100MM CLEARANCE FROM GRADE.

7	12.09.2025	REVISED & ISSUED AS STANDARD	SRG	PK	SH	MN
6	24.08.2021	REVISED & ISSUED AS STANDARD	SG	SH	GB	SM
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Approved by						

SEAL PLATE FOR INSIDE DYKES
ONLY-DETAIL A

NOTES 2,3

INSULATED LINES
UNDER ROADS
NOTE-2

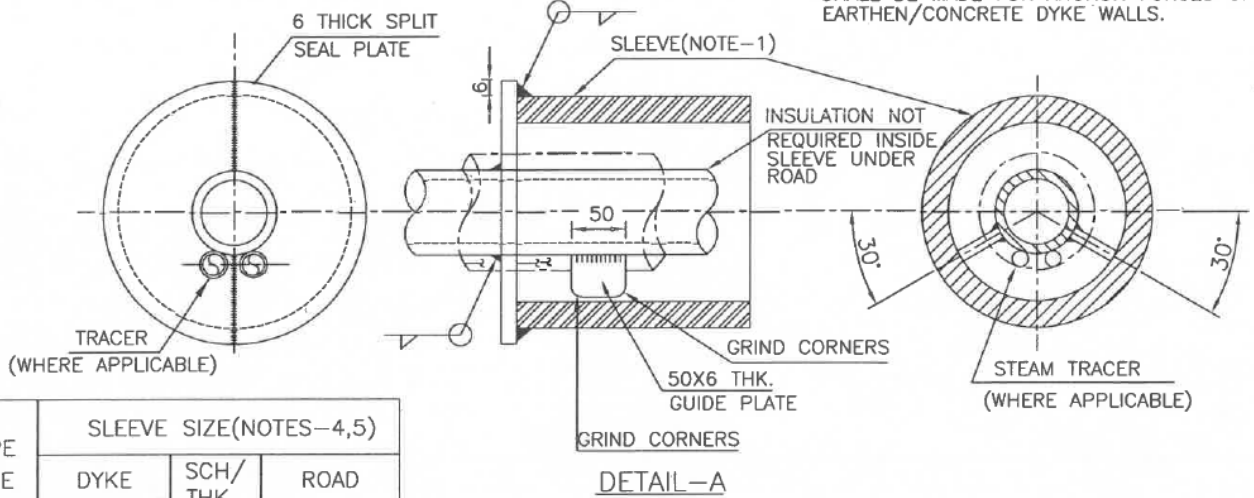


DETAIL B
NOTES 2,3

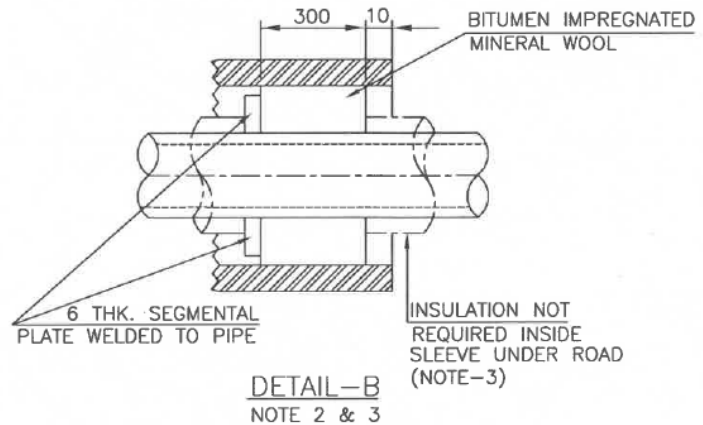
UNDER ROADS
NOTES-4,5

300 GUIDE PLATES SPACED AT APPROX. 4M CRS.
FOR LINES 6" & 6M CRS. FOR LINES 8" & ABOVE

IN CASE OF DETAIL 'A' ARRANGEMENT CHECK
SHALL BE MADE FOR ANCHOR FORCES ON
EARTHEN/CONCRETE DYKE WALLS.



PIPE SIZE	SLEEVE SIZE (NOTES-4,5)		
	DYKE	SCH/THK.	ROAD
1/2"	6"	40	3"
2"	6"	40	3"
3"	8"	20	4"
4"	10"	20	6"
6"	12"	20	8"
8"	14"	10	10"
10"	16"	10	12"
12"	18"	10	14"
14"	20"	6.35mm	16"
16"	24"	6.35mm	18"
18"	24"	6.35mm	20"
20"	30"	6.35mm	22"
22"	30"	6.35mm	24"
24"	32"	6.35mm	26"
26"	36"		CULVERT IS PREFERRED
28"	36"		- do -
30"	40"		- do -
32"	40"		- do -
36"	44"		- do -
40"	48"		- do -
42"	50"		- do -
44"	52"		- do -
46"	54"		- do -
48"	56"		- do -

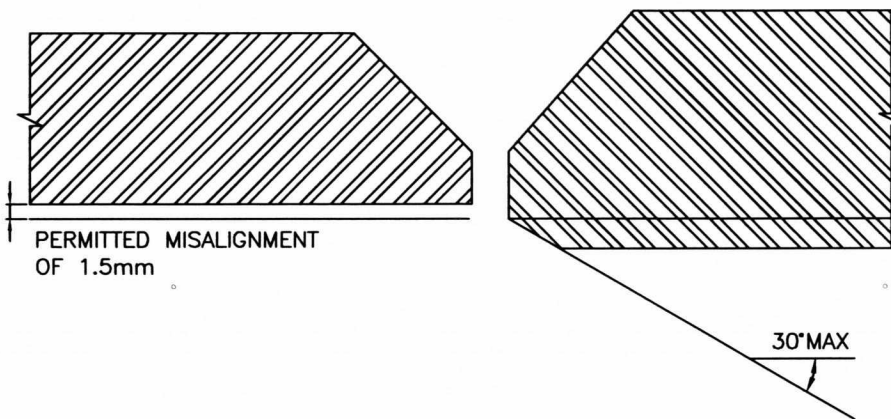


DETAIL-B
NOTE 2 & 3

NOTES:-

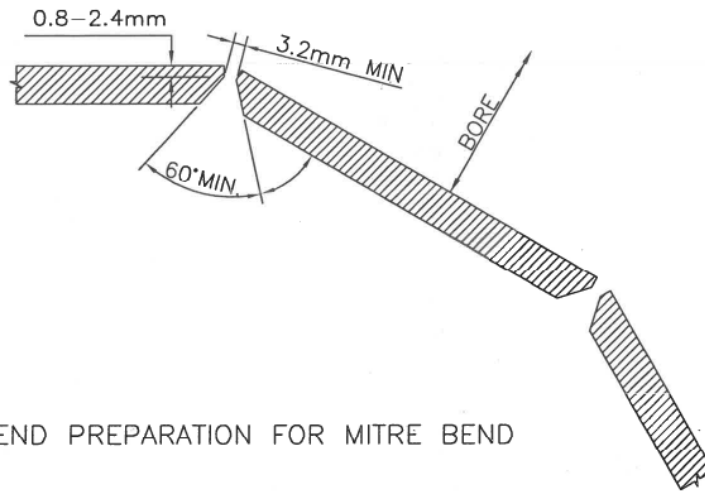
- PIPE SLEEVE SHALL BE COATED & WRAPPED FROM OUTSIDE.
- IT IS PREFERRED THAT PIPES ARE NOT INSULATED BELOW ROADS AND DYKES AND FOR THIS DETAIL 'B' SHOULD BE PROVIDED AT BOTH ENDS OF PIPES.
- IF INSULATION IS ESSENTIAL
 - PIPES UNDER ROADS SHALL BE BELOW A CULVERT, AND
 - PIPES UNDER DYKES SHALL BE PROVIDED WITH DETAIL 'A' FROM INSIDE AND DETAIL 'B' FROM OUTSIDE OF DYKES.
- THE ROAD SLEEVES SHALL HAVE A MINIMUM COVER OF 300 FOR LIGHT TRAFFIC AND 600 FOR HEAVY TRAFFIC ROAD. IN CASE OF VERY HEAVY TRAFFIC ROADS THE SLEEVE SHALL BE ENCASED IN CONCRETE.
- PIPE SPACING SHALL BE TO SUIT SLEEVE PLATE SIZES.
- SLEEVE MAY BE FABRICATED OUT OF STEEL PLATE OF COMMERCIAL QUALITY OF EQUIVALENT THICKNESS IN LIEU OF STANDARD PIPES GIVEN IN THE TABLE.

6	31.12.24	REAFFIRMED & ISSUED AS STANDARD	PK	SH	MI	MN
5	06.12.19	REAFFIRMED & ISSUED AS STANDARD	SG	SH	MI	RKT
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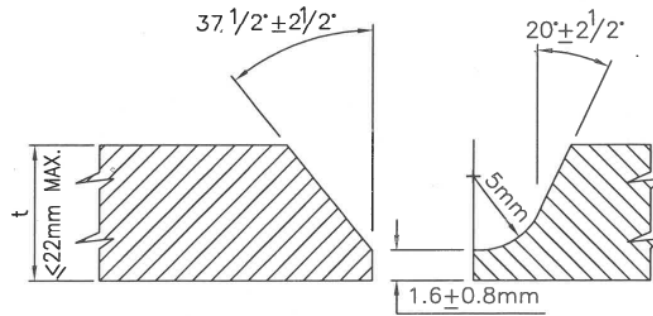


THICKER PIPE TAPER BORED TO ALIGN
(AS PER ASME B31.3)

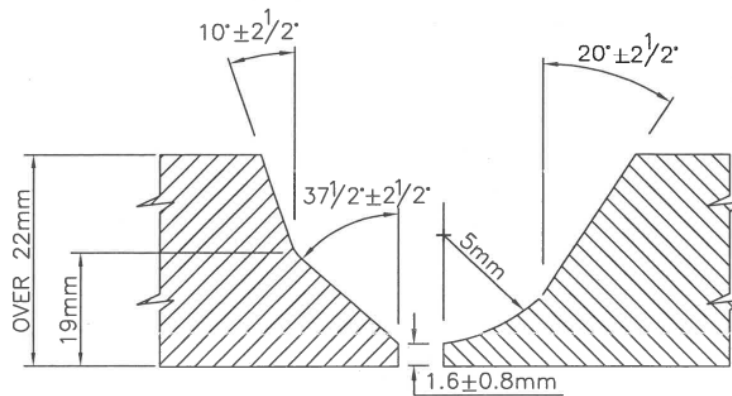
6	28.09.23	REAFFIRMED AND ISSUED AS STANDARD	ABA	SH	GB	SM
5	10.09.18	REAFFIRMED AND ISSUED AS STANDARD	PK	SH	MI	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



END PREPARATION FOR MITRE BEND



(A) WALL THICKNESS 5-22mm INCLUSIVE
(AS PER ASME B31.3)

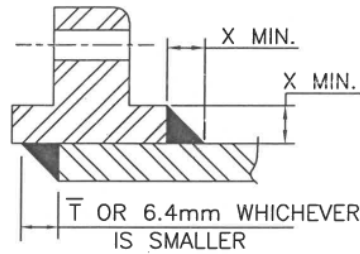


(B) WALL THICKNESS OVER 22mm
(AS PER ASME B31.3)

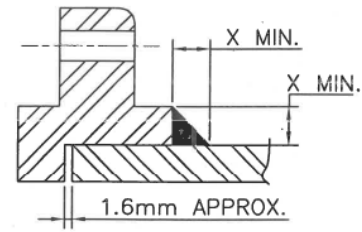
NOTES :

1. SQUARE ENDS MAY BE USED FOR WALL THICKNESS LESS THAN 5mm
2. PIPE ENDS SUPPLIED WITH BEVEL ANGLE OF $30^{\circ} \pm 5^{\circ}$ NEED NOT BE BEVELED FURTHER.

6	04.03.25	REAFFIRMED & ISSUED AS STANDARD	PK	SH	OB	MN
5	06.12.19	REAFFIRMED & ISSUED AS STANDARD	SG	SH	ML	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
					Approved by	



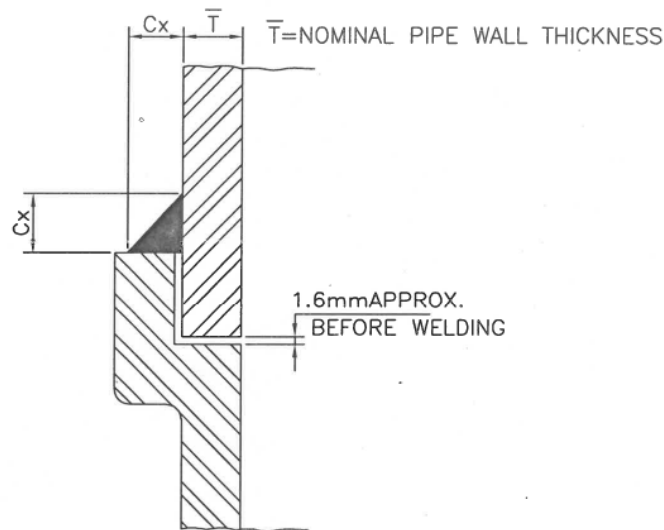
SLIP ON FLANGE



SOCKET WELDED FLANGE

X MIN. = $1.4\bar{T}$ OR THE THICKNESS OF HUB, WHICHEVER IS SMALLER.

\bar{T} = NOMINAL PIPE WALL THICKNESS

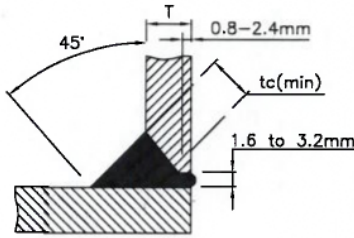
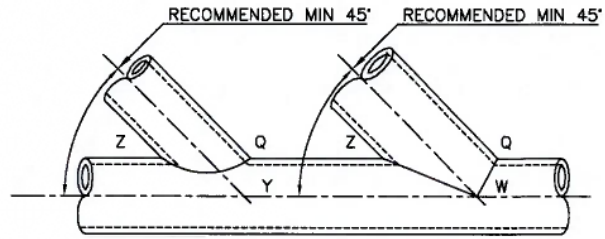
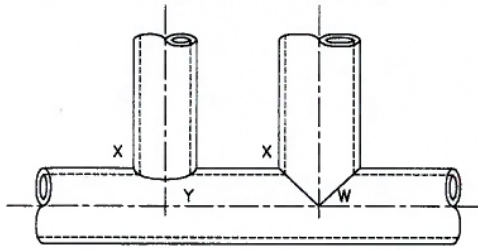


SOCKET WELDING FITTINGS

C_x (MIN) = $1.09\bar{T}$ BUT NOT LESS THAN 3.2mm

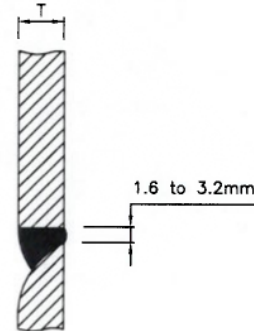
FILLET WELD DETAILS
(AS PER ASME B31.3)

6	04.03.25	REVISED & ISSUED AS STANDARD	PK	SH	OB	MN
5	06.12.19	REAFFIRMED & ISSUED AS STANDARD	SG	SH	MI	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
					Approved by	

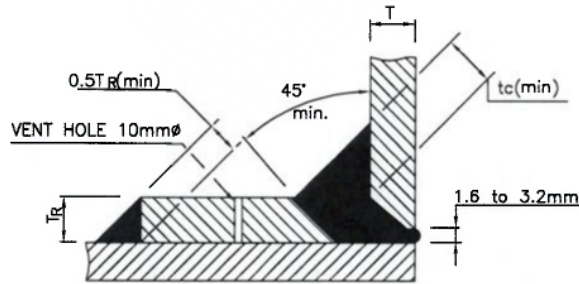


tc: MINIMUM OF 0.7T & 6.4mm

SECTION X AT CROTCH OF
RIGHT ANGLE BRANCH

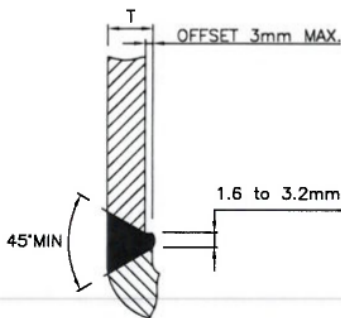


SECTION Y AT FLANK

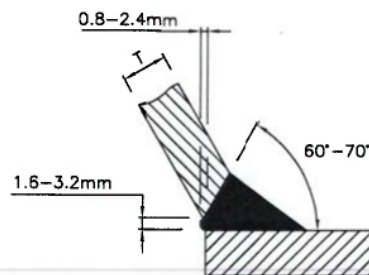


tc: MINIMUM OF 0.7T & 6.4mm

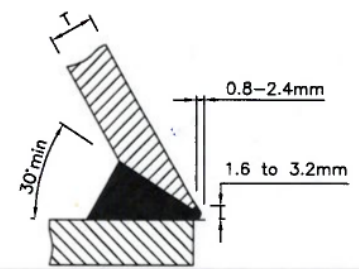
DETAIL FOR REINFORCED BRANCH



SECTION W AT FLANK OF
EQUAL BRANCH



SECTION Q AT BACK OF
SLOPING BRANCH

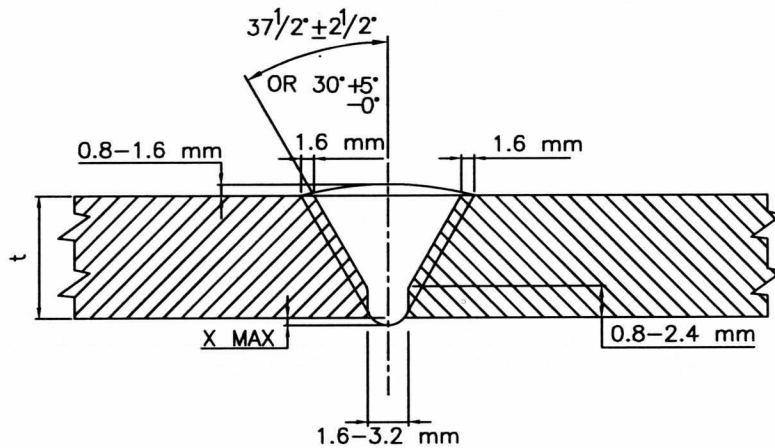


SECTION Z AT CROTCH OF
SLOPING BRANCH

NOTES :-

1. THIS TYPE IS TO BE USED WHEN BRANCH IS EQUAL TO OR ONE SIZE SMALLER THAN MAIN PIPE.
2. REFER STANDARD 7-44-0484 FOR DIMENSIONAL DETAILS.

6	10.10.25	REAFFIRMED & ISSUED AS STANDARD	SRG	PK	SH	MN
5	23.09.20	REAFFIRMED & ISSUED AS STANDARD	SG	SH	GB	SM
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
						Approved by

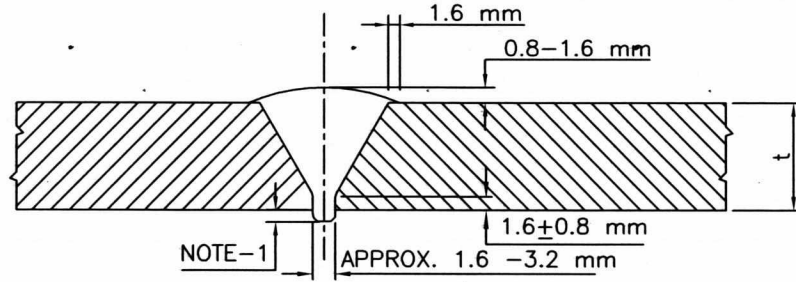


$$4.8 \text{ mm} \leq t \leq 19.1 \text{ mm}$$

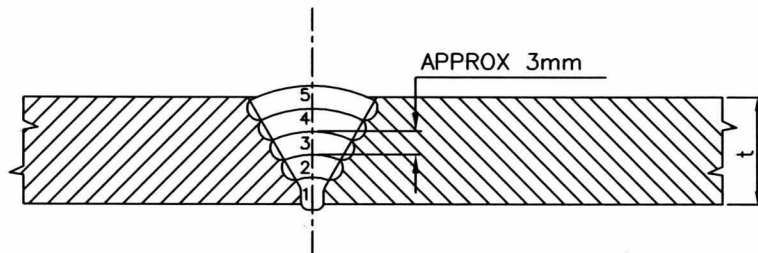
$$X \text{ MAX} = 1.5 \text{ mm FOR PIPES 2" AND BELOW}$$

$$3.0 \text{ mm FOR PIPES ABOVE 2"}$$

6	28.09.23	REAFFIRMED AND ISSUED AS STANDARD	ABA	SH	CB	SM
5	10.09.18	REAFFIRMED AND ISSUED AS STANDARD	PK	SH	MI	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
Approved by						



STANDARD 'V' BEVEL
BUTT JOINT



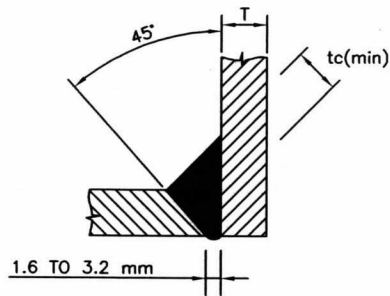
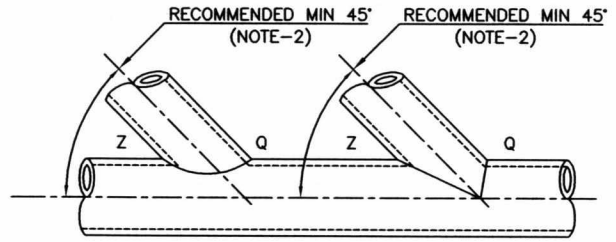
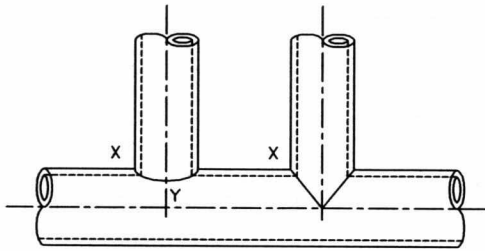
SEQUENCE OF WELDS

$$4.8 \text{ mm} \leq t \leq 19.1 \text{ mm}$$

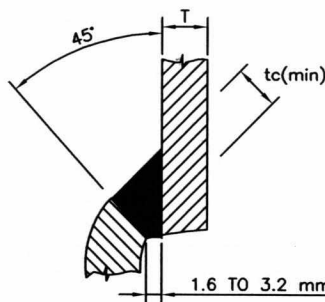
NOTES :

1. MAXIMUM INTERNAL WELD PROTRUSION SHALL BE AS PER ASME B31.3

6	22.01.24	REAFFIRMED & ISSUED AS STANDARD	PK	SH	BB	MN
5	31.12.18	REVISED & ISSUED AS STANDARD	PK	SH	MI	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
					Approved by	



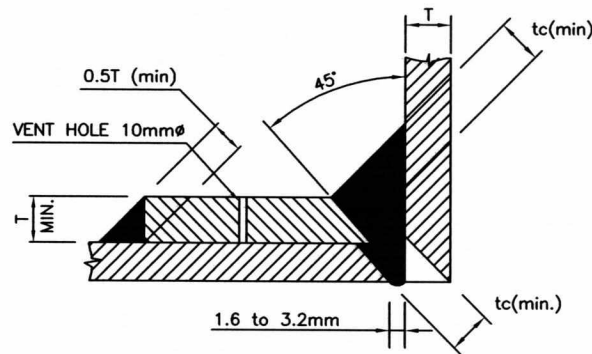
SECTION X AT CROTCH OF RIGHT
ANGLE BRANCH



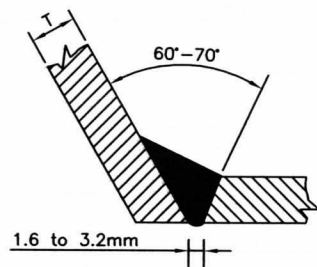
SECTION Y AT FLANK

NOTES :

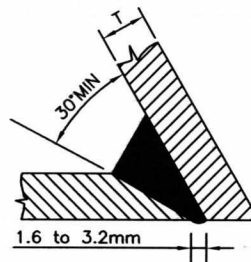
1. THIS STANDARD IS TO BE USED WHEN BRANCH IS MORE THAN ONE SIZE SMALLER OF MAIN PIPE.
2. FOR LINES COMING UNDER THE PURVIEW OF IBR RECOMMENDED MIN. ANGLE SHALL BE 60°.
3. MAXIMUM INTERNAL PROTRUSION OF WELD SHALL BE AS PER ASME B31.3



$tc = \text{MIN OF } 0.7T \text{ \& } 6.4\text{mm}$

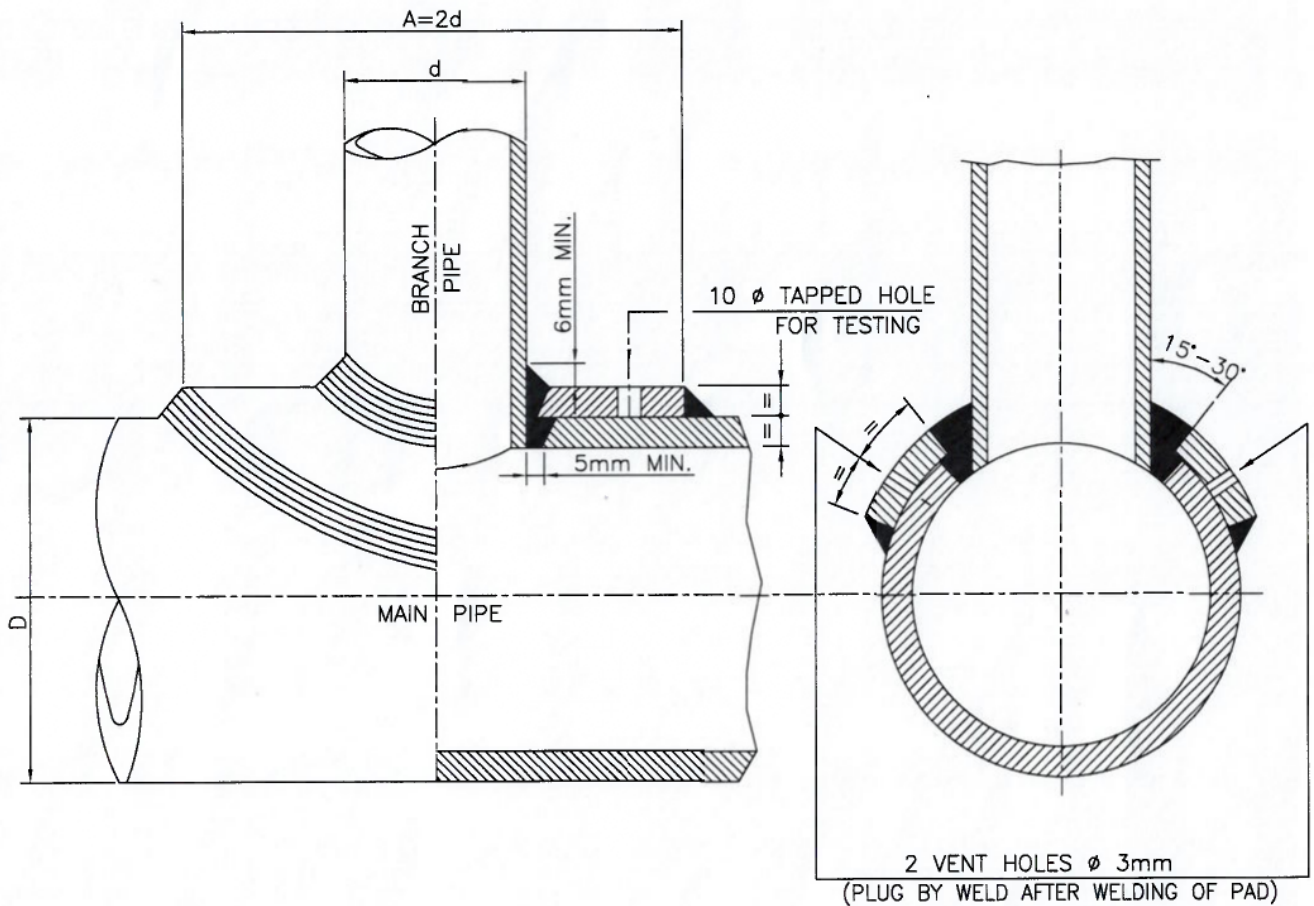


SECTION Q AT BACK OF
SLOPING BRANCH

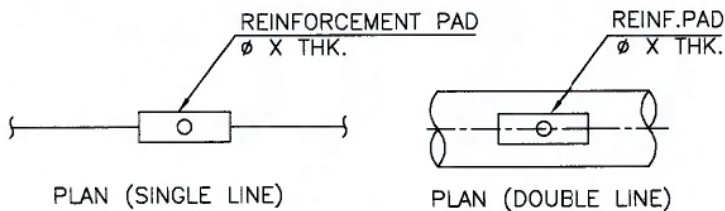


SECTION Z AT CROTCH OF
SLOPING BRANCH

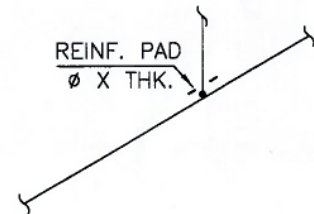
6	22.01.24	REVISED & ISSUED AS STANDARD	PK	SH	GB	MN
5	31.12.18	REVISED & ISSUED AS STANDARD	PK	SH	MI	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
						Approved by



SYMBOL ON GADS



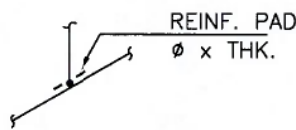
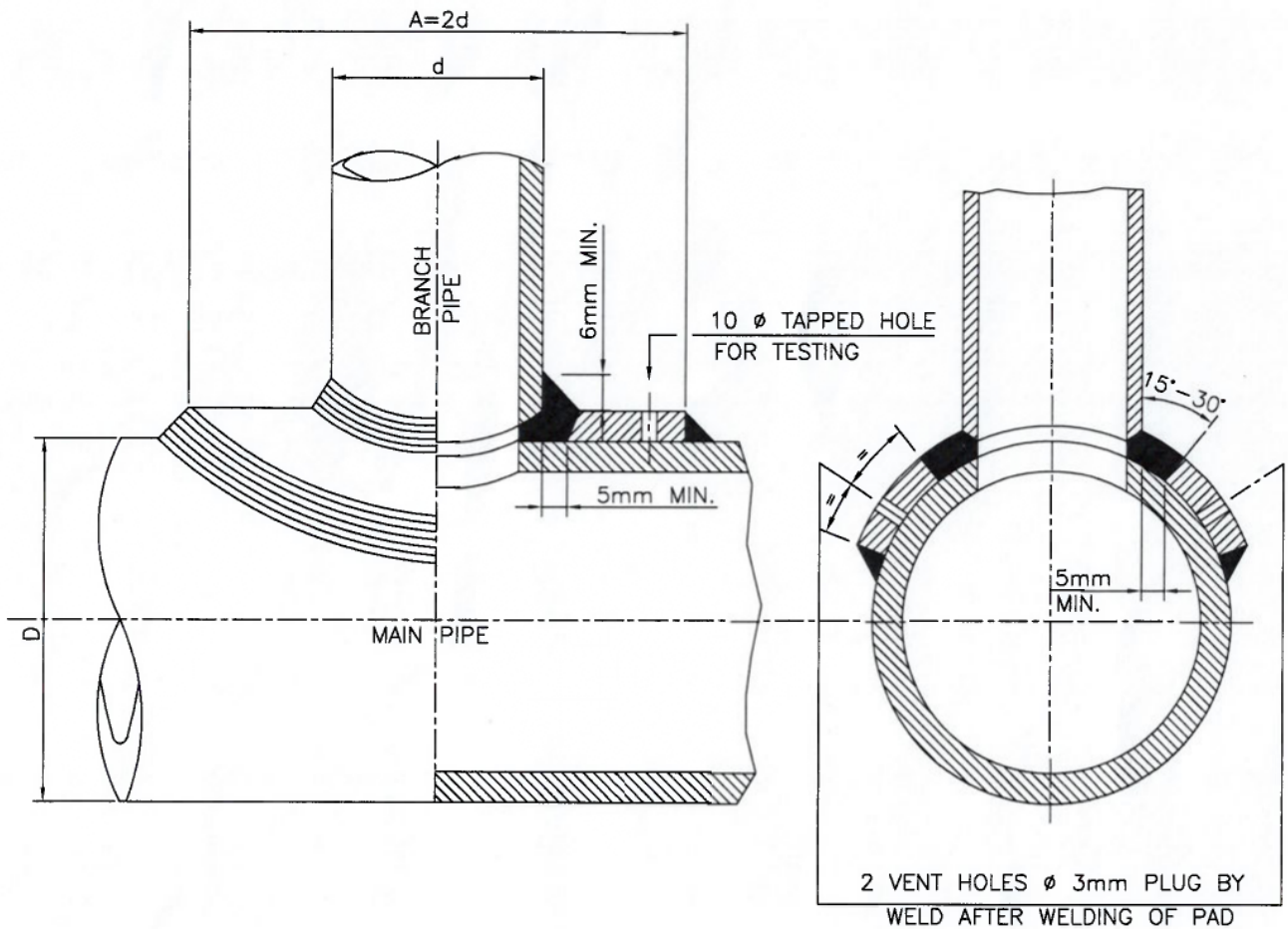
SYMBOL ON ISOMETRICS



NOTES :-

1. THIS TYPE IS TO BE USED WHEN BRANCH IS MORE THAN ONE SIZE SMALLER THAN MAIN PIPE
2. THE REINFORCING PLATE SHALL BE OBTAINED FROM PIPE SPOOL OF THE SAME SCHEDULE AND DIAMETER OF MAIN PIPE UNLESS OTHERWISE STATED
3. THE REINFORCEMENT PAD CALCULATIONS SHALL BE MADE IN ACCORDANCE WITH ASME B31.3 OR IBR AS APPLICABLE
4. ALSO SEE STANDARD 7-44-0484
5. REFER STANDARD 7-44-0482 FOR WELDING DETAILS.

6	10.10.25	REAFFIRMED & ISSUED AS STANDARD	SRG	PK	SH	MN
5	23.09.20	REAFFIRMED & ISSUED AS STANDARD	SG	SH	GB	SM
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
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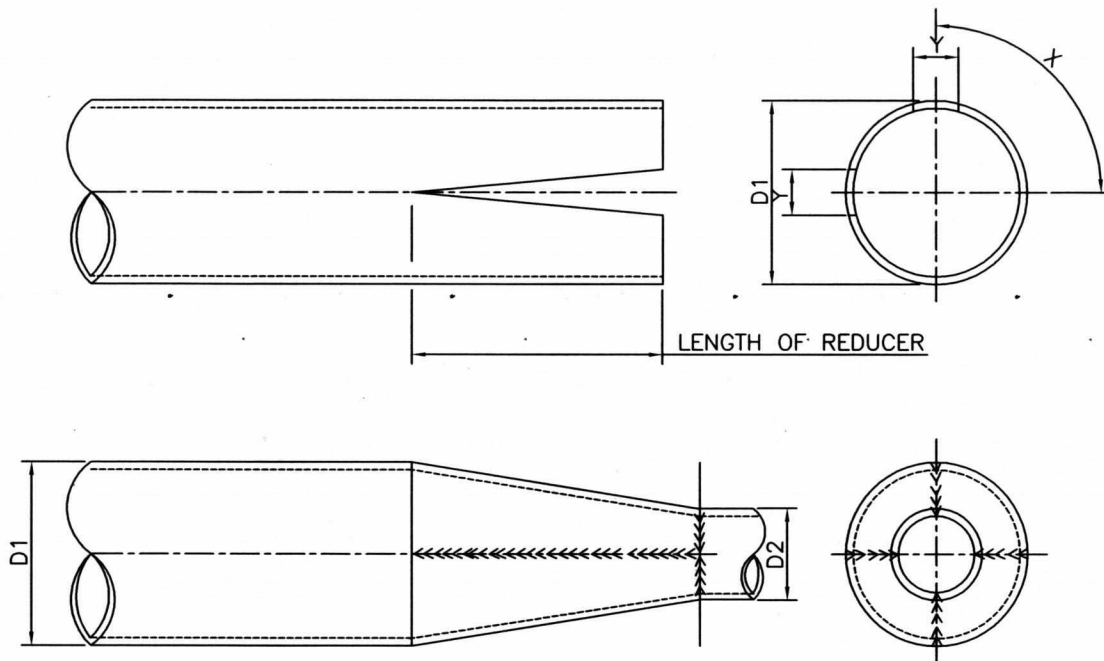


SYMBOL ON ISOMETRICS

NOTES :

1. THIS TYPE IS TO BE USED WHEN BRANCH IS EQUAL TO OR ONE SIZE SMALLER THAN MAIN PIPE
2. THE REINFORCEMENT PAD SHALL BE OBTAINED FROM PIPE SPOOL OF THE SAME SCHEDULE AND DIAMETER AS MAIN PIPE UNLESS OTHERWISE STATED.
3. THE REINFORCEMENT PAD CALCULATION SHALL BE MADE IN ACCORDANCE WITH ASME B31.3 OR IBR AS APPLICABLE.
4. ALSO SEE STANDARD 7-44-0483
5. REFER STANDARD 7-44-0479 FOR WELDING DETAILS.

6	10.10.25	REAFFIRMED & ISSUED AS STANDARD	SRG	PK	SH	MN
5	23.09.20	REAFFIRMED & ISSUED AS STANDARD	SG	SH	GB	SM
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
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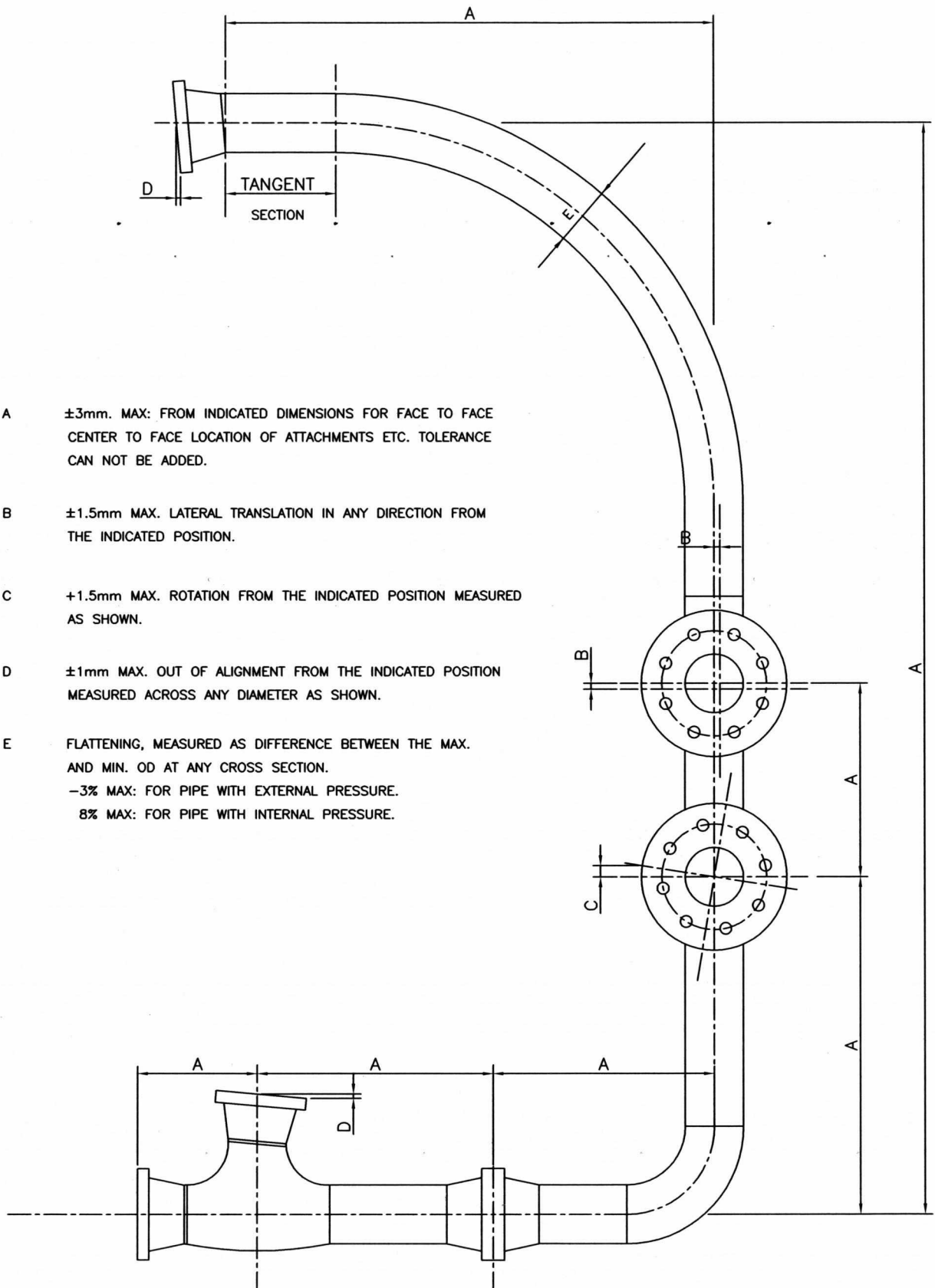


DIFFERENCE IN DIAMETER D1 - D2	NUMBER OF PIECES TO BE CUT OUT	ANGLE BETWEEN CUT OUTS X	SIZE OF CUT OUT Y	LENGTH OF REDUCER	CIRCUMFERENCE OF D1 MINUS CIRCUMFERENCE OF D2.
1"	2	180°	1 1/2"	D1	3 1/8"
2"	3	120°	2 1/4"	D1	6 1/4"
3"	3	120°	3"	D1	9 1/2"
4"	4	90°	3"	D1	12 1/2"
5"	4	90°	4"	D1	15 3/4"
6"	4	90°	4 3/4"	D1	18 3/4"
7"	6	60°	3 3/4"	D1	22"
8"	6	60°	4 1/4"	1.1XD1	25"
9"	6	60°	4 3/4"	1.1XD1	28 1/4"
10"	8	45°	4"	1.1XD1	31 1/2"
12"	8	45°	4 3/4"	1.1XD1	37 3/4"
14"	10	36°	4 1/2"	1.1XD1	44"
16"	12	30°	4 1/4"	1.1XD1	50 1/4"
18"	12	30°	4 3/4"	1.1XD1	56 1/2"
20"	12	30°	5 1/4"	1.1XD1	62 3/4"

NOTES:-

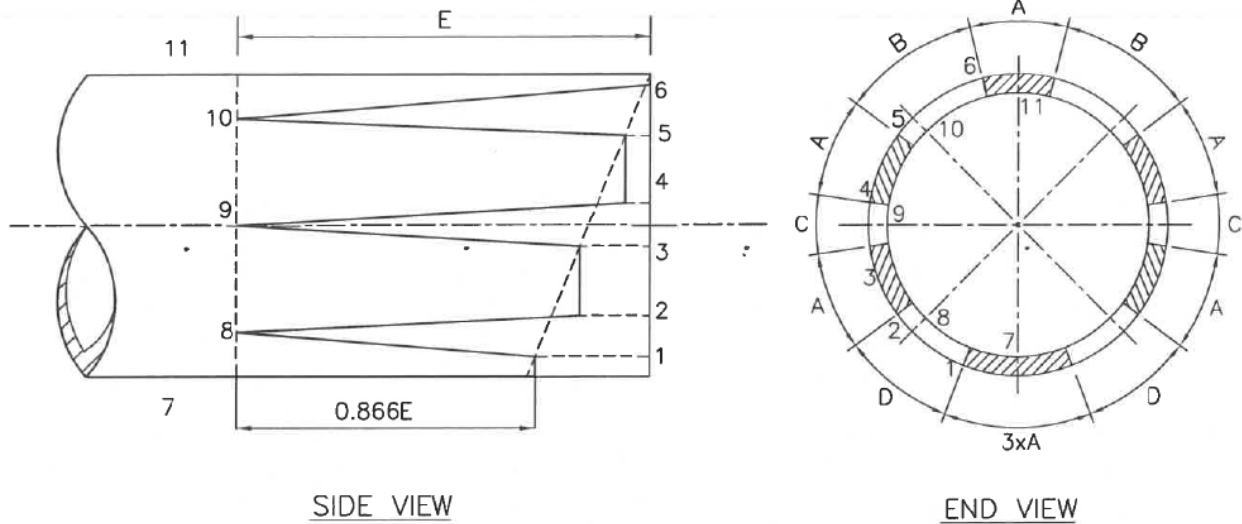
1. CUT OUT REQUIRED NUMBER OF PIECES IN ACCORDANCE WITH TABLE. HEAT & BEND ENDS OF PIPE TO CONFORM WITH DIAMETER D2. WELD ALL AROUND.
2. RADIOGRAPHY SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF INDIVIDUAL PIPING CLASSES.

6	22.01.24	REAFFIRMED & ISSUED AS STANDARD	PK	SH	MN
5	31.12.18	REAFFIRMED & ISSUED AS STANDARD	PK	SH	RKT
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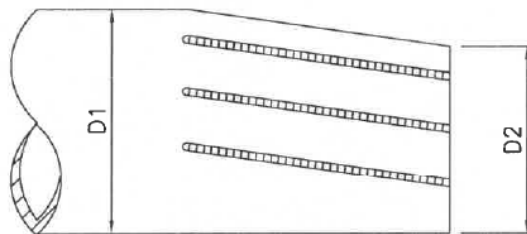
- A ±3mm. MAX: FROM INDICATED DIMENSIONS FOR FACE TO FACE CENTER TO FACE LOCATION OF ATTACHMENTS ETC. TOLERANCE CAN NOT BE ADDED.
- B ±1.5mm MAX. LATERAL TRANSLATION IN ANY DIRECTION FROM THE INDICATED POSITION.
- C +1.5mm MAX. ROTATION FROM THE INDICATED POSITION MEASURED AS SHOWN.
- D ±1mm MAX. OUT OF ALIGNMENT FROM THE INDICATED POSITION MEASURED ACROSS ANY DIAMETER AS SHOWN.
- E FLATTENING, MEASURED AS DIFFERENCE BETWEEN THE MAX. AND MIN. OD AT ANY CROSS SECTION.
-3% MAX: FOR PIPE WITH EXTERNAL PRESSURE.
8% MAX: FOR PIPE WITH INTERNAL PRESSURE.

6	22.01.24	REAFFIRMED & ISSUED AS STANDARD	PK	SH	GB	MN
5	31.12.18	REAFFIRMED & ISSUED AS STANDARD	PK	SH	MI	RKT
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SIDE VIEW

END VIEW



COMPLETED REDUCER

- A = 1/8 OF SMALL PIPE CIRCUMFERENCE.
 B = 3/12 DIFFERENCE BETWEEN CIRCUMFERENCES.
 C = 2/12 DIFFERENCE BETWEEN CIRCUMFERENCES.
 D = 1/12 DIFFERENCE BETWEEN CIRCUMFERENCES.
 E = 1.5 x O.D. OF LARGER PIPE.

NOTES :-

- REDUCER SHALL BE FABRICATED OUT OF LINE PIPE.
- ALL WELDS SHALL BE RADIOGRAPHED AS PER THE PIPING CLASS NDT REQUIREMENTS.
- THE DIFFERENCE BETWEEN D1 & D2 SHALL NOT BE MORE THAN 20" NOMINAL BORE.

7	31.12.24	REAFFIRMED & ISSUED AS STANDARD	PK	SH	MI	MN
6	06.12.19	REAFFIRMED & ISSUED AS STANDARD	SG	SH	MI	RKT
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**PIPE SADDLE FOR BARE PIPE
NPS 2 THRU 48 TYPE - S6A
(FOR TEMP. UPTO 343°C)**

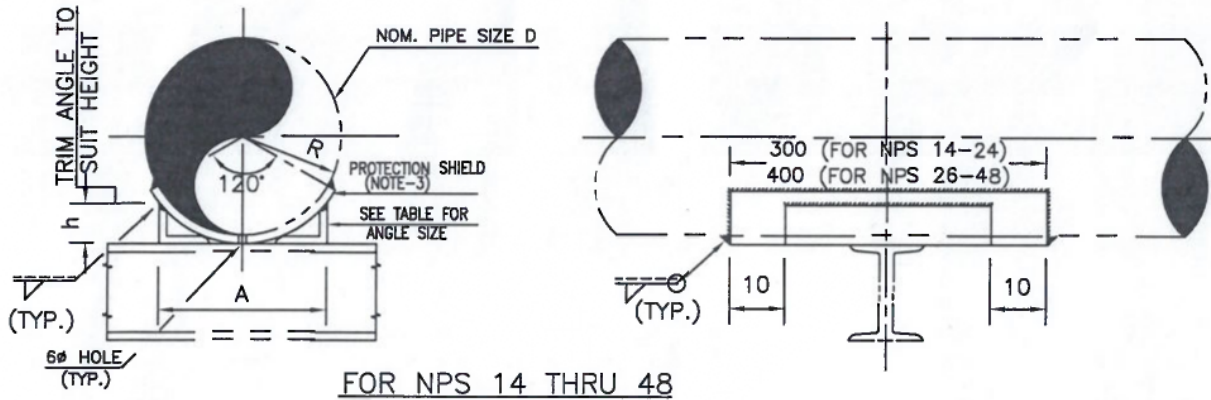
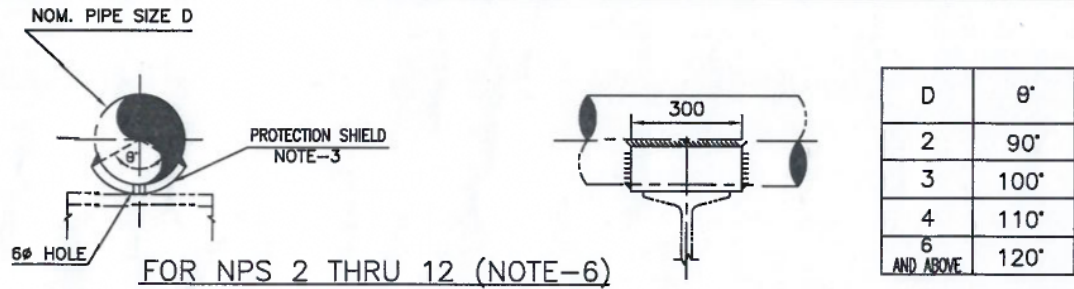


FIG.1 SLIDING

D	PIPE SCH.	R	A	h	ANGLE-SIZE
14	STD	178	258	52	ISA 75 x 75 x 8
16	STD	203	266	47	
18	STD	229	272	43	
20	STD	254	279	40	ISA 100 x 75 X 8
22	STD	279	335	54	
24	STD	305	341	50	
26	STD	330	347	48	
28	STD	356	352	45	
30	STD	381	357	43	ISA 150 x 75 X 10
32	STD	406	362	42	
34	STD	432	487	73	
36	STD	457	492	70	
38	XS	483	498	67	
40	XS	508	503	65	
42	XS	533	508	63	
48	XS	610	522	57	

NOTES:-

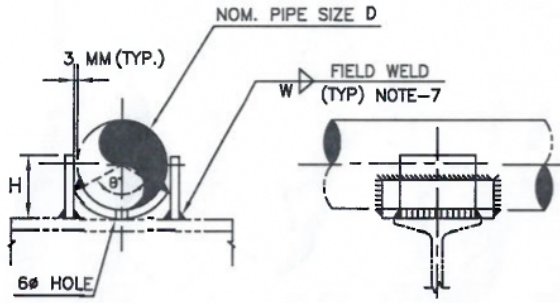
- LOADS ON FILLET WELDS OF GUIDE SHALL BE LIMITED TO THE VALUES TABULATED BELOW AGAINST VARIOUS TEMPERATURES, FOR THE RESPECTIVE WELD-SIZE, FOR RUNNING LENGTH OF WELD. LOADS MAY BE INTERPOLATED FOR INTERMEDIATE TEMPERATURES.
- IN CASE THE PIPE-SCHEDULE IS NOT THE SAME AS TABULATED ABOVE, THE DIMENSIONS "A" AND "h" SHALL BE MODIFIED ACCORDINGLY.
- PROTECTION-SHIELD SHALL BE CUT FROM LINE-PIPE OR ROLLED FROM PLATE OF MATERIAL EQUIVALENT TO THAT OF PIPE. THICKNESS OF PROTECTION-SHIELD SHALL BE SAME AS THAT OF LINE-PIPE OR 12MM, WHICHEVER IS LESS.
- GUIDE-PLATES SHALL BE TO IS-2062.
- IN CASE OF SIZE REDUCTION(S) IN A STRAIGHT RUN WITH SAME BOP, PROTECTION SHIELD THICKNESS FOR ALL SIZES SHALL BE EQUAL TO THAT FOR THE LARGEST DIAMETER PIPE.
- THIS SUPPORT SHALL BE USED FOR NPS 2 TO 12 LINES WHERE PROTECTION SHIELD IS TO BE PROVIDED AS PER JOB REQUIREMENT.

MAXIMUM ALLOWABLE LOAD ON FILLET-WELD OF RESTRAINT (KG/CM)				
WELD SIZE (MM)	TEMPERATURE (IN DEG.C)			
	200	250	300	343
6	340	250	220	200
8	450	340	300	270
10	560	420	370	330

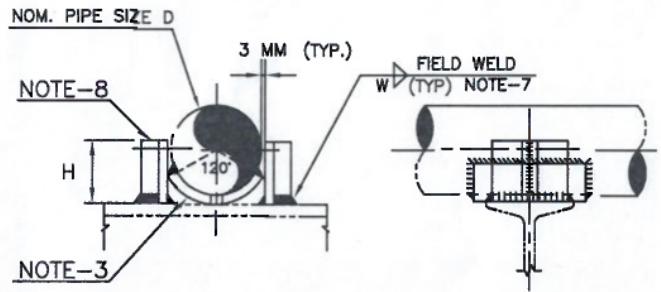
S6A - 1 - D	W
TYPE	
FIG.NO.	
NOM. PIPE SIZE	
WELD SIZE (NOTE-1)	

SYMBOL

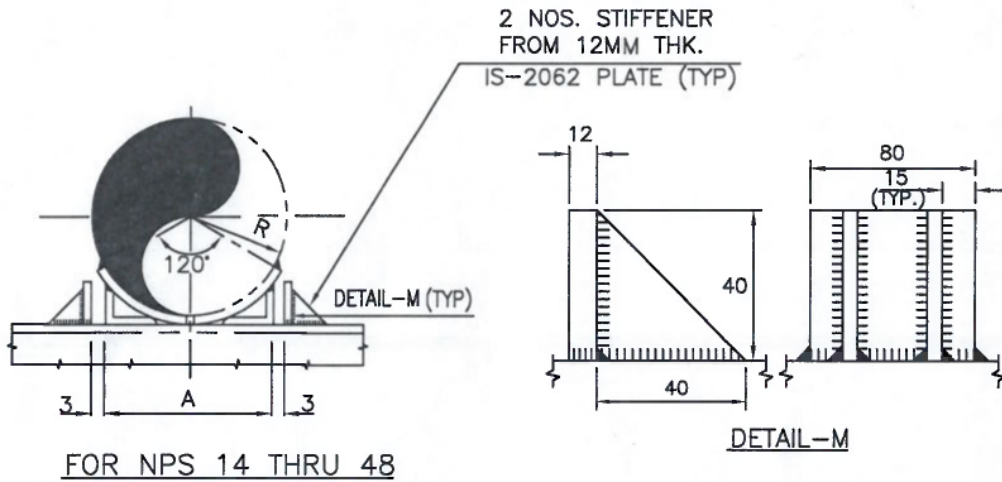
7	23.12.2025	REVISED AND ISSUED AS STANDARD	KSY	RJ	SH	MN
6	24.08.2021	REVISED AND ISSUED AS STANDARD	SG	SH	GB	SM
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



FOR NPS UPTO 4 (NOTE-6)



FOR NPS 6 THRU 12 (NOTE-6)



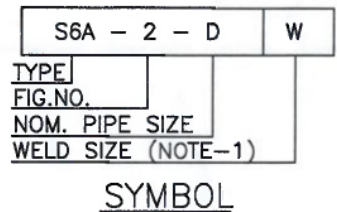
FOR NPS 14 THRU 48

FIG.2 GUIDE

NOTES :-

- 7. GUIDE PLATES/ANGLES SHALL BE WELDED ON BOTH SIDES.
- 8. GUIDE ANGLES SHALL BE SUITABLY TRIMMED WHEREVER THESE OBSTRUCT ADJACENT GUIDE ANGLES.

D	H	WELD-SIZE W	MATERIAL OF GUIDES
2 & SMALLER	50	6	FLAT 60 X 10 (IS-2062)
3 THRU 4	80	6	FLAT 75 X 10 (IS-2062)
6 THRU 8	140	6	2 NOS. ISA 50 X 50 X 6
10 THRU 12	190	10	2 NOS. ISA 75 X 75 X 10
14 THRU 48			REFER DETAIL-M



7	23.12.2025	REVISED AND ISSUED AS STANDARD	KSY	RJ	SH	MN
6	24.08.2021	REVISED AND ISSUED AS STANDARD	SG	SH	GB	SM
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