PIPING CLASS: AE4S0D-FA

SECTION 1.0 – GENERAL

PIPE CLASS:	**AE4S0D-FA**	**DESIGN CODE:**	ASME B31.3
RATING:	150	**PWHT:**	NOTE-5
FLANGE FACE:	RF	**VALVE TRIM:**	ALLOY 625
BASIC MATERIAL:	NPS ½ -4: ALLOY 625 (GROUP 3.8) NPS 6 – 30: LTCS + CLAD 625 (GROUP 1.1)	**SOUR:**	YES (NOTE 4 & 13)
CORROSION ALLOWANCE:	0 MM	**SPECIAL REQUIREMENT:**	NACE & NOTE 148

TEMPERATURE (DEG.C) AND PRESSURE (BARG) RATING - (NOTE-22)

TEMP.	-46	0	38	50	100	150
PRESS.	19.6	19.6	19.6	19.2	17.7	15.8

SERVICE

REFER TO PIPING CLASS INDEX

SIZE RANGE, PIPE WALL THICKNESS (MM) TABLE - (NOTE-79,80)

NPS	½	¾	1	1 ½	2	3	4
SCHEDULE	80S	80S	80S	80S	40S	10S	10S
THICKNESS	3.73	3.91	4.55	5.08	3.91	3.05	3.05

NPS	6	8	10	12	14	16	18	20	24	30
SCHEDULE	80	60	40	40	30	30	30	20	20	-
THICKNESS	10.97	10.31	9.27	10.31	9.53	9.53	11.13	9.53	9.53	CALC

PIPING CLASS: AE4S0D-FA

SECTION 2.0 - NOTES

GENERAL NOTES

1. IN LINE WITH AGES-GL-08-001 (PROCESS DESIGN BASIS) THE MINIMUM PIPING SIZE IS NPS 1. HOWEVER, THE LINE SIZE IN THIS CLASS NPS 3/4 & NPS 1/2 ARE INCLUDED FOR INSTRUMENT CONNECTIONS ONLY.
2. ALL BUTT-WELDED COMPONENT THICKNESSES SHALL MATCH THE PIPE THICKNESS.
3. FOR SPECTACLE BLINDS (FIG-8 FLANGES) & BLINDS REFER TO SPECIFICATION AGES-SP-09-002.
4. ALL MATERIAL FOR SOUR SERVICE SHALL CONFORM TO THE REQUIREMENTS FOR MATERIAL SELECTION GUIDELINES AGES-GL-07-001, REQUIREMENTS FOR MATERIALS IN SEVERE SERVICE AGES-SP-07-003 AND NACE MR0175/ISO 15156 (FOR UPSTREAM) & NACE MR0103/ISO 17945 (FOR REFINERY SERVICE).
5. PWHT SHALL BE BASED ON ASME B31.3 AND THE REQUIREMENTS OF SPECIFICATION AGES-SP-09-002 PIPING MATERIAL SPECIFCATION INDEX. FOR SOUR SERVICE PWHT REQUIREMENT SHALL BE ALSO GOVERNED BY HARDNESS CRITERIA AS PER NACE MR0175 / ISO 15156 (FOR UPSTREAM) & NACE MR0103/ISO 17945 (FOR REFINERY SERVICE).

13. FOR SOUR/ LETHAL SERVICE 100%RT,100%MT/PT HAS TO BE CONSIDERED IRRESPECTIVE OF RATING IN LINE WITH REQUIREMENT FOR MATERIALS IN SEVERE SERVICE AGES-SP-07-003.
15. EXTERNAL FASTENERS (BOLTS, STUDS & NUTS) SHALL BE COATED WITH FLUOROCARBON POLYMER SYSTEM AND SHALL COMPLY WITH SALT SPRAY TEST AS PER MATERIAL SELECTION GUIDELINE AGES-GL-07-001.
16. ALL VALVES IN SOUR OR TOXIC OR HYDROCARBON SERVICE SHALL MEET FUGITIVE EMISSION TESTING REQUIREMENTS AS PER BS EN ISO 15848 PART-1 & PART-2 WITH LEAKAGE CLASS ‘BH’ (REFER TO VALVE SPECIFICATION AGES-SP-09-003).
21. IN PIPE CLASSES WITH DESIGN TEMPERATURE ABOVE -46 DEG. C, CLADDED VALVE OBTURATORS CAN BE ACCEPTED IN SIZE DN 100 AND ABOVE INSTEAD OF SOLID CRA.
22. ALL PIPING COMPONENTS UP TO NPS 24 SHALL BE DESIGNED FOR VACUUM CONDITION AT AMBIENT TEMPERATURE. FOR HIGHER SIZES VACUUM DESIGN SHALL BE APPLICABLE IF INDICATED IN THE LINE LIST.
33. TO BE USED FOR FLANGED CLASS 300 RF CONNECTION.
43. THREADED JOINTS ARE NOT PERMITTED.
51. EXTENDED BONNET VALVES SHALL BE ADDED IN PROJECT STAGE IF THE VALVES ARE OPERATING IN CONTINUOUS OPERATING TEMPERATURE BETWEEN -10 DEG. C AND -50 DEG. C IN LINE WITH EEUMA 192.
54. COMPLETE ORIFICE ASSEMBLY SHALL BE SUPPLIED WITH PAIR OF ORIFICE FLANGES EACH HAVING ONE NPS 1/2 FLANGED TAP (RATING SAME AS PIPE CLASS).
58. THE USE OF SOFT SEATED BALL VALVES IS RESTRICTED TO MAX. DESIGN TEMPERATURE OF 150 ^{O} C. THE MATERIALS OF CONSTRUCTION FOR SEAT ARE INDICATIVE. VENDOR IS RESPONSIBLE TO SELECT SUITABLE MATERIAL TO ENSURE SERVICE LIFE OF THE VALVE CONSIDERING THE TYPE OF FLUID, SIZE AND SERVICE CONDITIONS.
70. LOW STRESS SPIRAL WOUND GASKET.
71. TO BE USED ONLY WHEN INDICATED ON THE P&ID.
73. NIPOFLANGE SHALL BE USED FOR THERMOWELL CONNECTION FOR HEADER NPS 4 AND ABOVE.
79. PRESSURE-TEMPERATURE RATINGS FOR CLAD PIPE CLASSES SHALL SPECIFY LOWER PRESSURE TEMPERATURE RATING OF BASE PIPE MATERIAL OR SOLID CRA. BASE PIPING WALL THICKNESS SHALL BE VALIDATED OVER AND ABOVE SPECIFIED WALL THICKNESSES, IN CASE CLADDING / WELD OVERLAY IS NOT PRACTICAL BY APPROVED CLADDING / WELD OVERLAY VENDORS.
80. THE PIPE THICKNESS ARE CALCULATED BASED ON P-T RATING TABLE FOR THIS CLASS, HOWEVER FOR SIZES NPS 26 AND ABOVE THICKNESS SHALL BE CALCULATED BASED ON PROJECT PROCESS DESIGN PARAMETER.
81. PIPING CLASS COVERS ALL TYPES OF VALVES NORMALLY USED IN THE INDUSTRY. HOWEVER, VALVE TYPE SELECTION SHALL BE AS PER PROCESS ISOLATION PHILOSOPHY (AGES-PH-08-001, AGES-SP-09-003) AND P&ID.
82. WELDED PIPES AND WELDED FITTINGS SHALL BE 100% RADIOGRAPHED. WALL THICKNESS NEGATIVE TOLERANCES OF WELDED FITTINGS SHALL NOT BE LESS THAN WELDED PIPE.
83. WHEN SMALL END OF REDUCER IS NPS 16 & BELOW THE REDUCER SHALL BE SEAMLESS.
85. SMALL BORE PIPE THE MINIMUM SCHEDULE SHALL BE AS PER AGES-SP-09-001 APPENDIX A1.

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86. DISSIMILAR FLANGE MATERIAL SHALL BE SEPARATED USING INSULATING GASKET, ONLY TO BE USED WHEN STATED IN CORROSION REPORT AND IN P&ID OR OTHERWISE WITH COMPANY APPROVAL. FOR HYDROCARBON SERVICE FIRE SAFE INSULATING GASKET IS MANDATORY (REFER AGES-SP-09-005 FOR INSULATING GASKET DETAILS).

87. ALL BUTTERFLY VALVES IN HYDROCARBON & CRITICAL SERVICE SHALL BE TRIPLE OFFSET TYPE. FOR TRIPLE OFFSET BUTTERFLY VALVE, SHORT / LONG PATTERN SHALL BE DECIDED BASED ON LAYOUT REQUIREMENTS. FOR UTILITY SERVICES DOUBLE OFFSET BUTTERFLY CAN BE CONSIDERED.

90. PIPING TO INSTRUMENT IDBB, FLANGED ON BOTH PROCESS SIDE AND INSTRUMENT SIDE.TO BE USED IN SOUR, TOXIC, SULPHURIC ACID AND VIBRATING SERVICE.

148. PIPING CLASS CONTAINS COMBINATION OF SOLID CRA AND CARBON STEEL WITH CLAD MATERIAL. THE MINIMUM THICKNESS OF THE CLADDING (INCLUDING WELD OVERLAY) SHALL BE 3.0MM WITH A TOLERANCE OF +2.0MM, -0.0MM. REFER AGES-SP-09-015 FOR CLADDING REQUIREMENT.

149. MATERIAL FOR REDUCERS AND REDUCING TEES FOR SIZES 10”X 4”, 8"x4", 6"x4" AND 6"x3" SHALL BE CONSIDERED AS SOLID UNS N06625 WITH THE END THICKNESS OF THE FITTING MATCHING THE CONNECTING PIPES/COMPONENTS.

189. CRA CLAD BLANKS IS ACCEPTABLE INSTEAD OF SOLID CRA FOR SIZE NPS 6 AND ABOVE.

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SECTION 3.0 – BRANCH TABLE

90^0 BRANCH CONNECTIONS

BRANCH PIPE (NPS)																		
	30																E	
	24															E	T	
	20														E	T	T	
	18													E	T	T	T	
	16												E	T	T	T	T	
	14											E	T	T	T	T	T	
	12										E	T	T	T	T	T	T	
	10									E	T	T	T	T	T	T	T	
	8								E	T	T	T	T	T	T	W	W	
	6							E	T	T	T	T	T	W	W	W	W	
	4						E	T	T	T	W	W	W	W	W	W	W	
	3					E	T	T	W	W	W	W	W	W	W	W	W	
	2				E	T	T	W	W	W	W	W	W	W	W	W	W	
	1 ½			E	T	T	W	W	W	W	W	W	W	W	W	W	W	
	1		E	T	T	T	W	W	W	W	W	W	W	W	W	W	W	
	3/4	E	T	T	T	TR	W	W	W	W	W	W	W	W	W	W	W	
	1/2	**1/2**	**3/4**	**1**	**1 ½**	**2**	**3**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**24**	**30**
		HEADER PIPE (NPS)																

LEGEND (STANDARD SYMBOLOGY)

C	CALCULATION IN ACCORDANCE WITH ASME B31.3
E	EQUAL TEE
T	REDUCING TEE
TR	REDUCING TEE + REDUCER
W	WELDOLET

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SECTION 4.0 – PIPING COMPONENTS

COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
PIPE- (NOTE 148)							
PIPE	½	4	BE	SEAMLESS	B36.19	ASTM B444 UNS N06625 GR.1, SOUR SERVICE	1,85
PIPE	6	16	BE	SEAMLESS	B36.10	ASTM A333 GR.6 + CLAD UNS N06625, SOUR SERVICE	
PIPE	18	30	BE	WELDED	B36.10	ASTM A671 GR. CC65 CL 22 + CLAD UNS N06625, SOUR SERVICE	
NIPPLE	2	2	BE	AS PIPE, L=100mm	B36.19	ASTM B444 UNS N06625 GR.1, SOUR SERVICE	85
FITTINGS- (NOTE 148)							
ELBOW	½	4	BE	90 DEGREE, LR, WROUGHT, SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
ELBOW	6	16	BE	90 DEGREE, LR, WROUGHT, SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR	2
ELBOW	18	30	BE	90 DEGREE, LR, WROUGHT, WELDED	B16.9	ASTM A420-WPL6-W + CLAD UNS N06625, SOUR SERVICE	2,82
ELBOW	½	4	BE	45 DEGREE, LR, WROUGHT, SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
ELBOW	6	16	BE	45 DEGREE, LR, WROUGHT, SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR	2
ELBOW	18	30	BE	45 DEGREE, LR, WROUGHT, WELDED	B16.9	ASTM A420-WPL6-W + CLAD UNS N06625, SOUR SERVICE	2,82
REDUCER	¾	4	BE	CONCENTRIC, WROUGHT, SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
REDUCER	6	16	BE	CONCENTRIC, WROUGHT, SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR	2,149
REDUCER	18	30	BE	CONCENTRIC, WROUGHT, WELDED	B16.9	ASTM A420-WPL6-W + CLAD UNS N06625, SOUR SERVICE	2,82,83
REDUCER	¾	4	BE	ECCENTRIC, WROUGHT, SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
REDUCER	6	16	BE	ECCENTRIC, WROUGHT, SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR	2,149
REDUCER	18	30	BE	ECCENTRIC, WROUGHT, WELDED	B16.9	ASTM A420-WPL6-W + CLAD UNS N06625, SOUR SERVICE	2,82,83

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COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
FITTINGS -CONT,D (NOTE 148)							
CAP	½	4	BE	WROUGHT, SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
CAP	6	30	BE	WROUGHT, SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR SERVICE	2
BRANCH FITTINGS- (NOTE 148)							
TEE	½	4	BE	EQUAL, WROUGHT, SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
TEE	6	16	BE	EQUAL, WROUGHT, SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR SERVICE	2
TEE	18	30	BE	EQUAL, WROUGHT, WELDED	B16.9	ASTM A420-WPL6-W + CLAD UNS N06625, SOUR SERVICE	2
TEE	¾	4	BE	REDUCING, WROUGHT,SEAMLESS	B16.9	ASTM B366 CL. WPNCMC-S, SOUR SERVICE	2
TEE	6	16	BE	REDUCING, WROUGHT,SEAMLESS	B16.9	ASTM A420-WPL6-S + CLAD UNS N06625, SOUR SERVICE	2,149
TEE	18	30	BE	REDUCING, WROUGHT,WELDED	B16.9	ASTM A420-WPL6-W + CLAD UNS N06625, SOUR SERVICE	2
WELDOLET	½	8	BE	FORGED, SCH AS PIPE	MSS SP-97	ASTM B564 UNS N06625, SOUR SERVICE	
FLANGES- (NOTE 148)							
WELDNECK	½	4	RF	CL.150	B16.5	ASTM B564 UNS N06625, SOUR SERVICE	2
WELDNECK	6	24	RF	CL.150	B16.5	ASTM A350 GR. LF2 CL.1 + CLAD UNS N06625, SOUR SERVICE	2
WELDNECK	30	30	RF	CL.150	B16.47-A	ASTM A350 GR. LF2 CL.1 + CLAD UNS N06625, SOUR SERVICE	2
WELDNECK	½	4	RF	CL.300	B16.5	ASTM B564 UNS N06625, SOUR SERVICE	2,33

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COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
FLANGES-CONT,D (NOTE 148)							
WELDNECK	6	24	RF	CL.300	B16.5	ASTM A350 GR. LF2 CL.1 + CLAD UNS N06625, SOUR SERVICE	2,33
WELDNECK	30	30	RF	CL.300	B16.47-A	ASTM A350 GR. LF2 CL.1 + CLAD UNS N06625, SOUR SERVICE	2,33
NIPOFLANGE	1	2	RF	CL.150, L=150 MM	B16.5	ASTM B564 UNS N06625, SOUR SERVICE	2,73
BLIND	½	4	RF	CL.150	B16.5	ASTM B564 UNS N06625, SOUR SERVICE	
BLIND	6	24	RF	CL.150	B16.5	ASTM A350 GR. LF2 CL.1 + CLAD UNS N06625, SOUR SERVICE	
BLIND	30	30	RF	CL.150	B16.47-A	ASTM A350 GR. LF2 CL.1 + CLAD UNS N06625, SOUR SERVICE	
ORIFICE	2	24	RF	CL.300	B16.36	ASTM B564 UNS N06625, SOUR SERVICE	2,54
LINE BLINDS- (NOTE 148)							
LINE BLIND	½	10	RF	CL.150, SPECTACLE BLIND	B16.48	ASTM B443 UNS N06625, SOUR SERVICE	3, 189
LINE BLIND	12	24	RF	CL.150, SPADE & SPACER	B16.48	ASTM B443 UNS N06625, SOUR SERVICE	3, 189
LINE BLIND	30	30	RF	CL.150, SPADE & SPACER	MFG STD.	ASTM B443 UNS N06625, SOUR SERVICE	3, 189

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COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
GASKETS							
GASKET	½	24	-	CL.150, SPIRAL WOUND, 4.5MM THK.	B16.20/ B16.5	SP. WINDING + INNER RING: UNS N06625, FILLER: GRAPHITE, OUTER RING: SS316, LOW STRESS, SOUR SERVICE	70
GASKET	30	30	-	CL.150, SPIRAL WOUND, 4.5MM THK.	B16.20/ B16.47-A	SP. WINDING + INNER RING: UNS N06625, FILLER: GRAPHITE, OUTER RING: SS316, LOW STRESS, SOUR SERVICE	70
GASKET	½	24	-	CL.300, SPIRAL WOUND, 4.5MM THK.	B16.20/ B16.5	SP. WINDING + INNER RING: UNS N06625, FILLER: GRAPHITE, OUTER RING: SS316, SOUR SERVICE	33
GASKET	30	30	-	CL.300, SPIRAL WOUND, 4.5MM THK.	B16.20/ B16.47-A	SP. WINDING + INNER RING: UNS N06625, FILLER: GRAPHITE, OUTER RING: SS316, SOUR SERVICE	33
INSULATING GASKET	2	24	-	CL.150, RF FLANGE INSULATING GASKET SET, FULL FACE	MANF. STD.	GASKETS AND WASHERS UNS N06625 CORE LAMINATED WITH DIELECTRIC COATING SUITABLE FOR DESIGN CONDTIONS, SOUR SERVICE	86
BOLTS							
STUD BOLT & NUTS	½	30	-	STUD BOLT C/W 2 HEAVY HEX. NUTS	B18.2.1/ B18.2.2	STUD: ASTM A320 GR. L7M ASTM A194 GR. 7M	15

PIPING CLASS: AE4S0D-FA

SECTION 5.0 - VALVES

COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
VALVES - (NOTE -51,81,148)							
CHECK	½	1 ½	RF	CL.150, FLGD TO B16.5, SPRING LOADED LIFT CHECK, BOLTED COVER, SOUR SERVICE	BS 1868 + ASME B16.34	BODY: ASTM B564-UNS N06625 TRIM: ALLOY 625+HF	
CHECK	2	4	RF	CL.150, DUAL PLATE, TYPE A, RF DOUBLE FLGD TO B16.5,SOUR SERVICE	API 594	BODY: ASTM A494-CW6MC TRIM: ALLOY 625+HF	21
CHECK	6	30	RF	CL.150, DUAL PLATE, TYPE A, RF DOUBLE FLGD TO B16.5 / B16.47-A,SOUR SERVICE	API 594	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625+HF	21
CHECK	2	4	RF	CL.150, SWING CHECK FLGD TO B16.5, SOUR SERVICE	API 6D	BODY: ASTM A494-CW6MC TRIM: ALLOY 625+HF	21
CHECK	6	24	RF	CL.150, SWING CHECK FLGD TO B16.5, SOUR SERVICE	API 6D	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625+HF	21
GATE	½	1 ½	RF	CL.150,FLGD TO B16.5, SOLID WEDGE,STD PORT,OS&Y,BOLTED BONNET,HANDWHEEL SOUR SERVICE	API 602 + ASME B16.34	BODY: ASTM B564-UNS N06625 TRIM: ALLOY 625+HF	16
GATE	2	4	RF	CL.150,FLGD TO B16.5 FLEXIBLE WEDGE,STD PORT, OS&Y,BOLTED BONNET,HANDWHEEL SOUR SERVICE	API 603 + ASME B16.34	BODY: ASTM A494-CW6MC TRIM: ALLOY 625+HF	16,21
GATE	6	30	RF	CL.150,FLGD TO B16.5 / B16.47-A,FLEXIBLE WEDGE,STD PORT, OS&Y,BOLTED BONNET,HANDWHEEL / GEAR,SOUR SERVICE	API 603 + ASME B16.34	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625+HF	16,21
GLOBE	½	1 ½	RF	CL.150,FLGD TO B16.5, SWIVEL PLUG DISC,OS&Y,BOLTED BONNET,HANDWHEEL SOUR SERVICE	API 602 + ASME B16.34	BODY: ASTM B564-UNS N06625 TRIM: ALLOY 625+HF	16

PIPING CLASS: AE4S0D-FA

COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
VALVES – CONT,D (NOTE -51,81,148)							
GLOBE	2	4	RF	CL.150, FLGD TO B16.5,SWIVEL PLUG DISC,OS&Y,BOLTED BONNET, HANDWHEEL,SOUR SERVICE	API 623 + ASME B16.34	BODY: ASTM A494-CW6MC TRIM: ALLOY 625+HF	16,21
GLOBE	6	12	RF	CL.150, FLGD TO B16.5,SWIVEL PLUG DISC,OS&Y,BOLTED BONNET, HANDWHEEL / GEAR ,SOUR SERVICE	API 623 + ASME B16.34	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625+HF	16,21
BUTTERFLY	14	30	RF	CL.150, TRIPLE OFFSET, METAL SEATED, DOUBLE FLGD TO B16.5 / B16.47-A, GEAR,SOUR SERVICE	API 609, CAT.B	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM & SEAT: ALLOY 625+HF	16,21 71,87
BALL	2	4	RF	CL.150,FLGD TO B16.5,REDUCED BORE,FLOATING BALL,LEVER,SOUR SERVICE	API 6D	BODY: ASTM A494-CW6MC TRIM: ALLOY 625 SEAT: RPTFE	16,21,58
BALL	6	6	RF	CL.150,FLGD TO B16.5,REDUCED BORE,FLOATING BALL,GEAR,SOUR SERVICE	API 6D	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625 SEAT: RPTFE	16,21,58
BALL	8	30	RF	CL.150,FLGD TO B16.5 / B16.47-A,REDUCED BORE,TRUNNION MOUNTED,GEAR, SOUR SERVICE	API 6D	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625 SEAT: RPTFE	16,21,58
BALL	½	1 ½	RF	CL.150,FLGD TO B16.5, FULL BORE, FLOATING BALL, LEVER,SOUR SERVICE	API 6D	BODY: ASTM B564-UNS N06625 TRIM: ALLOY 625 SEAT: RPTFE	16,58
BALL	2	4	RF	CL.150, FLGD TO B16.5, FULL BORE, FLOATING BALL, LEVER,SOUR SERVICE	API 6D	BODY: ASTM A494-CW6MC TRIM: ALLOY 625 SEAT: RPTFE	16,21, 58,71

PIPING CLASS: AE4S0D-FA

COMPONENT (TYP)	NPS (INCH)		END	DESCRIPTION	DIM/ MFG STD.	MATERIAL STD.	NOTES
	FROM	TO					
VALVES – CONT,D (NOTE -51,81,148)							
BALL	6	30	RF	CL.150, FLGD TO B16.5/B16.47-A, FULL BORE, TRUNNION MOUNTED, GEAR,SOUR SERVICE	API 6D	BODY: ASTM A352-LCC + CLAD UNS N06625 TRIM: ALLOY 625 SEAT: RPTFE	16,21, 58,71
IDBB VALVE (FLG X FLG)	¾	2	RF	CL. 150,BALL TYPE BLOCK ,REDUCING BODY DESIGN, FLOATING BALL AND ½" NEEDLE TYPE BLEED VALVE,LEVER OPERATED, SOUR SERVICE MIN.14MM BORE	API 6D + MANF STD	BODY: ASTM B564-UNS N06625 / ASTM A494-CW6MC TRIM: ALLOY 625 BALL SEAT: RPTFE BLEED VALVE: BODY-ASTM B564-UNS N06625 TRIM- ALLOY 625+HF	16,90