





Table 1:

Maximum allowable conditions:										
Temperature:	-10	0	50	75	100	125	150	175	200	°C
Pressure:	19.0	19.0	18.4	17.3	16.2	15.5	14.8	14.3	13.7	Bar

Corrosion allowance:	0	mm
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Table 2:

Wallthickness in schedule:										
Nom. diameter:	3/4"	1"	1.1/2"	2"	3"	4"	6"	8"	10"	12"
Pipe/tee schedule:	40S	40S	40S	40S	10S	10S	10S	10S	10S	10S
Wall thckn. (mm):	2,87	3,38	3,68	3,91	3,05	3,05	3,40	3,76	4,19	4,57

Table 3:

Branch Chart:											
		Nominal branch size									
		3/4"	1"	1.1/2"	2"	3"	4"	6"	8"	10"	12"
Nominal run size	3/4"	T									
	1"	TR	T								
	1.1/2"	TR	TR	T							
	2"	TR	TR	TR	T						
	3"	W	W	TR	TR	T					
	4"	W	W	TR	TR	TR	T				
	6"	W	W	W	W	TR	TR	T			
	8"	W	W	W	W	W	TR	TR	T		
	10"	W	W	W	W	W	TR	TR	TR	T	
12"	W	W	W	W	W	W	TR	TR	TR	T	

T = Straight Tee  
 TR = Reducing Tee  
 W = Weldolet

Table 4:

Bolting:								
Nominal Pipe size	Bolt Size (dia.)	No. of bolts	Flange to Flange			Spectacle Blinds/ Spades & Spacers		
			Thk. (mm)	Bolt length		Thk. (mm)	Bolt length	
				Inch	mm		Inch	mm
3/4"	1/2"	4	13.2	2.1/2	65	4	2.3/4	70
1"	1/2"	4	14.7	2.3/4	65	4	3	75
1.1/2"	1/2"	4	17.9	3	75	4	3.1/4	80
2"	5/8"	4	19.5	3.1/4	85	4	3.3/4	90
3"	5/8"	4	24.3	3.3/4	90	5	4	105
4"	5/8"	8	24.3	3.3/4	90	7	4.1/4	105
6"	3/4"	8	25.9	4	100	8	4.3/4	115
8"	3/4"	8	29.0	4.1/4	110	10	5	125
10"	7/8"	12	30.6	4.3/4	120	12	5.1/2	140
12"	7/8"	12	32.2	4.3/4	120	15	5.3/4	145



# Pipe specification: S S A



Description	Ends	Diameter	Rating	Material	Dimensions according	Remarks
<b>Pipes:</b>						
Pipe	BE	3/4" - 12"	-	ASTM A-312 Gr.TP316L	ASME B 36.19 M	Wall thickness acc. table 2 page 2
<b>Nipples:</b>						
Nipples	OEP/OET	1/2"-1"	-	SMLS, ASTM A312-TP 316L L=100		
Nipples	BET	1/2"	-	SMLS, ASTM A312-TP 316L L=50		
Nipples	OEP/OET	2"	-	SMLS, ASTM A312-TP 316L L=150		
Swage (CONC)	BEP	1-1 1/2"	-	ASTM A403-WP TP316	MSS SP-95	
Swage (ECC)	BEP	1-1 1/2"	-	ASTM A403-WP TP316L	MSS SP-95	
<b>Fittings:</b>						
Elbow 45deg/90deg	BE	3/4" - 12"	-	ASTM A-403 Gr.WP316L	ASME B 16.9	Wall thickness acc. table 2 page 2
Tee straight and reducing	BE	3/4" - 12"	-	ASTM A-403 Gr.WP316L	ASME B 16.9	Wall thickness acc. table 2 page 2
Cap	BE	3/4" - 12"	-	ASTM A-403 Gr.WP316L	ASME B 16.9	Wall thickness acc. table 2 page 2
Reducer concentric and eccentric	BE	3/4" - 12"	-	ASTM A-403 Gr.WP316L	ASME B 16.9	Wall thickness acc. table 2 page 2
Weldolet	BE	3/4" - 4"	-	ASTM A-182 Gr.F316L	MSS SP-97	Wall thickness acc. table 2 page 2
Bend 45deg/90deg R=5D (note 11)	BE	2" - 12"	-	ASTM A-312 Gr.TP316L	ASME B16.9 Man. std.	Wall thickness acc. table 2 page 2
Barred Tee straight and reducing (note 11)	BE	2" - 12"	-	ASTM A-403 Gr.WP316L	ASME B16.9 In scope of PIG-Launcher / Receiver man.	Wall thickness acc. table 2 page 2
<b>Flanges:</b>						
WN Flange	RF SF	3/4" - 12"	150#	ASTM A-182 Gr.316 / 316L*	ASME B 16.5	Wall thickness acc. table 2 page 2
Blind Flange	RF SF	3/4" - 12"	150#	ASTM A-182 Gr.316 / 316L*	ASME B 16.5	*Both specifications are required
<b>Line Blinds:</b>						
Spectacle Blind	SF	3/4" - 12"	150#	ASTM A-240 Gr.316	ASME B 16.48	
Spade	SF	3/4" - 12"	150#	ASTM A-240 Gr.316	ASME B 16.48	
Spacer ring	SF	3/4" - 12"	150#	ASTM A-240 Gr.316	ASME B 16.48	
<b>Gaskets:</b>						
Gasket spiral wound 4.5mm		3/4" - 12"	150#	316L with Graphite filler / SS centring ring	ASME B 16.20	
<b>Bolting:</b>						
Stud Bolt		Table 4 page 2		ASTM A-193 Gr.B8M	ASME B 18.2.1	
Heavy Hexagon Nut				ASTM A-194 Gr.8M	ASME B 18.2.2	

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# Pipe specification: SSSA



Description	Port	Bonnet/Cover	Diameter	Rating	Design Standard	Closure	Operator	Dimensions acc.	Body Material	Seat Material	Remarks
<b>Valves:</b>											
Gate Valve RFSF	Full	Bolted	6" - 8"	150#	ASME B 16.34 API-6D	Gate	Hand wheel	ASME B 16.10	A-351-CF8M		
Globe Valve RFSF	Regular	Bolted	3/4" - 1"	150#	ASME B 16.34 API-602	Plug disc	Hand wheel	ASME B16.10 TI S15	A-351-CF8M	316	
Globe Valve RFSF	Regular	Bolted	1.1/2" - 8"	150#	ASME B 16.34 API-602	Plug disc	Actuator	ASME B16.10 TI S15	A-351-CF8M	316	
Butterfly Valve RFSF	Regular	Bolted	4" - 12"	150#	ASME B 16.34 API-609	Disc	Gear	ISO 5752 - 13	A-351-CF8M	316	
Ball Valve RFSF	Full	Bolted	3/4" - 1.1/2"	150#	ASME B 16.34 API-6D	Floating Ball	Lever	ASME B16.10 TI S18	A-351-CF8M	316	
Ball Valve RFSF	Full	Bolted	2" - 4"	150#	ASME B 16.34 API-6D	Floating Ball	Lever	ASME B16.10 TI S18	A-351-CF8M	316	
Ball Valve RFSF	Full	Bolted	6" - 8"	150#	ASME B 16.34 API-6D	Trunnion Ball	Gear	ASME B16.10 TI S18	A-351-CF8M	316	
Check Valve RFSF	Regular	Bolted	3/4" - 1.1/2"	150#	ISO 15761 API-6D	Piston	-	ASME B 16.10	A-182-F316	316	
Check Valve RFSF	Full	Bolted	2" - 12"	150#	API 594 API-6D ASME B 16.34	Dual Plate/ Swing type	-	ASME B 16.10	A-351-CF8M / CF3M	316	
<b>Safety Valves:</b>											
Thermal Relief Valve RFSF	20mm	Bolted	1"	150#	API 526	-	-	Manufac. Std.	A-182-F316	316	
Pressure Relief Valve RFSF	Misc.	Bolted	Misc.	150#	API 526	-	-	Manufac. Std.	A-182-F316	316	
Safety Relief Valve RFSF	Misc.	Bolted	Misc.	150#	API 526	-	-	Manufac. Std.	A-182-F316	316	
<b>Strainers:</b>											
Y-Type Strainer RFSF	Regular	Bolted	2" - 12"	150#	Manufac. Std.	-	-	Manufac. Std.	A-351-CF8M / CF8	A-182-F316	

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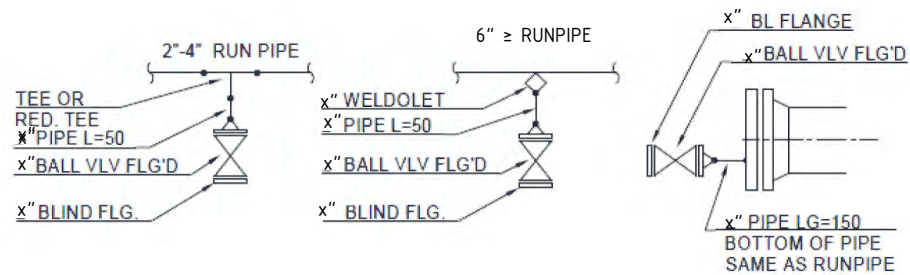
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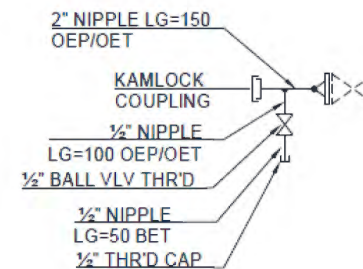
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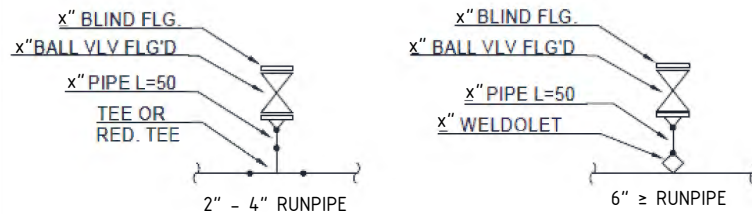


NOTE: FOR DIAMETER "X" SEE P&ID

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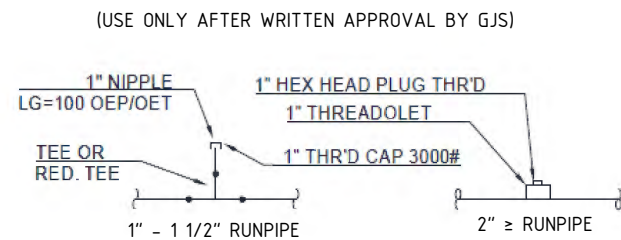


#### PROCESS VENT



NOTE: FOR DIAMETER "X" SEE P&ID

#### TEST VENT/DRAIN



(THREADED CONNECTIONS SEALWELDED AFTER TEST)

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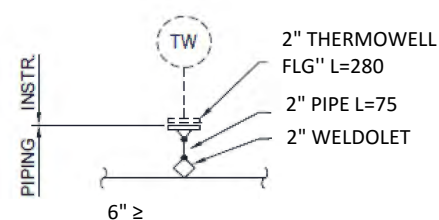
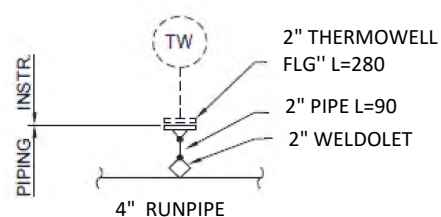
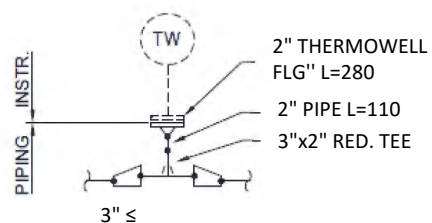
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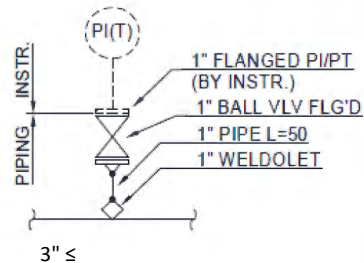
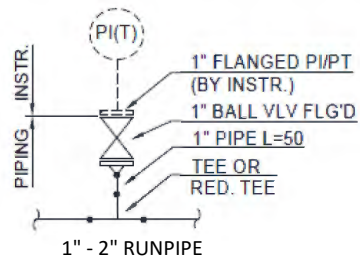


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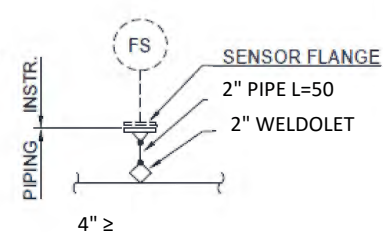
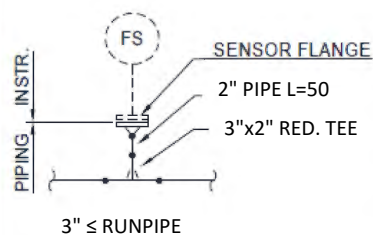
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#### PRESSURE INSTRUMENT



#### DRY RUN PROTECTION



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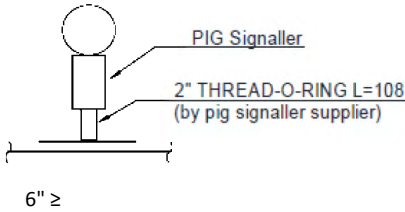
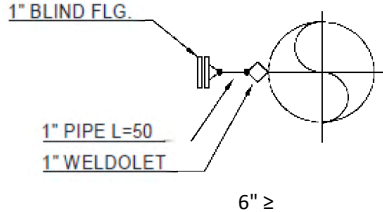
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### ASSEMBLIES

PIG SIGNALLER CONNECTION	SAMPLE CONNECTION
	

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