

Deze specificatie is alleen bedoeld voor trainingsdoeleinden t.b.v. FABRAP | ACADEMY

COVER SHEET

Pipe Specification Above Ground Carbon Steel 150#

Corrosion allowance: 1,5mm

Applicable for:

Process
Fuel
Air
Instrument air
Plant air
Nitrogen
Natural gas
Hot water
Service water
Fire water
Foam

Notes:

- Design Code: [ASME 31.3 latest revision](#)
- All materials to be certified according EN 10204 - 3.1;
- Welds/welding according to [ASME 31.3 latest revision](#)
- Radiographic weld examination per [ASME 31.3 latest revision](#)

100% of all underground piping

100% of all [golden welds according to Golden weld procedure](#)
- Test pressure: 1,5 x P design (max. 30 bar)
Test temperature: +5 to +50 °C
Test medium: Demin water
- Corrosion allowance of 1,5mm is taken into account for all calculated walls.
- Insulation according project specification;
- Conservation according project specification;
- Marking of pipe shall be executed by means of waterproof paint-stencilling or engraving and shall include manufacturers monogram, size, schedule and/or rating and heat number/ID (for traceability of delivered batches);
- For all items fabrication tolerance is 12,5%;
- Items used for piggable systems
- All carbon steel materials shall have a carbon content not exceeding 0,23%;

5									
4									
3									
2									
1									
0									
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Table 1:

Maximum allowable conditions:										
Temperature:	-10	0	50	75	100	125	150	175	200	°C
Pressure:	19.6	19.6	19.2	18.5	17.7	16.8	15.8	14.8	13.8	Bar

Corrosion allowance:	1.5	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:	80	80	80	40	40	40	40	20	20	20
Wall thickn. (mm):	3,91	4,55	5,08	3,91	5,49	6,02	7,11	6,35	6,35	6,35

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					
	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			Check Valve (Wafer type)		
			Thk. (mm)	Bolt length (mm)		Thk. (mm)	Bolt length (mm)		Thk. (mm)	Bolt length (mm)	
3/4"	1/2"	4	13.2	2.1/2	65	5	2.3/4	70	-	-	-
1"	1/2"	4	14.7	2.3/4	65	6	3	75	-	-	-
1.1/2"	1/2"	4	17.9	3	75	6	3.1/4	80	-	-	-
2"	5/8"	4	19.5	3.1/4	85	8	3.3/4	90	60	5.3/4	145
3"	5/8"	4	24.3	3.3/4	90	8	4	105	73	6.3/4	170
4"	5/8"	8	24.3	3.3/4	90	9	4.1/4	105	73	6.3/4	170
6"	3/4"	8	25.9	4	100	12	4.3/4	115	98	8	205
8"	3/4"	8	29.0	4.1/4	110	12	5	125	127	9.1/2	240
10"	7/8"	12	30.6	4.1/2	115	16	5.1/2	140	146	10.1/2	265
12"	7/8"	12	32.2	4.3/4	120	22	5.3/4	145	181	12	305

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Description		Diameter	Rating	Material	Dimensions according	Remarks
Pipes:						
Pipe	BE	3/4" - 12"	-	ASTM A-106 Gr.B	ASME B 36.10 M	Wall thickness acc. table 2 page 2
Nipples:						
Nipples	OEP/OET	1/2"-1"	-	SMLS, ASTM A-106 Gr.B L=100	ASME B 16.11	
Nipples	BET	1/2"	-	SMLS, ASTM A-106 Gr.B L=50	ASME B 16.11	
Nipples	OEP/OET	2"	-	SMLS, ASTM A-106 Gr.B L=150	ASME B 16.11	
Swage (CONC)	BEP	1-1 1/2"	-	ASTM A-106 Gr.B	MSS SP-95	
Swage (ECC)	BEP	1-1 1/2"	-	ASTM A-106 Gr.B	MSS SP-95	
Fittings:						
Elbow 45deg/90deg	BE	3/4" - 12"	-	ASTM A-420 WPL6	ASME B 16.9	Wall thickness acc. table 2 page 2
Tee straight and reducing	BE	3/4" - 12"	-	ASTM A-420 WPL6	ASME B 16.9	Wall thickness acc. table 2 page 2
Cap	BE	3/4" - 12"	-	ASTM A-420 WPL6	ASME B 16.9	Wall thickness acc. table 2 page 2
Reducer concentric and eccentric	BE	3/4" - 12"	-	ASTM A-420 WPL6	ASME B 16.9	Wall thickness acc. table 2 page 2
Weldolet	BE	3/4" - 4"	-	ASTM A-105 N	MSS SP-97	Wall thickness acc. table 2 page 2
Bend 45deg/90deg R=5D (note 11)	BE	2" - 12"	-	ASTM A-106 Gr.B	ASME B16.9 Man. std.	Wall thickness acc. table 2 page 2
Barred Tee straight and reducing (note 11)	BE	2" - 12"	-	ASTM A-420 WPL6	ASME B16.9 In scope of PIG-Launcher / Receiver man.	Wall thickness acc. table 2 page 2
Flanges:						
WN Flange	RF SF	3/4" - 12"	150#	ASTM A-350 LF2 Class 1	ASME B 16.5	Wall thickness acc. table 2 page 2
Blind Flange	RF SF	3/4" - 12"	150#	ASTM A-350 LF2 Class 1	ASME B 16.5	
Line Blinds:						
Spectacle Blind	SF	3/4" - 12"	150#	ASTM A-516 Gr.70	ASME B 16.48	
Spade	SF	3/4" - 12"	150#	ASTM A-516 Gr.70	ASME B 16.48	
Spacer ring	SF	3/4" - 12"	150#	ASTM A-516 Gr.70	ASME B 16.48	
Gaskets:						
Gasket spiral wound 4.5mm		3/4" - 12"	150#	316L with Graphite filler / CS centring ring	ASME B 16.20	
Bolting:						
Stud Bolt		Table 4 page 2		ASTM A-193 Gr.B7	ASME B 18.2.1	
Heavy Hexagon Nut				ASTM A-194 Gr.2H	ASME B 18.2.2	

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Description	Port	Bonnet/Cover	Diameter	Rating	Design Standard	Closure	Operator	Dimensions acc.	Body Material	Seat Material	Remarks
Valves:											
Gate Valve RFSF	Regular	Bolted	3/4" - 1.1/2"	150#	ASME B 16.34 API-6D	Wedge	Hand wheel	ASME B 16.10	A-105N	316 A-276 +HF	
Gate Valve RFSF	Regular	Bolted	2" - 12"	150#	ASME B 16.34 API-6D	Wedge	Hand wheel	ASME B 16.10	A-216 WCB	316 A-276 +HF	
Ball Valve RFSF	Full	Bolted	3/4" - 1.1/2"	150#	ASME B 16.34 API-6D	Floating Ball	Lever	ASME B 16.10	A-105N	316	
Ball Valve RFSF	Full	Bolted	2" - 6"	150#	ASME B 16.34 API-6D	Floating Ball	Lever	ASME B 16.10	A-216 WCB	316	
Ball Valve RFSF	Full	Bolted	8" - 12"	150#	ASME B 16.34 API-6D	Floating Ball	Gear	ASME B 16.10	A-216 WCB	316	
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-216 WCB	316 A-276 410	
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-216 WCB	316 A-276 410	
Butterfly Valve RFSF	Regular	Bolted	4" - 12"	150#	ASME B 16.34 API-609	Disc	Gear	ISO 5752 - 13	A-216 WCB	316	
Check Valve RFSF	Regular	Bolted	3/4" - 1.1/2"	150#	ISO 15761 API-6D	Piston	-	ASME B 16.10	A-105N	316 A-479	
Check Valve Wafer	Regular	Bolted	2" - 12"	150#	API 594 API-6D ASME B 16.34	Dual Plate/ Swing Type	-	API 594 Type A	A-216 WCB	316 A-351 CF8M	
Safety Valves:											
Thermal Relief Valve RFSF	20mm	Bolted	1"	150#	API 526	-	-	Manufac. Std.	A-105N	316	
Pressure Relief Valve RFSF	Misc.	Bolted	Misc.	150#	API 526	-	-	Manufac. Std.	A-105N	316	
Safety Relief Valve RFSF	Misc.	Bolted	Misc.	150#	API 526	-	-	Manufac. Std.	A-105N	316	
Strainers:											
Y-Type Strainer SW	Regular	Bolted	3/4" - 1.1/2"	150#	ASME B 16.34	-	-	Manufac. Std.	A216 WCB	A-182 F316	
Y-Type Strainer RFSF	Regular	Bolted	2" - 12"	150#	Manufac. Std.	-	-	Manufac. Std.	A216 WCB	316	

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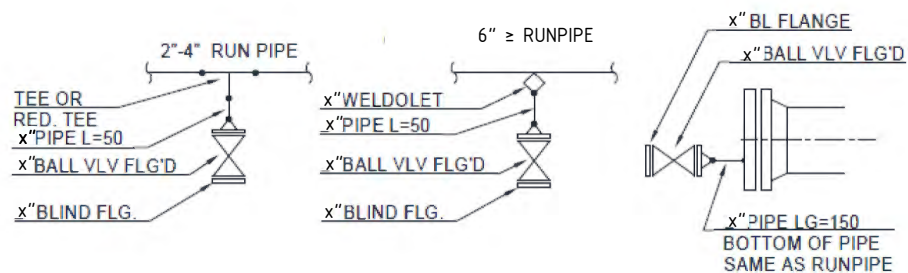
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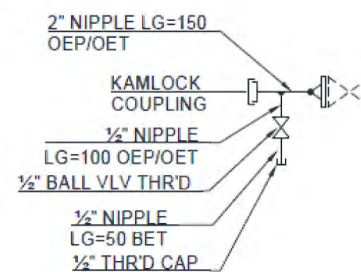
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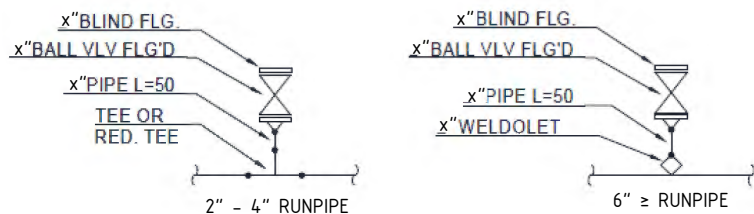


NOTE: FOR DIAMETER "X" SEE P&ID

KAMLOCK DETAIL



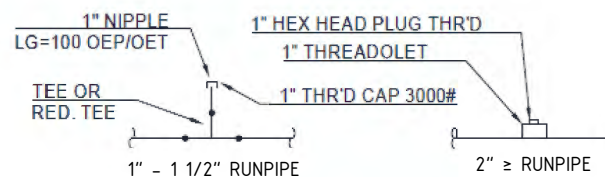
PROCESS VENT



NOTE: FOR DIAMETER "X" SEE P&ID

TEST VENT/DRAIN

(USE ONLY AFTER WRITTEN APPROVAL BY GJS)



(THREADED CONNECTIONS SEALWELDED AFTER TEST)

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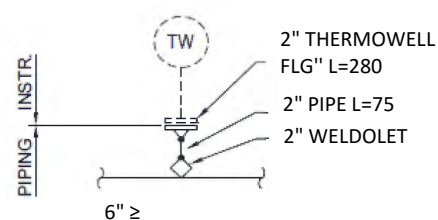
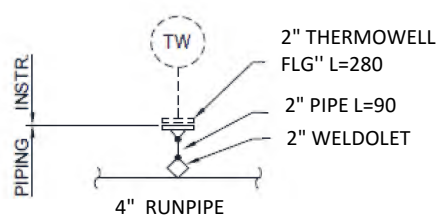
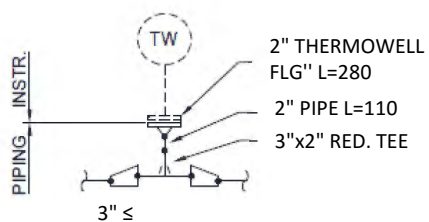
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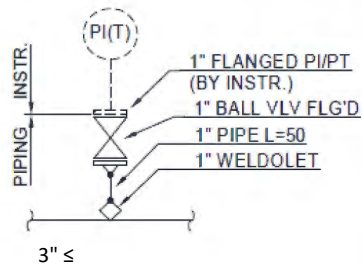
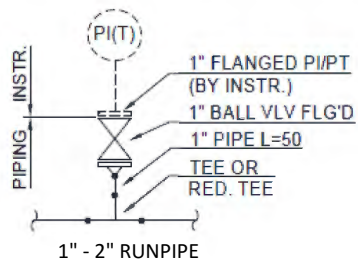
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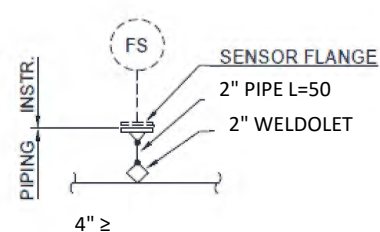
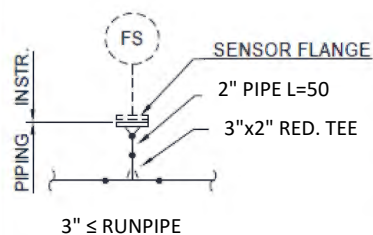
TEMPERATURE INSTRUMENT



PRESSURE INSTRUMENT



DRY RUN PROTECTION



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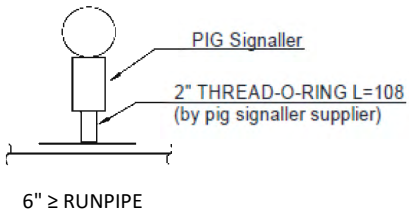
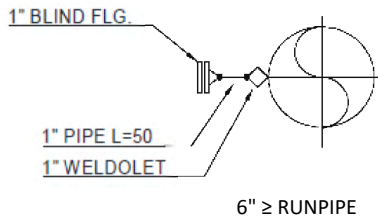
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ASSEMBLIES

PIG SIGNALLER CONNECTION	SAMPLE CONNECTION
 <p>6" \geq RUNPIPE</p> <p>ng to Gol</p>	 <p>6" \geq RUNPIPE</p>

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