

			PIPING MATERIAL SPECIFICATION			PRESSURE RATING : 150#/ 300#	
						DESIGN PRESSURE : 19/49 BARG	
						TEMPERATURE RANGE : 0°C - 65°C	
			SERVICE : NATURAL GAS				
ITEM	SHORT CODE	SIZE FROM-THRU	DESCRIPTION	RATING /SCH. / WT	DIMENSION STANDARD	MATERIAL STANDARD	REMARKS
PIPE	P	1/2" TO 1 ½"	PE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C	
		2"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C	
		3"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C	
		4"	BE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C	
		8" - 12"	BE, SEAMLESS	SCH 40	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C	
BALL VALVE	BLV	1/2" – 1 ½"	SW OR THREADED	800#	BS EN ISO 17292	BODY: ASTM A 105 (Charpy at 0°C) BALL: A351 CF8M/SS316	FLOATING BALL VALVE SOCKET WELD - ASME B 16.11 THREDED - ASME B1.20.1.
		2" - 3"	BW OR FLGD (RF 125-250 AARH)	300# 150#	API 6D	BODY: ASTM A 216 Gr. WCB (Charpy at 0°C) BALL: A351 CF8M/SS316	FLOATING BALL VALVE BUTT WELD - ASME B 16.25 FLANGED END - ASME B 16.5
		4" -12"	BW OR FLGD RF 125-250 AARH	300# 150#	API 6D	BODY: ASTM A 216 Gr. WCB (Charpy at 0°C) BALL: A351 CF8M/SS316	TRUNION MOUNTED BUTT WELD - ASME B 16.25 FLANGED END - ASME B 16.5
GLOBE VALVE	GLV	1/2" – 1 ½"	SW OR THREADED	800#	BS EN ISO 15761	BODY: ASTM A 105 (Charpy at 0° C) TRIM: SS316	SOCKET WELD - ASME B 16.11 THREDED - ASME B1.20.1.
		2" -4"	BW OR FLGD RF 125-250 AARH	300# 150#	BS 1873	BODY: ASTM A 216 Gr. WCB Charpy at 0° C TRIM: SS316	BUTT WELD - ASME B 16.25 FLANGED END - ASME B 16.5

		Above 4"	BW OR FLGD RF 125-250 AARH	300# 150#	BS 1873	BODY: ASTM A 216 Gr. WCB Charpy at 0° C TRIM: SS316	BUTT WELD - ASME B 16.25 FLANGED END - ASME B 16.5
LIFT CHECK VALVE	NRV	1/2" – 1 ½"	SW	800#	BS EN ISO 15761	BODY: ASTM A 216 Gr. WCB Charpy at 0° C	HORIZONTAL INSTALLATION SOCKET WELD - ASME B 16.11
SWING CHECK VALVE		2" – 12"	BW OR FLGD RF 125-250 AARH	300# 150#	API 6D OR BS 1868	BODY: ASTM A 216 Gr. WCB Charpy at 0° C	HORIZONTAL INSTALLATION OR VERTICAL INSTALLATION WITH UPWARD FLOW DIRECTION BUTT WELD - ASME B 16.25 FLANGED END - ASME B 16.5
WAFER TYPE CHECK VALVE		2" & ABOVE	Sandwich Type	300# 150#	API 6D	BODY: ASTM A 216 Gr. WCB Charpy at 0° C	HORIZONTAL INSTALLATION
ELBOWS LR	EL	1/2" – 1 ½"	SW, 1.5 D	3000#	ASME B 16.11	ASTM A 105 Gr. B Charpy at 0° C	SOCKET WELD – ASME B 16.11
		2"-3"	BW, 1.5D	M	ASME B 16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
		4" - 12"	BW, 1.5 D	M	ASME B 16.9	ASTM A 234 WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
REDUCERS CONCENTRIC	RC	1/2" – 1 ½"	SW	3000#	ASME B 16.11	ASTM A 105 Gr. B Charpy at 0° C	SOCKET WELD – ASME B 16.11
		2"-3"	BW	M x M	ASME B 16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
		4" - 12"	BW	M x M	ASME B 16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
TEE EQUAL AND REDUCING	T	1/2" – 1 ½"	SW	3000#	ASME B 6.11	ASTM A 105 Gr. B Charpy at 0° C	SOCKET WELD – ASME B 16.11
		2"-3"	BW	MXM	ASME B 16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
		4" - 12"	BW	MXM	ASME B 16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
SOCKOLET / THREDOLET	S	1/2" - 1 1/2"	SW OR THREADED	3000#	MSS SP 97	ASTM A 105 Charpy at 0° C	SOCKET WELD - ASME B 16.11 THREADED - ASME B1.20.1
WELDOLET	W	2" – 12"	BW	3000#	MSS SP 97	ASTM A 105 Charpy at 0° C	BUTT WELD - ASME B 16.25
END CAP	C	1/2" – 1 ½"	SW	3000#	ASME B 16.11	ASTM A 105 Gr. B Charpy at 0° C	SOCKET WELD - ASME B 16.11
		2" – 3"	BW	M	ASME B16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
		4" - 12"	BW	M	ASME B 16.9	ASTM A 234 Gr. WPB Charpy at 0° C	BUTT WELD - ASME B 16.25
PIPE NIPPLE	NIPL	1/2" – 1 ½"	PE, SEAMLESS	SCH 80	ASME B 36.10	ASTM A 106 Gr. B Charpy at 0°C	-

COUPLING (FULL or HALF)	COUP	1/2" – 1 1/2"	SW OR THREADED	3000#	ASME B 16.11	ASTM A 105 Charpy at 0° C	SOCKET WELD - ASME B 16.11 THREADED - ASME B1.20.1
FLANGE	FW	1/2" - 1 1/2"	SORF (125-250 AARH)	300# 150#	ASME B 16.5	ASTM A 105 Charpy at 0° C	-
		2"-3"	WNRF (125-250 AARH)	300# Bevel End WT M	ASME B 16.5	ASTM A 105 Charpy at 0° C	-
		4" - 12"	WNRF (125-250 AARH)	300# Bevel End WT M	ASME B 16.5	ASTM A 105 Charpy at 0° C	-
BLIND FLANGE	FB	1/2" - 1 1/2"	RF (125-250 AARH)	300# 150#	ASME B 16.5	ASTM A 105 Charpy at 0° C	-
		2"-3"	RF (125-250 AARH)	300# 150#	ASME B 16.5	ASTM A 105 Charpy at 0° C	-
		4"-12"	RF (125-250 AARH)	300# 150#	ASME B 16.5	ASTM A 105 Charpy at 0° C	-
SPECTACLE BLIND	FSB	2"-12"	RF (125-250 AARH)	300# 150#	ASME B 16.48	ASTM A 105 Charpy at 0° C	-
STUD & NUT / BOLT	B	1/2" – 12"	-	300# 150#	ASME B 18.2	STUD:ASTM A 193 B7 NUT: ASTM A 194 2H ASTM A 153	
GASKET SPIRAL WOUND	G	1/2" – 12"	-	0.175" THICKNESS	ASME B 16.20	SPIRAL WOUND CNAF FILLER + INNER & OUTER RING SS316	COMPATIBLE WITH ASME B 16.5 FLANGES

NOTE:

1. M = THICKNESS TO MATCH PIPE WALL THICKNESS
2. THIS SPECIFICATIONS SHALL BE READ IN CONJUNCTION WITH GENERAL NOTES AND DATA SHEETS & TECHNICAL SPECIFICATIONS OF AN INDIVIDUAL ITEM

BRANCH TABLE

Branch Size

HEADER SIZE		1/2"	3/4"	1"	1 ½"	2"	3"	4"	6"	8"	10"	12"
	1/2"	T										
	3/4"	T	T									
	1"	T	T	T								
	1 ½"	T	T	T	T							
	2"	S	S	S	T	T						
	3"	S	S	S	T	T	T					
	4"	S	S	S	T	T	T	T				
	6"	S	S	S	S	W	T	T	T			
	8"	S	S	S	S	W	W	T	T	T		
	10"	S	S	S	S	W	W	T	T	T	T	
	12"	S	S	S	S	W	W	W	T	T	T	T

LEGEND

T : EQUAL/REDUCING TEE
 S : SOCKOLET
 W : WELDOLET

SR. NO	REQUIRED TECHNICAL SPECIFICATION FOR GAS DETECTOR WITH HOOTER		
1	Type of Gas Detector	Gas Transmitter/IR Absorption	
2	Detectable Gas	Natural Gas (Methane)	
3	Detectable Range	0 to 100 % LEL	
4	Accuracy	±5% LEL through-out the range	
5	Response Time	Less than 30 seconds or possible minimum	
6	Repeatability	+3% LEL in 0-50% LEL range, +5% LEL in 51-100% LEL range	
7	Display	128x64 pixel LED / Graphical LCD Display with Battery Percentage value.	
8	Alarms	2 settable alarms (Alarm1 & Alarm2), sensor fault like open and over. Open indication for sensor faulty / replacement and Over limit indication for Site to be reported immediately.	
9	Sense of Gas	Gas detector should be in operable mode all time to sense the gas continuously if leakage at any time and signal should be sent via SMS or AMR portal instantaneously.	
10	Supply	18-32 V DC. Solar operated or inbuilt rechargeable battery in gas detector which has to supply. For the solar battery : GD shall be capable of sustaining operation for up to 15 non-sunny days.	
12	Status Indication	GLCD/LED Display with LED Indications Separate indication for No gas leak, Low alarm, High alarm, sensor failure and calibration in progress shall be available.	
13	Mounting	Wall mount and pipe mount both facility to be provided to fit inside DRS with requisite Accessories	
14	Annunciation	PESO and CIMFR approved Hooter and Flasher for LEL detection or fault	
15	Temperature Range	-10°C to 55°C inside enclosure	
16	Relative Humidity	10-90% RH	
17	Enclosure	Explosion Proof	
18	Ingress Protection	IP 66 (CIMFR Certificate in the name of Manufacturer should be Available and submitted at the time of bidding,)	
19	Calibration Cap	Required along with each Gas Detector	
20	Hazardous Area Classification	For use in Hazardous Area Class I	
21	Hazardous Area Certification	PESO / ATEX certificate of the flameproof housing and CIMFR Test report must be in name of OEM. Third party CIMFR or PESO Certificate is not allowed.	
22	Documentation	Quoted Make, model of Gas Detector shall be mentioned in the bid by bidder.	
23	Catalogue/ Manual	Catalogue/ manual of gas detector shall be supplied along with material.	
24	Identification plate	Each GD should have the tag plate mentioning the Sr. No, Model No, CIMFR/PESO Number on it. Sensor Holder, Stopping Glands, Cable glands should be PESO and CIMFR Approved if applicable.	
25	Approved Vendors	Crowcon, Detector Electronics Corporation, Drager, MSA, Oldham, Ambetronics, Honeywell, Detection Instruments (I) Pvt Ltd	