OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY SEA	Total Price C & F BY SEA	Deviated From Tender Spec. If Any
Group A								
1	4" FLANGE WN, RF, 150#, SCH.40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	50					
2	4" FLANGE WN, RF, 150#, SCH.80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
3	4" FLANGE WN, RF, 300#, SCH.40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
4	4" FLANGE WN, RF, 300#, SCH.80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
5	4" FLANGE WN, RTJ, 600#, SCH 40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
6	4" FLANGE WN, RTJ, 900#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	50					
7	4" FLANGE WN, RTJ, 1500#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
8	4" FLANGE WN, RTJ, 1500#, SCH-160 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
9	4" FLANGE Blind, RF, 150#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10					
10	4" FLANGE Blind, RF, 300#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10					
11	FLANGE,CS,BLIND,4",RTJ,600#,A-694,F52,B16.5	Number	10					
12	4" FLANGE Blind, RTJ, 1500#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10					
13	6" FLANGE WN, RF, 150#, SCH.40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
14	6" FLANGE WN, RF, 150#, SCH.80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	20					
15	6" FLANGE WN, RF, 300#, SCH.40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
16	6" FLANGE WN, RF, 300#, SCH.80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	29					
17	6" FLANGE WN, RTJ, 600#, SCH 40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
18	6" FLANGE WN, RTJ, 600# SCH 80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	50					
19	6" FLANGE WN, RTJ, 900#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	29					
20	6" FLANGE WN, RTJ, 1500#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
21	6" FLANGE WN, RTJ, 1500#, SCH-160 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30					
22	6" FLANGE Blind, RF, 150#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10					
23	6" FLANGE Blind, RTJ, 600#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10					
24	6" FLANGE Blind, RTJ, 1500#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10					
25	8" FLANGE WN, RF, 150#, SCH.40 ASME B 16.5, Material: ASTM A-694	Number	20					

Noted

SYED ABID HUSSAIN SHAH
Principal Technical Officer
FD (Prod)Ext: 2879

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

	Gr. F52		
26	8" FLANGE WN, RF, 150#, SCH.80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	20
27	8" FLANGE WN, RF, 300#, SCH.40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30
28	8" FLANGE WN, RF, 300#, SCH.80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30
29	8" FLANGE WN, RTJ, 900#, SCH-80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30
30	8" FLANGE WN, RTJ, 900#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30
31	8" FLANGE WN, RTJ, 1500#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	15
32	8" FLANGE WN, RTJ, 1500#, SCH-160 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	20
33	8" FLANGE Blind, RF, 150#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	5
34	8" FLANGE Blind, RF, 300#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	5
35	8" FLANGE Blind, RTJ, 600#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10
36	8" FLANGE Blind, RTJ, 900#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10
37	8" FLANGE Blind, RTJ, 1500#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	5
38	SW. Flange 3/4" RTJ 900#,as per ASME B16.5, Material: ASTM A105	Number	10
39	SW. Flange 3/4" RTJ 1500#,as per ASME B16.5, Material: ASTM A105	Number	45
40	FLANGE,CS,SW,1",RF,150#,,SCH 160, as per ASME B16.5, Material: ASTM A105	Number	10
41	SW. Flange 1" RTJ 300#,as per ASME B16.5, Material: ASTM A105	Number	10
42	SW. Flange 1" RTJ 900#,as per ASME B16.5, Material: ASTM A105	Number	15
43	SW. Flange 1" RTJ 1500#,as per ASME B16.5, Material: ASTM A105	Number	70
44	WN. Flange 1-1/2" RTJ BW 900# SCH.160,as per ASME B16.5, Material: ASTM A105	Number	10
45	WN. Flange 1-1/2" RTJ Sch 80 900#,as per ASME B16.5, Material: ASTM A105	Number	10
46	WN. Flange 2" RF Sch: 40 BW 150#,as per ASME B16.5, Material: ASTM A105	Number	25
47	WN. Flange 2" RF Sch: 80 BW 150#,as per ASME B16.5, Material: ASTM A105	Number	15
48	WN. Flange 2" RF Sch: 40 BW 300#,as per ASME B16.5, Material: ASTM A105	Number	25
49	WN. Flange 2" RTJ Sch: 40 BW 300 #,as per ASME B16.5, Material: ASTM A105	Number	10
50	WN. Flange 2" RTJ Sch: 40 BW 900 #,as per ASME B16.5, Material: ASTM A105	Number	10
51	WN. Flange 2" RTJ Sch: 80 BW 900 #,as per ASME B16.5, Material: ASTM A105	Number	20

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

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ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC–FB/CB/PE&FD–5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

52	WN. Flange 2" RTJ Sch: 160 BW 900 #,as per ASME B16.5, Material: ASTM A105	Number	160
53	WN. Flange 2" RTJ Sch: 80 BW 600 #,as per ASME B16.5, Material: ASTM A105	Number	35
54	WN. Flange 2" RTJ Sch: 40 BW 600#,as per ASME B16.5, Material: ASTM A105	Number	10
55	WN. Flange 3" RF Sch: 40 BW 300#,as per ASME B16.5, Material: ASTM A105	Number	30
56	WN. Flange 3" RTJ Sch: 40 BW 300 #,as per ASME B16.5, Material: ASTM A105	Number	10
57	WN. Flange 3" RTJ Sch: 80 BW 600 #,as per ASME B16.5, Material: ASTM A105	Number	10
58	WN. Flange 4" RF Sch: 40 BW 150 #,as per ASME B16.5, Material: ASTM A105	Number	70
59	WN. Flange 4" RF Sch: 40 BW 300 #,as per ASME B16.5, Material: ASTM A105	Number	70
60	WN. Flange 4" RTJ Sch: 40 BW 600#,as per ASME B16.5, Material: ASTM A105	Number	10
61	WN. Flange 4" RTJ Sch: 40 BW 900 #,as per ASME B16.5, Material: ASTM A105	Number	10
62	WN. Flange 4" RTJ Sch: 80 BW 600 ,as per ASME B16.5, Material: ASTM A105#	Number	139
63	WN. Flange 4" RTJ Sch: 80 BW 900#,as per ASME B16.5, Material: ASTM A105	Number	50
64	WN. Flange 4" RTJ Sch: 120 BW 900#,as per ASME B16.5, Material: ASTM A105	Number	120
65	WN. Flange 4" RTJ Sch: 80 BW 600 #,as per ASME B16.5, Material: ASTM A105	Number	10
66	WN. Flange 6" RTJ Sch: 80 BW 600 #,as per ASME B16.5, Material: ASTM A105	Number	170
67	FLANGE,CS,WN,6",RTJ,900#,SCH 120,as per ASME B16.5, Material: ASTM A105	Number	89
68	WN. Flange 6" RTJ Sch: 80 BW 900 #,as per ASME B16.5, Material: ASTM A105	Number	40
69	WN. Flange 6" RTJ Sch: 80 BW 600 #,as per ASME B16.5, Material: ASTM A105	Number	15
70	WN. Flange 6" RF Sch: 40 BW 150 #	Number	9
71	WN. Flange 8" RTJ Sch: 40 BW 600 #,as per ASME B16.5, Material: ASTM A105	Number	35
72	WN. Flange 8" RTJ Sch: 80 BW 900 #,as per ASME B16.5, Material: ASTM A105	Number	70
73	Blind Flange 3/4" RTJ 1500 #,as per ASME B16.5, Material: ASTM A105	Number	20
74	Blind Flange 3/4" RTJ 1500# with 1/2" Tapping Bore, as per ASME B16.5, Material: ASTM A105	Number	10
75	Blind Flange 1" RTJ 900 # 1/2" NPT as per ASME B16.5, Material: ASTM A105	Number	10
76	Blind Flange 1" RTJ 900 #,as per ASME B16.5, Material: ASTM A105	Number	15

OIL & GAS DEVELOPMENT COMPANY LIMITED
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ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC–FB/CB/PE&FD–5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

77	Blind Flange 1" RTJ 1500 #,as per ASME B16.5, Material: ASTM A105	Number	50
78	Blind Flange 2" RF 150 #,as per ASME B16.5, Material: ASTM A105	Number	6
79	Blind Flange 2" RTJ 600 #,as per ASME B16.5, Material: ASTM A105	Number	10
80	Blind Flange 2" RTJ 900 #,as per ASME B16.5, Material: ASTM A105	Number	20
81	Blind Flange 4" RF 300 #,as per ASME B16.5, Material: ASTM A105	Number	35
82	Blind Flange 4" RF 600 #,as per ASME B16.5, Material: ASTM A105	Number	10
83	Blind Flange 4" RTJ 600 #,as per ASME B16.5, Material: ASTM A105	Number	20
84	Blind Flange 4" RTJ 900 #,as per ASME B16.5, Material: ASTM A105	Number	20
85	Blind Flange 6" RTJ 600 #,as per ASME B16.5, Material: ASTM A105	Number	25
86	Blind Flange 6" RTJ 900 #,as per ASME B16.5, Material: ASTM A105	Number	15
87	Blind Flange 6" RF 150 #,as per ASME B16.5, Material: ASTM A105	Number	10
88	Blind Flange 8" RTJ 600 #,as per ASME B16.5, Material: ASTM A105	Number	15
89	Blind Flange 8" RTJ 900 #,as per ASME B16.5, Material: ASTM A105	Number	10
90	Flanged orifice Assembly, 4", RF, 300 #, Sch–40,Material: ASTM A105	Number	10
91	Flanged orifice Assembly, 6" RTJ, 600 #, Sch–120, Material: ASTM A105	Number	10
92	Anchor Flange 8'' 600 # Sch.80, Material: ASTM A105	Number	5
93	Anchor Flange 8'' 900 # Sch.80,Material: ASTM A105	Number	5
94	Anchor Flange 6'' Sch.40 300 #,Material: ASTM A105	Number	5
95	Anchor Flange 6'' Sch.80 600 #,,Material: ASTM A105	Number	5
96	Anchor Flange 4'' Sch.80 600 #,Material: ASTM A105	Number	10
97	Anchor Flange 4'' Sch.40 300 #,Material: ASTM A105	Number	15
98	4" ELBOW 90, LR, B.W. SCH 40, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	19
99	6" ELBOW 90, LR, B.W. SCH 40, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	20
100	8" ELBOW 90, LR, B.W. SCH 40, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	20
101	4" ELBOW 90, LR, B.W. SCH 80, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	20
102	8" ELBOW 90, LR, B.W. SCH 80,MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	20
103	4" ELBOW 90, LR, B.W. SCH 120, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	30
104	6" ELBOW 90, LR, B.W. SCH 120, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	20
105	8" ELBOW 90, LR, B.W. SCH 120, MSS SP–75 Gr. WPHY 52, as per ASME B16.9	Number	10
106	8" ELBOW 90, LR, B.W. SCH 160, MSS SP–75 Gr. WPHY 52, as per ASME	Number	10

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ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

	B16.9		
107	Elbow 3/4", 90, 3000 # SW,ASTM A-105 as per ASME B16.11	Number	10
108	Elbow 1", 90, 3000 #, SW,ASTM A-105 as per ASME B16.11	Number	9
109	Elbow 1", 90, 9000 #, SW,ASTM A-105 as per ASME B16.11	Number	15
110	Elbow 2", 90, LR, Sch: 40, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	30
111	Elbow 2", 90, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	70
112	Elbow 2", 90, LR, Sch: 160, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	50
113	Elbow 3", 90, LR, Sch: 40, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	25
114	Elbow 3", 90, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	10
115	Elbow 4", 45, LR, Sch: 40, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	10
116	Elbow 4", 45, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	20
117	Elbow 4", 45, LR, Sch: 120, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	10
118	Elbow 4", 90, LR, Sch: 40, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	180
119	Elbow 4", 90, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	150
120	Elbow 4", 90, LR, Sch: 120, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	100
121	Elbow 6", 90, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	90
122	Elbow 6", 45, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	16
123	Elbow 6", 90, LR, Sch: 120, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	60
124	Elbow 8", 45, LR, Sch: 40, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	57
125	Elbow 8", 90, LR, Sch: 40, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	8
126	Elbow 8", 90, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	20
127	Elbow 8", 45, LR, Sch: 80, BW,ASTM A-234 Gr WPB as per ASME B16.9	Number	10
128	TEE EQUAL 4", BW, SCH.40, ASTM A-694, Gr.F52 as per ASME B16.11	Number	20
129	TEE EQUAL 8", BW, SCH.40, ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
130	TEE EQUAL 4", BW, SCH.80, ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
131	TEE EQUAL 6", BW, SCH.80, ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
132	TEE EQUAL 8", BW, SCH.80, ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
133	TEE EQUAL 4", BW, SCH.120 ASTM A-694 Gr.F52 as per ASME B16.11	Number	30
134	TEE EQUAL 6", BW, SCH.120, ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
135	TEE EQUAL 8", BW, SCH.120, ASTM A-694 Gr F52 as per ASME B16.11	Number	10
136	TEE EQUAL 4", BW, SCH.160 ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
137	TEE EQUAL 6", BW, SCH.160, ASTM A-694 Gr.F52 as per ASME B16.11	Number	10

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ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC–FB/CB/PE&FD–5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

138	TEE EQUAL 8", BW, SCH.160, ASTM A–694 Gr.F52 as per ASME B16.11	Number	10
139	TEE EQUAL 3/4", 9000 #, SW,ASTM A–105 as per ASME B16.11	Number	15
140	TEE EQUAL 3/4", 3000 #, SW,ASTM A–105 as per ASME B16.11	Number	5
141	TEE EQUAL1", 9000 #, SW,ASTM A–105 as per ASME B16.11	Number	10
142	TEE REDUCING 1" X 3/4", 3000 #, SW,ASTM A–105 as per ASME B16.11	Number	10
143	TEE REDUCING 2" X 3/4", 9000 #, SW,ASTM A–105 as per ASME B16.1	Number	10
144	TEE REDUCING 2" X 1", 9000 #, SW,ASTM A–105 as per ASME B16.1	Number	15
145	TEE REDUCING 2" X 1", 3000 #, SW,ASTM A–105 as per ASME B16.1	Number	10
146	TEE EQUAL 6", SCH 40, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
147	TEE EQUAL 6", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	70
148	TEE EQUAL 6", SCH 120 BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	50
149	TEE EQUAL 8", Sch 40 BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
150	TEE EQUAL 8", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	15
151	TEE EQUAL 2" X 1", SCH. 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	9
152	TEE REDUCING 3" X 2", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
153	TEE REDUCING 4" X 2", SCH 40, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	25
154	TEE REDUCING 4" X 2", SCH. 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	50
155	TEE REDUCING 4" X 2", SCH. 160, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
156	TEE REDUCING 4" X 2", SCH 120X160, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	15
157	TEE REDUCING 4" X 3", SCH. 40, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	30
158	TEE REDUCING 6" X 4", SCH 40, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	20
159	TEE REDUCING 6" X 4", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	20
160	TEE REDUCING 8" X 4", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
161	TEE REDUCING 8" X 4", SCH 80 X Sch 40, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
162	BARRED TEE EQUIAL 4", SCH: 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
163	BARRED TEE EQUIAL 6", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
164	BARRED TEE EQUAL 8", SCH 40, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
165	BARRED TEE EQUAL 8", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME	Number	10

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Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

	B 16.9		
166	REDUCING BARRED TEE 8"X4", SCH 80 x SCH.40,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
167	REDUCING BARRED TEE 6"X4", SCH 80, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
168	TEE REDUCING 4"X3", SCH. 160, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
169	REDUCER CONC, 1" X 3/4", SCH: 40 x SCH.80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
170	REDUCER CONCENTRIC 1"X1-1/2", SCH: 40 BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
171	REDUCER CONCENTRIC 2" X 3/4", SCH: 160, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
172	REDUCER CONCENTRIC 2"X1", SCH: 160, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
173	REDUCER CONCENTRIC 2"X1-1/2", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
174	REDUCER CONCENTRIC 2"X1-1/2", SCH: 160, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
175	REDUCER CONCENTRIC 2"X1", SCH: 40, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
176	REDUCER CONCENTRIC 2"X1", SCH: 80 BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
177	REDUCER CONCENTRIC, 3"X2", SCH: 40, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	20
178	REDUCER CONCENTRIC 4"X2", SCH: 40, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	15
179	REDUCER CONCENTRIC 4"X2", SCH 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	30
180	REDUCER CONCENTRIC 4"X3", SCH 40, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	40
181	REDUCER CONCENTRIC 4"X3", SCH 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
182	REDUCER CONCENTRIC 4"X3", SCH: 120x80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
183	REDUCER CONCENTRIC 4"X3", SCH: 120, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	15
184	REDUCER CONCENTRIC 4"X3", SCH 120X160, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	15
185	REDUCER CONCENTRIC 6"X3", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
186	REDUCER CONCENTRIC 6"X4", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	40
187	REDUCER CONCENTRIC 6"X4", SCH: 120, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
188	REDUCER CONCENTRIC 8"X3", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
189	REDUCER CONCENTRIC 8"X4", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	20

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

190	REDUCER CONCENTRIC 8"X6", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
191	REDUCER ECCENTRIC 8"X 6", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	20
192	REDUCER CONCENTRIC 10"X8", SCH: 80, BW,ASTM A-234 Gr.WPB, as per ASME B 16.9	Number	10
193	THREADOLET 3/4", CLASS 3000, MATERIAL: ASTM A-694 Gr. F52	Number	30
194	THREADOLET 1/2", CLASS 3000, MATERIAL: ASTM A-694 Gr. F52	Number	30
195	THREADOLET 3/4", CLASS 6000, MATERIAL: ASTM A-694 Gr. F52	Number	30
196	THREADOLET 1/2", CLASS 6000, MATERIAL: ASTM A-694 Gr. F52	Number	30
197	WELDOLET, BW , 8" X 1/2", SCH-80, MATERIAL: ASTM A-694 Gr. F52	Number	10
198	WELDOLET ,BW , 6" X 1/2" SCH-80, MATERIAL: ASTM A-694 Gr. F52	Number	20
199	WELDOLET ,BW , 6" X 1/2" SCH-120, MATERIAL: ASTM A-694 Gr. F53	Number	20
200	WELDOLET ,BW , 6" X 1/2" SCH-160, MATERIAL: ASTM A-694 Gr. F54	Number	20
201	WELDOLET ,BW , 4" X 1/2", SCH-80 MATERIAL: ASTM A-694 Gr. F52	Number	30
202	WELDOLET ,BW , 4" X 1/2", SCH-120 MATERIAL: ASTM A-694 Gr. F53	Number	30
203	WELDOLET ,BW , 4" X 1/2", SCH-160 MATERIAL: ASTM A-694 Gr. F54	Number	30
204	WELDOLET ,BW , 8" X 3/4", SCH-80, MATERIAL: ASTM A-694 Gr. F52	Number	10
205	WELDOLET ,BW , 6" X 3/4", SCH-80, MATERIAL: ASTM A-694 Gr. F52	Number	20
206	WELDOLET ,BW , 6" X 3/4", SCH-120, MATERIAL: ASTM A-694 Gr. F53	Number	20
207	WELDOLET ,BW , 6" X 3/4", SCH-160, MATERIAL: ASTM A-694 Gr. F54	Number	20
208	WELDOLET ,BW ,4" X 3/4" SCH-80, MATERAIL: ASTM A-694 Gr. F52	Number	30
209	WELDOLET ,BW ,4" X 3/4" SCH-120, MATERIAL: ASTM A-694 Gr. F53	Number	30
210	WELDOLET ,BW ,4" X 3/4" SCH-160, MATERIAL: ASTM A-694 Gr. F54	Number	30
211	PIPE NIPPLE, BW, SEAMLESS, API 5L Gr. X52, SCH. 80, 100 MM LONG P.E 1/2"	Number	20
212	PIPE NIPPLE, BW, SEAMLESS, API 5L Gr. X52, SCH. 80, 100 MM LONG P.E 3/4"	Number	20
213	PIPE NIPPLE, BW, SEAMLESS, API 5L Gr. X52, SCH. 120, 100 MM LONG P.E 1/2"	Number	20
214	PIPE NIPPLE, BW, SEAMLESS, API 5L Gr. X52, SCH. 120, 100 MM LONG P.E 3/4"	Number	20
215	PIPE NIPPLE, BW, SEAMLESS, API 5L Gr. X52, SCH. 160, 100 MM LONG P.E 1/2"	Number	20
216	PIPE NIPPLE, BW, SEAMLESS, API 5L Gr. X52, SCH. 160, 100 MM LONG P.E 3/4"	Number	20
217	Sockolet 2"X3/4",3000#,SW,ASTM A 105	Number	7
218	Sockolet 4"X3/4",9000#,SW,ASTM A 105	Number	10

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

219	Sockolet 4"X1/2",3000#,SW,ASTM A-105	Number	50
220	Sockolet 4"X1",9000#,SW,ASTM A-105	Number	25
221	Sockolet 4"X1",3000#,SW,ASTM A-105	Number	10
222	Sockolet 6"X3/4",9000#,SW,ASTM A-105	Number	10
223	Sockolet 6"X1",9000#,SW,ASTM A-105	Number	10
224	Sockolet 8"X1",9000#,SW,ASTM A-105	Number	15
225	Sockolet 8"X3/4",9000#,SW,ASTM A-105	Number	10
226	WELDOLET 2" X 6", SCH. 160, BW, A-105N	Number	15
227	WELDOLET 2" X 8", SCH 80, BW, A-105	Number	10
228	Weldolet 10"X4",Sch.80 x Sch.40,BW,ASTM A-105	Number	10
229	THREADOLET 1'',6000#,Pipe Size 4",ASTM A-105	Number	10
230	THREADOLET 3/4", 6000 #,Pipe Size 4",ASTM A-105	Number	10
231	THREADOLET 1/2'',6000#,Pipe Size 4",ASTM A-105	Number	10
232	THREADOLET 3/4", 3000 #,Pipe Size 4",ASTM A-105	Number	10
233	THREADOLET 1/2",3000 #,Pipe Size 4",ASTM A-105	Number	10
234	3/4",Barrel Nipple,3000#,ASTM A 105	Number	10
235	1/2",Barrel Nipple,3000#,ASTM A-105	Number	200
236	1/2",Barrel Nipple,6000#,ASTM A-105	Number	200
237	FLANGE,WN,4",RTJ,600#,SCH 80,,A-694,F52	Number	50
238	4" FLANGE WN, RTJ, 900#, SCH-80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	50
239	6" FLANGE WN, RTJ, 900#, SCH-80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30
240	6" FLANGE Blind, RF, 300#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10
241	6" FLANGE Blind, RTJ, 900#, ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	10
242	8" FLANGE WN, RTJ, 900#, SCH-120 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	30
243	8" FLANGE WN, RTJ, 600# SCH 80 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	50
244	8" FLANGE WN, RTJ, 600#, SCH 40 ASME B 16.5, Material: ASTM A-694 Gr. F52	Number	20
245	Flange 3-1/8 RTJ Sch: 120 BW API 5K,Material: ASTM A105	Number	30
246	WELDOLET,2" X 10",SCH 80,A-105	Number	10
247	Sockolet 4"X1",9000#,SW,ASTM A-105	Number	25
248	Sockolet 4"X3/4",3000#,SW,ASTM A 105	Number	10
249	Sockolet 2"X3/4",6000#,SW,ASTM A 105	Number	80

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group A

250	REDUCER,CONCENTRIC,CS,2" X 1-1/2",SCH 80,,A-234,GR. WPB,BE,,B16.9	Number	10
251	REDUCING 6" X 4", SCH 120, BW,ASTM A 234 Gr. WPB, as per ASME B 16.9	Number	10
252	TEE EQUAL 6", BW, SCH.40, ASTM A-694 Gr.F52 as per ASME B16.11TEE EQUAL 6", BW, SCH.80, ASTM A-694 Gr.F52 as per ASME B16.11	Number	20
253	Flanged orifice Assembly, 6" RTJ, 600 #, Sch-80, Material: ASTM A105	Number	10
254	Flanged orifice Assembly, 4" RTJ, 600 #, Sch-80, Material: ASTM A105	Number	20
255	Flanged orifice Assembly, 4" RTJ, 900 #, Sch-120,Material: ASTM A105	Number	10
256	ELBOW,,,45 DEG,3",SCH 80,,A-234,WPB,,,	Number	10

Group B

257	GASKET SPIRAL WOUND 4", 150 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	40
258	GASKET SPIRAL WOUND 4", 300 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	30
259	GASKET SPIRAL WOUND 6", 150 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	30
260	GASKET SPIRAL WOUND 6", 300 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	30
261	GASKET SPIRAL WOUND 8", 150 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	30
262	GASKET SPIRAL WOUND 8", 300 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	30
263	GASKET SPIRAL WOUND 3/4", 150 #, 304SS, 3MM THK, COMPRESSED GRAPHITE FILLED,Central Ring Per ASME B 16.20	Number	10
264	GASKET SPIRAL WOUND 1", 150 #, 304SS, 3MM THK, COMPRESSED GRAPHITE FILLED,Central Ring Per ASME B 16.20	Number	15
265	GASKET SPIRAL WOUND 1", 900 #, 304SS, 3MM THK, COMPRESSED GRAPHITE FILLED,Central Ring Per ASME B 16.20	Number	10
266	GASKET SPIRAL WOUND 2", 150 #, 304SS, 3MM THK, COMPRESSED GRAPHITE FILLED,Central Ring Per ASME B 16.20	Number	20
267	GASKET SPIRAL WOUND 2", 300 #, 304SS, 3MM THK, COMPRESSED GRAPHITE FILLED,Central Ring Per ASME B 16.20	Number	30
268	GASKET SPIRAL WOUND 3", 300 #, 304SS, 3MM THK, COMPRESSED GRAPHITE FILLED,Central Ring Per ASME B 16.20	Number	60
269	GASKET SPIRAL WOUND 4", 150 #, 3MM, COMPRESSED GRAPHITE FILLED, SS304, Central Ring Per ASME B 16.20	Number	80
270	GASKET SPIRAL WOUND 4", 300 #, 3MM, COMPRESSED GRAPHITE FILLED, SS304, Central Ring Per ASME B 16.20	Number	500
271	GASKET SPIRAL WOUND 4", 600 #, 3MM, COMPRESSED GRAPHITE FILLED, SS304, Central Ring Per ASME B 16.20	Number	10
272	GASKET SPIRAL WOUND 6", 150 #, 3MM, COMPRESSED GRAPHITE FILLED, SS304, Central Ring Per ASME B 16.20	Number	10
273	Gasket Ring Joint R-37, Octagonal Ring , 316 L.S.S	Number	490
274	Gasket Ring Joint R-45 Octagonal Ring , 316 L.S.S	Number	330

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC–FB/CB/PE&FD–5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group B

275	Gasket Ring Joint R–49 Octagonal Ring , 316 L.S.S	Number	180
276	Gasket Ring Joint R–14 Octagonal Ring , 316 L.S.S	Number	120
277	Gasket Ring Joint R–16 Octagonal Ring , 316 L.S.S	Number	240
278	Gasket Ring Joint R–24 Octagonal Ring , 316 L.S.S	Number	234
279	Gasket Ring Joint R–39 Octagonal Ring , 316 L.S.S	Number	40
280	GASKET SPIRAL WOUND 4", 300 #, 3MM THICK COMPRESSED GRAPHITE FILLED, 304 SS, CENTRAL RING PER ASME B16.20	Number	30

Group C

281	Bend 4'', 45 deg, Sch. 40, coated, MSS SP–75 Gr. WPHY 52, as per ASME B 16.9	Number	80
282	Bend 4'', 90 deg, Sch. 40, coated, MSS SP–75 Gr. WPHY 52, as per ASME B 16.9	Number	90
283	Bend 4'', 45 deg, Sch. 80, coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9	Number	35
284	Bend 4'', 90 deg, Sch. 80, coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9	Number	35
285	BEND 6", SCH 40, 90 DEG, Coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9	Number	50
286	BEND 6", SCH 40, 45 DEG, Coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9	Number	50
287	BEND 6", SCH 80, 90 DEG, Coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9.	Number	30
288	BEND 6", SCH 80, 45 DEG, Coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9.	Number	30
289	Bend 8'', 45 deg., Sch. 40, coated MSS SP–75 Gr. WPHY 52, as per ASME B 16.9.	Number	20
290	Bend 8'', 45 deg., Sch.80, Coated, MSS SP–75 Gr. WPHY 52, as per ASME B 16.9.	Number	20
291	Bend 8", 90 Deg, Sch 40, Coated, MSS SP–75 Gr. WPHY 52, as per ASME B 16.9.	Number	20
292	Bend 8", 90 Deg, Sch 80 Coated, MSS SP–75 Gr. WPHY 52, as per ASME B 16.9.	Number	20

Group D

293	Studs with 2 Nuts,M16x90mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	200
294	Studs with 2 Nuts,M20x100mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	200
295	Studs with 2 Nuts,M20x125mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	200
296	Studs with 2 Nuts,M24x140mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	200
297	Studs with 2 Nuts,M24x150mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plate	Number	200
298	Studs with 2 Nuts,M27x175mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Sets	200
299	Studs with 2 Nuts,M30x175mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium	Number	200

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC–FB/CB/PE&FD–5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group D

	Plated		
300	Studs with 2 Nuts,M30x195mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plate	Sets	200
301	Studs with 2 Nuts,M36x265mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	200
302	Studs with 2 Nuts,1/2"x65mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Sets	150
303	Studs with 2 Nuts,3/4"x100mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Sets	120
304	Studs with 2 Nuts,3/4"x115mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	1000
305	Studs with 2 Nuts,3/4"x125mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	230
306	Studs with 2 Nuts,1"x140mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	50
307	Studs with 2 Nuts,1"x170mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	2000
308	Studs with 2 Nuts,5/8"x85mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Sets	180
309	Studs with 2 Nuts,5/8"x90mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Sets	450
310	Studs with 2 Nuts,5/8"x95mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	130
311	Studs with 2 Nuts,5/8"x110mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	170
312	Studs with 2 Nuts,7/8"x125mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	800
313	Studs with 2 Nuts,7/8x135mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	400
314	Studs with 2 Nuts,7/8"x145mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	4906
315	Studs with 2 Nuts,7/8x150mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	500
316	Studs with 2 Nuts,7/8"x155mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	50
317	Studs with 2 Nuts,1–1/8"x170mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	1300
318	Studs with 2 Nuts,1–1/8"x180mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	751
319	Studs with 2 Nuts,1–1/8"x185mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	36
320	Studs with 2 Nuts,1–1/8"x190mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	350
321	Studs with 2 Nuts,1–1/8"x195mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	348
322	Studs with 2 Nuts,1–1/8"x210mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	50
323	Studs with 2 Nuts,1–1/8"x225mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	30
324	Studs with 2 Nuts,1–3/8"x230mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	700
325	Studs with 2 Nuts,1–3/8"x220mm,A 193 Gr. B7M,A 194 Gr. 2HM,Cadmium Plated	Number	1200

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION B

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

Tender Enquiry No PROC-FB/CB/PE&FD-5183/2021

Due Date

Evaluation Criteria GROUP WISE

Group E

326	JOINT INSULATING 8", # 600, SCH-80, ASTM A-694 Gr. F52	Number	5
327	JOINT INSULATING 8", 900 #, SCH-120,ASTM A-694 Gr. F52	Number	10
328	JOINT INSULATING 6", 900 #, SCH-120,ASTM A-694 Gr. F52	Number	10
329	JOINT INSULATING 6", 600 #, SCH-80,ASTM A-694 Gr. F52	Number	20
330	JOINT INSULATING 4", 300 #, SCH-40,ASTM A-694 Gr. F52	Number	20
331	JOINT INSULATING 4", 600 #, SCH-80,ASTM A-694 Gr. F52	Number	15
332	JOINT INSULATING 4", 900 #, SCH-120,ASTM A-694 Gr. F52	Number	5

Group F

333	BREATHING VALVE 4", 150 #	Number	50
334	FLAME ARRESTER,SS 4", 150# RF	Number	15

Note: SEE ATTACHMENT TO SCHEDULE OF REQUIREMENT (SOR)

Verified

SYED ABID HUSSAIN SHA
Principal Technical Office
PE & FD (Prod)Ext: 287

ATTACHMENT TO SCHEDULE OF REQUIREMENT

TENDER NO. PROC-FB/CB/PE&FD-5183/2021 FOR PIPE FITTINGS, BENDS, GASKETS, STUDS, BREATHING VALVES, FLAME ARRESTORS

1) BID VALIDITY: BID MUST BE VALID FOR 180 DAYS FROM BID OPENING DATE.
2) BID BOND DETAILS: BID BOND IN US DOLLARS AS TABULATED BELOW OR EQUIVALENT PAK RUPEES TO BE SUBMITTED WITH TECHNICAL BID AND VALID FOR 210 DAYS FROM TENDER OPENING DATE:

GROUP	BID BOND AMOUNT (US$)
GROUP-A	US$ 5,300/-
GROUP-B	US$ 450/-
GROUP-C	US$ 230/-
GROUP-D	US$ 615/-
GROUP-E	US$ 680/-
GROUP-F	US$ 200/-

(3) DELIVERY PERIOD: FOUR (04) MONTHS ON CFR BY SEA KARACHI BASIS FROM L/C ESTABLISHMENT DATE.
(**4) EVALUATION CRITERIA:** "EACH GROUP WISE" ON CFR BY SEA KARACHI-PAKISTAN BASIS.
(**5) TENDER DOCUMENTS** AVAILABLE ON OGDCL'S WEBSITE UNDER TAB "MASTER SET OF FOREIGN TENDER DOCUMENT (PRESS-SINGLE STAGE TWO ENVELOP) 07-09-2021).
(6) BIDDER(S) MUST ENSURE TO PROVIDE GROUP WISE TOTAL QUOTED PRICES IN FINACIAL BID FOR EACH GROUP.

SYED ABID HUSSAIN SHAH
Principal Technical Officer
PE & FD (Prod)Ext: 2879

LIST OF ANNEXURES

ANNEXURE - I	: MANDATORY REQUIREMENT
ANNEXURE - II	: TECHNICAL EVALUATION CRITERIA
ANNEXURE - III	: FORMAT OF CORPORATE & FINANCIAL INFORMATION
ANNEXURE - IV	: SPECIFICATION (For Group A, B, C, D)
ANNEXURE - V	: DATA SHEET (For Group E)
ANNEXURE - VI	: DATA SHEET (For Group F)

M. FASIH AKHTAR
GM (P & FD)
Ext: 3566

MANDATORY REQUIREMENTS

Bidder must meet the following mandatory requirements to qualify for Technical Evaluation

1. Original Equipment Manufacturer (OEM) and only authorized sole distributor(s) are eligible to participate.

   In case OEM is not bidder, authority letter from OEM in favor of the bidder to be submitted. In case bidder is a sole distributor; a letter from OEM is to be provided in favor of authorized sole distributor as regional or country specific dealer for past 03 consecutive three years.

2. For each group the bidder has to submit supply record of the manufacturer, with Copy of POs, fulfilling following criteria:

   a. At least one (01) Purchase Order in last Five years, with value greater than or equal to given below for each group. Date of tender opening will be considered to calculate last five years. Certificate of satisfactory performance/ TPI report of the same PO to be submitted.

Group	Value
A	354500
B	29000
C	15500
D	41000
E	45500
F	13500

   b. The material in PO must match at least 50% items of the quoted group.

   c. Purchase order must be of International Oil & Gas E&P companies. International E&P companies Should be either an upstream member of International Association of Oil & Gas Producers (IOGP) or Pakistan Petroleum Exploration & Production Companies Association (PPEPCA)

   d. PO details are to be shared with 1) prices, 2) contact person name 3) email 4) Phone number and 5) Postal Address for reference / verification.

3. The Bidders are required to adhere to the maximum Delivery Period of Four (04) months on CFR Karachi by Sea basis from the date the letter of credit (L/C) is established.
4. The material to be supplied under the Contract must be brand new (Certificate to be provided by supplier) and produced in and supplied from the countries maintaining bilateral trade relation with the Islamic Republic of Pakistan.
5. Compliance to SOR and Technical Specifications. Bidder to submit signed / stamped copy of the SOR and specifications.
6. Third party inspection during manufacturing will be arranged by OGDCL at their own expense and manufacturer/BIDDER will facilitate accordingly. (Only for Group-A).

TECHNICAL EVALUATION CRITERIA

1. Manufacturer and Bidder must have Average Annual turnover of minimum US $ 0.1 Million. Bidder to Submit Audited Financial Statements of last 3 consecutive years, of the Manufacturer and the Bidder. In case the reports are not in English Language, then in addition to these printed reports the English translation of the same must also be submitted with the technical bid.
2. Bidder to submit Copies of valid ISO (9001 & 14001), API-Q1 and OHSAS 18001 certifications of the manufacturer.
3. Bidder to submit 03 Nos copies of Performance Certificates of material Supplied to International E&P Companies.
4. Bidder to submit Corporate & Financial Information of the manufacturer and the Bidder, as per format of Annex-III.
5. Bidders to submit technical literature and brochures of the Manufacturing facility and the quoted material.
6. Bidder to submit Manufacturer's QA/QC plan.
7. Bidder to provide unit weight of each item in grams/kgs (For Group-A only).
8. Third Party Inspection (TPI) will be arranged by OGDCL. Bidder to confirm facilitation of TPI Company for due inspection OF Group-A.
9. Any deviation to tender, must be provided against the quoted item (not separately if any); otherwise no deviation would be considered to be provided.
10. Bidder to confirm that all material to supplied will be NACE COMPLIANCE MR-0175.
11. All above required information should be provided along with the Technical bid, failing which the bid will not be considered for the evaluation.

12. PACKAGING REQUIREMENTS

I. Maximum size of one pallet must not increase by 1.2 x 1.2 x 1.5 meters (each side) with maximum load of 2.5 Tons per pallet.

II. Each pallet is to be marked with PAINTED black contract number / Consignee address in 2" font size at three sides of each pallet.

III. Bidder to confirm that packaging for sea worthy WOODEN Pallets (UNDP / MGD sustainable approved VENDORS) to be used for boxing crates/pallets.

IV. Wooden spaces and sheets are to be placed for protecting each Flange end, item connection point and dry desiccants as per BEST International Supplier's practices to be followed with CAUTION marked over for CHEMICAL Desiccant INSIDE label.

V. Pallet Opening Side must be marked at two sides with fastening length of at least 3" on to 2" x 3" wooden bar for inspection opening / closing.

VI. Vendor is to mention make and brand quoted along with the weight in kgs for each item.

VII. All instruments, instrument valves and other items requiring protection in shipment must be properly sealed, packed and QA/QC by the bidder / suppler to avoid any damage in transit / shipment.

ANNEXURE-III

FORMAT OF CORPORATE & FINANCIAL INFORMATION

PART - I
GENERAL INFORMATION

1. Name (Full Company Name):

   - Postal Address :
   - Contact Person Name :
   - Contact Person Mobile No. :
   - Company Telephone:
   - Facsimile:
   - Valid e-mail for correspondence:
   - Website Address:

   1.1 Has the Company operated under any other name? If yes please give name, date of change and reason for change.

2. Type of Entity/Firm:
   - Corporation/Stock Company
   - Public Limited
   - Private Limited
   - Partnership
   - Proprietorship

3. Shareholders information/pattern with names and addresses of majority shareholders.

4. Place of Incorporation/Registration:

5. Year of Incorporation/Registration:
   (Please provide copies of Incorporation/Registration Certificates and Memorandum & Articles of Association)

6. Company's National Tax No.

7. Company's Core Business Areas and their annual sales revenue/earnings during last five (5) years.

8. Name & Address of Owners/Directors

9. Registration with Pakistan Engineering Council (PEC) as Contractor (If applicable). Please provide copy of membership certificate issued by PEC.

PART - II
FINANCIAL STRENGTH

1. Provide details with regard to the financial standing of the applicant including copies of last three (3) years annual audited profit & loss account and balance sheet. Complete postal address, email address and contact numbers of the audited firm should be provided along with the bid. Also, please fill the financial summary as per below table;

S. No.	Description	Years		
		2017	2016	2015
1	Sales Revenue			
2	Paid Up Capital			
3	Profit Before Tax			
4	Profit After Tax			
5	Current Assets			
6	T. Asset			
7	Owner Equity			
8	Long Term Debt			
9	Current Liability			
10	Total Liabilities			

2. Bank(s) credit worthiness certificates (Latest Period) of applicant organization and available credit ceiling/limits with Account Number/Title.

3. Detail record with regard to litigation/arbitration proceedings or any other dispute related to project undertaken/being undertaken by the Bidder their Sub-Contractors and Suppliers (Specially with OGDCL it Joint Venture Partners or other public and private organizations working in the Oil & Gas sector of Pakistan) during past five (05) years.

4. Any information including brochures, references and other documentary evidence of technical qualification, capability and experience of the Applicant to execute the Project.

The undersigned on behalf of _____ hereby declare that the statements made and the information provided official herewith is complete, true and correct in every detail

_____
Signature

Official Seal of the Company

ANNEXURE-IV

SPECIFICATION
(For Group A, B, C, D)
FOR METALLIC PIPE FITTINGS, FLANGES, BOLTING & GASKETS

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0	29th Dec 2017	Approved for Construction	SS	A.Ali	MSc
REV	**DATE**	**DESCRIPTION**	**PREP'D**	**CHECK'D**	**APP'D**

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M FASIH AKHTAR
CM (PE & FD)
Ext: 3566

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1 SCOPE

This Specification states the minimum technical, manufacturing and inspection requirements for the pipe, fittings, flanges, bolting and gasket materials for use on OGDCL wellhead piping for sour service.

All piping component design and materials shall meet the requirements of the referenced specifications and the latest editions of following Codes, Standards and Statutory Regulations (where applicable).

All exceptions or deviations between the requirements of this document and the referenced Codes and Standards shall be brought to the attention of CEIS for written resolution and approval.

2 REFERENCES

The following documents and specifications shall be read in conjunction with this specification:

- SP-QP-11-L-001 Specification for Piping Materials.

3. CODES AND STANDARDS

Latest edition of the Codes and Standards referenced below shall be used.

3.1 American Society of Mechanical Engineers

- ASME V Boiler and Pressure Vessel Code
  Section V – Non Destructive Examination
- ASME VIII Boiler and Pressure Vessel Code
  Section VIII Div.1 & Div. 2 Rules for Construction of Pressure Vessels
- ASME IX Boiler and Pressure Vessel Code
  Section IX - Welding Qualifications
- ASME B31.3 Process Piping
- ASME B1.20.1 Pipe Threads General Purpose (Inch.)
- ASME B16.1 Cast Iron Pipe Flanges and Flanged Fittings
- ASME B16.5 Pipe Flanges and Flanged Fittings
- ASME B16.9 Wrought Steel Buttwelding Fittings
- ASME B16.10 Face-to-Face and End-to-End Dimensions of Valves
- ASME B16.11 Forged Fittings, Socket-Welding and Threaded
- ASME B16.11 Forged Fittings, Socket-Welding and Threaded
- ASME B16.20 Metallic Gaskets for Pipe Flanges – Ring-Joint, Spiral-Wound,

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and Jacketed

- ASME B16.21 Non-Metallic Flat Gaskets for Pipe Flanges
- ASME B16.25 Buttwelding Ends
- ASME B16.34 Valves – Flanged, Threaded and Welding End
- ASME B16.47 Large Diameter Steel Flanges
- ASME B16.48 Steel Line Blanks
- ASME B36.10M Welded and Seamless Wrought Steel Pipe
- ASME B36.19M Stainless Steel Pipe
- ASME B46.1 Surface Texture, Surface Roughness, Waviness & Lay

3.2 American Petroleum Institute

- API 5L Specification for Line Pipe

3.3 American Society for Testing and Materials

- ASTM A53 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- ASTM A105 Specification Carbon Steel Forgings for Piping Applications
- ASTM A106 Specification for Seamless Carbon Steel Pipe For High-Temperature Service
- ASTM A123 Specification for Zinc (Hot Dipped Galvanised) Coating on Iron and Steel Products.
- ASTM A193 Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service
- ASTM A194 Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High Temperature Service, or Both
- ASTM A234 Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
- ASTM A312 Specification for Seamless and Welded Austenitic Stainless Steel Pipes.
- ASTM A320 Specification for Alloy / Steel Bolting Materials for Low Temperature Service
- ASTM A333 Specification for Seamless and Welded Steel Pipe for Low-Temperature Service
- ASTM A335 Specification for Seamless Ferritic Alloy Steel Pipe for High

Temperature Service

- ASTM A350 Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components
- ASTM A358 Specification for Electric Fusion Welded Austentic Chromium-Nickel Alloy Steel Pipe for High Temperature Service
- ASTM A387 Standard Specification for Pressure Vessel Plates, Alloy Steel, Chromium-Molybdenum
- ASTM A403 Specification for Wrought Austenitic Stainless Steel Piping Fittings.
- ASTM A420 Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low Temperature Service.
- ASTM A530 Specifications for General Requirements for Specialized Carbon and Alloy Steel
- ASTM A516 Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Service
- ASTM A671 Specification for Electric-Fusion-Welded Steel Pipe for Atmospheric and Lower Temperatures.
- ASTM A672 Specification for Electric-Fusion-Welded Steel Pipe for High Pressure Service at Moderate Temperatures.
- ASTM A694 Specification for Carbon and Alloy Steel Pipe Flanges, Fittings, Valves and Parts for High Pressure Transmission Service.
- ASTM A707 Specification for Forged and Alloy Steel Flanges for Low-Temperature Service
- ASTM A815 Specification for Wrought Ferritic / Austenitic and Martensitic Stainless Steel Piping Fittings.
- ASTM A860 Specification For Wrought High Strength Low Alloy Steel Butt Welding Fittings.
- ASTM A890 Specification for Castings, Iron-Chromium-Nickel-Molybdenum Corrosion-Resistant, Duplex (Austenitic/Ferritic) for General Application
- ASTM A928 Specification for Ferritic/Austenitic (Duplex) Stainless Steel Pipe Electric Fusion Welded with Addition of Filler Metal.
- ASTM A960 Specification for Common Requirements for Wrought Piping Fittings.
- ASTM A999 Specification for General Requirements for Alloy and Stainless Steel Pipe.
- ASTM B564 Standard Specification for Nickel Alloy Forgings

- ASTM G48 Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by use of Ferric Chloride Solution.

3.5 British Standards Institution

- BS 3799 Steel Pipe Fittings, Screwed and Socket Welding

3.6 Manufacturer's Standardisation Society of the Valves & Fittings Industry

- MSS SP25 Standard Marking System for Valves, Fittings, Flanges and Unions.
- MSS SP44 Steel Pipe Line Flanges
- MSS SP97 Integrally Reinforced Forged Branch Outlet Fittings, Socket Weld, Threaded and Butt Welding Ends.

3.7 Australian Standards

- AS 2129 Flanges for Pipes, Valves and Fittings
- AS 4037 Pressure Equipment – Examination and Testing
- AS 4041 Pressure Piping
- AS 4343 Pressure Equipment – Hazard Levels

3.8 National Association of Corrosion Engineers

- NACE MR-01-75 Sulfide Stress Cracking Resistant Metallic Materials for Oilfield Equipment.

4. GENERAL REQUIREMENTS

4.1 Component, type, material and grade together with the NPS and schedule/wall thickness shall be as specified in the data sheets.

5. MATERIAL REQUIREMENTS

5.1 Carbon Steel and Impact Tested Carbon Steel

The chemical composition of carbon steel and impact tested carbon steel pipe, fittings and flanges shall be limited as follows:

- Carbon content 0.22% max
- Carbon equivalent 0.43% max by ladle analysis where :

$$CEV = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Cu+Ni}{15}$$

Pipe to ASTM A106, Grade B.

- Sulphur content shall be 0.010% maximum.
- Phosphorous content shall be 0.10% maximum.
- All materials shall be normalised and tempered. The minimum tempering temperature shall be 720 °C.

Flanges - ASTM A 105

- Sulphur content shall be 0.010% maximum.
- Phosphorous content shall be 0.010% maximum.
- Carbon equivalent shall be 0.47% maximum for forgings with maximum section thickness of 2 in. or less and 0.48% for forgings with a maximum section thickness of greater than 2 in.

For non-NACE applications sulphur and phosphorous content shall be in accordance with the product standard.

Materials specified in accordance with NACE MR0175 shall also meet the following requirements :

- Seamless pipe, fittings and forged flanges:
  Sulphur 0.010% max. Phosphorous 0.030% max.
- Pipe, fittings and flanges manufactured from plate:
  Sulphur 0.005% max, Phosphorous 0.025% max.
- All materials supplied to NACE MR0175 requirements shall be fully killed, fine grained and vacuum degassed.
- All materials shall be supplied in a normalised condition and shall be marked as such in accordance with the product specification and the applicable supplementary requirement.
- All impact tested carbon steel supplied to ASTM A350 LF2 shall be Class 1.

5.2 Carbon Steel High Yield Material

All High Yield materials shall be supplied in the Quench and Tempered Condition.

The chemical composition of all pipe, fittings and flanges made from high yield Carbon Steel complying to NACE MR1075 shall be limited as follows:

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- Pipe to API 5L Gr. X52

  Carbon Content 0.22% max.
  Sulphur Content 0.005% max.
  Carbon equivalent 0.43% max (CEV by ladle analysis as defined in 5.1)

  Pipe shall be Seamless execution or EFW with 100% X-Ray.

- Pipe to API 5L Gr. X65

  Carbon Content 0.15% max.
  Sulphur Content 0.005% max.
  Carbon equivalent 0.43% max (CEV by ladle analysis as defined in 5.1)

  Pipe shall be Seamless execution or EFW with 100% X-Ray.

- Fittings to ASTM A860 WPHY65

  Carbon Content 0.18% max.
  Sulphur Content 0.005% max.
  Carbon equivalent 0.42% max (CEV by ladle analysis as defined in 5.1).

  Pipe shall be Seamless execution or EFW with 100% X-Ray.

- Forgings to ASTM A694 Gr. F65

  Carbon Content 0.18% max.
  Sulphur Content 0.005% max.
  Carbon equivalent 0.43% max (CEV by ladle analysis as defined in 5.1).

5.3 Austenitic Stainless Steel

Austenitic stainless steel shall be supplied in a solution annealed condition. Solution annealing shall be carried out after all welding.

All type 304 stainless steel shall be supplied **dual certified**, that is having the mechanical properties of 304 stainless steel and the chemical composition of 304L stainless steel.

All type 316 stainless steel shall be supplied **dual certified**, that is having the mechanical properties of 316 stainless steel and the chemical composition of 316L stainless steel.

5.4 Duplex and Super Duplex Stainless Steels

All materials shall meet the mechanical requirements and chemical composition of the following UNS designation as defined by its product specification:

Duplex stainless steel	-	UNS S31803
Super Duplex stainless steel	-	UNS S32750

Alloy composition shall provide a minimum Pitting Resistance Equivalent (PRE) as defined by the equation:

PRE = %Cr + 3.3% Mo + 16% N (Calculated by % weight)

PRE for Duplex stainless steel to UNS S31803 shall be 35

PRE for Super Duplex stainless steel to UNS S32750 shall be 43

All components shall be supplied in a solution annealed condition. Solution annealing shall be carried out after all welding operations have been completed. Maximum hardness shall not exceed the following:

Duplex stainless steel UNS S31803	- 28 HRC
Super Duplex stainless steel UNS 32750	- 32 HRC

Micrographic examination is required for both Duplex and Super Duplex stainless steel and shall cover the near surface and mid-thickness region. For welded pipe and fittings this shall also include the weld zone. The ferrite content shall be determined according to ASTM E562 or approved equivalent and shall be within 35 - 55 % for base material and 25 - 60 % for weld metal. The microstructure, as examined at 400X magnification on a suitably etched specimen, shall be free from intermetallic phases and precipitates.

Corrosion Testing is required for both Duplex and Super Duplex stainless steel and shall be carried out for each heat of material to establish sigma phase intergranular attack in accordance with ASTM G48 Method A. The samples shall be exposed to 10% $FeCl_3$ solution at 25°C for 72 hours. Test specimens shall be in the 'as delivered / manufactured' condition, no surface preparation is permitted, except for cut edges. The test specimens shall include the full section thickness. Visual examination shall be performed on all of the specimens with at least 20x magnification. No pitting is acceptable. Weight loss shall not exceed 4.0 g/m^2.

Vendors shall submit for review with bid, details of all Manufacturers and include any further standard production testing which demonstrates resistance to Pitting and Crevice Corrosion for evaluation.

Weld procedure qualification for all welded pipe and fittings shall include impact testing of weld deposits and heat affected zones at minus 46 Deg C. The absorbed energy values shall be 45 Joules minimum average and 35 Joules minimum individual.

5.5 Low Alloy Steel

Pipe to ASTM A335, Grade P11.

- Sulphur content shall be 0.010% maximum.
- Phosphorous content shall be 0.010% maximum.
- All materials shall be normalised and tempered. The minimum tempering temperature shall be 720 °C.

Fittings to ASTM A 234 Grade WPB

- Sulphur content shall be 0.010% maximum.
- The phosphorous content shall be 0.010% maximum.
- For welded fittings, these chemistry limits shall also apply to the weld.

Seamless fittings and fittings forged or extruded from welded pipe shall be normalised and tempered.

For fittings manufactured from plate, the plate shall be stress relieved or normalised and tempered and shall have tensile properties in accordance with ASTM A 387 Class 2.

Flanges - ASTM A 182 Grade F11-Class 2

- Sulphur content shall be 0.010% maximum.
- Phosphorous content shall be 0.010% maximum.
- Carbon content shall be 0.14% maximum.

Flanges shall be normalized and tempered.

5.6 NACE MR0175

All materials specified to NACE MR0175 shall be manufactured, tested and inspected in accordance with NACE requirements.

5.7 Impact Testing

Impact Testing shall be carried out in accordance with ASTM A370. Minimum impact values, lateral expansion and minimum test temperature will be the most onerous as defined by this specification, the material description or the product specification.

6. MANUFACTURING REQUIREMENTS

6.1 Pipe

Dimensions

Pipe shall be dimensionally in accordance with ASME B36.10M or ASME B36.19M as applicable.

Length

Pipe shall be supplied in double random lengths (11m to 13m) or single random lengths (5m to 7m).

Pipe lengths, which include joiners, are not acceptable.

Ends

For pipe specified as bevelled both ends, bevelling shall be in accordance with ASME B16.25 Fig 2a or 3a as applicable.

All screwed pipe shall be supplied with ends threaded in accordance with ASME B1.20.1. Couplings shall be 3000lb rating and screwed on 'hand tight' as described in API 5L Para 7.2.

Process

The steel shall be killed steel, with the primary melting process being open-hearth, basic-oxygen, or electric-furnace, possibly combined with separate degassing or refining. If secondary melting, using electroslag remelting or vacuum-arc remelting is subsequently employed, the heat shall be defined as all of the ingots remelted from a single primary heat.

Steel cast in ingots or strand cast is permissible. When steels of different grades are sequentially strand cast, identification of the resultant transition material is required. The producer shall remove the transition material by any established procedure that positively separates the grades.

For pipe NPS 1½ [DN 40] and under, it shall be permissible to furnish hot finished or cold drawn.

Unless otherwise specified, pipe NPS 2 [DN 50] and over shall be furnished hot finished. When agreed upon between the manufacturer and the purchaser, it is permissible to furnish cold-drawn pipe.

Galvanised pipe and couplings shall be supplied galvanised in accordance with ASTM A123. Threads shall be 'dressed' after galvanising to ensure correct thread engagement, the thread dressing shall not damage the coating effectiveness. The internal bore of galvanised pipe shall be free from blockage due to galvanising.

Heat Treatment

Hot-finished pipe need not be heat treated. Cold-drawn pipe shall be heat treated after the final cold draw pass at a temperature of 1200 °F (650 °C) or higher.

Carbon steel pipe shall be heat treated in accordance with product specification requirements after completion of all forming and welding operations.

Hydrostatic Test

All finished pipe shall be subjected to hydrostatic test without leakage through the pipe wall.

Bending Requirements

For pipe NPS 2 [DN 50] and under, a sufficient length of pipe shall stand being bent cold through 90° around a cylindrical mandrel, the diameter of which is twelve times the outside diameter (as shown in ASME B 36.10M) of the pipe, without developing cracks. When ordered for close coiling, the pipe shall stand being bent cold through 180° around a cylindrical mandrel, the diameter of which is eight times the outside diameter (as shown in ASME B 36.10M) of the pipe, without failure.

Subject to the approval of the purchaser, for pipe whose diameter exceeds 10 in. [250 mm], it shall be permissible for the bend test to be substituted for the flattening test. The bend test specimens shall be bent at room temperature through 180° with the inside diameter of the bend being 1 in. [25 mm], without cracking on the outside portion of the bent portion.

For pipe whose diameter exceeds 25 in. [635 mm] and whose diameter to wall thickness ratio (D/t = Specified Outside Diameter/Nominal Wall Thicknes) is 7.0 or less, the bend test described in second para (above) of this section shall be conducted instead of the flattening test.

Flattening Tests

For pipe over NPS 2 [DN 50], a section of pipe not less than 2½ in. [63.5 mm] in length shall be flattened cold between parallel plates until the opposite walls of the pipe meet. Flattening tests shall be in accordance with Specification A 530/A 530M, except that in the formula used to calculate the "H" value, the following "e" constants shall be used:

0.08 for Grade A

0.07 for Grades B and C

When low D-to-t ratio tubulars are tested, because the strain imposed due to geometry is unreasonably high on the inside surface at the six and twelve o'clock locations, cracks at these locations shall not be cause for rejection if the D-to-t ratio is less than 10.

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Nipples

Nipples shall be cut from pipe of the same dimensions and quality described in this specification.

Workmanship, Finish and Appearance

The pipe manufacturer shall explore a sufficient number of visual surface imperfections to provide reasonable assurance that they have been properly evaluated with respect to depth. Exploration of all surface imperfections is not required but consideration should be given to the necessity of exploring all surface imperfections to assure compliance with the following:

Surface imperfections that penetrate more than 12½ % of the nominal wall thickness or encroach on the minimum wall thickness shall be considered defects. Pipe with such defects shall be given one of the following dispositions:

- The defect shall be removed by grinding, provided that the remaining wall thickness at any point shall not be more than 12.5 % under the specified wall thickness.
- The section of pipe containing the defect may be cut off within the limits of requirements on length.

- Rejected.

To provide a workmanlike finish the pipe manufacturer shall remove by grinding the following noninjurious imperfections:

- Mechanical marks, abrasions (Note 5) and pits, any of which imperfections are deeper than 1/16 in. [1.6 mm].

- Visual imperfections commonly referred to as scabs, seams, laps, tears, or slivers found by exploration to be deeper than 5 % of the nominal wall thickness.

At the purchaser's discretion, pipe shall be subjected to rejection if surface imperfections are not scattered, but appear over a large area in excess of what is considered a workmanlike finish. Disposition of such pipe shall be a matter of agreement between the manufacturer and the purchaser.

When imperfections or defects are removed by grinding, a smooth curved surface shall be maintained, and the wall thickness shall not be decreased below that permitted by this specification. The outside diameter at the point of grinding is permitted to be reduced by the amount so removed.

Wall thickness measurements shall be made with a mechanical caliper or with a properly calibrated non-destructive testing device of appropriate accuracy. In case of dispute, the measurement determined by use of the mechanical caliper shall govern.

The finished pipe shall be reasonably straight.

6.2 Butt Weld and Threaded Fittings

Fittings shall be dimensionally in accordance with ASME B16.9, ASME B16.11, MSS SP-97 and BS 3799 as applicable.

Butt weld fittings shall have ends bevelled in accordance with ASME B16.25 Fig 2a or 3a.

Threaded fittings shall be supplied with ends threaded NPT in accordance with ASME B1.20.1.

Galvanised fittings shall be supplied galvanised in accordance with ASTM A153. Threads shall be 'dressed' after galvanising to ensure correct thread engagement, the thread dressing shall not damage the coating effectiveness. Galvanised fittings shall be supplied with the internal bore free from blockage due to galvanising.

Carbon steel and impact tested carbon steel butt weld fittings up to and including DN 400 shall be seamless. Fittings DN 450 and above may be seamless or EFW with 100% radiography of weld seam and have a joint factor of 1.0.

Stainless steel and Duplex Stainless steel butt weld fittings up to and including DN 150 shall be seamless. Fittings DN 200 and above may be seamless or EFW with 100% radiography of weld seam and have a joint factor of 1.0.

Fittings machined from solid forged blocks or solid bar are not acceptable.

Repair by welding of wrought fittings is not permitted.

All fittings shall be qualified by burst test certification, in accordance with ASME B16.9, which shall be available for Purchaser review if requested.

The design of Integrally Reinforced Forged Outlet Fittings shall be documented to demonstrate compliance with of ASME B31.3 para 304.3.2, Appendix D Table D300 and fulfil the following requirements.

- Integrally Reinforced Outlet Fittings shall be 'Bonney Forge' design, dimensions in accordance with MSS SP97, unless stated otherwise in the Material Requisition.
- Integrally Reinforced Outlet Fittings whose header wall thickness is Sch10/10s or less, shall be considered 'Lightweight Design' based upon the ASME B16.5 Class 300 pressure rating for the specified material. Typical drawings shall be submitted with bid
- The design shall be supported by area Reinforcement Calculations. The design shall not be dependent on weld material to provide the necessary area replacement required.
- Burst Test certification shall be available for all Reinforced Outlet Fittings and shall be in accordance with MSS SP97, Annex B.
- The internal bore of the Integrally Reinforced Outlet Fitting shall be tapered with a maximum slope of 30 degrees to match branch pipe.
- All Integrally Reinforced Outlet Fittings shall be forged as close as practicable to final shape with the exception of finish machining. Fittings machined from forged bar or forged rings are NOT acceptable.

Plugs shall be solid steel round or hexagonal bar stock.

Swage Nipples shall comply with BS 3799.

6.3 Flanges, Spectacle Blinds, Spades and Spacers

Flanges DN 600 and smaller shall be in accordance with ASME B16.5. All flanges DN 650 and larger shall comply with ASME B16.47 series A.

All threaded flanges shall be supplied threaded NPT in accordance with ASME B1.20.1.

Galvanised flanges shall be supplied galvanised in accordance with ASTM A123. Threads shall be 'dressed' after galvanising to ensure correct thread engagement, the thread dressing shall not damage the coating effectiveness. Gasket contact area shall be free of galvanising and a suitable rust preventative applied.

Flange facing shall be as follows:

Class 150 to 600 – Raised face smooth spiral finish Ra 3.2 to 6.3µm.

Class 900 to 2500 – Ring type joint side wall finish Ra 0.4 to 1.6µm.

The minimum hardness of flange ring grooves shall be as follows:

- Carbon Steel - 110 HB
- Low Temperature Carbon Steel - 110 HB
- Austenitic Stainless Steel AISI 316 - 180 HB
- Duplex Stainless Steel - 200 HB
- Super Duplex Stainless Steel - 200 HB

Orifice flanges DN 600 and smaller shall be in accordance with ASME B16.36 and shall be supplied in pairs, complete with jackscrews to ASTM A193 Gr B7. Vendor shall supply with bid, dimensional details of assembly including tapping connections.

6.4 Bolting

Threading of all bolting shall be in accordance with ASME B 1.1, UNC series for diameters up to and including 1" and 8UN series for diameters 1-1/8" and larger. Stud bolts shall have Class 2A dimensions and nuts shall have Class 2B.

All stud bolts shall be threaded full length and supplied with two heavy series hexagon nuts. The length of Stud bolts 1-1/4" diameter and larger has been calculated to allow for the use of bolt tensioning equipment, the extra length is included in the lengths stated on the material requisition. Stud bolts 1-1/4" diameter and larger shall be supplied with thread protectors.

Hexagon head machine bolts shall be used with threaded lug Butterfly valves.

Washers, when specified in the material description (GRE piping systems) shall be 4mm thick steel to ASTM F436. Studbolts shall be supplied complete with 2 washers; machine bolts shall be supplied complete with 1 washer.

All jack screws and hexagon headed bolts shall have threads extended to the underside of the head.

All ASTM A320 L7 and L43 bolting shall be impact tested at minus 101°C. All nuts to ASTM A194 Grade 4 and 7 shall be impact tested in accordance with the 'Supplementary Requirements' S3 of ASTM A194 at minus 101°C.

All bolting materials shall be supplied 'black' unless stated otherwise, the following options are provided for coating of bolting materials:

- For items are specified as galvanised, they shall be Hot Spun Galvanised in accordance with ASTM A153 and fully passivated. Nuts shall be re-tapped after galvanising and be fully assembled with studbolts prior to despatch.
- For items specified as PTFE coated, they shall be Xylan 1070 (Whitford Corporation) or Purchaser approved equivalent. Details of PTFE coating shall be submitted for review with bid. PTFE coatings shall be 'Colour Coded' as follows:

MATERIAL	COLOUR
ASTM A193 Gr B7 / A194 Gr 2H	Green
ASTM A193 Gr B7M / A194 Gr 2HM	Orange
ASTM A193 Gr B16 / A194 Gr 8	Black
ASTM A320 Gr L7 / A194 Gr 4	Blue

The standard stamping required by the material specification shall be legible after the bolting components have been coated with the PTFE.

6.5 Gaskets

Flat ring gaskets shall be compressed non-asbestos fibre in accordance with ASME B16.21.

- Gasket thickness shall be 1.5mm unless specified otherwise.
- Asbestos in any form shall not be used in the manufacture and construction of gaskets.
- Gaskets shall be suitable for hydrocarbon gas/oil, hot oil, amine, potable water and wet sour service as defined in NACE MR0175.

Spiral wound gaskets shall be in accordance with API 601/ASME B16.20. Unless stated otherwise gaskets shall be 4.5mm thick graphite filled with an inner ring and 3mm thick centring ring to ASME B16.20.

- Material of inner ring and centering ring shall be stated on the requisition.
- Material of winding shall be 304L stainless steel unless stated otherwise on the requisition.
- All spiral wound gaskets shall comply with NACE MR0175.

Ring type gaskets, unless stated otherwise on the material requisition shall be, Style R Octagonal type in accordance with ASME B16.20.

- Soft iron ring joints shall be supplied with a maximum hardness of 90 HB.
- Austenitic stainless steel ring type joints AISI 316 shall be supplied in a fully solution annealed condition and minimum hardness of 160 NB.

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- Super Austenitic stainless steel ring type joints Alloy 904L and 254 SMo, shall be supplied in a fully solution annealed condition and have a maximum hardness of 180 HB.
- All ring joint gaskets (except soft iron) shall comply with NACE MR0175.

Neoprene gaskets shall have a hardness of between 55 to 65 Shore A.

7. MARKING

7.1 In addition to the marking requirements of the relevant product standard and MSS SP-25, the following information shall be marked on each component:

- Specification and grade of material
- Nominal diameter and wall thickness
- Purchase order and item number.

7.2 Marking shall be carried out on all individual components size DN 50 and larger and on corrosion resistant metal tags for components sizes less than DN 50, the tags being securely attached to each package.

7.3 Marking of components DN 50 and larger shall be by stencilling with indelible paint, with pipe being marked 100mm from each end. The paint shall not contain any harmful metals such as zinc, or metallic salts, which would adversely affect the metal on heating or welding, with particular attention being paid to austenitic and duplex stainless steel.

7.4 All components shall additionally be hard stamped or vibro etched with the heat number. For components manufactured from austenitic and duplex stainless steel, marking shall be by vibro-etching. Carbon steel and impact tested carbon steel shall be marked by round nosed low stress stamps.

8. COLOUR CODING

8.1 To enable identification of materials on site, Vendors are required to mark all items, excluding bolting, with colour coding in accordance with the colour coding schedule shown in Table 1, 2 & 3 below.

Table 1 – Colour Coding Schedule (excluding gaskets)

MATERIAL	COLOUR	AS 2700 REF.	BS 4800 EQUIV.
Carbon Steel (non-NACE)	Light Green	G37	14E51
Carbon Steel (NACE)	Brown	X54	06C39
Galvanised Carbon Steel	Self Colour	-	-
Impact Tested Carbon Steel	Silver Grey	N22	10A03
Impact Tested Carbon Steel (NACE)	Off White	Y35	10B15
High Yield Carbon Steel X65 / F65 / WPHY65 (NACE)	Pink	P33	24C33
Austenitic Stainless Steel – 304 / 304L	Sapphire	B14	20D45
Austenitic Stainless Steel – 316 / 316L	Pale Blue	B35	18E49

Duplex Stainless Steel –UNS S31803 (NACE)	Yellow	Y15	08E53
Super Duplex Stainless Steel – UNS S32750 (NACE)	Red	R13	05E53
Low Alloy Steel – 1 ¼ Cr ½ Mo	Violet	P13	24C39

Table 2 – Colour Coding Schedule – Spiral Wound Gaskets

Strip Winding Matl	Filler Material	Outer Ring Material	Inner Ring Material	Outer Ring Colour	Filler Identifier 4 Stripes Colour
304L SS	Flexible Graphite	316 SS	316 SS	Yellow	Grey
316L SS	Flexible Graphite	Carbon Steel (Cad. Plated)	Carbon Steel	Silver	Grey
316L SS	Flexible Graphite	316 SS	316 SS	Green	Grey

Table 3 – Colour Coding Schedule – Ring Type Joints

Ring Material	Colour
Soft Iron	Self Colour
316 SS	Green
904L SS	Magenta
254 SMo	Violet

8.2 The paint shall not contain any harmful metals such as zinc, or metallic salts, which would adversely affect the metal on heating or welding, with particular attention being paid to austenitic stainless steel.

8.3 Colour coding location shall be as follows, noting marking shall not encroach upon surfaces prepared for welding or gasket contact surfaces:

Pipe - DN 40 and smaller – broad rings painted 1.5 metres apart.
DN 50 and larger – a broad line painted down the entire length of the pipe.

Fittings - Socket weld and threaded ends – broad circumferential band painted at one end of the fitting.
Butt weld – broad line painted down entire longitudinal length of fitting.

Flanges - Weld neck flanges – broad circumferential band painted on the hub remote from the butt weld end. Blinds shall have bulls eye painted on the back.
Spectacle blinds – circumferential band painted on the edge of the spacer section

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Separate blind and spacer - circumferential band painted on the edge of each item.

Gaskets - Spiral wound type – outer edge of the outer ring as per ASME B16.20.

9. PREPARATION FOR SHIPMENT

9.1 All pipe, fittings, flanges bolting and gaskets shall be protected against corrosion and mechanical damage. Vendors/Manufacturers procedures shall be supplied with bid for Purchaser review.

9.2 All flange faces shall be supplied with proprietary heavy-duty plastic flange protectors or marine plywood; retained by a minimum of four bolts. Butt weld and threaded ends on pipes, fittings and flanges shall be supplied with suitable bevel and thread protectors.

10. INSPECTION REQUIREMENTS

10.1 A typical Inspection and Test Plan shall be submitted for review with the bid. All pipe, fittings, flanges, bolting and gaskets will be subject to inspection in accordance with the Purchaser approved Manufacturer's Inspection and Test Plan.

10.2 For Group-A two OGDCL Engineers will visit the manufacturing facility for 05 days (Excluding Travel Time). All expenses (TA/DA @ US $ 400/ Person/ day, Air Tickets, Visa, Hoteling & Transport) for 05 days will be borne by the bidder.

11. CERTIFICATION AND TRACEABILITY

11.1 Material Certificates in accordance with BS EN 10204.3.1.B / DIN 50049 3.1B are required for all pressure containing components. They shall be clearly legible, in the English language and as a minimum shall include:

- Chemical Analysis by Heat
- Mechanical Properties
- Heat Treatment Statement and Number
- Non Destructive Test results
- Hydrostatic and/or Pneumatic Test results
- Heat or Melt Number
- Compliance with NACE MR0175-97 and any additional requirements listed in this specification.

11.2 All certificates shall state the Manufacturers name and location, all forging and plate certificates shall be from original steel manufacturers. Certificates shall include the Vendor's purchase order number and purchase order item number. Material certificates for dual certified stainless steel materials shall indicate compliance with the requirements of both grades of stainless steel as stated in the stock code description.

11.3 All other components including gaskets not covered by BS EN 10204.3.1.B / DIN 50049 3.1B shall require a Certificate of Compliance in accordance with BS EN 10204.2.2 / DIN 50049 2.2.

ANNEXURE-V	Data Sheet for Insulating Joint	Client:	OGDCL	Job No	
		Project	Well Standardization	Doc No	
		Item	Insulating Joint	Tag No.	

Revision					
Issued for					
Date					
By					
Checked					
Approved					
Client					

1	**Operating Process Data**				**Compliance**
2	**Fluid**	HC Gas (Sour)			
3	**Pressure (psig)**				
4	**Temperature (°F)**	Min - 20	Normal	Max 180	
5	**Design Data**		**Construction**		
6	**Pressure Design (psig)**		**Type**	Monolithic with Pup Pieces	
7	**Temperature (°F)**	- 20 to 180	**Seal Gasket**	To NACE MR-0175	
8	**Design Code**	ASME B 31.8			
9	**Design Life**	25 years			
10	**Location**	Above Ground at Wellhead Area			
11	**Quantity**				
12	**Size**	As per SOR.			
13	**ASME Rating**	As per SOR			
14	**End Connections**	BW/BW to ANSI B 16.25			
15	**Corr'n Allowance (mm)**	3			
16	**Supply Requirements**				
17	**Material**	As per SOR			
18	**Accessories**	Studs/Bolts to be provided on both sides along with surge arrestor			
19	**Inspection and Testing**				
20	**Material Tests**	Required : HIC, Tensile, Charpy, Drop wear & Hardness Test			
21	**Hydrostatic Tests**	Required @ 1.5 x design pressure for a hold time of 24 hours			
22	**Electrical Tests**	Required : Dielectric Strength and Electrical Resistance			
23	**Surface Treatment**				
24	**External**	2 Part Epoxy 350 microns			
25	**Internal**				
26	**Remarks**				

Annexure-VI	**Document No.** **Job No.** **Date** **Total Pages (inc front cover)**	 10

TECHNICAL SPECIFICATION FOR

FLAME ARRESTER

		Issued for Bid			
		Re-issued for Approval			
		Issued for Review and Approval			
		Issued for Information			
Rev.	**Date**	**Description**	**Prepared By**	**Checked By**	**Client's Approval**

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1.0 SCOPE

1) This specification covers the requirement for Flame Arrester applicable to ..... project of .....

2) The intent of this specification is not to supersede ASME code, but only to supplement, amend or limit it as required.

2.0 APPLICABLE SPECIFICATIONS, CODES AND STANDARDS

2.1 Specifications

General Specification for Painting
General Specification for Rust Prevention
Specification of Flange Face Finish
Project Specification for Spare Parts List Preparation
Instruction for Vendor's Documentation
Requirements for Electronic Data Submission
Project Shipping & Packing Instructions
Inspection Coordination Procedure with Vendor
Material Certification and Traceability Requirements
Non-Conformance Control Procedure with Vendor
Inspection Record Book Requirements
Control of Monitoring and Measuring Devices, Product Status and Nonconformance Products

2.2 ANSI/ASME or ASME

B1.1 - 1989	Unified Inch Screw Thread (UN and UNR thread form)
B1.20.1 - 1983	Pipe Thread, General Purpose (Inch)
B16.5a - 1998	Pipe Flanges and Flanged Fittings
B16.20a - 2000	Metallic Gaskets for Pipe Flanges-Ring Joint, Spiral-Wound, and Jacketed

B16.21 - 1992	Nonmetallic Flat Gaskets for Pipe Flanges
B31.3 - 2002	Process Piping
B46.1 - 1995	Surface Texture (Surface Roughness, Waviness, and Lay)

2.3 **Others**

Annual Books of ASTM Standards – 2002

Note : Unless otherwise specified, the latest issue of all documents shall be applied.

3.0 DESIGN

3.1 General

Flame arrester shall be designed in accordance with applicable codes, standards and ATTACHMENT-2 "Data Sheets for Flame Arrester".

3.2 Dimensions of End Flanges

Dimensions of end flanges shall be in accordance with ASME B16.5.

3.3 Materials

Carbon content and carbon equivalent (CE) shall conform to the following requirements:

Material	Typical Designation	Carbon Content	Carbon Equivalent*1
Pipe	A106-B	≦0.23%	≦0.43%
Forged steel	A105	≦0.23%	≦0.43%
Cast steel	A216-WCB	≦0.25%	-
Fitting	A234-WPB	≦0.23%	≦0.43%

*1 $CE = \%C + \%Mn/6 + (\%Cr + \%Mo + \%V) / 5 + (\%Ni + \%Cu) / 15$

3.4 **Bolt and Nut**

The bolts shall be ASTM A193 Gr.B7 and the nuts shall be ASTM A194 Gr.2H.

3.5 **Gasket and Packing**

Non-asbestos materials shall be applied to any type of Gasket and Packing.

3.6 **Facing Finish of End Flange**

Facing finish of the end flanges shall be in accordance with Doc. #.....

4.0 IDENTIFICATION OF PRODUCTS

Each flame arrester shall have a nameplate which shall indicate the following items:

1) Nominal size
2) Rating
3) Material symbol
4) Tag number
5) Manufacture's name

5.0 WEIGHT INDICATION

Approximate weight (kg) shall be indicated in the vendor's drawing.

6.0 HYDROSTATIC TESTING

Hydrostatic testing shall be performed in accordance with ASME B31.3. Test pressure is indicated in ATTACHMENT-1.

7.0 NON-DESTRUCTIVE EXAMINATION (NDE)

1) Butt welds shall be examined with radiographic examination, ultrasonic examination or magnetic particle examination.

2) Welds other than butt welds shall be examined with magnetic particle examination or liquid penetrant examination.

8.0 MATERIAL CERTIFICATION AND TRACEABILITY

Material certification and traceability shall be in accordance with S-000-1520-002, and its procedure shall be submitted for purchaser's approval.

9.0 INSTALLATION

Vendor shall propose suitable type (concentric type or eccentric type), drainage, etc., considering the installation direction shown in ATTACHMENT-1.

10.0 PAINTING AND RUST PREVENTION

Surface painting and rust prevention shall be provided in accordance with 'Summary of paint system for flame arrestor' (Attachment-1).

ATTACHMENT-1

SUMMARY OF PAINT SYSTEM

PAINT SYSTEM

Substrate Details			Flame Arrester	
Applicable Paint System Identification Code (Purchaser's internal use only)			Z3E5U2	
Paint System Description	Surface Preparation		SSPC-SP10 / Sa 2-1/2	
	Painting System	Gen. Name	DFT Average (μm)	Remarks
	Primer	Inorganic Zinc Silicate Primer	75	
	Intermediate Coat	High Build Epoxy	125	
	Finish Coat	High Build Polyurethane	50	
	Total DFT (μm)		250	

INSPECTION

Inspection Item	Applicable Standard	Inspection Frequency	Acceptance Criteria
Surface Preparation	SSPC and / or ISO8501-1	All Items	SP10 or Sa 2-1/2
Roughness	ISO 8503-4	All Items	Rz : 40 ~ 70μm
Total Dry Film Thickness	SSPC-PA2	All Items	Average of all measured value : 100% or more of the prescribed dry film thickness. Minimum of all measured value : 80% or more of the prescribed dry film thickness.
Adhesion	ISO 2409 or ISO 4624	Representative Test Panels (Dimension: 500×600×5mm) before the painting work	As per paint manufacturer's recommendation.
Appearance	Visual	All Items	To confirm; Colour and no sagging, no contamination, no orange peel, no cracking, no blistering, etc.

PAINT MANUFACTURERS AND PRODUCT NAMES

Paint Manufacturers	System Gen. Name	Primer Inorganic Zinc Silicate Primer	Intermediate Coat High Build Epoxy	Finish Coat High Build Polyurethane
Akzo (International Paint)		Interzinc 22	Intergard 475HS	Interthane 990
Hempel		Galvosil 15700	Hempadur 45141 or 45143	Hempathane Topcoat 55210
Jotun		Resist 86	Primastic Universal	Hardtop AS
Sigma Coating		Silguard MC 7551	Sigmacover CM Coating 7456	Sigmadur Gloss 7528

Color: Aluminum

DATA SHEET

(Flame Arrestor) - Group F

1	**Application**		Vent Piping of Gas Condensate/ Crude Oil Storage Tank and Flare line of 3-Phase Oil/Gas/Water Separator. Allow Gas Flow but prevent the transmission of flame.
2	**Fluid**		Gas Condensate/ Crude Oil
3	**Type**		In-line
4	**Installation**		Horizontal
5	**Design Code**		API 2000
6	**Size, Connection & Rating**		As per SOR
7	**Type of Connection**		Flanged to ASME b16.5
8	**Quantity**		As per SOR
9	**Material**		
	Body	**Pipe**	A 106-B
		Forged Steel	A105
		Cast Steel	A216-WCB
		Fitting	A234-WPB
10	**Element**		TP316 or Equivalent
11	**Corrosion Allowance**		3 mm

Remarks

1.Material of Construction should be suitable for a design life of 25 Years.

2.Atmospheric pressure is 14.7 Psia.

3.Vendor to confirm Max Allowable pressure drop.

Annexure-VI

DATA SHEET FOR

BREATHER VALVE FOR VENT OF RECTANGULAR GAS CONDENSATE/ CRUDE OIL STORAGE TANK (Group - F)

APPLICATION	PROTECTION OF CRUDE OIL AND GAS CONDENSATE STORAGE TANK FROM OVER PRESSURE AND VACCUM
DESIGN CODE	API-2000
TANK LENGTH	40 FT
TANK WIDTH	10 FT
TANK HEIGHT	08 FT
CAPACITY	500 BBLS
TANK TYPE	ABOVE GROUND FIXED ROOF RECTANGULAR STORAGE TANK BUILT TO API 650 STANDARD
SERVICE	GAS CONDENSATE/ CRUDE OIL STORAGE
VALVE SIZE	AS PER SOR
VENT TYPE	TO ATMOSPHERE
END CONNECTION	AS PER SOR
NO. OF VALVES REQUIRED	AS PER SOR
TYPE OF BREATHER VALVE	PRESSURE AND VACUUM RELIEF SPRING LOADED
TYPE OF CONNECTION	FLANGED TO ASME B16.5
MATERIAL OF CONSTRUCTION	CAST STEEL ASTM A 216 WCB
SEAT	SS 316
VACUUM PALLET	SS 316
PALLET STEM	SS 316
GASKET/PACKING	PTFE
FASTENER & STUD	ASTM A 193 B7/B8
PRESSURE PALLET	SS 316
DEAD WEIGHT	SS 316
BIRD SCREEN	SS WIRE MESH
WEATHER HOOD	STAINLESS STEEL

TOR FOR THIRD PARTY INSPECTION (GROUP-A)

1. Introduction:

Inspection of Fittings & Bends in the light of following scope of work and documents; TPI to ensure complete compliance.

- Purchase Order
- Data Sheet / Specifications
- Relevant codes & Standards.

2. Scope of Inspection

Documents review will be done at TPI office and visit will be done during final inspection.

TPI to proceed with following detailed scope of work in order to ensure quality inspection.

2.1 Documents Review for Approval by TPI

- 2.2.1 Review of Manufacturing Procedure Specification
- 2.2.2 Review of Inspection / Testing Procedures & Plan
- 2.2.3 Review of Calibration Certificates of NDT & Destructive tests Equipments.
- 2.2.4 Review of Inspection test plan
- 2.2.5 Review of Raw Material & verification through MTC'S
- 2.2.6 Review of NDT Personnel Certifications & records
- 2.2.7 Review of Manufacturing schedule.

2.2 Final Inspection:

The scope for final inspection of Material to be carried out by third party inspector is outlined below:

- Inspection will be sample based in accordance with ANSI /ASQ Z1.4 (General Inspection Level II).
- Ensure complete compliance with documents.
- Dimensions and identification marking for conformance to purchase order and specifications.
- Check for any indications of damage.
- Check preparation for shipment and packaging as per specification.
- Review the detailed listing (will be provided by Manufacturer) of the equipment, materials, tools, accessories, spare parts, and all other relevant parts being shipped, Material Test Certificates, Purchase Order and other relevant documents.

- Each package shall contain following information with un washable paint.

b) Oil & Gas Development Company Ltd, Islamabad Pakistan.
c) Contract No._____
d) L/C No._____
e) Equipment No._____
f) Case No._____
g) Storing and handling instructions for fragile and perishable items.
h) Gross Weight (in metric tons)
i) Dimensions (length*width*height in metric system)
j) Place of Origin

- Verify the completeness of Material based on the final Packing List provided by Manufacturer.
- Compliance check for safety standards of transportation/ shipment for Material.
- Physical check for any damages of Material.
- Instructions necessary for the storage of Material to maintain its integrity at site and before startup.
- Integrity of coating/exterior paint must be checked and ensured. Make sure that paint does not contain Lead or chromates.
- All exterior surfaces except for corrosion resistant material shall be coated with rust preventive material.

- All interior surfaces shall be physically checked to ensure that no dust, oily particles, welding spatters and other damaging particles reside there and those surfaces shall be coated for rust prevention.

- All the material must be closed with some standard procedure.

- All the threaded openings must be secured with steel plugs and openings beveled for welding shall be secured to prevent entrance of any moisture contents or dust.

- All the connections whether piping, component or electrical shall be thoroughly inspected for their integrity.

- All the components being shipped separately shall be tagged with item and serial number of the equipment for which it is intended.

- All the equipment and components to be shipped shall comply with Occupational Health and Safety Standards.

- Any connections dismantled for shipment purpose shall be match marked for ease of assembly.

- Preparation of report in light of above inspection, applicable codes/ standards and clearly identify the acceptance criteria.

3.0 Reporting Structure:

- Verification of Progress / Quality reports of all activities prepared by manufacturer.
- Submit a Non Conformance report to OGDCL signifying the quality concern & remedy.
- Daily inspection report.
- Detailed report at the end of complete inspection (Soft and hard copy).

Notes:

- 3rd Party inspector shall be present at the factory during stages of inspection mentioned above and for any increase in inspection time OGDCL will not be responsible.

- CV of third Party inspector from the aforementioned company should be immediately submitted to OGDCL for review and approval and should comply to following minimum requirements:

- 10 Years of Minimum experience.
- Carried Out third Party inspection of similar 10 Nos of Jobs (Proof to be attached).

- 3rd Party inspector will inform to company immediately for any delays in the manufacturing process and shall expedite the whole manufacturing process.
- Reference numbers of all documents reviewed / approved to be mentioned in daily and final report.
- Review and approval of documents related to project is included in scope of work of third party.
- Kindly appoint focal person of the project.