

Floor Choke Manifold

Control flow rates and reduce well pressure prior to processing

APPLICATIONS

- Onshore and offshore oil and gas well testing and cleanup after drilling or workover operations
- Flowback after stimulation or workover operations

BENEFITS

- Reduces effluent pressure before flow enters process equipment, which helps control the well and increases safety
- Ensures reliable shut-in in harsh environment operations

FEATURES

- Allows fast choke changes without interrupting the flow
- Controls flow with a calibrated orifice for flow rate reference
- Has seal design that ensures reliability in harsh environments
- Incorporates two pressure ports and one thermowell both upstream and downstream
- Provides two flow paths, one through a fixed choke and the other through an adjustable choke that can be converted to a fixed choke
- Enables fluid sampling, real-time pressure and temperature monitoring, and chemical injection
- Is equipped with hammer unions but can be fitted with Grayloc® or API-6A flanges
- Complies with API-6A (PSL-2, PR2), H₂S (NACE MR0175), DNV[†] Rules, BS[‡] 7072, and Fluid Class DD specifications; Models FMF-GC and FMF-GCC also comply with PED 97/23[§]; Model FMF-GCC is CE^{††} marked



Floor choke manifold.

The floor choke manifold (FMF) consists of four manual valves (five if a bypass valve is included). It is used to control the flow rate and reduce well pressure before the flow enters the processing equipment. The FMF also includes a variable choke box, a fixed choke box, and several pressure or sampling ports and thermowells to monitor pressure, temperature, and fluid characteristics.

The FMF design allows the well to flow through calibrated chokes for flow rate reference, as well as through adjustable chokes. The well can also be placed in a shut-in condition if required. Dual flow paths allow fast choke changes without interrupting the flow. Fixed chokes can be installed in both flow paths if necessary.

Well parameters can be monitored by pressure gauges, temperature gauges, and recorders. Reservoir behavior can be monitored at the choke manifold by installing pressure and temperature gauges. Combining these data with flow rate measurements and reservoir fluid properties provides a way to characterize well performance.

A number of FMF models and sizes are available for different well pressures, temperatures, and flow rates. The manifolds rated to 5,000 psi [34 MPa] and 10,000 psi [69 MPa] are typically equipped with standard hammer unions, but they can be fitted with other connections, such as API-6A or Grayloc flanges.

The FMFs use a proven metal-to-metal, double-sealing design for harsh environment operations and comply with all applicable environmental requirements. All FMFs are manufactured under Type Approval or Design Verification Review and are provided with a Certificate of Conformity and full quality file.

Floor Choke Manifold

Specifications and Codes

Model	Nominal Size, in	Working Pressure, psi [MPa]	Test Pressure, psi [MPa]	Temperature Class, degF [degC]	Inlet/Outlet Connections	API Flange on Tee	Bypass	Skid Temperature Class, degF [degC]
FMF-F	3/8	5,000 [34]	10,000 [69]	-20 to 250 [-29 to 121]	3-in Fig 1002 Female/Male	No	No	-4 [-20]
FMF-BFB	3/8	5,000 [34]	10,000 [69]	-20 to 250 [-29 to 121]	3-in Fig 1002 Female/Male	3/8-RX35	Yes	-4 [-20]
FMF-FC	4/16	5,000 [34]	10,000 [69]	-20 to 250 [-29 to 121]	API Flange 4/16-RX39	4/16-RX39	No	-4 [-20]
FMF-FCB	4/16	5,000 [34]	10,000 [69]	-20 to 250 [-29 to 121]	4-in Fig 1002 Female/Male	4/16-RX39	Yes	-4 [-20]
FMF-FCC	4/16	5,000 [34]	10,000 [69]	-50 to 350 [-46 to 177]	API Flange 4/16-RX39	4/16-RX39	No	-50 [-46]
FMF-BG	3/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	3-in Fig 1502 Female/Male	3/16-BX154	Yes	-4 [-20]
FMF-G	3/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	3-in Fig 1502 Female/Male	No	No	-4 [-20]
FMF-GK	3/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	3-in Fig 1502 Female/Male	No	No	-4 [-20]
FMF-GB	3/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	API Flange 3/16-BX154	3/16-BX154	No	-4 [-20]
FMF-GH	3/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	3-in Fig 1502 Female/Male	3/16-BX154	No	-4 [-20]
FMF-GC	4/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	API Flange 4/16-BX155	4/16-BX155	No	-4 [-20]
FMF-GCC	4/16	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	API Flange 4/16-BX155	4/16-BX155	No	-4 [-20]
FMF-GL	5/8	10,000 [69]	15,000 [103]	-20 to 250 [-29 to 121]	Grayloc 6 G52	5/8-BX169	No	-4 [-20]
FMF-HD	3/16	15,000 [103]	22,500 [155]	-20 to 250 [-29 to 121]	API Flange 3/16-BX154	3/16-BX154	No	-4 [-20]
FMF-HDK	3/16	15,000 [103]	22,500 [155]	-20 to 250 [-29 to 121]	API Flange 3/16-BX154	3/16-BX154	No	-4 [-20]
FMF-HL	3/16	15,000 [103]	22,500 [155]	-20 to 250 [-29 to 121]	API Flange 3/16-BX154	3/16-BX154	Yes	-4 [-20]

Specifications and Codes, Continued

Model	Max. Choke Size (Fixed or Adjustable), in [mm]	Hard Facing (Colmonoy®)	Tapping Points Number and Type Upstream and Downstream	Dimensions (L x W x H), ft [m]	Weight, lbm [kg]
FMF-F	2 [50.8]	5	3 x 1/2-NPT	6.23 x 5.90 x 3.28 [1.90 x 1.80 x 1.00]	3,800 [1,724]
FMF-BFB	2 [50.8]	5	3 x 1/2-NPT	7.88 x 6.66 x 3.28 [2.40 x 2.03 x 1.00]	6,250 [2,835]
FMF-FC	3 [76.2]	5	3 x 1/2-NPT	7.55 x 7.05 x 3.94 [2.30 x 2.15 x 1.20]	6,504 [2,950]
FMF-FCB	3 [76.2]	5	3 x 1/2-NPT	9.22 x 8.89 x 3.56 [2.81 x 2.71 x 1.085]	6,613 [3,000]
FMF-FCC	3 [76.2]	5	3 x 1/2-NPT	7.55 x 7.05 x 3.94 [2.30 x 2.15 x 1.20]	6,504 [2,950]
FMF-BG	2 [50.8]	75	3 x 1/2-NPT	8.44 x 7.35 x 3.28 [2.57 x 2.24 x 1.00]	5,512 [2,500]
FMF-G	2 [50.8]	75	3 x 1/2-NPT	6.55 x 6.55 x 3.28 [2.00 x 2.00 x 1.00]	4,500 [2,041]
FMF-GK	2 [50.8]	75	3 x 1/2-NPT	6.55 x 6.55 x 3.28 [2.00 x 2.00 x 1.00]	4,500 [2,041]
FMF-GB	2 [50.8]	75	3 x 1/2-NPT	6.55 x 6.55 x 3.28 [2.00 x 2.00 x 1.00]	4,500 [2,041]
FMF-GH	2 [50.8]	75	3 x 1/2-NPT	7.00 x 6.89 x 3.28 [2.15 x 2.10 x 1.00]	4,500 [2,041]
FMF-GC	3 [76.2]	75	3 x 1/2-NPT	8.86 x 6.89 x 3.28 [2.70 x 2.10 x 1.00]	8,900 [4,045]
FMF-GCC	3 [76.2]	75	3 x 1/2-NPT	8.86 x 6.89 x 3.28 [2.70 x 2.10 x 1.00]	8,900 [4,045]
FMF-GL	3 [76.2]	75	3 x 1/2-NPT	9.35 x 7.40 x 7.67 [2.85 x 2.26 x 2.34]	12,500 [5,670]
FMF-HD	2 [50.8]	75	3 x 3/16 Autoclave	8.35 x 7.03 x 3.89 [2.55 x 2.15 x 1.17]	5,512 [2,500]
FMF-HDK	2 [50.8]	75	3 x 3/16 Autoclave	8.35 x 7.03 x 3.89 [2.55 x 2.15 x 1.17]	5,512 [2,500]
FMF-HL	2 [50.8]	75	6 x 3/16 Autoclave	14.17 x 6.34 x 6.76 [4.32 x 1.93 x 2.06]	16,535 [7,500]

¹ Det Norske Veritas
² Complies with British Standard Code of Practice for Inspection and Repair of Offshore Containers
³ Complies with European Pressure Equipment Directive 97/23
⁴ Conformité Européenne
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