

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Chokes**

with type designation(s)
2-10K and 2-15K Adjustable Chokes
2-10K and 2-15K Positive Chokes
Part Numbers: See Page 2

Issued to

TechnipFMC
Stephenville, Texas, USA

is found to comply with
DNVGL-OS-E101 – Drilling plant, Edition July 2015
DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2015

Application :

See Page 2

Issued at **Houston** on **2017-08-02**

This Certificate is valid until **2022-08-01**.

DNV GL local station: **Approval CMC**

for **DNV GL**

Approval Engineer: **Kevin Bui**

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Brandon Caraway
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-007507-6**
Certificate No: **TAD00000SD**

Design Codes/Standards Used as References

- API 6A, Specification for Wellhead and Christmas Tree Equipment, 20th Edition
- NACE MR0175, Materials for Use in H₂S-containing Environments in Oil & Gas Production, 2015

Product Descriptions

Description	Part No./Rev.	Drawing No./Rev.
Choke, Adjustable, 10K, 2-1502Fxm, .75, Sour, Manual	3259260/I	DU500018771/B
Choke, Adjustable, 10K, 2-1502Fxm, .75, Sour, Manual	P518515/F	DU500009830/C
Choke, Adjustable, 10K, 2-1502Fxm, .75, Sour, Manual	P550773/B	DU500025141/B
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual	3259262/M	DU500009767/C
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual	3262922/H	DU500009755/C
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual	P507853/H	DU500008092/C
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual	P535609/C	DU500007465/C
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual	P535689/C	DU500007440/C
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual	P551115/C	DU500025500/B
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, w/Actr	P537746/E	DU500009963/E
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, w/Actr	P551116/B	DU500025512/B
Choke, Adjustable, 15K, 2-1502Fxm, 1.0, General, Manual	3263877/E	DU500029334/A
Choke, Adjustable, 15K, 2-2202Fxm, .75, Sour, Manual	P530703/C	DU500029431/A
Choke, Positive, 10K, 2-1502Fxm, Sour	3259259/G	DU500018749/A
Choke, Positive, 10K, 2-1502Fxm, Sour	P518516/E	DU500009804/A
Choke, Positive, 15K, 2-1502Fxm, General	3259261/H	DU500009972/A
Choke, Positive, 15K, 2-1502Fxm, General	P508288/F	DU500008095/A
Choke, Positive, 15K, 2-2202Fxm, Sour	P530699/B	DU500000908/B

Application/Limitation

Design Parameter	Value	Note
Nom Connection Size	See Description above	
Max Orifice	See Description above	Seat is not included in Positive Choke
Max Working Pressure, 10K	10,000 psi	
Max Working Pressure, 15K	15,000 psi	
Shell Test Pressure, 10K	15,000 psi	
Shell Test Pressure, 15K	22,500 psi	
Temperature Class	P+U (-20 to 250 °F)	
Service	See Description above	
Performance Requirement	1	

Type Approval Documentation

- Drawings:

Drawing No./Rev.	Title
	Body Inlet 2-1502F
	Body Inlet 2-1502F
	Body Inlet 2-2202F
	Body Outlet 2-1502M
	Body Outlet 2-2202M
	Body w/.5NPT
	Body w/1.125AE
	Body w/o Port

Drawing No./Rev.	Title
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Job Id: **262.1-007507-6**
Certificate No: **TAD00000SD**

Bonnet
Bonnet Blank Plug
Bonnet f/Actuator
Bonnet Nut
Nut 2-1502
Nut 2-1502
Nut 2-2202
Retainer 2-1502
Retainer 2-2202
Seat Assembly .75
Seat Assembly .75
Seat Assembly 1.0
Stem
Stem

- Calculations:

See Design Package for Adjustable Chokes, Positive Chokes and Union Connections Calculations.

- Material Specifications:

<u>Title</u>	<u>Spec. No./Rev.</u>	<u>Material</u>	<u>Min YS(psi)</u>	<u>Min Avg CVN(ft.lb)</u>
Body Inlet 2-1502F				
Body Inlet 2-1502F				
Body Inlet 2-2202F				
Body Outlet 2-1502M				
Body Outlet 2-1502M				
Body Outlet 2-2202M				
Body w/.5NPT				
Body w/1.125AE				
Body w/o Port				
Bonnet				
Bonnet Blank Plug				
Bonnet f/Actuator				
Bonnet Nut				
Nut 2-1502				
Nut 2-1502				
Nut 2-2202				
Retainer 2-1502				
Retainer 2-2202				
Seat				
Stem				

See Material Specifications for additional material requirements. See BOMs for alternative Material Specifications.

- Notes:

Other part numbers or revisions may be acceptable under this TAC provided critical aspects of the design remain the same. Changes shall be documented and approved by TechnipFMC Engineering and Quality. DNV GL Surveyor shall verify these changes before issuance of Product Certificates.

Tests Carried Out

<u>Description</u>	<u>Part No.</u>	<u>Serial No.</u>
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Choke, Adjustable, 10K, 2-1502Fxm, .75, Sour, Manual
Choke, Adjustable, 10K, 2-1502Fxm, .75, Sour, Manual
Choke, Adjustable, 10K, 2-1502Fxm, .75, Sour, Manual
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, Manual
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, w/Act
Choke, Adjustable, 15K, 2-1502Fxm, .75, General, w/Act
Choke, Adjustable, 15K, 2-1502Fxm, 1.0, General, Manual
Choke, Adjustable, 15K, 2-2202Fxm, .75, Sour, Manual
Choke, Positive, 10K, 2-1502Fxm, Sour
Choke, Positive, 10K, 2-1502Fxm, Sour
Choke, Positive, 15K, 2-1502Fxm, General
Choke, Positive, 15K, 2-1502Fxm, General

Marking of Products

- Product and data book shall be marked at least with company name, part number and serial number for traceability.

Periodical Assessments

- Periodical assessments shall be carried out bi-yearly for retention of TAC.

Fabrication Procedures

- Procedures related to testing, NDE, welding, marking, etc. shall be reviewed by DNV GL Surveyor.

Comments

- Project No. A0424131, Attn. Andrew Huf.
- This TAC replaces D-5117 and does not include Actuators Review.