DNV·GL

Certificate No:
TAD00000N8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Crosses, Elbows, Laterals, Tees and Wyes

with type designation(s)
Crosses, Elbows, Laterals, Tees and Wyes
Part Numbers: See Page 2

Issued to
FMC Technologies, Inc.
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 - Ch.2 Sec.7 DRILL(N), July 2015

Application :

Max Working Pressure, 7.5K: 7,500 psi
Max Working Pressure, 10K: 10,000 psi
Max Working Pressure, 15K: 15,000 psi
Max Working Pressure, 20K: 20,000 psi
Max Test Pressure: 1.5 x Max Working Pressure
Service: See Part Description on Page 2
Temp Class: -40 to 225 °F (Note: Sizes up through 3" (excluding 2-602 Lateral Union) are acceptable for use at 10,000 psi for standard service at 20 to 350 °F)

Issued at **Houston** on **2017-03-21**
This Certificate is valid until **2022-03-20**.
DNV GL local station: **Approval CMC**

Approval Engineer: **Kevin Bui**

for **DNV GL**

Christian Nilsen
Team Lead

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

References

- API 6A, Specification for Wellhead and Christmas Tree Equipment, 20th Edition
- NACE MR0175, Materials for Use in H_2S-containing Environments in Oil & Gas Production, 2015
- Project PP161030-7, PO 4700196844, Attn. Andrew.Huf@technipfmc.com

Part Numbers and Descriptions

Part No./Rev.	Part Description
P513620/C	Cross, 10K, 3-1502F x M x M x M, Sour
3257973/E	Cross, 15K, 2-1502F x F x F x M, Standard
P501752/C	Cross, 15K, 2-2202F x F x F x M, Sour
P534782/B	Cross, 15K, 4-1502M x F x 3-1502F x F, Standard
P555862/D	Cross, 20K, 3-2002M x F x F x F, Standard
P539145/A	Elbow, 07.5K, 4-1002M x F, Sour
3260360/E	Elbow, 10K, 2-1502M x F, Sour
3265950/D	Elbow, 15K, 3-1502M x F, Standard
3261421/F	Lateral, 10K, 2-1502M x F x F, Sour, 45°
P532000/D	Lateral, 10K, 4-1002M x F x 3-1502F, Standard, 45°
P519459/F	Lateral, 10K, 4-1002M x F x F, Standard, 60°
3261420/F	Lateral, 15K, 2-1502F x M x F, Standard, 45°
P551838/A	Lateral, 15K, 3-1502M x F x F, Standard, 45°
3266805/G	Lateral, 15K, 3-1502M x F x F, Standard, 60°
P518757/D	Lateral, 15K, 4-1502M x F x F, Standard, 45°
P540713/A	Lateral, 20K, 3-2002M x F x F, Standard, 45°
3268031/D	Tee, 10K, 4-1002M x F x F, Standard
P550993/A	Tee, 10K, 4-1502M x 3-1502F x F, Sour
3257979/E	Tee, 15K, 2-1502F x M x F, Standard
3267655/F	Tee, 15K, 3-1502M x F x 2-1502F, Standard
3262298/F	Tee, 15K, 3-1502M x F x F, Standard
P553643/A	Tee, 15K, 3-1502M x F x F, Standard, Lightweight
P522217/C	Tee, 15K, 3-2202M x F x F, Sour
P518765/F	Tee, 15K, 4-1502M x F x 2-1502F, Standard
P519452/D	Tee, 20K, 3-2002M x F x 2-2002F, Standard
3248668/E	Wye, 10K, 2-1502M x F x F, Sour, 90°
3208846/L	Wye, 15K, 2-1502F x F x M, Standard, 90°

Type Approval Documentation

- Drawings:

Drawing No./Rev.	Title

Drawing No./Rev.	Title

- Material Specifications:

  See BOMs for Material Specification Numbers.

- Note: Other part numbers or revisions may be acceptable under this TAC provided critical aspects of the design remain the same for fit, form and function. Changes shall be documented and approved by Manufacturer's Engineering and Quality. DNVGL Surveyor shall verify these changes before issuance of Product Certificates.

Calculation Reports

See Design Packages.

Test Reports

Test Serial No.	Part Description
111314A11024	Cross, 10K, 3-1502F x M x M x M, Sour
091516A10189	Cross, 15K, 2-1502F x F x F x M, Standard
061714A10350	Cross, 15K, 2-2202F x F x F x M, Sour
013114A10103	Cross, 15K, 4-1502M x F x 3-1502F x F, Standard
031815A10162	Cross, 20K, 3-2002M x F x F x F, Standard
090215A10296	Elbow, 07.5K, 4-1002M x F, Sour
030916A10200	Elbow, 10K, 2-1502M x F, Sour
120116A10239	Elbow, 15K, 3-1502M x F, Standard

Test Serial No.	Part Description
081516A10113	Lateral, 10K, 2-1502M x F x F, Sour, 45°
092815A10395	Lateral, 10K, 4-1002M x F x 3-1502F, Standard, 45°
022316A10127	Lateral, 10K, 4-1002M x F x F, Standard, 60°
072216A10031	Lateral, 15K, 2-1502F x M x F, Standard, 45°
060916A10163	Lateral, 15K, 3-1502M x F x F, Standard, 45°
091216A10244	Lateral, 15K, 3-1502M x F x F, Standard, 60°
032116A10080	Lateral, 15K, 4-1502M x F x F, Standard, 45°
060116A10196	Lateral, 20K, 3-2002M x F x F, Standard, 45°
071916A10056	Tee, 10K, 4-1002M x F x F, Standard
103012A10415	Tee, 10K, 4-1502M x 3-1502F x F, Sour
033016A10106	Tee, 15K, 2-1502F x M x F, Standard

101116A10224	Tee, 15K, 3-1502M x F x 2-1502F, Standard
110216A10363	Tee, 15K, 3-1502M x F x F, Standard
030316A10073	Tee, 15K, 3-1502M x F x F, Standard, Lightweight
050515A10587	Tee, 15K, 3-2202M x F x F, Sour
110116A10095	Tee, 15K, 4-1502M x F x 2-1502F, Standard
100316A10127	Tee, 20K, 3-2002M x F x 2-2002F, Standard
051115A10292	Wye, 10K, 2-1502M x F x F, Sour, 90°
091916A10111	Wye, 15K, 2-1502F x F x M, Standard, 90°

Fabrication Procedures

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

Marking of Products

- Product and databook shall be marked at least with part and serial numbers for traceability.

Periodical Assessments

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

Comments

- This TAC replaces the Crosses, Elbows, Laterals, Tees and Wyes of TAC No. D-4641.