

TYPE APPROVAL CERTIFICATE

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

with type designation(s)
1.44K, 5K, 10K, 15K and 20K Union Flange Adapters
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, Edition July 2015

Application :

Max Working Pressure, 1.44K: 1,440 psi
Max Working Pressure, 5K: 5,000 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 **2017-03-29**

This Certificate is valid until **2022-03-28**.

for **DNV GL**

DNV GL local station: **Approval CMC**

Approval Engineer: **Kevin Bui**

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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.



Job Id: **262.1-024856-1**
Certificate No: **TAD00000N4**

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
- Project PP161030-6, PO 4700196836, Attn. Andrew.Huf@technipfmc.com

Part Numbers and Descriptions

<u>Part No./Rev.</u>	<u>Part Description</u>
P513005/C	Adapter, 01.44K, 3-602F x 3 CL600 RF, 5 L, Standard
P559519/A	Adapter, 01.44K, 3-602M x 3 CL600 RF, 6.25 L, Standard
P556237/C	Adapter, 05K, 4-602M x 4-1/16 5K Flange, 16 L, Standard
3267138/C	Adapter, 10K, 2-1502F x 1-13/16 15K Flange, 7 L, Sour
P513074/D	Adapter, 10K, 2-1502F x 2-1/16 10K Flange, 6.5 L, Standard
P531290/A	Adapter, 10K, 2-1502M x 2-1/16 15K Flange, 6.75 L, Sour
P546141/A	Adapter, 10K, 3-1002F x 3-1/16 10K Flange, 7.5 L, Standard
P548274/A	Adapter, 10K, 3-1502F x 4-1/16 15K Flange, 8.62 L, Sour
P512766/C	Adapter, 10K, 3-1502M x 3-1/16 10K Flange, 8.33 L, Sour
P517259/C	Adapter, 10K, 4-1002F x 4-1/16 10K Flange, 7.5 L, Standard
P518533/B	Adapter, 10K, 4-1002M x 4-1/16 10K Flange, 8.96 L, Standard
P551237/A	Adapter, 10K, 4-1502M x 4-1/16 10K Flange, 10.75 L, Sour
P505115/B	Adapter, 15K, 2-1502M x 2-1/16 15K Flange, 6.75 L, Standard
P510128/B	Adapter, 15K, 2-2202F x 2-1/16 15K Flange, 6 L, Sour
P527578/A	Adapter, 15K, 2-2202M x 2-1/16 15K Flange, 8 L, Sour
P528616/A	Adapter, 15K, 3-1502F x 4-1/16 15K Flange, 8.62 L, Standard
P527541/B	Adapter, 15K, 3-1502M x 3-1/16 15K Flange, 8.5 L, Standard
P542882/A	Adapter, 15K, 3-2202F x 3-1/16 20K Flange, 7.5 L, Sour
P518887/C	Adapter, 15K, 4-1502F x 4-1/16 15K Flange, 8.62 L, Standard
P525302/A	Adapter, 20K, 3-2002F x 3-1/16 20K Flange, 6.75 L, Standard
P557083/C	Adapter, 20K, 3-2002M x 3-1/16 20K Flange, 11.25 L, Standard

Type Approval Documentation

- Drawings:

<u>Drawing No./Rev.</u>	<u>Part Description</u>
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<u>Drawing No./Rev.</u>	<u>Part Description</u>
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- 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 FMC Engineering and Quality. DNVGL Surveyor shall verify these changes before issuance of Product Certificates.

Calculation Reports

- See Design Package.

Test Reports

Part No.	Test Serial No.	Part Description
P513005	072215A10253	Adapter, 01.44K, 3-602F x 3 CL600 RF, 5 L, Standard
P559519	072215A10254	Adapter, 01.44K, 3-602M x 3 CL600 RF, 6.25 L, Standard
P556237	090914A10504	Adapter, 05K, 4-602M x 4-1/16 5K Flange, 16 L, Standard
3267138	0204800W009	Adapter, 10K, 2-1502F x 1-13/16 15K Flange, 7 L, Sour
P513074	102116A10187	Adapter, 10K, 2-1502F x 2-1/16 10K Flange, 6.5 L, Standard
P531290	100515A10316	Adapter, 10K, 2-1502M x 2-1/16 15K Flange, 6.75 L, Sour
P546141	031611A10276	Adapter, 10K, 3-1002F x 3-1/16 10K Flange, 7.5 L, Standard
P512766	030614A10615	Adapter, 10K, 3-1502M x 3-1/16 10K Flange, 8.33 L, Sour
P517259	040715A10308	Adapter, 10K, 4-1002F x 4-1/16 10K Flange, 7.5 L, Standard
P518533	102512A10333	Adapter, 10K, 4-1002M x 4-1/16 10K Flange, 8.96 L, Standard
P505115	072016A10072	Adapter, 15K, 2-1502M x 2-1/16 15K Flange, 6.75 L, Standard
P510128	101412A10074	Adapter, 15K, 2-2202F x 2-1/16 15K Flange, 6 L, Sour
P527578	012715A10430	Adapter, 15K, 2-2202M x 2-1/16 15K Flange, 8 L, Sour
P528616	061416A10203	Adapter, 15K, 3-1502F x 4-1/16 15K Flange, 8.62 L, Standard
P527541	102416A10429	Adapter, 15K, 3-1502M x 3-1/16 15K Flange, 8.5 L, Standard
P542882	041913A10215	Adapter, 15K, 3-2202F x 3-1/16 20K Flange, 7.5 L, Sour
P518887	031616A10068	Adapter, 15K, 4-1502F x 4-1/16 15K Flange, 8.62 L, Standard
P525302	012215A10319	Adapter, 20K, 3-2002F x 3-1/16 20K Flange, 6.75 L, Standard
P557083	080516A10072	Adapter, 20K, 3-2002M x 3-1/16 20K Flange, 11.25 L, Standard

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 Union Flange Adapters of TAC No. D-4641.



Job Id: **262.1-024856-1**
Certificate No: **TAD00000N4**