

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Elbows

with type designation(s)
6K, 7.5K, 10K and 15K Longsweep Elbows
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, 6K: 6,000 psi
Max Working Pressure, 7.5K: 7,500 psi
Max Working Pressure, 10K: 10,000 psi
Max Working Pressure, 15K: 15,000 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**.

DNV GL local station: **Approval CMC**

for **DNV GL**

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: **262.1-024855-1**
Certificate No: **TAD00000N5**

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 PP161030-5, PO 4700196834, Attn. Andrew.Huf@technipfmc.com

Part Numbers and Descriptions

<u>Part No./Rev.</u>	<u>Part Description</u>
3263996/D	Longsweep Elbow, 06K, 2-602M x F, Sour
3262554/E	Longsweep Elbow, 06K, 2-602M x F, Standard
3263997/C	Longsweep Elbow, 06K, 3-602M x F, Sour
3259683/D	Longsweep Elbow, 06K, 3-602M x F, Standard
P506172/C	Longsweep Elbow, 06K, 4-602M x F, Standard
P502277/D	Longsweep Elbow, 07.5K, 2-1002M x F, Sour
3263998/C	Longsweep Elbow, 07.5K, 3-1002M x F, Sour
3260438/E	Longsweep Elbow, 10K, 2-1502M x F, Sour
P526890/A	Longsweep Elbow, 10K, 3-1002M x F, Standard
3262406/D	Longsweep Elbow, 10K, 3-1502M x F, Sour
3261102/E	Longsweep Elbow, 10K, 4-1002M x F, Standard
3260403/F	Longsweep Elbow, 15K, 2-1502M x F, Standard
3259845/F	Longsweep Elbow, 15K, 3-1502M x F, Standard

Type Approval Documentation

- Drawings:

<u>Drawing No./Rev.</u>	<u>Part Description</u>
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- Material Specifications:
- **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

<u>Title/Rev.</u>
Calculations for 3263996/2016-11-28
Calculations for 3262554/2016-11-28
Calculations for 3263997/2016-11-28

Calculations for 3259683/2016-11-28
Calculations for P506172/2016-11-28
Calculations for P502277/2016-11-28
Calculations for 3263998/2016-11-28
Calculations for 3260438/2016-11-28
Calculations for P526890/2016-11-28
Calculations for 3262406/2016-11-28
Calculations for 3261102/2016-11-22
Calculations for 3260403/2016-11-22
Calculations for 3259845/2016-11-22

Test Reports

Part No.	Test Serial No.	Part Description
3263996	032813A10016	Longsweep Elbow, 06K, 2-602M x F, Sour
3262554	050114A10082	Longsweep Elbow, 06K, 2-602M x F, Standard
3263997	012012A10240	Longsweep Elbow, 06K, 3-602M x F, Sour
3259683	082014A10744	Longsweep Elbow, 06K, 3-602M x F, Standard
P506172	021516A10027	Longsweep Elbow, 06K, 4-602M x F, Standard
P502277	08270400S001	Longsweep Elbow, 07.5K, 2-1002M x F, Sour
3263998	082511A10215	Longsweep Elbow, 07.5K, 3-1002M x F, Sour
3260438	082916A10002	Longsweep Elbow, 10K, 2-1502M x F, Sour
P526890	061912A10361	Longsweep Elbow, 10K, 3-1002M x F, Standard
3262406	091614A10086	Longsweep Elbow, 10K, 3-1502M x F, Sour
3261102	102214A10593	Longsweep Elbow, 10K, 4-1002M x F, Standard
3260403	112816A10016	Longsweep Elbow, 15K, 2-1502M x F, Standard
3259845	092716A10038	Longsweep Elbow, 15K, 3-1502M x F, 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 Longsweep Elbows of TAC No. D-4641.