

TYPE APPROVAL CERTIFICATE

Certificate No:

TA0000072H
DNV GL

This is to certify:

That the Elbows and Tees

with type designation(s)

Figure 1502 Elbows

Figure 2002 Elbows

Figure 1502 Tees

Figure 2002 Tees

Part Numbers: See Page 2

Issued to

FMC Technologies

Stephenville, Texas, USA

is found to comply with

DNV-OS-E101 Drilling Plant October 2013

and DNV GL AS' understanding of the implementation and interpretation of:

PSA's "Regulations relating to design and outfitting of the facilities etc. in the petroleum activities" (THE FACILITIES REGULATIONS), Last amended 16 December 2014, Ch.VIII

Application :

See Page 2

This Certificate is valid until **2019-09-13**.

Issued at **Houston** on **2015-09-14**

for **DNV GL**

DNV GL local station: **Approval CMC**

Approval Engineer: **Kevin Bui**

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: **262.1-011400-3**
Certificate No: **TAD000002H**

References

- ASME Boiler and Pressure Vessel Code, Section VIII, Division 2, 2015 Edition
- Project No. PP127466-2, PO No. 4700016974, Attn. Jim Soltau.

Product Descriptions

Description	Part No.	Rev.
Elbow Assy w/1 Fig 1502 MxF w/NBR seal f/Std service 15000 CWP	P506048	C
Elbow Assy w/2 Fig 1502 MxF w/low temp NBR seal f/SG service 10000 CWP	P531518	C
Elbow Assy w/2 Fig 1502 MxF w/NBR seal f/Std service 15000 CWP	P503846	H
Elbow Assy w/2 Fig 2002 MxF w/NBR seal f/Std service 20000 CWP	P506051	B
Tee Assy w/1 Fig 1502 FxMxF w/NBR seal f/Std service 15000 CWP	P506083	D
Tee Assy w/1 Fig 1502 MxFxF w/FKM seal f/SG service 10000 CWP	P551046	A
Tee Assy w/1.5 Fig 1502 FxMxF w/NBR seal f/Std service 15000 CWP	P505457	E
Tee Assy w/1.5 Fig 1502 MxMxM f/SG service 10000 CWP	P548941	A
Tee Assy w/2 Fig 1502 FxMxF w/low temp NBR seal f/SG service 10000 CWP	P514328	G
Tee Assy w/2 Fig 1502 FxMxF w/NBR seal f/Std service 15000 CWP	P503840	G
Tee Assy w/2 Fig 1502 FxMxM w/FKM seal f/SG service 10000 CWP	P532478	C
Tee Assy w/2 Fig 2002 FxFxM w/NBR seal f/Std service 20000 CWP	P506090	A

Applications / Limitations

Figure	Standard Service		Sour Service		Temp Range (°F)
	Max WP (psi)	Max TP (psi)	Max WP (psi)	Max TP (psi)	
1502	15,000	22,500	10,000	15,000	-20 to 250
2002	20,000	30,000	n/a	n/a	-20 to 250

Type Approval Documentation

- Drawings and Material Specifications:
Title

Drawing No./ Rev. Spec. No./ Rev.

Title

Drawing No./ Rev.

Spec. No./ Rev.

- Calculations

See Design Package for Stress Calculation Reports.

- Notes:

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

Test Reports

- See Design Package for Pressure Test Reports.

Marking of Product

- For traceability, the Product shall be marked at least with FMC, part number and serial number.

Periodical Assessments

- For retention of the TAC, the periodical assessments shall be carried out every two years.

Comments

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