

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Swivel Joints**

with type designation(s)

3 TSi-15 Style 10 Swivel Joint, PN P505325, Rev. G
3 TSi-15 Style 50 Swivel Joint, PN P505327, Rev. G
3 TSi-20 Style 10 Swivel Joint, PN P527339, Rev. A
3 TSi-20 Style 50 Swivel Joint, PN P527340, Rev. B
4 TSi-10 Style 10 Swivel Joint, PN P516094, Rev. D
4 TSi-10 Style 50 Swivel Joint, PN P516091, Rev. D
4 TSi-15 Style 10 Swivel Joint, PN P527329, Rev. C
4 TSi-15 Style 50 Swivel Joint, PN P527331, Rev. D

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 :**

Max Working Pressure, TSi-10: 10000 psi
Max Working Pressure, TSi-15: 15000 psi
Max Working Pressure, TSi-20: 20000 psi
Max Test Pressure, TSi-10: 15000 psi
Max Test Pressure, TSi-15: 22500 psi
Max Test Pressure, TSi-20: 30000 psi
Temperature Class: -20 to 250 °F
Service: General

This Certificate is valid until **2019-08-26**.Issued at **Houston** on **2015-08-27**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.

Job Id: **262.1-011400-2**
Certificate No: **TAD000002G**

Type Approval Documentation

- Drawings and Material Specifications:

<u>Title</u>	<u>Drawing No./Rev.</u>	<u>Specification No./Rev.</u>	<u>Note</u>
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Job Id: **262.1-011400-2**
Certificate No: **TAD000002G**

- Calculations

Title Document No./Rev.

- 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 via ECN or similar by Manufacturer's Engineering and/or Quality. DNV GL Surveyor shall verify the changes before issuance of Product Certificate.

Test Reports

Title Part No. Serial No.

Marking of Product

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

Periodical Assessments

- For retention of the TAC, the periodical assessments shall be carried out every two years. When possible, these assessments may be harmonized with normal surveys for product certification and/or other surveys and audits carried out.

Comments

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

References

- Project No. PP127466-01, PO No. 4700006928, Attn. Jim Soltau.