

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pipe Fitting**

with type designation(s)
Swivel Joint Assemblies, TSI-Plus S10 S50 S100

Issued to

FMC Technologies Inc. - Fluid Control
Houston, TX, USA

is found to comply with
DNVGL-OS-E101 – Drilling facilities, Edition January 2018
DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2018

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Houston** on **2020-08-18**

This Certificate is valid until **2025-08-17**.

for **DNV GL**

DNV GL local station: **Houston, Approval CMC**

Approval Engineer: **Xiangwen Maggie Wang**

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Meindert van Mierlo
Head of Section

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

- TSI - PLUS SER Swing Joint Style 100 Assembly, P/N: P562241
- TSI - PLUS SER Swing Joint Style 50 Assembly, P/N: P559434
- TSI - PLUS SER Swing Joint Style 10 Assembly, P/N: P566819

Reference standards

- API 6A, Specification for Wellhead and Tree Equipment, 21st Edition
- API 6X, Design Calculations for Pressure-containing Equipment, 2nd Edition
- ASME Boiler & Pressure Vessel Code Section VIII, Division 2, 2019 Edition

Application/Limitation

- Max. Working Pressure: 15,000 psi
- Test Pressure: 22,500 psi
- Design Temperature: -40 °F to 250 °F
- Service: Standard

Type Approval documentation

Tests carried out

1. FAT P566819 Q00040 Rev R Test report, date tested 2/12/2020.
2. FAT P559434 Q00040 Rev R Test report, date tested 1/9/2020.
3. FAT P562241 Q00040 Rev R Test report, date tested 3/1/2018.

Marking of product

For traceability the following marking is to be carried out on each product:

1. Serial No.
2. Manufacturer's name or trademark.
3. Additional Marking at manufacturer's discretion.

Periodical assessment

For retention of the Type Approval, DNV GL's surveyor shall perform periodical assessment after 2 years and after 3.5 years in accordance with DNV GL's Class Programme DNVGL-CP-0338, Section 4.

Other conditions/comments

1. Procedures related to testing, welding, NDT, and other quality control requirements are to be reviewed/approved by DNV GL's local surveyor.
2. Non-metallic materials shall be suitable for the intended service and shall be capable of sustaining the design pressures and temperatures. Non-metallic materials in wetted components shall be tested in order to ensure compatibility with all fluids that they will be exposed to during service, as specified.
3. DNV GL ref.: A0846155.

END OF CERTIFICATE