DNV·GL

Certificate No:
TAD00000EK

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Joints

with type designation(s)
LSG10 and LSG15 Swivel Joint Assemblies
Part Numbers: See Page 2

Issued to
FMC Technologies
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, LSG10: 10000 psi
Max Working Pressure, LSG15: 15000 psi
Max Test Pressure, LSG10: 15000 psi
Max Test Pressure, LSG15: 22500 psi
Temperature Class: -20 to 225 °F
Service: Sour
Performance Requirement: 1

This Certificate is valid until **2021-08-23**.

Issued at **Houston, Texas** on **2016-08-24**

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

References

- API Spec 6A, Specification for wellhead and christmas tree equipment, 20th Ed
- NACE MR0175, Materials for use in H_2S-containing environments in oil and gas production, 2015
- Project No. PP161030-1, Attn. Andrew Huf

Part Descriptions and Numbers

Part Description	Part No./Rev.
1 LSG10 Style 50 Swivel Joint Assy	6102967/G
2 LSG10 Style 10 Swivel Joint Assy	3143917/I
2 LSG10 Style 50 Swivel Joint Assy	3143916/M
2 LSG15 Style 10 Swivel Joint Assy	3144651/H
2 LSG15 Style 50 Swivel Joint Assy	3144650/K
3 LSG10 Style 10 Swivel Joint Assy	3144945/H
3 LSG10 Style 50 Swivel Joint Assy	3144942/G
3 LSG15 Style 10 Swivel Joint Assy	6100783/H
3 LSG15 Style 50 Swivel Joint Assy	3145814/K

Type Approval Documentation

- Drawings and Material Specifications:

Title	Drawing No./Rev.	Specification No./Rev.

Title	Drawing No./Rev.	Specification 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 QA. DNV GL Surveyor shall verify the changes before issuance of Product Certificate.

Calculation Reports

Title	Document No./Rev.

Test Reports

Title	Part No.	Serial No.

Fabrication Procedures

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

Marking of Products

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

Periodical Assessments

- For retention of TAC, periodical assessments shall be carried out bi-yearly.

Comments

- This TAC replaces TAC No. D-4597.