DNV·GL

Certificate No:
TAD00000TU

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Manifolds

with type designation(s)
15K Discharge Manifolds
Part Numbers: See Page 2

Issued to
TechnipFMC
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 :

See Page 2

Issued at **Houston** on **2017-10-10**
This Certificate is valid until **2022-10-09**.
DNV GL local station: **Approval CMC**

Approval Engineer: **Kevin Bui**

for **DNV GL**

Brandon Caraway
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.

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Design Codes/Standards Used as References

- API 6A, Specification for Wellhead and Christmas Tree Equipment, 20th Edition

Product Descriptions

Part No./Rev.	Drawing No./Rev.	Description
100006842-SLB/K	SUP50002661/A	15K Discharge Manifold CPS665, SLB PN 100006842
100518241/J	SUP50002660/B	15K Discharge Manifold CPS361, SLB PN 100518241

Application/Limitation

Design Parameter	Value
Max Working Pressure	15,000 psi
Shell Test Pressure	22,500 psi
Temperature Class	P+U (-20 to 250 °F)
Service	General (Standard)
Performance Requirement	1

Type Approval Documentation

- Parts and Drawings for Manifold 100518241:

Part No./Rev.	Drawing No./Rev.	Description
3139477/N		LS SER SJ S10 ASSEMBLY 2 LS15 ALLOY STEEL OO/BRS PACKING 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 MALE W/DET NUT
3139901/F		LS SER SJ S80 ASSEMBLY 2 LS15 ALLOY STEEL OO/BRS PACKING FIG 1502 FEMALE W/NITRILE SEAL RING X FIG 1502 MALE W/DET NUT
3144125/F		LS SER SJ S30 ASSEMBLY 2 LS15 ALLOY STEEL OO/BRS PACKING FIG 1502 FEMALE W/NITRILE SEAL RING X FIG 1502 MALE W/DET NUT
3201564/H		NUT UNION 2 FIG 1502 15000 CWP
3201571/P		MALE SUB UNION 2 FIG 1502 LPT 5000 CWP 3.84 LG
3258741/E		ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL
515547090/H		D.S. CROSS ASSEMBLY UNION 2 FIG 1502 SUB ENDS FEMALE X FEMALE X MALE W/DET NUT X FEMALE 15000 CWP SLB PN 515547090 REV AA
562859090/C		ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL 8.56 LG 15000 CWP
P503840/I		TEE ASSEMBLY UNION 2 FIG 1502 SUB ENDS FEMALE X MALE W/DET NUT X FEMALE W/NITRILE SEAL 15000 CWP 12.12 LG
P503848/G		TEE ASSEMBLY UNION 2 FIG 1502 SUB ENDS FEMALE X MALE W/DET NUT X MALE W/DET NUT W/NITRILE SEAL 15000 CWP 12.12 LG
P506064/E		ELBOW ASSEMBLY UNION 2 FIG 1502 SUB ENDS FEMALE X FEMALE W/NITRILE SEAL RINGS 15000 CWP 6.06 LG
P509010/C		ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL RING 6.06 LG 15000 CWP ECCENTRIC
P513145/C		ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL RING 5.50 LG 15000 CWP ECCENTRIC
P516108/H		ULT PLUG VALVE ASSEMBLY, 1 MOD ULT150 W/2 FIG 1502F SUB END X 2 FIG 1502M SUB END W/DET NUT 15000 CWP W/PLUG CAP

P516823/E	PUP JOINT ASSEMBLY HOSE 2 INTEGRAL ALLOY STL FIG 1502M SUB W/DET NUT & RETENTION SHOULDER X FEMALE SUB W/NITRILE SEAL
P537789/C	ULT PLUG VALVE ASSEMBLY, 2 MOD ULT150 W/FIG 1502F SUB X FIG 1502M SUB W/DET NUT W/1.75 BORE, 15000 CWP W/ NITRILE SEAL
P551115/C	T-BODY CHOKE ASSEMBLY 1 13/16 15000 CWP ADJUSTABLE 2 FIG 1502 F X M ENDS W/1-1/8 AE PORT, W/ INDUCTION HARDEN TIP STEM

- Parts and Drawings for Manifold 100006842-SLB:

Part No./Rev.	Drawing No./Rev.	Description
3139475/N		LS SER SJ S50 ASSEMBLY 2 LS15 ALLOY STEEL OO/BRS PACKING FIG 1502 MALE W/DET NUT X FIG 1502 FEMALE
3139901/F		LS SER SJ S80 ASSEMBLY 2 LS15 ALLOY STEEL OO/BRS PACKING FIG 1502 FEMALE W/NITRILE SEAL RING X FIG 1502 MALE W/DET NUT
3144125/F		LS SER SJ S30 ASSEMBLY 2 LS15 ALLOY STEEL OO/BRS PACKING FIG 1502 FEMALE W/NITRILE SEAL RING X FIG 1502 MALE W/DET NUT
3145622/E		LS SER SJ S100 ASSY 2 LS15 ALLOY STEEL OO/BRS PACKING DOWELL DISCHARGE PORT PROPRIETARY FOR DOWELL X FIG 1502M W/DET NUT
3201564U/C		NUT UNION 2 FIG 1502 15000 CWP
3201571/P		MALE SUB UNION 2 FIG 1502 LPT 5000 CWP 3.84 LG
3241741/L		MALE PLUG UNION 2 FIG 1502 W/SNAP RING GROOVE 15000 CWP
3265904/I		ULT PLUG VALVE ASSEMBLY, 3 MOD ULT150 W/FIG 1502 FEMALE X FIG 1502 MALE W/DET NUT W/2.75 BORE, 15000 CWP W/PLUG CAP
3267655/F		TEE ASSEMBLY, UNION FIG 1502 SUB ENDS 3 MALE W/DET NUT X 3 FEMALE X 2 FEMALE W/NITRILE SEAL RINGS 15000 CWP 16.00 LG
403404090/D		PLUG, FLUID-END DISCHARGE PORT PER (SLB PN 403404090 REV AD)
443185090/D		NUT BODY RETAINER PRESSURE TRANSDUCER DOCMTD, WITH LUGS MACHINED OFF AND KNURLED (SLB PN 443185090 REV AA)
515547090/H		D.S. CROSS ASSEMBLY UNION 2 FIG 1502 SUB ENDS FEMALE X FEMALE X MALE W/DET NUT X FEMALE 15000 CWP (SLB PN 515547090 REV AA)
571274090/H		D.S. TEE ASSEMBLY, UNION FIG 1502 SUB ENDS 3 MALE W/DET NUT X 2 FEMALE X 2 FEMALE 15000 CWP (SLB PN 571274090 REV AA)
590516090/A		ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL RINGS 8.88 LG (SLB PN 590516090 REV AA)
6102320/F		LS SER SJ S20 ASSY 2 LS15 ALLOY STEEL OO/BRS PACKING FIG 1502M W/DET NUT X DOWELL DISCHARGE PORT PROPRIETARY FOR DOWELL
P503840/I		TEE ASSY UNION 2 FIG 1502 SUB ENDS F X M W/DET NUT X FEMALE
P503848/G		TEE ASSEMBLY UNION 2 FIG 1502 SUB ENDS FEMALE X MALE W/DET NUT X MALE W/DET NUT W/NITRILE SEAL RING 15000 CWP 12.12 LG
P506064/E		ELBOW ASSEMBLY UNION 2 FIG 1502 SUB ENDS F X F W/NITRILE SEAL
P509010/C		ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL RING 6.06 LG 15000 CWP

	ECCENTRIC
P511399/C	ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL RING 12.12 LG 15000 CWP
P513145/C	ADAPTER ASSEMBLY UNION 2 FIG 1502 MALE W/DET NUT X 2 FIG 1502 FEMALE W/NITRILE SEAL RING 5.50 LG 15000 CWP ECCENTRIC
P516108/H	ULT PLUG VALVE ASSEMBLY, 1 MOD ULT150 W/2IN FIG 1502 FEMALE SUB END X 2IN FIG 1502 MALE SUB END W/DET NUT
P516933/B	ADAPTER ASSY UNION 2 FIG 1502M W/DET NUT X 3 FIG 1502F W/NITRILE
P535733/C	ADAPTER ASSY UNION 2 FIG 1502M W/DET NUT X 2 FIG 1502M W/DET NUT
P537789/C	ULT PLUG VALVE ASSEMBLY, 2 MOD ULT150 W/FIG 1502 FEMALE SUB END X FIG 1502 MALE SUB END W/DET NUT
P549814/A	PUP JOINT ASSEMBLY HOSE 2 NPST ALLOY STL FIG 1502M SUB W/DET NUT & RETENTION SHOULDER X FEMALE SUB W/NITRILE 15000 CWP
P549820/A	PUP JOINT ASSEMBLY HOSE 2 NPST ALLOY STL FIG 1502M SUB W/DET NUT AND RETENTION SHOULDER X FEMALE SUB W/NITRILE 15000 CWP
P551115/C	T-BODY CHOKE ASSEMBLY 1 13/16 15000 CWP ADJUSTABLE 2 FIG 1502 F X M ENDS W/1-1/8 AE PORT, W/ INDUCTION HARDEN TIP STEM

- Calculations:

  See Component TAC's.

- Material Specifications:

  See Component TAC's and BOM's.

- Notes:

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

Component Design Approvals

Part No./Rev.	Certificate No.	Note
P516108/H	D-5856	
3265904/I	TAD00000EM	
3139475/N	TAD00000EN	
3139477/N	TAD00000EN	
3267655/F	TAD00000N8	
3258741/E	TAD00000R7	
P551115/C	TAD00000SD	
3139901/F		Not included in this TAC and shall be certified separately
3144125/F		Not included in this TAC and shall be certified separately
3145622/E		Not included in this TAC and shall be certified separately
3201564/H		Not included in this TAC and shall be certified separately
3201564U/C		Not included in this TAC and shall be certified separately
3201571/P		Not included in this TAC and shall be certified separately
3241741/L		Not included in this TAC and shall be certified separately
403404090/D		Not included in this TAC and shall be certified separately
443185090/D		Not included in this TAC and shall be certified separately

515547090/H	Not included in this TAC and shall be certified separately
562859090/C	Not included in this TAC and shall be certified separately
571274090/H	Not included in this TAC and shall be certified separately
590516090/A	Not included in this TAC and shall be certified separately
6102320/F	Not included in this TAC and shall be certified separately
P503840/I	Not included in this TAC and shall be certified separately
P503848/G	Not included in this TAC and shall be certified separately
P506064/E	Not included in this TAC and shall be certified separately
P509010/C	Not included in this TAC and shall be certified separately
P511399/C	Not included in this TAC and shall be certified separately
P513145/C	Not included in this TAC and shall be certified separately
P516823/E	Not included in this TAC and shall be certified separately
P516933/B	Not included in this TAC and shall be certified separately
P535733/C	Not included in this TAC and shall be certified separately
P537789/C	Not included in this TAC and shall be certified separately
P549814/A	Not included in this TAC and shall be certified separately
P549820/A	Not included in this TAC and shall be certified separately

Tests Carried Out

Part No.	Serial No.	Description
100006842-SLB	013114A10150	FAT, 15K Discharge Manifold Assembly CPS665
100518241	022817A10734	FAT, 15K Discharge Manifold Assembly CPS361

Marking of Products

- For traceability, product and data book shall be marked at least with company name, part number and serial number.

Periodical Assessments

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

Fabrication Procedures

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

Project Description

- Project No. A0424133, Attn. Andrew Huf.
- This TAC replaces D-5172.