DNV·GL

Certificate No:
TAD00000V5

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Valves

with type designation(s)
7.5K, 10K and 15K Flapper Check Valves
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 **2017-11-27**
This Certificate is valid until **2022-11-26**.
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 Spec 6A, Specification for Wellhead and Christmas Tree Equipment, 20th Ed
- NACE MR0175, Materials for Use in H_2S-containing Environments in Oil & Gas Production, 2015 Ed

Product Descriptions

Part No./Rev.	Drawing No./Rev.	Assembly Description
P530589/F	DU500000653/B	2-15K Check Valve, Standard
P521623/O	6630DU5010238/G	3-15K Check Valve, Standard
P524760/F	6630DU5014028/C	4-15K Check Valve, Standard
P537196/C	DU500015463/A	2-10K Check Valve, Sour
P537225/D	DU500015470/B	3-10K Check Valve, Sour
P538608/A	DU500011199/A	4-7.5K Check Valve, Sour

Application/Limitation

Part No.	Size(in)	Max WP(psi)	Shell TP(psi)	TC	Service	PR
P530589	2	15,000	22,500	P+U	Standard	1
P521623	3	15,000	22,500	P+U	Standard	1
P524760	4	15,000	22,500	P+U	Standard	1
P537196	2	10,000	15,000	P+U	Sour	1
P537225	3	10,000	15,000	P+U	Sour	1
P538608	4	7,500	11,250	P+U	Sour	1

Type Approval Documentation

- Drawings:

Drawing No./Rev.	Title
	2-15K Check Valve, Standard
	Body
	Cap
	Flapper
	Nut 2-1502
	Retainer
	Seat
	3-15K Check Valve, Standard
	Body
	Cap
	Flapper
	Nut 3-1502
	Retainer
	Seat
	4-15K Check Valve, Standard
	Body
	Cap
	Flapper
	Nut 4-1502
	Retainer
	Seat

Drawing No./Rev.	Title
	2-10K Check Valve, Sour
	Body
	Cap
	Flapper
	Nut 2-1502
	Retainer
	Seat
	3-10K Check Valve, Sour
	Body
	Cap
	Flapper
	Nut 3-1502
	Retainer
	Seat
	4-7.5K Check Valve, Sour
	Body
	Cap
	Flapper
	Nut 4-1002
	Retainer
	Seat

- Calculations:

Document No./Rev.	Title
	Calculations, 2-1502 Det Wing Union, Sour
	Calculations, 2-1502 Det Wing Union, Standard
	Calculations, 2-15K Check Valve
	Calculations, 3 Body Cap
	Calculations, 3-1502 Det Wing Union, Sour
	Calculations, 3-1502 Det Wing Union, Standard
	Calculations, 3-15K Check Valve
	Calculations, 4-1002 Det Wing Union, Sour
	Calculations, 4-1502 Det Wing Union, Standard
	Calculations, 4-15K Check Valve

- Material Specifications:

Title	Spec No/Rev	Material	Min YS(ksi)	Min Avg CVN(ft.lb)
2-15K Check Valve, Std				
Body				
Cap				
Flapper				
Nut 2-1502				
Retainer				
Seat				
3-15K Check Valve, Std				
Body				
Cap				
Flapper				
Nut 3-1502				
Retainer				

Seat
4-15K Check Valve, Std
Body
Cap
Flapper
Nut 4-1502
Retainer
Seat
2-10K Check Valve, Sour
Body
Cap
Flapper
Nut 2-1502
Retainer
Seat
3-10K Check Valve, Sour
Body
Cap
Flapper
Nut 3-1502
Retainer
Seat
4-7.5K Check Valve, Sour
Body
Cap
Flapper
Nut 4-1002
Retainer
Seat

See Material Specifications for additional requirements. See BOM's for alternative materials.

- 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.

Tests Carried Out

Part No.	Serial No.	Assembly Description
		2-15K Check Valve, Standard
		3-15K Check Valve, Standard
		4-15K Check Valve, Standard
		2-10K Check Valve, Sour
		3-10K Check Valve, Sour
		4-7.5K Check Valve, Sour

Marking of Products

- For traceability to TAC, product and data book shall be marked at least with company name or trade mark, 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. A0459715, Attn. Andrew Huf.
- This TAC replaces D-5025.