

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Chokes and Bonnets**

with type designation(s)
1-13/16 15K .75 CJWA Manual Chokes
2-1/16 15K 1 CJWA Manual Choke
15K 1 CJWA Manual Bonnets
Part Numbers: See Page 2

Issued to

National Oilwell Varco
Houma, LA, 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 **2017-10-26**

This Certificate is valid until **2022-10-25**.

DNV GL local station: **Approval CMC**

for **DNV GL**

Approval Engineer: **Kevin Bui**

Meindert 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.



Job Id: **262.1-013568-17**
Certificate No: **TAD00000U9**

Design Codes/Standards Used as References

- API 6A, Specification for Wellhead and Christmas Tree Equipment, 20th Edition
- NACE MR0175, Materials for Use in H₂S-containing Environments in Oil and Gas Production, 2015

Product Descriptions

<u>Part No./Rev.</u>	<u>Drawing No./Rev.</u>	<u>Description</u>
20361513-3/1	T3-1271877/C	Bonnet Assembly, CJWA, 15K 1
20362273-3/1	T3-1271877/C	Bonnet Assembly, CJWA, 15K 1
20384370-2/1	T3-1271877/C	Bonnet Assembly, CJWA, 15K 1
20408639-2/1	T3-1271877/C	Bonnet Assembly, CJWA, 15K 1
20408639-3/1	T3-1271877/C	Bonnet Assembly, CJWA, 15K 1
20371150-3/1	T3-1273199/B	Choke Assembly, CJWA, 1-13/16 15K .75
20371150-2/1	T3-1273199/B	Choke Assembly, CJWA, 1-13/16 15K .75
20362137-2/1	T3-1271886/B	Choke Assembly, CJWA, 2-1/16 15K 1

Application/Limitation

<u>Part No.</u>	<u>Max WP(psi)</u>	<u>Shell TP(psi)</u>	<u>TC</u>	<u>MC</u>	<u>PSL</u>	<u>PR</u>
20361513-3	15000	22500	P+U	BB	3	1
20362273-3	15000	22500	P+U	EE-1.5	3	1
20384370-2	15000	22500	P+U	EE-1.5	2	1
20408639-2	15000	22500	P+X	FF-1.5	2	1
20408639-3	15000	22500	P+X	FF-1.5	3	1
20371150-3	15000	22500	P+U	FF-1.5	3	1
20371150-2	15000	22500	P+U	FF-1.5	2	1
20362137-2	15000	22500	P+U	EE-1.5	2	1

Type Approval Documentation

- Drawings:

<u>Drawing No./Rev.</u>	<u>Description</u>
	Body, Weldment, 1.81
	Body, Weldment, 2.06
	Body, Weldprep, 1.81
	Body, Welpprep, 2.06
	Bonnet
	Bonnet Nut
	Flange, Weldneck, 1.81
	Flange, Weldneck, 2.06
	Seat Assy, .75
	Seat Assy, 1
	Seat Blank, .75
	Seat Blank, 1
	Seat Insert, .75
	Seat Insert, 1
<u>Drawing No./Rev.</u>	<u>Description</u>
	Stem Assy, 1
	Stem Blank

Stem Point
Stem Point for Brazing

- Calculations:

<u>Document No./Rev.</u>	<u>Description</u>
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- Material Specifications:

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

<u>Description</u>	<u>Spec. No./Rev.</u>	<u>Material</u>	<u>Min YS(ksi)</u>	<u>Min Avg CVN(ft.lb)</u>
Body, Weldprep, 1.81				
Body, Welpprep, 2.06				
Bonnet				
Bonnet				
Bonnet Nut				
Flange, Weldneck, 1.81				
Flange, Weldneck, 2.06				
Seat Blank, .75				
Seat Blank, 1				
Seat Insert, .75				
Seat Insert, 1				
Stem Blank				
Stem Blank				
Stem Point				

- 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 NOV Engineering and Quality. DNV GL Surveyor shall verify these changes before issuance of Product Certificates.

Tests Carried Out

<u>Project No./Rev.</u>	<u>Description</u>
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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.



Job Id: **262.1-013568-17**
Certificate No: **TAD00000U9**

Project Description

- Project No. A0452190, Attn. Charles.Calkins@nov.com.
- This TAC replaces D-4722.