

CERTIFICATE OF COMPLIANCE

Initial Certificate No: COC/API-20A/FLS-I/01/2019

Certificate No: TUV/9309/22-23/API 20A/0003 Job.No: 8120633187

Foundry Qualification for Castings for Use in the Petroleum and Natural gas Industries

As per **API-20A-2nd** Edition, August-2017.Addendum-2, April-2020.

Name and Address of Manufacturer:

M/s.Flowlink systems (P) Ltd. Unit-I
189/1A, 1B, 1C & SF 166 Uthupalayam,
Arasur Village, Avanashi Road, Coimbatore-641 407.
Tamilnadu, India.

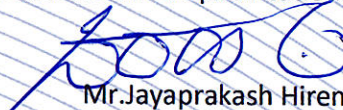
This Certificate of Compliance is issued upon the request of the manufacturer to confirm that the manufacturer has demonstrated compliance to the foundry qualification requirements of specification **API-20A 2nd Edition, August-2017. Addendum-2, April-2020, "Carbon steel, Alloy steel, Stainless steel, and Nickel Base Alloy Castings for Use in the Petroleum and Natural Gas Industry"** to the Casting Specification Levels (CSL) given below.

Material Group/CSL Qualified:	Group A-Carbon Steel- CSL-1,2,3
	Group B-Low Alloy Steel- CSL-1,2,3
	Group C-Stainless Steel (Other than duplex)-CSL-1,2,3
	Group D-Duplex Stainless Steel- CSL-1,2,3

(See Annexure-I for details)

The Manufacturer's Manufacturing Process Specifications (MPSs) & Qualification Test Records (QTRs) have been evaluated and Qualification Casting tests were Witnessed and found to be in Compliance with the requirements of **API-20A 2nd Edition, August-2017. Addendum-2, April-2020**, within the Scope and subject to conditions as per Annexure-I. This certificate of compliance does not exempt the manufacturer from its responsibility to ensure that its products are always in compliance with API and Customer specification requirements.

Place: Pune, India
Date of Issue: 06/08/2022
validity: 05/08/2025



Mr.Jayaprakash Hiremath
AVP- PED, ASME, TRCU, CCOE,
UKCAS & Special Inspection Services

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Condition of Issue:

Qualification Castings as per **API-20A 2nd Edition, August-2017.Addendum-2, April-2020**, have been produced, tested and evaluated by the casting supplier and witnessed by the surveyor to TUV India Pvt.Ltd. in order to establish qualification for a range of products listed in this Annexure.

The Manufacturing Process Specification (MPS) files as referenced below, submitted by the manufacturer, have been reviewed.

Manufacturing Process :	MPS.No:FLS/MPS/CS/U1 Rev.0
Specification (MPS) ref.	MPS.No:FLS/MPS/LAS/U1 Rev.0
	MPS.No:FLS/MPS/SS/U1 Rev.0
	MPS.No:FLS/MPS/DS/U1 Rev.0
Verification of Qualification Test records :	QTR.No:01 Rev.00 & 02 Rev.00
	QTR.No:03 Rev.00 & 04 Rev.00
	QTR.No:05 Rev.00 & 06 Rev.00
	QTR.No:07 Rev.00 & 08 Rev.00

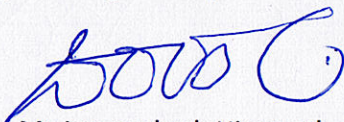
This Certificate of Compliance is issued and is applicable only to the firm stated on above referred COC, and for the specified product, and/or the manufacturing plant stated and is Non-Transferable.

Welding shall be performed using weld procedures qualified in accordance with ASME BPVC, Section IX for CSL-3.

This statement of compliance is valid only for those product Range which are covered in the QTR within the limits of CSL qualification.

This Certificate of Compliance is valid for 3 years from date of issue, i.e. till 05th August 2025, subject to satisfactory annual surveillance audits and within the limits of qualification of production castings for each CSL, and subject to manufacturer maintaining the same production processes including metal refining steps, maintaining the same process control variables, design and maintenance of patterns, same processes of inspection, quality control, marking, traceability and record retention (10 years) as per the requirements of API 20A. This COC does not constitute Certification to API Monogram Program as per API Q1.

Place: Pune, India
Date of Issue: 06/08/2022
validity: 05/08/2025



Mr. Jayaprakash Hiremath
AVP- PED, ASME, TRCU, CCOE,
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Reference Standard		API-20A 2nd Edition, August 2017. Addendum-2, April-2020.	
API Material Group/ CSL Level		Group A-Carbon Steel /CSL-1,2,3	
Manufacturing Process Specification		MPS.No: FLS/MPS/CS/U1 Rev.0	
Manufacturing Doc Ref		API/001, API/002	
Qualification Test Record No.		QTR.No:01 Rev.00 QTR.No:02 Rev.00	
ASTM Ref.		ASTM A216-18 Gr. WCB/WCC	
Tested and Qualified Weight Range			
Products and Manufacturing Process(es)	Tested thickness (mm)	Tested Casting Weight (Kgs)	Qualified Casting Weight Pounds (Kgs)
2" 900-1500/3" 150-300 (1-1/8 dia stem) Bonnet Casting OS & Y/ No Bake Sand Mold Process.	75	Cavity-1-16.1 Cavity-2-16.0	CSL-3: 1-499Pounds (1-226 Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.
24"150 Body (815L)/ No Bake Sand Mold Process.	170	360.4	CSL-3:500-2499Pounds(227-1134Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.

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Reference Standard	API-20A 2nd Edition, August 2017. Addendum-2, April-2020.		
API Material Group/ CSL Level	Group B-Low Alloy Steel /CSL-1,2,3		
Manufacturing Process Specification	MPS.No: FLS/MPS/LAS/U1 Rev.0		
Manufacturing Doc Ref	API/003, API/004		
Qualification Test Record No.	QTR.No:03 Rev.00 QTR.No:04 Rev.00		
ASTM Ref.	ASTM A487-14 ^{e1} Gr. 4D		
Tested and Qualified Weight Range			
Products and Manufacturing Process(es)	Tested thickness (mm)	Tested Casting Weight (Kgs)	Qualified Casting Weight Pounds (Kgs)
4" 2000 & 3000 GPV Body/ No Bake Sand Mold Process.	40	41.1	CSL-3: 1-499Pounds (1-226 Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.
5" 7500 DM7500 GV Body/ No Bake Sand Mold Process.	96	334.8	CSL-3:500-2499Pounds(227-1134Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.



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Reference Standard	API-20A 2nd Edition, August 2017. Addendum-2, April-2020.		
API Material Group/ CSL Level	Group C- Stainless steel (Other than duplex)/CSL-1,2,3		
Manufacturing Process Specification	MPS.No: FLS/MPS/SS/U1 Rev.0		
Manufacturing Doc Ref	API/005, API/006		
Qualification Test Record No.	QTR.No:05 Rev.00 QTR.No:06 Rev.00		
ASTM Ref.	ASTM A351-18 Gr. CF8M		
Tested and Qualified Weight Range			
Products and Manufacturing Process(es)	Tested thickness (mm)	Tested Casting Weight (Kgs)	Qualified Casting Weight Pounds (Kgs)
BONNET EXT 41K 8 300 W/O SPR 41005 SERIES WITHOUT LUB/ No Bake Sand Mold Process.	120	116.5	CSL-3: 1-499Pounds (1-226 Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.
24" 150 Body (815L)/ No Bake Sand Mold Process.	170	364.1	CSL-3:500-2499Pounds(227-1134Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.



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Reference Standard	API-20A 2nd Edition, August 2017. Addendum-2, April-2020.		
API Material Group/ CSL Level	Group D- Duplex Stainless steel/CSL-1,2,3		
Manufacturing Process Specification	MPS.No:FLS/MPS/DS/U1 Rev.0		
Manufacturing Doc Ref	API/007, API/008		
Qualification Test Record No.	QTR.No:07 Rev.00 QTR.No:08 Rev.00		
ASTM Ref.	ASTM A995-19 Gr. 5A		
Tested and Qualified Weight Range			
Products and Manufacturing Process(es)	Tested thickness (mm)	Tested Casting Weight (Kgs)	Qualified Casting Weight Pounds (Kgs)
Flange; Adapter; 6" Class 600; A-B16.5;WP6962-0; DWEER/ No Bake Sand Mold Process.	60	50.9	CSL-3: 1-499Pounds (1-226 Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.
Linix Body; Design E;WP6775-0;DWEER 1550/ No Bake Sand Mold Process.	65	318.4	CSL-3:500-2499Pounds(227-1134Kgs) CSL2: 1-2499pounds(1-1134Kgs) CSL1:All Weight ranges.

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Table-1-As Cast Weight Range

CSL	As-Cast Weight in Pounds (Kilogram)			
	1-499 (1-226)	500-2499 (227-1134)	2500-9999 (1135-4537)	10000+ (4538+)
CSL-1	1 Qualification			
CSL-2	1 Qualification		1 Qualification	
CSL-3	1 Qualification	1 Qualification	1 Qualification	1 Qualification
CSL-4	Weights are not applicable for CSL 4. Each casting shall be individually qualified.			

Table-2-Material Groups

Material Group	Description
Group A	Carbon steels
Group B	Low alloy steels
Group C	Stainless steels (Other than duplex)
Group D	Duplex stainless steels
Group E	Corrosion-resistant alloy (CRA)

Table-3-Casting Weld Repair Limitations

CSL	% Surface Area	% Wall Thickness
CSL-1	50%	50%
CSL-2	25%	25%
CSL-3	20%	20%
CSL-4	10%	10%



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Table-4-Guideance for Qualification Examination/Testing Requirements.

CSL	Section References									
	Visual	Inspection	Hardness	Surface	Volumetric NDE	Mechanical	Micro structure	Sacrificial Casting	Chemistry	Additional Testing
CSL-1	4.5.2	4.5.3	4.5.4	--	--	4.5.6	--	--	4.5.8	4.5.9.3 Group.D
CSL-2	4.5.2	4.5.3	4.5.4	4.5.5.1 4.5.5.2	--	4.5.6	--	--	4.5.8	4.5.9.3 Group.D
CSL-3	4.5.2	4.5.3	4.5.4	4.5.5.1 4.5.5.2	4.5.5.3	4.5.6	4.5.7	--	4.5.8	4.5.9.3 Group.D
CSL-4	4.5.2	4.5.3	4.5.4	4.5.5.1 4.5.5.2	4.5.5.3	4.5.6	4.5.7	4.5.9.2	4.5.8	4.5.9.3 Group.D

Table 7—Limits of CSL Qualification Summary

Requirement	Reference(s)	CSL 1	CSL 2	CSL 3	CSL-4
ASTM keel block	Figure 4, Figure 5	X	X	—	—
Equivalent round or integral test specimen	Figure 1, Figure 2, Figure 3	—	—	X	—
Sacrificial casting	4.5.9.2	—	—	—	X
Change in material group	4.8.1	X	X	X	X
As-cast weight range class	4.8.2	—	X	X	X
Change in melt practice	4.8.3	—	—	X	X
Material specification/grade	4.8.4	—	—	—	X

NOTE: This table provides a matrix of requirements and should be used as a reference only, since it may not include all Requirements.