



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00002V9
Revision No:
1

This is to certify:

That

Metflow Cast Pvt. Ltd.

**Survey Number-79, National Highway - 27, Near Goldcoin Foam,
Village: Shapar (Veraval), City: Rajkot, Gujarat,
India-360024**

is an approved manufacturer of
Steel Castings

in accordance with

**DNV rules for classification – Ships
DNV class programme – DNV-CP-0246 Steel castings**

and the following particulars:

Application area	Castings for hull structures and equipment, Castings for machinery, Castings for boilers, pressure vessels and piping systems, Ferritic steel castings for low temperature service, Stainless steel castings
Steel type	See page 2, 3
Casting method	Sand casting
Max. weight	690 kg
Max. wall thickness	See page 2, 3
Heat treatment condition	See page 2, 3

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules.
Materials to be applied to DNV classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2024-04-18**

This Certificate is valid until **2027-05-31**.

DNV local unit: **Mumbai NB & CMC**

Approval Engineer: **Stefan Röhr**



for **DNV**

This document has been digitally signed and will
therefore not have handwritten signature

Christian Wildhagen

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: AM 311

Revision: 2022-12

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Particulars of the approval

Castings for hull structure and equipment

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	NV C400UW, NV C440UW, NV C480UW, NV C520UW, NV C560UW, NV C600UW	SC	690	135	N, NT, QT

Castings for machinery

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	NV C400U, NV C440U, NV C480U, NV C520U, NV C560U, NV C600U	SC	690	135	N, NT, QT

Castings for boilers, pressure vessels and piping systems

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	NV C450H, NV C490H	SC	690	135	N, NT, QT

Ferritic steel castings for low temperature service

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	NV C450L, NV C490L	SC	690	135	N, NT, QT

Stainless steel castings

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
Austenitic	GX 2 CrNi 18 10 (304L) GX 5 CrNi 19 9 (304) GX 6 CrNiNb 19 10 (347) GX 2 CrNiMo 19 11 2 (316L) GX 5 CrNiMo 19 11 2 (316) GX 5 CrNiMo 19 11 3 (317)	SC	690	135	SHT

Steel castings acc. other standards

Steel type/grade	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
According to ASTM A352: LCB, LCC	SC	690	135	N, NT, QT
According to ASTM A216: WCB, WCC				
According to EN 10213: 1.0619, 1.0625, 1.6220				
According to EN 10213: 1.4309, 1.4308, 1.4581, 1.4409, 1.4408	SC	690	135	SHT
According to ASTM A351: CF3, CF8, CF8M(Nb), CF3M, CF8M, CG8M				

Remarks:

- ¹⁾ SC: Sand Casting
- ²⁾ SHT: Solution Heat Treated (Solution Annealing)
 N: Normalised
 NT: Normalised and tempered
 QT: Quenched and tempered
- ³⁾ Incl. equivalent grades in acc. to other standards