

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That
GSA S.r.l
Sovizzo VI, Italy

is an approved manufacturer of
Steel Castings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Application area	Castings for hull structures and equipment Castings for machinery Castings for boilers, pressure vessels and piping systems
Steel type	Stainless steel castings Carbon and carbon-manganese, Austenitic stainless Martensitic stainless
Casting method	Sand casting
Max. weight	See page 2
Max. wall thickness	See page 2
Heat treatment condition	See page 2

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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2019-04-04**

This Certificate is valid until **2022-04-03**.

DNV GL local station: **Venice**

Approval Engineer: **Stefan Röhr**



for **DNV GL**

Digitally Signed By: Wildhagen, Christian
Location: DNV GL Hamburg, Germany
Signing Date: 2019-04-04

Thorsten Lohmann
Head of Section



Job Id: **263.11-008764-1**
Certificate No: **AMMM00002GY**

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	VL C400UW, VL C440UW, VL C480UW, VL C520UW	SC	600	110	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	VL C400U, VL C440U, VL C480U, VL C520U	SC	600	110	QT

Castings for boilers, pressure vessels and piping systems

Steel type	Grade ⁴⁾	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	VL C450H, VL C490H	SC	600	110	QT

Stainless steel castings

Steel type / grade	Casting method ¹⁾	Max. weight [kg]	Max. wall thickness [mm]	Heat treatment condition ²⁾
Martensitic stainless	SC	600	110	QT
Austenitic stainless	SC	600	110	SHT

Remarks:

- 1) SC: Sand Casting
- 2) SHT: Solution Heat Treated (Solution Annealing); QT: Quenched and tempered
- 3) Incl. equivalent grades in acc. to other standards
- 4) Including grade ASTM A216 WCB and equivalent grades