

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM000012T
Revision No:
1

This is to certify:

That
ŽDAS, a.s.
Ždár nad Sázavou 1, Czech Republic

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 propellers, Castings for boilers, pressure vessels and piping systems, Ferritic steel castings for low temperature service,
Steel type	Carbon and carbon-manganese, Alloy, Austenitic stainless, Martensitic stainless, See page 2
Casting method	Sand casting
Max. weight	50 000 kg
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 **2020-03-04**

for **DNV GL**

This Certificate is valid until **2022-12-31**.

DNV GL local station: **Prague**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section

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Particulars of the approval

Castings for hull structure and equipment

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	VL C400UW, VL C440UW, VL C480UW, VL C520UW, VL C560UW, VL C600UW	SC	50 000	N, NT, QT
Alloy	VL C550AW, VL C620AW	SC	50 000	QT

Castings for machinery

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	VL C400U, VL C440U, VL C480U, VL C520U, VL C560U, VL C600U	SC	50 000	N, NT, QT
Alloy	VL C550A, VL C600A, VL C690A	SC	50 000	QT

Castings for propellers

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
Martensitic	VL C12Cr1Ni, VL C13Cr4Ni, VL C16Cr5Ni	SC	50 000	QT

Castings for boilers, pressure vessels and piping systems

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	VL C450H, VL C490H	SC	50 000	N, NT, QT
Alloy	VL C0.5Mo, VL C1Cr0.5Mo, VL C2.25Cr1Mo	SC	50 000	QT

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Ferritic steel castings for low temperature service

Steel type	Grade ³⁾	Casting method ¹⁾	Max. weight [kg]	Heat treatment condition ²⁾
C and C-Mn	C450L, C490L	SC	50 000	N, NT, QT
Alloy	VL C2.25Ni, VL C3.5Ni	SC	50 000	N, NT, QT

Remarks:

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