

# APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:  
**AMMM00000XJ**  
Revision No:  
**3**

**This is to certify:**

**That**

**Branch of Limited Liability Company  
"IZ-KARTEX named after P.G. Korobkov"  
- Foundry Manufacture"  
St.Petersburg, Russian Federation**

is an approved manufacturer of  
**Steel Castings**

in accordance with  
**DNV GL rules for classification – Ships**

and the following particulars:

<b>Application area</b>	<b>Castings for hull structures and equipment Castings for machinery Castings for propellers Stainless steel castings</b>
<b>Steel type(s)</b>	<b>Alloy, Austenitic stainless</b>
<b>Casting method</b>	<b>Sand Casting</b>
<b>Max. weight</b>	<b>145 000 kg</b>
<b>Heat treatment condition</b>	<b>See page 2</b>

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 **2019-09-26**

for **DNV GL**

This Certificate is valid until **2022-06-30**.

DNV GL local station: **St. Petersburg**

Approval Engineer: **Stefan Röhr**

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**Thorsten Lohmann**  
**Head of Section**



Job Id: **263.11-010030-2**  
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## Particulars of the approval

### Castings for hull structure and equipment

Steel type	Grade <sup>3) 4)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Delivery condition <sup>2)</sup>
Alloy	C550AW, C620AW	SC	145 000	NT <sup>5)</sup> , QT

### Castings for machinery

Steel type	Grade <sup>3) 4)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Delivery condition <sup>2)</sup>
Alloy	C550A, C600A, VL C690A	SC	145 000	NT <sup>5)</sup> , QT

### Stainless steel castings

Steel type	Grade <sup>3) 4)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Delivery condition <sup>2)</sup>
Austenitic	GX 2 CrNi 18 10 (304L)	SC	145 000	SHT
	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)			

### Castings for propellers (propellers/blades/hubs/bosses)

Steel type / Grade <sup>5)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Delivery condition <sup>2)</sup>
Austenitic Stainless Steel	SC	145 000	SHT

#### Remarks:

- 1) SC: Sand Casting
- 2) SHT: Solution Heat Treated (Solution Annealing); N: Normalised; QT: Quenched and tempered; NT: Normalised and tempered
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules or DNVGL approved drawings
- 4) Incl. equivalent grades in acc. to other standards
- 5) Specified mechanical properties shall be agreed with the Society