



CERTIFICATE NUMBER  
FDY-T1845144

ISSUING OFFICE  
London Ship Eng - Materials

# CERTIFICATE OF FOUNDRY FACILITY AND PROCESS APPROVAL

This is to certify that a representative of ABS did, at the request of

**CRONING LIVARNA D.O.O.**

KOROSKA CESTA 14, RAVNE NA KOROSKEM, Slovenia, 2390

attend its facilities as indicated in the ABS Rijeka Port (HRK) port office survey report number 3618728 dated 31 January 2019 in order to carry out a survey of the facilities and associated quality procedures.

The facility is considered capable of manufacturing

***Steel Casting and Stainless Steel Casting components for marine applications***

in accordance with the ABS Approval letter (Reference T1845144), ABS Rules, designated standards and ABS approved drawings. The approval is valid till 30 January 2024 subject to adherence to relevant ABS Rules, Survey requirements and annual endorsement by an ABS representative.



**Marcus Cridland**  
**Chief Metallurgist, ABS**

ISSUE DATE: 31 January 2019

EXPIRY DATE: 30 January 2024

FIRST ANNUAL  
ENDORSEMENT: 24 FEB 2020

SECOND ANNUAL  
ENDORSEMENT:

THIRD ANNUAL  
ENDORSEMENT:

FOURTH ANNUAL  
ENDORSEMENT:



NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its affiliates, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-AS/59 Terms and Conditions of the Request for Product Type Approval and Agreement (2019).

ABS001103



Marine & Offshore

Certificate number: 39314/B0 BV

File number: MAT 48826-2014

Product code: 8154I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## APPROVAL CERTIFICATE for MATERIALS

*This certificate is issued to*

**Croning Livarna d.o.o.**  
Ravne na Koroskem - SLOVENIA

*for the type of product*

**STEEL CASTINGS**

Carbon-manganese and stainless steel castings of maximum weight 250kg

**Requirements:**

Bureau Veritas Rules on Materials and Welding for the Classification of Marine Units

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 09 Oct 2024**

**For Bureau Veritas Marine & Offshore,**

At BV RIJEKA, on 09 Oct 2019,

Slaven Celic



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## **THE SCHEDULE OF APPROVAL**

### **1. PRODUCT DESCRIPTION :**

Carbon-manganese and stainless steel castings of maximum weight 250kg. Typical castings are valve and pump bodies.

Steelmaking by induction furnace, casting in sand moulds, heat treatment as applicable.

### **2. DOCUMENTS AND DRAWINGS :**

As per following document issued by Croning Livarna d.o.o.

- "Approval of the manufacturing process of metallic materials" No.BV/14 dated 03/06/2014.

### **3. TEST REPORTS :**

3.1 As per following document issued by Croning Livarna d.o.o.

- "Approval of the manufacturing process of metallic materials" No.BV/14 dated 03/06/2014.

3.2 Typical castings steel grade tested:

- Grade GP240GH (1.0619) Normalised as per EN 10213 for carbon-manganese steels,

- Grade GX5CrNiMo 19-11-2 (1.4408) Solution annealing as per EN 10213 for austenitic stainless steels.

### **4. APPLICATION / LIMITATION :**

As per Bureau Veritas Rules for Classification. Chemical composition, tensile properties and Charpy-V notch test requirements are to be as per Bureau Veritas Materials Rules for Classification of Steel Ships and/or alternative specification mentioned on reviewed drawings, as applicable.

Low temperature applications included.

### **5. PRODUCTION SURVEY REQUIREMENTS :**

5.1 - The steel castings are to be supplied by Croning Livarna d.o.o. in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

### **6. MARKING OF PRODUCT :**

As per Bureau Veritas Rules for Classification.

### **7. OTHERS :**

This certificate replaces approval N° 39314/A0 BV.

\*\*\* END OF CERTIFICATE \*\*\*



Marine &amp; Offshore

Certificate number: SMS.W.I./48826/B.0



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## RECOGNITION FOR BV MODE I SCHEME

**Croning Livarna d.o.o.**  
Ravne na Koroskem - SLOVENIA

**Summary of the range of the recognition which is detailed in the subsequent page(s):**  
CARBON-MANGANESE AND STAINLESS STEEL CASTINGS OF MAXIMUM WEIGHT 250KG

*This certificate is issued to attest that Bureau Veritas Marine & Offshore has performed, at the above company's request and in compliance with the requirements of NR320, a satisfactory assessment of the quality management system related to the range of the recognition.*

**This certificate will expire on: 05 Feb 2023**

For Bureau Veritas Marine & Offshore,  
At BV RIJEKA, on 12 Feb 2019,  
Slaven Celic



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarp.com/veristarb/jsp/viewPublicPdfRecognition.jsp?id=i0i4rz2yej>

BV Mod. Ad.E 696 June 2017

This certificate consists of 2 page(s)



Certificate No : MD00/4395/0002/2

**CRONING LIVARNA d.o.o.**  
Koroška cesta 14,  
SLO-2390 Ravne na Koroškem,  
Slovenia

has been approved as a manufacturer in accordance with the requirements of Lloyd's Register for :-

**Castings in austenitic stainless steel**  
( maximum weight 250 Kg )

**Castings in carbon and carbon-manganese steel**  
( maximum weight 320 Kg )

**Approval does not include weld repairs.**

**Approval for Carbon/Carbon Manganese castings covers for Normalised supply condition only.**

This approval is subject to compliance with the Rules for the Manufacture, Testing and Certification of Materials.

Lloyd's Register is to be notified of any change that may affect the validity of this Certificate.

This Certificate is issued to the above manufacturer and is valid until the date given below.

**Valid Until : 15 October 2020**  
**Date of Issue : 18 May 2018**

A handwritten signature in blue ink, appearing to read 'Clive Arnold', is written over a horizontal line.

**Clive Arnold**  
Senior Metallurgical Specialist to Lloyd's Register EMEA  
A member of the Lloyd's Register group

# APPROVAL OF MANUFACTURER CERTIFICATE

**This is to certify:**

That

**Croning Livarna, d.o.o.**

**Koroška cesta 14, SI-2390 Ravne na Koroškem,  
Slovenia**

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 Stainless steel castings</b>
<b>Steel type(s)</b>	<b>Carbon and carbon-manganese, Ferritic stainless, Martensitic stainless, Mustenitic stainless, 22Cr duplex stainless</b>
<b>Max. weight</b>	<b>1 100 kg</b>
<b>Heat treatment condition</b>	<b>See page 2</b>
<b>Additional approval conditions</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 **2018-05-29**

This Certificate is valid until **2021-06-30**.

DNV GL local station: **Rijeka**

Approval Engineer: **Christian Wildhagen**



for **DNV GL**

Digitally Signed By: **Wenning, Martin**

Location: **DNV GL Hamburg, Germany**

Signing Date: **29.05.2018**, on behalf of

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



## Particulars of the approval

**Castings for hull structure and equipment**  
**Castings for machinery**  
**Stainless steel castings**

Steel type <sup>3)</sup>	Casting method <sup>1)</sup>	Max. weight [kg]	Delivery condition <sup>2)</sup>
C and C-Mn	SC	1 100	N, NT, QT
Alloy	SC	1 100	QT
Austenitic	SC	1 100	SHT
Ferritic stainless	SC	1 100	A
Martensitic stainless	SC	1 100	QT
22Cr-Duplex	SC	1 100	SHT

Remarks:

- 1) SC: Sand Casting  
IC: Investment Casting  
CC: centrifugal casting
- 2) SHT: Solution Heat Treated (Solution Annealing)  
N: Normalised  
QT: Quenched and tempered  
NT: Normalised and tempered  
A: annealed
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules