APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00002Y7
Revision No:
2

This is to certify:

That

Officine Nicola Galperti & Figlio S.p.A.
Via Trivio Fuentes, 4
22101 Gera Lario, CO,
Italy

is an approved manufacturer of
Steel Forgings

in accordance with
DNV rules for classification – Ships
DNV-OS-B101 – Metallic materials
DNV class programme – DNV-CP-0247 Steel forgings

and the following particulars:

Application area	**Forgings for gearing,** **Forgings for boilers, pressure vessels and piping systems,** **Ferritic steel forgings for low temperature service,** **Stainless steel forgings**
Steel type	**Carbon and carbon-manganese,** **Alloy,** **Austenitic stainless,** **Ferritic-austenitic (duplex) stainless**
Forging method	**Open die forging/closed die forging/ring rolling**
Max. weight	**See page 2**
Max. thickness	**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 classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2023-04-14**

This Certificate is valid until **2025-01-30**.
DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Stefan Röhr**

for **DNV**

Digitally Signed By: Wildhagen, Christian
Location: DNV Hamburg, Germany
Signing Date: 18.04.2023, on behalf of

Thorsten Lohmann
Head of Section

Particulars of the approval

Forgings for gearing

Steel type	Grade [3]	Forging method [1]	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition [2]
Alloy	NV F600A, NV F700A, NV F800A, NV F900A, NV F1000A, NV F1100A	OD/CD/RR [4]	20 000	400	QT

Forgings for boilers, pressure vessels and piping systems

Steel type	Grade [3]	Forging method [1]	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition [2]
C and C-Mn	NV F450H, NV F490H	OD/CD/RR [4]	20 000	400	N

Ferritic steel forgings for low temperature service

Steel type	Grade [3] [5]	Forging method [1]	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition [2]
C and C-Mn	NV F450LI, NV F490LI	OD/CD/RR [4]	20 000	400	N

Stainless steel forgings

Steel type	Grade [7]	Forging method [1]	Max. weight [kg]	Max. diameter	Heat treatment condition [2]
Austenitic	CrNi	OD	3 000	300	SHT
Ferritic-austenitic	22 Cr Duplex	OD	6 000	400	SHT
	25 Cr Duplex	OD	6 000	400	SHT

Steels acc. other standards

Steel type/grade [3] [5] [6]	Forging method [1]	Max. weight [kg]	Max. thickness [mm]	Heat treatment condition [2]
ASTM A350 LF2	OD/CD/RR [4]	20 000	400	N

Remarks:

1) OD: Open die forging; CD: Closed die forging; RR: Ring Rolling
2) QT: Quenched and tempered; N: Normalised
3) Incl. equivalent grades in acc. to other standards
4) Max. outer diameter 6 000 mm for rolled rings
5) Qualified impact test temperature of -46°C (Minimum average energy 41 [J]);
Details to test temperature, design temperature and thickness given in DNV-RU-SHIP-Pt2Ch2-Sec6.7.4.2 Table 13 (Mechanical properties for ferritic steel forgings for low temperature service) are to be observed
6) Possible application and certification of any material to classed object is subject to case by case approval based on DNV plan or type approval
7) Stainless steel forgings shall be in accordance with recognized standards, e.g. EN 10222, ASTM A182, ASTM A473/A965/A1049 and JIS G 3214, provided that supplementary requirements contained herein are also met. Recognition of other standards is subject to submission to the Society for evaluation