

Approval of Material Manufacturers *Zulassung von Werkstoffherstellern*

This is to certify that the works of
Hiermit wird bescheinigt, dass die Firma

**LES BRONZES D'INDUSTRIE
P.O. BOX 2
F-57360 AMNEVILLE
FRANCE**

has been subjected to an approval test in accordance with GL Rules with satisfactory results and is approved for the manufacture of the following products:

einer Zulassungsprüfung nach den Vorschriften des GL unterzogen wurde und für die Herstellung folgender Erzeugnisse zugelassen ist:

**Stainless Steel Castings
in accordance with the GL-Rules for Metallic Materials,
Chapter 2, Section 4, F.**

**Cast Copper Alloys
in accordance with the GL-Rules for Metallic Materials,
Chapter 3, Section 2, B. and Chapter 5, Section 1**

This approval is granted provided that all products intended to be used for the construction of ships or installations classed with DNV GL comply in every respect with GL Rules and Requirements.

Die Zulassung erfolgt unter der Voraussetzung, dass alle Erzeugnisse, die zum Bau von Schiffen und Anlagen mit Klasse der DNV GL SE bestimmt sind, die Vorschriften des GL in jeder Hinsicht erfüllen.

Certificate of approval No.
Zulassungsbescheinigung Nr.

WZ 061 HH 7

This Certificate is valid until:
Diese Bescheinigung ist gültig bis:

2018-01-31

Part of the approval is our letter of approval ref. no. 055313-15 of 2015-07-29.
Bestandteil der Zulassung ist das Zulassungsanschreiben, Tgb.-Nr. 055313-15 vom 2015-07-29.

Hamburg, 2015-07-29

DNV GL SE


Stefan Röhr


Christian Wildhagen



Ref. no.: 055313-15

Manufacturer: Les Bronzes D'industrie

List 4: Cast Steel

Grade	Key	Supply Condition (1)	max. Wall Thickness, mm	max. Weight	Casting Method (2)	Remarks
Ferritic steels acc. to EN 10213 and EN 10283	NR	*)		20000 kg	**)	acc. standart **) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Austenitic steels acc. to EN 10213 and EN 10283	NR	*)		20000 kg	**)	*) acc. standart **) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Martensitic steels acc. to EN 10213 and EN 10283	NR	*)		20000 kg	**)	*) acc. standart **) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Austenitic-ferritic (22Cr duplex, 25Cr duplex) steels acc. to EN 10213	NR	*)		20000 kg	**)	*) acc. standart **) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm

Key: -A Austenitic cast steel KZ Cast steel for low temp NR Stainless cast alloy SA Cast steel for common use
 SO Special cast alloy WF Cast steel for elevated temp.

(1):

AC, AF, AR = as cast, as forged, as rolled
 CR = controlled rolled
 F = ferritized
 HF = hot formed
 N = normalized

N+T = normalized + tempered
 Q+T = quenched + tempered
 SH = surface hardened
 S+Q = solution annealed + quenched
 TM = thermomechanically rolled

(2):

CC = continuous casting
 IC = ingot casting

Ref. no.: 055313-15

Manufacturer: Les Bronzes D'industrie

List 6: Aluminium and Copper Alloys

Grade	Key	Supply Condition (1)	max. Thickness, mm	max. Weight	Casting Method (2)	Remarks
CU3	CU3	AC		20.000 kg	*)	**) centrifugal casting heavy pipe; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Copper alloys acc. to EN1982	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Sn-bronze	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Pb-Sn-bronze	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Mn-bronze	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Al-bronze	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
Ni-Al-bronze	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm
P-bronze	G-CU	AC		20.000 kg	*)	*) centrifugal casting; Diameter: 80 - 6000 mm, Length: 50 - 5000 mm

Key: -AL Aluminium BD Strip BL Plates -CU Copper, Copper Alloys FF Hammer Forgings G Castings
 GE Die Forgings HZ Prematerial PR Sections RO Pipes

(1):

AC, AF, AR = as cast, as forged, as rolled
 CR = controlled rolled
 F = ferritized
 HF = hot formed
 N = normalized
 N+T = normalized + tempered
 Q+T = quenched + tempered
 SH = surface hardened
 S+Q = solution annealed + quenched
 TM = thermomechanically rolled

(2):

CC = continuous casting
 IC = ingot casting