



Certificate No : MD00/4161/0002/7b

METALLGUSS SULINGEN GMBH
Schwafördener Weg 50,
D-27232
Sulingen
Germany

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

Copper Alloy Castings for Valves, Liners, Bushes and Fittings

This approval is subject to compliance with the Rules for the Manufacture, Testing and Certification of Materials. The full details of the processes and grades to which this approval applies are given in the Appendix of this certificate.

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 : 06 May 2019
Date of Issue : 01 July 2016

A handwritten signature in blue ink, appearing to read "G. Young", is written over a horizontal line.

Gavin Young
Metallurgical Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group



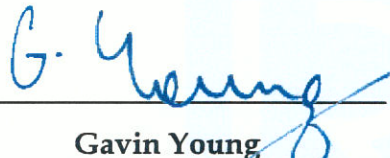
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Appendix 1

METALLGUSS SULINGEN GMBH
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Long freezing range alloys	Alloy Type	Designation	tonnes Maximum
Long freezing range alloys	Phosphor bronze	CuSn10PbP*	0.61
		CuSn10P*	0.61
		CuSn11P	0.61
		CuSn12	0.61
		CuSn10*	0.61
	Gunmetal	CuSn10B*	0.61
		CuSn10Zn2	0.61
		CuSn10Zn*	0.61
		CuSn5Zn5Pb5	0.61
		CuSn7Zn2Pb3	0.61
	Leaded gunmetal	CuSn5Pb5Zn5	0.61
		CuSn7Pb3Zn3*	0.61
		CuSn7Zn4Pb7	0.61
		CuSn6Zn4Pb2	0.61
		CuSn7Zn2Pb3	0.61
	Leaded bronze	CuSn10Pb10	0.61
		CuSn5Pb9	0.61
CuSn9Pb15*		0.61	
CuSn5Pb20		0.61	
CuSn7Pb15		0.61	
Short freezing range alloys	Alloy Type	Designation	tonnes Maximum
Short freezing range alloys	Copper 30% nickel	CuNi30Cr*	0.61
		CuNi30Nb*	0.61
		CuNi30Fe1Mn1	0.61

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Appendix 2

METALLGUSS SULINGEN GMBH

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Short freezing range alloys	Alloy Type	Designation	tonnes Maximum
		CuNi30Fe1Mn1NbSi	0.61
		CuNi30Cr2FeMnSi	0.61
	Copper 10% nickel	CuNi10Nb*	0.61
		CuNi10Fe1Mn1	0.61
	Aluminium bronze	CuAl10Fe5Ni5	0.61
		CuAl11Fe6Ni6	0.61
		CuAl9Ni*	0.61
		CuAl9Ni7*	0.61
		CuAl11Ni*	0.61

Weld repair and heat treatment not covered by this scope of approval

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A handwritten signature in blue ink, appearing to read "G. Young", is written over a horizontal line. Below the line, the name "Gavin Young" is printed in a bold, black, sans-serif font.

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