

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No:
AMMM00000J6
Revision No:
1

This is to certify:

That
Energietechnik Essen GmbH
Westendstr. 15, 45143 Essen,
Germany

is an approved manufacturer of
Heat treatment

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Application area	Heat treatment workshop
Heat treatment process	Quenching and tempering, See page 2
Product type	Forgings
Steel type	Carbon and carbon-manganese, Alloy
Max. Weight	35 000 kg
Remarks	Approved as Independent Heat Treatment Company

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 **2019-07-05**

for **DNV GL**

This Certificate is valid until **2022-05-31**.

DNV GL local station: **Essen**

Approval Engineer: **Christian Wildhagen**

Thorsten Lohmann
Head of Section



Job Id: **263.11-005697-2**
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Particulars of the approval

Approval scope for Independent Heat Treatment Company

Item	Description																											
Product type	Steel Forgings																											
Steel Type	Carbon and carbon-manganese, Alloy																											
Maximum Loading Weight	No. 51: 7.5 ton No. 52: 7.5 ton No. 54: 4.0 ton No. 56: 4.0 ton No. 62: 7.0 ton No. 63: 7.0 ton No. 66: 15.0 ton No. 11: 35.0 ton																											
Heat Treatment Type	Quenching and tempering																											
Furnace Details	<table border="0"> <tr> <td>No.:</td> <td>Type</td> <td>Working zone (mm):</td> </tr> <tr> <td>No. 51:</td> <td>Shuttle furnace</td> <td>Length 4 300, Width 1 800, Height 1 000</td> </tr> <tr> <td>No. 52:</td> <td>Shuttle furnace</td> <td>Length 4 300, Width 1 800, Height 1 000</td> </tr> <tr> <td>No. 54:</td> <td>Shuttle furnace</td> <td>Length 2 200, Width 1 800, Height 1 000</td> </tr> <tr> <td>No. 56:</td> <td>Shuttle furnace</td> <td>Length 2 200, Width 1 800, Height 1 000</td> </tr> <tr> <td>No. 62:</td> <td>PIT furnace</td> <td>Ø 2 500, Height 1 800</td> </tr> <tr> <td>No. 63:</td> <td>PIT furnace</td> <td>Ø 2 500, Height 1 800</td> </tr> <tr> <td>No. 66:</td> <td>Hood type furnace</td> <td>Length 5 300, Width 2 400, Height 1 500</td> </tr> <tr> <td>No. 11:</td> <td>Shuttle furnace</td> <td>Length 10 500, Width 1 800, Height 900</td> </tr> </table>	No.:	Type	Working zone (mm):	No. 51:	Shuttle furnace	Length 4 300, Width 1 800, Height 1 000	No. 52:	Shuttle furnace	Length 4 300, Width 1 800, Height 1 000	No. 54:	Shuttle furnace	Length 2 200, Width 1 800, Height 1 000	No. 56:	Shuttle furnace	Length 2 200, Width 1 800, Height 1 000	No. 62:	PIT furnace	Ø 2 500, Height 1 800	No. 63:	PIT furnace	Ø 2 500, Height 1 800	No. 66:	Hood type furnace	Length 5 300, Width 2 400, Height 1 500	No. 11:	Shuttle furnace	Length 10 500, Width 1 800, Height 900
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Heat Treatment Procedure(s)	Doc. No. 5224 Rev. E dtd. 2019-05-19																											