

# APPROVAL OF MANUFACTURER CERTIFICATE

## This is to certify:

That

**ACO Guss GmbH**  
**Kaiserslautern, Germany**

is an approved manufacturer of  
**Iron Castings**

in accordance with  
**DNV GL rules for classification – Ships**

and the following particulars:

|                     |  |
|---------------------|--|
| <b>Iron type(s)</b> | <b>Grey Cast Iron,<br/>Nodular Cast Iron</b> |
| <b>Max. weight</b>  | <b>See particulars</b>                       |
| <b>Remarks</b>      | <b>See particulars</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 **2017-09-12**

This Certificate is valid until **2020-09-30**.

DNV GL local station: **Augsburg**

Approval Engineer: **Stefan Röhr**

for **DNV GL**

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



## Particulars of the approval

### Cast Iron

| Iron type               | Grade               | Casting method <sup>1)</sup> | Max. weight [kg] <sup>2)</sup> | Max. thickness [mm] <sup>3)</sup> | Dimensions <sup>4)</sup>  |
|-------------------------|---------------------|------------------------------|--------------------------------|-----------------------------------|---|
| Grey                    | EN-GJL-150          | SC / CC                      | 200 kg                         | 30 mm                             | Rectangular:<br>35 mm x 35 mm<br>up to<br>350 mm x 350 mm<br><br>Round (diameter):<br>28 mm up to<br>500 mm |
|                         | EN-GJL-200          |                              |                                |                                   |   |
|                         | EN-GJL-250          |                              |                                |                                   |   |
|                         | EN-GJL-300          |                              |                                |                                   |   |
|                         | GG-F <sup>5)</sup>  | CC                           |                                |                                   |   |
|                         | GG-FP <sup>5)</sup> |                              |                                |                                   |   |
| GG-P <sup>5)</sup>      |                     |                              |                                |                                   |   |
| Nodular                 | VL NCI-2            | SC / CC                      |                                |                                   |   |
|                         | VL NCI 370          | SC / CC                      |                                |                                   |   |
|                         | VL NCI 400          | SC / CC                      |                                |                                   |   |
|                         | VL NCI 500          | SC / CC                      |                                |                                   |   |
|                         | VL NCI 600          | SC / CC                      |                                |                                   |   |
|                         | VL NCI 700          | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-350-22-LT    | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-400-18-LT    | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-400-18       | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-400-15       | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-450-10       | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-500-07       | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-600-3        | SC / CC                      |                                |                                   |   |
|                         | EN-GJS-700-2        | SC / CC                      |                                |                                   |   |
| GGG-40/50 <sup>6)</sup> | CC                  |                              |                                |                                   |   |
| GGG-50 <sup>6)</sup>    |                     |                              |                                |                                   |   |
| GGG-60 <sup>6)</sup>    |                     |                              |                                |                                   |   |
| GGG-70 <sup>6)</sup>    |                     |                              |                                |                                   |   |

Remarks:

- 1) SC: sand casting; CC continuous casting
- 2) Max. weight for sand casting only
- 3) Max. thickness for sand casting only
- 4) Dimensions for continuous casting only
- 5) According to customer specification WN 0-200.002
- 6) According to customer specification WN 0-200.001