

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That

**Afflerbach Bödenpresserei GmbH & Co. KG
Puderbach and Dernbach Works, Germany**

is an approved manufacturer of
Pressed Parts

in accordance with
DNV GL rules for classification – Ships
DNV GL rules for classification – Naval vessels

and the following particulars:

Application area	Pressed parts
Steel type	Carbon, carbon-manganese, Alloy, Austenitic-ferritic (duplex) stainless Non-magnetizable Steel
Manufacturing method	Cold forming, hot forming
Max. thickness	See page 2
Max. diameter	See page 2
Heat treatment condition	See page 2
Additional approval conditions	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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2018-08-20**

This Certificate is valid until **2021-07-31**.

DNV GL local station: **Essen**

Approval Engineer: **Stefan Röhr**



for DNV GL
Digitally Signed By: Wildhagen, Christian
Location: DNV GL Hamburg, Germany
Signing Date: 21.08.2018, on behalf of

Thorsten Lohmann
Head of Section



Particulars of the approval

Pressed parts

Steel type / grade	Delivery condition ²⁾	Max. thickness [mm]	Max. diameter [mm]
VL A, VL B, VL D, VL E	N	35	6500
VL A32, VL A36, VL D32, VL D36 VL E32, VL E 36	N	35	6500
S235J0, S235J2, S235JR, S275J0, S275J2, S275JR S355J0, S355J2, S355JR, S355K2 acc. to EN 10025-2	N	35	6500
P235GH, P265GH, P295GH, P355GH acc. to EN 10028-2	N	35	6500
16Mo acc. to EN 10028-2	N	35	6500
18MnMo4-5 acc. to EN 10028-2	NT, QT	35	6500
20MnMoNi4-5 acc. to EN 10028-2	QT	35	6500
10CrMo9-10, 12CrMo9-10, 13CrMo4-5, 13CrMoSi5-5, 12CrMoV12-10, 13CrMoV9-10 acc. to EN 10028-2	NT, QT	35	6500
X10CrMoVNb9-1, X12CrMo5 acc. to EN 10028-2	NT, QT	35	6500
P275NH, P275NL1, P275NL2 P355N0, P355NH, P355NL1, P355NL2 acc. to EN 10028-3	N	35	6500
VL 0.5Ni	N	35	6500
VL 1.5Ni, VL 2.25Ni, VL 3.5Ni VL 5Ni, VL 9Ni	N, NT, QT	35	6500
11MnNi5-3, 13MnNi6-3 acc. to EN 10028-4	N, NT	35	6500
15NiMn6, 12Ni14 acc. to EN 10028-4	N, NT, QT	35	6500
X12Ni5, X8Ni9 acc. to EN 10028-4	N, NT, QT	35	6500
X7Ni9 acc. to EN 10028-4	QT	35	6500
1.4462 acc. to VdTÜV-WB 418	SHT	35	6500
1.3964 acc. to BWB WL 1.3964-1	SHT	35	6500

Remarks:

- 1) HF: hot forming; CF: cold forming
- 2) N: Normalised; QT: Quenched and tempered;
NT: Normalised and tempered; SHT: Solution Heat Treated (solution annealing)

Additional approval conditions:

Welding is permitted according to approved procedure WPS 319 Rev.1 as well as other welding procedures approved by DNVGL.