

# APPROVAL OF MANUFACTURER CERTIFICATE

## This is to certify:

That  
**TPS Technitube Röhrenwerke GmbH**  
**Daun, Germany**

is an approved manufacturer of  
**Steel Pipes and Fittings**

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

and the following particulars:

<b>Product</b>	<b>Pipes</b>
<b>Application area</b>	<b>Austenitic and ferritic-austenitic steel pipes</b>
<b>Steel type(s)</b>	<b>Austenitic stainless, Austenitic-ferritic (Duplex) stainless, see page 2</b>
<b>Manufacturing method</b>	<b>Cold finished seamless</b>
<b>Max. outer diameter</b>	<b>42 mm</b>
<b>Max. wall thickness</b>	<b>4 mm</b>
<b>Remarks</b>	<b>See page 2</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 **2017-12-07**

for **DNV GL**

This Certificate is valid until **2020-12-31**.

DNV GL local station: **Essen**

Approval Engineer: **Stefan Röhr**

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



## Particulars of the approval

### Austenitic and Austenitic-ferritic steel pipes

Steel type	Grade <sup>3)</sup>	Manufacturing method <sup>1)</sup>	Max. outer diameter [mm]	Max. wall thickness [mm]	Delivery condition <sup>2)</sup>
Austenitic stainless	1.4301, 1.4306, 1.4307, 1.4401, 1.4404, 1.4435, 1.4436, 1.4539, 1.4541, 1.4547, 1.4550, 1.4571 acc. to EN 10216-5	CFS	42	4	SHT
Austenitic stainless	TP 304, TP 304L, TP316, TP 316L, TP 316Ti, TP 312, TP 347 acc. to ASTM A312	CFS	42	4	SHT
Austenitic-ferritic stainless (duplex)	1.4462, 1.4410 acc. to EN 10216-5	CFS	42	4	SHT

Remarks:

- 1) CFS: cold finished seamless
- 2) SHT: Solution Heat Treated
- 3) Certification of any material applied to classed object shall fulfill the applicable material requirements in the DNV GL class rules

Special conditions:

Including automatic UT / ET testing in lieu of hydraulic testing according to relevant standard