

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Swage type couplings**

with type designation(s)
CC / Carbon Steel, XX / Stainless Steel

Issued to

Haelok AG
Zürich, ZH, Switzerland

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
CC / Carbon Steel	-10°C up to +300°C	200 bar	Diameter 10 mm up to 114.3 mm / 4"
XX / Stainless Steel	-55°C up to +400°C	200 bar	Diameter 10 mm up to 114.3 mm / 4"

Issued at **Hamburg** on **2021-12-08**

This Certificate is valid until **2026-12-07**.

DNV local station: **Augsburg**

Approval Engineer: **Christian Kaemmer**

for **DNV**

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Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Swage type fitting consisting of body (socket) and press-ring. No elastomeric rubber gasket.

- Type CC with body and press-ring made from carbon steel.
- Type XX with body and press-ring made from stainless steel.

	Type CC	Type XX
Body (sleeve) Press-ring	1.0570 (AISI 1024) galvanized, S355NL	1.4404 (AISI 316L) 1.4401, 1.4301, 1.4571
Designated Product-name / Brand-name:	TECH THERMO TRANS ENERGY STANDARD	TECH PROTECT TRANS ENERGY STANDARD
Diameter	10 mm 3/8" up to 114.3 mm / 4"	10 mm 3/8" up to 114.3 mm / 4"
Pressing tool	Only approved with HAELOK-released press-tools and inlays.	

Application/Limitation

Swage type couplings covered by this Type Approval Certificate are type-approved for pipe class I, II and III-piping systems.

Type of mechanical joint: Compression coupling – Swage type. Approved for Fire Resistance.
 Refer to DNV-Rules Pt. 4 Ch. 6 Sec. 9 Table 8, Table 9 and Table 10.

Pipe O.D. and maximum working pressure for stainless steel couplings / Type XX			
10 to 12 mm	15 to 30 mm	35 to 42 mm	76 to 114 mm
200 bar	200 bar	150 bar	63 bar
Pipe O.D. and maximum working pressure for carbon steel couplings / Type CC			
13,5 mm / DN 8	17,2 to 33,7 mm / DN 10 to 25	42,4 to 60,3 mm / DN 32 to 50	76,1 to 114,3 mm / DN 65 to 100
200 bar	200 bar	150 bar	63 bar

Max. pressure to be de-rated at elevated temperature:

Type CC / Carbon Steel									
Temperature (° C)	20	50	100	150	200	250	300		
Pressure reduction factor	1.00	1.00	0.90	0.79	0.69	0.63	0.55		
Type XX / Stainless Steel									
Temperature (° C)	20	50	100	150	200	250	300	350	400
Pressure reduction factor	1.00	0.96	0.88	0.75	0.70	0.75	0.70	0.66	0.65

Stainless steel grades 316L is not seawater resistant materials. Products covered by this certificate shall not be used in seawater applications. No product certificate will be required.
 Limitations regarding the product connection-side acc. to DNV-Rules are to be observed.

Minimum wall thickness of tubes has to be observed acc. to DNV Ship Rules Pt.4 Ch.6 Sec.9 Table 2 and 3.

Type Approval documentation

Tests carried out

Marking of product

For traceability to this Type Approval, the products are to be marked with:

- Manufacturer's trademark
- Type designation
- Size

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>