



Certificate no.:
TAD00001NW

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Hoisting, Rotation and Pipehandling Equipment**

with type designation(s)
KTR-STOP S-10 to S-80

issued to

KTR Brake Systems GmbH
Schloß Holte-Stukenbrock, Nordrhein-Westfalen, Germany

is found to comply with

DNV-OS-E101 – Drilling facilities, Edition July 2024
DNV statutory interpretations DNV-SI-0166 – Verification for compliance with Norwegian shelf regulations,
Edition July 2021

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Houston** on **2024-10-14**

This Certificate is valid until **2029-10-13**.

for **DNV**

DNV local unit: **Essen**

Approval Engineer: **Parna Deljo**

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 USD 300 000.

Product description

The KTR-STOP S-xx-F B-xx is a passive (spring activated, hydraulically released) brake in a floating caliper brake design serving to generate a brake force on a brake disk in order to decelerate or stop its rotation or keep it at standstill.

Reference standards

- NORSOK R-002, Lifting equipment, 2012

Application/Limitation

Design Parameter	Value
Maximum braking force	: 64 kN
Maximum wear in each brake pad	: 6 mm
Maximum operating pressure	: 200 bar
Brake disc thickness	: 20 – 40 mm
Working temperature	: -20°C to 55°C

Brake type	Clamping force [kN]	Loss of force [%] ¹	Opening pressure [bar]
KTR-STOP S-10-F	10	4.5	20
KTR-STOP S-15-F	15	2.0	30
KTR-STOP S-20-F	20	4.5	40
KTR-STOP S-25-F	25	5.0	50
KTR-STOP S-30-F	30	3.5	60
KTR-STOP S-35-F	35	8.0	80
KTR-STOP S-40-F	40	6.5	90
KTR-STOP S-45-F	45	6.0	100
KTR-STOP S-50-F	50	5.5	100
KTR-STOP S-55-F	55	5.0	110
KTR-STOP S-60-F	60	7.0	130
KTR-STOP S-65-F	65	6.0	140
KTR-STOP S-70-F	70	5.0	150
KTR-STOP S-75-F	75	4.5	160
KTR-STOP S-80-F	80	5.0	170

Note 1: Loss of force pr. 1 mm pad wear.

Type Approval documentation

Tests carried out

- Each product is to be tested according to DNV-OS-E101 Ch. 2 Sec. 6 - 4, including load testing of clamping force, and pressure testing at 1.5 x maximum operating pressure.
- Charpy testing shall be performed in accordance with DNV-OS-E101 Ch. 2 Sec. 2 - 2
- NDE/NDT procedure shall be performed in accordance with DNV-OS-E101 Ch. 2 Sec. 6 - 3

Other conditions and comments

- This certificate only covers the caliper and the bolted connection. Mounting brackets and supporting structure is not included and shall be approved separately.
- The calipers shall not be supplied with brake pads with a higher coefficient of friction than $\mu=0.30$ unless this has been proven by appropriate testing according to DNV-OS-E101 Ch. 2 Sec.5 - 5.1.4
- The structure of the brake calipers can handle a clamping force equivalent to a coefficient of friction of $\mu=0.40$.
- Load bearing bolts shall be delivered with 3.1 certificates and Charpy V-notch values min 42J at -20°C.
- The hydraulic system (control system) is not covered by this Type Approval and shall be approved for each system which incorporates the calipers.
- Eyebolts for installation lifting are not included in this Type Approval.

Marking of product

For traceability the following marking is to be carried out on each product:

- Part No.
- Serial No.
- Rated braking capacity
- Manufacturers name or mark

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days)



Job ID: **262.1-040905-1**
Certificate no.: **TAD00001NW**

and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

END OF CERTIFICATE