Brake systems
KTR-STOP®
EMB-STOP

www.ktr.com
FUTURE WITH A SYSTEM.

KTR have consistently continued to extend their expertise in building systems over the past few decades. Today we are a leading manufacturer providing solutions with highest quality standards in the fields of drive technology, brake and cooling systems as well as hydraulic components to our global business partners.

WHOEVER TALKS ABOUT DRIVING MUST BE ABLE TO SLOW DOWN.

Does it confuse you if a company having the slogan „Made for Motion“ provides brake systems as well? This is not the case with KTR. Being the leading supplier in the range of drive and fluid technology for industrial applications we make use of our technical know-how to develop suitable brake systems. The result is that KTR revolutionized hydraulic brakes tripping the performance range of electromechanical brakes. Consequently KTR is one of the few manufacturers worldwide providing their customers with two different brake systems: the hydraulic KTR-STOP® and the electromechanical EMB-STOP.

„Innovation & tradition are the key components of our product portfolio and KTR’s corporate culture“

Nicola Warning, CEO of KTR
DID YOU KNOW …

that couplings, hydraulic components and coolers are part of our scope of supply, too?

Find out more at ktr.com

POSSIBLE COMBINATIONS

Our brake systems can be combined with our drive components.

Perfect in Combination with **COUPLINGS**
The Competence Center for Brake Systems: That is where KTR brakes learn to grip better.

Opposites attract: the brake portfolio of the drive specialist

Driving and braking technology: What most companies consider as opposites, KTR estimates as an ideal supplement. Many years ago KTR started to project and distribute brakes. But you trust most in those things you developed yourselves. That is why KTR was not satisfied with distribution only, but made use of its decades of know-how and engineering experience to considerably improve the hydraulic brake system in many respects.

By taking over EM Brake Systems in 2013, electromechanical brake systems have meanwhile completed KTR’s portfolio. As a result KTR is in a position to provide the ideal brake system for every demand. Driving and braking technology from one single source - the customers are in good hands with KTR.

„What can actually not be slowed down? Our innovative capacity.“
Dr. Norbert Partmann, KTR Brake Systems
An innovative ambience for innovative ideas

KTR-STOP® and EMB-STOP - these two brake systems have been consolidated since 2014. We are specifically proud of the location: the „Competence Center for Brake Systems“. It is situated in Schloß Holte-Stukenbrock in East Westphalia and the head office of the new KTR Brake Systems GmbH.

By the way: The Competence Center well deserves its name. Since KTR develops all measures dealing with brake systems in these state-of-the-art premises. The brake components of both series are developed, designed and tested here. A special cryogenic cooling chamber allows for tests even with temperatures down to -50 °C making the brakes ready for wind and weather in this way.
Those who value KTR as a manufacturer will love us as a partner.

KTR provide the machinery and plant engineering with an extensive portfolio of high-quality drive and hydraulic components and cooling systems. We are pleased to be at your service during the designing stage and develop tailor-made solutions for you. Perfectly organized logistics, global presence via 24 subsidiary companies and more than 90 distributors along with an international network consisting of 8 production sites are the prerequisite for quick delivery. When it comes to service we ensure short distances along with competent and personal support.
Drive technology
Mechanical components are and will remain essential in drive technology. The industry’s demands on components grow continuously: energy efficiency, power density, ease of servicing and electronification. Our portfolio includes couplings and torque limiters, clamping sets and universal joints as well as torque measuring shafts.

Brake systems
Our hydraulical and electromechanical brake systems are globally used in various industries. Customer preference and parameters of the application decide on the selection of the right brake.

Hydraulic components
For almost 50 years we have provided the industry with a continuously growing range of hydraulic components from our in-house development and production: accurate selection, high-quality processing, quick availability.

Cooling systems
As a customised product or standard solution, multimedium or oil/air cooler, for mobile machines or stationary hydraulics, optionally available as a marine or ATEX version, powerful and efficient.
Wind power

Construction and agricultural machines

Pumps and compressors

Indoor materials handling

Machine tools

Hydraulics

General drive technology

Marine / shipbuilding

Stationary energy generation
## SUMMARY OF PRODUCTS/INDUSTRIES

### Passive Floating Caliper Brakes
- **Hydraulic brake system**
  - KTR-STOP® XS-xx-F
  - KTR-STOP® S-xx-F
  - KTR-STOP® M-xx-F
  - KTR-STOP® XL-xx-F
  - KTR-STOP® XXL-xxxx-F

- **Electromechanical brake system**
  - EMB-STOP XS-F-xx-F
  - EMB-STOP S-F-xx-F

### Passive Fixed Caliper Brakes
- **Hydraulic brake system**
  - KTR-STOP® XS-xx A-xx-xx
  - KTR-STOP® S-xx B-xx-xx
  - KTR-STOP® M-xxx B-xx-xx
  - KTR-STOP® L light-xxx A-xx-xx
  - KTR-STOP® L-xxx A-xx-xx

### Thruster Brakes
- **Electrohydraulic brake system**
  - KTR-STOP® TB S
  - KTR-STOP® TB T

- **Electrohydraulic Thrusters**
  - KTR-STOP® TB thruster

### Yaw Brakes
- **Hydraulic brake system**
  - KTR-STOP® YAW S
  - KTR-STOP® YAW M
  - KTR-STOP® YAW L

### Active Fixed Caliper Brake
- **Hydraulic brake system**
  - KTR-STOP® M-D

### Active Floating Caliper Brakes
- **Hydraulic brake system**
  - KTR-STOP® S-A-F
  - KTR-STOP® M-A-F

- **Electromechanical brake system**
  - EMB-STOP S-A-xx-F Lever
  - EMB-STOP M-A-xxx-F Lever
  - EMB-STOP XL-xxx-F Lever

- **Electronic control system**
  - IntelliRamp®

### Hubs with Brake Disks
- **Hydraulic brake system**
  - KTR-STOP® NBS

### Rotor Lock
- **Hydraulic system**
  - KTR-STOP® RL S
  - KTR-STOP® RL M

- **Electromechanical system**
  - EMB-STOP RL S
  - EMB-STOP RL M

### Electronic Control System
- **IntelliRamp®**

### Wind Power
- **Gearless wind turbines**
- **Wind power grids**

### Construction and Agricultural Machinery
- **Excavators**
- **Road rollers**
- ** Crushers**
- ** Harvesters**
- **Tank spreaders**

### Pumps and Compressors
- **Compressors**
- **Pumps**
- **Cooling towers**

### Indoor Materials Handling
- **Conveying and storage**

### Food Processing Machinery
- **Packaging machinery**

### Automation

### Machine Tools
- **Positioning axes**
- **Main spindle drives**

### Robotics

### Hydraulics
- **Power pack production**
- **Plastics processing industry**

### General Drive Technology
- **Industrial gears**
- **Planetary gears**
- **Extruders**
- **Metering machines**
- **Steel mills**
- **Linear technology**

### Shipbuilding / Marine
- **Cargo ships**
- **Cruises**
- **Yachts**
- **Workboats**

### GENSETS
- **Emergency power generators**
<table>
<thead>
<tr>
<th>MACHINE TOOLS</th>
<th>POWER pack production</th>
<th>POWER technologies</th>
<th>GENERAL DRIVE TECHNOLOGY</th>
<th>HANDLING SYSTEMS</th>
<th>SHIPBUILDING</th>
<th>GENSETS</th>
<th>Emergency power generators</th>
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<tr>
<td>Automation</td>
<td>Positioning axes</td>
<td>Main spindle drives</td>
<td>Robotic drives</td>
<td>Power pack production</td>
<td>Plastic Processing industry</td>
<td>Industrial gears</td>
<td>Planetary gears</td>
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</tbody>
</table>
# Clamping forces of brake systems

## Passive floating caliper brake

<table>
<thead>
<tr>
<th>Hydraulic KTR-STOP®</th>
<th>Clamping forces [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS-xx-F</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>S-xx-F</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>M-xxx-F</td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td>XL-xxx-F</td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td>XXL-xxxx-F</td>
<td><img src="image5.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Clamping forces range from 0 to 1200 [kN].

See page 16, 20, 22, 24, 26 for more information.

## Electromechanical EMB-STOP

| XS-P-xx-F          | ![Diagram](image6.png) |
| S-P-xx-F           | ![Diagram](image7.png) |

Clamping forces range from 0 to 1200 [kN].

See page 28, 30 for more information.

## Passive fixed caliper brakes

<table>
<thead>
<tr>
<th>Hydraulic KTR-STOP®</th>
<th>Clamping forces [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS-xx A-xx-xx</td>
<td><img src="image8.png" alt="Diagram" /></td>
</tr>
<tr>
<td>S-xx B-xx-xx</td>
<td><img src="image9.png" alt="Diagram" /></td>
</tr>
<tr>
<td>M-xxx B-xx-xx</td>
<td><img src="image10.png" alt="Diagram" /></td>
</tr>
<tr>
<td>L light-xxx A-xx-xx</td>
<td><img src="image11.png" alt="Diagram" /></td>
</tr>
<tr>
<td>L-xxx A-xx-xx</td>
<td><img src="image12.png" alt="Diagram" /></td>
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</table>

Clamping forces range from 0 to 1200 [kN].

See page 32, 34, 36, 38, 40 for more information.
### Passive brake systems

#### Electrohydraulic KTR-STOP® TB

<table>
<thead>
<tr>
<th>YAW S</th>
<th>Braking torque [kNm]</th>
<th>see page 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB S</td>
<td><img src="image1.png" alt="Braking torque" /></td>
<td><img src="image2.png" alt="Braking torque" /></td>
</tr>
<tr>
<td>TB T</td>
<td><img src="image3.png" alt="Braking torque" /></td>
<td><img src="image4.png" alt="Braking torque" /></td>
</tr>
</tbody>
</table>

#### Yaw brakes

#### Hydraulic KTR-STOP®

<table>
<thead>
<tr>
<th>YAW S</th>
<th>Clamping forces [kN]</th>
<th>see page 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>YAW M</td>
<td><img src="image5.png" alt="Clamping forces" /></td>
<td><img src="image6.png" alt="Clamping forces" /></td>
</tr>
<tr>
<td>YAW L</td>
<td><img src="image7.png" alt="Clamping forces" /></td>
<td><img src="image8.png" alt="Clamping forces" /></td>
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</tbody>
</table>

For more information, see pages 42, 44, 50, 52, and 54.
## Clamping forces of brake systems

### Active floating caliper brake

**Hydraulic KTR-STOP®**

<table>
<thead>
<tr>
<th>Clamping forces [kN]</th>
<th>0</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
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<th>550</th>
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<th>650</th>
<th>700</th>
<th>750</th>
<th>800</th>
<th>850</th>
<th>900</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>XS-A-F</strong></td>
<td></td>
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<tr>
<td><strong>S-A-F</strong></td>
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<tr>
<td><strong>M-A-F</strong></td>
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</table>

**Electromechanical EMB-STOP**

| Clamping forces [kN] | 0  | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 |
|----------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| **XS-A-xx-F**        |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **S-A-xx-F Lever**   |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **S-A-xx-F**         |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **M-A-xx-F Lever**   |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **L-A-xx-F Lever**   |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **L-A-xx-F**         |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **2L-A-xx-F Lever**  |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| **2X L-A-xx-F Lever**|    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

800 to 1600 [kN]

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*see page 62*

*see page 70*

*see page 64*

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*see page 77*
### Active fixed caliper brakes

**Hydraulic KTR-STOP®**

<table>
<thead>
<tr>
<th>Clamping forces [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

M-D

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- KTR-STOP® XXL-xxxx-F 26

**Electromechanical brake system**
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- EMB-STOP S-P-xx-F 30

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### ACTIVE FIXED CALIPER BRAKE

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- KTR-STOP® NC 90
**KTR-STOP® XS-xx-F**

**Passive floating caliper brakes**

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### Hydraulic brake system

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**Ordering example:**

<table>
<thead>
<tr>
<th>KTR-STOP®</th>
<th>XS</th>
<th>6</th>
<th>F</th>
<th>B</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Clamping force</td>
<td>Floater</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

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For continuously updated data please refer to our online catalogue at [www.ktr.com](http://www.ktr.com)
### Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force $F_c$ [kN]</th>
<th>Loss of power $%$</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk $\Omega$ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® XS-2-F</td>
<td>2</td>
<td>11.0</td>
<td>30</td>
<td>180</td>
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<tr>
<td>KTR-STOP® XS-3-F</td>
<td>3</td>
<td>5.5</td>
<td>50</td>
<td>270</td>
</tr>
<tr>
<td>KTR-STOP® XS-4-F</td>
<td>4</td>
<td>5.0</td>
<td>10</td>
<td>60</td>
</tr>
<tr>
<td>KTR-STOP® XS-5-F</td>
<td>5</td>
<td>8.5</td>
<td>70</td>
<td>450</td>
</tr>
<tr>
<td>KTR-STOP® XS-6-F</td>
<td>6</td>
<td>6.5</td>
<td>80</td>
<td>540</td>
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<td>KTR-STOP® XS-7-F</td>
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<td>4.5</td>
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<td>640</td>
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<tr>
<td>KTR-STOP® XS-8-F</td>
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<td>18.5</td>
<td>120</td>
<td>730</td>
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<tr>
<td>KTR-STOP® XS-9-F</td>
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<td>KTR-STOP® XS-10-F</td>
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<td>KTR-STOP® XS-11-F</td>
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<td>150</td>
<td>1000</td>
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<td>KTR-STOP® XS-12-F</td>
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<td>11.0</td>
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<td>1190</td>
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<td>15</td>
<td>8.0</td>
<td>190</td>
<td>1370</td>
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</tbody>
</table>

3) With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

### Calculation of brake disk

- $D_{\text{Cmax}} = D_A - 195$
- $D_{\text{av}} = D_A - 86$

### Connection dimensions of brake

- $F_b = F_c \times 2 \times \mu$
- $F_b = \text{Braking force [kN]}$
- $F_c = \text{Clamping force [kN]}$
- $M_b = z \times F_b \times D_{\text{av}} \times 2$
- $M_b = \text{Braking torque [kNm]}$
- $z = \text{Number of brakes}$
- $D_{\text{av}} = \text{Effective diameter of brake [m]}$

### Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
KTR-STOP® S-xx-F
Passive floating caliper brakes

Hydraulic brake system

KTR-STOP® S-xx-F

<table>
<thead>
<tr>
<th>KTR-STOP® S-xx-F</th>
<th>S</th>
<th>40</th>
<th>F</th>
<th>B</th>
<th>30</th>
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<tbody>
<tr>
<td>KTR brake</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Ordering example:

- Dimensions and weight depending on thickness of brake disk.
- The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
3) With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

For continuously updated data please refer to our online catalogue at www.ktr.com

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
KTR-STOP® M-xxx-F
Passive floating caliper brakes

Hydraulic brake system

<table>
<thead>
<tr>
<th>KTR-STOP® M-xxx-F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total weight</strong> 30 - 120 kN</td>
</tr>
<tr>
<td><strong>Total weight</strong> 125 - 180 kN</td>
</tr>
<tr>
<td><strong>Width of brake pad</strong></td>
</tr>
<tr>
<td><strong>Surface of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Max. wear of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Nominal coefficient of friction ²)</strong></td>
</tr>
<tr>
<td><strong>Total brake piston surface - complete brake</strong></td>
</tr>
<tr>
<td><strong>Volume with 1 mm stroke - complete brake</strong></td>
</tr>
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¹°Dimensions and weight depending on thickness of brake disk. ¹⁰The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

<table>
<thead>
<tr>
<th>KTR-STOP®</th>
<th>M</th>
<th>100</th>
<th>F</th>
<th>B</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Clamping force</td>
<td>Floater</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>
## Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Fc [kN]</th>
<th>Loss of power [%]</th>
<th>Opening pressure [bar]</th>
<th>Mb [Nm] with brake disk Ø [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® M-60-F</td>
<td>60</td>
<td>6.1</td>
<td>60</td>
<td>14400 31200 43200</td>
</tr>
<tr>
<td>KTR-STOP® M-70-F</td>
<td>70</td>
<td>4.8</td>
<td>70</td>
<td>16800 36400 50400</td>
</tr>
<tr>
<td>KTR-STOP® M-80-F</td>
<td>80</td>
<td>4.0</td>
<td>80</td>
<td>19200 41600 57600</td>
</tr>
<tr>
<td>KTR-STOP® M-90-F</td>
<td>90</td>
<td>8.2</td>
<td>100</td>
<td>21600 46800 64800</td>
</tr>
<tr>
<td>KTR-STOP® M-100-F</td>
<td>100</td>
<td>7.0</td>
<td>110</td>
<td>24000 52000 72000</td>
</tr>
<tr>
<td>KTR-STOP® M-110-F</td>
<td>110</td>
<td>6.5</td>
<td>120</td>
<td>26400 57200 79200</td>
</tr>
<tr>
<td>KTR-STOP® M-120-F</td>
<td>120</td>
<td>8.6</td>
<td>130</td>
<td>28800 62400 86400</td>
</tr>
<tr>
<td>KTR-STOP® M-130-F</td>
<td>130</td>
<td>5.0</td>
<td>140</td>
<td>31200 67600 93600</td>
</tr>
<tr>
<td>KTR-STOP® M-140-F</td>
<td>140</td>
<td>4.5</td>
<td>150</td>
<td>33600 72800 100800</td>
</tr>
<tr>
<td>KTR-STOP® M-150-F</td>
<td>150</td>
<td>7.5</td>
<td>165</td>
<td>36000 78000 108000</td>
</tr>
<tr>
<td>KTR-STOP® M-160-F</td>
<td>160</td>
<td>7.0</td>
<td>180</td>
<td>38400 83200 115200</td>
</tr>
<tr>
<td>KTR-STOP® M-170-F</td>
<td>170</td>
<td>6.5</td>
<td>190</td>
<td>40800 88400 122400</td>
</tr>
<tr>
<td>KTR-STOP® M-180-F</td>
<td>180</td>
<td>6.0</td>
<td>190</td>
<td>43200 93600 129600</td>
</tr>
</tbody>
</table>

\( F_b = F_c \cdot 2 \cdot \mu \)

\[ F_b = \text{Braking force [kN]} \]

\[ F_c = \text{Clamping force [kN]} \]

\[ M_b = \frac{z \cdot F_b}{2} \]

\[ M_b = \text{Braking torque [kNm]} \]

\[ z = \text{Number of brakes} \]

\[ D_{av} = \text{Effective diameter of brake [m]} \]

### Calculation of brake disk

\[ D_{C,\text{max}} = D_A - 420 \]

\[ D_{av} = D_A - 200 \]

### Connection dimensions of brake

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
KTR-STOP® XL-xxx-F
Passive floating caliper brakes

Hydraulic brake system

KTR-STOP® XL-xxx-F

Total weight  Approx. 1080 kg  1) Max. operating pressure  200 bar
Width of brake pad  270 mm  Thickness of brake disk  40 mm – 80 mm
Surface of each brake pad (organic/powder metal)  76,800 mm²  Pressure port  G 3/8
Max. wear of each brake pad  6 mm  Oil bleed  G 1/4
Nominal coefficient of friction 2)  µ = 0.4  Floating range on axes - towards mounting surface  5 mm
Total brake piston surface - complete brake  452 cm²  Floating range on axes - away from mounting surface  10 mm
Volume with 1 mm stroke - complete brake  45,2 cm³  Min. diameter of brake disk ØDA  1,500 mm
Operating temperature  -20 °C to +50 °C

1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP® XL - 600 - F A - 60
KTR brake  Size of brake  Clamping force  Floater  Variant  Thickness of brake disk

For continuously updated data please refer to our online catalogue at www.ktr.com
Brake types

<table>
<thead>
<tr>
<th>Brake type ³)</th>
<th>Clamping force $F_c$ [kN]</th>
<th>Loss of power ⁴) [%]</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk Ø [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® XL-400-F</td>
<td>400</td>
<td>4.5</td>
<td>130</td>
<td>198000 438000 598000</td>
</tr>
<tr>
<td>KTR-STOP® XL-500-F</td>
<td>500</td>
<td>7.5</td>
<td>160</td>
<td>247000 547000 747000</td>
</tr>
<tr>
<td>KTR-STOP® XL-600-F</td>
<td>600</td>
<td>6</td>
<td>190</td>
<td>296000 656000 896000</td>
</tr>
</tbody>
</table>

³) Other brake types on request
⁴) With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

---

**Calculation of brake disk**

\[ D_{C\, max} = D_A - 570 \]

\[ D_{av} = D_A - 230 \]

---

**Connection dimensions of brake**

\[ F_b = F_c \times 2 \times \mu \]

\[ M_b = z \times F_b \times \frac{D_{av}}{2} \]

- $F_b$ = Braking force [kN]
- $F_c$ = Clamping force [kN]
- $M_b$ = Braking torque [kNm]
- $z$ = Number of brakes
- $D_{av}$ = Effective diameter of brake [m]

---

**Optional**

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
KTR-STOP® XXL-xxxx-F
Passive floating caliper brakes

Hydraulic brake system

<table>
<thead>
<tr>
<th>KTR-STOP® XXL-xxxx-F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total weight</strong></td>
</tr>
<tr>
<td><strong>Width of brake pad</strong></td>
</tr>
<tr>
<td><strong>Surface of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Max. wear of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Nominal coefficient of friction 2)</strong></td>
</tr>
<tr>
<td><strong>Total brake piston surface - complete brake</strong></td>
</tr>
</tbody>
</table>

1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

<table>
<thead>
<tr>
<th>KTR-STOP® XXL-1000-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake Size of brake Clamping force Floater Variant Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
### Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force $F_c$ [kN]</th>
<th>Loss of power $%$</th>
<th>Opening pressure [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® XXL-800-F</td>
<td>800</td>
<td>6</td>
<td>125</td>
</tr>
<tr>
<td>KTR-STOP® XXL-1000-F</td>
<td>1000</td>
<td>4.5</td>
<td>150</td>
</tr>
<tr>
<td>KTR-STOP® XXL-1200-F</td>
<td>1200</td>
<td>4</td>
<td>175</td>
</tr>
</tbody>
</table>

- Other brake types on request
- With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

#### Calculation of brake disk

\[
\begin{align*}
D_{\text{Cmax}} &= D_A - 780 \\
D_{\text{av}} &= D_A - 330
\end{align*}
\]

#### Connection dimensions of brake

\[
\begin{align*}
F_b &= F_c \cdot 2 \cdot \mu \\
M_b &= z \cdot F_b \cdot \frac{D_{\text{av}}}{2}
\end{align*}
\]

- $F_b$ = Braking force [kN]
- $F_c$ = Clamping force [kN]
- $M_b$ = Braking torque [kNm]
- $z$ = Number of brakes
- $D_{\text{av}}$ = Effective diameter of brake [m]

### Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
EMB-STOP XS-P-xx-F
Passive floating caliper brakes

Electromechanical brake system

EMB-STOP XS-P-xx-F
Passive floating caliper brakes

<table>
<thead>
<tr>
<th>Total weight</th>
<th>Approx. 28 kg</th>
<th>Thickness of brake disk</th>
<th>20 mm, 25 mm, 30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of brake pad</td>
<td>70 mm</td>
<td>Operating voltage</td>
<td>400 VAC, 50 Hz</td>
</tr>
<tr>
<td>Surface of each brake pad</td>
<td>organic 8,000 mm²</td>
<td>Size of industrial connector</td>
<td>Han10B / HAN11 BEE (male)</td>
</tr>
<tr>
<td></td>
<td>powder metal 6,800 mm²</td>
<td>Floating range on axes - towards mounting surface</td>
<td>5 mm</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>5 mm</td>
<td>Floating range on axes - away from mounting surface</td>
<td>5 mm</td>
</tr>
<tr>
<td>Coefficient of friction of pad, nominal value</td>
<td>µ = 0.4</td>
<td>Min. diameter of brake disk ØDA</td>
<td>300 mm</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>13 kN</td>
<td>Operating temperature</td>
<td>-20 °C to +50 °C</td>
</tr>
<tr>
<td>Power loss with 1mm stroke (0.5 on each side)</td>
<td>10 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Tolerances depending on clearance for release.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

\[
F_b = F_c \cdot 2 \cdot \mu \quad F_b = \text{Braking force [kN]}
\]

\[
M_b = z \cdot F_b \cdot \frac{D_{av}}{2} \quad F_c = \text{Clamping force [kN]}
\]

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>XS</th>
<th>-</th>
<th>P</th>
<th>-</th>
<th>12</th>
<th>-</th>
<th>F</th>
<th>B</th>
<th>-</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Passive</td>
<td>Clamping force</td>
<td>Floating caliper („floater“)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Calculation of brake disk

\[ D_{C_{\text{max}}} = D_A - 195 \]

\[ D_{a_v} = D_A - 86 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
**Electromechanical brake system**

**Ordering example:**
EMB-STOP S-P-xx-F

<table>
<thead>
<tr>
<th>Total weight</th>
<th>93 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of brake disk</td>
<td>25 mm, 30 mm, 35 mm</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>4 mm</td>
</tr>
<tr>
<td>Coefficient of friction of pad, nominal value ( \mu )</td>
<td>( \mu = 0.4 )</td>
</tr>
<tr>
<td>Min. clamping force</td>
<td>30 kN</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>50 kN</td>
</tr>
<tr>
<td>Operation temperature range</td>
<td>(-30 , ^\circ\text{C} ) to (+50 , ^\circ\text{C} )</td>
</tr>
<tr>
<td>Motor power</td>
<td>250 W</td>
</tr>
<tr>
<td>Motor voltage</td>
<td>400 VAC, 50 Hz</td>
</tr>
<tr>
<td>Voltage of electric signals</td>
<td>230 VAC/24 VDC</td>
</tr>
</tbody>
</table>

\( ^1 \) Tolerances depending on clearance for release.
\( ^2 \) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

**Calculation of braking force/braking torque**

\[ F_b = F_C \cdot 2 \cdot \mu \]
\[ M_b = z \cdot F_b \cdot \frac{D_{av}}{2} \]

- \( F_b \) = Braking force [kN]
- \( F_C \) = Clamping force [kN]
- \( M_b \) = Braking torque [kNm]
- \( z \) = Number of brakes
- \( D_{av} \) = Effective diameter of brake [m]

**EMB-STOP S-P-xx-F**

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>S</th>
<th>P</th>
<th>50</th>
<th>F</th>
<th>B</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Passive</td>
<td>Clamping force</td>
<td>Floating caliper (&quot;Floater&quot;)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>
Calculation of brake disk

\[
\begin{align*}
\Phi D_A &= 500 \ldots 1000 \text{ mm} & \Phi D_A &= 1000 \ldots 1800 \text{ mm} & \Phi D_A &= 1800 \ldots 3000 \text{ mm} \\
D_{av} &= D_A - 130 & D_{av} &= D_A - 110 & D_{av} &= D_A - 105
\end{align*}
\]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
KTR-STOP® XS-xx A-xx-xx
Passive fixed caliper brakes

Hydraulic brake system

Ordering example:
KTR-STOP® XS-xx A-xx-xx

<table>
<thead>
<tr>
<th>KTR-STOP®</th>
<th>XS</th>
<th>6</th>
<th>A</th>
<th>30</th>
<th>65</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Clamping force</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
<td>Thickness of stand</td>
</tr>
</tbody>
</table>

Total weight | Approx. 20 kg

Width of brake pad | 70 mm

Surface of each brake pad
- organic: 8,000 mm²
- powder metal: 5,800 mm²

Max. wear of each brake pad | 5 mm

Nominal coefficient of friction (2) | µ = 0.4

Total brake piston surface - complete brake | 22 cm²

Volume with 1 mm stroke - complete brake | 2.2 cm³

Max. operating pressure | 200 bar

Min. diameter of brake disk ØDA | 300 mm

Operating temperature | -20 ºC to +50 ºC

1) Dimensions depending on thickness of brake disk.

2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

For continuously updated data please refer to our online catalogue at www.ktr.com
For continuously updated data please refer to our online catalogue at www.ktr.com

Calculation of brake disk

\[ D_{\text{max}} = D_A - 195 \]

\[ D_{\text{av}} = D_A - 86 \]

Connection dimensions of brake

\[ F_b = F_c \times 2 \times \mu \]

\[ M_b = z \times F_b \times \frac{D_{\text{av}}}{2} \]

\[ F_b = \text{Braking force [kN]} \]

\[ F_c = \text{Clamping force [kN]} \]

\[ M_b = \text{Braking torque [kNm]} \]

\[ z = \text{Number of brakes} \]

\[ D_{\text{av}} = \text{Effective diameter of brake [m]} \]

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

---

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force (F_c) [kN]</th>
<th>Loss of power (%)</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk (\varnothing) [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® XS-2</td>
<td>2</td>
<td>11.0</td>
<td>30</td>
<td>180, 370, 570</td>
</tr>
<tr>
<td>KTR-STOP® XS-3</td>
<td>3</td>
<td>5.5</td>
<td>40</td>
<td>270, 560, 850</td>
</tr>
<tr>
<td>KTR-STOP® XS-4</td>
<td>4</td>
<td>3.0</td>
<td>50</td>
<td>360, 750, 1140</td>
</tr>
<tr>
<td>KTR-STOP® XS-5</td>
<td>5</td>
<td>8.5</td>
<td>70</td>
<td>450, 940, 1420</td>
</tr>
<tr>
<td>KTR-STOP® XS-6</td>
<td>6</td>
<td>6.5</td>
<td>80</td>
<td>540, 1130, 1710</td>
</tr>
<tr>
<td>KTR-STOP® XS-7</td>
<td>7</td>
<td>4.5</td>
<td>90</td>
<td>640, 1320, 1990</td>
</tr>
<tr>
<td>KTR-STOP® XS-8</td>
<td>8</td>
<td>16.5</td>
<td>120</td>
<td>730, 1510, 2280</td>
</tr>
<tr>
<td>KTR-STOP® XS-9</td>
<td>9</td>
<td>12.0</td>
<td>130</td>
<td>820, 1700, 2570</td>
</tr>
<tr>
<td>KTR-STOP® XS-10</td>
<td>10</td>
<td>10.0</td>
<td>140</td>
<td>910, 1890, 2850</td>
</tr>
<tr>
<td>KTR-STOP® XS-11</td>
<td>11</td>
<td>8.5</td>
<td>150</td>
<td>1000, 2080, 3140</td>
</tr>
<tr>
<td>KTR-STOP® XS-12</td>
<td>12</td>
<td>11.0</td>
<td>160</td>
<td>1090, 2270, 3420</td>
</tr>
<tr>
<td>KTR-STOP® XS-13</td>
<td>13</td>
<td>9.5</td>
<td>170</td>
<td>1190, 2460, 3710</td>
</tr>
<tr>
<td>KTR-STOP® XS-14</td>
<td>14</td>
<td>8.5</td>
<td>180</td>
<td>1280, 2650, 3990</td>
</tr>
<tr>
<td>KTR-STOP® XS-15</td>
<td>15</td>
<td>8.0</td>
<td>190</td>
<td>1370, 2840, 4280</td>
</tr>
</tbody>
</table>

\(\text{DC}_{\text{max}} = D_A - 195\)

\(D_{\text{av}} = D_A - 86\)

\(F_c\) = Clamping force [kN]

\(M_b\) = Braking torque [kNm]

\(F_b\) = Braking force [kN]

\(z\) = Number of brakes

\(D_{\text{av}}\) = Effective diameter of brake [m]
KTR-STOP® S-xx B-xx-xx
Passive fixed caliper brakes

Hydraulic brake system

Ordering example:
KTR-STOP® S - 40 B - 30 - 50
KTR brake Size of brake Clamping force Variant Thickness of brake disk Thickness of stand

<table>
<thead>
<tr>
<th>KTR-STOP® S-xx B-xx-xx</th>
<th>Total weight 20 - 55 kN</th>
<th>Approx. 95 kg</th>
<th>Total brake piston surface - complete brake</th>
<th>138 cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total weight 60 - 80 kN</td>
<td>Approx. 100 kg</td>
<td>Volume with 1 mm stroke - complete brake</td>
<td>13.8 cm³</td>
<td></td>
</tr>
<tr>
<td>Width of brake pad</td>
<td>70 mm</td>
<td>Max. operating pressure</td>
<td>200 bar</td>
<td></td>
</tr>
<tr>
<td>Surface of each brake pad</td>
<td>organic</td>
<td>28.700 mm²</td>
<td>Pressure port</td>
<td>G 1/4</td>
</tr>
<tr>
<td></td>
<td>powder metal</td>
<td>26.800 mm²</td>
<td>Oil bleed</td>
<td>G 1/8</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>6 mm</td>
<td>Min. diameter of brake disk ØDA</td>
<td>500 mm</td>
<td></td>
</tr>
<tr>
<td>Nominal coefficient of friction</td>
<td>µ = 0.4</td>
<td>Operating temperature</td>
<td>-20 °C to +50 °C</td>
<td></td>
</tr>
</tbody>
</table>

1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

For continuously updated data please refer to our online catalogue at www.ktr.com
For continuously updated data please refer to our online catalogue at www.ktr.com

### Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force $F_c$ [kN]</th>
<th>Loss of power $%$</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk $\varnothing$ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® S-20</td>
<td>20</td>
<td>4.0</td>
<td>40</td>
<td>2900</td>
</tr>
<tr>
<td>KTR-STOP® S-25</td>
<td>25</td>
<td>5.0</td>
<td>50</td>
<td>3700</td>
</tr>
<tr>
<td>KTR-STOP® S-30</td>
<td>30</td>
<td>6.0</td>
<td>60</td>
<td>4400</td>
</tr>
<tr>
<td>KTR-STOP® S-35</td>
<td>35</td>
<td>8.0</td>
<td>80</td>
<td>5100</td>
</tr>
<tr>
<td>KTR-STOP® S-40</td>
<td>40</td>
<td>6.0</td>
<td>90</td>
<td>5900</td>
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<tr>
<td>KTR-STOP® S-45</td>
<td>45</td>
<td>6.0</td>
<td>100</td>
<td>6600</td>
</tr>
<tr>
<td>KTR-STOP® S-50</td>
<td>50</td>
<td>8.0</td>
<td>120</td>
<td>7400</td>
</tr>
<tr>
<td>KTR-STOP® S-55</td>
<td>55</td>
<td>8.0</td>
<td>110</td>
<td>8100</td>
</tr>
<tr>
<td>KTR-STOP® S-60</td>
<td>60</td>
<td>7.0</td>
<td>130</td>
<td>8800</td>
</tr>
<tr>
<td>KTR-STOP® S-65</td>
<td>65</td>
<td>6.0</td>
<td>140</td>
<td>9600</td>
</tr>
<tr>
<td>KTR-STOP® S-70</td>
<td>70</td>
<td>5.0</td>
<td>150</td>
<td>10500</td>
</tr>
<tr>
<td>KTR-STOP® S-75</td>
<td>75</td>
<td>4.5</td>
<td>160</td>
<td>11100</td>
</tr>
<tr>
<td>KTR-STOP® S-80</td>
<td>80</td>
<td>5.0</td>
<td>170</td>
<td>11800</td>
</tr>
</tbody>
</table>

*With a stroke of 1 mm (1 mm wear of brake pad)*

### Calculation of brake disk

<table>
<thead>
<tr>
<th>up to $\varnothing D_A = 1500$ mm</th>
<th>from $\varnothing D_A = 1500$ mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{C \text{ max.}} = D_A - 300$</td>
<td>$D_{C \text{ max.}} = D_A - 295$</td>
</tr>
<tr>
<td>$D_{av} = D_A - 125$</td>
<td>$D_{av} = D_A - 120$</td>
</tr>
</tbody>
</table>

### Connection dimensions of brake

- $F_b = F_c \cdot 2 \cdot \mu$
- $F_b = \text{Braking force [kN]}$
- $F_c = \text{Clamping force [kN]}$
- $M_b = Z \cdot F_b \cdot \frac{D_{av}}{2}$
- $M_b = \text{Braking torque [kNm]}$
- $z = \text{Number of brakes}$
- $D_{av} = \text{Effective diameter of brake [m]}$

### Optional
- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

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Hydraulic brake system

KTR-STOP® M-xxx B-xx-xx
Passive fixed caliper brakes

For continuously updated data please refer to our online catalogue at www.ktr.com

Ordering example:

<table>
<thead>
<tr>
<th>KTR-STOP® M-xxx B-xx-xx</th>
<th>M</th>
<th>100</th>
<th>B</th>
<th>40</th>
<th>66</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Clamping force</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
<td>Thickness of stand</td>
</tr>
</tbody>
</table>

1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
### Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force $F_c$ [kN]</th>
<th>Loss of power $%$</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk Ø [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® M-60</td>
<td>60</td>
<td>6.1</td>
<td>60</td>
<td>14400, 31200, 43200</td>
</tr>
<tr>
<td>KTR-STOP® M-70</td>
<td>70</td>
<td>4.8</td>
<td>70</td>
<td>16800, 36400, 50400</td>
</tr>
<tr>
<td>KTR-STOP® M-80</td>
<td>80</td>
<td>4.0</td>
<td>80</td>
<td>19200, 41600, 57600</td>
</tr>
<tr>
<td>KTR-STOP® M-90</td>
<td>90</td>
<td>8.2</td>
<td>100</td>
<td>21600, 46800, 64800</td>
</tr>
<tr>
<td>KTR-STOP® M-100</td>
<td>100</td>
<td>7.0</td>
<td>110</td>
<td>24000, 52000, 72000</td>
</tr>
<tr>
<td>KTR-STOP® M-110</td>
<td>110</td>
<td>6.5</td>
<td>120</td>
<td>26400, 57200, 79200</td>
</tr>
<tr>
<td>KTR-STOP® M-120</td>
<td>120</td>
<td>8.6</td>
<td>130</td>
<td>28800, 62400, 86400</td>
</tr>
<tr>
<td>KTR-STOP® M-130</td>
<td>130</td>
<td>5.0</td>
<td>140</td>
<td>31200, 67600, 93600</td>
</tr>
<tr>
<td>KTR-STOP® M-140</td>
<td>140</td>
<td>4.5</td>
<td>150</td>
<td>33600, 72800, 100800</td>
</tr>
<tr>
<td>KTR-STOP® M-150</td>
<td>150</td>
<td>7.5</td>
<td>165</td>
<td>36500, 78000, 108000</td>
</tr>
<tr>
<td>KTR-STOP® M-160</td>
<td>160</td>
<td>7.0</td>
<td>180</td>
<td>38400, 83200, 115200</td>
</tr>
<tr>
<td>KTR-STOP® M-170</td>
<td>170</td>
<td>6.5</td>
<td>190</td>
<td>40800, 88400, 122400</td>
</tr>
<tr>
<td>KTR-STOP® M-180</td>
<td>180</td>
<td>6.0</td>
<td>190</td>
<td>43200, 93600, 129600</td>
</tr>
</tbody>
</table>

$^a$ With a stroke of 1 mm (1 mm wear of brake pad)

### Calculation of brake disk

- $D_{C_{max}} = D_A - 420$
- $D_{av} = D_A - 200$

### Connection dimensions of brake

- $F_b = F_c \cdot 2 \cdot \mu$
- $F_b = \text{Braking force [kN]}$
- $F_c = \text{Clamping force [kN]}$
- $M_b = \text{Braking torque [kNm]}$
- $z = \text{Number of brakes}$
- $D_{av} = \text{Effective diameter of brake [m]}$

### Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
KTR-STOP® L light-xxx A-xx-xx
Passive fixed caliper brakes

Hydraulic brake system

Total weight: Approx. 312 kg
Max. operating pressure: 200 bar
Width of brake pad: 324 mm
Surface of each brake pad: 65,600 mm²
Max. wear of each brake pad: 10 mm
Nominal coefficient of friction 2): µ = 0.4
Max. diameter of brake disk ØDₜ: 1000 mm
Operating temperature: -20 °C to +50 °C
Min. thickness of brake disk ¹): 40 mm

<table>
<thead>
<tr>
<th>KTR-STOP® L light-xxx A-xx-xx</th>
<th>KTR brake</th>
<th>Size of brake</th>
<th>Clamping force</th>
<th>Variant</th>
<th>Thickness of brake disk</th>
<th>Thickness of stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width of brake pad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface of each brake pad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal coefficient of friction 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total brake piston surface - complete brake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume with 1 mm stroke - complete brake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹) Dimensions depending on thickness of brake disk.
²) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

For continuously updated data please refer to our online catalogue at www.ktr.com
Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force Fc [kN]</th>
<th>Loss of power Loss of power 4) [%]</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk Ø [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® L light-100</td>
<td>100</td>
<td>3.6</td>
<td>90</td>
<td>30600 70600 110600</td>
</tr>
<tr>
<td>KTR-STOP® L light-120</td>
<td>120</td>
<td>3.2</td>
<td>105</td>
<td>36900 84900 132900</td>
</tr>
<tr>
<td>KTR-STOP® L light-140</td>
<td>140</td>
<td>8.2</td>
<td>130</td>
<td>43100 95100 155100</td>
</tr>
<tr>
<td>KTR-STOP® L light-160</td>
<td>160</td>
<td>7.8</td>
<td>170</td>
<td>49200 113200 177200</td>
</tr>
<tr>
<td>KTR-STOP® L light-180</td>
<td>180</td>
<td>7.8</td>
<td>175</td>
<td>55400 127400 198400</td>
</tr>
<tr>
<td>KTR-STOP® L light-200</td>
<td>200</td>
<td>7.1</td>
<td>185</td>
<td>61600 141600 221600</td>
</tr>
<tr>
<td>KTR-STOP® L light-220</td>
<td>220</td>
<td>6.2</td>
<td>200</td>
<td>67700 155700 243700</td>
</tr>
</tbody>
</table>

4) With a stroke of 1 mm (1 mm wear of brake pad)

Calculation of brake disk

- $D_{C\text{ max.}} = D_A - 510$
- $D_{av} = D_A - 220$

Connection dimensions of brake

- $F_b = F_c \cdot 2 \cdot \mu$
- $M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
KTR-STOP® L-xxx A-xx-xx
Passive fixed caliper brakes

Hydraulic brake system

KTR-STOP® L-xxx A-xx-xx

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total weight</td>
<td>Approx. 455 kg</td>
</tr>
<tr>
<td>Width of brake pad</td>
<td>240 mm</td>
</tr>
<tr>
<td>Surface of each brake pad (organic)</td>
<td>73,100 mm²</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>6 mm</td>
</tr>
<tr>
<td>Nominal coefficient of friction 2)</td>
<td>μ = 0.4</td>
</tr>
<tr>
<td>Total brake piston surface - complete brake</td>
<td>452 cm²</td>
</tr>
<tr>
<td>Oil bleed</td>
<td>G 1/4</td>
</tr>
<tr>
<td>Pressure port</td>
<td>G 3/8</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>200 bar</td>
</tr>
<tr>
<td>Min. diameter of brake disk ØDA</td>
<td>1000 mm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20 °C to +50 °C</td>
</tr>
</tbody>
</table>

1) Dimensions depending on thickness of brake disk.

2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

<table>
<thead>
<tr>
<th>KTR-STOP®</th>
<th>L - 200</th>
<th>A - 50 - 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Clamping force</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
### Brake types

<table>
<thead>
<tr>
<th>Brake type</th>
<th>Clamping force $F_c$ [kN]</th>
<th>Loss of power 3) [%]</th>
<th>Opening pressure [bar]</th>
<th>Braking torque [Nm] with brake disk Ø [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR-STOP® L 200</td>
<td>200</td>
<td>4.5</td>
<td>120</td>
<td>61000 20000 221000</td>
</tr>
<tr>
<td>KTR-STOP® L 250</td>
<td>250</td>
<td>7.5</td>
<td>160</td>
<td>77000 177000 277000</td>
</tr>
<tr>
<td>KTR-STOP® L 300</td>
<td>300</td>
<td>8.0</td>
<td>180</td>
<td>92000 212000 332000</td>
</tr>
</tbody>
</table>

3) With a stroke of 1 mm (1 mm wear of brake pad)

### Calculation of brake disk

\[
D_{C_{\text{max}}} = D_A - 570 \\
D_{av} = D_A - 230
\]

### Connection dimensions of brake

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

\[
F_b = F_c \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- $F_b$ = Braking force [kN]
- $F_c$ = Clamping force [kN]
- $M_b$ = Braking torque [kNm]
- $z$ = Number of brakes
- $D_{av}$ = Effective diameter of brake [m]
KTR-STOP® TB S
Disk brake

Electrohydraulic brake system

Ordering example:

<table>
<thead>
<tr>
<th>KTR-STOP® TB</th>
<th>S1</th>
<th>Ed 500/60</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size</td>
<td>Thruster</td>
<td>Type</td>
</tr>
</tbody>
</table>

The illustration shows the brake as a right-hand version R; the left-hand version is structurally reversed.

For continuously updated data please refer to our online catalogue at www.ktr.com
### Product features
- Disk brakes available as a right-hand and left-hand version
- Disk brakes in accordance with the industry standard
- The fully enclosed spiral element improves protection against damage and dirt
- Adjustable braking torque

### Applications
- Cranes/hoists
- Conveyors
- Steel mills
- Materials handling

### Size S1

<table>
<thead>
<tr>
<th>Thruster</th>
<th>Dimensions [mm]</th>
<th>Amax</th>
<th>A1max</th>
<th>A2max</th>
<th>A3</th>
<th>Bmax</th>
<th>B3</th>
<th>B4</th>
<th>B5max</th>
<th>Cmax</th>
<th>C3</th>
<th>D3</th>
<th>H</th>
<th>I1</th>
<th>I2</th>
<th>K2</th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed 230/50</td>
<td>470</td>
<td>275</td>
<td>325</td>
<td>255</td>
<td>20</td>
<td>300</td>
<td>690</td>
<td>255</td>
<td>18</td>
<td>230</td>
<td>80</td>
<td>180</td>
<td>120</td>
<td>300</td>
<td>100</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed 300/50</td>
<td>470</td>
<td>275</td>
<td>140</td>
<td>325</td>
<td>255</td>
<td>20</td>
<td>300</td>
<td>690</td>
<td>255</td>
<td>18</td>
<td>230</td>
<td>80</td>
<td>180</td>
<td>120</td>
<td>300</td>
<td>100</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed 500/60</td>
<td>500</td>
<td>305</td>
<td>345</td>
<td>275</td>
<td>255</td>
<td>140</td>
<td>325</td>
<td>255</td>
<td>18</td>
<td>230</td>
<td>80</td>
<td>180</td>
<td>120</td>
<td>300</td>
<td>100</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Thruster Dimensions [mm]
- **Amax**: 470
- **A1max**: 325
- **A2max**: 255
- **A3**: 20
- **Bmax**: 300
- **B3**: 690
- **B4**: 255
- **B5max**: 18
- **Cmax**: 230
- **C3**: 80
- **D3**: 180
- **H**: 120
- **I1**: 300
- **I2**: 100
- **K2**: 15

#### Thruster Brake disk
- **D2**: 470
- **B1**: 275
- **D1**: 325
- **D4max**: 255
- **E**: 20
- **K1**: 300
- **B2**: 690

#### Thruster Brake pad
- **A**: 255
- **B**: 18
- **C**: 80
- **D**: 180
- **E**: 120
- **I**: 300
- **K**: 15

#### Thruster Weight
- **M**: 18

### Size S2

<table>
<thead>
<tr>
<th>Thruster</th>
<th>Dimensions [mm]</th>
<th>Amax</th>
<th>A1max</th>
<th>A2max</th>
<th>A3</th>
<th>Bmax</th>
<th>B3</th>
<th>B4</th>
<th>B5max</th>
<th>Cmax</th>
<th>C3</th>
<th>D3</th>
<th>H</th>
<th>I1</th>
<th>I2</th>
<th>K2</th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed 500/60</td>
<td>615</td>
<td>255</td>
<td>360</td>
<td>175</td>
<td>385</td>
<td>300</td>
<td>20</td>
<td>390</td>
<td>890</td>
<td>340</td>
<td>22</td>
<td>280</td>
<td>130</td>
<td>140</td>
<td>300</td>
<td>150</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed 800/60</td>
<td>615</td>
<td>255</td>
<td>360</td>
<td>175</td>
<td>385</td>
<td>300</td>
<td>20</td>
<td>390</td>
<td>890</td>
<td>340</td>
<td>22</td>
<td>280</td>
<td>130</td>
<td>140</td>
<td>300</td>
<td>150</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed 1250/60</td>
<td>615</td>
<td>255</td>
<td>360</td>
<td>175</td>
<td>385</td>
<td>300</td>
<td>20</td>
<td>390</td>
<td>890</td>
<td>340</td>
<td>22</td>
<td>280</td>
<td>130</td>
<td>140</td>
<td>300</td>
<td>150</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed 2000/60</td>
<td>615</td>
<td>255</td>
<td>360</td>
<td>175</td>
<td>385</td>
<td>300</td>
<td>20</td>
<td>390</td>
<td>890</td>
<td>340</td>
<td>22</td>
<td>280</td>
<td>130</td>
<td>140</td>
<td>300</td>
<td>150</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Thruster Dimensions [mm]
- **Amax**: 615
- **A1max**: 360
- **A2max**: 175
- **A3**: 385
- **Bmax**: 300
- **B3**: 20
- **B4**: 390
- **B5max**: 890
- **Cmax**: 340
- **C3**: 22
- **D3**: 280
- **H**: 130
- **I1**: 140
- **I2**: 300
- **K2**: 15

#### Thruster Brake disk
- **D2**: 615
- **B1**: 255
- **D1**: 360
- **D4max**: 175
- **E**: 385
- **K1**: 300
- **B2**: 890

#### Thruster Brake pad
- **A**: 255
- **B**: 175
- **C**: 385
- **D**: 300
- **E**: 20
- **I**: 385
- **K**: 18

#### Thruster Weight
- **M**: 18

### Size S3

<table>
<thead>
<tr>
<th>Thruster</th>
<th>Dimensions [mm]</th>
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<th>A2max</th>
<th>A3</th>
<th>Bmax</th>
<th>B3</th>
<th>B4</th>
<th>B5max</th>
<th>Cmax</th>
<th>C3</th>
<th>D3</th>
<th>H</th>
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<th>K2</th>
<th>M</th>
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#### Thruster Dimensions [mm]
- **Amax**: 620
- **A1max**: 335
- **A2max**: 240
- **A3**: 470
- **Bmax**: 370
- **B3**: 30
- **B4**: 470
- **B5max**: 1110
- **Cmax**: 495
- **C3**: 27
- **D3**: 370
- **H**: 180
- **I1**: 180
- **I2**: 140
- **K2**: 22

#### Thruster Brake disk
- **D2**: 620
- **B1**: 285
- **D1**: 335
- **D4max**: 240
- **E**: 470
- **K1**: 370
- **B2**: 1110

#### Thruster Brake pad
- **A**: 285
- **B**: 335
- **C**: 470
- **D**: 370
- **I**: 470
- **K**: 22

#### Thruster Weight
- **M**: 22
KTR-STOP® TB T
Drum brake

Electrohydraulic brake system

Ordering example:

<table>
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<th>KTR-STOP® TB</th>
<th>T315</th>
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</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size</td>
<td>Thruster</td>
</tr>
</tbody>
</table>
**Product features**
- Type of drum brakes acc. to DIN 15435
- The fully enclosed spiral element improves protection against damage and dirt
- Adjustable braking torque

**Optional**
- Automatic wear adjustment
- Manual thruster
- Limit switch brake state and wear of pad
- Decelerated damping
- Alternative pad materials
- Bearing positions with potential relubrication
- Special painting
- Other options available: please consult with KTR.

**Applications**
- Cranes/hoists
- Conveyors
- Steel mills
- Materials handling

---

### Drum brake

<table>
<thead>
<tr>
<th>DT [mm]</th>
<th>Thruster acc. to DIN 15430</th>
<th>Braking torque 1) [Nm for µ = 0.4]</th>
<th>Dimensions [mm]</th>
<th>m [kg]</th>
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</table>

1) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
2) Without thruster

For technical data of KTR-STOP® TB thruster see page 48/49.
Electrohydraulic thrusters

Description of product:

Electrohydraulic thrusters are compact systems closed on the outside that mainly consist of an electric motor and a hydraulic section. When switched on the electric motor in the lower section of the housing is driving the pump wheel of the hydraulic pump on top. The hydrodynamic pressure generated takes effect on a piston extending the piston rod to the end-of-stroke position. When switching off the current or in the event of power failure the pump stops pumping, the oil pressure drops quickly and the piston rod returns into its original position.

To make sure that the piston returns particularly fast, it is possible to either install a return spring (similar to a brake spring) in the housing of the thruster or load the piston rod with an external force or install a quick lowering switch.

The hydraulic section with the tank is located in a closed housing. The oil level can be inspected and filled up externally through the oil filler hole. Electrohydraulic thrusters are supplied ready for assembly and painted and are provided with oil filling. They have to be fastened via pins in the bores of the base fork and in the piston rod head.

The piston stroke is either defined by a limitation within the device's housing or by an external attachment on the assembly.
Features of thrusters

- Thrusters depending on size from 230 N to 4500 N
- Piston strokes from 50 mm to 120 mm with serial devices, longer strokes up to 155 mm in a special version
- Solid design, therefore specifically suitable for highly stressed and harsh operating conditions
- Any motor rotation direction, since the vane type pump pumps in any rotating direction
- Normally all thrusters can be loaded up to 2000 switches per hour
- For continuous switching 100 % ED (mode of operation S1 - VDE 0530)
- Resistant to voltage fluctuations
- All devices are provided with a bipolar rotary current cage motor, protection class IP66 and insulation class F according to VDE 0530, limit temperature of motor 150 °C
- Piston stroke and lowering time adjustable by installation of a globe respectively lowering valve
- Standard design for rotary current 400V, 50 Hz respectively for 500V, 50 Hz. All other rotary current voltages and frequencies are available. Motor terminal boxes are equipped with waterproof cable gland IPON M25x1.5
- Additional return springs respectively brake springs can be installed in all devices
- Suitable with standard oil filling for ambient temperatures from -25 °C to +50 °C; with special oils and heating for temperatures down to -40 °C
- Up to ambient temperatures of 50 °C all thrusters are approved for 100 % ED (mode of operation S1 - VDE 0530)
- All devices suitable for standard brake control (e.g. reducing the stroke motor speed to approx. 20 % of the rated speed).
  In this case additional damping springs are required
- Every device can be mounted vertically, diagonally or horizontally and is almost maintenance-free
- If requested, all thrusters can be supplied with limit switches mounted

Extra equipment:

- Limit switch (mechanical or inductive)
- Lowering and globe valve - for infinitely variable extension of lifting and lowering times
- Quick switch - in case if standard lowering time of the piston is too long
- Brake spring (spring type c) for generating the braking force
- Damping spring (spring type d) for damping the aperiodic stabilising of the brake (only effective in combination with a spring type c)
- Heating for use with temperatures mainly below -25 °C
# KTR-STOP® TB THRUSTER according to DIN 15430

## Electrohydraulic Thrusters

![Diagram of KTR-STOP® TB Thruster](#)

### Technical Data

<table>
<thead>
<tr>
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### Ordering Example:

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For continuously updated data please refer to our online catalogue at www.ktr.com

Ordering example:

KTR-STOP® TB

KTR thruster

Ed 3000/120

Size

Technical data

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1) Tolerance: ±0.1
2) Tolerance: ±0.15/+0.25

KTR-STOP® TB thruster

Dimensions [mm]

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<th>h₁</th>
<th>h₂</th>
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</table>
KTR-STOP® YAW S
Yaw brakes

Hydraulic brake system

Calculation of braking force/braking torque

\[
F_b = F_c \cdot 2 \cdot \mu
\]

\[
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- \(F_b\) = Braking force [kN]
- \(F_c\) = Clamping force [kN]
- \(M_b\) = Braking torque [kNm]
- \(z\) = Number of brakes
- \(D_{av}\) = Effective diameter of brake [m]
For continuously updated data please refer to our online catalogue at www.ktr.com

Internal assembly of brake

External assembly of brake

Calculation of brake disk

\[
D_{i \text{ min.}} = \sqrt{D_{av}^2 - 140 \cdot D_{av} + 44900} \\
D_{av} = \sqrt{D_i^2 - 40000 + 70} \\
D_{A \text{ min.}} = D_i + 170
\]

Connection dimensions of brake

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
KTR-STOP® YAW M
Yaw brakes

Hydraulic brake system

For continuously updated data please refer to our online catalogue at www.ktr.com

Ordering example:

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<td>Size of brake</td>
<td>Variant</td>
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</table>

Calculation of braking force/braking torque

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- \(F_b\) = Braking force [kN]
- \(F_c\) = Clamping force [kN]
- \(M_b\) = Braking torque [kNm]
- \(z\) = Number of brakes
- \(D_{av}\) = Effective diameter of brake [m]

Dimensions and weight depending on thickness of brake disk.
The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
Other thickness of disk on request.
Internal assembly of brake

\[ D_{\text{min}} = \sqrt{D_{\text{av}}^2 - 36000 + 100} \]

\[ D_{\text{av}} = \sqrt{D_{\text{av}}^2 - 200 \cdot D_{\text{av}} + 46000} \]

\[ D_{A, \text{min}} = D_i + 250 \]

\[ D_{A, \text{max}} = D_i + 250 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
KTR-STOP® YAW L

Yaw brakes

Hydraulic brake system

For continuously updated data please refer to our online catalogue at www.ktr.com

Ordering example:

KTR-STOP® YAW L B                      -                    40
KTR brake Size of brake Variant Thickness of brake disk

Calculation of braking force/braking torque

\[
F_b = F_c \cdot 2 \cdot \mu
\]

\[
M_b = z \cdot F_b \cdot D_{av} \cdot \frac{2}{2}
\]

- \( F_b \) = Braking force [kN]
- \( F_c \) = Clamping force [kN]
- \( M_b \) = Braking torque [kNm]
- \( z \) = Number of brakes
- \( D_{av} \) = Effective diameter of brake [m]

| Total weight | Approx. 176 kg (1) | Max. clamping force | 542 kN |
| Width of brake pad | 138 mm | Max. operating pressure (up to \( \mu = 0.4 \)) | 160 bar |
| Surface of each brake pad | 58,000 mm² | Thickness of brake disk (2) | 40 mm - 60 mm |
| Max. wear of each brake pad | 7 mm (material: organic) | External assembly of brake | |
| Nominal coefficient of friction (2) | \( \mu = 0.4 \) | Min. diameter of brake disk \( \Omega D_A \) | 2000 mm |
| Total brake piston surface - complete brake | 678 cm² | Internal assembly of brake | |
| Volume with 1 mm stroke - complete brake | 67.8 cm³ | Min. diameter of brake disk \( \Omega D_I \) | 2500 mm |
| Pressure port | G 1/4 | Operating temperature | -20 °C to +50 °C |

1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
3) Other thickness of disk on request.
Internal assembly of brake

External assembly of brake

Calculation of brake disk

\[ D_{i \text{ min.}} = \sqrt{D_{av}^2 - 270 \cdot D_{av} + 200000} \]

\[ D_{av} = D_i^2 - 18000 + 135 \]

\[ D_{A \text{ min.}} = D_i + 320 \]

\[ D_{av} = D_A \cdot 136 \]

\[ D_{i \text{ max.}} = D_A \cdot 320 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
KTR-STOP® M-D
Active fixed caliper brakes

Hydraulic brake system

<table>
<thead>
<tr>
<th>KTR-STOP® M-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total weight</td>
</tr>
<tr>
<td>Width of brake pad</td>
</tr>
<tr>
<td>Surface of each brake pad</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
</tr>
<tr>
<td>Nominal coefficient of friction (µ)</td>
</tr>
<tr>
<td>Oil bleed</td>
</tr>
<tr>
<td>Total brake piston surface - complete brake</td>
</tr>
<tr>
<td>Volume with 1 mm stroke - complete brake</td>
</tr>
</tbody>
</table>

¹) Dimensions and weight depending on thickness of brake disk.
²) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>56500</td>
<td>113000</td>
<td>153900</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

Calculation of braking force/braking torque

\[
F_B = F_C \cdot 2 \cdot \mu \\
M_B = z \cdot F_B \cdot \frac{D_{av}}{2}
\]

<table>
<thead>
<tr>
<th>KTR-STOP® M-D</th>
<th>B</th>
<th>-</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
Calculation of brake disk

\[ D_{C_{\text{max}}} = D_A - 235 \]
\[ D_{av} = D_A - 104 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
**KTR-STOP® XS-A-F**

**Active floating caliper brakes**

### Hydraulic brake system

For continuously updated data please refer to our online catalogue at www.ktr.com

**Ordering example:**

KTR-STOP® XS-A-F

<table>
<thead>
<tr>
<th>KTR-STOP®</th>
<th>XS</th>
<th>-</th>
<th>A</th>
<th>-</th>
<th>F</th>
<th>B</th>
<th>-</th>
<th>Thickness of brake disk</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Floater</td>
<td>Variant</td>
<td>-</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>315</th>
<th>560</th>
<th>800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>1510</td>
<td>3120</td>
<td>4710</td>
</tr>
</tbody>
</table>

Calculation of braking force/braking torque

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = \frac{z \cdot F_b \cdot D_{av}}{2} \\
F_b = \text{Braking force [kN]} \\
F_c = \text{Clamping force [kN]} \\
M_b = \text{Braking torque [kNm]} \\
z = \text{Number of brakes} \\
D_{av} = \text{Effective diameter of brake [m]}
\]
Calculation of brake disk

\[ D_{C\max} = D_A - 195 \]
\[ D_{av} = D_A - 86 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
**KTR-STOP® S-A-F**  
Active floating caliper brakes

### Hydraulic brake system

<table>
<thead>
<tr>
<th><strong>KTR-STOP® S-A-F</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total weight</strong></td>
</tr>
<tr>
<td><strong>Width of brake pad</strong></td>
</tr>
<tr>
<td><strong>Surface of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Max. wear of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Nominal coefficient of friction 2)</strong></td>
</tr>
<tr>
<td><strong>Total brake piston surface - complete brake</strong></td>
</tr>
<tr>
<td><strong>Volume with 1 mm stroke - complete brake</strong></td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
</tr>
</tbody>
</table>

1) Dimensions and weight depending on thickness of brake disk.  
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

<table>
<thead>
<tr>
<th><strong>KTR-STOP® S-A-F</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KTR brake</strong></td>
</tr>
</tbody>
</table>

---

### Calculation of braking force/braking torque

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- $F_b$ = Braking force [kN]  
- $F_c$ = Clamping force [kN]  
- $M_b$ = Braking torque [kNm]  
- $z$ = Number of brakes  
- $D_{av}$ = Effective diameter of brake [m]
Calculation of brake disk

- up to $\varnothing D_A = 1000$ mm
- from $\varnothing D_A = 1000$ mm to $\varnothing D_A = 1800$ mm
- from $\varnothing D_A = 1800$ mm

<table>
<thead>
<tr>
<th>Calculation from $\varnothing D_A = 1000$ mm to $\varnothing D_A = 1800$ mm</th>
<th>Calculation from $\varnothing D_A = 1800$ mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{C\text{ max.}} = D_A - 305$</td>
<td>$D_{C\text{ max.}} = D_A - 285$</td>
</tr>
<tr>
<td>$D_{av} = D_A - 130$</td>
<td>$D_{av} = D_A - 120$</td>
</tr>
<tr>
<td>$D_{av} = D_A - 110$</td>
<td>$D_{av} = D_A - 110$</td>
</tr>
</tbody>
</table>

Connection dimensions of brake:

Optional:
- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
KTR-STOP® M-A-F
Active floating caliper brakes

Hydraulic brake system

For continuously updated data please refer to our online catalogue at www.ktr.com

Ordering example:

1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

<table>
<thead>
<tr>
<th>KTR-STOP® M-A-F</th>
<th>Total weight</th>
<th>Max. clamping force</th>
<th>Width of brake pad</th>
<th>Max. operating pressure</th>
<th>Surface of each brake pad</th>
<th>Thickness of brake pad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Approx. 235 kg</td>
<td>130 kN</td>
<td>200 mm</td>
<td>115 bar</td>
<td>57,900 mm²</td>
<td>30 mm - 50 mm</td>
</tr>
</tbody>
</table>

| Max. wear of each brake pad | 8 mm | Oil bleed | G 1/8 |
| Nominal coefficient of friction 2) | µ = 0.4 | Floating range on axes - towards mounting surface | 5 mm |
| Total brake piston surface - complete brake | 113 cm² | Floating range on axes - away from mounting surface | 10 mm |
| Volume with 1 mm stroke - complete brake | 11.3 cm³ | Min. diameter of brake disk ØDA | 800 mm |
| Operating temperature | -20 °C to +50 °C |

Calculation of braking force/braking torque

\[ F_b = F_c \cdot 2 \cdot \mu \]
\[ M_b = z \cdot F_b \cdot \frac{D_{av}}{2} \]

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

| Braking torque [Nm] | 31200 | 67600 | 93600 |

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>

Braking torque [Nm] with brake disk Ø [mm]

<table>
<thead>
<tr>
<th>Brake disk Ø [mm]</th>
<th>800</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking torque [Nm]</td>
<td>31200</td>
<td>67600</td>
<td>93600</td>
</tr>
</tbody>
</table>
Calculation of brake disk

\[ D_{C \text{ max.}} = D_A - 420 \]
\[ D_{\text{av}} = D_A - 200 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
**EMB-STOP S-A-xx-F Lever**

**Active floating caliper brakes**

### Electromechanical brake system

**Ordering example:**

- EMB-STOP S-A-xx-F Lever

<table>
<thead>
<tr>
<th>Total weight</th>
<th>90 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of brake disk</td>
<td>25 mm, 30 mm, 35 mm</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>4 mm</td>
</tr>
<tr>
<td>Coefficient of friction of pad, nominal value</td>
<td>µ = 0.4</td>
</tr>
<tr>
<td>Min. clamping force</td>
<td>30 kN</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>60 kN</td>
</tr>
<tr>
<td>Operation temperature range</td>
<td>-30 °C to +50 °C</td>
</tr>
<tr>
<td>Motor power</td>
<td>300 W</td>
</tr>
<tr>
<td>Motor voltage</td>
<td>230 VAC, 50 Hz</td>
</tr>
<tr>
<td>Voltage of electric signals</td>
<td>230 VAC/24 VDC</td>
</tr>
</tbody>
</table>

1) Tolerances depending on clearance for release.

2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

### Calculation of braking force/braking torque

- Fb = Fc \cdot 2 \cdot µ
- Mb = z \cdot Fb \cdot \frac{D_{av}}{-2}

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>S</th>
<th>A</th>
<th>50</th>
<th>F</th>
<th>L</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper (“Floater”)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
Calculation of brake disk

\[
\begin{align*}
\text{\(\varnothing D_A\)} = 500 \ldots 1000 \text{ mm} & & \begin{align*}
\text{\(D_{C_{\text{max}}} = D_A - 130\)} \\
\text{\(D_{C_{\text{max}}} = D_A - 110\)}
\end{align*} \\
\text{\(\varnothing D_A\)} = 1000 \ldots 1800 \text{ mm} & & \begin{align*}
\text{\(D_{C_{\text{max}}} = D_A - 105\)}
\end{align*} \\
\text{\(\varnothing D_A\)} = 1800 \ldots 3000 \text{ mm} & & \begin{align*}
\text{\(D_{C_{\text{max}}} = D_A - 105\)}
\end{align*}
\end{align*}
\]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
EMB-STOP M-A-xxx-F Lever
Active floating caliper brakes

Electromechanical brake system

For continuously updated data please refer to our online catalogue at www.ktr.com

**EMB-STOP M-A-xx-F Lever**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total weight</td>
<td>115 kg</td>
</tr>
<tr>
<td>Thickness of brake disk</td>
<td>25 mm, 30 mm, 35 mm</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>4 mm</td>
</tr>
<tr>
<td>Coefficient of friction of pad, nominal value 1)</td>
<td>µ = 0.4</td>
</tr>
<tr>
<td>Min. clamping force</td>
<td>80 kN</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>125 kN</td>
</tr>
<tr>
<td>Operation temperature range</td>
<td>-30 °C to +50 °C</td>
</tr>
<tr>
<td>Motor power</td>
<td>300 W</td>
</tr>
<tr>
<td>Motor voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Voltage of electric signals</td>
<td>230 VAC/24 VDC</td>
</tr>
</tbody>
</table>

1) Tolerances depending on clearance for release.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

**Calculation of braking force/braking torque**

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- \( F_b \) = Braking force [kN]
- \( F_c \) = Clamping force [kN]
- \( M_b \) = Braking torque [kNm]
- \( z \) = Number of brakes
- \( D_{av} \) = Effective diameter of brake [m]

**Ordering example:**

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>M</th>
<th>A</th>
<th>125</th>
<th>F</th>
<th>L</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper (&quot;Floater&quot;)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
Calculation of brake disk

\[ \varnothing D_A \geq 800 \text{ mm} \]

\[ D_{av} = D_A - 130 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
### Electromechanical brake system

**Calculation of braking force/braking torque**

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- \(F_b\) = Braking force [kN]
- \(F_c\) = Clamping force [kN]
- \(M_b\) = Braking torque [kNm]
- \(z\) = Number of brakes
- \(D_{av}\) = Effective diameter of brake [m]

### EMB-STOP L-A-xxx-F Lever

| Total weight | 280 kg |
| Thickness of brake disk | 25 - 40 mm |
| Max. wear of each brake pad | 5 mm |
| Coefficient of friction of pad, nominal value | \(\mu = 0.4\) |
| Min. clamping force | 125 kN |
| Max. clamping force | 380 kN |
| Operation temperature range | -30 °C to +60 °C |
| Motor power | 1100 W |
| Motor voltage | 400 VAC, 50 Hz |
| Voltage of electric signals | 230 VAC/24 VDC |

1) Tolerances depending on clearance for release.
2) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

**Ordering example:**

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>L -</th>
<th>A -</th>
<th>380 -</th>
<th>F -</th>
<th>L -</th>
<th>30 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper („Floaters“)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>
Calculation of brake disk

\( \varnothing D_A \leq 1800 \text{ mm} \)

\[ \varnothing D_{av} = D_A - 130 \]

\( \varnothing D_A > 1800 \text{ mm} \)

\[ \varnothing D_{av} = D_A - 120 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
EMB-STOP XS-A-xx-F
Active floating caliper brakes

Electromechanical brake system

EMB-STOP XS-A-xx-F

<table>
<thead>
<tr>
<th>Total weight</th>
<th>Approx. 25 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of brake disk</td>
<td>20 mm, 25 mm, 30 mm</td>
</tr>
<tr>
<td>Width of brake pad</td>
<td>70 mm</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>400 VAC, 50 Hz</td>
</tr>
<tr>
<td>Surface of each brake pad</td>
<td>Organic 8,000 mm², Powder metal 5,800 mm²</td>
</tr>
<tr>
<td>Size of industrial connector</td>
<td>Han10B / Han11EE (male)</td>
</tr>
<tr>
<td>Floating range on axes - towards mounting surface</td>
<td>5 mm</td>
</tr>
<tr>
<td>Floating range on axes - away from mounting surface</td>
<td>5 mm</td>
</tr>
<tr>
<td>Min. diameter of brake disk</td>
<td>ØDA 300 mm</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>12 kN</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20 °C to +50 °C</td>
</tr>
</tbody>
</table>

Calculation of braking force/braking torque

\[
F_B = F_C \cdot 2 \cdot \mu \\
M_B = z \cdot F_B \cdot \frac{D_{av}}{2}
\]

- \( F_B \) = Braking force [kN]
- \( F_C \) = Clamping force [kN]
- \( M_B \) = Braking torque [kNm]
- \( z \) = Number of brakes
- \( D_{av} \) = Effective diameter of brake [m]

Ordering example:

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>XS</th>
<th>A</th>
<th>12</th>
<th>F</th>
<th>B</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper (&quot;Floater&quot;)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
Calculation of brake disk

\[ D_{C_{\text{max}}} = D_A - 195 \]
\[ D_{av} = D_A - 86 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad
EMB-STOP S-A-xx-F
Active floating caliper brakes

**Electromechanical brake system**

**Ordering example:**

EMB-STOP S-A-xx-F

- Total weight: 90 kg
- Thickness of brake disk: 25 mm, 30 mm, 35 mm
- Max. wear of each brake pad: 4 mm
- Coefficient of friction of pad, nominal value: \( \mu = 0.4 \)
- Min. clamping force: 30 kN
- Max. clamping force: 60 kN
- Operation temperature range: -30 °C to +50 °C
- Motor power: 250 W
- Motor voltage: 400 VAC, 50 Hz
- Voltage of electric signals: 230 VAC/24 VDC

**Calculation of braking force/braking torque**

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- \( F_b \) = Braking force [kN]
- \( F_c \) = Clamping force [kN]
- \( M_b \) = Braking torque [kNm]
- \( z \) = Number of brakes
- \( D_{av} \) = Effective diameter of brake [m]

**EMB-STOP S-A-xx-F**

<table>
<thead>
<tr>
<th></th>
<th>S</th>
<th>-</th>
<th>A</th>
<th>50</th>
<th>-</th>
<th>F</th>
<th>A</th>
<th>-</th>
<th>30</th>
</tr>
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<tbody>
<tr>
<td>EMB brake</td>
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<tr>
<td>Size of brake</td>
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<tr>
<td>Clamping force</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Floating caliper (“Floater”)</td>
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<td>Variant</td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Dimensions and weight depending on thickness of brake disk.

---

For continuously updated data please refer to our online catalogue at www.ktr.com
Calculation of brake disk

<table>
<thead>
<tr>
<th>$\varnothing D_A = 500 \ldots 1000 \text{ mm}$</th>
<th>$\varnothing D_A = 1000 \ldots 1800 \text{ mm}$</th>
<th>$\varnothing D_A = 1800 \text{ mm}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{av} = D_A - 130$</td>
<td>$D_{av} = D_A - 110$</td>
<td>$D_{av} = D_A - 105$</td>
</tr>
</tbody>
</table>

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
**EMB-STOP L-A-xxx-F**

**Active floating caliper brakes**

**Electromechanical brake system**

For continuously updated data please refer to our online catalogue at www.ktr.com

---

**Ordering example:**

EMB-STOP L-A-xxx-F

**Total weight:** 235 kg

**Thickness of brake disk:** 25 mm, 30 mm, 35 mm, 40 mm, 45 mm, 50 mm

**Max. wear of each brake pad:** 8 mm

**Coefficient of friction of pad, nominal value:** $\mu = 0.4$

**Min. clamping force:** 125 kN

**Max. clamping force:** 375 kN

**Operation temperature range:** -30 °C to +50 °C

**Motor power:** 1500 W

**Motor voltage:** 400 VAC

**Voltage of electric signals:** 230 VAC/24 VDC

---

$\mu$ The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.

---

**Calculation of braking force/braking torque**

\[
F_b = F_c \cdot 2 \cdot \mu
\]

\[
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

\[
F_b = \text{Braking force [kN]}
\]

\[
F_c = \text{Clamping force [kN]}
\]

\[
M_b = \text{Braking torque [kNm]}
\]

\[
z = \text{Number of brakes}
\]

\[
D_{av} = \text{Effective diameter of brake [m]}
\]

---

**Ordering example:**

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>L</th>
<th>A</th>
<th>380</th>
<th>F</th>
<th>A</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper (&quot;Floater&quot;)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>
Calculation of brake disk

\( \varnothing D_A \leq 1800 \text{ mm} \)

\[ D_{av} = D_A - 130 \]

\( \varnothing D_A > 1800 \text{ mm} \)

\[ D_{av} = D_A - 120 \]

Connection dimensions of brake

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

For continuously updated data please refer to our online catalogue at www.ktr.com
EMB-STOP 2L-A-xxx-F Lever
Active floating caliper brakes

**Electromechanical brake system**

EMB-STOP 2L-A-xx-F Lever

<table>
<thead>
<tr>
<th>Total weight</th>
<th>600 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of brake disk</td>
<td>30 - 45 mm</td>
</tr>
<tr>
<td>Max. wear of each brake pad</td>
<td>3 mm</td>
</tr>
<tr>
<td>Coefficient of friction of pad, nominal value 1)</td>
<td>( \mu = 0.4 )</td>
</tr>
<tr>
<td>Min. clamping force</td>
<td>500 kN (=2×250 kN)</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>700 kN (=2×350 kN)</td>
</tr>
<tr>
<td>Operation temperature range</td>
<td>-30 °C to +50 °C</td>
</tr>
<tr>
<td>Motor power</td>
<td>3000 W</td>
</tr>
<tr>
<td>Motor voltage 2)</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Voltage of electric signals</td>
<td>230 VAC/24 VDC</td>
</tr>
</tbody>
</table>

1) The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
2) Other supply voltages on request

**Calculation of braking force/braking torque**

\[
F_b = F_c \cdot 2 \cdot \mu \\
M_b = z \cdot F_b \cdot \frac{D_{av}}{2}
\]

- \( F_b \) = Braking force [kN]
- \( F_c \) = Clamping force [kN]
- \( M_b \) = Braking torque [kNm]
- \( z \) = Number of brakes
- \( D_{av} \) = Effective diameter of brake [m]

**Ordering example:**

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>2L</th>
<th>A</th>
<th>700</th>
<th>F</th>
<th>L</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper (&quot;Floater&quot;)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
EMB-STOP 2XL-A-xxx-F Lever
Active floating caliper brakes

Electromechanical brake system

<table>
<thead>
<tr>
<th>EMB-STOP 2XL-A-xx-F Lever</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total weight</strong></td>
</tr>
<tr>
<td><strong>Thickness of brake disk</strong></td>
</tr>
<tr>
<td><strong>Max. wear of each brake pad</strong></td>
</tr>
<tr>
<td><strong>Clearance for release on each side (max.)</strong></td>
</tr>
<tr>
<td><strong>Coefficient of friction of pad, nominal value</strong></td>
</tr>
<tr>
<td><strong>Min. clamping force</strong></td>
</tr>
<tr>
<td><strong>Max. clamping force</strong></td>
</tr>
<tr>
<td><strong>Operation temperature range</strong></td>
</tr>
<tr>
<td><strong>Connected load</strong></td>
</tr>
<tr>
<td><strong>Motor voltage</strong></td>
</tr>
<tr>
<td><strong>Voltage of electric signals</strong></td>
</tr>
</tbody>
</table>

\( \text{\textsuperscript{1\textdegree}} \) Tolerances depending on clearance for release. Mounting proposal: other mounting options on request.

\[ F_b = F_c \cdot 2 \cdot \mu \]
\[ M_b = z \cdot F_b \cdot \frac{D_{av}}{2} \]

**Calculation of braking force/braking torque**

\( F_b = \text{Braking force [kN]} \)
\( F_c = \text{Clamping force [kN]} \)
\( M_b = \text{Braking torque [kNm]} \)
\( z = \text{Number of brakes} \)
\( D_{av} = \text{Effective diameter of brake [m]} \)

**Ordering example:**

<table>
<thead>
<tr>
<th>EMB-STOP</th>
<th>2XL</th>
<th>A</th>
<th>1600</th>
<th>F</th>
<th>L</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMB brake</td>
<td>Size of brake</td>
<td>Active</td>
<td>Clamping force</td>
<td>Floating caliper (&quot;Floater&quot;)</td>
<td>Variant</td>
<td>Thickness of brake disk</td>
</tr>
</tbody>
</table>

For continuously updated data please refer to our online catalogue at www.ktr.com
IntelliRamp®
Electronic control system

Description of product

IntelliRamp® is an electronic control system allowing for accurate braking processes via program control. In conjunction with IntelliRamp® our brakes are therefore suitable for the use in sophisticated applications:

- Ramp-supported braking process
  - Continuous deceleration operation
  - Continuous time operation
  - Continuous speed operation
- Overspeed monitoring
- Reverse lock
- Joystick control
- Online remote operation

Operation and structure

The IntelliRamp® system controls the clamping force of the brake and the resulting braking force infinitely. This allows to control both hydraulic and electromechanical brakes sensitively complying with the operating instructions. The heart of the system is the control computer with its touchscreen. It takes over all operations of calculation and monitoring that are necessary for controlling the brake systems. In addition IntelliRamp® controls and monitors the function of the power pack with a hydraulic brake system, too. For that purpose characteristic figures like oil level, oil temperature and hydraulic pressure are recorded by the system. The overall system, among other things, has an uninterruptible power supply to allow for performing a full braking cycle in case of power failure. This will allow you to keep the full control of your brake system even with critical conditions of the machine while preventing damages from your machine.

Operation

The control system is operated via touch screen with menu navigation. Other relays are not necessary which increases the availability and reliability of IntelliRamp® considerably. It goes without saying that many standard bus systems (e. g. Profibus, EtherCAT, etc.) are available as options for your communication as well.

Ramp-supported braking process

The ramp-supported braking process is activated by a signal safe from cable break. The process is performed via a closed control circuit covering speed versus time. Since a proportional control is not concerned here, the system is safe from power breakdown, i. e. it will work even if the power supply fails. The ramp is defined by a rated speed and a braking time considering this speed.

Since a speed which is almost zero cannot be measured accurately any longer, a braking process exists increasing the braking power to achieve the full figure from a certain speed within a period to be defined.

For the ramp a tolerance range is defined which a control is performed in. Falling below this range the brake unlocks, exceeding this range the brake locks fully. The tolerance range can be defined flexibly. The more precise the definition, the more accurate is the control, but at the same time the more nervous is the reaction.
In order to avoid impacts in the beginning of the braking process, the control automatically calculates the braking pressure that is theoretically necessary to reach the ramp required. This prevents too fierce braking.

IntelliRamp® allows to use three brake ramps which can each be programmed individually and which can be started irrespective of each other.

**Scheme of the ramp-supported braking process**

<table>
<thead>
<tr>
<th>Type of ramp</th>
<th>rpm</th>
<th>seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>500</td>
<td>5</td>
</tr>
<tr>
<td>400</td>
<td>700</td>
<td>7</td>
</tr>
<tr>
<td>600</td>
<td>900</td>
<td>9</td>
</tr>
<tr>
<td>800</td>
<td>1100</td>
<td>10</td>
</tr>
</tbody>
</table>

- **Continuous deceleration:**
  With a higher speed the braking cycle takes longer, with a low speed it takes shorter.

- **Continuous time operation**
  The same time is always adhered to. Thus, the brake is engaged more strongly if the speed is higher.

- **Continuous speed control:**
  An option to keep the device at a constant speed via the brake only.

**Function**

**Overspeed monitoring:**
Triggering the excessive speed reacts flexibly with defined excessive speed barriers. Two values can be defined by which either a message is given to the PLC, a brake ramp is triggered or an emergency stop is activated immediately without performing any control of this braking process. The excessive speed control can be switched on and off.

**Reverse lock:**
It allows for controlling the speed. In case of an unauthorised rotational motion of the system a braking process is activated or the starting of the machine is prevented. A definition of the number of starts preventing a reset if the number is exceeded is to prevent the device from reversing in case of a fracture of the drive.

**Joystick control:**
This is an option to use the brake, as an example, as a car brake. The more the joystick travels, the more the brake engages.

**Online remote operation:**
The online remote operation allows both to call the status of the control via a network and to interfere. There is the option to program the control from a distant place.
KTR-STOP® NBS
Hubs with brake disks

Description of product

KTR-STOP® NBS

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions [mm]</th>
<th>Cap screws DIN EN ISO 4762</th>
<th>Max. braking torque 1) [Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Finishing bore d</td>
<td>D_H</td>
<td>D_1</td>
</tr>
<tr>
<td>65</td>
<td>22</td>
<td>65</td>
<td>135</td>
</tr>
<tr>
<td>75</td>
<td>30</td>
<td>75</td>
<td>160</td>
</tr>
<tr>
<td>90</td>
<td>40</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>100</td>
<td>46</td>
<td>110</td>
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<td>110</td>
<td>60</td>
<td>125</td>
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<td>125</td>
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<td>160</td>
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<td>190</td>
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<tr>
<td>180</td>
<td>85</td>
<td>220</td>
<td>420</td>
</tr>
</tbody>
</table>

1) Referring to screw connection of brake disk; the shaft-hub-connection has to be inspected separately by the customer.
2) Dimensions with a width of brake disk b_1 of 40 mm.

Ordering example:

<table>
<thead>
<tr>
<th>KTR-STOP® NBS 110</th>
<th>800x30</th>
<th>Ø100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type/size</td>
<td>Brake disk ØAxb_1</td>
<td>Bore d</td>
</tr>
</tbody>
</table>
### Weights and mass moments of inertia

<table>
<thead>
<tr>
<th>Size</th>
<th>65</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
<th>125</th>
<th>140</th>
<th>160</th>
<th>180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brake disk Ø Ax b1</td>
<td>Weight [kg]</td>
<td>Mass moment of inertia [kgm²]</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>355x30</td>
<td>25.6</td>
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<tr>
<td>400x30</td>
<td>31.4</td>
<td>0.666</td>
<td>0.556</td>
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</tr>
<tr>
<td>450x30</td>
<td>38.7</td>
<td>0.896</td>
<td>0.758</td>
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<tr>
<td>500x30</td>
<td>48.7</td>
<td>0.896</td>
<td>0.758</td>
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<tr>
<td>550x30</td>
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<td>630x30</td>
<td>85.3</td>
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<td>710x30</td>
<td>107.5</td>
<td>1.506</td>
<td>1.311</td>
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</tr>
<tr>
<td>800x30</td>
<td>138.2</td>
<td>1.506</td>
<td>1.311</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>900x30</td>
<td>181.8</td>
<td>1.506</td>
<td>1.311</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>900x40</td>
<td>224.3</td>
<td>1.506</td>
<td>1.311</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000x40</td>
<td>267.6</td>
<td>1.506</td>
<td>1.311</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Mass moment of inertia/weight of hub with brake disk referring to maximum bore.
KTR-STOP® RL S
Rotor Lock

Hydraulic system

For continuously updated data please refer to our online catalogue at www.ktr.com

Ordering example:
KTR-STOP® RL S
KTR Rotor Lock
Rotor Lock size
Variant
Mounting length
Small taper diameter
154

KTR-STOP® RL S
Weight
Max. stroke
Max. shear force
Max. operating pressure
Max. force fore stroke
Max. force back stroke

3) Please note that the shear force refers to the Rotor Lock only.

ML = z \cdot \frac{F_L \cdot D_{eff.}}{2}

<table>
<thead>
<tr>
<th>KTR-STOP® RL S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Max. stroke</td>
</tr>
<tr>
<td>Max. shear force</td>
</tr>
<tr>
<td>Max. operating pressure</td>
</tr>
<tr>
<td>Max. force fore stroke</td>
</tr>
<tr>
<td>Max. force back stroke</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S</th>
<th>A</th>
<th>295</th>
<th>154</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR Rotor Lock</td>
<td>Rotor Lock size</td>
<td>Variant</td>
<td>Mounting length</td>
</tr>
</tbody>
</table>

| FL = Shear force [kN] |
| ML = Lock torque [kNm] |
| z = Number of Rotor Lock |
| D_{eff.} = Pitch circle diameter of locking disk [m] |

\[ M_L = z \cdot \frac{F_L \cdot D_{eff.}}{2} \]
Hydraulic version

Mechanical version

Connection dimensions of brake

Housing

Locking disk
**KTR-STOP® RL M**
**Rotor Lock**

---

### Hydraulic system

**KTR-STOP® RL M**

<table>
<thead>
<tr>
<th>KTR-STOP® RL</th>
<th>M</th>
<th>A</th>
<th>365</th>
<th>214</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTR Rotor Lock</td>
<td>Rotor Lock size</td>
<td>Variant</td>
<td>Mounting length</td>
<td>Small taper diameter</td>
</tr>
</tbody>
</table>

**For continuously updated data please refer to our online catalogue at www.ktr.com**

**Ordering example:**

<table>
<thead>
<tr>
<th>M</th>
<th>A</th>
<th>365</th>
<th>214</th>
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<tbody>
<tr>
<td>KTR Rotor Lock</td>
<td>Rotor Lock size</td>
<td>Variant</td>
<td>Mounting length</td>
</tr>
</tbody>
</table>

---

**ML** = \( z \cdot F_L \cdot \frac{D_{eff.}}{2} \)

- **FL** = Shear force [kN]
- **ML** = Lock torque [kNm]
- **z** = Number of Rotor Lock
- **Deff.** = Pitch circle diameter of locking disk [m]

---

**KTR-STOP® RL M**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Approx. 150 kg</th>
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<tbody>
<tr>
<td>Max. stroke</td>
<td>80 mm</td>
</tr>
<tr>
<td>Max. shear force</td>
<td>4000 kN</td>
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<tr>
<td>Max. operating pressure</td>
<td>250 bar</td>
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<tr>
<td>Max. force fore stroke</td>
<td>283 kN</td>
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<tr>
<td>Max. force back stroke</td>
<td>187 kN</td>
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</table>

---

1) Please note that the shear force refers to the Rotor Lock only.
Connection dimensions of brake

Housing

Mechanical version

Hydraulic version

Locking disk
**EMB-STOP RL S**

**Rotor Lock**

**Electromechanical system**

Max. stroke: 75 mm  
Motor power: 1100 W

Max. shear force: 2000 kN  
Motor voltage: 400 VAC, 50 Hz

Pressure force, axial F+: 160 kN  
Voltage of electric signals: 230 VAC/24 VDC

Tensile force, axial F-: 160 kN  
Speed with 50 Hz: 160 mm/min.

Total weight, approx.: 150 kg  
Size of industrial connector: Han10B / HAN18EE (male)

1) Please note that the shear force refers to the Rotor Lock only.
2) Weight with L = 355.

### Ordering example:

<table>
<thead>
<tr>
<th>EMB-STOP RL</th>
<th>S</th>
<th>-</th>
<th>E</th>
<th>-</th>
<th>355</th>
<th>-</th>
<th>CON</th>
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</thead>
<tbody>
<tr>
<td>EMB Rotor Lock</td>
<td>Rotor Lock size</td>
<td>Electric application</td>
<td>Mounting length (L)</td>
<td>Contact form (see table)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
\[ M_L = z \cdot \frac{F_L \cdot D_{eff.}}{2} \]

\[ F_L = \text{Shear force [kN]} \]
\[ M_L = \text{Lock torque [kNm]} \]
\[ z = \text{Number of Rotor Lock} \]
\[ D_{eff.} = \text{Pitch circle diameter of locking disk [m]} \]

**Connection dimensions of brake**

<table>
<thead>
<tr>
<th>Contact form</th>
<th>xxx</th>
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<tbody>
<tr>
<td>taper</td>
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<td>coradial</td>
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<tr>
<td>cylindrical</td>
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<td>trapezoid</td>
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</table>

![diagram]
EMB-STOP RL M
Rotor Lock

Electromechanical system

Ordering example:

<table>
<thead>
<tr>
<th>EMB-STOP RL</th>
<th>M</th>
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<th>CON</th>
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<tr>
<td>EMB Rotor Lock</td>
<td>Rotor Lock size</td>
<td>Electric application</td>
<td>Mounting length (L)</td>
<td>Contact form (see table)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Max. stroke: 75 mm, Motor power: 1100 W
Max. shear force: 4000 kN, Motor voltage: 400 VAC, 50 Hz
Pressure force, axial F+: 160 kN, Voltage of electric signals: 230 VAC/24 VDC
Tensile force, axial F-: 160 kN, Speed with 50 Hz: 160 mm/min.
Total weight, approx.: 190 kg, Size of industrial connector: Han10B / HAN18EE (male)

1) Please note that the shear force refers to the Rotor Lock only.
2) Weight with L = 355.

For continuously updated data please refer to our online catalogue at www.ktr.com
Contact form xxx

For continuously updated data please refer to our online catalogue at www.ktr.com
KTR-STOP® NC
Hydraulic clamping system

Safety clamping and braking system

Description of product:
The KTR-STOP® NC series is a passive clamping and braking system. It serves for generating a clamping/braking force respectively a clamping/braking torque on a cylindrical piston rod or shaft. This results in a deceleration of the rotary motion respectively keeping at standstill.

Applications:
- **Machine tool**
  - Ball screws/positioning axes
  - Rod guidances
- **Drive technology**
  - Feed cylinders
- **General engineering**
  - Hoists, hydraulic presses
  - Rod, piston, shaft clamping
  - Lifting tables/scissors lifts
  - Hydraulic lifts/hydraulic lifting device

General
- Safety catches
- Blocking systems
- Systems where additional safety devices are required

Product features:
- Passive clamping and braking system with fail-safe function
- System with hydraulic release
- Absorbing axial loads and torques
- Reduction of vibrations subject to increased stiffness in spindle drives
- Clamping bush replaceable
- To be used as an integrated solution or as a plug-in system
- To be used multifunctionally (machine tool, general engineering, ...)
- Clamping with an indefinite period of time due to the spring pressure memory
- Energy-saving due to weak locking in unpressurized condition \(\rightarrow\) spring pressure memory
- No generation of heat
- Operating principle of friction fit

<table>
<thead>
<tr>
<th>KTR-STOP® NC</th>
<th>32</th>
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<tbody>
<tr>
<td>Description</td>
<td>Size</td>
<td>Shaft diameter</td>
<td>Opening pressure</td>
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For continuously updated data please refer to our online catalogue at www.ktr.com
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<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>Weight [kg]</th>
<th>Oil connection</th>
<th>locking torque [Nm]</th>
<th>axial locking force [N]</th>
<th>opening pressure 50 bar [bar]</th>
<th>opening pressure 70 bar [bar]</th>
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<td>675</td>
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</tbody>
</table>

1) All catalogue figures refer to a clearance combination shaft k6; bush D8, for other specifications see page 78
2) Other bores on request
3) Referring to a coefficient of friction of µ =0.12

Apart from the standard programme customized solutions are available on request.
KTR-STOP® NC
Hydraulic clamping system

Specifications of piston rod/ball screw

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<tr>
<th></th>
<th>Steel, hard chromium plated</th>
<th>Steel, hardened</th>
</tr>
</thead>
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<td>Coating thickness</td>
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<tr>
<td>Hardness</td>
<td>-</td>
<td>Min. HRC 60</td>
</tr>
<tr>
<td>Surface finish</td>
<td>Ra &lt; 0.4 µm</td>
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<tr>
<td>Yield strength $R_y$</td>
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<tr>
<td>Diameter tolerance</td>
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Examples of application and assembly:

KTR-STOP® NC as a safety device for rods on hydraulic cylinders

KTR-STOP® NC as a plug-in solution

KTR-STOP® NC integrated in the drive train
KTR worldwide:

**Algeria**
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Fax: +81 7 85 74 03 10
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For all representatives and sales partners please refer to www.ktr.com.
Summary of literature

No matter if a perfect drive, a brake that takes effect, space-saving cooling or accurate hydraulics is required, if on land, by sea or at an airy height - KTR’s product portfolio is just as manifold as its applications. The following catalogues and leaflets provide an overview. Available at [www.ktr.com](http://www.ktr.com)

Product catalogues

- **Drive Technology**
  - Couplings
  - Taper Locking
  - Grommet Sets
  - Torque Nourcing Bolts
  - [www.ktr.com](http://www.ktr.com)

- **Hydraulic Components**
  - Servo cylinders
  - Gating Valves
  - [www.ktr.com](http://www.ktr.com)

- **Cooling systems**
  - For mobile machines and stationary hydraulics
  - Custom made solutions or standard design
  - [www.ktr.com](http://www.ktr.com)

ATEX leaflet

- **Explosion Protection**
  - The ATEX standard and the KTR programme for explosion proof applications
  - [www.ktr.com](http://www.ktr.com)

Company leaflet

- **Achieving Great Things Together**
  - A Company Introduction
  - [www.ktr.com](http://www.ktr.com)