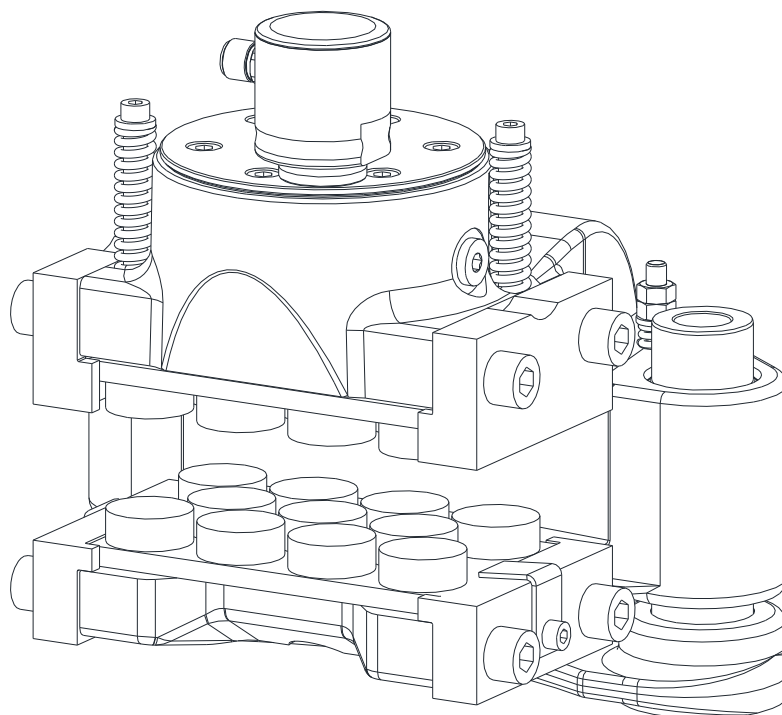




KTR-STOP® XS-A-F B-xx

XS-A-F B-xx is a brake actuated hydraulically in a floating caliper design serving to generate a brake force on a brake disk in order to decelerate a machine's movement or stop it, respectively, or keep it at standstill.

 KTR-Group	KTR-STOP® XS-A-F B-xx Operating/Assembly instructions	KTR-N 445118 EN Sheet: 2 of 23 Edition: 2
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The KTR brake system was designed to operate as a service brake/emergency stop brake on rotating brake disks. For any other applications please consult with KTR.

Table of contents

1	Technical data	3
2	Advice	5
2.1	General advice	5
2.2	Safety and advice symbols	5
2.3	General hazard warnings	5
2.4	Intended use	5
3	Storage, transport and packaging	6
3.1	Storage	6
3.2	Transport and packaging	6
4	Assembly	7
4.1	Components of the brake	7
4.2	Preparation of assembly	9
4.3	Brake pads	10
4.4	Assembly of the brake	10
4.5	Setting/resetting of the centering system	12
4.6	Pressure port of a brake	13
4.7	Pressure port of several brakes	14
4.8	Start-up of the brake	15
4.9	Recommendation of liquids to be used	16
4.10	Disassembly of the brake	17
4.11	Spares inventory, customer service addresses	17
4.12	Disposal	17
5	Maintenance	18
5.1	Replacement of brake pads	18
5.2	Maintenance of the brake / replacement of single parts	19
5.3	Maintenance and service	21
6	Accessories - Sensor	22
6.1	Technical data „Pre-/end wear sensor“	22
6.2	Assembly / start-up	23

Please observe protection note ISO 16016.	Drawn: 2022-01-10 Ka/Wie	Replacing: KTR-N dated 2020-12-03
	Verified: 2022-01-25 Ka	Replaced by:

1 Technical data

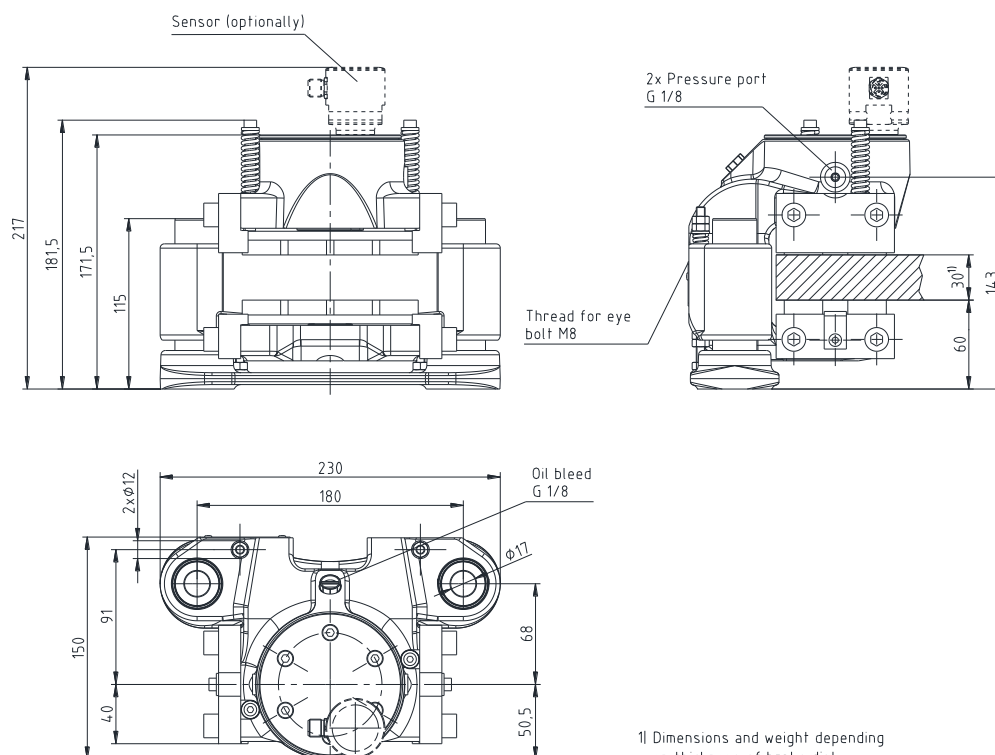


Illustration 1:
KTR-STOP® XS-A-F B-xx
(dimensional drawing)

Table 1: Technical data

			XS-A-F B-xx
Weight		[kg]	Approx. 18 ¹⁾
Width of brake pad		[mm]	70
Surface of each brake pad	organic	[mm ²]	8,000
	sinter metal	[mm ²]	5,800
Max. wear of each brake pad		[mm]	5
Rated coefficient of friction ²⁾		[μ =]	0.4
Total brake piston surface - complete brake		[cm ²]	15.9
Volume for each brake caliper with 1 mm stroke		[cm ³]	1.59
Max. clamping force		[kN]	16.5
Max. operating pressure		[bar]	105
Thickness of brake disk		[mm]	20 - 30
Pressure port			G 1/8
Oil bleed			G 1/8
Floating range on axles	towards mounting surface	[mm]	5
	off the mounting surface	[mm]	5
Min. diameter of brake disk ØD _A		[mm]	300
Operating temperature		[°C]	- 20 up to + 50

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

Table 2: Braking torque [Nm] with brake disk Ø [mm]

Brake disk Ø [mm]	315	560	800
Braking torque [Nm]	1510	3120	4710

$$F_b = F_c \cdot 2 \cdot \mu$$

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

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

Please observe protection note ISO 16016.	Drawn:	2022-01-10 Ka/Wie	Replacing:	KTR-N dated 2020-12-03
	Verified:	2022-01-25 Ka	Replaced by:	

Calculation of brake disk:

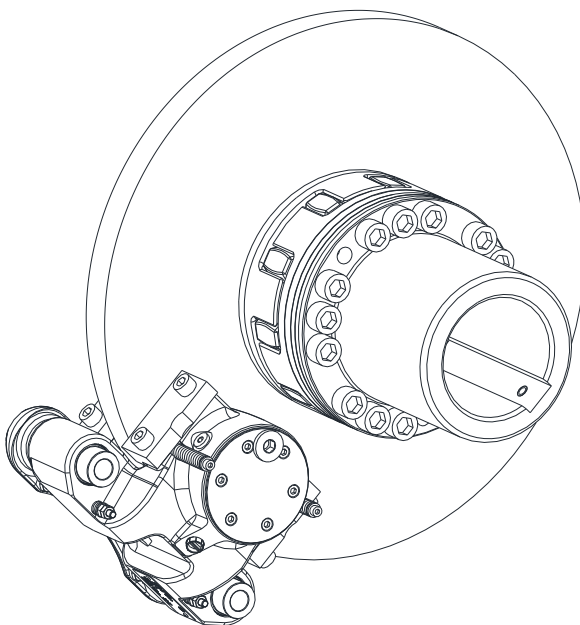


Illustration 2: Assembly of brake

Table 3: Calculation of brake disk

$D_{C \max.} = D_A - 195$
$D_{av} = D_A - 86$

Connection dimensions of brake

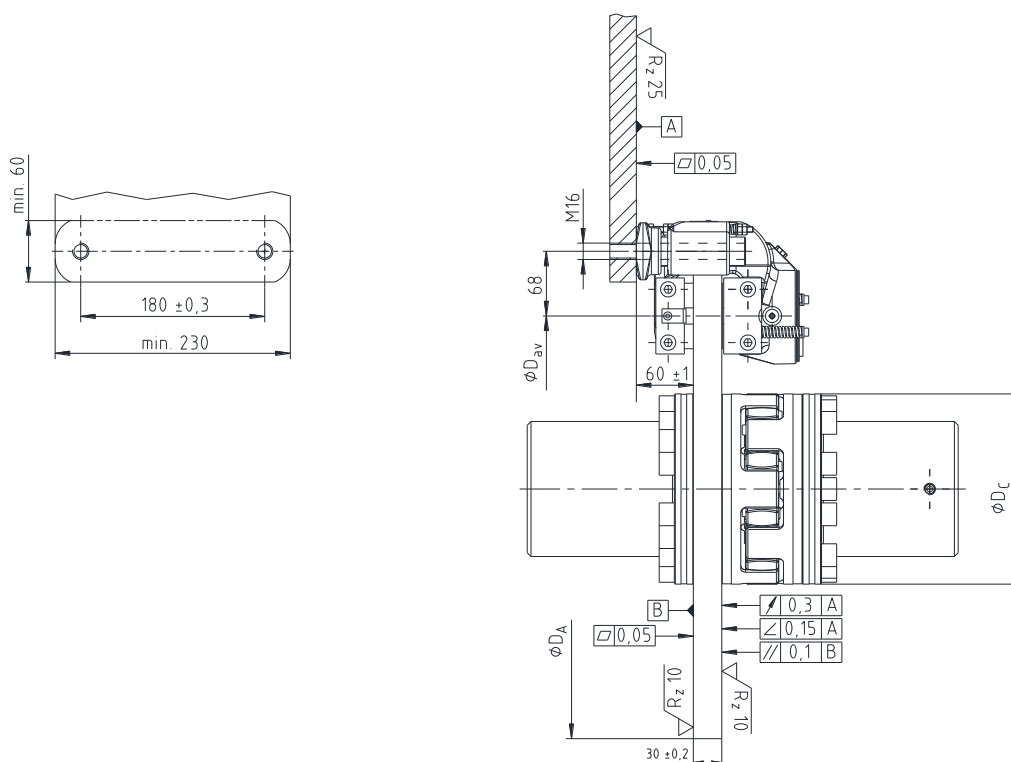


Illustration 3: KTR-STOP® XS-A-F B-xx (connection dimensions)

 KTR-Group	KTR-STOP® XS-A-F B-xx Operating/Assembly instructions	KTR-N 445118 EN Sheet: 5 of 23 Edition: 2
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2 Advice

2.1 General advice

Please read carefully through these operating/assembly instructions before you start up the brake.
Please pay special attention to the safety instructions!
The operating/assembly instructions are part of your product. Please store them carefully.
The copyright for these operating/assembly instructions remains with KTR.

2.2 Safety and advice symbols



Warning of personal injury

This symbol indicates notes which may contribute to preventing bodily injuries or serious bodily injuries that may result in death.



Warning of product damages

This symbol indicates notes which may contribute to preventing material or machine damage.



General advice

This symbol indicates notes which may contribute to preventing adverse results or conditions.

2.3 General hazard warnings



With assembly, operation and maintenance of the brake it has to be made sure that the entire drive train is secured against accidental switch-on. You may be seriously hurt by rotating parts. Please make absolutely sure to read through and observe the following safety indications.

- All operations on and with the brake have to be performed taking into account "safety first".
- Make sure to switch off the power pack before you perform your work on the brake.
- Secure the power pack against accidental switch-on, e. g. by providing warning signs at the place of switch-on or removing the fuse for current supply.
- Do not reach into the operating area of the brake as long as it is in operation.
- Secure the brake against accidental contact. Please provide for the necessary protection devices.
- Make sure that the overall brake/hydraulic system is depressurized during maintenance operations.

2.4 Intended use

You may only assemble, operate and maintain the brake if you

- have carefully read through the operating/assembly instructions and understood them
- had technical training
- are authorized by your company

The brake may only be used in accordance with the technical data (see chapter 1). Unauthorized modifications on the brake design are not admissible. We will not assume liability for any damage that may arise. In the interest of further development we reserve the right for technical modifications.

The **brake type XS-A-F B-xx** described in here corresponds to the technical status at the time of printing of these operating/assembly instructions.

Please observe protection note ISO 16016.	Drawn: 2022-01-10 Ka/Wie	Replacing: KTR-N dated 2020-12-03
	Verified: 2022-01-25 Ka	Replaced by:

 KTR-Group	KTR-STOP® XS-A-F B-xx Operating/Assembly instructions	KTR-N 445118 EN Sheet: 6 of 23 Edition: 2
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3 Storage, transport and packaging

3.1 Storage

The brake is delivered in preserved condition and can be stored in a closed, dry place during 12 months. With favourable storage conditions its properties remain unchanged for up to 12 months. If the brake is stored over a longer period exceeding 12 months as well as after each transport the corrosion protection needs to be renewed and the brake has to be activated over the full braking distance in order to prevent the gaskets from sticking together.



**The storage rooms must not include any ozone-generating devices like e. g. fluorescent light sources, mercury-vapour lamps or electrical high-voltage appliances.
Humid storage rooms are not suitable.
Please make sure that condensation is not generated. The best relative air humidity is less than 65 %.**

3.2 Transport and packaging



In order to avoid any injuries and any kind of damage please always make use of proper transport and lifting equipment.

The brake is packed differently each depending on number and kind of transport. Unless otherwise contractually agreed, packaging will follow the in-house packaging specifications of KTR.

Please observe protection note ISO 16016.	Drawn: 2022-01-10 Ka/Wie Verified: 2022-01-25 Ka	Replacing: KTR-N dated 2020-12-03 Replaced by:
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**4 Assembly**

The brake is supplied in pre-assembled condition. Before assembly the brake has to be inspected for completeness.

4.1 Components of the brake**Components/subassemblies of brake – Type XS-A-F B-xx**

Component/ subassembly	Quantity	Description
1	1	Housing with components
2	1 ¹⁾	Distance plate
3	1	Base plate with guide pin
4	2	Centering system
5	2	Pad retraction set
6	2	Spring clamp
7	2	Cap screws DIN EN ISO 4762 – 10.9
8	2	Brake pad
9	1 ²⁾	Sensor

1) Number depends on thickness of brake disk.

2) Optionally

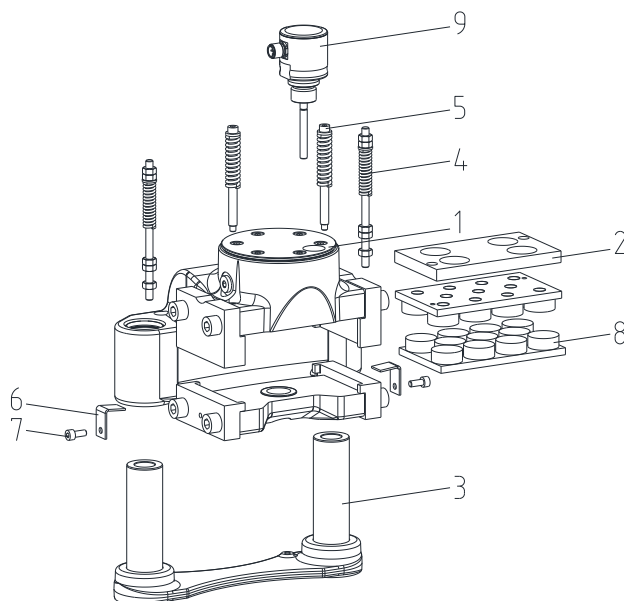


Illustration 4: KTR-STOP® XS-A-F

Component 2: Number of the spacer plate

Thickness of brake disk	Quantity Distance plate (pos. 2)
20	1
30	-

**4 Assembly****4.1 Components of the brake****Subassembly 1: Housing with components**

Component	Quantity	Description
1.1	1	Brake caliper (incl. piston cover)
1.2	4	DU bushing
1.3	2	Pad retainer
1.4	2	Pad retainer
1.5	8	Cap screw DIN EN ISO 4762 – 10.9
1.6	2	Screw plug VSTI (acc. to DIN 908)
1.7	1	Screw plug
1.8	1	Screw plug
1.9	1	Screw plug
1.10	1	Brake piston
1.11	1	Scraper
1.12	1	Gasket

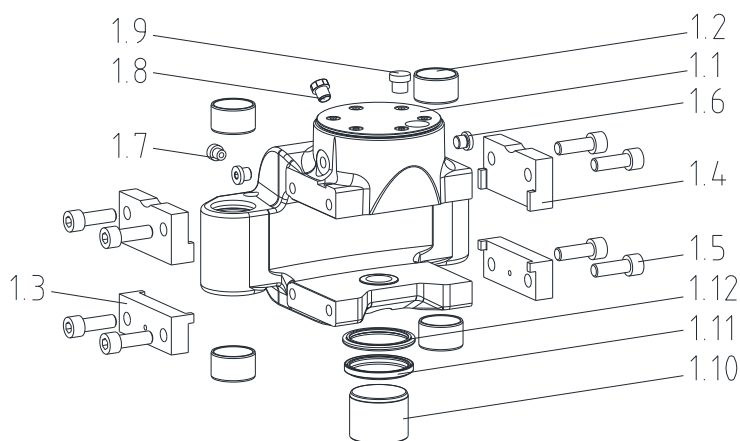


Illustration 5: Housing with single parts

Subassembly 3: Base plate with guide pin

Component	Quantity	Description
3.1	1	Base plate
3.2	2	Guide pin

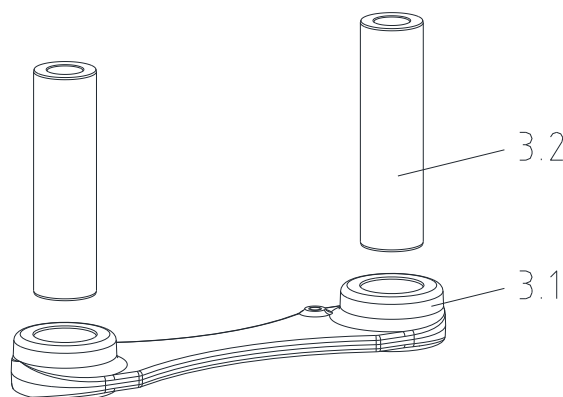


Illustration 6: Base plate with guide pin

**4 Assembly****4.1 Components of the brake****Subassembly 4: Centering system**

Component	Quantity	Description
4.1	1	Pin
4.2	1	Pressure spring
4.3	5	Hexagon nut DIN EN ISO 4032
4.4	1	Washer

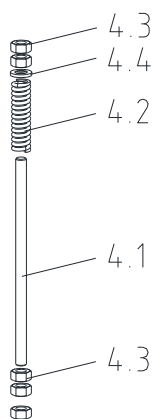


Illustration 7: Centering system

Subassembly 5: Pad retraction set for housing

Component	Quantity	Description
5.1	1	Cap screw DIN EN ISO 4762
5.2	1	Pressure spring
5.3	1	Washer
5.4	1	Bush

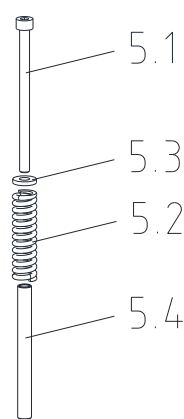


Illustration 8: Pad retraction set for housing

4.2 Preparation of assembly

To ensure the full braking power, the preparation for assembly needs to be carefully performed.

- The connection plate for the brake as well as the brake disk have to be inspected for dimensional accuracy. For that purpose investigate the connection dimensions, connection surfaces and tolerances as specified in the drawing (see illustrations 1 to 3 and table 3).
- Clean and degrease the brake disk and mounting surfaces. Dirt can easily be removed by means of solvents.



The connection between connection plate and brake is defined as frictionally engaged. Any residues of oil, dirt and corrosion protection reduce the coefficient of friction. As a result the operation of the brake and the full braking power are no longer ensured.



Please observe the manufacturer's instructions regarding the use of solvents.

 KTR-Group	KTR-STOP® XS-A-F B-xx Operating/Assembly instructions	KTR-N 445118 EN Sheet: 10 of 23 Edition: 2
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4 Assembly

4.3 Brake pads



KTR supplies brake pads free from asbestos and lead only.
If requested, we will provide you with the corresponding certificates.

The brake pads are each adapted to the application and delivered accordingly.
They can be distinguished as follows:

- organic material
- sinter metal



Brake pads are highly sensitive to grease and oil which means that they cannot be cleaned.
Brake pads having such kind of dirt need to be replaced and disposed of.



We would recommend to store the brake pads in their package as long as possible to protect them from any kind of dirt.



Brake pads which have worn off to the wear limit have to be replaced immediately. Make sure to replace by original parts only.

4.4 Assembly of the brake



In order to avoid any injuries please always make use of proper lifting equipment.



The brake is mainly selected for mounting on vertically aligned brake disks (see illustration 3). With horizontally aligned brake disks (see illustration 1) the brake may only be aligned upright.

A thread M8 is located on the back of the brake to fasten an eye bolt serving to use lifting tools. The eye bolt is to be dismantled after assembly of the brake and stored in a safe place.



In order to avoid any damages on the brake, never twist a rope or any other lifting tool around damageable components such as sensors, centering systems, etc.



Before you start with the assembly please check if a sensor has been mounted.
Please remove it before assembly in order to avoid any damages.

- Insert the brake pads (component 8) fully into the brake caliper.
- Applying for the moveable side only:
Push back the brake pad and brake piston manually.



Please make sure that at least one screw plug (component 1.6) is removed when moving back the brake piston. Afterwards re-assemble the screw plug.



If you want to use brake pads after having assembled the brake, it is necessary to disassemble the pad retainer (component 1.3 and 1.4) for that purpose (chapter 5.1).

- Mount the pad retraction set for housings (component 5) by shifting the pressure spring (component 5.2) with the disk (component 5.3) onto the sleeve (component 5.4). Screw the hexagon screw (component 5.1) with the pressure spring, the disk and the sleeve into the brake pad against a stop.

Please observe protection note ISO 16016.	Drawn: 2022-01-10 Ka/Wie Verified: 2022-01-25 Ka	Replacing: KTR-N dated 2020-12-03 Replaced by:
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**4 Assembly****4.4 Assembly of the brake**

Secure the screw connection (component 5.1) on the brake pad additionally against working loose, e. g. conglomerating with Loctite (average strength).

- Mount the spring clamps (component 6).
- Insert the brake in the correct position to the connection plate. Hand-tighten the brake via the screws first.



To facilitate the assembly it is possible to fix the position of the brake by one screw only first. Swing in the brake until the balance of the screws can be assembled, too (see illustration 9).

- Screw the brake to the connection plate by means of 2 screws and tighten them evenly gradually at the tightening torque specified (see table 4).

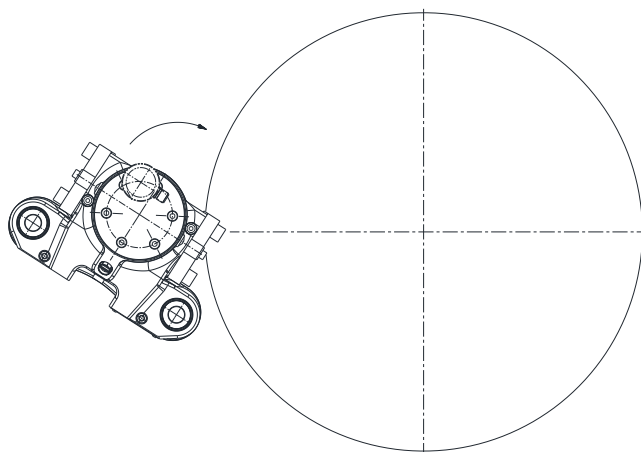


Illustration 9

Table 4: Tightening torques

Screw size	Tightening torque T_A [Nm]			
	10.9		12.9	
	Untreated and oiled	Greased with MoS ₂	Untreated and oiled	Greased with MoS ₂
M16	290	215	340	250

- Align the brake in centre to the brake disk.
- Make sure that the brake disk can rotate freely while not touching the brake pads or the housing.



In order to avoid any contact between the brake disk and the brake resulting from thermal expansion, the distance of the brake as per table 3 needs to be observed.



Make sure that the tolerances of the brake disk do not exceed the figures specified in illustration 3.

- **Applying with the use of a sensor only:**
Mount the sensor (component 9) according to chapter 6.2.

**4 Assembly****4.5 Setting/resetting of the centering system**

The centering system needs to be reset with initial assembly or after having replaced brake pads or single parts, respectively. Only in this way it is ensured that the gap between the brake disk and the brake pad on the side of the counter plate is set to the right value and the pad does not touch on any side.



The centering system has to be reset regularly with wear of the brake pads. For that purpose repeat the complete chapter *Setting/resetting of the centering system*.

- Measure the gap between the brake disk and the brake pad on the bottom side via a feeler gauge.
- Set the gap to 0.5 mm or the figure x requested (see illustration 10), respectively, by screwing the hexagon nut marked with 1 in illustration 11 either upwards or downwards.
- Counter the hexagon nut with the hexagon nut marked with 2 in illustration 11.
- Secure the pin (component 4.1) via the hexagon nut (component 4.3).
- Screw the bolt (component 4.1) into the base plate (component 3.1). The screw depth in the base plate must be 10 mm.

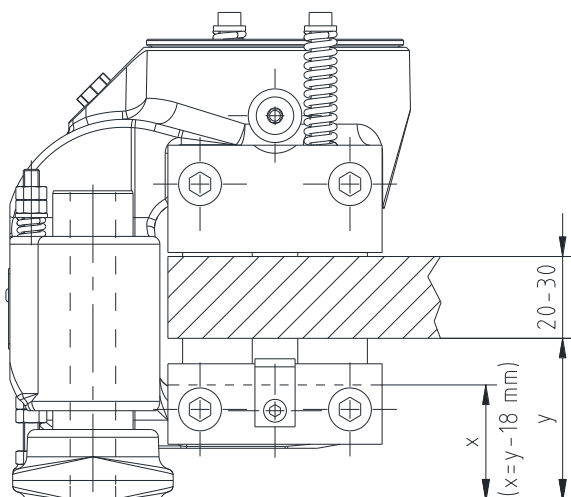


Illustration 10: Setting of gap

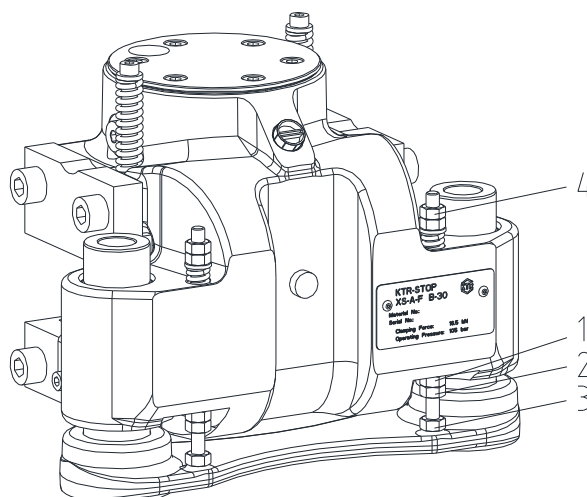


Illustration 11: Setting of centering system

**4 Assembly****4.6 Pressure port of a brake**

- Connect the pressure oil line to one of the pressure ports of the brake (see illustration 12 and 13). For that purpose remove the screw plug beforehand.



The hydraulic lines have to be flushed before connecting to the brake to prevent any particles from penetrating the brake. If the lines are not flushed sufficiently, the gaskets may be damaged and the operation of the brake is no longer ensured.

- Mount a miniature measuring coupling with a miniature measuring hose to the venting hole (see illustration 12 and 13), for that purpose the screw plug needs to be removed beforehand. Discharge the end of the miniature measuring hose in a suitable collection container.



The pressure connection on top serves for venting the brake. For a wash-up system please make use of the pressure port on top.



It is not recommended to use steel plugs for venting.

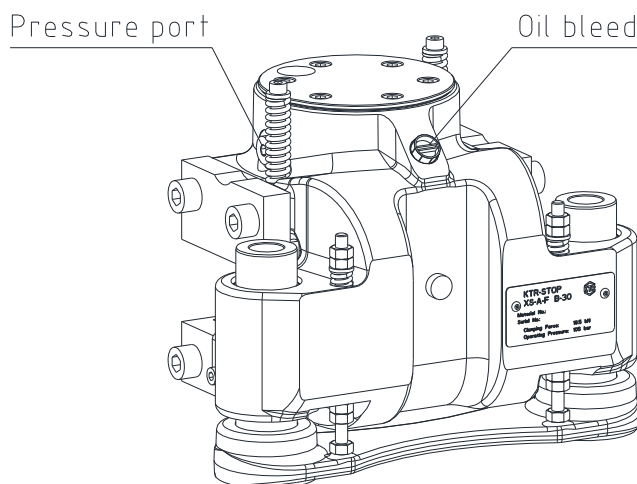


Illustration 12: Connections of the leakage oil lines/pressure lines

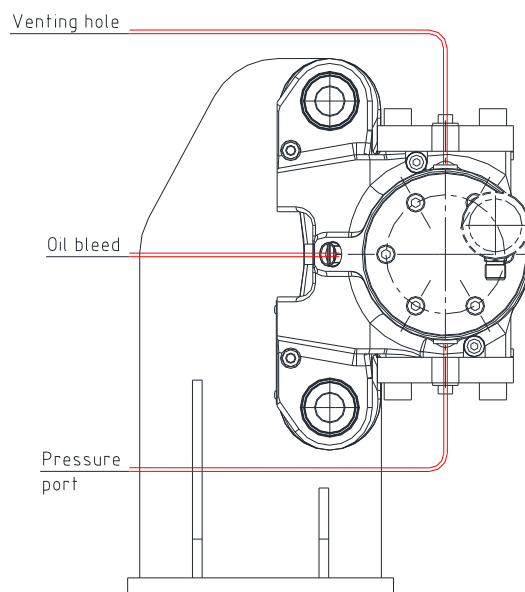


Illustration 13: Pressure connection of a brake

- Connect the drain line to the brake (see illustration 12 and 13). For that purpose remove the drain plug beforehand.



In order to locate a leakage immediately, it is recommended to use a transparent hose and collection container. Since higher pressures (5 bars at the maximum) are not generated, a pneumatic hose may be used, too. Inspect the brake for leakages regularly.



Severe leakages have to be removed immediately. Oil which has escaped has to be completely removed, since oil remains may vaporize on hot components and ignite.



Please make sure that the connections and hoses are adapted to the brakes with regard to pressure, flow rate, temperature and liquid. Moreover, you have to use flexible hydraulic hoses in order to not limit the motions of the brake. Any hoses which are located close to mobile components should be secured or coated accordingly.



4 Assembly

4.7 Pressure port of several brakes



If several brakes are assembled we recommend to connect the pressure connection for each brake individually (in parallel) (see illustration 14).

Please note, if several brakes are connected in a series (see illustration 15), the braking effect of all following brakes may become effective slightly delayed.

- Connect the pressure oil line to one of the pressure ports of the brake (see illustration 13, 14 and 15). For that purpose remove the screw plug beforehand.



The hydraulic lines have to be flushed before connecting to the brake to prevent any particles from penetrating the brake. If the lines are not flushed sufficiently, the gaskets may be damaged and the operation of the brake is no longer ensured.

- Mount a miniature measuring coupling with a miniature measuring hose to the venting hole (see illustration 13, 14 and 15), for that purpose the screw plug needs to be removed beforehand. Discharge the end of the miniature measuring hose in a suitable collection container.



The pressure connection on top serves for venting the brake. For a wash-up system please make use of the pressure port on top.



With the parallel connection of brakes (see illustration 14) each brake needs to be vented individually.



It is not recommended to use steel plugs for venting.

- Connect the drain line to the brake (see illustration 12, 14 and 15). For that purpose remove the screw plug beforehand.



In order to locate a leakage immediately, it is recommended to use a transparent hose and collection container. Since higher pressures (5 bars at the maximum) are not generated, a pneumatic hose may be used, too. Inspect the brake for leakages regularly.



Severe leakages have to be removed immediately. Oil which has escaped has to be completely removed, since oil remains may vaporize on hot components and ignite.



Please make sure that the connections and hoses are adapted to the brakes with regard to pressure, flow rate, temperature and liquid.

Moreover, you have to use flexible hydraulic hoses in order to not limit the motions of the brake. Any hoses which are located close to mobile components should be secured or coated accordingly.

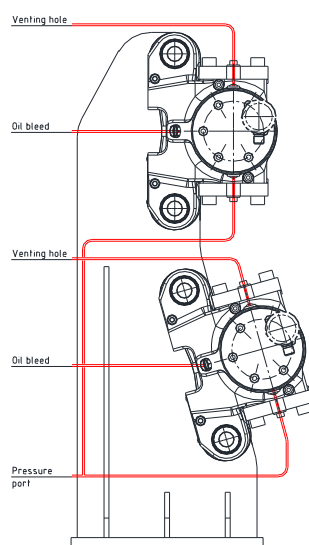


Illustration 14: Pressure port of several brakes (in parallel)

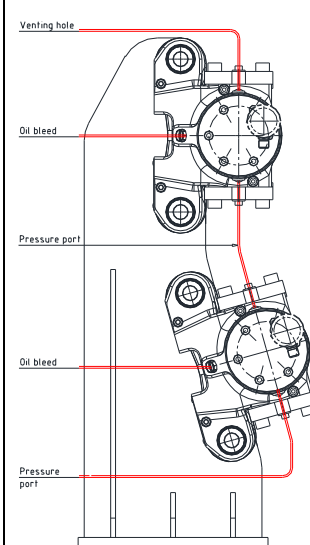


Illustration 15: Pressure port of several brakes (in a series)

 KTR-Group	KTR-STOP® XS-A-F B-xx Operating/Assembly instructions	KTR-N 445118 EN Sheet: 15 of 23 Edition: 2
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4 Assembly

4.8 Start-up of the brake



Before start-up and after each operation on the brake the hydraulic system has to be generally vented.

Repeat venting the brake several times a year, since any air in the hydraulic system may affect the operation of the brake and the plant.



Make sure that there is sufficient liquid in the hydraulic system during and after the venting process (recommendation of liquid, see chapter 4.9).

- Switch on the hydraulic system for a short while to make sure that the brake is flushed with hydraulic oil. Repeat this process until a stream of clean oil dissipates from the miniature measuring hose.
- Remove the miniature measuring hose.



If the miniature measuring coupling is removed as well, the screw plug (component 1.6) needs to be screwed in the venting hole (see illustrations 12 to 15).

- Dispose of the hydraulic oil of the collection container as per chapter 4.12.
- Put some pressure on the hydraulic system. This will allow the brake pads to fit onto the brake disk.



The hydraulic system must never be operated at a higher pressure than the figures specified in the type plate of the brake or table 1. If any figures or types/sizes are changed, please consult with KTR.



Never keep your fingers between brake disk and brake when applying the brake in order to prevent serious injuries of your hands. Before every maintenance operation please make sure that the brake is fully secured against activating.

- The brake pads have to be ground in on the surface of the brake disk to achieve the nominal coefficient of friction.



Please observe the instructions for grinding-in according to KTR-N.

Please observe protection note ISO 16016.	Drawn: 2022-01-10 Ka/Wie Verified: 2022-01-25 Ka	Replacing: KTR-N dated 2020-12-03 Replaced by:
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4 Assembly

4.9 Recommendation of liquids to be used



You may only use mineral hydraulic liquids meeting the specifications of DIN 51524. KTR recommends those liquids corresponding to DIN 51524-3.

KTR recommends the following fluids (other manufacturers may be selected):

Manufacturer	Standard		Special	
<i>Mineral oil</i>	-20 °C to +40 °C (-4 °F to +104 °F)	+ 10 °C to + 60 °C (+ 50 °F to + 140 °F)	-30 °C to +20 °C (-22 °F to +68 °F)	+ 30 °C to + 70 °C (+ 86 °F to + 158 °F)
Castrol	Hyspin HVI 32	Hyspin HVI 46	-	Hyspin HVI 68
Shell	Tellus S2 VX32	Tellus S2 VX46	Tellus S4 VX32	Tellus S2 VX68
Mobil	DTE 10 Excel 32	DTE 10 Excel 46	-	DTE 10 Excel 68



The permissible operating temperatures of brake components from -20 °C to +60 °C (-4 °F to +140 °F) have to be observed. For deviating operating temperatures please consult with KTR.

Viscosity

We would recommend a viscosity range from 20 to 220 mm²/s (cSt) of the hydraulic fluid with operating temperature. The viscosity during starting should not exceed 500 mm²/s and the viscosity during operation should not fall below 12 mm²/s.

Filtration

When filling and re-filling the hydraulic system and replacing the hydraulic fluid, the oil needs to be filtered. For that purpose use an offline filter or a respective fill unit. In addition we would recommend to use an inline filter.



The service life of the brake system is extended depending on the degree of purity of the oil.

As a standard the KTR basic power packs are equipped with a 10 µm inline filter.

In order to ensure the reliability of the system, only those oils originating from the following purity classes are permitted:

- ISO 4406, class 18/16/13

Maintenance operations on the hydraulic system

In order to ensure a smooth operation of the overall system, the maintenance operations on the hydraulic system (inspection of level and degree of dirt, replacing the hydraulic fluid or filter elements, etc.) have to be performed as per the manufacturer's operating instructions.

The system has to be scavenged or vented after each replacement of the hydraulic fluid.



Adverse reactions may be generated by mixing different fluids or fluids of various manufacturers.



Please contact the manufacturer of mineral oils if you intend to replace the hydraulic fluid.

4 Assembly

4.10 Disassembly of the brake



Make sure that the entire brake/hydraulic system is depressurized.



Parts released or falling down may cause injury to persons or damage on the machine.
Secure the components before disassembly.



If a sensor is used (component 9) it has to be removed before the brake is disassembled.

- Drain the hydraulic oil completely from the brake.
- Dispose of the hydraulic oil as per chapter 4.12.
- Disconnect the leakage oil and pressure oil line from the brake.
- Screw the screw plugs (component 1.6) into all pressure ports or venting holes (see illustrations 12 to 15).
- Remove the 2-off screws serving for fixing the brake to the connection plate.
- Take out the brake.

4.11 Spares inventory, customer service addresses

A basic requirement to ensure the readiness for use of the brake is a stock of the most important spare parts on site.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage at www.ktr.com.



KTR does not assume any liability or warranty for the use of spare parts and accessories which are not provided by KTR and for the damages which may incur as a result.

4.12 Disposal

In respect of environmental protection we would ask you to dispose of the products on termination of their service life in accordance with the legal regulations and standards that apply, respectively.

- **Metal or brake pads, respectively**
Brake pads and any other metal parts have to be cleaned and disposed of by scrap metal.
- **Gaskets**
Gaskets can be disposed of by residual waste.
- **Sensors**
Electric components have to be treated as electric waste.
- **Hydraulic oil**
Hydraulic oils have to be collected in suitable tanks and disposed of by a waste disposal company.

**5 Maintenance****5.1 Replacement of brake pads**

Brake pads having a balance of pad height of less than 5 mm have to be replaced by return.



Make sure that the entire brake system is depressurized.



Parts released or falling down may cause injury to persons or damage on the machine.
Secure the components before disassembly.



Never keep your fingers between brake disk and brake when applying the brake in order to prevent serious injuries of your hands. Before every maintenance operation please make sure that the brake is fully secured against activating.

- Disassemble the pad holders on one side (component 1.3 and 1.4).
- Remove the pad retraction sets (component 5) and the spring clamps (component 6), respectively.
- Replace the brake pads that have worn off. Insert the brake pads (component 8) fully into the brake caliper or the distance plate, respectively.
- **Applying for the moveable side only:**
Push back the brake pad and brake piston manually.



Please make sure that at least one screw plug (component 1.6) is removed when moving back the brake piston. Afterwards re-assemble the screw plug.

- Hand-tighten the pad holders (component 1.3 and 1.4) by each 2-off cap screws (component 1.5) for the time being. Tighten the screws at the tightening torque $T_A = 71 \text{ Nm}$.



Please make sure that the pad holders of the brake have various heights.

- Mount the pad retraction sets for housings (component 5) by shifting the pressure spring (component 5.2) with the disk (component 5.3) onto the sleeve (component 5.4). Screw the hexagon screw (component 5.1) with the pressure spring, the disk and the sleeve into the brake pad against a stop.



Secure the screw connection (component 5.1) on the brake pad additionally against working loose, e. g. conglomerating with Loctite (average strength).

- Secure the brake pad on the fixed side via the spring clamps (component 6) and the cap screws (component 7).
- Repeat chapter 4.5 *Setting/resetting of the centering system*.
- Make sure that the brake disk can rotate freely while not touching the brake pads or the housing.



To facilitate the replacement of the brake pads you can unscrew the screws of the connection plate and remove 1 out of the 2 screws alternatively. Swing the brake out of its position.



Please note chapter 4.4 *Assembly of the brake*.

- Before you reactivate the brake, please observe chapter 4.8 *Start-up of the brake*.

**5 Maintenance****5.2 Maintenance of the brake / replacement of single parts**

To ensure the full braking power, both disassembly and assembly have to be performed at the highest level of purity.

- Disassemble the brake, please observe chapter 4.10 *Disassembly of the brake*.
- Remove the pad retraction sets (component 5) and the spring clamps (component 6), respectively.



Disassemble the pad retraction sets carefully since the springs are prestressed (about 20 N).

- Take out the brake pads (component 8) and the distance plate (component 2).
- Untighten each the two hexagon nuts on top of the centering system (component 4) and remove them along with the disk and the pressure spring.
- Remove the housing with single parts (component 1) from the guide pin (component 3.2).



Inspect the components/subassemblies 2, 3 and 4 for any kind of damage; it may be necessary to replace the components. Afterwards remove dirt, grease and corrosion from the components.

- Connect the hydraulics to a pressure port (see illustration 12) of the housing and make sure that all other pressure ports are locked by screw plugs.
- Press the brake piston (component 1.10) carefully out of the housing by means of some hydraulic pressure.
- Remove the gasket (component 1.12) and the scraper (component 1.11).



When removing the gasket and scraper please make sure that the keyways in the housing are not damaged.



Please observe the manufacturer's instructions regarding the use of solvents.

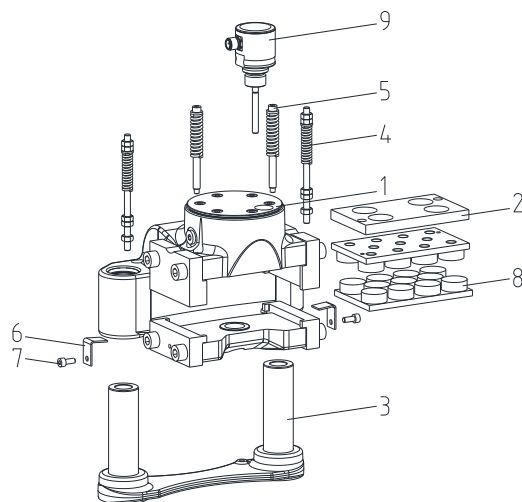


Illustration 16: KTR-STOP® XS-A-F B-xx

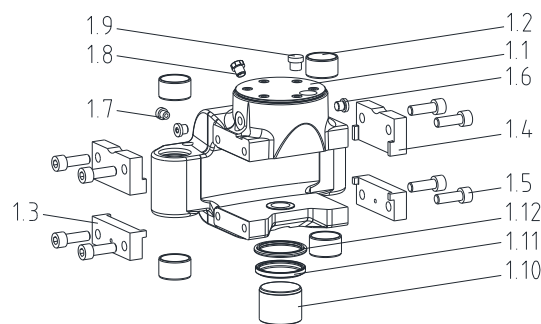


Illustration 17: Housing with single parts

- The components have to be cleaned from dirt, grease and corrosion protection. The components can easily be cleaned by means of solvents. Afterwards dry the components.

**5 Maintenance****5.2 Maintenance of the brake / replacement of single parts**

- Insert a new gasket (component 1.12) and a new scraper (component 1.11) into the housing. For that purpose the components may be heart-shaped (see illustration 18).



The gasket and scraper have to be installed in the right direction (see illustration 19).



With reassembly of the brake piston basically new gaskets and scrapers have to be used, since their operativeness is no longer ensured due to wear and damages.

- Grease the gasket and the scraper with hydraulic oil (see illustration 19).



Oils and greases containing molybdenum disulphite or zinc sulphite additives must not be used.

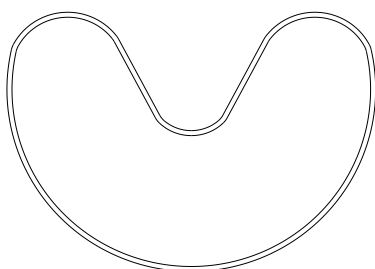


Illustration 18: Assembly of gasket and scraper

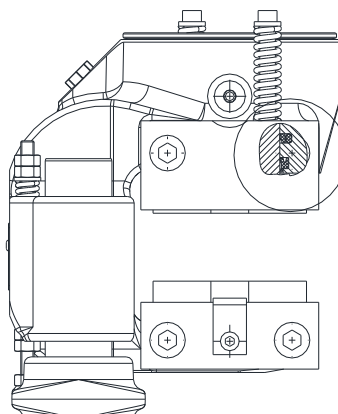
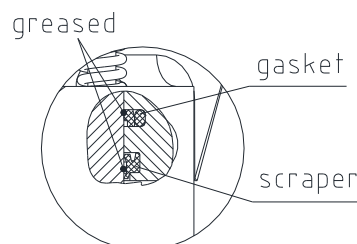


Illustration 19



Inspect the surfaces of the brake piston and the hole of the housing to make sure that they are neither scratched nor damaged, since the surfaces are either ground or polished. Such kind of damages may cause earlier wear on the gaskets and scrapers and generate leakages.

- Insert the brake piston (component 1.10) in the housing and press it against a stop.
- Fit the distance plate (component 2).
- After you have disassembled the pin of the centering system (component 4), screw each the 3-off hexagon nuts at the bottom onto the pin. Afterwards screw the pin into the base plate by 10 mm.
- Counter the pin with the hexagon nut marked with 3 in illustration 21.
- Fit the pre-assembled unit carefully onto the guide pins.



Please make sure that the centering system (component 4) is not damaged.

**5 Maintenance****5.2 Maintenance of the brake / replacement of single parts**

- Set the gap between brake disk and brake pad to 0.5 mm or the requested value x (see illustration 20) by screwing the hexagon nut marked with 1 in illustration 21 upwards or downwards.
- Counter the hexagon nut with the hexagon nut marked with 2 in illustration 21.
- Push the pressure spring (component 4.2) and the disk (component 4.4) onto the pin of the centering system. Screw the two hexagon nuts (component 4.3) until they fit the disk.
- The pressure spring needs to be pre-stressed by 5 mm. Counter the hexagon nut with the hexagon nut marked with 4 in illustration 21.
- Repeat chapters 4.2 to 4.8.

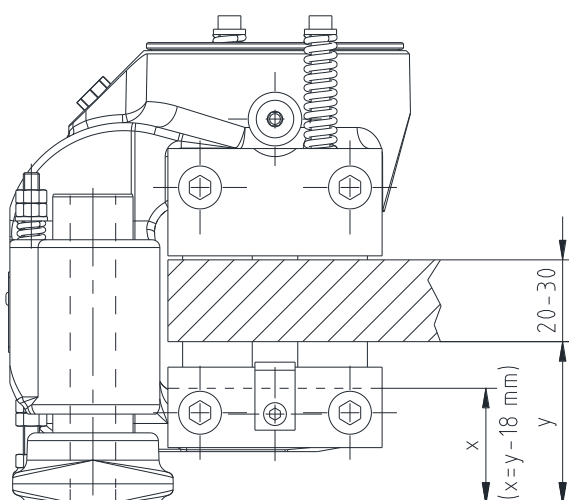


Illustration 20: Setting of gap

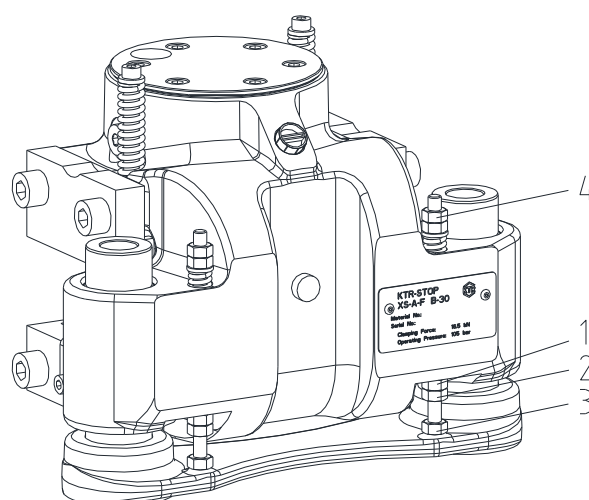


Illustration 21: Setting of centering system

5.3 Maintenance and service

KTR-STOP® XS-A-F B-xx is a low-maintenance brake. We recommend to perform a visual inspection and an operational testing on the brake **at least once a year**. Here you should put special emphasis on leakages, corrosion, wear of brake pads and the condition of the screw connections.



If you realize any irregularities, please perform repairs accordingly.

**6 Accessories - Sensor****6.1 Technical data „Pre-/end wear sensor”****Operation of sensor**

There are two micro switches in the housing of the sensor. The spacer pin activates the switches in two different positions.

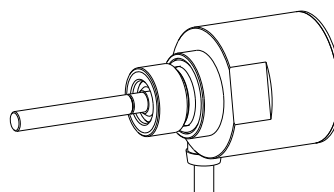


Illustration 22: Pre-/end wear sensor

Table 4: Switching status of pre- (switch S1) and end wear switch (switch S2) depending on the activating status of the brake.

Status of brake	Condition of brake pad	Switch S1	Switch S2	
		1 - 4 ²⁾	2 - 3 ²⁾	2 - 5 ²⁾
Sensor not mounted	-	0	0	1
Brake not activated (unlocked)	-	1	1	0
Brake activated (locked)	No wear	1	1	0
	Pre-wear	0	1	0
	End wear	0	0	1

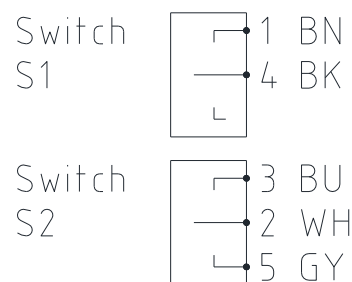


Illustration 23: Switch position

1) Status of brake
on = brake unlocked
off = brake locked

2) Switch position
0 = unlocked
1 = locked

The sensor only shows the wear status reliably when the brake is activated (locked). If the brake is not activated (unlocked), a statement about the condition of wear cannot be given.



The wear of the brake pad is only measured if the brake is activated. If the brake is not activated, there is no signal.



"Pre-wear" is indicated as soon as the brake pad has worn off so that the brake pads need to be replaced.



The brake pad needs to be replaced immediately if the signal indicating the status „end wear“ is displayed. Please note chapter 5.1 *Replacement of brake pads*.

Fail-safe operation

A proper operating condition is only ensured if the state/wear sensor is wired properly. This provides a signal since a switch (NO) is locked which is normally unlocked.



In case of damages like, for example, faulty cables, bad connections, etc. the signals need to disappear.

**6 Accessories - Sensor****6.1 Technical data „Pre-/end wear sensor”****Technical data:**

Operating temperature	-40 °C to +85 °C
Max. voltage	30 V DC/AC
Switching current	100 mA
Protection class	IP 65 (mounted)
Width across flats	24 mm
Max. tightening torque G 1/2	20 Nm
Max. tightening torque M12	hand-tight
Length of cable	5 m, 10 m or 15 m
Material of cable	PUR
Dimension of cable	5 * 0,34 mm ²

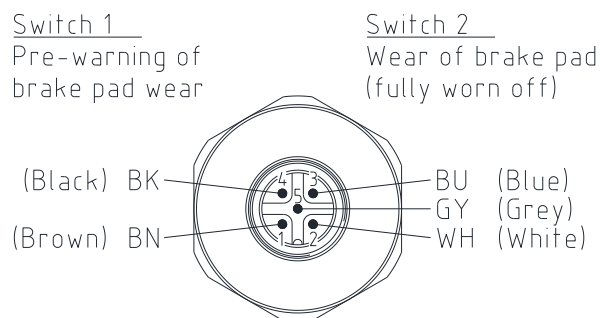


Illustration 24: Pin assignment of plug-in connection

6.2 Assembly / start-up

- Remove the screw plug from the brake.
- Screw the sensor hand-tight into the brake for the time being (see illustration 25).
- Tighten the sensor at the tightening torque
 $T_A = 20 \text{ Nm}$.
- Provide for the electric connection according to the plug-in connection (see illustration 24).

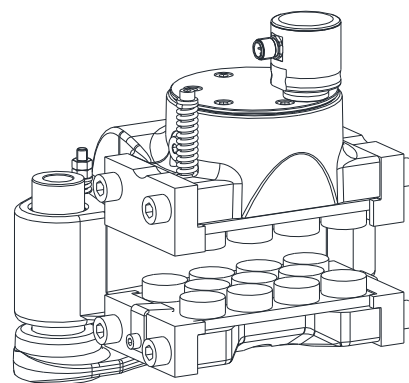


Illustration 25: Assembly of pre/end wear sensor