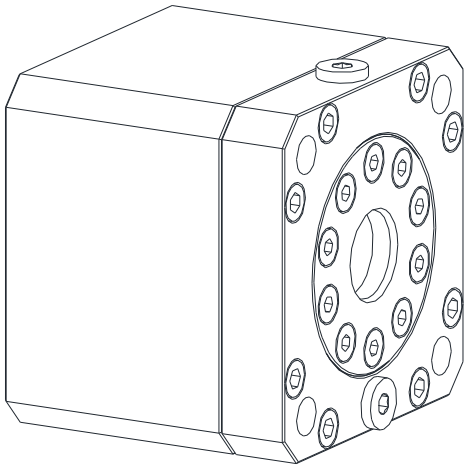
The **KTR-STOP® NC** series is a passive clamping and braking system serving for generating a clamping/braking force or clamping/braking torque on a cylindrical piston rod or shaft to brake its rotation or keep it at standstill, respectively.

KTR-STOP® NC



The **KTR-STOP® NC series** was designed for the use both as a clamping system and emergency stop brake. For any other applications please consult with KTR.

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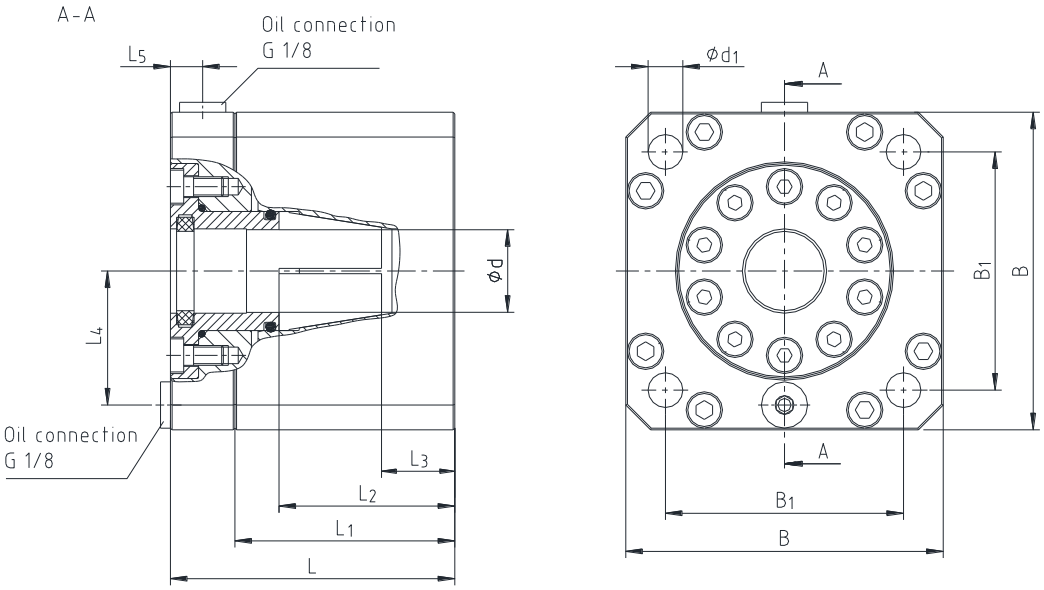
1 Technical data



Ilustration 1: Dimensions of KTR-STOP® NC

Table 1: Dimensions

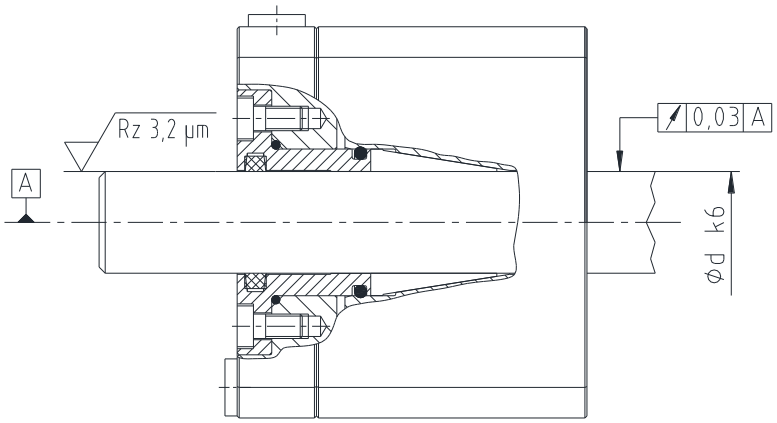
Type	Size	Dimensions [mm]								
		d	d_1	B	B_1	L	L_1	L_2	L_3	L_4	L_5
KTR-STOP® NC	32	18	10.5	96	72	86	66.5	53	19	40.5	9.75
		20									
		22									
		24									
		25									

Table 2: Technical data [1)]

Type	Size	d [mm]	Oil filling [dm^3]	Max. opening pressure [bar]	Lock torque [Nm]	„Axial locking force“ [N]
KTR-STOP® NC	32	18	0.011	100	75	8300
		20			85	8500
		22			95	8600
		24			105	8750
		25			110	8800

1) All figures are based on a fit pair shaft k6, bush D8.
2) Other bore diameters and sizes on request.

Tolerances and surface of shaft



Shaft material:

Minimum strength ≥ 235 N/mm²

Illustration 2: Tolerance and surface

2 Advice

2.1 General advice

Please read through these operating/assembly instructions carefully before you start up the clamping/braking system. 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 undesirable results or conditions.

2.3 General hazard warnings

With assembly, operation and maintenance of the clamping and braking system 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 clamping and braking system have to be performed taking into account "safety first".
- Please make sure to switch off the power pack before you perform your work on the clamping and braking system..
- 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 clamping and braking system as long as it is in operation.
- Protect all components of the clamping and braking system from falling down before assembly and disassembly, in particular vertical axes or vertical piston rods.
- Protect the clamping and braking system and adjacent rotating components from accidental contact. Please provide for the necessary protection devices.

2.4 Intended use

You may only assemble, operate and maintain the clamping and braking system if you

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

The clamping and braking system may only be used in accordance with the technical data (see chapter 1). Unauthorized modifications on the clamping and braking system 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 **clamping and braking system of KTR-STOP® NC** described in here corresponds to the technical status at the time of printing of these assembly instructions.

3 Storage, transport and packaging

3.1 Storage

The clamping and braking system is delivered in a preserved condition and can be stored in a closed, dry place during 24 months.
With proper storage conditions its properties remain unchanged up to 12 months.
If the clamping and braking system is stored over a longer period exceeding 12 months and after every transport, the clamping and braking system needs to be operated over the full distance 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 lifting equipment.

The clamping and braking system 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.

4 Assembly

The clamping and braking system is supplied in assembled condition. Before assembly the clamping and braking system has to be inspected for completeness.

4.1 Components of the clamping and braking system

Components/component assemblies of KTR-STOP® NC

Component	Quantity	Description
1	1	Clamping and braking system
2	2	Locking screws

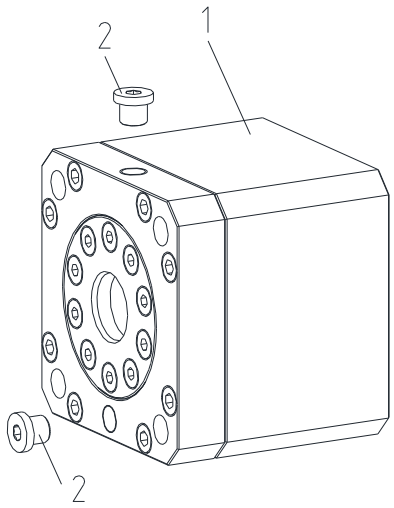


Illustration 3: Components/component assemblies of KTR-STOP® NC

4 Assembly

4.2 Hydraulic connection of clamping and braking system

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

As long as there is no shaft or cylindrical piston rod in the clamping area of KTR-STOP® NC it is absolutely necessary to keep the clamping/braking system open under pressure.

Please make sure that the connections and hoses are adapted to the system with regard to pressure, flow rate, temperature and liquidity.
Any hoses which are located close to mobile components should be secured or coated accordingly.

Connection 2 serves as an alternative oil connection (see illustration 4). In order to assure its operation, a hydraulic hose may only be connected to one out of the two connections 1 or 2 (illustration 5).

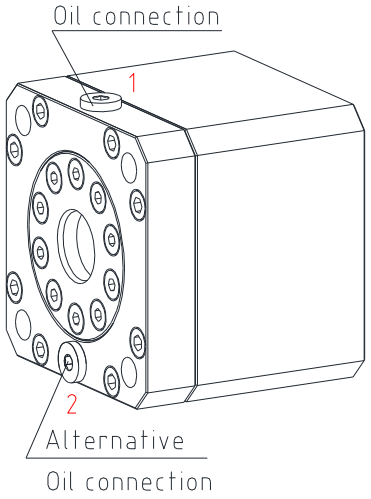


Illustration 4: Pressure port

- Connect a manual hydraulic pump to one of the two oil connections (see illustration 4). For that purpose remove the screw plug (illustration 2) beforehand.
- Vent the clamping and braking system and the hydraulic system. Use the oil connection on top for venting.

Make sure that the venting holes always point upwards to ensure that the air can escape from the system.

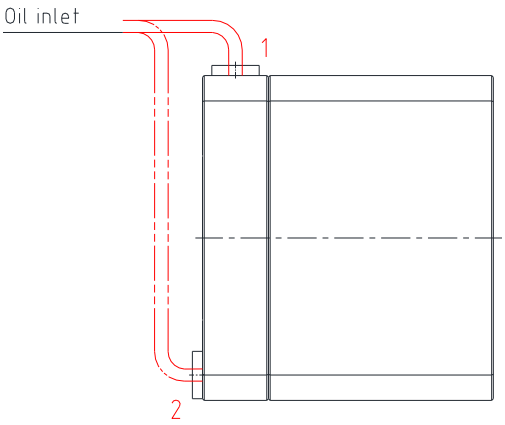


Illustration 5: Releasing the clamping and braking system (unlocking)

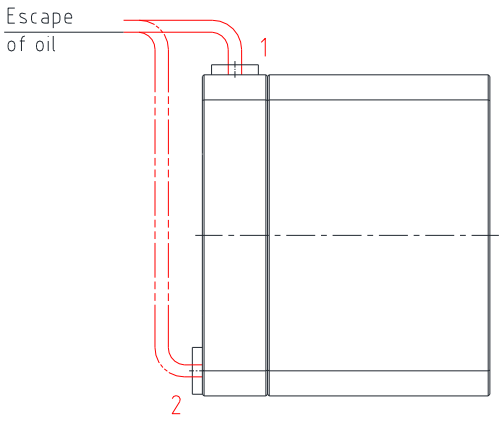


Illustration 6: Clamping the clamping and braking system (locking)

- For locking or clamping release the pressure from the hydraulic system (see illustration 6).

Make sure there is a shaft in the clamping area of the system.

4 Assembly

4.3 Assembly of the clamping and braking system

As long as there is no shaft or cylindrical piston rod in the clamping area of KTR-STOP® NC, it is absolutely necessary to keep the clamping/braking system open under pressure.

- Unlock the clamping and braking system by applying pressure (max. 100 bar) after filling and venting (see illustration 5).
- Remove the transportation shaft (illustration 7).

Never turn off the pressure before a shaft or piston rod has been assembled.

- Shift and position the clamping and braking system on the shaft and hand-tighten it to the adjacent components (illustration 8) for the time being so that it fully fits.
- Release the pressure. The system clamps on the shaft centering on it.

The fastening screws may only be tightened if the clamping and braking system is locked and thus centered (illustration 6).

- Tighten the fastening screws M10 (not included in the scope of delivery) evenly crosswise to the respective tightening torque.
- Set the clamping and braking system under pressure and re-tighten the screws at the full tightening torque.

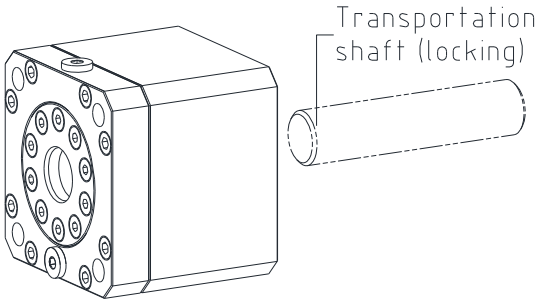


Illustration 7: Removal of transport lock

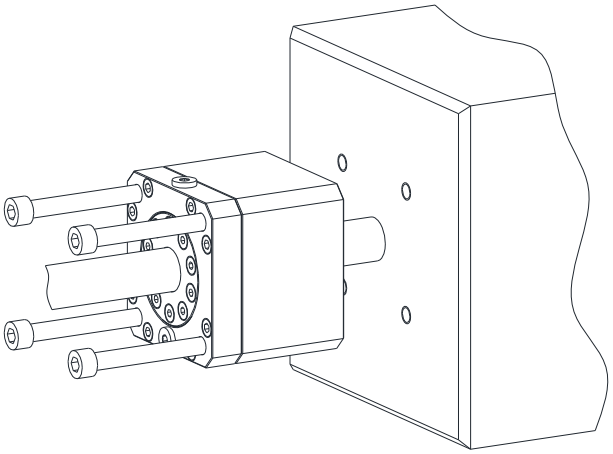


Illustration 8: Assembly of clamping and braking system

Secure the screw connection additionally against working loose, e. g. conglutinating with Loctite (average strength).

4.4 Start-up of the clamping and braking system

- Release the pressure and remove the manual pump.
- Connect the oil pressure ports of the hydraulic system to the pressure connections.

Before start-up and after each operation on the clamping and braking system the hydraulic system has to be generally vented.
Repeat bleeding the clamping and braking system regularly in usual maintenance intervals, since any air in the hydraulic system may affect the operation of the clamping and braking system and the plant.

Please make sure that there is sufficient liquid in the hydraulic system during and after the venting process (recommendation of liquid, see chapter 4.5).

- Remove the screw plug of the oil connection not used and make use of the venting hole on top.
- Switch on the hydraulic system for a short term to make sure that the system is flushed with hydraulic oil. Repeat this process until a stream of oil without any bubbles dissipates from the hole.

4 Assembly

4.4 Start-up of the clamping and braking system

- Screw the screw plug into the hole and dispose of the hydraulic oil of the collection container as per chapter 4.8.
- Inspect the screw connection for the tightening torque specified.

Make sure that the shaft cannot be moved manually during the clamping process.

The hydraulic system must never be operated at a higher pressure than the figures specified in table 2. In case that any figures or types/sizes are modified, please contact KTR.

Before the system is started up, it must be operated over the full distance several times.

4.5 Recommendation of fluids to be used

You may only use hydraulic fluids meeting the demands of DIN 51524. KTR recommends those fluids corresponding to DIN 51524-3.

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

Manufacturer	Fluids	
Mineral oil	- 20 °C to + 40 °C (- 4 °F to 104 °F)	+ 10 °C to + 60 °C (+ 50 °F to + 140 °F)
Castrol	Hyspin HVI 32	Hyspin HVI 46
Shell	Tellus S3 V32	Tellus S3 V46
Mobil	DTE 10 Excel 32	DTE 10 Excel 46
Hydro Texaco	Rando HDZ32	Rando HDZ46
Valvoline	Ultramax HVLP32	Ultramax HVLP46

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

Viscosity

We would recommend a viscosity range from 20 to 220 mm^2/s (cSt) of the hydraulic fluid with operating temperature. The viscosity during starting should not exceed 500 mm^2/s and the viscosity during operation should not fall below 12 mm^2/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 clamping and braking system is extended depending on the degree of purity of the oil.

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

- ISO 4406, class 20/17/12

4 Assembly

4.5 Recommendation of fluids to be used

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 bleeded 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.

4.6 Disassembly of the clamping and braking system

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

As long as there is no shaft or cylindrical piston rod in the clamping area of KTR-STOP® NC, it is absolutely necessary to keep the clamping-/braking system open under pressure.

- Remove the 4-off fastening screws.
- Set the clamping and braking system under pressure so that it comes off the shaft. Here the maximum pressure of 100 bar must not be exceeded (see table 2).
- Remove the clamping and braking system and fit the transporting shaft into the bore (see illustration 7).
- Release the pressure fully from the hydraulic system.

Please make sure that the entire clamping system is depressurized.

- Drain the hydraulic oil completely from the clamping system.
- Dispose of the hydraulic oil as per chapter 4.8.
- Disconnect the oil pressure ports and screw the screw plugs (component 2) in the tapped holes.

4 Assembly

4.7 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**
  Any metal components have to be cleaned and disposed of by scrap metal.
- **Gaskets**
  Gaskets can be disposed of by residual waste.
- **Hydraulic oil**
  Hydraulic oils have to be collected in suitable tanks and disposed of by a waste disposal company.

4.8 Maintenance and service

KTR-STOP® NC is a low-maintenance clamping and braking system. We recommend to perform a visual inspection and an operational testing on the clamping system at least once a year. Here you should put special emphasis on leakages, corrosion and the condition of the screw connections and the clamping element.

☞ **If you find any irregularities or faulty components please consult with KTR. If any repairs need to be done on the clamping and braking system, please send in the system to us.**

☞ **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.**