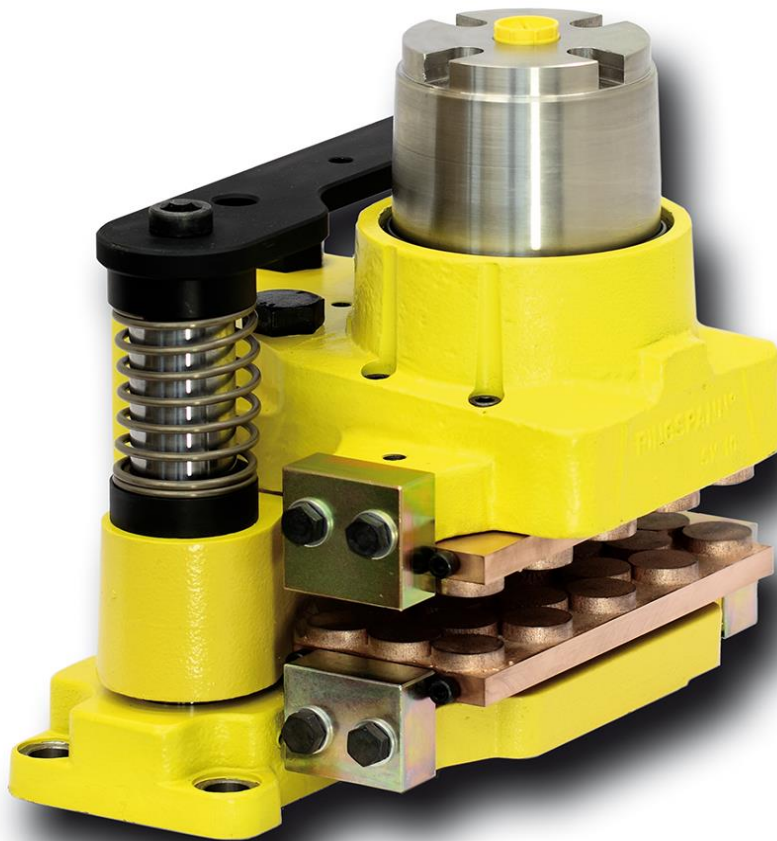


# RINGSPANN®

Power Transmission

## Installation and Operating Instructions for Brake saddle HS 075 FHM

E 09.744e



## RINGSPANN GmbH

Schaberweg 30-34  
61348 Bad Homburg  
Germany

Telephone +49 6172 275-0  
Telefax +49 6172 275-275

[www.ringspann.com](http://www.ringspann.com)  
[mailbox@ringspann.com](mailto:mailbox@ringspann.com)

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>			
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29	page: 2

---

## **IMPORTANT**

Please read these instructions carefully before installing and operating the product. Your particular attention is drawn to the notes on safety.

These installation and operating instructions are valid on condition that the product meets the selection criteria for its proper use. Selection and design of the product is not the subject of these installation and operating instructions.

Disregarding or misinterpreting these installation and operating instructions invalidates any product liability or guarantee by RINGSPANN; the same applies if the product is taken apart or changed.

These installation and operating instructions should be kept in a safe place and should accompany the product if it is passed on to others -either on its own or as part of a machine- to make it accessible to the user.

---

## **SAFETY NOTICE**

- Installation and operation of this product should only be carried out by skilled personnel.
- Repairs may only be carried out by the manufacturer or accredited RINGSPANN agents.
- If a malfunction is indicated, the product or the machine into which it is installed, should be stopped immediately and either RINGSPANN or an accredited RINGSPANN agent should be informed.
- Switch off the power supply before commencing work on electrical components.
- Rotating machine elements must be protected by the purchaser to prevent accidental contact.
- Supplies abroad are subject to the safety laws prevailing in those countries.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>			<b>E 09.744 e</b>	
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29	page: 3

## Contents

- 1. General remarks**
  - 1.1 General safety instructions
  - 1.2 Special safety instructions
- 2. Configuration and function / Parts list**
  - 2.1 Function
  - 2.2 Markings
  - 2.3 Drawing and parts list
- 3. Proper use / specified purpose**
- 4. Improper use**
- 5. Condition upon delivery**
- 6. Handling and storage**
- 7. Technical requirements for safe and reliable operation**
- 8. Installation of the RINGSPANN brake saddle**
  - 8.1 General instructions for assembly and installation
  - 8.2 Assembly and installation
  - 8.3 Setting / adjusting brake pad gap
  - 8.4 Installing the threaded connection and bleeding the brake
  - 8.5 Connecting the signal cable (optional)
- 9. Commissioning**
- 10. Disassembling the brake**
- 11. Lubrication**
- 12. Maintenance**
  - 12.1 General maintenance
  - 12.2 Permissible brake pad wear and replacement of the brake pads
  - 12.3 Replacing seals, strippers and piston gaskets
- 13. Accessories: switches**
  - 13.1 Installing and connecting the inductive proximity switch brake on/of
  - 13.2 Installing and connecting the inductive proximity switch for brake pad wear
  - 13.3 Installing and connecting limit switch for brake on/off and pad wear 4mm

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 4

## 1. General remarks

### 1.1 General safety instructions

Please read these installation and operating instructions carefully before installing and operating the brake saddle. Please refer also to the drawings in the various sections.

Safety must be given the highest priority during all work performed on the brake.

Switch off the drive unit before performing work on the brake.

Rotating components (e.g. brake disc) must be secured by the operator to prevent accidental contact.

### 1.2 Special safety instructions



#### **Danger to life and limb!**

**It is essential to secure the entire drive train against inadvertent starts during brake installation and maintenance. Rotating components can cause severe injuries.**

**Therefore, rotating components (e.g. brake disc) must be secured by the operator to prevent accidental contact.**

## 2. Configuration and function / Parts list

### 2.1 Function

The brake saddle HS 075 FHM is a machine component used for the purpose of braking accelerated masses safely and reliably. The combination of brake saddle and brake disc provides a complete brake unit capable of securing machines and equipment system effectively. Thanks to its universal design, it can perform the following functions:

- As a holding or parking brake, it prevents the unintended start of a stationary shaft.
- As a stopping brake, it brings a rotating shaft to a complete standstill.

Braking force is generated by spring force. The brake saddle is released by hydraulic pressure.

### 2.2 Markings

These installation and operating instructions apply to:

- model brake saddle HS 075 FHM
- installation on horizontal brake discs and vertical brake discs in combination with horizontal shafts
- for models with and without switches
- for different brake pad material and for brake pads with signal cables.
- to take different basic holders / special floor panels according to customer drawings

Please consult the drawings in each section when using this instructions.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>		
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29    page: 5

### 2.3 Drawing and Parts List

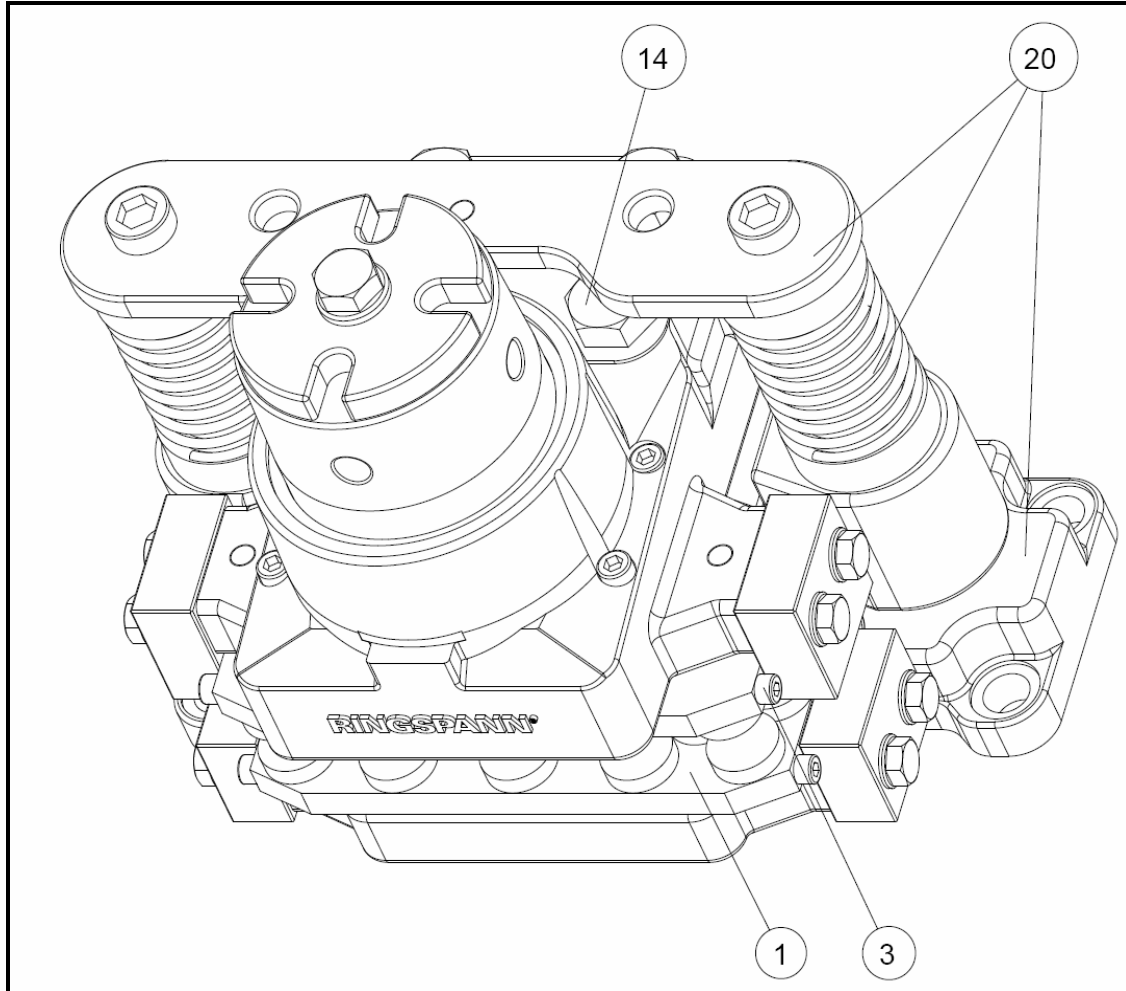


Fig. 2.1

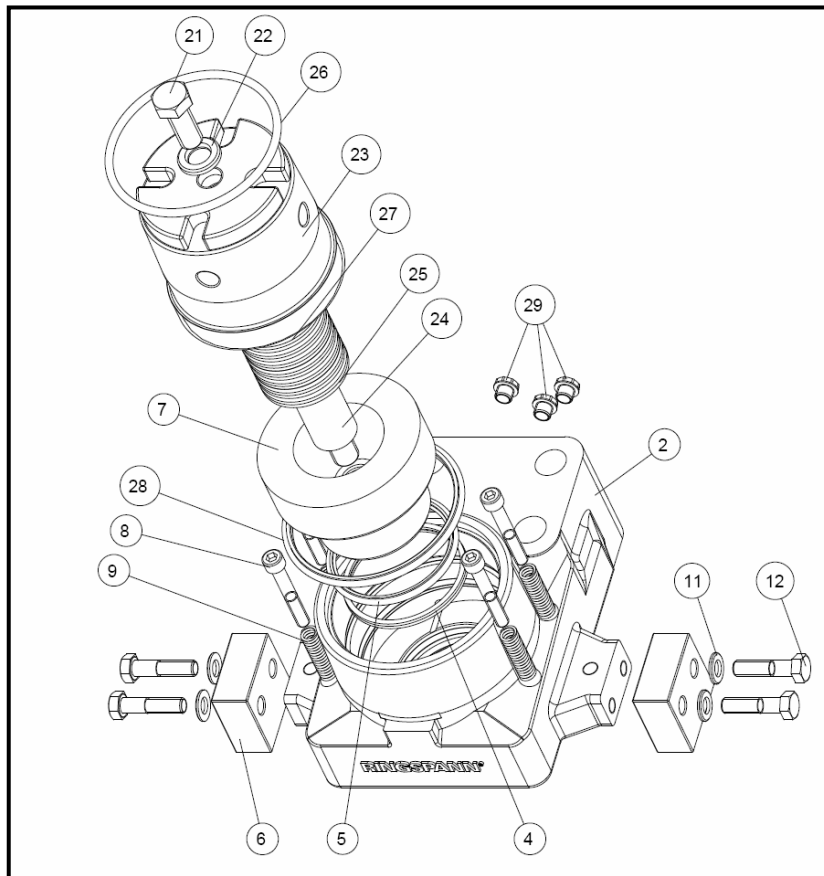


Fig. 2.2

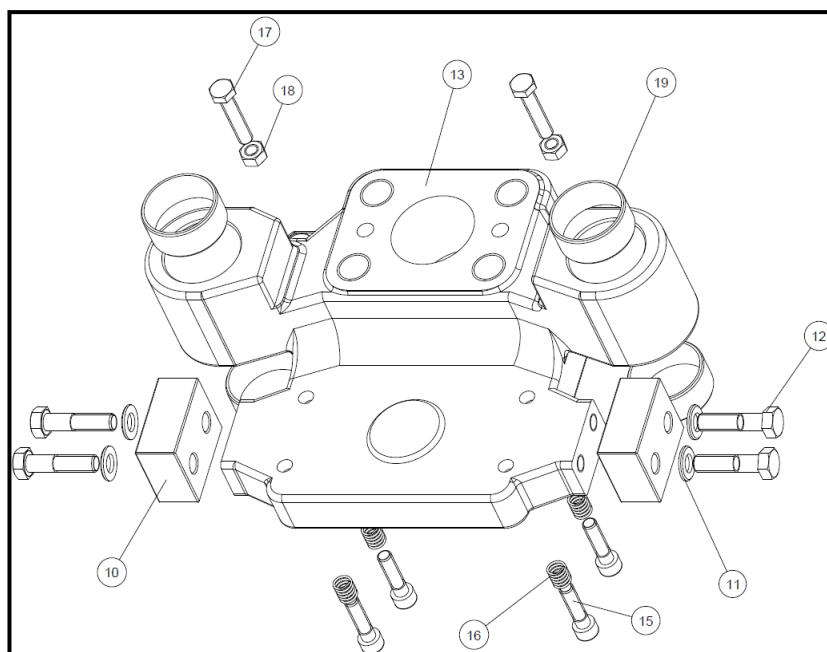


Fig. 2.3

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 7

Part	Nomenclature	Quantity
1	Set Brake pad HW(S)	1
2	Brake saddle housing	1
3	Hexagon socket head cap screw M8X10 ISO 4762 8.8	8
4	Turcon-Excluder 2 WE3200900 - T46N	1
5	Turcon-Stepseal 2K RSK300900 - T46N	1
6	Retaining plate	2
7	Piston for HW 075 FHM	1
8	Hexagon socket head cap screw M10x70 DIN 912-A2-70	4
9	Pressure spring RDF-2199	4
10	Retaining plate	2
11	Washer B13 DIN 125-ST galvanized	8
12	Hexagon head screw M12x50 DIN 931-10.9	8
13	Baseplate for HS 075	1
14	Hexagon head screw M24x140 DIN 933-8.8	4
15	Hexagon socket head cap screw M10x40 DIN 912-10.9	4
16	Pressure spring RDF-2055	4
17	Hexagon head screw, standard M10x50 ISO 4017-10.9	2
17*	Hexagon head screw for special floor panel M10x110 DIN 933-8.8	2
18	Hexagon nut M10 DIN 934-8	2
19	Slide bush 50x55x24,5 DIN 6313	4
20	Basic holder for HS 075	1
20*	Basic holder for HS 075 with special floor panel	1
21	Hexagon head screw with metric fine pitch thread M18x1,5x60 DIN 961-10.9	1
22	Washer A 18 GN 6339-18,5-34-5BT	1
23	Spring receiver for HW 075 FHM	1
24	Guide rod for HW 075 FHM	1
25	Belleville spring A71 DIN 2093 to Aus. max.	42

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>			<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29 page: 8

26	O-ring 126,37x6,99	1
27	Supporting disc S 56x72x3 to Aus. max.	6
28	Turcon Glyd Ring T RT0301300-T46 N	1
29	Stopper plug R 1/4" KAPSTO GPN 700	3

\* the identical part in the table are dependent on the execution and the component-type for that part

### 2.3 Drawing and part list basic holder – part 20 – for HS 075

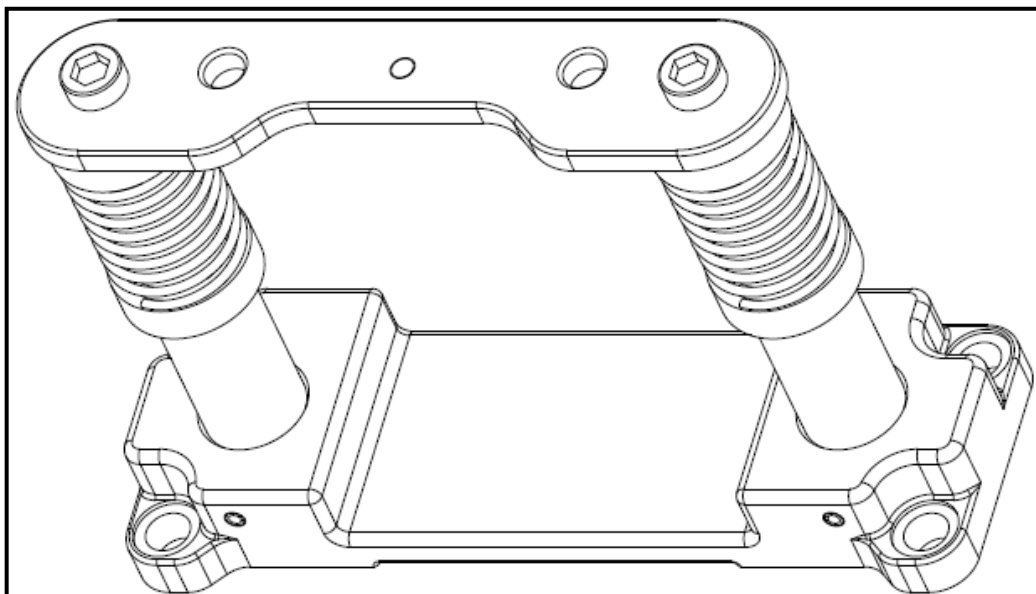


Fig. 2.4



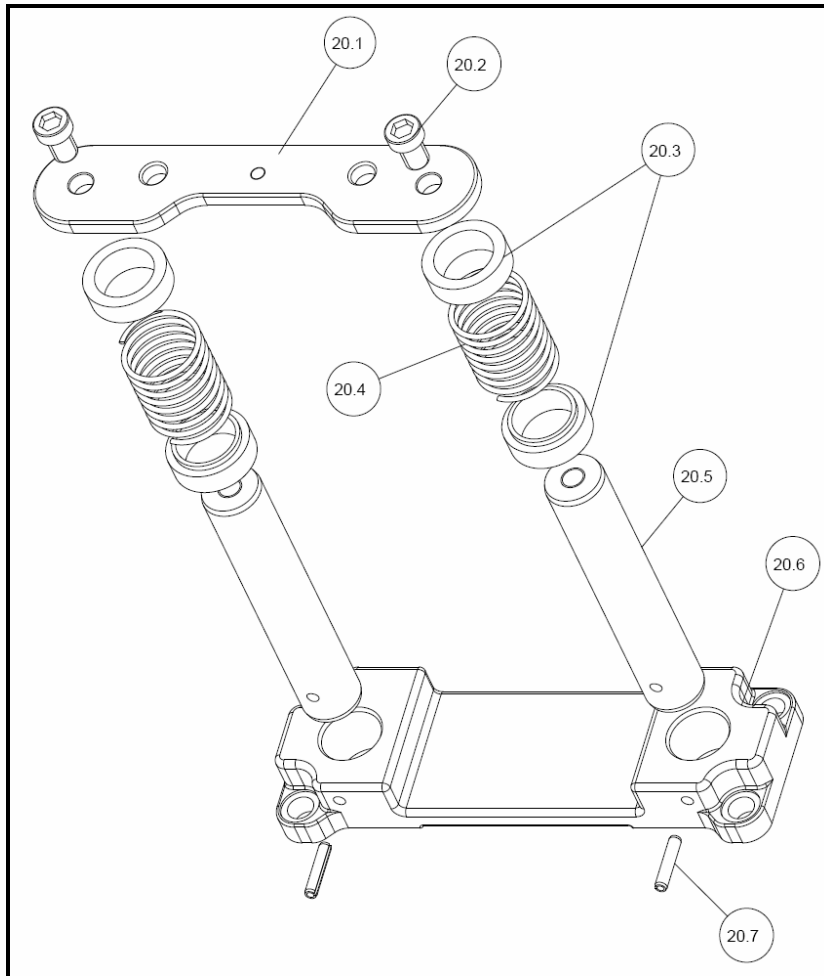


Fig. 2.5

Part	Nomenclature	Quantity
20.1	Head plate	1
20.2	Hexagon socket head cap screw with low head M20x30 DIN 6912-8.8	2
20.3	Guide ring	4
20.4	Pressure spring RDF-2714	2
20.5	Holding pin	2
20.6	Basic plate for HS 75	1
20.6*	Floor panel for HS 075 special	1
20.7	Clamping sleeve 10x50	2

\* the identical part in the table are dependent on the execution and the component-type for that part

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>			<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29 page: 10

Execution basic holder with special floor panel, part 20.6

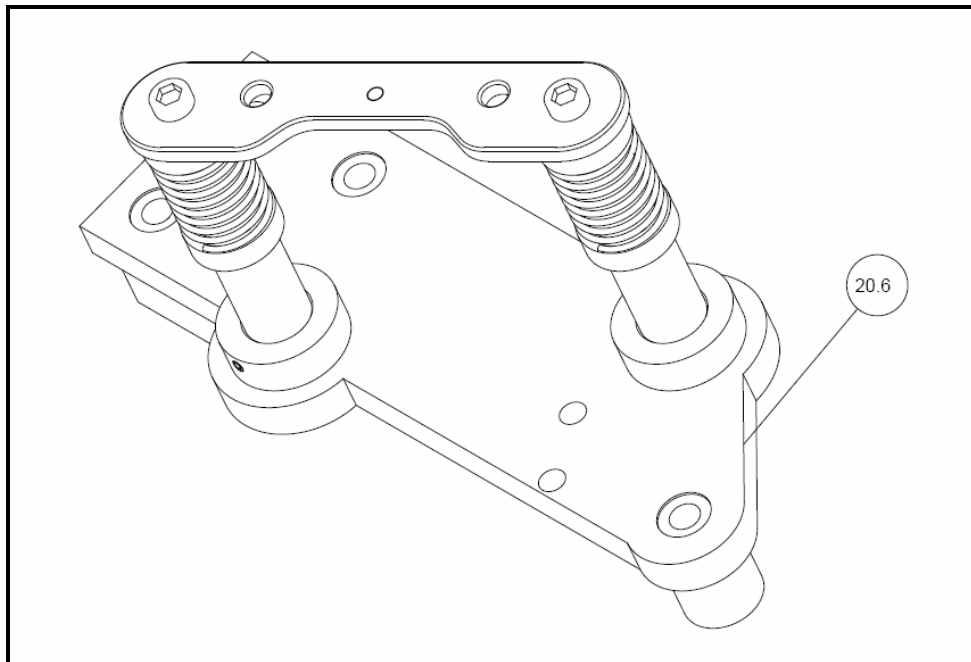


Fig. 2.6

### 3. Proper use / specified purpose

The brake saddle may be used only in systems with a maximum hydraulic pressure of 140 bar and in accordance with the technical specification.

The brake saddle is designed for use as a holding/parking brake and/or a stopping brake. Other uses are improper and incompatible with the specified purpose. RINGSPANN assumes no liability for damages resulting from improper use. The risk is assumed by the user alone.

### 4. Improper use

Operating the brake saddle under higher pressure than that specified in the technical specifications or with other media is prohibited. Unauthorized constructive modifications of the brake saddle are similarly prohibited.

### 5. Condition upon delivery

The brake calliper is tested prior to delivery. Test pressure is 160 bar.

The brake calliper is delivered ready to install. The brake cylinder is fixed in the open position by an M18x1.5x60 assembly locking screw (Pos. 21 in Fig. 5.1)

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS
checked.: EISF		Pages: 29
page: 11		

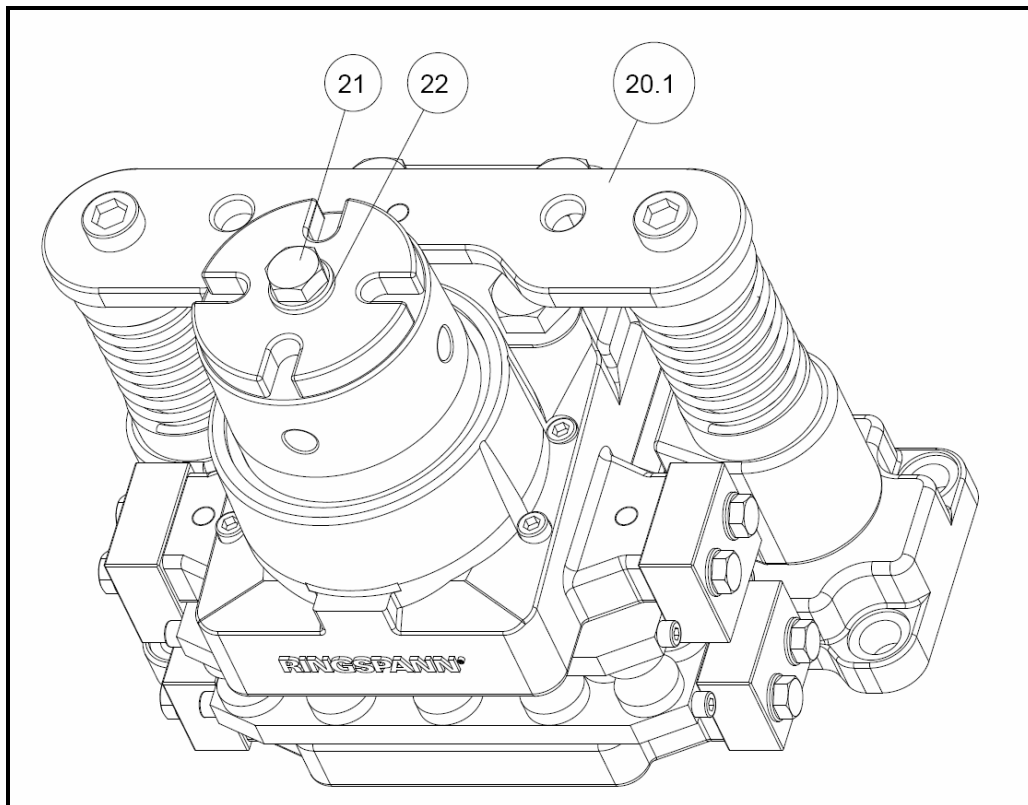


Fig. 5.1

## 6. Handling and storage

The weight of the saddle depending on the execution between 80 kg and 120 kg. For the transport and handling are on the head plate Pos.20.1 in Fig. 5.1 two boreholes available.

The brake is delivered with anti-corrosion protection and can be stored in an enclosed, dry space for up to 12 months. It is important to prevent condensation from forming. Moist storage areas are unsuitable. Brakes stored for longer than 12 months must be activated at least once in order to prevent seal adhesion.

## 7. Technical requirements for safe and reliable operation

Mounting the brake to stable, low-vibration machine components ensures low-screch, low-noise braking.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 12

## 8. Installation of the RINGSPANN brake saddle

### 8.1 General instructions for assembly and installation

Before installing the brake saddle, the brake disc must be cleaned with alcohol, e.g. ethyl or isopropyl alcohol or a water-based surfactant solution (soapy water, etc.) and then rubbed dry with a clean cloth.

When cleaning the brake disc with a thinner, acetone or a brake cleaning agent, it is important to ensure that neither these cleaners nor any cleaner residues come in contact with the brake pads. This is especially important in the case of brakes used only as parking brakes, as no dynamic braking operations take place during which thinner residues would be rubbed off the brake disc.



#### **Please note!**

Oil and rust-proofing-agent residues reduced friction coefficient and thus diminish transmissible braking torque substantially!

### 8.2 Assembly and installation



#### **Caution!**

The brake saddle must not be exposed to hydraulic pressure during assembly/installation.

Prior to installation, check to ensure that the mounting surface is even and concentric run between the brake disc and the mounting surface is within the tolerance range of 0.3 mm.

Also check to ensure that the distance between the mounting surface and the brake disc is 90 mm for standard brakes or as specified in the corresponding catalogue or customer drawing for brakes manufactured to customer specifications.

Ensure that the parallel gap of 0.2 mm between the brake disc and the mounting surface is not exceeded.

Check the axial movement of the brake disc. Axial movement must not exceed  $\pm 0.3$  mm.

Maximum permissible lateral brake disc wobble is 0.1 mm. Greater wobble may cause rattling and shaking of the brake unit.



#### **Please note!**

Check to ensure that the brake disc rotates freely.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS
checked.: EISF	Pages: 29	page: 13

The brake saddle is attached with 4 screws (standard brake saddle) or more screws (brake saddle with special floor panel) M20–12.9 with a tightening torque of 880 Nm and must be lubricated with Molykote MoS<sub>2</sub>. (Screws are not included in the delivery package).



**Information!**

To facilitate installation, you may fix the brake in position initially with a single screw before swinging it to the point at which the other screws can be inserted as well.

**8.3 Setting / adjusting the brake pad gap**

The brake pad gap is set / adjusted following installation of the brake calliper by setting / adjusting the setting / adjusting screw (see Fig. 8.1)

The gap between the brake pads and the brake disc should at new condition be approx. 1 mm on each side.

During installation, ensure that the brake pads are centred and in full contact with the surface of the brake disc.



**Please note!**

The brake pad gap must be adjusted following initial installation or replacement of brake pads or other individual components.

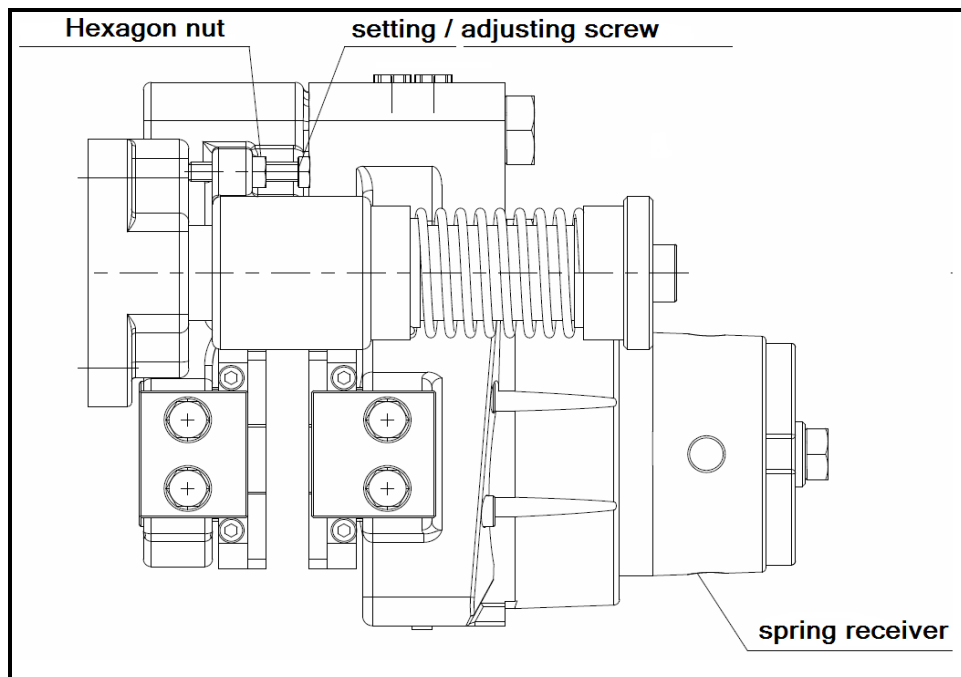


Fig. 8.1

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 14

Tighten the hexagon nut after completing the setting / adjustment procedure (see Fig. 8.1)



**Please note!**

The brake pad gap must be adjusted regularly to compensate for brake pad wear.

The gap between the brake pad and the brake disc can be adjusted to compensate the brake pad wear by adjusting the spring receiver. Each 90° rotation of the spring receiver compensates for 0.5 mm of brake pad wear. Following adjustment of the spring receiver, the gap between the brake pad and the brake disc must also be readjusted to 1 mm on each side with the aid of the setting / adjusting screw.



**Please note!**

During installation, ensure that the brake pads are centred and in full contact with the surface of the brake disc.  
The gap between the brake pads and the brake disc should always be approx. 1 mm on each side. Please observe maximum the wear limit.

In order to allow for sufficient room for brake pad replacement, at least 260 mm of open space should be on one side of the brake so that brake pads can be removed and installed without difficulty.

#### 8.4 Installing the threaded connection and bleeding the brake

Hydraulic hoses should be used as hydraulic fluid and fluid drain lines.

The connection is connected to one of the two pressure oil connections. The other bore is used as a vent bore.

Connect the fluid drain line, if applicable, or use a container for each brake calliper in order to localize oil leaks easily.

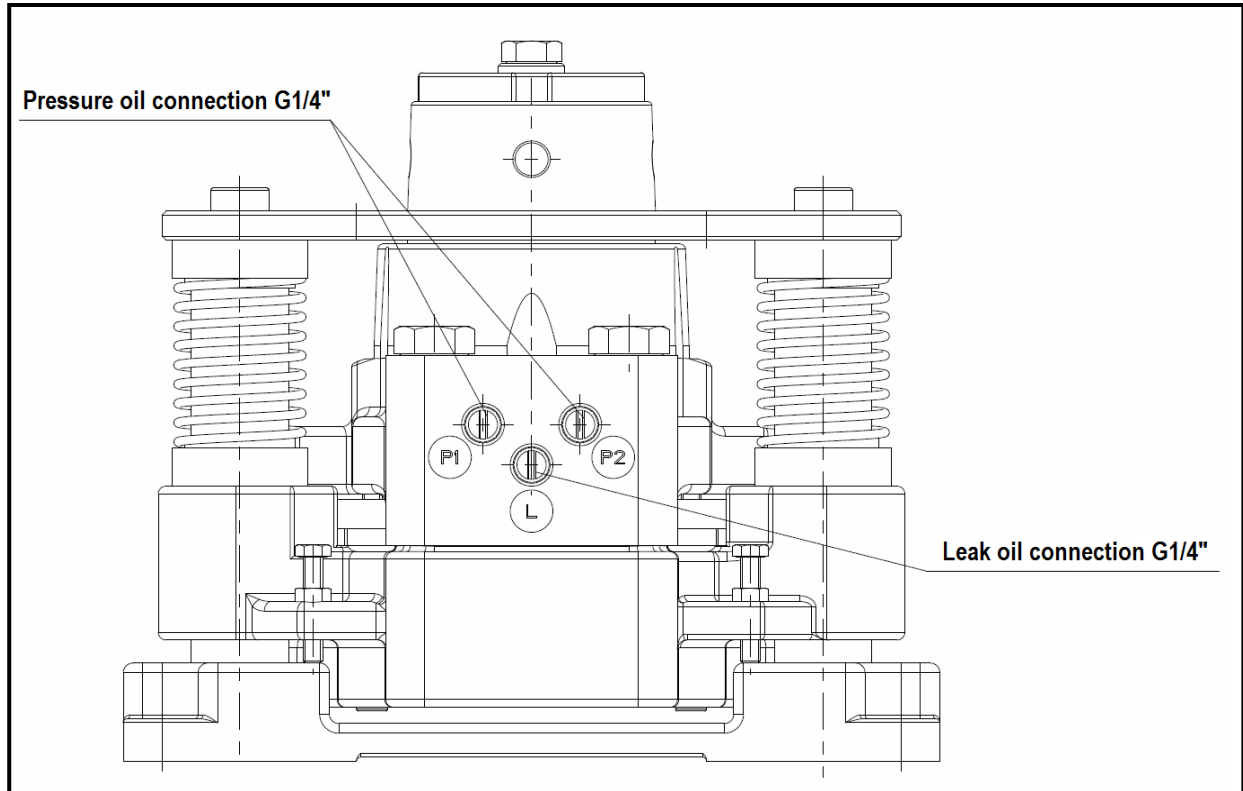


Fig. 8.2

Attach a Minimes connection or an automatic bleeder system to the vent bore after removing the screw plug.

The hydraulic system must be bled during initial installation, when seals are changed or other work is performed on the hydraulic system.  
If the hydraulic fluid circulation system is configured, the hydraulic system can be bled alternatively by circulating the hydraulic fluid.



**Please note!**

Flexible hydraulic hoses should be used to connect the hydraulic fluid and leakage lines in order to avoid restricting brake movements.



**Please note!**

Oil expelled from the system must be removed completely. Leaks must be repaired immediately.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>			<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29 page: 16

Check to ensure that screws and other connections are tight:

- brake saddle to machine component

Check the following for absence of leaks:

- bolt connections and other connections



**Please note!**

The brake saddle has two hydraulic fluid connections marked P1 and P2, size G ¼ (Whitworth pipe thread DIN ISO 228-1) and one oil drain connections marked L, size G ¼ (Whitworth pipe thread DIN ISO 228-1). The hydraulic system must never be operated at a higher pressure than is specified for the system. The maximum permissible operating pressure is 140 bar.

Fluid volume: per 1 mm piston stroke = 14 cm<sup>3</sup> per brake saddle (1 saddle = 2 halves)  
max. fluid volume (at max. brake pad wear) = 82 cm<sup>3</sup> per brake saddle.

Alloyed mineral oil, group HLP as defined in DIN 51525 or API classification SC, SD or SE may be used as a hydraulic fluid.



**Information!**

The purer the hydraulic fluid, the longer the service life of the brake system.



**Caution!**

It is important to ensure that the brake pads do not rub against the brake disc when the brake calliper is open.



<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS
checked.: EISF	Pages: 29	page: 17

### 8.5 Connecting the signal cable (optional)

Connect the signal cable via a signal lamp to a 24V power source. If the maximum permissible brake pad wear limit is reached, contact to the neutral conductor is effected and the signal light goes on.

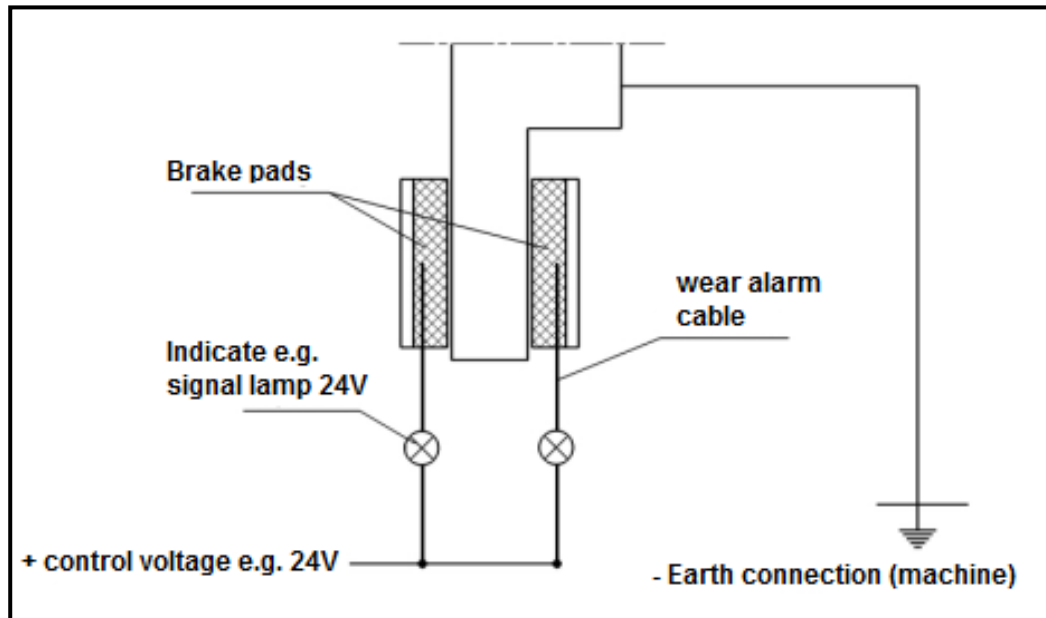


Fig. 8.3

## 9. Commissioning

Apply pressure to the brake calliper before commissioning and remove the M18x1.5x60 assembly locking screw (Pos. 21) and washer (Pos. 22). A KAPSTO GPN 300-F18 plug can be used to protect against dust intrusion (contained in the delivery package). The brake is now ready for operation.

The entire surface of both brake pads must be in contact with the brake disc in order to achieve the optimum braking effect. The brake pads must also be heated briefly to approx. 200°C. Therefore, multiple brief braking operations under low hydraulic pressure are required to heat the brake pads.



### **Please note!**

If the brake are used as parking brake, the brake torques specified are not met. Reductions of up to 50% of the braking torques are possible.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 18



**Please note!**

If the brake cannot be run in, the braking torques listed in our publication no. 46 cannot be achieved. Reductions of up to 50% are possible.

## 10. Disassembling the brake



**Caution! Danger to life and limb!**

**When disassembling the brake it is essential to ensure that the entire drive train is secured against inadvertent activation. Rotating components can cause severe injuries. Therefore, rotating components (e.g. brake discs) must be secured against accidental contact. To prevent injuries to personnel, secure the brake with the aid of an assembly locking device.**

Secure the open position with the assembly locking device provided in the delivery package (Fig. 5.1). This is done by applying hydraulic pressure and attaching the screw M18x1.5x60 (Pos. 21) and the washer A 18 (Pos. 22).

Release hydraulic pressure from the system.



**Please note!**

Ensure that no hydraulic pressure is applied to the brake saddle.

Drain hydraulic fluid completely.



**Caution!**

Secure the brake for disassembly.

Disconnect the hydraulic lines from the brake saddle. Secure the brake for disassembly. Remove the M20 screws used to hold the brake in place. The brake saddle can now be removed from the mounting surface.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 19

## 11. Lubrication

Oil or grease all bearing and glide points.



### Caution!

Brake pads must not come in contact with lubricants.

## 12. Maintenance

### 12.1 General maintenance

Maintenance must be performed on the brake saddle at intervals of 4 weeks up to once a year, depending upon the operating load.

Perform the following checks during every maintenance operation:

- Check brake pads for wear
- Check the bolt connection between the brake pad and the machine component as well as the bolt connections for the retaining plates for tightness.
- Check hydraulic lines and connections for leaks.
- Inspect the brake piston gaskets for tight seal by checking the leak oil lines. If there is oil in the leak oil lines, the gaskets must be replaced.
- Observe fluid change intervals! Change mineral after every 8,000 hours of operation or once per year.



### Caution!

Brake pads must not come in contact with hydraulic fluid .

### 12.2 Permissible brake pad wear and replacement of the brake pads



### Danger to life and limb!

Brake pads may be replaced only when the equipment system and/or the working machine is at a complete standstill!



### Please note!

Brake pads must not be worn to a residual thickness of less than 16 mm (mounting plate thickness plus remaining pad material). Brake pads must always be replaced in pairs.

Before replacing the brake pads (Pos. 1), ensure that the mass held by the brake is secured to prevent movement, as parts of the brake must be loosened/removed for replacement.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS
checked.: EISF	Pages: 29	page: 20

Before replacing the brake pads, apply hydraulic pressure to the brake saddle and install the assembly locking screw M18x1.5x60 (Pos. 21) and the washer A18 (Pos. 22). Then switch off the hydraulic pressure.



**Caution!**

Ensure that the brake calliper is not under hydraulic pressure before replacing the brake pads.

Make sure that no hydraulic pressure is applied to the brake calliper before replacing the brake pads. Remove one of the retaining plates (Pos. 6 and 10) on each side.

Remove the 4 hexagon socket head cap screws M10x70 (Pos. 8) and hexagon socket head cap screws M10x40 (Pos. 15). Please note that the screws are slightly pretensed by the pressure springs (Pos. 9 and Pos. 16). Pull the old brake pads out from the side dismantle the screws Pos. 3 M8X10 ISO 4762 8.8 mount the screws on the new brake pad and insert the new brake pads. Fasten the brake pads with the 4 hexagon socket head cap screws M10x70 (Pos. 8) and the 4 pressure springs (Pos. 9) one the one side and with the hexagon socket head cap screws M10x40 and the 4 pressure springs (Pos. 16) on the other. The screws (Pos. 8 and 15) must be secured with Loctite 243 and tightened with a torque of 10 Nm.

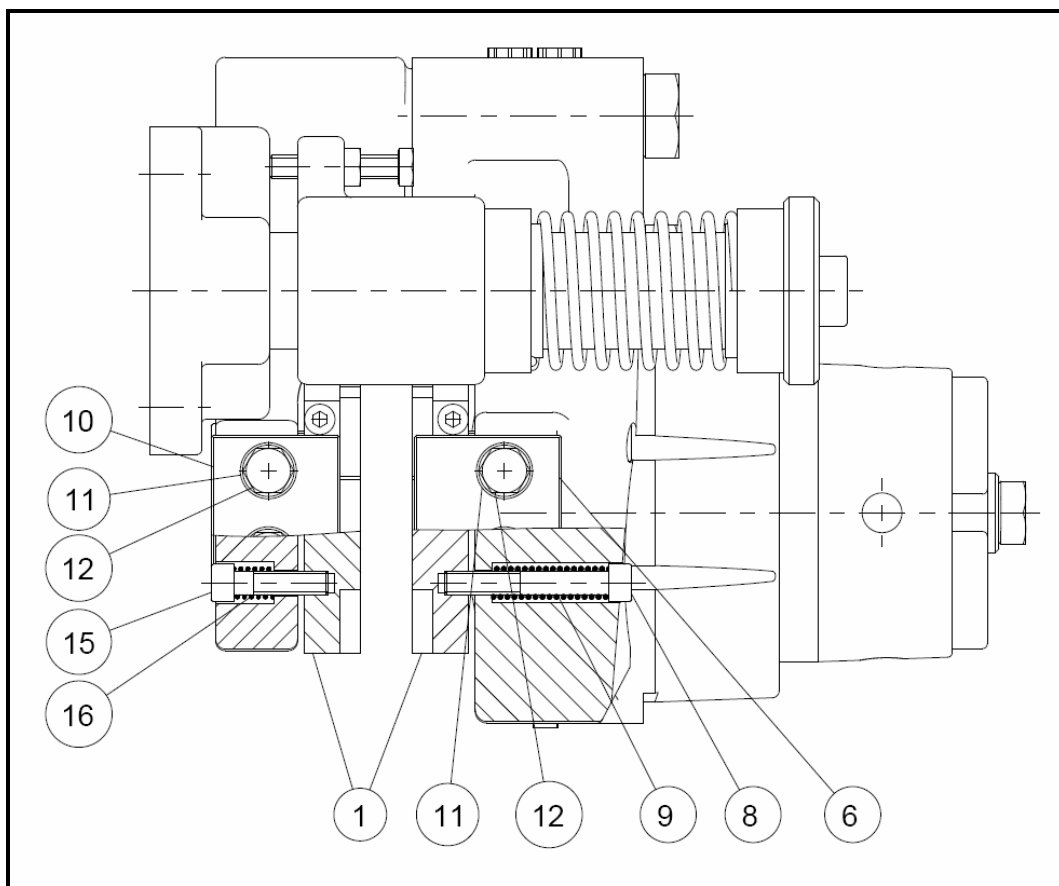


Fig. 12.1

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS
checked.: EISF	Pages: 29	page: 21



**Caution!**

The threaded bore in the brake pad is a blind bore with a depth of 10 mm. Tightening with a higher torque than 10 Nm may destroy the threading! Secure the screws with Loctite 243.

Remount the retaining plates (Pos. 6 and 10) on the brake housing. The tightening torque for the hexagon head screws M12x50 (Pos. 12) is 125 Nm secured with Loctite 243.

After replacing the brake pads, the brake pads must be set/adjusted again as described in Section 8.3.



**Information!**

In the case of brakes with special floor panel, the mounting screws must be loosened and removed, except for one screw. Then the brake can be swung out of the grasp of the brake calliper. In this position, the retaining plates (Pos. 6 and 10) need not be removed. The brake pads can be replaced simply by removing the hexagon socket head cap screws M10x70 (Pos. 8) and M10x70 (Pos. 15).

12.3 Replacing seals, strippers and piston gaskets



**Danger to life and limb!**

Seals/gaskets may be replaced only with the equipment system and/or working machine is at a complete standstill!



**Caution!**

Ensure that no hydraulic pressure is applied to the brake saddle. Observe the manufacturer's instructions when handling solvents.

Maximum cleanliness is essential during work on the hydraulic system. Every part must be cleaned with a solvent, dried and stored dust-free. Dirt shortens the life of seals and gaskets significantly. Inspect the surfaces of the brake housing and the brake pistons. Surface damage may destroy seals/gaskets immediately.

Remove upper brake calliper casting through disengage the 4 M24x140 cylinder screws (Pos. 14).

Remove the 4 M10x70 cylinder screws (Pos. 8) holding the brake pad. Please note that the cylinder screws are slightly pretensed by the pressure springs (Pos. 9). Unscrew the spring

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>			<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS	checked.: EISF	Pages: 29   page: 22

mount from the brake saddle housing H 075 FHM (Pos. 2). Hold or clamp the brake housing firmly in place. Push the piston (Pos. 7) out. Ensure that the piston is pressed evenly out of the brake saddle housings (pos. 2). Document the number and arrangement of support discs. Remove the disc springs and support discs.



**Please note!**

Document the number and arrangement of disc springs and support discs to facilitate assembly.

Remove the Turcon Glyd Ring (Pos. 28), Turcon-Excluder 2 (Pos. 4) and Turcon-Stepseal 2K (Pos. 5) seals from the brake saddle housing in that order.

Prior to assembly/installation, the brake saddle housing should be inspected for damage, cleaned and lubricated.

Install the new seals in the brake saddle housing. Observe the correct position of each seal (Fig. 12.2). The seals should be installed by hand to avoid damaging the sealing edges. For easier installation, the seals can be bent into a kidney shape and set into the groove. Lubricate seals prior to installation with a light coat of Molykote MoS<sub>2</sub>. Press the piston (Pos. 7) straight (centred) into the cylinder bore with a press or drive it with a plastic hammer to the stop point. After installing the disc springs (lubricated with Molykote MoS<sub>2</sub>) and the support discs, insert the spring receiver lubricated with a light coat of Molykote (Pos. 23) into the brake saddle housing (pos. 2) to dimension 246 as shown in Fig. 12.2. Then pretense the disc springs with the assembly locking screw M18x1.5x60 (Pos. 21) and the washer A 18 (Pos. 22). To facilitate installation of the assembly locking screws, apply hydraulic pressure to the brake saddle and then install the assembly locking screw M18x1.5x60 (Pos. 21) and the washer A 18 (Pos. 22). The last step is to fit the O-ring (Pos. 26) into the housing again.

Nomenclature	Clamping force kN	No. of Belleville springs each package n	No. of package i
HW 075 FHM-010	10	1	34
HW 075 FHM-020	20	1	38
HW 075 FHM-030	30	2	19
HW 075 FHM-040	40	2	20
HW 075 FHM-055	55	3	14

Table Standardbrakes 12.1

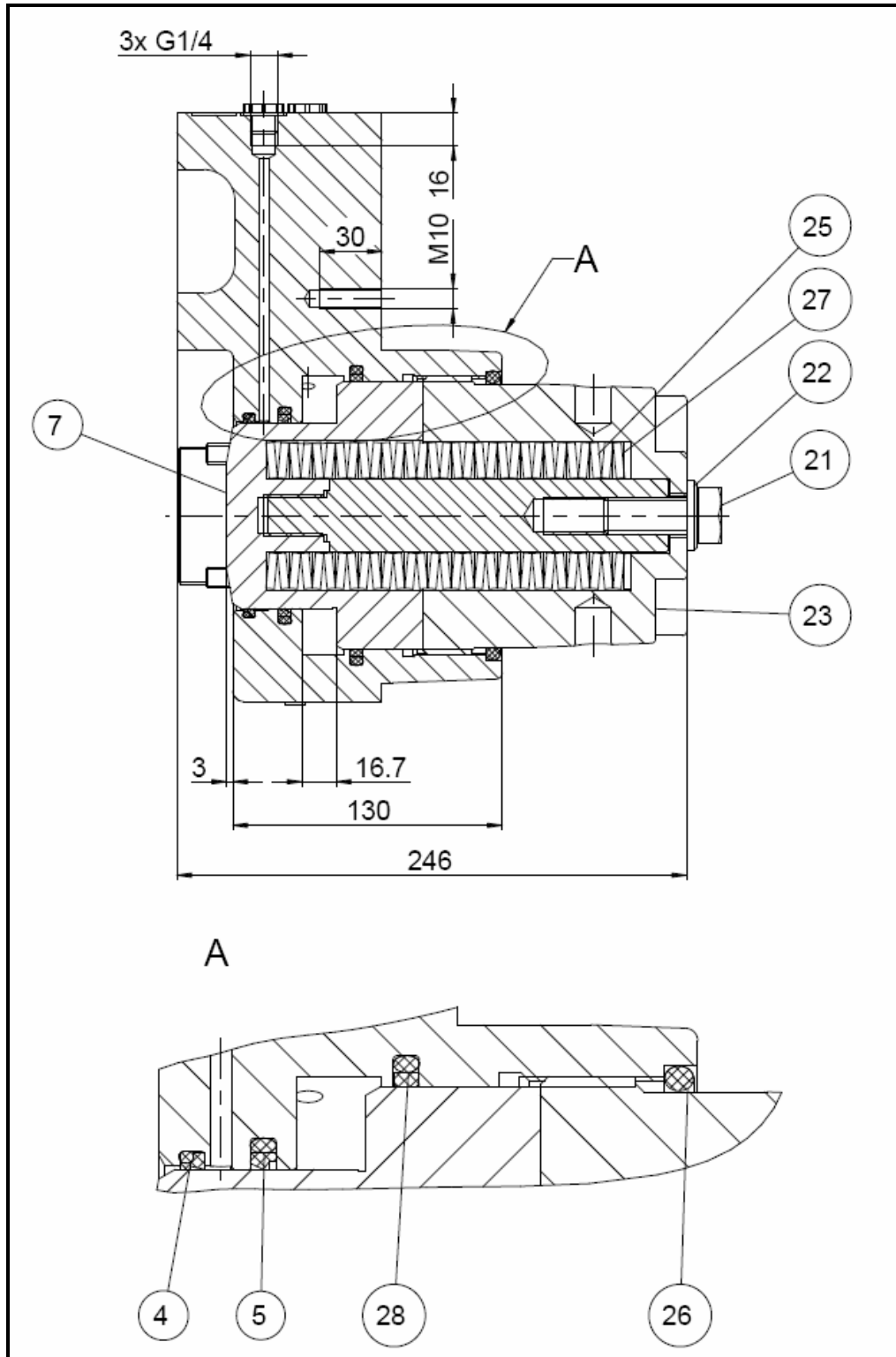


Fig. 12.2

Then install the brake pad (Pos. 1) as described in Section 8.3 before fastening the upper brake calliper half to the brake calliper with the 4 hexagon head screws M24x140 (Pos. 14) with a tightening torque of 730 Nm. If the complete brake calliper was removed for installation, please repeat steps 8 and 9 in the installation guide.

### 13. Accessories: switches

#### 13.1 Installing and connecting the inductive proximity switch brake on/off



**Danger to life and limb!**

The inductive proximity switch may be installed and/or replaced only when the equipment system and/or working machine is at a complete standstill!

The 3502.112.004.B024VG M12x1 65mm inductive proximity switch with stainless steel housing included loose delivery.

Two threaded bores (M12x1) are drilled in the brake housing as mounting bores for the inductive proximity switch.

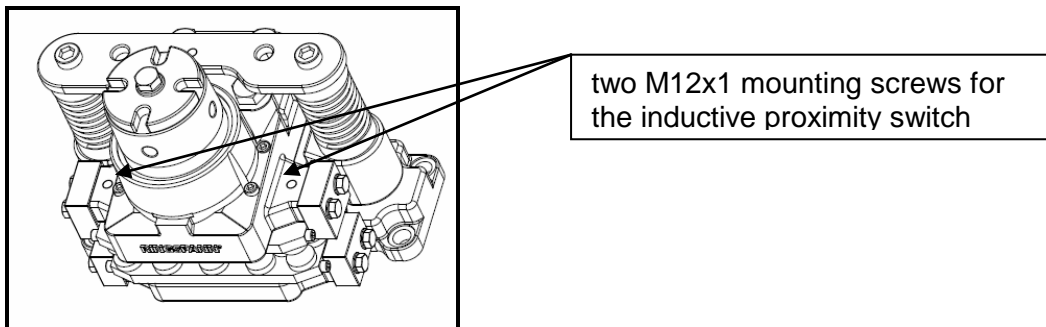


Fig. 13.1

Switching function	: PNP (Closer)	Switching distance	: 2 mm flash
Operating voltage	: 10....30 V DC	max. op. current	: 0...200 mA
No-load current	: < or = 17 mA	Leakage current	: < or = 0,5 mA
Voltage drop	: < or = 3 V	Short-circuit protect	: clocking
Rev. Polarity protect.:	yes	Switch indicator	: multi-hole-LED
Temp. Range	: -25 to +70°C	Safety class	: IP 67
Connection	: V1-Connector	Housing	: stainless steel

Circuit diagram of the inductive proximity switch

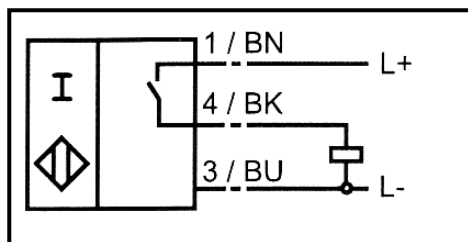


Fig. 13.2



<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS    checked.: EISF    Pages: 29    page: 25



### Information!

The inductive proximity sensor must be positioned in such a way that it is energized when under pressure (the LED on the inductive switch glows). When the brake is activated, the inductive proximity switch moves out of the range of the switch and is no longer energized. The LED on the inductive sensor goes out.

Procedure for installing or replacing the inductive proximity switch:

(The following instructions apply to the proximity switch with 2 mm switching distance listed above.)

- Install the inductive proximity sensor when the brake is under pressure.
- Screw the inductive proximity sensor into the brake housing until the gap between the inductive proximity sensor and the back side of the brake pad is approx. 1 mm.
- Secure this position with counter nuts.
- Switch on the inductive proximity switch. The LED on the proximity switch must now glow.
- Test for proper function by activating the brake saddle several times in succession.



### Caution!

Please follow the described steps exactly in order to avoid damaging the proximity switch:

## 13.2 Installing and connecting the inductive proximity switch for brake pad wear



### Danger to life and limb!

The inductive proximity switch may be installed and/ or replaced only when the equipment system and/or working machine is at a complete standstill!  
The inductive proximity switch is damaged when the brake are applied without brake pads.

The 3502.112.004.B024VG M12x1 65mm inductive proximity switch with stainless steel housing and the hexagon head screw M10x35 DIN 933 with hexagon nut M10 DIN 934 included loose delivery. For attachment from the inductive proximity switch is a threaded hole M12x1 in the head plate (Pos.20.1) and in the brake saddle housing is a M 10 Thread for fixing the hexagonal screw M10x35 DIN 933 available.

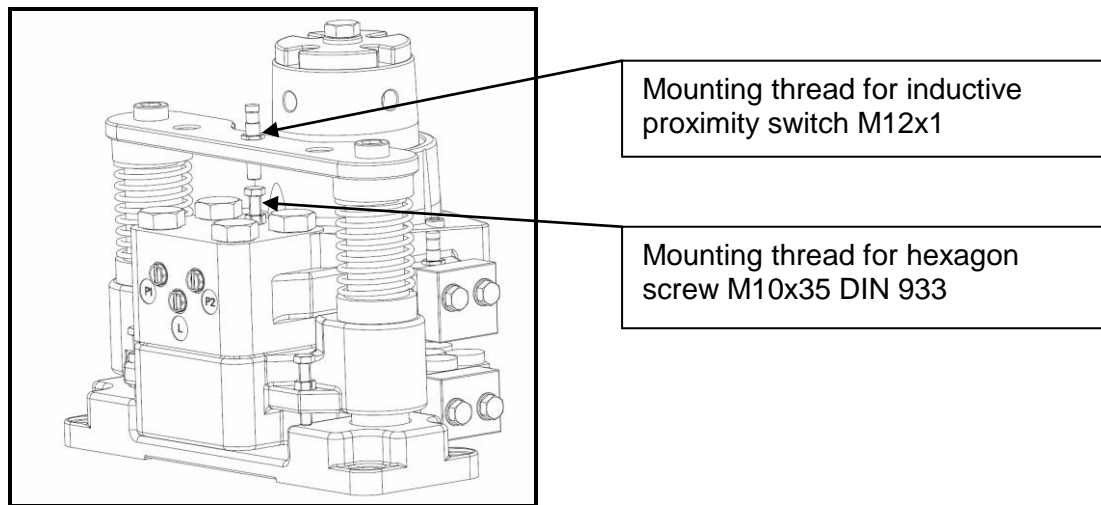


Fig. 13.3

Switching function	: PNP (Closer)	Switching distance	: 2 mm flash
Operating voltage	: 10...30 V DC	max. op. current	: 0...200 mA
No-load current	: < or = 17 mA	Leakage current	: < or = 0,5 mA
Voltage drop	: < or = 3 V	Short-circuit protect	: clocking
Rev. Polarity protec.	: yes	Switch indicator	: multi-hole-LED
Temp. Range	: -25 to +70°C	Safety class	: IP 67
Connection	: V1-Connector	Housing	: stainless steel

Circuit diagram of the inductive proximity switch

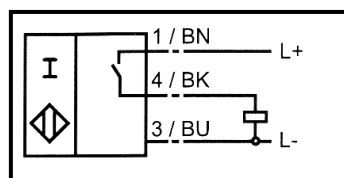


Fig. 13.4



**Information!**

The inductive proximity sensor must be positioned according to Fig.13.3. If the brake is actuated, shall the distance between the inductive proximity switch and the screw less. Once the limits is reached, the inductive proximity switch is damped in the pressurized state. The LED on the inductive proximity switch must glow.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS checked.: EISF
Pages: 29		page: 27

Procedure for installing or replacing the inductive proximity switch:

(The following instructions apply to the proximity switch with 2 mm switching distance listed above.)

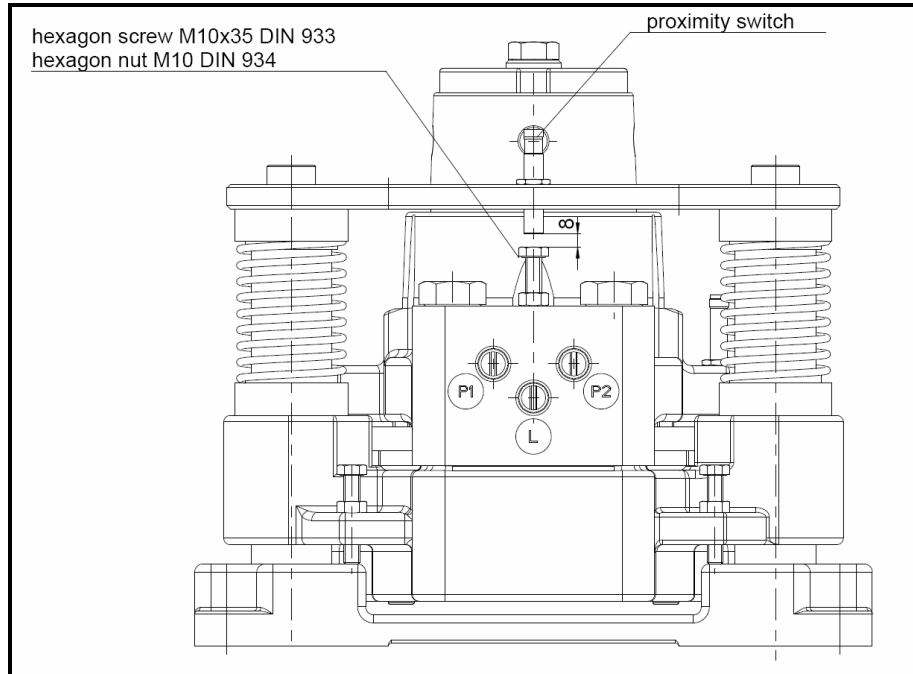


Fig. 13.5

- Install the inductive proximity sensor when the brake is not under hydraulic pressure.
- Screw the hexagon screw M10x35 DIN 933 with the hexagon nut M10 DIN 934 into the brake housing according to Fig. 13.5
- Screw the inductive proximity sensor into the brake head plate until the gap between the inductive proximity sensor and the back side of the hexagon screw is approx. 8 mm.
- Secure this position of the inductive proximity switch and the hexagon screw with the counter nuts.
- Switch on the inductive proximity switch.
- Test for proper function by activating the inductive proximity switch while holding a metal piece in a distance approx. 2mm before the inductive proximity switch. The LED on the inductive proximity switch must glow.



**Caution!**

Please follow the described steps exactly in order to avoid damaging the proximity switch:

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS checked.: EISF Pages: 29 page: 28

### 13.3 Installing and connecting limit switch for brake on/off and 4mm pad wear

The limit switch part number 3502.112.005.B024VG with mechanical connection M12x1 mm.

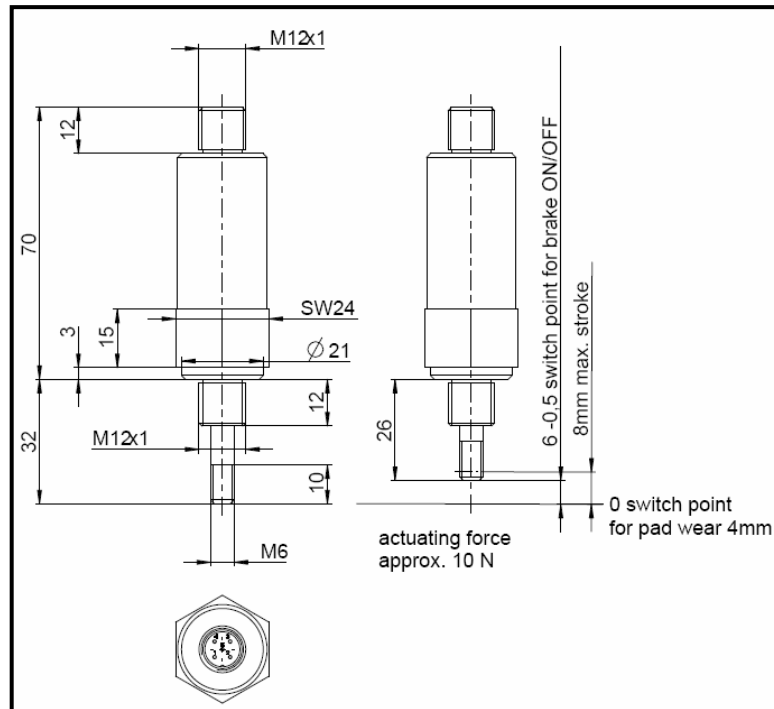


Fig: 13.6

Electrical connection. (See connection diagram)

Technical data

Operation temperature : -40°C to +85°C  
 Max. Voltage : 30 VDC  
 Max. Current : 100mA  
 Switching tolerance : -0,5mm

Protection grade : IP 65 (mounted)  
 Spanner size (SW24) : 24mm  
 Tightening torque spanner : 20Nm A)  
 Cable connector torque : finger tight  
 Cable length: : 5 meters  
 Cable type : PUR  
 Cable dimensions : 5\*0,34mm<sup>2</sup>  
 Thread size limit switch : M12x1

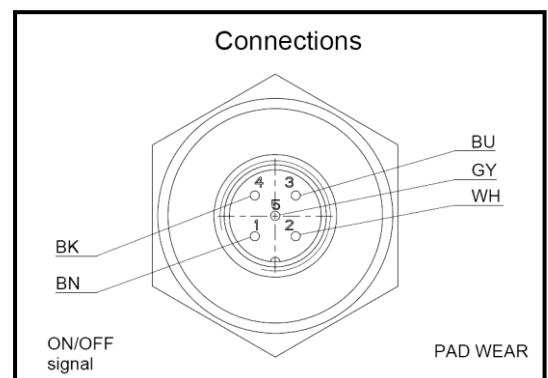


Fig. 13.7

### Cable information

The brake switch is equipped with a 5m cable and M12x1 connector as standard.

Other cable lengths / types can be ordered.

<b>RINGSPANN</b>	<b>Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released</b>	<b>E 09.744 e</b>
Issue: 05.11.2014	Version : 4	drawn: BAHS checked.: EISF
Pages: 29		page: 29

Procedure for installing or replacing limit switch for brake on/off and 4mm pad wear:  
For further information look into the Data sheet for limit switch.



**Caution!**

Please follow the described steps exactly in order to avoid damaging the limit switch:

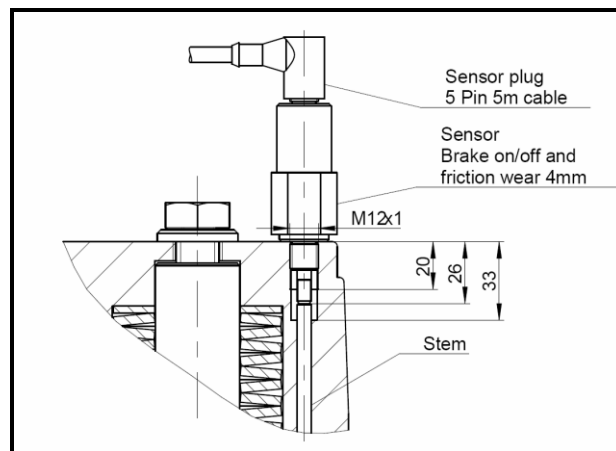


Fig. 13.8

- Move the stem diameter 6h9 length L= 103,5 part number 2711.006.628.000000 lubricated with Molykote MoS<sub>2</sub> into the case
- Screw the limit switch into the brake you need no set for the function
- Test for proper function brake on/off by activating the brake.

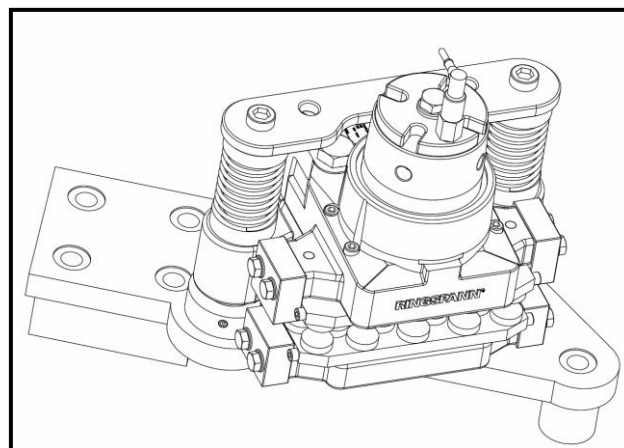


Fig. 13.9