

**Installation and Operating Instructions for
Brake 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
info@ringspann.com

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e			
Issue: 10.02.2023	Version: 8	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.

This is a translation of the German original version!

In case of inconsistencies between the German and English version of this installation and operating instruction, the German version shall prevail.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released			E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29 page: 3

Contents

1. General notes

- 1.1 General safety instructions
- 1.2 Special safety instructions

2. Design and function/ parts list

- 2.1 Function
- 2.2 Identification
- 2.3 Drawing and parts list

3. Intended use

4. Impermissible use

5. Condition as delivered

6. Handling and storage

7. Technical prerequisite for reliable operation

8. Installing the RINGSPANN brake

- 8.1 General instructions regarding assembly and installation
- 8.2 Assembly description
- 8.3 Setting/ adjusting of the brake pad distance
- 8.4 Assembly of the screw connection and bleeding the brake
- 8.5 Connecting the signal cable (optional)

9. Start-up

10. Disassembling the brake

11. Maintenance

- 11.1 General maintenance
- 11.2 Permissible friction lining wear and exchanging of the brake pad
- 11.3 Exchanging seals, wipers and piston seals

12. Sensor for operating state monitoring (option)

- 12.1 Mounting and connection of inductive proximity switch for position monitoring
- 12.2 Mounting and connection of inductive proximity switch for pad wear monitoring

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released			E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29 page: 4

1. General notes

1.1 General safety instructions

Read these installation/operating instructions carefully before putting the brake into operation. Consider these instructions as well as the drawings in the individual sections.

All work with and on the brake is to be carried out taking into account that "safety is top priority".

Switch the drive unit off before carrying out work on the brake.

Rotating parts (e.g. brake disc) must be secured by the operator against unintentional touching.

1.2 Special safety instructions



Life-threatening danger!

When assembling, operating and maintaining the brake it is to be ensured that the entire drive train is secured against being switched on unintentionally. Moving parts can cause severe injury. Rotating parts (e.g. brake disc) must be secured by the operator against unintentional touching.

2. Design and function/ parts list

2.1 Function

The brake is a machine element with which accelerated masses can be safely slowed down. In combination with a brake disc, you have a complete brake for the effective safeguarding of machines and systems. Thanks to its universal design, it fulfils the following functions:

- As a holding brake, it prevents a stationary shaft from starting unintentionally.
- As a stopping brake, it brings a rotating shaft to a halt.
- As a control brake, it maintains a particular tensile force within the material.

The braking force is produced by springs and the brake is opened by means of oil pressure.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e	
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF Pages: 29 page: 5

2.2 Identification

These operating instructions apply:

- 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

There is a type plate on the brake with a 16-digit article number. The exact design of the brake is defined by this article number only.

As well as these instructions, please also consider the catalogue data for the brake at www.RINGSPANN.com and the drawings in the individual sections.

2.3 Drawing and parts List

Brake saddle HS 075 FHM

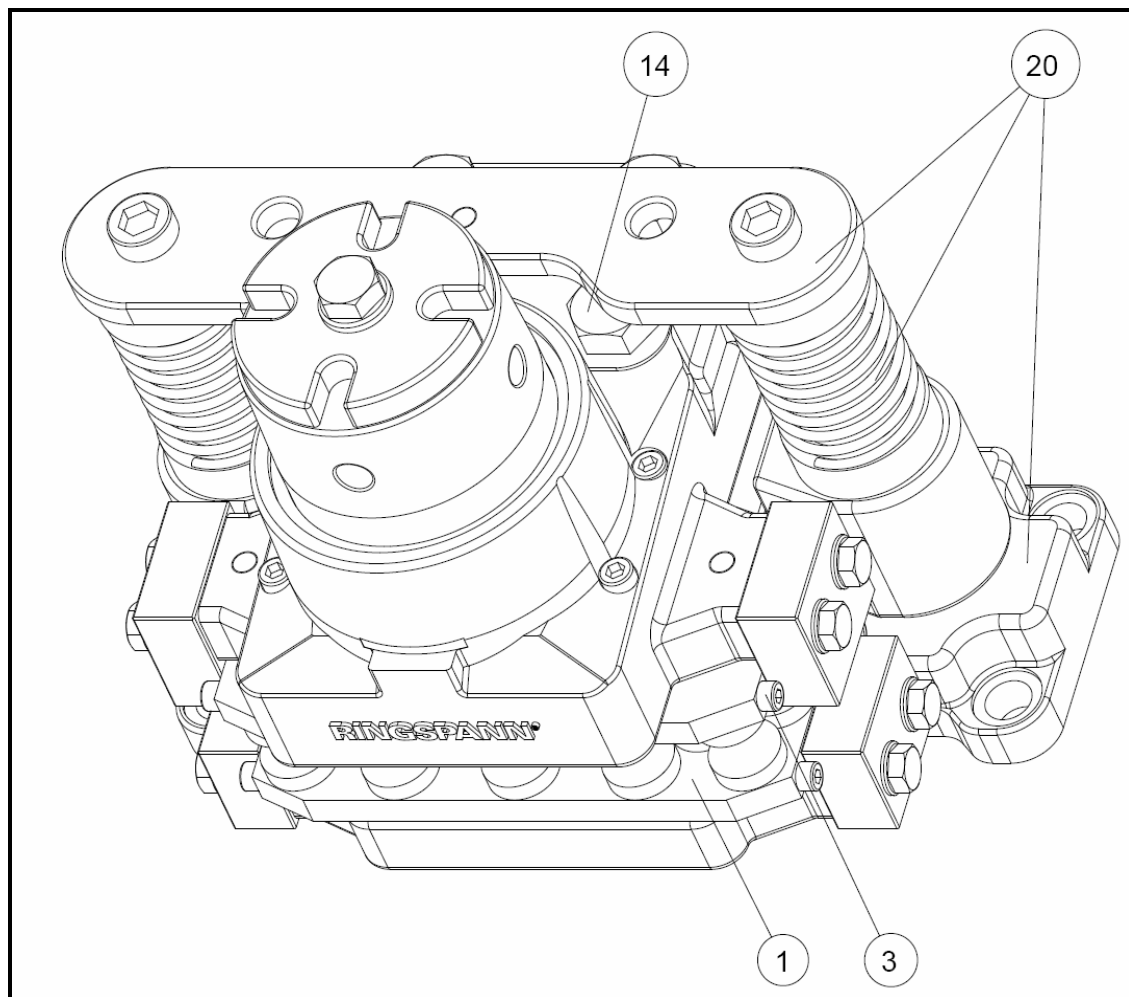


Fig. 2.1

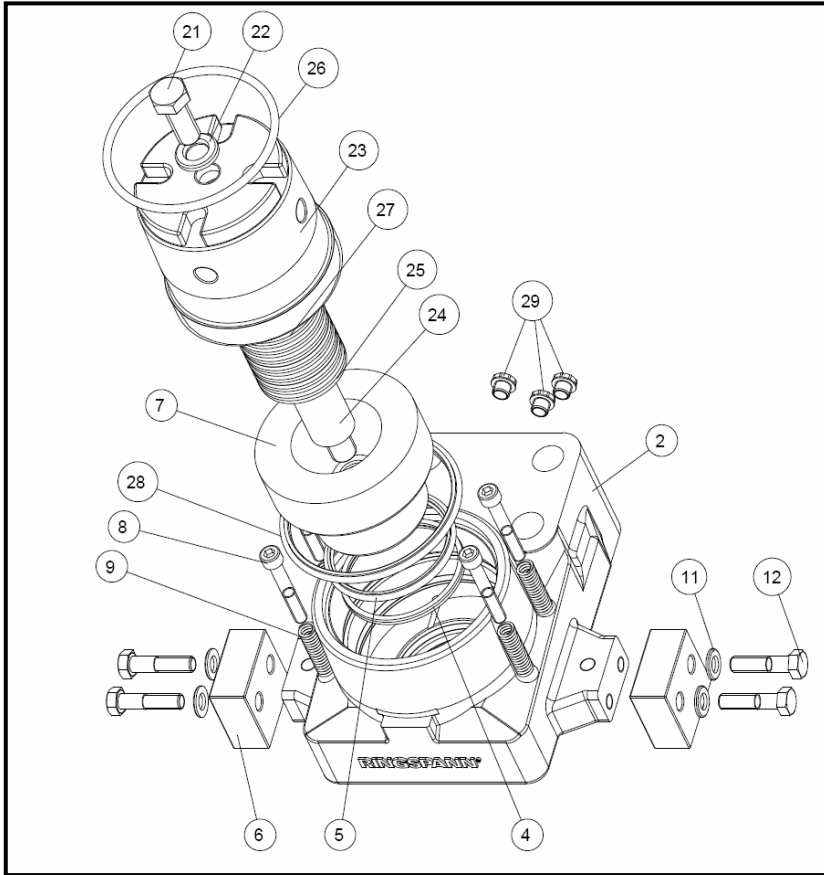


Fig. 2.2

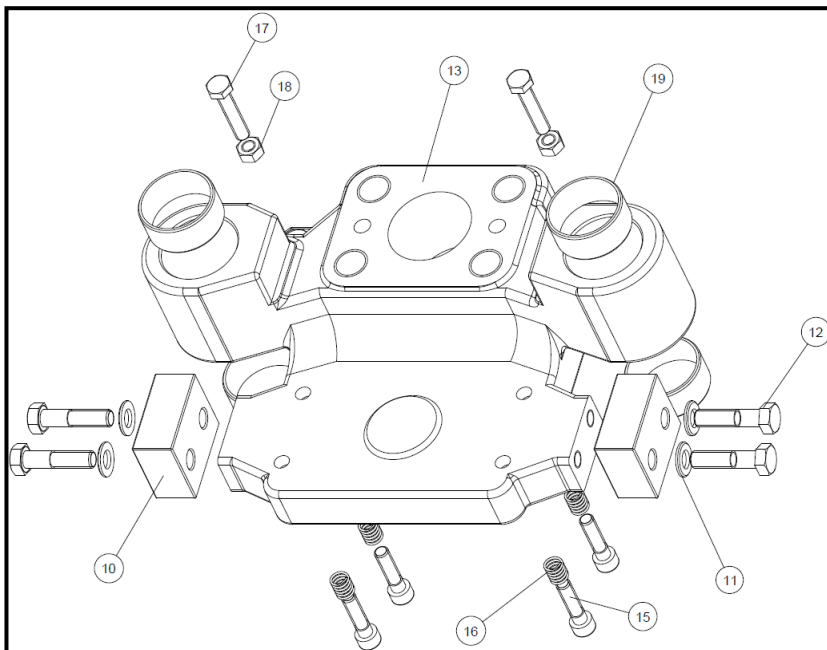


Fig. 2.3

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 7

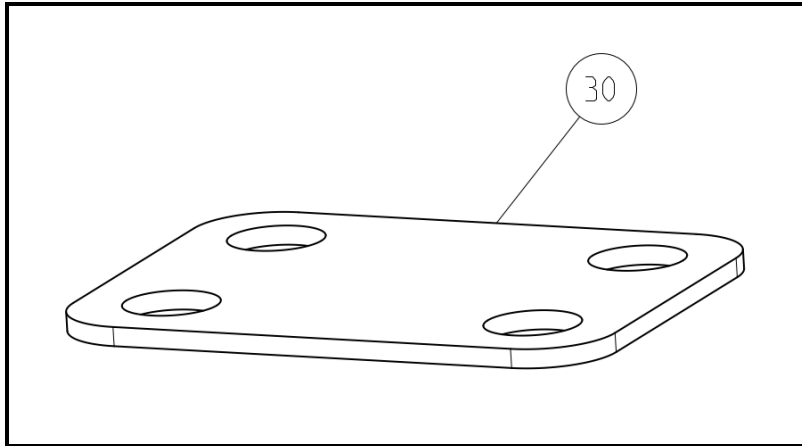


Fig. 2.4

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

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released			E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29 page: 8

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
26	O-ring 126,37x6,99	1
27	Supporting disc S 56x72x3 to Aus. max.	7
28	Turcon Glyd Ring T RT0301300-T46 N	1
29	Stopper plug R ¼" KAPSTO GPN 700	3
30	Intermediate plate HS 075 thick 5mm for wide brake discs	option

* 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

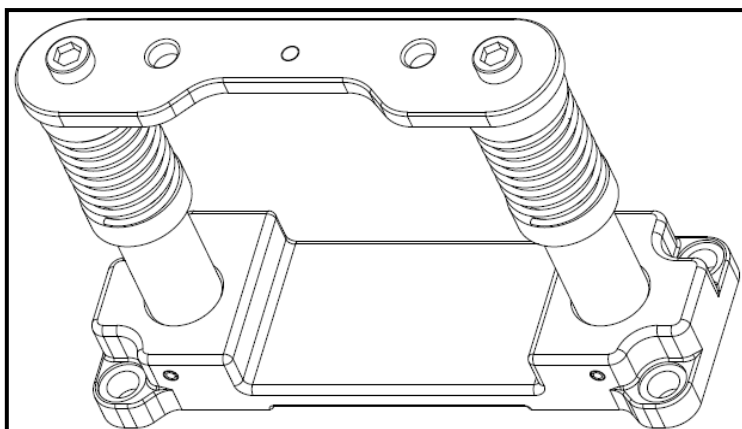


Fig. 2.5

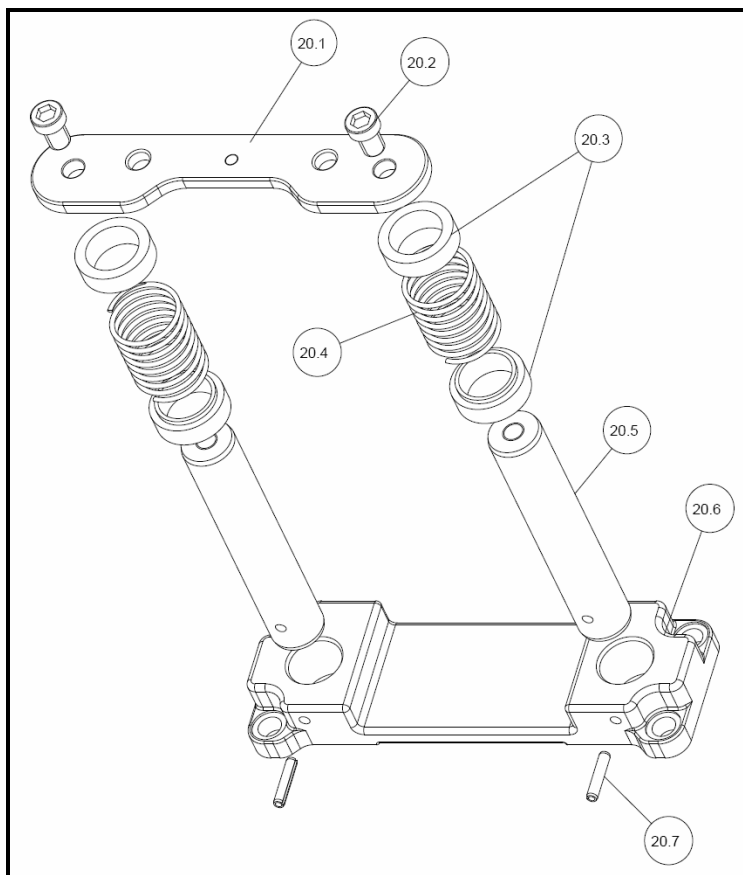


Fig. 2.6

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

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released			E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29 page: 10

Execution basic holder with special floor panel, part 20.6

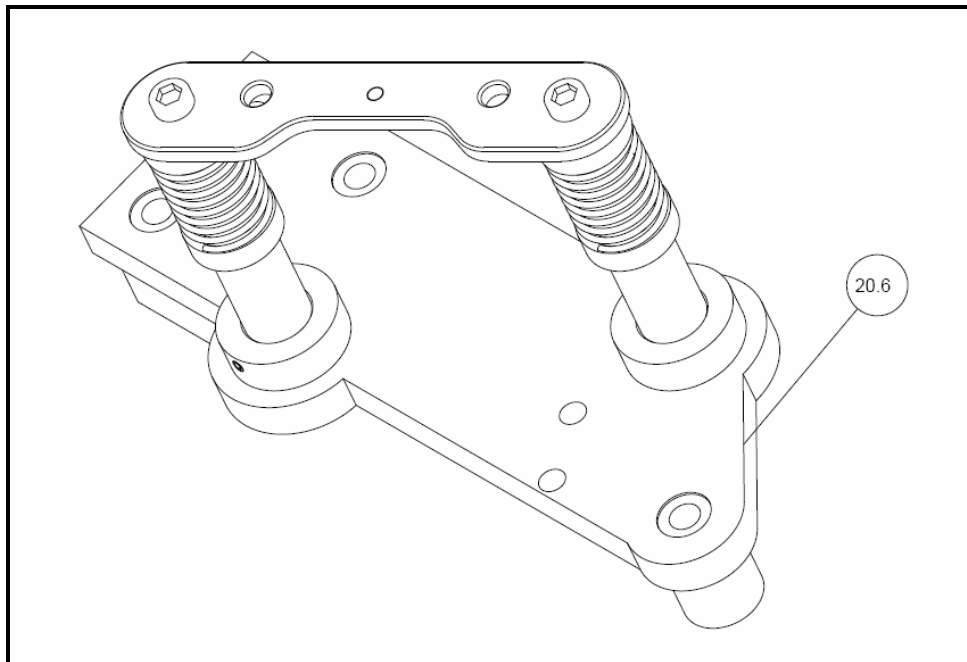


Fig. 2.7

3. Intended use

The brake calliper may only be used with a maximum oil pressure of 140 bar and in accordance with the technical data.

The brake has been designed for use as a holding, control and stopping brake. Use for any other purpose will be deemed improper. RINGSPANN shall not be liable for any damage caused by improper use; the risk shall be borne by the user alone.

4. Impermissible use

It is not permissible to operate the brake with a higher pressure than given in the technical data or with other media. Unauthorised constructional changes to the brake are also not allowed. RINGSPANN shall not be liable for any damage caused by improper use; the risk shall be borne by the user alone.

5. Condition as delivered

The brake is tested prior to delivery. The brake is delivered ready to install. The brake is delivered depressurised. Sensors are delivered separately.

The brake calliper is delivered ready to install. The brake cylinder is fixed in the open position by M18x1.5x60 assembly locking screw Pos. 21. The assembly locking screw must be removed during commissioning.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 11



Information!

The securing screws M 18x1.5x60 (item 21) can easily removed and assembled if the brake is under hydraulic pressure.

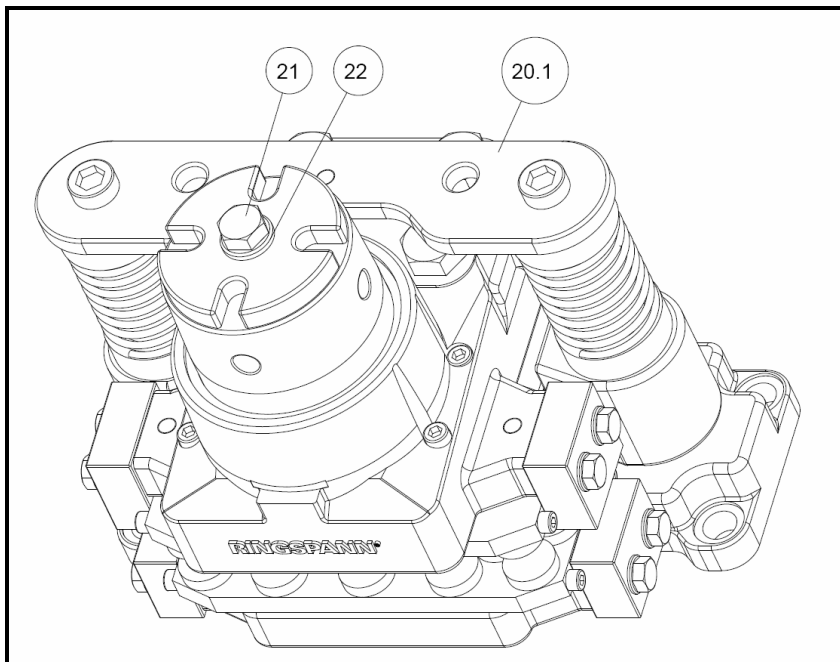


Fig. 5.1

6. Handling and storage

The technical data of the brake such as air pressure, clamping force, air volume, dimensions and weight are shown on the catalogue pages for the brake. The current data can also be found on the RINGSPANN website www.RINGSPANN.com.

For the transport and handling M12 thread are attached to the brake..

The brake is delivered in preserved condition and can be stored for 12 months in an enclosed and dry place. It is to be made sure that no condensation develops. Damp storage rooms are not suitable. If storing the brake for a period longer than 12 months, as well as after any transport, the brake must be activated once in order to prevent the seals from getting stuck down.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released			E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29 page: 12

7. Technical prerequisite for reliable operation

Fastening the brake to stable and low-vibration machine parts will ensure quiet braking without creaking.

8. Installation the RINGSPANN brake

8.1 General instructions regarding assembly and installation

Before installing the brake, the brake disc must be cleaned with alcohol (e.g. spirit (ethanol) or isopropyl alcohol) or with water-based tenside solutions (soapy water or the like).

If cleaning the brake disc with a diluent, acetone or brake cleaning agent, it must be ensured that these agents and no residues of these agents come into direct contact with the friction blocks. This must be ensured for pure holding brakes in particular, since no dynamic braking takes place that would remove any diluent residues from the brake disc.



Important!

Residues from oil and anti-rust agent considerably reduce the coefficient of friction and therefore also the braking and holding torque!

8.2 Assembly description

The standard brake calliper is fastened to the machine part with 4 screws M20-12.9, tightening torque 692 Nm. Tightening torque calculated with $\mu_G = 0.12$ as the average coefficient of friction in the thread and $\mu_K = 0.12$ as the coefficient of friction in the head support according to VDI 2230 Page 1 of Feb. 2003.

(The screws are not included in the delivery).



Important!

Hydraulic pressure must not be applied to the brake calliper during assembly.

Before assembly it is to be checked whether the mounting surface is even and the concentricity between the brake disc and mounting surface is within a tolerance of 0.3 mm.

The connecting plate for the brake as well as the brake disc must be checked for dimensional accuracy. For this purpose, the connection dimensions shown on the catalogue data sheet or installation drawing are to be checked. Standard distance is 90 mm +/- 1 mm.

Before assembly it is to be checked whether the mounting surface is even and the concentricity between the brake disc and mounting surface is within a tolerance of 0.3 mm.

Examine the axial movement of the brake disc. The axial movement must not be greater than ± 0.3 mm.

The maximum permissible lateral run-out of the brake disc is 0.1 mm. A greater lateral run-out can cause the brake unit to rattle and shake.

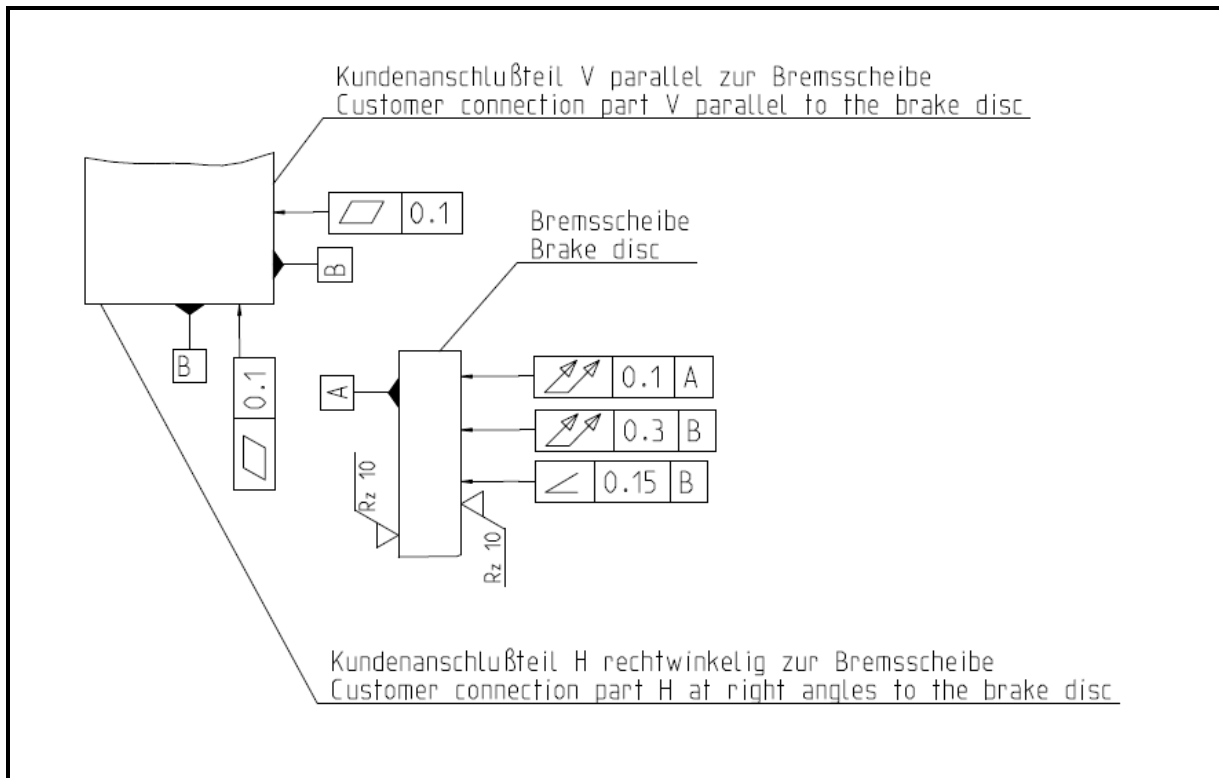


Fig. 8.1



Important!

Check whether the brake disc can be freely rotated.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS
checked.: EISF	Pages: 29	page: 14



Important!

The securing screws M 18x1.5x60 (item 21) can easily removed and assembled if the brake is under hydraulic pressure.



Information!

To make assembly easier, you can fix the position of the brake with just one screw to start with, before then slewing the brake far enough for the next screws to be mounted also.

8.3 Setting/ adjusting the brake pad distance

The adjustment of the friction pads distance is carried out after the brake has been assembled. It is done by setting/ adjusting using the setting/ adjusting screw (see Fig. 8.2.)

The distance from both sides of the friction pads to the brake disc should be approx. 1 mm when new. At the time of wear adjustment, one side is adjusted.

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.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS
checked.: EISF		Pages: 29
page: 15		

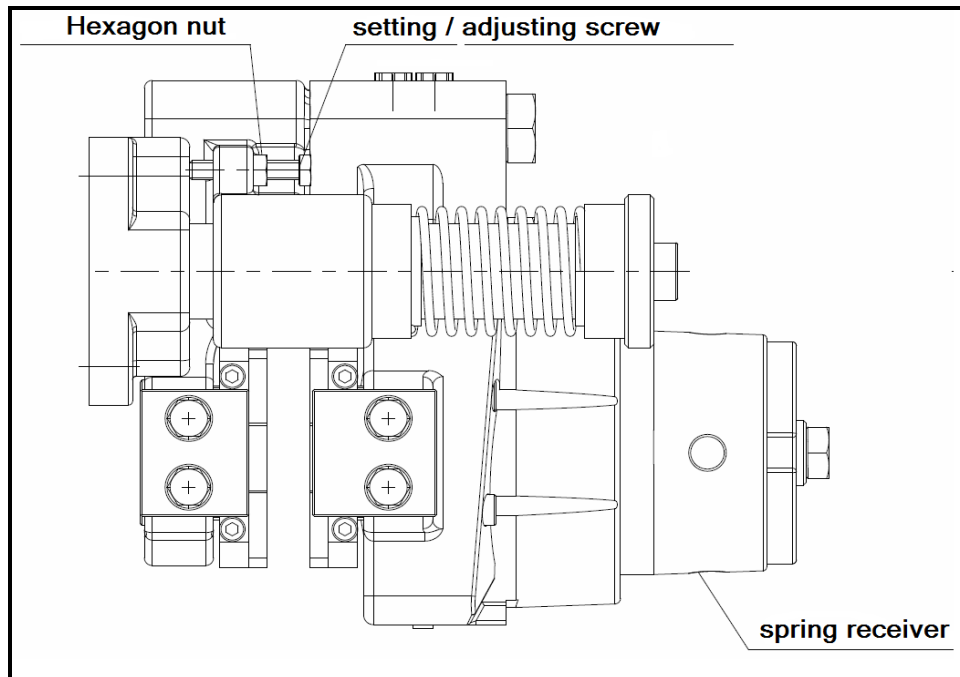


Fig. 8.2

Tighten the hexagon nut after completing the setting/ adjustment procedure (see Fig. 8.2)

So that there is enough space for changing a friction block, there should be at least 260 mm of free space on one side of the brake, in order for the friction block to be easily disassembled and assembled.



Important!

The adjustment process must be made after installation and replacement of the brake pad.

8.4 Assembly of the screw connection and bleeding of the brake



Important!

Flexible hydraulic hoses are to be used for the pressure line and leakage oil line connection so as to not inhibit the movements of the brake.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS
checked.: EISF		Pages: 29 page: 16

The connection is made at one of the two pressure oil connections; the second borehole serves as a bleeder hole.

Attach the leakage oil line (if available) or use a collection container for each brake calliper in order to be able to locate an oil leakage easily.

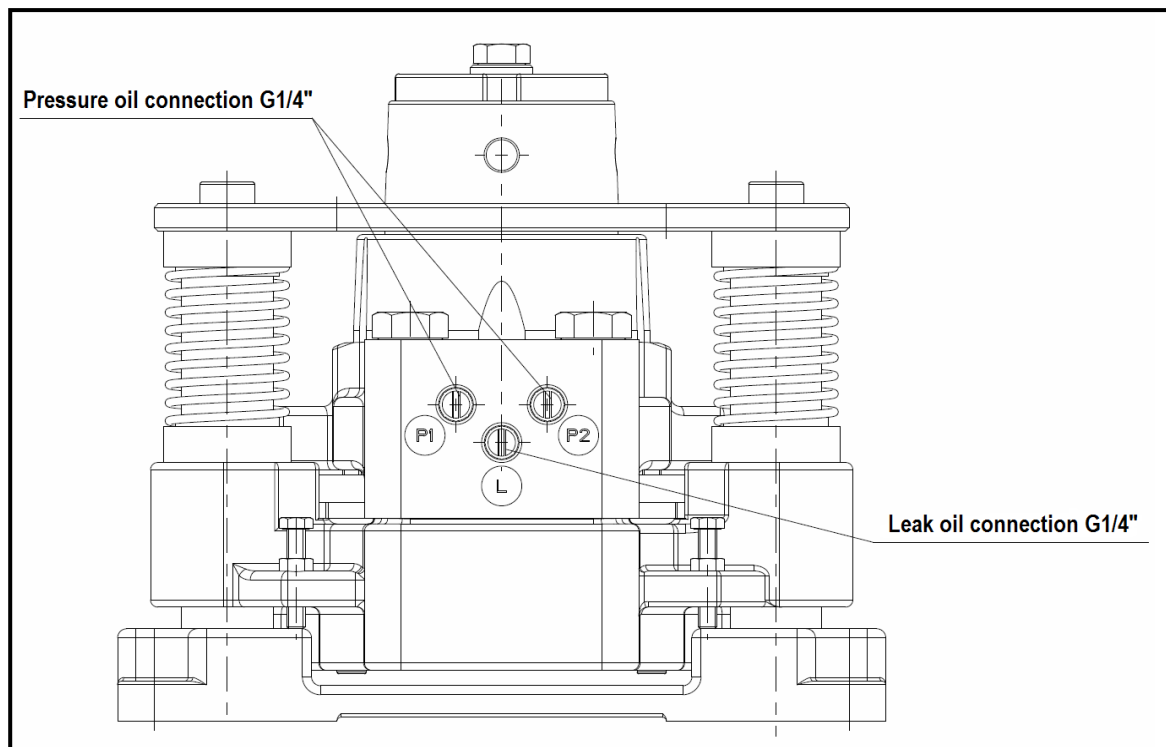


Fig. 8.3



Important!

It must be ensured that the friction blocks do not grind on the brake disc while the brake calliper is released.

Assemble a mini measuring connection or an automatic bleeding system at the bleeder hole. The screwed sealing plug is to be removed beforehand for this purpose.

If carrying out initial assembly, exchanging the seals or performing other work on the hydraulics, the hydraulic system must be bled.

If the system is designed for hydraulic oil circulation, the hydraulic system can alternatively be bled through circulating hydraulic oil.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS
checked.: EISF	Pages: 29	page: 17



Important!

Any oil that has escaped must be completely removed. Leakages are to be eliminated immediately.

The following are to be checked to ensure firm screwing and connection:

- Brake at the machine part

The following are to be inspected for tightness:

- Screwings and 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 cm³ per brake
max. fluid volume (at max. brake pad wear) = 82 cm³ .

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.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 18

8.5 Connecting the signal cable (option)

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. As an option, RINGSPANN offers a wear indicator as friction pad wear monitoring for the brakes, which signals when the friction pad wear limit is reached. The indicator lamp in the wear indicator shows that the friction blocks need to be changed. In addition, the output relay can be used to trigger a signal in the machine control system.

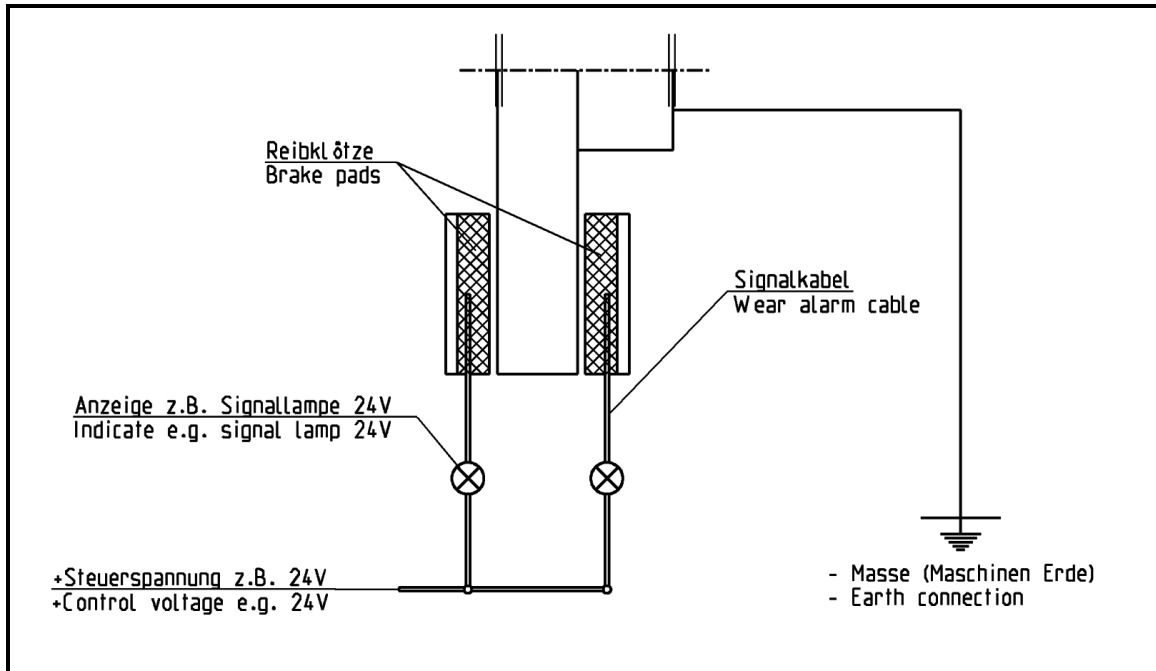


Fig. 8.4

9. Start-up

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.

Only full-face contact of the two friction blocks (item 1) on the brake disc as well as a rapid heating of the friction linings to approx. 200°C will ensure an optimal braking effect. It is therefore necessary to brake several times and for a short duration when the brake disc is rotating.



Important!

If the brakes are used as holding brakes, then the braking torques indicated in the catalogue will not be reached. Reductions of up to 50% of the braking torque are possible.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 19



Important!

If breaking-in is not possible, the braking torques specified in our leaflet (46) will not be reached. Reductions of up to 50% are possible.

10. Disassembling the brake



Life-threatening danger!

When disassembling the brake it is to be ensured that the entire drive train is secured against being switched on unintentionally. Rotating parts can cause severe injury. Rotating parts (e.g. brake disc) must be secured by the operator against unintentional touching.



Caution!

Open the brake with oil pressure and secure the open position with the securing screw, hexagon screw M 18x1.5x60 DIN 961 (item 21).
Before disassembly, the system is to be depressurised. Drain the hydraulic oil completely.



Caution!

Secure the brake for disassembly.

Separate the hydraulic lines from the brake. Secure the brake for disassembly. Remove the M20 screws that serve for fastening the brake. The brake can now be removed from the mounting surfaces.

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released			E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29 page: 20

11. Maintenance

11.1 General maintenance

Depending on how much the brake is used in operation, maintenance is to be carried out on it at intervals of 4 weeks to once a year.

The following is to be carried out when performing maintenance:

- Check the friction pads for wear.
- Check the screw connection of the brake calliper to the machine part and also check the firmness of the screw connection of the holding plates.
- Check the hydraulic lines and connections for tightness.
- Check the sealing system of the brake pistons for tightness by inspecting the leakage oil lines. If there is oil in the leakage oil line, the seals are to be exchanged.
- Respect the oil changing interval! Renew the mineral oil after 8000 hours of operation or once a year.
- Clean the bearing and sliding points.

Check the bearing and sliding points. If necessary, oil or grease the bearing and sliding points in the area of the guide bushes



Important!

The friction pads must not come into contact with the lubricant.



Important!

The friction pads must not come into contact with the hydraulic oil.

11.2 Permissible friction lining wear and exchanging of the brake pads



Life-threatening danger!

Friction pads may only be changed when the system or the work machine is stationary!

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS
checked.: EISF	Pages: 29	page: 21



Important!

The brake pads have a thickness of 24mm when new. After 6mm of abrasion or a residual lining thickness of 18 mm, the brake pads are always change in pairs.

Only original RINGSPANN brake pads may be used.

Before exchanging the brake pads, ensure that the mass held by the brake is secured against moving, since parts of the brake need to be loosened for this purpose.

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 M8X10 ISO 4762 8.8 (Pos. 3) 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.

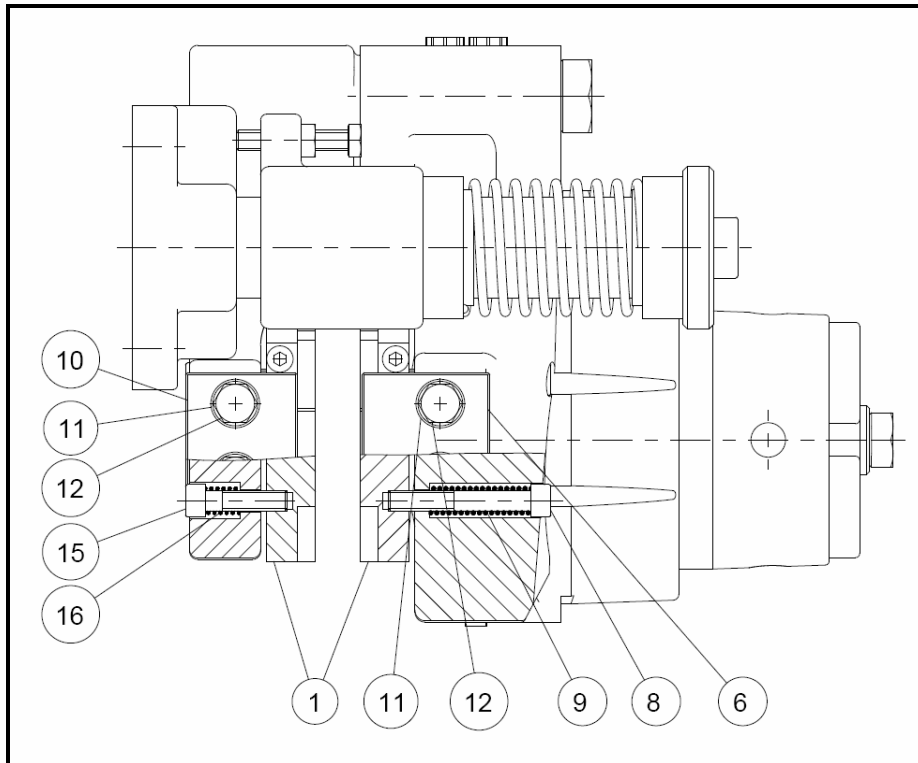


Fig. 11.1

**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 123 Nm. Tightening torque calculated with $\mu_G = 0.12$ as the average coefficient of friction in the thread and $\mu_K = 0.12$ as the coefficient of friction in the head support according to VDI 2230 Page 1 of Feb. 2003.

After replacing the brake pads, the brake pads must be set/adjusted again as described in Section 8.3 and removed the assembly locking screw M18x1.5x60 (Pos. 21)

**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 swing 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).

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 23

11.3 Exchanging seals, wipers and piston seals



Life-threatening danger!

The seals may only be changed when the system (or the work machine) is stationary!



Important!

Ensure that there is no oil pressure at the brake calliper.
Note the manufacturer's instructions for 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 casing 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 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.



Important!

Consider and remember the arrangement of disc springs and shim rings for 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. 11.2). 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

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 24

prior to installation with a light coat of Molykote MoS₂. 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 MoS₂) 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. 11.2. If the spring package is too heavy to get the dimension 246 you have to screw in the locking screw to lift up the piston and then you can easily turn the housing to the measure 246. 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.



Information!

Please note consider and remember the arrangement of disc springs and shim rings for assembly.

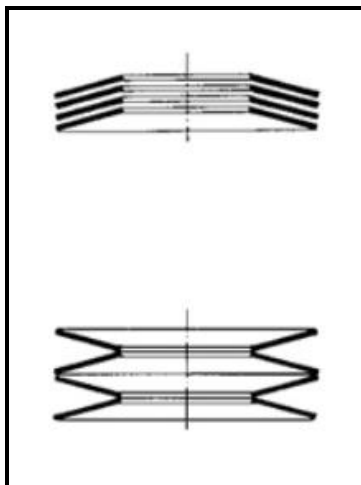


Fig. 11.2

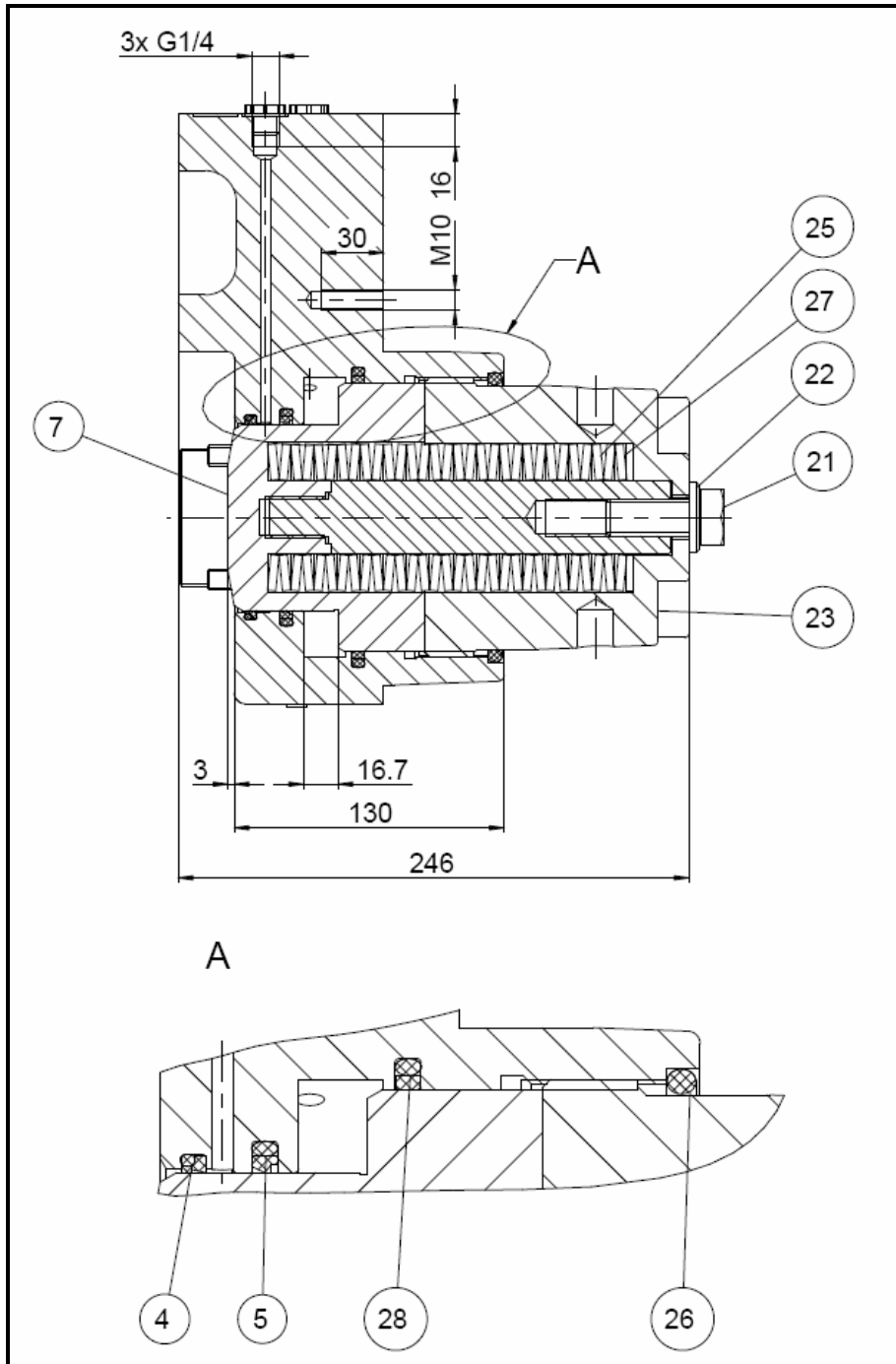



Fig. 11.3

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 714 Nm. Tightening torque calculated with $\mu_G = 0.12$ as the average coefficient of friction in the thread and $\mu_K = 0.12$ as the coefficient of friction in the head support according to VDI 2230 Page 1 of Feb. 2003.

If the complete brake calliper was removed for installation, please repeat steps 8 and 9 in the installation guide.

12. Sensor for operating state monitoring (option)

12.1 Mounting and connection of inductive proximity switch for position monitoring



Life-threatening danger!

The inductive transmitter may only be assembled and changed when the system or the work machine is stationary!

The 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.

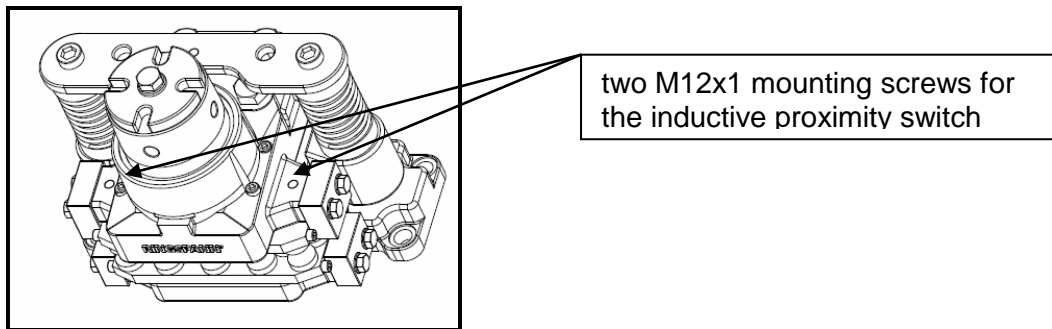


Fig. 12.1

Switching function	: PNP (Closer NO)	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

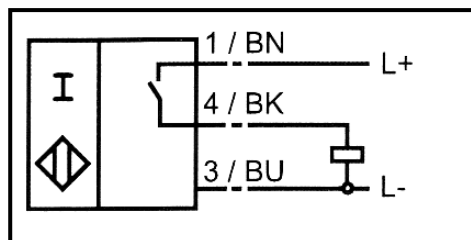


Fig. 12.2

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS
checked.: EISF	Pages: 29	page: 27



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:

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e
Issue: 10.02.2023	Version: 8	drawn: BAHS checked.: EISF Pages: 29 page: 28

12.2 Mounting and connection of inductive proximity switch for pad wear monitoring



Life-threatening danger!

The inductive transmitter may only be assembled and changed when the system or the work machine is stationary!
The inductive proximity switch is damaged when the brake are applied without brake pads.

The 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.

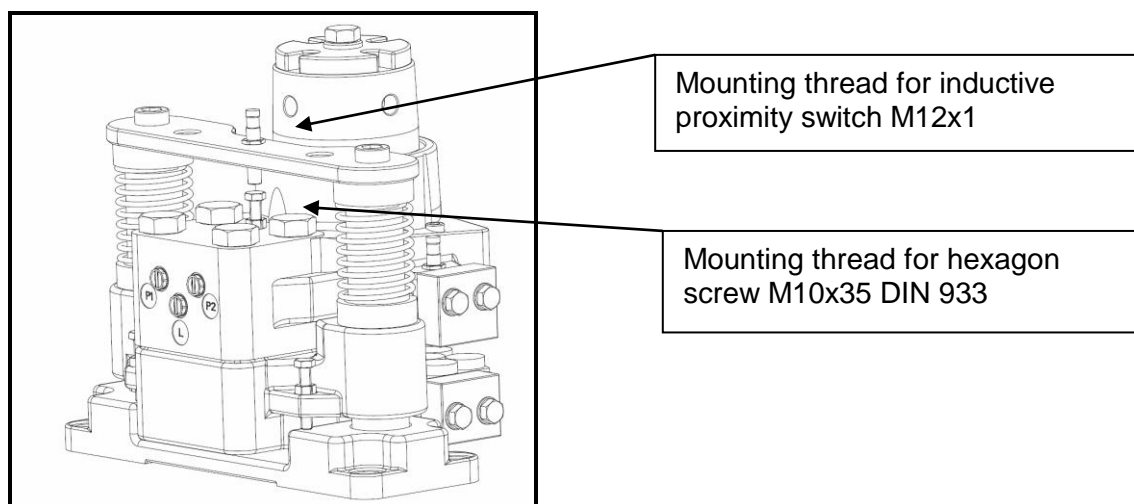


Fig. 12.3

Switching function	: PNP (Closer NO)	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

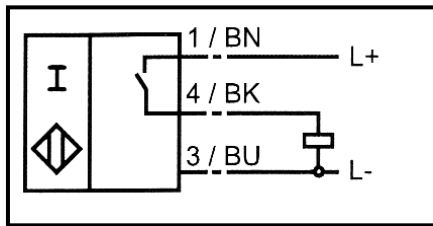


Fig. 12.4



Information!

The inductive proximity sensor must be positioned according to Fig.12.5. If the brake pad has wear the distance between the inductive proximity switch and the screw head gets smaller. Once the limits is reached, the inductive proximity emits a signal and the LED on the inductive proximity switch must glow.

Procedure for installing or replacing the inductive proximity switch:

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

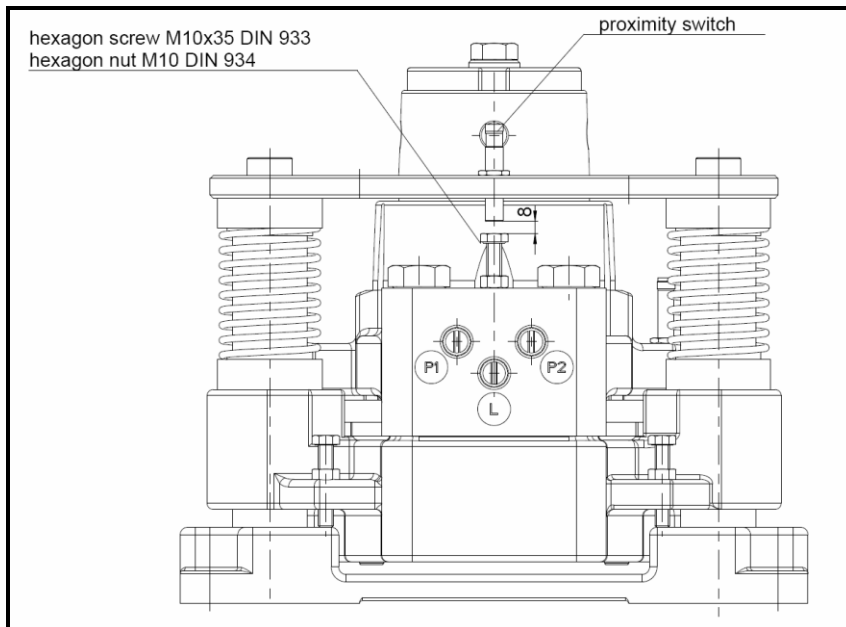


Fig. 12.5

RINGSPANN	Installation and Operating Instructions for Brake saddle HS 075 FHM, spring activated - hydraulically released	E 09.744 e			
Issue: 10.02.2023	Version: 8	drawn: BAHS	checked.: EISF	Pages: 29	page: 30

- 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 Fig. 12.5
- 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 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: