



TANDEM® KSP3-IM

**Pneumatic clamping force
blocks with inductive jaw
monitoring**

Compact, pneumatically actuated powerhouses with inductive monitoring of the jaw position

TANDEM KSP3-IM from SCHUNK stands for high-performance, pneumatically actuated clamping force blocks with inductive jaw monitoring. In addition to the features of the standard KSP3 vises, the KSP3-IM vises are also equipped with two inductive proximity switches which can be used to monitor the base jaw position. This makes the vises particularly suitable for automated processes in which the signal is to be transferred directly to the machine control system. Furthermore, the vises are equipped with a cover plate and sheathing for the sensor cable, which provides special protection for sensitive components.



Advantages – Your benefits

- + Large range of different versions**
Therefore ensuring highest flexibility with by far the largest and most powerful standard range of pneumatically actuated clamping force blocks
- + Force amplification for O.D. clamping via spring force**
Increased clamping force for heavy metal-cutting tasks as well as maintenance of the spring tension during storage
- + Inductive jaw monitoring**
Know whether the vise is open or clamped
- + Precision wedge-hook clamping force block for highest quality requirements**
Allows excellent machining results
- + Square design with ideal external contour**
Ideal for 6-sided machining in two set-ups with the best lateral accessibility
- + High degree of efficiency of the wedge hook system**
Process-reliable clamping due to high clamping forces
- + Base jaws with tongue and groove and fine serration as a dual interface as standard**
High flexibility of system jaws
- + Optimal jaw support due to the use of a very long base jaw guidance**
Allows high clamping forces at a long service life
- + All sides of the functional parts are hardened and ground**
Ensures a long service life

Function KSP3

The force is transferred from the axially adjustable pneumatic cylinder to the slightly longer base jaws with the help of the diagonal pull at the wedge hook. For the KSP3 and KSP3-LH variants, the force generates a synchronous jaw movement to the clamping center. For the KSP3-F variant, the force generates a movement directed to the fixed jaw.

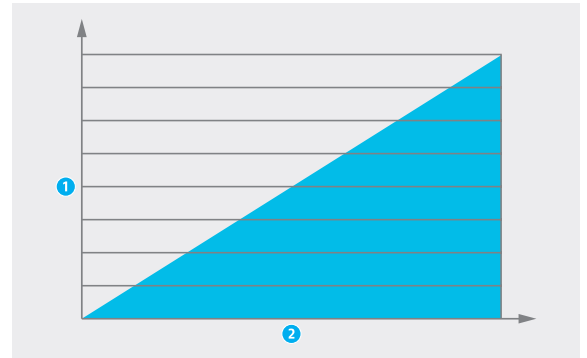


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|--|--|
| <ul style="list-style-type: none"> 1 Wedge hook drive
Offers constantly high clamping forces in operation 2 Hardened and extremely rigid base body
Therefore a longer service life at highest precision. Even with maximum clamping force 3 Innovative greasing system
For enhanced efficiency and constant clamping force 4 Long jaw guidance
Offers optimal support for O.D.- and I.D. clamping 5 Low height design
Expands your machine's workspace 6 Improved design which is insensitive to dirt
By means of targeted sealing | <ul style="list-style-type: none"> 7 Standard jaw interface
For the use of standard jaws from SCHUNK 8 Ideal outside contour
For best accessibility and optimal chip fall 9 Control of the clamping force block
From the side or bottom as desired 10 Piston guided in the body
For absorption of the machining forces along the guideway 11 Greasing channels in the cover plate
Enable bottom greasing via a central greasing system 12 Fitting screws available as an option
For positioning the clamping device with high repetition precision |
|--|--|

Clamping force depending on the actuation pressure

The clamping force increases in direct proportion to the increase in actuation pressure. The minimum air pressure should not drop below 2 bar during this process.

- ① Clamping force
- ② Actuation pressure



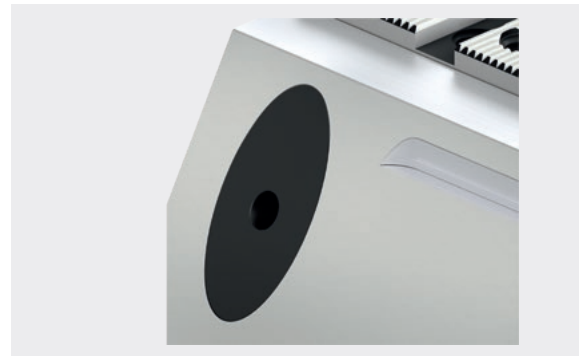
Chip-repellent design

The special design of the base jaw and cover strip prevents chips becoming permanently lodged. During the clamping process, the chips are pushed from the base jaw by the incline of the cover strip.



Cover plugs for the mounting screws

All four mounting screws are sealed with anodized aluminum plugs. Chip build-up is therefore completely eliminated in advance.



Alignment edge

An alignment edge is recessed into the side of the clamping force block. It extends parallel to the jaw guidance and enables exact alignment of the vises to the machine table.



Coolant drainage holes

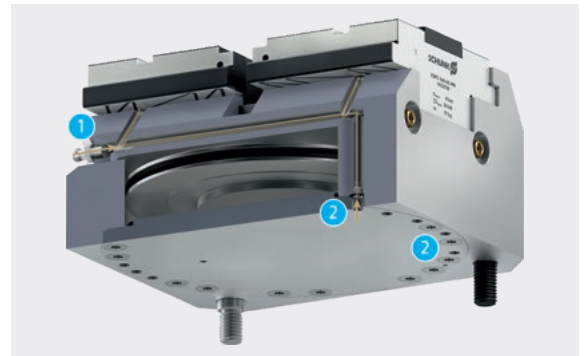
All clamping force blocks are equipped with two coolant drainage holes. Any coolant that penetrates can be drained back to the outside in this way. To prevent chips from entering, the drain holes are sealed with a sintered filter.



Greasing system

All clamping force blocks are equipped with a dual lubrication system.

- ❶ **Manual lubrication**
A grease gun is used to supply all friction surfaces (jaw guidance, piston guidance, and diagonal pull) evenly.
- ❷ **Central lubrication**
The connections on the base side are used to supply all friction surfaces (jaw guidance, piston guidance and diagonal pull) evenly with grease. Several vises can be greased at the same time by means of the base plate.



Console plates

Console plates offer several options for mounting the clamping force blocks on the machine table. The clamping force blocks can be used to minimize the set-up time. They can be placed on the VERO-S NSE3 quick-change pallet modules with torque pin using the existing VERO-S interface. Alternatively, they can be mounted on the machine table or dividing heads using cylindrical clamps or T-nuts.

- ❶ **Mounting via quick-change pallet system**
- ❷ **Mounting via cylindrical clamps**
- ❸ **Mounting via T-nuts**

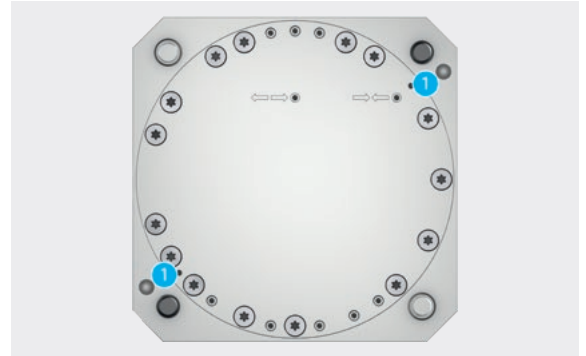


Standardized equipment versions

Jig-produced positioning bores (-Z)

In order to position several clamping force blocks very accurately in relation to one another, the Z-version is provided with jig-produced positioning bores. The jig-produced positioning bores ensure a positioning accuracy of ± 0.01 mm to the clamping center when exchanging the clamping force block.

① Positioning bore



Clamping force amplification for O.D. clamping (-AS)

Spring assemblies that are integrated in the vise, increase the clamping force of the pneumatic pressure by up to 20% during O.D. clamping. This increases the application possibilities, especially in heavy-duty machining, many times over. In addition, the clamping force of the springs is maintained if the clamping force block is disconnected from the media transfer unit.

① Stainless, fatigue-resistant pressure springs



Inductive jaw monitoring (-IM)

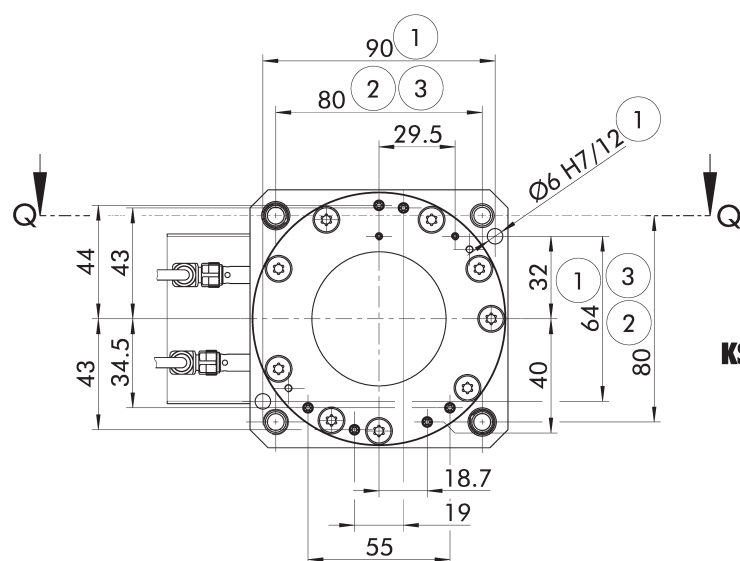
Two inductive proximity switches in the base jaw's recesses enable monitoring of the base jaw positions. This monitoring is particularly suitable for fully automated machining processes if an electrical signal is to be transferred to the machine control system. A cover plate effectively protects the proximity switches from falling chips and coolant. Moreover, a coating around the sensor cables ensures that they are better protected.

① Inductive proximity switches

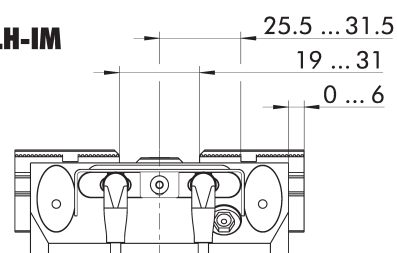
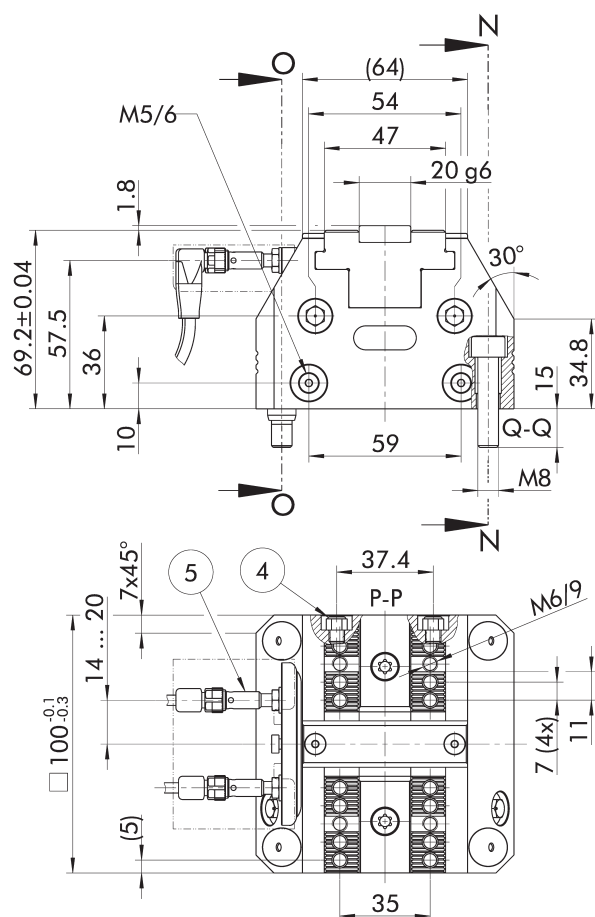
② Cover plate

③ Sheathed cables

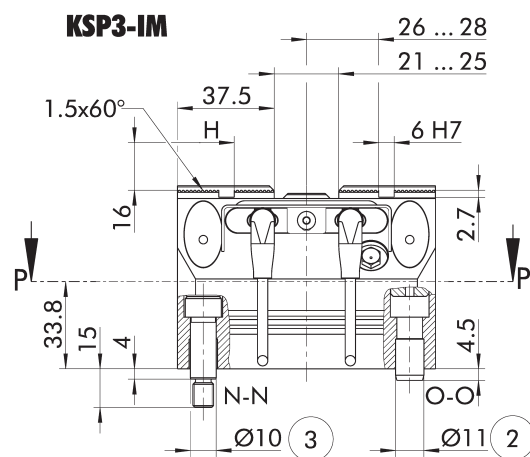
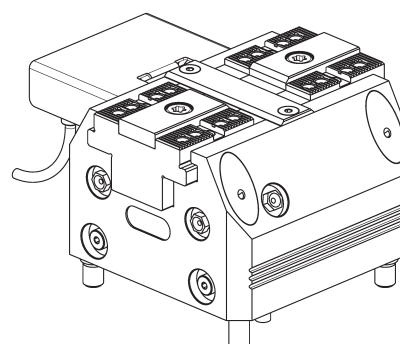




KSP3-LH-IM



KSP3-IM



Subject to technical changes.

- ① Z-variant ± 0.01 mm to clamping center
- ② Clamping sleeve ± 0.04 mm to clamping center
- ③ Fitting screw ± 0.02 mm to clamping center
- ④ Connection M5 for air purge
- ⑤ Inductive proximity switch

Technical data

Description	ID	Jig-produced positioning bores	Clamping force amplification for O.D. clamping	Clamping force at max. operating pressure [kN]	Additional clamping force resulting from spring assembly [kN]	Operating pressure [bar]
KSP3 100-IM	1467375			18		2 - 9
KSP3 100-Z-IM	1467555	●		18		2 - 9
KSP3 100-AS-IM	1467556		●	18	2.5 - 6.5	3 - 9
KSP3 100-Z-AS-IM	1467557	●	●	18	2.5 - 6.5	3 - 9
KSP3-LH 100-IM	1467558			8		2 - 9
KSP3-LH 100-Z-IM	1467559	●		8		2 - 9
KSP3-LH 100-AS-IM	1467560		●	8	1 - 2.5	3 - 9
KSP3-LH 100-Z-AS-IM	1467561	●	●	8	1 - 2.5	3 - 9

For a detailed description of the equipment versions listed above, see page 6.

Scope of delivery

Clamping force block, fastening screws, cover plugs, clamping sleeves, fitting screws, inductive proximity switch, connection cable, cover, operating manual

Notes

Definition clamping force

The clamping force is the arithmetic sum of the individual forces occurring at the jaws at distance "H" at maximum pressure.

Definition of clamping force increase due to spring assembly

The increase in clamping force caused by the spring assembly depends on the stroke because of the spring tension.

Max. spring force is reached in the "open" condition, min. spring force in the "closed" condition.

General note

The specifications exclusively refer to the grease LP 410 used by SCHUNK.

Further technical data

Description	Stroke version	Stroke per jaw [mm]	Max. jaw height [mm]	Repeat accuracy [mm]	Air consumption per double stroke at 6 bar [cm³]	Closing/opening time [s]	Weight [kg]
KSP3 100 ...	Standard stroke	2	60	0.01	1000	0.2	4
KSP3-LH 100 ...	Long stroke (-LH)	6	150	0.01	1000	0.2	4

System jaws

Supporting jaw TBA-D

Reversible supporting jaws with fine serration for mounting standard top jaws from SCHUNK.



Suitable for	Description	Interface	ID
KSP3 100-IM	TBA-D 100	W-65-1	0402294

3-axis jaw grip S3A-G5

With grip step, 5 mm.
For embossed clamping of unhardened materials up to 22 HRC.



Suitable for	Description	ID
KSP3 100-IM	S3A-G5 100	1471166

5-axis jaw grip S5A-G5

With grip step, 5 mm.
For embossed clamping of unhardened materials up to 22 HRC.



Suitable for	Description	ID
KSP3 100-IM	S5A-G5 100	1471190

Top jaw blank STR

Top jaw blanks with fine serration for customer rework.



Suitable for	Description	ID
KSP3 100-IM	STR 100	0402101

Top jaw blank STR-H

High top jaw blanks with fine serration for customer rework.



Suitable for	Description	ID
KSP3 100-IM	STR-H 100	0402201

Top jaw blank KTR

Top jaw blanks with tongue and groove and preassembled mounting holes for customer rework.



Suitable for	Description	ID
KSP3 100-IM	KTR 100	0402121

Top jaw blank KTR-H

High top jaw blanks with tongue and groove and preassembled mounting holes for customer rework.



Suitable for	Description	ID
KSP3 100-IM	KTR-H 100	0402221

Top jaw blank STR-S

Top jaw blanks with fine serration and preassembled mounting groove for customer rework.



Suitable for	Description	ID
KSP3 100-IM	STR-S 100	0402111

Top jaws

Stepped jaw

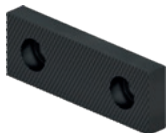
With grip step, 5 mm.
For embossed clamping of unhardened materials up to 22 HRC.



Description	Width mm	Height mm	Depth mm	Interface	ID
GBS-65 65-22-8	65	22	8	W-65-1	1465122

Serrated jaw

For increasing the friction between jaw and workpiece with minimal clamping impressions.
Height = 22 mm.



Description	Width mm	Height mm	Depth mm	Interface	ID
GBC 65-22-8	64	22	8	W-65-1	0490565

Ground jaw

With a completely ground clamping face.
Height = 22 mm.



Description	Width mm	Height mm	Depth mm	Interface	ID
GBP 65-22-7.7	64	22	7.7	W-65-1	0490566

Soft jaw

Blanks for rework by the customer
Height = 22 mm.



Description	Width mm	Height mm	Depth mm	Interface	ID
GBW 65-22-20	65	22	20	W-65-1	0490567

Grip jaw

For embossed clamping of unhardened materials up to 22 HRC.
Height = 22 mm.



Description	Width mm	Height mm	Depth mm	Interface	ID
GBG 65-22-7.8	64	22	7.8	W-65-1	0430804

Reversible grip jaw

Reversible jaw with grip step 3 mm in vertical direction and 5 mm in horizontal direction.



Description	Width mm	Height mm	Depth mm	Interface	ID
GBG-W 65-22-8	65	22	8	W-65-1	0430729

Prism jaw, ground

For precise clamping of round workpieces.
Height = 22 mm.



Description	Width mm	Height mm	Depth mm	Interface	ID
GVA 65-22-15	65	22	15	W-65-1	0430707

Universal stepped jaw

Versatile stepped jaw with ground step.



Description	Width mm	Height mm	Depth mm	Interface	ID
GPE 65-22-8-3	65	22	8	W-65-1	0430704

Base plates

Consol plate

For direct mounting on VERO-S or T-slot tables.



Suitable for	Description	ID
KSP3 100-IM	KSL3 100-1	1466119

Single base plate

For direct mounting and actuation of one TANDEM clamping force block with or without VERO-S.



Suitable for	Description	ID
KSP3 100-IM	ABP-h plus 100/160-1	1323973

Double base plate

For direct mounting and actuation of up to two TANDEM clamping force blocks with and without VERO-S.



Suitable for	Description	ID
KSP3 100-IM	ABP-h plus 100/160-2	1323974

Triple base plate

For direct mounting and actuation of up to three TANDEM clamping force blocks with and without VERO-S.



Suitable for	Description	ID
KSP3 100-IM	ABP-h plus 100/160-3	1323975

Accessories

Clamping force tester

For measuring the jaw clamping force of stationary clamping devices.



Suitable for	Description	ID
KSP3 100-IM	IFT SST Set	1475766

Clamping pins SPx

Clamping pin for positive connection with NSE3 clamping modules.



Suitable for	Description	ID
ABP-h plus 100/160-1 ABP-h plus 100/160-2 ABP-h plus 100/160-3 KSL3 100-1	SPA 40	0471151
ABP-h plus 100/160-2 ABP-h plus 100/160-3	SPB 40	0471152
ABP-h plus 100/160-3	SPC 40	0471153

Indexing pin

Used as an anti-rotation protection for VERO-S modules with anti-rotation protection V1.



Suitable for	Description	ID
ABP-h plus 100/160-1 KSL3 100-1	IXB V1	0471980

Cylindrical clamp blanks

For individual fastening of the clamping stations or console plates on all common machine table slot spacings



Suitable for	Description	ID
KSL3 100-1	BRR 50	0470020

Grease

LP 410

High-performance grease as standard for regularly lubricating SCHUNK TANDEM clamping force blocks.



Bundle	Description	ID
Cartridge	LP 410 cartridge	0184213

Grease gun

Auxiliary tools for lubrication of all kinds of SCHUNK products. The grease gun can be used for cartridges of all types of SCHUNK grease.



Bundle	Description	ID
Cartridge	Grease gun	9900543



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