



TANDEM® KSH3-S

**Hydraulic powerhouses with
compensating function**

Compact, hydraulically actuated powerhouses with compensation function to reduce vibrations and deformations on long workpieces

TANDEM KSH3-S from SCHUNK stand for high-performance, hydraulically actuated clamping force blocks with compensation function. The vises have a "floating" piston that enables jaw compensation of ± 0.5 mm. This makes them ideal for clamping long workpieces in particular, as well as minimizing vibrations and deformations. All KSH3-S vises are 100% compatible with the KSH3 vises meaning they are fully interchangeable.



Advantages – Your benefits

- + **Compensation function**
Enables axial jaw compensation and thus compensating clamping for long workpieces
- + **Precision wedge hook clamping force block for top-quality demands**
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 KSH3-S

The force is transferred from the axially adjustable hydraulic cylinder to the base jaws with the help of the diagonal pull on the wedge hook, and generates a synchronous jaw movement towards the clamping center. A "floating" piston enables axial jaw compensation of ± 0.5 mm.

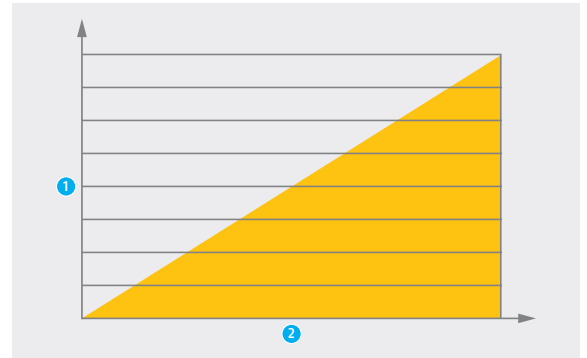


- 1 Wedge hook drive**
Offers constantly high clamping forces in operation
- 2 Floating piston**
Enables axial jaw compensation of ± 0.5 mm
- 3 Hardened and extremely rigid base body**
Therefore a longer service life at highest precision. Even with maximum clamping force
- 4 Innovative greasing system**
For enhanced efficiency and constant clamping force
- 5 Long jaw guidance**
Offers optimal support for O.D.- and I.D. clamping
- 6 Low height design**
Expands your machine's workspace
- 7 Improved design which is insensitive to dirt**
By means of targeted sealing
- 8 Standard jaw interface**
For the use of standard jaws from SCHUNK
- 9 Ideal outside contour**
For best accessibility and optimal chip fall
- 10 Control of the clamping force block**
From the side or bottom as desired
- 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 hydraulic pressure should not drop below 10 bar during this process.

- ① Clamping force
- ② Actuation pressure



Coolant drainage holes

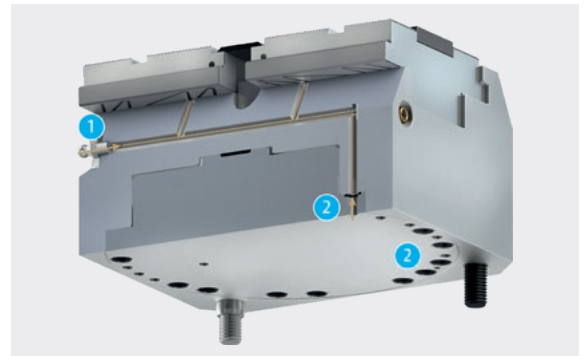
All clamping force blocks are equipped with two coolant drainage holes. That allows coolant that penetrates to be drained to the outside. The drainage holes are sealed with a sintered filter to prevent entry of chips.



Greasing system

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

- ① **Manual lubrication**
A grease gun is used to supply all friction surfaces (jaw guidance, piston guidance, and diagonal pull) evenly.
- ② **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. To minimize the set-up time the clamping force blocks can be placed on the VERO-S NSE3 quick-change pallet modules with anti-rotation protection using the existing VERO-S interface. Alternatively, they can be mounted on the machine table or dividing heads using cylindrical clamps or T-nuts.

- ① Mounting via quick-change pallet system
- ② Mounting via cylindrical clamps
- ③ Mounting via T-nuts

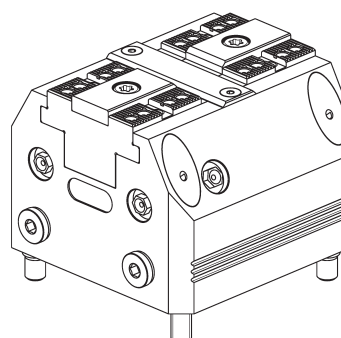
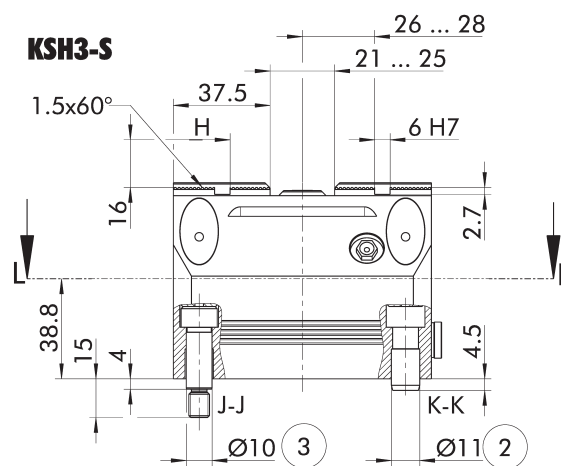
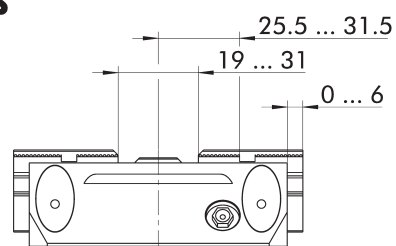


Application example



When clamping long workpieces, vibration and deformation of the workpiece may occur. To effectively counteract these vibrations and deformations, "compensating" clamping force blocks can be used between the outer clamping points. Due to the compensation, the system jaws contact the workpiece and hold it in position.

- 1 Clamping force block in standard version**
Clamping force blocks of standard design are used for the two outer clamping points.
- 2 Clamping force block in compensating design**
Clamping vises with compensation function are used for all internal clamping points to avoid deformation of the workpiece.
- 3 Maximum length compensation**
The value is ± 0.5 mm for all clamping force blocks.



- 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

Technical data

Description	ID	Jig-produced positioning bores	Compensation function	Clamping force at max. operating pressure [kN]	Jaw compensation [mm]	Operating pressure [bar]
KSH3-S 100	1607256		●	18	±0.5	10 - 60
KSH3-S 100-Z	1607257	●	●	18	±0.5	10 - 60
KSH3-LH-S 100	1607258		●	16	±0.5	10 - 120
KSH3-LH-S 100-Z	1607259	●	●	16	±0.5	10 - 120

Scope of delivery

Clamping force block, mounting screws for system jaws and clamping force block, cover plugs, fitting screws, clamping sleeves, 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.

Jaw compensation

Enables compensating clamping of long workpieces and a reduction in vibration and deformation.

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]	Oil consumption per double stroke [cm³]	Closing/opening time [s]	Weight [kg]
KSH3-S 100 ...	Standard stroke	2	60	0.01	30	1	5
KSH3-LH-S 100 ...	Long stroke (-LH)	6	60	0.01	30	1	5

System jaws

Supporting jaw TBA-D

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



Suitable for	Description	Interface	ID
KSH3-S 100	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
KSH3-S 100	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
KSH3-S 100	S5A-G5 100	1471190

Top jaw blank STR

Top jaw blanks with fine serration for customer rework.



Suitable for	Description	ID
KSH3-S 100	STR 100	0402101

Top jaw blank STR-H

High top jaw blanks with fine serration for customer rework.



Suitable for	Description	ID
KSH3-S 100	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
KSH3-S 100	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
KSH3-S 100	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
KSH3-S 100	STR-S 100	0402111

Top jaws

Stepped jaw

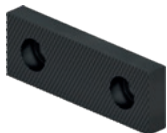
With grip step, 5 mm.
For embossed clamping of unhardened materials up to 22 HRC.



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.

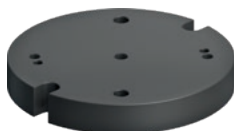


Description	Width mm	Height mm	Depth mm	Interface	ID
GPE 65-22-8-3	65	22	8	W-65-1	0430704

Base plates

Consol plate

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



Suitable for	Description	ID
KSH3-S 100	KSL3 100-1	1466119

Accessories

Clamping force tester

For measuring the jaw clamping force of stationary clamping devices.



Suitable for	Description	ID
KSH3-S 100	IFT SST Set	1475766

Clamping pins SPx

Clamping pin for positive connection with NSE3 clamping modules.



Suitable for	Description	ID
KSL3 100-1	SPA 40	0471151

Indexing pin

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



Suitable for	Description	ID
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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