



**TANDEM® KSH3**

**Hydraulic powerhouses of  
the third generation**

**Hand in hand for tomorrow**

# Compact, hydraulically actuated powerhouses for series production

TANDEM KSH3 stands for powerful, hydraulically actuated clamping force blocks, which are mainly used in series production where hydraulics are available at the machine. Patented monitoring of the base jaw position via dynamic pressure or the possibility of air control through the jaw are only two of the additional features that have been included in the new generation. A few innovations have been integrated especially in terms of automation.



## Advantages – Your benefits

- + Large range of different versions**  
Therefore ensuring highest flexibility with the largest and most powerful standard range of hydraulic clamping force blocks
- + Patented monitoring of the base jaw position via dynamic pressure**  
Know whether the vise is open or clamped
- + Workpiece presence control through the base jaw**  
Enables automated loading of the clamping force block
- + 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 or fine serration 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

The power is transferred from the axially adjustable hydraulic cylinder to the slightly longer base jaws with the help of the diagonal pull at the wedge hook. For the KSH3 and KSH3-LH variants, the force generates a synchronous jaw movement to the clamping center. For the KSH3-F variant, the force generates a movement in direction to the fixed jaw.

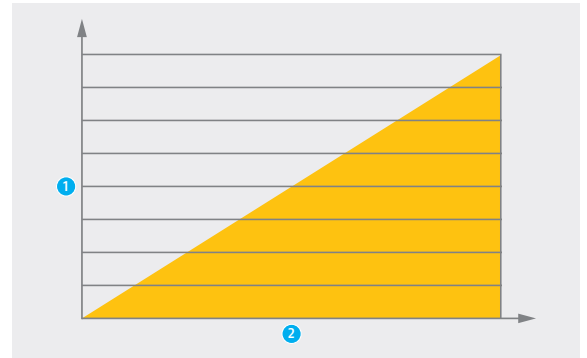


- 1 Wedge hook drive**  
Offers constantly high clamping forces in operation
- 2 Hardened and extremely rigid base body**  
Therefore a longer service life at highest precision.  
Even with maximum clamping force
- 3 Innovative greasing system**  
For enhanced efficiency and constant clamping force
- 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
- 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 hydraulic pressure should not drop below 10 bar during this process.

- ① Clamping force
- ② Actuation pressure



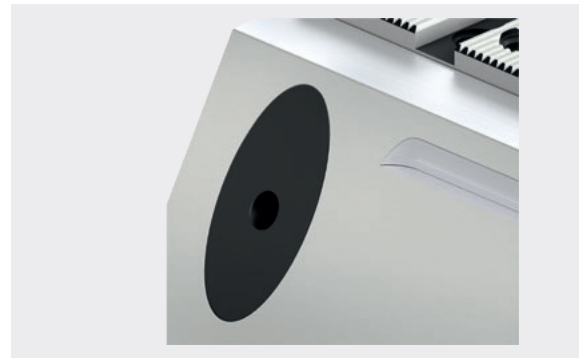
## Chip-repellent design

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 an exact alignment of the vises to the machine table.



## 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

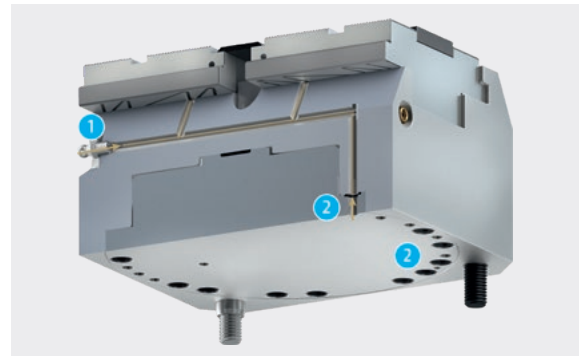
All clamping force blocks are equipped with a dual greasing system.

### 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

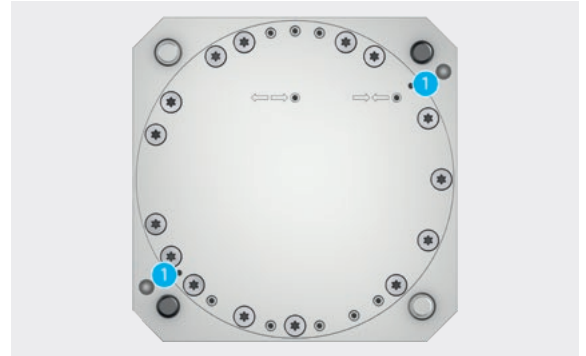


## Standardized equipment versions

### Jig-produced positioning bores (-Z)

In order to position several clamping force blocks very accurately, jig-produced positioning bores are integrated in the Z-version. The jig-produced positioning bores ensure a positioning accuracy of  $\pm 0.01$  mm to the clamp center when changing the clamping force block.

#### 1 Positioning bore



### Pneumatic monitoring (-PM)

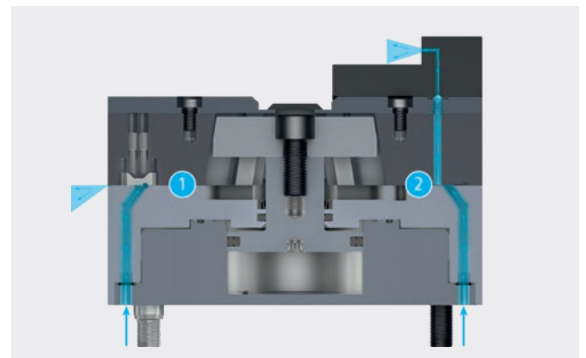
The PM version of the TANDEM3 generation includes several features. The base jaw positions can be queried via dynamic pressure. Transfer via the base jaw enables compressed air to be fed through into the system jaws. In this way, a workpiece presence control or cleaning of the clamping surfaces can be done by the customer.

#### 1 Patented monitoring of the base jaw position

Open and closed via dynamic pressure

#### 2 Air transfer in the system jaw

For workpiece presence control or cleaning of the clamping surfaces by the customer











## Technical data

| Description      | ID                      | Jig-produced positioning bores | Pneumatic monitoring | Clamping force at max. operating pressure<br>[kN] | Operating pressure<br>[bar] |
|------------------|-------------------------|--------------------------------|----------------------|---------------------------------------------------|-----------------------------|
| KSH3 160         | <a href="#">1463201</a> |                                |                      | 45                                                | 10 - 60                     |
| KSH3 160-Z       | <a href="#">1463202</a> | ●                              |                      | 45                                                | 10 - 60                     |
| KSH3 160-PM      | <a href="#">1448279</a> |                                | ●                    | 45                                                | 10 - 60                     |
| KSH3 160-Z-PM    | <a href="#">1463203</a> | ●                              | ●                    | 45                                                | 10 - 60                     |
| KSH3-LH 160      | <a href="#">1463204</a> |                                |                      | 40                                                | 10 - 120                    |
| KSH3-LH 160-Z    | <a href="#">1463202</a> | ●                              |                      | 40                                                | 10 - 120                    |
| KSH3-LH 160-PM   | <a href="#">1448300</a> |                                | ●                    | 40                                                | 10 - 120                    |
| KSH3-LH 160-Z-PM | <a href="#">1463205</a> | ●                              | ●                    | 40                                                | 10 - 120                    |
| KSH3-F 160       | <a href="#">1463206</a> |                                |                      | 45                                                | 10 - 60                     |
| KSH3-F 160-Z     | <a href="#">1463207</a> | ●                              |                      | 45                                                | 10 - 60                     |
| KSH3-F 160-PM    | <a href="#">1448301</a> |                                | ●                    | 45                                                | 10 - 60                     |
| KSH3-F 160-Z-PM  | <a href="#">1463208</a> | ●                              | ●                    | 45                                                | 10 - 60                     |

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

## 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.

### General note

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

## Further technical data

| Description     | Stroke version      | Stroke per jaw<br>[mm] | Max. jaw height<br>[mm] | Repeat accuracy<br>[mm] | Oil consumption per double stroke<br>[cm³] | Closing/opening time<br>[s] | Weight<br>[kg] |
|-----------------|---------------------|------------------------|-------------------------|-------------------------|--------------------------------------------|-----------------------------|----------------|
| KSH3 160 ...    | Standard stroke     | 3                      | 60                      | 0.01                    | 100                                        | 1.5                         | 14             |
| KSH3-LH 160 ... | Long stroke (-LH)   | 8                      | 60                      | 0.01                    | 100                                        | 1.5                         | 14             |
| KSH3-F 160 ...  | With fixed jaw (-F) | 6                      | 60                      | 0.01                    | 100                                        | 1.5                         | 14             |

## 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 160     | TBA-D 160   | W-100-1   | <a href="#">0402295</a> |

### 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 160     | S3A-G5 160  | <a href="#">1471168</a> |

### 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 160     | S5A-G5 160  | <a href="#">1471198</a> |

### Top jaw blank STR

Top jaw blanks with fine serration for customer rework.



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSH3 160     | STR 160     | <a href="#">0402102</a> |

### Top jaw blank STR-H

High top jaw blanks with fine serration for customer rework.



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSH3 160     | STR-H 160   | <a href="#">0402202</a> |

### Top jaw blank KTR

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



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSH3 160     | KTR 160     | <a href="#">0402122</a> |

### 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 160     | KTR-H 160   | <a href="#">0402222</a> |

### Top jaw blank STR-S

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



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSH3 160     | STR-S 160   | <a href="#">0402112</a> |

### Swivel plate

Used – in combination with adapter plates and 6-way reversal jaws – to clamp bulky workpieces.



| Suitable for | Description | Interface | ID                      |
|--------------|-------------|-----------|-------------------------|
| KSH3 160     | KTP 160     | W-38      | <a href="#">1580334</a> |

### Adapter plate

Used – in combination with swivel plates and 6-way reversal jaws – to clamp bulky workpieces.

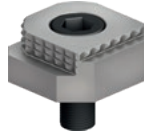


| Suitable for | Description | Interface | ID                      |
|--------------|-------------|-----------|-------------------------|
| KSH3 160     | KTA 160     | W-38      | <a href="#">1580335</a> |

## Top jaws

**6-way reversible jaws grip**

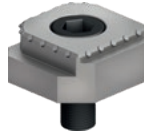
With five grip steps as well as a coated clamping face.



| Description     | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-----------------|-------------|--------------|-------------|-----------|-------------------------|
| GBG-6W 38-38-18 | 38.5        | 18           | 38.2        | W-38      | <a href="#">0430803</a> |

**6-way reversible jaw carbide grip**

With five carbide grip steps as well as a smooth clamping face.



| Description      | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBCG-6W 38-38-18 | 38.5        | 18           | 38.2        | W-38      | <a href="#">1395550</a> |

**Jaw profiled**

For increasing the friction between jaw and workpiece without clamping impressions.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GBD 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373346</a> |

**Serrated jaw**

For increasing the friction between jaw and workpiece with minimal clamping impressions.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GBC 100-35-11 | 100         | 35           | 11          | W-100-1   | <a href="#">1373267</a> |

**Ground jaw**

With a completely ground clamping face.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GBP 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373272</a> |

**Soft jaw**

Hardenable jaws for rework at the customer site, e.g. for incorporating contours or special shapes.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GBW 100-35-16 | 100         | 35           | 16          | W-100-1   | <a href="#">1373287</a> |

**Stepped jaw**

With ground step, 8 mm.



| Description     | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-----------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS 100-35-10-5 | 100         | 35           | 10          | W-100-1   | <a href="#">1373325</a> |

**Stepped jaw**

With coated step, 5 mm.



| Description       | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-W 100-35-10-5 | 100         | 35           | 10          | W-100-1   | <a href="#">1395510</a> |

**Stepped jaw**

With grip step, 3 mm.  
For embossed clamping of unhardened materials up to 22 HRC.



| Description      | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-G3 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373330</a> |

**Stepped jaw**

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



| Description      | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-G5 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373333</a> |

**Stepped jaw**

With grip step, 8 mm.  
For embossed clamping of unhardened materials up to 22 HRC.



| Description      | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-G8 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373337</a> |

**Stepped jaw**

With carbide grip step, 3 mm.  
For embossed clamping of hardened materials up to 58 HRC.



| Description       | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-CG3 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1428440</a> |

**Stepped jaw**

With carbide grip step, 5 mm.  
For embossed clamping of hardened materials up to 58 HRC.



| Description       | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-CG5 100-35-12 | 100         | 35           | 12          | W-100-1   | <a href="#">1428441</a> |

**Stepped jaw with T-slot**

With grip step, 3 mm.  
T-slot for mounting the positioning strip.



| Description          | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|----------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-G3-T 100-35-17.5 | 100         | 35           | 17.5        | W-100-1   | <a href="#">0430242</a> |

**Stepped jaw with T-slot**

With grip step, 5 mm.  
T-slot for mounting the positioning strip.



| Description          | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|----------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-G5-T 100-35-17.5 | 100         | 35           | 17.5        | W-100-1   | <a href="#">0430241</a> |

**Stepped jaw with T-slot**

With grip step, 8 mm.  
T-slot for mounting the positioning strip.



| Description          | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|----------------------|-------------|--------------|-------------|-----------|-------------------------|
| GBS-G8-T 100-35-17.5 | 100         | 35           | 17.5        | W-100-1   | <a href="#">0430240</a> |

**Positioning bar**

To suit all stepped jaws with T-slot.



| Description     | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-----------------|-------------|--------------|-------------|-----------|-------------------------|
| GPL 100-32-13.5 | 100         | 32           | 13.5        | W-100-1   | <a href="#">0430246</a> |

**Grip jaw**

For embossed clamping of unhardened materials up to 22 HRC.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GBG 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373282</a> |

**Prism jaw, ground**

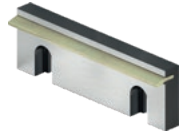
For precise clamping of round workpieces.  
100 = Ø11 – Ø41 mm.  
125 = Ø14 – Ø48 mm.  
160 = Ø16 – Ø60 mm.



| Description     | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-----------------|-------------|--------------|-------------|-----------|-------------------------|
| GVA 100-35-15.5 | 100         | 35           | 15.5        | W-100-1   | <a href="#">1373342</a> |

**Spring leaf pull-down jaw**

For an active jaw pull-down function with a light clamping impression on the workpiece for more precise machining results.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GFA 100-35-10 | 100         | 35           | 10          | W-100-1   | <a href="#">1373301</a> |

**Spring plate pull-down jaw**

For an active jaw pull-down function without clamping impressions on the workpiece for more precise machining results.



| Description   | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|---------------|-------------|--------------|-------------|-----------|-------------------------|
| GFB 100-34-10 | 100         | 34           | 10          | W-100-1   | <a href="#">0430191</a> |

**Precision pull-down jaw**

For an active jaw pull-down function without clamping impressions on the workpiece for more precise machining results.



| Description     | Width<br>mm | Height<br>mm | Depth<br>mm | Interface | ID                      |
|-----------------|-------------|--------------|-------------|-----------|-------------------------|
| GBN-P 100-35-25 | 100         | 35           | 25          | W-100-1   | <a href="#">0430146</a> |

**Base plates****Consol plate**

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



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSH3 160     | KSL3 160-1  | <a href="#">1466121</a> |

## Accessories

### Clamping force tester

For measuring the jaw clamping force of stationary clamping devices.



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSH3 160     | IFT SST Set | <a href="#">1475766</a> |

### Clamping pins SPx

Clamping pin for positive connection with NSE3 clamping modules.



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSL3 160-1   | SPA 40      | <a href="#">0471151</a> |

### Indexing pin

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



| Suitable for | Description | ID                      |
|--------------|-------------|-------------------------|
| KSL3 160-1   | IXB V1      | <a href="#">0471980</a> |

## Grease

### LINOMAX plus

High-performance grease as standard for regularly lubricating SCHUNK manual and power lathe chucks and steady rests.



| Bundle    | Description            | ID                      |
|-----------|------------------------|-------------------------|
| Cartridge | LINOMAX plus cartridge | <a href="#">1342585</a> |

### LP 410

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



| Bundle    | Description      | ID                      |
|-----------|------------------|-------------------------|
| Cartridge | LP 410 cartridge | <a href="#">0184213</a> |

### 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 160-1   | BRR 50      | <a href="#">0470020</a> |

### Plate spring for pull-down jaw

Spare part for spring plate pull-down jaw



| Suitable for  | Description | ID                      |
|---------------|-------------|-------------------------|
| GFA 100-35-10 | GFB 100     | <a href="#">0430054</a> |

### 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  | <a href="#">9900543</a> |



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