ROTARY WORKHOLDING
FROM STANDARD TO COMPLETE SOLUTIONS
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Technical data subject to change without notice.
Typing and printing errors reserved.

If not otherwise specified, standard tolerances shall apply:
- Linear dimensions according to DIN ISO 2768-1-m
- Geometric and positional tolerances according to DIN ISO 2768-2-K
- Metric ISO-screw threads according to the tolerance classes medium

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THE COMPANY

30 YEARS OF PRODUCTION

THE PARTNER FOR:
- Workholding technologies
- Magnetic-hydraulic-mechanical-vacuum
- Stationary and rotary workholding
- All technologies
- Heavy lifting systems
- Automation
- Standard parts
- Special applications

www.group-sav.com
Leading in technology –
Not just a catch phrase for SAV
Research and development is the basis of our success. We develop magnetic, hydraulic, mechanical and vacuum technology solutions for our customers as well as tools and prototypes according to our customer’s specifications. We have a network of approximately 25 CAD workstations at several locations. All of them are equipped with 3D-systems and FEM programmes for magneto-static, thermal, static and dynamic analyses.

The engineering of standard and special solutions
Our engineering department is specialised in the development and engineering of rotary workholding solutions. Our high levels of expertise enable us to implement your specific requirements. Our many years of experience in the area of special-, workholding and lifting system solutions are integrated into the development of our standard products to ensure optimal results and the highest possible flexibility in their application.

The production of standard and special solutions
Our products are manufactured in our state-of-the-art production facilities which are designed for various production processes. 5-Axis milling, circular and surface grinding, wire cutting and sinking operations are carried out in our own production facilities. In order that we are able to offer our customers excellent levels of product quality, our quality control management procedures are certified annually (ISO 9001/2010).

We manufacture globally. Our main production facilities are located in Nuremberg, Mittweida and Göppingen in Germany. Naturally, our standard products are employed in our own production processes. This enables our experienced development team to continually monitor and improve the product specifications which provides a practical benefit to our customers.

Our production facilities
- 55 CNC-machining centres up to 5000 mm machining length and 3000 mm in width
- 2 CNC Gantry milling machines Gantry range 3 m, table length 5 m
- 4 HSC 5 axis milling machines
- 50 profile / surface / coordinate / circular (internal and outside) grinding machines up to 4000 mm machining length.
- Magnet test bench up to 50,000 kg
- 12 wire cutting and sinker EDM machines
- 4 CNC horizontal lathes
- 1 large horizontal lathe Face plate diameter 3000 mm
- 4 coordinate measuring machines Range: x = 600 mm, y = 1000 mm, z=465 mm
- 1 injection moulding machine

Development competences in:
- Magnetics
- Hydraulics
- Mechanics
- Vacuum technologies
- Automation technologies
- Control technologies
- Stationary and rotating workholding technologies
FROM STANDARD TO COMPLEX INTEGRATION

MAGNETIC ROTARY WORKHOLDING

SAV PROVIDES

- Quality, operational safety and longevity
- Cost effectiveness
- Precision solutions
- Competence in problem solving
- High clamping forces appropriate to the workpiece characteristics
- Flexibility through R&D and our own production technologies
- Innovation – new technologies
- Applications “Made in Germany”

WORKHOLDING SOLUTIONS FOR TURNING, GRINDING AND MILLING

- Universal and flexible
- Low wear and low maintenance
- Combined solutions
- Automation
- Adaptable for every spindle – specially for your machinery
- Comprehensive solutions
- On-site service and installation
- Workpiece and process orientated solutions
- Optimization of setup times

We develop and produce circular magnets including individual solutions for your workpieces and operating requirements

Please request the SAV catalogues Catalogue I “Magnetic workholding” and Catalogue VII “Custom solutions”.

Download under www.group-sav.com.

Applications “Made in Germany”

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Download under www.group-sav.com.

Applications “Made in Germany”
### CONSTRUCTION PRINCIPLES FOR CHUCKS

#### SCROLL CHUCK

**Scroll**
- large clamping range

#### LEVER CHUCK

**Lever**
- large jaw stroke possible
- with centrifugal force compensation

#### WEDGE HOOK CHUCK

**Wedge hook**
- with centrifugal force compensation
- suitable for large cutting forces

#### WEDGE BAR CHUCK

**Wedge bar**
- force exerted directly at the clamping position

### CHAPTER 1

#### STANDARD CHUCKS AND ACCESSORIES

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<tr>
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<td>with centrifugal force compensation Wedge hook chuck for maximum clamping power and repeat accuracy</td>
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<td>30 - 31</td>
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<td></td>
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</table>

**Ordering example:**

- **Katalog III**
- **SAV-Group**

### CHAPTER OVERVIEW

#### CONSTRUCTION PRINCIPLES FOR CHUCKS

- Large jaw stroke possible
- With centrifugal force compensation
- Suitable for large cutting forces

#### LEVER CHUCK

- Large jaw stroke possible
- With centrifugal force compensation

#### WEDGE HOOK CHUCK

- With centrifugal force compensation
- Suitable for large cutting forces

#### WEDGE BAR CHUCK

- Force exerted directly at the clamping position
3-JAW SCROLL CHUCK

Cushman System, cylindrical mounting according to DIN 6350

Application:
To clamp round workpieces, in particular on conventional and cyclically-controlled machines. The jaws can be stagelessly adjusted across the whole clamping range.

Features:
- Steel-bodied scroll chuck
- Cylindrical mounting according to DIN 6350 or short taper for DIN 55026 / 55027 and 55029
- Rotational speed, clamping forces and accuracy comply with DIN 6386 Part 1-class 1
- Chuck sizes up to ø1600 mm Standard
- From ø 630 mm available with extended base jaws.

Delivery scope:
- With one-piece turning and boring jaws “DB” or
- With base and hardened top jaws “GA”
- Tensioning key

Clamping force transmission system

4-JAW SCROLL CHUCK

Cushman System, cylindrical mounting according to DIN 6350

Application:
To clamp round and angled workpieces, in particular on conventional and cyclically-controlled machines. The jaws can be stagelessly adjusted across the whole clamping range.

Features:
- Steel-bodied scroll chuck
- Cylindrical mounting according to DIN 6350 or short taper for DIN 55026 / 55027 and 55029
- Rotational speed, clamping forces and accuracy comply with DIN 6386 Part 1-class 1
- Chuck sizes up to ø1600 mm Standard
- From ø 630 mm with extended base jaws available upon request.

Delivery scope:
- With one-piece turning and boring jaws “DB” or
- With base and hardened top jaws “GA”
- Tensioning key

Clamping force transmission system Analogue to the 3-jaw scroll chuck

<table>
<thead>
<tr>
<th>Dimensions in mm</th>
<th>Revolutions</th>
<th>Weight in kg</th>
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<td>in min⁻¹</td>
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<td>50</td>
<td>3.0 / 3.2</td>
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<td>60 / 65</td>
<td>3.5 / 3.9</td>
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<td>150</td>
<td>70 / 75</td>
<td>4.0 / 4.5</td>
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<td>200</td>
<td>80 / 85</td>
<td>5.0 / 5.5</td>
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<td>90 / 95</td>
<td>6.0 / 6.5</td>
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<td>315</td>
<td>100 / 105</td>
<td>7.0 / 7.5</td>
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<td>140 / 145</td>
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<td>630</td>
<td>150 / 155</td>
<td>12.0 / 12.5</td>
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<th>Dimensions in mm</th>
<th>Revolutions</th>
<th>Weight in kg</th>
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<td>2.4 / 2.6</td>
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<td>125</td>
<td>60 / 65</td>
<td>3.0 / 3.2</td>
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<td>70 / 75</td>
<td>3.6 / 3.8</td>
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<td>200</td>
<td>80 / 85</td>
<td>4.2 / 4.4</td>
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<td>6.0 / 6.2</td>
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<td>600</td>
<td>140 / 145</td>
<td>10.0 / 10.2</td>
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</table>

* Can be delivered with a larger bore
** Can be bored-out, max. dimensions a and b upon request

Ordering example:
3 Jaw scroll chuck SAV 260.10 - 200 - 3 - DB/BB
Designation SAV - No. - A - Number of jaws - Jaw specification

Ordering example:
4-Jaw scroll chuck SAV 260.10 - 200 - 4 - GB/AB
Designation SAV - No. - A - Number of jaws - Jaw specification
### Designation

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>34</td>
<td>35</td>
<td>36</td>
<td>37</td>
<td>38</td>
</tr>
</tbody>
</table>

### Dimensions in mm

Tensioning key and fixings included in the delivery.

**Format GB/AB** – with turning and boring jaws

**Format GW/AB** – with base and hardened top jaws

### Ordering example:

**3-Jaw scroll chuck**

- **SAV 260.10 – 200**
- **3-Jaw DB/BB**

**Designation**

- **SAV No.**
- **A** - Number of jaws
- **B** - Spindle size
- **C** - Format
- **D** - Jaw specification

### CLAMPING JAWS FOR SCROLL CHUCKS

**SAV 269.10**

- **Cushman System**, to SAV 260.10

**Designation**

- **SAV No.**
- **A** - Chuck diameter
- **B** - Jaw specification

### Ordering example:

**Base jaw in GB** and hardened top jaws “HAB” or turning “DB” and boring jaws “BB” included in the chuck delivery.
Wescott System, with adjustable ancillary jaws; Cylindrical centering mounting DIN 6351

Application:
To clamp round workpieces, in particular on conventional and cyclically-controlled machines. The jaws can be centrically adjusted across the whole clamping range. In addition, the jaws are independently adjustable.

Features:
- Steel-bodied scroll chuck
- Cylindrical mounting according to DIN 6351 or short taper for DIN 55026 / 55027 and 55029
- Rotational speed, clamping forces and accuracy comply with DIN 6386 Part 1-class 1
- Chuck sizes up to ø1600 mm Standard
- From ø 700 mm available with extended base jaws.

Delivery scope:
With hardened base jaws and hardened, reversible top jaws
Tensioning and adjustment keys

Clamping force transmission system

Ordering example:
3-Jaw scroll chuck SAV 260.11 - 200 - 3
Designation SAV - No. - A - Number of jaws

Chucks with a frontal fixing upon request or on-site adaptations possible.
Chucks from ø 800 mm – please enquire. Special formats to ø 3000 mm deliverable.

Ordering example:
4-Jaw scroll chuck SAV 260.11 - 800 - 4
Designation SAV - No. - A - Number of jaws

Chucks with a frontal fixing upon request or on-site adaptations possible.
Chucks from ø 800 mm – please enquire. Special formats to ø 3000 mm deliverable.
Wescott System, with adjustable ancillary jaws; Short taper fixing

### 3 or 4-JAW SCROLL CHUCK

**Wescott System, to SAV 260.11**

- **BASE JAW, HARD – GB**
- **REVERSIBLE TOP JAW, HARD – AUB**
- **REVERSIBLE JAW, SOFT – UB**

**ADJUSTMENT SPINDLE – S**

**EXTENDED INTERMEDIATE JAW – LZB**

**EXTENDED TOP JAW, HARD – LAB**

Please enquire for prices and dimensions.

Ordering example:

- Scroll chuck SAV 260.11 - 315 - 3 - BK
- Designation SAV - No. - A - Number of jaws - Spindle size - Format

**Dimensions in mm**

<table>
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<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>97</td>
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<td>47.6</td>
<td>3/4 x 10</td>
<td>K</td>
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<td>160</td>
<td>97</td>
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<td>63.5</td>
<td>85</td>
<td>-</td>
<td>J</td>
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<td>82.6</td>
<td>61.9</td>
<td>3/4 x 11</td>
<td>K</td>
<td>3800</td>
</tr>
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<td>160</td>
<td>97</td>
<td>45</td>
<td>82.6</td>
<td>104.8</td>
<td>-</td>
<td>J</td>
<td>3800</td>
</tr>
</tbody>
</table>

Ordering example:

Katalog III

SAV-Group

www.group-sav.com

### CLAMPING JAWS FOR SCROLL CHUCKS

**SAV 260.11**

**SAV 269.11**

**Dimensions in mm**

| Chuck | A | A1 | B | C | C1 | D | E | F | FI | G | H | J | K | L | M | P | R | S |
|-------|---|----|---|---|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|
| 160   | 78 | 73 | 30 | 62 | 29 | 20 | 10 | 9  | 8   | 8  | 23 | 23 | 11 | 14 | 90 | 3  | 7  | 10 | 8  |
| 160   | 93 | 86 | 34 | 69 | 34 | 23 | 12 | 10 | 10  | 33 | 33 | 15 | 26 | 86 | 4  | 10 | 12 | 10 |
| 200   | 108| 100| 38 | 72 | 35 | 27 | 12 | 12 | 11  | 38 | 38 | 15 | 28 | 100| 4  | 10 | 15 | 12 |
| 200   | 135| 125| 38 | 82 | 33 | 27 | 12 | 12 | 11  | 48 | 48 | 20 | 28 | 125| 4  | 10 | 15 | 12 |
| 200   | 160| 145| 42 | 93 | 41 | 29 | 14 | 15 | 13  | 55 | 55 | 21 | 30 | 145| 5  | 12 | 16 | 12 |
| 200   | 160| 145| 50 | 115| 41 | 35 | 14 | 15 | 13  | 60 | 60 | 30 | 32 | 145| 5  | 12 | 16 | 12 |
| 200   | 200| 223| 65 | 127| 41 | 35 | 15 | 20 | 16  | 70 | 70 | 30 | 32 | 200| 5  | 15 | 18 | 14 |
| 200   | 200| 223| 65 | 127| 41 | 35 | 15 | 20 | 16  | 70 | 70 | 30 | 32 | 200| 5  | 15 | 18 | 14 |
| 250   | 250| 285| 75 | 140| 41 | 35 | 15 | 20 | 16  | 70 | 70 | 30 | 32 | 200| 5  | 15 | 18 | 14 |
| 250   | 250| 285| 75 | 140| 41 | 35 | 15 | 20 | 16  | 70 | 70 | 30 | 32 | 200| 5  | 15 | 18 | 14 |
| 315   | 315| 330| 100| 160| 41 | 35 | 15 | 20 | 16  | 70 | 70 | 30 | 32 | 200| 5  | 15 | 18 | 14 |
| 315   | 315| 330| 100| 160| 41 | 35 | 15 | 20 | 16  | 70 | 70 | 30 | 32 | 200| 5  | 15 | 18 | 14 |

* Can be delivered with a larger bore; ** Can be bored-out, max. dimensions upon request.

Base jaw GB and reversible top jaw AUB included in the scroll chuck delivery. Chuck sizes ≥ ø700 mm delivered with extended base jaws.

Please enquire for prices and dimensions.

Ordering example:

- Scroll chuck SAV 260.11 - 315 - 3 - BK
- Designation SAV - No. - A - Number of jaws - Spindle size - Format

Dimensions in mm

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>85</td>
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<td>J</td>
<td>3000</td>
</tr>
</tbody>
</table>

* Can be delivered with a larger bore; ** Can be bored-out, max. dimensions upon request.

Tensioning key and fixings included in the delivery.
**With cylindrical centering mounting**

**Application:**
Manually operated chucks are suitable for all standard lathes and by means of an intermediate flange fit all spindle mounts.

**Features:**
- Manual chuck optionally with base jaws FGB
- With base and hardened top jaws FFB
- With one-piece hand stepped jaws FSTB
- Ground in the chuck under tension
- Hardened chuck body
- Made from high grade steel for maximum clamping forces.
- The chuck has a large bore diameter for the machining of bars. Base jaw format with helical teeth and metric cross tenon at the jaw locating interface.

**Delivery scope:**
- Each supplied with a key.
- Manual chuck optionally with base jaws FGB
- Stud bolts and collar nuts included in the delivery.

**Stud bolts and collar nuts included in the delivery.**

**Ordering example:**
- Cover plate, see page 21
- For short taper fixing with the corresponding application:
  - With cylindrical centering mounting from page 24.
  - Clamping jaws - see SAV 269.20
  - Each supplied with a key.
  - With one-piece hand stepped jaws FSTB
  - Ground in the chuck under tension
  - Hardened chuck body
  - Made from high grade steel for maximum clamping forces.
  - For greatest precision and lifespan. All interior parts hardened.
  - Clamping force optimized to fit the latch mandrel. Hardened wedge bar mechanism. Integrated quick-change jaw mechanism.
  - Features:
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.
    - Latches for external clamping and 3 jaw manually operated chuck using the tried and tested wedge bar mechanism. Integrated quick-change jaw mechanism.

**Table:**

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>H1</th>
<th>J</th>
<th>L</th>
<th>N</th>
<th>Rmax</th>
<th>Rmin</th>
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<td>125</td>
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<td>315</td>
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<td>400</td>
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<td>6</td>
<td>3 x M28</td>
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</tr>
</tbody>
</table>

**Dimensions in mm**

**Table:**

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>Max. clamping force</th>
<th>Max. actuating torque</th>
<th>M科学技术</th>
<th>Chuck constant</th>
<th>Chuck constant</th>
<th>Chuck constant</th>
<th>Chuck constant</th>
<th>Weight with jaws</th>
<th>Jaw connection</th>
</tr>
</thead>
<tbody>
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<td>5000</td>
<td>6000</td>
<td>6500</td>
<td>6500</td>
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<td>3600</td>
<td>3600</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>360</td>
<td>2500</td>
<td>3100</td>
<td>3600</td>
<td>3600</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
</tr>
</tbody>
</table>

**Ordering example:**
- F + manual chuck with cylindrical centering mounting
  - SAV 260.20 - 630 - FGB
  - SAV - No. - Nominal size - Jaws

**The operational clamping force Fsp is calculated according to the following formula:**

\[
Fsp = C1 \times C2 \times M \times \frac{G \times Rx + x}{Dsp} + N^a
\]

**Terms used in the formula:**
- \( Fsp \) = Operational clamping force (daN), The radial clamping force of all jaws at the operational speed
- \( C1, C2 \) = Chuck constants
- \( M \) = Torque produced using the chuck key (Nm)
- \( a \) = Jaw projection (mm)
- \( G \) = Weight of a clamping jaw (kg)
- \( x \) = Jaw key (Nm)
- \( n \) = Rotational speed (min⁻¹)
- \( Dsp \) = Clamping diameter (mm)

**Flanges for other adaptations are available upon request.**

**Ordering example:**
- F + manual chuck with adaptor flange
  - SAV 260.20 - 200 - FGB - K5
  - SAV - No. - Nominal size - Jaw specification - Spindle nose

**Chuck with centering plate and adaptor flange for short taper fixing according to DIN 55027, ISO 702/I, ASA B 5.9 B**

**Chuck with centering plate for bayonet ring fixing according to DIN 55029, ISO 702/I, ASA B 5.9 B**

**Chuck with centering plate for camlock fixing according to DIN 55026, ISO 702/I, ASA B 5.9 A1 und A2**
**FNC POWER CHUCKS**

**With quick-change jaw system**

**Application:**
Power actuated wedge bar chuck in 3 jaw format with a quick-change jaw system. The universal power chuck counts as one of the most efficient and flexible chucks. Frequent jaw changes for small batch or single item production is possible with a minimal setup time and therefore still remains very economical.

**Features:**
- The jaw systems are compatible with the manual chuck F+.
- Single piece, high strength chuck body despite the weight reduction and its shallow design. High concentric and repeat accuracy levels. High clamping force due to the chuck piston with high durable Tapered wedge hooks. The FNC power chucks are delivered with the jaws of your choice. Thanks to the quick-change jaw system you can always work using the optimal jaws, without long down-times.

- The quick-change jaw system you can always work using the optimal jaws, without long down-times.

- The jaws can subsequently be ground in the chuck.
- Increased clamping force due to the serrated teeth / block teeth.
- Soft jaws of type FMB/FWB are available for the accurate clamping of previously machined workpieces, which must not be damaged by the clamping surface.
- Under clamping pressure, these jaws are tightened by the base jaws – FGB/FHB. Quick changing of the jaws is possible, without the need to separate the top jaws from the base jaws.
- The chucks will be delivered with your choice of jaws.
- Jaw formats / Overview

The operational clamping force \( F_{sp} \) is calculated according to the following formula:

\[
F_{sp} = \frac{C_1}{C_2 + a} \times \text{Fax} = 0.0008 \times (C3 + Ma) \times n^2 \text{ (daN)}
\]

Terms used in the formula:
- \( a \) = Distance of the centre of gravity of the top jaw from the clamping diameter
- \( Ma \) = Distance of the centre of gravity of the top jaw from the chuck centre (mm)
- \( Ra \) = Distance of the centre of gravity of the top jaw from the chuck centre (mm)
- \( ma \) = Internal and external clamping

**Jaw formats:**
- Hardened, one-piece clamping jaw for universal use
- The jaws can subsequently be ground in the chuck.
- Hardened, one-piece stepped jaw – FSTB
- Quick changing of the jaws is possible, without the need to separate the top jaws from the base jaws.
- Bearer jaws for the top jaws
- Precisely ground for maximum repeat accuracy

- Increased clamping force due to the serrated teeth / block teeth.
- Soft jaws of type FMB/FWB are available for the accurate clamping of previously machined workpieces, which must not be damaged by the clamping surface.
- Under clamping pressure, these jaws are tightened by the base jaws.

**Ordering example:**
SAV 260.80 on page 35.

**Designation**
- **SAV** - No.
- **Nominal size**
- **Jaw specification**
- **Grinding format**

**SAV 260.30**

Clamping jaws see SAV 260.20

Short taper fixing with chuck flange or adaptor plate see SAV 260.80 on page 35.

**SAV 260.30**

| Dimensions in mm | A | B | C/Ø | D | F | G | H | J | K | L | M | Q | R | T |
|------------------|---|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| 175              | 155 | 42 | 51  | 25/140 | 180 | 90 | 140 | 24 | 10 | 14 | 1 | 4 | 6 | 4,8 |
| 200              | 200 | 65 | 53  | 29/170 | 200 | 100 | 200 | 48 | 12 | 20 | 1 | 4 | 6 | 4,8 |
| 250              | 250 | 72 | 81  | 32/220 | 250 | 150 | 320 | 71 | 17 | 32 | 1 | 4 | 6 | 6,0 |
| 315              | 315 | 82 | 94  | 41/300 | 315 | 150 | 410 | 103 | 23 | 50 | 1 | 4 | 6 | 7,0 |
| 400              | 400 | 102 | 122 | 47/350 | 400 | 250 | 500 | 166 | 33 | 65 | 1 | 4 | 6 | 8,5 |
| 500              | 500 | 125 | 136 | 55/400 | 500 | 400 | 550 | 200 | 50 | 90 | 1 | 4 | 6 | 8,5 |
| 630              | 630 | 125 | 136 | 62/500 | 630 | 500 | 630 | 250 | 75 | 120 | 1 | 4 | 6 | 8,5 |

**FNC-Power chucks**

For orders of the chuck FNC with FSTB or FGB/FHB it is possible to grind the jaws under clamping force in the chuck. The order number must be supplemented with “Sch”.

**SAV 260.30 - 400 - FSTB - Sch**

<table>
<thead>
<tr>
<th>Max. clamping force</th>
<th>Max. actuating force</th>
<th>Chuck constant</th>
<th>Max. projection</th>
<th>Max. Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fmax in daN</td>
<td>Fax in daN</td>
<td>( C_1 ) in mm</td>
<td>top jaw</td>
<td>top jaw in kg</td>
</tr>
<tr>
<td>5.500</td>
<td>3.000</td>
<td>390</td>
<td>213</td>
<td>0,065</td>
</tr>
<tr>
<td>8.400</td>
<td>4.500</td>
<td>412</td>
<td>221</td>
<td>0,09</td>
</tr>
<tr>
<td>12.000</td>
<td>6.000</td>
<td>580</td>
<td>290</td>
<td>0,187</td>
</tr>
<tr>
<td>16.000</td>
<td>8.000</td>
<td>780</td>
<td>390</td>
<td>0,33</td>
</tr>
<tr>
<td>19.500</td>
<td>10.000</td>
<td>482</td>
<td>482</td>
<td>0,73</td>
</tr>
<tr>
<td>24.000</td>
<td>12.000</td>
<td>880</td>
<td>600</td>
<td>1,66</td>
</tr>
<tr>
<td>24.000</td>
<td>12.000</td>
<td>1760</td>
<td>880</td>
<td>2,80</td>
</tr>
</tbody>
</table>

**SAV 260.30**

<table>
<thead>
<tr>
<th>Max. clamping force</th>
<th>Max. actuating force</th>
<th>Chuck constant</th>
<th>Max. projection</th>
<th>Max. Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fmax in daN</td>
<td>Fax in daN</td>
<td>( C_1 ) in mm</td>
<td>top jaw</td>
<td>top jaw in kg</td>
</tr>
<tr>
<td>5.500</td>
<td>3.000</td>
<td>390</td>
<td>213</td>
<td>0,065</td>
</tr>
<tr>
<td>8.400</td>
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<td>412</td>
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<td>12.000</td>
<td>6.000</td>
<td>580</td>
<td>290</td>
<td>0,187</td>
</tr>
<tr>
<td>16.000</td>
<td>8.000</td>
<td>780</td>
<td>390</td>
<td>0,33</td>
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<tr>
<td>19.500</td>
<td>10.000</td>
<td>482</td>
<td>482</td>
<td>0,73</td>
</tr>
<tr>
<td>24.000</td>
<td>12.000</td>
<td>880</td>
<td>600</td>
<td>1,66</td>
</tr>
<tr>
<td>24.000</td>
<td>12.000</td>
<td>1760</td>
<td>880</td>
<td>2,80</td>
</tr>
</tbody>
</table>

**FNC POWER CHUCKS**

With quick-change jaw system

**FNC-Power chucks**

For orders with base jaws and hardened top jaws FHB and/or one-piece hardened stepped jaws FSTB according to SAV 269.20, it is possible to grind the jaws under clamping force in the chuck. The order number must be supplemented with “Sch”.
Ordering example:
Base jaw, FGB 250
Designation SAV - No. - Type

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

SAV 269.20

**TOP JAWS, HARD – FHB**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

SAV 269.20

**CLAMPING RANGES**

In power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

**TOP JAWS, HARD – FHB**

For base jaw format FGB 125
Designation SAV - No. - Type

**SAV 269.20**

**BASE JAWS – FGB**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

SAV 269.20

**TOP JAWS, SOFT – FWB**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

SAV 269.20

Ordering example:
Top jaw, soft SAV 269.20 - FWB 250
Designation SAV - No. - Type

Ordering example:
Top jaw, hard SAV 269.20 - FHB 200
Designation SAV - No. - Type
**SAV 269.20**

**STEPPED JAWS, HARD, ONE-PIECE – FSTB**

For power chuck F+ and manual chuck F+, SAV 260.30 and 260.20

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+125</td>
<td>FSTB 125</td>
<td>5 - 14 - 18</td>
<td>50 - 101 - 139</td>
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<tr>
<td>F+160</td>
<td>FSTB 160</td>
<td>20 - 24</td>
<td>79 - 45 - 35</td>
</tr>
<tr>
<td>F+200</td>
<td>FSTB 200</td>
<td>10 - 22 - 35</td>
<td>94 - 60</td>
</tr>
<tr>
<td>F+250</td>
<td>FSTB 250</td>
<td>14 - 26 - 40</td>
<td>115 - 70</td>
</tr>
<tr>
<td>F+315</td>
<td>FSTB 315</td>
<td>14 - 26 - 40</td>
<td>115 - 70 - 53</td>
</tr>
<tr>
<td>F+400</td>
<td>FSTB 400</td>
<td>20 - 45 - 52</td>
<td>167 - 93 - 75,5</td>
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</tbody>
</table>

**ROUGHING JAWS KBKTNC**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

Application:
For the heavy duty roughing work/machining of overhanging workpieces, the roughing jaws Type KBKTNC with replaceable chuck claws SKA (for external clamping) and SKI (for internal clamping) are available.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+160</td>
<td>FMB 160</td>
<td>79 - 20 - 24</td>
<td>45</td>
</tr>
<tr>
<td>F+200</td>
<td>FMB 200</td>
<td>94 - 22 - 36</td>
<td>60</td>
</tr>
<tr>
<td>F+250</td>
<td>FMB 250</td>
<td>115 - 26 - 40</td>
<td>70</td>
</tr>
<tr>
<td>F+315</td>
<td>FMB 315</td>
<td>115 - 26 - 40</td>
<td>70</td>
</tr>
<tr>
<td>F+400</td>
<td>FMB 400</td>
<td>176 - 45 - 53</td>
<td>93</td>
</tr>
</tbody>
</table>

**CLAMPING RANGES**

In power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

<table>
<thead>
<tr>
<th>Chuck Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+125</td>
<td>FSTB 125</td>
<td>26 - 62</td>
</tr>
<tr>
<td>F+160</td>
<td>FSTB 160</td>
<td>45.94</td>
</tr>
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<td>FNC 175</td>
<td>FSTB 175</td>
<td>53.99</td>
</tr>
<tr>
<td>F+200</td>
<td>FSTB 200</td>
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<td>FNC 200</td>
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<td>67.112</td>
</tr>
<tr>
<td>F+250</td>
<td>FSTB 250</td>
<td>79.980</td>
</tr>
<tr>
<td>FNC 250</td>
<td>FSTB 250</td>
<td>100.182</td>
</tr>
<tr>
<td>F+315</td>
<td>FSTB 315</td>
<td>100.182</td>
</tr>
<tr>
<td>F+400</td>
<td>FSTB 400</td>
<td>100.182</td>
</tr>
</tbody>
</table>

**SAV 269.20**

**MONOBLOCK JAWS, SOFT – FMB**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

Application:
For the heavy duty roughing work/machining of overhanging workpieces, the roughing jaws Type KBKTNC with replaceable chuck claws SKA (for external clamping) and SKI (for internal clamping) are available.

<table>
<thead>
<tr>
<th>Chuck Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+160</td>
<td>FMB 160</td>
<td>79 - 20 - 24</td>
</tr>
<tr>
<td>F+200</td>
<td>FMB 200</td>
<td>94 - 22 - 36</td>
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<tr>
<td>F+250</td>
<td>FMB 250</td>
<td>115 - 26 - 40</td>
</tr>
<tr>
<td>F+315</td>
<td>FMB 315</td>
<td>115 - 26 - 40</td>
</tr>
<tr>
<td>F+400</td>
<td>FMB 400</td>
<td>176 - 45 - 53</td>
</tr>
</tbody>
</table>

**SAV 269.20**

**STEPS JAWS, HARD, ONE-PIECE – FSTB**

For power chuck F+ and manual chuck F+, SAV 260.30 and 260.20

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+125</td>
<td>FSTB 125</td>
<td>26 - 62</td>
<td>58.96</td>
</tr>
<tr>
<td>F+160</td>
<td>FSTB 160</td>
<td>45.94</td>
<td>84.133</td>
</tr>
<tr>
<td>FNC 175</td>
<td>FSTB 175</td>
<td>53.99</td>
<td>93.138</td>
</tr>
<tr>
<td>F+200</td>
<td>FSTB 200</td>
<td>54.101</td>
<td>93.141</td>
</tr>
<tr>
<td>FNC 200</td>
<td>FSTB 200</td>
<td>67.112</td>
<td>107.152</td>
</tr>
<tr>
<td>F+250</td>
<td>FSTB 250</td>
<td>79.980</td>
<td>137.261</td>
</tr>
<tr>
<td>FNC 250</td>
<td>FSTB 250</td>
<td>100.182</td>
<td>150.217</td>
</tr>
<tr>
<td>F+315</td>
<td>FSTB 315</td>
<td>100.182</td>
<td>150.217</td>
</tr>
<tr>
<td>F+400</td>
<td>FSTB 400</td>
<td>100.182</td>
<td>150.217</td>
</tr>
</tbody>
</table>

**SAV 269.20**

**STEPPED JAWS, HARD, ONE-PIECE – FSTB**

For power chuck F+ and manual chuck F+, SAV 260.30 and 260.20

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+125</td>
<td>FSTB 125</td>
<td>26 - 62</td>
<td>58.96</td>
</tr>
<tr>
<td>F+160</td>
<td>FSTB 160</td>
<td>45.94</td>
<td>84.133</td>
</tr>
<tr>
<td>FNC 175</td>
<td>FSTB 175</td>
<td>53.99</td>
<td>93.138</td>
</tr>
<tr>
<td>F+200</td>
<td>FSTB 200</td>
<td>54.101</td>
<td>93.141</td>
</tr>
<tr>
<td>FNC 200</td>
<td>FSTB 200</td>
<td>67.112</td>
<td>107.152</td>
</tr>
<tr>
<td>F+250</td>
<td>FSTB 250</td>
<td>79.980</td>
<td>137.261</td>
</tr>
<tr>
<td>FNC 250</td>
<td>FSTB 250</td>
<td>100.182</td>
<td>150.217</td>
</tr>
<tr>
<td>F+315</td>
<td>FSTB 315</td>
<td>100.182</td>
<td>150.217</td>
</tr>
<tr>
<td>F+400</td>
<td>FSTB 400</td>
<td>100.182</td>
<td>150.217</td>
</tr>
</tbody>
</table>

**SAV 269.20**

**MONOBLOCK JAWS, SOFT – FMB**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

Application:
For the heavy duty roughing work/machining of overhanging workpieces, the roughing jaws Type KBKTNC with replaceable chuck claws SKA (for external clamping) and SKI (for internal clamping) are available.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Dimensions in mm</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+160</td>
<td>FMB 160</td>
<td>79 - 20 - 24</td>
<td>45</td>
</tr>
<tr>
<td>F+200</td>
<td>FMB 200</td>
<td>94 - 22 - 36</td>
<td>60</td>
</tr>
<tr>
<td>F+250</td>
<td>FMB 250</td>
<td>115 - 26 - 40</td>
<td>70</td>
</tr>
<tr>
<td>F+315</td>
<td>FMB 315</td>
<td>115 - 26 - 40</td>
<td>70</td>
</tr>
<tr>
<td>F+400</td>
<td>FMB 400</td>
<td>176 - 45 - 53</td>
<td>93</td>
</tr>
</tbody>
</table>

**SAV 269.20**

**ROUGHING JAWS KBKTNC**

For power chuck FNC and manual chuck F+, SAV 260.30 and 260.20

Application:
For the heavy duty roughing work/machining of overhanging workpieces, the roughing jaws Type KBKTNC with replaceable chuck claws SKA (for external clamping) and SKI (for internal clamping) are available.

Available upon request
KT POWER CHUCK

In 2, 3 and 4-jaw formats

Application:
The unique wedge hook profile provides an enormous clamping pressure and makes possible heavy-duty milling operations with a consistently high clamping accuracy level.

Features:
Integrated T-slots in the chuck body for the mounting of workpiece stops. Base jaws with serrations. (Cross tolerances other tooling formats available upon request.) Higher resilience than standard wedge hook chucks due to the special wedge hook geometry. A choice of chuck variants: KTN with standard piston or KTG with extended and guided piston for maximum repeat accuracy.

Performance data for power chucks KTN / KTG

### Chuck type 2KTN / 2KGT / 2 jaws

<table>
<thead>
<tr>
<th>A</th>
<th>mm</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>315</th>
<th>400</th>
<th>500</th>
<th>630</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. actuating torque</td>
<td>T&lt;sub&gt;max&lt;/sub&gt;</td>
<td>daN</td>
<td>2.400</td>
<td>3.500</td>
<td>4.700</td>
<td>5.300</td>
<td>8.000</td>
<td>12.000</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>F&lt;sub&gt;clp&lt;/sub&gt;</td>
<td>daN</td>
<td>4.600</td>
<td>6.000</td>
<td>9.400</td>
<td>10.600</td>
<td>17.300</td>
<td>27.000</td>
</tr>
<tr>
<td>Max. rotational speed</td>
<td>n&lt;sub&gt;max&lt;/sub&gt;</td>
<td>U / min</td>
<td>4.500</td>
<td>5.400</td>
<td>3.300</td>
<td>2.800</td>
<td>2.200</td>
<td>2.000</td>
</tr>
<tr>
<td>Weight</td>
<td>G</td>
<td>kg</td>
<td>10</td>
<td>19</td>
<td>34</td>
<td>56</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>Mass moment of inertia</td>
<td>J</td>
<td>kgm&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.035</td>
<td>0.10</td>
<td>0.28</td>
<td>0.70</td>
<td>2.40</td>
<td>5.70</td>
</tr>
<tr>
<td>Chuck constant C1</td>
<td>C1</td>
<td>mm</td>
<td>516</td>
<td>634</td>
<td>909</td>
<td>1075</td>
<td>1777</td>
<td>2547</td>
</tr>
<tr>
<td>Chuck constant C2</td>
<td>C2</td>
<td>mm</td>
<td>235</td>
<td>308</td>
<td>424</td>
<td>508</td>
<td>790</td>
<td>1101</td>
</tr>
<tr>
<td>Chuck constant C3</td>
<td>C3</td>
<td>kgm</td>
<td>0.09</td>
<td>0.13</td>
<td>0.26</td>
<td>0.45</td>
<td>1.2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

### Chuck type 3KTN / 3KGT / 3 jaws

<table>
<thead>
<tr>
<th>A</th>
<th>mm</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>315</th>
<th>400</th>
<th>500</th>
<th>630</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. actuating torque</td>
<td>T&lt;sub&gt;max&lt;/sub&gt;</td>
<td>daN</td>
<td>3.600</td>
<td>4.800</td>
<td>7.000</td>
<td>8.000</td>
<td>12.000</td>
<td>16.000</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>F&lt;sub&gt;clp&lt;/sub&gt;</td>
<td>daN</td>
<td>7.000</td>
<td>9.000</td>
<td>14.000</td>
<td>16.000</td>
<td>26.000</td>
<td>36.000</td>
</tr>
<tr>
<td>Max. rotational speed</td>
<td>n&lt;sub&gt;max&lt;/sub&gt;</td>
<td>U / min</td>
<td>4.500</td>
<td>5.400</td>
<td>3.300</td>
<td>2.800</td>
<td>2.200</td>
<td>2.000</td>
</tr>
<tr>
<td>Weight</td>
<td>G</td>
<td>kg</td>
<td>10</td>
<td>19</td>
<td>34</td>
<td>56</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>Mass moment of inertia</td>
<td>J</td>
<td>kgm&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.035</td>
<td>0.10</td>
<td>0.28</td>
<td>0.70</td>
<td>2.40</td>
<td>5.70</td>
</tr>
<tr>
<td>Chuck constant C1</td>
<td>C1</td>
<td>mm</td>
<td>516</td>
<td>634</td>
<td>909</td>
<td>1075</td>
<td>1777</td>
<td>2547</td>
</tr>
<tr>
<td>Chuck constant C2</td>
<td>C2</td>
<td>mm</td>
<td>235</td>
<td>308</td>
<td>424</td>
<td>508</td>
<td>790</td>
<td>1101</td>
</tr>
<tr>
<td>Chuck constant C3</td>
<td>C3</td>
<td>kgm</td>
<td>0.13</td>
<td>0.2</td>
<td>0.4</td>
<td>0.67</td>
<td>1.8</td>
<td>2.8</td>
</tr>
</tbody>
</table>

### Chuck type 4KTN / 4KGT / 4 jaws

<table>
<thead>
<tr>
<th>A</th>
<th>mm</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>315</th>
<th>400</th>
<th>500</th>
<th>630</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. actuating torque</td>
<td>T&lt;sub&gt;max&lt;/sub&gt;</td>
<td>daN</td>
<td>4.800</td>
<td>7.000</td>
<td>8.000</td>
<td>12.000</td>
<td>16.000</td>
<td>16.000</td>
</tr>
<tr>
<td>Max. clamping force</td>
<td>F&lt;sub&gt;clp&lt;/sub&gt;</td>
<td>daN</td>
<td>9.000</td>
<td>14.000</td>
<td>16.000</td>
<td>26.000</td>
<td>36.000</td>
<td>36.000</td>
</tr>
<tr>
<td>Max. rotational speed</td>
<td>n&lt;sub&gt;max&lt;/sub&gt;</td>
<td>U / min</td>
<td>3.800</td>
<td>5.000</td>
<td>3.000</td>
<td>2.500</td>
<td>2.000</td>
<td>1.800</td>
</tr>
<tr>
<td>Weight</td>
<td>G</td>
<td>kg</td>
<td>10</td>
<td>19</td>
<td>34</td>
<td>56</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>Mass moment of inertia</td>
<td>J</td>
<td>kgm&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.10</td>
<td>0.28</td>
<td>0.70</td>
<td>2.40</td>
<td>5.70</td>
<td>14.80</td>
</tr>
<tr>
<td>Chuck constant C1</td>
<td>C1</td>
<td>mm</td>
<td>634</td>
<td>909</td>
<td>1075</td>
<td>1777</td>
<td>2547</td>
<td>3130</td>
</tr>
<tr>
<td>Chuck constant C2</td>
<td>C2</td>
<td>mm</td>
<td>308</td>
<td>424</td>
<td>508</td>
<td>790</td>
<td>1101</td>
<td>1361</td>
</tr>
<tr>
<td>Chuck constant C3</td>
<td>C3</td>
<td>kgm</td>
<td>0.26</td>
<td>0.53</td>
<td>0.9</td>
<td>2.4</td>
<td>3.7</td>
<td>6.2</td>
</tr>
</tbody>
</table>

The operational clamping force F<sub>sp</sub> is calculated according to the following formula:

\[
F_{sp} = C_1 \times C_2 \times C_3 \times F_{ax} \times S_{ax} \times \left( C_3 + M_a \times r^2 \times \text{[mm]} \right)
\]

Terms used in the formula:
- \( F_{sp} \) = Operational clamping force (daN)
- \( C_1, C_2, C_3 \) = Chuck constants
- \( F_{ax} \) = Operating force (daN)
- \( n \) = Rotational speed (min<sup>-1</sup>)
- \( M_a \) = Total centrifugal moment of the clamping jaws (kgm)
- \( r \) = Distance of the centre of gravity of the top jaw from the chuck centre (mm)
- \( G \) = Weight of a clamping jaw (kg)
- \( a \) = Jaw projection (mm)
- \( i \) = Number of jaws
- \( \theta \) = Internal and external clamping

### Ordering example:

**KT – Power chuck SAV 260.31 – 250 - 3 - KTN - HB - Sch**

Designation: SAV-No. - A Number of jaws - Build type - Jaw specification - Gridding format
With centrifugal force compensation

Application:
The power chuck QLC is suitable as a universal chuck for almost all machining operations.

Features:
Power chucks are highly efficient, high productivity wedge chuck chucks with a large open centre bore. With centrifugal force compensation and integrated lubricant reservoir. An optimal transmission of the clamping forces due to the patented multiple jaw guides. Play-free wedge hook mechanism for maximum clamping force and repeat accuracy. Base jaw profile with an optimal guide length for internal and external clamping. Improved chuck seal. No undercuts and therefore a very low level of lubricant loss. Long maintenance intervals. Easily mounted, piston installed flush in the chuck, axial stroke limitation in the chuck.

Base jaw profile with an optimal guide length for internal and external clamping. Improved chuck seal. No undercut and therefore a very low level of lubricant loss. Long maintenance intervals. Easily mounted, piston installed flush in the chuck, axial stroke limitation in the chuck.

Power chucks are highly efficient, high productivity wedge chuck chucks with a large open centre bore. With centrifugal force compensation and integrated lubricant reservoir. An optimal transmission of the clamping forces due to the patented multiple jaw guides. Play-free wedge hook mechanism for maximum clamping force and repeat accuracy. Base jaw profile with an optimal guide length for internal and external clamping. Improved chuck seal. No undercut and therefore a very low level of lubricant loss. Long maintenance intervals. Easily mounted, piston installed flush in the chuck, axial stroke limitation in the chuck.

Ordering example:

Power chuck QLC - SAV 260.32
Designation SAV - No. - Nominal size - C - O - Jaw specification - Grinding format

Some special format chucks can be supplied with 2 or 4 jaws. For orders with hardened top jaws „HB“ and/or clawed jaws „UBK“ it is possible to grind the jaws under clamping force in the chuck. The order number must be supplemented with “Sch”.

The appropriate thread adaptor can be ordered upon request to enable connections to the power chuck. Please supply the spindle specification and installation plans.

Other chuck formats are available upon request:
- without chuck bore QLC – KT
- with jaw compensation and centering point for shaft machining QLC - AS
- with longer jaw stroke QLC - LS
- with larger bore QLC - KS
- without centrifugal force compensation QLC
- with chuck bore QLC – KT

Chucks with other jaw location connections such as metric serrations, cross tenon or quick-change systems are available upon request.

The performance data for power chuck QLC is as follows:

**Performance data for power chuck QLC**

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>315</th>
<th>400 M16</th>
<th>400 M20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. actuating force (Fp) daN</td>
<td>2500</td>
<td>4000</td>
<td>6600</td>
<td>6600</td>
<td>6600</td>
<td>9600</td>
</tr>
<tr>
<td>Max. clamping force (Fmax) daN</td>
<td>4000</td>
<td>10000</td>
<td>15000</td>
<td>16000</td>
<td>14000</td>
<td>29000</td>
</tr>
<tr>
<td>Max. rotational speed QLC (nmin) 1/ min</td>
<td>8000</td>
<td>6300</td>
<td>4500</td>
<td>4000</td>
<td>3200</td>
<td>3200</td>
</tr>
<tr>
<td>Max. rotational speed QL (nmin) 1/ min</td>
<td>6300</td>
<td>5000</td>
<td>4000</td>
<td>3500</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>Max. weight top jaw ** (kg)</td>
<td>0,4</td>
<td>0,5</td>
<td>1,12</td>
<td>1,12</td>
<td>2,82</td>
<td>2,82</td>
</tr>
<tr>
<td>Max. projection top jaw ** (mm)</td>
<td>40</td>
<td>45</td>
<td>55</td>
<td>55</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Weight G (kg)</td>
<td>11,5</td>
<td>18</td>
<td>26</td>
<td>38</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Mass moment of inertia J (kgm²)</td>
<td>0,055</td>
<td>0,2</td>
<td>0,65</td>
<td>0,65</td>
<td>2,1</td>
<td>2,1</td>
</tr>
<tr>
<td>Chuck constant C1 (mm)</td>
<td>507</td>
<td>808</td>
<td>916</td>
<td>1186</td>
<td>1309</td>
<td>1309</td>
</tr>
<tr>
<td>Chuck constant C2 (mm)</td>
<td>227</td>
<td>322</td>
<td>398</td>
<td>497</td>
<td>553</td>
<td>553</td>
</tr>
<tr>
<td>Chuck constant C3 (kgm)</td>
<td>0,07</td>
<td>0,11</td>
<td>0,2</td>
<td>0,35</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Chuck constant C4 (daNm)</td>
<td>0,00008</td>
<td>0,00019</td>
<td>0,00032</td>
<td>0,0006</td>
<td>0,0015</td>
<td>0,0015</td>
</tr>
</tbody>
</table>

Standard format without clamping jaws. Optionally available with hard top jaws „HB“ and clawed jaws „UBK“. The total clamping force is calculated according to the following formula:

\[ Fsp = \frac{C1}{C2 + a} \times Fax \times 0.00008 \times (C3 + Ma) \times n^2 + C_4 \times n^2 \text{ (paw)} \]

Terms used in the formula:
- Fax = Operating force (daN)
- n = Rotational speed (1/ min)
- a = Jaw projection (mm)
- C1, C2, C3 = Chuck constants
- Ma = Total centrifugal moment of the top jaw from the clamping jaws (kgm²)
- G = Weight of a clamping jaw (kg)
- \( x \) = Distance of the centre of gravity of the top jaw from the clamping jaws center
- Yab = Distance of the centre of gravity of the top jaw from the clamping jaws center
- C4 = daNm

Example:

For orders with hardened top jaws „HB“ and/or clawed jaws „UBK“ it is possible to grind the jaws under clamping force in the chuck. The order number must be supplemented with “Sch”. The appropriate thread adaptor can be ordered upon request to enable connections to the power chuck. Please supply the spindle specification and installation plans. Other chuck formats are available upon request:
- without larger bore QLC - KS
- with longer jaw stroke QLC - LS
- with jaw compensation and centering point for shaft machining QLC - AS
- without centrifugal force compensation QLC
- without chuck bore QLC – KT

Some special format chucks can be supplied with 2 or 4 jaws. The performance data for power chuck QLC is as follows:

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>315</th>
<th>400 M16</th>
<th>400 M20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. actuating force (Fp) daN</td>
<td>2500</td>
<td>4000</td>
<td>6600</td>
<td>6600</td>
<td>6600</td>
<td>9600</td>
</tr>
<tr>
<td>Max. clamping force (Fmax) daN</td>
<td>4000</td>
<td>10000</td>
<td>15000</td>
<td>16000</td>
<td>14000</td>
<td>29000</td>
</tr>
<tr>
<td>Max. rotational speed QLC (nmin) 1/ min</td>
<td>8000</td>
<td>6300</td>
<td>4500</td>
<td>4000</td>
<td>3200</td>
<td>3200</td>
</tr>
<tr>
<td>Max. rotational speed QL (nmin) 1/ min</td>
<td>6300</td>
<td>5000</td>
<td>4000</td>
<td>3500</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>Max. weight top jaw ** (kg)</td>
<td>0,4</td>
<td>0,5</td>
<td>1,12</td>
<td>1,12</td>
<td>2,82</td>
<td>2,82</td>
</tr>
<tr>
<td>Max. projection top jaw ** (mm)</td>
<td>40</td>
<td>45</td>
<td>55</td>
<td>55</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Weight G (kg)</td>
<td>11,5</td>
<td>18</td>
<td>26</td>
<td>38</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Mass moment of inertia J (kgm²)</td>
<td>0,055</td>
<td>0,2</td>
<td>0,65</td>
<td>0,65</td>
<td>2,1</td>
<td>2,1</td>
</tr>
<tr>
<td>Chuck constant C1 (mm)</td>
<td>507</td>
<td>808</td>
<td>916</td>
<td>1186</td>
<td>1309</td>
<td>1309</td>
</tr>
<tr>
<td>Chuck constant C2 (mm)</td>
<td>227</td>
<td>322</td>
<td>398</td>
<td>497</td>
<td>553</td>
<td>553</td>
</tr>
<tr>
<td>Chuck constant C3 (kgm)</td>
<td>0,07</td>
<td>0,11</td>
<td>0,2</td>
<td>0,35</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Chuck constant C4 (daNm)</td>
<td>0,00008</td>
<td>0,00019</td>
<td>0,00032</td>
<td>0,0006</td>
<td>0,0015</td>
<td>0,0015</td>
</tr>
</tbody>
</table>

Example:

For orders with hardened top jaws „HB“ and/or clawed jaws „UBK“ it is possible to grind the jaws under clamping force in the chuck. The order number must be supplemented with “Sch”. The appropriate thread adaptor can be ordered upon request to enable connections to the power chuck. Please supply the spindle specification and installation plans. Other chuck formats are available upon request:
- without larger bore QLC - KS
- with longer jaw stroke QLC - LS
- with jaw compensation and centering point for shaft machining QLC - AS
- without centrifugal force compensation QLC
- without chuck bore QLC – KT

Some special format chucks can be supplied with 2 or 4 jaws. The operational clamping force Fsp is calculated according to the following formula:

\[ Fsp = \frac{C1}{C2 + a} \times Fax \times 0.00008 \times (C3 + Ma) \times n^2 + C_4 \times n^2 \text{ (paw)} \]

Terms used in the formula:
- Fax = Operating force (daN)
- n = Rotational speed (1/ min)
- a = Jaw projection (mm)
- C1, C2, C3 = Chuck constants
- Fax = Operating force (daN)
- n = Rotational speed (1/ min)
- a = Jaw projection (mm)
- C1, C2, C3 = Chuck constants
- Ma = Total centrifugal moment of the top jaw from the clamping jaws (kgm²)
- G = Weight of a clamping jaw (kg)
- \( x \) = Distance of the centre of gravity of the top jaw from the clamping jaws center
- Yab = Distance of the centre of gravity of the top jaw from the clamping jaws center
- C4 = daNm

Example:

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Terms used in the formula:
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- C1, C2, C3 = Chuck constants
- Ma = Total centrifugal moment of the top jaw from the clamping jaws (kgm²)
- G = Weight of a clamping jaw (kg)
- \( x \) = Distance of the centre of gravity of the top jaw from the clamping jaws center
- Yab = Distance of the centre of gravity of the top jaw from the clamping jaws center
- C4 = daNm
Katalog III

Designation       SAV - No.     - Type

Ordering example:
Top jaw, hard     SAV 269.30 - HB11
Designation  SAV - No. - Type

For power chucks Kt and Qlc, SAV 260.31 and 260.32

Clamping ranges Qlc-chucks SAV 260.30 with top jaws SAV 269.30

Clamping ranges Qlc-chucks SAV 260.32 with claw jaws SAV 269.30

Clamping ranges Qlc-chucks SAV 260.31 with claw jaws SAV 269.30

For power chucks Kt and Qlc, SAV 260.31 and 260.32

CLAW JAWS, HARD – UKB

SAV 269.30

SAV 269.30

For power chucks KT and QLC, SAV 260.31 and 260.32

Clamping ranges Qlc-chucks SAV 260.32 with claw jaws SAV 269.30

For power chucks KT and QLC, SAV 260.31 and 260.32

SAV 260.30

SAV 260.30

For power chucks KT and QLC, SAV 260.31 and 260.32

Clamping ranges Qlc-chucks SAV 260.30 with top jaws SAV 269.30

Clamping ranges Qlc-chucks SAV 260.30 with claw jaws SAV 269.30
Top jaws, soft – WBL/WBS

For power chucks KT and QLC, SAV 260.31 and 260.32

Jaw connection D

WBL = lightweight format
WBS = heavy format

WBS23 155 80 80 S23 25,5 35 30 58
WBS23 155 60 120 S23 25,5 35 30 58
WBS23 175 60 30 S23 25,5 35 30 52
WBS23 175 80 30 S23 25,5 35 30 52

For KT and QLC-power chucks Ø 160 und Ø 200

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>B1</th>
<th>L</th>
<th>L1</th>
<th>Y</th>
<th>T</th>
<th>Weight in kg/piece</th>
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<tr>
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For KT and QLC-power chucks Ø 250 und Ø 315

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<th>L</th>
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For KT and QLC-power chucks Ø 400, Ø 500 und Ø 630

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Top jaws with other dimensions, cross tenon or metric serrations are available upon request. Clawed jaws or workshop-specific special jaws are available upon request.

Ordering example:
Top jaw, soft SAV 269.31 – WBL/WBS

Designation SAV No. Type A B C

SAV 269.31

Top jaws, soft – WBL/WBS

For power chucks KT and QLC, SAV 260.30, 260.31 and 260.32

Jaw connection D

WBS23 155 80 80 S23 25,5 35 30 58
WBS23 155 60 120 S23 25,5 35 30 58
WBS23 175 60 30 S23 25,5 35 30 52
WBS23 175 80 30 S23 25,5 35 30 52

For KT and QLC-power chucks Ø 160 und Ø 200

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For KT and QLC-power chucks Ø 250 und Ø 315

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<th>Type</th>
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<th>B</th>
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<th>D</th>
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<th>L</th>
<th>L1</th>
<th>Y</th>
<th>T</th>
<th>Weight in kg/piece</th>
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For KT and QLC-power chucks Ø 400, Ø 500 und Ø 630

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<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>B1</th>
<th>L</th>
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<th>Y</th>
<th>T</th>
<th>Weight in kg/piece</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>WBL24 155 60 60 S23 25,5 35 30 58</td>
<td>5,34</td>
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</tbody>
</table>

Top jaws with other dimensions, cross tenon or metric serrations are available upon request. Clawed jaws or workshop-specific special jaws are available upon request.

Ordering example:
Top jaw, soft SAV 269.31 – WBL/WBS

Designation SAV No. Type A B C

SAV 269.31
**PRECISION-JAW CHUCKS**

**SAV 260.50**

**With 2 or 3 clamping jaws**

**Application:**
For high precision turning operations at high revolution speeds

**Features:**
- Standard format: B
- for coolant delivery: C
- for central lubrication: L

---

**ACCESSORIES – AIR FEED TUBE**

**SAV 269.50**

**Ordering example:**
- Katalog III
- SAV Group

**Ordering example:**
- Air feed tube: SAV 269.50 - BSC
- Designation: SAV - No. - Type

**Application:**
- for precision-jaw chucks SAV 260.50

**Example Features:**
- Type BSA with additional central air feed
- \( n_{\text{max}} 6000 \text{ min}^{-1} \)

**Important:**
For spindle lengths \( \geq 600 \text{ mm} \) the tube must be supported by a ring in the centre of the spindle in order to avoid bending at high revolutions. Please note that the axial movement of the tube should not be restricted!

For production purposes, the customer must supply exact details of the spindle length or the length \( L \) of the air feed tube.

The design is always based on the specific Machine (Spindle specification required).

---

**Further information upon enquiry and layout**

**Ordering example:**
- Precision-jaw chuck SAV 260.50 - 200 - 2 - B
- Designation: SAV - No. - A - Number of jaws - Format

---

**Dimensions in mm**

<table>
<thead>
<tr>
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<th>Connection thread</th>
<th>Tube length</th>
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<th>Revolutions</th>
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<td>6000</td>
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<td>BSC</td>
<td>23 h7</td>
<td>5/8&quot;-32 UN</td>
<td>L</td>
<td>2</td>
<td>6000</td>
</tr>
<tr>
<td>C</td>
<td>11</td>
<td>7/16&quot;-28 UNEF</td>
<td>L</td>
<td>2</td>
<td>6000</td>
</tr>
<tr>
<td>D</td>
<td>11</td>
<td>7/16&quot;-28 UNEF</td>
<td>L</td>
<td>2</td>
<td>6000</td>
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**Further information upon enquiry and layout**

**Dimensions in mm**

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<th>No.</th>
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<th>H</th>
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<td>60</td>
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<td>5/8&quot;-32 UN</td>
<td>ø 3,175 (2x)</td>
<td>M5 (1x)</td>
</tr>
<tr>
<td>80</td>
<td>3</td>
<td>60</td>
<td>54,2</td>
<td>5/8&quot;-32 UN</td>
<td>ø 3,175 (2x)</td>
<td>M5 (1x)</td>
</tr>
<tr>
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<td>3</td>
<td>60</td>
<td>54,2</td>
<td>5/8&quot;-32 UN</td>
<td>ø 3,175 (2x)</td>
<td>M5 (1x)</td>
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<tr>
<td>80</td>
<td>3</td>
<td>60</td>
<td>54,2</td>
<td>5/8&quot;-32 UN</td>
<td>ø 3,175 (2x)</td>
<td>M5 (1x)</td>
</tr>
<tr>
<td>100</td>
<td>3</td>
<td>82,55</td>
<td>62,1</td>
<td>5/8&quot;-32 UN</td>
<td>ø 3,175 (3x)</td>
<td>M5 (2x)</td>
</tr>
<tr>
<td>100</td>
<td>3</td>
<td>82,55</td>
<td>62,1</td>
<td>5/8&quot;-32 UN</td>
<td>ø 3,175 (3x)</td>
<td>M5 (2x)</td>
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<td>ø 3,175 (6x)</td>
<td>M10 (2x)</td>
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</tbody>
</table>
**FACE PLATES**

**SAV 260.60**

**With cylindrical centering mounting**

**Application:**
The face plate is a clamping chuck for lathes on which large, heavy or irregularly shaped workpieces are clamped in a vertical or horizontal position for machining. Due to the large centrifugal forces and the eccentric center of gravity, they must only be operated within a certain rotational speed range. The faceplate jaws are individually adjustable to accommodate the form of the workpiece.

In order to achieve "true running", that means a symmetrical movement, counterweights are bolted on to the face plate to counteract any rotational imbalances. In addition, clamping aids, such as covers or similar clamps, are used on very large diameter or perforated workpieces. Due to the very low spindle pitch of the individual jaws or through the use of a power clamping screws very large clamping force can be achieved. The face plate jaws are operated manually. Face plate diameters of up to 12 metres are common. Clamping on the face plate is time consuming as the workpiece must be positioned manually.

**Features:**
- Steel chuck body
- Mounting with cylindrical centering: short taper DIN 55026, DIN 55027 and DIN 55029 optional
- With one-piece, hardened reversible jaws "UKB" or with a base and hardened reversible top jaw "GAB".
- From ø700 mm with extended base jaws
- Standard formats up to ø 2000 mm available

Other sizes and custom designs are available upon request.

---

**SAV 260.60**

**With short taper fixing**

*Can be delivered with a larger bore. Max. dimensions upon request*

**Direct mounting** K – DIN55026

**Bayonet mounting** J – DIN55027

**Camlock mounting** D – DIN55029

---

**Ordering example:**

**Face plate**

SAV 260.60 - 250 - UKB

**Designation**

SAV - No. - A - Jaw specification

---

**For formats J and D, the stud bolts or camlock bolts are included in the delivery. Other accessories and clamping jaws are available upon request.**

**Ordering example:**

**Face plate**

SAV 260.60 - 400 - B - UKB

**Designation**

SAV - No. - A - Spindle size - Mounting format - Jaw specification
**Application:**
Box jaws are designed for use as clamps on clamping plates with T-slots or as individual clamping solutions for machines. The large clamping forces are suitable for the machining of heavy workpieces and large machining operations. The flexible clamping of workpieces with irregular contours or geometrically round or angled shapes is possible as the jaws can be adjusted individually. Box jaws were developed to clamp workpieces on milling/turning centres as well as vertical turret lathes.

**Features:**
- A cotter to take up radial forces is included in the delivery.
- The standard delivery does not include bore holes for fixings. These must be bored on-site in the applicable dimension Δ to correspond with the table slots. If required, the order can be supplied at an extra charge with the holes pre-bored. Please provide the distance dimensions and diameter in your request and/or order.

*Other formats are available upon request.*
A 1:5 torque amplifier can be installed for ease of actuation.

- Box jaw
  - SAV 260.70 - 4
  - Designation  SAV - No. - Nominal size

### Special Chucks

<table>
<thead>
<tr>
<th>SAV-ART.-NO.</th>
<th>DESCRIPTION</th>
<th>COMMENTS</th>
<th>PAGE</th>
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<td>–</td>
<td>Options and their benefits</td>
<td>–</td>
<td>42</td>
</tr>
<tr>
<td>244.75</td>
<td>Mechatronic chucks</td>
<td>Independent jaw activation via electric axes</td>
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<td></td>
<td>Centering/clamping via the jaws</td>
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<td>Magnetic axial clamping</td>
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<td>Radial chucks</td>
<td>Flexible application</td>
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<td>Radial chuck variants</td>
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<td>260.99-PSF</td>
<td>Face clamping rotary chucks</td>
<td>Low distortion clamping</td>
<td>48 - 49</td>
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<td>Index centering</td>
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<td>260.99-ZPSF</td>
<td>Centering and rotary face chucks</td>
<td>Low distortion clamping</td>
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<td>Power actuated centering</td>
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<td>External clamping using an active pull-down spring return</td>
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<td>Column chucks</td>
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<td>–</td>
<td>Clamping concepts Special parts</td>
<td>Highly flexible due to the modular design</td>
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---

**Box jaw**

---

**Nominal size**

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<tr>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
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<td>A (Nominal size)</td>
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</table>
HIGH ROTATIONAL SPEED

Low centrifugal force design
- Open chuck bodies
- More rigid, closed chuck bodies

Centrifugal force compensation via a counterweight
- More rigid, closed chuck bodies
- Optimised jaw weights
- Sealed jaws

SUITABLE FOR AUTOMATIC LOADING/UNLOADING

- Configuration of the clamping devices for gripping systems
  - Portal loaders or robots
  - Pick-up
- Workpiece control
- Dealing with swarf and shavings
  - Blowing unit
  - Flushing/rinsing mechanism
  - Shaving bell

LOW MAINTENANCE

- Sealed jaws
- Sealing air pressurization
- Slide coated
- Central lubrication
- Oil filled

MECHATRONIC CHUCKS

Combination magnetic clamping technology and electric servo drives

Application:
- For automation
- Precise centering, reproducible with high accuracy
- High power chip removal and finishing
- Combination of first and second clamping set-up
- Radial and/or axial clamping
- Clamping of eccentric parts

Combination circular magnet – electric linear axes:
- Servo drive with integrated brakes
- 300 daN clamping force per actuator at D 1000 mm
- Direct measurement system with a 0.001 mm resolution
- 50 mm clamping stroke with quick-change jaws
- Electronic centrifugal force compensation
- Enhanced magnetic system with optimized pole division
- Magnetic material under each pole for minimal field heights
- 350 mm minimal magnetic area
- Smallest available chuck diameter 800 mm at 100 daN clamping force per jaw
- With 165 mm minimum height
- System without magnets for non-ferromagnetic workpieces also available upon request

Chucks without magnets available upon request.
The innovative combination of magnetic clamping with centering chucks – complete system solutions from one supplier

Benefits:
- Reproducible centering
- Process reliability
- The combination of the first and second clamping stages is possible
- Compact design (Heights from 170 mm)

Magnetic system format:
- Electro-permanent comb/hybrid magnetic chuck
- Type SAV 244.76, enhanced magnetic system with holding forces of up to 170 N/cm² on the induction surface
- Fully metallic pole plate with brass, insulating inlays and T-slots (according to DIN 650-10H10) for the installation of fixed and movable pole extensions
- Pole plate wear abrasion limit 8 mm; Replaceable after long-term use and wear
- Supplied upon request with a heavy machinery plug with a quick-fit coupling

Centering chuck example format:
- Power actuated chuck SAV 260.20
- Centering accuracy of the chuck 0.02 mm
- Centering range from 450 mm - 1200 mm
- Magnetic clamping area from 500 mm - 1100 mm...
- Chuck supplied with extended base jaws;
- A full clamping range from 500 mm - 1200 mm can be centered without gaps
- Clamping force of the chuck 180 KN at 210 Nm
- Stroke per jaw 9.6 mm
- The centering chuck’s jaw release mechanism is operated via a control rod
- Sealed spindle with precise bearings

Special features:
- Resistant to emulsions according to IP 65
- Optionally available: The rotary drive can be activated via the spindle
- Activation via the demagnetising cycle; Pre-selection of eight holding force stages
- System with potential-free activation of the enable signals; complete integration into the machine control system possible;
- Plug connector formats with a ‘park’ position for contact control, to ensure the plug is correctly located before enabling.

Other design formats available upon request. Power actuation possible upon clarification of the spindle integration.

Ordering example:
Combination SAV 244.76 - 1800 x 18 - 6 - 360 V
Designation SAV - No. - Diameter x Pole pairs - Number of jaws - Magnet voltage

3 + 3 JAW CHUCKS

Description:
- 3 + 3 jaw chuck with two independently actuated clamping circles
- Easily adaptable from centred to balanced operation
- Jaw stroke 15 mm (Stroke per jaw)
- Base jaws with modular toothing

Example workpieces:
- Gearbox casing

Example format:
- Diameter 800 mm

JAW INTERFACE WITH MODULAR TOOTHING

Description:
- Jaw interface can be selected with modular toothing
- The jaws are sealed for upright installation
- Stops or supports in the slot and key system can be stagelessly adjusted
- This positioning can be scale-adjusted

Combination chuck SAV 244.76 - 1800 x 18 - 6 - 360 V
Designation SAV - No. - Diameter x Pole pairs - Number of jaws - Magnet voltage

Other design formats available upon request. Power actuation possible upon clarification of the spindle integration.
2 + 3 JAW CHUCKS

Description:
- Special chuck with 2 independent rows of clamps
- Clamping row 1 = 2 jaws, stroke per jaw 9 mm
- Clamping row 2 = 3 jaws, stroke per jaw 12 mm

Example workpieces:
- Distributor housing

Example format:
- Diameter 350 mm

Ordering example:

6-JAW CHUCKS

Description:
- 6-jaw power chuck
- Base jaws with serrations
  1/16" x 90° Slot 21 mm

Example format:
- Diameter 450 mm

6-JAW FRONT-END CHUCKS

Description:
- 6-jaw front-end chuck, hydraulically actuated

Example workpieces:
- Guide rods

Example format:
- Diameter 420 mm

Ordering example:

2 x 3 JAW CHUCKS

Description:
- Centred and balanced clamping operations (not switchable)
- Jaw stroke 15 mm (Stroke per jaw)
- Quick-change jaw system

Example format:
- Diameter 700 mm

Ordering example:
FACE CLAMPING ROTARY CHUCK

Description:
- Hydraulically actuated face chuck
- With spring loaded centering cone

Example workpiece:
- Centre plate

Example format:
- Diameter 420 mm

FACE CLAMPING ROTARY CHUCK

Description:
- Hydraulically actuated face chuck
- Mechanically locked ancillary and clamping pistons

Example workpieces:
- Stub axles

Example format:
- Diameter 420 mm

3-JAW FACE CLAMPING ROTARY CHUCK

Description:
- 2 spring-loaded conical mounts
- 3 clamping levers with axial tensioning
- Integrated flushing jets through the spindle of the turning centre

Example workpiece:
- Cast aluminium casing

Example format:
- Diameter: 420 mm

CENTERING AND ROTARY FACE CHUCKS

Description:
- For insertion in workpiece bore holes
- 2 independent clamping pistons
  - Piston 1: centering
  - Piston 2: face clamping
- Main clamping tension via clamping fingers

Example workpiece:
- Thin-walled gear bushes in the 2nd clamping stage

Example format:
- Diameter 230 mm
**CENTERING AND ROTARY FACE CHUCKS**

**SAV 260.99-ZPSF**

**Description:**
- Centering and rotary face chuck
- Centering via a spring-loaded collet
- Pull-down tension compensated via angled bolts

**Example workpiece:**
- Flange plate

**Example format:**
- Diameter 250 mm

---

**CENTERING AND ROTARY FACE CHUCKS**

**SAV 260.99-ZPSF**

**Description:**
- Centering and rotary face chuck
- Centering mechanism
- Quick refitting to machine 2 workpiece sizes
- Workpiece with quench distortion
- Oversize sensing
- 3-finger rotary chuck (axial fingers)
- 3 synchronised, clampable form bolts for positioning in the tooth gap

**Example workpiece:**
- Flat toothed wheels

**Example format:**
- Diameter 315 mm

---

**CENTERING AND ROTARY FACE CHUCKS**

**SAV 260.99-ZPSF**

**Description:**
- Centering and rotary face chuck
- Centering mechanism
- Quick refitting to machine 2 workpiece sizes
- Workpiece with quench distortion
- Oversize sensing
- 3-finger rotary chuck (axial fingers)
- 3 synchronised, clampable form bolts for positioning in the tooth gap

**Example workpiece:**
- Ring gear

**Example format:**
- Diameter 300 mm

---

**COMBINATION CHUCKS**

**SAV 260.99-KSF**

**Description:**
- 2 x 2-jaw chuck
- Angle-positioned clamping on workpiece surfaces
- Axial symmetric chuck with feed control

**Example workpiece:**
- Diameter 230 mm

**Example format:**
- Diameter 400 mm
**COMPENSATING CHUCKS**

**SAV 260.99-AGF**

**Description:**
- Wedge hook system with floating pistons and compensating jaws
- 4-jaw power chuck
- With 2 fixed and 2 compensating jaws
- Sealed chuck

**Example format:**
- Diameter 500 mm

**Example workpiece:**
- Distributor plate

**Example format:**
- Diameter 300 mm

**SAV 260.99-NSF**

**Description:**
- The clamping jaws are independent and compensate hydraulically
- The clamping jaws are locked mechanically
- Centering via a mandrel

**Example workpiece:**
- Distributor plate

**Example format:**
- Diameter 300 mm

**PULL-DOWN CHUCKS**

**SAV 260.99-AGF**

**Description:**
- 2-jaw power chuck
- Axial retraction of 0 - 4 mm can be preset
- Oil filled chuck
- Low maintenance
- Centering via a mandrel

**Example workpiece:**
- Valve housing

**Example format:**
- Diameter 260 mm

**SAV 260.99-NSF**

**Description:**
- 2-jaw compensating chuck
- With spring-loaded centering point

**Example workpiece:**
- Steering shaft with head

**Example format:**
- Diameter 160 mm

**Example workpiece:**
- Valve housing

**Example format:**
- Diameter 260 mm
**Shaft Chucks**

**SAV 260.99-WF**

**Description:**
- Shaft chuck
- Centring via a fixed clamping point or mandrel
- Radial tension compensating
- High transmission of forces due to the radial tension
- Axially detachable

**Example workpiece:**
- Centred shafts

**Example format:**
- Diameter 330 mm

**SAV 260.99-SF**

**Description:**
- Hydraulically actuated indexing chuck
- Swivel range 4x 90° or 2x 180°
- For multi-sided machining
- Centred clamping

**Example workpiece:**
- Oil distributor housing

**Example format:**
- Diameter 430 mm

**Indexing Chucks**

**SAV 260.99-SF**

**Description:**
- Hydraulically actuated indexing chuck
- Swivel range 4x 90° or 2x 180°
- For multi-sided machining
- Console clamping

**Example workpiece:**
- Rocker arm block

**Example format:**
- Diameter 320 mm

**SAV 260.99-KF**

**Description:**
- Console chuck
- With radial workpiece support
- Workpiece contact stop with an air controlled unit

**Example workpiece:**
- Hydraulic housing

**Example format:**
- Diameter 250 mm

**Indexing Chucks**

**SAV 260.99-SF**

**Description:**
- Hydraulically actuated indexing chuck
- Swivel range 4x 90° or 2x 180°
- For multi-sided machining
- Console clamping

**Example workpiece:**
- Oil distributor housing

**Example format:**
- Diameter 430 mm
**Console Chucks**

**SAV 260.99-KF**

**Description:**
- Console chuck
- With centring jaws
- Spring actuated pre-centering before activation

**Example workpiece:**
- Angle housing

**Example format:**
- Diameter 170 mm

---

**Front- and Tailstock Chucks**

**SAV 260.99-VEF / HEF**

**Description:**
- Front-end and tailstock chucks for special lathes for pipe-end machining
- Hydraulic 12-point chuck, transposable from centred to compensated clamping
- Front-end chucks also have an integrated pre-centring function in the area in front of the clamping jaws
- After centring, the centring jaws retract completely behind the chuck face

**Example workpiece:**
- Pipes for the oil industry

**Machining:**
- Pipe-end machining (Beveling, chamfering and tapping)

**Example format:**
- Diameter: 1140 mm
- Clamping range: 6 1/2" - 16"
- Clamping force: 40,000 daN
- Max. RPM: 500 U/min

---

**Console Chucks**

**SAV 260.99-KF**

**Description:**
- Fixed console; Tension applied via 2 radial pistons

**Example workpiece:**
- Thrust bearing housing

**Example format:**
- Diameter 400 mm
**COLUMN CHUCKS**

**SAV 260.99-SBF**

**Description:**
- 3-finger rotary chuck (angled fingers)
- Actuation of the chuck's axial tension
- Disc by an electromagnet
- Spring-loaded release of the chuck
- Chuck body made from high-tensile aluminium;
  - Hard coated and non-magnetic

**Example workpiece:**
- Slip rings

**Example format:**
- Diameter 315 mm

---

**SAV 260.99-SZF**

**Description:**
- Custom design collet chuck
- With air seal and water feed
- Affix clamping system
- Max. RPM 7500 /min

**Example workpiece:**
- Ring with a clamping diameter 90 mm

**Example format:**
- Diameter 130 mm

---

**3-FINGER CHUCKS**

**SAV 260.99-PSF**

**Description:**
- 3-finger rotary face chuck
- Clamping on ball studs on the thread
- Hardened chuck body
- Type-specific sphere clamping ± 0.002

**Example workpiece:**
- Gear components

**Example format:**
- Diameter 350 mm

---

**SAV 260.99-PBF**

**Description:**
- 3-finger rotary face chuck
- Clamping on ball studs on the thread
- Hardened chuck body
- Type-specific sphere clamping ± 0.002

**Example workpiece:**
- Gear components

**Example format:**
- Diameter 350 mm

---

**SAV 260.99-PZF**

**Description:**
- 3-Finger rotary face chuck
- Clamping on ball studs on the thread
- Hardened chuck body
- Type-specific sphere clamping ± 0.002

**Example workpiece:**
- Gear components

**Example format:**
- Diameter 350 mm

---

**COLLET CHUCKS**

**Description:**
- Power actuated collet chuck
- For clamping range 21 - 35 mm
- With a fixed workpiece stop

**Example workpiece:**
- Centered precision shafts

**Example format:**
- Diameter 125 mm
**CLAMPING CONCEPTS – MODULAR**

**Description:**
- Centering and rotary face chuck
- Modular concept
- With clamping piston
- Tension control via the valve plunger and oil flow test

**Example workpiece:**
- Sheet metal casing

**Example format:**
- Diameter 620 mm

**SPECIAL PARTS**

**Combined mandrel**

**Description:**
- Segment clamping mandrel above – Clamping level I
- Sliding jaw mandrel below – Clamping level II

**Example workpiece:**
- Casing 2nd clamping

**Example format:**
- Diameter 80 x Diameter 250 x 300 mm

---

**CHAPTER OVERVIEW**

**CHAPTER 3**

**STANDARD MANDRELS**

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<td>For small workpieces, suitable for small batches</td>
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<td>As accessories for SAV 261.10 and SAV 261.11</td>
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<tr>
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<td>Large clamping stroke, also for automation</td>
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### COLLET MANDRELS – POWER ACTUATED

**SAV 261.10**

**Application:**
- Exchangeable collets provide flexibility
- Expansion of the collets of 0.8 mm
- Suitable for automatic loading
- Repeat clamping accuracy is smaller than 0.012 mm
- Collets with sealed vulcanised slits can also be supplied
- Simple and safe handling due to the stroke restriction

**Features:**
- Double cone expansion of up to max. 0.8 mm
- The power actuated flange can be mounted on the machine spindle by means of a intermediate flange.
- Exchangeable pendulum or fixed Stopps are optimally designed for your workpieces and can be supplied if required.

**Delivery scope:**
- Without collet (see SAV 261.90)

Pre-tensioned collets are required to ensure trouble-free functioning of the mandrel. The clamping cones of the mandrels and collets must be in permanent contact.

### COLLET MANDRELS – MANUALLY ACTUATED

**SAV 261.11**

**Application:**
- Primarily used for small batch production or as testing mandrels

**Features:**
- Dimension G is tolerated as a fit-size, in order that precise mounting on the flange is possible.
- Pointed mandrel with 260° centering arc
- Endstops mountable on the section indicated by diameter L

**Delivery scope:**
- Without collet (see SAV 261.90)

Collet mandrel SAV 261.11 - EM 18C - HS

<table>
<thead>
<tr>
<th>Type</th>
<th>Total clamping range mm</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>C1*</th>
<th>C2*</th>
<th>Fmax in daN</th>
<th>N fixing Points mm</th>
<th>R fixing Points mm</th>
<th>Actual force in daN</th>
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<td>73</td>
<td>123,1 105</td>
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</tr>
</tbody>
</table>

Ordering example:
- Collet mandrel: SAV 261.10 - EM 3A
- Designation: SAV - No. - Type

Flange mandrel Build format HF

**Ordering example:**
- Collet mandrel: SAV 261.11 - EM 18C - HS
- Designation: SAV - No. - Type - Build format
Application:
- For trouble-free use on all EM-mandrels.

Features:
- The desired, perfect clamping geometry is achieved through the double cone expansion of up to max. 0.8 mm.
- The collets are modularly exchangeable without regrinding.
- Finish-grinding and regrinding is possible on-site.
- Repeat clamping accuracy is smaller than 0.012 mm.
- Collets with sealed vulcanised slits can also be supplied (Format “V”).

Custom format collets are available to solve special problems e.g. short, long or profiled.

When ordering, append the clamping diameter (workpiece diameter) to the ordering designation e.g. 40 H7.

Ordering example:
Collet  SAV 261.90 - Type  - Vulcanised slits – Clamping diameter

Ordering example:
Lamella mandrel  SAV 261.13 - Type  - Please enquire.
### Special Mandrels

- Special mandrels - also for stationary applications
- High productivity by adapting to the workpiece and the process

### Chapter 4

#### Special Mandrels

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<td>Large stroke; hard clamping surfaces</td>
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<td>Geared mandrel</td>
<td>To clamp internal gear toothing</td>
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</table>
SLIDING JAW MANDREL

SAV 261.99-GBSD

**Description:**
- Power actuated sliding jaw mandrel
- Clamping in 2 levels with spring-loaded compensation
- High clamping accuracy
- Hard sliding jaws (62 HRC)
- Sliding jaw retraction via a dovetail guide
- Large jaw stroke
- The clamping surface of the sliding jaws have latticed diamond serration toothing
- Workpiece backstop at ø 90 mm
- Only available as custom-made products

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 60 mm
- Length 300 mm

---

SLIDING JAW MANDREL

SAV 261.99-GBSD

**Description:**
- Power actuated sliding jaw mandrel
- For 2nd clamping stage
- Clamping in 2 levels with 9 sliding jaws each using spring-loaded compensation
- Sliding jaws covered by an intermediate bush
- Spindle connector according to DIN 55026 Gr. 6

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 147.5 mm

---

SLIDING JAW MANDREL

SAV 261.99-GBSD

**Description:**
- Power actuated sliding jaw mandrel
- Mandrel with 9 sliding jaws
- With forced release
- Mandrel with retractable workpiece stops

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 94 mm

---

SLIDING JAW MANDREL

SAV 261.99-GBSD

**Description:**
- With 2 clamping levels
- Power actuated sliding jaw mandrel
- Tangentially arranged clamping jaws
- For 2nd clamping stage
- The sliding jaws have a smooth clamping surface
- Stroke per jaw Level 1: 2.1 mm
- Stroke per jaw Level 2: 1.6 mm
- One jaw equipped with a pendulum jaw for improved adaption to the workpiece countours
- Spring-loaded fixing pin

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 73 mm
**HYDRAULIC EXPANSION MANDREL**

**SAV 261.99-DDSD**

**Description:**
- Manually actuated hydro-expansion mandrel ø 28 mm
- For extreme clamping accuracy
- Only available as custom-made products
- With adjustment ring

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 28 mm

---

**HYDRAULIC EXPANSION MANDREL**

**SAV 261.99-HSD**

**Description:**
- Power actuated collet mandrel ø 62.04 mm
- Mandrel with retractable workpiece centering pins

**Application:**
- Clamping in the centre bore

**Example format:**
- Diameter 65 mm
- Diameter 150 x 125 mm

---

**SEGMENT MANDREL**

**SAV 261.99-SSD**

**Description:**
- Segment mandrel with collet and tension bolts
- Long service life
- High clamping accuracy
- Hard segments (62 HRC)

**Application:**
- Clamping in the centre bore

**Example format:**
- Diameter ca. 200 x 150 mm

---

**SEGMENT MANDREL**

**SAV 261.99-SSD**

**Description:**
- Power actuated mandrel
- Standard collet with special core
- 3 integrated and adjustable jets for the coolant
- Bayonet coupling for a quick change of the mandrel

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 30 mm
**Ordering example:**

**Description:**
- Power actuated mandrel
- Mandrel with bayonet quick-change system

**Example format:**
- Clamping diameter 80 mm
- Clamping diameter 25 mm

---

**Description:**
- Pneumatic actuated Spanndorn
- With integrated pneumatic cylinder
- Minimal clamping depth
- Small clamping diameter

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping diameter 13.2 mm

---

**Description:**
- Power actuated collet mandrel
- Workpiece contact stop with an air controlled unit

**Application:**
- Clamping in the centre bore

**Example format:**
- Clamping range ø 32 - 55 mm

---

**Description:**
- Mandrel with involute contour
- Stationary clamping module with integrated clamping piston
- Toothed collet – clamping in the pitch circle
- Quickly changed workpiece stop

**Application:**
- Clamping in the gear toothing
- Multiple clamping device

**Example format:**
- Clamping diameter 13.2 mm
GEARED MANDREL

Description:
- Power actuated geared mandrel

Application:
- Clamping in the toothing (pitch circle)

Example format:
- Diameter 50 x 150 mm

CENTERING MANDREL

Description:
- Hydraulically actuated mandrel for low distortion clamping by balancing the jaws

Example workpiece:
- Uneven interior diameters

Example format:
- ca. 250 mm

CHAPTER 5

ACCESSORIES

<table>
<thead>
<tr>
<th>SAV-ART. NO.</th>
<th>DESCRIPTION</th>
<th>COMMENTS</th>
<th>PAGE</th>
</tr>
</thead>
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<td>For easily deformed parts</td>
<td>76 - 77</td>
</tr>
<tr>
<td>249.99-USB</td>
<td>Special chucks; comprehensive frictional coefficients</td>
<td>High machining parameters through intelligent design</td>
<td>78</td>
</tr>
<tr>
<td>-</td>
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<td>Diamond and CBN coating Tungsten carbide coating</td>
<td>79</td>
</tr>
<tr>
<td>269.90</td>
<td>RotoRiP boring ring set</td>
<td>To bore clamping jaws precisely</td>
<td>80 - 81</td>
</tr>
<tr>
<td>-</td>
<td>Service / Service provision / testing</td>
<td>Optimal on-site service</td>
<td>82 - 83</td>
</tr>
<tr>
<td>-</td>
<td>Integration options</td>
<td>For all machines, customer-specific</td>
<td>84</td>
</tr>
<tr>
<td>269.98</td>
<td>High-performance lubrication paste</td>
<td>Ensures a long working life and a low level of clamping pressure loss for SAV special chucks.</td>
<td>84</td>
</tr>
</tbody>
</table>

CHAPTER OVERVIEW

chapter 5 pages 75 - 84
**SPECIAL PENDULUM JAWS**

**For external clamping**

**SAV 261.99-PSB**

**Description:**
- Pendulum jaws for external clamping
- The stop is centrically adjustable

**Example workpiece:**
- Forged parts

**Jaw interface:**
- Modular straight toothing

**Example format:**
- Clamping diameter 210 - 270 mm

**Jaw clamping surface format:**
- The jaw format chosen can be considerably improve the machining parameters achieved.

**With pendulum inserts for 2-jaw chucks**

**SAV 249.99-PSB**

**Description:**
- External clamping
- With 2 pendulum inserts per jaw

**Example workpiece:**
- Forged parts

**Jaw interface:**
- Serrations

**Example format:**
- Diameter 150 mm

**For internal clamping**

**SAV 269.99-PSB**

**Description:**
- Hard pendulum jaws for internal clamping
- Clamping surface with pendulum gripper 6 x 60°
- For the clamping of mould drafts

**Example workpiece:**
- Cast workpieces

**Jaw interface:**
- Cross tenon

**Example format:**
- Clamping diameter 348 mm

**For internal clamping with workpiece axial stop**

**SAV 269.99-PSB**

**Description:**
- Pendulum jaws for internal clamping
- External stop adapted to the workpiece

**Jaw interface:**
- Serrations

**Example format:**
- Clamping diameter 116 mm
**FRICIONAL COEFFICIENTS**

For power actuated chucks

<table>
<thead>
<tr>
<th>Jaw clamping face – Geometric form</th>
<th>Coefficient of tension $\mu_{\text{p}}$</th>
<th>Workpiece St 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangential</td>
<td>Axial</td>
<td></td>
</tr>
<tr>
<td>Smooth</td>
<td>0.05, 0.05, 0.07, 0.12, 0.12, 0.13</td>
<td>Fine finished</td>
</tr>
<tr>
<td></td>
<td>0.08, 0.10, 0.11, 0.15, 0.20, 0.22</td>
<td>Finished to roughed</td>
</tr>
<tr>
<td></td>
<td>0.11, 0.14, 0.15, 0.22, 0.28, 0.31</td>
<td>Untreated</td>
</tr>
<tr>
<td>Latticed diamond serration toothing</td>
<td>0.10, 0.12, 0.13, 0.17, 0.22, 0.24</td>
<td>Fine finished</td>
</tr>
<tr>
<td></td>
<td>0.15, 0.20, 0.22, 0.29, 0.35, 0.40</td>
<td>Finished to roughed</td>
</tr>
<tr>
<td></td>
<td>0.22, 0.28, 0.31, 0.41, 0.50, 0.55</td>
<td>Untreated</td>
</tr>
<tr>
<td></td>
<td>0.17, 0.22, 0.24, 0.29, 0.36, 0.40</td>
<td>Fine finished</td>
</tr>
<tr>
<td></td>
<td>0.29, 0.36, 0.40, 0.48, 0.50, 0.55</td>
<td>Finished to roughed</td>
</tr>
<tr>
<td></td>
<td>0.41, 0.50, 0.55, 0.57, 0.84, 0.92</td>
<td>Untreated</td>
</tr>
</tbody>
</table>

- PS: Scroll chuck
- PK: Cam chuck
- KS: Wedge bar chuck

Correction values for material:
- Al: 0.97
- Cu: 1.05
- Mg: 1.00
- Pb: 0.97
- Ms: 0.92
- G2: 0.80

<table>
<thead>
<tr>
<th>Chuck build type</th>
<th>PS</th>
<th>PK</th>
<th>KS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DIAMOND AND CBN COATING**

Diamond is the hardest known mineral. The hardness is however different in various crystal orientations. It exhibits the highest thermal conductivity of all known minerals. The weight is measured in carats – one unit is 0.200 grams.

It is extremely economical. Downtime costs and retooling times, for tools for example, can be minimised.

In large scale technical environments thin layers of diamond-like carbon serve as a protection against wear and increase the frictional properties.

<table>
<thead>
<tr>
<th>Grain size (eng)</th>
<th>D = Diamond</th>
<th>B = CBN</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.03</td>
<td>0.02</td>
</tr>
<tr>
<td>25</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>32</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>46</td>
<td>0.07</td>
<td>0.02</td>
</tr>
<tr>
<td>54</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>64</td>
<td>0.10</td>
<td>0.02</td>
</tr>
<tr>
<td>76</td>
<td>0.11</td>
<td>0.02</td>
</tr>
<tr>
<td>91</td>
<td>0.12</td>
<td>0.02</td>
</tr>
<tr>
<td>107</td>
<td>0.14</td>
<td>0.02</td>
</tr>
<tr>
<td>126</td>
<td>0.15</td>
<td>0.02</td>
</tr>
<tr>
<td>151</td>
<td>0.20</td>
<td>0.03</td>
</tr>
<tr>
<td>181</td>
<td>0.26</td>
<td>0.03</td>
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<tr>
<td>251</td>
<td>0.29</td>
<td>0.03</td>
</tr>
<tr>
<td>301</td>
<td>0.35</td>
<td>0.04</td>
</tr>
<tr>
<td>356</td>
<td>0.39</td>
<td>0.05</td>
</tr>
<tr>
<td>426</td>
<td>0.50</td>
<td>0.05</td>
</tr>
<tr>
<td>601</td>
<td>0.75</td>
<td>0.05</td>
</tr>
</tbody>
</table>

* Preferred size

Tungsten carbide, hard coated

Through the application of tungsten carbide layers to the previously treated surfaces, we are able to achieve a

- Layer hardness of 70 – 75 HRc – depending on the hardness and type of base material.
- Layer thicknesses of 5 – 25µm.

Quick and exactly localized surface hardening without deformation or loss of hardness of the base material.

**SAV 249.99-USB**

For internal clamping

Description:
- Hard special jaws for internal clamping
- Clamping surface with latticed diamond serration toothing
- External stop

Example workpiece:
- Bushes

Jaw interface:
- Cross tenon

Example format:
- Diameter 217.55 mm
RotoFix clamp bolts

Application:
The patented rings make it possible to precisely bore out clamping jaws. Thanks to the fact that they are stagelessly adjustable, only the exact amount of material required must be removed. Due to the patented curved segments, a readjustment of the clamping position is possible as often as you wish. This saves time and tool costs.

Features:
- Internal and external clamping with only 1 ring
- Stagelessly adjustable clamping range for all sizes
- Exact adjustment of the boring diameter (1/10 mm)
- Reduced set up times through the RotoFix clamp bolts
- Large cost reduction on clamping jaws
- Optimal accessibility for the turning tool
- Quick and easy handling
- Suitable for chuck diameters from 80 - 630 mm

RotoFix clamp bolts SAV 269.90

<table>
<thead>
<tr>
<th>Size</th>
<th>Chuck range</th>
<th>Delivery scope</th>
<th>Clamp bolts for counterbore</th>
<th>Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>RotoFix - S</td>
<td>up to ø200 mm</td>
<td>20 boring rings + 2 sets of clamp bolts Storage stands</td>
<td>M8, M10</td>
<td></td>
</tr>
<tr>
<td>RotoFix - L</td>
<td>up to ø250 mm</td>
<td>29 boring rings + 3 sets of clamp bolts Storage stands</td>
<td>M8, M10, M12</td>
<td></td>
</tr>
<tr>
<td>RotoFix - LX</td>
<td>up to ø315 mm</td>
<td>29 boring rings, 3 of them reinforced + 3 sets of clamp bolts Storage stands</td>
<td>M8, M10, M12</td>
<td></td>
</tr>
<tr>
<td>RotoFix - XL</td>
<td>ø400 - 630 mm</td>
<td>10 reinforced boring rings Storage stands</td>
<td>M16, M20</td>
<td></td>
</tr>
</tbody>
</table>

RotoFix expansion rings with 4x90°- and 6x60°- curved segments for 2-, 4- and 6-jaw chucks are available as standard, upon request (RotoFix-Quattro and RotoFix-Six).

The uniform distribution of force is achieved by means of an expansion joint in the rings.

Ordering example:
RotoFix clamp bolts SAV 269.90 - M16
Designation SAV - No. - Size

Rotating expansion rings

Features:
Due to their adjustment range of 2 mm, RotoFix clamp bolts compensate for the boring tolerances of various manufacturers.
No reworking of the counterbore is necessary.

The RotoFix clamp bolts are delivered as a set but may also be ordered individually.

Available sizes:
M6, M8, M10, M12, M14, M16, M20, M24

Ordering example:
RotoFix clamp bolts SAV 269.90 - M16
Designation SAV - No. - Size
We offer:
• Dynamic clamping force measurements
• Dynamic balancing
• Chuck repairs and installations with assembly
• Jaw coating
• 3-D measurements on our Zeiss CNC measuring machine
• Chuck repairs
• Installations with assembly of the clamping device
• Final inspection on our hydraulic test bed

Even on-site Other manufacturer’s equipment possible upon agreement
INTEGRATION OPTIONS

Application:
- Flanges
- Cylinders
- Draw tubes
- Rotary distributor
- Multichannel feed
- Clamping cylinder for rotational speeds up to 8000 l/min
- Zero point clamping systems

- Double piston clamping cylinder with a flanged rotary distributor
- Positioning control via sensors
- High rotational speeds and pressures possible

HIGH-PERFORMANCE LUBRICATION PASTE

SAV 269.98

Application:
To ensure a long working life and a low level of clamping pressure loss, it is essential that the SAV-HSW special chucks are maintained at regular intervals. We recommend the use of our high-performance lubricating paste (TP42/OKS 265/1 SAV) to lubricate the chucks and to grease the individual parts (after dismantling and cleaning).

- 1 kilogram container
- Application using a brush or cartridge gun
- Long-term protection
- Excellent lubrication properties
- It even adheres at high rotation speeds
- Economical to use with a high coverage level
- Special recipe

A clamping pressure loss of up to 40% in poorly maintained chucks!

Ordering example:
High-performance lubrication paste  SAV 269.98
Designation  SAV - No.

CHAPTER OVERVIEW

CHAPTER 6

VACUUM WORKHOLDING

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<td>Suitable for almost all materials Particularly suitable for extremely thin and fragile workpieces</td>
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<td>With a radial grid To clamp disc and ring shaped Workpieces</td>
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</tr>
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<td>Vacuum rotation joint</td>
<td>For circular vacuum chucks</td>
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<tr>
<td>249.71</td>
<td>Vacuum fluid separator</td>
<td>For coolants and lubricants</td>
<td>89</td>
</tr>
<tr>
<td>249.72</td>
<td>Modular vacuum compressor</td>
<td>Low wear and low maintenance pump No additional fluid separator required</td>
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</tr>
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<td>249.73</td>
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<td></td>
<td>91</td>
</tr>
<tr>
<td>249.74</td>
<td>Vacuum safety switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>249.90</td>
<td>Vacuum workholding accessories</td>
<td>For vacuum workholding systems</td>
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</tr>
<tr>
<td>249.90</td>
<td>Vacuum sealant materials and accessories</td>
<td>For use with vacuum clamping plates</td>
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</tr>
</tbody>
</table>
**Vacuum Circular Grid Chuck**

**Designation:** SAV 249.42

**Application:**
With this circular vacuum chuck, disc and ring shaped workpieces can be clamped, for instance on lathes. Particularly suited for glass and plastic processing.

**Delivery scope:**
- 10 m seal for 38 mm plate height
- 20 m seal for plate heights from 48 mm

Available in high-tensile aluminium (A) or steel (S).

Circular vacuum grid chucks are available in custom-made formats for workpiece-specific clamping operations.

**Dimensions in mm**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Weight Alu in kg</th>
<th>Weight steel in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>38</td>
<td>70</td>
<td>3</td>
<td>83</td>
<td>M 8</td>
<td>0.8</td>
<td>2.3</td>
</tr>
<tr>
<td>125</td>
<td>38</td>
<td>95</td>
<td>4</td>
<td>108</td>
<td>M 8</td>
<td>1.3</td>
<td>3.5</td>
</tr>
<tr>
<td>160</td>
<td>38</td>
<td>125</td>
<td>4</td>
<td>140</td>
<td>M 10</td>
<td>2.0</td>
<td>6.0</td>
</tr>
<tr>
<td>200</td>
<td>38</td>
<td>160</td>
<td>4</td>
<td>176</td>
<td>M 10</td>
<td>3.0</td>
<td>9.0</td>
</tr>
<tr>
<td>250</td>
<td>38</td>
<td>200</td>
<td>5</td>
<td>224</td>
<td>M 12</td>
<td>5.0</td>
<td>14.5</td>
</tr>
<tr>
<td>315</td>
<td>48</td>
<td>260</td>
<td>6</td>
<td>286</td>
<td>M 16</td>
<td>10.0</td>
<td>29.0</td>
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<tr>
<td>400</td>
<td>48</td>
<td>330</td>
<td>5</td>
<td>362</td>
<td>M 16</td>
<td>16.0</td>
<td>47.0</td>
</tr>
<tr>
<td>500</td>
<td>58</td>
<td>420</td>
<td>5</td>
<td>458</td>
<td>M 16</td>
<td>31.0</td>
<td>89.0</td>
</tr>
<tr>
<td>630</td>
<td>58</td>
<td>545</td>
<td>7</td>
<td>586</td>
<td>M 16</td>
<td>49.0</td>
<td>142.0</td>
</tr>
</tbody>
</table>

**Vacuum Sinter Metal Round Clamping Plates**

**Designation:** SAV 249.40

**Application:**
Particularly suitable for extremely thin and fragile workpieces (e.g. thin glass, ceramics, plastics, tungsten Carbide). No deformation of the parts.

**Features:**
- Sinter metal coating
- Clamping plate rear side with thread and centering according to DIN 6350.
- Available in high-tensile aluminium F 47 (A) or steel (S).
- The steel format is only suitable for dry-working.
- Parallelism: 0.02 / 100 mm
- Evenness: 0.02 / 100 mm

Special sizes and formats available upon request.

Vacuum circular chuck with air permeable, fine-pored and very homogenous, aluminium alloy inlays for deformation-free clamping of the very thin materials and foils. Available upon request.

**Dimensions in mm**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Weight Alu in kg</th>
<th>Weight steel in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>38</td>
<td>70</td>
<td>3</td>
<td>83</td>
<td>M 8</td>
<td>0.8</td>
<td>2.3</td>
</tr>
<tr>
<td>125</td>
<td>38</td>
<td>95</td>
<td>4</td>
<td>108</td>
<td>M 8</td>
<td>1.3</td>
<td>3.5</td>
</tr>
<tr>
<td>160</td>
<td>38</td>
<td>125</td>
<td>4</td>
<td>140</td>
<td>M 10</td>
<td>2.0</td>
<td>6.0</td>
</tr>
<tr>
<td>200</td>
<td>38</td>
<td>160</td>
<td>4</td>
<td>176</td>
<td>M 10</td>
<td>3.0</td>
<td>9.0</td>
</tr>
<tr>
<td>250</td>
<td>38</td>
<td>200</td>
<td>5</td>
<td>224</td>
<td>M 12</td>
<td>5.0</td>
<td>14.5</td>
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<tr>
<td>315</td>
<td>48</td>
<td>260</td>
<td>6</td>
<td>286</td>
<td>M 16</td>
<td>10.0</td>
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<td>400</td>
<td>48</td>
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<td>M 16</td>
<td>16.0</td>
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<td>545</td>
<td>7</td>
<td>586</td>
<td>M 16</td>
<td>49.0</td>
<td>142.0</td>
</tr>
</tbody>
</table>

**Ordering example:**
- Vacuum sinter metal round clamping plate SAV 249.40 - 100 - S
- Vacuum circular grid chuck SAV 249.42 - 630 - S
**VACUUM FLUID SEPARATOR**

Vacuum fluid separator SAV 249.71

**Application:**
- Installed between the vacuum plate and the vacuum compressor. Draining is performed manually.
- For the retention of swarf, shavings, fluids, and operational residues
- Easy use due to its light weight
- Directly observable fluid level

**Delivery scope:**
- 2 hoses of 0.5 m each
- Hose couplings

Automatic fluid separator available upon request

<table>
<thead>
<tr>
<th>Volume in l</th>
<th>Diameter in mm</th>
<th>Weight in kg</th>
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**Vacuum fluid separator SAV 249.71 - 5**

**Ordering example:**
- Vacuum fluid separator Designation: SAV 249.71 - 5
  - SAV No.: - Volume

---

**VACUUM ROTATION JOINTS**

Vacuum rotation joint SAV 249.70

**Application:**
- Circular vacuum chucks on lathes with a hollow spindle
- Vacuum chucks on a rotating machine table with a hollow spindle

The vacuum rotation joint allows the rotary movement of the vacuum plates / circular vacuum chucks connected to a stationary vacuum supply without any vacuum loss.

Standard rotation joints are available for three rotation ranges: up to 1500, 3000 and 6000 1/min.

The rotation joints are supplied with a plastic tube. The plastic tube connects the chuck with the rotation joint through the hollow spindle. The tube transmits the torque forces.

**Delivery scope:**
- 1.5 m tube
- Connection parts

<table>
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<tr>
<th>Type</th>
<th>A 1500</th>
<th>B 3000</th>
<th>B 6000</th>
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<td>85</td>
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<td>B</td>
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</tr>
<tr>
<td>Weight in kg</td>
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<td>1.0</td>
<td>1.0</td>
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</table>

**Ordering example:**
- Vacuum rotation joint Designation: SAV 249.70 - 1500
  - SAV No.: - max. RPM

---

**Vacuum rotation joint SAV 249.70 - 1500**

**Ordering example:**
- Vacuum rotation joint Designation: SAV 249.70 - 1500
  - SAV No.: - max. RPM

---

**Vacuum rotation joints**

For use with:
- Circular vacuum chucks on lathes with a hollow spindle
- Vacuum chucks on a rotating machine table with a hollow spindle

---

**Vacuum rotation joints**

For use with:
- Circular vacuum chucks on lathes with a hollow spindle
- Vacuum chucks on a rotating machine table with a hollow spindle

---

**Delivery scope:**
- 1.5 m tube
- Connection parts
**MODULAR VACUUM COMPRESSOR**

Generates vacuum pressure for coolant and lubricant feeds

**Features:**
These robust, low wear and low maintenance pumps produce an operating vacuum of up to 50 mbar and do not require an additional liquid separator.

In operation, the water contained in the pump is swirled into a ring form by a fast rotating impeller and serves to seal the contactless running impeller. A re-cleanable polyester filter and a patented condenser are installed to clean the incoming air supply before it enters the pump. The discharged lubricant is re-introduced into the operating fluid circulation system and a valve enables the removal and return of excess fluid to the machinery during operation. Air cooling protects the compressor from overheating.

**Delivery scope:**
- 1 connection unit comprised of:
  - 2 m Vacuum tubing
  - 3/2-way manual valve with air vent
  - 1 Vacuum gauge

**Ordering example:**
Modular vacuum compressor SAV 249.72 - VW - 45
Designation SAV-No. - Size

---

**SAV 249.72**

---

**SAV 249.73**

**VACUUM AUXILIARY STORAGE**

for the relief of the vacuum compressor

**Application:**
The auxiliary storage serves to extend the vacuum storage capacity of the vacuum compressor. This enables more vacuum to be stored for a longer period which means the vacuum pump switching intervals can be extended and the clamping times reduced.

**Features:**
The auxiliary storage functions as an additional filter or separator and is equipped with two glass gauges to enable the level of the collected dirt or liquids to be monitored before draining.

**Vacuum Auxiliary Storage**

<table>
<thead>
<tr>
<th>Volume in l</th>
<th>Dimensions in mm</th>
<th>Connection in inches</th>
<th>Weight in kg</th>
</tr>
</thead>
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<td>315</td>
<td>325</td>
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<tr>
<td>110</td>
<td>800</td>
<td>500</td>
<td>530</td>
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</table>

**Ordering example:**
Vacuum auxiliary storage SAV 249.73 - 210
Designation SAV-No. - Volume

---

**SAV 249.74**

**VACUUM SAFETY SWITCH**

Ensures safety through machine interlocking

Safety regulations require that machines with power actuated clamping devices are set in such a way that machine drive (e.g., the drive spindle or the table shift) can only be switched on after the clamping process has been completed.

The safety interlock is a requirement for all powerful machine tools and can be integrated into the machine control system. An optical signal is generated if the vacuum level (stagelessly variable) falls below the preset minimum. The in-built, potential-free, two-way contact can be integrated into the machine control system and can e.g. trigger an emergency stop (spindle stop, table shift stop, full machine stop).

The switching range between the minimum and maximum vacuum levels can be stagelessly adjusted. If a magnet valve is utilized, the clamping process can be controlled directly from the machine control panel.

**Ordering example:**
Vacuum safety switch SAV 249.74 - 105
Designation SAV-No. - Size

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**Replacement part:**
Air filter element 3 µm, Re-cleanable

**VW - L -**

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>For inside tubing ø in mm</th>
<th>Voltage U in V</th>
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<td>VW - L - 232</td>
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<td>100</td>
<td>32</td>
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A comprehensive range of accessories is available for our vacuum workholding systems.

Examples:

**SAV 249.74 - 200**
Vacuum switch, electronic
For use as a safety switch with dry running vacuum pumps. The upper and lower threshold limits of the vacuum gauge can be preset. Dimensions 40 x 31 x 37 – 24 Volt

**SAV 249.74 - 210**
Vacuum switch, electronic
For use as a safety switch in wet and explosion-protected environments. The upper and lower threshold limits of the vacuum gauge can be preset. Dimensions 93 x 92 – 24 Volt

Vacuum electro-magnet valve

Vacuum valve with manual slide connector

Quick-release coupling with external thread

Connector for the quick-release coupling

Hose connectors, hose couplings, reducing adaptors, double nipples etc, available upon request

**SAV 249.79**
Vacuum switch, electronic
For use as a safety switch with dry running vacuum pumps. The upper and lower threshold limits of the vacuum gauge can be preset. Dimensions 40 x 31 x 37 – 24 Volt

**Vacuugrease SAV 249.79**
For the occasional greasing of suction tubing and strain relievers. Brush-on sealant for workpieces with rough and scored surfaces.

Container, contents 250 g

**SAV 249.83**
Wire spiral hose Type A: 13 / 8 diameter
Type B: 18 / 12 diameter
Type C: 25 / 18 diameter
Type D: 34 / 25 diameter

When ordering please state the length in m.

Ordering example:
Vacuum hose SAV 249.83 - A - 10

**Vacuum gauge**

Type Connection
A R 1/8" axial
B R 1/8" radial

Scale range
0 bis -1 bar

Upon request.

**Manifold**

**Delivery scope:**
- Hose connector for vacuum pumps - Inlet
- Hose connector for 3/2-way manually operated vacuum lever valve with air vent for each outlet
- Vacuum gauge

Outlets and connections according to your specifications upon request.
General Terms and Conditions of Business

§ 1 General Application
1. The General Terms and Conditions shall govern all present and future business relations.
2. It is the intent of all general terms that an entrepreneur is a natural person or legal entity capable of performing legal acts, in whose name and for whose account an agreement is concluded with us.

§ 2 Conclusion of Contract
1. Our orders shall be created in writing. Any technical changes, changes in colour and ordering parcelling are reserved in the scope of costing reasonable.
2. The delivery times and delivery dates cannot be unilaterally changed by the customer, unless this is agreed to in writing.
3. The customer may neither assign nor pledge any contractual rights without our consent.
4. The customer shall be informed immediately about the non-availability of the product ordered. We shall only begin after the final written confirmation of the order.
5. The customer must immediately notify us of any change of ownership concerning the goods. The customer's liability concerning destruction, breakage, theft and similar events shall cease and the ownership shall remain with us if this is reasonable to him. The customer shall be entitled to the warranty shall fail.
6. If a purchaser keeps any goods delivered by us despite any recognizable defects any warranty shall fail.
7. As far as purchase price claims of the customer are part of a current account the customer must pay immediately after the invoice date. If the customer assigns any balance claim he is entitled to to us in the same way.
8. Cardinal duties are essential contractual duties i.e. such duties which give the contract its raison d’être and for the performance of which the customer is dependent. If the customer fulfills his cardinal duties, we are entitled to be excluded or limited.

§ 3 Passing of the Risk
1. If there are any defects in the goods we shall in our discretion first grant warranty to the customer. If the defects are not recognizable or the goods are unsuitable for the contract purpose especially in case of delay of payment or in violation of warranty, we shall be entitled to change the legal or judge law distribution of the goods we are entitled to be excluded or limited.

§ 4 Price and payment
1. All prices are EXW prices at the condition of the laws at the point of delivery if nothing different results from the order confirmation. In case of ex works delivery the costs of the transport can be agreed to in writing.
2. All prices are excluding VAT. We provide a tax notice in the invoice. Any additional costs charged by the shipping company shall be borne by the customer.
3. In case of any other leas payable or outstanding loan agreements (also on the part of the customer) the customer must bear the additional costs caused by the customer for the transfer of the goods. The customer bears the costs for insurance.
4. In case of any additional repeat orders the prices shall be agreed upon again.
5. All and any newly introduced or changed documents concerning the goods shall be applied in the contract price.
6. All and any newly introduced or changed documents concerning the goods shall be applied in the contract price.

§ 5 Delay in payment
1. As far as nothing else can be seen from the order confirmation, delivery “ex works” is free of charge. Any costs for storage may be charged in addition.
2. Any rights to discount are reserved in case of any late payment. Any additional costs charged by the shipping company shall be borne by the customer.
3. Any agreement concerning a delay in payment shall be invalid, unless we have consented to it in writing.
4. In case of any additional repeat orders the prices shall be agreed upon again.
5. Any rights to discount are reserved in case of any late payment. Any additional costs charged by the shipping company shall be borne by the customer.
6. Any rights to discount are reserved in case of any late payment. Any additional costs charged by the shipping company shall be borne by the customer.

§ 6 Warranty
1. As far as nothing else is agreed in the goods we shall be liable to the extent of the statutory warranty. In case of any additional repeat orders the prices shall be agreed upon again.
2. Any rights to discount are reserved in case of any late payment. Any additional costs charged by the shipping company shall be borne by the customer.
3. Any agreement concerning a delay in payment shall be invalid, unless we have consented to it in writing.
4. In case of any additional repeat orders the prices shall be agreed upon again.

§ 7 Withdrawal of the customer and other liability on our side
1. The legal right of the customer to withdraw from the contract shall neither be excluded from the base interest rate. Any liability According to the principles of recourse of the entrepreneur according to § 478 BGB shall be excluded.
2. The customer is entitled to terminate the contract in case of contract non-conformity on the customer's part especially in case of delay of payment or in violation of warranty, we shall be entitled to change the legal or judge law distribution of the goods we are entitled to be excluded or limited.

§ 8 Force majeure
1. In case of any extraordinary difficulties or essential contractual duties i.e. such duties which give the contract its raison d’être and for the performance of which the customer is dependent. If the customer fulfills his cardinal duties, we are entitled to be excluded or limited.

§ 9 Arbitration
1. If any dispute arises in the goods we are entitled to the statutory warning to the entrepreneur by subsequent improvement or replacement delivery at our expense or if the customer's good of the entrepreneur. The entrepreneur bears the costs for the transportation costs, if the goods are unsuitable for the contract purpose especially in case of delay of payment or in violation of warranty, we shall be entitled to change the legal or judge law distribution of the goods we are entitled to be excluded or limited.
2. Any rights to discount are reserved in case of any late payment. Any additional costs charged by the shipping company shall be borne by the customer.
3. Any agreement concerning a delay in payment shall be invalid, unless we have consented to it in writing.
4. In case of any additional repeat orders the prices shall be agreed upon again.
5. The customer may neither assign nor pledge any contractual rights without our consent.

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