Diaphragm clamping technology with quick jaw change at its best – for hard turning, grinding, high precision turning

**D-160 – 400**

**The ultimate, easy principle:**
The operation is based on elastic deformation of the diaphragm - this means
- no sliding parts
- no friction
- centrifugal force compensation
- proofline® series = fully sealed – low maintenance

Jaws are factory finished and match any chuck with no loss of concentricity.

Never, ever grind or bore jaws on the chuck anymore!

**TIR < 0.020 mm**

**Setup time < 4 minutes**
for jaws and locators
TIR < 0.020 mm without boring / grinding

**Ideal for PICK-UP machines**
Radial access for quick change mechanism

**Media feed**
Air sensing + air blow / coolant

**Full interchangeability of the jaws**
Any jawset can be put on to any chuck without loss of concentricity

- No boring
- No grinding
- Less jawsets needed
- TIR < 0.020 mm

Never, ever grind or bore jaws on the chuck anymore!
Clamping glossary

ABS® connection: A connecting system developed by Komet for highest rigidity and accuracy. A version of this proven design is used for the quick jaw change on the Type D chuck.

Centrifugal force compensation: Underneath the diaphragm, counter balance weights are mounted which are connected to the clamping jaws. They completely compensate the centrifugal force caused by the jaws.

Roller cage clamping: Floating rollers are held in a roller cage. They extend from the location face of the clamping insert. In principle the workpiece is clamped like an external clamping but the steel rollers clamp in the pitch line. Special jaws with roller cages have been developed for the Type D. Since the clamping force is spread equally onto multiple tooth gaps easily deformed components can be clamped with less distortion.

Air sensing: Air is fed through the contact face of the work stop. When the workpiece is in contact with the work stop the airflow is stopped and converted into a signal. If the component is not correctly positioned or is lifted, the machine can not start or the spindle is stopped. This important feature is standard on all Type D chucks.

Medium supply: Coolant or air to clean/cool during the machining process come through the machine spindle/chuck. This important feature is standard on all Type D chucks.

Diaphragm clamping technology: It is based on the elastic deformation of the diaphragm (like a large belleville washer). There are no sliding parts and the mechanism is completely maintenance free. The specially and patented diaphragm of the Type D allows a constant fine regulatable clamping force with the highest precision.

Pre-locaters: These protect the clamping pins during engagement into the serration especially during automatic loading.

Pitch line clamping: Clamping gears in the pitch line with clamping pins, the radial datum for the bore to be machined is the pitch line. According to the application and customers request jaws with clamping pins to clamp in the pitch line are offered.

Special shaped diaphragm from special steel for longest lifetime

Workstop
- Quick change
- Air sensing
- Nozzle for coolant / airblow

Jaws type B
- Clamping of gears in the pitchline with rollers

Ideal for PICK-UP machines:
Radial access for quick change mechanism

proofline® series
fully sealed – low maintenance

High precision, patented quick jaw change system by using the proven ABS®-coupling (licence Komet)
TIR < 0.020 mm
Optionally jaws type A, B, C
**Diaphragm chuck**

**QUICK JAW CHANGE SYSTEMS**

### Main dimensions and technical data

<table>
<thead>
<tr>
<th>SMW-AUTOBLOK Type</th>
<th>D-160</th>
<th>D-210</th>
<th>D-260</th>
<th>D-315</th>
<th>D-400</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mounting</strong></td>
<td>Size</td>
<td>A5</td>
<td>A6</td>
<td>A5</td>
<td>A6</td>
</tr>
<tr>
<td>A</td>
<td>mm</td>
<td>160</td>
<td>210</td>
<td>260</td>
<td>315</td>
</tr>
<tr>
<td>B</td>
<td>mm</td>
<td>79.5</td>
<td>93.5</td>
<td>108</td>
<td>111</td>
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<tr>
<td>C</td>
<td>mm</td>
<td>86.5</td>
<td>106.5</td>
<td>120</td>
<td>125</td>
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<tr>
<td>C1</td>
<td>mm</td>
<td>116.5</td>
<td>146.5</td>
<td>156</td>
<td>173</td>
</tr>
<tr>
<td><strong>Clamping range min. / max.</strong></td>
<td>D</td>
<td>mm</td>
<td>19-131</td>
<td>20-171</td>
<td>40-220</td>
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<tr>
<td>D1</td>
<td>mm</td>
<td>143</td>
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<td>E</td>
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<td>104.8</td>
<td>133.4</td>
<td>104.8</td>
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<tr>
<td>G</td>
<td>mm</td>
<td>171.4</td>
<td>211.4</td>
<td>235</td>
<td>171.4</td>
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<tr>
<td>G1</td>
<td>M10</td>
<td>M20 x 1.5</td>
<td>M12</td>
<td>M26 x 1.5</td>
<td>M12</td>
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<tr>
<td><strong>Jaw height</strong></td>
<td>1.5</td>
<td>62</td>
<td>64</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>mm</td>
<td>40.5</td>
<td>52</td>
<td>62</td>
<td>64</td>
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<tr>
<td>J</td>
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<td>6</td>
<td>6</td>
<td>6</td>
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<tr>
<td>K**</td>
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<tr>
<td>S</td>
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<td>Jaw stroke at distance H</td>
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<td>1.2</td>
<td>0.87</td>
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<td>Draw pull min. / max.*</td>
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<td>kN</td>
<td>0-10</td>
<td>0-25</td>
<td>0-25</td>
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<td>Draw push for chuck open</td>
<td>F2</td>
<td>kN</td>
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<td>30</td>
<td>30</td>
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<tr>
<td>Moment of inertia</td>
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<td>0.04</td>
<td>0.16</td>
<td>0.45</td>
<td>0.75</td>
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<tr>
<td>Weight without top tooling</td>
<td>kg</td>
<td>11.6</td>
<td>30</td>
<td>44</td>
<td>60</td>
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<table>
<thead>
<tr>
<th>Type</th>
<th>SIN-DFR</th>
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</tr>
</thead>
</table>

**Important**: Never rotate the chuck without inserted jaws, otherwise the centrifugal force compensation mechanism will get damaged.

**Advice**: The max. allowed speed for the application is permanently marked on the corresponding top jaws and must not be exceeded.

**Advice**: Please note, that it is important, that the cylinder force for pushing and pulling can be set to different values independently.

Subject to technical changes.

For more detailed information please ask our customer service.
Actuating cylinder SIN-DFR for diaphragm chuck Type D

Technical features
- Special cylinder to actuate the diaphragm chuck
- Large/small piston area for opening / clamping
- Rotary unions for 1 or 2 media
- Linear positioning system LPS to monitor the piston stroke

Standard equipment
- Cylinder with kit for LPS 4.0 installation without LPS 4.0 position sensor

LPS 4.0 see general catalog page 313

SIN-DFR-LPS-4.0 / 48 for rotary union 1 medium ld. No. 046725 (without rotary union*)
SIN-DFR-LPS-4.0 / 48 with rotary union 2 media ld. No. 046706 (rotary union 2 media included)

### Installation

The total clamping force (FG) is the total of the diaphragm clamping force and the clamping force (FZ), created by the draw pull (F1) of the actuating cylinder.

Thus the clamping force FG can be regulated by adjusting the pressure of the actuating cylinder.

**Advice:** Please note, it is important, that the cylinder pressure for pushing and pulling can be set to different values.