Swivel modules DSM/DSM-B
Swivel modules DSM/DSM-B

Key features

At a glance
- Double-acting swivel module with rotary vanes
- The swivel angle is infinitely adjustable over the entire swivel range
- High precision thanks to metal fixed stops
- Polyurethane ensures a long service life for the rotary vane and sealing system
- Easy precision adjustment of the end positions using the cushioning components
- The mechanical gearing between the stop element and the swivel module prevents movement of the stop system under load
- Torques of up to 80 Nm with tandem rotary vanes in combination with multi-tooth shaft

The technology in detail
Size 6 … 10

1 Interface
   - Choice of:
     - Spigot shaft
     - Flanged shaft

2 Wide range of mounting options

3 Cushioning with size 6 … 10:
   - Elastic cushioning components with metal fixed stop (P)

4 Position sensing
   - With size 6 … 10:
     - SME/SMT-10
   - With size 12 … 40:
     - SME/SMT-10 or SIEN
   - With size 63:
     - SME/SMT-8

5 Precision end-position adjustment
   - Very precise adjustment of the end positions is possible by moving the stops

6 Angle scale
   - The required swivel angle can be easily preset using the scale

7 Cover cap
   - The cover cap prevents unwanted interference in the swivel motion and reduces the risk of injury

Size 12 … 63

1 Interface
   - Choice of:
     - Spigot shaft
     - Flanged shaft

2 Wide range of mounting options

3 Cushioning with size 12 … 63:
   - Three cushioning types, with metal fixed stop:
     - Elastic cushioning components (P)
     - Adjustable, elastic cushioning components (P1)
     - Hydraulic shock absorbers (CC)

4 Position sensing
   - With size 6 … 10:
     - SME/SMT-10
   - With size 12 … 40:
     - SME/SMT-10 or SIEN
   - With size 63:
     - SME/SMT-8

5 Precision end-position adjustment
   - Very precise adjustment of the end positions is possible by moving the stops

6 Angle scale
   - The required swivel angle can be easily preset using the scale

7 Cover cap
   - The cover cap prevents unwanted interference in the swivel motion and reduces the risk of injury
### Swivel modules DSM/DSM-B

#### Key features

<table>
<thead>
<tr>
<th>Wide choice of variants</th>
<th>Details</th>
</tr>
</thead>
</table>
| DSM-T-...: Swivel module with tandem rotary vanes | The arrangement of two rotary vanes on the multi-tooth shaft enables torques of up to 80 Nm to be achieved. The functionality is the same as that of the DSM without tandem rotary vanes:  
- Infinitely adjustable swivel angle  
- Identical interfaces  
- Identical accessories |

| DSM-...-HD: Swivel module with heavy-duty bearing | Backlash-free, preloaded, high-quality bearing elements allow very high load torques and very precise bearing with high running accuracy. The functionality corresponds to that of the DSM-B without heavy-duty bearing:  
- Infinitely adjustable swivel angle  
- Identical mounting interfaces  
- Identical accessories  
Choice of two cushioning types:  
- Cushioning P1 and CC  
- Identical accessories |
### Swivel modules DSM/DSM-B

#### Product range overview

#### Characteristic values of the swivel modules

The specifications shown in the table are maximum values. The precise values for each of the sizes can be found in the relevant technical data in the catalogue.

<table>
<thead>
<tr>
<th>Version</th>
<th>Type</th>
<th>Size</th>
<th>Swivel angle [°]</th>
<th>Torque [Nm]</th>
<th>Axial force [N]</th>
<th>Radial force [N]</th>
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<tbody>
<tr>
<td><strong>Spigot shaft</strong></td>
<td>DSM-…</td>
<td>6, 8, 10</td>
<td>90, 180</td>
<td>0.85</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>240</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12, 16, 25, 32, 40, 63</td>
<td>270</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12, 16, 25, 32</td>
<td>246</td>
<td>40</td>
<td>500</td>
<td>500</td>
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<td></td>
<td></td>
<td>40, 63</td>
<td>240</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flanged shaft</strong></td>
<td>DSM-…-FW</td>
<td>6, 8, 10</td>
<td>90, 180</td>
<td>0.85</td>
<td>10</td>
<td>30</td>
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<td></td>
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<td>10</td>
<td>240</td>
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<td>12, 16, 25, 32</td>
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<td>40</td>
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<td>40, 63</td>
<td>240</td>
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</tr>
<tr>
<td><strong>Tandem rotary vanes and spigot shaft</strong></td>
<td>DSM-T-…</td>
<td>6, 8, 10</td>
<td>90, 180</td>
<td>1.7</td>
<td>10</td>
<td>30</td>
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<td></td>
<td></td>
<td>10</td>
<td>240</td>
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<tr>
<td></td>
<td></td>
<td>12, 16, 25, 32, 40, 63</td>
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<td>40, 63</td>
<td>240</td>
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<tr>
<td><strong>Tandem rotary vanes and flanged shaft</strong></td>
<td>DSM-T-…-FW</td>
<td>6, 8, 10</td>
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<td>1.7</td>
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<td></td>
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<td>12, 16, 25, 32</td>
<td>246</td>
<td>80</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40, 63</td>
<td>240</td>
<td></td>
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<tr>
<td><strong>Heavy-duty bearing</strong></td>
<td>DSM-…-HD</td>
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<td></td>
<td>40, 63</td>
<td>240</td>
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</table>
#### Characteristic values of the swivel modules

The specifications shown in the table are maximum values. The precise values for each of the sizes can be found in the relevant technical data in the catalogue.

<table>
<thead>
<tr>
<th>Version</th>
<th>Cushioning</th>
<th>Adjustable swivel angle</th>
<th>Position sensing</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spigot shaft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>P1</td>
<td>CC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flanged shaft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem rotary vanes and spigot shaft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
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</tr>
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<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tandem rotary vanes and flanged shaft</td>
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<td>8</td>
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<td>24</td>
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<tr>
<td>Heavy-duty bearing</td>
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</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

1) The cushioning type P1 can be ordered as an accessory (page 53).
2) The stop kit (adjustable swivel angle) can be ordered as an accessory (page 54).
3) The mounting kit (for position sensing) can be ordered as an accessory (page 54).
Swivel modules DSM/DSM-B

Key features

<table>
<thead>
<tr>
<th>Mounting options</th>
<th>Size 6 ... 10</th>
<th>Size 12 ... 63</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Via threaded through-holes/through-holes</td>
<td>Via threaded through-holes, lateral</td>
</tr>
<tr>
<td></td>
<td>Via through-holes, lateral</td>
<td>Via through-holes</td>
</tr>
<tr>
<td></td>
<td>Via threaded holes, lateral</td>
<td>Via threaded holes, lateral</td>
</tr>
<tr>
<td></td>
<td>Centring via centring collar</td>
<td>Of attachments</td>
</tr>
</tbody>
</table>

Special mounting options for DSM—...-HD

Positive-locking connections possible through use of centring sleeves ZBH.
Swivel modules DSM/DSM-B

Key features

Accessories
Freewheel unit FLSM
Size 6 … 40

Push-on flange FWSR
Size 6 … 40

Mounting plate HSM
Size 12 … 40

Direction of rotation in combination with freewheel unit FLSM
The freewheel unit only allows movement in one of the two possible swivel directions. The reverse direction is blocked.

Dimensions and ordering data ➔ page 49

FLSM-…-R, right-hand (clockwise) rotation
FLSM-…-L, left-hand (anti-clockwise) rotation

Position sensor SRBS
The position sensor is used for sensing the end positions of the swivel module DSM.

Sensing is performed magnetically and without contact. Two switching points are output.

Key features:
- Quick assembly without having to manually search for switching points
- Simple and reliable operation using one button
- Only one connecting cable required
- Long service life thanks to sturdy and non-contacting position sensing

Technical data:
- Possible sensing range: 0 … 270°
- Repetition accuracy: 1°
- 2 switching outputs (24 V)
- Switching output: PNP or NPN programmable
- Switching element function: N/O contact or N/C contact programmable

View towards drive shaft

Internet: www.festo.com/catalogue/...
# Swivel modules DSM

**Type codes DSM-6 ... 10**

### DSM-...: Swivel module

<table>
<thead>
<tr>
<th>Type</th>
<th>Double-acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSM</td>
<td>Swivel module</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size [mm]</th>
<th>Swivel angle [°]</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cushioning</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elastic cushioning rings/pads at both ends</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position sensing</th>
<th>No position sensing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Via proximity sensor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjustable swivel angle</th>
<th>Fixed swivel angle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjustable swivel angle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shaft</th>
<th>Spigot shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flanged shaft</td>
</tr>
</tbody>
</table>

### DSM-T-...: Swivel module with tandem rotary vanes

<table>
<thead>
<tr>
<th>Type</th>
<th>Double-acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSM</td>
<td>Swivel module</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design</th>
<th>Tandem rotary vanes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Size [mm]</th>
<th>Swivel angle [°]</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cushioning</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elastic cushioning rings/pads at both ends</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shaft</th>
<th>Spigot shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flanged shaft</td>
</tr>
</tbody>
</table>
Accessories

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Description</th>
<th>Page/Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stop kit KSM</td>
<td>• For adjusting the swivel angle&lt;br&gt;• Can be retrofitted for swivel module DSM-...-P(-A)/DSM-...-P(-A)-FW&lt;br&gt;• With DSM-T-..., the stop kit must be ordered separately as an accessory&lt;br&gt;• Can be combined with mounting kit WSM&lt;br&gt;• The adapter kit DADP-AK must also be ordered in combination with mounting kit WSM</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>Mounting kit WSM-...-SME-10</td>
<td>• For sensing the swivel angle&lt;br&gt;• For mounting the proximity sensors SME-/SMT-10&lt;br&gt;• Can be retrofitted for swivel module DSM-...-P(-FF)/DSM-...-P(-FF)-FW&lt;br&gt;• The mounting kit must be ordered as an accessory with DSM-T-...&lt;br&gt;• Can be combined with stop kit KSM&lt;br&gt;• The adapter kit DADP-AK must also be ordered in combination with stop kit KSM</td>
<td>54</td>
</tr>
<tr>
<td>3</td>
<td>Position sensor SRS5</td>
<td>• For sensing the swivel angle&lt;br&gt;• No adjustment of the proximity sensors required&lt;br&gt;• The end positions of the swivel angle are taught in at the touch of a button&lt;br&gt;• Can only be mounted directly on the swivel module, without other accessories&lt;br&gt;• Must be ordered separately as an accessory</td>
<td>53</td>
</tr>
<tr>
<td>4</td>
<td>Proximity sensor SME/SMT-10</td>
<td>Proximity sensor for end position sensing</td>
<td>54</td>
</tr>
<tr>
<td>5</td>
<td>Push-on flange FWSR</td>
<td>For retrofitting on swivel module DSM with spigot shaft</td>
<td>51</td>
</tr>
<tr>
<td>6</td>
<td>Freewheel unit FLSM</td>
<td>• For indexed rotation in one direction&lt;br&gt;• Only in combination with swivel module DSM with spigot shaft</td>
<td>49</td>
</tr>
<tr>
<td>7</td>
<td>One-way flow control valve GRLA</td>
<td>For speed regulation</td>
<td>56</td>
</tr>
<tr>
<td>8</td>
<td>Push-in fitting QS</td>
<td>For connecting compressed air tubing with standard O.D.</td>
<td>55</td>
</tr>
<tr>
<td>9</td>
<td>Adapter kit DADP-AK</td>
<td>For attaching mounting kit WSM to stop kit KSM</td>
<td>54</td>
</tr>
</tbody>
</table>
### General technical data

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>8</th>
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<tbody>
<tr>
<td>Pneumatic connection</td>
<td>M3</td>
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</tr>
<tr>
<td>Design</td>
<td>Rotary vane</td>
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<td></td>
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<tr>
<td>Cushioning</td>
<td>Elastic cushioning rings/pads at both ends</td>
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</tr>
<tr>
<td>Type of mounting</td>
<td>Via female thread</td>
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<tr>
<td>Mounting position</td>
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<tr>
<td>Swivel angle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSM-…</td>
<td>[°]</td>
<td>90 or 180</td>
<td>90 or 180</td>
</tr>
<tr>
<td>DSM-…-FF</td>
<td>[°]</td>
<td>0 … 180</td>
<td>0 … 200</td>
</tr>
<tr>
<td>Max. swivel frequency at 6 bar</td>
<td>[Hz]</td>
<td>3</td>
<td>3 (at 240°: 2 Hz)</td>
</tr>
<tr>
<td>Cushioning angle</td>
<td>[°]</td>
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<tr>
<td>Air consumption at swivel angle of 90° and 6 bar</td>
<td>[cm³]</td>
<td>0.6</td>
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</tr>
<tr>
<td>DSM-…</td>
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<tr>
<td>DSM-T-…</td>
<td>[cm³]</td>
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1) Theoretical values

### Operating and environmental conditions

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<tr>
<td>Operating medium</td>
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<tr>
<td>Compressed air in accordance with ISO 8573-1:2010 [7:4:4]</td>
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<tr>
<td>Operating pressure</td>
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<td>DSM-…</td>
<td>[bar]</td>
<td>3.5 … 8</td>
<td>3.5 … 8</td>
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<td>DSM-T-…</td>
<td>[bar]</td>
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<td>Storage temperature</td>
<td>[°C]</td>
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</table>

1) Note operating range of proximity sensors

### Forces and torques

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<tr>
<td>Torque at 6 bar</td>
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<tr>
<td>DSM-…</td>
<td>[Nm]</td>
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<td>DSM-T-…</td>
<td>[Nm]</td>
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<tr>
<td>Max. permissible axial force on drive shaft</td>
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<td>10</td>
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<tr>
<td>Max. permissible radial force on drive shaft</td>
<td>[N]</td>
<td>15</td>
<td>20</td>
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<tr>
<td>Max. perm. mass moment of inertia on drive shaft1)</td>
<td>[kgm²]</td>
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1) Maximum value, please see graphs ➔ page 12
## Swivel modules DSM

### Technical data DSM-6 ... 10

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<th>Weight [g]</th>
<th>Size</th>
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<tr>
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<td>DSM-...-P</td>
<td>45</td>
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<td>DSM-...-P-A</td>
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### Materials

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1. **Shaft**: High-alloy stainless steel
2. **Rotary vane**: Glass fibre-reinforced plastic
3. **Housing**: Anodised aluminium
4. **Screws**: Galvanised steel
5. **Seals**: Polyurethane

**Note on materials**: Free of copper and PTFE. RoHS-compliant
### Mass moment of inertia \( J \) as a function of swivel time \( t \)

#### DSM-6

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- --- 90°
- --- 180°
- --- 240°
## Swivel modules DSM

### Technical data DSM-6 ... 10

#### Dimensions

DSM-... – With spigot shaft

For DSM-10

Shaft position

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Note: For swivel angle tolerance table below: The supply ports are at the bottom in this drawing.
## Swivel modules DSM

### Technical data DSM-6 ... 10

#### Dimensions

DSM-T-... – With spigot shaft and tandem rotary vanes

---

### Shaft position

For DSM-T-10

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Swivel modules DSM
Technical data DSM-6 ... 10

Dimensions

DSM-... – With spigot shaft and position sensing
DSM-T-... – With spigot shaft, tandem rotary vanes and position sensing

1 Proximity sensor not included in the scope of delivery.
Observe fitting space for proximity sensor and cable
2 Magnet position

3 Max. tightening torque for sensor bracket screws
4 The flat or feather key on the shaft indicates the position of the rotary vane

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Swivel modules DSM
Technical data DSM-6 _ 10

Dimensions

DSM-... – With spigot shaft and adjustable swivel angle
DSM-T-... – With spigot shaft, tandem rotary vanes and adjustable swivel angle

Note
The swivel angle is infinitely adjustable over the entire swivel range. Size 6 mm can only be adjusted symmetrically around the centre position.

1 Supply ports
2 Locking screw for clamping the stop
3 End-position adjustment
4 Lock nut for end-position adjustment
5 Infinitely adjustable stops

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Swivel modules DSM
Technical data DSM-6 … 10

Dimensions

DSM-… – With spigot shaft, adjustable swivel angle and position sensing
DSM-T-… – With spigot shaft, tandem rotary vanes, adjustable swivel angle and position sensing

1 Sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable
2 Magnet position
3 Max. tightening torque for sensor bracket screw ➔ table below
4 The flat or feather key on the shaft indicates the position of the rotary vane

Size

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## Swivel modules DSM

### Technical data DSM-6 ... 10

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### Dimensions

**DSM-... – With flanged shaft**

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1. Supply ports
2. Mark indicating rotary vane position

Subject to change – 2018/06
Swivel modules DSM
Technical data DSM-6 ... 10

Dimensions
DSM-T_- – With flanged shaft and tandem rotary vanes

Supply ports
Mark indicating rotary vane position

Size | B1 | B2 | B3 | B4 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 | D11 | D12 | D13
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
6   | 10 | 25 | 30 | 17 | 8  | 8  | 14 | 3.2 | M3 | M2 | 40 | 29.4 | 3.5 | 23 | M3 | 3.4 | 16
8   | 12.8 | 31 | 38 | 20 | 9  | 11 | 16 | 3.2 | M3 | M2.5 | 50 | 37.4 | 3.5 | 27 | M3 | 3.4 | 21
10  | 15.9 | 38 | 47 | 26 | 10 | 11 | 19 | 4.3 | M4 | M3 | 62 | 46.4 | 4.5 | 30 | M3 | 3.4 | 21

Size | D14 | EE | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | T1 | 0/+5° | Swivel angle tolerance
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
6   | M2   | M3 | 52 | 42.5 | 7.5 | 2 | 9.8 | 33.5 | 5 | 6 | 3 | 1.5 | 4 | 3 | 0/+5°
8   | M2   | M3 | 58 | 48.5 | 7.5 | 2 | 11.3 | 37.5 | 6 | 6.5 | 3 | 1.5 | 4.3 | 3.5 | 0/+5°
10  | M2.5 | M3 | 71 | 59.4 | 9.6 | 2 | 14.3 | 46 | 8 | 7.5 | 4 | 3 | 1.6 | 5 | 4.5 | 0/+5°
Swivel modules DSM
Technical data DSM-6 ... 10

Dimensions
DSM-... – With flanged shaft and position sensing
DSM-T-... – With flanged shaft, tandem rotary vanes and position sensing

![Diagram of DSM modules]

Proximity sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable

Magnet position
Max. tightening torque for sensor bracket screw

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DSM-... – With flanged shaft and adjustable swivel angle
DSM-T-... – With flanged shaft, tandem rotary vanes and adjustable swivel angle

Without orifice and cover

Note
The swivel angle is infinitely adjustable over the entire swivel range. Size 6 mm can only be adjusted symmetrically around the centre position.

| Size | B1 | B2 | B3 | B4 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 | D11 | D12 | D13 | D14 | EE |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| 6    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

Size | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | <C | Max. swivel angle | Precision adjustment per end
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Swivel modules DSM
Technical data DSM-6 ... 10

Dimensions
DSM-... – With flanged shaft, adjustable swivel angle and position sensing
DSM-T-... – With flanged shaft, tandem rotary vanes, adjustable swivel angle and position sensing

Download CAD data ➔ www.festo.com

Note
The swivel angle is infinitely adjustable over the entire swivel range. Size 6 mm can only be adjusted symmetrically around the centre position.

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1. Proximity sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable.
2. Magnet position
3. Max. tightening torque for sensor bracket screws ➔ table below
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## Swivel modules DSM

### Technical data DSM-6 ...

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Internet: www.festo.com/catalogue/...
## Swivel modules DSM-B

### Peripherals overview DSM-12 ... 63

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<td>• For indexed rotation in one direction&lt;br&gt;• Only in combination with swivel module DSM with spigot shaft</td>
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<tr>
<td>Push-on flange</td>
<td>12 ... 40</td>
<td>For retrofitting on swivel module DSM with spigot shaft</td>
<td>51</td>
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<tr>
<td>Mounting plate</td>
<td>12 ... 40</td>
<td>For foot or flange mounting</td>
<td>52</td>
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<tr>
<td>Push-in fitting QS</td>
<td>12 ... 63</td>
<td>For connecting compressed air tubing with standard O.D.</td>
<td>q5</td>
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<tr>
<td>One-way flow control valve</td>
<td>12 ... 63</td>
<td>For regulating speed</td>
<td>56</td>
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<tr>
<td>Cushioning mount DSM-B</td>
<td>12 ... 63</td>
<td>• For mounting elastic cushioning components or shock absorbers&lt;br&gt;• Included in the scope of delivery for swivel module DSM-...-P/P1/CC</td>
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<tr>
<td>Cushioning kit DSM-...-P</td>
<td>12 ... 63</td>
<td>• Elastic cushioning components with fixed stop&lt;br&gt;• Included in the scope of delivery for swivel module DSM-...-P</td>
<td>46</td>
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<tr>
<td>Shock absorber DYEFT</td>
<td>12 ... 63</td>
<td>• Adjustable, elastic cushioning components with fixed stop&lt;br&gt;• Included in the scope of delivery for swivel module DSM-...-P1</td>
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<td>Shock absorber DYSCT</td>
<td>12 ... 63</td>
<td>• Self-adjusting shock absorbers with fixed stop&lt;br&gt;• Included in the scope of delivery for swivel module DSM-...-CC</td>
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<tr>
<td>Sensor bracket SL-DSM-B</td>
<td>12 ... 40</td>
<td>For mounting the proximity sensor SME/SMT-10</td>
<td>54</td>
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<td>12 ... 40</td>
<td>For sensing the end positions</td>
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<tr>
<td>Sensor bracket SL-DSM-63-B</td>
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<td>For mounting the proximity sensor SME/SMT-8</td>
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<td>For sensing the end positions</td>
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<td>For mounting the round inductive proximity sensor SIEN</td>
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<td>Proximity sensor SIEN</td>
<td>12 ... 40</td>
<td>Inductive proximity sensor for sensing the end positions</td>
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<td>12 ... 40</td>
<td>• Reduces the risk of injury in the swivel range of the stop lever&lt;br&gt;• Cannot be used in combination with inductive proximity sensor SIEN</td>
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<td>Centring sleeve ZBH</td>
<td>12 ... 63</td>
<td>For centring the drive</td>
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<tr>
<td>Centring sleeve ZBH</td>
<td>12 ... 63</td>
<td>For centring attachments on the rotating plate</td>
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<tr>
<td>Centring sleeve/disc ZBH/SLZZ</td>
<td>12, 16, 25, 40, 63</td>
<td>For centring attachments in the middle of the rotating plate</td>
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<td>12 ... 40</td>
<td>For drive/gripper combinations</td>
<td>gripper</td>
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### Swivel modules DSM-B

**Type codes DSM-12 ... 63**

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<tr>
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<tr>
<td><strong>Max. swivel angle [°], adjustable</strong></td>
</tr>
<tr>
<td><strong>Cushioning</strong></td>
</tr>
<tr>
<td>P Elastic cushioning at both ends</td>
</tr>
<tr>
<td>P1 Adjustable elastic cushioning components at both ends</td>
</tr>
<tr>
<td>CC Self-adjusting shock absorbers at both ends</td>
</tr>
<tr>
<td><strong>Shaft</strong></td>
</tr>
<tr>
<td>– Spigot shaft</td>
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<tr>
<td>FW Flanged shaft</td>
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<tr>
<td><strong>Position sensing</strong></td>
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<td>A Via proximity sensor</td>
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<td><strong>Variant</strong></td>
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### DSM-T-...: Swivel module with tandem rotary vanes

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<tr>
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<tr>
<td>CC Self-adjusting shock absorbers at both ends</td>
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<td><strong>Shaft</strong></td>
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## Swivel modules DSM-B

Type codes DSM-12 ... 63

**DSM—HD: Swivel module with heavy-duty bearing**

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<td>A</td>
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Swivel modules DSM-B
Technical data DSM-12 ... 63

Function

Size
12 ... 63

General technical data

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1) Restricted swivel angle in combination with sensor bracket SL-DSM-S-...

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Technical data – Swivel frequency [Hz]

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<tr>
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### Swivel modules DSM-B

#### Technical data DSM-12 ... 63

**Operating and environmental conditions**

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1) Note operating range of proximity sensors

**Weight [g]**

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Swivel modules DSM-B
Technical data DSM-12 ... 63

Materials
Sectional view

<table>
<thead>
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<th>Sectional view</th>
<th>DSM-.../DSM-T-...</th>
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<td>DSM-... FW</td>
<td>DSM-...-HD</td>
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Swivel module

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<td>Glass fibre-reinforced plastic</td>
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<td>4</td>
<td>Stop lever</td>
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<td>Fixed stops</td>
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<td>Screws</td>
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<td>Cover cap</td>
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<td>Seals</td>
<td>Polyurethane</td>
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<td>Note on materials</td>
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Axial eccentricity and concentricity of DSM-...-HD

Axial eccentricity
Measured on the surface of the rotating plate at the plate edge, in new condition.

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Concentricity
Measured on the centre of the rotating plate, in new condition.
# Swivel modules DSM-B

**Technical data DSM-12 ... 63**

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<td>320</td>
<td>480</td>
<td>650</td>
<td>1050</td>
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<tr>
<td><strong>Max. perm. dyn. axial force F_x on drive shaft</strong></td>
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<td>DSM-...-HD</td>
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<td><strong>Max. perm. dyn. radial force F_z on drive shaft</strong></td>
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<td>120</td>
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---

**Note**

If the swivel modules DSM-...-A-B are used without a stop system or the mass moment of inertia is exceeded, external stops must be used. A minimum radius relative to the drive shaft (r_{min}) must be observed. The stop force must not exceed the maximum force.
Swivel modules DSM-B
Technical data DSM-12 – 63

Permissible dynamic load for DSM-…-HD
Permissible axial force $F_x$ as a function of distance $l$

$F_x$

Permissible radial force $F_z$ as a function of distance $l$

$F_z$

DSM-12-…-HD
DSM-16-…-HD
DSM-25-…-HD
DSM-32-…-HD
DSM-40-…-HD
DSM-63-…-HD
Swivel modules DSM-B
Technical data DSM-12 … 63

Mass moment of inertia \( J \) as a function of swivel time \( t \)
With elastic cushioning components (P)

- DSM-12-270-P
  - 90°
  - 180°
  - 270°

- DSM-16-270-P
- DSM-25-270-P
- DSM-32-270-P
- DSM-40-270-P
- DSM-63-270-P

Note
Sizing software for calculating mass moment of inertia
⇒ www.festo.com
Swivel modules DSM-B
Technical data DSM-12 ... 63

Mass moment of inertia $J$ as a function of swivel time $t$
With adjustable, elastic cushioning components (P1)

- DSM-12-270-P1
- DSM-16-270-P1
- DSM-25-270-P1
- DSM-32-270-P1
- DSM-40-270-P1
- DSM-63-270-P1

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<th>DSM-25-270-P1</th>
<th>DSM-32-270-P1</th>
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<tr>
<td>90°</td>
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Swivel modules DSM-B
Technical data DSM-12 ... 63

Mass moment of inertia \(J\) as a function of swivel time \(t\)
With hydraulic shock absorbers (CC)

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The graphs for the DSM---CC show the swivel time up to the point where the stop lever meets the shock absorber. The cushioning time of the shock absorber must be added in order to obtain the total swivel time.
Swivel modules DSM-B
Technical data DSM-12 ... 63

Dimensions
DSM-... – With spigot shaft

1 Feather key position at 0°
2 Supply ports
3 Locking screw for clamping the stop
4 Manual override (internal hex).
   The position of the internal hex is not defined
5 End-position adjustment
6 Lock nut for end-position adjustment
7 Infinitely adjustable stops
8 Mounting thread for sensor bracket
9 Sensor bracket
10 End-position adjustment

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### Swivel modules DSM-B

#### Technical data DSM-12...

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¹ Included in the scope of delivery
² Note: This product conforms to ISO 1179-1 and to ISO 228-1
Swivel modules DSM-B

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Dimensions

DSM-...-FW – With flanged shaft

1 Flanged shaft with through hole
2 Supply ports
3 Locking screw for clamping the stop
4 Manual override (internal hex).
   The position of the internal hex is not defined
5 End-position adjustment
6 Lock nut for end-position adjustment
7 Infinitely adjustable stops
8 Mounting thread for sensor bracket
9 The position of the marking corresponds to the position of the stop
10 Sensor bracket
11 End-position adjustment

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### Swivel modules DSM-B

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Note: This product conforms to ISO 1179-1 and to ISO 228-1
Swivel modules DSM-B
Technical data DSM-12 ... 63

Dimensions

DSM-T-... – With spigot shaft and tandem rotary vanes

1 Feather key position at 0°
2 Supply ports
3 Locking screw for clamping the stop
4 Manual override (internal hex).
   The position of the internal hex is not defined
5 End-position adjustment
6 Lock nut for end-position adjustment
7 Infinitely adjustable stops
8 Mounting thread for sensor bracket
9 Sensor bracket
10 Sensor bracket

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### Swivel modules DSM-B

**Technical data DSM-B**

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1) Included in the scope of delivery

Note: This product conforms to ISO 1179-1 and to ISO 228-1
Swivel modules DSM-B
Technical data DSM-12 ... 63

Dimensions

DSM-T-...-FW – With flanged shaft and tandem rotary vanes

1. Flanged shaft with through hole
2. Supply ports
3. Locking screw for clamping the stop
4. Manual override (internal hex). The position of the internal hex is not defined
5. End-position adjustment
6. Lock nut for end-position adjustment
7. Infinitely adjustable stops
8. Mounting thread for sensor bracket
9. The position of the marking corresponds to the position of the stop
10. Sensor bracket

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### Swivel modules DSM-B

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Note: This product conforms to ISO 1179-1 and to ISO 228-1
## Swivel modules DSM-B

Technical data DSM-12 … 63

### Dimensions

**DSM-…-HD – With heavy-duty bearing**

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* Size 12 … 25
** Size 32 … 63

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## Swivel modules DSM-B

### Technical data DSM-12 ... 63

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1) Thread for compressed air through-feed with size 12 ... 25
2) Thread for compressed air through-feed with size 32 ... 63
3) Note: This product conforms to ISO 1179-1 and to ISO 228-1

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Note: This product conforms to ISO 1179-1 and to ISO 228-1.
## Swivel modules DSM-B

### Technical data DSM-B

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### Swivel modules DSM-B

#### Technical data DSM-12 ... 63

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### Swivel modules DSM-B

**Technical data DSM-12 ... 63**

#### Ordering data – DSM-...-HD, swivel module with heavy-duty guide

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**Swivel modules DSM/DSM-B**

**Accessories**

**Freewheel unit FLSM**

For size 6, 8

Material:
Housing: Anodised aluminium
Shaft, sleeve: Size 6, 8: Steel
Size 10: Hardened steel

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**Dimensions and ordering data**

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1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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Note
The minimum possible swivel angle is 3°. Switching accuracy is, however, dependent on speed and load.

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Internet: www.festo.com/catalogue/...
Swivel modules DSM/DSM-B

Accessories

Freewheel unit FLSM
For size 12 – 40

Material:
Housing: Anodised aluminium
Shaft, sleeve: Hardened steel

Note
The minimum possible swivel angle is 3°. Switching accuracy is, however, dependent on speed and load.

Dimensions and ordering data

For size

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<tr>
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<th>B4</th>
<th>D1</th>
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For size

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<th>Direction of rotation</th>
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1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
**Swivel modules DSM/DSM-B**

**Accessories**

**Push-on flange FWSR**

Material:
Anodised wrought aluminium alloy
Free of copper, PTFE and silicone

---

**Dimensions and ordering data**

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1) Corrosion resistance class CRC 2 to Festo standard FN 940010
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
Swivel modules DSM/DSM-B

Accessories

Mounting plate HSM

Material: Aluminium

Dimensions and ordering data

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<th>D17 Ø</th>
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1) Corrosion resistance class CRC 2 to Festo standard FN 940070
   Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Cover cap AKM

Material: Polyamide

Cannot be used in combination with inductive proximity sensor SIEN

Dimensions and ordering data

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<th>DSM-F-...</th>
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## Swivel modules DSM/DSM-B

**Accessories**

### Ordering data

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### Cushioning mount

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### Shock absorber

**Technical data**

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### Shock absorber

**Technical data**

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### Cushioning kit

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### Ordering data – Position sensor

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<td>8</td>
<td>Simple and reliable operation using one button</td>
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## Swivel modules DSM/DSM-B

### Accessories

### Ordering data – Kits

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<td>For adjusting the swivel angle, max. 200°</td>
<td>175835</td>
<td>KSM-10</td>
</tr>
</tbody>
</table>

### Ordering data – Adapter kit

<table>
<thead>
<tr>
<th>For size</th>
<th>Description</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>For attaching mounting kit WSM to stop kit KSM</td>
<td>3617044</td>
<td>DADP-AK-Q1-6</td>
</tr>
<tr>
<td>8</td>
<td>For attaching mounting kit WSM to stop kit KSM</td>
<td>3617045</td>
<td>DADP-AK-Q1-8</td>
</tr>
<tr>
<td>10</td>
<td>For attaching mounting kit WSM to stop kit KSM</td>
<td>3617046</td>
<td>DADP-AK-Q1-10</td>
</tr>
</tbody>
</table>

### Ordering data – Sensor bracket

<table>
<thead>
<tr>
<th>For size</th>
<th>Brief description</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>12, 16, 25, 32, 40</td>
<td>For proximity sensors SME-/SMT-10</td>
<td>550661</td>
<td>SL-DSM-B</td>
</tr>
<tr>
<td>63</td>
<td>For proximity sensors SME-/SMT-8</td>
<td>552088</td>
<td>SL-DSM-63-B</td>
</tr>
<tr>
<td>12, 16, 25, 32, 40</td>
<td>For inductive proximity sensors SIEN-M5</td>
<td>1130882</td>
<td>SL-DSM-S-M5-B</td>
</tr>
<tr>
<td>12, 16, 25, 32, 40</td>
<td>For inductive proximity sensors SIEN-M8</td>
<td>1132360</td>
<td>SL-DSM-S-M8-B</td>
</tr>
</tbody>
</table>

1) Packaging unit

### Proximity sensors for size 6, 8, 12, 25, 32, 40 (not suitable for size 10 and 16)

### Ordering data – Proximity sensors for C-slot, magneto-resistive

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switching output</th>
<th>Electrical connection, connection direction</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td>PNP</td>
<td>Cable, 3-wire, in-line</td>
<td>2.5</td>
<td>551373</td>
<td>SMT-10M-PS-24V-E-2,5-L-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug M8x1, 3-pin, in-line</td>
<td>0.3</td>
<td>551375</td>
<td>SMT-10M-PS-24V-E-0,3-L-M8D</td>
</tr>
</tbody>
</table>
### Swivel modules DSM/DSM-B

**Accessories**

#### Proximity sensors for size 6 ... 40

**Ordering data – Proximity sensors for C-slot, magnetic reed**  
**Technical data ➔ Internet: sme**

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switching output</th>
<th>Electrical connection, connection direction</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| For size 6, 8, 10: Via mounting kit WSM—SME-10  
For size 12 ... 40: Via sensor bracket SL-DSM-B clamped to DSM | Contacting | Cable, 3-wire, in-line | 2.5         | 173210  | SME-10-KL-LED-24 |
|                  |                  | Plug M8x1, 3-pin, in-line | 0.3         | 173212  | SME-10-SL-LED-24 |

#### Proximity sensors for size 12 ... 40

**Ordering data – Proximity sensors for C-slot, magnetic reed**  
**Technical data ➔ Internet: sme**

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switching output</th>
<th>Electrical connection, connection direction</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Via sensor bracket SL-DSM-B clamped to DSM</td>
<td>Contacting</td>
<td>Cable, 3-wire, in-line</td>
<td>2.5</td>
<td>551365</td>
<td>SME-10M-DS-24V-E-2,5-L-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug M8x1, 3-pin, in-line</td>
<td>0.3</td>
<td>551367</td>
<td>SME-10M-DS-24V-E-0,3-L-M8D</td>
</tr>
</tbody>
</table>

#### Proximity sensors for size 63

**Ordering data – Proximity sensors for T-slot, magneto-resistive**  
**Technical data ➔ Internet: smt**

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switching output</th>
<th>Electrical connection</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertable in the slot from above, flush with cylinder profile, short design</td>
<td>PNP</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>574335</td>
<td>SMT-8M-PS-24V-E-2,5-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug M8x1, 3-pin</td>
<td>0.3</td>
<td>574334</td>
<td>SMT-8M-PS-24V-E-0,3-M8D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug M12x1, 3-pin</td>
<td>0.3</td>
<td>574337</td>
<td>SMT-8M-PS-24V-E-0,3-M12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NPN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertable in the slot from above, flush with cylinder profile, short design</td>
<td>PNP</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>574338</td>
<td>SMT-8M-NS-24V-E-2,5-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug M8x1, 3-pin</td>
<td>0.3</td>
<td>574339</td>
<td>SMT-8M-NS-24V-E-0,3-M8D</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/C contact</td>
<td>Insertable in the slot from above, flush with cylinder profile, short design</td>
<td>PNP</td>
<td>Cable, 3-wire</td>
<td>7.5</td>
<td>574340</td>
</tr>
</tbody>
</table>

#### Proximity sensors for size 63

**Ordering data – Proximity sensors for T-slot, magnetic reed**  
**Technical data ➔ Internet: sme**

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switching output</th>
<th>Electrical connection</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertable in the slot from above, flush with the cylinder profile</td>
<td>Contacting</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>543862</td>
<td>SME-8M-DS-24V-K-2,5-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.0</td>
<td>543863</td>
<td>SME-8M-DS-24V-K-5,0-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.5</td>
<td>543872</td>
<td>SME-8M-ZS-24V-K-2,5-OE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.3</td>
<td>543861</td>
<td>SME-8M-DS-24V-K-0,3-M8D</td>
</tr>
</tbody>
</table>
## Inductive proximity sensors for size 12 ... 40

<table>
<thead>
<tr>
<th>Thread</th>
<th>Contact</th>
<th>Connection</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>N/O contact</td>
<td>Cable, 2.5 m</td>
<td>150370</td>
<td>SIEN-M5B-PS-K-L</td>
</tr>
<tr>
<td>M8</td>
<td>N/O contact</td>
<td>Cable, 2.5 m</td>
<td>150378</td>
<td>SIEN-M8B-PS-S-L</td>
</tr>
</tbody>
</table>

## Connecting cables

<table>
<thead>
<tr>
<th>Electrical connection, left</th>
<th>Electrical connection, right</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight socket, M8x1, 3-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541333</td>
<td>NEBU-M8G3-K-2.5-LE3</td>
</tr>
<tr>
<td>Straight socket, M12x1, 5-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541334</td>
<td>NEBU-M12G5-K-2.5-LE3</td>
</tr>
<tr>
<td>Angled socket, M8x1, 3-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541335</td>
<td>NEBU-M8W3-K-2.5-LE3</td>
</tr>
<tr>
<td>Angled socket, M12x1, 5-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541336</td>
<td>NEBU-M12W5-K-2.5-LE3</td>
</tr>
</tbody>
</table>

## One-way flow control valves

<table>
<thead>
<tr>
<th>For size</th>
<th>Connection</th>
<th>Material</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>12, 16, 25</td>
<td>M5</td>
<td>Metal design</td>
<td>193137</td>
<td>GRIA-M5-QS-3-D</td>
</tr>
<tr>
<td></td>
<td>G1/4</td>
<td>Metal design</td>
<td>193138</td>
<td>GRIA-M5-QS-4-D</td>
</tr>
<tr>
<td>32, 40</td>
<td>M5</td>
<td>Metal design</td>
<td>193139</td>
<td>GRIA-M5-QS-6-D</td>
</tr>
<tr>
<td>32, 40</td>
<td>G1/8</td>
<td>Metal design</td>
<td>193140</td>
<td>GRIA-1/8-QS-3-D</td>
</tr>
<tr>
<td>63</td>
<td>G1/4</td>
<td>Metal design</td>
<td>193141</td>
<td>GRIA-1/4-QS-8-D</td>
</tr>
</tbody>
</table>

## Centring sleeves for DSM-...-HD

<table>
<thead>
<tr>
<th>For size</th>
<th>Description</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>12, 16</td>
<td>For centring the drive for lateral mounting</td>
<td>186717</td>
<td>ZBH-7</td>
</tr>
<tr>
<td>25</td>
<td>For centring attachments on the rotating plate</td>
<td>150927</td>
<td>ZBH-9</td>
</tr>
<tr>
<td>32 ... 63</td>
<td>For centring attachments in the middle of the rotating plate</td>
<td>189653</td>
<td>ZBH-12</td>
</tr>
<tr>
<td>12</td>
<td>For centring attachments on the rotating plate</td>
<td>189652</td>
<td>ZBH-5</td>
</tr>
<tr>
<td>16 ... 32</td>
<td>For centring attachments in the middle of the rotating plate</td>
<td>186717</td>
<td>ZBH-7</td>
</tr>
<tr>
<td>40, 63</td>
<td>For centring attachments in the middle of the rotating plate</td>
<td>189653</td>
<td>ZBH-12</td>
</tr>
<tr>
<td>12, 16</td>
<td>For centring attachments in the middle of the rotating plate</td>
<td>191409</td>
<td>ZBH-15</td>
</tr>
<tr>
<td>40, 63</td>
<td>For centring attachments in the middle of the rotating plate</td>
<td>8023856</td>
<td>ZBH-25</td>
</tr>
</tbody>
</table>

1) Packaging unit