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SC Series Swing Clamps

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Numatics Motion Control SC-Series Swing Clamps combine linear and rotary motions. A specially machined spline internal to the piston rod develops the combined motions. When the clamp is extended, a linear movement first happens. This removes the clamp tooling from the clamped surface so it is not damaged. After completing the linear travel, rotation occurs swinging the clamp arm away from the work holding area. When clamping, the opposite motions occur.

**A. Body**
Hardcoat anodized aluminum, light weight, durable PTFE impregnated, lubricated, maximizes seal life.

**B. Rod Bushing**
Large bearing area provides maximum rod support side load protected.

**C. Piston Rod**
Hardened electroless nickel plated corrosion resistant, durable low wearing surface.

**D. Clamp Arm**
Taper mounted convenient arm adjustment, 360 degree adjustment.

**E. Mounting Surface**
Convenient location precision machined to accept standard industrial fasteners.

### How to Order

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>025 = 25 mm</td>
<td>SC025 A1 6D X</td>
</tr>
<tr>
<td>032 = 32 mm</td>
<td></td>
</tr>
<tr>
<td>040 = 40 mm</td>
<td></td>
</tr>
<tr>
<td>050 = 50 mm</td>
<td></td>
</tr>
<tr>
<td>063 = 63 mm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arm Rotation</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = CW</td>
<td></td>
</tr>
<tr>
<td>B = CCW</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clamp Arm</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Single</td>
<td></td>
</tr>
<tr>
<td>2* = Double</td>
<td></td>
</tr>
<tr>
<td>*Not available on SC025.</td>
<td></td>
</tr>
</tbody>
</table>

### Special Options

<table>
<thead>
<tr>
<th>Sensing Position</th>
<th>Sensing Type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = Clamp</td>
<td>Standard Cord Set</td>
<td></td>
</tr>
<tr>
<td>B = unclamp</td>
<td>1 = Hall Effect - PNP (sourcing)</td>
<td></td>
</tr>
<tr>
<td>C = Clamp and unclamp</td>
<td>2 = Hall Effect - NPN (sinking)</td>
<td></td>
</tr>
<tr>
<td>D = No Sensing</td>
<td>3 = Reed Switch</td>
<td></td>
</tr>
<tr>
<td>E = magnetic piston - No Sensing</td>
<td>6 = No Sensing</td>
<td>PNP-QDS-M8-U</td>
</tr>
<tr>
<td></td>
<td>Quick Disconnect Cord Set</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Z = Hall Effect - PNP (sourcing)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X = Reed Switch</td>
<td></td>
</tr>
</tbody>
</table>

### Sensing Kits

<table>
<thead>
<tr>
<th>Standard Cord Set Switch</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hall Effect PNP (Sourcing)</td>
<td>PNP-FL2-00-U</td>
</tr>
<tr>
<td>Hall Effect NPN (Sinking)</td>
<td>NPN-FL2-00-U</td>
</tr>
<tr>
<td>Reed Switch</td>
<td>REED-FL2-00S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quick Disconnect Cord Set</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hall Effect PNP (Sourcing)</td>
<td>PNP-QDS-M8-U</td>
</tr>
<tr>
<td>Hall Effect NPN (Sinking)</td>
<td>NPN-QDS-M8-U</td>
</tr>
<tr>
<td>Reed Switch</td>
<td>REED-QDS-M8S</td>
</tr>
<tr>
<td>90° 5 meter cable</td>
<td>PXC90</td>
</tr>
<tr>
<td>Straight 5 meter cable</td>
<td>PXCST</td>
</tr>
</tbody>
</table>
SC Series Swing Clamps

Dimensions: Inches (mm)

<table>
<thead>
<tr>
<th>Model</th>
<th>Bore Size</th>
<th>Clamp Force</th>
<th>Clamp Force</th>
<th>Total Stroke</th>
<th>Clamping Stroke</th>
<th>Swing Stroke</th>
<th>Max. M2 Moment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC025</td>
<td>25mm</td>
<td>52 lbs.</td>
<td></td>
<td>231 N</td>
<td>0.86 in (22.0 mm)</td>
<td>0.43 in (11.0 mm)</td>
<td>101.0 in.-lb. (6.2 Nm)</td>
</tr>
<tr>
<td>SC032</td>
<td>32mm</td>
<td>93 lbs.</td>
<td></td>
<td>413 N</td>
<td>1.02 in (26.0 mm)</td>
<td>0.51 in (13.0 mm)</td>
<td>266 in.-lb. (16.3 Nm)</td>
</tr>
<tr>
<td>SC040</td>
<td>40mm</td>
<td>163 lbs.</td>
<td></td>
<td>726 N</td>
<td>1.02 in (26.0 mm)</td>
<td>0.51 in (13.0 mm)</td>
<td>402.0 in.-lb. (24.7 Nm)</td>
</tr>
<tr>
<td>SC050</td>
<td>50mm</td>
<td>255 lbs.</td>
<td></td>
<td>1134 N</td>
<td>1.18 in (30.0 mm)</td>
<td>0.59 in (15.0 mm)</td>
<td>700.0 in.-lb. (43.0 Nm)</td>
</tr>
<tr>
<td>SC063</td>
<td>63mm</td>
<td>434 lbs.</td>
<td></td>
<td>1930 N</td>
<td>1.18 in (30.0 mm)</td>
<td>0.59 in (15.0 mm)</td>
<td>1300.0 in.-lb. (79.9 Nm)</td>
</tr>
</tbody>
</table>

*With sensing magnet add 0.200 in.
**SC025 with Sensing magnet includes 4 M4 x 70mm SHCS for mounting.

SC025 W IN SENSING MAGNET ONLY

SC Series Swing Clamp

Direct Mount
No Bracket Required

Sensor Description
Reed Switch REED-FL2-00S
Hall PNP PNP-FL2-00-U
Hall NPN NPN-FL2-00-U
See page 5, 6, & 7 for sensor specifications
### Sensing Part Numbers

#### PNP-FL2-00-U

- **ELECTRICAL DESIGN**: DC PNP
- **OUTPUT**: Normally Open
- **OPERATING VOLTAGE**: 10-30 VDC
- **CURRENT RATING**: 100 mA
- **SHORT-CIRCUIT PROTECTION**: Yes
- **OVERLOAD PROTECTION**: Yes
- **REVERSE POLARITY PROTECTION**: Yes
- **VOLTAGE DROP**: < 2.5 V
- **CURRENT CONSUMPTION**: < 12 mA
- **REPEATABILITY**: < 0.2 mm
- **POWER-ON DELAY TIME**: < 30 ms
- **SWITCH FREQUENCY**: > 3000 Hz
- **AMBIENT TEMPERATURE**: -25ºC to 85ºC
- **PROTECTION**: IP 67, III
- **HYSTERESIS**: 1.0 mm
- **MAGNETIC SENSITIVITY**: 2.0 mT
- **TRAVEL SPEED**: > 10 m/s
- **HOUSING MATERIAL**: PA (Polyamide) Black; Fastening Clamp: Stainless Steel
- **FUNCTION DISPLAY**: Yellow LED
- **CONNECTION**: Flying Leads, Pur Cable (2m Long, 3 x 26 Gauge Wire)
- **REMARKS**: Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required
- **ACCESSORIES**: Rubber Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch
- **AGENCY APPROVALS**: CE, cULus, RoHS

#### PNP-QDS-M8-U

- **ELECTRICAL DESIGN**: DC PNP
- **OUTPUT**: Normally Open
- **OPERATING VOLTAGE**: 10-30 VDC
- **CURRENT RATING**: 100 mA
- **SHORT-CIRCUIT PROTECTION**: Yes
- **OVERLOAD PROTECTION**: Yes
- **REVERSE POLARITY PROTECTION**: Yes
- **VOLTAGE DROP**: < 2.5 V
- **CURRENT CONSUMPTION**: < 12 mA
- **REPEATABILITY**: < 0.2 mm
- **POWER-ON DELAY TIME**: < 30 ms
- **SWITCH FREQUENCY**: > 3000 Hz
- **AMBIENT TEMPERATURE**: -25ºC to 85ºC
- **PROTECTION**: IP 67, III
- **HYSTERESIS**: 1.0 mm
- **MAGNETIC SENSITIVITY**: 2.0 mT
- **TRAVEL SPEED**: > 10 m/s
- **HOUSING MATERIAL**: PA (Polyamide) Black; Fastening Clamp: Stainless Steel
- **FUNCTION DISPLAY**: Yellow LED
- **CONNECTION**: M8 Connector (Snap Fit), Pur Cable (.3 m)
- **REMARKS**: Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required
- **ACCESSORIES**: Rubber Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch
- **AGENCY APPROVALS**: CE, cULus, RoHS

*Switches are not designed for wet environments. Please see your distributor for additional information.*
### SC SERIES

#### Swing Clamps

**Sensing Part Numbers**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPN-FL2-00-U</td>
<td>DC NPN, Normally Open, Operating Voltage 10-30 VDC, Current Rating 100 mA, Short-Circuit Protection Yes, Overload Protection Yes, Reverse Polarity Protection Yes, Voltage Drop &lt; 2.5 V, Current Consumption &lt; 12 mA, Repeatability &lt; 0.2 mm, Switch Frequency &gt; 3000 Hz, Ambient Temperature -25°C to 85°C, Protection IP 67, III, Hysteresis 1.0 mm, Magnetic Sensitivity 2.0 mT, Travel Speed &gt; 10 m/s, Housing Material PA (Polyamide) Black, Fastening Clamp: Stainless Steel, Function Display Yellow LED, Connection Flying Leads, Pur Cable (2 m Long, 3 x26 Gauge Wire), Remarks Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required, Accessories Rubber Placement, Cable Clip, and Cut Sheet To Be Provided with Every Switch</td>
</tr>
<tr>
<td>NPN-QDS-M8-U</td>
<td>DC NPN, Normally Open, Operating Voltage 10-30 VDC, Current Rating 100 mA, Short-Circuit Protection Yes, Overload Protection Yes, Reverse Polarity Protection Yes, Voltage Drop &lt; 2.5 V, Current Consumption &lt; 12 mA, Repeatability &lt; 0.2 mm, Switch Frequency &gt; 3000 Hz, Ambient Temperature -25°C to 85°C, Protection IP 67, III, Hysteresis 1.0 mm, Magnetic Sensitivity 2.0 mT, Travel Speed &gt; 10 m/s, Housing Material PA (Polyamide) Black, Fastening Clamp: Stainless Steel, Function Display Yellow LED, Connection M8 Connector (Snap Fit), Pur Cable (.3 m), Remarks Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required, Accessories Rubber Placement, Cable Clip, and Cut Sheet To Be Provided with Every Switch</td>
</tr>
</tbody>
</table>

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Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.
Sensing Part Numbers

**REED-FL2-00S**

- **ELECTRICAL DESIGN**: AC/DC REED
- **OUTPUT**: Normally Open
- **OPERATING VOLTAGE**: 5-120 VAC/DC
- **CURRENT RATING**: 100 mA*
- **SHORT-CIRCUIT PROTECTION**: No
- **OVERLOAD PROTECTION**: No
- **REVERSE POLARITY PROTECTION**: Yes
- **VOLTAGE DROP**: < 5 V
- **REPEATABILITY**: ± .2mm
- **MAKE TIME INCLUDING BOUNCE**: < .6 ms
- **BREAK TIME**: < .1 ms
- **SWITCHING POWER (MAX)**: 5 W
- **SWITCH FREQUENCY**: 1000 Hz
- **AMBIENT TEMPERATURE**: -25ºC to 70ºC
- **PROTECTION**: IP 67, II
- **HYSTERESIS**: .9mm
- **HOUSING MATERIAL**: PA (Polyamide) Black; Fastening Clamp: Stainless Steel
- **FUNCTION DISPLAY**: Yellow LED
- **CONNECTION**: Flying Leads, Pur Cable (2m Long, 2 x 26 Gauge Wire)
- **REMARKS**: *External Protective Circuit for Inductive Load (Valve, Contactor, Etc.) Necessary. Conforms to 2008 NEC Section 725 III, Class 2 Circuits
- **CLAMPING SCREW**: With Combined Slot/Hexagon Socket Head AF 1.5
  - No LED Function in case of Polarity in DC Operation
- **ACCESSORIES**: Rubber Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch
- **AGENCY APPROVALS**: RoHS

**REED-QDS-M8S**

- **ELECTRICAL DESIGN**: AC/DC REED
- **OUTPUT**: Normally Open
- **OPERATING VOLTAGE**: 5-60 VDC / 5-50 VAC
- **CURRENT RATING**: 100 mA
- **SHORT-CIRCUIT PROTECTION**: No
- **OVERLOAD PROTECTION**: No
- **REVERSE POLARITY PROTECTION**: Yes
- **VOLTAGE DROP**: < 5 V
- **REPEATABILITY**: ± .2mm
- **MAKE TIME INCLUDING BOUNCE**: < .6 ms
- **BREAK TIME**: < .1 ms
- **SWITCHING POWER (MAX)**: 5 W
- **SWITCH FREQUENCY**: 1000 Hz
- **AMBIENT TEMPERATURE**: -25ºC to 70ºC
- **PROTECTION**: IP 67, II
- **HYSTERESIS**: .9mm
- **HOUSING MATERIAL**: PA (Polyamide) Black; Fastening Clamp: Stainless Steel
- **FUNCTION DISPLAY**: Yellow LED
- **CONNECTION**: M8 Connector (Snap Fit), Pur Cable (.3m)
- **REMARKS**: *External Protective Circuit for Inductive Load (Valve, Contactor, Etc.) Necessary. Conforms to 2008 NEC Section 725 III, Class 2 Circuits
- **CLAMPING SCREW**: With Combined Slot/Hexagon Socket Head AF 1.5
  - No LED Function in case of Polarity in DC Operation
- **ACCESSORIES**: Rubber Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch
- **AGENCY APPROVALS**: RoHS

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Quick Disconnect Cables

Order Code | Type | Operating Voltage | Current Rating | Cable Material | Protection | Connector
---|---|---|---|---|---|---
PXCST | Straight 5 m Cable (3 x 26 Gauge wire) | 60 AC/75 DC | 3 A | PUR | IP 68, III | M8
PX90 | 90° 5 m Cable (3 x 26 Gauge wire) | 60 AC/75 DC | 3 A | PUR | IP 68, III | M8