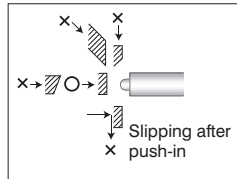


# Precision Limit Switches

## Low Contact Force Limit Switches: CSFN / CS / CSJ

- 0.1N and 0.5N contact force
- 5 micron ( $\mu\text{m}$ ) and 10 micron ( $\mu\text{m}$ ) repeat accuracy
- Stainless steel housing
- Metal bearing
- Straight-touch and straight needle touch available

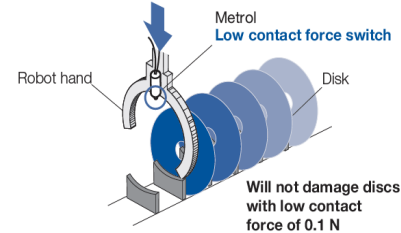
### Low Contact Force Straight Touch



O indicates correct target approach and orientation.  
 X indicates approach and orientation that should be avoided.

CSFN105A-H6X must be mounted downward

Detects presence of HDD discs



| Low Contact Force Limit Switches Selection Chart                |         |  |             |                         |                   |                  |               |                   |                    |
|---|---------|--|-------------|-------------------------|-------------------|------------------|---------------|-------------------|--------------------|
| Part Number   | Price   | Actuator/ Head Type*   | Barrel Type | Barrel Diameter/Thread* | Stroke            | Switching Output | Contact Force | Sensor Dimensions | Connection Type    |
| <b>Low Contact Force, Metal Bearing, Downward Mounting Only</b> |         |  |             |                         |                   |                  |               |                   |                    |
| <b>CSFN105A-H6X</b>   | \$39.00 | $\varnothing$ 2mm (0.079 in) plunger<br>SR 1.5 mm (0.059 in) | Threaded    | M10x0.5                 | 2mm (0.079 in)    | N.O. NPN         | 0.1 N         | Figure 1          | 3m (9.84 ft) cable |
| <b>Low Contact Force, Straight Touch, Metal Bearing</b>         |         |  |             |                         |                   |                  |               |                   |                    |
| <b>CS067A-LG</b>  | \$51.00 | $\varnothing$ 2mm (0.079 in) plunger<br>SR 1.5 mm (0.059 in) | Threaded    | M6x0.75                 | 2.8 mm (0.110 in) | N.O.             | 0.5 N         | Figure 2          | 3m (9.84 ft) cable |
| <b>Low Contact Force, Straight Touch, Needle Contact</b>        |         |  |             |                         |                   |                  |               |                   |                    |
| <b>CSJ055A-CG</b>   | \$44.00 | $\varnothing$ 2mm (0.079 in) plunger<br>SR 1.5 mm (0.059 in) | Threaded    | M5x0.5                  | 2.8 mm (0.110 in) | N.O.             | 0.5 N         | Figure 3          | 3m (9.84 ft) cable |

$\varnothing$  = diameter, SR = surface radius

\* Must be mounted in a downward direction



CSFN105A-H6X



CS067A-LG



CSJ055A-CG

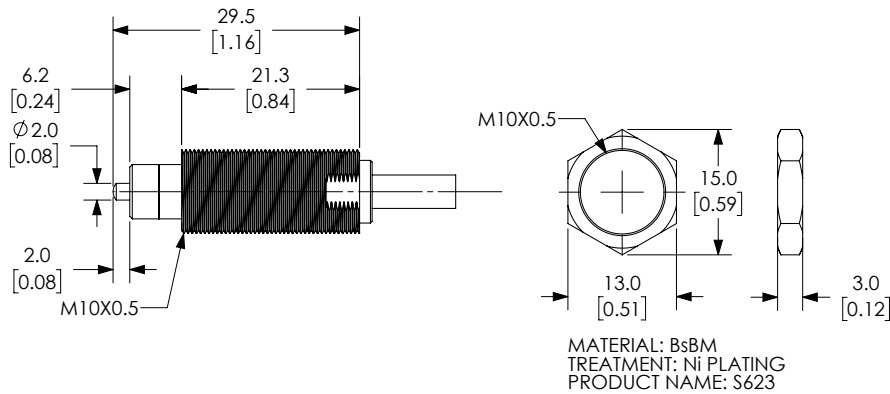
# Precision Limit Switches

## Low Contact Force Limit Switches: CSFN / CS / CSJ

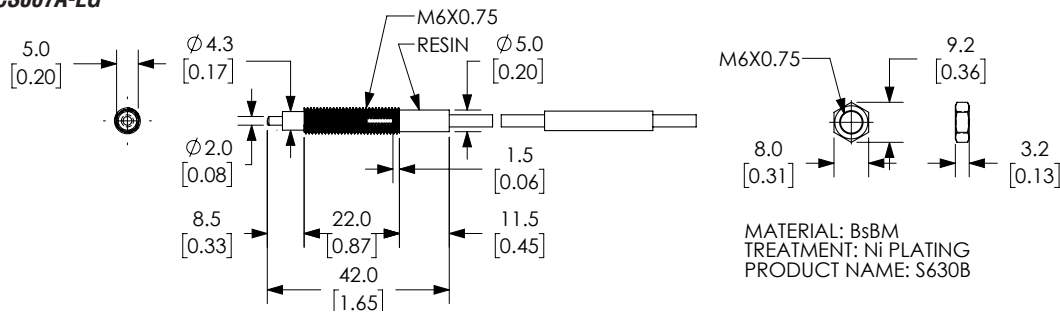
### Dimensions

mm [inches]

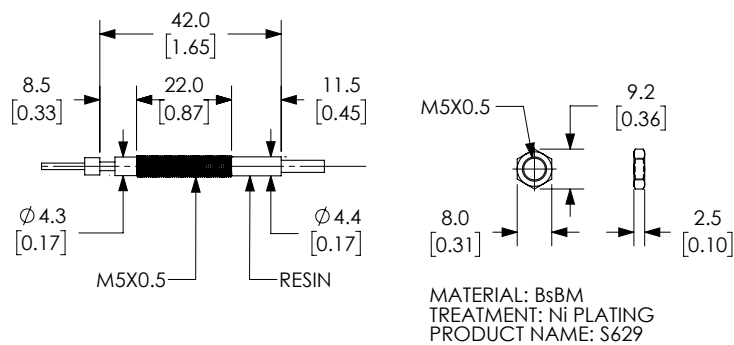
**Figure 1**  
**CSFN105A-H6X**



**Figure 2**  
**CS067A-LG**



**Figure 3**  
**CSJ055A-CG**



See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

# Precision Limit Switches

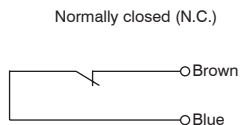
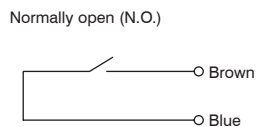
## Low Contact Force Limit Switches: CSFN / CS / CSJ

| Low Contact Force Limit Switches Specifications                            |   |   |   |
|--|---|---|---|
|  | CSFN Metal Bearing  | CS Custom Metal Bearing   | CSJ Custom Needle Contact               |
| <b>Environmental</b>   |   |   |   |
| <b>Degree of Protection</b>  | IP40  | IP65  |   |
| <b>Temperature Range</b>   | Operating: 0–60°C (32–140°F) (Ice-free)   |   | Operating: 0–80°C (32–176°F) (Ice-free) |
| <b>Mechanical Ratings</b>  |   |   |   |
| <b>Enclosure Material</b>  | Stainless Steel (mounting nuts are Ni-plated brass)   |   |   |
| <b>Pretravel</b>   | 0.4 mm (0.016 in)   | 0.3 mm (0.012 in)   |   |
| <b>Torque (for nuts on threaded barrels, set screws on smooth barrels)</b> | 4 N•m (2.95 lb•ft)  | 2 N•m (1.48 lb•ft)  | N/A                                     |
| <b>Oscillation</b>   | 10–55Hz total amplitude 1.5 for X, Y, Z each direction  |   |   |
| <b>Impact</b>  | 300 m/s <sup>2</sup> for X, Y, Z each direction   |   |   |
| <b>Repeat Accuracy</b>   | 0.01 mm (10 micron [μm])  | 0.005 mm (5 micron [μm])  |   |
| <b>Recommended Minimum Operating Speed</b>                                 | 10 mm (0.394 in)/minute   |   |   |
| <b>Electrical Ratings</b>  |   |   |   |
| <b>Contact Life</b>  | 10 million operations   |   |   |
| <b>Contact Voltage</b>   | 12–24VDC  | 5–24VDC   |   |
| <b>Steady Current Rating</b>   | 10mA or less  |   |   |
| <b>Max In-rush Current Rating</b>  | 10mA (limit current to protect LED indicator)   |   |   |
| <b>Connection Type</b>   | Cable: 3m PVC (polyvinyl chloride) oil resistant Ø4/3 cores, 30AWG Tensile strength 30N, minimum bending R7 | Cable: 3m PVC (polyvinyl chloride) oil resistant Ø2.8/2 cores, 26AWG Tensile strength 30N, minimum bending R7 |   |
| <b>Indicating</b>  | -L: LED indicator (mounted in cable 120mm from the switch)  |   |   |

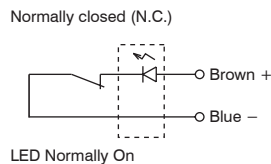
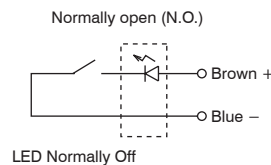
\* At operating speed 50-200 mm/minute. Operating speed slower than 10 mm (0.393 in)/min is not recommended.

## Circuit Diagrams

### Without LED



### With LED



### CSFN105A-H6X

