Robot Load Limiters

**Pneumatic Specifications**

- **Imperial**: Operating Range 40-100 psi 3-7 bar
- **Metric**: Cylinder Type Non-Conventional
- **Valve Required to Operate**: 3-way, 2-position

**Air Quality Requirements**

- **Air Filtration**: 40 Micron or Better
- **Air Lubrication**: Not Necessary*
- **Air Humidity**: Low Moisture Content (dry)

**Temperature Operating Range**

- **-20°~180° F 30°~80° C**

**Maintenance Specifications**

- **Expected Life**
  - Normal Application 5 million cycles
  - w/ Preventative Maintenance 10+ million cycles
- **Field Repairable**: Yes
- **Seal Repair Kits Available**: Yes

**Application Restrictions**

- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate

---

**Mounting Information:**

- **Robot side** has counter bored holes for mounting with a dowel hole and raised boss for location.
- **Tool side** has tapped holes for mounting and a pilot hole and dowel hole for positioning.

---

**Technical Specifications:**

- **Robotic applications**: Robots are designed to operate within certain load limits. The robot load limited protects the robot from overloads caused by collisions, excessive loading, or programming errors by providing a coupling that separates before the robots design limits are exceeded. A switch signals the robot to stop if a de-coupling occurs.

- **Automation applications**: For insertion applications, part picking and placing. The load limiter can protect the part, the fixture or the assembly machine from overload in compressive, bending or torsional overload situations.

---

*See Maintenance Section
The robot limiter is comprised of two halves, the robot side and the tool side, which can be separated from one another but not detached.

The two halves are held together by compressed air forcing the pressure plate to seal on the inside surface of the robot half.

The force required to breakaway the unit is proportional to the air pressure.

In the event of an overload the sensor detects the motion of the pressure plate and can signal the robot or assembly machine and the valve supplying pressure to the load limiter to shut down.

When the collision is cleared and the tool is manually returned to the normal orientation the sensor can reactivate the valve to re-pressurize the device.
ULS-80
ROBOT LOAD LIMITER SERIES

Specifications

ULS-80

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotational Compliance (X and Y axis)</td>
<td>10°</td>
</tr>
<tr>
<td>Rotational Compliance (Z axis)</td>
<td>360°</td>
</tr>
<tr>
<td>Axial Compliance (Z axis)</td>
<td>0.47 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1.3 lbs.</td>
</tr>
<tr>
<td>Pressure Range (locked cylinder)</td>
<td>15-100 psi</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-5°~160° F</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.001 in.</td>
</tr>
<tr>
<td>Valve required to actuate</td>
<td>3-way, 2-position</td>
</tr>
</tbody>
</table>

Loading Capacity at 90 psi 6 bar

<table>
<thead>
<tr>
<th>Metric Threads</th>
<th>Course Pitch</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric [mm]</td>
<td>[±.013]</td>
<td>[±.005]</td>
<td>5.6</td>
</tr>
<tr>
<td>Metric [mm]</td>
<td>[±.013]</td>
<td>[±.005]</td>
<td>11.3</td>
</tr>
<tr>
<td>Metric [mm]</td>
<td>[±.013]</td>
<td>[±.005]</td>
<td>16.9</td>
</tr>
<tr>
<td>Metric [mm]</td>
<td>[±.013]</td>
<td>[±.005]</td>
<td>22.6</td>
</tr>
</tbody>
</table>

How to Order:
(Order Accessories separately from Basic Model)

BASIC MODEL

ULS-80

Loading Information

<table>
<thead>
<tr>
<th>Loading Capacity</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>240 lbs.</td>
<td>1068 N</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>210 in.-lbs.</td>
<td>24 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>210 in.-lbs.</td>
<td>24 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>210 in.-lbs.</td>
<td>24 Nm</td>
</tr>
</tbody>
</table>

Maximum Overload

For more information call us at: 1-800-ROBOHAND or 203-261-5558 Fax: 203-452-7418
Visit us on the Internet at: www.destaco.com
ULS-100
ROBOT LOAD LIMITER SERIES

Specifications
- Rotational Compliance (X and Y axis)............. 12° 12°
- Rotational Compliance (Z axis).................. 360° 360°
- Axial Compliance (Z axis).......................... 0.56 in. 14 mm
- Weight......................................................... 1.87 lbs. 0.85 Kg
- Pressure Range (locked cylinder)................... 15-100 psi 1-7 bar
- Temperature Range........................................ -5°~160° F -20°~70° C
- Repeatability.............................................. ±0.001 in. ±0.03 mm
- Valve required to actuate............................... 3-way, 2-position

Loading Information
How to Order: (Order Accessories separately from Basic Model)

Maximum Overload

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**ULS-125**

**ROBOT LOAD LIMITER SERIES**

### Specifications

- **Rotational Compliance (X and Y axis)**: 10°
- **Rotational Compliance (Z axis)**: 360°
- **Axial Compliance (Z axis)**: 0.47 in. 12 mm
- **Weight**: 3.52 lbs. 1.60 Kg
- **Pressure Range (locked cylinder)**: 15-100 psi 1-7 bar
- **Temperature Range**: -5°~160° F -20°~70° C
- **Repeatability**: ±0.001 in. ±0.03 mm
- **Valve required to actuate**: 3-way, 2-position

### ULS-125

**Basic Model**

<table>
<thead>
<tr>
<th>Loading Information</th>
<th>How to Order: (Order Accessories separately from Basic Model)</th>
</tr>
</thead>
</table>

#### Loading Information

**Loading Capacity at 90 psi 6 bar**

- Maximum Breakaway Compressive C: 620 lbs. 2750 N
- Maximum Breakaway Moment Mx: 960 in.-lbs. 109 Nm
- Maximum Breakaway Moment My: 960 in.-lbs. 109 Nm
- Maximum Breakaway Moment Mz: 960 in.-lbs. 109 Nm

#### Maximum Overload

**BASIC MODEL**

<table>
<thead>
<tr>
<th>N</th>
<th>3115</th>
</tr>
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<tbody>
<tr>
<td>2670</td>
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</tr>
<tr>
<td>2225</td>
<td></td>
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<tr>
<td>1800</td>
<td></td>
</tr>
<tr>
<td>1385</td>
<td></td>
</tr>
<tr>
<td>960</td>
<td></td>
</tr>
<tr>
<td>545</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td></td>
</tr>
<tr>
<td>265</td>
<td></td>
</tr>
</tbody>
</table>

**Pressure**

- **Max. Overload Pressure**: 100 psi 6 bar

---

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Robohand...®

ULS SERIES

ULS-160

ROBOT LOAD LIMITER SERIES

8.93

Maximum Overload

Loading Information

How to Order:
(Order Accessories separately from Basic Model)

BASIC MODEL

ULS-160

Specifications

ULS-160

Rotational Compliance (X and Y axis)............. 7° 7°
Rotational Compliance (Z axis)....................... 360° 360°
Axial Compliance (Z axis) ............................... 0.57 in. 14.5 mm
Weight............................................................ 7.1 lbs. 3.2 Kg
Pressure Range (locked cylinder)................... 15-100 psi 1-7 bar
Temperature Range........................................ -5°~160° F -20°~70° C
Repeatability................................................... ± 0.002in. ± 0.05 mm
Valve required to actuate ............................... 3-way, 2-position

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline
Third Angle Projection
All Dowel Holes are SF (Slip Fit)
Locational Tolerance ±.0005" or [±.013mm]
Metric Threads
Course Pitch
Imperial in. 0.00 = ±.01 [0.0] = [±.25]
Metric [mm] 0.1 = ±.02 [0.0] = [±.13]

Loading Capacity at 90 psi 6 bar

<table>
<thead>
<tr>
<th></th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>1125 lbs.</td>
<td>5000 N</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>2100 in.-lbs.</td>
<td>237 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>2100 in.-lbs.</td>
<td>237 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>2100 in.-lbs.</td>
<td>237 Nm</td>
</tr>
</tbody>
</table>

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ULS-200
ROBOT LOAD LIMITER SERIES

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotational Compliance (X and Y axis)</td>
<td>4°</td>
<td>4°</td>
</tr>
<tr>
<td>Rotational Compliance (Z axis)</td>
<td>360°</td>
<td>360°</td>
</tr>
<tr>
<td>Axial Compliance (Z axis)</td>
<td>0.38 in.</td>
<td>9.50 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>21.56 lbs</td>
<td>9.8 Kg</td>
</tr>
<tr>
<td>Pressure Range (locked cylinder)</td>
<td>15-100 psi</td>
<td>1-7 bar</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-5°~160° F</td>
<td>-20°~70° C</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.004 in.</td>
<td>±0.10 mm</td>
</tr>
<tr>
<td>Valve required to actuate</td>
<td>3-way, 2-position</td>
<td></td>
</tr>
</tbody>
</table>

ULS-200
BASIC MODEL

Loading Capacity at 90 psi 6 bar

<table>
<thead>
<tr>
<th>Loading Type</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>1750 lbs.</td>
<td>7784 N</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>4500 in.-lbs.</td>
<td>509 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>4500 in.-lbs.</td>
<td>509 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>4500 in.-lbs.</td>
<td>509 Nm</td>
</tr>
</tbody>
</table>

Maximum Overload

How to Order:
(Order Accessories separately from Basic Model)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit)
- Locational Tolerance ±0.005" or ±0.13 mm
- Metric Threads
  - Course Pitch
  - Pitch

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**Loading Information**

**How to Order:** (Order Accessories separately from Basic Model)

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**BASIC MODEL**

**ULS-250**

---

**Specifications**

**ULS-250**

- **Rotational Compliance (X and Y axes)**: 5°
- **Rotational Compliance (Z axis)**: 360°
- **Axial Compliance (Z axis)**: 0.63 in. (16 mm)
- **Weight**: 35 lbs. (16 Kg)
- **Pressure Range (locked cylinder)**: 15-100 psi (1-7 bar)
- **Temperature Range**: -5°~160° F (-20°~70° C)
- **Repeatability**: ±0.004 in. (±0.10 mm)

- Valve required to actuate: 3-way, 2-position

---

**UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW**

- Dimensions are symmetrical about centerline
- Third Angle Projection
- All Dowel Holes are SF (Slip Fit)
- Locational Tolerance ±0.0005" or [±0.013 mm]

---

**Loading Capacity at 90 psi 6 bar**

<table>
<thead>
<tr>
<th>Loading Capacity at 90 psi 6 bar</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>2025 lbs.</td>
<td>9000 N</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>5400 in.-lbs.</td>
<td>610 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>5400 in.-lbs.</td>
<td>610 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>5400 in.-lbs.</td>
<td>610 Nm</td>
</tr>
</tbody>
</table>

---

**Maximum Overload**

![Graphs showing maximum overload capacity](#)
ULS-300
ROBOT LOAD LIMITER SERIES

Specifications

<table>
<thead>
<tr>
<th>ULS-300</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotational Compliance (X and Y axis)</td>
<td>6°</td>
</tr>
<tr>
<td>Rotational Compliance (Z axis)</td>
<td>360°</td>
</tr>
<tr>
<td>Axial Compliance (Z axis)</td>
<td>0.98 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>52.8 lbs.</td>
</tr>
<tr>
<td>Pressure Range (locked cylinder)</td>
<td>15-100 psi</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-5°~160° F</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.008 in.</td>
</tr>
<tr>
<td>Valve required to actuate</td>
<td>3-way, 2-position</td>
</tr>
</tbody>
</table>

Loading Information

<table>
<thead>
<tr>
<th>Loading Capacity at 90 psi 6 bar</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>2475 lbs.</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>6195 in.-lbf.</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>6195 in.-lbf.</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>6195 in.-lbf.</td>
</tr>
</tbody>
</table>

How to Order:
(Order Accessories separately from Basic Model)

BASIC MODEL

ULS-300

Maximum Overload

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ULS Series Exploded View

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>01</td>
<td>1</td>
<td>Body</td>
</tr>
<tr>
<td>02</td>
<td>1</td>
<td>Top Plate</td>
</tr>
<tr>
<td>03</td>
<td>1</td>
<td>Bottom Plate</td>
</tr>
<tr>
<td>04</td>
<td>1</td>
<td>Sensor</td>
</tr>
<tr>
<td>05</td>
<td>1</td>
<td>Pressure Plate</td>
</tr>
</tbody>
</table>

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

 Seal Repair Kit Order #’s
See Product Data Sheets

For more information call us at: 1-800-ROBOHAND or 203-261-5558 Fax: 203-452-7418 Visit us on the Internet at: www.destaco.com
**Emergency Stop Modules**

- **Safety:**
  This module is used between a robot and the tooling. It protects the part, the fixture or the assembly machine for overload in compressive, bending or torsional overload situations.

- **Wide deflecting motion:**
  The wide deflecting motions coupled to the electric pressure sensor avoid expensive expenses and maintenance breakdowns.

- **Variable trip point:**
  Adjusting the pressure from 2 to 10 bars allow to set a precise trip point as required by the application.

- **Compact and robust:**
  These modules are designed for harsh environment applications.

### Mounting Information:

- Modules can be mounted & operated in any orientation.

- The module is located using pilot boss and a dowel pin and assembled with 4 thru body screws.

- The tooling is located using pilot boss and a dowel pin and assembles with 3 or 4 screws.

- Using the blank plate allows the customer to locate and assemble its tooling to their convenience.

### Technical Specifications:

#### Pneumatic Specifications

- **Imperial**
  - Pressure Operating Range: 30-145 psi
  - Cylinder Type: Non-Conventional
  - Dynamic seals: Internally lubricated
  - Valve Required to Operate: 0-145 PSI regulator

- **Metric**
  - Pressure Operating Range: 2-10 bar
  - Cylinder Type: Non-Conventional
  - Dynamic seals: Buna-N seals
  - Valve Required to Operate: 0-145 PSI regulator

#### Air Quality Requirements

- Air Filtration: 40 Micron or Better
- Air Lubrication: Not Necessary*
- Air Humidity: Low Moisture Content (dry)

#### Temperature Operating Range

- -30°~180° F
- -35°~80° C

#### Maintenance Specifications

- Expected Life
  - Normal Application: 5 million cycles
  - w/ Preventative Maintenance: 10+ million cycles
  - Field Repairable: Yes
  - Seal Repair Kits Available: Yes

*Addition of lubrication will greatly increase service life

See Maintenance Section
**Product Features**

**Quality Components**
Made from aluminum alloy with red coat anodization. The module’s main components are made of heat treated steel.

**Tooling Attachment**
Tooling can be mounted directly on the output flange or using the provided blank flange.

**Electric Pressure Sensor**
Transmits a signal to the PLC in case of overload or collision.

**Air Ports**
Lateral air port.

**Operating Principle**

- The conical seat in the output flange and the spherical pin are used to place the module in the home position.
- The pressure inside the chamber applies an effort on the output flange to keep it in the home position.
- When an outside force or moment applied to the output flange is higher than the preset force, the conical seat moves from the spherical pin generating an air leakage.
- The air leakage causes a pressure fall down in the module chamber which is detected by the sensor. The tool reset has to be done manually.

**Style - Emergency Stop Modules**

<table>
<thead>
<tr>
<th>Style</th>
<th>AU-60</th>
<th>AU-80</th>
<th>AU-110</th>
<th>AU-140</th>
<th>AU-165</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>60</td>
<td>80</td>
<td>110</td>
<td>140</td>
<td>165</td>
</tr>
<tr>
<td>Style</td>
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<td>AU-80</td>
<td>AU-110</td>
<td>AU-140</td>
<td>AU-165</td>
</tr>
<tr>
<td>Size</td>
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<td>165</td>
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<td>Size</td>
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<td>Style</td>
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<td>140</td>
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<td>Style</td>
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<td>AU-80</td>
<td>AU-110</td>
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<td>AU-165</td>
</tr>
<tr>
<td>Size</td>
<td>60</td>
<td>80</td>
<td>110</td>
<td>140</td>
<td>165</td>
</tr>
</tbody>
</table>

**Style - Emergency Stop Modules**

- AU-60
  - Axial Compliance: 0.28 in. 7 mm
  - Rotation: 45° 45°
  - Angular: 12° 12°
  - Weight: 0.99 lbs. 0.45 Kg

- AU-80
  - Axial Compliance: 0.334 in. 8.5 mm
  - Rotation: 24° 24°
  - Angular: 12° 12°
  - Weight: 1.5 lbs. 0.68 Kg

- AU-110
  - Axial Compliance: 0.531 in. 13.5 mm
  - Rotation: 31° 31°
  - Angular: 12° 12°
  - Weight: 4.6 lbs. 2.1 Kg

- AU-140
  - Axial Compliance: 0.63 in. 18 mm
  - Rotation: 45° 45°
  - Angular: 12° 12°
  - Weight: 8.8 lbs. 4.0 Kg

- AU-165
  - Axial Compliance: 0.67 in. 17 mm
  - Rotation: 24° 24°
  - Angular: 12° 12°
  - Weight: 12.8 lbs. 5.8 Kg

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**Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AU-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotational Compliance (X and Y axis)</td>
<td>12°</td>
</tr>
<tr>
<td>Rotational Compliance (Z axis)</td>
<td>45°</td>
</tr>
<tr>
<td>Axial Compliance (Z axis)</td>
<td>0.28 in.</td>
</tr>
<tr>
<td>Weight (locked cylinder)</td>
<td>0.99 lbs.</td>
</tr>
<tr>
<td>Pressure Range (locked cylinder)</td>
<td>30-145 psi</td>
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<tr>
<td>Cylinder bore</td>
<td>1.77 in.</td>
</tr>
<tr>
<td>Displacement</td>
<td>0.06 in.</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-30°~180° F</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.002 in.</td>
</tr>
<tr>
<td>Valve required to actuate</td>
<td>3-way, 2-position</td>
</tr>
</tbody>
</table>

**Loading Information**

- **Loading Capacity** at 100 psi 7 bar
  - **Imperial**
    - Maximum Breakaway Compressive **C**: 139 lbs., 620 N
    - Maximum Breakaway Moment **Mx**: 124 in.-lbs., 14 Nm
    - Maximum Breakaway Moment **My**: 89 in.-lbs., 10 Nm
    - Maximum Breakaway Moment **Mz**: 124 in.-lbs., 14 Nm
  - **Metric**

**How to Order:**

(Order Accessories separately from Basic Model)

**Loading Information**

- **Imperial**: ±0.01 in.
- **Metric**: ±0.25 mm

**Maximum Overload**

- **AXIAL LOADING**
  - **N** (lbs.): 0 to 750
  - **PSI**: 0 to 145

- **MOMENT LOADING**
  - **in-lbs.**: 0 to 177
  - **PSI**: 0 to 145

For more information call us at: 1-800-ROBOHAND or 203-261-5558  Fax: 203-452-7418  Visit us on the Internet at: www.destaco.com
EMERGENCY STOP MODULES

Specifications

AU-80

Rotational Compliance (X and Y axis)........ 12° 12°
Rotational Compliance (Z axis)............. 24° 24°
Axial Compliance (Z axis).................. 0.334 in. 8.5 mm
Weight......................................... 1.5 lbs. 0.68 Kg
Pressure Range (locked cylinder).......... 30-145 psi 2-10 bar
Cylinder bore.................................. 2.4 in. 61 mm
Displacement................................... 0.99 in³ 16.3 cm³
Temperature Range............................ -30°~180°F -35°~80°C
Repeatability.................................. ±0.0025 in. ±0.06 mm
Valve required to actuate.................... 3-way, 2-position

Loading Information

Loading Capacity at 100 psi 7 bar

<table>
<thead>
<tr>
<th>Metric</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>372 lbs.</td>
<td>1655 N</td>
</tr>
<tr>
<td>195 in.-lbs.</td>
<td>22 Nm</td>
</tr>
<tr>
<td>221 in.-lbs.</td>
<td>25 Nm</td>
</tr>
<tr>
<td>195 in.-lbs.</td>
<td>22 Nm</td>
</tr>
</tbody>
</table>

How to Order:

(Order Accessories separately from Basic Model)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

<table>
<thead>
<tr>
<th>Dimensions are symmetrical about centerline</th>
<th>Third Angle Projection</th>
<th>All Dowel Holes are SF (Slip Fit)</th>
<th>Locational Tolerance ±.00025&quot; or ±.013mm</th>
<th>Metric Tolerances</th>
<th>Course Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial in.</td>
<td>Metric [mm]</td>
<td>Imperial in.</td>
<td>Metric [mm]</td>
<td>Imperial in.</td>
<td>Metric [mm]</td>
</tr>
<tr>
<td>0.00 = ±0.01</td>
<td>0.000 = ±0.01</td>
<td>0.000 = ±0.01</td>
<td>0.000 = ±0.01</td>
<td>0.00 = ±0.20</td>
<td>0.0 = ±.25</td>
</tr>
</tbody>
</table>

AXIS BREAKAWAY

Maximum Overload

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Specifications

AU-110

Rotational Compliance (X and Y axis)........12° 12°
Rotational Compliance (Z axis).............31° 31°
Axial Compliance (Z axis)......................0.531 in. 13.5 mm
Weight.............................................4.6 lbs. 2.1 Kg
Pressure Range (locked cylinder)...........30-145 psi 2-10 bar
Cylinder bore....................................3.38 in. 86 mm
Displacement.....................................2.22 in.³ 36.5 cm³
Temperature Range..............................-30°~180° F -35°~80° C
Repeatability....................................±0.003 in. ±0.08 mm
Valve required to actuate.....................3-way, 2-position

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline
Third Angle Projection
Locational Tolerance ±.0003" or ±.013 mm
Metric Threads
Course Pitch

0.00 = ±.01
[0.0] = ±.013

0.000 = ±.005
[0.00] = ±.013

Loading Information

How to Order: (Order Accessories separately from Basic Model)

BASIC MODEL

Maximum Overload

For more information call us at: 1-800-ROBOHAND or 203-261-5558  Fax: 203-452-7418  Visit us on the Internet at: www.destaco.com
**Specifications AU-140**

Rotational Compliance (X and Y axis) ........ 12° 12°
Rotational Compliance (Z axis) .............. 45° 45°
Axial Compliance (Z axis) .................... 0.63 in. 16 mm
Weight ............................................ 8.8 lbs. 4.0 Kg
Pressure Range (locked cylinder) .......... 30-145 psi 2-10 bar
Cylinder bore ................................... 4.25 in. 108 mm
Displacement .................................... 3.31 in. 3 54.3 cm³
Temperature Range .............................. -30°~180° F -35°~80° C
Repeatability .................................... ±0.004 in. ±0.1 mm
Valve required to actuate ..................... 3-way, 2-position

**How to Order:**
( AU-140 Basic Model)

**Loading Capacity at 100 psi 7 bar**

<table>
<thead>
<tr>
<th></th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>1178 lbs.</td>
<td>5240 N</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>1584 in.-lbs</td>
<td>179 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>1221 in.-lbs</td>
<td>138 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>1584 in.-lbs</td>
<td>179 Nm</td>
</tr>
</tbody>
</table>
EMERGENCY STOP MODULES

Specifications AU-165
Rotational Compliance (X and Y axis) 12° 12°
Rotational Compliance (Z axis) 24° 24°
Axial Compliance (Z axis) 0.67 in. 17 mm
Weight 12.7 lbs. 5.8 Kg
Pressure Range (locked cylinder) 30-145 psi 2-10 bar
Cylinder bore 4.76 in. 121 mm
Displacement 3.94 in. 646 cm³
Temperature Range -30°~180° F -35°~80° C
Repeatability ±0.005 in. ±0.12 mm
Valve required to actuate 3-way, 2-position

Loading Information

How to Order: (Order Accessories separately from Basic Model)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

<table>
<thead>
<tr>
<th>Metric [mm]</th>
<th>Imperial in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 = ±0.01</td>
<td>0.1 = ±.02</td>
</tr>
<tr>
<td>0.000 = ±0.005</td>
<td>0.005 = ±.013</td>
</tr>
</tbody>
</table>

Dimensions are symmetrical about centerline
Third Angle Projection
All Dowel Holes are SF (Slip Fit), Locational Tolerance ±.0003” or ±.013mm

Loading Capacity at 100 psi 7 bar

<table>
<thead>
<tr>
<th>Loading Capacity</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Breakaway Compressive C</td>
<td>1472 lbs.</td>
<td>6550 N</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mx</td>
<td>1956 in.-lbs</td>
<td>221 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment My</td>
<td>1584 in.-lbs</td>
<td>179 Nm</td>
</tr>
<tr>
<td>Maximum Breakaway Moment Mz</td>
<td>1956 in.-lbs</td>
<td>221 Nm</td>
</tr>
</tbody>
</table>

Maximum Overload

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**AU Series Exploded View**

### Item Qty Name
1 1 Body
2 1 Blank Plate
3 1 Output Flange
4 2 Spherical pin
5 1 Stop
7 1 Spring cap
8 2 Cylindrical pin
9 1 Cap
52 1 Pin, Output flange
53 4 SHC screw, Flange
54 4 Hexagon CSKH screw, Stop
55 2 Pin, Stop
56 2 SS screw, Cylindrical pin
57 1 Spring
58 1 O-ring, Cap
59 6 SHC screw, Cap
60 1 Pin, Cap
61 1 O-ring, output flange
69 1 Electric pressure sensor

**NOTE:** Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

#### Assembly Procedures
1) Locate the stop (#5) using the two pins (#55) into the body (#1)
2) Fasten the stop (#5) with (#54) screws with thread locker
3) Install the spring (#57) into the stop hole
4) Insert the spring cap (#7) into the spring (#57)
5) Insert the O-Ring (#58) into the top groove of the body (#1)
6) Screw the spherical pin (#4) into the cap (#9)
7) Insert the cylindrical spacer (#8) into the lateral holes of the cap (#9)
8) Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9)
9) Insert the O-Ring (#61) into the groove of the cap (#9)
10) Insert the output flange (#3) into the cap (#9) lining up the engraved signs “A”
11) Insert this subassembly into the body (#1) and locate it using (#60) pin
12) Fasten the cap (#9) with (#59) SH screws with thread locker
13) Locate the blank plate (#2) onto the output flange (#3) using the dowel pin (#52)
14) Fasten the blank plate (#2) with (#53) SH screws with thread locker
15) Screw the electric pressure sensor (#69) in the body (#1)

#### Adjustment Procedures
For an easier adjustment, the blank plate (#2) can be disassembled. It is also advised to supply the module with two bar air pressure.

1) Unscrew the SS screws (#56) to release the cylindrical spacer (#8)
2) Unscrew the spherical pin (#4) to release the contact with the conical seats of the output flange (#3).
3) Line up the engraved “A” sign of the body (#1) and the output flange (#3)
4) Screw, simultaneously, by successive quarter of turn, the spherical pin (#4) till getting a contact into the conical seats of the output flange (#3). Repeat this operation until getting a minimal angular freedom.
5) Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9).
AU Series Assembled View

Item | Qty | Name
--- | --- | ---
1 | 1 | Body
2 | 1 | Blank Plate
3 | 1 | Output Flange
4 | 2 | Spherical pin
5 | 1 | Stop
7 | 1 | Spring cap
8 | 2 | Cylindrical spacer
9 | 1 | Cap
52 | 1 | Pin, Output flange
53 | 4 | SHC screw, Flange
54 | 4 | Hexagon CSH screw, Stop
55 | 2 | Pin, Stop
56 | 2 | SS screw, Cylindrical pin
57 | 1 | Spring
58 | 1 | O-ring, Cap
59 | 6 | SHC screw, Cap
60 | 1 | Pin, Cap
61 | 1 | O-ring, output flange
69 | 1 | Electric pressure sensor

NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.