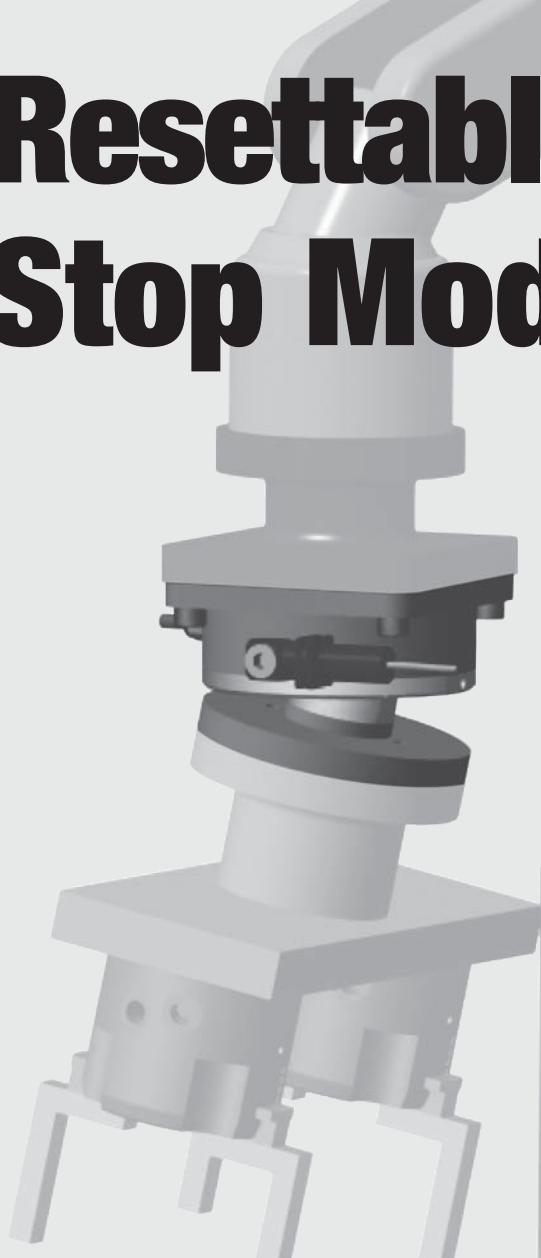


Resettable Emergency Stop Modules

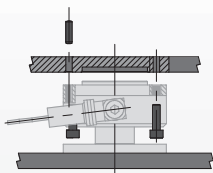


- Safety:**
 This module is used between a robot and the tooling. It protects the part, the fixture or the assembly machine for overload in compressive, bending or torsional overload situations.
- Resettable:**
 This module is equipped with a patented mechanism that helps to reset the tooling after an overload or collision.
- 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.

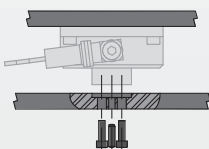


Mounting Information:

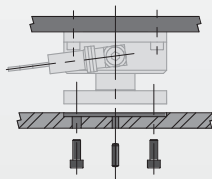
Modules can be mounted & operated in any orientation



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



The tooling is located using 2 dowel pins and assembled with 4 screws



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

Technical Specifications:

Pneumatic Specifications	Imperial	Metric
Pressure Operating Range	30-145 psi	2-10 bar
Cylinder Type	Non-Conventional	
Dynamic seals	Internally lubricated Viton® 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	5 million cycles	
Normal Application 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

Tooling Attachment

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

Quality Components

Made from aluminum alloy with red coat anodization. The modules main components are made of heat treated steel

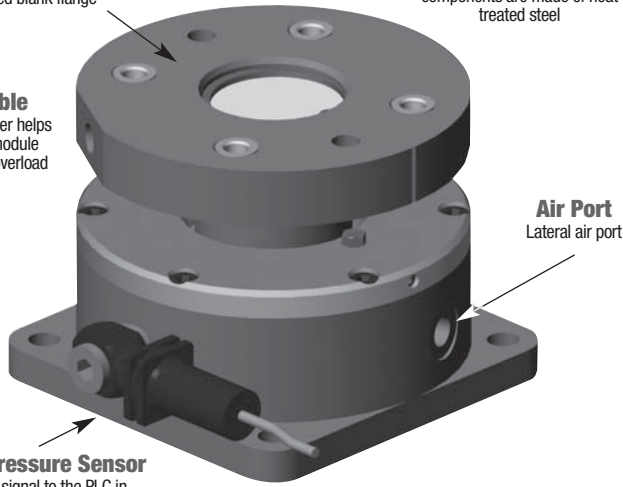
Resettable

A built-in cylinder helps to reset the module once after an overload

Air Port
Lateral air port

Electric Pressure Sensor

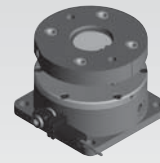
Transmits a signal to the PLC in case of an overload or collision



Style-Emergency Stop Modules

Size-110

Style:	AU-110R	
Axial Compliance:	0.531 in.	13.5 mm
Rotation:	45°	45°
Angular:	12°	12°
Weight:	4.9 lbs.	2.25 Kg

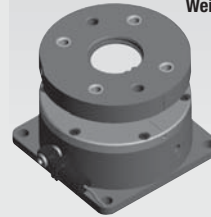


See Page **6.112**

Style-Emergency Stop Modules

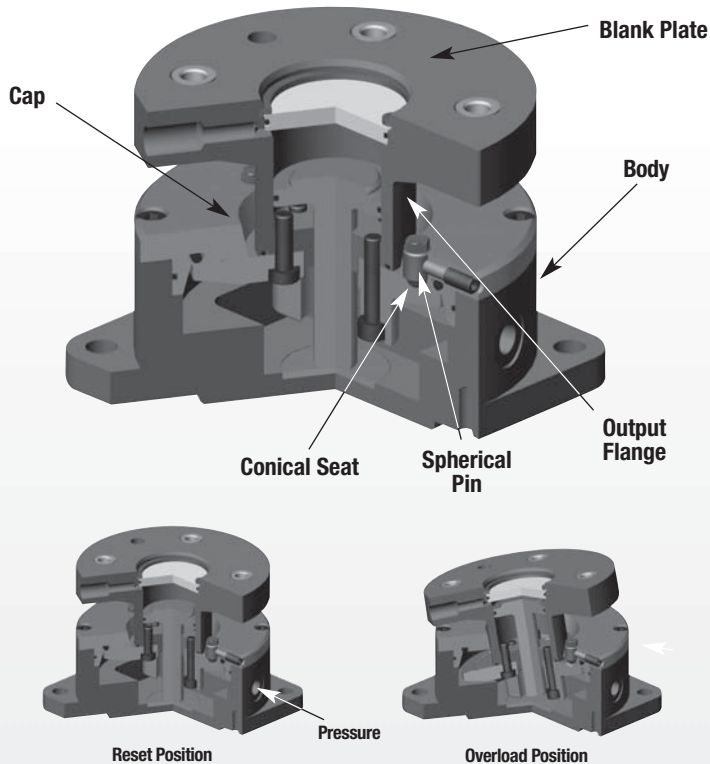
Size-140

Style:	AU-140R	
Axial Compliance:	0.689 in.	17.5 mm
Rotation:	46.8°	46.8°
Angular:	12°	12°
Weight:	10.4 lbs.	4.75 Kg



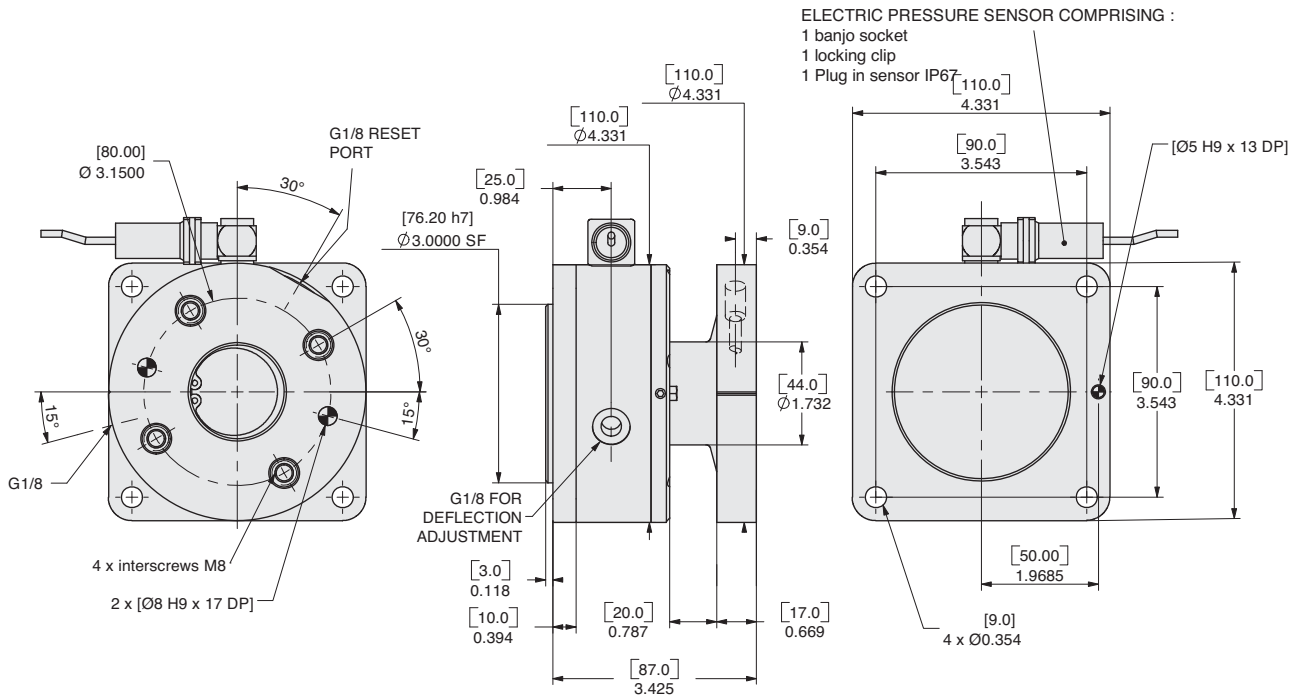
See Page **6.113**

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 module can be reset using the piston placed into the cylinder.

AU-110R RESETTABLE EMERGENCY STOP MODULES



Specifications

AU-110R

Maximum Payload	18.8 lbs.	8.5 Kg
Rotational Compliance (X and Y axis)...	12°	12°
Rotational Compliance (Z axis).....	45°	45°
Axial Compliance (Z axis)	0.531 in.	13.5 mm
Weight	4.96 lbs.	2.25 Kg
Pressure Range (locked cylinder).....	30-145 psi	2-10 bar
Cylinder bore.....	3.38 in.	86 mm
Displacement.....	4.27 in. ³	70 cm ³
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	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	Imperial in. 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	Metric [mm] [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

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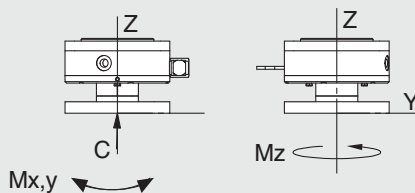
6.112

Loading Information

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

BASIC MODEL

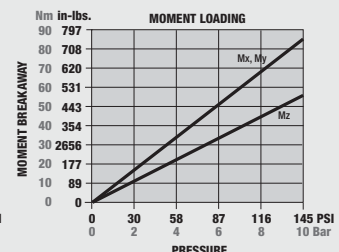
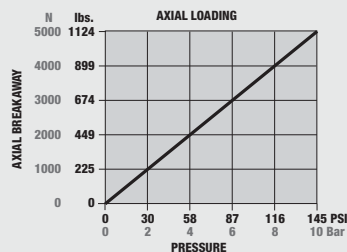
AU-110R

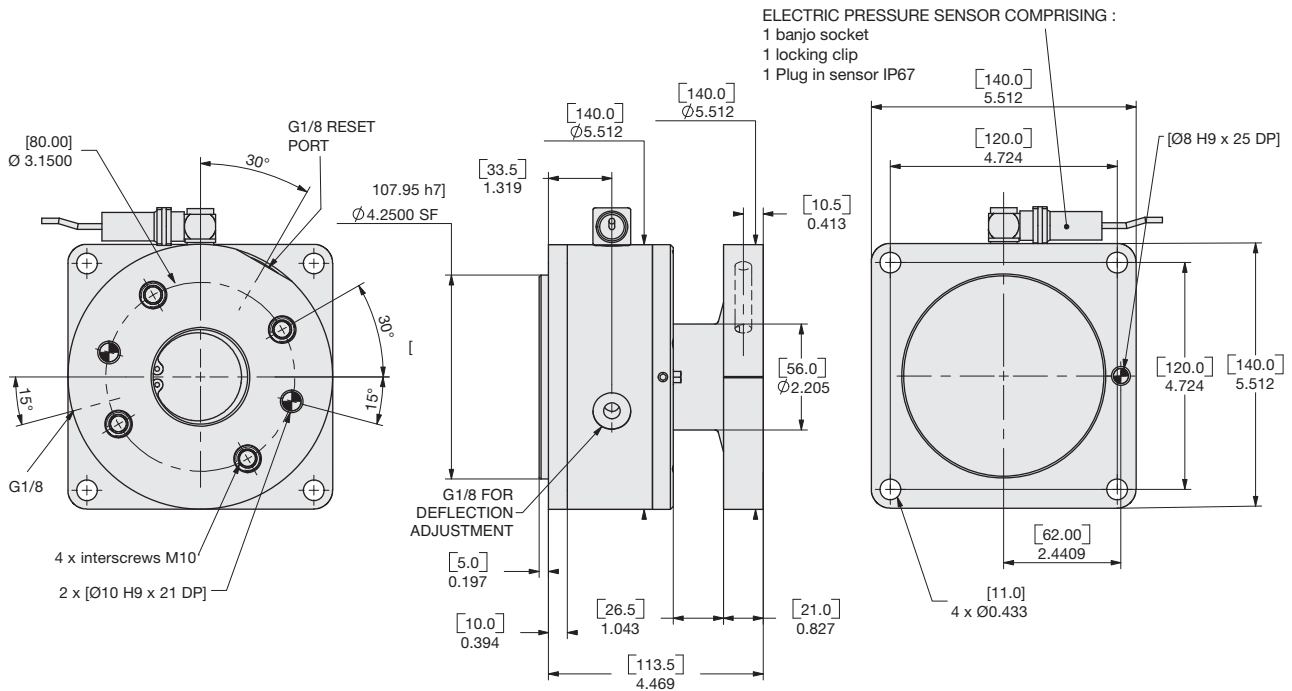


Loading Capacity at 100 psi [7 bar]

	Imperial	Metric
Maximum Breakaway Compressive C	773 lbs.	3440 N
Maximum Breakaway Moment Mx	522 in.-lbs.	59 Nm
Maximum Breakaway Moment My	336 in.-lbs.	38 Nm
Maximum Breakaway Moment Mz	522 in.-lbs.	59 Nm

Maximum Overload





Specifications

AU-140R

Maximum Payload	38.6 lbs.	17.5 Kg
Rotational Compliance (X and Y axis)...	12°	12°
Rotational Compliance (Z axis)	45°	46.8°
Axial Compliance (Z axis)	0.689 in.	17.5 mm
Weight	10.47 lbs.	4.75 Kg
Pressure Range (locked cylinder).....	30-145 psi	2-10 bar
Cylinder bore	4.25 in.	108 mm
Displacement	9.76 in. ³	160 cm ³
Temperature Range	-30°~180° F	-35°~80° C
Repeatability	±0.004 in.	±0.1 mm
Valve required to actuate	3-way, 2-position	

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

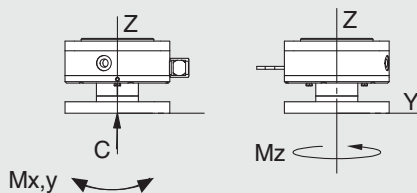
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
Metric Threads Course Pitch	Imperial in. 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	Metric [mm] [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

Loading Information

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

BASIC MODEL

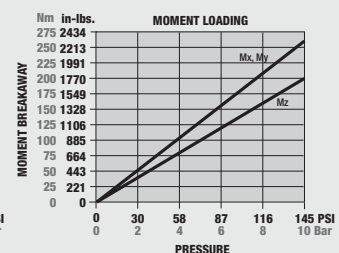
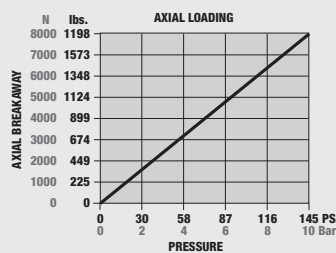
AU-140R

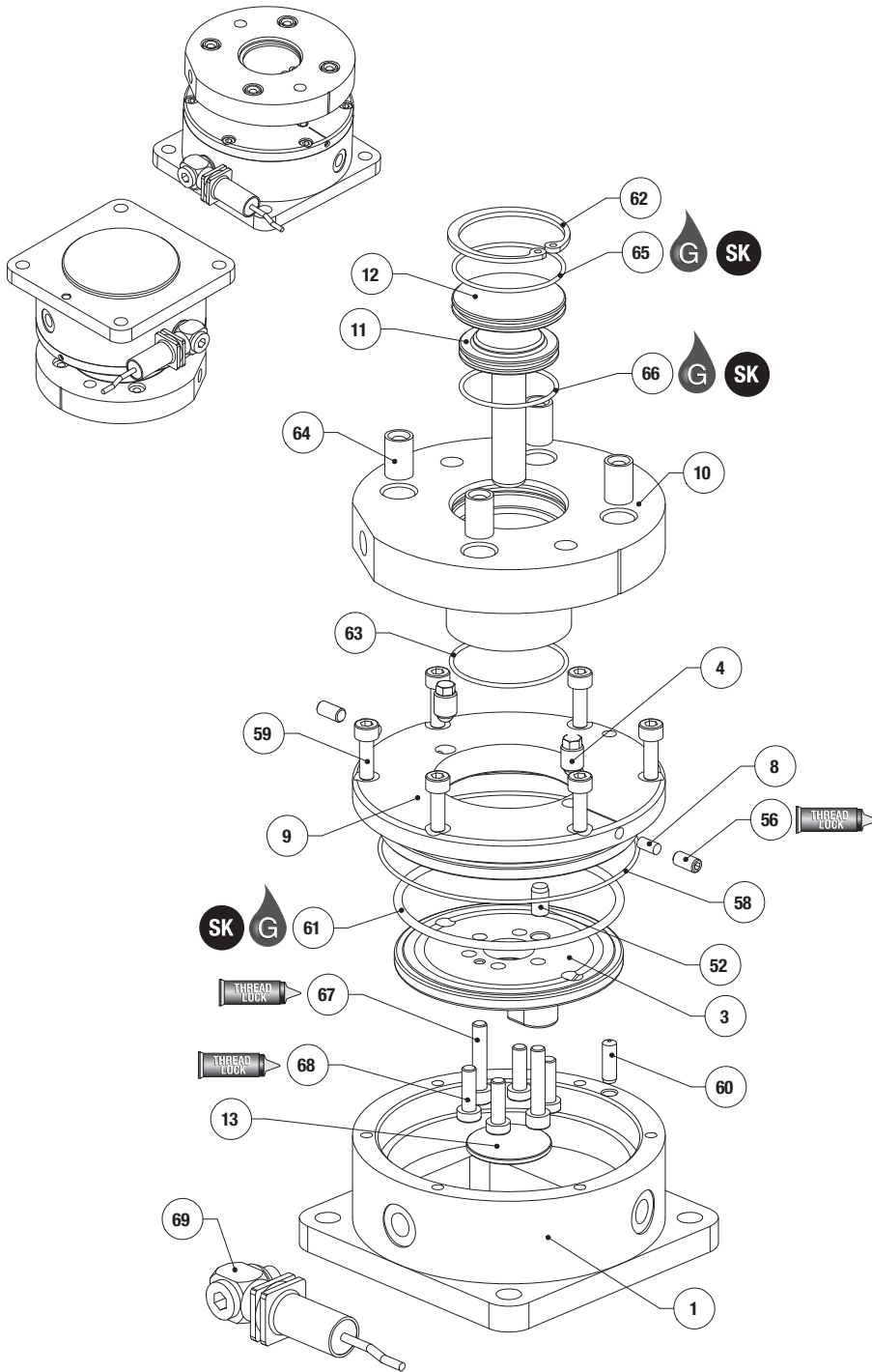


Loading Capacity at 100 psi [7 bar]

	Imperial	Metric
Maximum Breakaway Compressive C	1238 lbs.	5510 N
Maximum Breakaway Moment My	1549 in.-lbs.	175 Nm
Maximum Breakaway Moment Mz	1195 in.-lbs.	135 Nm
Maximum Breakaway Moment Mz	1549 in.-lbs.	175 Nm

Maximum Overload





Item	Qty	Name
1	1	Body
3	1	Output flange
4	2	Spherical pin
8	2	Cylindrical spacer
9	1	Cap
10	1	Cylinder
11	1	Piston
12	1	Cap
13	1	Stop ring
52	1	Pin, output flange
56	2	SS screw, Cylindrical pin
58	1	O-ring, cap
59	6	SHC screw, Cap
60	1	Pin, Body
61	1	O-ring, Cap
62	1	Retaining ring, cap
63	1	O-ring, Cylinder
64	4	Screw crimping bush, Cylinder
65	1	O-ring, Cap
66	1	O-ring, Piston
67	2	SHC screw, Output flange
68	4	LHC screw, Cylinder
69	1	Electric pressure sensor

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

Assembly Procedures

- Assemble the stop ring (#13) into the body counterbore hole (#1)
- Screw the spherical pin (#4) into the cap (#9)
- Insert the cylindrical spacer (#8) into the lateral holes of the cap (#9)
- Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9)
- Insert the O-Ring (#58) into the outside groove of the cap (#9)
- Insert the O-Ring (#61) into the inside groove of the cap (#9)
- Mount the Screw crimping bush (#64) into the cylinder (#10)
- Insert the O-Ring (#63) into the groove of the cylinder (#10)
- Insert the pin (#52) into the cylinder (#10)
- Fit the cap (#9) between the cylinder (#10) and the output flange (#3) and fasten the cylinder (#10) and the output flange (#3) using the SHC screws (#67) and (#68) with thread locker
- Insert the pin (#60) into the body (#1)
- Insert the subassembly built step 10 into the body (#1). The engraved signs of the body and the cap have to be aligned
- Fasten the cap (#9) with (#59) SHC screws with thread locker
- Insert the O-Ring (#66) onto the piston (#11)
- Place the piston (#11) into the cylinder (#10)
- Insert the O-Ring (#65) onto the cap (#12)
- Assemble the cap (#12) into the cylinder (#10) using the retaining ring (#62)

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.
- Unscrew the SS screws (#56) to release the cylindrical spacer (#8)
 - Unscrew the spherical pin (#4) to release the contact with the conical seats of the output flange (#3).

- Line up the engraved "A" sign of the body (#1) and the output flange (#3)
- 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.
- Fasten the SS screws (#56) into the lateral tapped holes of the cap (#9).



Seal Kit Items



Thread Locker



Krytox™ Lubricant



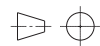
Lightweight Machine Oil



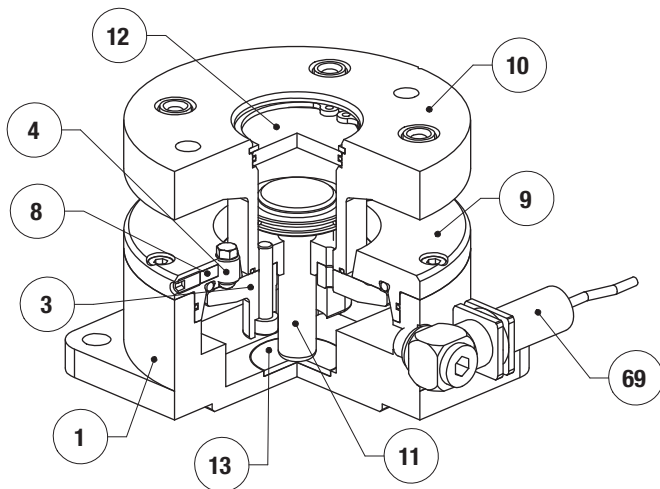
Teflon™ Based Grease



Super Bonder










Third Angle Projection

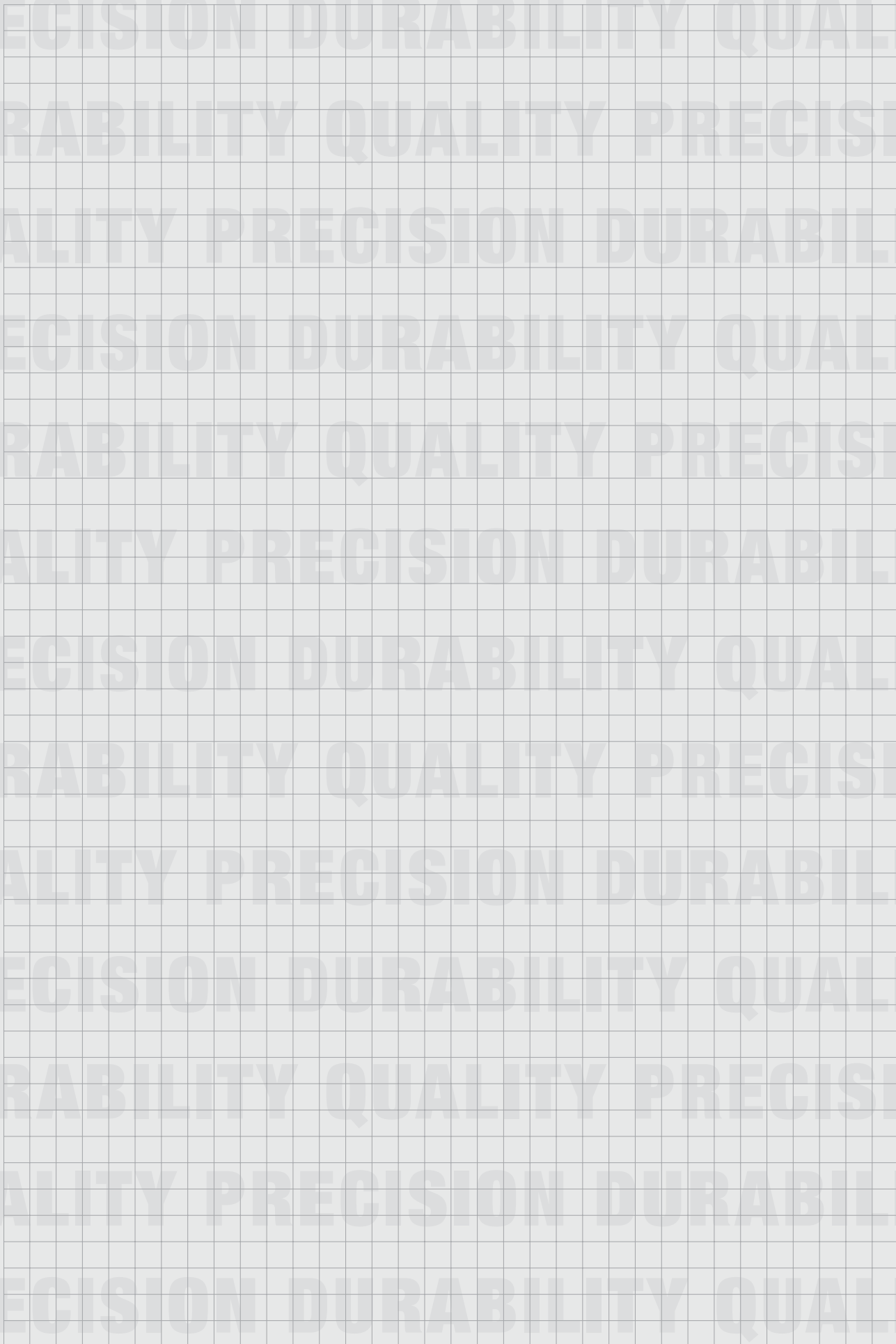


Item	Qty	Name
1	1	Body
3	1	Output flange
4	2	Spherical pin
8	2	Cylindrical spacer
9	1	Cap
10	1	Cylinder
11	1	Piston
12	1	Cap
13	1	Stop ring
52	1	Pin, output flange
56	2	SS screw, Cylindrical pin
58	1	O-ring, cap
59	6	SHC screw, Cap
60	1	Pin, Body
61	1	O-ring, Cap
62	1	Retaining ring, cap
63	1	O-ring, Cylinder
64	4	Screw crimping bush, Cylinder
65	1	O-ring, Cap
66	1	O-ring, Piston
67	2	SHC screw, Output flange
68	4	LHC screw, Cylinder
69	1	Electric pressure sensor

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

 <p>SK Seal Kit Items</p>	 <p>THREAD LOCKER Thread Locker</p>	 <p>KRYTOX Krytox™ Lubricant</p>	 <p>O Lightweight Machine Oil</p>	 <p>G Teflon™ Based Grease</p>	 <p>GLUE Super Bonder</p>	 <p>Third Angle Projection</p>
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DESIGN NOTES



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