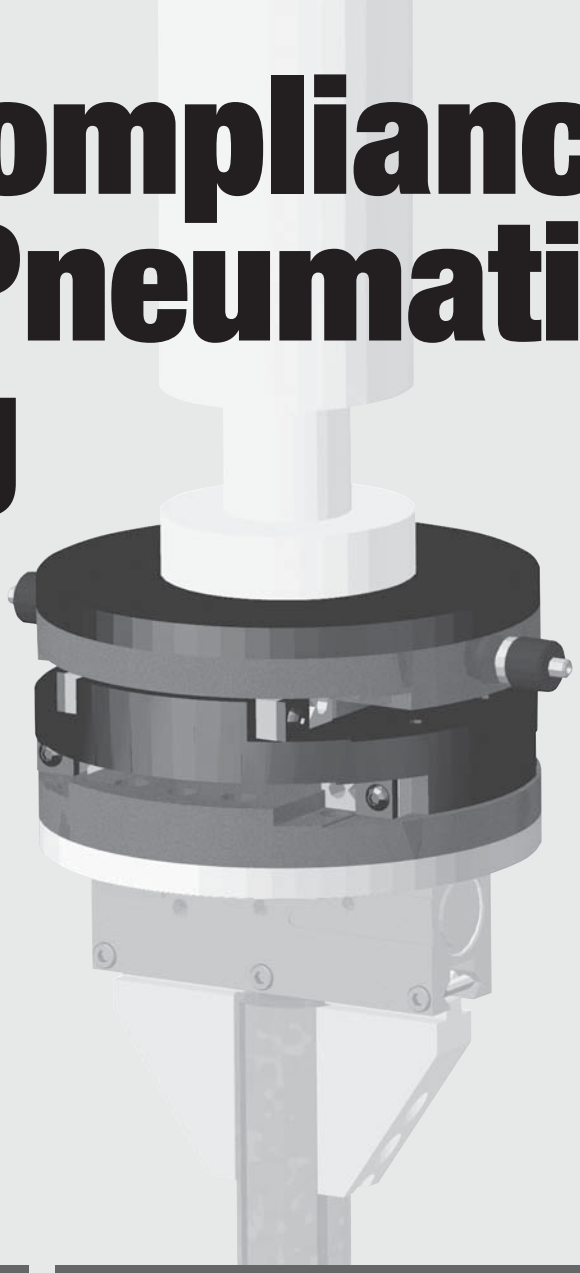
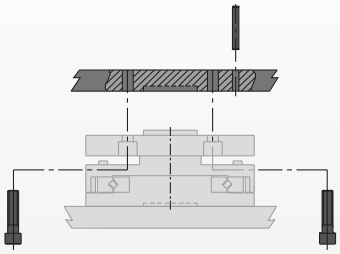
Lateral Compliance Device – Pneumatic Centering



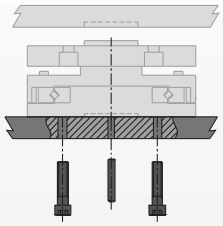
Robotic applications:
For inserting components that may be laterally misaligned with respect to mating parts. Reduces part jamming which could transmit excessive forces to the robot. Robot and tool side mounting patterns are made to DIN robot mounting standards.

Automation applications:
For insertion applications where part positioning may be less than precise. Compliance in lateral directions allows this device to compensate for part placing inaccuracies. Reduces jamming of mating components.

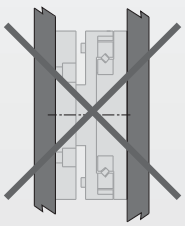
Mounting Information:



Robot side has counter bored holes for mounting with a dowel hole and raised boss for location



The tool side has tapped holes for mounting and a pilot hole and dowel hole for positioning



Not recommended in horizontal axis applications where the weight attached to the tool side can deflect the device

Technical Specifications:

Pneumatic Specifications	**Imperial**	**Metric**
Pressure Operating Range	**40-100 psi**	**3-7 bar**
Cylinder Type	**Double Acting**	
Dynamic Seals	**Buna-N**	
Valve Required to Operate	**4-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		
Buna-N Seals (standard)	**-20°~180° F**	**-30°~80° C**

Maintenance Specifications†	
Expected Life	
Normal Application	**5 million cycles**
w/ Preventative Maintenance	**10+ million cycles***

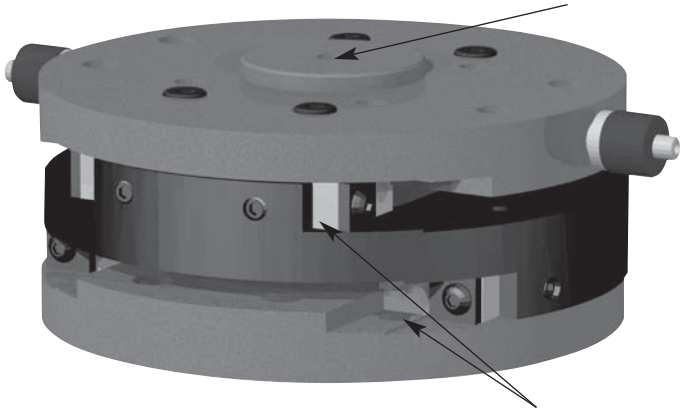
Application Restrictions
- Dirty or gritty environments
- Machining operations generating chips
- Environments with loose particulate

*Addition of lubrication will greatly increase service life
† See Maintenance Section

Product Features

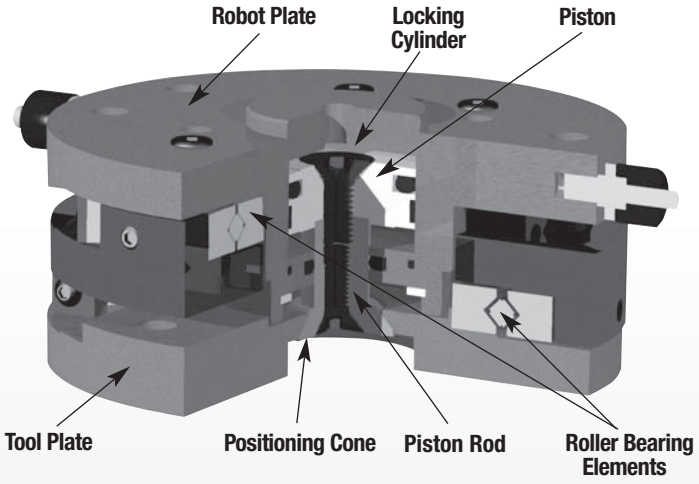
Hard Coat Anodize
Anodized aluminum components

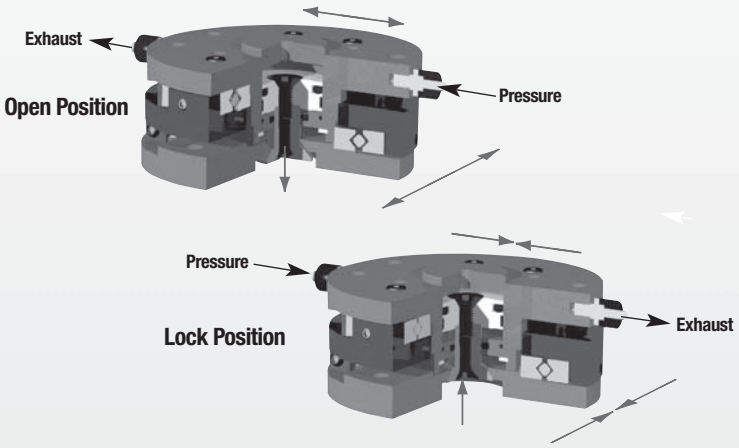
Locking Cylinder
Locking cylinder creates a rigid connection between robot and tool side



Crossed Roller Bearing
Crossed roller bearings eliminate side forces generated by placing misaligned components

Operating Principle





- The two halves of this device are connected by two pairs of crossed roller bearing slides that are perpendicular to one another.
- In the unlocked position, relative motion can occur independently between the two halves in both the X & Y directions.
- In the locked position, the tool half is brought back on center with respect to the robot half with the use of cone centering which is actuated by the built in air cylinder.

Style -KA Lateral Alignment

Size -80R

Style:	KA-80R	
Max. Payload:	2 lb	1 Kg
Max. Misalignment:	0.08 in.	2mm
Weight:	1.10 lb	0.50 Kg

See Page 6.72

Style -KA Lateral Alignment

Size -100

Style:	KA-100	
Max. Payload:	5 lb	2.5 Kg
Max. Misalignment:	0.08 in.	2mm
Weight:	1.80 lb	0.82 Kg

See Page 6.73

Style -KA Lateral Alignment

Size -125

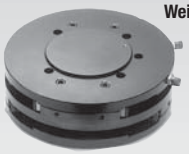
Style:	KA-125	
Max. Payload:	10 lb	5 Kg
Max. Misalignment:	0.12 in.	3.00mm
Weight:	4.4 lb	2.0 Kg

See Page 6.74

Style -KA Lateral Alignment

Size -160

Style:	KA-160	
Max. Payload:	25 lb	11 Kg
Max. Misalignment:	0.15 in.	4mm
Weight:	7.0 lb	3.2 Kg

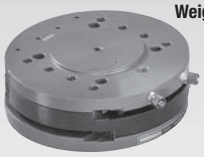


See Page 6.75

Style -KA Lateral Alignment

Size -200

Style:	KA-200	
Max. Payload:	90 lb	40 Kg
Max. Misalignment:	0.47 in.	12 mm
Weight:	16.5 lb	7.5 Kg



See Page 6.76

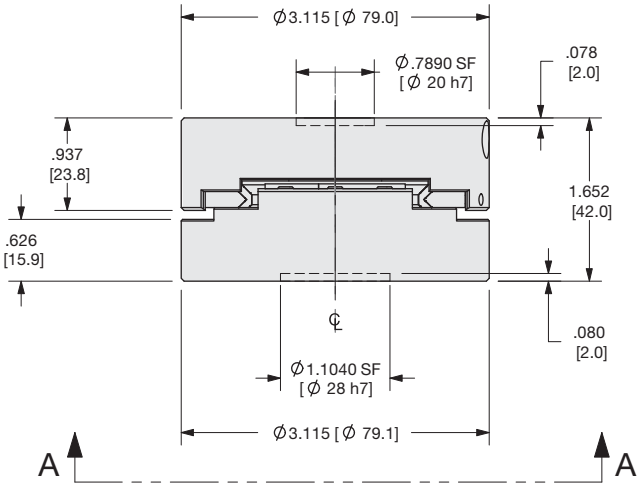
Style -KA Lateral Alignment

Size -300

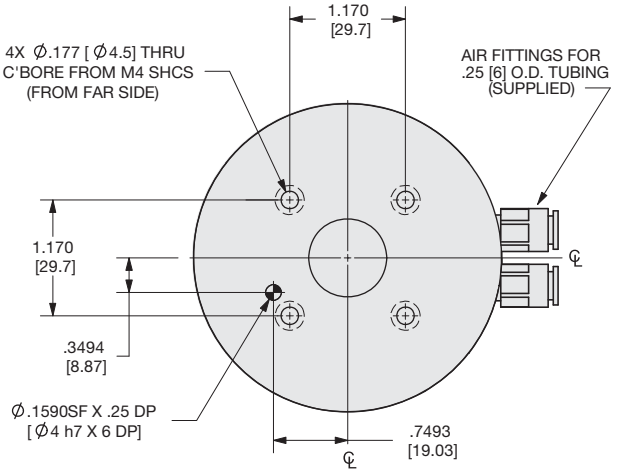
Style:	KA-300	
Max. Payload:	440 lb	200 Kg
Max. Misalignment:	0.98 in.	25 mm
Weight:	115 lb	52 Kg

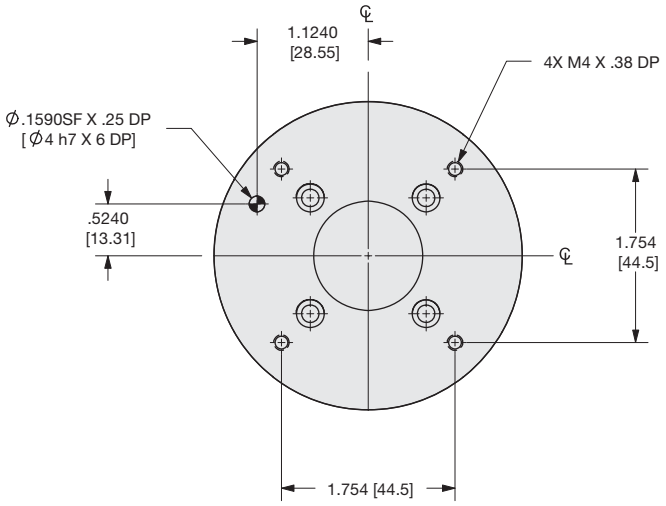
See Page 6.77

LATERAL ALIGNMENT KA-80R
PNEUMATIC CENTERING SERIES



Specifications	KA-80R	
Maximum Payload	2 lbs	1 Kg
Misalignment Capability	±0.08 in.	±2 mm
Weight	1.1 lb	0.50 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	30 lbs	133 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





VIEW A-A

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.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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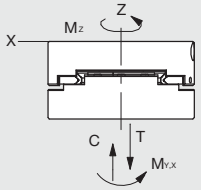
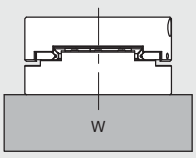




Loading Capacity	Imperial	Metric
Maximum Tensile **T**	45 lb	200 N
Maximum Compressive **C**	45 lb	200 N
Maximum Moment M_x	26 in.-lb	3.0 Nm
Maximum Moment M_y	26 in.-lb	3.0 Nm
Maximum Moment M_z	26 in.-lb	3.0 Nm
Maximum Payload **W**	2.0 lb	1 Kg

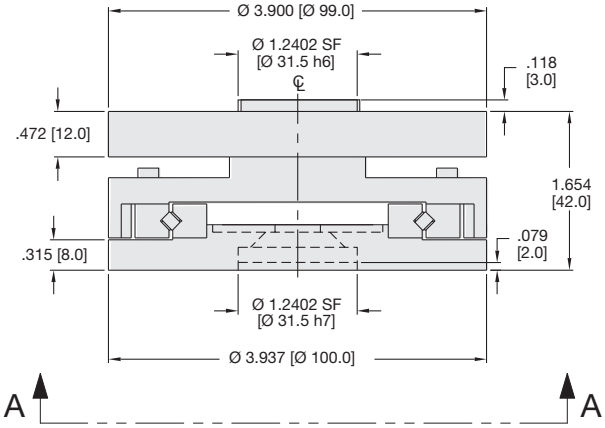
How to Order:

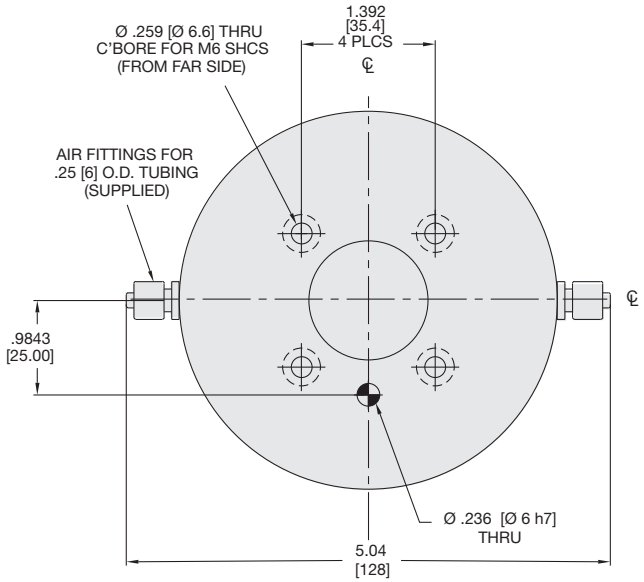
BASIC MODEL

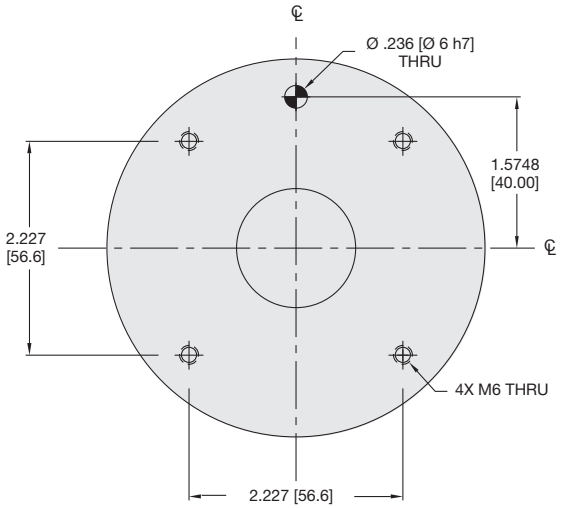
KA-80R

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-213**	**1**

Specifications	KA-100	
Maximum Payload	5 lbs	2.5 Kg
Misalignment Capability	±0.08 in.	±2 mm
Weight	1.80 lb	0.82 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	70 lbs	311 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	







VIEW A-A

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				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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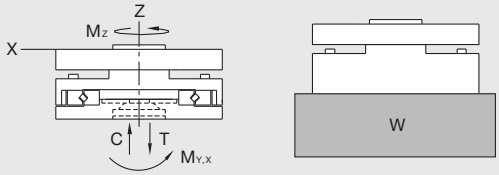


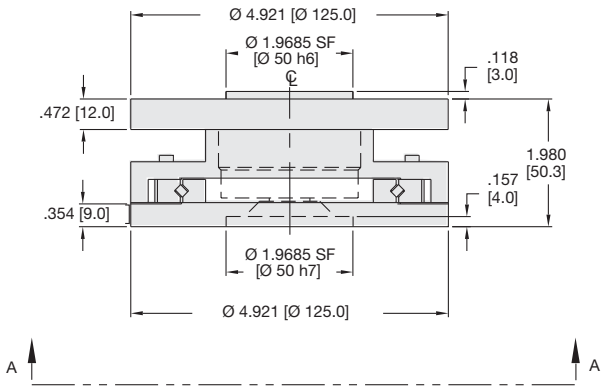
Loading Capacity	Imperial	Metric
Maximum Tensile **T**	90 lb	400 N
Maximum Compressive **C**	90 lb	400 N
Maximum Moment **Mx**	265 in.-lb	30.0 Nm
Maximum Moment **My**	265 in.-lb	30.0 Nm
Maximum Moment **Mz**	265 in.-lb	30.0 Nm
Maximum Payload **W**	5 lb	2.5 Kg

How to Order:

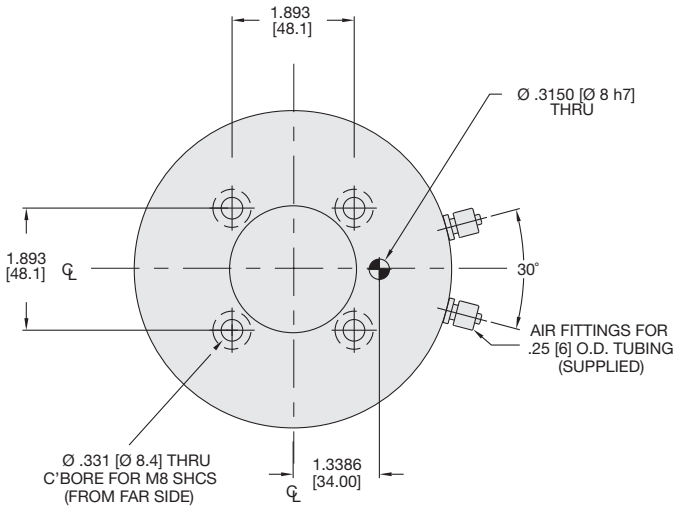
BASIC MODEL

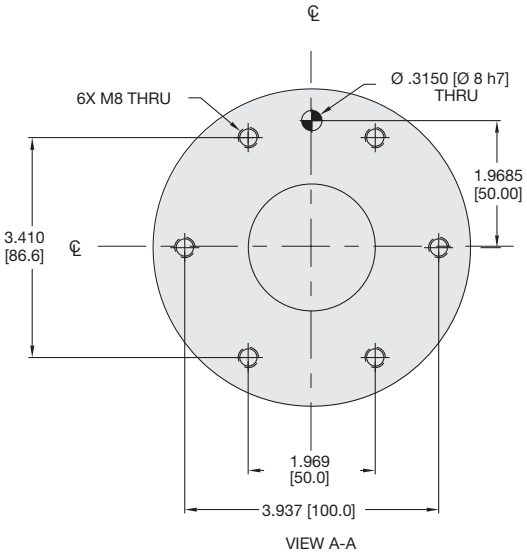
KA-100

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-132**	**1**



Specifications	KA-125	
Maximum Payload	10 lbs	5 Kg
Misalignment Capability	±0.12 in.	±3 mm
Weight	4.4 lb	2.0 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	120 lbs	533 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





VIEW A-A

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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.	Metric [mm]
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				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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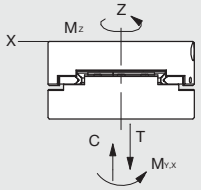
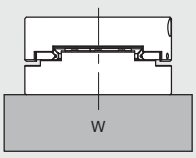




Loading Capacity	Imperial	Metric
Maximum Tensile **T**	180 lb	801 N
Maximum Compressive **C**	180 lb	801 N
Maximum Moment M_x	530 in.-lb	59.9 Nm
Maximum Moment M_y	530 in.-lb	59.9 Nm
Maximum Moment M_z	530 in.-lb	59.9 Nm
Maximum Payload **W**	10 lb	5 Kg

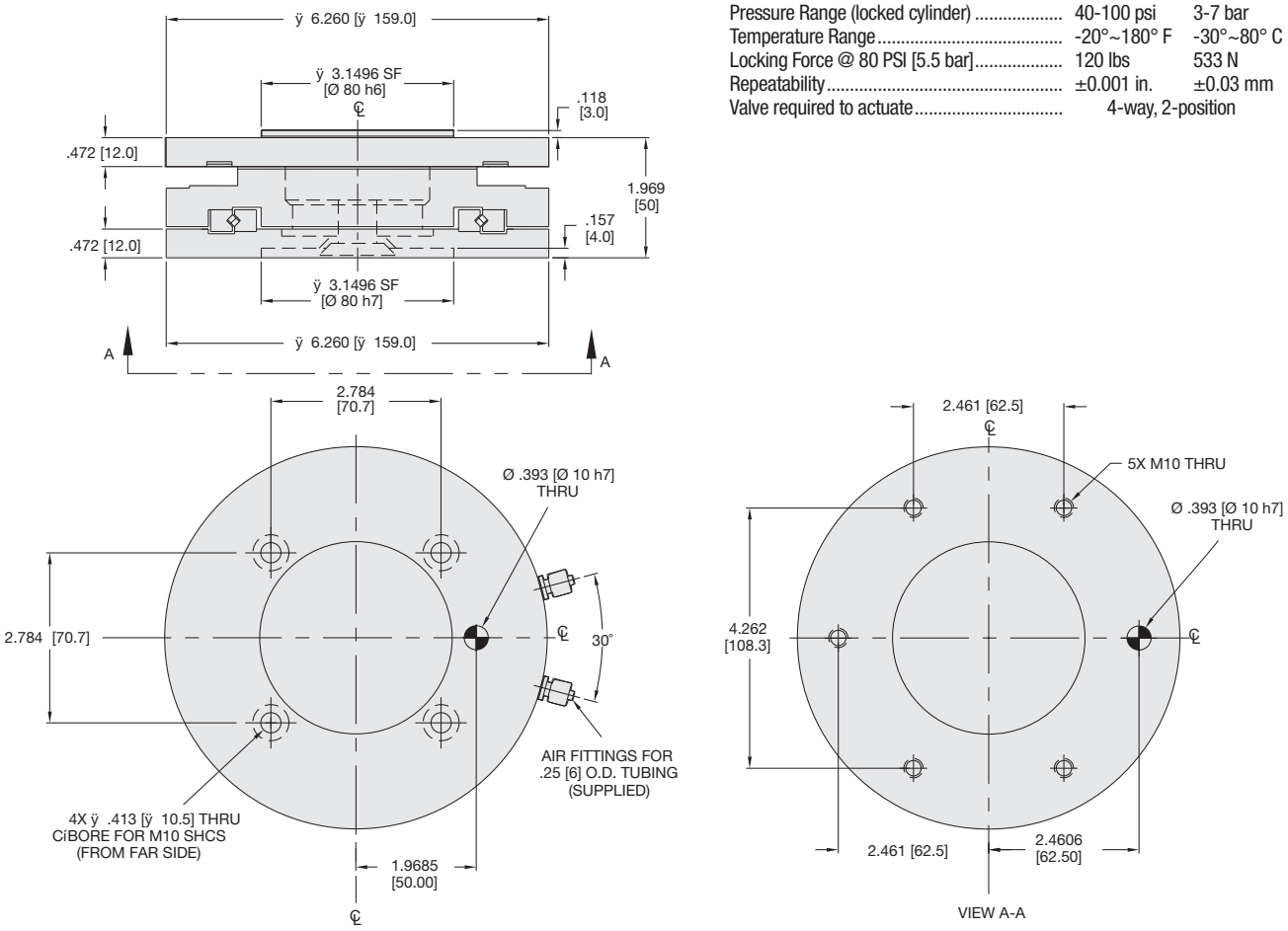
How to Order:

BASIC MODEL

KA-125

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-133**	**1**

Specifications	KA-160	
Maximum Payload	25 lbs	11 Kg
Misalignment Capability	±0.15 in.	±4 mm
Weight	7.0 lb	3.2 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	120 lbs	533 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-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.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

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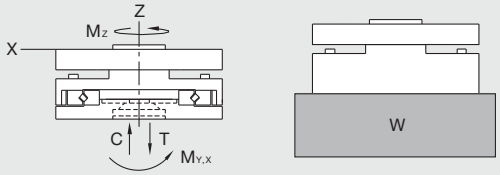


Loading Capacity	Imperial	Metric
Maximum Tensile **T**	225 lb	1001 N
Maximum Compressive **C**	225 lb	1001 N
Maximum Moment **Mx**	885 in.-lb	100.0 Nm
Maximum Moment **My**	885 in.-lb	100.0 Nm
Maximum Moment **Mz**	885 in.-lb	100.0 Nm
Maximum Payload **W**	25 lb	11 Kg

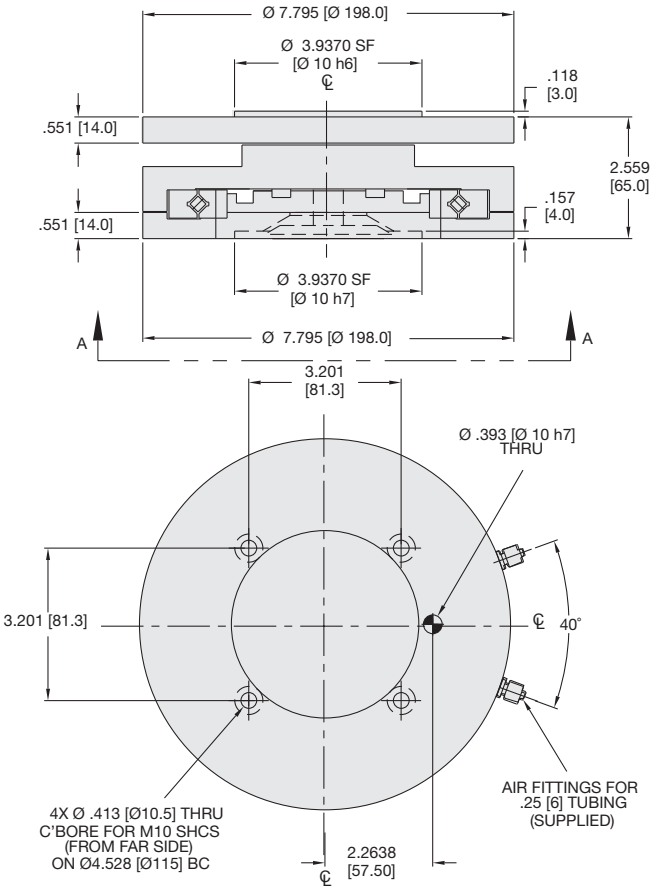
How to Order:

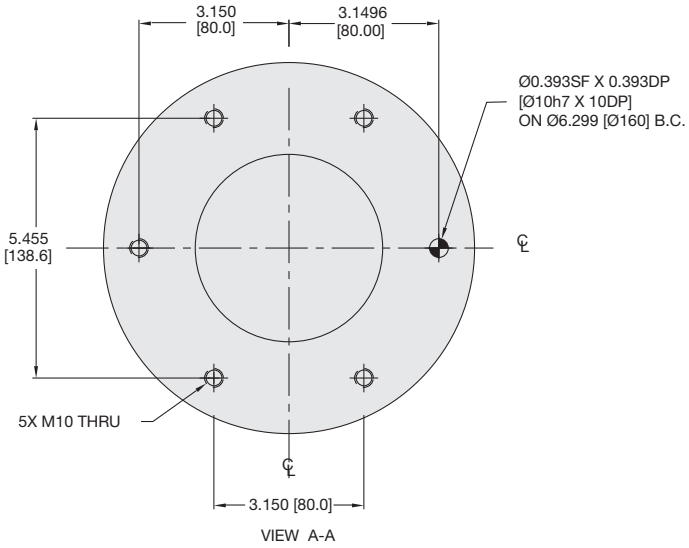
BASIC MODEL

KA-160

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-134**	**1**

Specifications	KA-200	
Maximum Payload	90 lbs	40 Kg
Misalignment Capability	±0.47 in.	±12 mm
Weight	18.5 lb	7.5 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	400 lbs	1779 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	





VIEW A-A

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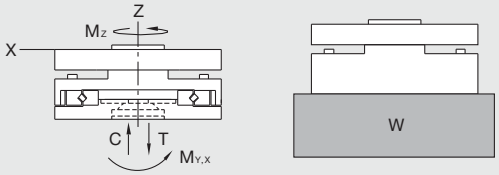
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in.	Metric [mm]
				0.00 = ± .01	[0.] = [± .25]
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



Loading Capacity	Imperial	Metric
Maximum Tensile **T**	360 lb	1601 N
Maximum Compressive **C**	360 lb	1601 N
Maximum Moment M_X	1327 in.-lb	150.0 Nm
Maximum Moment M_Y	1327 in.-lb	150.0 Nm
Maximum Moment M_Z	1327 in.-lb	150.0 Nm
Maximum Payload **W**	90 lb	40 Kg

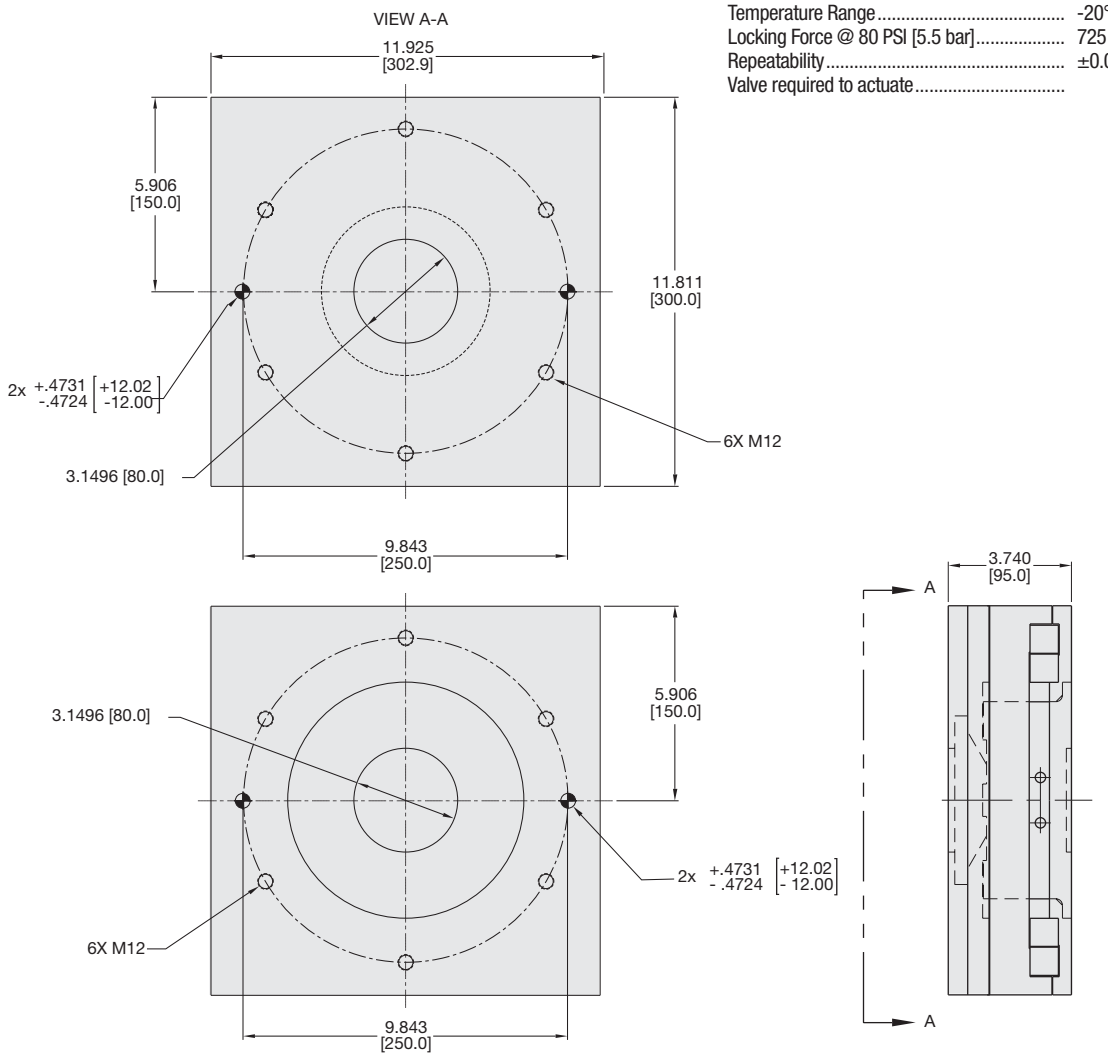
How to Order:

BASIC MODEL

KA-200

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-135**	**1**

Specifications	KA-300	
Maximum Payload	440 lbs	200 Kg
Misalignment Capability	±0.98 in.	±25 mm
Weight	115 lb	52 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	725 lbs	3224 N
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



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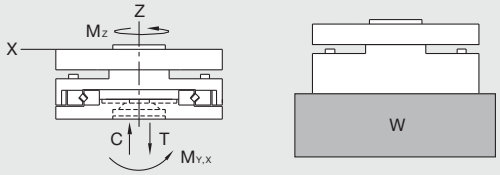
				0.000 = ± .005	[0.0] = [± .13]
				0.0000 = ± .0005	[0.00] = [± .013]

Loading Information



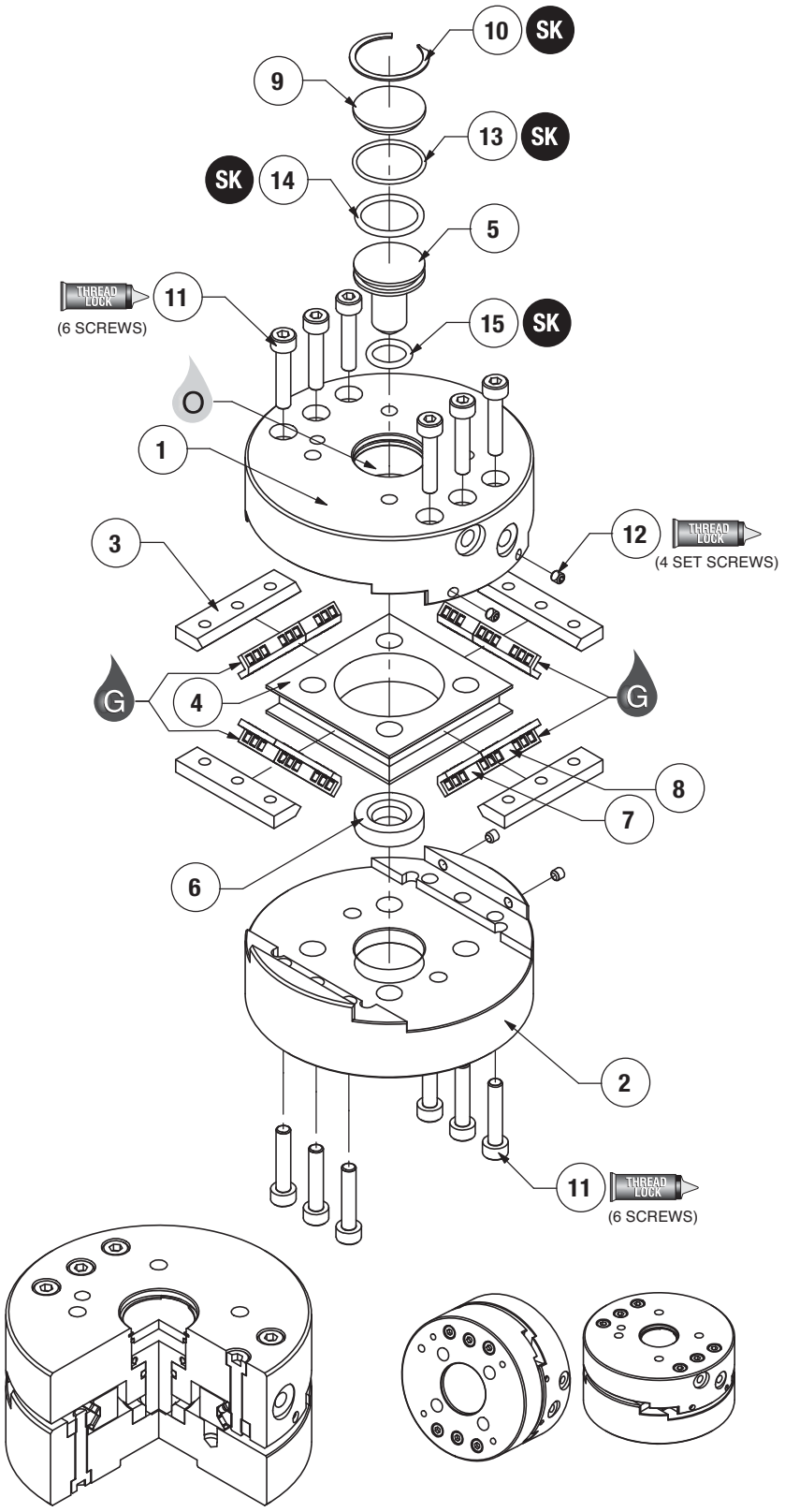
Loading Capacity	Imperial	Metric
Maximum Tensile **T**	900 lb	4003 N
Maximum Compressive **C**	900 lb	4003 N
Maximum Moment **Mx**	2655 in.-lb	300.0 Nm
Maximum Moment **My**	2655 in.-lb	300.0 Nm
Maximum Moment **Mz**	2655 in.-lb	300.0 Nm
Maximum Payload **W**	440 lb	200 Kg

How to Order:

BASIC MODEL

KA-300

PNEUMATIC ACCESSORIES	ORDER #	QTY/UNIT
Standard Seal Repair Kit	**SLKT-136**	**1**



Item	Qty	Name
01	1	Robot Half
02	1	Tool Half
03	4	Way
04	1	Center Rail
05	1	Piston
06	1	Bushing
07	4	Roller Cage Half
08	4	Roller Cage Full
09	1	Cap
10	1	Retaining Ring
11	12	Socket Head Screw
12	4	Set Screw
13	1	O-Ring
14	1	O-Ring
15	1	O-Ring

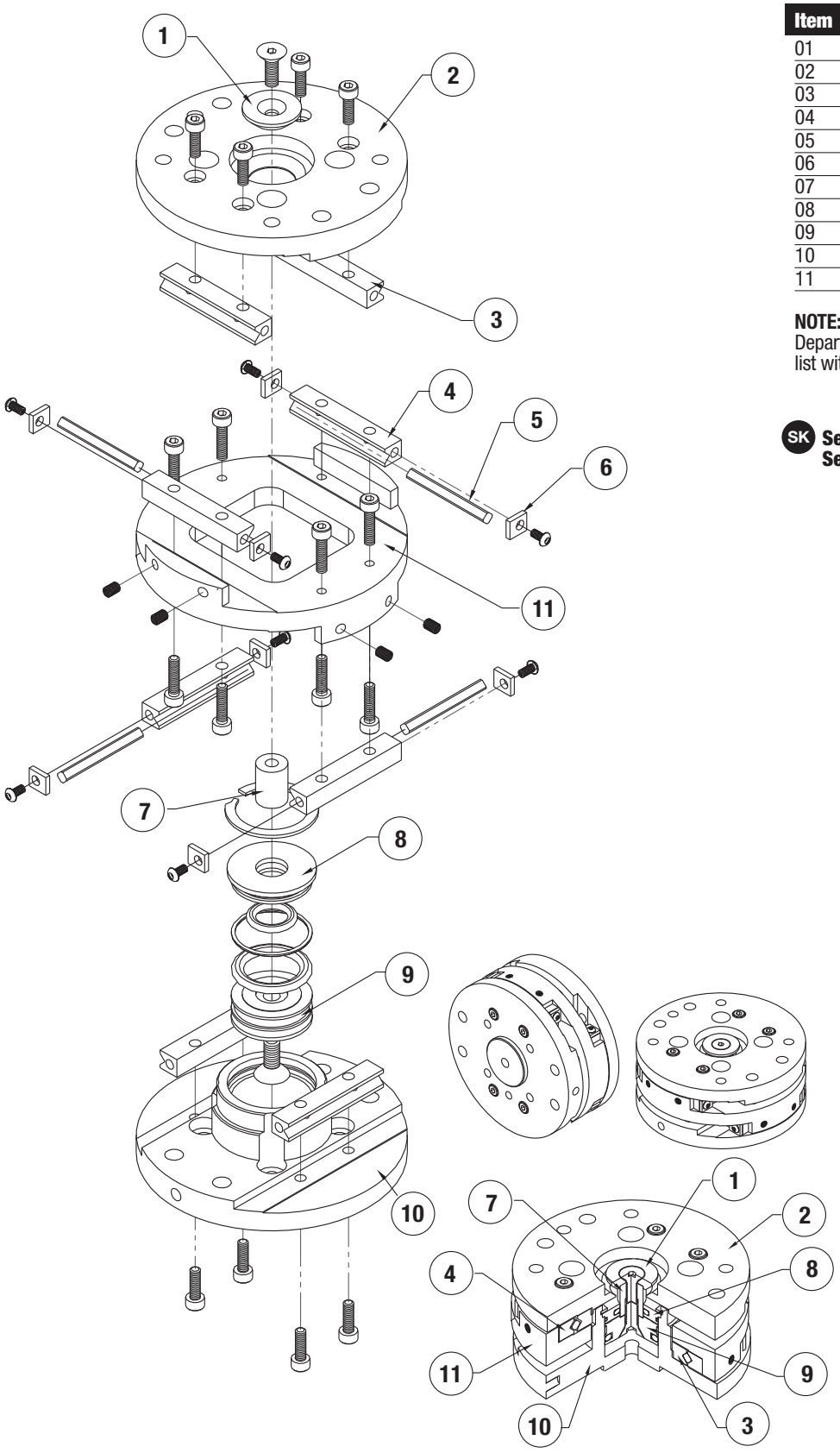
NOTE: Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

Preload Adjustment

1) Loosen the six socket head cap screws on the robot half (1) about 1/2 turn.
2) Seat the way (3) that is furthest from the preload set screws (4) in position and using loctite on the threads, tighten those three screws to fasten the way in place.
3) Evenly advance the two preload set screws to a point where there is no play in the robot half.
4) Using loctite on the threads, tighten the remaining three screws to fasten the way (3) in place. **NOTE:** There is a possibility that when the second set of screws are tightened, the preload will increase – if this happens, loosen the three screws again and back off slightly and evenly on the two preload adjustment set screws.
5) Follow 1 thru 4 again to adjust the preload for the tool half (2).
6) Be sure that the bearings glide freely - if the unit becomes choppy then the preload might be too tight.
7) As a check to see that the preload has been set properly, you should be able to push on the end of one of the nylon bearing cages with about 3 pounds, and that half will move without the bearing skidding.

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection



Item	Qty	Name
01	1	Centering Cone
02	1	Top Plate
03	4	Rail,Fixed
04	4	Rail, Moveable
05	4	Bearings
06	8	Stop
07	1	Shaft
08	1	Cap
09	1	Piston
10	1	Bottom Plate
11	1	Center Plate

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

SK Seal Repair Kit Order #'s See Product Data Sheets

SK Seal Kit Items | THREAD LOCK Thread Locker | KRYTOX Krytox™ Lubricant | O Lightweight Machine Oil | G Teflon™ Based Grease | GLUE Super Bonder | Third Angle Projection