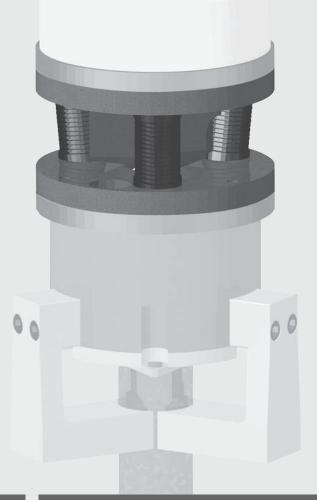
# **Compliance Wrist**

## Robotic applications:

Excellent for inserting components that may be mis-aligned or skewed with respect to mating components. Reduces part jamming which could transmit excessive forces back to the

Automation applications:

For insertion applications where part positioning may be less than precise. Compliance in torsion, bending and lateral directions allow this devise to compensate for part placing inaccuracies.



# **Mounting Information:**



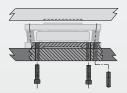
On size 50-80, robot side has tapped holes for mounting



On size 125-300, robot side has counter bored holes for mounting with a dowel hole and raised boss for location



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



On all sizes tool side has tapped holes for mounting. Sizes 125-300 have pilot hole and dowel hole for positioning

## **Technical Specifications:**

**Pneumatic Specifications** Pressure Operating Range Cylinder Type Dynamic Seals Valve Required to Operate

Metric **Imperial** 3-7 bar 40-100 psi **Double Acting** Internally Lubricated Buna-N 4-way, 2-position

**Air Quality Requirements** 

Air Filtration Air Lubrication Air Humidity

40 Micron or Better Not Necessary\* **Low Moisture Content (dry)** 

**Temperature Operating Range** 

Buna-N Seals (standard)

-20°~180° F

-30°~80° C

## **Maintenance Specifications**†

**Expected Life** Normal Application w/ Preventative Maintenance Field Repairable Seal Repair Kits Available

5 million cycles 10+ million cycles\* Yes

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

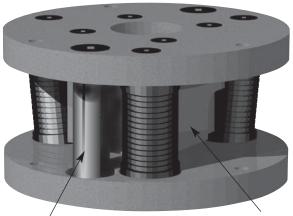
# **Product Features**

## **Quality Components**

Anodized aluminum components Elements are cutting fluid and coolant resistant

# **Lifetime Lubrication**

Life time cylinder and locking mechanism lubrication



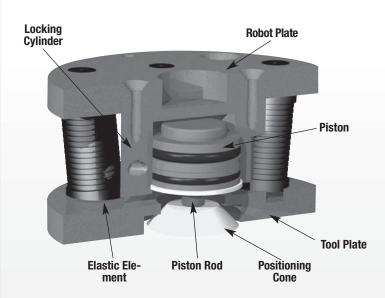
#### Overload Pins

Overload pins (sizes 80, 100 and 300) and anti-rotation device (sizes 160 and larger)

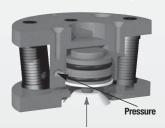
## **Locking Cylinder**

Locking cylinder (standard on 125 and larger) creates a rigid coupling between the robot and tool plates

# **Operating Principle**







- Two aluminum plates are connected by elastomeric elements which allow lateral, angular, and rotational movement between them.
- Larger units with locking cylinder allow the two plates to be rigidly connected to one another during acceleration or deceleration of the payload.

# **Style-RCW Compliance Wrist**

**Size -50** 

Style: Max. Payload: Lateral Comp. (X/Y): Weight: **RCW-50-3**2.4 lbs. 1.0 Kg
0.118 in. 3 mm
0.57 lbs. 0.26 Kg



See **6.60** 

## **Style-RCW Compliance Wrist**

**Size -80** 

Style: Max. Payload: Lateral Comp. (X/Y): Weight: **RCW-80-3** 5 lbs. 2.4 Kg 0.118 in. 3 mm 0.57 lbs. 0.26 Kg



See **6.61** 

## **Style-RCW Compliance Wrist**

Size -100 S

Style: Max. Payload: Lateral Comp. (X/Y): Weight:

**RCW-100-4,-6** 8 lbs. 3.5 Kg 0.118 in. 3 mm 1.0 lbs. 0.4 Kg



See 6.62 & 6.63

# **Style-RCW Compliance Wrist**

Size -125

Style: Max. Payload: Lateral Comp. (X/Y): Weight: **RCW-125-6** 15 lbs. 7 Kg 0.079 in. 2 mm 2.6 lbs. 1.2 Kg



See **6.64** 

## **Style-RCW Compliance Wrist**

**Size -160** §

Style: Max. Payload: Lateral Comp. (X/Y): Weight:

**RCW-160-6,-8**40 lbs. 18 Kg
0.079 in. 2 mm
3 7 lbs. 1 7 Kg



See Page **6.65 & 6.66** 

## **Style-RCW Compliance Wrist**

Size -200 Sty

Style: Max. Payload: Lateral Comp. (X/Y): Weight:

**RCW-200-12** 115 lbs. 52 Kg 0.118 in. 3 mm 18.3 lbs. 8.3 Kg

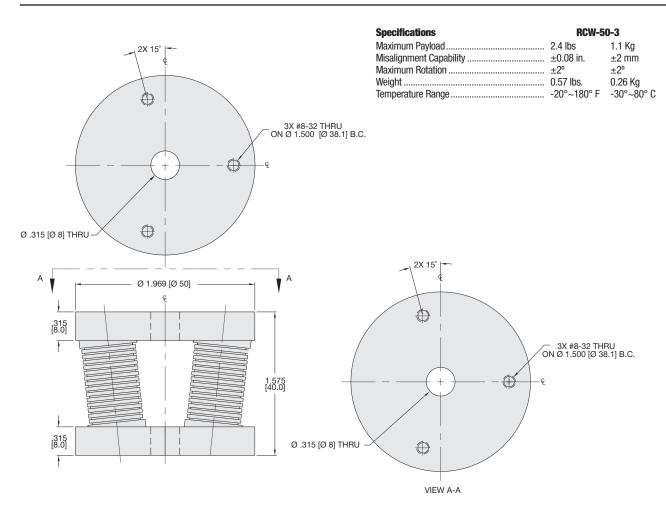
See **6.67** 

## **Style-RCW Compliance Wrist**

**Size -300** 

Style: Max. Payload: Lateral Comp. (X/Y): Weight: **RCW-300-12** 330 lbs. 150 Kg 0.098 in. 2 mm 12.8 lbs. 5.8 Kg

See **6.68** 





#### **Loading Information How to Order: BASIC MODEL RCW-50-3 Loading Capacity** Metric Imperial Maximum Force F 18 lbs. 80 N Maximum Tension T 90 lbs. 400 N Maximum Compressive C 90 lbs. 400 N Maximum Moment Mx 177 in.-Ibs. 20 Nm Maximum Moment My 177 in.-Ibs. 20 Nm Maximum Moment Mz Maximum Payload W 177 in.-Ibs. 20 Nm 2.4 lbs. 1.1 Kg **Stiffness Information** Imperial Metric Torsional Stiffness about Z axis 157 in-lbs/deg 17 N-m/deg Lateral Stiffness (X and Y axis) 228 lbf/in 40 N/mm Axial Stiffness (compression Z axis) 9136 lbf/in 1600 N/mm Insertion Point L Max 50 mm 2 in.

**(** 

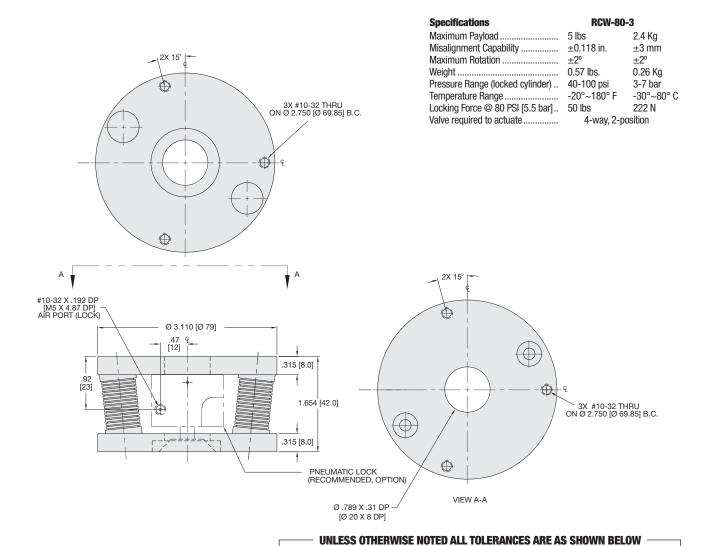
Metric Threads

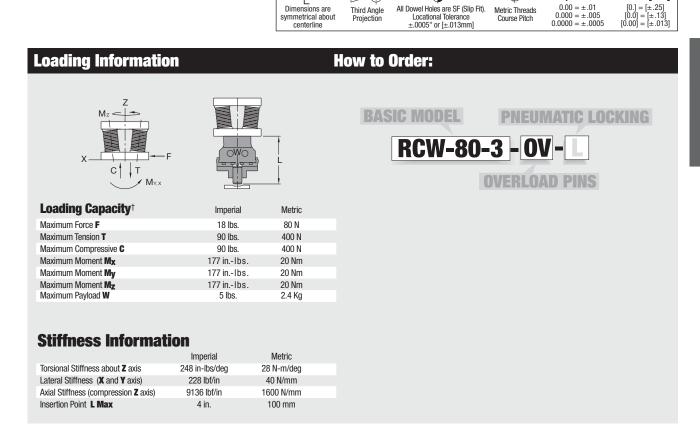
Imperial in.

Metric [mm]

6.61

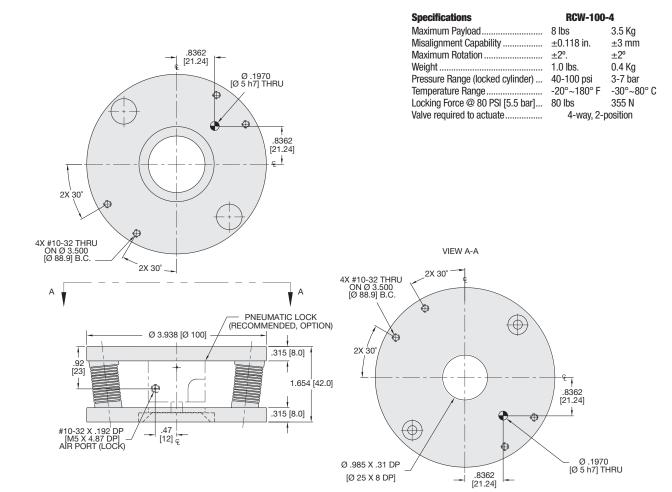




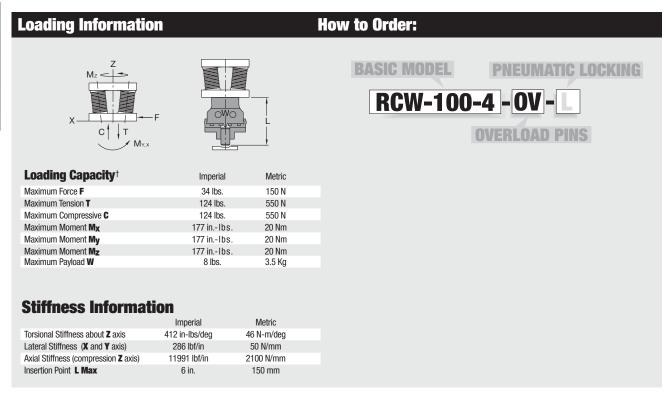


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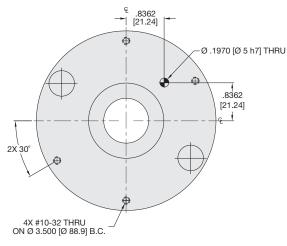
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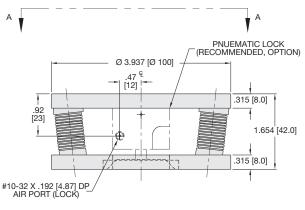


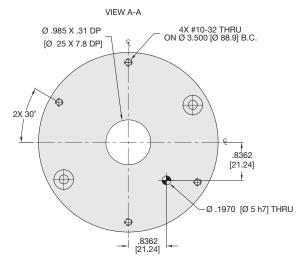






#### **Specifications RCW-100-6** Maximum Payload.. Misalignment Capability ...... ±0.118 in. ±3 mm Maximum Rotation ..... $\pm 2^{\circ}$ $\pm 2^{\circ}$ 0.4 Kg Weight .... 1.0 lbs. Pressure Range (locked cylinder) ..... 40-100 psi 3-7 bar Temperature Range..... -20°~180° F -30°~80° C Locking Force @ 80 PSI [5.5 bar]...... 80 lbs 355 N Valve required to actuate..... 4-way, 2-position





# UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

P
Dimensions are
symmetrical about
centerline

ightarrowThird Angle Projection

Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]

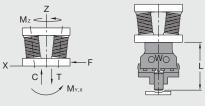
 $\bigoplus$ Metric Threads Course Pitch

Imperial in.  $0.00 = \pm .01$   $0.000 = \pm .005$   $0.0000 = \pm .0005$ 

Metric [mm]  $[0.] = [\pm .25]$   $[0.0] = [\pm .13]$   $[0.00] = [\pm .013]$ 

# **Loading Information**

# **How to Order:**



X C T My.x	owo .
Loading Capacity <sup>†</sup>	Imperial N

55 lbs.

180 lbs.

180 lbs.

265 in.-1bs.

265 in.-1bs.

265 in.-1bs.

Metric

240 N

800 N

800 N

30 Nm

30 Nm

30 Nm

3.5 Kg

# **BASIC MODEL** PNEUMATIC LOCKING RCW-100-6 - OV -

**OVERLOAD PINS** 

# **Stiffness Information**

Maximum Force F

Maximum Tension T

Maximum Compressive C

 $\text{Maximum Moment } \textbf{M}_{\textbf{X}}$ 

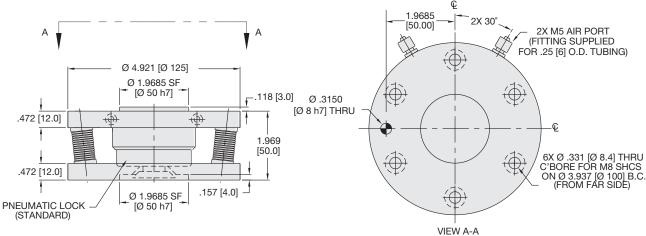
Maximum Moment My

Maximum Moment Mz

Maximum Payload W

Imperial	Metric
8 in-lbs/deg 71	N-m/deg
457 lbf/in 8	30 N/mm
8275 lbf/in 32	200 N/mm
6 in.	150 mm
	8 in-lbs/deg 71 457 lbf/in 8 8275 lbf/in 32

Specifications	RCW-125-6	
Maximum Payload	15 lbs	7 Kg
Misalignment Capability	±0.079 in.	±2 mm
Maximum Rotation	±1°	±1°
Weight	2.6 lbs.	1.2 Kg
Pressure Range (locked cylinder)		3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]		600 N
Valve required to actuate	4-way, 2-p	osition

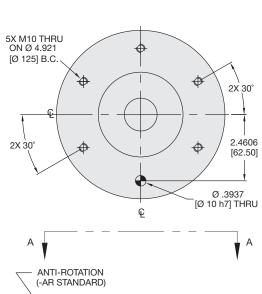




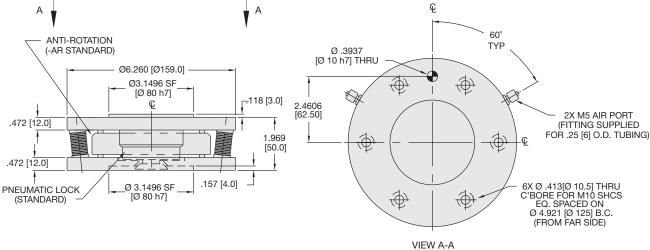
#### **How to Order: Loading Information BASIC MODEL RCW-125-6** C T Myx **Loading Capacity**† Imperial Metric **PNEUMATIC ACCESSORIES** ORDER # OTY/UNIT Maximum Force F 36 lbs. 160 N Standard Seal Repair Kit **SLKT-227** Maximum Tension T 180 lbs. 800 N Maximum Compressive C 180 lbs. 800 N Maximum Moment Mx 265 in.-1bs. 30 Nm Maximum Moment My 265 in.-Ibs. 30 Nm Maximum Moment Mz 265 in.-lbs. 30 Nm Maximum Payload W 15 lbs. 7 Kg **Stiffness Information** Imperial Metric Torsional Stiffness about Z axis 785 in-lbs/deg 88 N-m/deg Lateral Stiffness ( $\boldsymbol{X}$ and $\boldsymbol{Y}$ axis) 457 lbf/in 80 N/mm Axial Stiffness (compression Z axis) 18275 lbf/in 3200 N/mm Insertion Point L Max 8 in. 200 mm

6.64





**Specifications** RCW-160-6 Maximum Payload... 40 lbs Misalignment Capability ..... ±0.079 in. ±2 mm Maximum Rotation ..... ±1° ±1° 1.7 Kg Weight .... 3.7 lbs 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]...... 110 lbs 489 N Valve required to actuate..... 4-way, 2-position



## UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

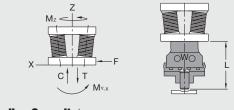


All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm] Metric Threads Course Pitch Imperial in.  $0.00 = \pm .01$   $0.000 = \pm .005$   $0.0000 = \pm .0005$ 

Metric [mm]  $[0.] = [\pm .25]$   $[0.0] = [\pm .13]$   $[0.00] = [\pm .013]$ 



# **How to Order:**



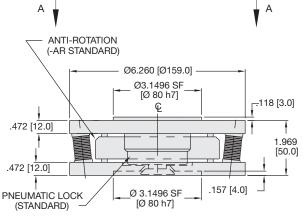
Loading Capacity <sup>†</sup>	Imperial	Metric
Maximum Force <b>F</b>	36 lbs.	160 N
Maximum Tension <b>T</b>	180 lbs.	800 N
Maximum Compressive C	180 lbs.	800 N
Maximum Moment M <sub>X</sub>	265 in1bs.	30 Nm
Maximum Moment <b>My</b>	265 in1bs.	30 Nm
Maximum Moment Mz	265 in1bs.	30 Nm
Maximum Payload <b>W</b>	40 lbs.	18 Kg

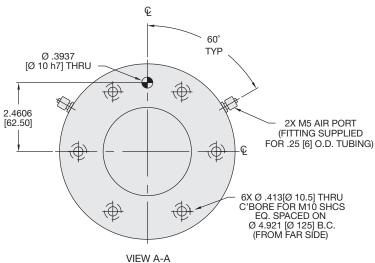
## **Stiffness Information**

	Imperial	Metric
Torsional Stiffness about <b>Z</b> axis	998 in-lbs/deg	113 N-m/deg
Lateral Stiffness (X and Y axis)	457 lbf/in	80 N/mm
Axial Stiffness (compression <b>Z</b> axis)	18275 lbf/in	3200 N/mm
Insertion Point L Max	12 in.	300 mm

RCW-160-6 - AR

0° C



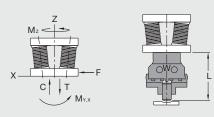


### **UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW**

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UNLE	—— UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW ———					
Ç	$\rightarrow \oplus$	•	$\bigoplus$	Imperial in.	Metric [mm]	
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	$0.00 = \pm .01$ $0.000 = \pm .005$ $0.0000 = \pm .0005$	$[0.] = [\pm .25]$ $[0.0] = [\pm .13]$ $[0.00] = [\pm .013]$	

# **Loading Information**

# **How to Order:**



<b>BASIC MODEL</b>	ANTI-ROTATION
<b>RCW-16</b> (	0-8 - AR

Loading Capacity <sup>†</sup>	Imperial	Metric	
Maximum Force F	45 lbs.	200 N	
Maximum Tension <b>T</b>	225 lbs.	1001 N	
Maximum Compressive C	225 lbs.	1001 N	
Maximum Moment M <sub>X</sub>	708 in1bs.	80 Nm	
Maximum Moment My	708 inlbs.	80 Nm	
Maximum Moment Mz	708 inlbs.	80 Nm	
Maximum Payload W	40 lbs.	18 Ka	

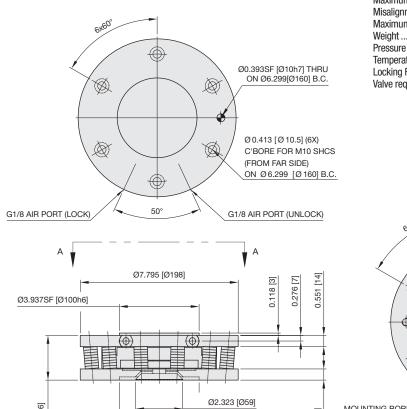
## **Stiffness Information**

	Imperial	Metric	
Torsional Stiffness about <b>Z</b> axis	1310 in-lbs/deg	148 N-m/deg	
Lateral Stiffness (X and Y axis)	570 lbf/in	100 N/mm	
Axial Stiffness (compression <b>Z</b> axis)	23985 lbf/in	4200 N/mm	
Insertion Point L Max	12 in.	300 mm	

6,66



2.205 [56]

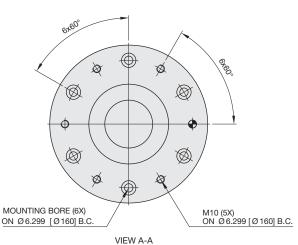


Ø3.937SF x 0.138DP

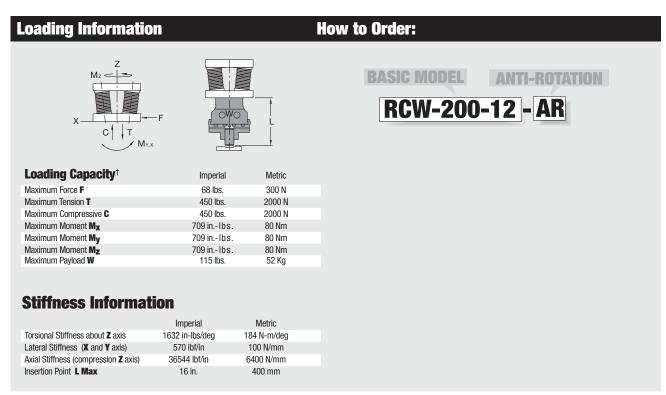
[Ø100h7 x 3.5DP]

0.551

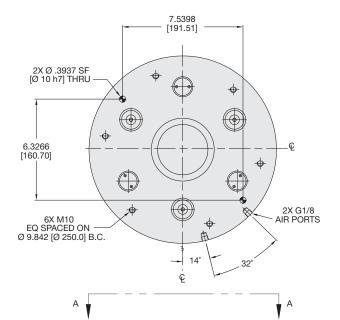
Specifications	RCW-200-12	
Maximum Payload	115 lbs	52 Kg
Misalignment Capability	±0.118 in.	±3 mm
Maximum Rotation	±1°	±1°
Weight	18.3 lbs.	8.3 Kg
Pressure Range (locked cylinder)	40-100 psi	3-7 bar
Temperature Range	-20°∼180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	400 lbs	1779 N
Valve required to actuate	4-way, 2-position	











2X Ø 3.9370 SF [Ø 100 h7]

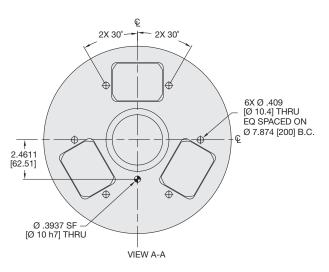
Ø 11.811 [Ø 300.0]

PNEUMATIC LOCK (STANDARD)

> 2X Ø 3.1496 SF [Ø 80 h7]

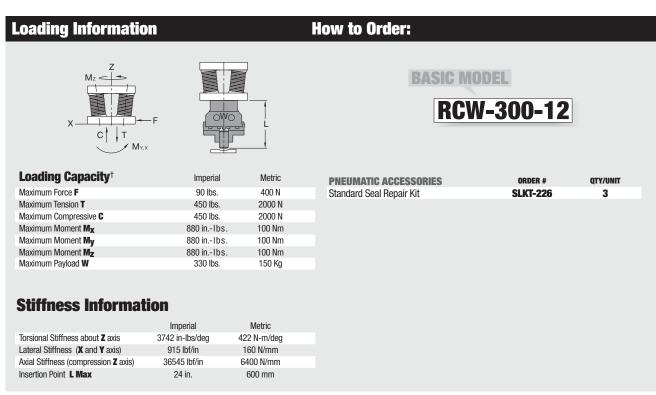
[12.0]

Specifications	RCW-300-12	
Maximum Payload	330 lbs	150 Kg
Misalignment Capability	±0.098 in.	±2.5 mm
Maximum Rotation	±1°	±1°
Weight	12.8 lbs.	5.8 Kg
Pressure Range (locked cylinder)		3-7 bar
Temperature Range	-20°~180° F	-30°~80° C
Locking Force @ 80 PSI [5.5 bar]	400 lbs	1779 N
Valve required to actuate	4-way, 2-position	



## UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

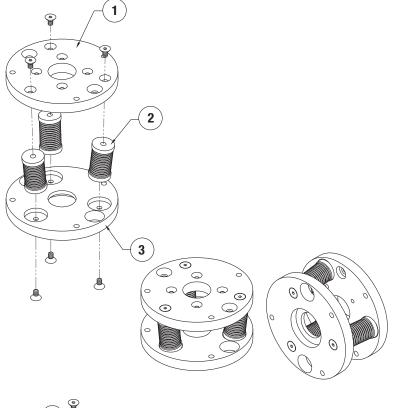


OVERLOAD PINS

(STANDARD)

.138 [3.5] 1.969 [50.0]





Item	Qty	Name
01	1	Top Plate
02	Χ	Flexible Element
03	1	Bottom Plate
04	1	Locking Cylinder
05	1	Overload Pin
06	1	Piston
07	1	Cap
08	1	Centering Cone

**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

