

Parallel Grippers

Clean Room / Harsh Environments Series



- **Precision applications:**

Preloaded "Dual-V" roller bearings eliminate side play for excellent part position repeatability.

- **Clean Room rated:**

A corrosion resistant shield protects the drive and bearing mechanism. All internal components are lubricated with clean room grade lubricant. The scavenge port can be used with vacuum pressure to prevent escape of particulate generated by the internal mechanism.

- **Harsh environments:**

All moving components are located within the stainless steel shield. The body has a purge port which can expel contaminants from the mechanism using low air pressure.

- **Repeatable grip force:**

Low friction mechanism allows for consistent, repeatable gripping forces. To grip delicate parts, grip force can be easily altered by adjusting air pressure.

- **Longer finger applications:**

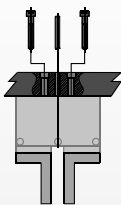
Rigid design allows for longer gripper finger lengths to be used when compared to other grippers of equal weight.

- **Non-synchronous motion:**

The unit can be made non-synchronous providing independent jaw motion allowing the gripper to pick or place at a point other than its center.

Mounting Information:

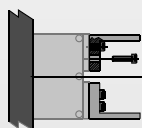
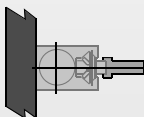
Grippers can be mounted & operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy



Shields provide protection from falling debris when mounted upside down



Fingers attach to jaws with screws and locate by keying

Technical Specifications:

Pneumatic Specifications

Pressure Operating Range
Cylinder Type
Dynamic Seals
Valve Required to Operate

Imperial
5-100 psi

Metric
.3-7 bar
Dual 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)
Viton® Seals (optional)

-30°~180° F
-20°~250° F
-35°~80° C
-30°~120° C

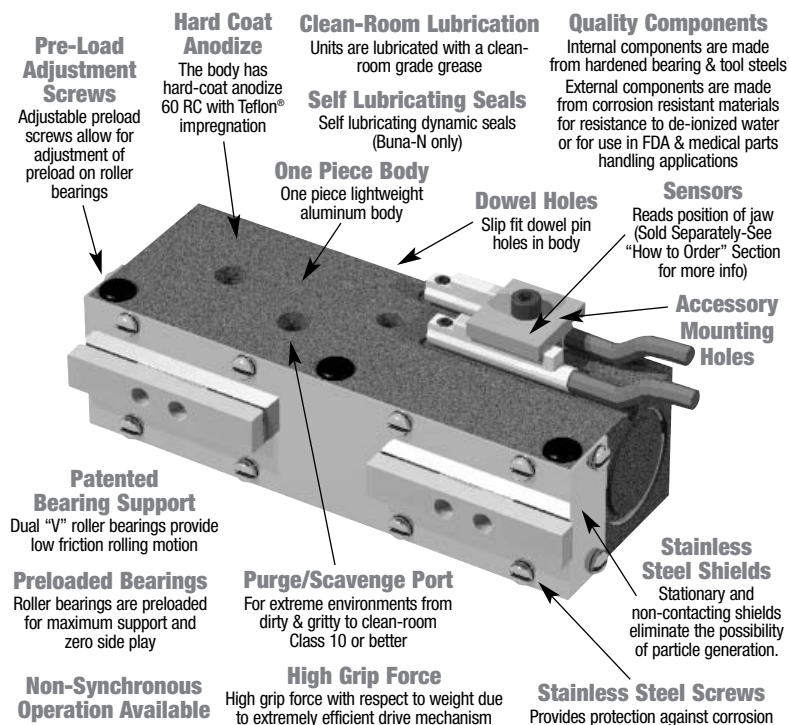
Maintenance Specifications†

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

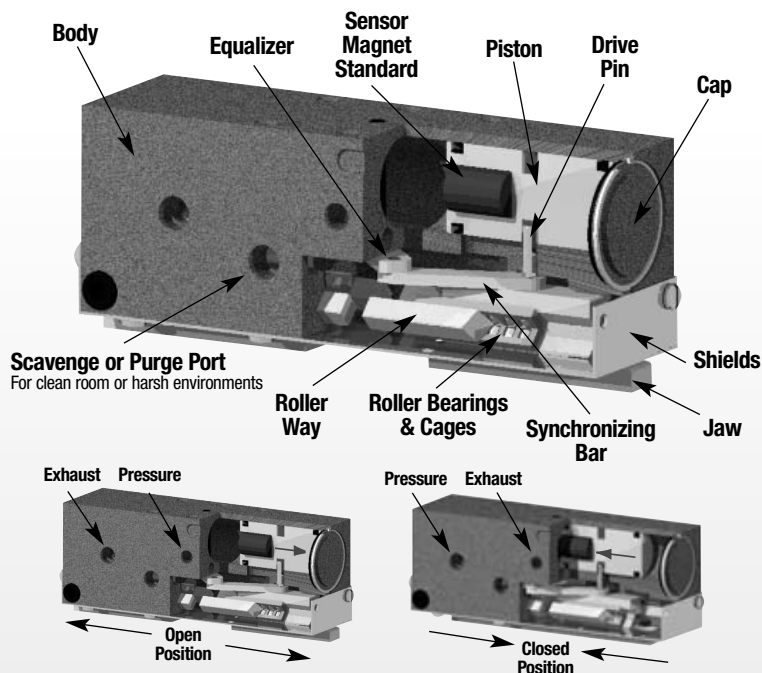
5 million cycles
10+ million cycles*
Yes
Yes

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

Product Features



Operating Principle



- Dual double acting opposed pistons, connected to both a jaw and a synchronizing bar by a drive pin, actuate in opposite directions.
- The synchronizing bars are connected to the equalizer which synchronizes the motion.
- The purge/scavenge port can be used to expel or retain contaminants using pressure or vacuum respectively.
- Suitable for internal or external gripping.
- The synchronizing elements can be removed for non-synchronous operation.

U.S. Patent # 5,529,359 Designed and manufactured in the USA

Style-RPLC Parallel Gripper

Size -1M

Style:	RPLC-1	RPLC-1M
Stroke:	0.25 in.	6.4 mm
Grip Force:	26 lb	116 N
Weight:	.16 lb	.07 Kg



See Page **1.100**

Style-RPLC Parallel Gripper

Size -2M

Style:	RPLC-2	RPLC-2M
Stroke:	0.50 in.	12.7 mm
Grip Force:	26 lb	116 N
Weight:	.20 lb	.09 Kg



See Page **1.101**

Style-RPLC Parallel Gripper

Size -3M

Style:	RPLC-3	RPLC-3M
Stroke:	0.75 in.	19.1 mm
Grip Force:	36 lb	160 N
Weight:	.32 lb	.15 Kg



See Page **1.102**

Style-RPLC Parallel Gripper

Size -4M

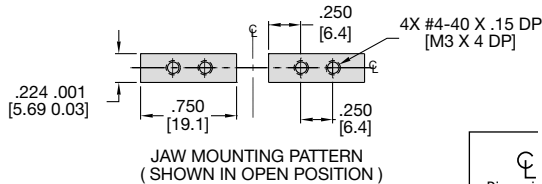
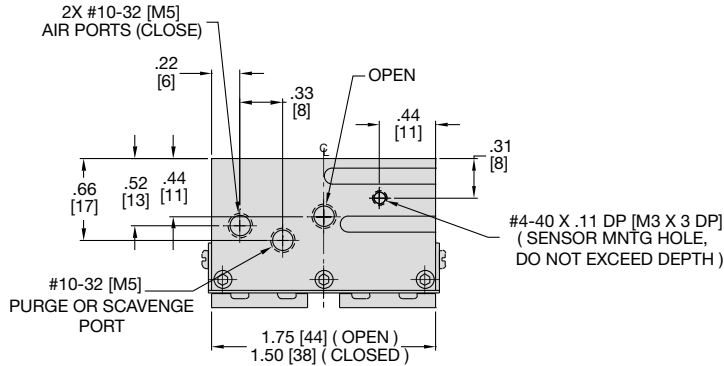
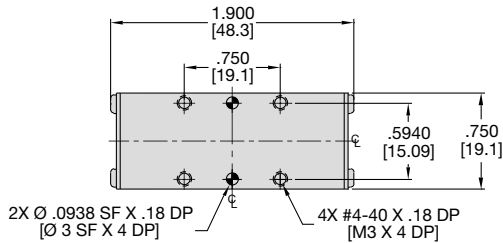
Style:	RPLC-4	RPLC-4M
Stroke:	1.00 in.	25.4 mm
Grip Force:	36 lb	160 N
Weight:	.38 lb	.17 Kg



See Page **1.103**

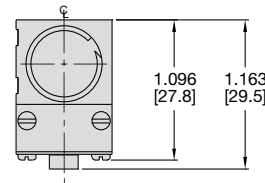
PARALLEL GRIPPER RPLC-1M

PRECISION DUAL "V" CLEAN ROOM SERIES



Specifications

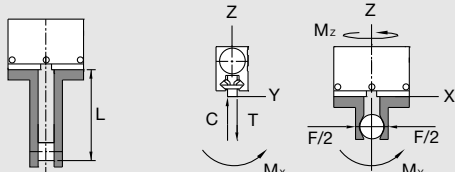
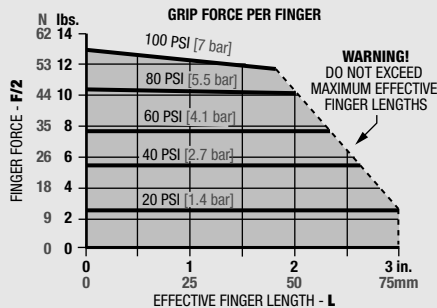
	RPLC-1	RPLC-1M
Total Rated Grip Force F @ 100 psi, 7 bar	26 lb	116 N
Stroke	0.25 in.	6.4 mm
Weight	0.16 lb	0.07 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.438 in.	11.1 mm
Displacement	0.038 in. ³	0.6 cm ³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.10 sec.	0.10 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

Loading Information



Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile T	50 lbs.	222 N	15 lbs.	67 N
Maximum Compressive C	50 lbs.	222 N	15 lbs.	67 N
Maximum Moment M_x	30 in.-lbs.	3.4 Nm	10 in.-lbs.	1.1 Nm
Maximum Moment M_y	40 in.-lbs.	4.5 Nm	12 in.-lbs.	1.4 Nm
Maximum Moment M_z	30 in.-lbs.	3.4 Nm	10 in.-lbs.	1.1 Nm

†Capacities are per set of jaws and are not simultaneous

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

BASIC MODEL **NON-SYNCHRONOUS**

RPLC-1 M - NS - V

METRIC **VITON® SEALS**

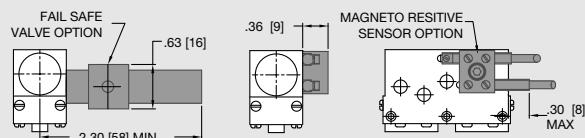
SENSOR ACCESSORIES*†

	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-010	1
Viton® Seal Repair Kit	SLKT-010V	1

*Sensor and cable sold separately †Piston magnet standard

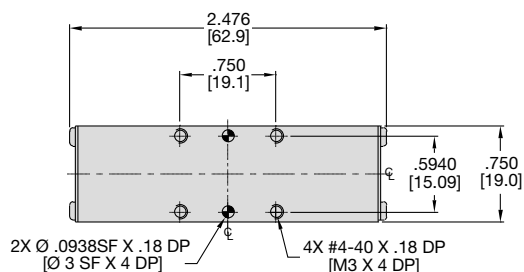




PARALLEL GRIPPER RPLC-2M PRECISION DUAL "V" CLEAN ROOM SERIES

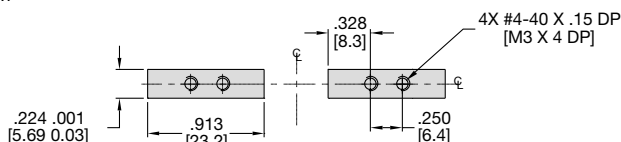
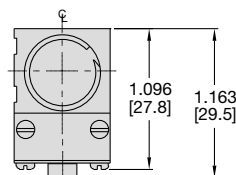
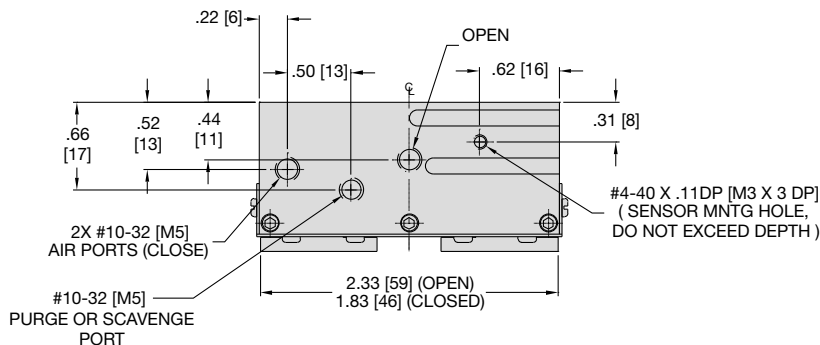
RPLC SERIES

1.101



Specifications

	RPLC-2	RPLC-2M
Total Rated Grip Force F @ 100 psi, 7 bar/26 lb		116 N
Stroke	0.50 in.	12.7 mm
Weight	0.20 lb	0.09 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.438 in.	11.1 mm
Displacement	0.075 in³	1.2 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.13 sec.	0.13 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



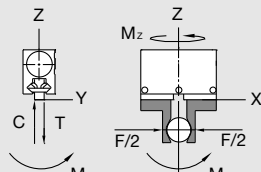
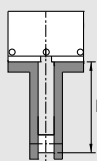
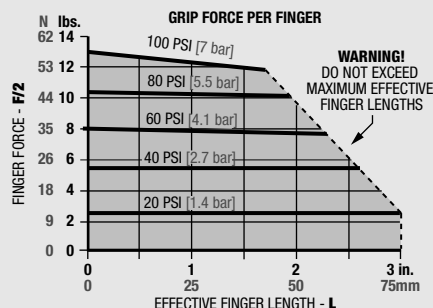
JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

Loading Information

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



Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile T	65 lbs.	289 N	20 lb	89 N
Maximum Compressive C	65 lbs.	289 N	20 lb	89 N
Maximum Moment Mx	45 in.-lbs.	5.1 Nm	15 in.-lbs.	1.7 Nm
Maximum Moment My	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment Mz	45 in.-lbs.	5.1 Nm	15 in.-lbs.	1.7 Nm

†Capacities are per set of jaws and are not simultaneous

BASIC MODEL **NON-SYNCHRONOUS**
RPLC-2 **M** - **NS** - **V**
METRIC **VITON® SEALS**

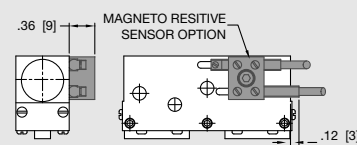
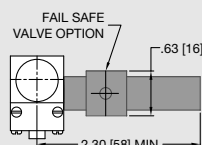
SENSOR ACCESSORIES*

	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-010	1
Viton® Seal Repair Kit	SLKT-010V	1

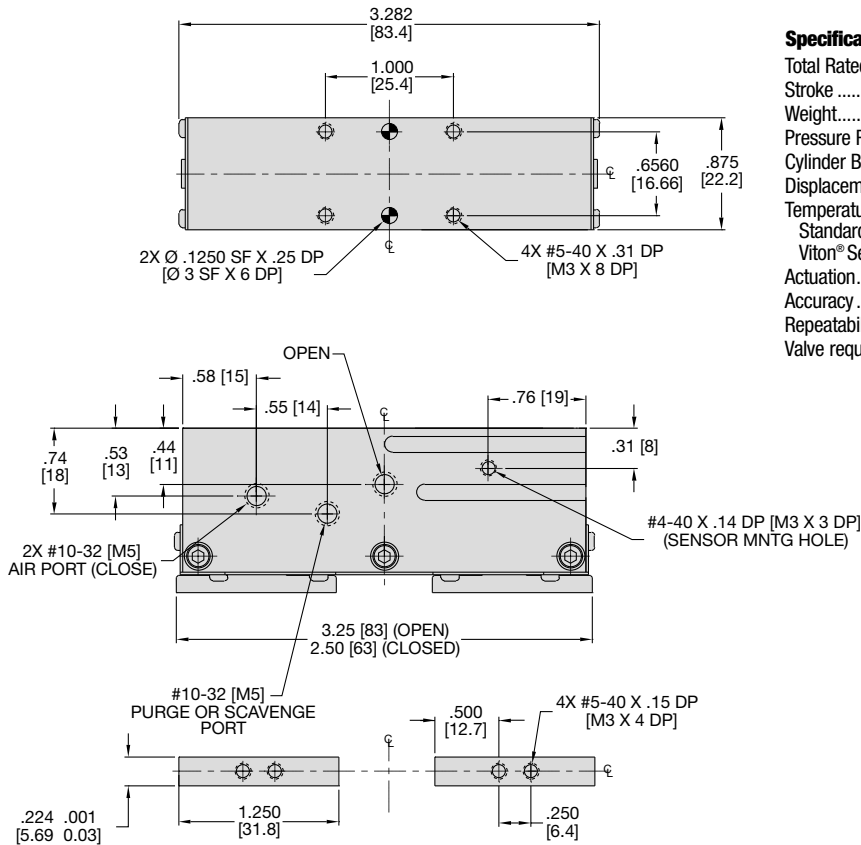
*Sensor and cable sold separately *Piston magnet standard



Please see back cover for DE-STA-CO Global Locations. www.destaco.com

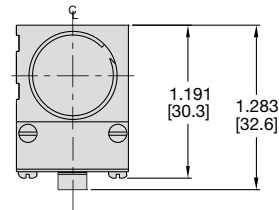
www.comoso.com

PARALLEL GRIPPER RPLC-3M PRECISION DUAL "V" CLEAN ROOM SERIES



Specifications

	RPLC-3	RPLC-3M
Total Rated Grip Force F @ 100 psi, 7 bar	36 lb	160 N
Stroke	0.75 in.	19.1 mm
Weight	0.32 lb	0.15 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.500 in.	12.7 mm
Displacement	0.147 in ³	2.4 cm ³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.14 sec.	0.14 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	

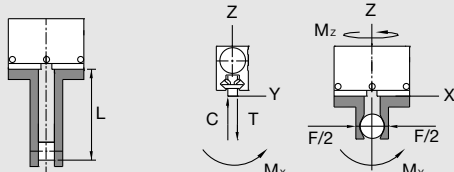
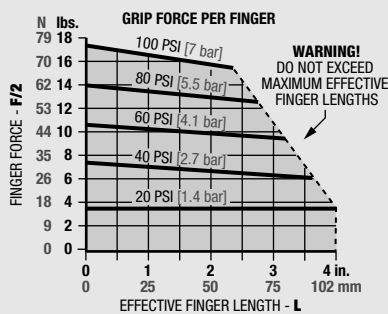


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

Loading Information

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



Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile T	90 lbs.	400 N	30 lbs.	133 N
Maximum Compressive C	90 lbs.	400 N	30 lbs.	133 N
Maximum Moment M_x	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm
Maximum Moment M_y	80 in.-lbs.	9.0 Nm	25 in.-lbs.	2.8 Nm
Maximum Moment M_z	60 in.-lbs.	6.8 Nm	20 in.-lbs.	2.3 Nm

†Capacities are per set of jaws and are not simultaneous

BASIC MODEL NON-SYNCHRONOUS

RPLC-3 M - NS - V

METRIC VITON® SEALS

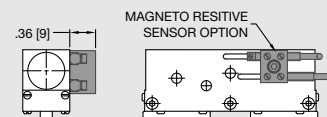
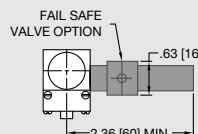
SENSOR ACCESSORIES†

	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-012	1
Viton® Seal Repair Kit	SLKT-012V	1

*Sensor and cable sold separately †Piston magnet standard

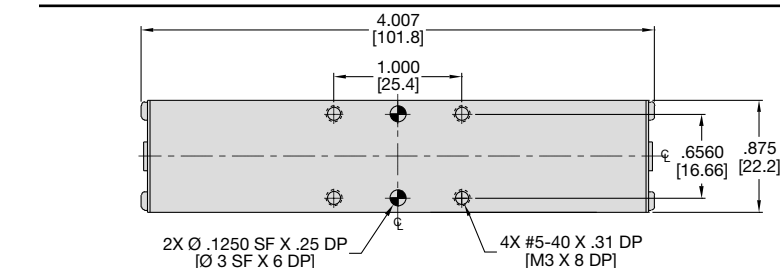




PARALLEL GRIPPER RPLC-4M PRECISION DUAL "V" CLEAN ROOM SERIES

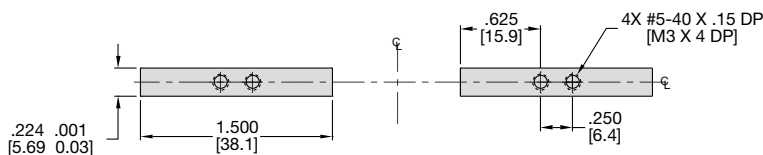
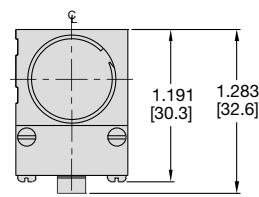
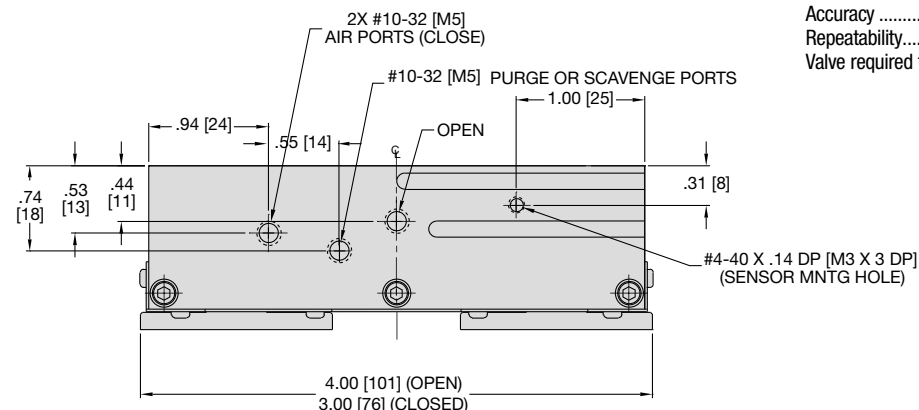
RPLC SERIES

1.103



Specifications

	RPLC-4	RPLC-4M
Total Rated Grip Force F @ 100 psi, 7 bar	36 lb	160 N
Stroke	1.00 in.	25.4 mm
Weight	0.38 lb	0.17 Kg
Pressure Range	5-100 psi	0.3-7 bar
Cylinder Bore Ø	0.500 in.	12.7 mm
Displacement	0.196 in³	3.2 cm³
Temperature Range		
Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~250° F	-30°~120° C
Actuation	0.19 sec.	0.19 sec.
Accuracy	±0.002 in.	±0.05 mm
Repeatability	±0.001 in.	±0.03 mm
Valve required to actuate	4-way, 2-position	



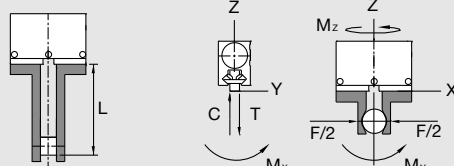
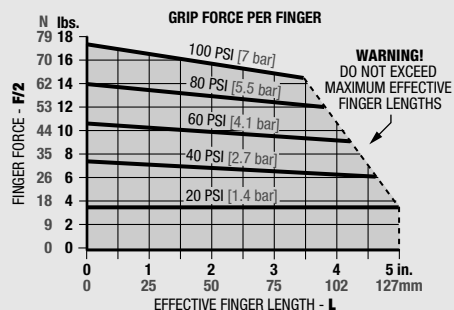
JAW MOUNTING PATTERN
(SHOWN IN OPEN POSITION)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

Loading Information

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



Loading Capacity†

	Static		Dynamic	
	Imperial	Metric	Imperial	Metric
Maximum Tensile T	120 lbs.	534 N	40 lbs.	178 N
Maximum Compressive C	120 lbs.	534 N	40 lbs.	178 N
Maximum Moment M_x	75 in.-lbs.	8.5 Nm	25 in.-lbs.	2.8 Nm
Maximum Moment M_y	100 in.-lbs.	11.3 Nm	35 in.-lbs.	4.0 Nm
Maximum Moment M_z	75 in.-lbs.	8.5 Nm	25 in.-lbs.	2.8 Nm

†Capacities are per set of jaws and are not simultaneous

BASIC MODEL NON-SYNCHRONOUS

RPLC-4 M - NS - V

METRIC VITON® SEALS

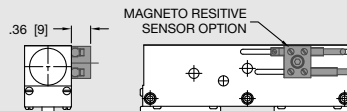
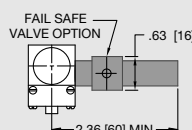
SENSOR ACCESSORIES†

	ORDER #	QTY/UNIT
Sensor Mounting Kit for Imperial & Metric Units (mounts 2 sensors)	OSMK-008	1
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
Quick Disconnect 2 Meter Cable Length*	CABL-010	1 or 2
Quick Disconnect 5 Meter Cable Length*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Fail Safe Valve (Imperial)	OFSV-001	1
Fail Safe Valve (Metric)	OFSV-004	1
Standard Seal Repair Kit	SLKT-012	1
Viton® Seal Repair Kit	SLKT-012V	1

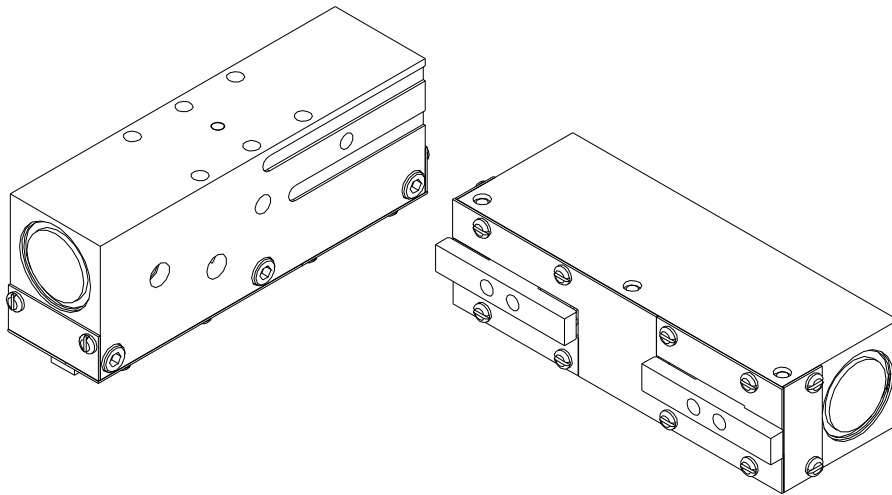
*Sensor and cable sold separately †Piston magnet standard



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RPLC Series Exploded View



Item	Qty	Name
01	1	Body
02	1	Piston
03	2	Cap
04	1	Equalizer
05	2	Link
06	4	Way
08	2	Jaw
10	1	Cover, Bottom
11	2	Cover, Bottom, Corners
12	2	Cover, End
13	2	Bearing, Roller
20	1	Piston W/Magnet Slot
21	4	S'assy, Cage & Rollers
30	3	SHCS
31	1	Dowel Pin
32	2	Dowel Pin
40	2	Magnet

Note: contact the robohand sales department for a complete spare parts list with order numbers and prices.

Assembly procedure

- 1) Lubricate and install seals.
- 2) Glue magnets into one piston, install pistons, caps and retaining rings.
- 3) Press dowel pin into center of body.
- 4) Place links and equalizers into body.
- 5) Press dowel pins into jaws.
- 6) Place ways through links and into pistons.
- 7) Install cages on jaws.
- 8) Place ways behind cages with flat facing out and install screws.
- 9) Adjust preload.
- 10) Install bottom cover, bottom cover corners and end covers.

Preload adjustment procedure

- 1) Tighten center screw (#30) so that fingers preload adjustment procedure
- 2) Tighten outer screws in the same fashion. Bind slightly.
- 3) Cycle the gripper.
- 4) Re-adjust screws so that when you push the cage, the finger moves freely. (the finger movement should not feel gritty.)

Non-synchronous procedure

- 1) Remove end covers, bottom cover corners, and bottom cover.
- 2) Remove preload screws (#30) and ways.
- 3) Remove cages, jaws and dowel pins.
- 4) Remove equalizer, links, and roller bearings.
- 5) Re-assemble jaws and dowel pins into pistons.
- 6) Re-install cages on jaws.
- 7) Place ways behind cages with flat facing out and
- 8) Adjust preload. Install preload screws.
- 9) Re-attach bottom cover, bottom cover corners and end covers. Gripper is now non-synchronous.

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



Seal Kit
Items



Thread
Locker



Krytox™
Lubricant



Lightweight
Machine Oil



Teflon® Based
Grease



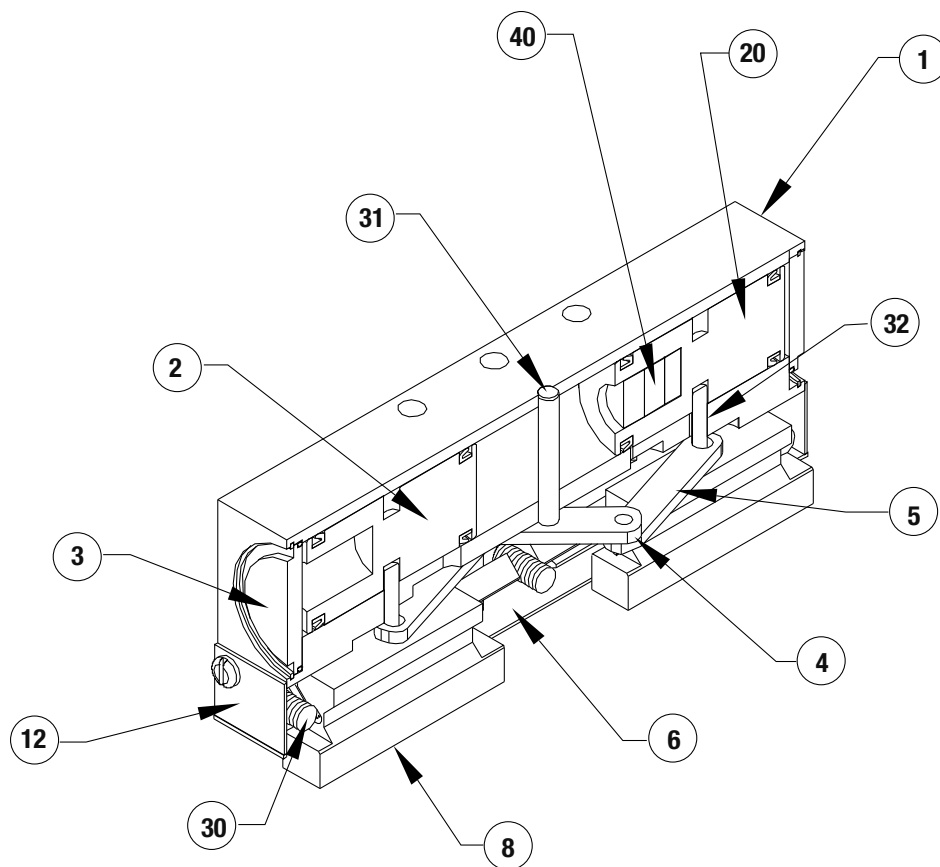
Super
Bonder



Third Angle
Projection

Please see back cover for DE-STA-CO Global Locations. www.destaco.com

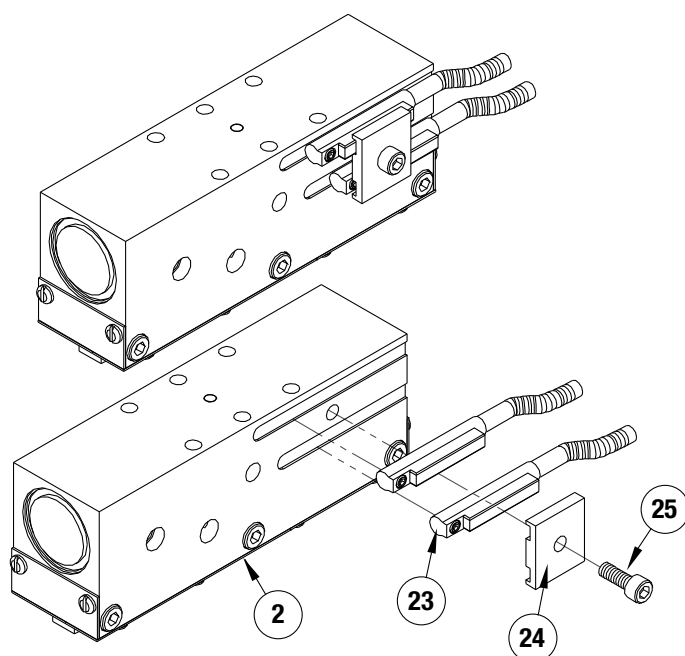
www.comoso.com



Item	Qty	Name
01	1	Body
02	1	Piston
03	2	Cap
04	1	Equalizer
05	2	Link
06	4	Way
08	2	Jaw
10	1	Cover, Bottom
11	2	Cover, Bottom, Corners
12	2	Cover, End
13	2	Bearing, Roller
20	1	Piston W/Magnet Slot
21	4	S'assy, Cage & Rollers
30	3	SHCS
31	1	Dowel Pin
32	2	Dowel Pin
40	2	Magnet

Note: contact the robohand sales department for a complete spare parts list with order numbers and prices.

Accessory Installation & Adjustment Instructions



Installation

- 1) Install sensors as shown.
- 2) Adjust for desired end of stroke detection.



Seal Kit
Items



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