

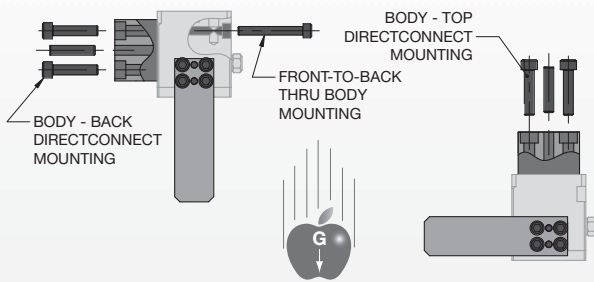
Parallel Grippers - DPDS DIRECTCONNECT™ Modular Series

NO ADAPTER PLATES!

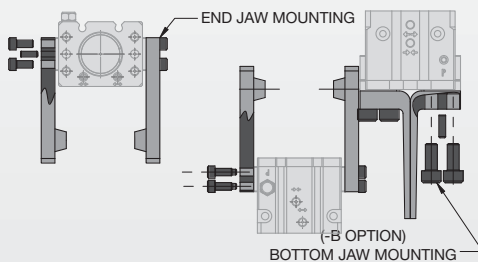
- **Multiple mounting locations:** DIRECTCONNECT™ tapped and dowel mounting on top and back of body.
- **Thru-body mounting:** Front-to-back thru-body mounting.
- **Multiple air port positions:** Tapped air ports on front, top, and back sides are standard.
- **Front purge/scavenge port:** Negative pressure used as a scavenge port for clean room applications. Positive pressure used as a purge port to repel contaminants in harsh environments. Port can also be used for lubrication.
- **Manifold air porting:** Top and back air ports can be manifold o-ring sealed.
- **Sensing:** Full range adjustable magneto resistive sensors.
- **Different strokes:** All gripper sizes are available in 3 different strokes.
- **Multiple jaw styles:** All sizes available with end mounts jaws as standard or bottom mount jaws as an option.
- **Long finger applications:** Rigid design and full body support of jaws allows for longer finger lengths.

Mounting Information:

Gripper can be mounted and operated in any orientation



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



Fingers attach with screws and locate on jaws by keying and/or dowel pins. Fingers can be mounted in any orientation with respect to the jaw.

Technical Specifications:

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

Imperial
 20-100 psi
Metric
 1.5-7 bar
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 -35°~80° C
 -20°~300° F -30°~150° C

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

5 million cycles
 10+ million cycles*
 Yes
 Yes

Application Restrictions
 Applications where mechanism lubricant could cause contamination (use DPDL gripper with -E sealed jaw option)

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

DIRECTCONNECT™

Product Features

Hard Coat Anodize

The body and bottom plate have hard-coat anodize 60RC with Teflon® impregnation

High Temperature

Optional Viton® seals are available for high temperature applications

Multiple Air Port Locations

3 standard air port locations (front, back, & top)

Sensor Mounting Slots

Standard mounting slots for magneto resistive (sensors sold separately)

One Piece Body

One piece lightweight aircraft quality aluminum body

Manifold Air Ports

Back & top air ports can be O-ring manifold sealed to eliminate air lines

Dowel Holes

Slip fit dowel pin holes in body and jaws

DIRECTCONNECT

Mounting Patterns

DIRECTCONNECT™ tapped & dowel mounting surfaces on top and back of body

Thru-Body Mounting

Front-to-back thru C'bores for socket head cap screw mounting

Bottom Jaw Mounting (-B) Option

For alternate finger mounting (standard side mount jaws shown)

Extremely Rugged Design

Jaws are supported throughout the length of the body

Corrosion Resistant Hardware (-S) or Clean Room (-CR) Options

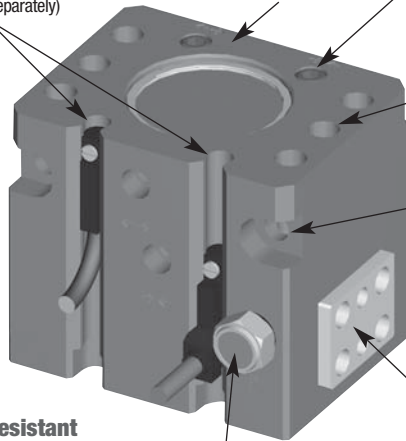
Both options have stainless and brass hardware. Clean room option uses clean room grade greases

Purge/Scavenge Port

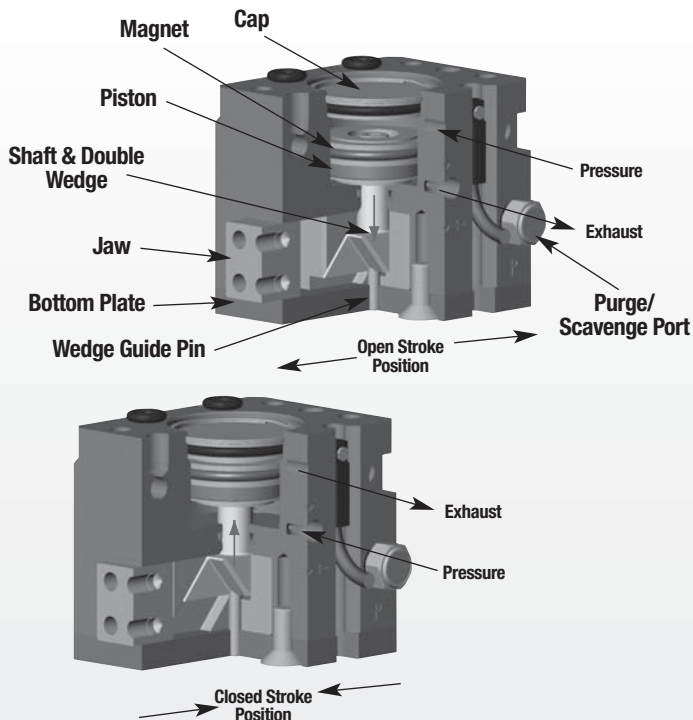
Used with a vacuum for clean room environments or positive pressure with harsh environments

Jaw Components

Hardened and precision ground steel for minimum jaw play with hard plating for wear resistance and long life



Operating Principle



- A double acting piston is connected by a shaft to a double-sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the jaws.
- The large surface area of the wedge minimizes friction wear.
- This gripper is suitable for internal or external gripping and can be mounted in any orientation.

Style -DPDS Parallel Gripper

Size -047M

Style:	DPDS-047M	
Stroke:	0.13 in.	3.2 mm
Grip Force:	14 lbs.	62 N
Weight:	0.086 lbs.	0.04 Kg



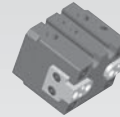
-B Bottom Jaw Mount Shown

See Page **1.136**

Style -DPDS Parallel Gripper

Size -056M

Style:	DPDS-056M	
Stroke:	0.19 in.	4.8 mm
Grip Force:	22 lbs.	98 N
Weight:	0.155 lbs.	0.07 Kg



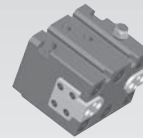
-B Bottom Jaw Mount Shown

See Page **1.138**

Style -DPDS Parallel Gripper

Size -088M

Style:	DPDS-088M	
Stroke:	0.25 in.	6.4 mm
Grip Force:	50 lbs.	222 N
Weight:	0.51 lbs.	0.23 Kg



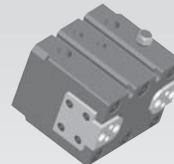
-B Bottom Jaw Mount Shown

See Page **1.140**

Style -DPDS Parallel Gripper

Size -125M

Style:	DPDS-125M	
Stroke:	0.38 in.	9.5 mm
Grip Force:	100 lbs.	445 N
Weight:	1.03 lbs.	0.46 Kg



-B Bottom Jaw Mount Shown

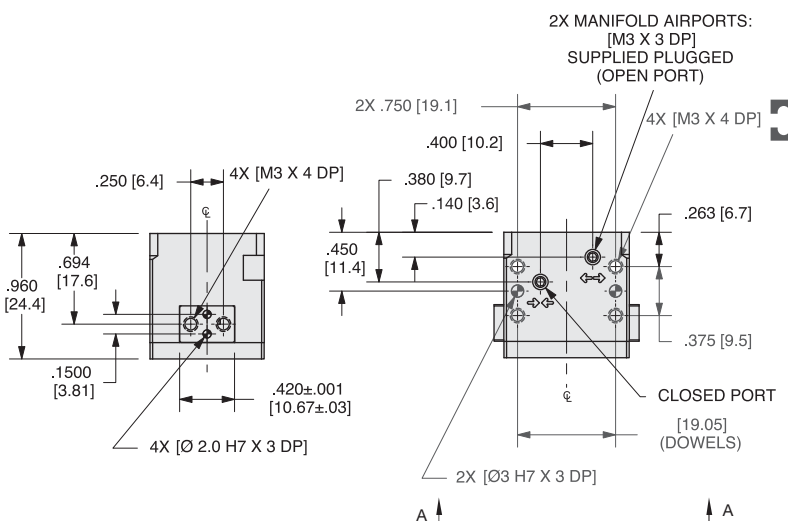
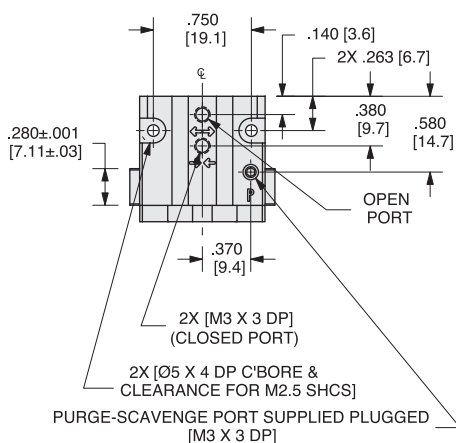
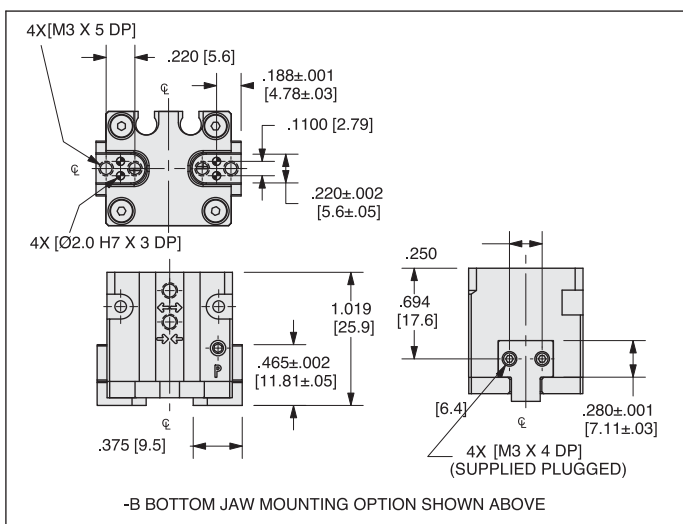
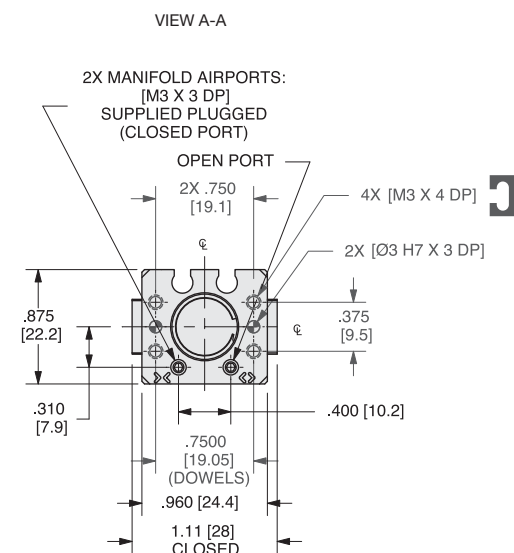
See Page **1.142**



PARALLEL GRIPPER DPDS-047M DIRECTCONNECT™ MODULAR SERIES

DPDS SERIES

1.136



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

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

BASIC MODEL **STROKE** **HARDWARE**

DPDS-047M - [] - **B** - [] - **V**

JAW MOUNTING **VITON® SEALS**

STROKE	013	.13" [3.2mm]
	009	.09" [2.4mm]
	006	.06" [1.6mm]
JAW MOUNTING	B	Bottom jaw mounting
	—	Leave blank for end jaw mounting (standard)
HARDWARE	S	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	—	Leave blank for alloy hardware (standard)
VITON®	V	High Temperature Viton® Seals

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-185	1
Viton® Seal Repair Kit	SLKT-185V	1
Manifold Seal Kit (Viton®)	SLKT-197V	1
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2

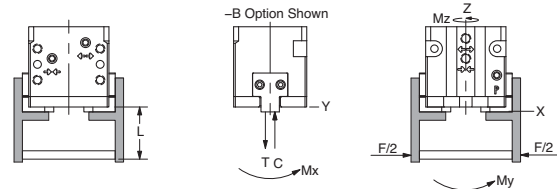
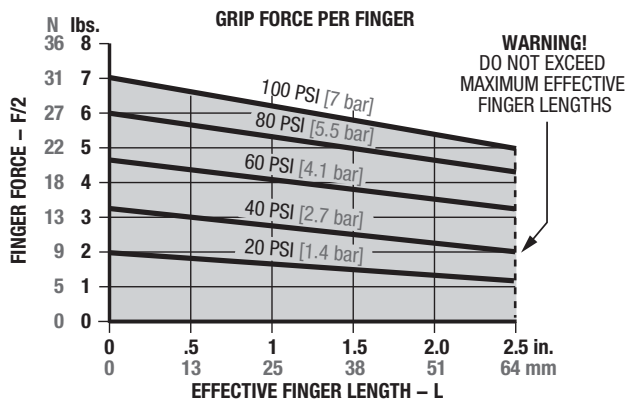
*Sensor and cable sold separately

SAMPLE ORDER: DPDS-047M-006-B-CR-V

Ex: DPDS-047M Gripper, Metric, 1.6mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

DIRECTCONNECT™

Loading Information



Loading Capacity†

DPDS-047M

	Static	Dynamic
Maximum Tensile T	30 lbs. [134 N]	6 lbs. [27 N]
Maximum Compressive C	50 lbs. [223 N]	10 lbs. [45 N]
Maximum Moment M_x	20 in.-lbs. [2 Nm]	5 in.-lbs. [0.6 Nm]
Maximum Moment M_y	20 in.-lbs. [2 Nm]	5 in.-lbs. [0.6 Nm]
Maximum Moment M_z	20 in.-lbs. [2 Nm]	5 in.-lbs. [0.6 Nm]

DPDS-047M-B (Bottom Jaw Mounting Option)

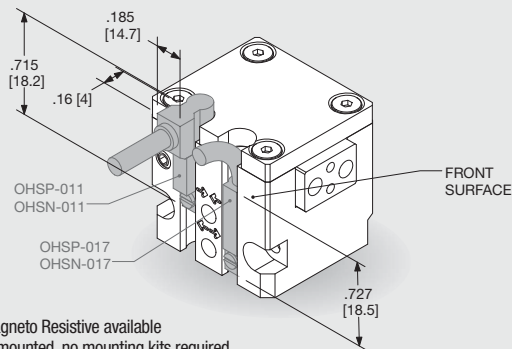
Maximum Tensile T	24 lbs. [107 N]	5 lbs. [22 N]
Maximum Compressive C	40 lbs. [178 N]	8 lbs. [36 N]
Maximum Moment M_x	16 in.-lbs. [2 Nm]	4 in.-lbs. [0.5 Nm]
Maximum Moment M_y	16 in.-lbs. [2 Nm]	4 in.-lbs. [0.5 Nm]
Maximum Moment M_z	16 in.-lbs. [2 Nm]	4 in.-lbs. [0.5 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-047M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	14 lbs.	62 N
Maximum Stroke	0.13 in.	3.2 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø.....	0.469 in.	11.9 mm
Displacement	0.013 in ³	0.2 cm ³

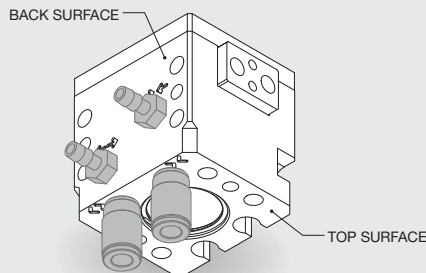
Specifications (cont.)	DPDS-047M	
Weight	0.086 lbs.	0.04 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.13 sec.	0.13 sec.
Accuracy.....	±0.002 in.	±0.05 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



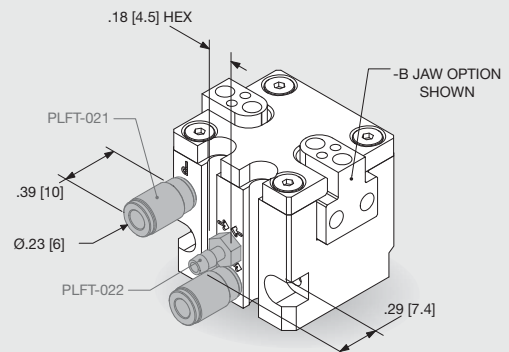
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



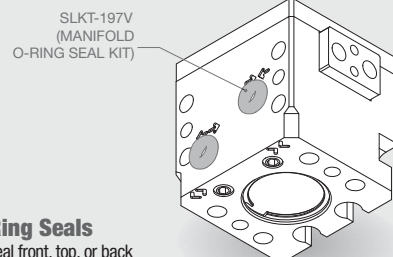
Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



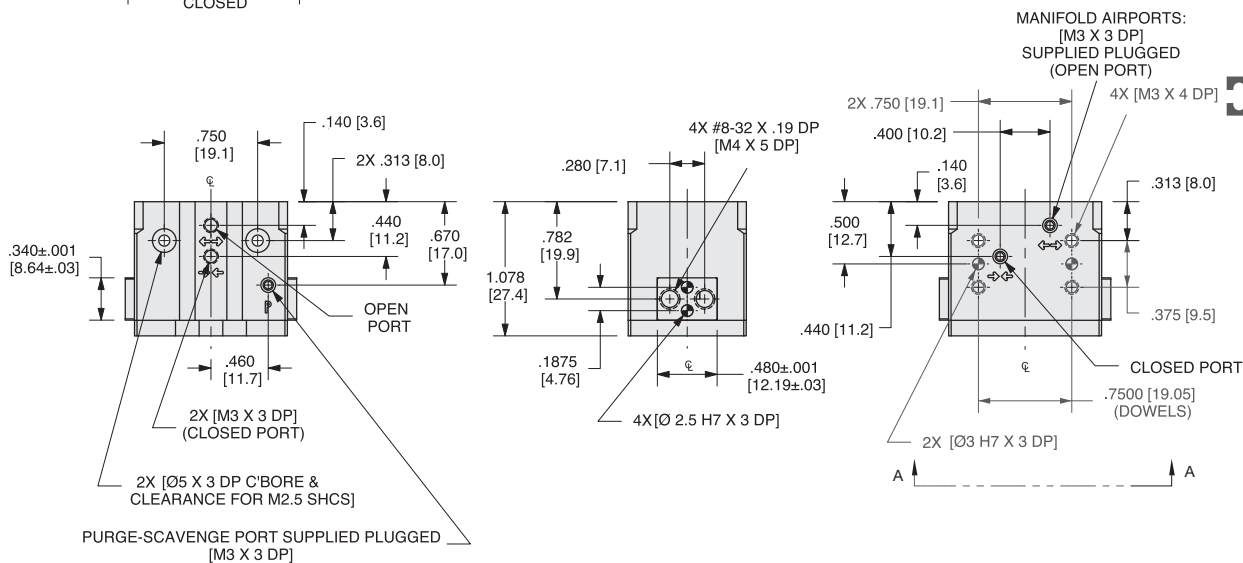
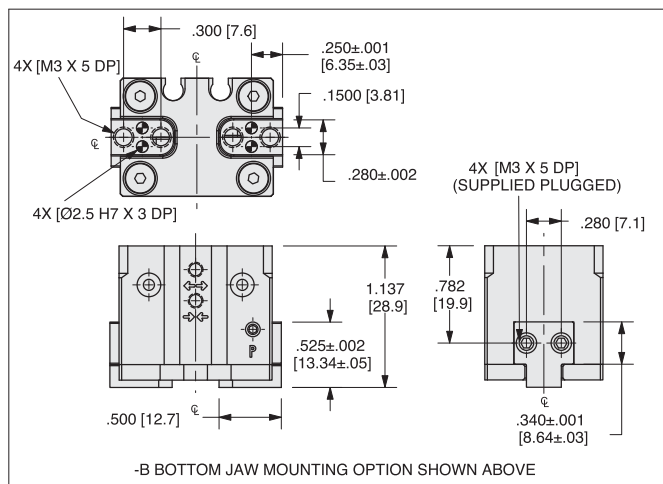
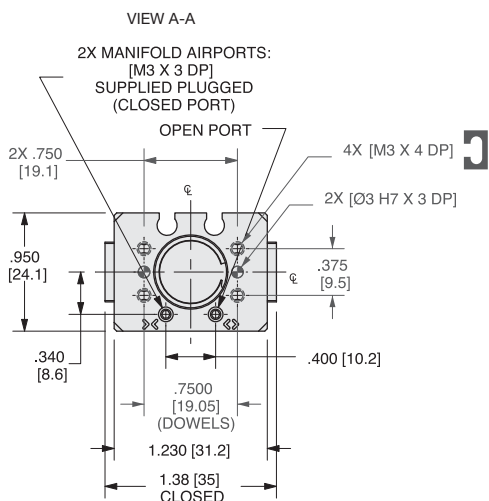
Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: 0.215 [05.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

PARALLEL GRIPPER DPDS-056M DIRECTCONNECT™ MODULAR SERIES

DPDS SERIES

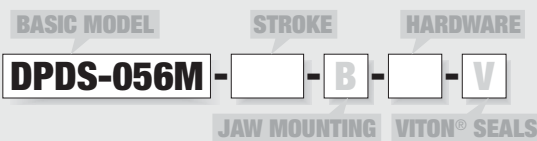
1.138



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		

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



STROKE	STROKE	STROKE
019	.19" [4.8mm]	
013	.13" [3.2mm]	
009	.09" [2.4mm]	
JAW MOUNTING	B Bottom jaw mounting	
	— Leave blank for end jaw mounting (standard)	
HARDWARE	S Corrosion resistant	
	CR Corrosion resistant assembled with clean room grade grease	
	— Leave blank for alloy hardware (standard)	
VITON®	V High Temperature Viton® Seals	

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHS-P-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHS-N-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHS-P-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHS-N-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-186	1
Viton® Seal Repair Kit	SLKT-186V	1
Manifold Seal Kit (Viton®)	SLKT-197V	1
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2

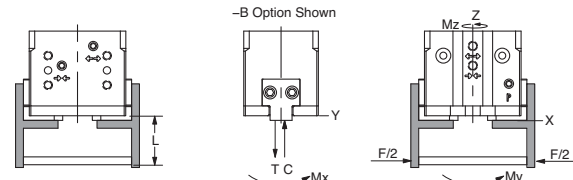
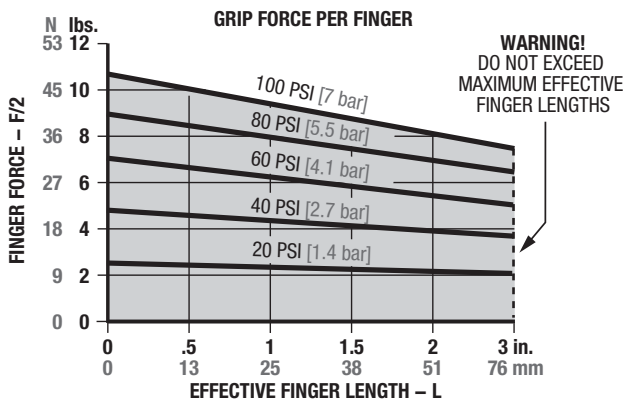
*Sensor and cable sold separately

SAMPLE ORDER: DPDS-056M-009-B-CR-V

Ex: DPDS-056M Gripper, Metric, 2.4mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

DIRECTCONNECT™

Loading Information



Loading Capacity†

DPDS-056M

	Static	Dynamic
Maximum Tensile T	60 lbs. [267 N]	10 lbs. [45 N]
Maximum Compressive C	90 lbs. [401 N]	15 lbs. [67 N]
Maximum Moment M_x	40 in.-lbs. [5 Nm]	7 in.-lbs. [0.8 Nm]
Maximum Moment M_y	40 in.-lbs. [5 Nm]	7 in.-lbs. [0.8 Nm]
Maximum Moment M_z	40 in.-lbs. [5 Nm]	7 in.-lbs. [0.8 Nm]

DPDS-056M-B (Bottom Jaw Mounting Option)

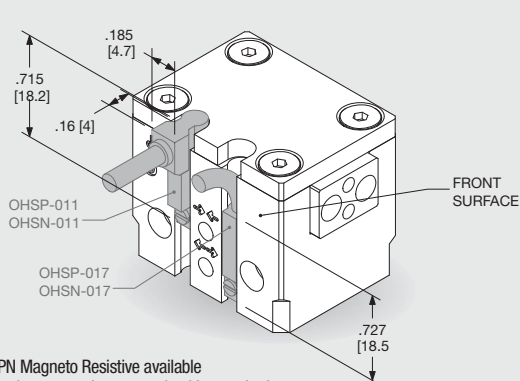
Maximum Tensile T	48 lbs. [214 N]	8 lbs. [36 N]
Maximum Compressive C	72 lbs. [320 N]	12 lbs. [53 N]
Maximum Moment M_x	32 in.-lbs. [4 Nm]	6 in.-lbs. [1 Nm]
Maximum Moment M_y	32 in.-lbs. [4 Nm]	6 in.-lbs. [1 Nm]
Maximum Moment M_z	32 in.-lbs. [4 Nm]	6 in.-lbs. [1 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-056M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	22 lbs.	98 N
Maximum Stroke	0.19 in.	4.8 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø.....	0.563 in.	14.3 mm
Displacement	0.028 in ³	0.5 cm ³

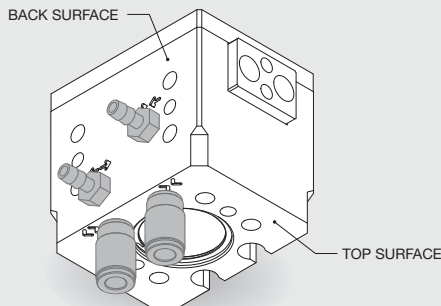
Specifications (cont.)	DPDS-056M	
Weight	0.155 lbs.	0.07 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.16 sec.	0.16 sec.
Accuracy.....	±0.002 in.	±0.05 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



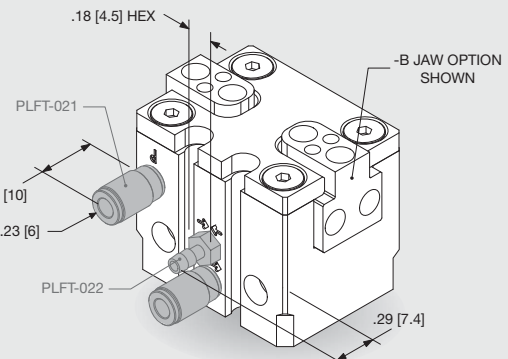
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



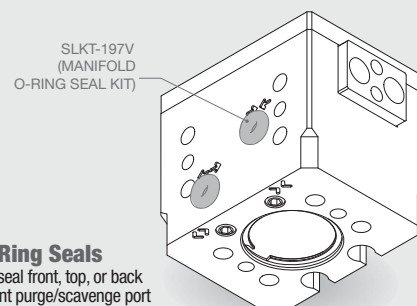
Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



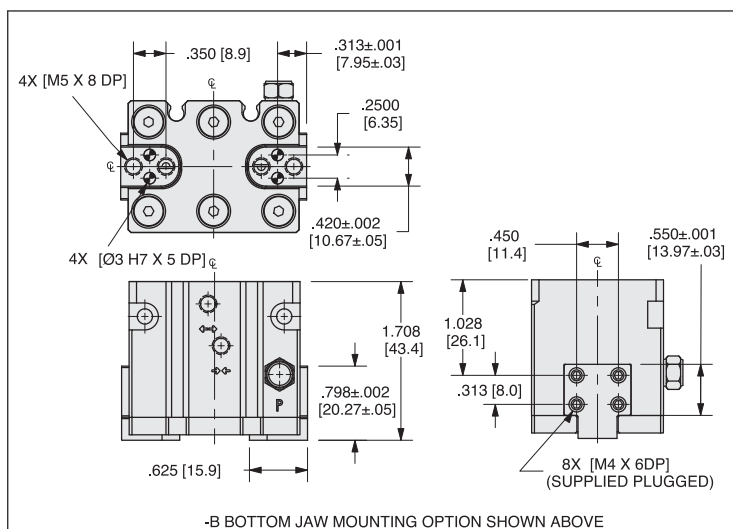
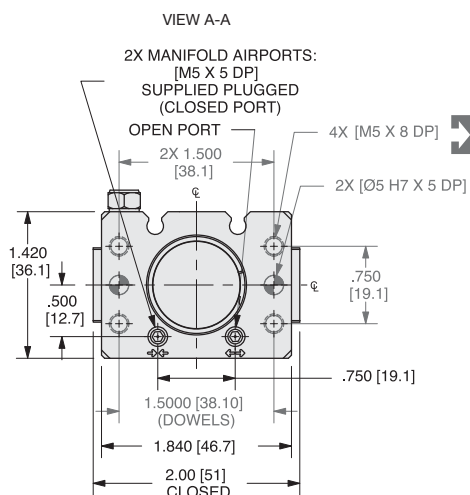
Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

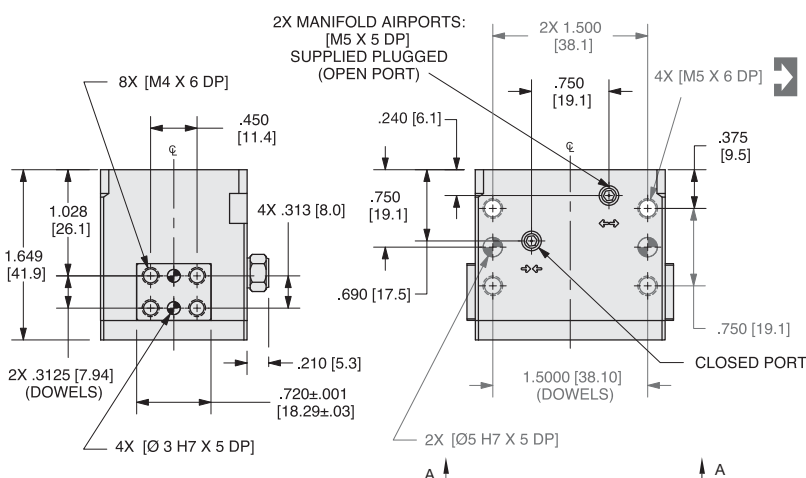
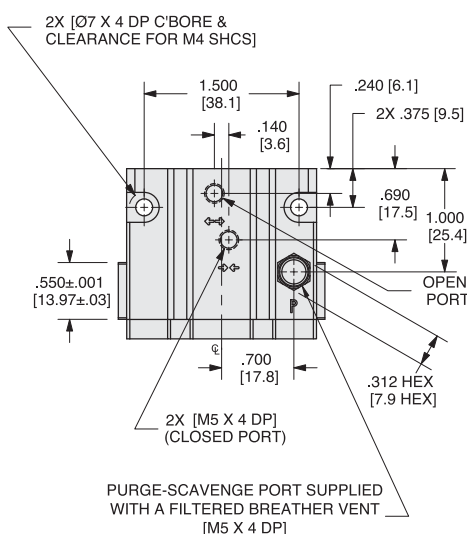
PARALLEL GRIPPER DPDS-088M DIRECTCONNECT™ MODULAR SERIES

DPDS SERIES

1.140



-B BOTTOM JAW MOUNTING OPTION SHOWN ABOVE



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

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

BASIC MODEL **STROKE** **HARDWARE**

DPDS-088M - [] - **B** - [] - **V**

JAW MOUNTING **VITON® SEALS**

STROKE	025	.25" [6.4mm]
	019	.19" [4.8mm]
	013	.13" [3.2mm]
JAW MOUNTING	B	Bottom jaw mounting
	—	Leave blank for end jaw mounting (standard)
HARDWARE	S	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	—	Leave blank for alloy hardware (standard)
VITON®	V	High Temperature Viton® Seals

SENSOR ACCESSORIES

PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Standard Seal Repair Kit	SLKT-187	1
Viton® Seal Repair Kit	SLKT-187V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Adjustable Flow Control M5 Elbow - 6mm OD Push-in (Metric)	VLVF-008	1 or 2
Fail Safe Valve M5	OFSV-004	1

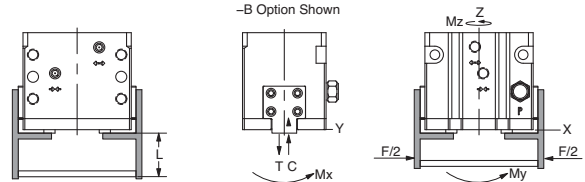
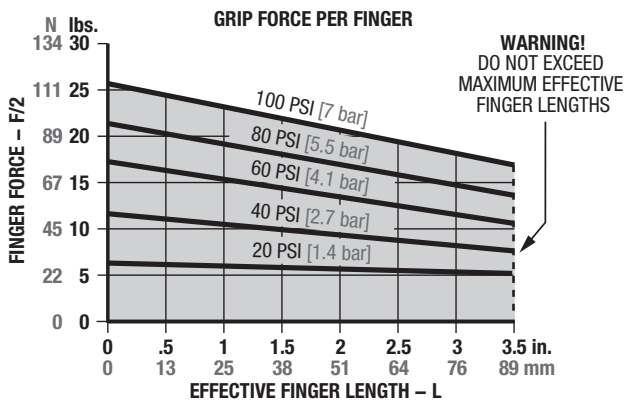
*Sensor and cable sold separately

SAMPLE ORDER: DPDS-088M-019-B-CR-V

Ex: DPDS-088M Gripper, Metric, 4.8mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

DIRECTCONNECT™

Loading Information



Loading Capacity†

DPDS-088M

	Static	Dynamic
Maximum Tensile T	138 lbs. [614 N]	25 lbs. [111 N]
Maximum Compressive C	275 lbs. [1224 N]	25 lbs. [111 N]
Maximum Moment M_x	120 in.-lbs. [14 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment M_y	120 in.-lbs. [14 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment M_z	120 in.-lbs. [14 Nm]	20 in.-lbs. [2 Nm]

DPDS-088M-B (Bottom Jaw Mounting Option)

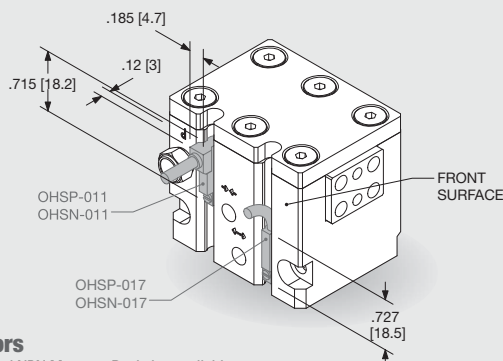
Maximum Tensile T	110 lbs. [490 N]	20 lbs. [89 N]
Maximum Compressive C	220 lbs. [979 N]	20 lbs. [89 N]
Maximum Moment M_x	96 in.-lbs. [11 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment M_y	96 in.-lbs. [11 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment M_z	96 in.-lbs. [11 Nm]	16 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-088M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	50 lbs.	222 N
Maximum Stroke	0.25 in.	6.4 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø.....	0.875 in.	22.2 mm
Displacement	0.090 in ³	1.5 cm ³

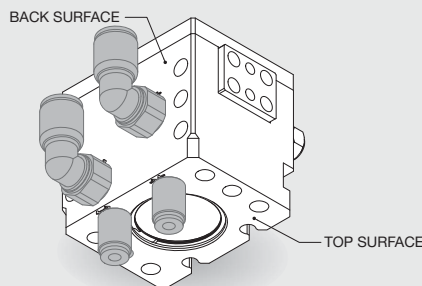
Specifications (cont.)	DPDS-088M	
Weight	0.51 lbs.	0.23 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy.....	±0.002 in.	±0.05 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



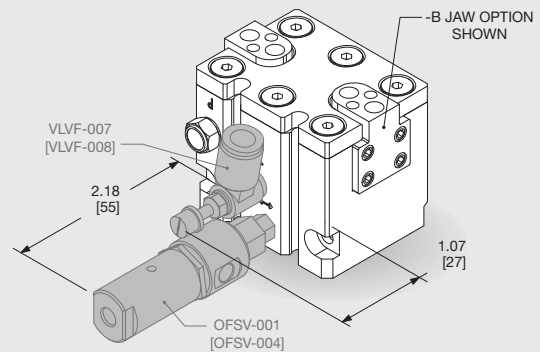
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



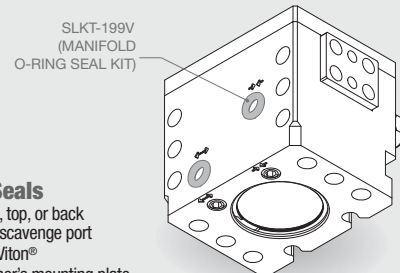
Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- Adjustable flow controls:
 - Have thumb screw adjust with locking nut for adjusting actuation time:
 - Available for 6mm O.D. tubing
- Failsafe valve for applications:
 - Where it is critical that the part being gripped not be dropped if air pressure is lost
 - Can mount directly to gripper or in-line with plumbing to gripper
 - M5 air port
- Consult factory for additional plumbing fittings



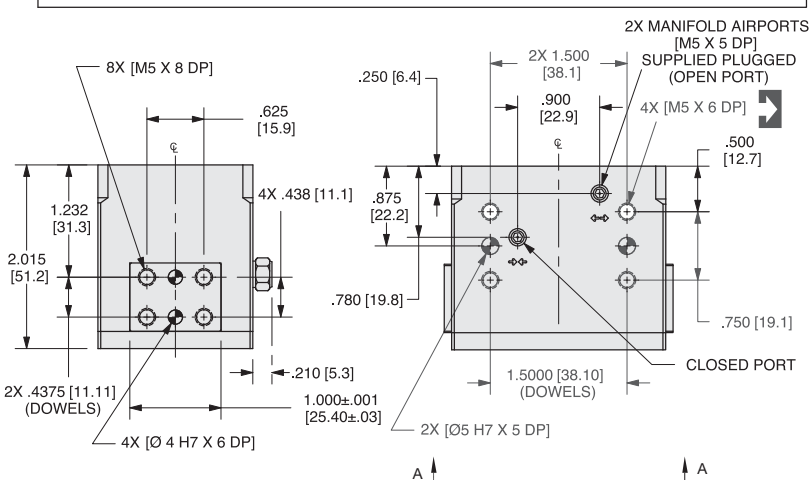
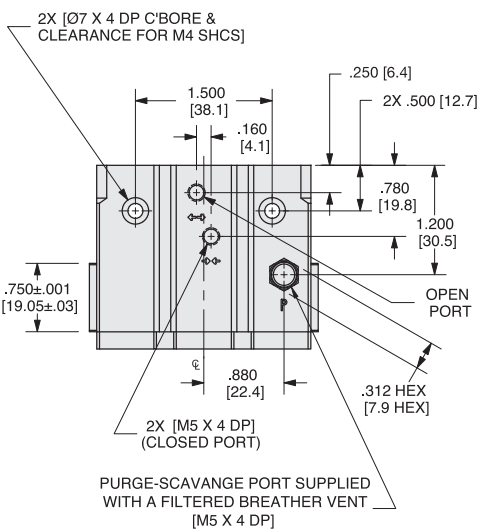
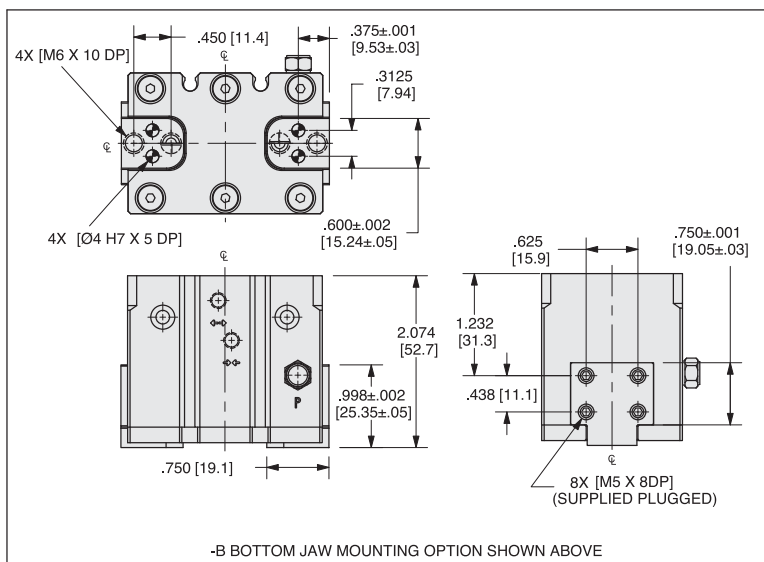
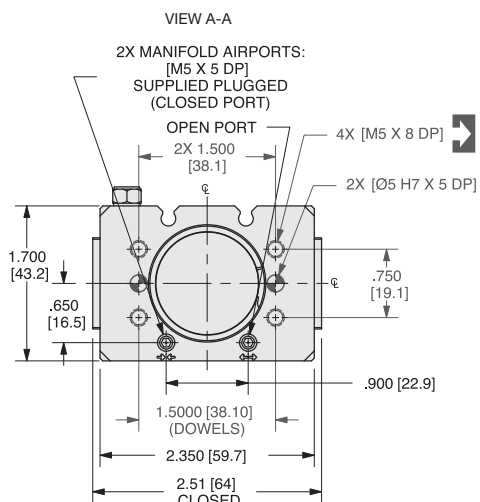
Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

PARALLEL GRIPPER DPDS-125M DIRECTCONNECT™ MODULAR SERIES

DPDS SERIES

1.142

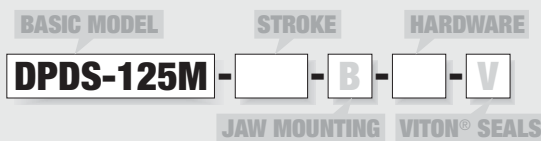


UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

Dimensions are symmetrical about centerline
 Third Angle Projection
 All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or ±.013mm
 Metric Threads Course Pitch

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



Option	Code	Description
STROKE	038	.38" [9.5mm]
	025	.25" [6.4mm]
	019	.19" [4.8mm]
JAW MOUNTING	B	Bottom jaw mounting
	—	Leave blank for end jaw mounting (standard)
HARDWARE	S	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	—	Leave blank for alloy hardware (standard)
VITON®	V	High Temperature Viton® Seals

SENSOR ACCESSORIES

Accessory	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Accessory	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-188	1
Viton® Seal Repair Kit	SLKT-188V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Adjustable Flow Control M5 Elbow - 6mm OD Push-in (Metric)	VLVF-008	1 or 2
Fail Safe Valve M5	OFSV-004	1

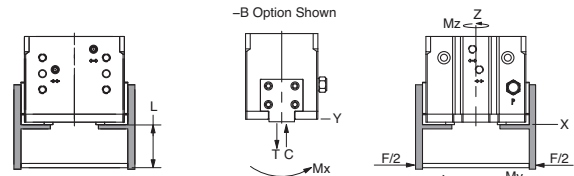
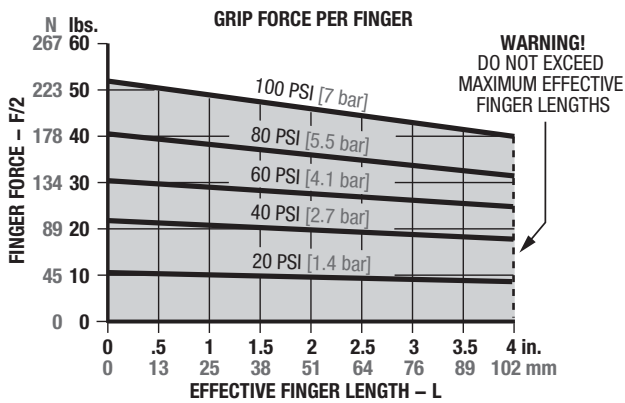
*Sensor and cable sold separately

SAMPLE ORDER: DPDS-125M-025-B-CR-V

Ex: DPDS-125M Gripper, Metric, 6.4mm Stroke, Bottom Jaw Mounting, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

DIRECTCONNECT™

Loading Information



Loading Capacity†

DPDS-125M

	Static	Dynamic
Maximum Tensile T	500 lbs. [2225 N]	65 lbs. [289 N]
Maximum Compressive C	950 lbs. [4228 N]	65 lbs. [289 N]
Maximum Moment M_x	425 in.-lbs. [48 Nm]	70 in.-lbs. [8 Nm]
Maximum Moment M_y	425 in.-lbs. [48 Nm]	70 in.-lbs. [8 Nm]
Maximum Moment M_z	425 in.-lbs. [48 Nm]	70 in.-lbs. [8 Nm]

DPDS-125M-B (Bottom Jaw Mounting Option)

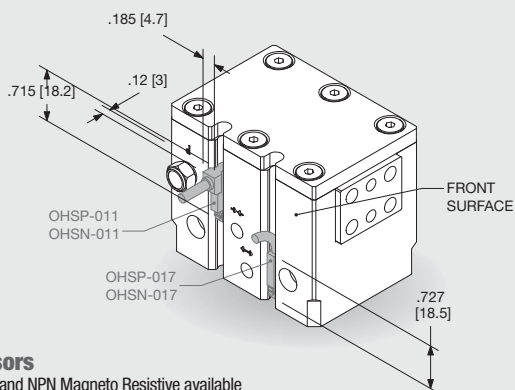
Maximum Tensile T	400 lbs. [1780 N]	52 lbs. [231 N]
Maximum Compressive C	760 lbs. [3382 N]	52 lbs. [231 N]
Maximum Moment M_x	340 in.-lbs. [38 Nm]	56 in.-lbs. [6 Nm]
Maximum Moment M_y	340 in.-lbs. [38 Nm]	56 in.-lbs. [6 Nm]
Maximum Moment M_z	340 in.-lbs. [38 Nm]	56 in.-lbs. [6 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDS-125M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	100 lbs.	445 N
Maximum Stroke	0.38 in.	9.5 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Maximum Pressure for Purge Port	20 psi	1.4 bar
Cylinder Bore Ø.....	1.250 in.	31.8 mm
Displacement	0.274 in ³	4.5 cm ³

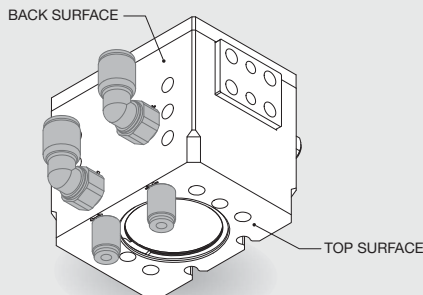
Specifications (cont.)	DPDS-125M	
Weight	1.03 lbs.	0.46 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.30 sec.	0.30 sec.
Accuracy.....	±0.003 in.	±0.08 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



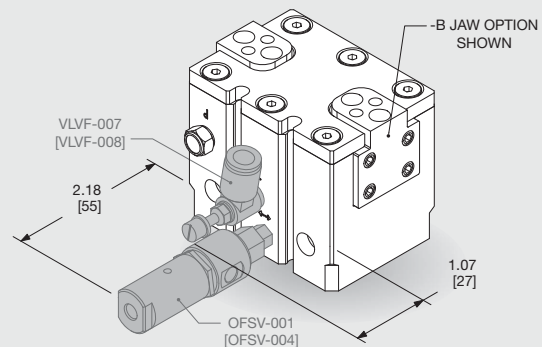
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



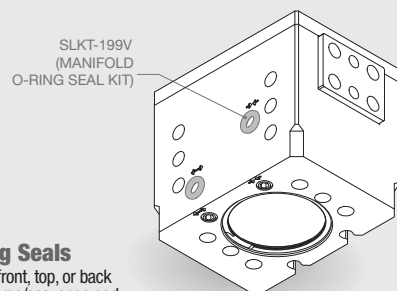
Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

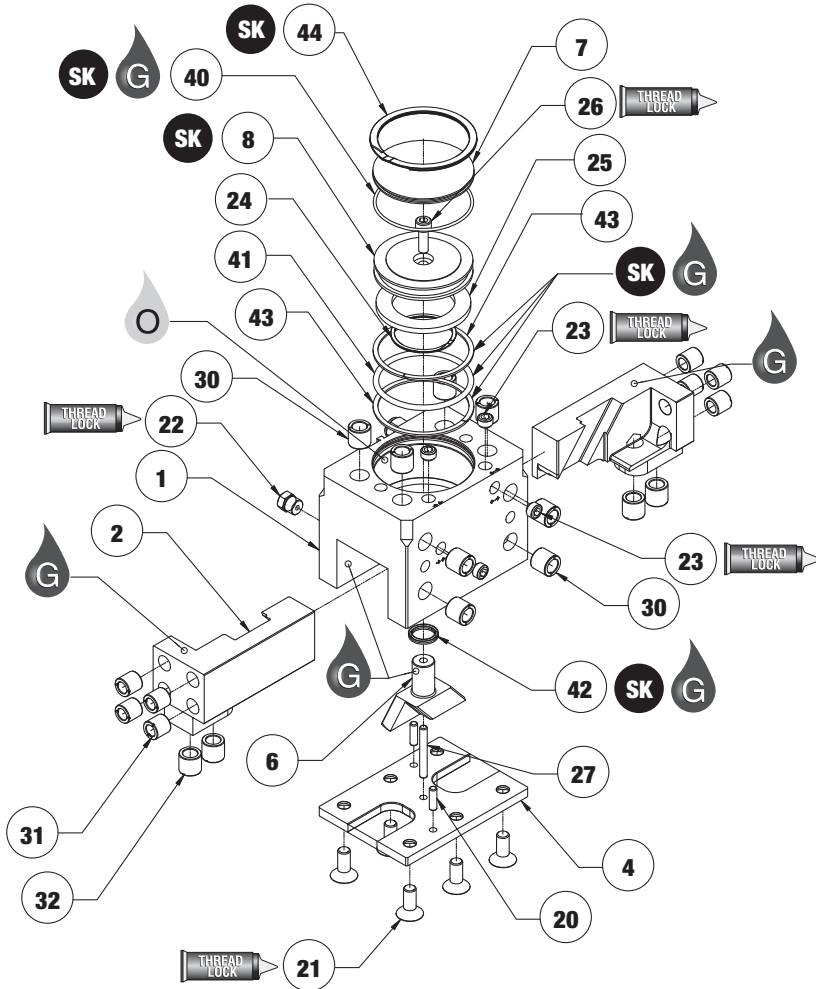
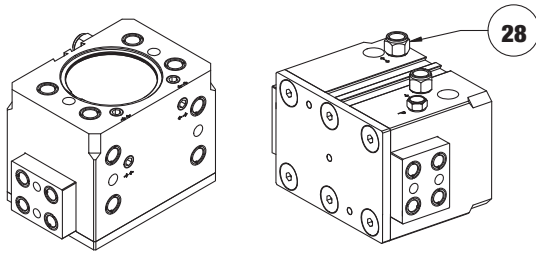
- Adjustable flow controls:
 - Have thumb screw adjust with locking nut for adjusting actuation time
 - Available for 6mm O.D. tubing
- Failsafe valve for applications:
 - Where it is critical that the part being gripped not be dropped if air pressure is lost
 - Can mount directly to gripper or in-line with plumbing to gripper
 - M5 air port
- Consult factory for additional plumbing fittings



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

DPDS SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06	1	Shaft Wedge
07	1	Cap
08	1	Piston
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
28*	2	Plumbing Fitting - Adapter - 1/8NPT male to 1/8BSPP female
30*	8	Threaded Inserts (Body)
31*	8	Threaded Inserts (Jaw - End Mount)
32*	4	Threaded Inserts (Jaw - Bottom Mount "-B" option only)
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
43*	2	Piston Teflon Ring
44	1	Cap Ret. Ring

NOTES:*

- 1) Contact the Destaco-Robohand Sales Department for a complete spare parts list with order numbers and prices.
- 2) Item #30 is for size -175 and -250 only.
- 3) Item #31 and #32 are for size -250 only.
- 4) Item #22 Breather vent plug is a set screw plug for sizes -047 & -056.
- 5) Item #43 is for size -175 and -250 only.
- 6) Item #28 is for metric size -175M and -250M only.

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

Assembly Procedure:

- 1) Install #23 airport plugs with thread-locker.
- 2) Press pins #20 & #27 Into Plate #4.
- 3) Install threaded inserts #30, #31, & #32.
- 4) Install #22 vent or plug with thread-locker.
- 5) Mount magnet #25 to piston #8 with retainer Ring #24.
- 6) Install #28 metric plumbing fitting adapters.
- 7) Lubricate body #1 (jaw cavity & bores).
- 8) Lubricate & install all seals into body, piston, & cap.
- 9) Sub-assemble the #2 jaws on either side of the #6 shaft wedge with lubrication.
- 10) Insert the jaws and shaft wedge sub-assembly into body.
- 11) Insert piston #8 into the body bore and fasten it to the shaft wedge with Mounting screw # 26 using thread locker.
- 12) Install cap #7 into body with retaining ring #44.
- 13) Insert #4 bottom plate with pressed-in pins onto the body and fasten with #21 screws with thread-locker.



Seal Kit Items



Thread Locker



Krytox™ Lubricant



Lightweight Machine Oil



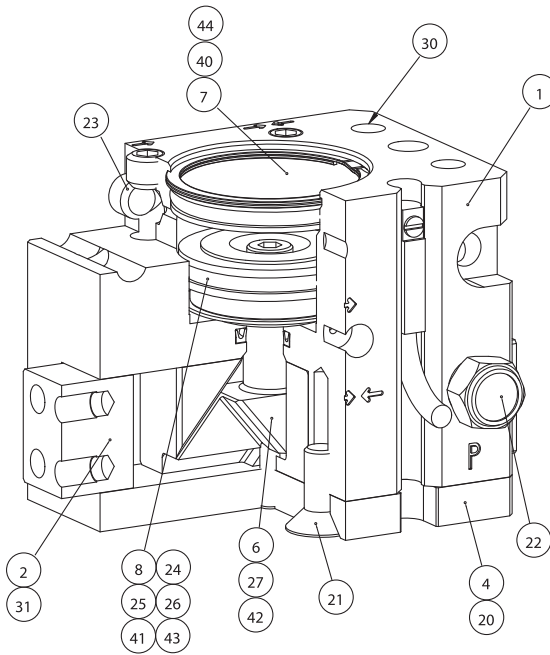
Teflon™ Based Grease



Super Bonder



Third Angle Projection



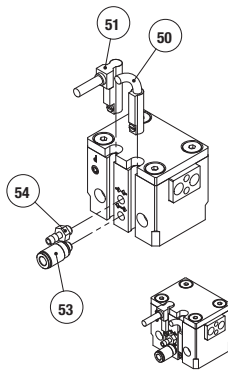
Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06	1	Shaft Wedge
07	1	Cap
08	1	Piston
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
28*	2	Plumbing Fitting - Adapter - 1/8NPT male to 1/8BSPP female
30*	8	Threaded Inserts (Body)
31*	8	Threaded Inserts (Jaw - End Mount)
32*	4	Threaded Inserts (Jaw - Bottom Mount "B" option only)
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
43*	2	Piston Teflon Ring
44	1	Cap Retainer Ring

NOTES:*

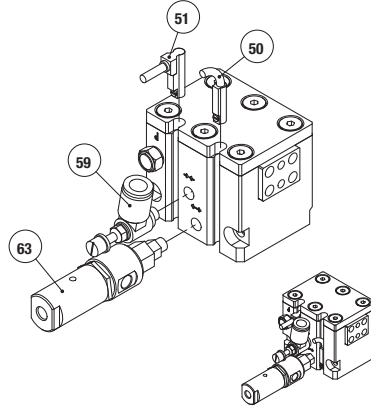
- 1) Contact the Destaco-Robohand Sales Department for a complete spare parts list with order numbers and prices.
- 2) Item #30 is for size -175 and -250 only.
- 3) Item #31 and #32 are for size -250 only.
- 4) Item #22 breather vent plug is a set screw plug for sizes -047 & -056.
- 5) Item #43 is for size -175 and -250 only.
- 6) Item #28 is for metric size -175M and -250M only.

ACCESSORY INSTALLATION & ADJUSTMENT INSTRUCTIONS

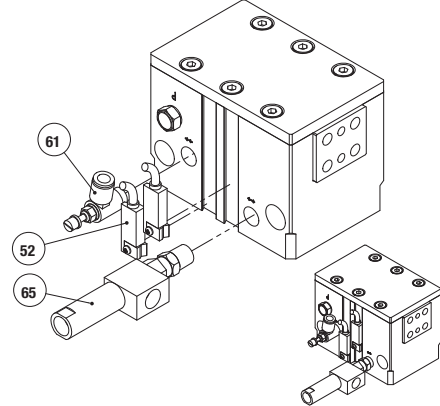
DPDS-047 & DPDS-056



DPDS-088 & DPDS-125



DPDS-175 & DPDS-250



Item	Qty	Name
50	1 or 2	Magneto Resistive Sensor (short barrel) w/Qk. Disconnect
51	1 or 2	Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect
52	1 or 2	Magneto Resistive Sensor (12mm Dovetail) w/Qk. Disconnect
53	1,2 or 3	Plumbing Fitting - M3 male to 3mm OD Push-in Style
54	1,2 or 3	Plumbing Fitting - M3 male to 2mm ID Barb Style
59	1 or 2	Adjustable Flow Control (Metric) M5 elbow - 6mm OD Push-in Style
61	1 or 2	Adjustable Flow Control (Metric) G1/8 elbow - 6mm OD Push-in Style
63	1	Fail Safe Valve (Metric) M5
65	1	Fail Safe Valve (Metric) G1/8 (1/8 BSPP)

NOTE: Other Plumbing Fittings are available for each size - Consult Factory

Magneto-Resistive Sensors:

- 1) Insert sensors #50 or #51 from either end of the profile slots and set the sensor with the integrated screw.
- 2) Insert sensor #52 into the dovetail slot at any point and set the sensor with the integrated screw & locking shoe.

Plumbing Fittings:

- 1) M3 plumbing fittings #53 & #54 can be used in any airport or purge/scavenge port.
- 2) Flow controls can be inserted and used in any open or closed airport to help control the stroke actuation.
- 3) Fail-safe valve can be used in either the open or closed airport to help limit the possibility of dropping the part if air pressure is lost.

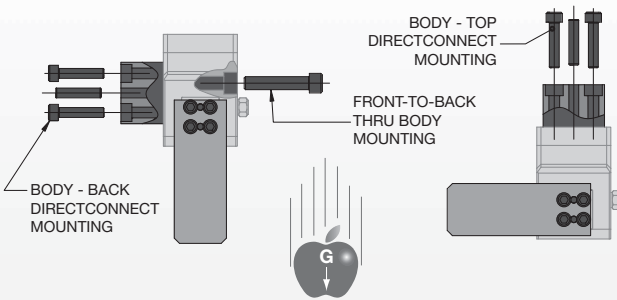
Parallel Grippers - DPDL DIRECTCONNECT™ Modular Series

**NO
ADAPTER
PLATES!**

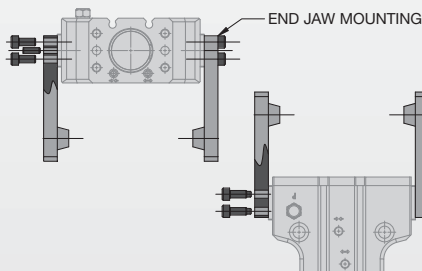
- **Multiple mounting locations:** DIRECTCONNECT™ tapped and dowel mounting on top and back of body.
- **Thru body mounting:** Front-to-back thru-body mounting.
- **Multiple air port positions:** Tapped air ports on front, top, and back sides are standard.
- **Manifold air porting:** Top and back air ports can be manifold o-ring sealed.
- **Front purge/scavenge port:** Negative pressure used as a scavenge port used for cleanroom applications. Positive pressure used as a purge port to repel contaminants in harsh environment. Port can also be used for lubrication.
- **Sensing:** Full range adjustable magneto resistive sensors.
- **Different strokes:** All gripper sizes are available in 3 different strokes.
- **Multiple jaw styles:** All sizes available with end mounts jaws as standard or bottom mount jaws as an option.
- **True sealed jaw option:** Rugged integral rubber boot seals the unit against harsh environments. Designed to be used in machine coolant and metal chip environment applications.
- **Long finger applications:** Rigid design and full body support of jaws allows for longer finger lengths.

Mounting Information:

Gripper can be mounted and operated in any orientation



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



Fingers attach with screws and locate on jaws by keying and/or dowel pins. Fingers can be mounted in any orientation with respect to the jaw.

Technical Specifications:

Pneumatic Specifications	Imperial	Metric
Pressure Operating Range	20-100 psi	1.5-7 bar
Cylinder Type	Double Acting	
Dynamic Seals	Internally Lubricated 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)	-30°~180° F	-35°~80° C
Viton® Seals (optional)	-20°~300° F	-30°~150° C
Maintenance Specifications†		
Expected Life	5 million cycles	
Normal Application w/ Preventative Maintenance	10+ million cycles*	
Field Repairable	Yes	
Seal Repair Kits Available	Yes	
-E Option Seals Jaw Rubber Boot Specifications		
Boot Material	60 Durometer Buna-N (Nitrile)	
Temperature Rating (boot only)	-20°~250° F	-30°~120° C
Compatible Chemicals:	Water, Coolant, Petroleum Oils, Silicone Lubricants, Dilute Acids & Alkalis, Hydraulic Fluid, Transmission Fluid	
Non-Compatible Chemicals:	Ozone, Ketones, Strong Acids, Brake Fluid	
Example Applications:	Grinding Dust, Machine Chip & Coolant, Painting, Paper Dust, Washdown Applications	

Application Restrictions
Applications where mechanism lubricant could cause contamination (use **-E** sealed jaw option)

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

DIRECTCONNECT™

Product Features

Hard Coat Anodize

The body and bottom plate have hard-coat anodize 60RC with Teflon® impregnation

Sensor Mounting Slots

Standard mounting slots for magneto resistive (sensors sold separately)

Extremely Rugged Design

Jaws are supported throughout the length of the body

Sealed Jaws (-E) Option

Buna-N bellows seal jaws against damaging hazardous environments (machining chips & coolant, grinding dust, paper mill environments, etc.)

Corrosion Resistant Hardware (-S) or Clean Room (-CR) Options

Both options have stainless and brass hardware. Clean room option uses clean room grade greases

High Temperature

Optional Viton® seals are available for high temperature applications

One Piece Body

One piece lightweight aircraft quality aluminum body

Multiple Air Port Locations

3 standard air port locations (front, back, & top)

Manifold Air Ports

Back & top air ports can be O-ring manifold sealed to eliminate air lines

DIRECTCONNECT™ Mounting Patterns

DIRECTCONNECT™ tapped & dowel mounting surfaces on top and back of body

Thru-Body Mounting

Front-to-back thru C'bores for socket head cap screw mounting

Bottom Jaw Mounting (-B) Option

For alternate finger mounting (standard side mount jaws shown)

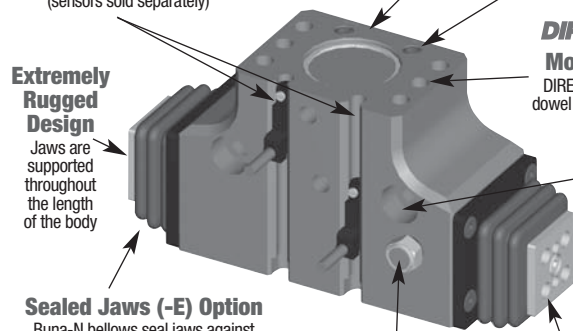
Jaw Components

Hardened and precision ground steel for minimum jaw play with hard plating for wear resistance and long life

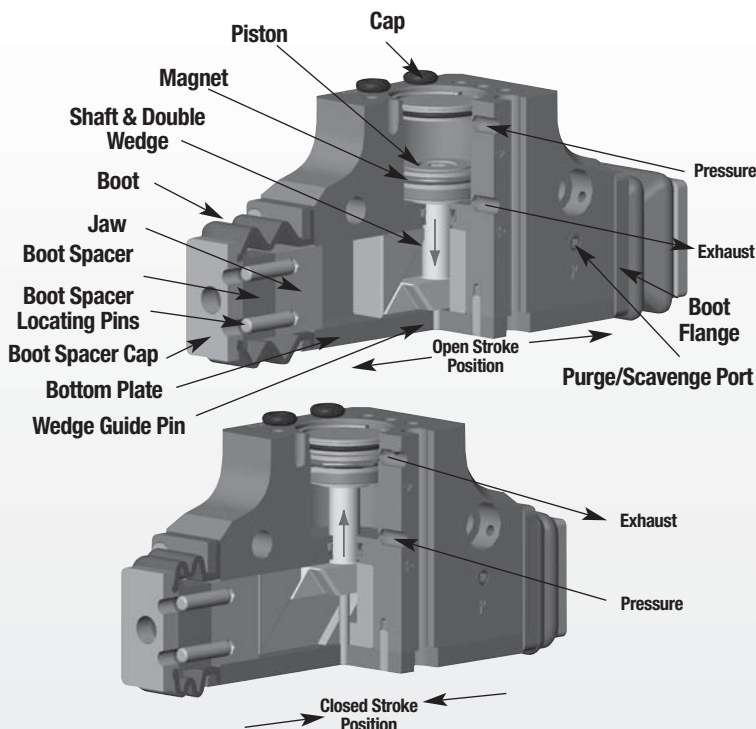
Dowel Holes

Slip fit dowel pin holes in body and jaws

Purge/Scavenge Port
Used with a vacuum for clean room environments or positive pressure with harsh environments



Operating Principle



- A double acting piston is connected by a shaft to a double-sided wedge.
- The wedge slides in a slot located in each of the jaws converting vertical motion of the wedge into horizontal synchronous motion of the jaws.
- The large surface area of the wedge minimizes friction wear.
- This gripper is suitable for internal or external gripping and can be mounted in any orientation.

Style -DPDL Parallel Gripper

Size -047M

Style:	DPDL-047M	
Stroke:	0.38 in.	9.5 mm
Grip Force:	14 lbs.	62 N
Weight:	0.186 lbs.	0.08 Kg



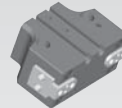
-B Bottom Jaw Mount Shown

See Page **1.148**

Style -DPDL Parallel Gripper

Size -056M

Style:	DPDL-056M	
Stroke:	0.50 in.	12.7 mm
Grip Force:	22 lbs.	98 N
Weight:	0.315 lbs.	0.14 Kg



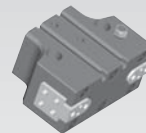
-B Bottom Jaw Mount Shown

See Page **1.150**

Style -DPDL Parallel Gripper

Size -088M

Style:	DPDL-088M	
Stroke:	0.75 in.	19.1 mm
Grip Force:	50 lbs.	222 N
Weight:	0.95 lbs.	0.43 Kg



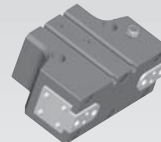
-B Bottom Jaw Mount Shown

See Page **1.152**

Style -DPDL Parallel Gripper

Size -125M

Style:	DPDL-125M	
Stroke:	1.00 in.	25.4 mm
Grip Force:	100 lbs.	445 N
Weight:	1.99 lbs.	0.90 Kg



-B Bottom Jaw Mount Shown

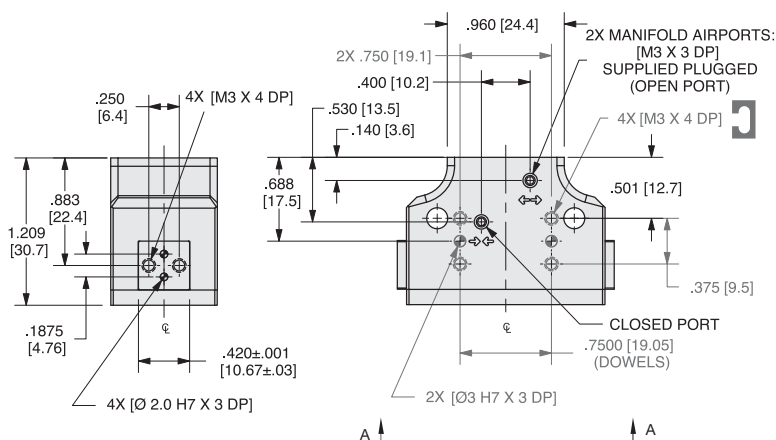
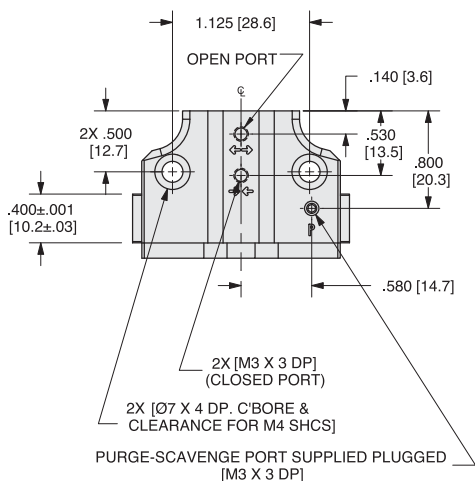
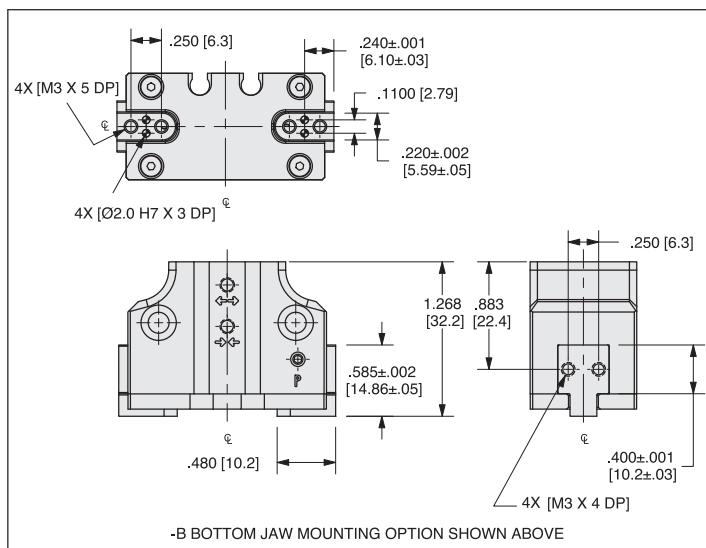
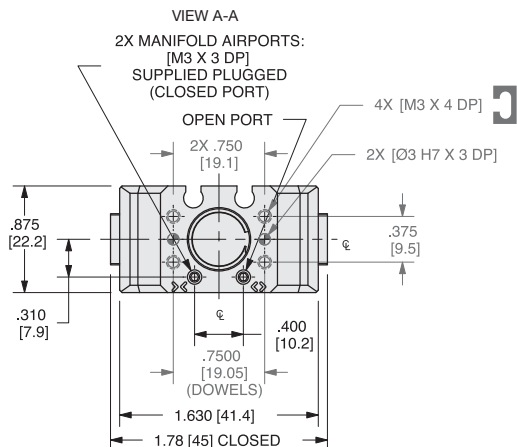
See Page **1.154**



PARALLEL GRIPPER DPDL-047M DIRECTCONNECT™ MODULAR SERIES

DPDL SERIES

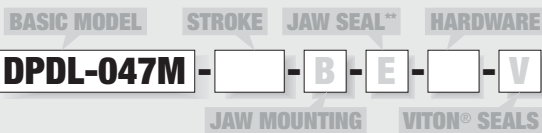
1.148



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

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



STROKE **038** .38" [9.5mm]
025 .25" [6.4mm]
019 .19" [4.8mm]

JAW MOUNTING **B** Bottom jaw mounting
 — Leave blank for end jaw mounting (standard)

JAW BOOT SEAL** **E** Buna-N rubber bellows

HARDWARE **S** Corrosion resistant
CR Corrosion resistant assembled with clean room grade grease
 — Leave blank for alloy hardware (standard)

VITON®: **V** High Temperature Viton® Seals

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHS-P017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHS-N017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHS-P011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHS-N011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-185	1
Viton® Seal Repair Kit	SLKT-185V	1
Manifold Seal Kit (Viton®)	SLKT-197V	1
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	SLKT-191	1 or 2
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2

* Sensor and cable sold separately

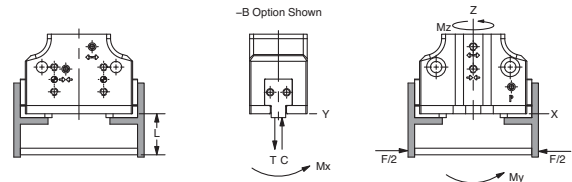
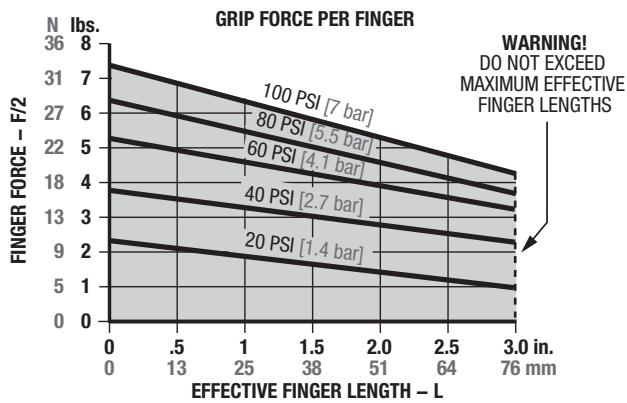
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

SAMPLE ORDER: DPDL-047M-038-E-CR-V

Ex: DPDL-047M Gripper, Metric, 6.4mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

Loading Information



Loading Capacity†

DPDL-047M

	Static	Dynamic
Maximum Tensile T	100 lbs. [445 N]	15 lbs. [67 N]
Maximum Compressive C	150 lbs. [668 N]	25 lbs. [111 N]
Maximum Moment M_x	90 in.-lbs. [10 Nm]	15 in.-lbs. [2 Nm]
Maximum Moment M_y	90 in.-lbs. [10 Nm]	15 in.-lbs. [2 Nm]
Maximum Moment M_z	90 in.-lbs. [10 Nm]	15 in.-lbs. [2 Nm]

DPDL-047M-B (Bottom Jaw Mounting Option)

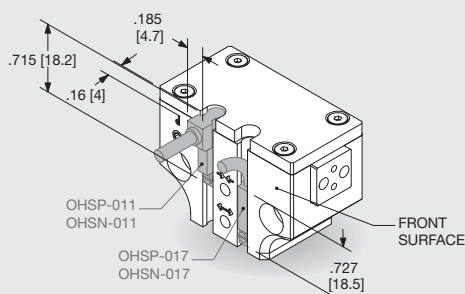
Maximum Tensile T	80 lbs. [356 N]	12 lbs. [53 N]
Maximum Compressive C	120 lbs. [534 N]	20 lbs. [89 N]
Maximum Moment M_x	72 in.-lbs. [8 Nm]	12 in.-lbs. [1 Nm]
Maximum Moment M_y	72 in.-lbs. [8 Nm]	12 in.-lbs. [1 Nm]
Maximum Moment M_z	72 in.-lbs. [8 Nm]	12 in.-lbs. [1 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-047M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	14 lbs.	62 N
Maximum Stroke	0.38 in.	9.5 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with -E Jaw Boot.....	4 psi	0.25 bar
Cylinder Bore \emptyset	0.469 in.	11.9 mm
Displacement	0.038 in ³	0.6 cm ³

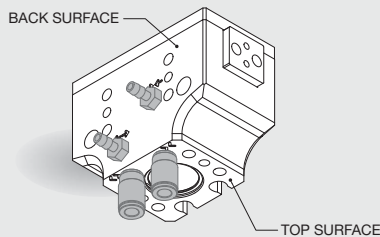
Specifications (cont.)	DPDL-047M	
Weight	0.186 lbs.	0.08 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.20 sec.	0.20 sec.
Accuracy.....	±0.002 in.	±0.05 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



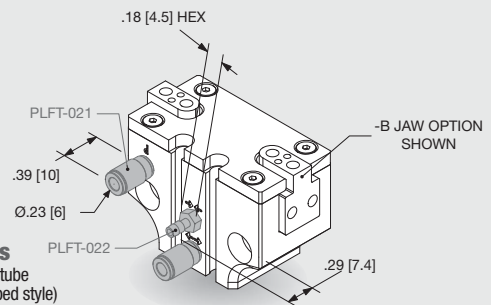
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



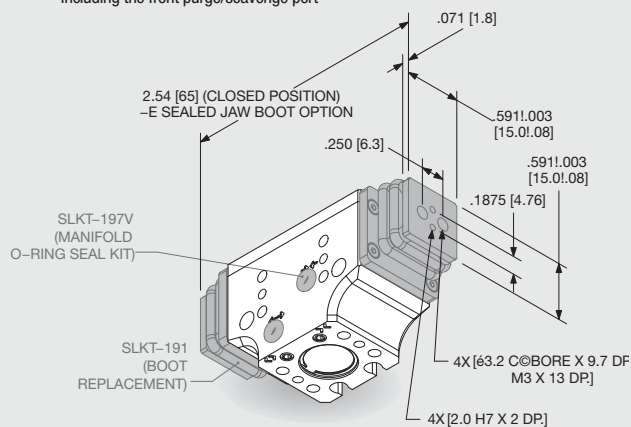
Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: \emptyset .215 [\emptyset 5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

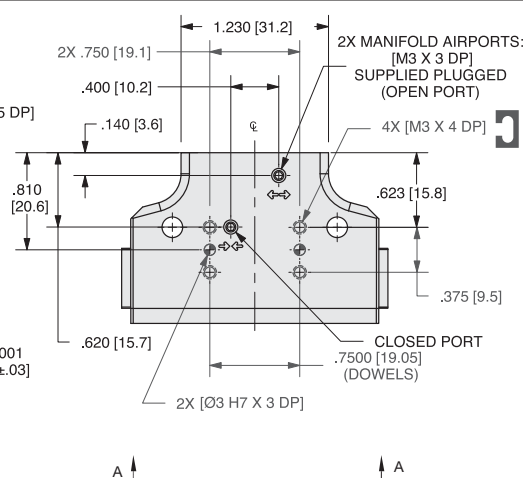
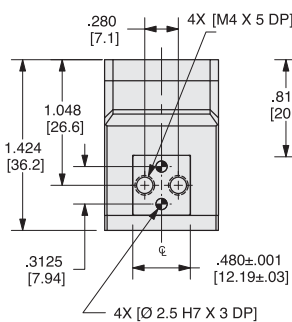
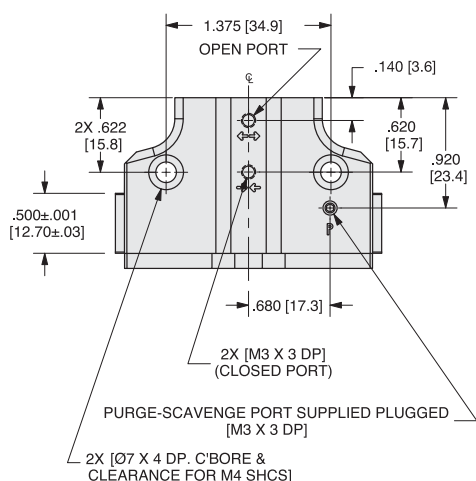
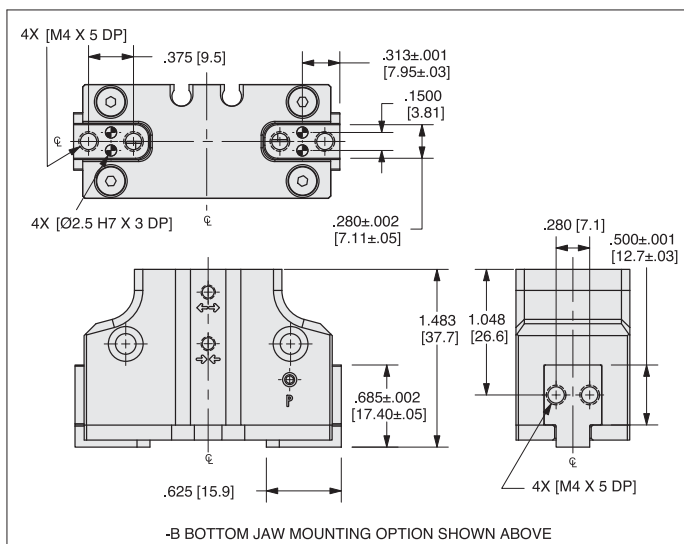
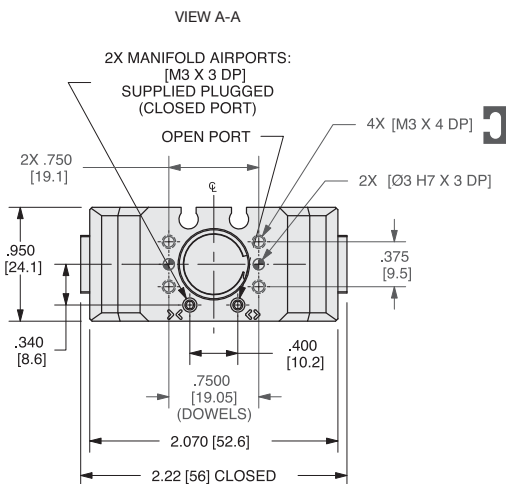
Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

PARALLEL GRIPPER DPDL-056M DIRECTCONNECT™ MODULAR SERIES

DPDL SERIES

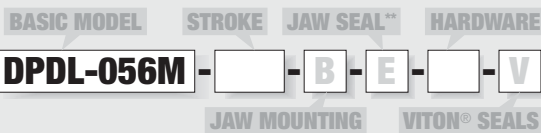
1.150



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

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



STROKE **050** .50" [12.7mm]
038 .38" [9.5mm]
025 .25" [6.4mm]

JAW MOUNTING **B** Bottom jaw mounting
 — Leave blank for end jaw mounting (standard)

JAW BOOT SEAL** **E** Buna-N rubber bellows

HARDWARE **S** Corrosion resistant
CR Corrosion resistant assembled with clean room grade grease
 — Leave blank for alloy hardware (standard)

VITON®: **V** High Temperature Viton® Seals

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHS-P017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHS-N017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHS-P011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHS-N011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-186	1
Viton® Seal Repair Kit	SLKT-186V	1
Manifold Seal Kit (Viton®)	SLKT-197V	1
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	SLKT-192	1 or 2
Plumbing Fitting - M3 male to 3mm OD Tube Push-in Style	PLFT-021	1 or 2
Plumbing Fitting - M3 male to 2mm ID Tube Barb Style	PLFT-022	1 or 2

* Sensor and cable sold separately

** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

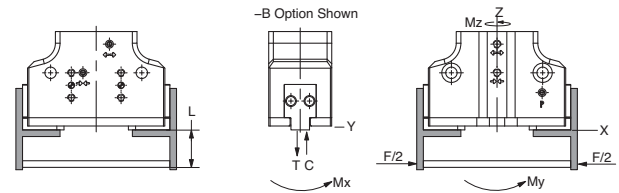
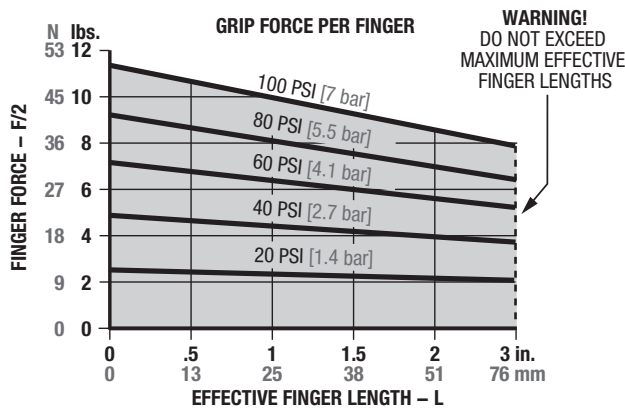
† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

SAMPLE ORDER: DPDL-056M-038-E-CR-V

Ex: DPDL-056M Gripper, Metric, 12.7mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

DIRECTCONNECT™

Loading Information



Loading Capacity†

DPDL-056M

	Static	Dynamic
Maximum Tensile T	125 lbs. [556 N]	25 lbs. [111 N]
Maximum Compressive C	250 lbs. [1113 N]	25 lbs. [111 N]
Maximum Moment M_x	115 in.-lbs. [13 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment M_y	115 in.-lbs. [13 Nm]	20 in.-lbs. [2 Nm]
Maximum Moment M_z	115 in.-lbs. [13 Nm]	20 in.-lbs. [2 Nm]

DPDL-056M-B (Bottom Jaw Mounting Option)

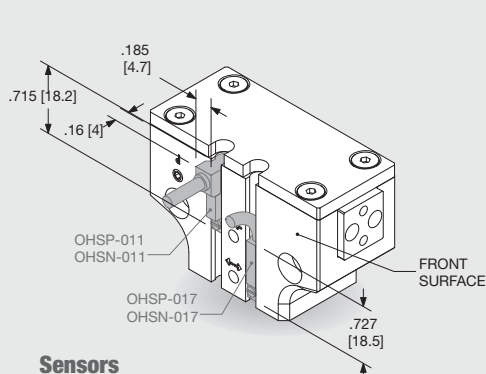
Maximum Tensile T	100 lbs. [445 N]	20 lbs. [89 N]
Maximum Compressive C	200 lbs. [890 N]	20 lbs. [89 N]
Maximum Moment M_x	92 in.-lbs. [10 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment M_y	92 in.-lbs. [10 Nm]	16 in.-lbs. [2 Nm]
Maximum Moment M_z	92 in.-lbs. [10 Nm]	16 in.-lbs. [2 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-056M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	22 lbs.	98 N
Maximum Stroke	0.50 in.	12.7 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with -E Jaw Boot.....	4 psi	0.25 bar
Cylinder Bore Ø.....	0.563 in.	14.3 mm
Displacement	0.074 in ³	1.2 cm ³

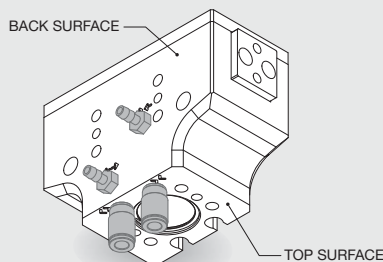
Specifications (cont.)	DPDL-056M	
Weight	0.315 lbs.	0.14 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.25 sec.	0.25 sec.
Accuracy.....	±0.002 in.	±0.05 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



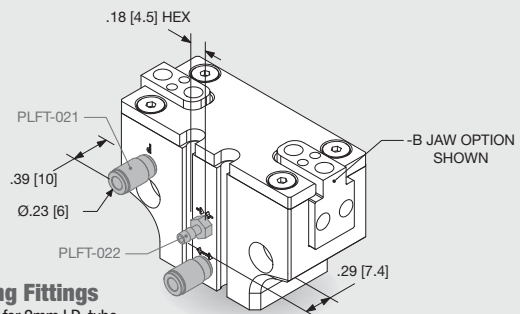
Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)



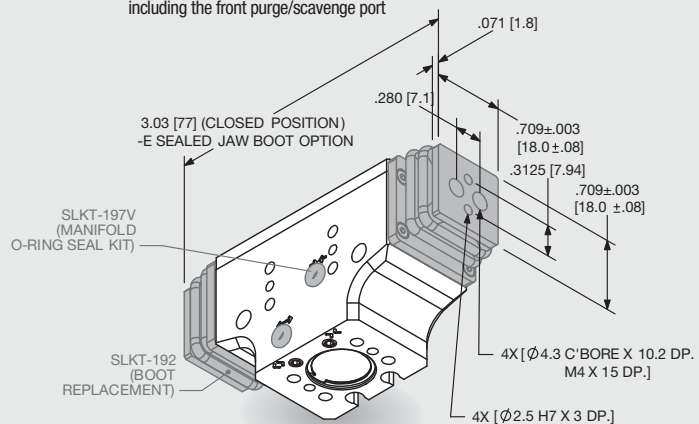
Multiple Air Port Locations

- 3 standard M3 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard



Plumbing Fittings

- M3 fitting for 2mm I.D. tube (PLFT-022 straight barbed style)
- M3 fitting for 3mm O.D. tube (PLFT-021 straight tube push-in style)
- M3 fittings can be used in any airport including the front purge/scavenge port



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.215 [Ø5.5] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

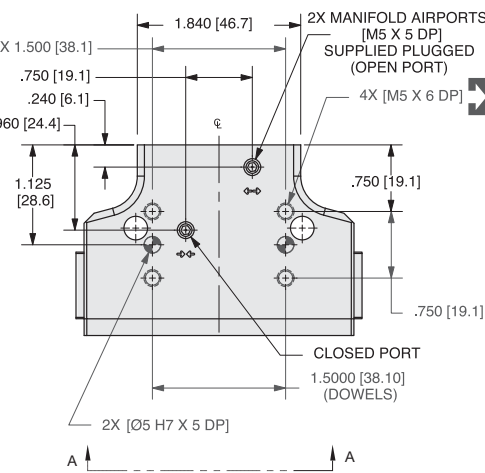
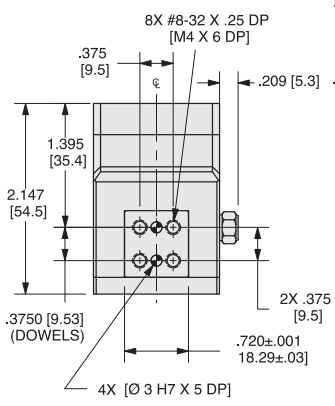
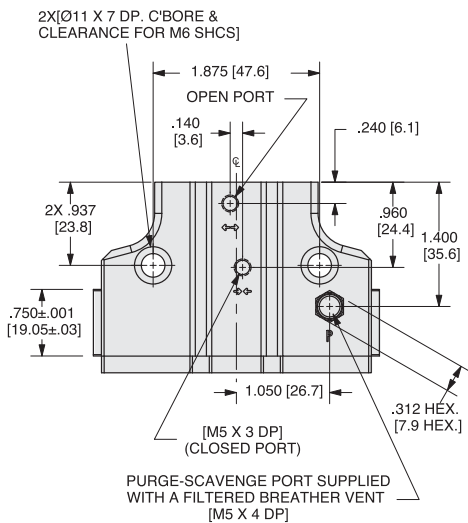
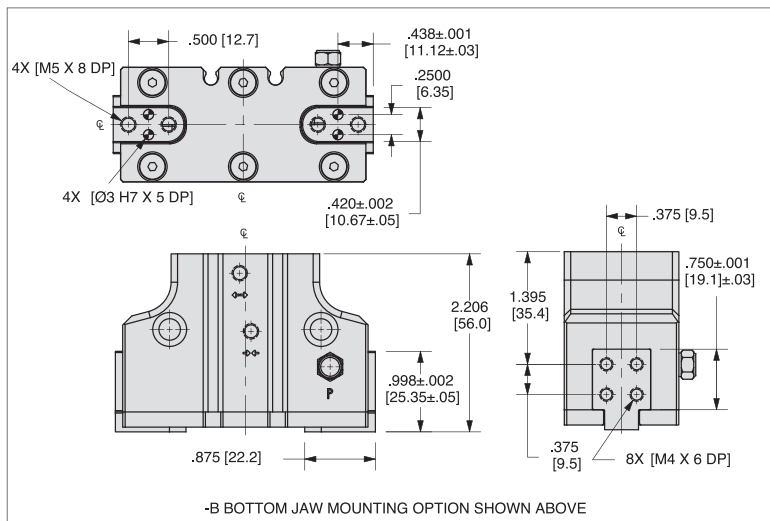
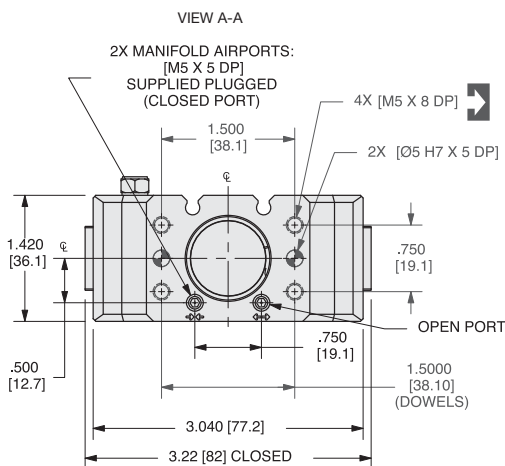
Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

PARALLEL GRIPPER DPDL-088M DIRECTCONNECT™ MODULAR SERIES

DPDL SERIES

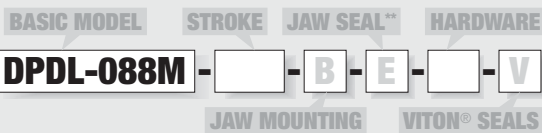
1.152



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

				Imperial in. 0.00 = ± .01 0.000 = ± .005 0.0000 = ± .0005	Metric [mm] [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]
Dimensions are symmetrical about centerline	Third Angle Projection		Metric Threads Course Pitch		

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



STROKE	075	.75" [19.1mm]
	050	.50" [12.7mm]
	038	.38" [9.5mm]
JAW MOUNTING	B	Bottom jaw mounting
	—	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	E	Buna-N rubber bellows
HARDWARE	S	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	—	Leave blank for alloy hardware (standard)
VITON®:	V	High Temperature Viton® Seals

SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
PNP Magneto Resistive Sensor with Quick Disconnect*	OHSP-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHSN-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHSP-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHSN-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Standard Seal Repair Kit	SLKT-187	1
Viton® Seal Repair Kit	SLKT-187V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	SLKT-193	1 or 2
Adjustable Flow Control M5 Elbow - 6mm OD Push-in (Metric)	VLVF-008	1 or 2
Fail Safe Valve M5	OFSV-004	1 or 2

* Sensor and cable sold separately

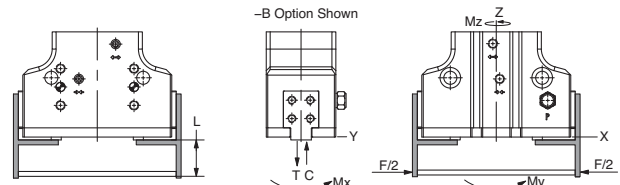
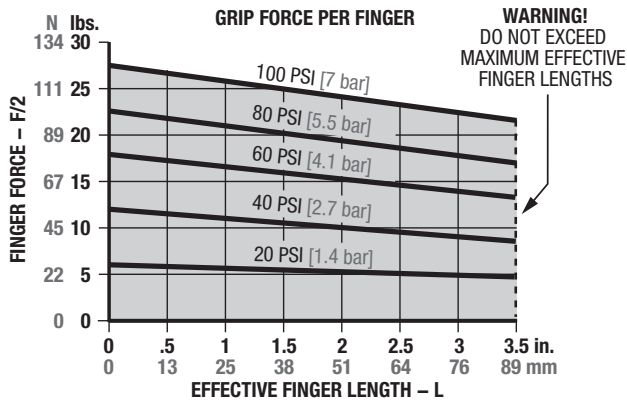
** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.

† -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

SAMPLE ORDER: DPDL-088M-050-E-CR-V

Ex: DPDL-088M Gripper, Metric, 12.7mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

Loading Information



Loading Capacity†

DPDL-088M

	Static	Dynamic
Maximum Tensile T	350 lbs. [1558 N]	40 lbs. [178 N]
Maximum Compressive C	650 lbs. [2893 N]	40 lbs. [178 N]
Maximum Moment M_x	250 in.-lbs. [28 Nm]	40 in.-lbs. [5 Nm]
Maximum Moment M_y	250 in.-lbs. [28 Nm]	40 in.-lbs. [5 Nm]
Maximum Moment M_z	250 in.-lbs. [28 Nm]	40 in.-lbs. [5 Nm]

DPDL-088M-B (Bottom Jaw Mounting Option)

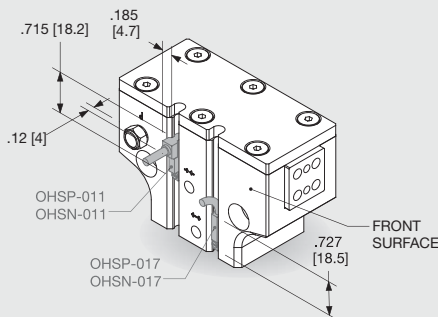
Maximum Tensile T	280 lbs. [1246 N]	32 lbs. [142 N]
Maximum Compressive C	520 lbs. [2314 N]	32 lbs. [142 N]
Maximum Moment M_x	200 in.-lbs. [23 Nm]	32 in.-lbs. [4 Nm]
Maximum Moment M_y	200 in.-lbs. [23 Nm]	32 in.-lbs. [4 Nm]
Maximum Moment M_z	200 in.-lbs. [23 Nm]	32 in.-lbs. [4 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-088M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	50 lbs.	222 N
Maximum Stroke	0.75 in.	19.1 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with -E Jaw Boot.....	4 psi	0.25 bar
Cylinder Bore Ø.....	0.875 in.	22.2 mm
Displacement	0.269 in ³	4.4 cm ³

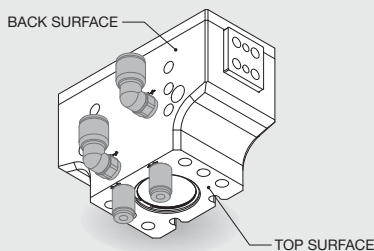
Specifications (cont.)	DPDL-088M	
Weight	0.95 lbs.	0.43 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.30 sec.	0.30 sec.
Accuracy.....	±0.002 in.	±0.05 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)

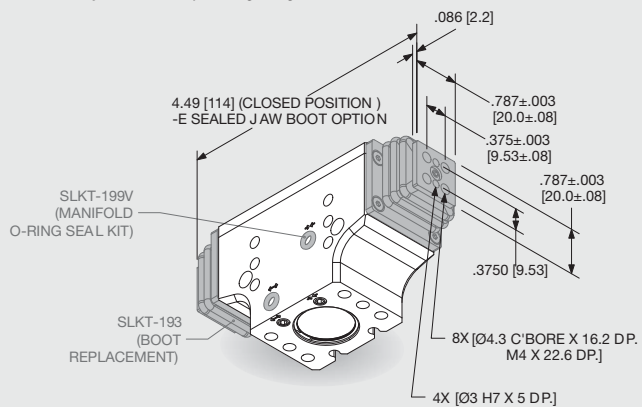
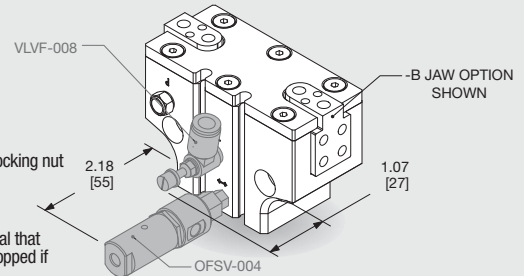


Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard

Plumbing Fittings

- Adjustable flow controls:
 - Have thumb screw adjust with locking nut for adjusting actuation time:
 - Available for 6mm O.D. tubing
- Failsafe valve:
 - For applications where it is critical that the part being gripped not be dropped if air pressure is lost:
 - Can mount directly to gripper or in-line with plumbing to gripper
 - M5 air port
- Consult factory for additional plumbing fittings



Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

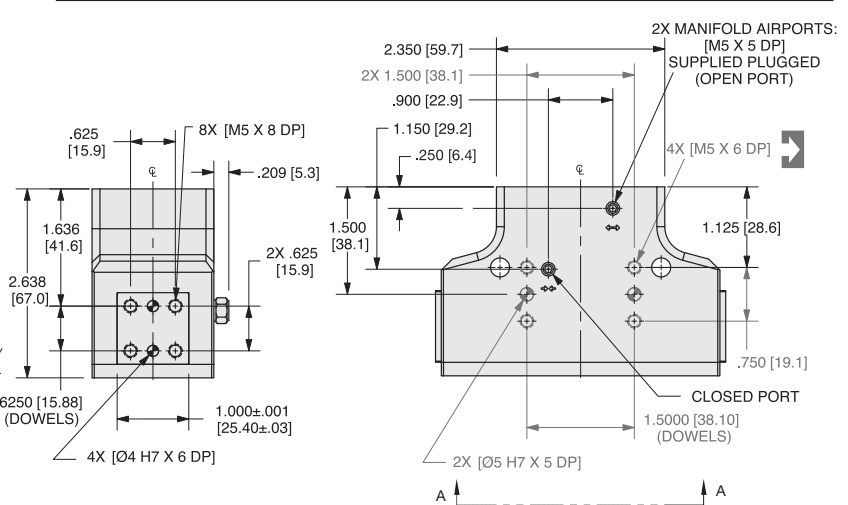
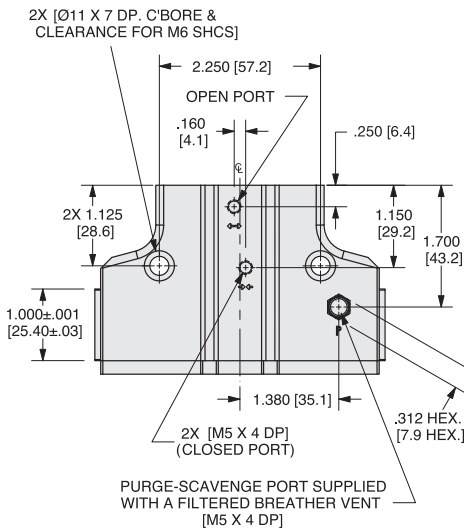
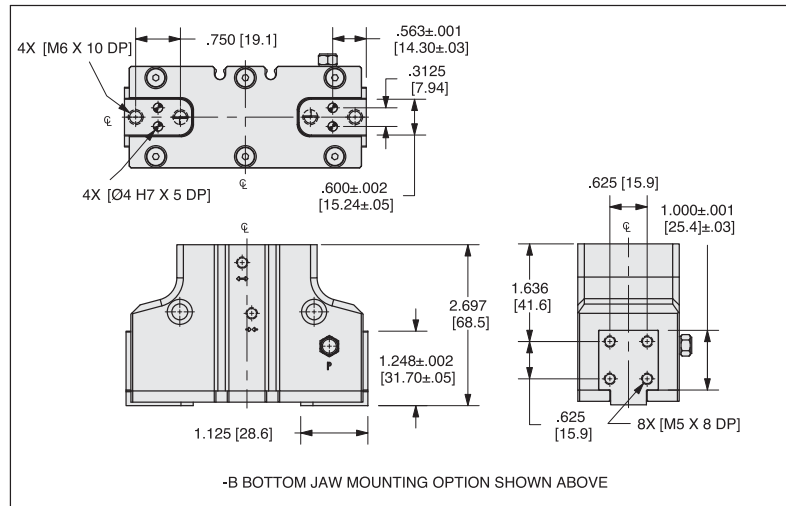
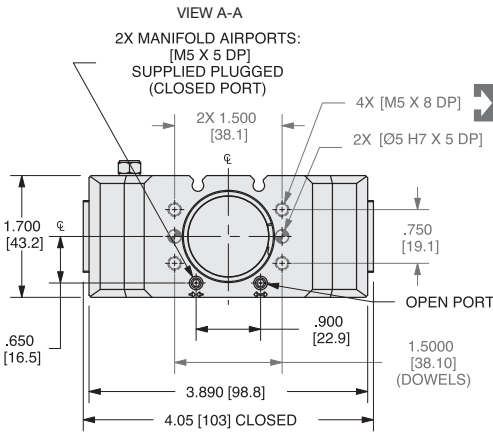
Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

PARALLEL GRIPPER DPDL-125M DIRECTCONNECT™ MODULAR SERIES

DPDL SERIES

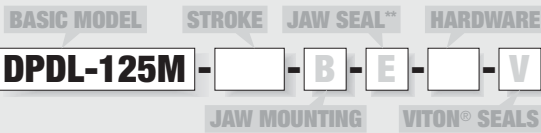
1.154



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

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



STROKE	100	1.00" [25.4mm]
	075	.75" [19.1mm]
	050	.50" [12.7mm]
JAW MOUNTING	B	Bottom jaw mounting
	—	Leave blank for end jaw mounting (standard)
JAW BOOT SEAL**	E	Buna-N rubber bellows
HARDWARE	S	Corrosion resistant
	CR	Corrosion resistant assembled with clean room grade grease
	—	Leave blank for alloy hardware (standard)
VITON®:	V	High Temperature Viton® Seals

SENSOR ACCESSORIES

PNP Magneto Resistive Sensor with Quick Disconnect*	ORDER #	QTY/UNIT
	OHS-P-017	1 or 2
NPN Magneto Resistive Sensor with Quick Disconnect*	OHS-N-017	1 or 2
PNP Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHS-P-011	1 or 2
NPN Magneto Resistive Sensor (90° barrel) w/Qk. Disc.*	OHS-N-011	1 or 2
Quick Disconnect Cable (2 meters long)*	CABL-010	1 or 2
Quick Disconnect Cable (5 meters long)*	CABL-013	1 or 2

PNEUMATIC ACCESSORIES

Standard Seal Repair Kit	ORDER #	QTY/UNIT
	SLKT-188	1
Viton® Seal Repair Kit	SLKT-188V	1
Manifold Seal Kit (Viton®)	SLKT-199V	1
Sealed Jaw Boot Replacement (1 boot, Buna-N only)	SLKT-194	1 or 2
Adj. Flow Control M5 Elbow - 6mm OD Push-in (Metric)	VLVF-008	1 or 2
Fail Safe Valve M5	OFSV-004	1 or 2

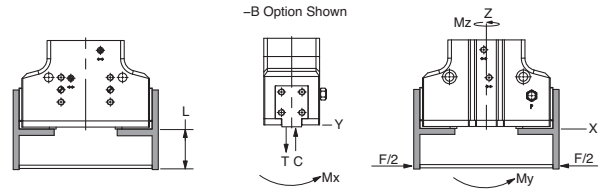
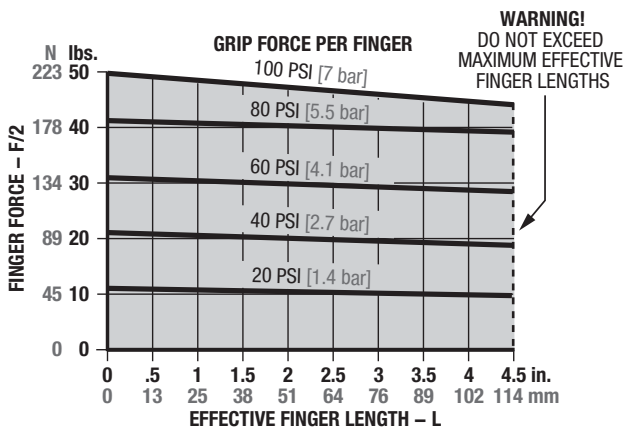
* Sensor and cable sold separately
 ** -E Jaw Boot Seal option is not available with -B Bottom Jaw Mounting option. See Accessory Mounting Data Section for -E Seal option dimensions.
 † -E Rubber Jaw Boot seals are Buna-N (Nitrile) material even if the -V Viton® gripper option is selected. See page 1.66 for more detailed technical specifications on the -E option Jaw Boot material

SAMPLE ORDER: DPDL-125M-075-E-CR-V

Ex: DPDL-125M Gripper, Metric, 25.4mm Stroke, Jaw Boot Seal, Corrosion Resistant Hardware with Clean Room Grade Grease, Viton® Seals

DIRECTCONNECT™

Loading Information



Loading Capacity†

DPDL-125M

	Static	Dynamic
Maximum Tensile T	675 lbs. [3004 N]	90 lbs. [401 N]
Maximum Compressive C	1300 lbs. [5785 N]	90 lbs. [401 N]
Maximum Moment M_x	650 in.-lbs. [73 Nm]	110 in.-lbs. [12 Nm]
Maximum Moment M_y	650 in.-lbs. [73 Nm]	110 in.-lbs. [12 Nm]
Maximum Moment M_z	650 in.-lbs. [73 Nm]	110 in.-lbs. [12 Nm]

DPDL-125M-B (Bottom Jaw Mounting Option)

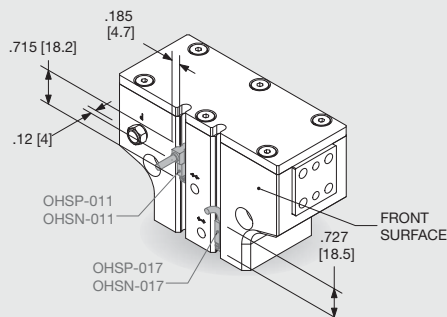
Maximum Tensile T	540 lbs. [2403 N]	72 lbs. [320 N]
Maximum Compressive C	1040 lbs. [4628 N]	72 lbs. [320 N]
Maximum Moment M_x	520 in.-lbs. [59 Nm]	88 in.-lbs. [10 Nm]
Maximum Moment M_y	520 in.-lbs. [59 Nm]	88 in.-lbs. [10 Nm]
Maximum Moment M_z	520 in.-lbs. [59 Nm]	88 in.-lbs. [10 Nm]

†Capacities are per set of jaws and are not simultaneous

Specifications	DPDL-125M	
Total Rated Grip Force F @ 100 psi, 7 bar.....	100 lbs.	445 N
Maximum Stroke	1.00 in.	25.4 mm
Maximum Operating Pressure Range.....	20-100 psi	1.5-7 bar
Maximum Vacuum for Scavenge Port	8 in. Hg	200 mm Hg
Max Pressure for Purge Port: (Standard)	20 psi	1.4 bar
with -E Jaw Boot.....	4 psi	0.25 bar
Cylinder Bore Ø.....	1.250 in.	31.8 mm
Displacement	0.730 in ³	12.0 cm ³

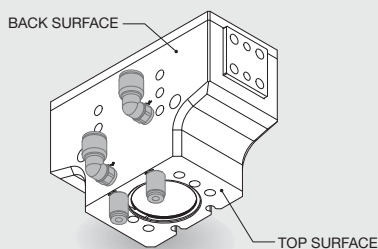
Specifications (cont.)	DPDL-125M	
Weight	1.99 lbs.	0.90 Kg
Temperature Range: Standard Seals	-30°~180° F	-35°~80° C
Viton® Seals	-20°~300° F	-30°~150° C
Actuation	0.50 sec.	0.50 sec.
Accuracy.....	±0.003 in.	±0.08 mm
Repeatability.....	±0.001 in.	±0.03 mm
Valve Required to Actuate	4-way, 2-position	

Accessory Mounting Technical Data



Sensors

- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick Disconnect mating cable (order separately)

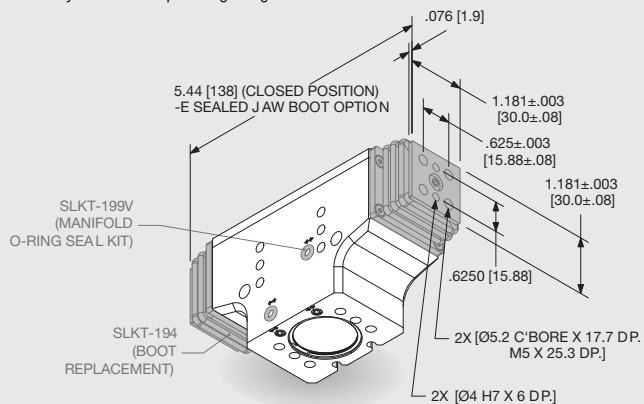
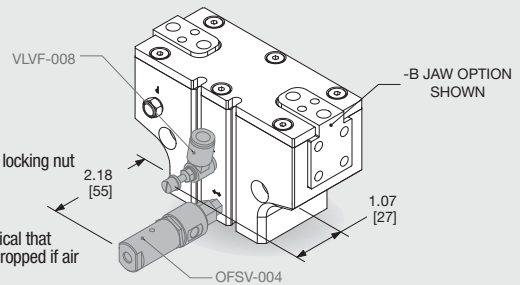


Multiple Air Port Locations

- 3 standard M5 air port locations (front, top, and back surface)
- Top and Back air ports are plugged as standard

Plumbing Fittings

- Adjustable flow controls:
 - Have thumb screw adjust with locking nut for adjusting actuation time.
 - Available for 6mm O.D. tubing
- Failsafe valve:
 - For applications where it is critical that the part being gripped not be dropped if air pressure is lost
 - Can mount directly to gripper or in-line with plumbing to gripper
 - M5 air port
- Consult factory for additional plumbing fittings



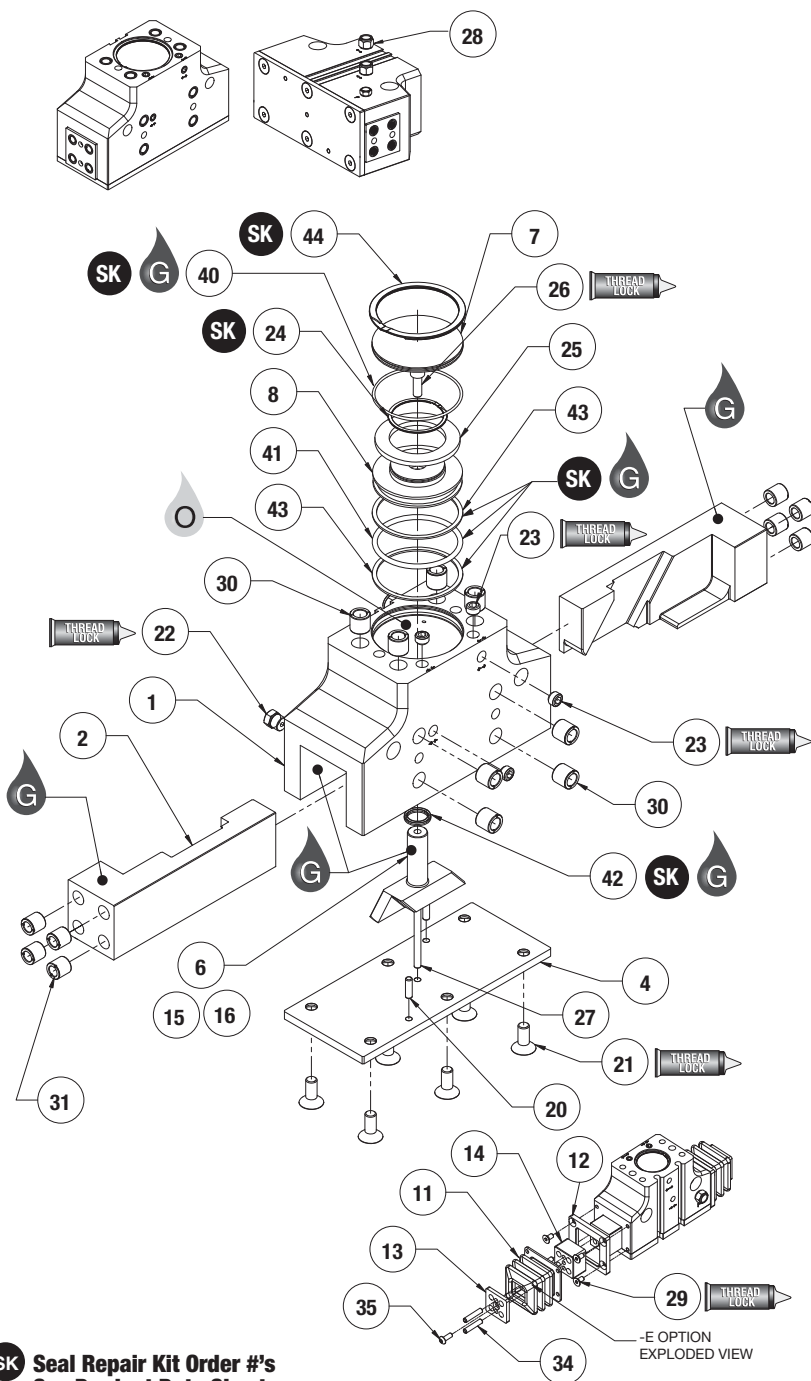
Manifold O-Ring Seals

- Can be used to seal front, top, or back air ports and front purge/scavenge port
- Seals in Manifold kit are Viton®
- O-Ring C'bores in customer's mounting plate must be: Ø.290 [Ø7.4] X .060±.002 [1.52±.05] deep
- Kit is supplied with all seals, plugs, & wrenches needed

Sealed Jaw Boot Option

- Can be used to seal jaws in harsh environments
- Boot replacement available as an accessory
- Boot material is Buna-N (Nitrile) only

DPDL SERIES EXPLODED VIEW



Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06*	1	Shaft Wedge
07	1	Cap
08	1	Piston
11	2	Boot
12	2	Boot Flange
13	2	Boot Spacer Cap
14	2	Boot Spacer
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
29	8	Boot Flange Mounting Screws
34	4	Boot Spacer Dowel Pins
35*	2	Boot Spacer Mtg Screws
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
44	1	Cap Ret. Ring

NOTES:*

- 1) Contact the Destaco-Robohand Sales Department for a complete spare parts list with order numbers and prices.
- 4) Item #22 Breather vent plug is a set screw plug for sizes -047 & -056.
- 7) Item #35 is for sizes -088 thru -125 only.
- 8) End-of-jaw mounting holes on -B option are supplied plugged to prevent debris from entering the gripper. These set screws can be removed for customer finger mounting. It is recommend that all unused holes be plugged for the same reason.

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

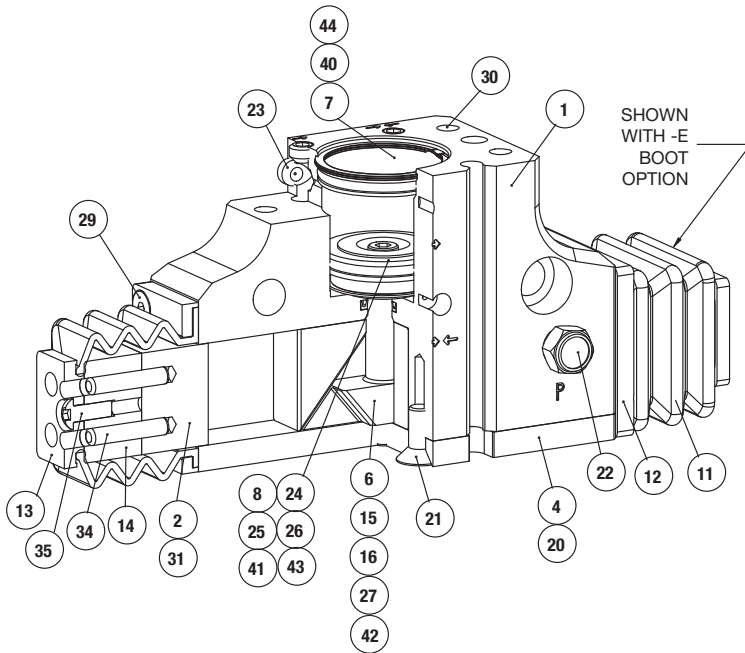
Assembly Procedure:

- 1) Install #23 airport plugs with thread-locker.
- 2) Press pins #20 & #27 into plate #4.
- 3) Install #22 vent or plug with thread-locker.
- 4) Mount magnet #25 to piston #8 with retaining ring #24.
- 5) Lubricate body #1 (jaw cavity & bores).
- 6) Lubricate & install all seals into body, piston, & cap.
- 7) Sub-assemble the #2 jaws on either side of the #6 shaft wedge with lubrication.
- 8) Insert the jaws and shaft wedge sub-assembly into body.
- 9) Insert piston #8 into the body bore and fasten it to the shaft wedge with Mounting screw # 26 using thread locker.
- 10) Install cap #7 into body with retaining ring #44.
- 11) Insert #4 bottom plate with pressed-in pins onto the body and fasten with #21 screws with thread-locker.

-E Option Assembly Procedure:

- 1) Insert pins #34 to the jaw dowel pin holes.
- 2) Place #14 boot spacer over pins
- 3) Fasten boot #11 and flange #12 to body #1 with #29 screws.
- 4) Fasten the spacer cap #13 to the spacer #14 with #35 screw.

Seal Kit Items	Thread Locker	Krytox™ Lubricant	Lightweight Machine Oil	Teflon™ Based Grease	Super Bonder	Third Angle Projection

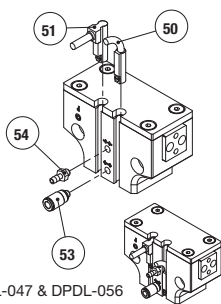


Item	Qty	Name
01	1	Body
02	2	Jaw
04	1	Bottom Plate
06*	1	Shaft Wedge
07	1	Cap
08	1	Piston
11	2	Boot
12	2	Boot Flange
13	2	Boot Spacer Cap
14	2	Boot Spacer
20	2	Bottom Plate Locating Dowels
21	6	Bottom Plate Screws
22*	1	Breather Vent Plug (Purge)
23	4	Manifold Port Plugs
24	1	Piston Mag. Ret. Ring
25	1	Piston Magnet
26	1	Piston Mounting Screw
27	1	Shaft guide dowel pin
29	8	Boot Flange Mounting Screws
Screws		
34	4	Boot Spacer Dowel Pins
35*	2	Boot Spacer Mtg Screws
40	1	Cap O-ring
41	1	Piston O-ring
42	1	U-cup
44	1	Cap Ret. Ring

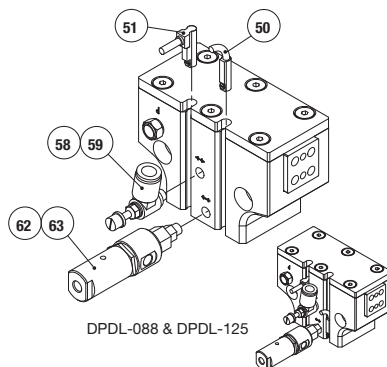
NOTES:*

- 1) Contact the Destaco-Robohand Sales Department for a complete spare parts list with order numbers and prices.
- 2) Item #22 breather vent plug is a set screw plug for sizes -047 & -056.

ACCESSORY INSTALLATION & ADJUSTMENT INSTRUCTIONS



DPDL-047 & DPDL-056



DPDL-088 & DPDL-125

Magneto-Resistive Sensors:

- 1) Insert sensors #50 or #51 from either end of the profile slots and set the sensor with the integrated screw.

Plumbing Fittings:

- 1) M3 plumbing fittings #53 & #54 can be used in any airport or purge/scavenge port.
- 2) Flow controls can be inserted and used in any open or closed airport to help control the stroke actuation.
- 3) Fail-safe valve can be used in either the open or closed airport to help limit the possibility of dropping the part if air pressure is lost.

Item	Qty	Name
50	1 or 2	Magneto Resistive Sensor (short barrel) w/Qk. Disconnect
51	1 or 2	Magneto Resistive Sensor (90° barrel) w/Qk. Disconnect
53	1,2, or 3	Plumbing Fitting - M3 male to 3mm OD Push-in Style
54	1,2, or 3	Plumbing Fitting - M3 male to 2mm ID Barb Style
59	1 or 2	Adj. Flow Control (Metric) M5 elbow - 6mm OD Push-in Style
63	1	Fail Safe Valve (Metric) M5

NOTE: Other Plumbing Fittings are available for each size - Consult Factory