



# Rotary Actuator - DRG DIRECTCONNECT Shaft Output Rotaries

DRG SERIES

3.2

**NO  
ADAPTER  
PLATES!**

**Application:** Use in applications where low precision end stop positioning and backlash are acceptable

**Application Examples:** Diverter gates, escapements, ejection stations.

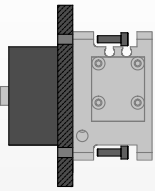
**Torque Generation:** Provides rotational torque for payloads positioned and decelerated by customer supplied shocks and stops.

**End Stop Positioning:** For built-in precision end stop positioning and zero backlash see our DRF Rotary Actuator Series.

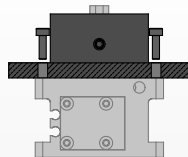
**Multiple Body Mounting Locations:** Tapped and thru flange on top and bottom mounting surfaces, DirectConnect tapped pattern on bottom surface.

## Mounting Information:

Rotaries can be mounted & operated in any orientation



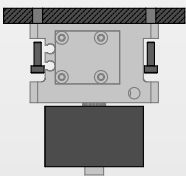
Mounting thru top flange  
clearance holes into tapped holes  
in customer application



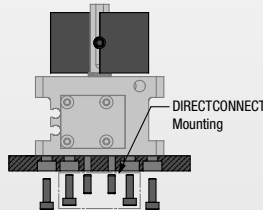
Mounting from underside of table  
using tapped holes in body top flange



Payload is attached to  
output shaft using standard  
keys and set screws



Mounting thru bottom flange  
clearance holes into tapped holes  
in customer application



Body mounts with screws and  
slip fit dowels from bottom side

## Technical Specifications:

### Pneumatic Specifications

Pressure Operating Range  
Cylinder Type  
Dynamic Seals  
Valve Required  
to Operate

**Imperial**  
40-100 psi  
**Metric**  
3-7 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)

-30°~180° F    -35°~80° 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

Application requiring precise positioning and no backlash  
(See DRF product line)

\*Addition of lubrication will greatly increase service life

DIRECTCONNECT™

## Product Features

**Black Anodized**  
The body and all Aluminum parts have Black anodize, steel parts are Black oxide

### Sensor Mounting Slots

Standard mounting slots for Magneto Resistive Sensors. Magnet mounted in piston standard (sensors sold separately)

### One Piece Body

One piece lightweight aircraft quality aluminum body

### Dowel Holes

Slip fit dowel pin holes in bottom of body

### DIRECTCONNECT<sup>™</sup> Mounting Patterns

Tapped and Dowel mounting on bottom surface

**Keyways**  
Metric keyways for coupling payload

**Case Hardened**  
Rack and pinion are case hardened for wear and long life

### Extremely Rugged Design

Pinion is supported top and bottom with sealed bearings

### End Stop Cushioning

Urethane bumpers on piston to cushion and stop load standard

### Piston

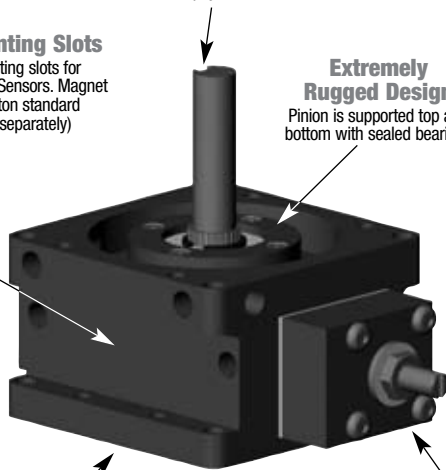
Made of Delrin<sup>®</sup> for extended life

### Rotational Adjustments

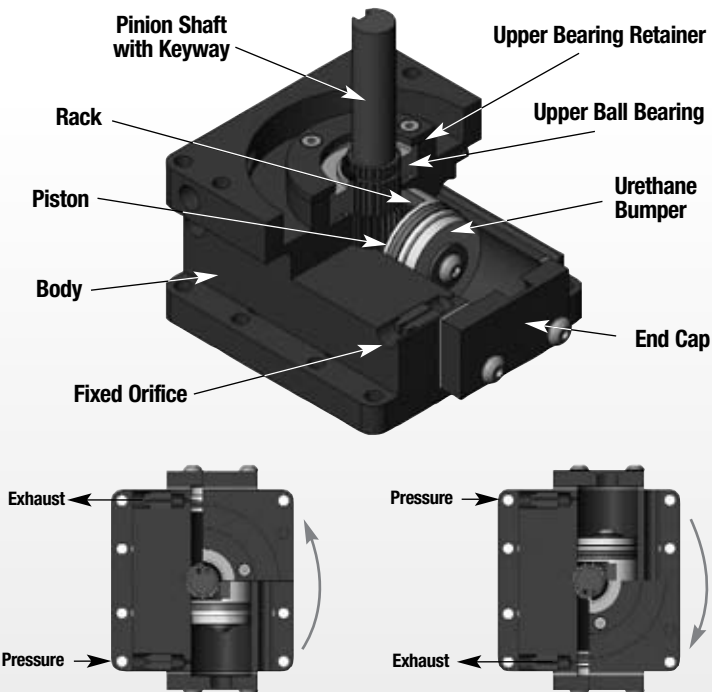
-R option allows for rotational adjustment from the standard 45° 90° 135° 180° configuration

### Mounting

Tapped and thru hole mounting on top & bottom flanges for base or bulkhead mount



## Operating Principle



- Air pressure supplied to the piston drives the piston/rack.
- The piston/rack drives the pinion.
- The pinion is supported in the body by two sealed ball bearings.
- Ends of the piston have Urethane bumpers to cushion, stop and position the load at the end of the stroke.
- This rotary is suitable for operation in any orientation

**Designed and manufactured in the USA**

## Style - DRG Rotary Actuator

### Size -075M

Style:	DRG-075M	
Max. Payload:	0.5 lbs.	.2 kg
Torque:	8 in.-lbs.	.9 N-m
Weight:	0.54 lbs.	0.24 Kg



See Page **3.4**

## Style - DRG Rotary Actuator

### Size -094M

Style:	DRG-094M	
Max. Payload:	1.5 lbs.	.7 kg
Torque:	17 in.-lbs.	2.0 N-m
Weight:	1.0 lbs.	0.45 Kg



See Page **3.6**

## Style - DRG Rotary Actuator

### Size -106M

Style:	DRG-106M	
Max. Payload:	4 lbs.	1.8 kg
Torque:	33 in.-lbs.	3.7 N-m
Weight:	2.5 lbs.	1.1 Kg

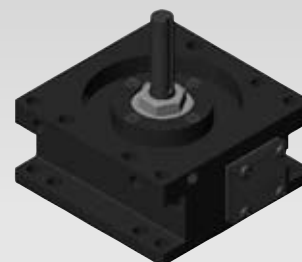


See Page **3.8**

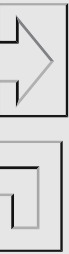
## Style - DRG Rotary Actuator

### Size -131M

Style:	DRG-131M	
Max. Payload:	8 lbs.	3.6 kg
Torque:	68 in.-lbs.	7.6 N-m
Weight:	5.4 lbs.	2.4 Kg

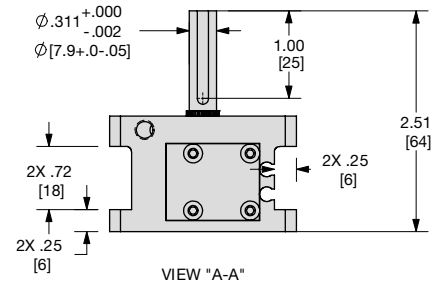
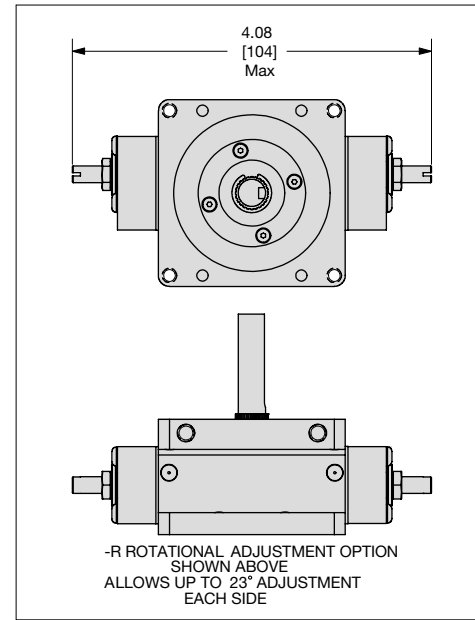
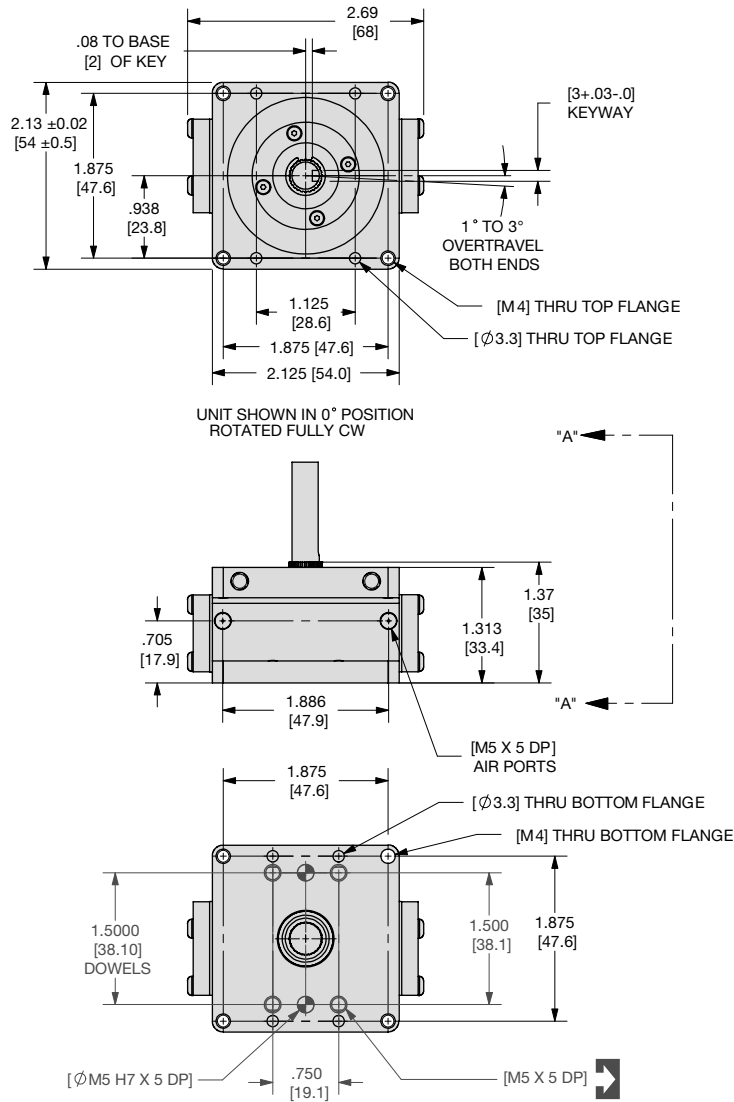


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# ROTARY ACTUATOR DRG-075M SHAFT OUTPUT SERIES

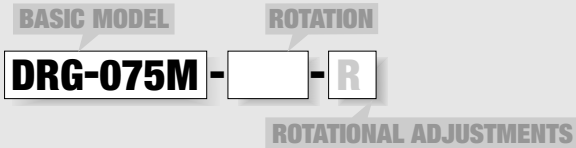


**UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW**

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

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

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



**DEGREES OF ROTATION:** 45°, 90°, 135°, 180°  
(for intermediate degrees of rotation use **-R** option)

### SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	<b>OHSP-017</b>	<b>1 or 2</b>
Magneto Resistive Sensor (NPN)*	<b>OHSN-017</b>	<b>1 or 2</b>
Magneto Resistive Sensor 90° Barrel (PNP)*	<b>OHSP-011</b>	<b>1 or 2</b>
Magneto Resistive Sensor 90° Barrel (NPN)*	<b>OHSN-011</b>	<b>1 or 2</b>
Quick Disconnect Cable (2 meters long)*	<b>CABL-010</b>	<b>1 or 2</b>
Quick Disconnect Cable (5 meters long)*	<b>CABL-013</b>	<b>1 or 2</b>

### PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	<b>SLKT-210</b>	<b>1</b>
Rotational Adjustment Seal Kit (Standard Buna-N)	<b>SLKT-212</b>	<b>1</b>
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	<b>VLVF-008</b>	<b>1 or 2</b>

\*Sensor and cable sold separately  
\*\*Flow Controls recommended for most applications

### SAMPLE ORDER: DRG-075M-180-R

Ex: DRG Rotary, size 075, metric, 180° rotation with rotational adjustment option

Please see back cover for DE-STA-CO Global Locations. [www.destaco.com](http://www.destaco.com)

[www.comoso.com](http://www.comoso.com)

DRG SERIES  
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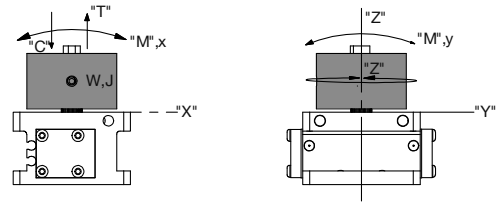
# ROTARY ACTUATOR DRG-075M SHAFT OUTPUT SERIES



## Specifications

### DRG-075M

Maximum Payload.....	0.5 lbs.	0.23 kg
Maximum Payload Inertia.....	0.0008 in-lbs.-sec. <sup>2</sup>	9.0 X 10 <sup>-6</sup> N-m-sec. <sup>2</sup>
Maximum Torque @ 100psi/7 bar .....	8.3 lbs.-in.	0.9 N-m
Maximum Rotation .....	180°	180°
Pitch Diameter of Pinion .....	0.375 in.	9.5 mm
Weight without rotational adjuster .....	0.52 lbs.	0.24 kg
Weight without rotational adjuster (-R option) .....	0.72 lbs.	0.33 kg
Pressure Range .....	40-100 psi	3-7 bar
Bore.....	0.750 in.	19.1 mm
Displacement (180°) .....	0.31 in <sup>3</sup>	5.1 cm <sup>3</sup>
Actuation Time (180° @ 100psi/7 bar) .....	0.38 sec.	0.38 sec.
Actuation Time (90° @ 100psi/7 bar) .....	0.29 sec.	0.29 sec.
Temperature Range: Standard Seals.....	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option) .....	23°	23°
Over Travel (each end).....	1° to 3°	1° to 3°
Valve required to actuate .....	4-way, 2-position	

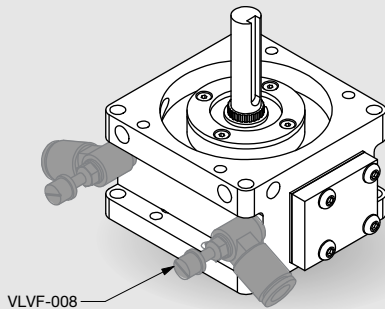


## Loading Capacity

	Static	Dynamic
Maximum Tensile <b>T</b>	10 lbs. [44 N]	2 lbs. [9 N]
Maximum Compressive <b>C</b>	20 lbs. [89 N]	4 lbs. [18 N]
Maximum Moment <b>M<sub>x</sub></b>	20 in-lbs. [2.3 Nm]	4 in-lbs. [0.5 Nm]
Maximum Moment <b>M<sub>y</sub></b>	20 in-lbs. [2.3 Nm]	4 in-lbs. [0.5 Nm]
Maximum Payload <b>W</b>	0.5 lbs. [23 kg]	
Maximum Inertia <b>J</b>	.0008 in-lbs.-sec. <sup>2</sup> [9.0 X 10 <sup>-6</sup> N-m-sec. <sup>2</sup> ]	

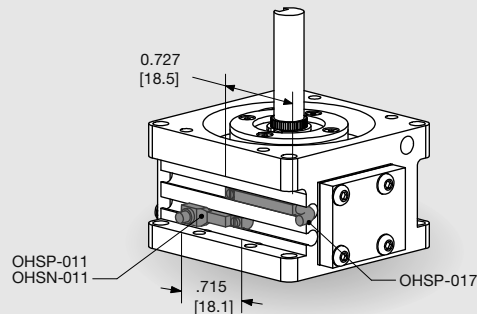
**Note:** Higher payloads and inertia possible with external shocks and stops.

## Accessory Mounting Technical Data



### Flow Controls

- Flow controls for adjusting rotational speed



### 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)
- Sensor Magnet standard

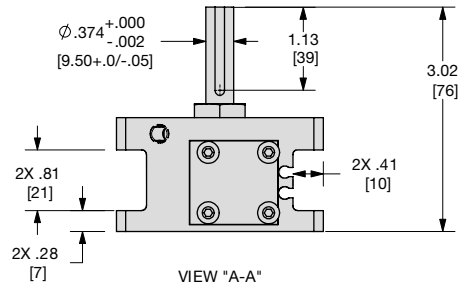
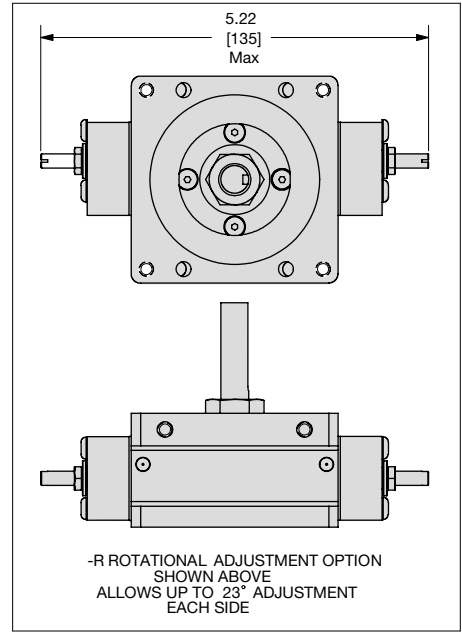
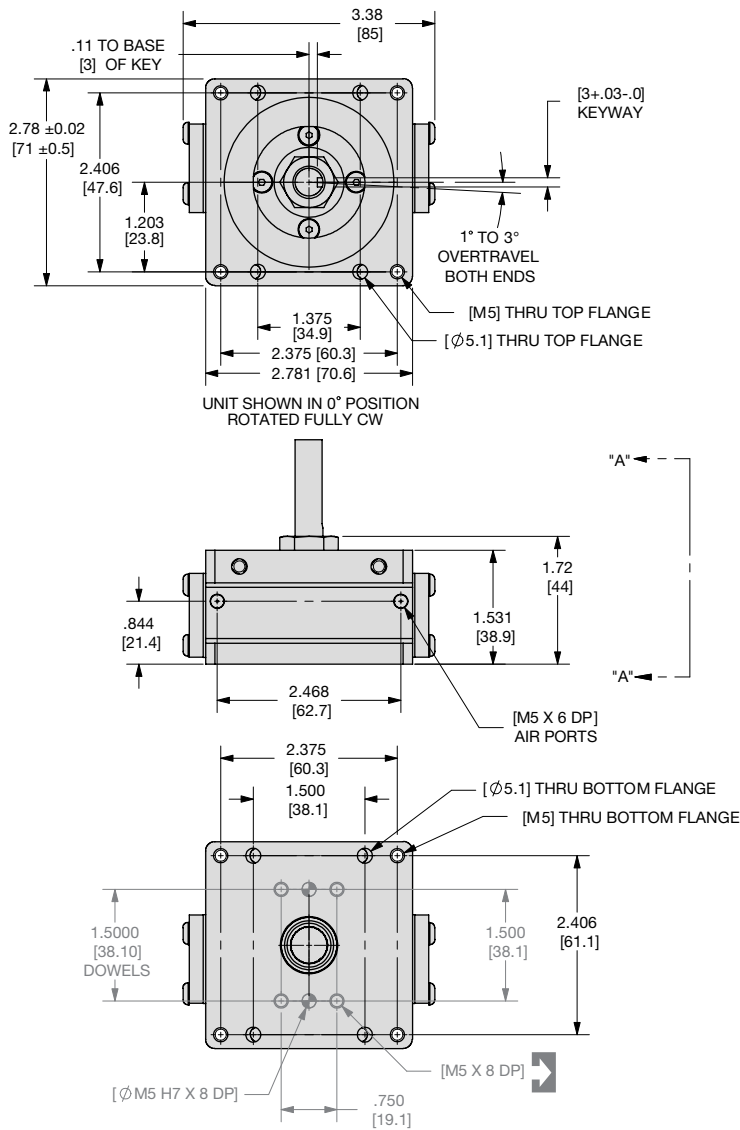


# ROTARY ACTUATOR DRG-094M SHAFT OUTPUT SERIES



DRG SERIES

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VIEW "A-A"

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

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

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

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

BASIC MODEL

ROTATION

**DRG-094M** -  - **R**

ROTATIONAL ADJUSTMENTS

DEGREES OF ROTATION: 45°, 90°, 135°, 180°  
(for intermediate degrees of rotation use -R option)

### SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	<b>OHSP-017</b>	<b>1 or 2</b>
Magneto Resistive Sensor (NPN)*	<b>OHSN-017</b>	<b>1 or 2</b>
Magneto Resistive Sensor 90° Barrel (PNP)*	<b>OHSP-011</b>	<b>1 or 2</b>
Magneto Resistive Sensor 90° Barrel (NPN)*	<b>OHSN-011</b>	<b>1 or 2</b>
Quick Disconnect Cable (2 meters long)*	<b>CABL-010</b>	<b>1 or 2</b>
Quick Disconnect Cable (5 meters long)*	<b>CABL-013</b>	<b>1 or 2</b>

### PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	<b>SLKT-216</b>	<b>1</b>
Rotational Adjustment Seal Kit (Standard Buna-N)	<b>SLKT-218</b>	<b>1</b>
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	<b>VLVF-008</b>	<b>1 or 2</b>

\*Sensor and cable sold separately  
\*\*Flow Controls recommended for most applications

### SAMPLE ORDER: DRG-094M-180-R

Ex: DRG Rotary, size 094, metric, 180° rotation with rotational adjustment option

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[www.comoso.com](http://www.comoso.com)

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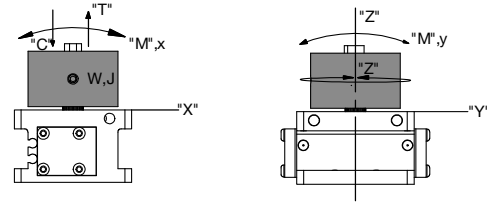
# ROTARY ACTUATOR DRG-094M SHAFT OUTPUT SERIES



## Specifications

### DRG-094M

Maximum Payload.....	1.5 lbs.	0.68 kg
Maximum Payload Inertia.....	0.0056 in-lbs.-sec. <sup>2</sup>	6.3 X10 <sup>-4</sup> N-m-sec. <sup>2</sup>
Maximum Torque @ 100psi/7 bar .....	17.3 lbs.-in.	1.9 N-m
Maximum Rotation .....	180°	180°
Pitch Diameter of Pinion.....	0.500 in.	12.7 mm
Weight without rotational adjuster .....	1.0 lbs.	0.45 kg
Weight without rotational adjuster (-R option) .....	1.2 lbs.	0.54 kg
Pressure Range .....	40-100 psi	3-7 bar
Bore.....	0.938 in.	23.8 mm
Displacement (180°) .....	0.55 in <sup>3</sup>	9.0 cm <sup>3</sup>
Actuation Time (180° @ 100psi/7 bar) .....	0.38 sec.	0.38 sec.
Actuation Time (90° @ 100psi/7 bar) .....	0.29 sec.	0.29 sec.
Temperature Range: Standard Seals.....	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option) .....	23°	23°
Over Travel (each end).....	1° to 3°	1° to 3°
Valve required to actuate .....	4-way, 2-position	



## Loading Capacity

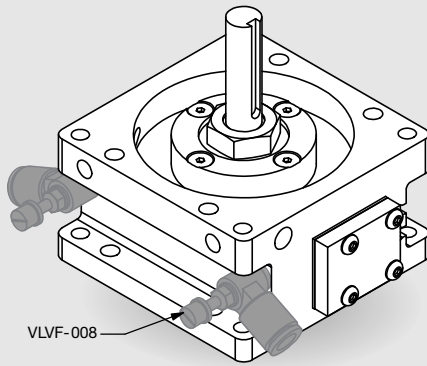
	Static	Dynamic
Maximum Tensile <b>T</b>	15 lbs. [67 N]	3 lbs. [13 N]
Maximum Compressive <b>C</b>	30 lbs. [133 N]	6 lbs. [27 N]
Maximum Moment <b>M<sub>x</sub></b>	50 in-lbs. [5.6 Nm]	10 in-lbs. [1.1 Nm]
Maximum Moment <b>M<sub>y</sub></b>	50 in-lbs. [5.6 Nm]	10 in-lbs. [1.1 Nm]
Maximum Payload <b>W</b>	1.5 lbs. [0.68 kg]	
Maximum Inertia <b>J</b>	0.0056 in-lbs.-sec. <sup>2</sup> [6.3 X 10 <sup>-4</sup> N-m-sec. <sup>2</sup> ]	

**Note:** Higher payloads and inertia possible with external shocks and stops.

DRG SERIES

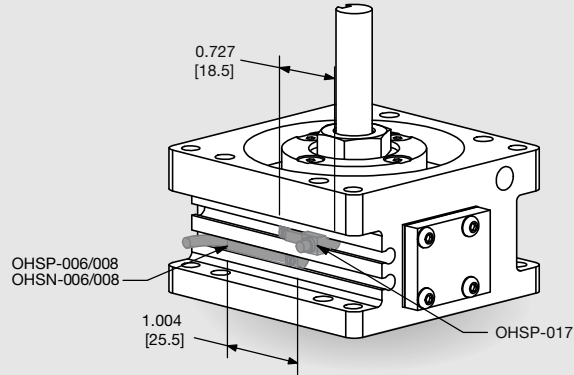
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## Accessory Mounting Technical Data



### Flow Controls

- Flow controls for adjusting rotational speed



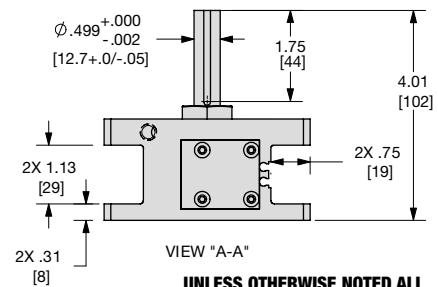
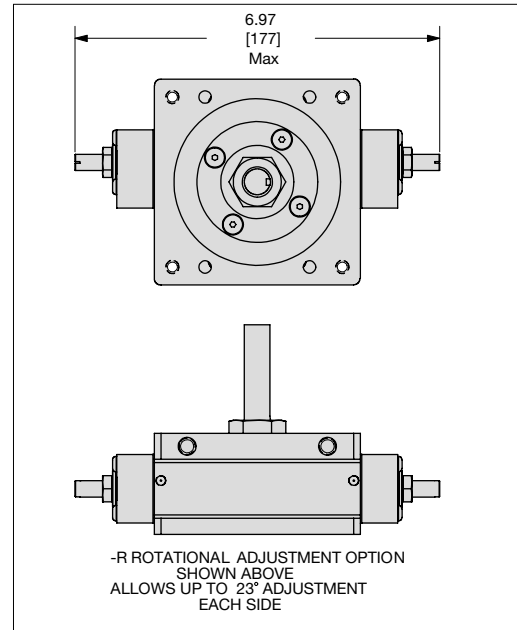
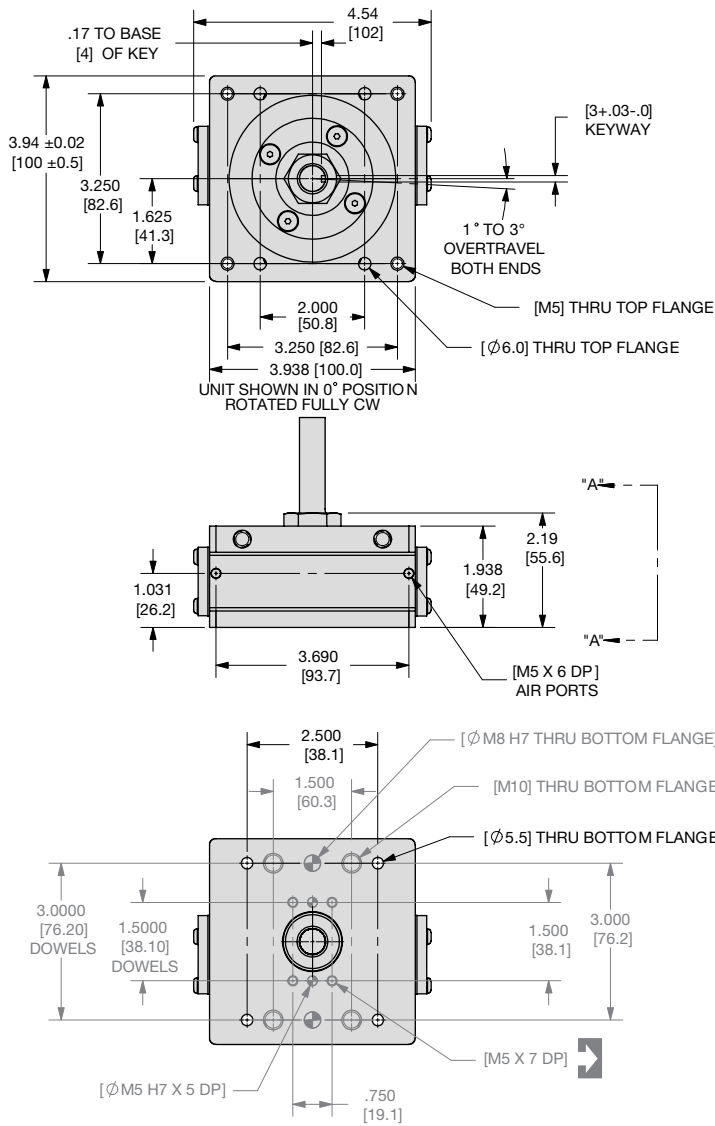
### Sensors

- 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)
- Sensor Magnet standard

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# ROTARY ACTUATOR DRG-106M SHAFT OUTPUT SERIES



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

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

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

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

### BASIC MODEL

**DRG-106M**

### ROTATION

**-R**

### ROTATIONAL ADJUSTMENTS

**DEGREES OF ROTATION:** 45°, 90°, 135°, 180°  
(for intermediate degrees of rotation use **-R** option)

### SENSOR ACCESSORIES

	ORDER #	QTY/UNIT
Magneto Resistive Sensor (PNP)*	<b>OHSP-017</b>	<b>1 or 2</b>
Magneto Resistive Sensor (NPN)*	<b>OHSN-017</b>	<b>1 or 2</b>
Magneto Resistive Sensor 90° Barrel (PNP)*	<b>OHSP-011</b>	<b>1 or 2</b>
Magneto Resistive Sensor 90° Barrel (NPN)*	<b>OHSN-011</b>	<b>1 or 2</b>
Quick Disconnect Cable (2 meters long)*	<b>CABL-010</b>	<b>1 or 2</b>
Quick Disconnect Cable (5 meters long)*	<b>CABL-013</b>	<b>1 or 2</b>

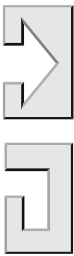
### PNEUMATIC ACCESSORIES

	ORDER #	QTY/UNIT
Seal Repair kit (Standard Buna-N)	<b>SLKT-222</b>	<b>1</b>
Rotational Adjustment Seal Kit (Standard Buna-N)	<b>SLKT-224</b>	<b>1</b>
Flow Control Push-in 90° Elbow M5-6mm O.D. Tube**	<b>VLVF-008</b>	<b>1 or 2</b>

\*Sensor and cable sold separately  
\*\*Flow Controls recommended for most applications

### SAMPLE ORDER: DRG-106M-180-R

Ex: DRG Rotary, size 106, metric, 180° rotation with rotational adjustment option



DRG SERIES

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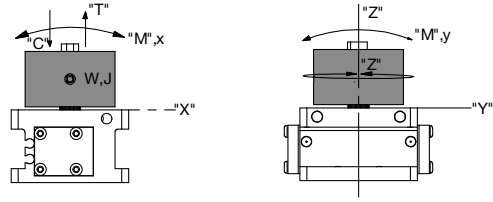


# ROTARY ACTUATOR DRG-106M SHAFT OUTPUT SERIES

## Specifications

### DRG-106M

Maximum Payload.....	4 lbs.	1.8 kg
Maximum Payload Inertia.....	0.0207 in.-lbs.-sec. <sup>2</sup>	2.3 X10 <sup>-3</sup> N-m-sec. <sup>2</sup>
Maximum Torque @ 100psi/7 bar .....	33.2 lbs.-in.	3.8 N-m
Maximum Rotation .....	180°	180°
Pitch Diameter of Pinion .....	0.750 in.	19.1 mm
Weight without rotational adjuster .....	2.5 lbs.	1.1 kg
Weight without rotational adjuster (-R option) .....	2.7 lbs.	1.2 kg
Pressure Range .....	40-100 psi	3-7 bar
Bore.....	1.063 in.	27.0 mm
Displacement (180°) .....	1.16 in <sup>3</sup>	19.0 cm <sup>3</sup>
Actuation Time (180° @ 100psi/7 bar) .....	0.60 sec.	0.60 sec.
Actuation Time (90° @ 100psi/7 bar) .....	0.45 sec.	0.45 sec.
Temperature Range: Standard Seals.....	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option).....	23°	23°
Over Travel (each end).....	1° to 3°	1° to 3°
Valve required to actuate .....	4-way, 2-position	

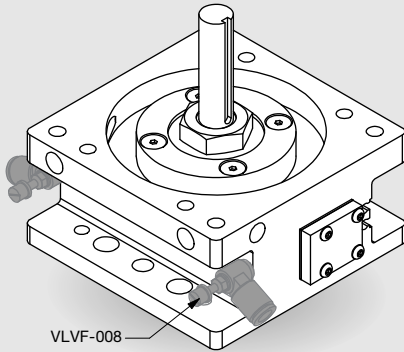


## Loading Capacity

	Static	Dynamic
Maximum Tensile <b>T</b>	25 lbs. [111 N]	5 lbs. [22 N]
Maximum Compressive <b>C</b>	50 lbs. [222 N]	10 lbs. [44 N]
Maximum Moment <b>M<sub>x</sub></b>	75 in.-lbs. [8.5 Nm]	15 in.-lbs. [1.7 Nm]
Maximum Moment <b>M<sub>y</sub></b>	75 in.-lbs. [8.5 Nm]	15 in.-lbs. [1.7 Nm]
Maximum Payload <b>W</b>	4 lbs. [1.8 kg]	
Maximum Inertia <b>J</b>	0.0207 in.-lbs.-sec. <sup>2</sup> [2.3 X 10 <sup>-3</sup> N-m-sec. <sup>2</sup> ]	

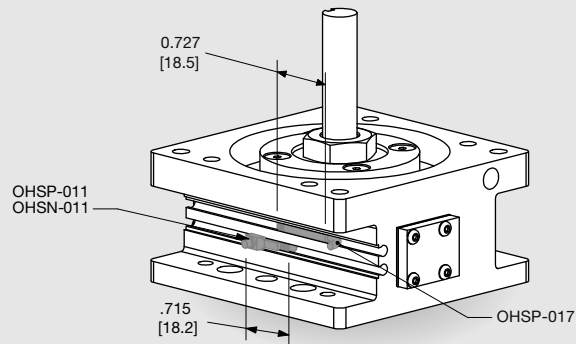
**Note:** Higher payloads and inertia possible with external shocks and stops.

## Accessory Mounting Technical Data



### Flow Controls

- Flow controls for adjusting rotational speed

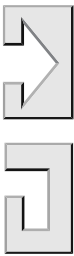


### Sensors

- 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)
- Sensor Magnet standard



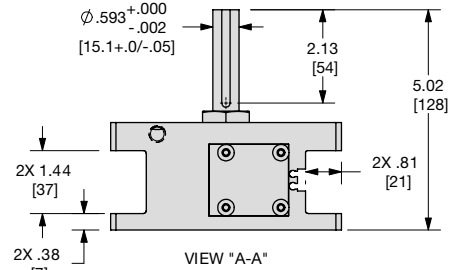
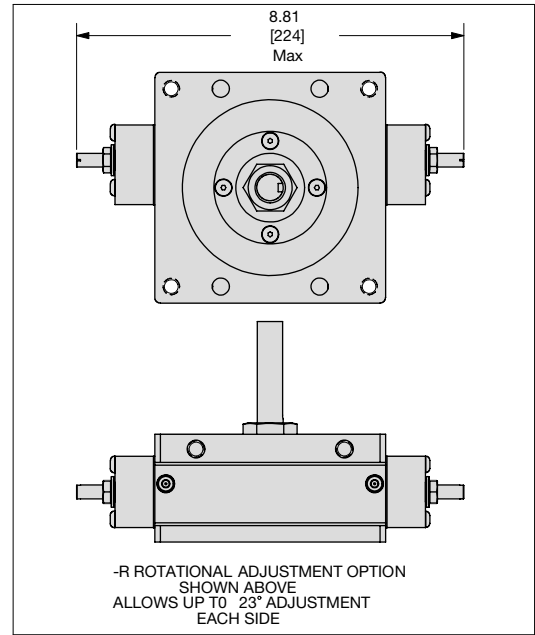
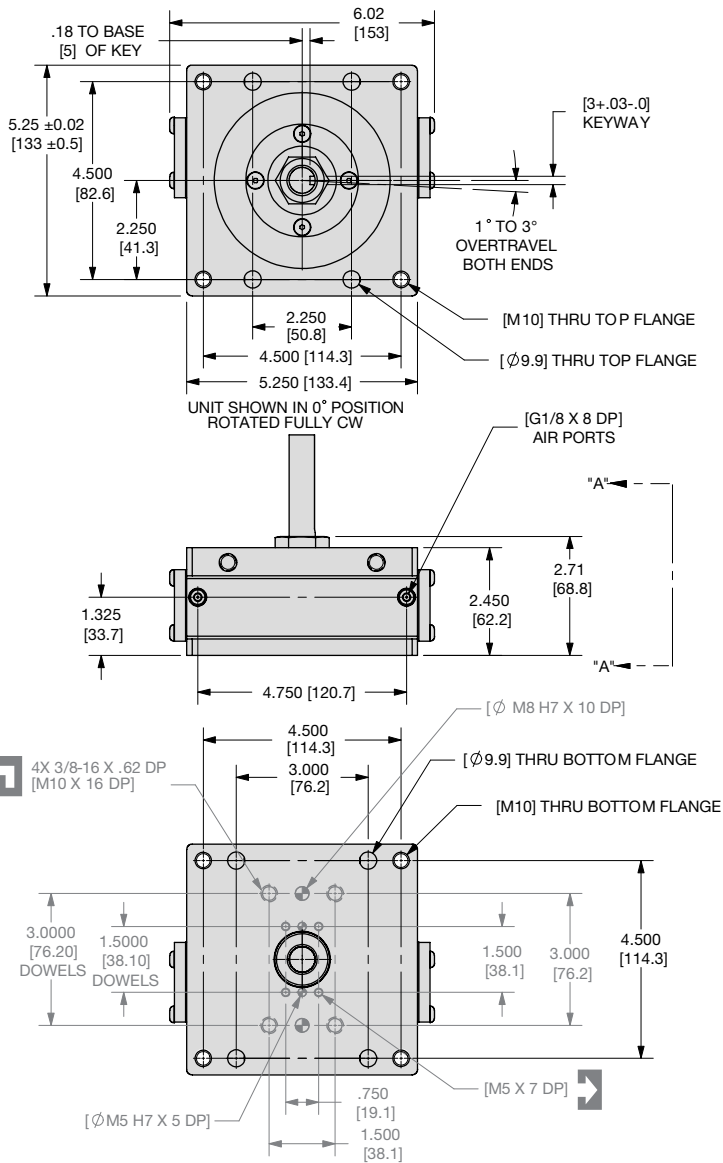




# ROTARY ACTUATOR DRG-131M SHAFT OUTPUT SERIES

DRG SERIES

3.10



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

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

NOTE: DIRECTCONNECT™ DIMENSIONS ARE SHOWN IN BLUE

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

### BASIC MODEL

**DRG-131M**

### ROTATION

**-R**

### ROTATIONAL ADJUSTMENTS

DEGREES OF ROTATION: 45°, 90°, 135°, 180°  
(for intermediate degrees of rotation use **-R** option)

### SENSOR ACCESSORIES

- Magneto Resistive Sensor (PNP)\*
- Magneto Resistive Sensor (NPN)\*
- Magneto Resistive Sensor 90° Barrel (PNP)\*
- Magneto Resistive Sensor 90° Barrel (NPN)\*
- Quick Disconnect Cable (2 meters long)\*
- Quick Disconnect Cable (5 meters long)\*

### ORDER # QTY/UNIT

- OHSP-017** 1 or 2
- OHSN-017** 1 or 2
- OHSP-011** 1 or 2
- OHSN-011** 1 or 2
- CABL-010** 1 or 2
- CABL-013** 1 or 2

### PNEUMATIC ACCESSORIES

- Seal Repair kit (Standard Buna-N)
- Rotational Adjustment Seal Kit (Standard Buna-N)
- Fitting Push-in 90° Elbow G1/8, 6mm O.D. Tube
- Fitting Push-in 90° Elbow G1/8, 8mm O.D. Tube
- Fitting Push-in Straight G1/8, 6mm O.D. Tube
- Fitting Push-in Straight G1/8, 8mm O.D. Tube
- Flow Control Push-in 90° Elbow G1/8, 6mm O.D. Tube\*\*

### ORDER # QTY/UNIT

- SLKT-228** 1
- SLKT-230** 1
- PLFT-042** 1 or 2
- PLFT-048** 1 or 2
- PLFT-038** 1 or 2
- PLFT-045** 1 or 2
- VLVF-005** 1 or 2

\*Sensor and cable sold separately  
\*\*Flow Controls recommended for most applications

## SAMPLE ORDER: DRG-131M-180-R

Ex: DRG Rotary, size 131, metric, 180° rotation with rotational adjustment option

Please see back cover for DE-STA-CO Global Locations. [www.destaco.com](http://www.destaco.com)

[www.comoso.com](http://www.comoso.com)

DIRECTCONNECT™

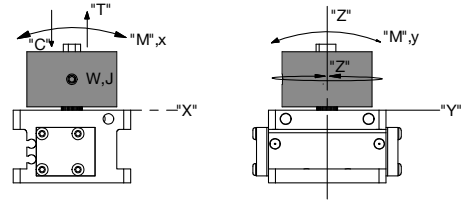


# ROTARY ACTUATOR DRG-131M SHAFT OUTPUT SERIES

## Specifications

### DRG-131M

Maximum Payload.....	7.5 lbs.	3.4 kg
Maximum Payload Inertia.....	0.0485 in.-lbs.-sec. <sup>2</sup>	5.5 X 10 <sup>-3</sup> N-m-sec. <sup>2</sup>
Maximum Torque @ 100psi/7 bar .....	68 lbs-in.	7.6 N-m
Maximum Rotation .....	180°	180°
Pitch Diameter of Pinion.....	1.000 in.	25.4 mm
Weight without rotational adjuster .....	5.4 lbs.	2.4 kg
Weight without rotational adjuster (-R option) .....	5.6 lbs.	2.5 kg
Pressure Range .....	40-100 psi	3-7 bar
Bore.....	1.313 in.	33.4 mm
Displacement (180°) .....	2.11 in. <sup>3</sup>	34.6 cm <sup>3</sup>
Actuation Time (180° @ 100psi/7 bar) .....	0.87 sec.	0.87 sec.
Actuation Time (90° @ 100psi/7 bar) .....	0.68 sec.	0.68 sec.
Temperature Range: Standard Seals.....	-30°~180° F	-35°~82° C
End Stop Adjustability (-R option) .....	23°	23°
Over Travel (each end).....	1° to 3°	1° to 3°
Valve required to actuate .....	4-way, 2-position	

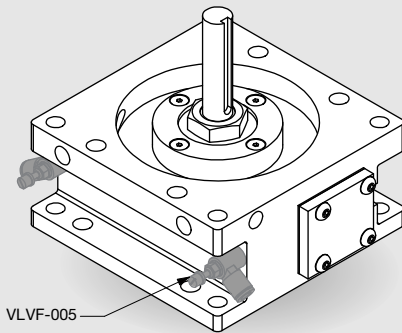


## Loading Capacity

	Static	Dynamic
Maximum Tensile <b>T</b>	50 lbs. [222 N]	10 lbs. [44 N]
Maximum Compressive <b>C</b>	100 lbs. [445 N]	20 lbs. [89 N]
Maximum Moment <b>M<sub>x</sub></b>	100 in.-lbs. [11.3 Nm]	20 in.-lbs. [2.5 Nm]
Maximum Moment <b>M<sub>y</sub></b>	100 in.-lbs. [11.3 Nm]	20 in.-lbs. [2.5 Nm]
Maximum Payload <b>W</b>	7.5 lbs. [3.4 kg]	
Maximum Inertia <b>J</b>	0.0485 in.-lbs.-sec. <sup>2</sup> [5.5 X 10 <sup>-3</sup> N-m-sec. <sup>2</sup> ]	

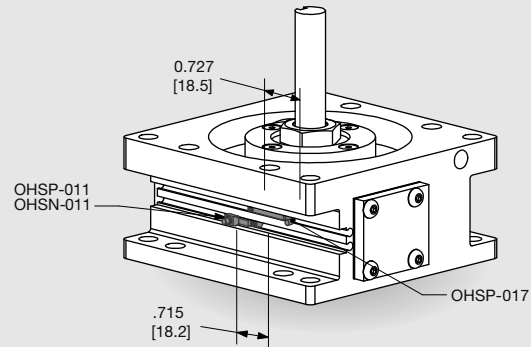
**Note:** Higher payloads and inertia possible with external shocks and stops.

## Accessory Mounting Technical Data



### Flow Controls

- Flow controls for adjusting rotational speed



### Sensors

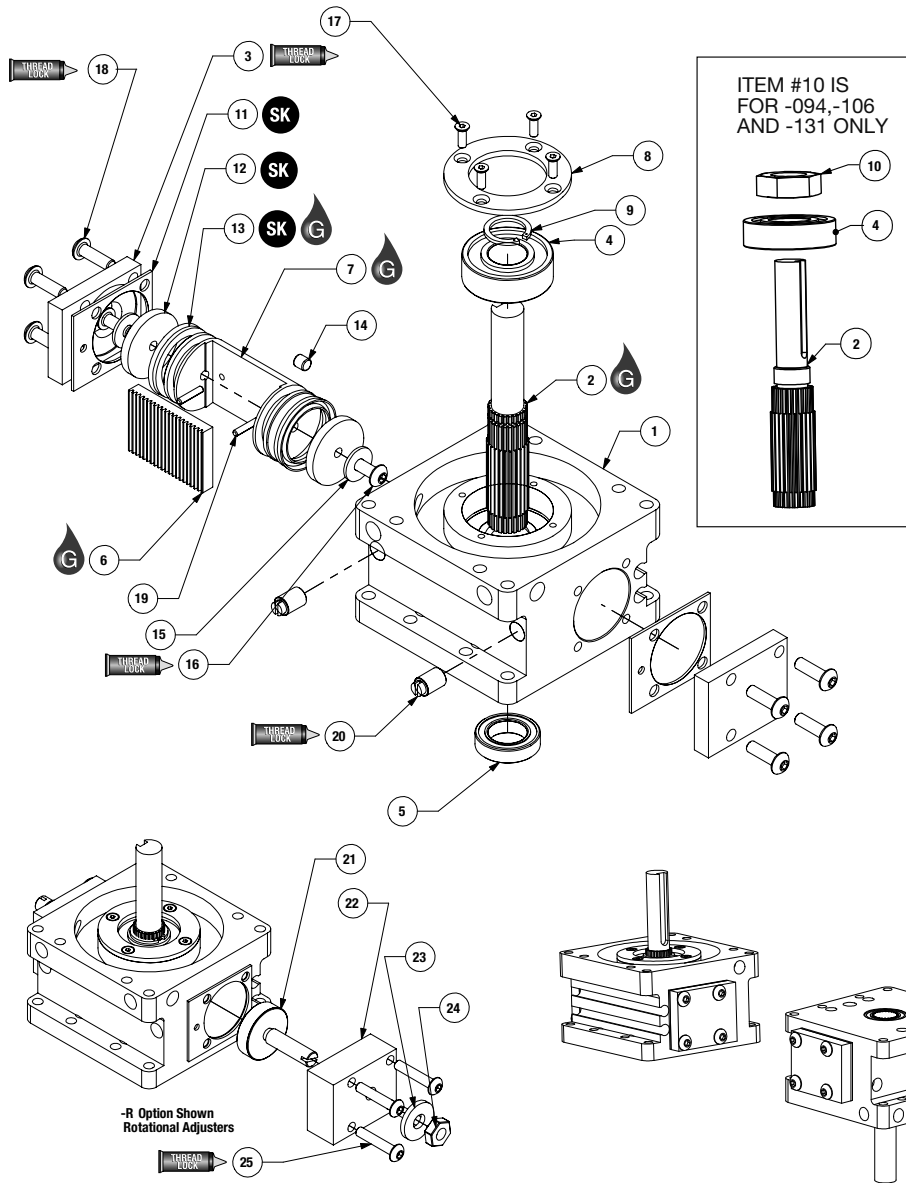
- PNP and NPN Magneto Resistive available
- Sensors are slot mounted, no mounting kits required
- Simple adjustment with slotted screw driver
- Built-in LED for ease of positioning and troubleshooting
- Low profile underflush sensor version or 90° wire exit sensor version
- Available with 2M or 5M Quick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



# DRG SERIES EXPLODED VIEW

DRG SERIES  
MAINTENANCE

3.12



Item	Qty	Name
01	1	Body
02	1	Pinion Shaft
03	2	End Plate
04	1	Upper Bearing
05	1	Lower Bearing
06	1	Rack
07	1	Piston
08*	1	Bearing Retainer
09*	1	Retaining Ring
10	1	Hex Nut
11	2	Gasket
12	2	Bumper
13	2	U-cup
14	1	Magnet
15	2	Bumper Washer
16	2	Bumper Screw
17	4	Retainer Screw
18	8	End Plate Screw
19	2	Roll Pin
20*	2	Fixed Orifice
21	2	Angle Adjuster
22	2	End Plate Rotational Adjuster
23	2	Seal Washer
24	2	Hex Nut
25	8	End Plate Rotational Adj. Screw

**\*NOTES:**

- 1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
- 2) Item #09 is for size -075 only.
- 3) Item #10 is for size -094, -106 and -131 respectively.
- 4) Item #20 not in size -131

**Assembly Procedure**

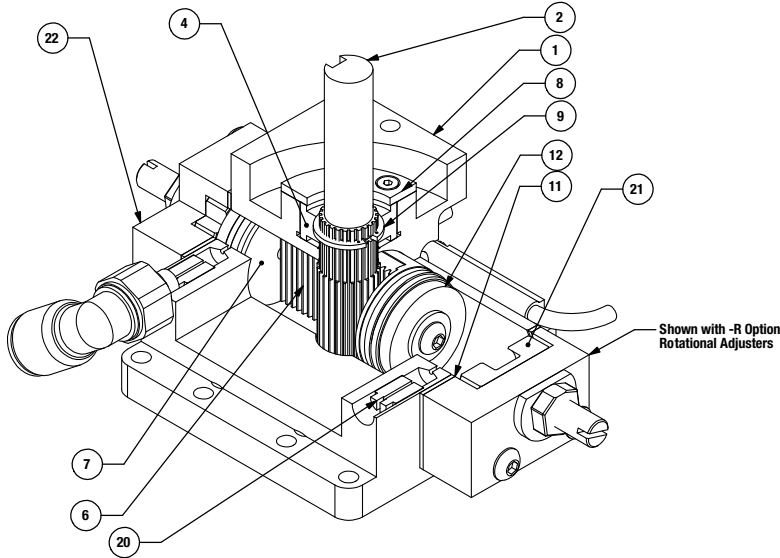
- 1) Press the Upper Bearing #4 onto the Pinion #2.
- 2) Install the Retaining Ring#9 or Hex Nut #10 onto the Pinion #2.
- 3) Assemble the Rack #6 to the Piston #7 with Roll Pins #19.
- 4) Grease the U-Cups #13 and install them onto the Piston #7.
- 5) Press the Magnet #14 into the Piston #7.
- 6) Assemble the Bumper #12, Washers #15 and Bumper Screw #16 onto the Piston #7.
- 7) Lubricate the Body #1 bore and install the Piston Assembly into the body.
- 8) Press the Lower Bearing #5 into the Body #1.
- 9) Locate the Piston assembly so it is aligned with an outer edge of the body.
- 10) Lubricate the Pinion assembly and align the key with the same edge of the Body as the Piston and Press the Pinion into the Body.

- 11) Rotate the Pinion through the full travel and insure that the Piston is correctly located in the Body, adjust the travel of the Piston if necessary.
- 12) Grease the Gasket and install the End Plate #3 onto the Body #1.
- 13) Install the 2 Orifice #20 into the Body #1 screw them in until they bottom.
- 14) Install the Bearing Flange #8 with the 4 Flange Screws #17.

**-R Option Assembly Procedure:**

- 1) Screw the Angle Adjuster into the End Block Angle Adjuster.
- 2) Place the sealing washer over the threaded extension.
- 3) Screw on the Hex Nut over the Sealing Washer.
- 4) Screw the End Block onto the Body with a Gasket.

Seal Kit Items	Thread Locker	Krytox™ Lubricant	Lightweight Machine Oil	Teflon™ Based Grease	Super Bonder	Third Angle Projection
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Item	Qty	Name
01	1	Body
02	1	Pinion Shaft
04	1	Upper Bearing
06	1	Rack
07	1	Piston
08*	1	Bearing Retainer
09*	1	Retaining Ring
11	2	Gasket
12	2	Bumper
20	2	Fixed Orifice
21	2	Angle Adjuster
22	2	End Plate Rotational Adjuster

**\*NOTES:**

- 1) Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.
- 2) Item #09 is for size -075 only.

**Warning:** Removal of Orifices will void warranty.

## Accessory Installation & Adjustment Instructions

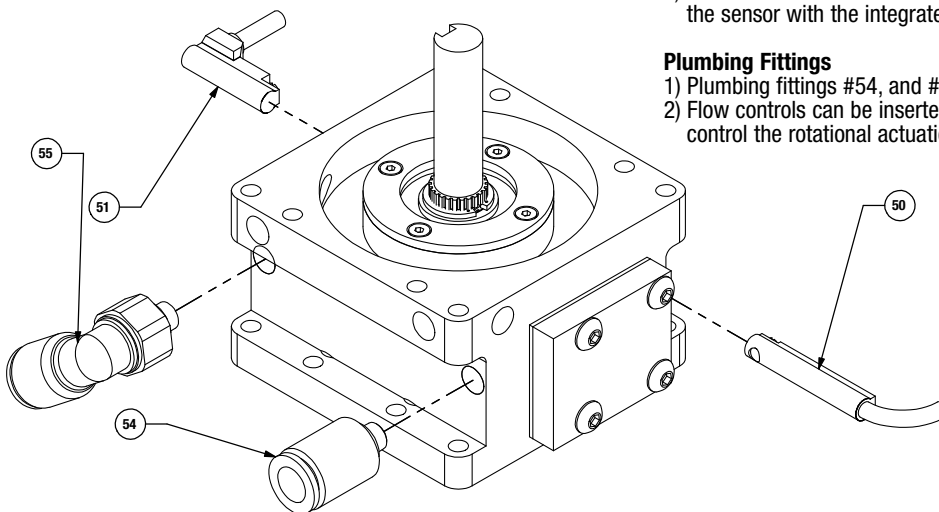
Item	Qty	Name
50	1 or 2	Magneto Resistive Sensor with Quick Disconnect
51	1 or 2	Magneto Resistive Sensor (90° barrel) with Quick Disconnect
54	1 or 2	Fitting Push-in Straight 1/8 NPT, 1/4" O.D. Tube (-131 Only)
55	1 or 2	Fitting Push-in 90° Elbow 1/8 NPT, 1/4" O.D. Tube (-131 Only)

**Magneto Resistive Sensors**

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

**Plumbing Fittings**

- 1) Plumbing fittings #54, and #55 can be used in any airport
- 2) Flow controls can be inserted and used in any airport to help control the rotational actuation



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