

# eRDH SERIES

## Configurable Electric Parallel Grippers | Features and Benefits | How To Order

### Features:

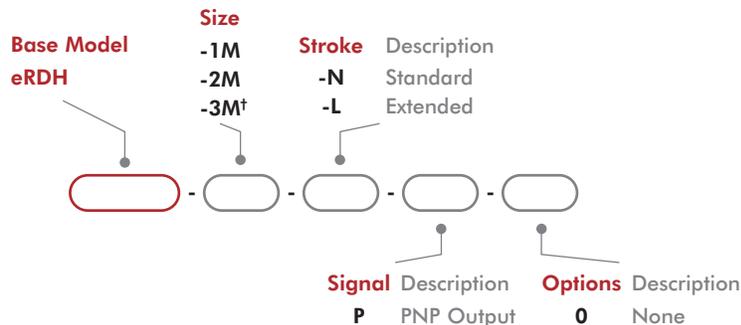
- Strokes up to 16mm
- Grip force up to 1250 N
- Finger lengths up to 120mm
- Intuitive interface for fast parameter adjustment
- Integrated smart electronics
- No software or programming required
- Integrated keypad functions include:
  - 4 levels of grip force adjustment
  - 4 integrated teachable grip sensing locations
  - 2 levels of speed adjustment
  - ID/OD configurable
  - Operator keypad lockout
  - LED indicators for configuration and fault detection
- Self-locking: grip force maintained upon power loss
- Enhanced built-in auto recovery fault detection
- Fault detection output status signals to PLC
- Accepts standard PLC/Robot discrete I/O signal commands
- Ultra-low power consumption for battery powered applications
- Single cable, M12, 8-pin standard connector
- Quiet operation



### Applications:

- Mobile Robotic Platforms
- Warehousing and Packaging
- Assembly manufacturing

### How To Order



†Contact DESTACO for availability.

### Accessories

eRDH Accessories	Models	Part Number	Qty
Keypad Cover Kit	All Models	ELEC-01-PC-CLR	1
Cable, M12, 8 PIN Connector, 5m, Shielded (Straight)	All Models	CABL-064	1
Cable, M12, 8 PIN Connector, 5m, Shielded (Right Angle)	All Models	CABL-065	1

\*Sensor and cable sold separately.

## Configurable Electric Parallel Grippers | Technical Specifications

Specifications	Units	-1-N	-1-L	-2-N	-2-L	-3-N†	-3-L†
Total Stroke	mm [in]	4 [0.16]	8 [0.32]	6 [0.24]	12 [0.47]	8 [0.32]	16 [0.63]
Total Rated Grip Force (Min)**	N [lbf]	500 [112]	220 [50]	960 [215]	420 [95]	1250 [281]	920 [207]
Power Down Grip Force (continuous)		100% via Self-locking					
Max. Permissible Finger Length L**	mm [in]	75 [3.0]		80 [3.25]		120 [4.75]	
Accuracy	mm [in]	±0.04 [±0.002]					
Repeatability	mm [in]	±0.02 [±0.001]					
Min. Actuation Time @ 2mm from Home Position***	s	0.35	0.35	0.45	0.35	0.75	0.75
Max. Actuation Time to Longest Usable Stroke***	s	0.45	0.45	0.6	0.6	0.75	0.75
Jaw Velocity (Fast Speed Setting)	mm/s [in/s]	4 [0.16]	8 [0.31]	5 [0.20]	10 [0.39]	3.6 [0.14]	7.2 [0.28]
Jaw Velocity (Slow Speed Setting)	mm/s [in/s]	2.5 [0.1]	5.5 [0.22]	3 [0.12]	6 [0.24]	6 [0.94]	12 [0.47]
Max. Cycle Rate (at Min./Max. Stroke)							
@20° C	cycles/min	85	120	66	100		
@30° C	cycles/min	55	90/75	55/45	100/50		
@40° C	cycles/min	25/25	50/30	25/20	45/30		
@45° C	cycles/min	12/12	20/12	12/5	20/15		
Weight	kg [lb]	0.7 [1.54]		1.1 [2.44]		2.3 [5.1]	
<b>Environmental</b>							
Noise Emission	dB(A)	<60 normal operation					
IP Protection Class, Standard		IP54 (Pending)					
Cleanroom Class, Standard		Consult DESTACO					
Operating Environment		Sealed Gripper Design					
Operating Temperature	°C [°F]	0° to 50°C [32° to 122°F] Derated*					
<b>Electrical</b>							
Connector		M12, 8-Pin, A-Code, Pin Receptacle					
Gripper Actuator Electronics		Onboard Integrated Controls					
Nominal Voltage	V DC	24 +/- 10%					
Power Management		See Page 14					
Open and Close Inputs	V DC	2 Discrete Inputs, 24V@5mA Active High >16.8V, Low <7.2V					
4 Point Sensor Feedback Outputs	V DC	4 Discrete Outputs, 24V@80mA Max. Per Output					
CE Testing Standard		EN/IEC 61000-6-4, EN/IEC 61000-6-2					
Certifications		CE, REACH, RoHS					

\*Duty cycle derated at higher ambient temperatures.

\*\*See grip force charts, Total Rated Grip Force occurs at each sensor teach location. Grip force remains minimal outside of sensor position locations.

\*\*\*See Teaching Sensor Positions Diagram

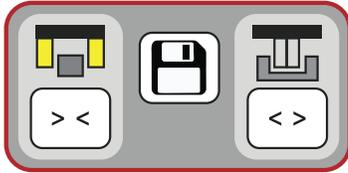
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# eRDH SERIES

## Configurable Electric Parallel Grippers | Functions and Controls

### Grip Mode and Local Control

External Grip      Internal Grip



Select between two grip modes or use local control actuation for easy commissioning.

### Speed Control

Slow      Fast



Quickly change the jaw open/close actuation speed.

### Grip Force Control

Four levels



Easily select 1 of 4 force settings via keypad interface.

### Save and Lockout

Save configuration changes or engage keypad lockout to prevent tampering.



### Electrical Connector

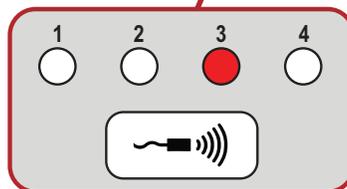
M12, 8-Pin, A-Code, Pin Receptacle

Pin #	Color Code	Signal Description
1	WHITE	IN 1 OPEN: 24VDC**
2	BROWN	+24 VDC SUPPLY
3	GREEN	IN 2 CLOSE: 24VDC**
4*	YELLOW	SENSOR OUT 1
5*	GRAY	SENSOR OUT 2
6*	PINK	SENSOR OUT 3
7	BLUE	0 VDC
8*	RED	SENSOR OUT 4
SHELL	SHIELD	SHIELDED GROUND

\*Applying power to pins 4,5,6 & 8 can damage gripper.  
\*\* 24VDC PLC Open & Close Control Signals

### Integrated Position Sensing

Four teachable grip positions.



### Application Notes:

- For highest cycle rate, design fingers to grip part at the minimum sensor teach distance from the home position
- Part tolerance must be within  $\pm 0.4\text{mm}$
- Grip force is independent of the speed setting
- Full grip force is only applied at taught sensor locations for optimized power management
- Extremely low power consumption for mobile applications
- Gripper not intended for applications that require precision force adjustment

### Power Management

Electrical	Units	1M-N	1M-L	2M-N	2M-L	3M-N	3M-L
Idle Current at Grip	mA	25	25	25	25	25	25
Nominal Current During Stroke	mA	500	300	350	300	625	525
Max. Current Developing Grip Force	mA	1300	800	1100	950	1650	1850
Average Power @ Max. Stroke	W	15	11	11	12	15	12

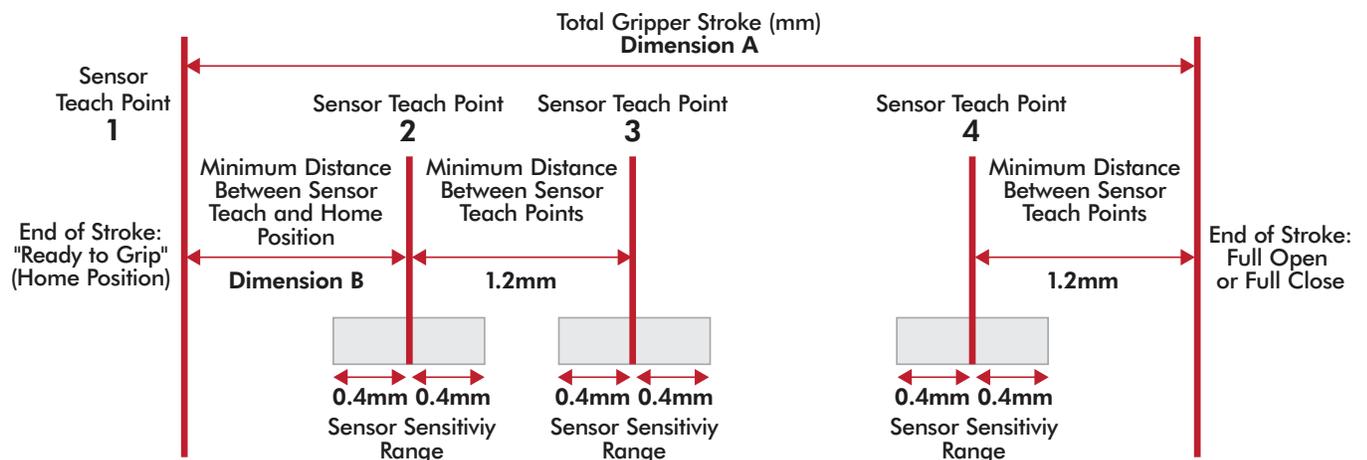
### Gripper Power Management Operation:

- Gripper remains at idle current when jaws are not in motion
- Nominal current is used during stroke travel to a sensor position (grip a part)
- If a part is detected at a sensor position, max. current is applied very briefly to generate full grip force
- eRDH returns to idle current once grip force is generated due to self-lock grip feature
- Reverse order above to release a gripped part

### Sensor Compliance

Sensing Information	Units	1M-N	1M-L	2M-N	2M-L	3M-N	3M-L
Total Gripper Stroke (Dimension A)	mm	4	8	6	12	8	16
Minimum Distance Between Home and a Sensor Teach Position (Dimension B)*	mm	0.7	1.5	0.7	1.5	0.7	1.5

\*External Gripping: Home is at gripper full open. Internal Gripping: Home is at gripper full closed.



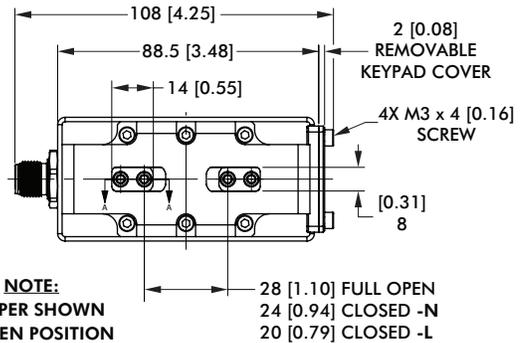
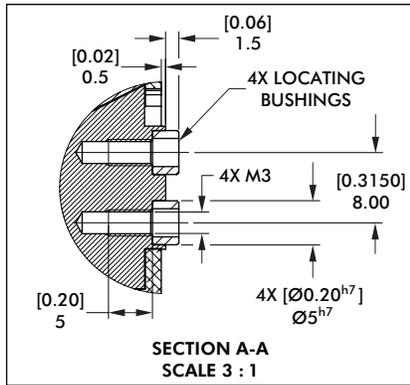
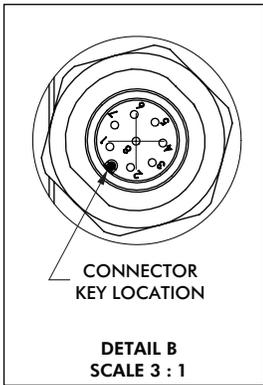
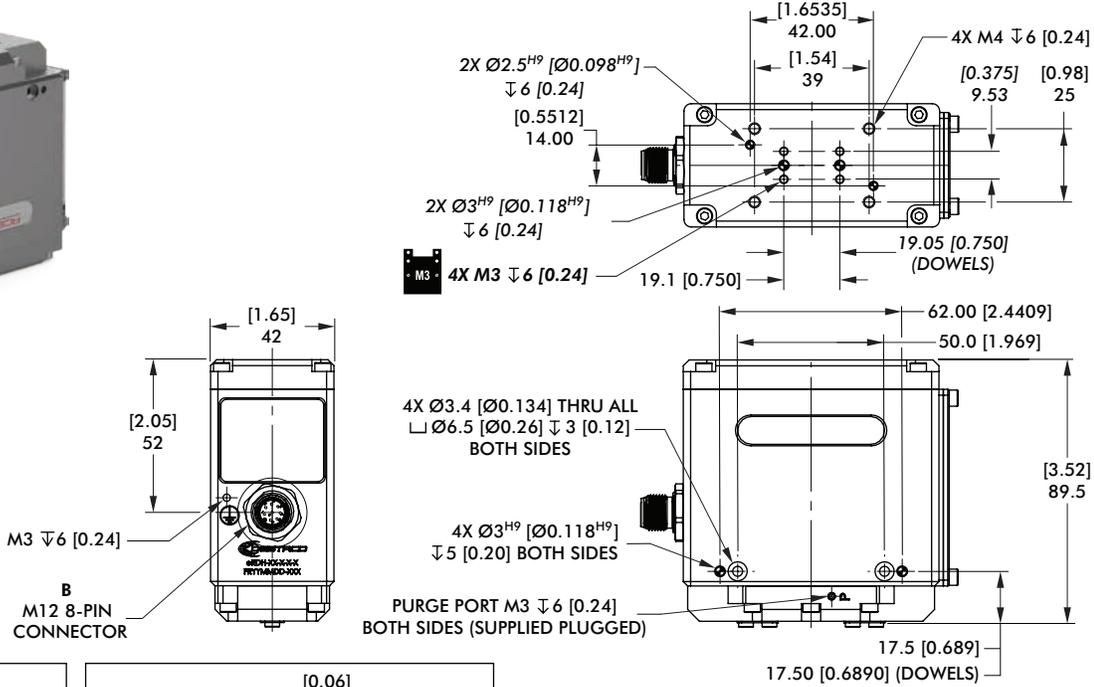
### Sensor Settings:

- Sensor output signal is HIGH when gripper jaws grip within +/- 0.4mm of a sensor teach point
- Distance required between sensor settings is 1.2mm except for the home position (Dimension B)
- All four sensor positions can be set anywhere along the gripper stroke if the required distance separation is maintained—eRDH-1M-N has three sensor positions possible due to stroke limitation
- Sensor settings are performed using the integrated keypad which can include both the full open and full closed positions
- See manual for complete sensor setting capabilities

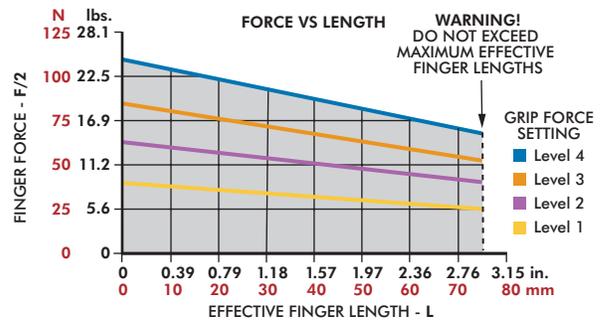
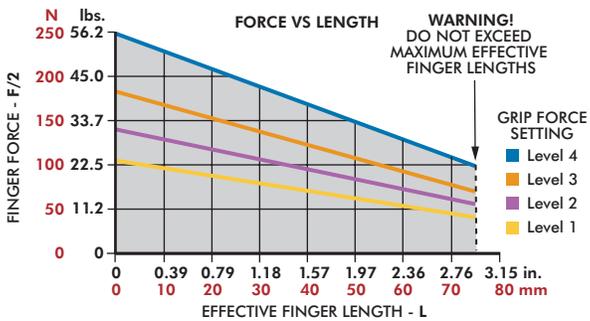
# eRDH-1M-N, -1M-L



## Configurable Electric Parallel Grippers | Dimensions and Technical Specifications



## Loading Information



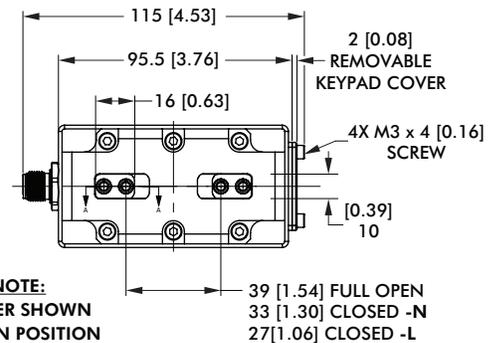
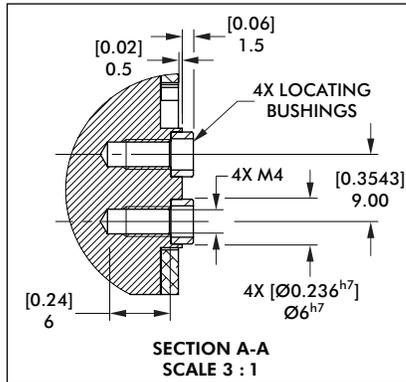
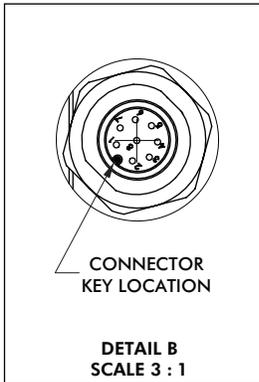
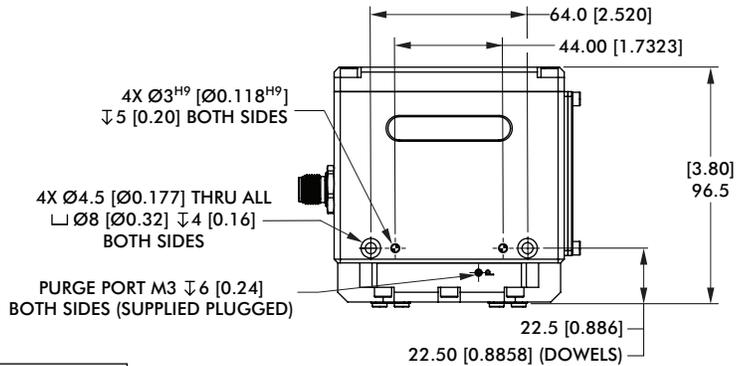
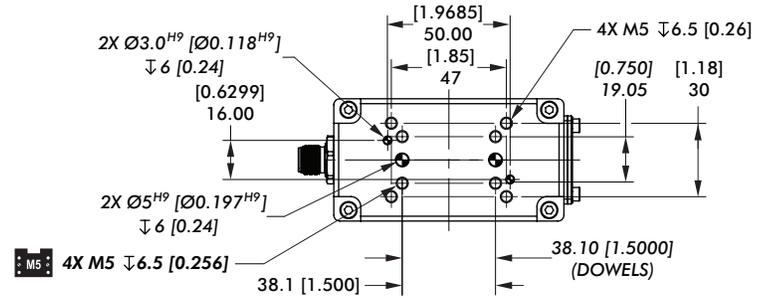
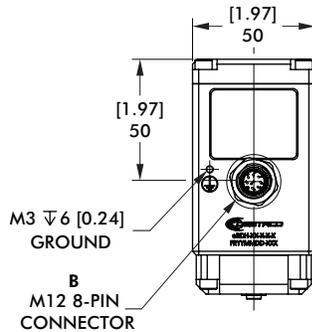
eRDH-1M-N	Static <sup>†</sup>
Maximum Tensile T	594 N [134 lbs]
Maximum Compressive C	779 N [175 lbs]
Maximum Moment $M_x$	18 Nm [159 in-lbs]
Maximum Moment $M_y$	23 Nm [204 in-lbs]
Maximum Moment $M_z$	14 Nm [124 in-lbs]

<sup>†</sup>Capacities are per set of jaws and are not simultaneous

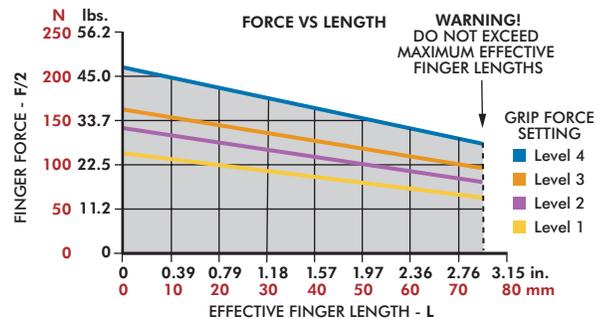
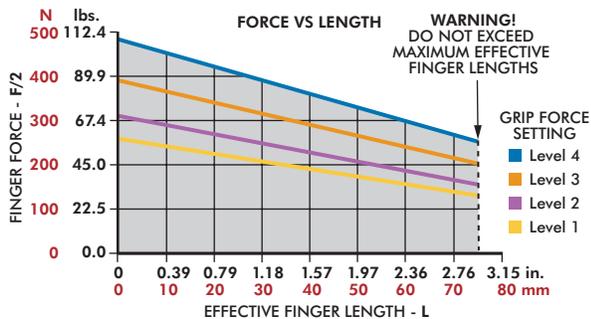
eRDH-1M-L	Static <sup>†</sup>
Maximum Tensile T	540 N [121 lbs]
Maximum Compressive C	708 N [159 lbs]
Maximum Moment $M_x$	16 Nm [142 in-lbs]
Maximum Moment $M_y$	19 Nm [168 in-lbs]
Maximum Moment $M_z$	12 Nm [106 in-lbs]

<sup>†</sup>Capacities are per set of jaws and are not simultaneous

## Configurable Electric Parallel Grippers | Dimensions and Technical Specifications



### Loading Information



eRDH-2M-N	Static <sup>†</sup>
Maximum Tensile T	849 N [191 lbs]
Maximum Compressive C	1103 N [248 lbs]
Maximum Moment M <sub>x</sub>	36 Nm [319 in-lbs]
Maximum Moment M <sub>y</sub>	51 Nm [451 in-lbs]
Maximum Moment M <sub>z</sub>	32 Nm [283 in-lbs]

<sup>†</sup>Capacities are per set of jaws and are not simultaneous

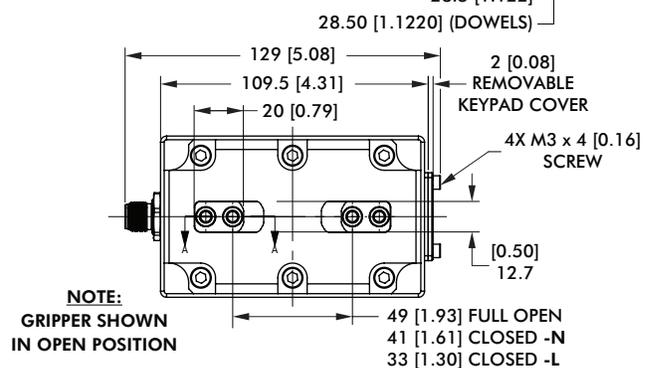
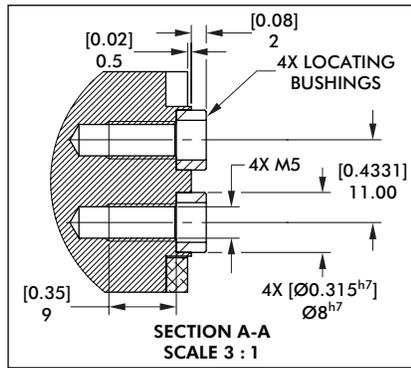
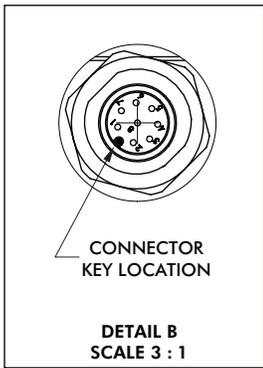
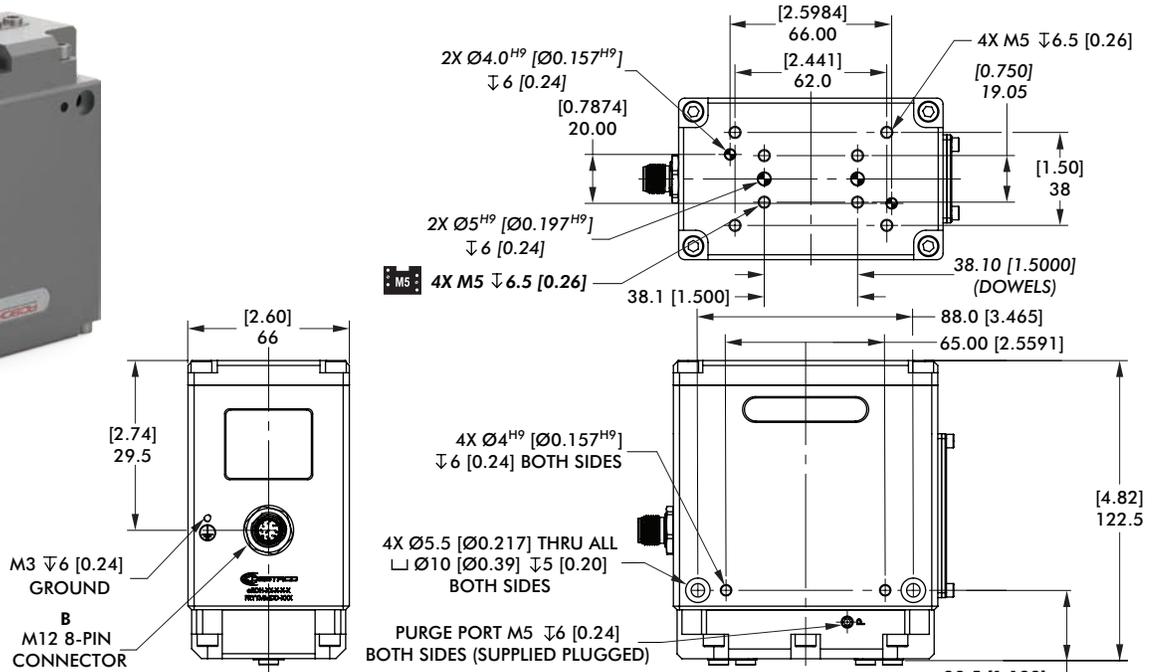
eRDH-2M-L	Static <sup>†</sup>
Maximum Tensile T	764 N [172 lbs]
Maximum Compressive C	993 N [223 lbs]
Maximum Moment M <sub>x</sub>	32 Nm [283 in-lbs]
Maximum Moment M <sub>y</sub>	41 Nm [363 in-lbs]
Maximum Moment M <sub>z</sub>	26 Nm [230 in-lbs]

<sup>†</sup>Capacities are per set of jaws and are not simultaneous

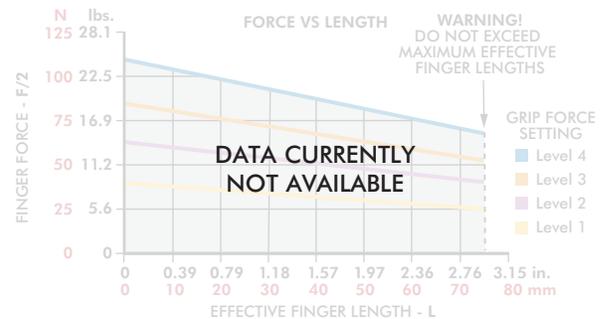
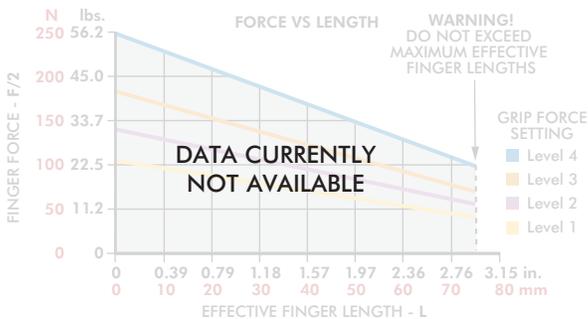
# eRDH-3M-N, -3M-L



## Configurable Electric Parallel Grippers | Dimensions and Technical Specifications



## Loading Information



eRDH-3M-N	Static <sup>†</sup>
Maximum Tensile T	1284 N [289 lbs]
Maximum Compressive C	1665 N [374 lbs]
Maximum Moment $M_x$	58 Nm [513 in-lbs]
Maximum Moment $M_y$	83 Nm [735 in-lbs]
Maximum Moment $M_z$	54 Nm [478 in-lbs]

<sup>†</sup>Capacities are per set of jaws and are not simultaneous

eRDH-3M-L	Static <sup>†</sup>
Maximum Tensile T	1146 N [258 lbs]
Maximum Compressive C	1485 N [334 lbs]
Maximum Moment $M_x$	52 Nm [460 in-lbs]
Maximum Moment $M_y$	66 Nm [584 in-lbs]
Maximum Moment $M_z$	43 Nm [381 in-lbs]

<sup>†</sup>Capacities are per set of jaws and are not simultaneous

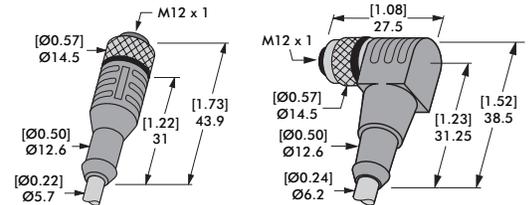
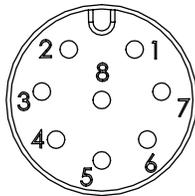
### Keypad Protection Kit



Part #	Item	Description	Quantity
ELEC-01-PC-CLR	1	Keypad Cover; Polycarbonate	1
	2	O-Ring Buna-N	1
	3	FHSCS M2 X 6mm	4
	4	Wrench, Allen 2.5mm Hex	1

Note: Keypad Cover Kit is included with gripper. Compatible with all gripper sizes.

### Sensor Accessories - 5M Cordset



Pin #	Color Code	Signal Description
1	WHITE	IN 1 OPEN: 24VDC**
2	BROWN	+24 VDC SUPPLY
3	GREEN	IN 2 CLOSE: 24VDC**
4*	YELLOW	SENSOR OUT 1
5*	GRAY	SENSOR OUT 2
6*	PINK	SENSOR OUT 3
7	BLUE	0 VDC
8*	RED	SENSOR OUT 4
SHELL	SHIELD	SHIELDED GROUND

\*Applying power to pins 4,5,6 & 8 can damage gripper.  
 \*\* 24VDC PLC Open & Close Control Signals

Specifications	CABL-064	CABL-065
Connector Style	M12, 8-Pin, A-Code, Socket Plug	
Connector Socket	Straight	90°
Termination	Wire Leads	
Cable Diameter	6 mm	
Cable Length	5 m	
Connector Locking System	Threaded, Coupling Nut	
Housing Material	Polyurethane (PUR)	
Ingress Protection	Dust Tight, Waterproof	
Current Rating	2.0 Amps	
Voltage Rating	30V	
Operating Temperature	-25°C ~ 90°C	
EMC Compliance	Shielded	

### Electrical Connection Circuit

