



CPD Actuators

**Powerful, Fast, Accurate
Roller Screw Actuators**

Sold & Serviced By:



Toll Free Phone (877) SERV098

Toll Free Fax (877) SERV099

www.electromate.com

sales@electromate.com



**COMPATIBLE WITH VIRTUALLY ANY SERVO
OR STEPPER MOTOR**

CREATIVE SOLUTIONS TO AUTOMATION'S MOST DEMANDING CHALLENGES

Higher Loads in Smaller Packages

Due to CMC's patented bearing technology, CPD actuators have the highest force density in the market by a significant margin.

The Most Powerful Electric Actuators in the World

CMC's two largest actuators have more load capacity than any other electric rod actuators in the world. These actuators enable 'electrifying' applications that previously required hydraulic solutions.

Lower TCO

Due to dramatically reduced power consumption, the total cost of ownership of CPD actuators is often dramatically lower than fluid power solutions, making them the **Environmentally Friendly** solution.

Washdown/Exposure Package—IP67

This option is for washdown, clean room, and environment exposure applications.

Your Choice of Motor

CMC's CPD actuators are built to seamlessly connect to the motor most suitable to your needs.

Customizations

We understand that not all applications fit into the same box. Custom lengths, configurations, mounting styles, and more are welcome.

Made in the U.S. by Creative Motion Control

CPD actuators are completely designed and manufactured by CMC in the United States.

Position Sensors

Any CPD actuator can be built with optional end of travel magnetic field position sensors/limit switches.

Absolute Positioning

CMC actuators are available with magnetostrictive absolute position feedback sensors with easy system integration via a wide range of available interfaces.

Backlash Elimination

Inline configurations are available with little to no backlash — without reducing load capacity.

Internal Anti-Rotation

CPD actuators come standard with a robust internal anti-rotation system, so you are free to design for your application without the concerns of external anti-rotation features.

Motor Mount Isolation

To eliminate undue wear on motors and motor bearings, CMC's unique motor mount design isolates the motor from potential side loads, avoiding potential premature motor wear or motor bearing failure.

Lubrication Options

CPD actuators are available with grease or oil-filled lubrication systems.

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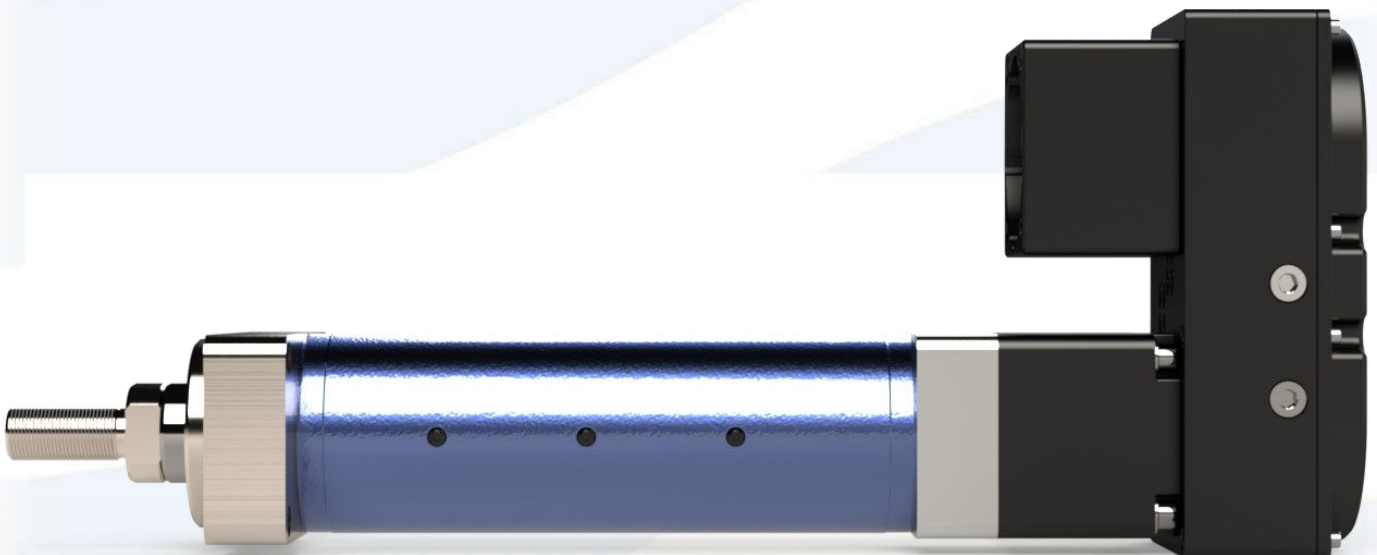
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Performance Overview

	CPD-250	CPD-350	CPD-450	CPD-600	CPD-800	CPD-1000
Frame Size (inches)	2.5	3.5	4.5	6	8	10
Max Continuous Dynamic Force (lbf)	7,500	15,800	34,000	64,000	125,000	250,000
Max Continuous Dynamic Force (kN)	33.4	70.3	151.2	284.7	556	1112
Maximum Linear Speed (in/sec)	50	47	40	38	27	25
Maximum Linear Speed (mm/sec)	1397	1194	1016	965	689	635
Minimum Standard Stroke (in)	4 *	4 *	4 *	4 *	4 *	4 *
Maximum Standard Stroke (in) (Custom Lengths Available)	30 *	36 *	48 *	108 *	144 *	144

* longer/shorter lengths may be available depending on loads and speeds of the application

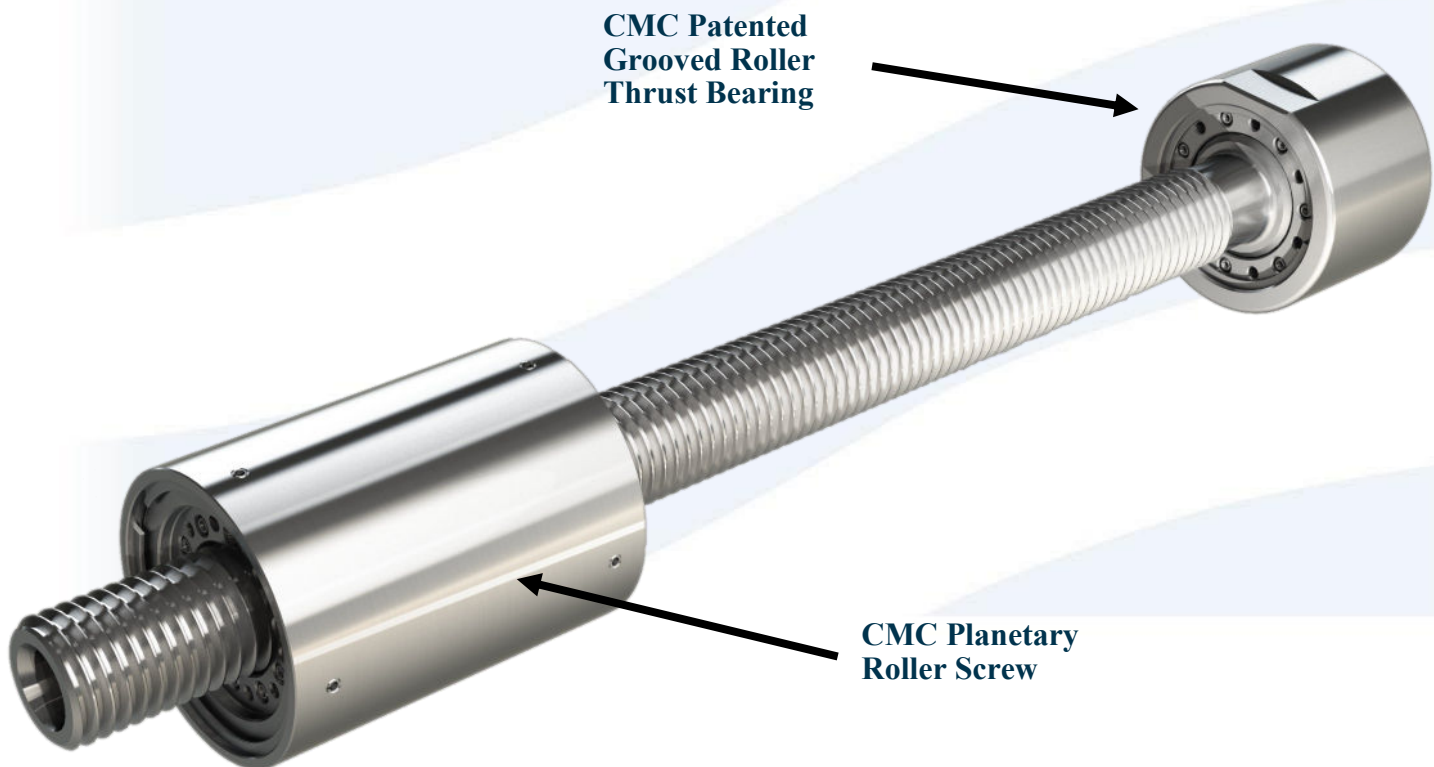
NOTE: These values are the performance characteristics of the actuator itself, unrelated to limitations imposed by any specific motor.



CPD Series' Unmatched Performance Advantage

Why are CPD Series actuators rated so much higher in max continuous dynamic force? First and foremost, because CMC's patented **Grooved Roller Bearing (GRB) technology** enables dramatically higher loads, higher speeds and longer life in a much smaller package compared to the sets of angular contact bearings used by our competitors. The GRBs in CMC's actuators match the dynamic and static load capacities of the roller screws. A traditional bearing is much too large to fit into the limited physical space of the actuator body to match the roller screw's capabilities.

In fact, every component in a CPD actuator is uniquely designed to handle the dynamic load capability of the roller screw.



See CMC's Roller Screw and Grooved Roller Bearing catalogs for more detailed roller screw and bearing technical information.

CMC Roller Screw

Taking full advantage of CMC's years of designing, testing, and producing hundreds of different configurations of high force roller screws, the CPD series includes the latest in high performance roller screw technology.

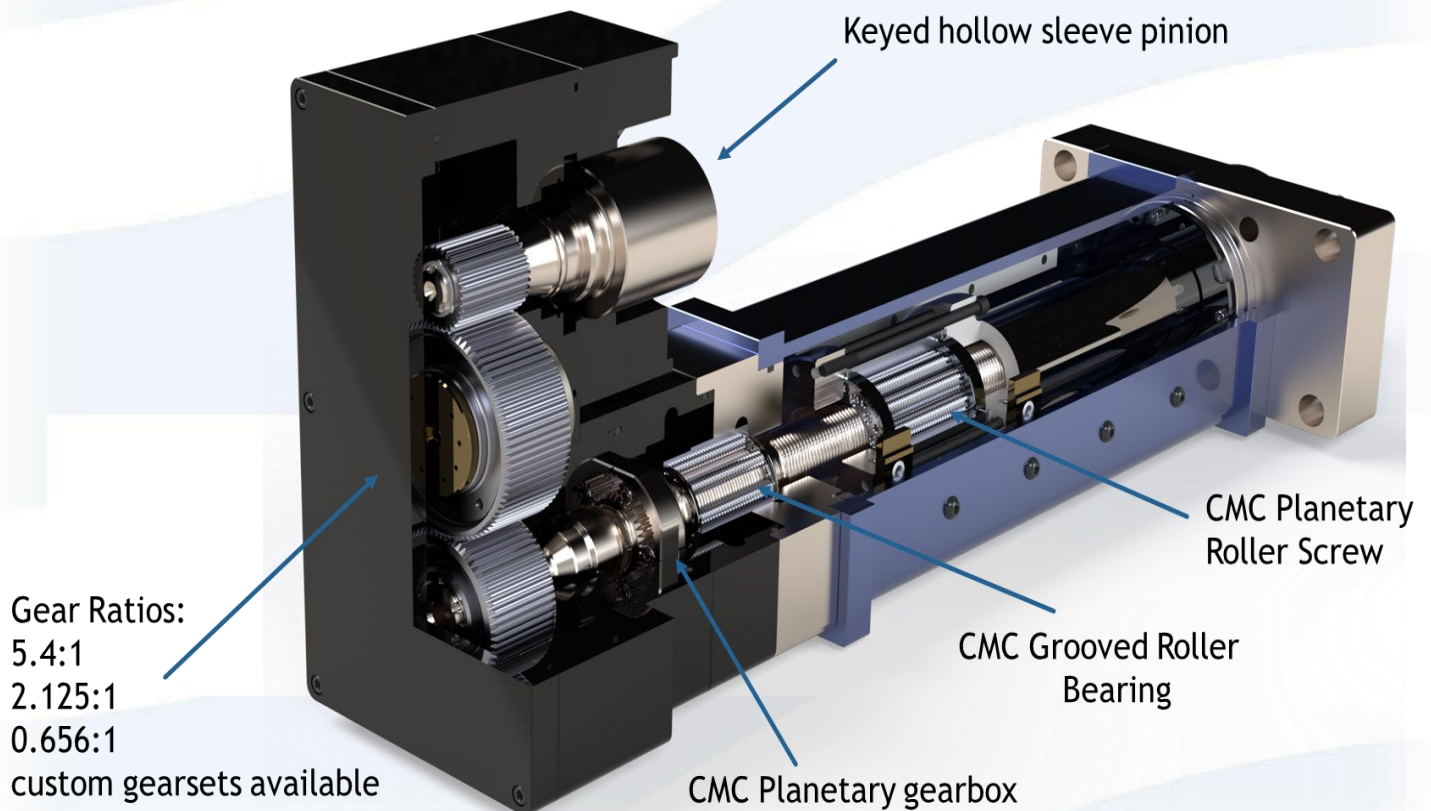
CMC Grooved Roller Bearing (GRB)

Born from CMC's roller screw technology, the patented Grooved Roller Bearing has unequalled force density and is matched with the roller screw's load capacity to meet or exceed the load/life capability of

the roller screw. The GRB enables the entire actuator to have more force capability and longer life in a smaller package.

CMC Gear Sets

CMC's internally designed and manufactured gear sets provide several alternatives for design engineers to achieve the optimal mix of speed, load, and required torque for any application. This proprietary design provides the user with system design flexibility, often reducing the size of the required motor and removing the requirement for an external gearbox.



CPD-250

CPD-250 Mechanical Specifications		Performance Configuration				
	Units	Low Speed 5.4:1	Medium Speed 2.125:1	No Reduction 1:1	High Speed 0.656:1	Inline / Direct Drive
Frame Size	in	2.5				
Standard Stroke Lengths <i>(Custom Lengths Available)</i>	in	4" - 30"				
Maximum Allowable Continuous Dynamic Force	lbf	7,500				
	kN	33.4				
Maximum Allowable Input Torque	in-lbf	102	250	530	804	510
	N-m	11	28	58	88	56
Limiting Input Speed	RPM	15,000	15,000	8,500	5,500	10,000
Standard Operating Temperature Range (alternate lubrication available to expand temp range)	F	-15° to 165°				
	C	-26° to 74°				
Roller Screw Lead	mm	10				
Maximum Actuator Backlash	in	0.002				
Efficiency	%	85.7%	88.3%	88.6%	89.1%	92.1%
Repeatability	in	0.0008				
Gear Ratio		5.4:1	2.125:1	1:1	0.656:1	No gearing

Note: Information in this catalog is intended for marketing purposes. Any inaccuracies are unintentional and information is subject to change without notice.

CPD-250 Reflected Inertia

CPD-250 Reflected Inertias		Low Speed	Medium Speed	High Speed	No Reduction	Inline / Direct drive
$J_1^{(5)}$	slug-ft ²	3.86E-04	1.70E-04	4.48E-04	2.88E-04	2.93E-05
	kg-m ²	5.24E-04	2.31E-04	6.07E-04	3.90E-04	3.97E-05
$J_2^{(6,7)}$	slug-ft ² /in	3.20E-08	2.06E-07	2.17E-06	9.32E-07	9.32E-07
	kg-m ² /in	4.33E-08	2.80E-07	2.94E-06	1.26E-06	1.26E-06

(5)	J_1 = Fixed inertia of internal rotating components
(6)	J_2 = Variable inertia of rotating components that are dependent on system stroke length
(7)	$J_{TOTAL} = J_1 + L * J_2$ where L = stroke length in inches

CPD-250 System Weight

CPD-250 Parallel Actuator Weight									
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in
Oil Filled	lb	26.2	28.7	31.2	33.8	36.4	38.9	41.4	44.0
	kg	11.9	13.0	14.2	15.3	16.5	17.7	18.8	20.0
Greased	lb	24.6	26.6	28.6	30.6	32.6	34.6	36.6	38.6
	kg	11.2	12.1	13.0	13.9	14.8	15.7	16.6	17.5

CPD-250 In-Line Actuator Weight									
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in
Oil Filled	lb	16.7	19.3	21.8	24.4	26.9	29.5	32.0	34.6
	kg	7.6	8.8	9.9	11.1	12.2	13.4	14.5	15.7
Greased	lb	15.2	17.2	19.2	21.2	23.2	25.2	27.1	29.1
	kg	6.9	7.8	8.7	9.6	10.5	11.4	12.3	13.2

CPD-250 Optional Components Weight											
Front Flange		Rear Flange		Rear Clevis		Rear Eye		Trunnions		Dual Foot	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
1.3	0.6	2.9	1.3	1.6	0.7	1.2	0.6	7.2	3.3	0.7	0.3

CPD-350

CPD-350 Mechanical Specifications		Performance Configuration				
	Units	Low Speed 5.31:1	Medium Speed 2.125:1	No Reduction 1:1	High Speed 0.656:1	Inline / Direct Drive
Frame Size	in	3.5				
Standard Stroke Lengths <i>(Custom Lengths Available)</i>	in	4" - 36"				
Maximum Allowable Continuous Dynamic Force	lbf	15,800				
	kN	70.3				
Maximum Allowable Input Torque	in-lbf	218	528	1,119	1,696	1,075
	N-m	24	58	123	187	118
Limiting Input Speed	RPM	15,000	15,000	7,000	4,700	7,000
Standard Operating Temperature Range <i>(alternate lubrication available to expand temp range)</i>	F	-15° to 165°				
	C	-26.1° to 73.9°				
Roller Screw Lead	mm	10				
Maximum Actuator Backlash	in	0.002				
Efficiency	%	85.6%	88.2%	88.5%	89.0%	92.1%
Repeatability	in	0.0008				
Gear Ratio		5.31:1	2.125:1	1:1	0.656:1	No gearing

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CPD-350 Reflected Inertia

CPD-350 Reflected Inertias			Low Speed	Medium Speed	High Speed	No Reduction	Inline / Direct drive
	$J_1^{(5)}$	slug-ft ²	5.05E-04	4.02E-04	8.69E-04	7.10E-04	4.06E-04
		kg-m ²	6.84E-04	5.44E-04	1.18E-03	9.63E-04	5.50E-04
	$J_2^{(6,7)}$	slug-ft ² /in	2.17E-07	1.40E-06	1.47E-05	6.32E-06	6.32E-06
		kg-m ² /in	2.94E-07	1.90E-06	1.99E-05	8.57E-06	8.57E-06

(5)	J_1 = Fixed inertia of internal rotating components
(6)	J_2 = Variable inertia of rotating components that are dependent on system stroke length
(7)	$J_{TOTAL} = J_1 + L * J_2$ where L = stroke length in inches

CPD-350 System Weight

CPD-350 Parallel Actuator Weight										
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in
Oil Filled	lb	51.6	56.3	61.0	65.7	70.4	75.0	79.7	84.4	89.1
	kg	23.4	25.5	27.7	29.8	31.9	34.0	36.1	38.3	40.4
Greased	lb	48.2	51.9	55.6	59.3	63.1	66.7	70.4	74.2	77.8
	kg	21.9	23.5	25.2	26.9	28.6	30.3	31.9	33.6	35.3

CPD-350 In-Line Actuator Weight										
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in
Oil Filled	lb	32.8	37.5	42.2	46.8	51.6	56.2	60.9	65.6	70.3
	kg	14.9	17.0	19.1	21.2	23.4	25.5	27.6	29.8	31.9
Greased	lb	29.4	33.1	36.8	40.5	44.3	47.9	51.6	55.4	59.0
	kg	13.3	15.0	16.7	18.4	20.1	21.7	23.4	25.1	26.8

CPD-350 Optional Components Weight											
Front Flange		Rear Flange		Rear Clevis		Rear Eye		Trunnions		Dual Foot	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
3.5	1.6	6.6	3.0	6.7	3.0	5.1	2.3	18.4	8.3	1.7	0.8

CPD-450

CPD-450 Mechanical Specifications		Performance Configuration				
	Units	Low Speed 5.4:1	Medium Speed 2.118:1	No Reduction 1:1	High Speed 0.656:1	Inline / Direct Drive
Frame Size	in	4.5				
Standard Stroke Lengths <i>(Custom Lengths Available)</i>	in	4" - 48"				
Maximum Allowable Continuous Dynamic Force	lbf	34,000				
	kN	151.2				
Maximum Allowable Input Torque	in-lbf	556	1,375	2,899	4,404	2,804
	N-m	61	151	319	484	308
Limiting Input Speed	RPM	15,000	10,900	5,000	3,100	5,000
Standard Operating Temperature Range (alternate lubrication available to expand temp range)	F	-15° to 165°				
	C	-26.1° to 73.9°				
Roller Screw Lead	mm	12				
Maximum Actuator Backlash	in	0.002				
Efficiency	%	85.2%	87.8%	88.2%	88.5%	91.2%
Repeatability	in	0.0008				
Gear Ratio		5.4:1	2.118:1	1:1	0.656:1	No gearing

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CPD-450 Reflected Inertia

CPD-450 Reflected Inertias			Low Speed	Medium Speed	High Speed	No Reduction	Inline / Direct drive
	$J_1^{(5)}$	slug-ft ²	2.57E-03	1.44E-03	1.09E-02	5.29E-03	7.86E-04
		kg-m ²	3.48E-03	1.95E-03	1.48E-02	7.17E-03	1.07E-03
	$J_2^{(6,7)}$	slug-ft ² /in	4.55E-07	2.94E-06	3.08E-05	1.33E-05	1.33E-05
		kg-m ² /in	6.17E-07	3.98E-06	4.18E-05	1.80E-05	1.80E-05

(5)	J_1 = Fixed inertia of internal rotating components
(6)	J_2 = Variable inertia of rotating components that are dependent on system stroke length
(7)	$J_{TOTAL} = J_1 + L * J_2$ where L = stroke length in inches

CPD-450 System Weight

CPD-450 Parallel Actuator Weight													
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in
Oil Filled	lb	110.5	118.3	126.2	134.0	141.9	149.7	157.6	165.4	173.2	181.1	188.9	196.8
	kg	50.1	53.7	57.3	60.8	64.4	67.9	71.5	75.0	78.6	82.1	85.7	89.2
Grease	lb	103.3	109.3	115.5	121.5	127.7	133.7	139.9	145.9	152.0	158.1	164.2	170.3
	kg	46.9	49.6	52.4	55.1	57.9	60.6	63.5	66.2	68.9	71.7	74.5	77.2

CPD-450 In-Line Actuator Weight													
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in
Oil Filled	lb	75.5	84.1	92.8	101.4	110.1	118.7	127.5	136.0	144.7	153.4	162.0	170.7
	kg	34.2	38.1	42.1	46.0	50.0	53.8	57.8	61.7	65.6	69.6	73.5	77.4
Grease	lb	71.9	77.9	84.1	90.1	96.3	102.3	108.5	114.5	120.6	126.7	132.8	138.9
	kg	32.6	35.3	38.1	40.9	43.7	46.4	49.2	51.9	54.7	57.5	60.2	63.0

CPD-450 Optional Components Weight											
Front Flange		Rear Flange		Rear Clevis		Rear Eye		Trunnions		Dual Foot	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
12.3	5.6	22.1	10.0	14.7	6.7	8.4	3.8	38.0	17.2	2.9	1.3

CPD-600

CPD-600 Mechanical Specifications		Performance Configuration			
	Units	Low Speed 5.38:1	Medium Speed 2.121:1	No Reduction 1:1	Inline/Direct Drive
Frame Size	in	6			
Standard Stroke Lengths <i>(Custom Lengths Available)</i>	in	4" - 108"			
Maximum Allowable Continuous Dynamic Force	lbf	64,000			
	kN	284.7			
Maximum Allowable Input Torque	in-lbf	1,579	3,886	8,214	7,942
	N-m	174	427	903	874
Limiting Input Speed	RPM	10,000	6,800	3,200	3,200
Standard Operating Temperature Range <i>(alternate lubrication available to expand temp range)</i>	F	-15° to 165°			
	C	-26.1° to 73.9°			
Roller Screw Lead	mm	18			
Maximum Actuator Backlash	in	0.0025			
Efficiency	%	85%	87.60%	87.90%	90.90%
Repeatability	in	0.0008			
Gear Ratio		5.38:1	2.121:1	1:1	No gearing

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CPD-600 Reflected Inertia

CPD-600 Reflected Inertias			Low Speed	Medium Speed	No Reduction	Inline / Direct drive
	$J_1^{(5)}$	slug-ft ²	6.61E-03	6.49E-03	2.85E-02	2.95E-03
		kg-m ²	8.96E-03	8.80E-03	3.87E-02	3.99E-03
	$J_2^{(6,7)}$	slug-ft ² /in	2.91E-06	1.88E-05	8.49E-05	8.49E-05
		kg-m ² /in	3.95E-06	2.55E-05	1.15E-04	1.15E-04

(5)	J_1 = Fixed inertia of internal rotating components
(6)	J_2 = Variable inertia of rotating components that are dependent on system stroke length
(7)	$J_{TOTAL} = J_1 + L * J_2$ where L = stroke length in inches

CPD-600 System Weight

CPD-600 Parallel Actuator Weight																
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in	52 in	56 in	60 in
Oil Filled	lb	253.0	268.8	284.4	300.2	315.9	331.6	347.3	363.1	378.7	394.5	410.3	425.9	441.6	457.4	473.1
	kg	114.8	121.9	129.0	136.2	143.3	150.4	157.5	164.7	171.8	178.9	186.1	193.2	200.3	207.5	214.6
Grease	lb	242.1	255.5	268.7	282.1	295.5	308.7	322.1	335.5	348.7	362.1	375.5	388.7	402.1	415.4	428.8
	kg	109.8	115.9	121.9	128.0	134.0	140.0	146.1	152.2	158.2	164.3	170.3	176.3	182.4	188.4	194.5

CPD-600 In-Line Actuator Weight																
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in	52 in	56 in	60 in
Oil Filled	lb	172.7	190.1	207.4	224.8	242.3	259.6	277.0	294.4	311.7	329.2	346.6	363.9	381.3	398.7	416.1
	kg	78.3	86.2	94.1	102.0	109.9	117.7	125.6	133.6	141.4	149.3	157.2	165.1	173.0	180.9	188.7
Grease	lb	170.6	183.9	197.2	210.6	223.9	237.2	250.6	264.0	277.2	290.6	304.0	317.2	330.6	343.9	357.3
	kg	77.4	83.4	89.4	95.5	101.6	107.6	113.7	119.7	125.7	131.8	137.9	143.9	150.0	156.0	162.0

CPD-600 Optional Components Weight											
Front Flange		Rear Flange		Rear Clevis		Rear Eye		Trunnions		Dual Foot	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
40.0	18.1	34.4	15.6	37.0	16.8	14.0	6.3	87.4	39.6	4.5	2.0

CPD-800

CPD-800 Mechanical Specifications		Performance Configuration			
	Units	Low Speed 5.39:1	Medium Speed 2.125:1	No Reduction 1:1	Inline / Direct Drive
Frame Size	in	8			
Standard Stroke Lengths (Custom Lengths Available)	in	4" - 144"			
Maximum Allowable Continuous Dynamic Force	lbf	125,000			
	kN	556			
Maximum Allowable Input Torque	in-lbf	3,400	8,350	10,000	17,700
	N-m	385	950	2,000	2,000
Limiting Input Speed	RPM	10,000	4,400	2,000	2,000
Standard Operating Temperature Range (alternate lubrication availa- ble to expand temp range)	F	-15° to 165°			
	C	-26.1° to 73.9°			
Roller Screw Lead	mm	20			
Maximum Actuator Backlash	in	0.004			
Efficiency	%	85.2%	87.9%	88.3%	90.5%
Repeatability	in	0.0008			
Gear Ratio		5.39:1	2.125:1	1:1	No gearing

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CPD-800 Reflected Inertia

CPD-800 Reflected Inertias			Low Speed	Medium Speed	No Reduction	Inline / Direct drive
	$J_1^{(5)}$	slug-ft ²	2.93E-02	2.99E-02	6.01E-02	2.40E-02
		kg-m ²	3.97E-02	4.06E-02	8.15E-02	3.26E-02
	$J_2^{(6,7)}$	slug-ft ² /in	1.67E-05	1.08E-04	4.86E-04	4.86E-04
		kg-m ² /in	2.26E-05	1.46E-04	6.59E-04	6.59E-04

(5)	J_1 = Fixed inertia of internal rotating components
(6)	J_2 = Variable inertia of rotating components that are dependent on system stroke length
(7)	$J_{TOTAL} = J_1 + L * J_2$ where L = stroke length in inches

CPD-800 System Weight

CPD-800 Parallel Actuator Weight																
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in	52 in	56 in	60 in
Oil Filled	lb	660.8	691.1	722.3	752.5	782.8	813.0	844.2	874.5	904.7	934.9	966.2	996.4	1026	1056	1088
	kg	299.8	313.5	327.6	341.3	355.1	368.8	382.9	396.7	410.4	424.1	438.2	452.0	465.7	479.4	493.6
Grease	lb	635.2	658.2	682.2	705.2	728.2	751.2	775.2	798.2	821.2	844.2	868.2	891.2	914.2	937.2	961.2
	kg	288.1	298.6	309.4	319.9	330.3	340.7	351.6	362.1	372.5	382.9	393.8	404.2	414.7	425.1	436.0

CPD-800 In-Line Actuator Weight																
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in	52 in	56 in	60 in
Oil Filled	lb	461.7	492.7	524.6	555.5	586.5	617.4	649.3	680.3	711.2	742.2	774.1	805.0	824.4	866.9	898.9
	kg	209.4	223.5	238.0	252.0	266.0	280.1	294.5	308.6	322.6	336.6	351.1	365.2	374.0	393.2	407.7
Grease	lb	450.2	473.2	497.2	520.2	543.2	566.2	590.2	613.2	636.2	659.2	683.2	706.2	729.2	752.2	776.2
	kg	204.2	214.6	225.5	235.9	246.4	256.8	267.7	278.1	288.6	299.0	309.9	320.3	330.7	341.2	352.1

CPD-800 Optional Components Weight											
Front Flange		Rear Flange		Rear Clevis		Rear Eye		Trunnions		Dual Foot	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
122.7	55.6	53.5	24.3	66.1	30.0	21.2	9.6	204.1	92.6	6.7	3.0

CPD-1000

CPD-1000 Mechanical Specifications		Performance Configuration			
	Units	Low Speed 5.46:1	Medium Speed 2.125:1	No Reduction 1:1	Inline / Direct Drive
Frame Size	in	10			
Standard Stroke Lengths (Custom Lengths Available)	in	4" - 144"			
Maximum Allowable Continuous Dynamic Force	lbf	250,000			
	kN	1,112.10			
Maximum Allowable Input Torque	in-lbf	8,650	21,900	46,100	46,100
	N-m	977	2,475	5,200	5,200
Limiting Input Speed	RPM	8,400	3,200	1,500	1,500
Standard Operating Temperature Range (alternate lubrication available to expand temp range)	F	-15° to 165°			
	C	-26.1° to 73.9°			
Roller Screw Lead	mm	25			
Maximum Actuator Backlash	in	0.005			
Efficiency	%	82.6%	84.1%	84.9%	89.8%
Repeatability	in	0.0008			
Gear Ratio		5.46:1	2.125:1	1:1	No gearing

Note: Information in this catalog is intended for marketing purposes. Any inaccuracies are unintentional and information is subject to change without notice.

CPD-1000 Reflected Inertia

CPD-1000 Reflected Inertias			Low Speed	Medium Speed	No Reduction	Inline / Direct drive
	$J_1^{(5)}$	slug-ft ²	1.20E-01	1.08E-01	2.77E-01	8.25E-02
		kg-m ²	1.63E-01	1.46E-01	3.76E-01	1.12E-01
	$J_2^{(6,7)}$	slug-ft ² /in	5.19E-05	3.35E-04	1.51E-03	1.51E-03
		kg-m ² /in	7.04E-05	4.55E-04	2.05E-03	2.05E-03

(5)	J_1 = Fixed inertia of internal rotating components
(6)	J_2 = Variable inertia of rotating components that are dependent on system stroke length
(7)	$J_{TOTAL} = J_1 + L * J_2$ where L = stroke length in inches

CPD-1000 System Weight

CPD-1000 Parallel Actuator Weight																
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in	52 in	56 in	60 in
Oil Filled	lb	1195	1262	1328	1396	1462	1529	1596	1663	1730	1797	1864	1931	1998	2054	2131
	kg	542	572	603	633	663	694	724	754	785	815	845	876	906	932	967
Grease	lb	1147	1196	1244	1293	1341	1390	1438	1487	1535	1584	1632	1681	1729	1767	1826
	kg	520	542	564	586	608	630	652	674	696	718	740	762	784	802	828

CPD-1000 In-Line Actuator Weight																
Stroke Length		4 in	8 in	12 in	16 in	20 in	24 in	28 in	32 in	36 in	40 in	44 in	48 in	52 in	56 in	60 in
Oil Filled	lb	936	998	1059	1121	1182	1244	1305	1367	1428	1490	1551	1613	1674	1725	1797
	kg	425	453	480	508	536	564	592	620	648	676	704	732	759	783	815
Grease	lb	910	959	1007	1056	1104	1153	1201	1250	1298	1347	1395	1444	1492	1530	1589
	kg	413	435	457	479	501	523	545	567	589	611	633	655	677	694	721

CPD-1000 Optional Components Weight											
Front Flange		Rear Flange		Rear Clevis		Rear Eye		Trunnions		Dual Foot	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
110.0	49.9	72.7	33.0	85.2	38.6	28.4	12.9	396.2	179.7	8.9	4.0

Notional Motor Selection Process

As a first step in selecting a motor for CMC's actuators we recommend that you do the following:

- 1: Find your maximum required force in lbf
- 2: Choose an actuator size that has a dynamic load capacity in excess of the max application load. Contact your CMC representative to help determine the correct actuator size based on your load/stroke profile, duty cycle and desired actuator life.
- 3: Find the required motor torque to generate your maximum force using the following equation:

$$Tsh = \frac{S * F}{2 * \pi * .9}$$

$$Tm = \frac{Tsh}{Gr}$$

Where S = screw lead (in/rotation) of selected actuator *

F = maximum applied load (lbf)

Gr = gear ratio of the selected actuator *

Tsh = shaft torque (in-lbf)

Tm = motor torque (in-lbf)

* This information can be found in this catalog on the specifications page for each actuator size.

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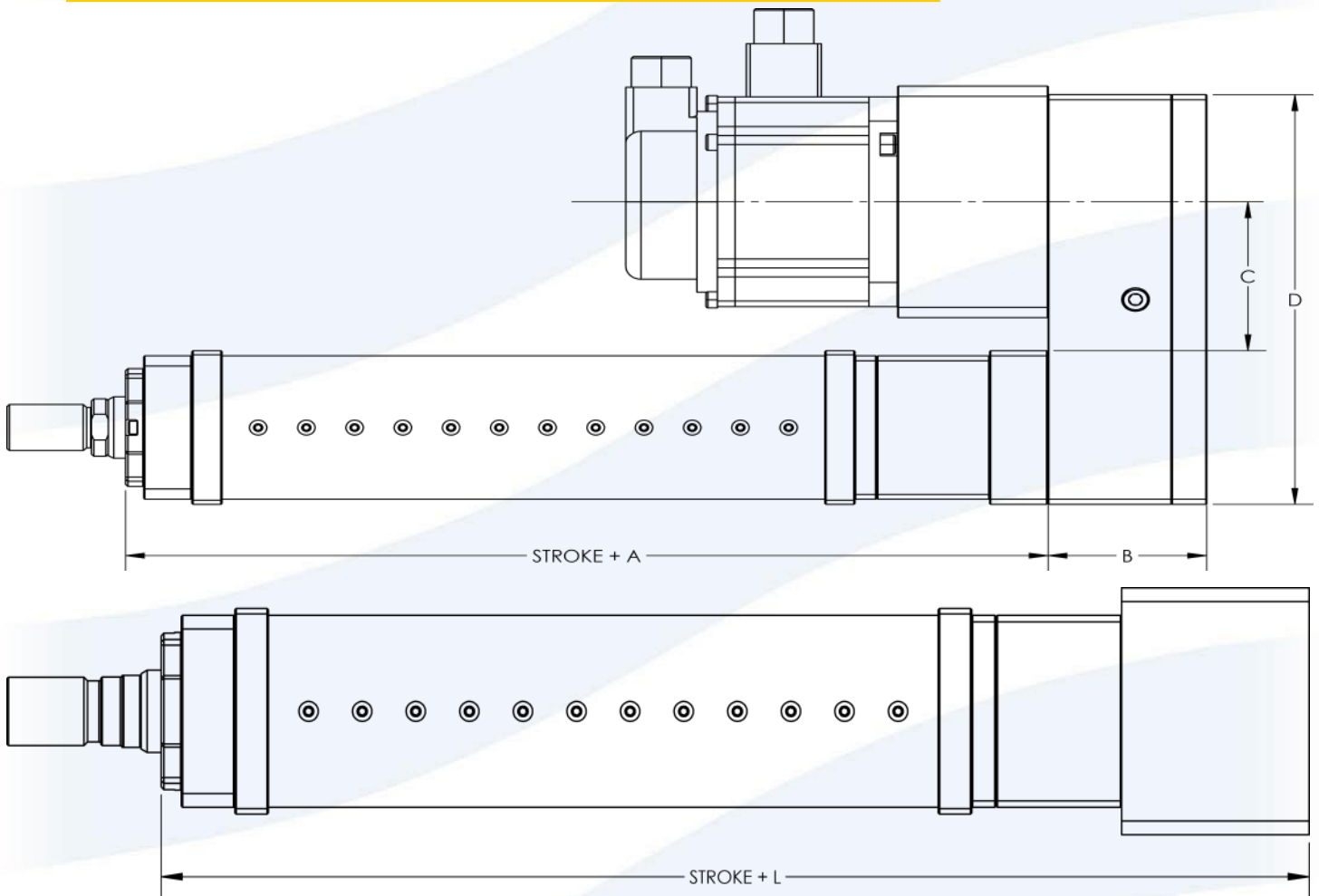
Toll Free Fax (877) SERV099

www.electromate.com

sales@electromate.com

NOTE: This process is solely intended to give you an estimate of the required motor torque to generate your maximum required force. It does not account for acceleration or other potentially relevant considerations for finalizing a motor selection; that final selection should be done using your specific motor manufacturer's selection software. This is simply intended to get you "in the right ballpark".

Base Actuator Dimensions

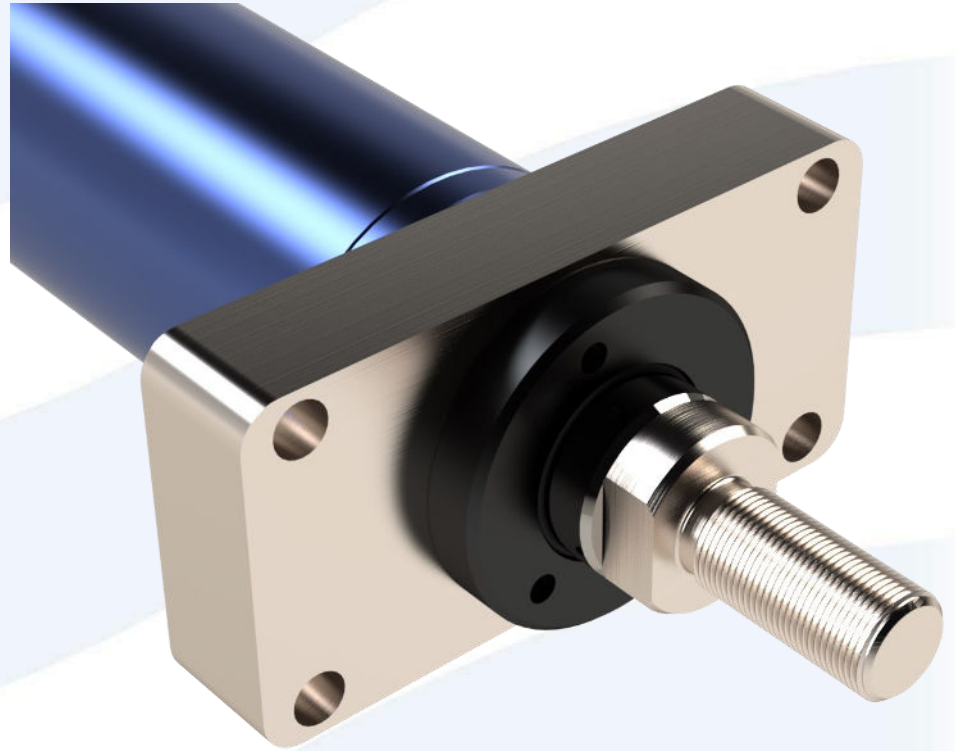


Parallel Motor		CPD-250	CPD-350	CPD-450	CPD-600	CPD-800	CPD-1000
A	in	8.9	11.0	17.3	21.1	28.3	34.2
	mm	226.3	279.8	438.6	534.8	719.3	869.0
B	in	2.8	3.3	4.0	5.3	7.2	6.3
	mm	71.4	83.5	102.2	133.4	185.4	160.0
C	in	2.6	2.9	4.1	5.9	6.7	10.0
	mm	67.2	73.6	104.1	148.8	170.3	254.0
D	in	7.0	8.5	12.0	15.5	19.9	27.0
	mm	177.8	215.9	304.2	393.7	504.2	685.8

Inline Motor		CPD-250	CPD-350	CPD-450	CPD-600	CPD-800	CPD-1000
L	in	9.8	13.4	21.1	26.3	31.0	41.7
	mm	248.9	340.4	536.0	668.0	787.4	1059.2

* These are approximate dimensions and are subject to change depending on configuration, options and updates

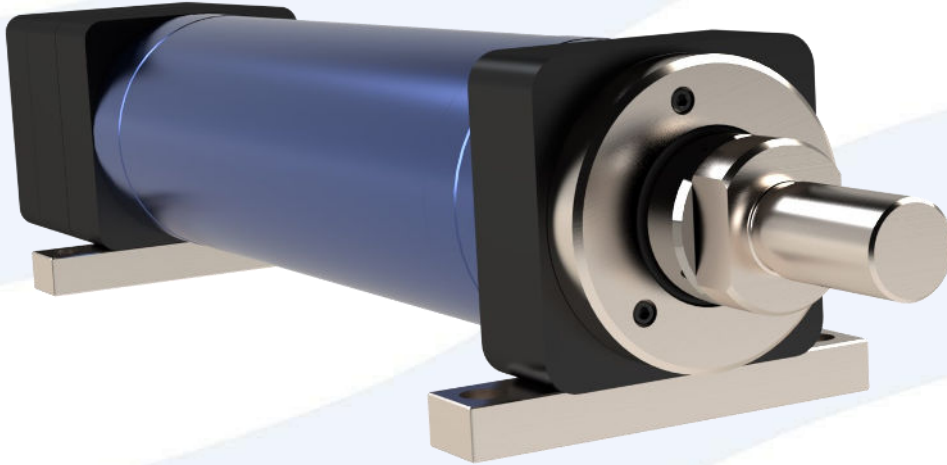
Front Flange Mount



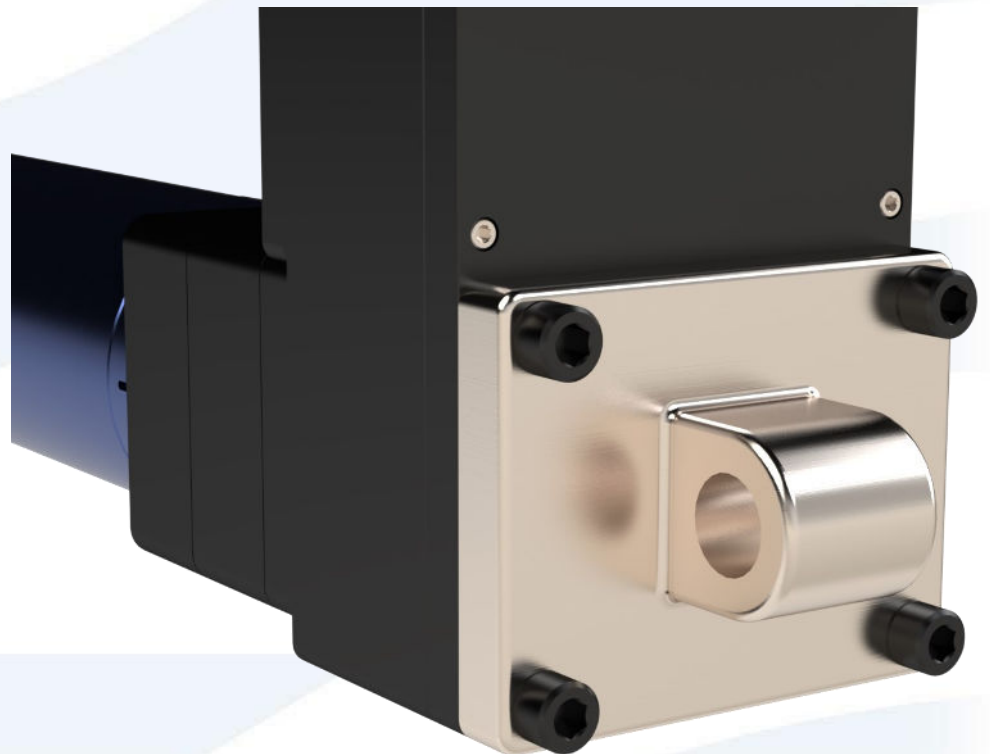
Rear Clevis Mount



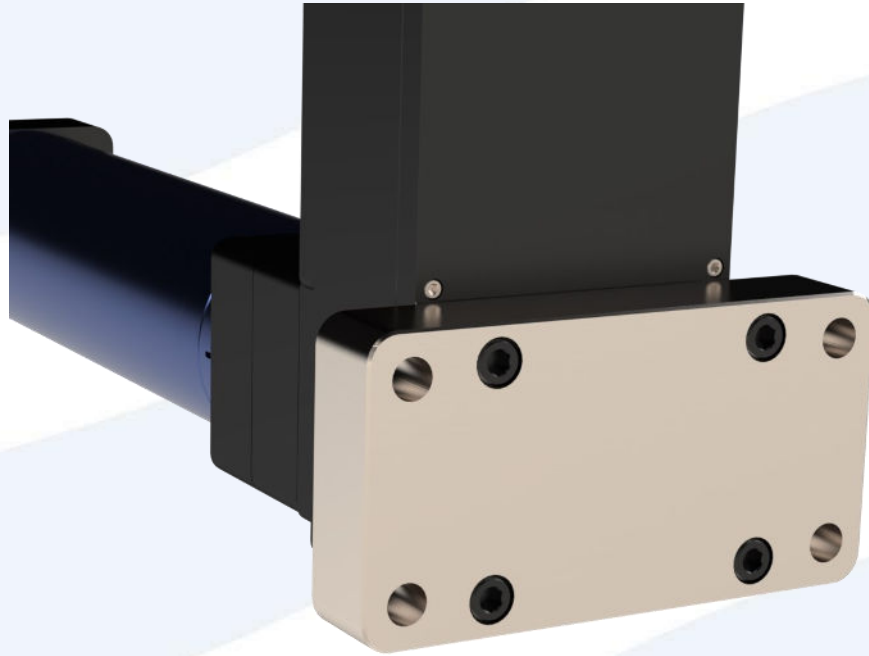
Foot Mount



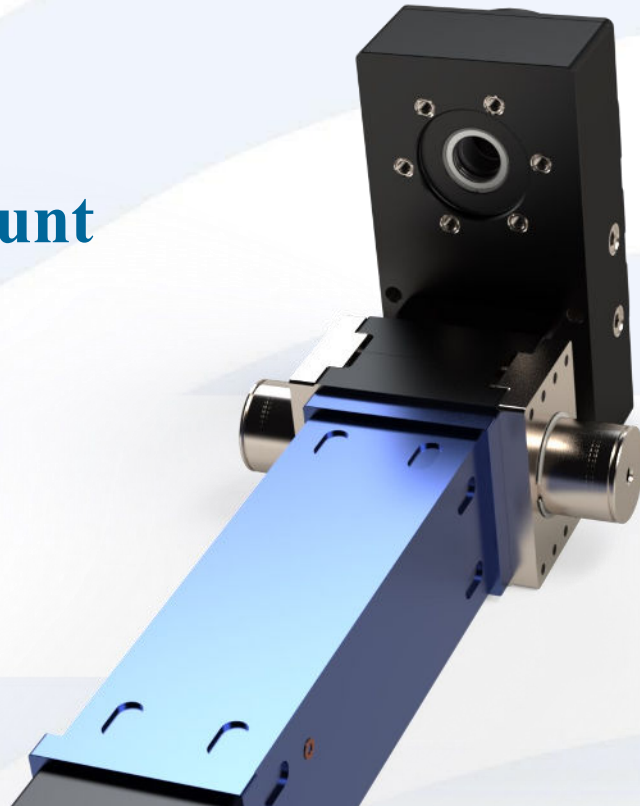
Rear Eye Mount



Rear Flange Mount



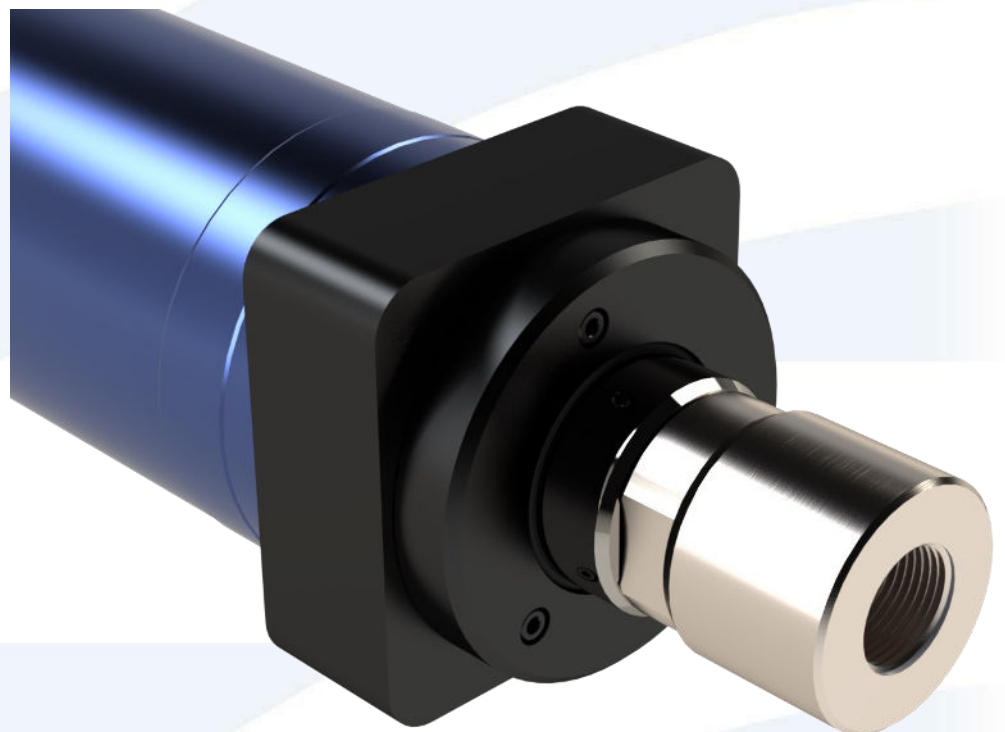
Trunnion Mount



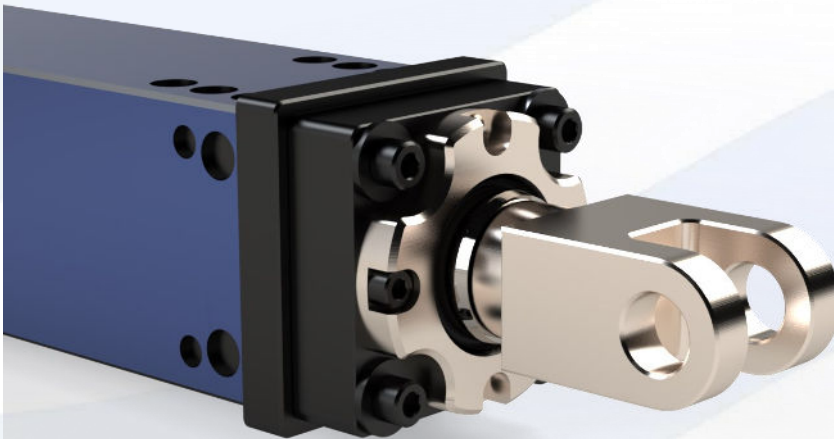
Male Threaded Rod End



Female Threaded Rod End



Clevis Rod End



Eye Rod End



Ordering Guidelines



CPD-AAA-BB-CC-DD-E-FFF-G-H-II-JJ-K

AAA - Frame Size

250:	2.5"
350:	3.5"
450:	4.5"
600:	6.0"
800:	8.0"
1000:	10.0"

EE - Exposure Package:

E:	Exposure Package
X:	None

FFF - Motor/Gearbox Mount (requires keyed shaft)

SPC:	Specify Make/Model
------	--------------------

G - Rod End Configuration:

M:	Male Thread
F:	Female Thread
E:	Eye
C:	Clevis
CUS:	Custom

BB - Stroke Length (inches)

CC - Parallel Gear Set Configuration

LS:	Low Speed
MS:	Medium Speed
HS:	High Speed
NR:	No Reduction (1:1)
DD:	Inline (no gearing)
CUS:	Custom

H - Linear Transducer Option:

S:	Sensor
X:	None

DD - Mounting Style

RC:	Rear Clevis
FT:	Foot Mount
FF:	Front Flange
RF:	Rear Flange
BF:	Front and Rear Flange
RE:	Rear Eye
TR:	Trunnion
CUS:	Custom

I - Limit Switches:

O1:	one limit switch
O2:	two limit switches
X:	None

JJ - Lubrication

G:	Grease
O:	Oil

K - Motor Mount Configuration

I:	In-line
P:	Parallel

Example: CPD-450, 12" stroke, low speed gearing, trunnion mount, no load cell, your choice of motor male threaded rod end, no linear transducer, two limit switches, grease lubrication in a parallel motor configuration:

Order: CPD-450-12-LS-TR-XX-SPC-M-X-02-G-P



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