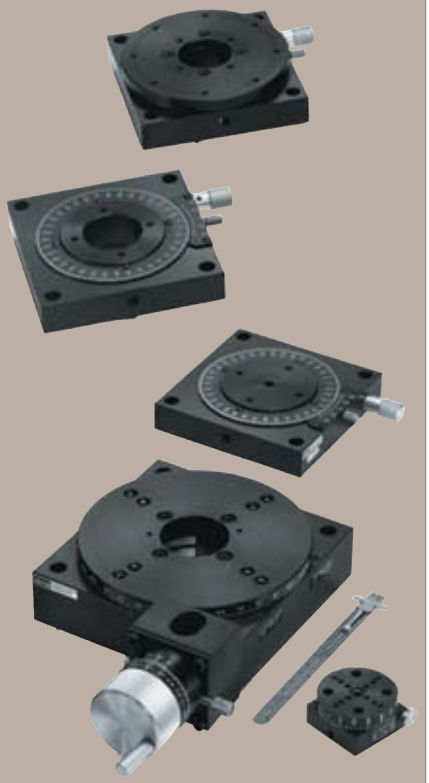
Rotary Positioners
tangent arm and worm gear drive



Parker Daedal rotary stages are designed to produce precision rotary motion. The basic components in these stages are a base, main bearing, drive mechanism and top (load platform). The base houses the main bearing and drive mechanism and is design to be mounted to a stationary surface. The main bearings provide low friction contact between the base and top. The drive mechanisms used are either tangent arms or worm gears. The table top provides a mounting surface for mounting payloads.

Contents

Rotary Positioning Stages

- Precision quality
- Budget friendly
- Largest selection
- Rotary-linear configurations
- No maintenance
- Vacuum preparation and custom options

Rotary Positioner Principles

Parker Daedal rotary stages and tables produce controlled rotation and angular positioning.

Tangent Arm Drive

With some stages (models 2520, 2525, 4575), the drive mechanism is a tangent arm drive. Angular rotation, with this system, is controlled by three control knobs. The release knob disengages the shaft from the drive, freeing the table to be rotated by hand to a desired location. The release knob is then tightened to re-engage the drive mechanism and transfer control to the adjustment knob which, when rotated, produces precise angular positioning of the shaft and table top. The locking knob can then be used to positively lock the table at the desired setting.

Precision Worm Gear Drive

A precision worm gear drive is employed as the drive mechanism for the other Parker Daedal stages. A worm wheel (gear), which is attached to the table shaft, meshes with the worm drive, whose shaft extends out of the housing. Controlled rotation of the worm shaft creates precise angular rotation of the worm wheel and table shaft. The worm gear and shaft are matched sets and are preloaded to remove backlash. This type of drive provides high resolution (180:1) and continuous angular positioning over a full 360° range.

Standard Features

Parker Daedal has engineered all of its rotary positioners with emphasis on construction and detail. The resulting stages exhibit outstanding quality and proven, reliable performance. All models are manufactured on the very best automated equipment, skillfully assembled, and thoroughly inspected and tested. This enables units manufactured in production quantities to satisfy critical performance specifications. All Parker Daedal rotary positioning devices feature:

- Aluminum/steel construction
- Protective black anodize finish
- Low-friction rotary adjustment
- Precise/accurate movement
- Trouble-free operation

How to Order

Use the Selection Chart below to determine the appropriate model series. Refer to individual series pages for complete performance and mechanical specifications. To order, use the model number specific to the selected table.

Model Series	Table Diameter	Drive Mechanism	Normal Load	Mounting		Page
				Imperial	Metric	
2500 **M2500**	1.88 –2.62 in 47,7 – 66,5 mm	Tangent Arm	10 lb 4,5 kg	•	•	117
4575* **M4575***	2.38 in 60,5 mm	Tangent Arm	5 lbs 2,25 kg	•	•	118
10000-20000 **M10000-M20000**	2.75 – 4.75 in 69,8 – 120,6 mm	Worm Gear	50 lbs 22,0 kg	•	•	119
30000 **M30000**	5.00 – 12.00 in 127,0 – 305,0 mm	Worm Gear	25 – 200 lbs 11,5 – 90,0 kg	•	•	120-121

* Models 4575/M4575 are combination rotary and linear stages which also provide 0.50 in (12,7 mm) of linear travel.

Series 2500 rotary positioners offer low-friction rotary positioning, quick manual table top rotation, precise angular adjustment at any selected position, and positive locking. These miniature units have a preloaded angular contact ball bearing system which provides smooth, continuous rotary movement.

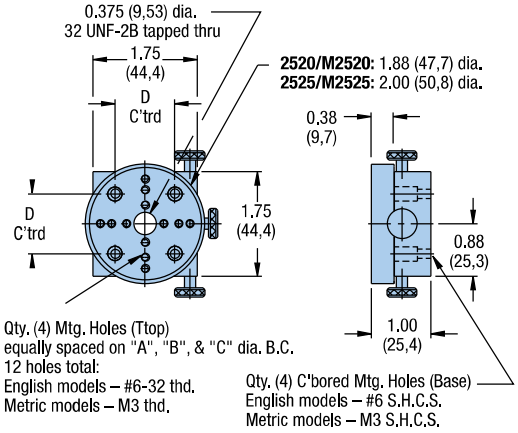
Models 2525/M2525 and 2535/M2535 include a dial and vernier for direct position readout (readable to six arc-minutes). These stages can be mounted in a horizontal or vertical position, and can be combined with compatible linear stages for linear-rotary applications.

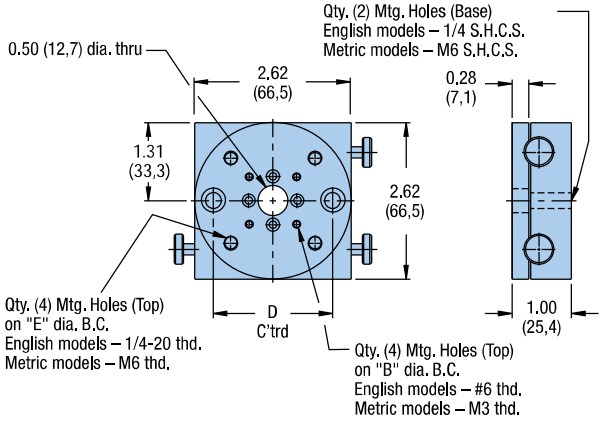
2500/M2500 Series

Specifications	Imperial Models	Metric Models
Load:		
Normal	10 lbs	4,5 kg
Moment	See page 122	See page 122
Range:	360° (free rotation) 10° (fine positioning)	360° (free rotation) 10° (fine positioning)
Weight:	1.0 – 1.8 lbs	0,5 – 0,8 kg
Vernier Resolution:	12 arc-min	12 arc-min
Construction:	Aluminum top and base; steel tangent arm drive	Aluminum top and base; steel tangent arm drive
Mounting surface:	Precision machined	Precision machined
Finish:	Black anodize	Black anodize

Dimensions

Inches (mm)





		2520/M2520 2525/M2525				2530/M2530 2535/M2535				
	Model	Diameter in (mm)	Vernier Readout	Aperture Diameter in (mm)	Weight lbs (kg)	Dimensions – in (mm) A	B	C	D	E
Imperial	2520	1.88	No	0.25	1.0	0.625	1.125	1.50	1.00	–
	2525	2.00	Yes	0.25	1.0	0.625	1.125	1.50	1.00	–
	2530	2.62	No	0.50	1.8	–	1.125	–	2.00	2.00
	2535	2.62	Yes	0.50	1.8	–	1.125	–	2.00	2.00
Metric	M2520	(47,7)	No	(6,3)	(0,5)	(15,0)	(25,0)	(35,0)	(25,0)	–
	M2525	(50,8)	Yes	(6,3)	(0,5)	(15,0)	(25,0)	(35,0)	(25,0)	–
	M2530	(66,5)	No	(12,7)	(0,8)	–	(25,0)	–	(50,0)	(50,0)
	M2535	(66,5)	Yes	(12,7)	(0,8)	–	(25,0)	–	(50,0)	(50,0)

4575/M4575 Series Specifications

Combination Linear/Rotary Positioner

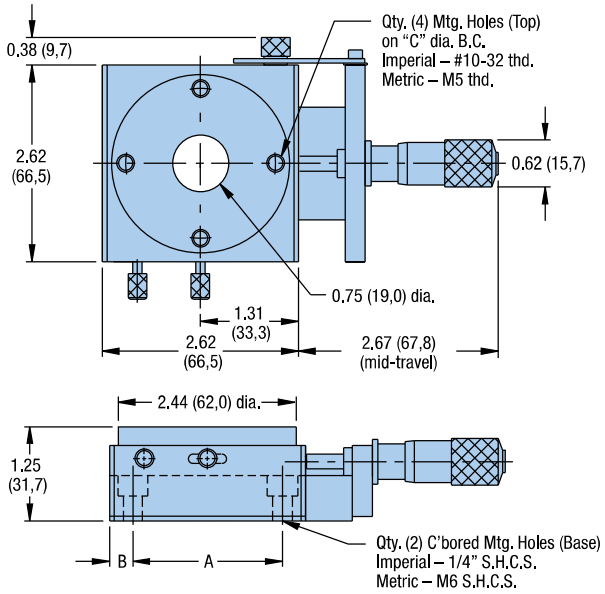
The model 4575 combines both linear and rotary motion into one compact unit. It is designed for applications where space restrictions do not allow stacking a linear stage and a rotary stage. The mounting surface is 2.38" diameter with a 0.75" diameter thru hole, with (4) #10-32 threaded mounting holes on 2.00" centers. Linear travel is provided by a fine resolution micrometer. Rotary travel is provided with both a coarse and a fine adjustment. This feature allows quick rotation over a continuous 360° range, plus precise angular adjustment at any selected position.

4575/M4575 Series

Specifications	Imperial Models	Metric Models
Load:		
Normal	15 lbs	2,25 kg
Moment	See page 122	See page 122
Range:		
Rotary	360° (free rotation) 10° (fine positioning)	360° (free rotation) 10° (fine positioning)
Linear	0.50 in	12,7 mm
Straight line accuracy:	0.0001 in	2,5 µm
Micrometer graduations:	0.001 in	0,01 mm
Weight:	1.0 lb	0,5 kg
Construction:	Aluminum top and base; steel tangent arm drive	Aluminum top and base; steel tangent arm drive
Mounting surface:	Precision machined	Precision machined
Finish:	Black anodize	Black anodize

Dimensions

Inches (mm)



Model		Diameter in (mm)	Aperture Diameter in (mm)	Dimensions – in (mm) A	B	C
Imperial	4575	2.62	0.75	2.00	0.31	2.00
Metric	M4575	(66,5)	(19,0)	(50,0)	(8,3)	(50,0)

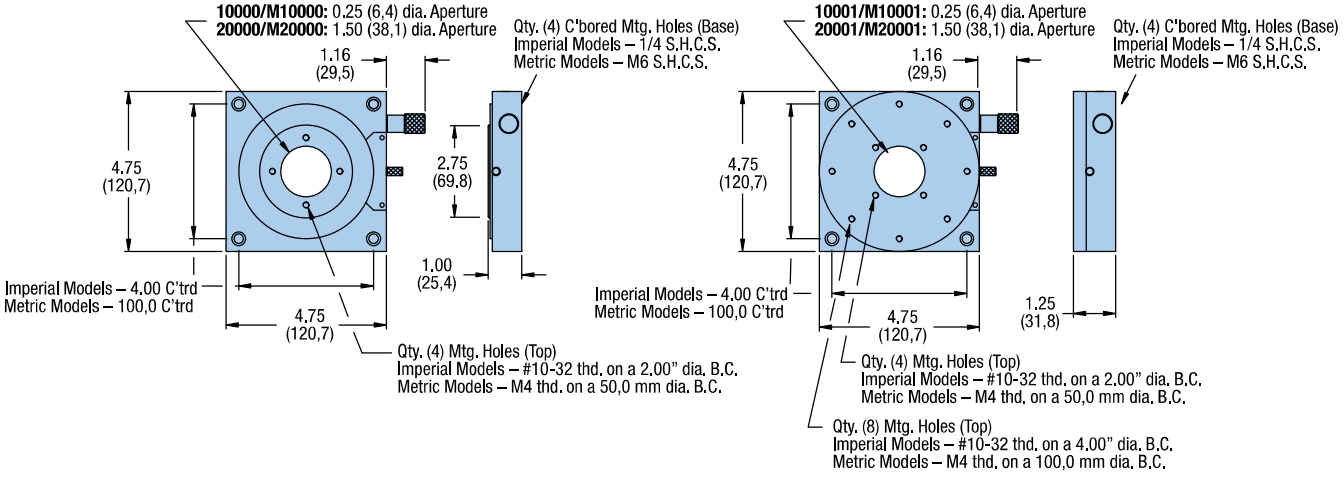
The 10000-20000 and M10000-M20000 Series rotary positioning stages provide smooth, continuous adjustment over a full 360° travel range. The drive mechanism features a worm gear drive. A position locking knob allows the stage to be positively locked in place. The 10000 and 20000 models offer a 2.75 inch (69,8 mm) diameter stage with a calibrated dial and vernier, readable to 6.00 arc minutes. The 10001 and 20001 models, which do not include the vernier readout, offer a larger 4.75 inch (120,6 mm) diameter mounting surface. These versatile low cost units can be combined with linear positioning stages having 4.00 inch (Imperial) or 100,0 mm (Metric) mounting hole centers for multi-axis polar set-ups.

10000-20000/M10000-M20000 Series

Specifications	Imperial Models				Metric Models			
	10000	10001	20000	20001	M10000	M10001	M20000	M20001
Table Diameter:	2.75 in	4.75 in	2.75 in	4.75 in	69,8 mm	120,7 mm	69,8 mm	120,7 mm
Vernier Resolution:	6 arc-min	–	6 arc-min	–	6 arc-min	–	6 arc-min	–
Aperture:	0.25	0.25	1.50	1.50	(6,3)	(6,3)	(38,1)	(38,1)
Weight:	2.0 lbs	2.4 lbs	2.0 lbs	2.4 lbs	0,9 kg	1,9 kg	0,9 kg	1,9 kg
Load:								
Normal	25 lbs				11,3 kg			
Moment	Not recommended for moment loads				Not recommended for moment loads			
Range:	360° (continuous)				360° (continuous)			
Drive Ratio:	120:1				120:1			
Construction:	Aluminum top and base; steel/bronze worm gear drive				Aluminum top and base; steel/bronze worm gear drive			
Mounting surface:	Precision machined				Precision machined			
Finish:	Black anodize				Black anodize			

Dimensions

Inches (mm)



Models
10000-20000
M10000-M20000

Models
10001-20001
M10001-M20001

30000/M30000 Series Specifications

Parker Daedal rotary indexing tables provide accurate rotational positioning with a heavy load-carrying capability. Tables feature a crossed roller bearing system which is stiffly pre-loaded to produce precise rotation of the table top. The drive mechanism is a precision worm gear drive which provides precise rotational positioning.

An angular readout—graduated in degrees—is provided around the circumference of the table top, while a finer position readout dial, found on the control knob, reads directly in 0.01° increments, with the vernier providing even higher (0.002°) resolution. A thumbscrew lock is included to lock the table at the desired setting.

For customer convenience, threaded mounting holes with locking threaded inserts are provided as well as a clearance hole through the center of the table to allow easy access from below.

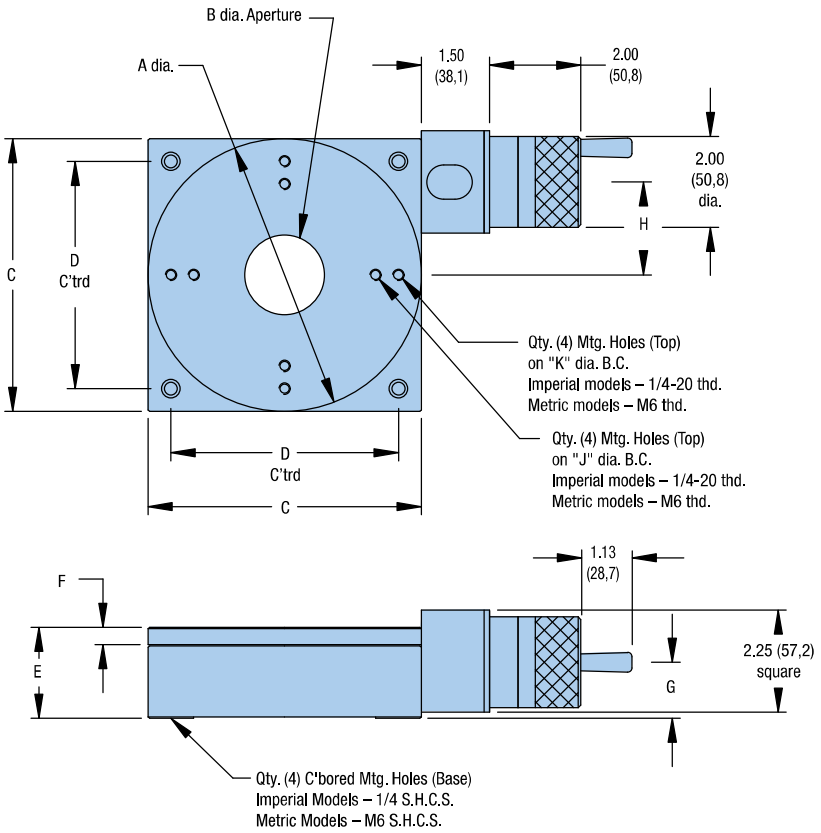
If desired, the table top can easily be removed to permit custom modification. These units can be mounted in any orientation and are compatible with Parker Daedal linear tables.

30000/M30000 Series

Specifications	Imperial Models	Metric Models
Load:		
Normal	25 – 200 lbs	11,5 – 90 kg
Moment	See page 122	See page 122
Concentricity:		
Standard	0.005 in	127,0 µm
Precision	0.001 in	25,4 µm
Runout:		
Standard	0.003 in	75 µm
Precision	0.001 in	25 µm
Range:	360° (continuous)	360° (continuous)
Weight:	6.0 – 31.0 lbs	2,7– 14,1 kg
Vernier Resolution:	0.12 arc-min	0.12 arc-min
Construction:	Aluminum top and base; steel/bronze worm gear drive	Aluminum top and base; steel/bronze worm gear drive
Mounting surface:	Precision machined	Precision machined
Finish:	Black anodize	Black anodize

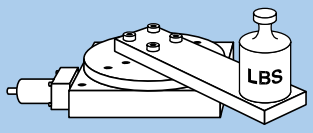
	Model		Table Diameter in (mm)	Normal Load lbs (kg)	Output Torque in-lb (Nm)	Weight lbs (kg)
	Standard	Precision				
Imperial	30005-S	30005-P	5.00	25	25	6.0
	30006-S	30006-P	6.00	150	40	8.0
	30008-S	30008-P	8.00	75	40	15.0
	30010-S	30010-P	10.00	200	190	27.0
	30012-S	30012-P	12.00	200	190	31.0
Metric	M30005-S	M30005-P	(127,0)	(11,5)	(2,8)	(2,7)
	M30006-S	M30006-P	(152,4)	(68,0)	(4,5)	(3,6)
	M30008-S	M30008-P	(203,2)	(34,0)	(4,5)	(6,8)
	M30010-S	M30010-P	(254,0)	(90,0)	(21,5)	(12,2)
	M30012-S	M30012-P	(304,8)	(90,0)	(21,5)	(14,1)

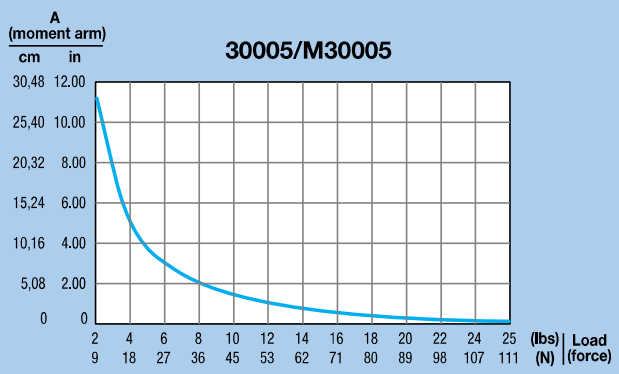
Dimensions Inches (mm)

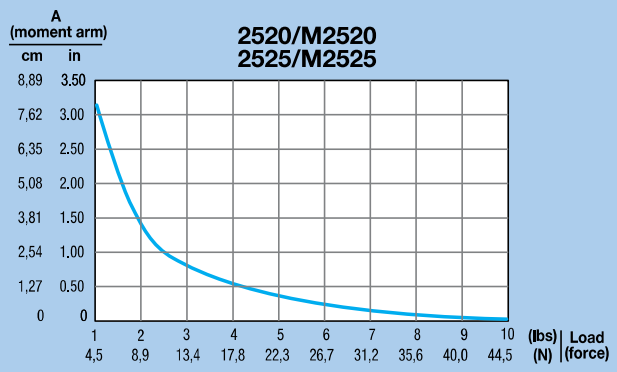


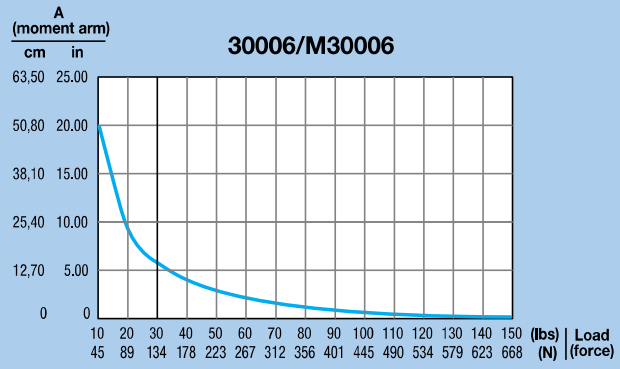
	Model	Dimensions – in (mm)									
		A	B	C	D	E	F	G	H	J	K
Imperial	30005-S/P	5.00	1.00	5.00	4.00	1.82	0.38	1.13	1.67	3.00	4.00
	30006-S/P	6.00	1.75	6.00	5.00	2.00	0.38	1.23	2.04	4.00	5.00
	30008-S/P	8.00	1.75	8.00	6.00	2.50	0.50	1.57	2.04	4.00	6.00
	30010-S/P	10.00	2.00	10.00	9.00	3.00	0.75	1.81	3.03	6.00	8.00
	30012-S/P	12.00	2.00	10.00	9.00	3.00	0.75	1.81	3.03	8.00	10.00
Metric	M30005-S/P	(127,0)	(25,4)	(127,0)	(100,0)	(46,2)	(9,7)	(28,7)	(42,4)	(75,0)	(100,0)
	M30006-S/P	(152,4)	(44,5)	(152,4)	(125,0)	(50,8)	(9,7)	(31,2)	(51,8)	(100,0)	(125,0)
	M30008-S/P	(203,2)	(44,5)	(203,2)	(175,0)	(63,5)	(12,7)	(39,9)	(51,8)	(100,0)	(175,0)
	M30010-S/P	(254,0)	(50,8)	(254,0)	(225,0)	(76,2)	(19,1)	(46,0)	(77,0)	(150,0)	(200,0)
	M30012-S/P	(304,8)	(50,8)	(254,0)	(225,0)	(76,2)	(19,1)	(46,0)	(77,0)	(200,0)	(250,0)

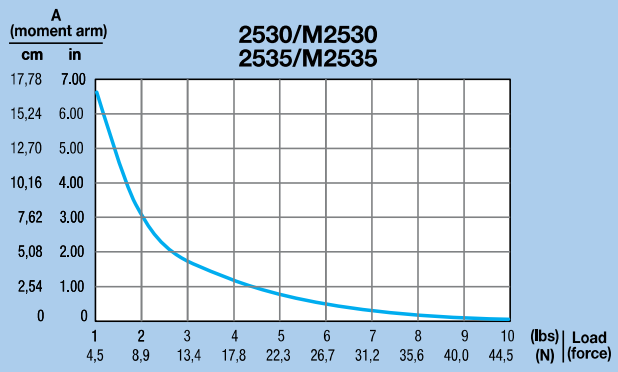
Moment Load

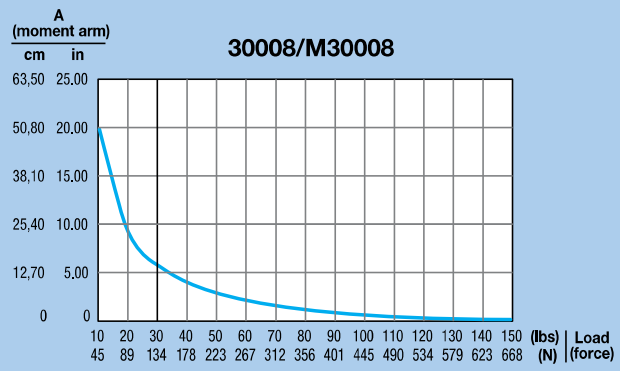

LBS

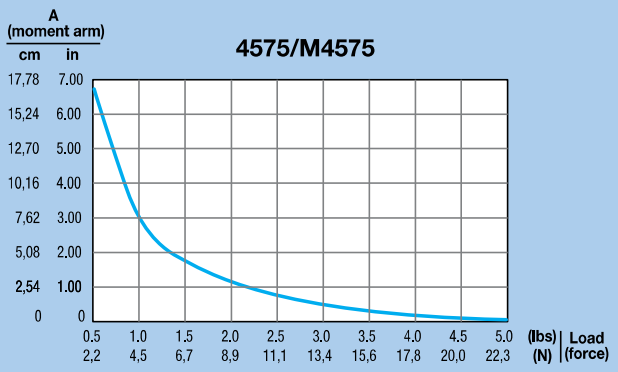

A (moment arm)
cm in
30005/M30005
30,48 12.00
25,40 10.00
20,32 8.00
15,24 6.00
10,16 4.00
5,08 2.00
0 0
2 4 6 8 10 12 14 16 18 20 22 24 25 (lbs)
9 18 27 36 45 53 62 71 80 89 98 107 111 (N)
Load (force)

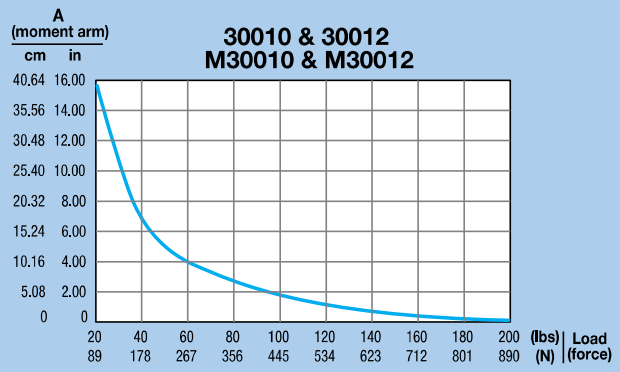

A (moment arm)
cm in
2520/M2520
2525/M2525
8,89 3.50
7,62 3.00
6,35 2.50
5,08 2.00
3,81 1.50
2,54 1.00
1,27 0.50
0 0
1 2 3 4 5 6 7 8 9 10 (lbs)
4,5 8,9 13,4 17,8 22,3 26,7 31,2 35,6 40,0 44,5 (N)
Load (force)


A (moment arm)
cm in
30006/M30006
63,50 25.00
50,80 20.00
38,10 15.00
25,40 10.00
12,70 5.00
0 0
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 (lbs)
45 89 134 178 223 267 312 356 401 445 490 534 579 623 668 (N)
Load (force)


A (moment arm)
cm in
2530/M2530
2535/M2535
17,78 7.00
15,24 6.00
12,70 5.00
10,16 4.00
7,62 3.00
5,08 2.00
2,54 1.00
0 0
1 2 3 4 5 6 7 8 9 10 (lbs)
4,5 8,9 13,4 17,8 22,3 26,7 31,2 35,6 40,0 44,5 (N)
Load (force)


A (moment arm)
cm in
30008/M30008
63,50 25.00
50,80 20.00
38,10 15.00
25,40 10.00
12,70 5.00
0 0
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 (lbs)
45 89 134 178 223 267 312 356 401 445 490 534 579 623 668 (N)
Load (force)


A (moment arm)
cm in
4575/M4575
17,78 7.00
15,24 6.00
12,70 5.00
10,16 4.00
7,62 3.00
5,08 2.00
2,54 1.00
0 0
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 (lbs)
2,2 4,5 6,7 8,9 11,1 13,4 15,6 17,8 20,0 22,3 (N)
Load (force)


A (moment arm)
cm in
30010 & 30012
M30010 & M30012
40.64 16.00
35.56 14.00
30.48 12.00
25.40 10.00
20.32 8.00
15.24 6.00
10.16 4.00
5.08 2.00
0 0
20 40 60 80 100 120 140 160 180 200 (lbs)
89 178 267 356 445 534 623 712 801 890 (N)
Load (force)