



XR Series Screw-Driven Positioners

Parker high-precision screw driven tables are divided into families (or groups) which are distinguished by the primary bearing style and precision. All tables are offered with several drive mechanism options and are designed for direct connection to standard frame size stepper or servo motors. Parker offers the most comprehensive array of products in the industry and advanced product development. Screw-driven products integrate seamlessly with other Parker components including servo motors, motor drives, controls, interfaces, actuators, pneumatics, and structural components. Products are available with modular construction from standard catalog tables or custom systems designed and built to specification for any application.

Parker Screw-Driven Industrial Systems

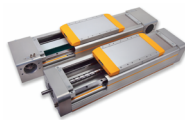
- Easy, multi-axis connectivity
- Submicron precision
- Velocities up to 1.5 meters/second
- Cleanroom and vacuum compatible
- Thorough testing and certification

XR Series Precision Screw-Driven Positioners



The XR product family offers consistent accuracy, reliable performance, high strength, and unmatched versatility.

HMR High Moment Rodless Series Industrial Screw Driven Positioners



The user-friendly and versatile HMR has enormous moment and payload capacity bundled in a low-profile, yet sleek package. The HMRS is powerful and precise.
[View Here](#)

XE Series Economy Screw-Driven Positioners



Rugged steel body construction, integrated precision ballscrew, and bearing guide in a highly accurate, cost-effective line of positioners.
[View Here](#)

404XE Series Screw-Driven Positioners



The 404XE positioners combine versatility with rugged construction in a compact motion platform that is ideal for 24/7 process automation.
[View Here](#)

OSPE-SB and OSPE-ST Medium-Capacity Screw Driven Positioners

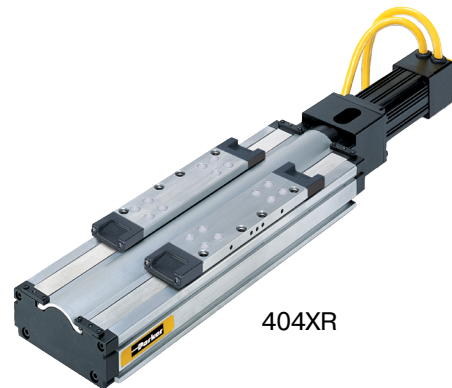


The OSPE offers reliability, performance, easy handling, and optimized design flexibility. Ballscrew for precise positioning and Trapezoidal Screw for zero backdrive.
[View Here](#)

The 400XR Series

Screw Driven Positioners for Precision,
High Force Applications

- Pre-engineered package
- Performance matched components
- Environmental protection
- Laser certified precision



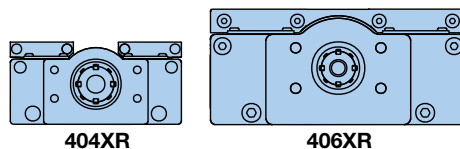
404XR

Typical Enhancements

- Limit/home position sensors
- Linear encoder feedback
- Cleanroom preparation
- Multi-axis brackets & adapters
- Numerous selectable motor mounts
- Servo motors and drives
- Programmable controls
- Cable management system



406XR



404XR

406XR

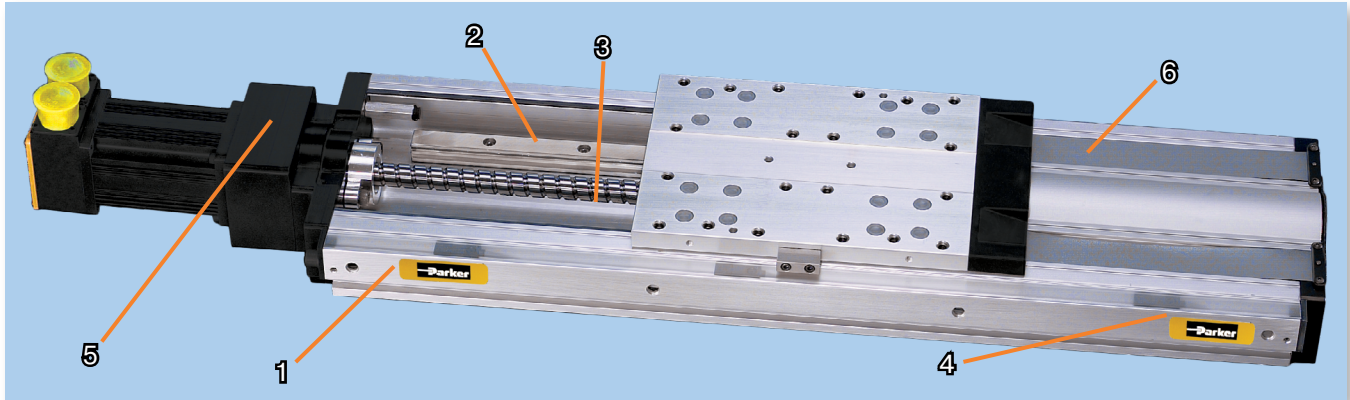
	404XR	406XR
Maximum Travel (mm)	600	2000
Maximum Payload (N)	170	630
Maximum Acceleration (m/sec ²)	20	20

The **400XR** precision linear positioner family has achieved global recognition for consistent accuracy, reliable performance, high strength, and unmatched versatility. The XRs have excelled in industries such as life sciences, fiber optics and instrumentation, where the highest degree of precision is required.

And yet, because of the rugged construction, strength, and sealed design, these units have been used extensively for industrial automation applications such as packaging, automotive, and more.

The XR family offers an unrivaled array of features and options which are easily matched to fit

any application, from the very basic to the highly complex. Premier performance, modular compatibility, and quick delivery have made these tables the perfect building blocks for precision multi-axis systems.



1 High Strength Aluminum Body

Extruded aluminum housing is precision machined to provide outstanding straightness and flatness.

2 Square Rail Linear Bearing

These tables are equipped with square rail carriage support bearings which provide high load carrying capabilities, smooth precise motion and dependable performance.

3 High Efficiency Ballscrew Drive

Precision ground, or rolled ballscrew drive (5, 10, 20, 25, 32 mm lead) offers high throughput, efficiency, accuracy and repeatability.

4 Limit/Home Sensors

Proximity sensors establish “end of travel” and “home” location and are easily adjustable over entire length to restrict the travel envelope.

5 Motor Mounts

A large selection of servo and stepper motor sizes plus selectable mounting configurations (in-line, parallel) permit **hundreds** of motor mounting possibilities.

6 IP30 Rated Strip Seals

An anodized aluminum cover combined with stainless steel strip seals provide IP30 protection to interior components and enhance the overall appearance.

Encoders

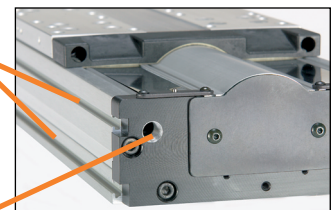
The linear encoder option offers direct positional feedback of the carriage location. The rotary shaft encoder couples directly to the drive shaft to nullify any incurred mechanical error (particularly useful with the parallel motor mount). Not shown.

Shaft Brake

The electromagnetic shaft brake option couples directly to the drive screw and is employed primarily on vertical axes to halt carriage motion during a power loss. Not shown.

Convenient Mounting Slots

Continuous T-slots along the side of the table body provide a convenient means of mounting the table to a work surface as well as mounting accessories to the table.

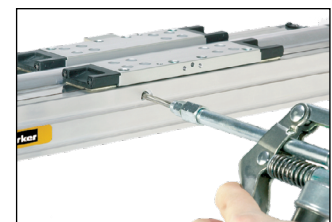


Positive Pressure Port

A standard port (1/8 NPT) for pressurizing the interior to prevent particle intrusion. (Standard on 404XR, 406XR, 412XR units.)

Easy Lube System

A standard option on some models, enables easy access for ballscrew and bearing lubrication.



Cleanroom Preparation

Class 10 cleanroom preparation is a standard option for the 400XR series. For detailed technical information on cleanroom preparation, contact Parker's Application Engineering Department at **1.800.245.6903**



404XR Series (95 mm wide profile)

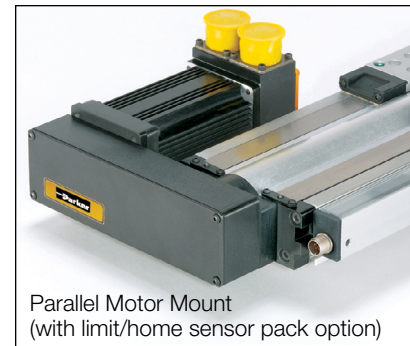
The 404XR is a sleek compact positioner (47.3 x 95 mm profile) capable of carrying 170 kg loads up to a distance of 600 mm. Its quick and accurate positioning capability can be attributed to a high strength extruded housing, square rail ball bearing system, and precision ground ballscrew drive.

With its low profile design the 404XR is ideal for height restricted applications, and its lightweight construction makes it well suited as secondary axes on multi-axis systems. These units offer a wide array of easily adapted options and accessories which permit easy configuration to specific requirements.



Common Specifications

		Precision	Standard
Bidirectional Repeatability⁽⁵⁾			
Ballscrew	μm	±1.3	±3
Leadscrew		—	±12
Duty Cycle			
Ballscrew	%	100	100
Leadscrew ⁽⁷⁾		—	75
Maximum Acceleration	m/sec ² (in/sec ²)	20 (773)	20 (773)
Normal Load Capacity⁽¹⁾	kgf (lbs)	170 (375)	170 (375)
Axial Load Capacity⁽²⁾			
Ballscrew	kgf (lbs)	90 (198)	90 (198)
Leadscrew		—	25 (55)
Drive Screw Efficiency	%		
Ballscrew - Inline Motor Mount		90	90
Ballscrew - Parallel Motor Wrap		N/A	81
Leadscrew - Inline Motor Mount ⁽⁷⁾		30	30
Leadscrew - Parallel Motor Wrap ⁽⁷⁾		N/A	27
Maximum Breakaway Torque	Nm (in-oz)	0.13 (18)	0.18 (26)
Maximum Running Torque⁽³⁾	Nm (in-oz)	0.11 (16)	0.17 (24)
Linear Bearing Coefficient of Friction		0.01	0.01
Screw Diameter			
Ballscrew	mm	16	16
Leadscrew ⁽⁷⁾		—	12.7
Carriage Weight	kg (lbs)	0.70 (1.55)	0.70 (1.55)



Parallel Motor Mount
(with limit/home sensor pack option)

- (1) Refer to life load charts found later in this section.
 (2) Axial load for parallel mount is limited by a maximum input torque of 2.5 Nm.
 (3) Ratings established at 2 rps.
 (4) Consult factory for higher accuracy capabilities via slope correction or stage mapping via laser interferometry.
 (5) Consult factory for specifications with linear encoder.
 (6) Consult factory for higher screw speeds.
 (7) Leadscrew is available only in custom builds.

Travel/Screw Lead Dependent Specifications

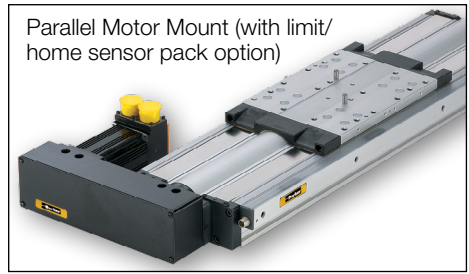
Travel (mm)	Positional Accuracy ^{(4) (5)} (μm)			Straightness & Flatness		Input Inertia (10 ⁻⁵ kg-m ²)			Max Screw Speed ⁽⁶⁾ (revs/sec)		Unit Weight (kg)
	Ballscrew		Leadscrew ⁽⁷⁾	Ballscrew	Leadscrew ⁽⁷⁾	5 mm	10 mm	20 mm	Ballscrew	Leadscrew ⁽⁷⁾	
	Precision	Standard									
50	8	12	20	6	8	1.68	1.81	2.34	60	25	2.8
100	8	12	20	6	8	1.93	2.07	2.60	60	25	3.0
150	10	14	30	9	12	2.19	2.32	2.85	60	25	3.3
200	12	20	40	10	16	2.44	2.57	3.11	60	25	3.6
250	12	22	50	12	16	2.69	2.83	3.36	60	25	3.9
300	14	24	60	13	18	2.95	3.08	3.61	60	25	4.2
350	14	26	70	15	23	3.20	3.33	3.87	60	25	4.5
400	16	26	80	16	27	3.46	3.59	4.12	60	25	4.8
450	19	28	90	18	30	3.71	3.84	4.37	60	25	5.1
500	21	34	100	19	30	3.96	4.10	4.63	60	20	5.4
550	23	36	110	21	30	4.22	4.35	4.88	60	20	5.7
600	25	40	112	22	30	4.47	4.60	5.14	54	20	6.0

406XR Series (150 mm wide profile)

The 406XR can position high loads (up to 630 kgf) over distances up to two meters. Because of its size and strength (270 Nm, 200 lb-ft moment load capacity) this durable table is ideal as the base unit in a multi-axis system.

From high resolution to high throughput, selectable ballscrew leads (5, 10, 20, 25 mm) make the desired resolution/velocity ratio easy to achieve, and stainless steel seal strips alleviate environmental concerns.

Parallel Motor Mount (with limit/home sensor pack option)



Common Specifications

		Precision	Standard
Bidirectional Repeatability ⁽⁵⁾	μm	±1.3	±3
Duty Cycle	%	100	100
Maximum Acceleration	m/sec ² (in/sec ²)	20 (773)	20 (773)
Normal Load Capacity ⁽¹⁾	kg (lbs)	630 (1390)	630 (1390)
Axial Load Capacity ⁽²⁾			
0 to 600 mm Travel	kg (lbs)	90 (198)	90 (198)
700 to 2000 mm Travel		–	200 (440)
Drive Screw Efficiency	%	90	90
Maximum Breakaway Torque			
0 to 600 mm Travel	Nm (in-oz)	0.13 (18)	0.18 (26)
700 to 2000 mm Travel		–	0.39 (55)
Maximum Running Torque ⁽³⁾			
0 to 600 mm Travel	Nm (in-oz)	0.11 (16)	0.17 (24)
700 to 2000 mm Travel		–	0.34 (48)
Linear Bearing Coefficient of Friction		0.01	0.01
Ballscrew Diameter			
0 to 600 mm Travel	mm	16	16
700 to 2000 mm Travel		–	25
Carriage Weight	kg (lbs)	2.7 (5.94)	2.7 (5.94)

(1) Refer to life load charts found later in this section.

(2) Axial load for parallel mount is limited to: 140 lbs for the 5, 10 and 20 mm lead drives:

104 kg (230 lbs) for 25 mm lead drives

(3) Ratings established at 2 rps.

(4) Consult factory for higher accuracy capabilities via slope correction or stage mapping via laser interferometry.

(5) Consult factory for specifications with linear encoder.

(6) Consult factory for higher screw speeds.

Travel/Screw Lead Dependent Specifications

Travel (mm)	Positional Accuracy ^{(4) (5)} (μm)		Straightness & Flatness	Input Inertia (10 ⁻⁵ kg-m ²)				Max Screw Speed ⁽⁶⁾ (revs/sec)	Unit Weight (kg)
	Precision	Standard		5 mm	10 mm	20 mm	25 mm		
100	8	12	6	3.34	3.85	5.90	–	60	8.7
200	12	20	10	3.92	4.43	6.48	–	60	10.0
300	14	24	13	4.50	5.01	7.06	–	60	11.3
400	16	26	16	5.08	5.59	7.64	–	60	12.6
500	21	34	19	5.65	6.17	8.22	–	55	13.9
600	25	40	22	6.23	6.75	8.80	–	44	15.2
700	–	92	25	36.51	37.02	–	40.61	47	19.2
800	–	94	29	39.96	40.47	–	44.07	47	20.7
900	–	103	32	43.41	43.93	–	47.52	47	22.2
1000	–	105	35	46.87	47.38	–	50.97	47	23.7
1250	–	118	42	55.50	56.01	–	59.61	35	27.6
1500	–	134	50	64.14	64.65	–	68.24	26	31.4
1750	–	154	57	72.77	73.28	–	76.88	20	35.2
2000	–	159	65	81.40	81.92	–	85.51	16	39.1

400XR Series Life/Load

The following performance information is provided as a supplement to the product specifications pages. The following graphs are used to establish the table life relative to the applied loads.

The useful life of a linear table at full catalog specifications is dependent on the forces acting upon it. These forces include both static components

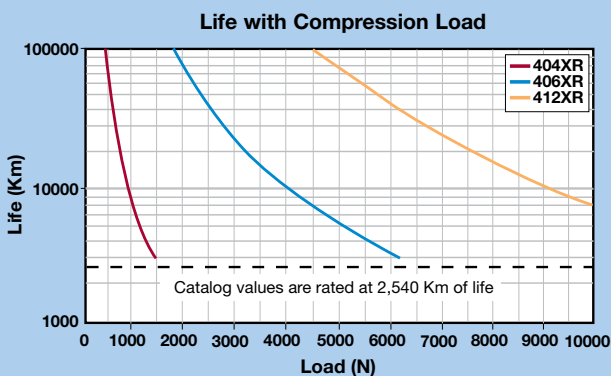
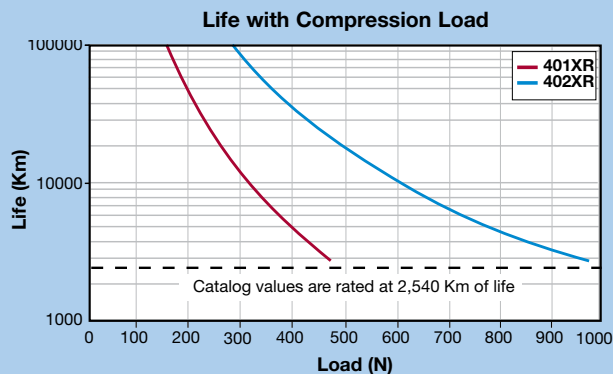
resulting from payload weight, and dynamic components due to acceleration/deceleration of the load. In multi-axes applications, the primary positioner at the bottom of the stack usually establishes the load limits for the combined axes. When determining life/load, it is critical to include the weight of all positioning elements that contribute to the load supported by the primary axis.

Catalog load specifications are rated for 100 million inches of travel or 2540 km.

For final evaluation of life vs load, including off center, tension, and side loads, refer to the charts and formulas found on our web site at parker.com/emc

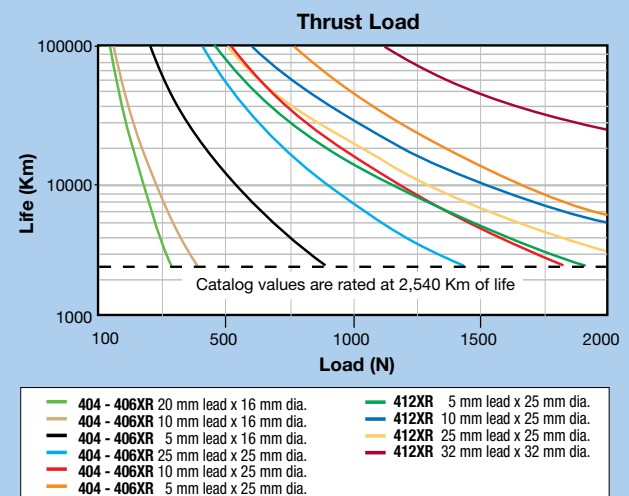
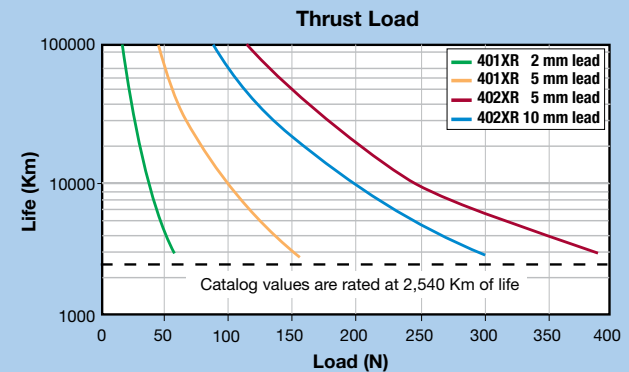
Normal Load (Compression)

These graphs provide a “rough cut” evaluation of the support bearing life/load characteristics. The curves show the life/load relationship when the applied load is centered on the carriage, normal (perpendicular) to the carriage mounting surface.



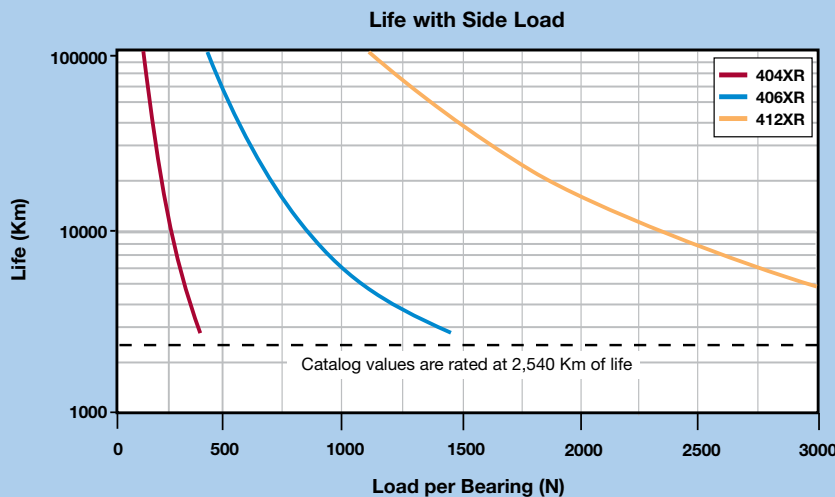
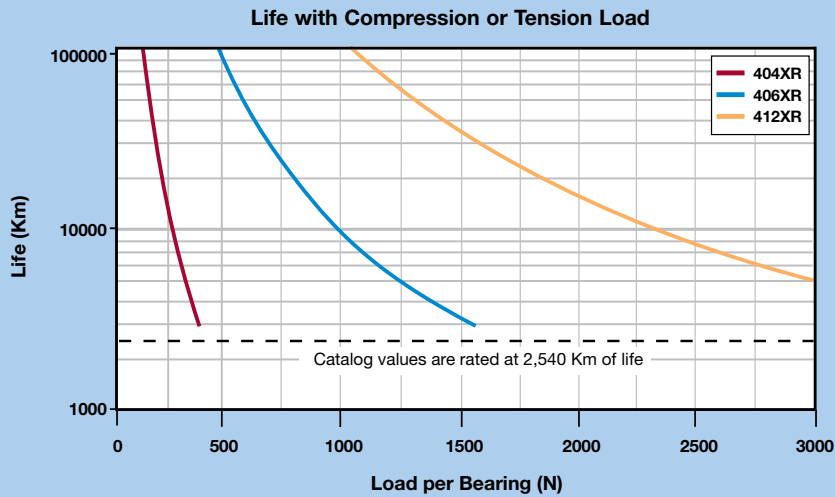
Axial Load (Thrust)

These graphs illustrate table ballscrew life relative to the axial load.



400XR Series Bearing Life/Load*

Normal Load (Compression)



These charts are to be used in conjunction with the corresponding formulas found in the product manuals to establish the life/load for each bearing (4 per table).

Several dimensions, which are specific to each linear positioning table model, and the load geometry are required for these computations. These dimensions are supplied in the catalog information for each positioner. The dimensions are referenced as follows:

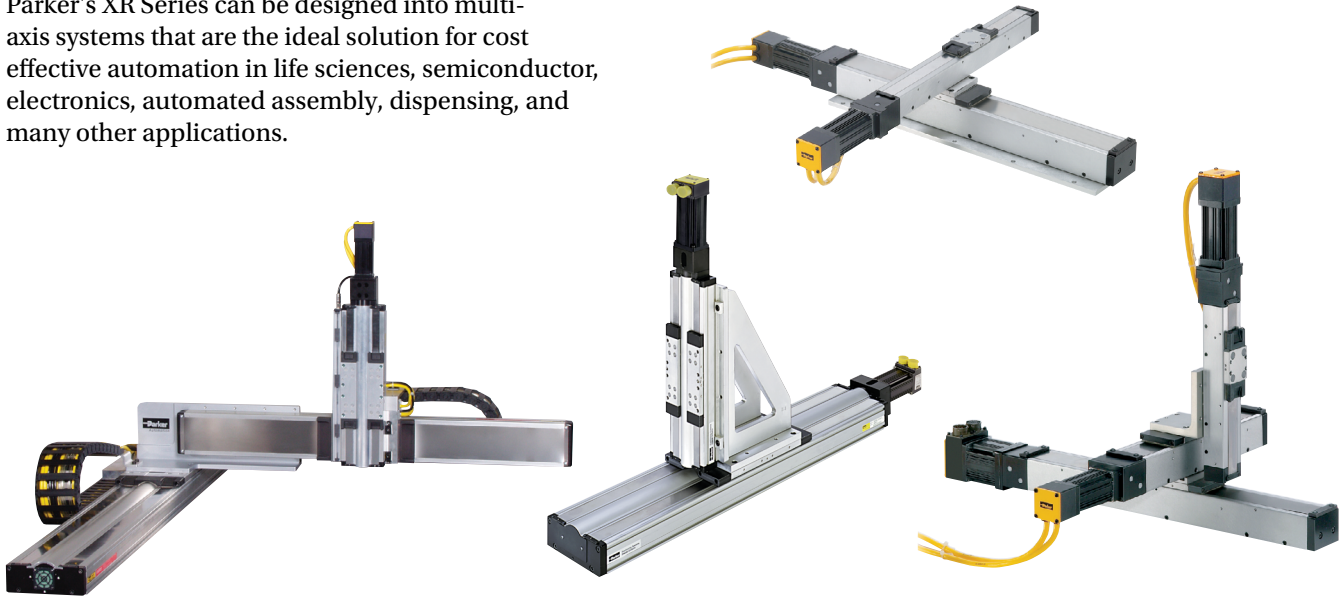
- d1** bearing block center-to-center longitudinal spacing
- d2** bearing rail center-to-center lateral spacing
- da** Rail center-to-carriage mounting surface

	d1	d2	da
404XR	80	57	28
406XR	114	90.3	42.5

CONFIGURATIONS

400XR Multi-Axis Cartesian Robot Configurations

Parker's XR Series can be designed into multi-axis systems that are the ideal solution for cost effective automation in life sciences, semiconductor, electronics, automated assembly, dispensing, and many other applications.



XR Mounting Plate Options

Base Axis (X) *	Orientation	404XR	404LXR	406XR	406LXR	Wedge
404XR 404LXR	X-Y	Direct Mount*	100-9584-01	—	—	100-9274-01
	X-Y Carriage to Carriage	100-3945-01	100-3945-01	—	—	—
	X-Y Cartesian Right Hand	—	—	—	—	—
	X-Y Cartesian Left Hand	—	—	—	—	—
	X-Z	002-1840-01	—	—	—	—
	X-Z Side Mount	002-1839-01	—	—	—	—
406XR 406LXR	X-Y	Direct Mount*	Direct Mount*	Direct Mount*	Direct Mount*	100-9274-01
	X-Y Carriage to Carriage	100-4191-01	100-4191-01	100-4191-01	100-4191-01	—
	X-Y Cartesian	002-2163-01	002-2163-01	—	—	—
	X-Z	002-1823-01	—	002-1817-01	—	—
ZP 200 Wedge	X-Z Side Mount	002-1824-01	—	002-1818-01	—	—
	X-Y	100-9274-01	100-9274-01 or Toe Clamp	100-9274-01 or Toe Clamp	100-9274-01	—

* An adapter plate (100-3945-01) is required whenever the X-axis is a parallel motor mount model.

If the Y-axis is 404XR with 50 mm stroke, a special plate or toe clamp option is required.

400XR Multi Axis Configurations

These diagrams show the most popular variations of multi-axis configurations. Both standard and custom brackets are available. Standard X-Y orientation will place the X axis motor at the 6 o'clock position and the Y axis motor at the 3 o'clock position.

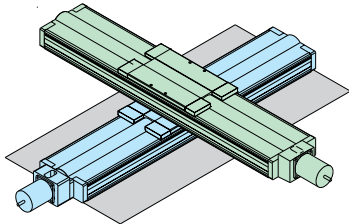


Figure 1
Two Axis (X-Y) Horizontal Mounting

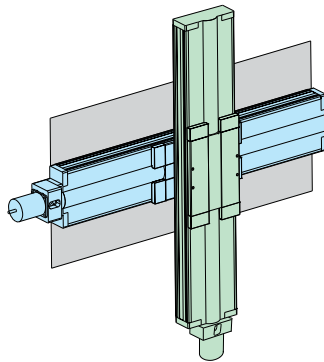


Figure 2
Two Axis (X-Z) Vertical Mounting

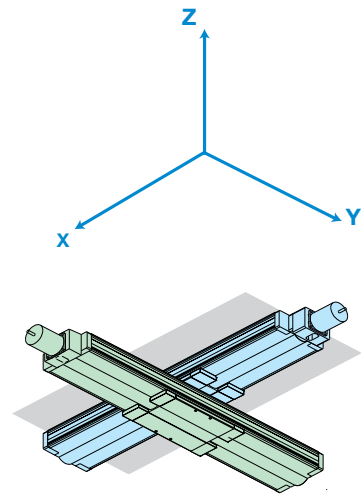


Figure 3
Two Axis (X-Y) Inverted Mounting

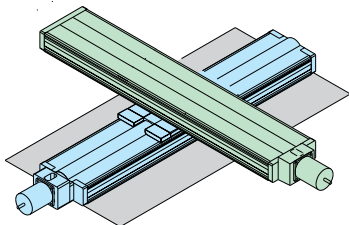


Figure 4
Two Axis-Carriage to Carriage (Y Axis Inverted)

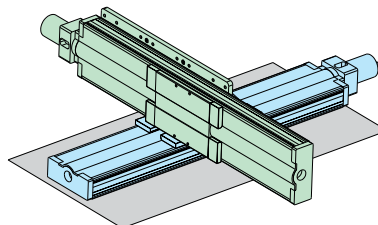


Figure 5
Two Axis (X-Y) Cartesian Horizontal Mounting

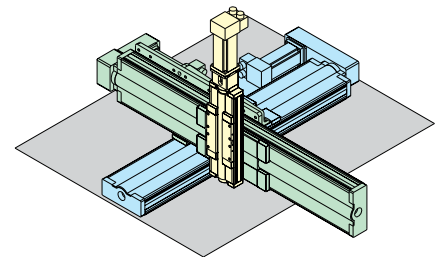


Figure 6
Three Axis (X-Y-Z) Cartesian Horizontal Mounting

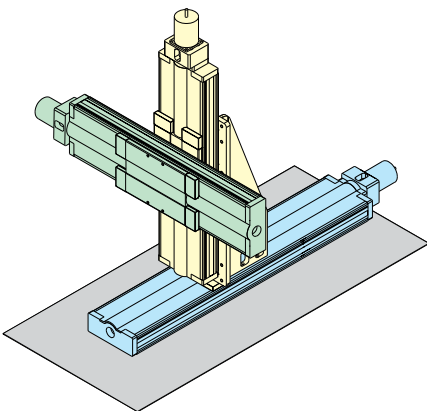


Figure 7
Three Axis (X-Z-Y) Horizontal Mounting

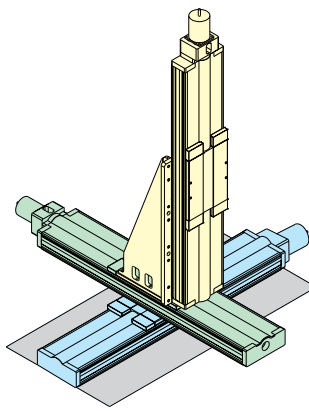


Figure 8
Three Axis (X-Y-Z) Horizontal Mounting

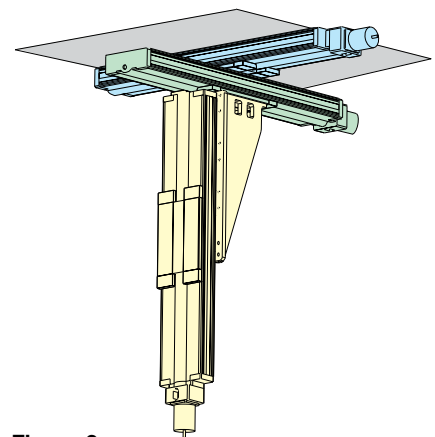


Figure 9
Three Axis (X-Y-Z) Inverted Mounting

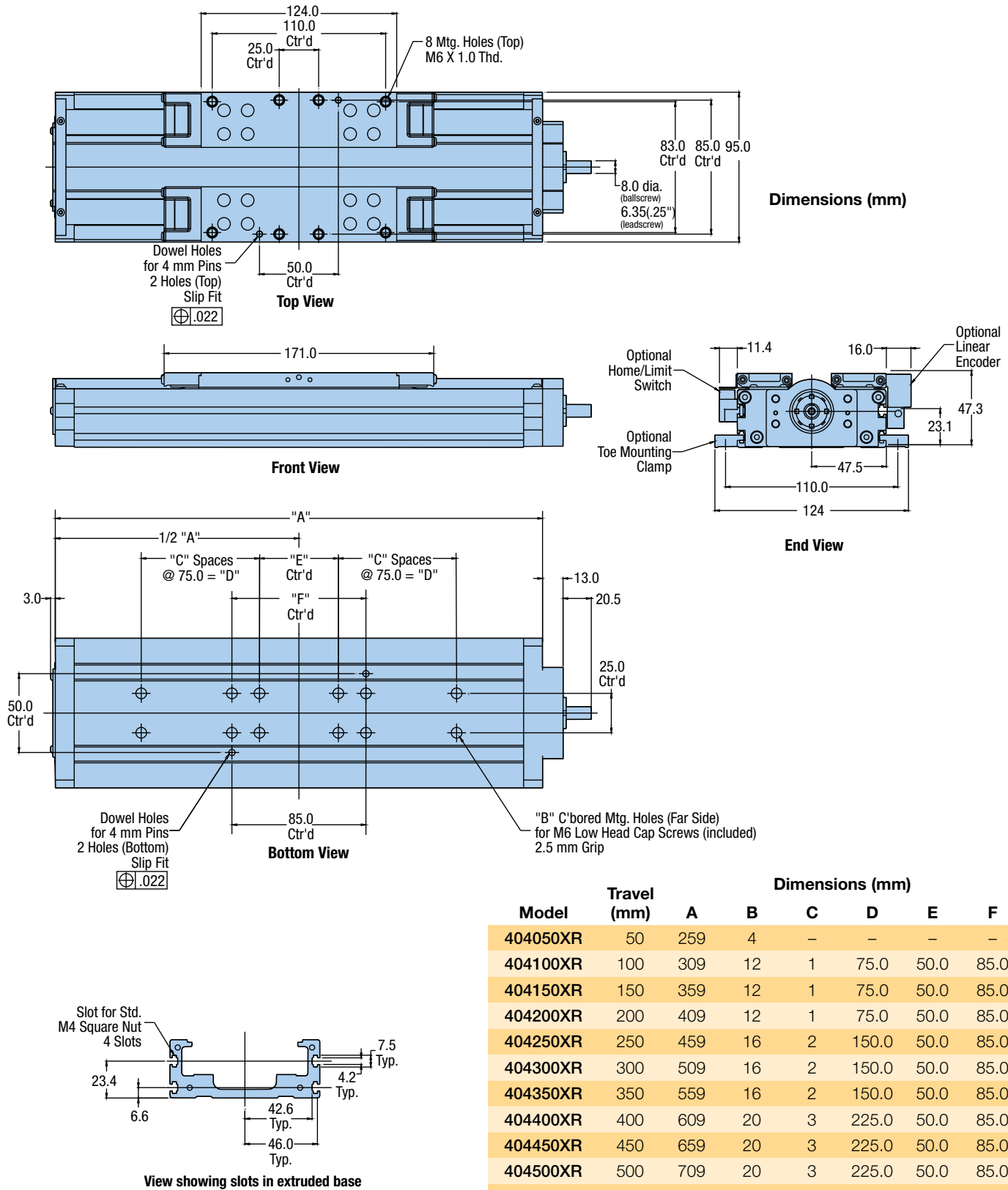
DIMENSIONS

Download 2D & 3D files from
parker.com/emc



DIMENSIONS

404XR Dimensions

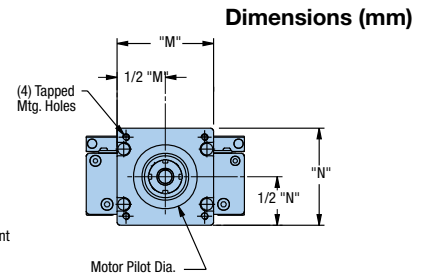
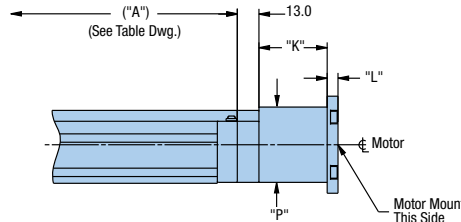


Model	Travel (mm)	Dimensions (mm)					
		A	B	C	D	E	F
404050XR	50	259	4	—	—	—	—
404100XR	100	309	12	1	75.0	50.0	85.0
404150XR	150	359	12	1	75.0	50.0	85.0
404200XR	200	409	12	1	75.0	50.0	85.0
404250XR	250	459	16	2	150.0	50.0	85.0
404300XR	300	509	16	2	150.0	50.0	85.0
404350XR	350	559	16	2	150.0	50.0	85.0
404400XR	400	609	20	3	225.0	50.0	85.0
404450XR	450	659	20	3	225.0	50.0	85.0
404500XR	500	709	20	3	225.0	50.0	85.0
404550XR	550	759	24	4	300.0	50.0	85.0
404600XR	600	809	24	4	300.0	50.0	85.0

404XR Standard In-Line Motor Mounting

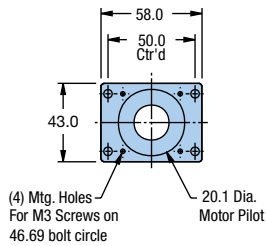
In-line motor mounting allows the motor to be mounted directly to the drive screw via the selected motor coupling.

Used to easily accommodate the mounting of different frame sizes. These adapter plates can be ordered separately by part number below.

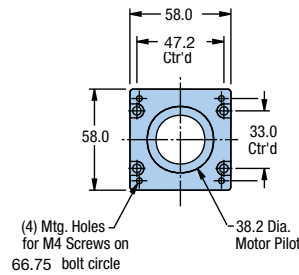


Dimensions (mm)

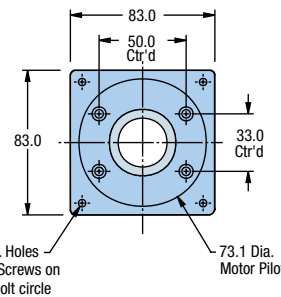
Motor Size	Order Code	Max. Motor Shaft Ø	K	L	M	N	P
SM 16	M2	9.5	41.0	4.3	58.0	43.0	42.7
NEMA 23	M3	9.5	41.0	6.5	58.0	58.0	42.7
NEMA 34	M4	9.5	41.0	12.5	83.0	83.0	42.7
NEO 70	M21	11.0	55.0	—	69.9	69.9	69.9



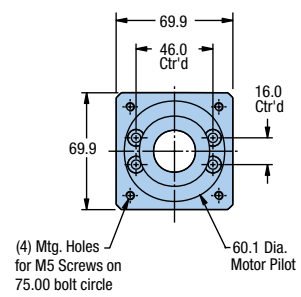
SM 16



NEMA 23



NEMA 34

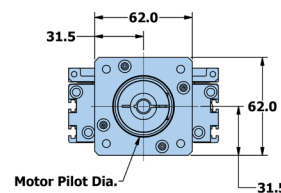
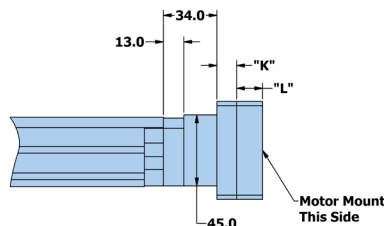


NEOMETRIC 70/SMN060

404XR Universal Motor Mounting

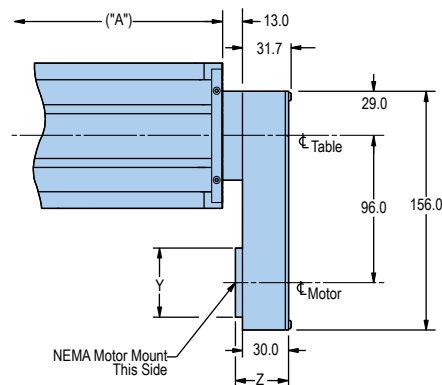
The new Universal Motor Adapter (UMA) makes adapting 3rd party motors to the 404XR easier than ever. The Universal Motor Adapter option allow for the coupling of motor frame sizes from 62 mm on down, accommodating motor shaft diameters up to 16 mm. To determine if a 404XR has a mount to your preferred motor please visit parker.com/emc, navigate to the 404XR, and launch the online eConfigurator (note that these adapter kits establish fit to the actuator only, proper actuator sizing should still be conducted to ensure application performance).

Coupling Style	"K"	Motor Shaft Length	"L"
Oldham	12.5	16 – 35	16.5
Bellows	12.5	35.1 – 41	22.5

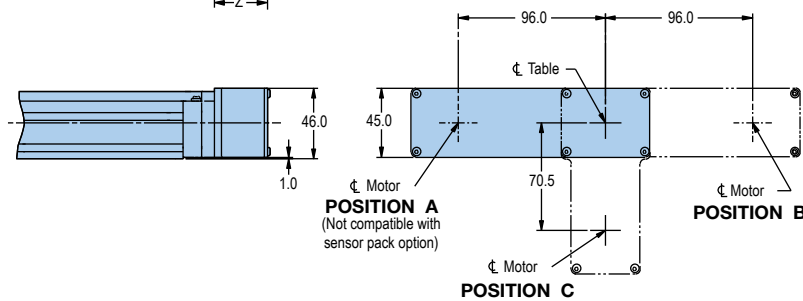


404XR Parallel Motor Mounting

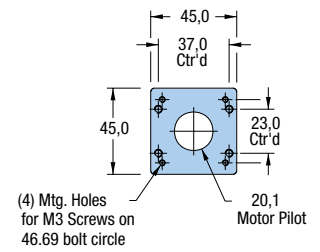
Parallel motor mounting is employed whenever a shorter overall unit length is needed. The motor is positioned along the sides or bottom of the table as designated by position A, B, or C. (No coupling required.)



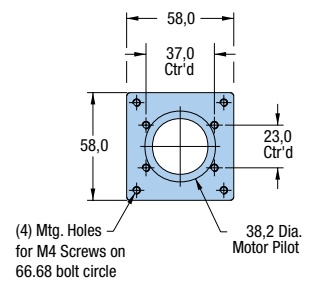
Dimensions			
Motor Size	Y (mm)	Z (mm)	Motor Shaft Ø
SM 16	45.0	34.5	0.250"
SM 23/BE 23	58.0	34.5	0.375"
NEMA 23	58.0	34.5	0.250"



SM 16



NEMA 23



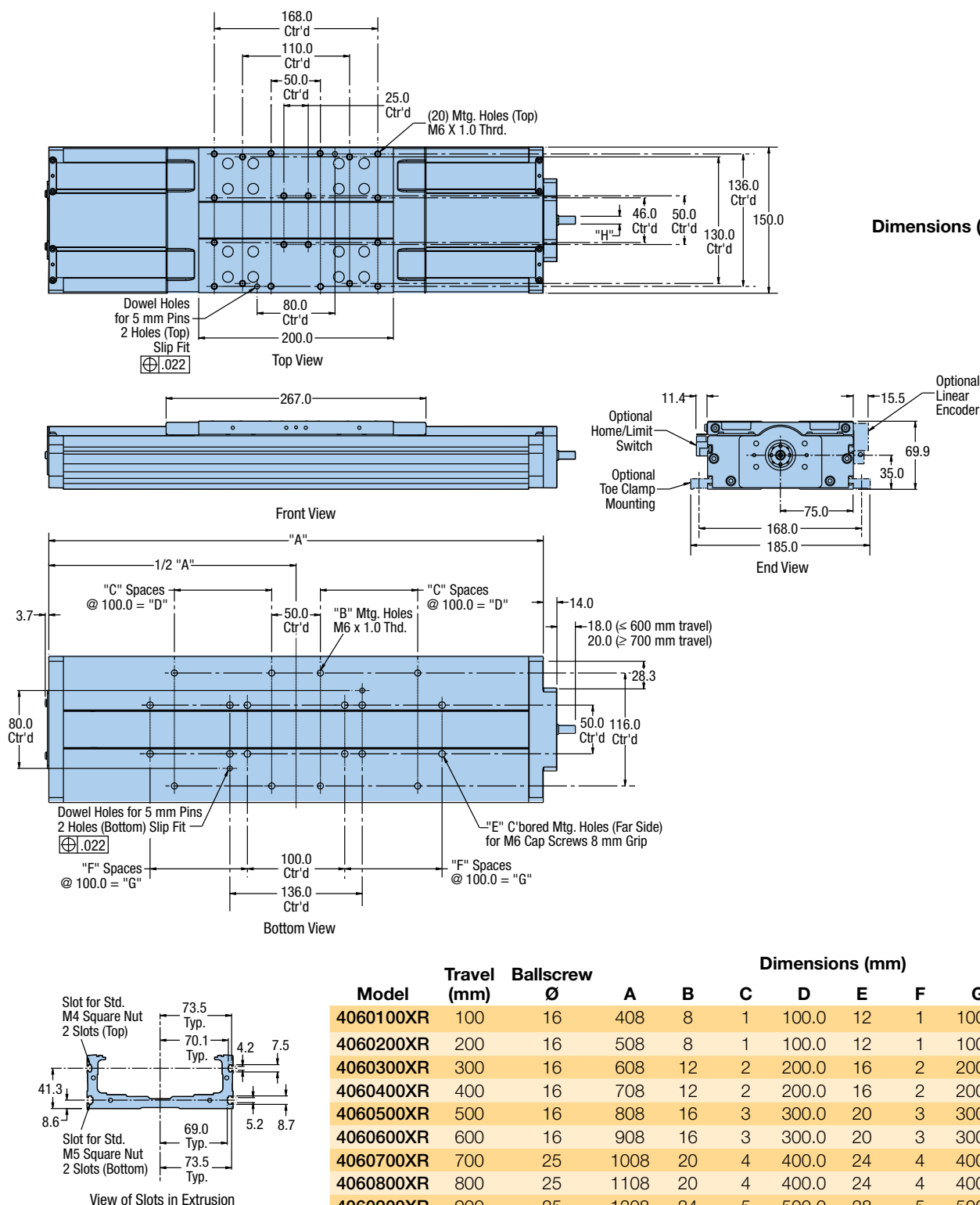
Free sizing and selection support
from Virtual Engineer at
virtualengineer.com





406XR Dimensions

Dimensions (mm)

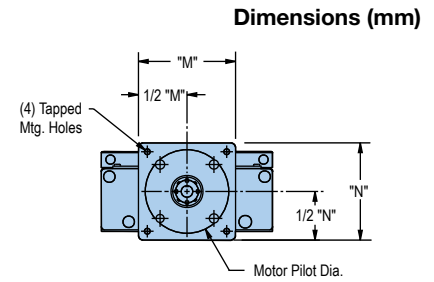
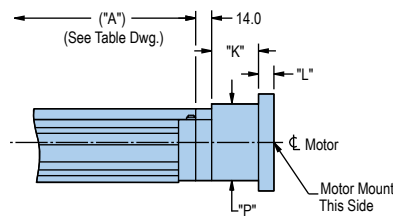


Model	Travel (mm)	Ballscrew Ø	Dimensions (mm)							
			A	B	C	D	E	F	G	H
4060100XR	100	16	408	8	1	100.0	12	1	100.0	8.0
4060200XR	200	16	508	8	1	100.0	12	1	100.0	8.0
4060300XR	300	16	608	12	2	200.0	16	2	200.0	8.0
4060400XR	400	16	708	12	2	200.0	16	2	200.0	8.0
4060500XR	500	16	808	16	3	300.0	20	3	300.0	8.0
4060600XR	600	16	908	16	3	300.0	20	3	300.0	8.0
4060700XR	700	25	1008	20	4	400.0	24	4	400.0	10.0
4060800XR	800	25	1108	20	4	400.0	24	4	400.0	10.0
4060900XR	900	25	1208	24	5	500.0	28	5	500.0	10.0
4061000XR	1000	25	1308	24	5	500.0	28	5	500.0	10.0
4061250XR	1250	25	1558	32	7	700.0	32	6	600.0	10.0
4061500XR	1500	25	1808	36	8	800.0	40	8	800.0	10.0
4061750XR	1750	25	2058	40	9	900.0	44	9	900.0	10.0
4062000XR	2050	25	2308	44	10	1000.0	48	10	1000.0	10.0

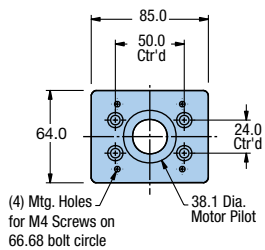
406XR In-Line Motor Mounting

In-line motor mounting allows the motor to be mounted directly to the drive screw via the selected motor coupling.

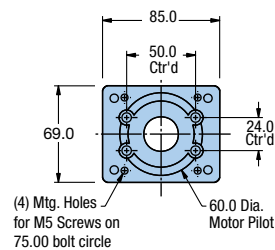
Used to easily accommodate the mounting of different frame sizes. These adapter plates can be ordered separately by part number below.



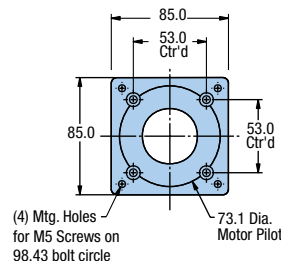
Motor Size	Order Code	Max. Motor Shaft Ø	K	L	M	N	P
MPP092	M90	16.0	53.0	12.5	92.0	92.0	69.0
NEMA 23/SM 23	M3	9.5	41.0	—	85.0	64.0	64.0
NEMA 34	M4	16.0	53.0	13.5	85.0	85.0	69.0
NEO 34	M17	16.0	53.0	13.5	85.0	85.0	69.0
NEO 70	M21	16.0	53.0	—	85.0	69.0	69.0
NEO 92	M29	16.0	53.0	12.5	92.0	92.0	69.0



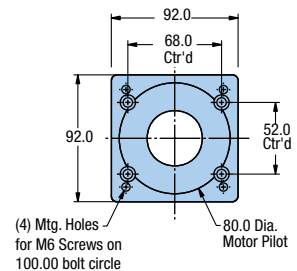
NEMA 23 or SM 23



NEO 70 / SMN060



NEMA 34 or NEO 34

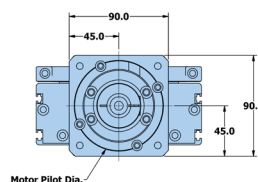
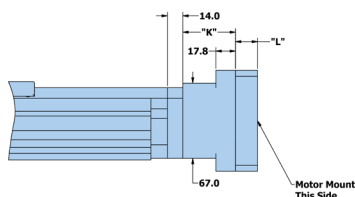


MPP092

406XR Universal Motor Mounting

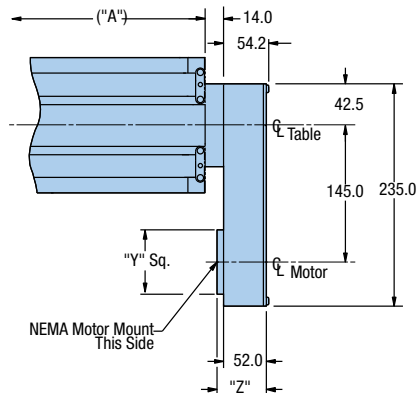
The new Universal Motor Adapter (UMA) makes adapting 3rd party motors to the 406XR easier than ever. The Universal Motor Adapter option allow for the coupling of motor frame sizes from 90 mm on down, accommodating motor shaft diameters up to 20.5 mm. To determine if a 406XR has a mount to your preferred motor please visit parker.com/emc, navigate to the 406XR, and launch the online eConfigurator (note that these adapter kits establish fit to the actuator only, proper actuator sizing should still be conducted to ensure application performance).

Coupling Style	"K"	Motor Shaft Length	"L"
Oldham	35.8	20 – 40	20.0
Bellows	47.8	40.1 – 28.5	28.5

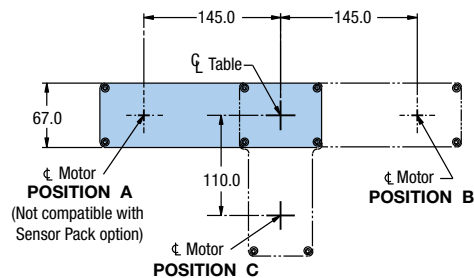
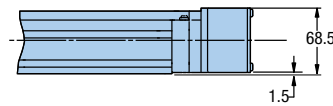


406XR Parallel Motor Mounting

Parallel motor mounting is employed whenever a shorter overall unit length is needed. The motor is positioned along the sides or bottom of the table as designated by position A, B, or C. (No coupling required.)



MPP092	92.0	65.7	16.0 mm
NEMA 34	83.0	62.0	0.375"
NEO 34	83.0	62.0	0.500"
NEO 70	70.0	60.0	11.0 mm
SM23/BE23	70.0	57.5	0.375"



Free sizing and selection support
from Virtual Engineer at
virtualengineer.com



OPTIONS & ACCESSORIES

OPTIONS & ACCESSORIES

400XR Series Options

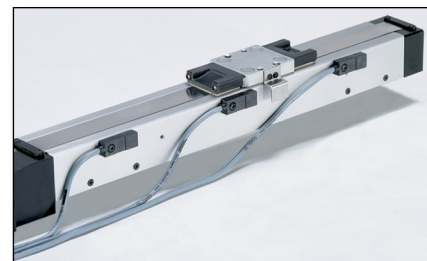
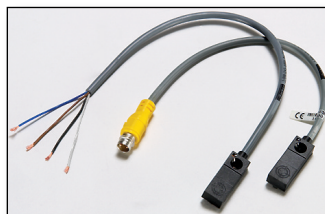
Home or Limit Sensor Options

End of Travel and Home Sensors for the 400XR series are available in a variety of styles. The sensors can be ordered as part of the table or as separate components with the associated mounting hardware or in an enclosed sensor pack. A 5 meter high-flex extension cable (Part No. 003-2918-01) is included for use with the 401XR thru 406XR models having the locking connector option.

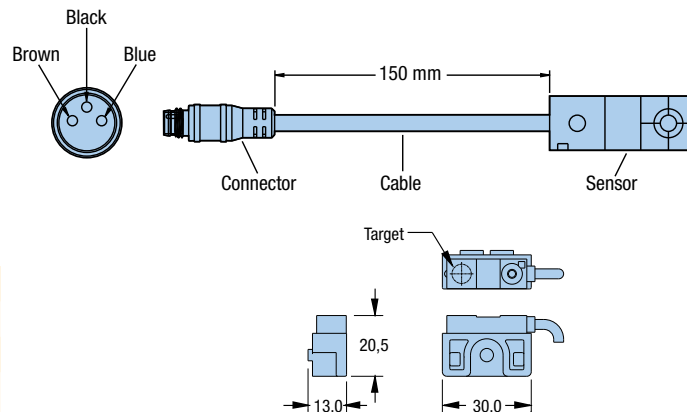
- NPN (Sinking) or PNP (Sourcing)
- Normally Closed (N.C.) or Normally Open (N.O.)
- Flying Leads or Locking Connector

Specifications

Input Power	5-30 VDC, 20 mA
Output	100mA max
Wire Color	(+) Supply: Brown
	(-) Supply: Blue
Code	NO Output: Black
	NC Output: White



401XR Limits and Home Sensor

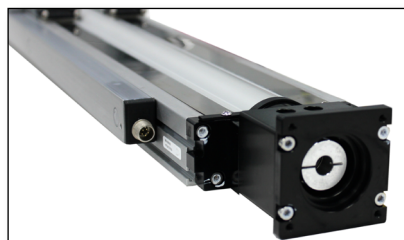


Sensor / Bracket Detail

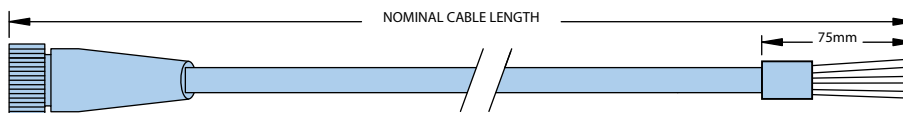
Order Code	Part Number*	Switch Type	Logic	Cable Length	Connector Option
H2 or L2	006-1639-01	N.C.	Sinking	3.0 m	Flying Leads
H3 or L3	006-1639-02	N.O.	Sinking	3.0 m	Flying Leads
H4 or L4	006-1639-03	N.C.	Sourcing	3.0 m	Flying Leads
H5 or L5	006-1639-04	N.O.	Sourcing	3.0 m	Flying Leads
H6 or L6	006-1639-09	N.C.	Sinking	150 mm	Locking Connector
H7 or L7	006-1639-08	N.O.	Sinking	150 mm	Locking Connector
H8 or L8	006-1639-11	N.C.	Sourcing	150 mm	Locking Connector
H9 or L9	006-1639-10	N.O.	Sourcing	150 mm	Locking Connector
H11 or L11	See chart below	N.C.	Sinking	See chart below	Sensor Pack
H12 or L12	See chart below	N.O.	Sinking	See chart below	Sensor Pack
H13 or L13	See chart below	N.C.	Sourcing	See chart below	Sensor Pack
H14 or L14	See chart below	N.O.	Sourcing	See chart below	Sensor Pack

* Applies to 401XR thru 406XR models. 412XR models have limits and homes internally mounted with a connector termination. Sensor triggers (targets) ordered separately.

Sensor Pack Cable



406XR with Limit and Home Sensor Pack

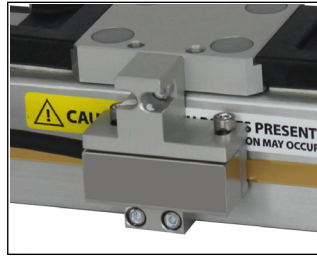


Description	Part Number	Wire Color	Function	Pin Number
3 Meters	006-1742-01	Red	+5 to +24 VDC	A
7.5 Meters	006-1742-02	Blue	Limit 1 (LXR -)	B
		Orange	Limit 2 (LXR +)	C
		Green	Home	D
		Black	Ground	E
		Green/Yellow	Shield	Shield Case

Linear Encoder Options (Tape Scale)

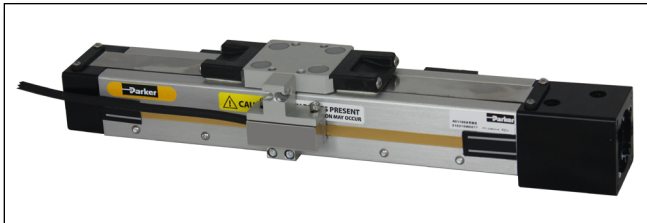
A linear position feedback device which mounts directly to the table carriage. (Factory installation required.)

- 1.0 μm resolution
- 0.5 μm resolution
- 0.1 μm resolution



Specifications

Input Power	5 VDC, 150mA
Output	A/B quadrature and reference mark, differential line drive output
Resolution	1.0, 0.5, 0.1 micron
Cable Length	3 m

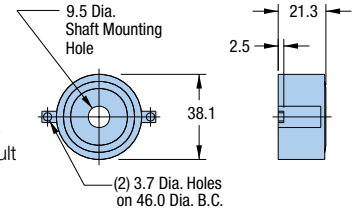


401XR with Linear Encoder
plus Sensor Pack

Rotary Encoder Option

Modular rotary encoder couples directly to the drive screw for position feedback and is easily field installed. The rotary encoder cannot be installed with the brake assembly option.

- 5000 counts/rev



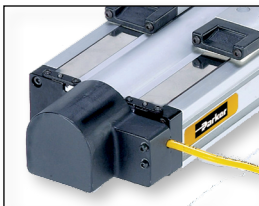
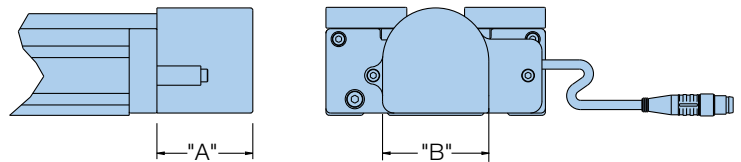
Note: Dimensions shown apply to 404XR and 406XR models. Consult factory for 412XR dimensions.

Specifications

Input Power	5 VDC, 135 mA
Output	A/B quadrature and reference mark, differential line drive output
Resolution	1250 lines/rev equals 5000 counts post quadrature (1 μm with 5 mm lead ballscrew)
Cable Length	150 mm

Brake Assembly Option

Electromagnetic brake assembly is used to prevent “backdriving” in vertical applications. The brake option includes a 5 meter extension cable. The brake option is easily field installed. The brake option cannot be installed with the rotary encoder option.



404XR with Brake
Option

Table Series	Part Number	Input Power	Holding Torque	Dimensions (mm)	
				A	B
404XR	006-1627-01	24 VDC, 0.46 A	2.0 Nm	41.5	46.0
406XR	006-1656-01	24 VDC, 0.5 A	4.5 Nm	49.9	57.5

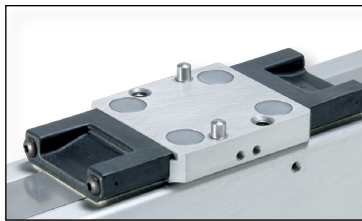
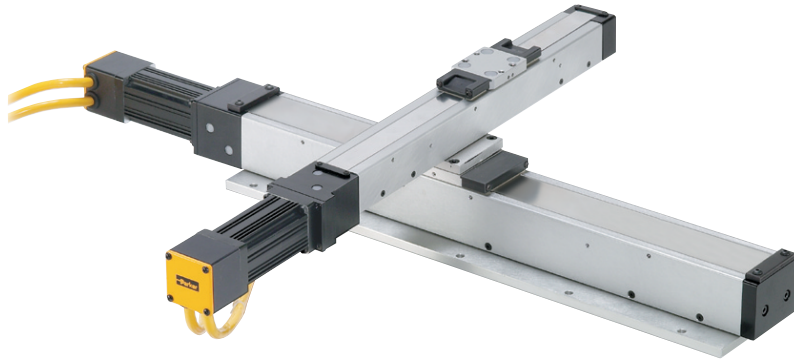
Dowel Pinning Options*

Standard dowel pin locating holes are offered on most 400XR units to facilitate repeatable mounting of tooling or payload.*

In addition, pinning options are offered for precise orthogonal mounting of the second axis in a multi-axis system. In this case, the bottom side of the table base is match drilled and reamed to the first axis to provide exact orthogonal location.

This convenient option eliminates concerns regarding contamination or damage often associated with machining for locating pins in an assembled unit.

*Not available with 401XR or 402XR or 50 mm travel 404XR.



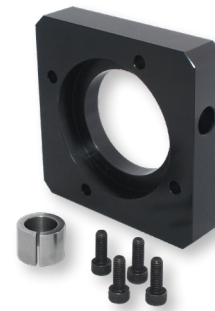
Two locating dowel pins shown in carriage of a 401XR.

Standard pinning of XY axes will achieve 125 arc-sec of orthogonality. Through transfer pinning, 30 arc-sec is achievable. For high degrees of orthogonality consult the factory.



400XR Universal Motor Adapter (inline only)

The UMA is designed to make it easier than ever for our machine designers to specify their linear stage with whatever motor they'd like, while avoiding the often drawn out "customization" process.



Quick Motor Integration

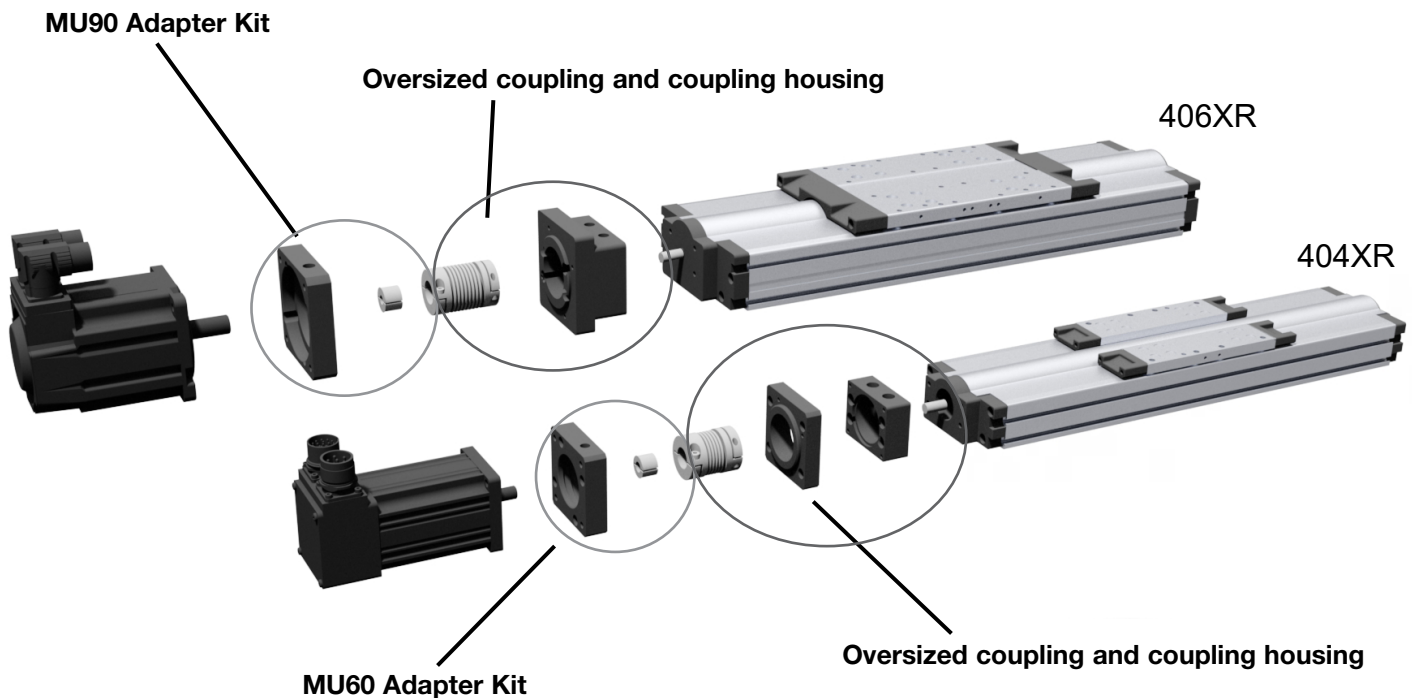
The Universal Motor Adapter (UMA) is an innovative motor mount component that allows for simple configuration of the 404XR or 406XR to a variety of servo or steppers from a plethora of manufacturers. Utilizing a vast database of motor mounting flanges, the UMA allows for rapid integration of hundreds of motors from numerous manufacturers.

Convenient Ordering

For customers choosing to mount a third party, non-Parker motor, the UMA alleviates the hassle and lead time of having to create a "customized" motor mount. Typically, designers would have to place an additional custom motor request for a specific mount, but now designers can simply configure the motor manufacturer right into the XR part number

Easy Selection with Our Online e-Configurator

Now with the UMA, you can easily choose the right option for your motor through our online e-Configurator, saving time and money. With the UMA integrated into the e-Configurator, simply selecting the desired motor manufacturer and model type will configure the actuator with the appropriate selected motor.



How to Order the Right Motor Mount

Motor mount configuration to 3rd party motors is now easier than ever through use of the universal motor adapter (UMA), and our online product configuration tool. Consult the online e-Configurator for a complete listing of supported motors.

If you do not find a specific motor you would like use in your application, please call our application's team at 1-800-358-9070.

STEP 1
In order to specify a 404 or 406 XR with a third party motor mount, launch the online configurator tool from **parker.com/emc** for the appropriate 404 or 406 XR.

Parker eConfigurator™: 404XR

Product Number__Options 4 0 4 3 0 0 X R M S ☐ D 2 H 1 L 1 R 1

Select Attributes

SERIES: 404

TABLE TRAVEL: 300mm

MODEL: XR - Square Rail Positioner

MOUNTING (METRIC): M

GRADE: S - Standard

DRIVE SCREW: D2 - 5mm Ballscrew

HOME SENSOR: H1 - No Home Sensor

LIMIT SENSORS: L1 - No Limit Sensors

ENVIRONMENTAL: R1 - Class 1000 Compatible

MOTOR MOUNT TYPE: -- Please Select One --

STEP 2
Configure the XR with all desired options and then specify the motor mount type. Select Standard for Parker motors or Universal for other motors.

-- Please Select One --
Standard (M*)
Universal (U*)

STEP 3
Select the motor manufacturer.

Panasonic
Parker Europe
Parker North America
Parker SSD
Pittman
Schunk

STEP 4
After motor manufacturer, choose the exact motor series from that manufacturer. This will automatically select the appropriate motor mount for the 400 XR stage.

-- Please Select One --
N034
N070
N092
OS21 or OS22 or OS2H
PM-FAL
PM-FBL
PX60
S57 Series

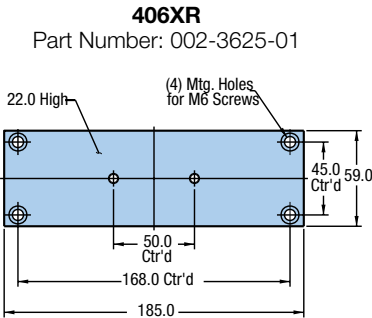
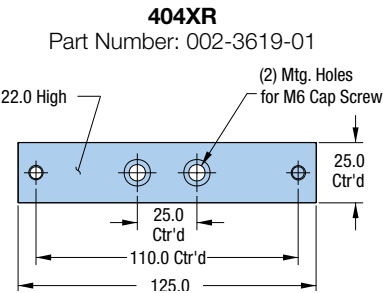
STEP 5
Finally, select from either Bellows or Oldham style coupling options.

-- Please Select One --
BW - Bellows
OH - Oldham

Riser Plate Accessory

Used to raise the table base to provide clearance for motors.

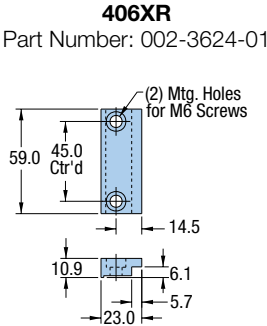
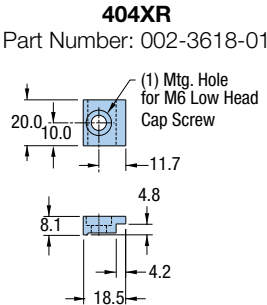
Model	Part Number
404XR	002-3619-01
406XR	002-3625-01



Toe Clamp Accessory

Used for convenient outboard mounting of table to a base plate, riser plates, Z-axis bracket, or other 400XR table. All hardware is included.

Model	Part Number
404XR	002-3618-01
406XR	002-3624-01



404XR

Fill in an order code from each of the numbered fields to create a complete model order code.

Order Example:

404 450 XR M S – D3 H4 L2 C3 M4 E1 B1 R1 P1

Series

404

Travel – mm *

050	50 (no pinning available)
100	100
150	150
200	200
250	250
300	300
350	350
400	400
450	450
500	500
550	550
600	600

Model

XR Linear Table

Mounting

M Metric

Grade

S Standard
P Precision (only available with D2, D3, screws)

Drive Screw

D1	Free Travel
D2	5 mm Ballscrew
D3	10 mm Ballscrew
D4	20 mm Ballscrew (standard grade only)

Home Sensor Assembly (one sensor)

H1	None-Free Travel (only)
H2	N.C. Current Sinking Flying Leads
H3	N.O. Current Sinking Flying Leads
H4	N.C. Current Sourcing Flying Leads
H5	N.O. Current Sourcing Flying Leads
H6	N.C. Current Sinking Locking Connector*
H7	N.O. Current Sinking Locking Connector*
H8	N.C. Current Sourcing Locking Connector*
H9	N.O. Current Sourcing Locking Connector*
H11	N.C. Current Sinking Sensor Pack**
H12	N.O. Current Sinking Sensor Pack**
H13	N.C. Current Sourcing Sensor Pack**
H14	N.O. Current Sourcing Sensor Pack**

Travel Limit Sensor Assembly (two sensors)

L1	None-Free Travel (only)
L2	N.C. Current Sinking Flying Leads
L3	N.O. Current Sinking Flying Leads
L4	N.C. Current Sourcing Flying Leads
L5	N.O. Current Sourcing Flying Leads
L6	N.C. Current Sinking w/Locking Connector*
L7	N.O. Current Sinking w/Locking Connector*
L8	N.C. Current Sourcing w/Locking Connector*
L9	N.O. Current Sourcing w/Locking Connector*
L11	N.C. Current Sinking Sensor Pack**
L12	N.O. Current Sinking Sensor Pack**
L13	N.C. Current Sourcing Sensor Pack**
L14	N.O. Current Sourcing Sensor Pack**

Motor Interface Option

- Standard Parker Motor Adapters (go to Standard Parker options in **blue**)

–OR–

- Universal Motor Adapter for other motors (go to Universal Motor Adapter in **grey**)

Motor Coupling**Standard Parker Motor Adapters**

C1	No Coupling (required for parallel mounting)
C2	0.250" Oldham
C3	0.250" Bellows (required for precision grade)
C4	0.375" Oldham
C5	0.375" Bellows (required for precision grade)
C6	11 mm Oldham
C7	11 mm Bellows (required for precision grade)
C10	14 mm Oldham (M75 motor option)
C11	14 mm Bellows (M75 motor option)
C22	9 mm Oldham
C23	9 mm Bellows
C24	5 mm Oldham (M37 motor option)
C25	5 mm Bellows (M37 motor option)
C26	8 mm Oldham (M71 motor option)
C27	8 mm Bellows (M71 motor option)
C28	0.1875" Oldham (M37 motor option)
C29	0.1875" Bellows (M37 motor option)

(Motor Coupling continued next page)

* Sensors with locking connector include 5 m extension cable.

** Sensor Pack includes 3 m cable.

Fill in an order code from each of the numbered fields to create a complete model order code.

(Motor Coupling continued)

C30	0.250" Oldham (couplings for leadscrew grade)
C31	0.250" Bellows (couplings for leadscrew grade)
C32	0.375" Oldham (couplings for leadscrew grade)
C33	0.375" Bellows (couplings for leadscrew grade)
C39	9 mm Bellows (couplings for leadscrew grade)

Motor Mount *

M1	No Motor Mount
M2	SM 16 In-Line Mounting
M3	NEMA 23 & SM 23 In-Line Mounting
M4	NEMA 34 In-Line Mounting
M5	SM 16 Parallel Mounting, "A" Location*
M6	SM 16 Parallel Mounting, "B" Location*
M7	SM 16 Parallel Mounting, "C" Location*
M8	NEMA 23 Parallel Mounting, "A" Location*
M9	NEMA 23 Parallel Mounting, "B" Location*
M10	NEMA 23 Parallel Mounting, "C" Location*
M11	SM 23 Parallel Mounting, "A" Location*
M12	SM 23 Parallel Mounting, "B" Location*
M13	SM 23 Parallel Mounting, "C" Location*
M21	Neometric 70 In-Line Mounting
M37	NEMA 17 In-Line Mounting
M42	SM232AQ NPSN Servo Motor In-Line Mounting
M46	HV232-02-10 Stepper Motor In-Line Mounting
M49	Handcrank without Readout
M50	Handcrank with Readout (0.10" or 1 mm leads only)
M51	HDY55 In-Line Mounting
M61	BE 23 In-Line Mounting
M62	BE 23 Parallel Mounting, "A" Location*
M63	BE 23 Parallel Mounting, "B" Location*
M64	BE 23 Parallel Mounting, "C" Location*
M71	PM-FAL In-Line Mounting
M72	PM-FAL In-Line Mounting, "A" Location*
M73	PM-FAL In-Line Mounting, "B" Location*
M74	PM-FAL In-Line Mounting, "C" Location*
M75	PM-FBL In-Line Mounting

* See 404XR dimensions for maximum allowable motor shaft diameter. Parallel motor mounts not available with leadscrew drives.

Continue to step for Encoders in the order process.

Motor Coupling

BW	Bellows coupling option
OH	Oldham coupling option

Motor Mount

U###	Consult the online eConfigurator at parker.com/emc to create a complete part number for the desired 404XR with motor mounting to a 3 rd party motor. For more details on how to use the online configurator, see "How to Order the Right Motor Mount" in this product catalog
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Universal Motor Adapter

Encoder Option

E1	No Encoder
E2	1.0 μ m Resolution Linear Encoder (tape scale)
E3	0.5 μ m Resolution Linear Encoder (tape scale)
E4	0.1 μ m Resolution Linear Encoder (tape scale)
E5	Rotary Shaft Encoder (not available with brake)

Brake Option

B1	No Brake
B2	Shaft Brake (Refer to 404XR holding torque specifications to confirm maximum load. Not available with rotary encoder)

Cleanroom Preparation

R1	Standard Environment
R2	Class 10 Compatible (consult factory)
R5	Standard Environment with Easy Lube System †

Pinning Option *

P1	No multi-axis pinning
P2***	X axis transfer pinning to Y or Z axis - 30 arc-sec **
P3***	Y axis transfer pinning to X axis - 30 arc-sec
P4***	Z axis transfer pinning to X axis - 30 arc-sec
P5***	X axis transfer pinning to Y axis - 125 arc-sec
P6***	Y axis transfer pinning to X axis - 125 arc-sec

† Sensor pack options L11-L14 cannot be ordered with R5 option on 404XR. Linear encoder options E2-E4 cannot be ordered with R5 option on 404XR. R5 option not available for 50mm travel 404XR units. Consult factory if required.

* Pinning option is for pinning to other 404XR and 406XR tables. Transfer pinning is not available on some XR to LXR models. Contact factory for more information. Pinning XY orientation standard with Y motor at 3 o'clock position.

** Z pinning uses bracket (see figures 7, 8 and 9 in "400XR Multi Axis Configurations")

***Consult factory for multi-axis pinning options and quotation

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406XR

Fill in an order code from each of the numbered fields to create a complete model order code.

Order Example: 406 900 XR M S - D3 H4 L1 C7 M4 E1 B1 R1 P1

Series

406

Travel – mm *

100	100
200	200
300	300
400	400
500	500
600	600
700	700
800	800
900	900
1000	1000
1250	1250
1500	1500
1750	1750
2000	2000

Model

XR Linear Table

Mounting

M Metric

Grade *

S Standard
P Precision

Drive Screw *

D1	Free Travel
D2	5 mm Ballscrew
D3	10 mm Ballscrew
D4	20 mm Ballscrew
D5	25 mm Ballscrew

Home Sensor Assembly (one sensor)

H1	None
H2	N.C. Current Sinking Flying Leads
H3	N.O. Current Sinking Flying Leads
H4	N.C. Current Sourcing Flying Leads
H5	N.O. Current Sourcing Flying Leads
H6	N.C. Current Sinking Locking Connector**
H7	N.O. Current Sinking Locking Connector**
H8	N.C. Current Sourcing Locking Connector**
H9	N.O. Current Sourcing Locking Connector**
H11	N.C. Current Sinking Sensor Pack***
H12	N.O. Current Sinking Sensor Pack***
H13	N.C. Current Sourcing Sensor Pack***
H14	N.O. Current Sourcing Sensor Pack***

Travel Limit Sensor Assembly (two sensors)

L1	None
L2	N.C. Current Sinking Flying Leads
L3	N.O. Current Sinking Flying Leads
L4	N.C. Current Sourcing Flying Leads
L5	N.O. Current Sourcing Flying Leads
L6	N.C. Current Sinking w/Locking Connector**
L7	N.O. Current Sinking w/Locking Connector**
L8	N.C. Current Sourcing w/Locking Connector**
L9	N.O. Current Sourcing w/Locking Connector**
L11	N.C. Current Sinking Sensor Pack ***
L12	N.O. Current Sinking Sensor Pack***
L13	N.C. Current Sourcing Sensor Pack***
L14	N.O. Current Sourcing Sensor Pack ***

*** Drive Screw Lead Availability**

Travel	Precision Grade		Standard Grade			
	5 mm	10 mm	5 mm	10 mm	20 mm	25 mm
100	•	•	•	•	•	
200	•	•	•	•	•	
400	•	•	•	•	•	
400	•	•	•	•	•	
500	•	•	•	•	•	
600	•	•	•	•	•	
700			•	•		•
800			•	•		•
900			•	•		•
1000			•	•		•
1250			•	•		•
1500			•	•		•
1750			•	•		•
2000			•	•		•

** Sensors with locking connector include 5 m extension cable.

*** Sensor Pack includes 3 m cable.

Motor Interface Option

- Standard Parker Motor Adapters (go to Standard Parker options in **blue**)

–OR–

- Universal Motor Adapter for other motors (go to Universal Motor Adapter in **grey**)

Motor Coupling

C1	No Coupling (required for parallel mounting)
C2	0.250" Oldham
C3	0.250" Bellows (required for precision grade)
C4	0.375" Oldham
C5	0.375" Bellows (required for precision grade)
C6	11 mm Oldham
C7	11 mm Bellows (required for precision grade)
C8	0.500" Oldham
C9	0.500" Bellows (required for precision grade)
C10	14 mm Oldham
C11	14 mm Bellows (required for precision grade)
C12	16 mm Oldham
C13	16 mm Bellows (required for precision grade)

Motor Mount *

M1	No Motor Mount
M3	NEMA 23 & SM 23 In-Line Mounting
M4	NEMA 34 In-Line Mounting
M11	SM 23 Parallel Mounting, "A" Location*
M12	SM 23 Parallel Mounting, "B" Location*
M13	SM 23 Parallel Mounting, "C" Location*
M14	NEMA 34 Parallel Mounting, "A" Location
M15	NEMA 34 Parallel Mounting, "B" Location
M16	NEMA 34 Parallel Mounting, "C" Location
M17	Neometric 34 In-Line Mounting
M18	Neometric 34 Parallel Mounting, "A" Location
M19	Neometric 34 Parallel Mounting, "B" Location
M20	Neometric 34 Parallel Mounting, "C" Location
M21	Neometric 70 In-Line Mounting
M22	Neometric 70 Parallel Mounting, "A" Location
M23	Neometric 70 Parallel Mounting, "B" Location
M24	Neometric 70 Parallel Mounting, "C" Location
M29	Neometric 92 In-Line Mounting
M61	BE 23 In-Line Mounting
M62	BE 23 Parallel Mounting, "A" Location
M63	BE 23 Parallel Mounting, "B" Location
M64	BE 23 Parallel Mounting, "C" Location
M75	PM-FBL In-Line Mounting
M90	MPP092 In-Line Mounting
M91	MPP092 Parallel Mounting, "A" Location
M92	MPP092 Parallel Mounting, "B" Location
M93	MPP092 Parallel Mounting, "C" Location

* See 406XR dimensions for maximum allowable motor shaft diameter. SM 23 parallel motor mounts not available with leadscrew drives.

Continue to step for Encoders in the order process.

Motor Coupling

BW	Bellows coupling option
OH	Oldham coupling option

Motor Mount

U### Consult the online eConfigurator at **parker.com/emc** to create a complete part number for the desired 404XR with motor mounting to a 3rd party motor. For more details on how to use the online configurator, see "How to Order the Right Motor Mount" in this product catalog.

Encoder Option

E1	No Encoder
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E3	0.5 µm Resolution Linear Encoder (tape scale)
E4	0.1 µm Resolution Linear Encoder (tape scale)
E5	Rotary Shaft Encoder (not available with brake)

Brake Option

B1	No Brake
B2	Shaft Brake (Refer to 406XR holding torque specifications to confirm maximum load. Not available with rotary encoder)

Cleanroom Preparation

R1	Standard Environment
R2	Class 10 Compatible (consult factory)
R5	Standard Environment with Easy Lube System †

Pinning Option *

P1	No multi-axis pinning
P2***	X axis transfer pinning to Y or Z axis - 30 arc-sec **
P3***	Y axis transfer pinning to X axis - 30 arc-sec
P4***	Z axis transfer pinning to X axis - 30 arc-sec

† Please consult factory if selecting option R5.

* Pinning option is for pinning to other 404XR and 406XR tables. Transfer pinning is not available on some XR to LXR models. Contact factory for more information. Pinning XY orientation standard with Y motor at 3 o'clock position.

** Z pinning uses bracket (see figures 7, 8 and 9 in "400XR Multi Axis Configurations")

***Consult factory for multi-axis pinning options and quotation

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