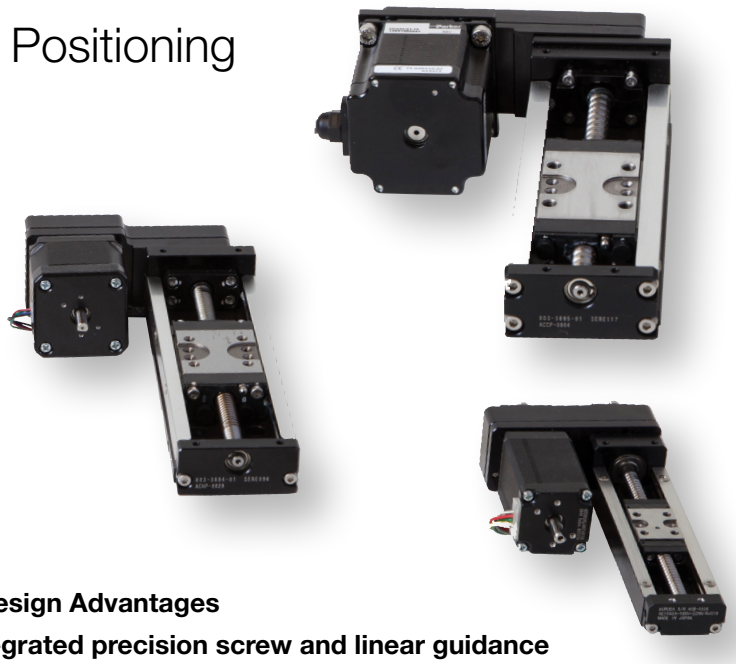
XE Series Positioners

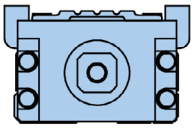
Dependable, Cost-Effective Positioning

- **Integrated bearing and carriage assembly**
- **Rigid U-channel, steel body**
- **High force per dollar value**
- **Easily adapted into multi-axis configuration**
- **Small package size as compared to actuators with separate bearing arrangements**

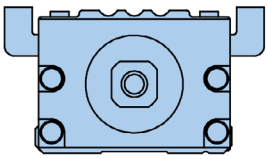


Key Design Advantages

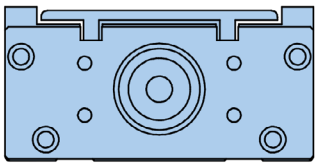
- **Integrated precision screw and linear guidance**
- **Flexible motor mounting options**
- **Rigid steel U-Channel body**
- **Packaged adjustable limit sensors**
- **Precision ballscrew drive train**



401XE



402XE



403XE

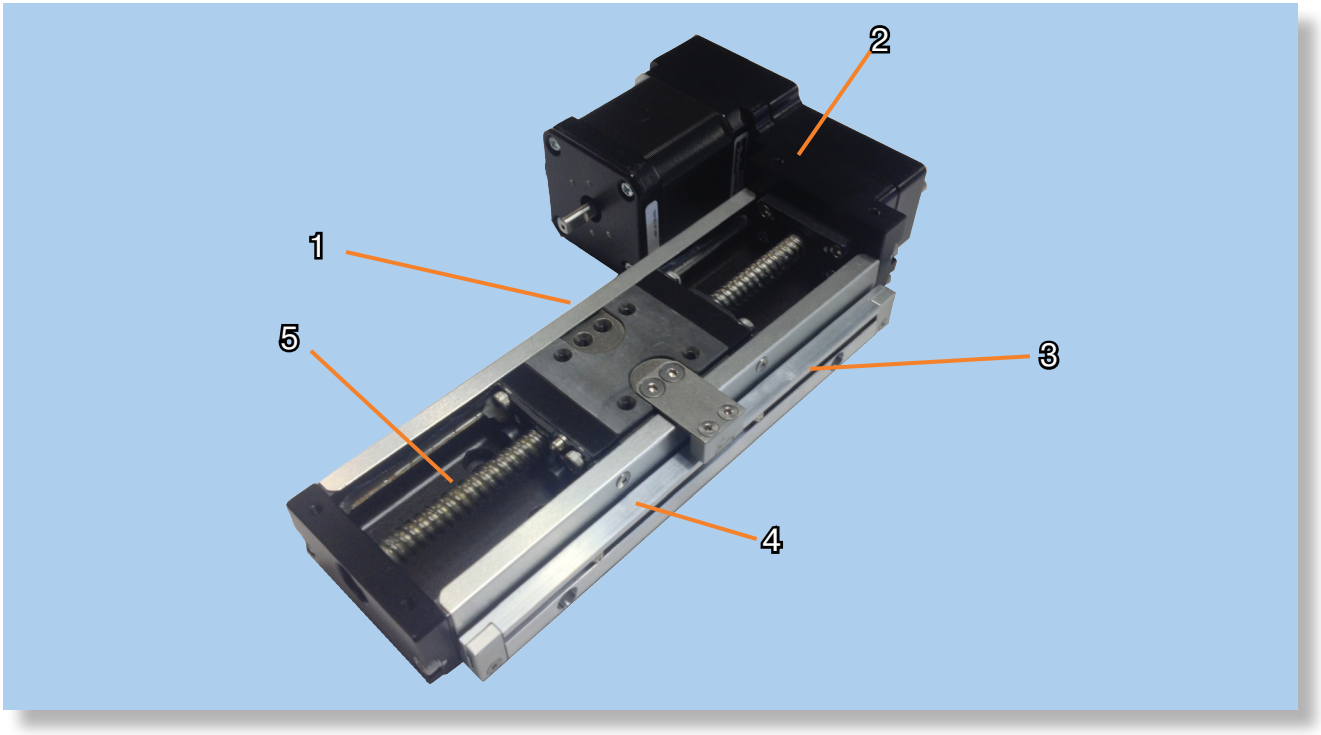
	401XE	402XE	403XE
Maximum Travel (mm)	160	220	655
Maximum Payload (N)	156	882	1,569
Maximum Acceleration (m/s²)	20	20	20

Parker's XE series, mono-carrier style linear positioners combine a rugged steel body with an integrated precision ball screw and bearing guide – producing a highly accurate, cost-effective line of linear positioners.

The XE series is the ideal linear positioner for applications in the manufacturing of electronics, semi-conductors, or life science applications requiring high precision, long life and compact packaging.

OEM's looking to produce machines that position moderate payloads with tight space constraints should look no further than the XE series of linear positioners. The XE series has superior load-life characteristics

The XE Series offers complete flexibility, from motor-mounting options to cleanroom compatibility and a variety of offerings in between. Whether the application calls for a hardcover protection for the linear guide, cleanroom compatible solutions, custom motors mounted at the factory, or an aesthetically appealing engineered limit sensor package, the 401/402/403XE can be customized to fit the task at hand. when compared to a lead screw driven positioner in similar packaging. The mono-carrier style arrangement of the XE series gives it the highest payload per packaging of any Parker ball screw driven linear stage.



1 Integrated Precision Screw and Linear Guidance

Bearing provides a low profile, high accuracy, smooth motion, and robust adjustment free design over the life of the actuator.

2 Flexible Motor Mounting Options

Provides a variety of motor drive options, including servo and stepper motors, which can either be mounted inline or parallel to the stage.

3 Rigid Steel U-Channel Body

Provides structural rigidity for minimal deflection. With the steel U channel body and integrated bearing design, the structural rigidity of the 401/402/403XE is significantly stiffer than most aluminum body positioners. The increased stiffness results in reduced overall cost due to the elimination of support structures.

4 Packaged Adjustable Limit Sensors

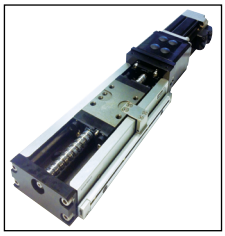
Provide adjustable stroke lengths, easily connected, fewer cables to manage, and no pinch points in an aesthetically pleasing manner.

5 Precision Ballscrew Drive Train

Provides smooth motion with high accuracy and high mechanical efficiency.

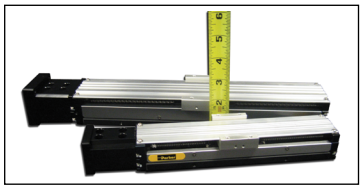
Motor Mounting Flexibility

With standard inline and parallel motor mounting options for the NEMA 11, NEMA 17, NEMA 16, NEMA 23, and other Parker Automation motors, the XE Series allows the user to select the motor of their choice without being restricted to one model. To further customize the application solution, the 401/402/403XE can be ordered ready to mount onto most other manufacturers' motors as well.



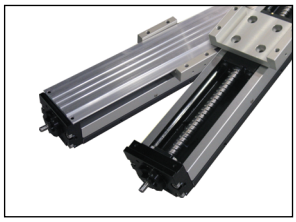
Low-Profile Design

The highly integrated ballscrew and guide bearing design allows for a greatly reduced overall height when compared to traditional stacking of a bearing and screw assembly. This results in a more compact footprint.



Hardcover Protection

or added protection to the bearing system and drive train, an optional hardcover is available. This will bring the positioner to an IP20 rating and prevent large particles from entering and damaging the screw or bearings.



SPECIFICATIONS

The XE series combines a rugged steel body construction with an integrated precision ball screw and bearing guide producing a highly accurate, cost effective line of tables ideal for applications in the hard disk, semiconductor, medical, machine building and many other industries.

		401	402		403	
Series	**Units**	**2 mm lead**	**2 mm lead**	**5 mm lead**	**5 mm lead**	**10 mm lead**
Travel (max)	mm	160	220	220	655	655
Repeatability						
Inline Motor Mount	µm	±10	±5	±5	±5	±5
Parallel Motor Mount		±30	±15	±30	±30	±60
Breakaway Torque	Nm	0.012	0.06	0.06	0.15	0.15
Maximum Input Speed	rev/sec	50	50	50	50	50
Maximum Velocity	mm/sec	100	100	250	250	500
Maximum Load (Normal and Inverted)	kg	16	90	90	160	160
Maximum Moment						
Pitch	Nm	10	46	46	101	101
Yaw		11	51	51	120	120
Roll		28	134	134	260	260
Screw Diameter	mm	6	8	8	10	10
Screw Efficiency						
Inline Motor Mount	%	90	90	90	90	90
Parallel Motor Mount		86	86	86	86	86
Linear Bearing Coefficient of Friction	-	0.01	0.01	0.01	0.01	0.01
Running Torque	Nm	0.011	0.05	0.05	0.1	0.1
Maximum Axial Load	kg	5	13	17	31	27
Moment of Inertia						
I_X of Guide Rail	mm^4	2710	14,400	14,400	38,800	38,800
I_Y of Guide Rail		23,600	137,000	137,000	314,000	314,000
Weight of Carriage	kg	0.05	0.26	0.26	0.3	0.3
Maximum Acceleration	G's	2	2	2	2	2
Rated Duty Cycle	%	100	100	100	100	100

Travel-Dependent Performance Specifications

401 XE

			Travel Length (Order Option Code)		
	Performance Specification	**Units**	**01**	**02**	**03**
2 mm Lead	**Travel**	mm	60	110	160
	Flatness	µm	15	15	15
	Straightness	µm	15	15	15
	Accuracy				
	Inline Motor Mount	µm	65	70	75
	Parallel Motor Mount		95	100	105
	Input Inertia				
	Inline Motor Mount	kg-m^2 x 10^{-6}	0.122	0.171	0.224
	Parallel Motor Mount		0.327	0.376	0.429
	Weight				
	Inline Motor Mount*	kg	0.41	0.49	0.58

* Adding the parallel motor mount option adds 0.08 kg for the NEMA 11 option, and 0.10 kg for the NEMA 17 option.

402 XE

			Travel Length (Order Option Code)			
	Performance Specification	**Units**	**01**	**02**	**03**	**04**
2 mm Lead	**Travel**	mm	70	120	170	220
	Flatness	µm	15	15	15	15
	Straightness	µm	15	15	15	15
	Accuracy					
	Inline Motor Mount	µm	70	75	85	90
	Parallel Motor Mount		85	90	100	105
	Input Inertia					
	Inline Motor Mount	kg-m^2 x 10^{-6}	0.615	0.772	0.929	1.090
	Parallel Motor Mount		0.820	0.977	1.134	1.295
	Weight					
	Inline Motor Mount*	kg	1.19	1.40	1.60	1.81
5 mm Lead	**Travel**	mm	70	120	170	220
	Flatness	µm	15	15	15	15
	Straightness	µm	15	15	15	15
	Accuracy					
	Inline Motor Mount	µm	70	75	85	90
	Parallel Motor Mount		85	90	100	105
	Input Inertia					
	Inline Motor Mount	kg-m^2 x 10^{-6}	0.741	0.898	1.060	1.210
	Parallel Motor Mount		0.946	1.103	1.265	1.415
	Weight					
	Inline Motor Mount*	kg	1.19	1.40	1.60	1.81

* Adding the parallel motor mount option adds 0.11 kg for the NEMA 17 option, 0.15 kg for the NEMA 23 option, and 0.12 kg for the SM16 option.

Travel-Dependent Performance Specifications

403 XE

			Travel Length (Order Option Code)							
	Performance Specification	**Units**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**
5 mm Lead	**Travel**	mm	55	105	205	305	405	505	605	655
	Flatness	µm	15	15	15	15	25	25	25	25
	Straightness	µm	15	15	15	15	25	25	25	25
	Accuracy									
	Inline Motor Mount	µm	70	80	90	95	100	110	120	130
	Parallel Motor Mount		100	110	120	125	130	140	150	160
	Input Inertia									
	Inline Motor Mount	kg-m^2 x 10^{-6}	1.720	2.100	2.870	3.630	4.400	5.170	5.930	6.690
	Parallel Motor Mount		1.925	2.305	3.075	3.835	4.605	5.375	6.135	6.900
	Weight									
	Inline Motor Mount*	kg	1.85	2.25	2.85	3.55	4.25	4.85	5.55	6.20
10 mm Lead	**Travel**	mm	55	105	205	305	405	505	605	655
	Flatness	µm	15	15	15	15	25	25	25	25
	Straightness	µm	15	15	15	15	25	25	25	25
	Accuracy									
	Inline Motor Mount	µm	70	80	90	95	100	110	120	130
	Parallel Motor Mount		130	140	150	155	160	170	180	190
	Input Inertia									
	Inline Motor Mount	kg-m^2 x 10^{-6}	2.500	2.880	3.650	4.420	5.180	5.950	6.700	7.100
	Parallel Motor Mount		2.705	3.085	3.855	4.625	5.385	6.155	6.905	7.305
	Weight									
	Inline Motor Mount*	kg	1.85	2.25	2.85	3.55	4.25	4.85	5.55	6.20

* Adding the parallel motor mount option adds 0.11 kg for the NEMA 17 motor option, 0.15 kg for the NEMA 23 option, and 0.12 kg for the SM16 option.

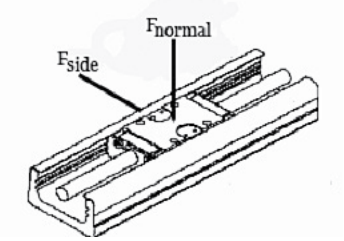
Standard XY Mounting Configurations with other XE products

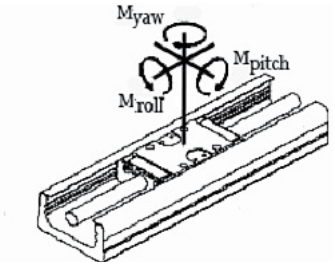
	Top Stage			
Bottom Stage	**401XE**	**402XE**	**403XE**	**404XE**
401XE	X			
402XE	X	X		
403XE	X	X	X	
404XE		X	X	X

XE Series Load-Life Performance

The following performance information is provided as a supplement to the product specification pages. The useful life of a linear table at full catalog specifications is dependent on the forces acting upon it.

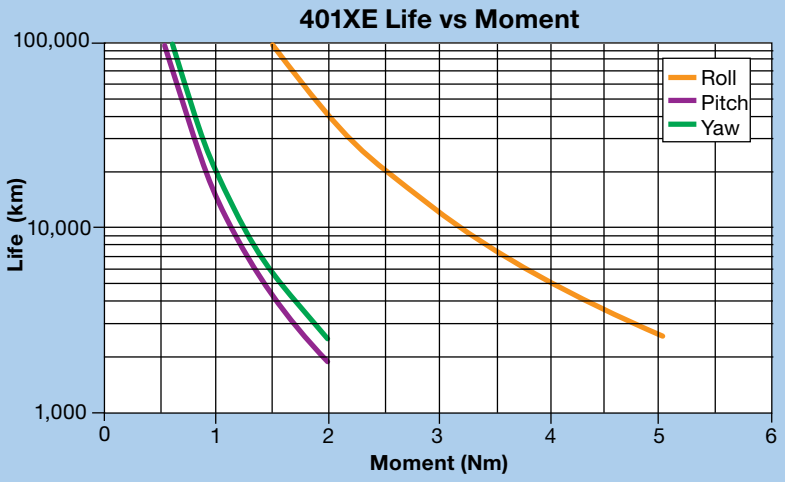
These forces include both static components resulting from payload weight, and dynamic components due to acceleration/deceleration of the load. In multi-axis applications, the primary positioner at the bottom of the stack usually establishes the load limits for the combined axes.

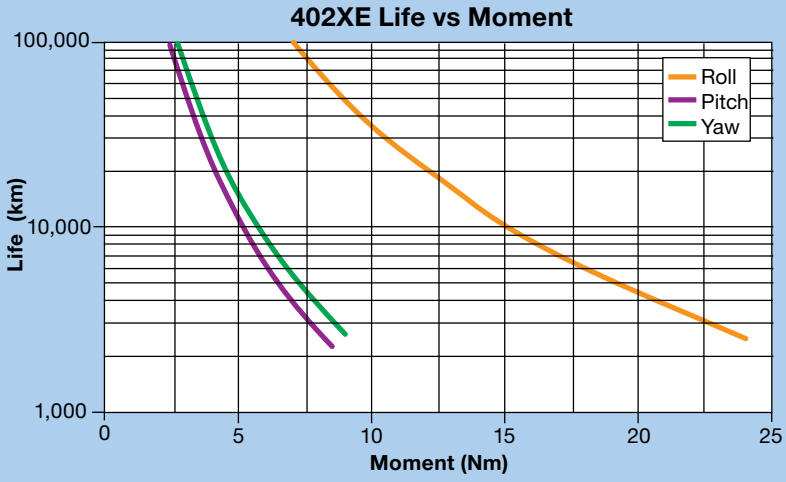


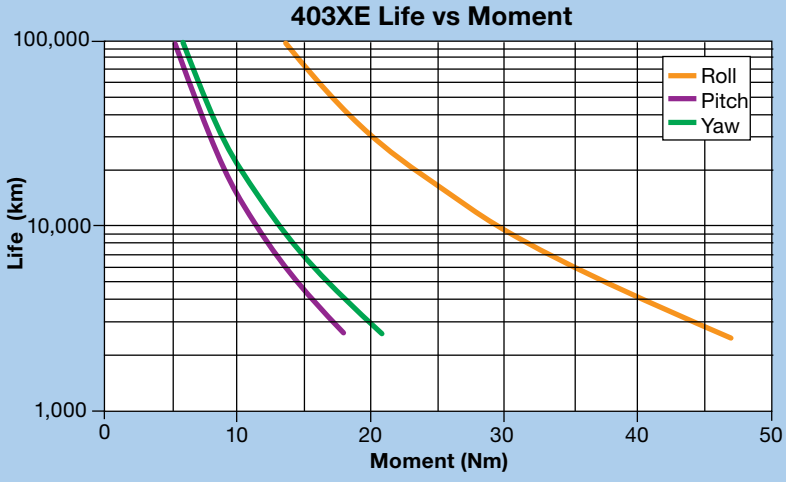


When evaluating life versus load, it is critical to include the weight of all positioning elements that contribute to the load supported by the primary axis. The following graphs are used to establish the table life relative to the applied loads. For more information, download the product manual at **parker.com/emc** or contact our applications department at (800) 245-6903.

Carriage Life with Moment

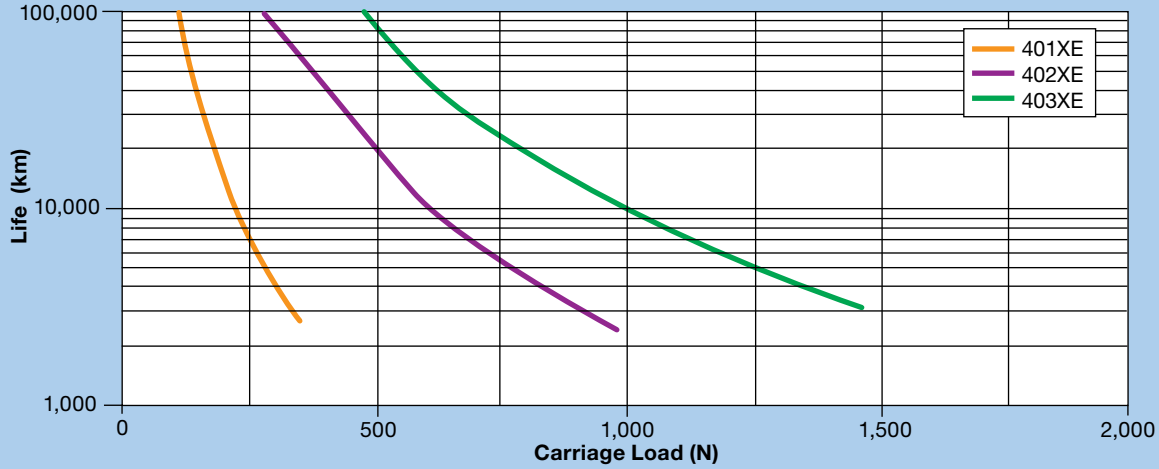




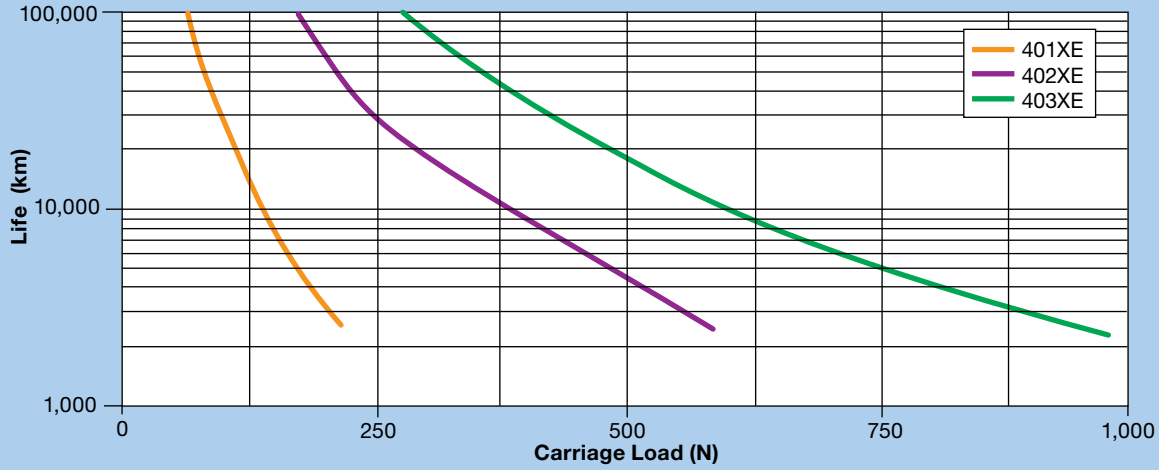


XE Series Load-Life Performance

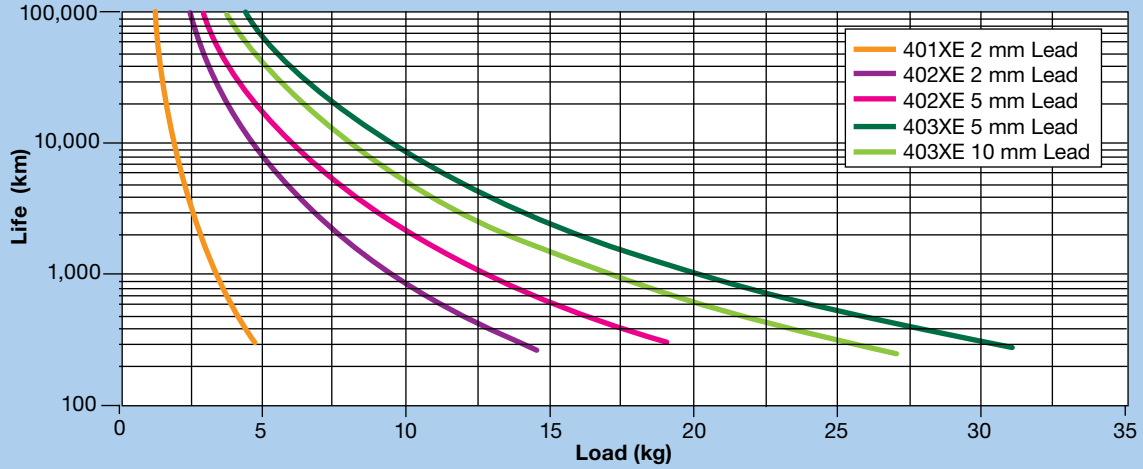
Carriage Life with Normal or Inverted Load



Carriage Life with Side Load



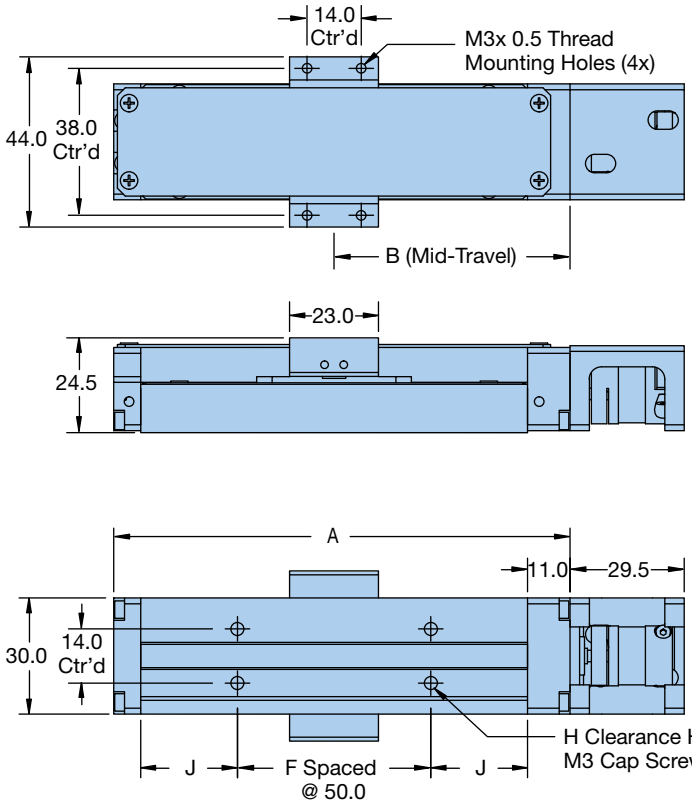
Ballscrew Life with Axial Load



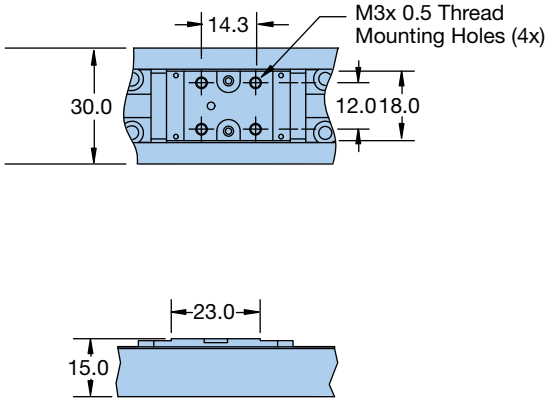
DIMENSIONS

401XE Dimensions (mm)

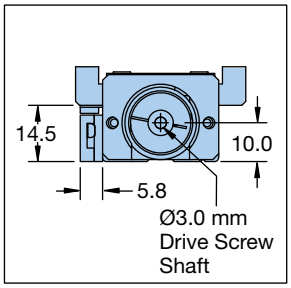
401XE with Hard Cover



401XE without Hard Cover

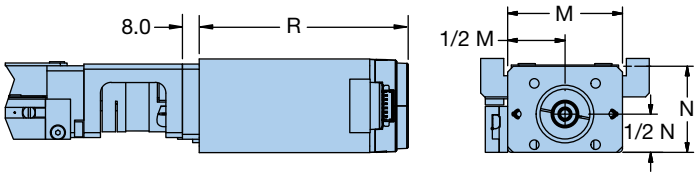


Optional Limit/Home Sensor



Order Code	Travel (mm)	A	B	F	H	J
01	60	118	61	1	4	25
02	110	168	86	2	6	25
03	160	218	111	3	8	25

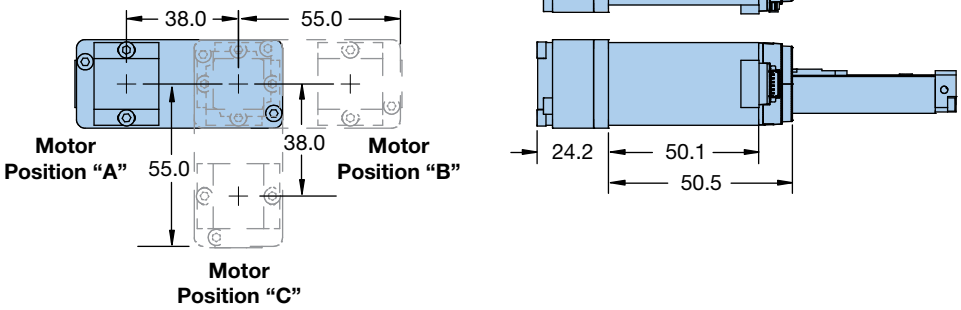
401XE with NEMA 11 & 17 Inline Motor



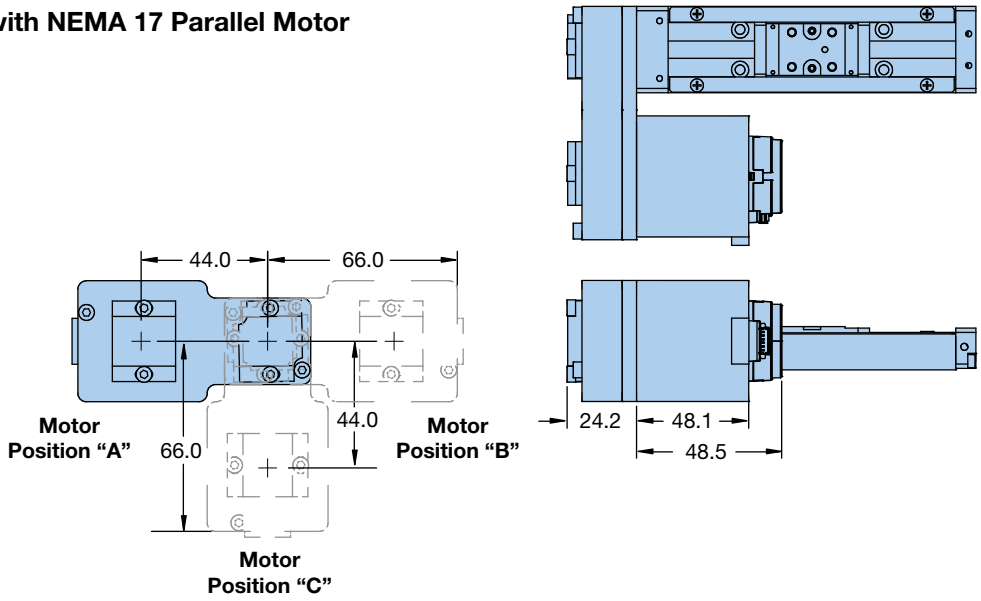
Motor Option*	Motor Size	M	N	R
M11	NEMA 11	28.2	28.2	50.5
M17	NEMA 17	43.0	37.0	48.5

***When configuring an XE stage and selecting your motor option in Ordering Information, note that the "M" motor options come with motors while "N" options are only prepped for those motors.**

401XE with NEMA 11 Parallel Motor

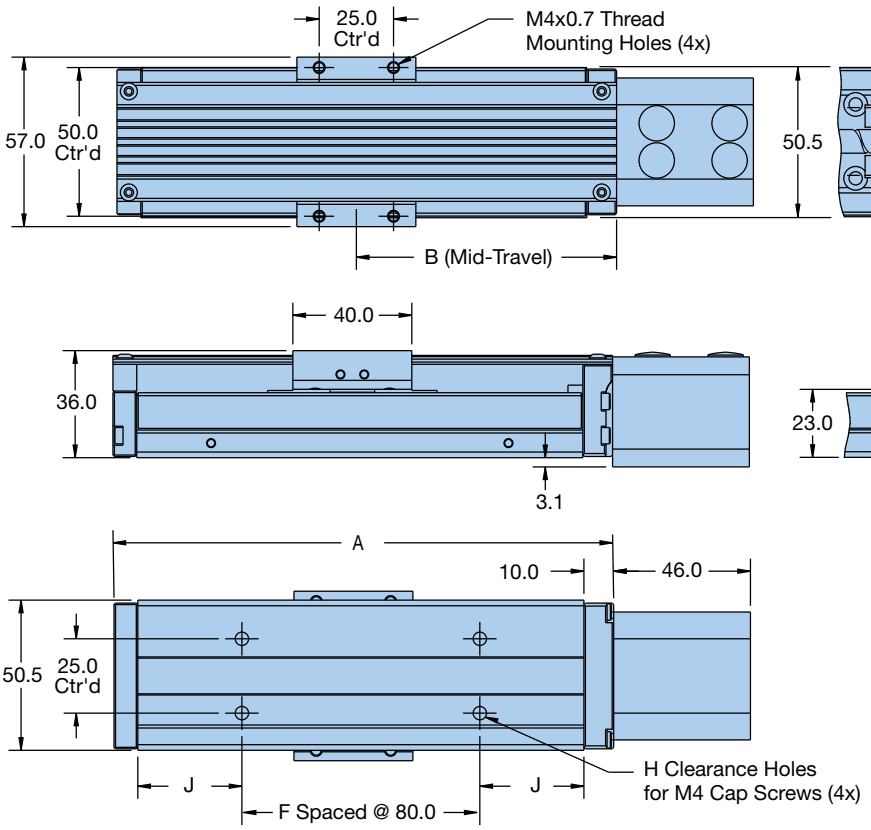


401XE with NEMA 17 Parallel Motor

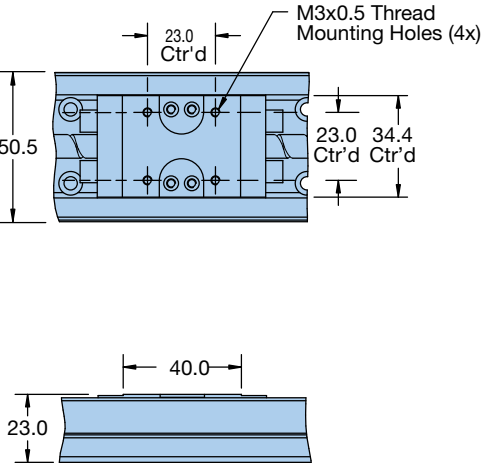


402XE Dimensions (mm)

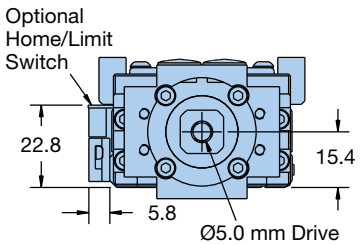
402XE with Hard Cover



402XE without Hard Cover

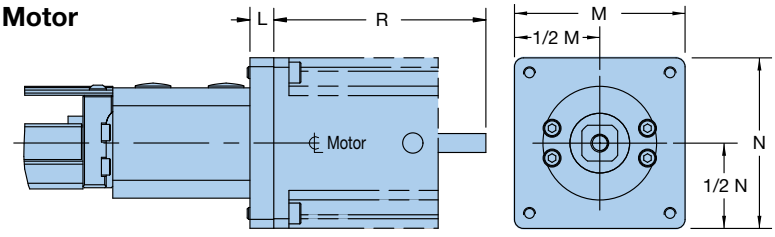


Optional Limit/Home Sensor



Order Code	Travel (mm)	A	B	F	H	J
01	70	168.0	87.5	1	4	35.0
02	120	218.0	112.5	2	6	20.0
03	170	268.0	137.5	2	6	45.0
04	220	318.0	162.5	3	8	30.0

402XE with Inline Motor



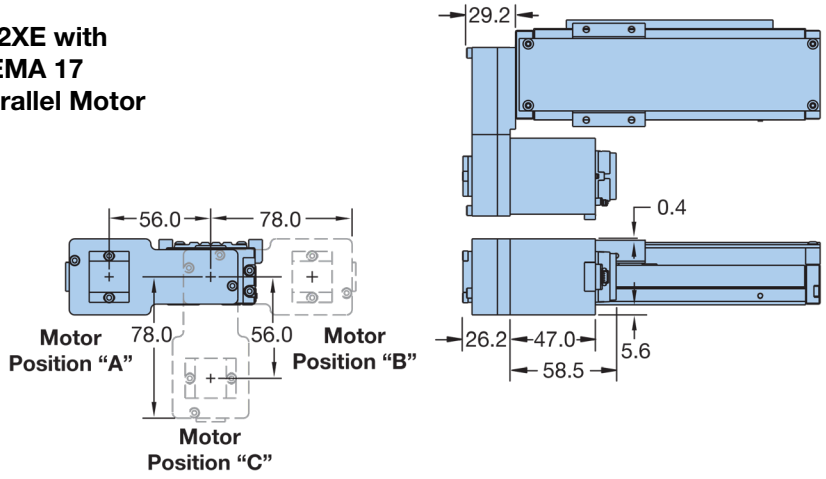
Rear shaft not available on SM162

Motor Option*	Motor Size	L	M	N	R
M17	NEMA 17	8.0	43.0	37.0	58.5
M16	SM162AE-N10N	8.0	42.2	42.2	136.5
M23	NEMA 23	8.0	57.2	57.2	51.2

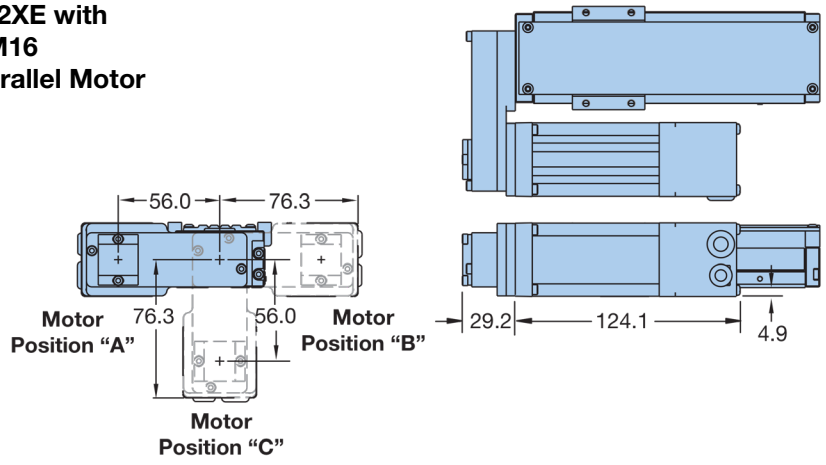
***When configuring an XE stage and selecting your motor option in Ordering Information, note that the "M" motor options come with motors while "N" options are only prepped for those motors.**

402XE Dimensions (mm)

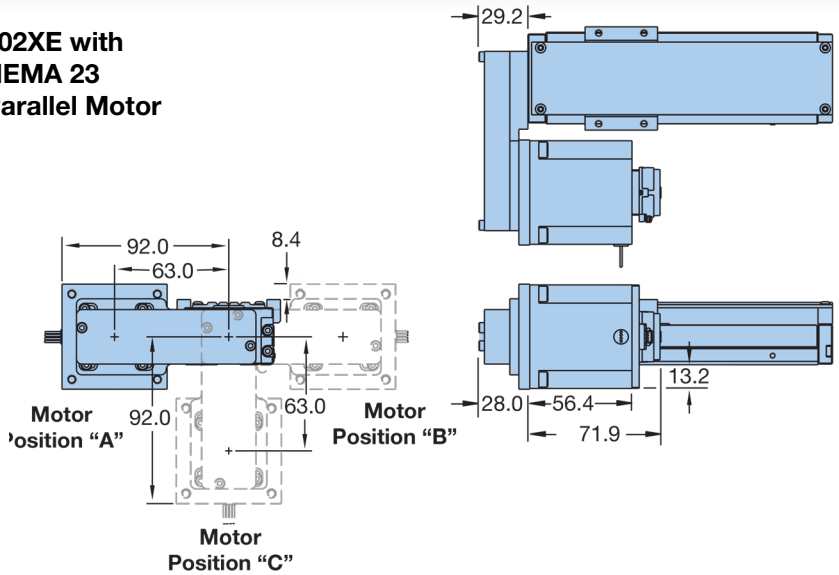
402XE with NEMA 17 Parallel Motor



402XE with SM16 Parallel Motor

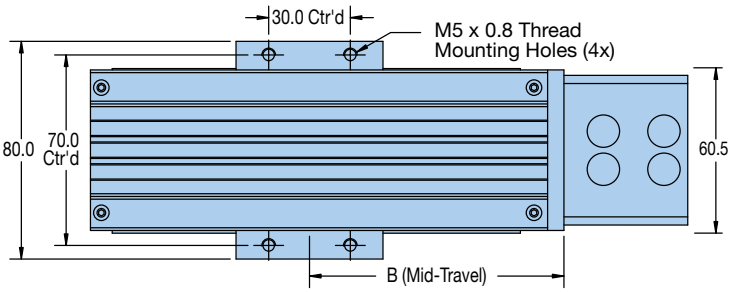


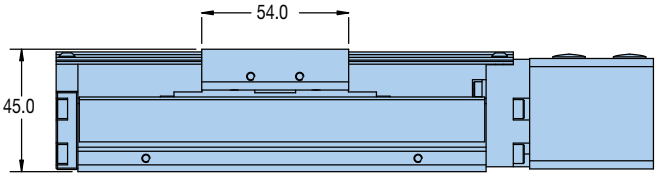
402XE with NEMA 23 Parallel Motor

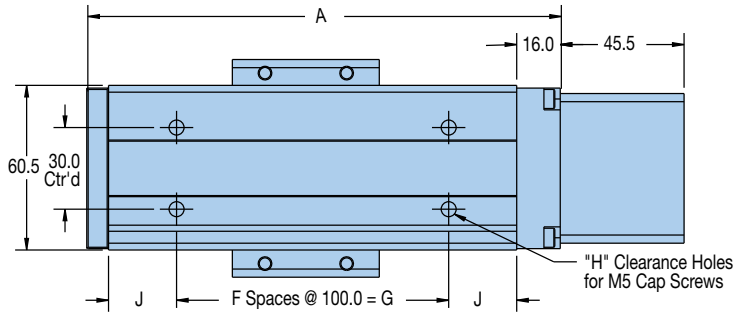


403XE Dimensions (mm)

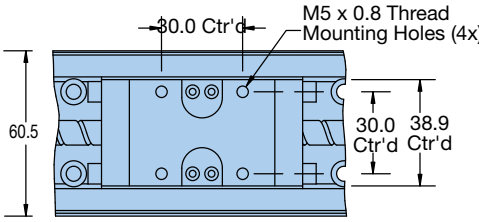
403XE with Hard Cover

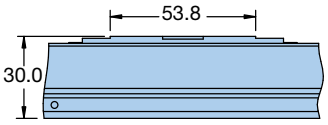




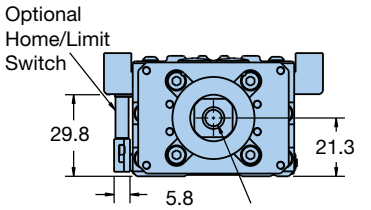


403XE without Hard Cover



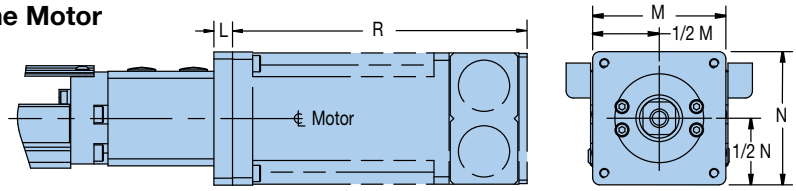


Optional Limit/Home Sensor



Order Code	Travel (mm)	A	B	F	G	H	J
01	55	174.0	93.5	1	100.0	4	25.0
02	105	224.0	118.5	1	100.0	4	50.0
03	205	324.0	168.5	2	200.0	6	50.0
04	305	424.0	218.5	3	300.0	8	50.0
05	405	524.0	268.5	4	400.0	10	50.0
06	505	624.0	318.5	5	500.0	12	50.0
07	605	724.0	368.5	6	600.0	14	50.0
08	655	774.0	383.5	7	700.0	16	25.0

403XE with Inline Motor

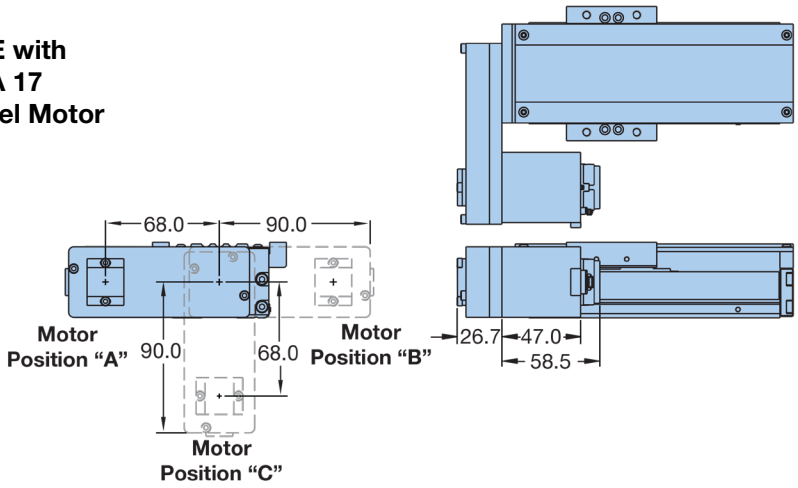


Motor Option*	Motor Size	L	M	N	R
M17	NEMA 17	8.0	43.0	37.0	58.5
M16	SM162AE-N10N	8.0	42.2	42.2	136.5
M23	NEMA 23	9.5	57.2	57.2	51.2

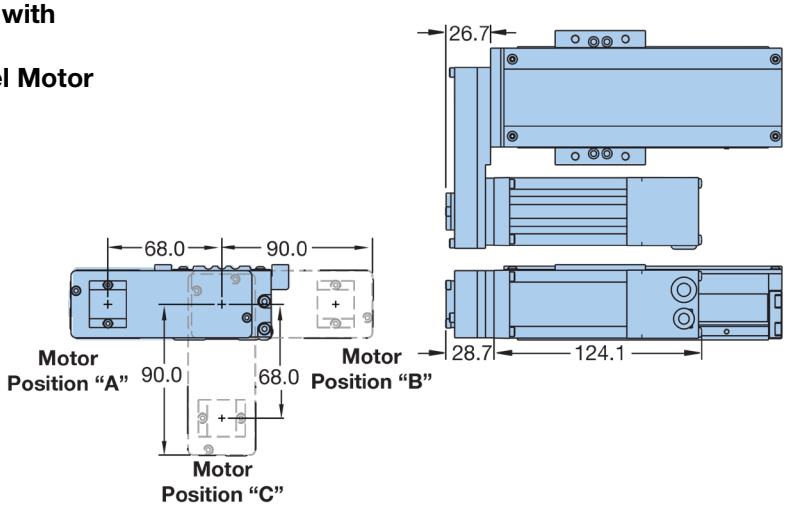
***When configuring an XE stage and selecting your motor option in Ordering Information, note that the "M" motor options come with motors while "N" options are only prepped for those motors.**

403XE Dimensions (mm)

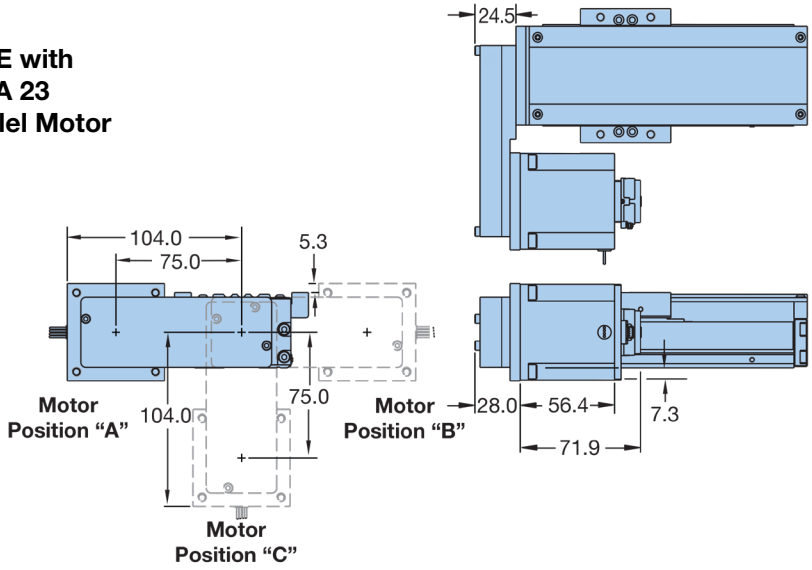
403XE with NEMA 17 Parallel Motor



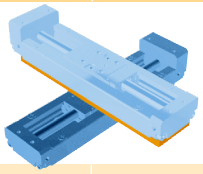
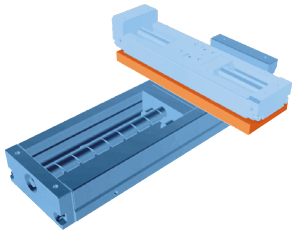
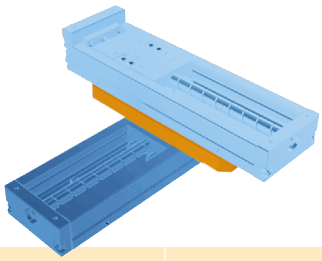
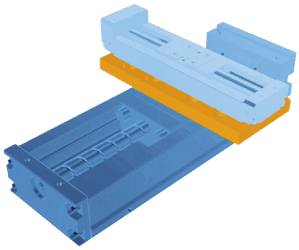
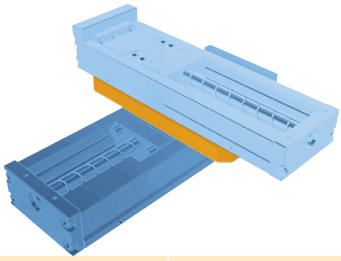
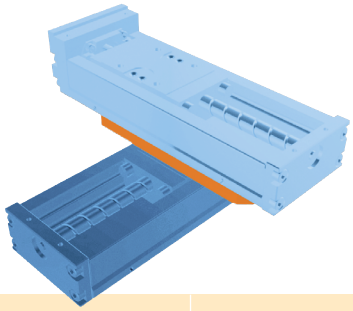
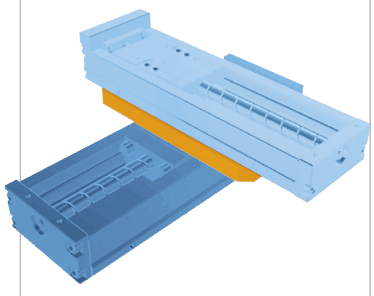
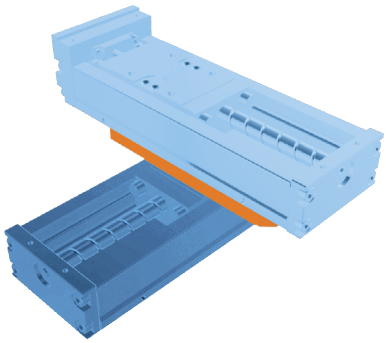
403XE with SM16 Parallel Motor



403XE with NEMA 23 Parallel Motor



Design Flexibility with Standard X-Y Bracket Options

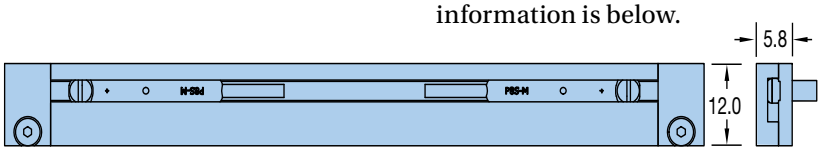
X-Axis	Y-Axis					
	401XE		**402XE**		**403XE**	
	Y-Axis Travel Length Order Code	**X-Y Bracket Part Number**	**Y-Axis Travel Length Order Code**	**X-Y Bracket Part Number**	**Y-Axis Travel Length Order Code**	**X-Y Bracket Part Number**
401XE						
	01 – 03	002-2975-01				
402XE						
			01	002-2819-01		
	01 – 03	002-2976-01	02 – 04	002-2820-01		
403XE						
			01	002-2821-01	01	002-2821-01
	01 – 03	002-2977-01	02 – 04	002-2822-01	02 – 04	002-2822-01
404XE						
			02 – 08	002-2823-01	02 – 08	002-2823-01

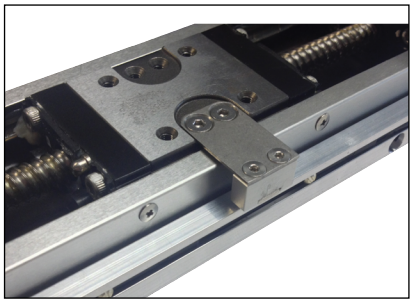
OPTIONS & ACCESSORIES

Packaged Limit Sensors

The XE series uses the Parker global mini sensors for home and limit sensing. These sensors are packaged within a miniature sensor housing which allows the flying-leads style cables to exit with 3 meters of cable from the point of the sensor. To further accommodate each application's unique needs, the sensors can be specified as either NPN, PNP, normally open, or normally closed varieties. The unmatched design of the sensor pack on the XE series, allows for fully adjustable sensors along the travel length of the positioner, which creates no pinch points for other cables or hoses to be sliced.

The limit/home switch installed on the XE series is a Hall effect sensor tripped by a magnet located on a flag which is attached to the moving carriage. On the switch body an LED indicates activation. Normally open sensors are typically used for home sensing and normally closed are typically used for limits. With a current sinking sensor, the output lead provides a path to ground when activated, and with a current sourcing sensor, the output lead provides a positive (+) voltage potential relative to ground. Refer to your controller's manual for sensor compatibility. Limit/home switch information is below.





Limit sensor mounting screws are reverse-thread style so tightening the screw loosens the limit sensor in the track and vice versa.

Specifications

Operating Voltage: 10-30 VDC
Repeatability: ≤±0.1 mm
EMC: EN 60 947-5-2
Short circuit protections: Yes
Reverse Polarity Protection: Yes
Enclosure Rating: IP 67
Operating Temperature Range: -25° to 75° C (-13° to 167° F)

Spare Limit/Home Sensors

Part Number	Switching Type	Logic	Cabling
P8SAMMFAZ	NPN	NC	3 Meter, Flying Leads
P8SAMNFAZ	NPN	NO	
P8SAMPFAZ	PNP	NO	
P8SAMQFAZ	PNP	NC	

Wiring Connection

Pin	Wire	Function
1	Brown	+ VDC
4	Black	NO
3	Blue	– VDC

Riser Plates

Most of the motors used with the 401/402/403XE and some of the 404XE motors have a taller profile than the positioner. Thus the motor can interfere with the positioner mounting surface.

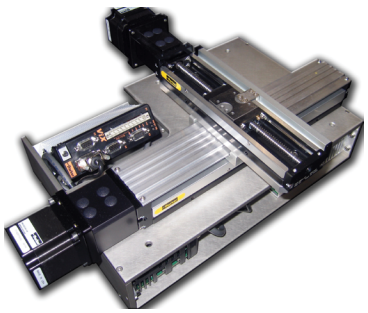
To accommodate riser plates can be provided to space the unit above the mounting surface. See XE product manual for dimensional details and part numbers. Also available are X-Y transition plates for XE to XE mounting.

Cleanroom & Raydent Coatings

Cleanroom ratings are possible with the XE product. The actual cleanroom rating will be dependent upon such variables as the location of the sniffer device, the velocity of the table, etc. Consult the factory for specific cleanroom-capability details or test results.

Demo Units

Order 803-0346 for a multi-axis demo unit to learn the product and display for shows and presentations. The demo will come in a watertight pelican carrying case and will be ready for demonstration programmed from the factory.



ORDERING INFORMATION
XE Series

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

Order Example: | 401 | 01 | XE | S | D9 | H0 | L0 | L | N00 | C1 | E0 | R0 |

Series

401
402
403

Travel (mm)

	401XE	402XE	403XE
01	60	70	55
02	110	120	105
03	160	170	205
04	—	220	305
05	—	—	405
06	—	—	505
07	—	—	605
08	—	—	655

Family

XE XE Series

Grade

S Standard

Drive Screw Q

D9 2 mm lead (401, 402 only) 1)
D2 5 mm lead (402, 403 only) 2)
D3 10 mm lead (403 only) 3)

1) D9 is a quick ship option for all 401XE travel options and 01 – 02 options for the 402XE.

2) D2 is a quick ship option for the 03 – 04 for the 402XE, and the 01, 02 and 03 option for the 403XE.

3) D3 is a quick ship option for the 04 – 06 options for the 403XE

Home Sensor (Qty 1)

H0 No home sensor Q
HA NPN, N.C., flying leads Q
HB NPN, N.O., flying leads Q
HC PNP, N.C., flying leads Q
HD PNP, N.O., flying leads Q

Limit Sensors (Qty 2)

L0 No limits sensors Q
LA NPN, N.C., flying leads Q
LB NPN, N.O., flying leads Q
LC PNP, N.C., flying leads Q
LD PNP, N.O., flying leads Q

Motor Mount Orientation

L Inline motor mounting Q
A Parallel motor mounting*
B Parallel motor mounting*
C Parallel motor mounting*

* Refer to dimension drawings for orientation

Motor option

N00 No motor mount Q
N11 NEMA 11 motor mount 1) Q
N17 NEMA 17 motor mount Q
N16 SM 16 servo motor mount 2) Q
N40 PM-FAL servo motor mount 2) Q
N23 NEMA 23 inline motor mount 2)
M11 NEMA 11 stepper motor 1)
M17 NEMA 17 stepper motor
M16 SM162AE-N10N servo motor, 1000 line encoder 2)
M40 MPE 0402A4E-KC1N 2)
M23 NEMA 23 stepper motor 2)

1) 401XE only
2) Not available on 401XE

Motor Coupling

C1 No coupler
C2 0.25" Oldham
C3 0.25" Bellows
C4 0.375" Oldham
C5 0.375" Bellows
C6 5 mm Oldham
C7 5 mm Bellows
C8 8 mm Oldham
C9 8 mm Bellows

Motor Encoder

E0 No encoder
E2 500 line encoder (Available only with M11, M17, M23 motor options)

Environmental Option

R0 No cover Q
R1 Hard cover Q

Q Need an XE in a Hurry?

The Q above designates quick ship options, that will give fastest delivery possible. These options are only good for the stroke and screw combinations denoted above, with any home and limit sensor option, inline motor mounts only, and are available with or without the hard cover option.

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

404XE Series Positioners

(95 mm wide profile)

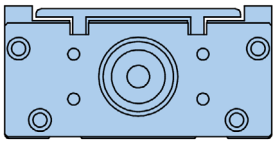
Versatile Compact Motion Platform

- Economy Grade Positioning
- 100% Duty Cycle
- High Strength Design
- Easy Multi-Axis Mounting
- Locating Dowel Holes

Key Design Advantages

- Three leadscrew options
- Two carriage options
- Standard inline and parallel motor mounting
- Optional hardcover available
- LXR and XR mounting compatible (toe clamp only)

	404XE
Maximum Travel (mm)	700
Maximum Payload (N)	1,202
Maximum Acceleration (m/s²)	20



404XE

Reliable and Cost Effective Positioning

The 404XE positioners combine versatility with rugged construction in a compact motion platform that is ideal for 24/7 process automation. A high efficiency ballscrew drive, recirculating square rail bearings and high strength aluminum body are the result of innovative engineering that has reduced costs while improving performance.

Unmatched Options and Features

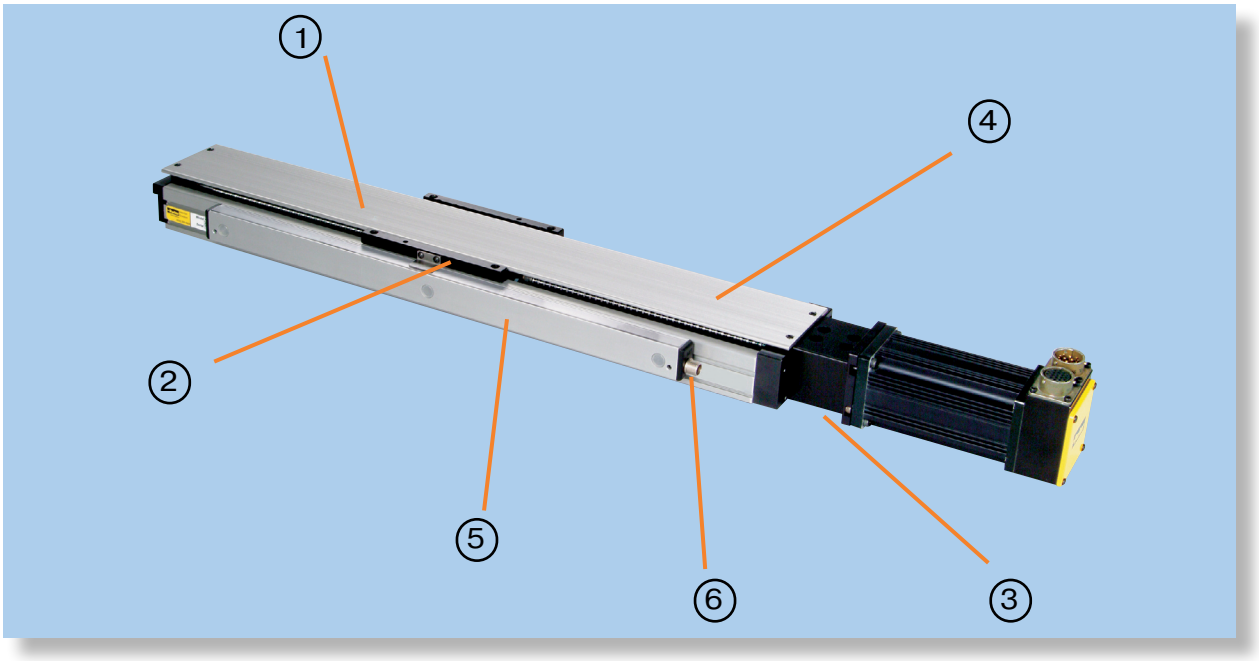
A vast assortment of "designer friendly" options and features simplify the engineering challenges often confronted with "base model" positioning devices. Features like precision dowel holes, linear feedback, sensor packs, parallel motor mounting, brakes, and cleanroom preparation simplify and speed your machine design process.

Multi-Axis Systems

XY and XYZ systems are easily configured and pinned so that factory orthogonality can be reproduced in the field. Motors and cable management systems connect to the XE tables in a straightforward and simple manner.

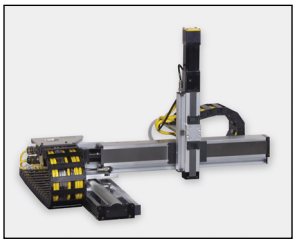
Technology Evolution

The XE is direct mounting compatible with our precision series XR ballscrew tables and our LXR linear motor tables. It is possible to mix-and-match various levels of technology on a per axis basis allowing the most cost effective optimized application solutions.



1 **Three leadscrew options**
Providing travel up to 700mm

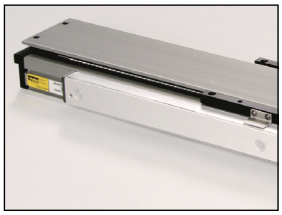
2 **Two carriage options**
Two choices available – short (2 bearing trucks) and long (4 bearing trucks)



3 **Standard inline and parallel motor mounting**
Options for Parker and non-Parker Automation motors

4 **Optional hardcover**
An optional hardcover is available. This will bring the positioner to an IP20 rating and prevent large particles from entering and damaging the screw or bearings.

5 **Standard mounting**
Compatible with XR and LXR Series (Toe Clamp Only)



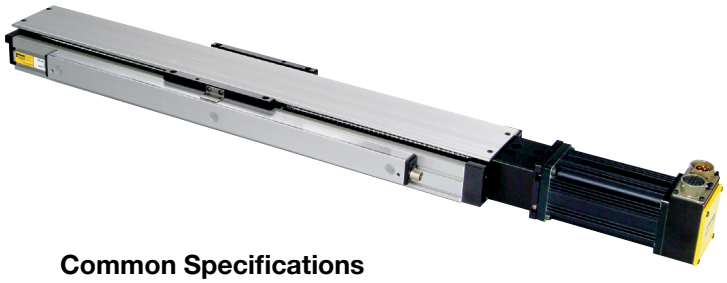
6 **End of travel and home sensors**
Sensors for the 404XE series are available in a variety of styles.

Standard XY Mounting Configurations with other XE products

Bottom Stage	Top Stage 401XE	402XE	403XE	404XE
401XE	X			
402XE	X	X		
403XE	X	X	X	
404XE		X	X	X

SPECIFICATIONS

The 404XE is the largest of the XE positioning table line, with a width of approximately 4" and travel length up to 700mm depending on selected carriage size. Ballscrew options range from 5mm lead to 20mm lead, and several motor mount and limit/home switch options are available, as well as feedback and brake options.



Common Specifications

Bidirectional Repeatability	
T01 to T11 models	±20 micron
T12 to T15 models	±30 micron
Duty Cycle	100%
Max Acceleration(1)	20 m/sec^2 (773 in/sec^2)
Normal Load Capacity(2)	
NL (short carriage)	61.3 kgf (135 lbs)
VL (long carriage)	122.6 kgf (270 lbs)
Axial load capacity(2)	
5 mm lead ballscrew	60 kgf (132 lbs)
10 mm lead ballscrew	70 kgf (154 lbs)
20 mm lead ballscrew	70 kgf (154 lbs)
Drive Screw Efficiency	90%
Max Break-Away Torque	0.25 Nm (35in-oz)
Max Running Torque (rated @ 2 RPS)	0.21 Nm (30in-oz)
Linear Bearing – Coefficient of Friction	0.01
Ballscrew Diameter	
5 & 10 mm lead	16 mm
20 mm lead	15 mm
Carriage Weight	
NL (short carriage)	0.215 kg (0.47 lbs)
VL (long carriage)	0.495 kg (1.09 lbs)

(1) Applies to units with VL carriage
(2) Refer to life/load charts.

Travel Dependent Characteristics

	Travel (mm)		Positional Accuracy (3) (4)	Input Inertia NL Carriage Units (10^{-5} kg-m^2)			Input Inertia VL Carriage Units (10^{-5} kg-m^2)			Max. Screw Speed	Max. Velocity (meters/sec.)			Total Table Weight (kg)	
Code	**NL**	**VL**	**(µm)**	**5 mm**	**10 mm**	**20 mm**	**5 mm**	**10 mm**	**20 mm**	**(RPS)**	**5 mm**	**10 mm**	**20 mm**	**NL**	**VL**
T01	25	–	42	.81	–	–	–	–	–	72	0.36	0.73	1.50	1.42	1.70
T02	50	–	50	.94	.98	–	–	–	–	72	0.36	0.73	1.50	1.61	1.89
T03	100	33	58	1.19	1.23	1.12	1.21	1.30	1.4	72	0.36	0.73	1.50	1.95	2.23
T04	150	83	66	1.44	1.48	1.32	1.46	1.55	1.6	72	0.36	0.73	1.50	2.35	2.63
T05	200	133	74	1.69	1.73	1.51	1.71	1.80	1.79	72	0.36	0.73	1.50	2.59	2.87
T06	250	183	82	1.94	1.99	1.70	1.96	2.06	1.99	72	0.36	0.73	1.50	2.97	3.25
T07	300	233	90	2.20	2.24	1.90	2.21	2.31	2.18	72	0.36	0.73	1.50	3.34	3.62
T08	350	283	98	2.45	2.49	2.09	2.47	2.56	2.37	72	0.36	0.73	1.50	3.50	3.78
T09	400	333	106	2.70	2.74	2.29	2.72	2.81	2.57	72	0.36	0.73	1.50	3.83	4.11
T10	450	383	114	2.95	2.99	2.48	2.97	3.07	2.76	72	0.36	0.73	1.50	4.09	4.37
T11	500	433	122	3.21	3.25	2.67	3.22	3.32	2.96	72	0.36	0.73	1.50	4.22	4.50
T12	550	483	130	3.46	3.50	2.87	3.48	3.57	3.15	72	0.36	0.73	1.50	4.55	4.83
T13	600	533	138	3.71	3.75	3.06	3.73	3.82	3.34	69	0.34	0.68	1.32	4.87	5.15
T15	700	633	154	4.21	4.25	3.45	4.23	4.33	3.73	52	0.26	0.52	1.00	5.12	5.40

(3) Positional accuracy applies to in-line motor configurations only. Positional specifications are based on "no-load" conditions and apply to individual axes only.
(4) Consult factory for specs with linear feedback.

404XE Life/Load Performance

The following performance information is provided as a supplement to the product specifications pages. 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. The following graphs and formulas are used to establish the table life relative to the applied loads. **Catalog load specifications are rated for 100 million inches of travel or 2.540 km.**

Table Life/Thrust (Axial) Load

This graph illustrates table ballscrew life relative to the axial load.

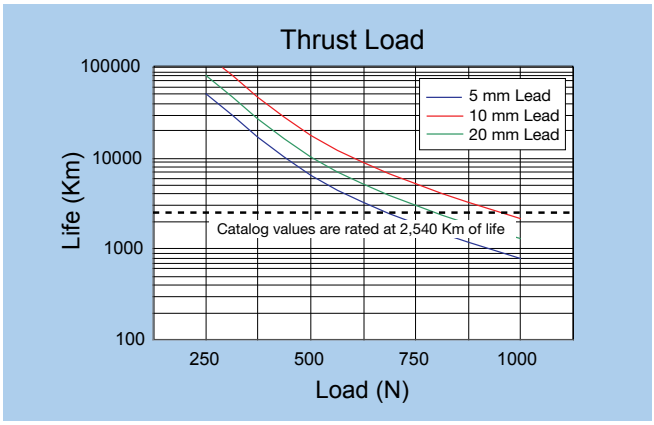


Table Life/Load Chart
Pitch Moment - NL (Short Carriage)

This graph illustrates table linear bearing life as a result of pitch moment.

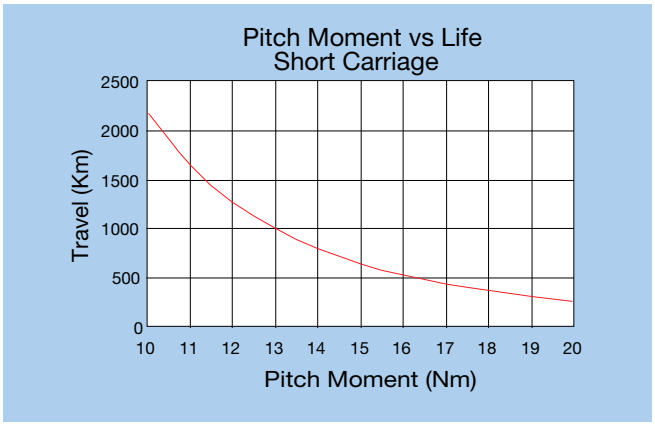
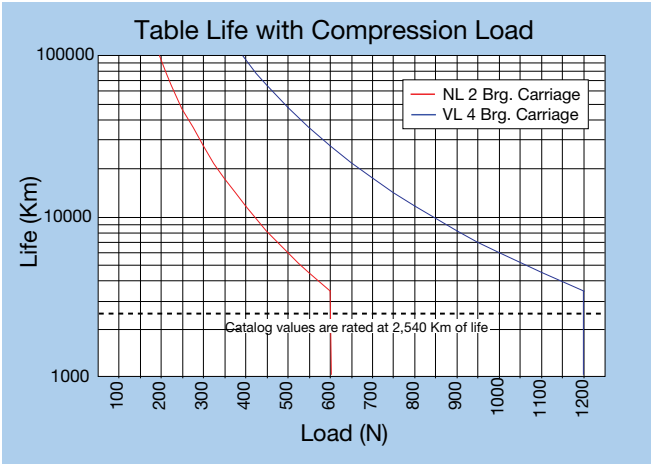


Table Life/Compression (Normal) Load

This graph provides an 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.

For final evaluation of life versus load, including off-center, tension, and side loads, refer to the pitch/moment chart for the NL carriage units or the bearing load charts (next page) for the VL carriage units.



404XE Life/Load Performance

Bearing Life/Load for VL Long Carriage Units

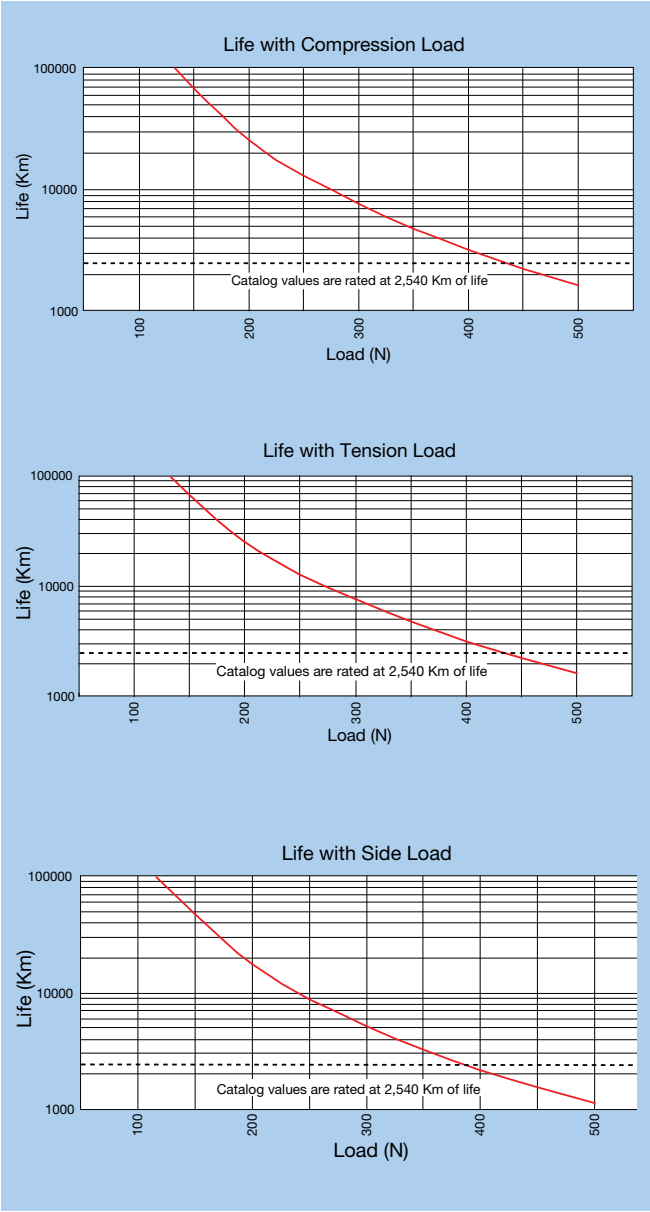
These charts are to be used to evaluate the VL Carriage units. They should be used in conjunction with the corresponding formulas (found under "Product Information" at parkermotion.com) to establish the life/load for each bearing (4 per table).

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

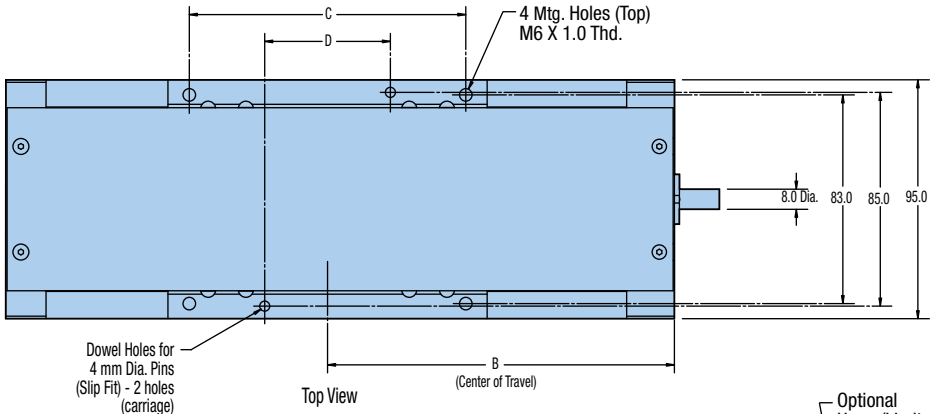
	d1	d2	da
404XE	80	57	28

Refer to Parker's website **parker.com/emc** for moment loading and other engineering data.

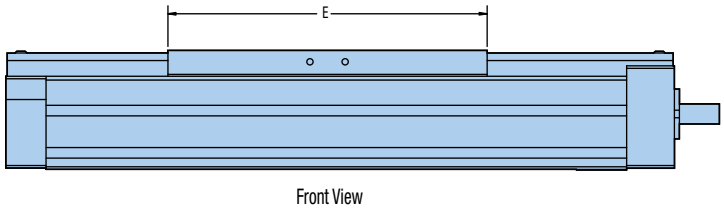


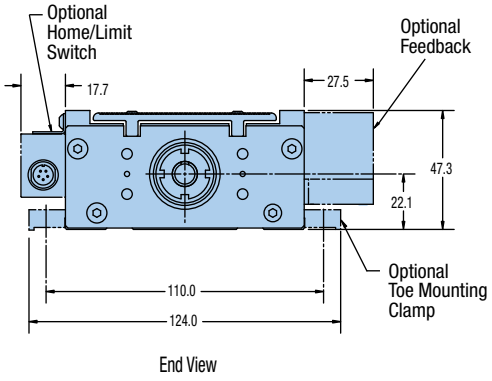
DIMENSIONS

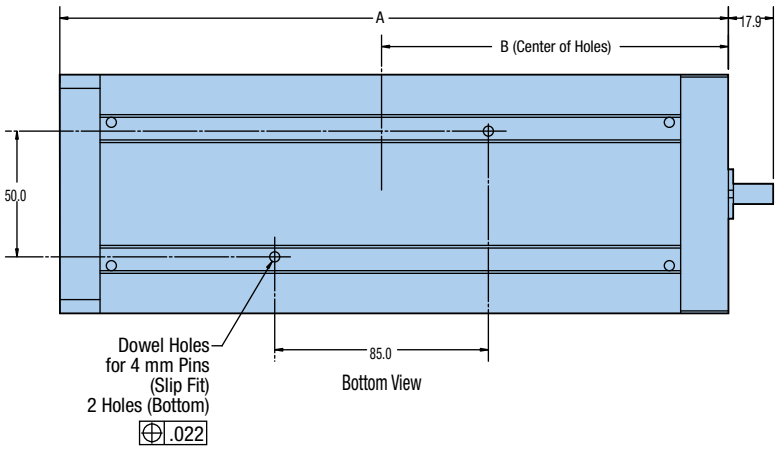
Download 2D & 3D files from
parker.com/emc

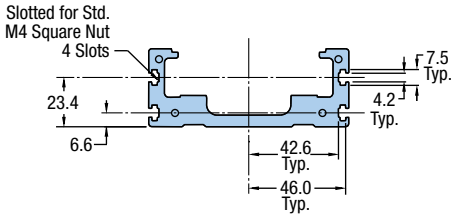


Carriage Type	C	D	E
NL	50.0	36.0	60.0
VL	110.0	50.0	127.0









View showing slots in extruded base

Carriage Travel

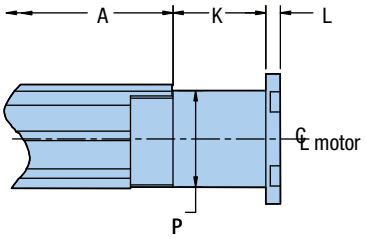
Designation	NL (short)	VL (long)	A	B
T01	25	–	141.0	75.5
T02	50	–	166.0	88.0
T03	100	33	216.0	113.0
T04	150	83	266.0	138.0
T05	200	133	316.0	163.0
T06	250	183	366.0	188.0
T07	300	233	416.0	213.0
T08	350	283	466.0	238.0
T09	400	333	516.0	263.0
T10	450	383	566.0	288.0
T11	500	433	616.0	313.0
T12	550	483	666.0	338.0
T13	600	533	716.0	363.0
T15	700	633	816.0	413.0

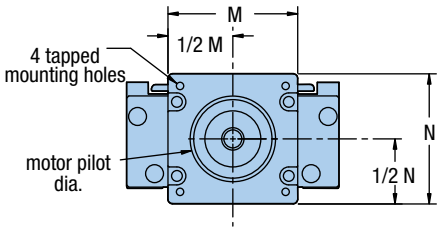
400XE Series Motor Mount Dimensions

Dimensions (mm)

In-Line Motor Mount

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

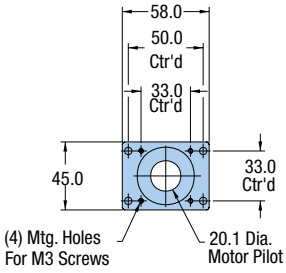




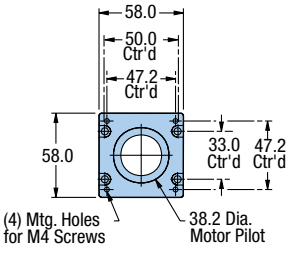
In-Line Adaptor Plates

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

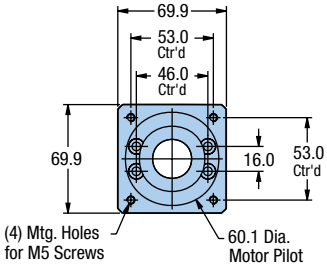
SM16	M2	9.5	41.0	4.3	58.0	45.0	45.0
NEMA 23	M3	9.5	41.0	6.5	58.0	58.0	45.0
NEMA 34	M4	9.5	41.0	12.5	83.0	83.0	45.0
Neometric 70	M21	11.0	53.0	0.0	69.9	69.9	69.9



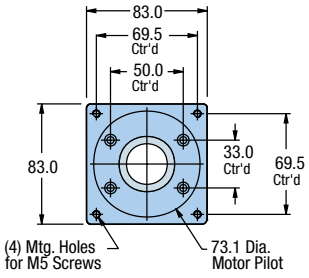
In-line SM 16



In-line NEMA 23

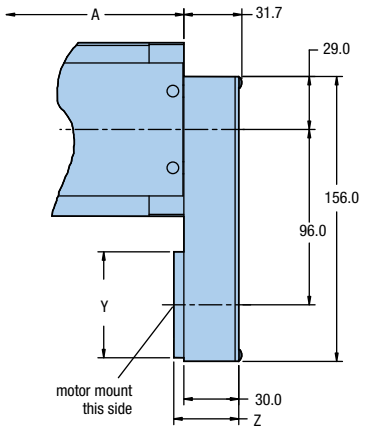


In-line NEOMETRIC 70 /SMN060

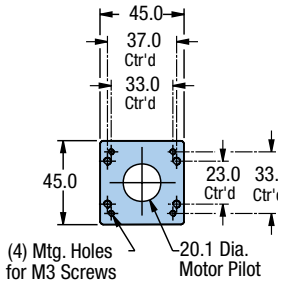


In-line NEMA 34

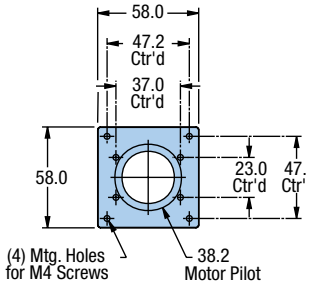
Parallel Motor Mounting



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)

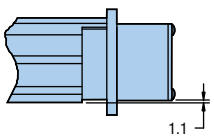


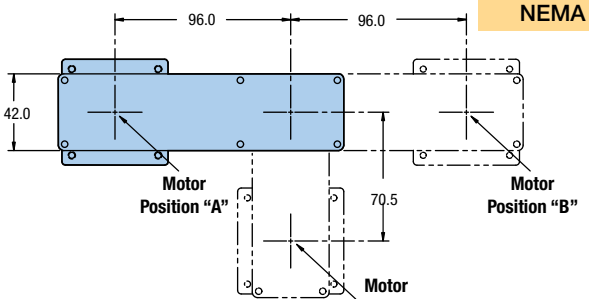
Reverse SM 16



Reverse NEMA 23

Motor Size	Y	Z	Motor Shaft Dia.
SM 16	45.0	34.5	0.250”
SM 23 / BE 23	58.0	35.5	0.375”
NEMA 23	58.0	35.5	0.250”





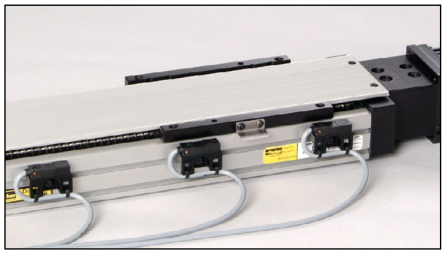
Note: Some sensor pack and encoder restriction apply when mounting motors larger than NEMA 23 in the A or B positions. Please consult factory.

OPTIONS AND ACCESSORIES

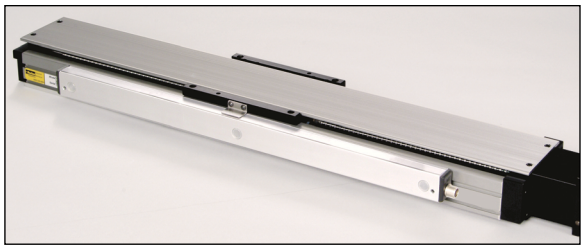
Home or Limit Sensor

End of Travel and Home Sensors for the 404XE 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 available for use with models having the locking connector option.

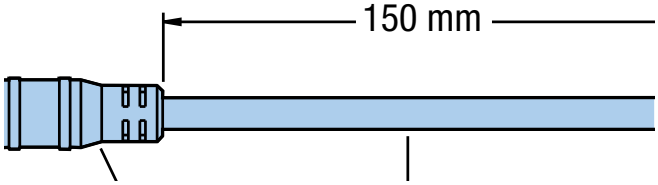
- NPN (Sinking) or PNP (Sourcing)
- Normally Closed (N.C.) or Normally Open (N.O.)
- Flying Leads or Locking Connector

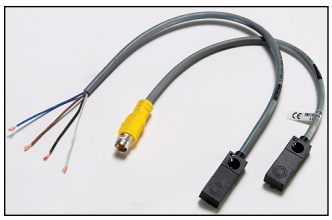


With Limits and Home Sensors



With Limits and Home Sensor Pack





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

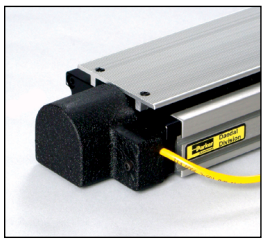
Order Code	Part No.* (Includes Mounting Bracket)	Switch Type	Logic	Cable Length	Connection Option
H2 or L2	006-1639-01	N.C.	Sinking	3.0 m	Flying Leads
H3 or L3	006-1639-02	N.O.	Sinking	3.0 m	Flying Leads
H4 or L4	006-1639-03	N.C.	Sourcing	3.0 m	Flying Leads
H5 or L5	006-1639-04	N.O.	Sourcing	3.0 m	Flying 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

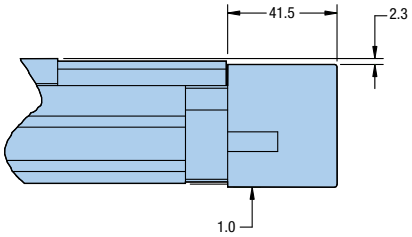
*Sensor triggers (targets) ordered separately.

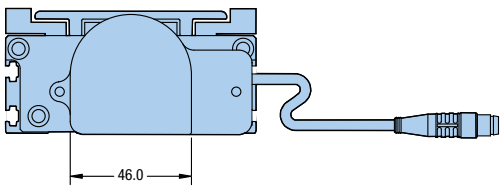
Brake Assembly

Electromagnetic brake assembly used to prevent "backdriving" in vertical applications. Includes 5 meter cable.

Table Series	Part Number	Input Power	Holding Torque
404XE	006-1627-01	24 VDC, 0.46 A	2.0 N-m



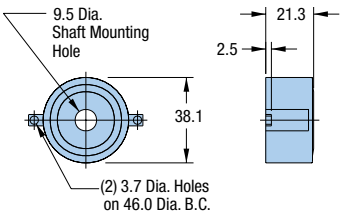




404XE

Rotary Encoder

Modular rotary encoder couples directly to the drive screw for position feedback. 150 mm cable included.

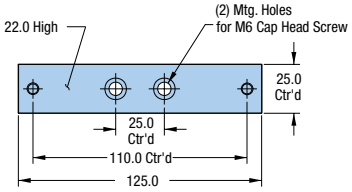


Part Number 06-1629-01

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)

Riser Plate

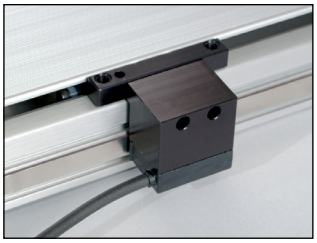
Used to raise the table base to provide clearance for motors larger than NEMA 23 frame size.



Part Number 002-3619-01
(All hardware included)

Linear Feedback

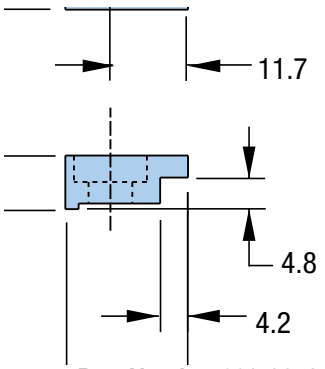
A magnetic linear position feedback device which mounts directly to the table carriage. (Factory installation required.)



Input Power	5 VDC, 240 mA
Output	A/B quadrature and reference marks, differential line drive output
Resolution	5.0 µmm

Toe Clamp

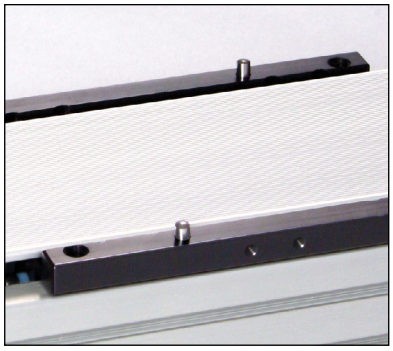
Used for convenient mounting of 404XE to a base plate, or riser plates.



Part Number 002-3618-01

Dowel Pinning

Standard dowel pin locating holes are offered on all 400XE units to facilitate repeatable mounting of tooling or payload.



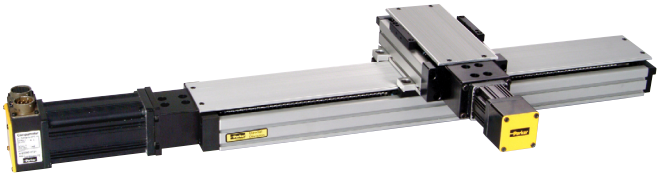
Two locating dowel pins shown in carriage

Multi-axis options are offered with P20 for the base 'X' Axis and P33-59 for the 'Y' orientation and mounting method. "Clock position" call-outs refer to the position of the motor end of the table. The multi-axis option allows the user to choose the motor orientation and mounting style.

P43 & P49 provide toe clamp mounting.

P33 & P39 offers standard pins on the carriage in addition to the toe clamps.

P53 & P59 offers uniquely pinned and toe clamp mounting to ensure the best orthogonality. This is 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 an assembled unit.



X-Y showing 12:00 and 9:00 positions

ORDERING INFORMATION
404XE

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

Order Example: 404 T08 XE M S – VL D4 H8 L8 C3 M4 E1 B1 R11 P1

Series
404

Table Travel (mm)

	NL Short Carriage	VL Long Carriage
T01*	25	n/a
T02**	50	n/a
T03***	100	33
T04	150	83
T05	200	133
T06	250	183
T07	300	233
T08	350	283
T09	400	333
T10	450	383
T11	500	433
T12	550	483
T13	600	533
T15	700	633

* VL carriage, D3 & D4 drives, and Limit/Home Sensor Pack option are not offered with T01 travel models.
** VL carriage, D4 drive options are not offered with T02 travel models.
*** If selecting T03 travel model with VL carriage, H1 must be chosen and options L11-L14 are not available; Consult factory if required.

Table Style
XE XE Series

Mounting
M Metric

Grade
S Standard Grade

Carriage Style
NL Short
VL Long

Drive Screw
D1 Free travel
D2 5 mm ballscrew
D3* 10 mm ballscrew
D4* 20 mm ballscrew

* D3 & D4 drives are not available with T01 travel. D4 drives are not available with T02 travels.

Home Sensor (one sensor)
H1 No home sensor
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, with locking connector
H7 N.O. current sinking, with locking connector
H8 N.C. current sourcing, with locking connector
H9 N.O. current sourcing, with 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*

* Must be ordered with L11-L14 sensor option.

Travel Limit Sensor Assembly (two sensors)
L1 No limit sensors
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 with locking connector*
L7 N.O. current sinking with locking connector*
L8 N.C. current sourcing with locking connector*
L9 N.O. current sourcing with 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

* Sensors with locking connector include 5 m extension cable.

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

Order Example: 404 T08 XE M S – VL D4 H8 L8 C3 M4 E1 B1 R11 P1

Motor Coupling

C1	No coupling (required for parallel mounting)
C2	0.25" Oldham
C3	0.25" Bellows
C4	0.375" Oldham
C5	0.375" Bellows
C6	0.43" Oldham
C7	0.43" Bellows
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 NEMA 17)
C25	5 mm Bellows (M37 NEMA 17)
C26	8 mm Oldham (M71 NEMA motor option)
C27	8 mm Bellows (M71 NEMA motor option)
C28	0.19" Oldham (M37 NEMA 17)
C29	0.19" Bellows (M37 NEMA 17)

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	SM16 – Parallel mounting, "A" location
M6	SM16 – Parallel mounting, "B" location
M7	SM16 – 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	SM23 – Parallel mounting, "A" location
M12	SM23 – Parallel mounting, "B" location
M13	SM23 – 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/no read out
M51	HDY55 – In-line mounting
M61	BE23 – In-line mounting
M62	BE23 – Parallel mounting, "A" location
M63	BE23 – Parallel mounting, "B" location
M64	BE23 – Parallel mounting, "C" location
M71	SGM01 – In-line mounting
M72	SGM01 – Parallel mounting, "A" location
M73	SGM01 – Parallel mounting, "B" location
M74	SGM01 – Parallel mounting, "C" location
M75	SGM02 – In-line mounting

* Refer to "Motor Mounting Dimensions" for maximum allowable motor shaft diameter.

Feedback Option

E1	None
E2	Linear feedback – 5 micron magnetic (not available on T01 units with H2-H9 "home" and L2-L9 "limit" sensors)
E5	Rotary shaft encoder (cannot be used with brake option)

Brake Option

B1	No brake
B2	Shaft brake (cannot be used with rotary encoder option)

Environmental Protection

R11	Hard cover
R12	Hard cover, cleanroom prep
R13	No cover
R14	No cover, cleanroom prep

Multi-Axis Selections

P1	X axis – for single axis use
P20*	X axis – for X-Y assembly (VL carriage units only) – motor @ 12:00
P33*	Y axis, standard dowel pinned & toe clamped to X axis – motor @ 3:00
P39*	Y axis, standard dowel pinned & toe clamped to X axis – motor @ 9:00
P43*	Y axis, toe clamped to X axis motor @ 3:00
P49*	Y axis, toe clamped to X axis motor @ 9:00
P53*	Y axis, precision dowel pinned & toe clamped to X axis motor @ 3:00
P59*	Y axis, precision dowel pinned & toe clamped to X axis motor @ 9:00

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

OSPE..SB/ST Screw-Driven Actuators

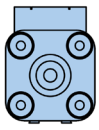
OSPE..SB Ball Screw Actuators for Precise Positioning
OSPE..ST Trapezoidal Screw Actuators for Zero Backdrive

- Medium precise and highly repeatable position control
- High thrust force output
- Easy installation
- Excellent low speed characteristics
- No back-drive with OSPE..ST
- Integrated drive train and glider bearing
- Complete motor, gearhead and control packages
- Diverse range of accessories and mountings
- Clean room option on request
- Ambient temperature range -20°C to +80°C
- IP54 rated

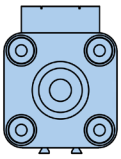
EXTERNAL GUIDE BEARING OPTIONS:

PowerSlide
- Designed for harsh environments
- Hardened steel guide rail
- Carriage with steel v-wheels
- Tough roller cover with wiper and grease access point

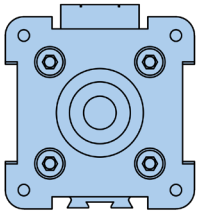
ProLine
- Designed for high-speed, precise, smooth and quiet operation
- Aluminum rail with ground and calibrated steel trucks
- Carriage supported by needle bearing rolls
- Integrated wipers to keep bearing system clean
- Lifetime lubricated bearing system



OSPE-25SB/ST



OSPE-32SB/ST



OSPE-50SB/ST

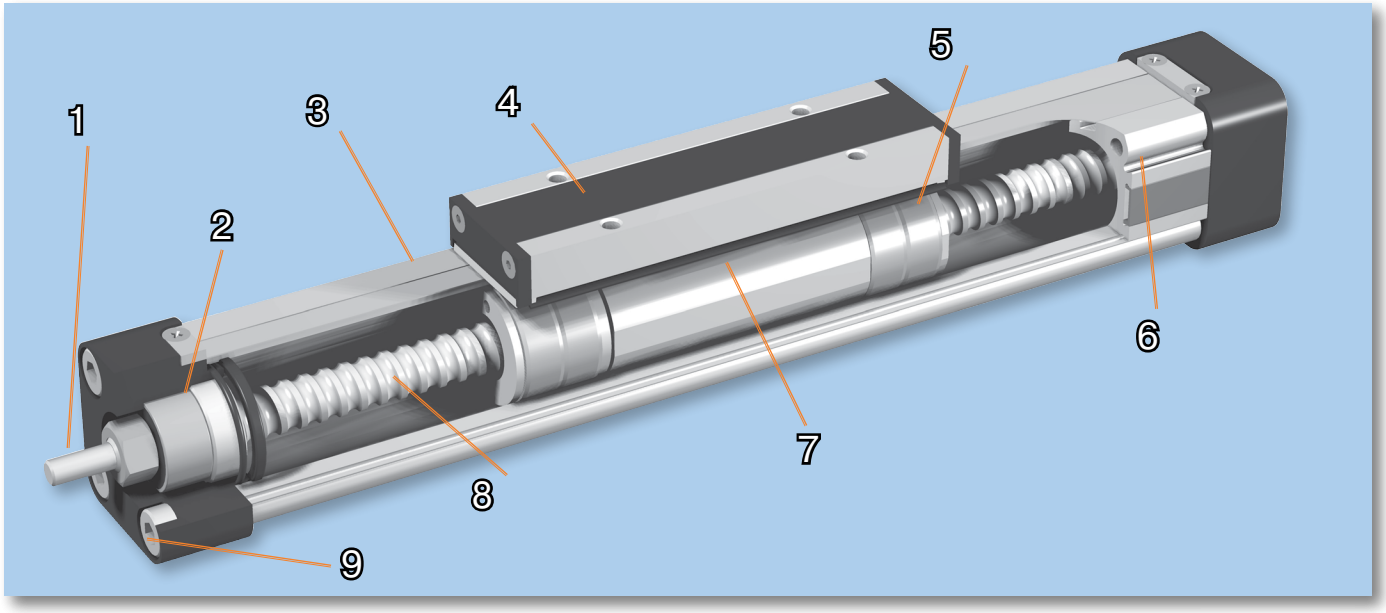
	OSPE 25SB	OSPE 32SB	OSPE 50SB	OSPE 25ST	OSPE 32ST	OSPE 50ST
Maximum Travel (mm)	1000	2000	3200	1000	2000	2400
Maximum Payload (N)	500	1200	3000	500	1000	1500
Maximum Acceleration (m/s²)	10	10	10	2	2	2

*** SB = Ball Screw, ST = Trapezoidal Screw**
**** Does not include external guide rail in values**

The field-proven OSPE..SB/ST design is the industry standard for medium precise positioning with a ball screw or intermittent duty positioning without back-drive with a trapezoidal screw. Compact size and maximum configurability make the OSPE..SB/ST easy to integrate into any machine layout simply and neatly.

The OSPE..SB design utilizes a ball screw which is ideal for medium precise applications requiring a 50 micron unidirectional repeatability. A ball screw is used in machines requiring reliable positioning with continuous and medium to high thrust force output at 100% duty cycle.

The OSPE..ST design utilizes a trapezoidal screw, which is ideal for low-speed and high-thrust applications with a maximum duty cycle of 10%. The trapezoidal screw has no back drive and therefore can hold loads in position without a motor brake, even in vertical orientations.



1 **Drive shaft**
Designed to pair with a large assortment of motor and gearhead mounting options

2 **Double row angular contact ball bearing**
Optimized for high thrust force transmission

3 **Corrosion resistant steel sealing band**
Magnetically fastened to the actuator body and provides sealing to IP54

4 **Carriage**
Low profile, high strength aluminum carriage with threaded holes for ease of mounting

5 **Low friction support rings**
Polymer glider bushing to provide an economical guidance system with optimum performance

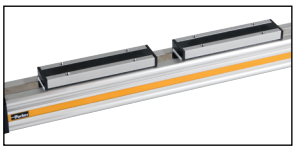
6 **Slotted profile**
With dovetail grooves for strength, actuator mounting, and mounting of sensor and other accessories

7 **Fastening**
SB actuators with hardened ball screw nut;
ST actuators with low friction plastic nut

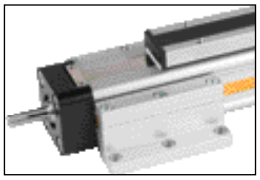
8 **Lead screw**
Ball screw or trapezoidal

9 **End housing mounting**
Threaded mounting holes allow for a multitude of mounting options

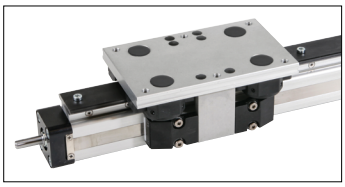
Carriage Options
Standard or
Tandem carriage — for higher load capabilities (OSPE..SB only)



Actuator Mounting Options
End cap mounting — allows actuator to be anchored by the end caps
Profile mounting — supports long travel actuators or for direct mounting (as shown)

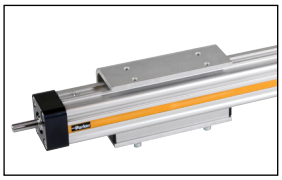


Carriage Bearing Design Configurations



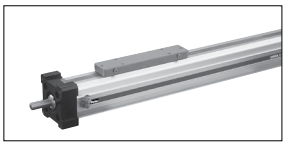
Standard carriage (with internal glider bearing), PowerSlide (externally mounted steel roller guide for higher load capabilities specifically in harsh environments), and ProLine (externally mounted aluminum roller guide for higher load capabilities and precision positioning)

Carriage Mounting



Standard, clevis (provides compensation between actuator and external guide rails in machine designs), and Inversion mounting (allows outer band to be on the bottom, while keeping payload on top, for better actuator protection in dirty environments)

Market Specific Options



Cleanroom version — Specific scraper system and vacuum suction ports to operate in clean environments (OSPE.. SB only). Certified according to DIN EN ISO 146441-1. Please consult factory for more information.

Multi-axis Systems
A wide range of adapter plates and intermediate drive shafts simplifies engineering and installation. Please consult factory for your individual system design.

Options and Accessories
Information on all OSPE..SB/ST Series options are detailed in Options & Accessories. Simply select all the options needed to solve your application requirements, then order with the actuator using convenient order codes (see Ordering Information). To order an option separately as an upgrade to an existing system or as a replacement part, use the individual option part numbers provided.

SPECIFICATIONS

OSPE..SB/ST General Specifications

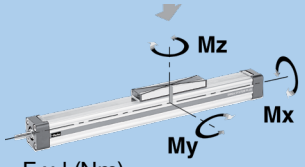
Actuator Size			OSPE25		OSPE32			OSPE50			
Screw Type (SB-Ball; ST-Trapezoidal)			**SB**	**ST**	**SB**	**SB**	**ST**	**SB**	**SB**	**SB**	**ST**
Screw Lead	s_{lin}	mm	5	4	5	10	4	5	10	25	6
Screw diameter		mm	12	16	16	16	20	25	25	25	30
Duty cycle*		%	100	10	100	100	10	100	100	100	10
Efficiency	η	%	90	40	90	90	40	90	90	90	40
Linear Speed (Max)	v_{max}	mm/s	250	100	250	500	100	250	500	1,250	150
Radial Speed (Max)		rpm	3,000	1,500	3,000	3,000	1,500	3,000	3,000	3,000	1,500
Acceleration (Max)	a_{max}	m/s^2	2	2	2	4	2	2	4	10	2
Repeatability (unidirectional)		µm	± 50	± 500	± 50	± 50	± 500	± 50	± 50	± 50	± 500
Thrust Force (Max)	F_{Amax}	N	250	600	1,100	800	1,300	1,300	1,450	1,350	2,500
		lbs	56	135	247	180	292	292	326	303	562
Torque on Drive Shaft (Max)	M_{Amax}	Nm	0.4	1.3	1.2	1.7	2.5	1.5	3.1	6.7	6.6
		in-lb	3.7	11.1	10.4	15.2	21.9	13.7	27.1	59.0	58.1
Inertia											
@ Zero Stroke	J_0	$kgmm^2$	2	6	8	8	22	84	84	84	152
Per Meter of Stroke	J_{OS}	$kgmm^2/m$	11.0	30.0	32.0	32.0	81.0	225.0	225.0	225.0	400.0
Per 1 kg Moved Mass	J_m	$kgmm^2/kg$	0.6	0.4	0.6	2.5	0.4	0.6	2.5	15.8	0.9
Ambient Temperature Range		°C	-20 to +80 (OSPE..SB); -20 to +70 (OSPE..ST)								
IP Rating			IP54								

* Due to the friction between the plastic nut and trapezoidal screw, the duty cycle must not exceed 10% to avoid early wear and increased noise emission.

Calculating Load Factors - Combined Normal and Moment Load

The sum of combined loads (static and dynamic) must not exceed "1" at any time as shown in the formula below:

$$\frac{F_z}{F_{z\,(max)}} + \frac{M_x}{M_{x\,(max)}} + \frac{M_y}{M_{y\,(max)}} + \frac{M_z}{M_{z\,(max)}} \leq 1$$



$M = F \times l$ (Nm)

$M_x = M_{x\,static} + M_{x\,dynamic}$

$M_y = M_{y\,static} + M_{y\,dynamic}$

$M_z = M_{z\,static} + M_{z\,dynamic}$

OSPE25SB/ST Performance

				Standard Carriage		PowerSlide			ProLine
Carriage (Bearing System)				**SB**	**ST**	**PS25/25**	**PS25/35**	**PS25/44**	**PL32**
Part Number [1]				—	—	20015	20016	20017	20856
Max Order Stroke [2]		OS_{max}	mm	1100	1100	1100	1100	1100	1100
Normal Load [3] **(Max)**		F_Y / F_Z	N (lbs)	500 (112)	500 (112)	297 (67)	330 (74)	575 (129)	1236 (278)
Moment Load [3] **(Max)**		M_X	Nm (in-lb)	2 (18)	2 (18)	5 (44)	6 (53)	10 (89)	24 (212)
		M_Y		12 (106)	24 (212)	21 (186)	23 (204)	85 (752)	55 (487)
		M_Z		8 (71)	7 (62)	21 (186)	23 (204)	85 (752)	55 (487)
Torque — No Load [4]	**SB – 5 mm lead**	M_0	Nm (in-lb)	0.2 (1.8)	—	0.3 (2.7)	0.3 (2.7)	0.3 (2.7)	0.3 (2.7)
	ST – 4 mm lead	M_0		—	0.3 (2.7)	0.4 (3.5)	0.4 (3.5)	0.4 (3.5)	0.4 (3.5)
Weight	**SB** **@ 0 Stroke**	m_0	kg (lbs)	0.6 (1.32)	—	0.9 (1.98)	1.0 (2.20)	1.2 (2.64)	0.8 (1.76)
	SB **Per Meter of Stroke**	m_{OS}		2.3 (5.06)	—	3.7 (8.14)	4.1 (9.02)	4.9 (10.78)	4.0 (8.80)
	SB **Carriage** [4]	m_C		0.2 (0.44)	—	0.9 (1.98)	1.0 (2.20)	1.7 (3.74)	1.0 (2.20)
	ST **@ 0 Stroke**	m_0		—	0.7 (1.54)	1.0 (2.20)	1.1 (2.42)	1.3 (2.86)	0.9 (1.98)
	ST **Per Meter of Stroke**	m_{OS}		—	1.6 (3.52)	4.2 (9.24)	4.6 (10.12)	5.4 (11.88)	4.5 (9.90)
	ST **Carriage** [4]	m_C		—	0.2 (0.44)	0.9 (1.98)	1.0 (2.20)	1.7 (3.74)	1.0 (2.20)

OSPE32SB/ST Performance

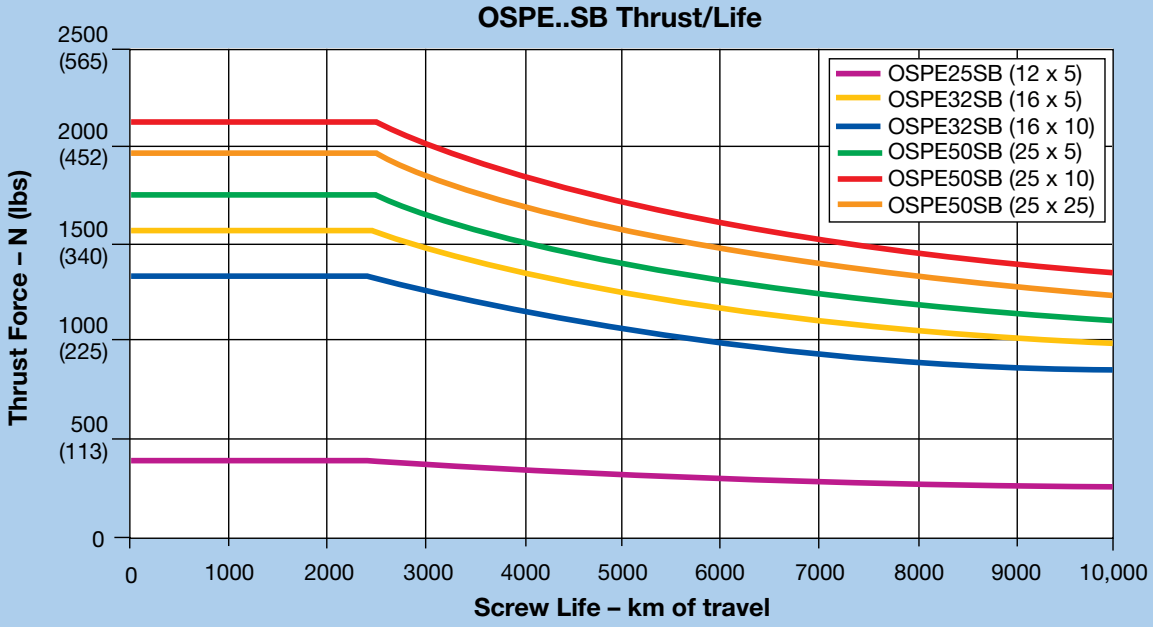
Carriage (Bearing System)					Standard Carriage SB	Standard Carriage ST	PowerSlide PS32/35	PowerSlide PS32/44	ProLine PL32
Part Number [1]					—	—	20286	20287	20857
Max Order Stroke [2]		OS_{max}	mm		2000	2000	2000	2000	2000
Normal Load [3] **(Max)**		F_Y / F_Z	N (lbs)		1200 (270)	1000 (225)	458 (103)	1111 (250)	1689 (380)
Moment Load [3] **(Max)**		M_X	Nm (in-lb)		8 (71)	6 (53)	7 (62)	24 (212)	41 (363)
		M_Y			25 (221)	65 (575)	23 (204)	85 (752)	105 (929)
		M_Z			16 (142)	12 (106)	23 (204)	85 (752)	105 (929)
Torque — No Load [4]	**SB – 5 mm lead**	M_0	Nm (in-lb)		0.3 (2.7)	—	0.4 (3.5)	0.4 (3.5)	0.4 (3.5)
	SB – 10 mm lead	M_0			0.4 (3.5)	—	0.5 (4.4)	0.5 (4.4)	0.5 (4.4)
	ST – 4 mm lead	M_0			—	0.6 (5.3)	0.7 (6.2)	0.7 (6.2)	0.7 (6.2)
Weight	**@ 0 Stroke**	m_0	kg (lbs)		1.6 (3.52)	—	2.0 (4.40)	2.2 (4.84)	2.1 (4.62)
SB	**Per Meter of Stroke**	m_{OS}			4.4 (9.68)	—	6.3 (13.86)	7.0 (15.40)	7.0 (15.40)
	Carriage [4]	m_C			0.4 (0.88)	—	1.2 (2.64)	1.9 (4.18)	1.6 (3.52)
ST	**@ 0 Stroke**	m_0			—	1.6 (3.52)	2.6 (5.72)	2.8 (6.16)	2.1 (4.62)
	Per Meter of Stroke	m_{OS}			—	5.0 (11.00)	6.9 (15.18)	7.6 (16.72)	7.6 (16.72)
	Carriage [4]	m_C			—	0.5 (1.10)	1.3 (2.86)	2.0 (4.40)	1.7 (3.74)

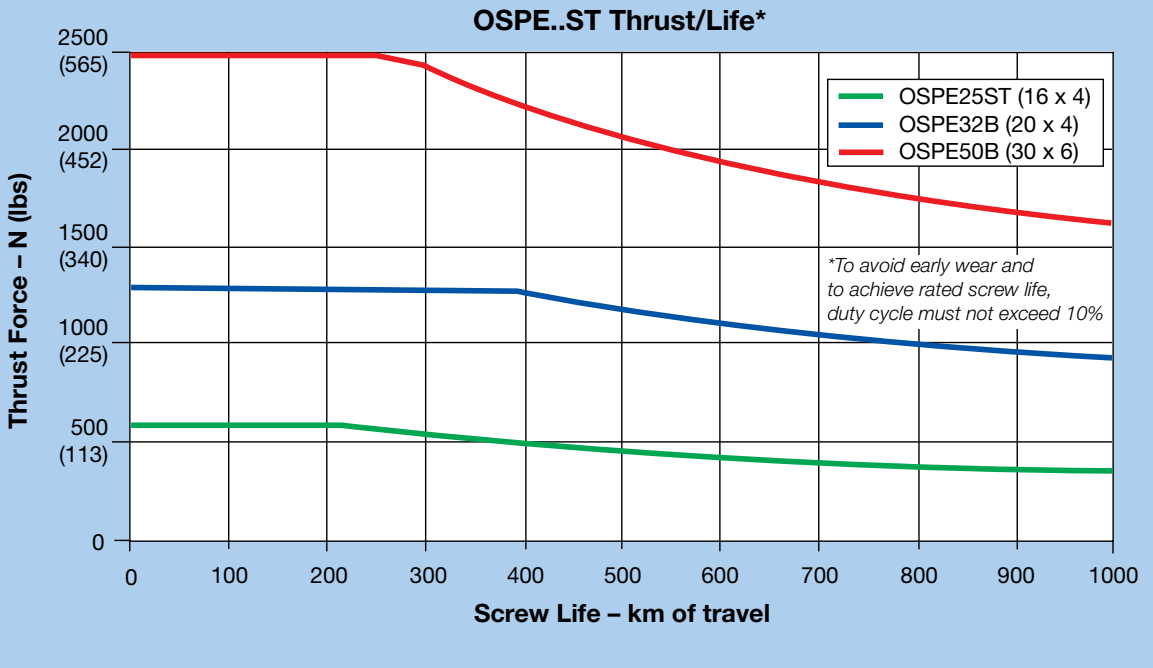
OSPE50SB/ST Performance

Carriage (Bearing System)					Standard Carriage SB	Standard Carriage ST	PowerSlide PS50/60	PowerSlide PS50/76	ProLine PL50
Part Number [1]					—	—	20288	20289	20859
Max Order Stroke [2]		OS_{max}	mm		2000	2000	2000	2000	2000
Normal Load [3] **(Max)**		F_Y / F_Z	N (lbs)		3000 (674)	1500 (337)	1449 (326)	2518 (566)	4489 (1009)
Moment Load [3] **(Max)**		M_X	Nm (in-lb)		16 (142)	13 (115)	43 (381)	88 (779)	160 (1416)
		M_Y			80 (708)	155 (1372)	121 (1071)	220 (1947)	360 (3186)
		M_Z			32 (283)	26 (230)	121 (1071)	220 (1947)	360 (3186)
Torque — No Load [4]	**SB – 5 mm lead**	M_0	Nm (in-lb)		0.6 (5.3)	—	0.8 (7.1)	0.8 (7.1)	0.8 (7.1)
	SB – 10 mm lead	M_0			0.7 (6.2)	—	0.9 (8.0)	0.9 (8.0)	0.9 (8.0)
	SB – 25 mm lead	M_0			0.9 (8.0)	—	1.2 (10.6)	1.2 (10.6)	1.2 (10.6)
	ST – 6 mm lead	M_0			—	0.7 (6.2)	1.9 (16.8)	1.9 (16.8)	1.9 (16.8)
Weight	**@ 0 Stroke**	m_0	kg (lbs)		4.0 (8.80)	—	5.2 (11.44)	5.9 (12.98)	5.2 (11.44)
SB	**Per Meter of Stroke**	m_{OS}			9.4 (20.68)	—	13.6 (29.92)	16.0 (35.20)	13.2 (29.04)
	Carriage [4]	m_C			1.2 (2.64)	—	3.5 (7.70)	6.1 (13.42)	3.7 (8.14)
ST	**@ 0 Stroke**	m_0			—	3.8 (8.36)	5.0 (11.00)	5.7 (12.54)	5.0 (11.00)
	Per Meter of Stroke	m_{OS}			—	10.6 (23.32)	14.8 (32.56)	17.2 (37.84)	14.4 (31.68)
	Carriage [4]	m_C			—	1.3 (2.86)	3.6 (7.92)	6.2 (13.64)	3.8 (8.36)

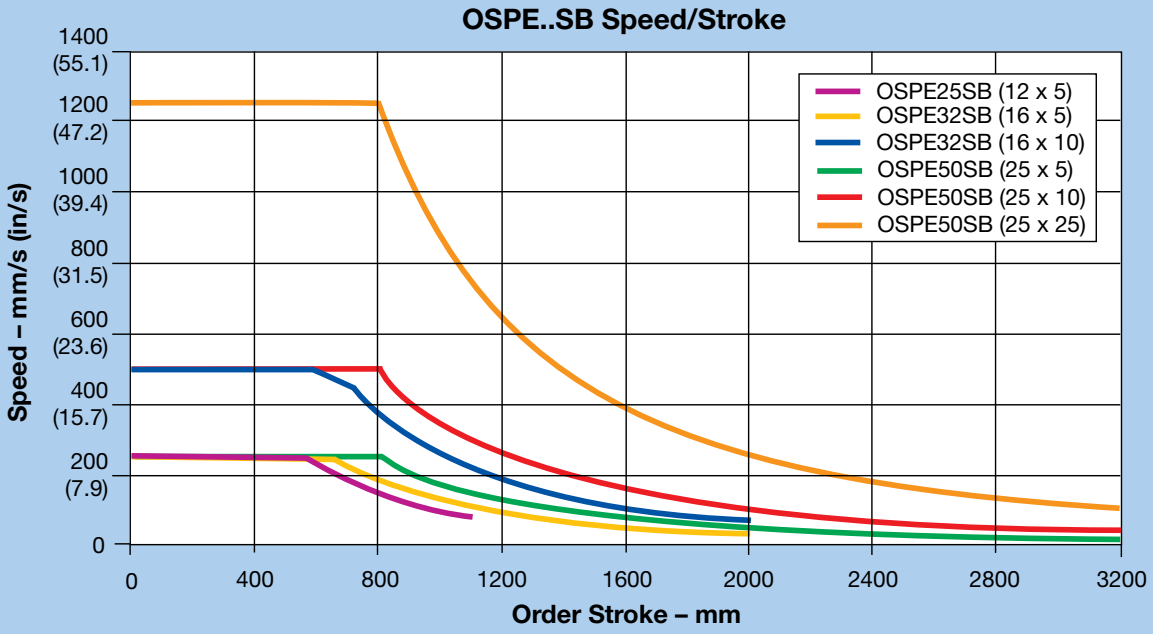
[1] PowerSlide or ProLine bearings can be ordered individually with assigned part number in the table and specified, five digit order stroke value (mm), following the part number (-nnnnn) to designate the appropriate length guide rail. To order PowerSlide or Proline bearing with the actuator, use the appropriate order code in item of Ordering Information.
[2] Longer strokes available upon request. Contact factory.
[3] Load and moment based on 8000 km performance Refer to “Calculating Load Factors” for additional information.
[4] For tandem option (OSPE..SB), double the values listed.

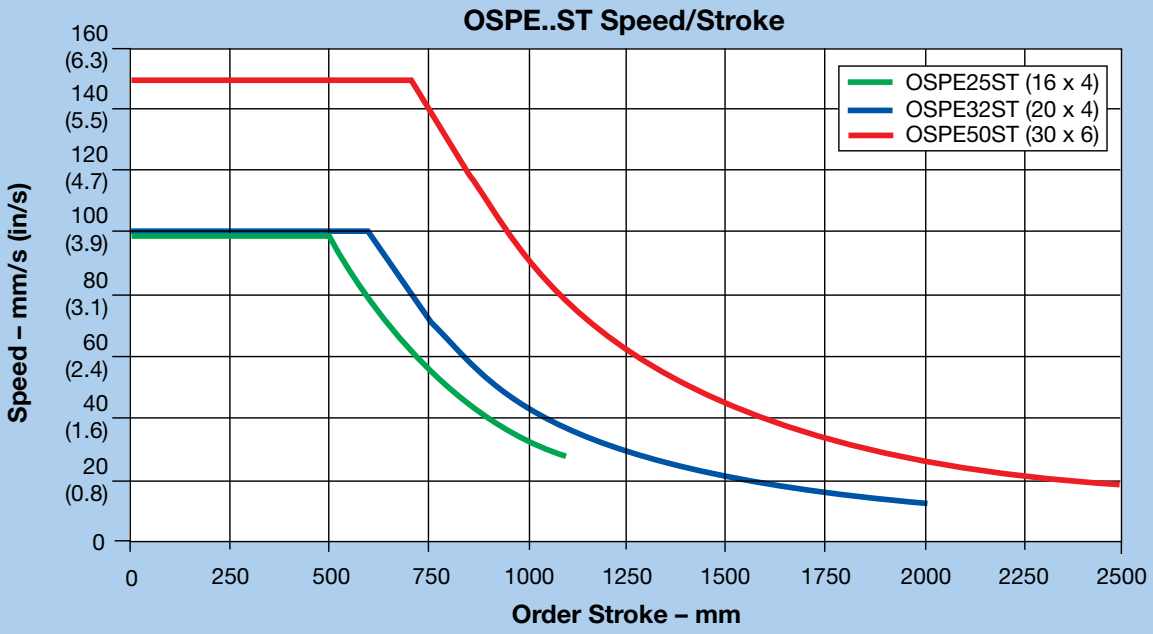
OSPE..SB/ST Life Performance





Speed Performance





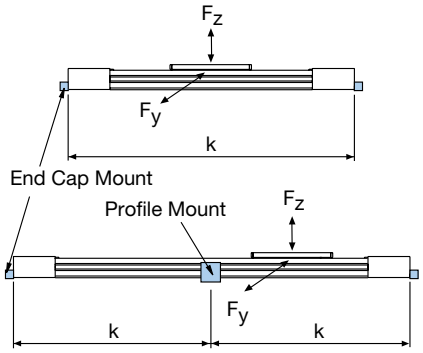
DIMENSIONS

Maximum Permissible Unsupported Length —
Determining end cap and profile mounting placement

OSPE..SB/ST Series actuators need to be mounted onto a solid machine base or frame structure using appropriately positioned end cap and profile mounts. This ensures that the actuator will not undergo excessive deflection based on the application's load and length requirements.

The greater the load and/or the longer the unsupported length between mounts, the more the actuator is susceptible to deflection. Loading is also dependent on the carriage orientation (F_Z for top oriented carriage or F_Y for a side mounted carriage).

Standard Carriage, Tandem Carriage, PowerSlide or ProLine



To determine correct end cap and profile mount placement, please follow the steps shown in the example below.

Use the deflection graphs on the next page to ensure that the load will not exceed the maximum allowed deflection.

Example:

A horizontal application uses an OSPE32B with a top oriented carriage. The maximum load to the carriage is 80 kg and the order stroke is 1,550 mm (see previous section to calculate order stroke).

Therefore, the overall length of the actuator will be 1,800 mm:

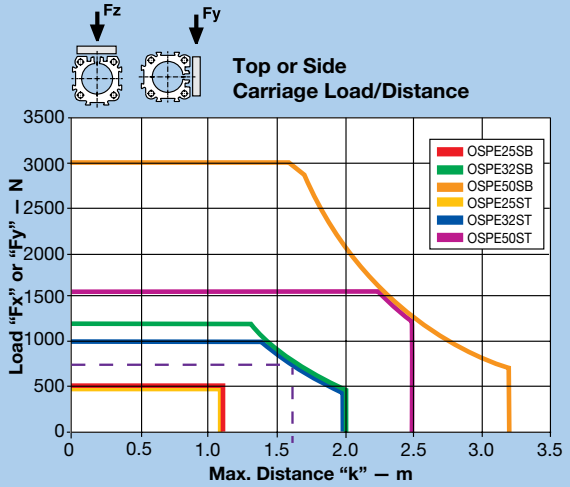
1,550 mm + 2 x Dim "X" (125 mm) = 1,800 mm

1) Use the appropriate Fz graph) for a top loaded carriage. (Note: with the standard carriage, top loaded Fz and side loaded Fy values are the same).
2) Calculate the Load "F" in Newtons based on the 80 kg application load requirement:

   80 kg x 9.81 kg/ms^2 = 784.8 N
3) Draw a line from 785 N on the Y-axis to the OSPE32B curve, then down to the X-axis.
4) The value of "k" is approximately 1,600 mm.
5) Since the overall length (1,800 mm) is greater than this value "k", the actuator will require an additional third fixture point — one end cap mount and two profile mounts — equally spaced to create a distance "k" of 800 mm in between.
6) Maximum deflection of the actuator with this mounting configuration will be less than 1.6 mm:

   0.2% of 800 mm = 1.6 mm

Standard Carriage Load-Distance

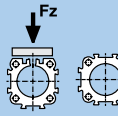


To further reduce deflection:

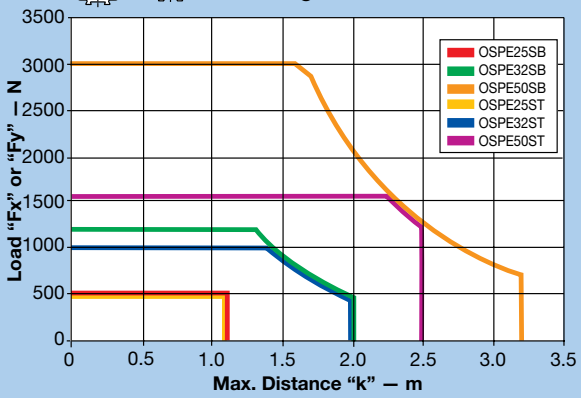
If the application requires less deflection, then simply reduce the distance "k" appropriately. In this example, for instance, the application must not exceed 1 mm (1/2 the maximum deflection calculated). Therefore, "k" must also be 1/2, or 400 mm.

To achieve this reduced maximum deflection, the actuator will require five fixture points — one end cap mount and four profile mounts — equally spaced with a distance "k" of 400 mm in between.

Standard Carriage Load-Distance



Top or Side Carriage Load/Distance



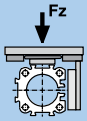
Maximum Permissible Unsupported Length

Determining end cap and profile mounting placement

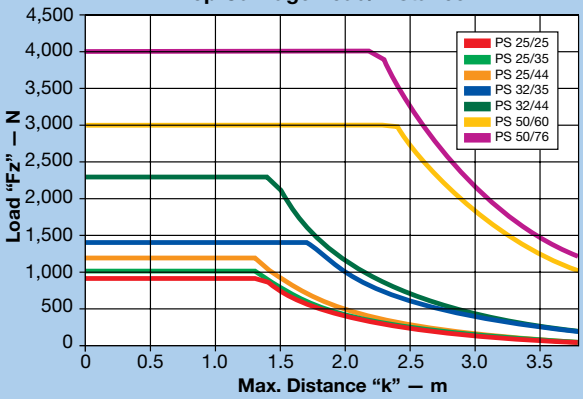
Use the appropriate deflection graph to ensure that the application load does not exceed the deflection curve. Supporting the actuator within the recommended maximum distance "k" will ensure that the installation will have a maximum deflection equal to 0.2% of distance "k."

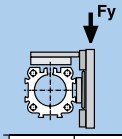
To further reduce deflection, simply reduce the distance between end cap and profile mounts as described in the example on the previous page.

PowerSlide Carriage Load-Distance

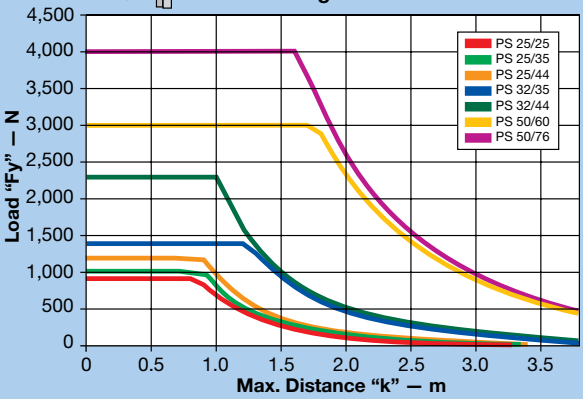


Top Carriage Load/Distance

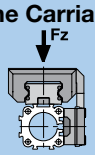




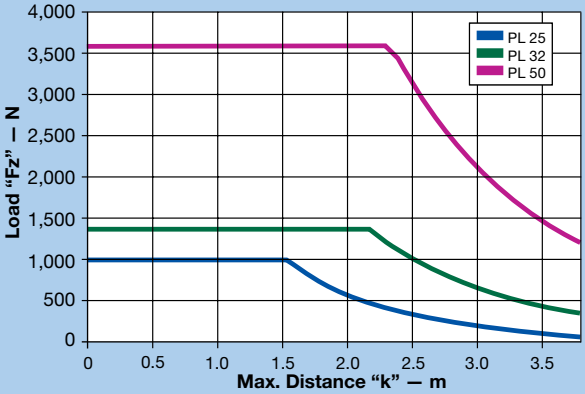
Side Carriage Load/Distance

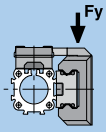


ProLine Carriage Load-Distance

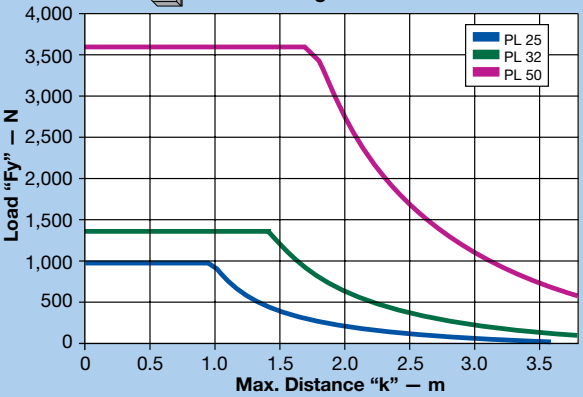


Top Carriage Load/Distance





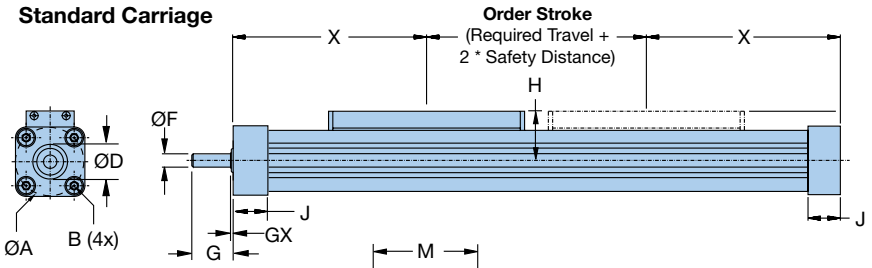
Side Carriage Load/Distance



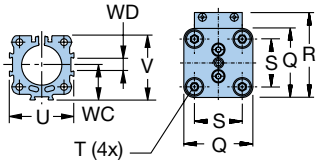
Base Unit Dimensions w/Standard Carriage — mm

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

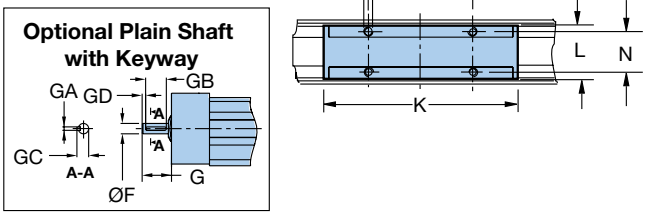
Standard Carriage



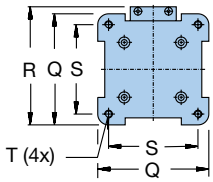
Size 25 & 32 End Cap



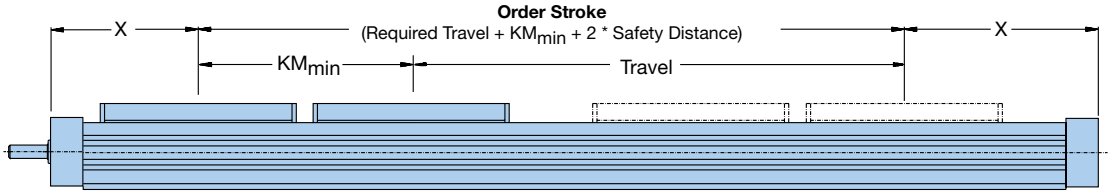
Optional Plain Shaft with Keyway



Size 50 End Cap



Tandem Carriage (SB models only)



Actuator Size	A	B	D	F	G*	GA	GB	GC	GD	GX	H	J	K
OSPE25SB/ST	38.2	M5 x 10	19^{H7}	6_{h7}	17	2^{P9}	12	6.8	2	2	31	22.0	117
OSPE32SB/ST	50.9	M6 x 12	26^{H7}	10_{h7}	31	3^{P9}	16	11.2	5	2	38	25.5	152
OSPE50SB/ST	65.0	M6 x 12	40^{H7}	15_{h7}	43	5^{P9}	28	17.0	6	3	49	33.0	200

	L	M	N	P	Q	R	S	T	U	V	WC	WD	X
OSPE25SB/ST	33	65	25	M5 x 8	41	52.5	27	M5 x 10	40	39.5	21.5	10.4	100
OSPE32SB/ST	36	90	27	M6 x 10	52	66.5	36	M6 x 12	52	51.7	28.5	10.4	125
OSPE50SB/ST	36	110	27	M6 x 10	87	92.5	70	M6 x 12	76	77.0	43.0	10.4	175

* With optional long drive shaft with keyway, dimension “G” is 24 mm for OSPE25SB/ST; 41 mm for OSPE32SB/ST; 58 mm for OSPE50SB/ST
(See Ordering Information, order code , option “4 –”)

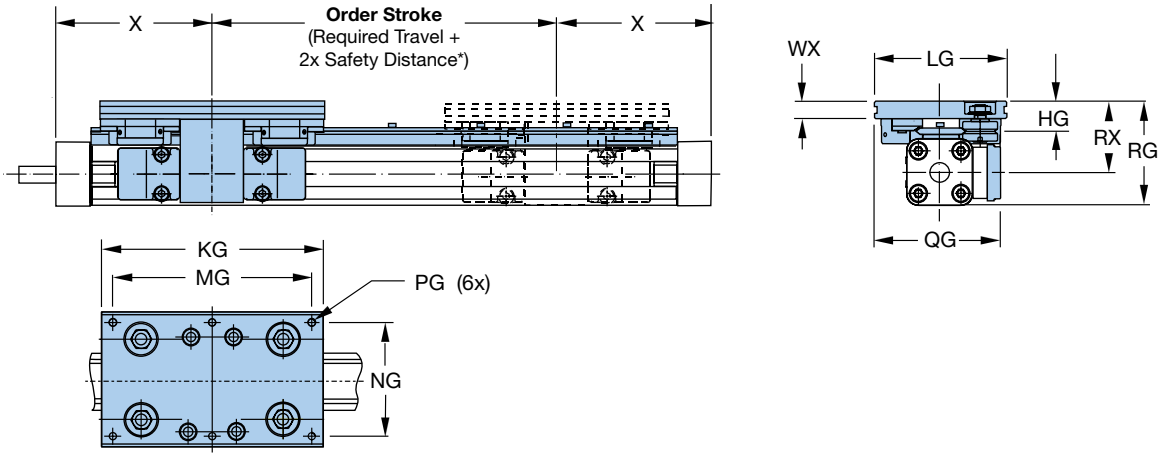
Order Stroke Dimensional Requirements

Actuator Size	KM_{min}	KM_{rec}
OSPE25SB/ST	120	190
OSPE32SB/ST	165	230
OSPE50SB/ST	235	320

KM_{min} is the minimum distance between two carriages possible; KM_{rec} is the recommended distance for optimal performance.

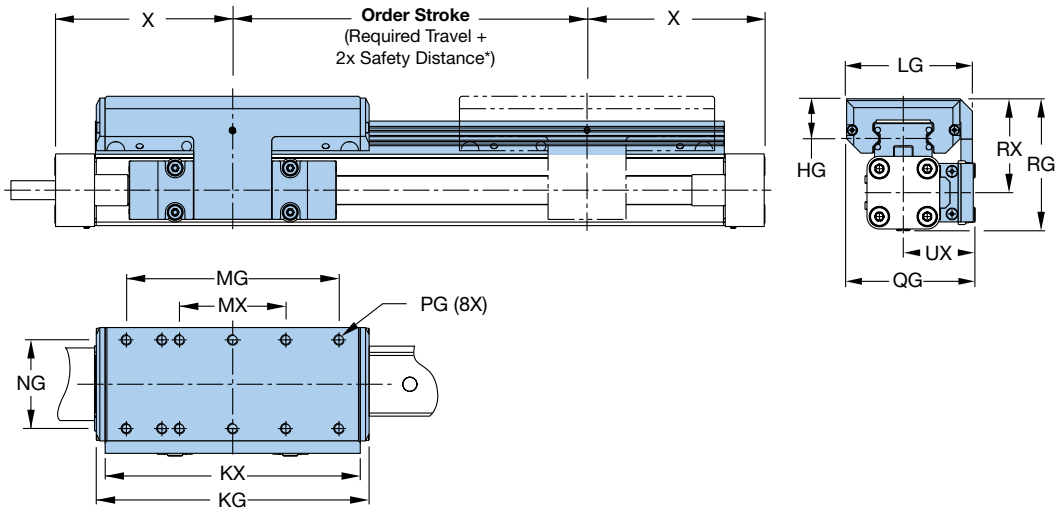
*** Order Stroke Safety Distance:**
The mechanical end position should not be used as a mechanical end stop, thus an additional Safety Distance at both ends of travel must be incorporated into the Order Stroke. The safety distance for servo-driven systems is equivalent to the travel distance per revolution of the drive shaft. AC motor-driven systems with VFD require a larger safety distance than servo systems. For further information and design assistance, please consult factory.

PowerSlide Dimensions — mm



Guide Rail Size	HG	KG	LG	MG	NG	PG	QG	RG	RX	WX	X
PS25/25	20.0	145	80	125	64	M6 x 11	79.5	73.5	53.0	11.0	100
PS 25/35	21.5	156	95	140	80	M6 x 12	89.5	73.0	52.5	12.5	100
PS25/44	26.0	190	116	164	96	M8 x 15	100.0	78.5	58.0	15.0	100
PS32/35	21.5	156	95	140	80	M6 x 12	95.5	84.5	58.5	12.5	125
PS 32/44	26.0	190	116	164	96	M8 x 15	107.0	90.0	64.0	15.0	125
PS50/60	28.5	240	135	216	115	M8 x 17	130.5	123.5	81.0	17.0	175
PS 50/76	39.0	280	185	250	160	M10 x 20	155.5	135.5	93.0	20.0	175

ProLine Dimensions — mm

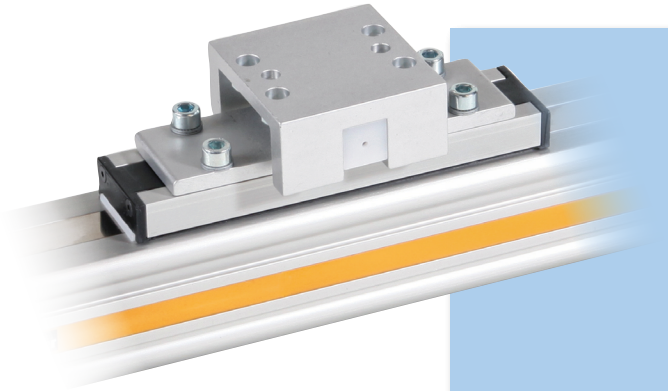


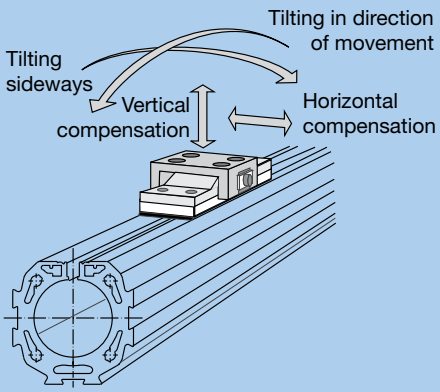
Guide Rail Size	HG	KG	KX	LG	MG	MX	NG	PG	QG	RG	RX	UX	X
PL 25	23	154	144	64	120	60	50	M6 x 12	72.5	74	53	40.5	100
PL 32	25	197	187	84	160	80	64	M6 x 12	91.0	88	62	49.0	125
PL 50	31.6	276	266	110	240	120	90	M6 x 16	117.0	118	75	62.0	175

OPTIONS & ACCESSORIES

Order Code

R Clevis Mounting Option for Standard Carriage

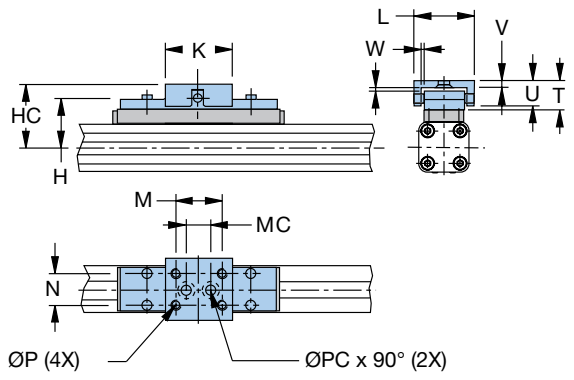




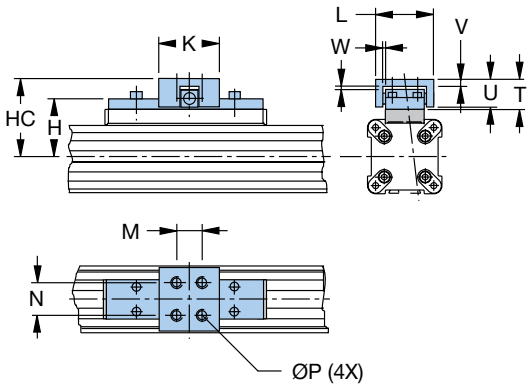
When external guides are involved in the application, slight parallelism deviations can lead to mechanical strain on the carriage and actuator. This can be avoided by the use of a clevis mount that provides freedom of movement compensation on several axes.

The aluminum clevis mount option bolts directly to the standard carriage to eliminate parallelism deviations and strain to the carriage when the actuator is mounted onto machine guide rails. Clevis mounting provides compensation for misalignment in Z and Y directions and can tilt around the X and Y axis.

OSPE25 and OSPE32



OSPE50



Dimensions — mm

Actuator Size	Part Number	Weight* (kg)	H	HC	K	L	M	MC	N	P	PC	T	U	V	W
OSPE25SB/ST	20005FIL	0.091	39	52	40	38	30	16	16	M5	5.5	21	19	3.5	2
OSPE32SB/ST	20096FIL	0.091	50	68	60	62	46	40	25	M6	6.6	30	28	6.0	2
OSPE50SB/ST	20097FIL	0.308	61	79	60	62	46	—	25	M6	—	30	28	6.0	2

*Part number and weight are for individual unit.

Order Code

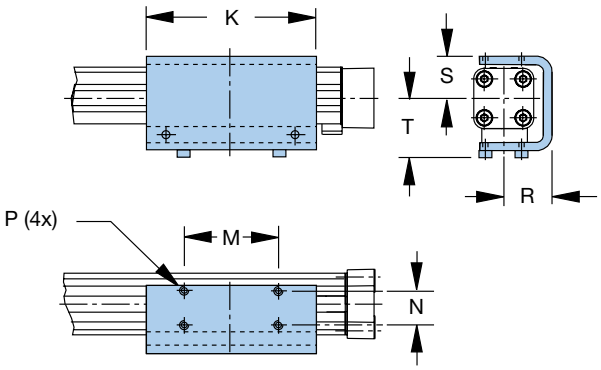
M Inversion Mounting Option for Standard Carriage

For dirty environments or space-restricted installations, inversion of the actuator is recommended.

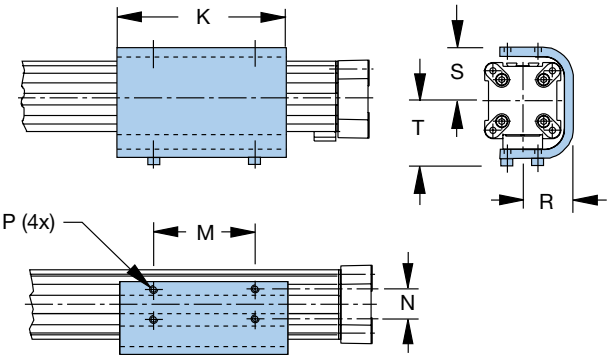
The aluminum inversion bracket transfers the driving force to the opposite side of the actuator allowing the load to be attached to the top side of the actuator while the carriage and sealing band remain protected on the bottom side. The size and position of the mounting holes are the same as on the standard carriage.

Note: Profile mounts and magnetic switches can only be used on the free side of the actuator.

OSPE25 and OSPE32



OSPE50



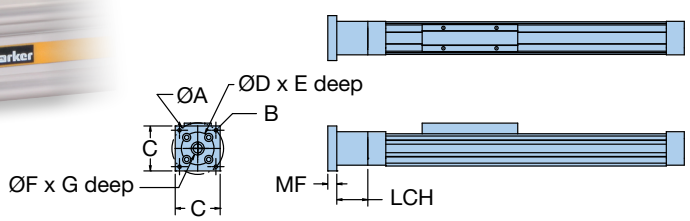
Actuator Size	Part Number	Weight* (kg)	Dimensions — mm K	M	N	P	R	S	T
OSPE25SB/ST	20037FIL	0.302	117	65	25	M5 x 6	33.5	31	43
OSPE32SB/ST	20161FIL	0.449	150	90	27	M6 x 6	39.5	38	51
OSPE50SB/ST	20166FIL	0.947	200	110	27	M6 x 8	52.0	55	65

*Part number and weight are for individual unit.

Motor Mounting Kit Options

Motor Mounting Kits include a coupling housing, coupling and flange

Note: Screw thread to mount motor to flange plate is M3



A = Bolt circle diameter
B = Screw for bolt circle
C = Square dimension
D = Pilot diameter
E = Pilot depth
F = Input drive shaft diameter
G = Input drive shaft length
LCH = Length coupling housing
MF = Motor flange

Actuator Size	Order Code *	Order Code *	Dimensions — mm A	B	C	D	E	F	G	LCH	MF
OSPE25SB/ST	0	AA **	46.66	M3	56	20.00	1.6	6.35	24.8	38	10
	0	AB	66.67	M4	58	38.10	1.6	6.35	20.5	38	9
	0	AC	66.67	M5	58	38.10	1.6	9.53	20.8	38	9
	0	AD	66.67	M5	60	38.10	1.6	9.53	31.8	38	17
	0	B5 **	46.00	M4	56	30.00	2.5	6.00	25.0	38	10
	0	AM **	46.00	M3	56	30.00	2.5	8.00	25.0	38	10
	0	B6	63.00	M4	60	40.00	2.5	9.00	20.0	38	9
	0	AH	63.00	M5	60	40.00	2.5	9.00	20.0	38	10
	0	A2	63.00	M5	60	40.00	2.5	11.00	23.0	38	10
	0	B7	70.00	M5	60	50.00	3.0	8.00	25.0	38	15
	0	B8	70.00	M5	60	50.00	3.0	12.00	30.0	38	15
	0	AG	75.00	M5	70	60.00	2.5	11.00	23.0	38	10
	0	B1	90.00	M5	75	60.00	2.5	11.00	23.0	38	10
OSPE32SB/ST	0	AB	66.67	M5	60	38.10	1.6	6.35	20.5	54	10
	0	AC	66.67	M5	60	38.10	1.6	9.525	20.8	54	10
	0	AD	66.67	M5	60	38.10	1.6	9.525	31.8	54	17
	0	AE	98.43	M5	85	73.00	3.0	12.70	30.0	54	15
	0	AF	98.43	M6	85	73.00	3.0	12.70	37.0	54	25
	0	B6 **	63.00	M4	74	40.00	2.5	9.00	20.0	54	10
	0	AH **	63.00	M5	74	40.00	2.5	9.00	20.0	54	10
	0	A2 **	63.00	M5	74	40.00	2.5	11.00	23.0	54	10
	0	BJ	66.67	M5	60	38.10	1.6	12.70	20.0	54	10
	0	B7	70.00	M5	60	50.00	3.0	8.00	25.0	54	15
	0	B8	70.00	M5	60	50.00	3.0	12.00	30.0	54	15
	0	AN	70.00	M5	60	50.00	3.0	14.00	30.0	54	15
	0	AG	75.00	M5	70	60.00	2.5	11.00	23.0	54	10
	0	B9	75.00	M5	70	60.00	2.5	14.00	30.0	54	15
	0	BA	75.00	M5	70	60.00	3.0	16.00	40.0	54	25
	0	B0	75.00	M6	70	60.00	3.0	14.00	30.0	54	15
	0	B1	90.00	M5	75	60.00	2.5	11.00	23.0	54	10
	0	B2	90.00	M5	75	60.00	2.5	14.00	30.0	54	15
	0	BB	90.00	M6	80	70.00	3.0	14.00	30.0	54	15
	0	B4	90.00	M6	80	70.00	3.0	16.00	40.0	54	25
	0	B3	95.00	M6	80	50.00	2.5	14.00	30.0	54	15

* When ordering with actuator, use order code (gearhead designation) and order code to specify motor mounting kit. See Ordering Information.
** Motor mounts with 45° rotated

■ Blue order codes indicate rapid shipment availability

(continued on next page)

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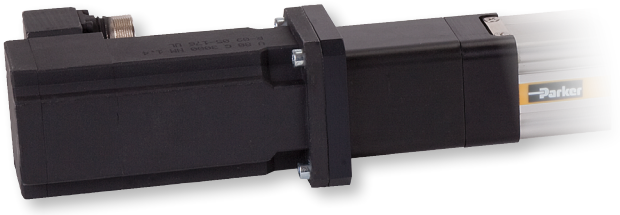
Actuator Size	Order Code *	Order Code *	Dimensions — mm A	B	C	D	E	F	G	LCH	MF
OSPE50SB/ST	0	AE	98.43	M5	88	73.0	3.0	12.70	30.0	75	14
	0	AF	98.43	M6	88	73.0	3.0	12.70	37.0	84	15
	0	B9	75.00	M5	85	60.0	2.5	14.00	30.0	75	14
	0	BA **	75.00	M5	86	60.0	3.0	16.00	40.0	84	15
	0	B0	75.00	M6	88	60.0	3.0	14.00	30.0	75	14
	0	B2	90.00	M5	80	60.0	2.5	14.00	30.0	75	14
	0	BB	90.00	M6	80	70.0	3.0	14.00	30.0	75	14
	0	B4	90.00	M6	86	70.0	3.0	16.00	40.0	84	15
	0	AP	90.00	M6	86	70.0	3.0	19.00	40.0	84	15
	0	B3	95.00	M6	85	50.0	2.5	14.00	30.0	75	14
	0	A1	99.00	M6	88	73.0	3.0	9.525	31.5	75	14
	0	A3	100.00	M6	88	80.0	3.5	14.00	30.0	75	14
	0	AL	100.00	M6	88	80.0	3.0	16.00	40.0	84	15
	0	AJ	100.00	M6	88	80.0	3.0	19.00	40.0	84	15
	0	A4	115.00	M8	100	95.0	3.5	19.00	40.0	84	15
	0	BD	130.00	M8	115	95.0	3.0	19.00	40.0	84	15
	0	BF	130.00	M8	115	110.0	3.5	19.00	40.0	84	15

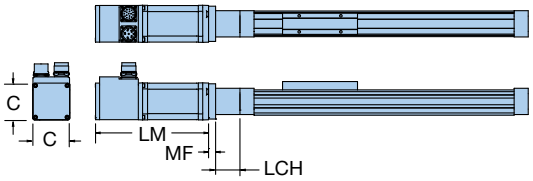
* When ordering with actuator, use order code (gearhead designation) and order code to specify motor mounting kit. See Ordering Information.
** Motor mounts with 45° rotated

■ Blue order codes indicate rapid shipment availability

Mounted Motor Options

Mounted Motor Options include a coupling housing, coupling, flange and motor





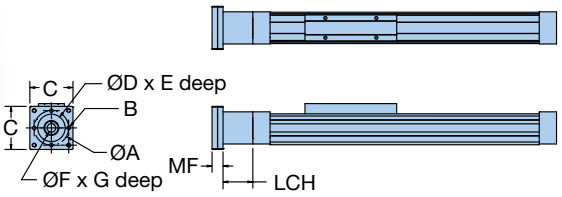
C = Square dimension
LCH = Length coupling housing
LM = Length motor
MF = Motor flange

Actuator Size	Order Code *	Order Code *	Motor description	Dimensions — mm C	LCH	LM	MF
OSPE25SB/ST	0	L0	LV233-01-10	58	38	79	9
	0	L1	HV233-01-10	58	38	79	9
	0	K0	BE233FJ-KPSN	58	38	143	17
	0	K1	BE233FJ-KPSN with brake (CM233FJ-115027)	58	38	178	17
	0	KA	PM-FAL01AM8N	40	38	95.2	10
	0	KB	PM-FAL01AM8N2 (Brake)	40	38	131.6	10
OSPE32SB/ST	0	L0	LV233-01-10	58	54	79	10
	0	L1	HV233-01-10	58	54	79	10
	0	L2	LV343-01-10	86	54	127	25
	0	L3	HV343-01-10	86	54	127	25
	0	K0	BE233FJ-KPSN	58	54	143	18
	0	K1	BE233FJ-KPSN with brake (CM233FJ-115027)	58	54	178	18
	0	K2	BE344LJ-KPSN	86	54	188	16
	0	K3	BE344LJ-KPSB	86	54	220	16
	0	KC	PM-FBL04AMK	62	54	108.2	15
	0	KD	PM-FBL04AMK2	62	54	148.2	15
OSPE50SB/ST	0	L2	LV343-01-10	86	84	127	15
	0	L3	HV343-01-10	86	84	127	15
	0	K2	BE344LJ-KPSN	86	75	188	14
	0	K3	BE344LJ-KPSB	86	75	220	14
	0	KJ	PM-FCL10AMK	80	84	152.7	15
	0	KK	PM-FCL10AMK2 (Brake)	80	84	193	15
	0	M0	MPP0923D1E-KPSN	89	84	178	15
	0	M1	MPP0923D1E-KPSB	89	84	212	15
	0	M2	MPP1003D1E-KPSN	98	84	175	15
	0	M3	MPP1003D1E-KPSB	98	84	224	15
	0	M4	MPP1003R1E-KPSN	98	84	175	15
	0	M5	MPP1003R1E-KPSB	98	84	224	15

*When ordering with actuator, use order code (gearhead designation) and order code to specify mounted motor. See Ordering Information.

Gearhead Mounting Kit Options

Gearhead Mounting Kits include a coupling housing, coupling and flange



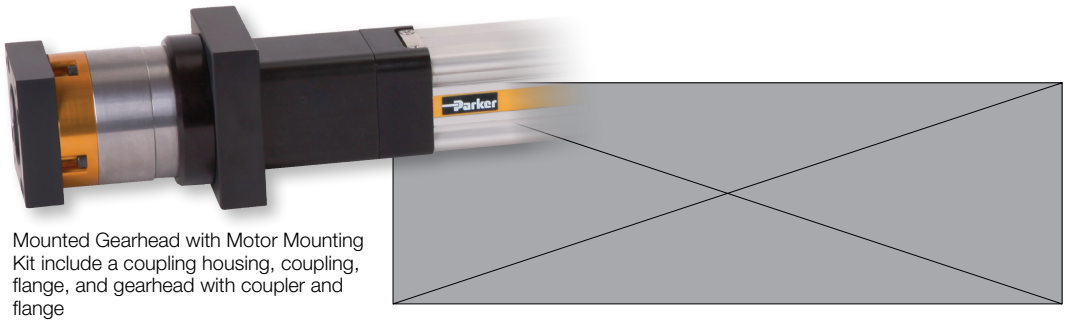
A = Bolt circle diameter
B = Screw for bolt circle
C = Square dimension
D = Pilot diameter
E = Pilot depth
F = Input drive shaft diameter
G = Input drive shaft length
LCH = Length coupling housing
MF = Motor flange

Actuator Size	Order Code *	Order Code *	Dimensions — mm A	B	C	D	E	F	G	LCH	MF
OSPE25SB/ST	**0**	**C0**	44	S4	54	35	3	12	25	38	14.0
OSPE32SB/ST	0	C0	44	S4	60	35	3	12	25	54	13.0
	0	**C1**	62	S5	75	52	8	16	36	54	20.0
OSPE50SB/ST	**0**	**C1**	62	S5	75	52	8	16	36	84	16.3
	0	C2	80	S6	95	68	10	22	46	84	23.0

*When ordering with actuator, use order code (gearhead designation) and order code to specify gearhead mounting kit See Ordering Information.

■ Blue order codes indicate rapid shipment availability

Mounted Gearhead with Motor Mounting Kit Options



Mounted Gearhead with Motor Mounting Kit include a coupling housing, coupling, flange, and gearhead with coupler and flange

A = Bolt circle diameter
B = Screw for bolt circle
C = Square dimension
D = Pilot diameter
E = Pilot depth
F = Input drive shaft diameter
G = Input drive shaft length
LCH = Length coupling housing
LGH = Length gearhead
MAK = Motor adapter
MF = Motor flange

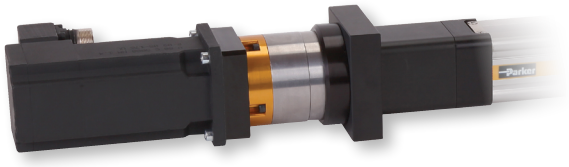
Actuator Size	Order Code [1]	Order Code [2]	Dimensions — mm A	B	C	D	E	F	G	LCH	LGH	MAK	MF
OSPE25SB/ST	A or B	AA	46.66	M3	43	20.00	1.6	6.35	24.8	38	48.5	19.0	14.0
	A or B	**AB**	66.67	M5	55	38.10	1.6	6.35	20.5	38	48.5	15.7	14.0
	A or B	B5	46.00	M4	43	30.00	2.5	6.00	25.0	38	48.5	19.0	14.0
	A or B	**AM**	46.00	M3	43	30.00	2.5	8.00	25.0	38	48.5	19.0	14.0
	A or B	B6	63.00	M4	55	40.00	2.5	9.00	20.0	38	48.5	13.7	14.0
	A or B	AH	63.00	M5	55	40.00	2.5	9.00	20.0	38	48.5	19.0	14.0
OSPE32SB/ST	**C, D or E**	**AB**	66.67	M5	62	38.10	1.6	6.35	20.5	54	67.0	16.5	20.0
	C, D or E	AC	66.67	M5	62	38.00	1.6	9.525	20.8	54	67.0	16.5	20.0
	C, D or E	**AD**	66.67	M5	62	38.10	1.6	9.525	31.8	54	67.0	22.5	20.0
	C, D or E	**AE**	98.43	M5	80	73.03	3.0	12.70	30.0	54	67.0	22.5	20.0
	C, D or E	**AF**	98.43	M6	85	73.03	3.0	12.70	37.0	54	67.0	30.0	20.0
	C, D or E	B6	63.00	M4	62	40.00	2.5	9.00	20.0	54	67.0	16.5	20.0
	C, D or E	AH	63.00	M5	62	40.00	2.5	9.00	20.0	54	67.0	16.5	20.0
	C, D or E	B8	70.00	M5	62	50.00	3.0	12.00	30.0	54	67.0	22.5	20.0
	C, D or E	**AN**	70.00	M5	62	50.00	3.0	14.00	30.0	54	67.0	22.5	20.0
	C, D or E	AG	75.00	M5	62	60.00	2.5	11.00	23.0	54	67.0	16.5	20.0
	C, D or E	B9	75.00	M5	62	60.00	2.5	14.00	30.0	54	67.0	22.5	20.0
	C, D or E	BB	90.00	M6	80	70.00	3.0	14.00	30.0	54	67.0	22.5	20.0
	C, D or E	A3	100.00	M6	89	80.00	3.5	14.00	30.0	54	67.0	22.5	20.0
OSPE50SB/ST	**C, D or E**	**AB**	66.67	M5	62	38.10	1.6	6.35	20.5	84	67.0	16.5	16.3
	C, D or E	AC	66.67	M5	62	38.00	1.6	9.525	20.8	84	67.0	16.5	16.3
	C, D or E	**AD**	66.67	M5	62	38.10	1.6	9.525	31.8	84	67.0	22.5	16.3
	C, D or E	**AE**	98.43	M5	80	73.03	3.0	12.70	30.0	84	67.0	22.5	16.3
	C, D or E	**AF**	98.43	M6	85	73.03	3.0	12.70	37.0	84	67.0	30.0	16.3
	C, D or E	B6	63.00	M4	62	40.00	2.5	9.00	20.0	84	67.0	16.5	16.3
	C, D or E	AH	63.00	M5	62	40.00	2.5	9.00	20.0	84	67.0	16.5	16.3
	C, D or E	B8	70.00	M5	62	50.00	3.0	12.00	30.0	84	67.0	22.5	16.3
	C, D or E	**AN**	70.00	M5	62	50.00	3.0	14.00	30.0	84	67.0	22.5	16.3
	C, D or E	AG	75.00	M5	62	60.00	2.5	11.00	23.0	84	67.0	16.5	16.3
	C, D or E	B9	75.00	M5	62	60.00	2.5	14.00	30.0	84	67.0	22.5	16.3
	C, D or E	BB	90.00	M6	80	70.00	3.0	14.00	30.0	84	67.0	22.5	16.3
	C, D or E	A3	100.00	M6	89	80.00	3.5	14.00	30.0	84	67.0	22.5	16.3

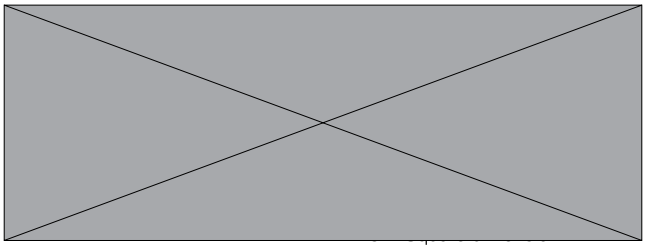
[1] When ordering with actuator, use order code to specify mounted gearhead size and ratio: **A** PV40TA-005 (ratio 5:1); **B** PV40TA-010 (ratio10:1); **C** PV60TA-003 (ratio 3:1); **D** PV60TA-005 (ratio 5:1); **E** PV60TA-010 (ratio 10:1). See ordering information.
[2] When ordering with actuator, use order code to specify motor mounting kit. See Ordering Information.

■ Blue order codes indicate rapid shipment availability

Mounted Gearhead and Motor Options

Mounted Gearhead and Mounted Motor Options include a coupling housing, coupling, flange, gearhead with coupler, flange and motor





LCH = Length coupling housing
LGH = Length gearhead
LM = Length motor
MAK = Motor adapter
MF = Motor flange

Actuator Size	Order Code [1]	Order Code [2]	Motor description	Dimensions — mm C	LCH	LGH	LM	MAK	MF
OSPE25SB/ST	A or B	KA	PM-FAL01AM8N	40	38	48.5	95.2	19.0	14.0
	A or B	KB	PM-FAL01AM8N2 (Brake)	40	38	48.5	131.6	19.0	14.0
	A or B	L0	LV233-01-10	58	38	48.5	79	15.7	14.0
	A or B	L1	HV233-01-10	58	38	48.5	79	15.7	14.0
OSPE32SB/ST	C, D or E	K0	BE233FJ-KPSN	58	54	67.0	143	22.5	20.0
	C, D or E	K1	BE233FJ-KPSN with brake (CM233FJ-115027)	58	54	67.0	178	22.5	20.0
	C, D or E	K2	BE344LJ-KPSN	86	54	67.0	188	22.5	20.0
	C, D or E	K3	BE344LJ-KPSB	86	54	67.0	220	22.5	20.0
	C, D or E	KC	PM-FBL04AMK	62	54	67.0	108.2	22.5	20.0
	C, D or E	KD	PM-FBL04AMK2	62	54	67.0	148.2	22.5	20.0
	C, D or E	L0	LV233-01-10	58	54	67.0	79	16.5	20.0
	C, D or E	L1	HV233-01-10	58	54	67.0	79	16.5	20.0
	C, D or E	L2	LV343-01-10	86	54	67.0	127	30.0	20.0
	C, D or E	L3	HV343-01-10	86	54	67.0	127	30.0	20.0
OSPE50SB/ST	C, D or E	K0	BE233FJ-KPSN	58	84	67.0	143	22.5	16.3
	C, D or E	K1	BE233FJ-KPSN with brake (CM233FJ-115027)	58	84	67.0	178	22.5	16.3
	C, D or E	K2	BE344LJ-KPSN	86	84	67.0	188	22.5	16.3
	C, D or E	K3	BE344LJ-KPSB	86	84	67.0	220	22.5	16.3
	C, D or E	KC	PM-FBL04AMK	62	84	67	108.2	22.5	16.3
	C, D or E	KD	PM-FBL04AMK2	62	84	67.0	148.2	22.5	16.3
	C, D or E	L0	LV233-01-10	58	84	67.0	79	16.5	16.3
	C, D or E	L1	HV233-01-10	58	84	67.0	79	16.5	16.3
	C, D or E	L2	LV343-01-10	86	84	67.0	127	30.0	16.3
	C, D or E	L3	HV343-01-10	86	84	67.0	127	30.0	16.3

[1] When ordering with actuator, use order code to specify mounted gearhead size and ratio: **A** PV40TA-005 (ratio 5:1); **B** PV40TA-010 (ratio10:1); **C** PV60TA-003 (ratio 3:1); **D** PV60TA-005 (ratio 5:1); **E** PV60TA-010 (ratio 10:1). See Ordering Information.
[2] When ordering with actuator, use order code to specify mounted motor on gearhead. See Ordering Information.

End Cap Mounting Options

See "Maximum Permissible Unsupported Length" for end cap and profile mounting placement requirements.

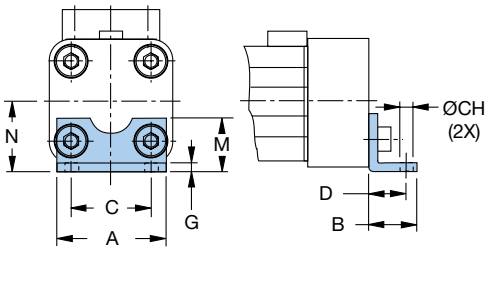
End Cap Mounting Selection Overview

		Standard Carriage			PowerSlide							ProLine		
Type		25	32	50	25/25	25/35	25/44	32/35	32/44	50/60	50/76	25	32	50
Standard 	A1	•	•											
	A2											•	•	
	A3				•	•		•						
Reinforced 	B1	•	•		•	•	•	•	•			•	•	
	B4						•		•					
Block 	C1			•						•	•			•
	C2													•
	C3									•				
	C4										•			

• Recommended for mounting position with carriage on top • Recommended for mounting position carriage side only (3 or 9 o'clock position)

Order Code

1, 2 or 3
(1 pair)



Type A1, A2 and A3 – Standard End Cap

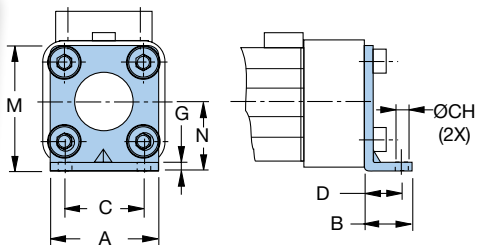
Actuator Size	Type	Part Number*	Weight* (kg)	Dimensions — mm A	B	C	CH	D	G	M	N
OSPE25SB/ST	A1	18156FIL	0.031	39	22	27	5.8	16	2.5	18	22
	A2	18157FIL	0.044							33	37
	A3	18158FIL	0.055							45	49
OSPE32SB/ST	A1	18161FIL	0.050	50	26	36	6.6	18	3.0	20	30
	A2	18162FIL	0.066							34	44
	A3	18163FIL	0.159							42	52

*Part number and weight are for individual unit.

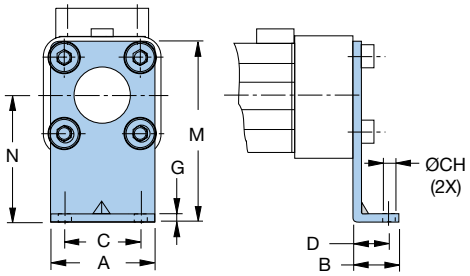
Order Code

4 or 5
(1 pair)

Type B1



Type B4



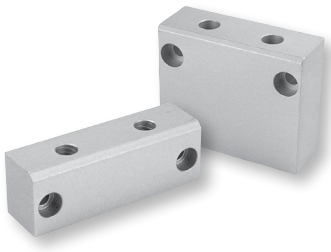
Type B1 and B4 – Reinforced End Cap

Actuator Size	Type	Part Number*	Weight* (kg)	Dimensions — mm A	B	C	CH	D	G	M	N
OSPE25SB/ST	B1	18159FIL	0.010	39	22	27	5.8	16	2.5	42	22
	B4	18160FIL	0.110							80	60
OSPE32SB/ST	B1	18164FIL	0.078	50	26	36	6.6	18	3.0	55	30
	B4	18165FIL	0.380							85	60

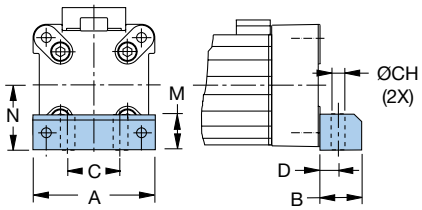
*Part number and weight are for individual unit.

Order Code

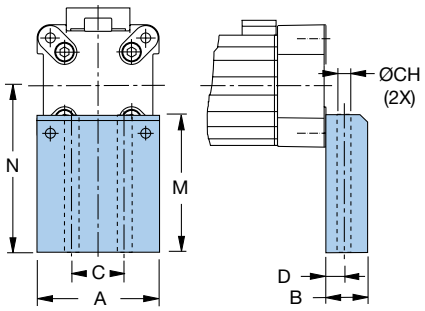
1, 2, 3 or 4
(1 pair)



Type C1



Type C4



Type C1, C2, C3 and C4 – Block End Cap

Actuator Size	Type	Part Number*	Weight* (kg)	Dimensions — mm A	B	C	CH	D	M	N
OSPE50SB/ST	C1	18166FIL	0.146	86	24	40	9.0	12.5	30	48
	C2	18167FIL	0.210						39	57
	C3	18168FIL	0.300						54	72
	C4	18169FIL	0.412						77	95

*Part number and weight are for individual unit.

Profile Mounting Options

See “Maximum Permissible Unsupported Length” for end cap and profile mounting placement requirements.

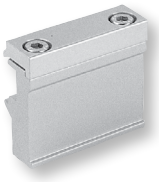
Profile Mounting Selection Overview

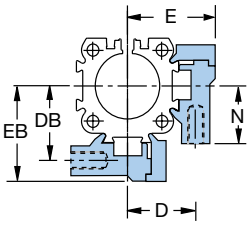
		Standard Carriage			PowerSlide							ProLine		
Type		25	32	50	25/25	25/35	25/44	32/35	32/44	50/60	50/76	25	32	50
2 Internal Threads 	D1	•	•	•	•	•	•	•	•	•	•	•	•	•
2 Thru Holes 	E1	•	•	•	•	•	•	•	•	•	•	•	•	•
	E2											•	•	•
	E3				•	•		•		•				
	E4						•		•		•			
3 Thru Holes 	MAE	•	•	•	•	•	•	•	•	•	•	•	•	•

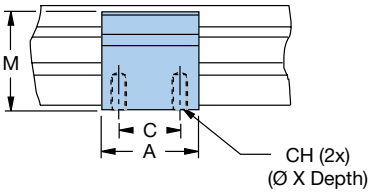
• Recommended for mounting position with carriage on top • Recommended for mounting position carriage side only (3 or 9 o’clock position)

Order Code

2, 5 or 8
(1, 2 or 3 pair)







Type D1 (with two internal threads)

			Dimensions — mm								
Actuator Size	Part Number*	Weight* (kg)	A	C	CH	D	DB	E	EB	M	N
OSPE25SB/ST	20008FIL	0.061	50	36	M5 x 10	27	28.5	34.5	36	38	22
OSPE32SB/ST	20157FIL	0.072	50	36	M5 x 10	33	35.5	40.5	43	46	30
OSPE50SB/ST	20162FIL	0.167	60	45	M6 x 11	40	45.0	52.0	57	71	48

*Part number and weight are for individual unit.

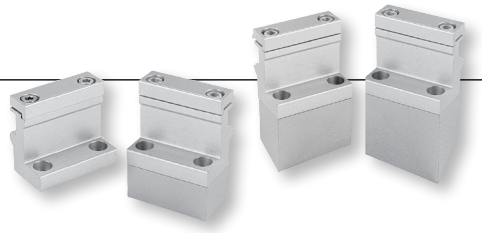
Order Code

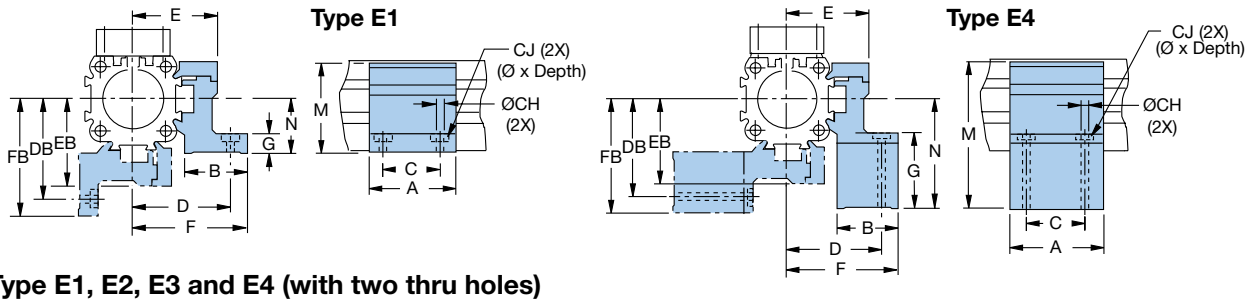
E1 **1, 4 or 7** (1, 2 or 3 pair)

E2 **K, N or R** (1, 2 or 3 pair)

E3 **L, P or S** (1, 2 or 3 pair)

E4 **M, Q or T** (1, 2 or 3 pair)





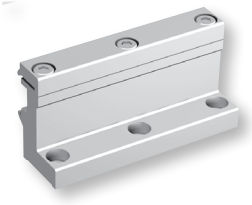
Type E1, E2, E3 and E4 (with two thru holes)

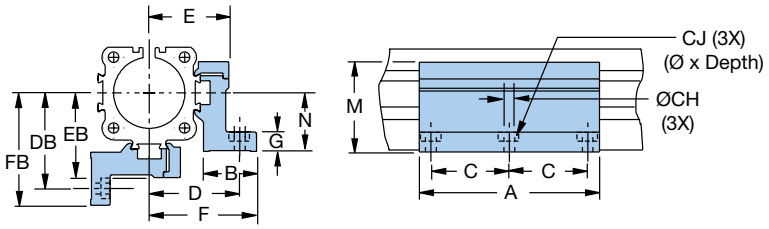
Actuator Size	Type	Part Number*	Weight* (kg)	Dimensions — mm A	B	C	CH	CJ	D	DB	E	EB	F	FB	G	M	N
OSPE25SB/ST	E1	20009FIL	0.074	50	26	36	5.5	10 x 5.7	40	41.5	34.5	36	47.5	49	8	38	22
	E2	20352FIL	0.125												23	53	37
	E3	20353FIL	0.120												35	65	49
	E4	20354FIL	0.020												46	76	60
OSPE32SB/ST	E1	20158FIL	0.092	50	27	36	5.5	10 x 5.7	46	48.5	40.5	43	54.5	57	10	46	30
	E2	20355FIL	0.141												24	60	44
	E3	20356FIL	0.140												32	68	52
	E4	20357FIL	0.197												40	76	60
OSPE50SB/ST	E1	20163FIL	0.189	60	34	45	7.0	—	59	64.0	52.0	57	67.0	72	10	71	48
	E2	20361FIL	0.235												19	80	57
	E3	20362FIL	0.338												31	95	72
	E4	20363FIL	0.442												57	118	95

*Part number and weight are for individual unit.

Order Code

3, 6 or 9
(1, 2 or 3 pair)





Type MAE (with three thru holes)

Actuator Size	Part Number*	Weight* (kg)	Dimensions — mm A	B	C	CH	CJ	D	DB	E	EB	F	FB	G	M	N
OSPE25SB/ST	12278FIL	0.271	92	26	40	5.5	10 x 5.7	40	41.5	34.5	36	47.5	49	8	38	22
OSPE32SB/ST	12279FIL	0.334	92	27	40	5.5	10 x 5.7	46	48.5	40.5	43	54.5	57	10	46	30
OSPE50SB/ST	12280FIL	0.668	112	34	45	7.0	—	59	64.0	52.0	57	67.0	72	10	71	48

*Part number and weight are for individual unit.

ORDERING INFORMATION

OSPE..SB/ST

Select an order code from each of the numbered fields to create a complete OSPE..SB or ST model order number. Include hyphens and non-selective characters as shown in example below.

① ② ③

Order Number Example: OSPE 25 – 1 0 0 0 0 – 00000 - P 0 0 0 0 0

Series

OSPE Origa System Plus Electromechanical

Actuator Bore Size

25 41 mm W x 53 mm H

32 52 mm W x 67 mm H

50 87 mm W x 93 mm H

Drive Train

1 SB – Ball screw actuator with internal glider bearing

2 ST – Trapezoidal screw actuator with internal glider bearing

Carriage

0 Standard

1 Tandem (two carriages for higher load capabilities (OSPE..SB models only)

Screw Lead

OSPE..SB		Bore Size	25	32	50
3	5 mm		•	•	•
4	10 mm			•	•
5	25 mm				•
OSPE..ST		**Bore Size**	**25**	**32**	**50**
4	4 mm		•	•	
6	6 mm				•

Mounted Gearhead Options

0 No gearhead

A PV40TA-005 (gear ratio 5:1)*

B PV40TA-010 (gear ratio 10:1)*

C PV60TA-003 (gear ratio 3:1)*

D PV60TA-005 (gear ratio 5:1)*

E PV60TA-010 (gear ratio 10:1)*

* Requires selection from "Mounted Gearhead with Motor Mounting Kit" or "Mounted Gearhead and Motor" (see Options & Accessories) for item below.

Drive Shaft and Gearhead/Motor Mounting Options

0 – Plain drive shaft

3 – Drive shaft with keyway

4 – Long drive shaft with keyway

Motor Mounting Kits* (see Options & Accessories for available option dimensions and delivery)

Mounted Motors* (see Options & Accessories for available option dimensions and delivery)

Gearhead Mounting Kits* (see Options & Accessories for available option dimensions and delivery)

Mounted Gearhead with Motor Mounting Kits* (see Options & Accessories for available option dimensions and delivery)

Mounted Gearhead and Motor (see Options & Accessories for available option dimensions and delivery)

* All gearhead and motor mounting options are equipped with a plain drive shaft (no keyway options)

Order Stroke*

00000 5-digit input (in mm)

* See Specifications to calculate required order stroke.
Maximum catalog stroke:
OSPE25SB/ST = 01100 mm;
OSPE32SB/ST = 02000 mm;
OSPE50SB/ST = 02000 mm
Longer strokes available upon request. Consult factory.

Hardware and Dovetail Grove Covers

P Standard hardware with Parker gold cover strip

■ Blue order codes indicate rapid shipment availability

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

Carriage Options

0	No external guide rail
6	ProLine PL25, PL32, PL50*
E	PowerSlide PS25/25*
F	PowerSlide PS25/35 or PS32/35*
G	PowerSlide PS25/44 or PS32/44*
H	PowerSlide PS50/60*
I	PowerSlide PS50/76*
M	Inversion Mounting**
R	Clevis Mounting **

* Requires standard carriage (select order code “0” from). See Dimensions for additional information.
** Requires standard carriage (select order code “0” from). See Options & Accessories for Clevis Mounting and Inversion Mounting.

External Guide Rail Orientation

0  Guide Rail (right)

1  Guide Rail (left)

End Cap Mounting (see Options & Accessories)

0	No end cap mounting
1	1 piece A1* (standard end cap) or C1** (block end cap)
2	1 piece A2* (standard end cap) or C2** (block end cap)
3	1 piece A3* (standard end cap) or C3** (block end cap)
4	1 piece B1* (reinforced end cap) or C4** (block end cap)
5	1 piece B4* (reinforced end cap)

* For size 25 and 32
*8 For size 50

Profile Mounting (see Options & Accessories)

0	No profile mounting
2	1 pair D1 (with 2 internal threads)
5	2 pair D1 (with 2 internal threads)
8	3 pair D1 (with 2 internal threads)
1	1 pair E1 (with 2 thru holes)
4	2 pair E1 (with 2 thru holes)
7	3 pair E1 (with 2 thru holes)
3	1 pair MAE (with 3 thru holes)
6	2 pair MAE (with 3 thru holes)
9	3 pair MAE (with 3 thru holes)
K	1 pair E2 (with 2 thru holes)
N	2 pair E2 (with 2 thru holes)
R	3 pair E2 (with 2 thru holes)
L	1 pair E3 (with 2 thru holes)
P	2 pair E3 (with 2 thru holes)
S	3 pair E3 (with 2 thru holes)
M	1 pair E4 (with 2 thru holes)
Q	2 pair E4 (with 2 thru holes)
T	3 pair E4 (with 2 thru holes)

Magnetic Sensor Mounting*

0	No sensor mounting
A	1 pc. N.O., NPN, with M8 connector
B	2 pc. N.C., NPN, with M8 connector
C	1 pc. N.O., NPN, with M8 connector 2 pc. N.C., NPN, with M8 connector
D	1 pc. N.O., PNP, with M8 connector
E	2 pc. N.C., PNP, with M8 connector
F	1 pc. N.O., PNP, with M8 connector 2 pc. N.C., PNP, with M8 connector

* Extension cable with M8 plug and 5 m cable flying lead cable for Sensor with M8 connector can be ordered separately; use part number 003-2918-01

■ Blue order codes indicate rapid shipment availability