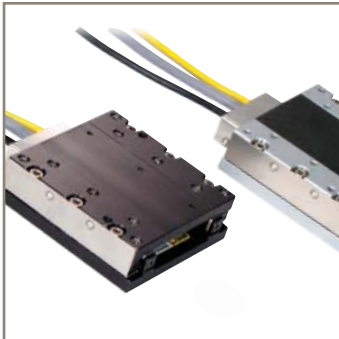




aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

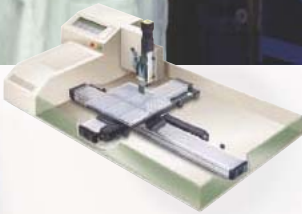


Precision Technology

Overview

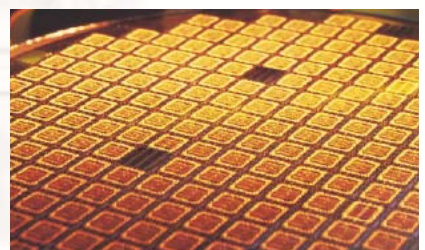
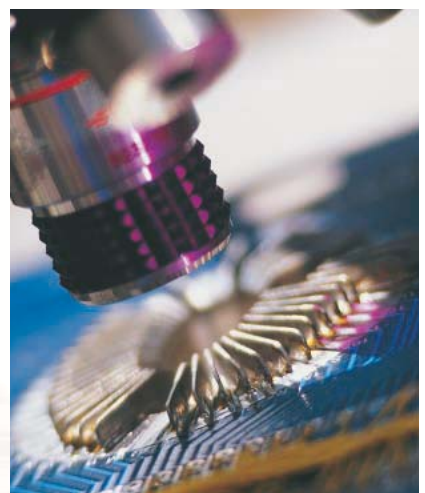
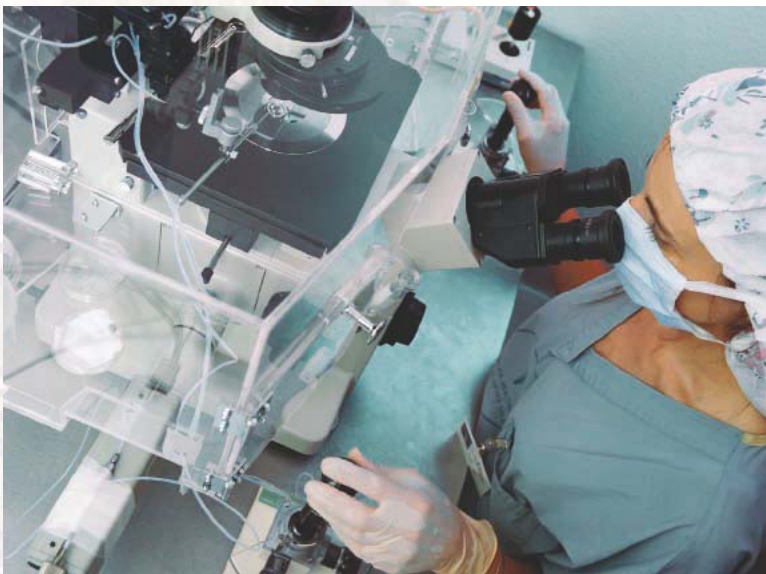


ENGINEERING YOUR SUCCESS.



Parker Facility in Offenburg, Germany

Manufacturing and Service for Precision Components in Europe



Precision Automation

Applications and industries integrating precision motion control have requirements that exceed most motion product capabilities - levels of accuracy, repeatability, straightness, flatness and orthogonality that demand specialized product designs and manufacturing capabilities. With more than 25 years of product design and manufacturing experience in the most demanding precision motion markets, Parker is ready to provide the products and systems to serve our customers' most challenging needs.

Customization and Services

Unlike many other motion technologies, precision electromechanical applications often require custom solutions. Many solutions are complete one-of-a kind systems.

Our experienced engineers and technicians provide:

- Application advice
- Product sizing and selection, including mechanics, motors, drives and controls
- System design
- System manufacturing including testing and axis alignment
- System commissioning
- System maintenance

Parker Precision Automation customers can receive many optional services such as:

- 3D Custom assembly drawings
- Matches motor control systems
- Life-load diagrams
- Customized cabling systems

Advanced Manufacturing Capabilities

Our advanced manufacturing and assembly process allows us to build quality and consistency into every element of your motion system. Each mechanical system is fully assembled prior to shipment and each component is properly handled to protect finish and appearance. While providing advanced manufacturing capabilities, we also strive to maintain the industry's best lead times for precision motion products.

Performance and specifications are verified with state-of-the-art testing, including

- **Cleanroom-approved versions** - Parker is equipped with in house particulate testing facilities to certify materials for cleanroom ratings.
- **EMI testing** - Parker has an EMI test chamber, which allows us to test equipment to verify levels of electromagnetic interference.
- **Precision Metrology Lab** - When precision is critical to your process, you need validated, proven performance data. Parker certifies all precision-grade positioners using state-of-the-art laser interferometers, and provides reports to validate accuracy and bidirectional repeatability.

Parker Automation Technology Centers

Parker Automation Technology Centers are a network of premier product and service providers who can serve you locally for your automation needs. Each Automation Technology Center is certified to have completed significant product training and has the ability to provide subsystem solutions with local support. Parker Automation Technology Centers are located throughout Europe, and are served by our European manufacturing facility in Offenburg, Germany.

Selectable Levels of Integration

Parker's **Selectable Levels of Integration** is a philosophy of product development and management that allows the machine builder to select an appropriate system, subsystem, or component to meet a specific need. Parker has solutions for machine builders of all types, from those who want a complete integrated system to those who want to build their own system from "best of breed" components.

Systems

Machine builders and OEMs often choose to integrate a complete electromechanical system into their machine. They have confidence in knowing that our knowledge, experience, and support will ensure that their goals are met. Minimal design engineering ensures component compatibility from a single source.

Subsystems and Bundled Products

For a cost-effective and efficient solution, Parker offers bundled or kitted systems. We can combine motors, gearheads, and positioning systems to deliver a configured subsystem ready for installation. Parker configuration and setup software accommodates the rest of the product line, making start-up a snap. Combining this with our custom product modification capabilities gives the machine builder an economical custom-fit solution, with reduced engineering effort, straightforward integration, and modular compatibility.

Component Products

We offer the broadest range of linear and rotary motion products available for automation systems. If you have the capability and experience to develop your own systems, our innovative, easy-to-use products will help you get the job done. Parker provides short lead times, large selection, and proven reliability.

Precision Actuators / Tables

If highest precision, i.e. repeatabilities in the μm range, is required, Parker precision actuators and tables are being used.

The precision actuators and tables are driven by screw or linear motor. All mechanical components are optionally available for use in clean-room applications. The individual precision components can be combined with corresponding accessories to create a complete system.

Precision Actuator with Screw Drive

400XR Series

The XR precision actuators achieve their high precision with the aid of innovative ball bearing guides.



Type	Cross section (W x H) [mm]	Max. stroke length [mm]	Max.speed [m/s]	Max. load [kg]	Axial Force [N]	Repeatability [μm]
401XR	41 x 43	50 ... 300	1.0	50	54 ... 152	± 1.3
402XR	58 x 58	50 ... 600	0.9	100	372	± 1.3
404XR	95 x 48	50 ... 600	1.2	170	882	± 1.3
406XR	150 x 70	100 ... 2000	1.2	630	882 ... 1961	± 1.3
412XR	285 x 105	100 ... 2000	1.34	1470	1961 ... 4511	± 5.0

 www.parker-eme.com/xr

Precision Actuator with Linear Motor

400LXR Series

The XR precision actuators are upgraded to LXR actuators by the aid of the „linear motor“ option in order to increase dynamics and positioning accuracy.



Type	Motor- type	Cross section (W x H) [mm]	Max. stroke [mm]	Max. speed [m/s]	continuous / peak- thrust force [N]	Max. load [kg]	Repeatability [μm]
404LXR	8-pole	100 x 60	50 ... 1000	3.0	50 / 180	45	± 1.0
406LXR	8-pole	150 x 70	50 ... 1950	3.0	75 / 225	180	± 1.0
406LXR	12-pole	150 x 70	50 ... 1850	3.0	110 / 330	180	± 1.0
412LXR	12-pole	285 x 105	150 ... 3000	3.0	355 / 1000	950	± 1.0

 www.parker-eme.com/lxr

Economy Actuator with Screw Drive

400XE Series

As not all actuators used in a system must be positioned with the utmost precision, we developed the cost-efficient XE actuator (E = Economy). The XE actuator is compatible with the XR or the LXR actuators.



Type	Cross section (W x H) [mm]	Max. stroke length [mm]	Max. speed [m/s]	Max. load [kg]	Axial Force [N]	Repeatability [μm]
402XE	57 x 36	70 ... 220	0.45	90	127 ... 166	±5
403XE	80 x 45	55 ... 655	0.8	160	264 ... 304	±5
404XE	95 x 48	25 ... 700	1.5	122	588 ... 686	< ±20

www.parker-eme.com/xe

Precision Actuator with Screw Drive

HD Series

The HD precision actuators are robust, easy to install and to maintain. The bearings as well as the ballscrew are precision components which are designed for a long lifetime at continuous operation. Different screw pitches and several options including protection class IP30 are available.



Type	Cross section (W x H) [mm]	Max. stroke length [mm]	Max.speed [m/s]	Max. load [kg]	Repeatability [μm]
HD085	85 x 70	100 ... 1200	1.48	170	±8
HD125	125 x 85	200 ... 1500	1.48	630	±8
HD185	185 x 95	300 ... 1600	1.48	1470	±8

www.parker-eme.com/hd

Precision Miniature Tables

In the course of miniaturization in the fields of fibre optics, photonics, electronics and biomedicine, increasingly small and efficient positioning

systems are required. The Parker MX80 miniature positioning table is the smallest system featuring a linear servo motor available on the market.

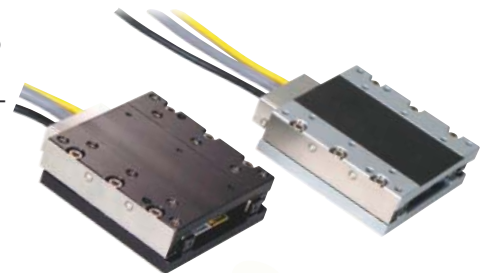
This redefines the term „automation with high efficiency“ within the world of miniature positioning systems.

Miniature Table with Linear Motor

MX80L Series

Despite the small dimensions, the MX80L offers a maximum throughput and reliability. All important components are integrated into the table. The heartpiece of the MX80L is an innovative, patent-pending linear servo motor. This direct drive has been optimized with respect to force, speed and acceleration.

A high-precision linear encoder available with resolutions of 10 nm to 5 µm, offers high repeatabilities. The MX80L is furnished ready for connection with 1 m highflex cable in two variants.
MX80LP in precision version
MX80LS in standard version



Type	Cross section (W x H) [mm]	Material	Max. stroke [mm]	Max. speed [m/s]	Continuous / peak thrust force [N]	Max. load [kg]	Repeatability [µm]
MX80LP	80 x 25	steel	25 ... 150	2.0	8 / 24	8	±0.4
MX80LS	80 x 25	aluminium	25 ... 150	2.0	8 / 24	8	±0.8

www.parker-eme.com/mx80

Miniature Table with Screw

MX80S Series

The MX80S miniature positioner with screw drive is an intermediate stage within the product range between the highly dynamic linear motor MX80L and the manual model Mx80M. The MX80S is available in two variants either with a highly efficient screw

drive or with a precision-ground ballscrew drive:
MX80SP as precision version,
MX80SS as standard version.



Type	Cross section (W x H) [mm]	Drive	Max. stroke length [mm]	Speed [m/s]	Max. force [N]	Max. load [kg]	Repeatability [µm]
MX80SP	80 x 35	ballscrew	25 ... 150	0.1	123	8	±1.3
MX80SS	80 x 35	trapezium screw	25 ... 150	0.2	44	8	±5.0

www.parker-eme.com/mx80

Miniature Table with Micrometer Drive

MX80M Series

Precision micrometer for manually controlled point to point positioning along a linear path. Devices with free

motion are ideal for smooth, precise low-friction linear guides.



Type	Cross section (W x H) [mm]	Material	Max. stroke length [mm]	Max. load [kg]
MX80M	80 x 25	aluminium	50	20

► www.parker-eme.com/mx80

Miniature Lifting Table with Screw

ZP200 Series

The ZP200 precision lifting table features a screw drive designed for loads up to 75 kg. Like all Parker precision products, the lifting table is delivered with a test certificate.

There are two variants:
ZP200P precision version
ZP200S standard version



Type	Cross section (W x H) [mm]	Max. lifting height [mm]	Speed [m/s]	Max. load [kg]	Repeatability [μm]
ZP200P	200 x 60.4	25	0.44	15	±3.0
ZP200S	200 x 60.4	25	0.44	75	±5.0

► www.parker-eme.com/zp200

PROmech Miniature Linear Positioners

LP28

Product Features

- Miniature profile
- Optimal length to travel ratio
- Travels from 5 mm to 500 mm
- Fully assembled package
- Multi-axis platform
- Motor included

Attributes

- Miniature cross section (28 mm x 28 mm)
- High-performance leadscrew drive train
- 1 mm, 3 mm, 10 mm, and 25,4 mm screw lead options
- Recirculating linear bearing
- NEMA 11 or NEMA 17 stepper motors included as standard
- Fully adjustable home and limit sensors



Designed for OEMs needing simple positioning solutions for instrument and light industrial applications, the PROmech family of positioners offers a complete positioning solution at a price OEMs can afford to design into their equipment.

The PROmech LP28 is a packaged linear positioner whose completeness reduces OEM component selection and system design time. Further, PROmech positioners minimize

re-engineering requirements because the positioner's design is already fully tested. Together these benefits help engineering teams keep aggressive project time lines on schedule and reduce "time to market".

LP28 is commonly used in life sciences, medical and semiconductor equipment although it is not limited to these markets. Typical applications include transport of 0.5 to 1 kg payloads such as microplates,

LD28

Product Features

- Miniature profile
- Independent, preloaded thrust bearing set for long life
- High thrust per package size
- Stepper or servo motor
- Stroke from 5 mm to 300 mm
- Backlash compensation

Attributes

- Miniature cross section (28 mm x 28 mm)
- High-performance leadscrew drive train
- 1 mm, 3 mm, 10 mm, and 25,4 mm screw lead options
- Anti-backlash nut design
- Travels selectable by the mm from 5 mm to 300 mm
- NEMA 11 or NEMA 17 stepper motors included as standard
- Independent, preloaded thrust bearing set for long life

vials, and small syringe pumps. In inspection applications, the LP28 is excellent as a focus axis for adjusting the position of a camera, optics, or payload. The LP28's light weight also makes it suitable for mobile equipment as well.

Type	Cross section [mm]	Travel [mm]	Max. Speed [mm/s]	Max. Axial Force [N]	Nominal Load [kg]	Bidirectional Repeatability [μm]
LP28	28 x 28	5 ... 500	15 ... 375	45	5 ... 10	±50 / ±100
LD28	28 x 28	5 ... 300	15 ... 375	45	-	±50 / ±100

Kit Torque Motors

Frameless Brushless Torque Motors

The frameless Kit Motors STK and K - Series are the ideal solution for machine designs that require high performance in small spaces. Kit Motors allow for direct integration with a mechanical transmission device, eliminating parts that add size, weight and complexity. Use of Frameless Kit Motors results in a smaller, more reliable motor package. The STK and K - Series support applications need a large-diameter hollow shaft with ring-type technology.

Direct Drive

Direct drive motors as STK and K - Series motors provide higher dynamic stiffness by eliminating the compliance of shaft attachments. Direct drive motor construction gives equipment designers the advantages of lowered costs, increased reliability and improved performance. Frameless Kit Motors are the most cost effective direct drive motor solutions available. Kit motors save space in applications because the couplings, motor mounting brackets and extra bearings you would find in coupled drive construction are eliminated.



STK Kit Motors

Main characteristics

- Continuous torque from 0.044 Nm to 2700 Nm with natural convection (according to size), and up to 6100 Nm with fluid cooling.
- A wide range of external diameters from 32 mm to 800 mm.
- Internal diameters from 15 mm to 630 mm.
- Various windings available from 30 min⁻¹ to 1500 min⁻¹ according to size.

Electromagnetic and thermal optimisation has permitted high torque-to-weight ratios to be achieved with natural convection and even higher with fluid cooling.

The Parker STK and K - Series range of frameless motors addresses very demanding industrial applications, not only in terms of performance (dynamic performance, torque capability and precise rotation at low speed) but also in terms of cost. Particular attention has therefore been paid in the design to the combination of technical and economic optimisation.

Parker also addresses direct drive applications up to 30 kW in natural convection at speeds up to 1500 min⁻¹ for STK and up to 50 000 min⁻¹ for K - Series.

The various speed ratings are achieved by having a range of available windings.



K Series

Type	Nominal Torque [Nm]	Peak Torque [Nm]	outer Ø [mm]	inner Ø [mm]
K032	0.044 ... 0.33	0.095 ... 0.99	31.7	14.8
K044	0.119 ... 0.96	0.357 ... 2.88	44.9	22.1
K064	0.31 ... 2.91	0.93 ... 8.73	63.5	34.9
K089	1.307 ... 7.13	3.92 ... 21.4	88.9	53.2
K375	1.715 ... 6.69	5.14 ... 20.1	95.2	50.7
K127	3.94 ... 16.1	11.83 ... 48.3	127	72.2
K500	3.05 ... 15.4	9.14 ... 46.2	127	67.9
K178	10.12 ... 43.1	16.18 ... 69	177.7	110.4
K700	5.05 ... 27.5	8.09 ... 44.0	177.7	114.9
K254	18.78 ... 80.9	30.04 ... 129.4	253.9	157.3
145STK	14 ... 120	55 ... 220	154	56
190STK	36 ... 274	119 ... 476	190	72
300STK	98 ... 910	387 ... 910	303	190
400STK	225 ... 1846	880 ... 3520	404	258
500STK	210 ... 2394	768 ... 4608	502	350
800STK	610 ... 6100	1828 ... 10968	795	630

▶ www.parker-eme.com/stk

▶ www.parker-eme.com/kseries

ST Brushless Torque Motor in Complete Form

Designed with the aim of addressing Direct Drive applications, Parker has introduced the ST range of direct-drive low mass inertia motors offering very high acceleration rates. The ST range is available in three diameters, 145 mm, 190 mm and 300 mm, with either hollow or solid shafts of 60 mm till 75 mm diameter respectively. Rated torques range between 15 Nm and 235 Nm, based on natural convection, with peak torques from 55 Nm to 1161 Nm. The motors have rated speeds of 200, 500, 800, 1000 or 1500 min⁻¹ according to the winding type and offer exceptionally smooth rotation at low speed.

Main Characteristics

- Continuous torque up to 235 Nm
- Peak torque up to 1161 Nm
- Hollow shaft option (up to 75 mm diameter)
- Nominal speeds from 200 to 1500 min⁻¹
- Two motor technologies:
 - HP: High precision
 - SP: Standard precision
- Position sensor options:
 - Resolver: precision ± 1 arc-min or ± 10 arc-min
 - SinCos encoders: incremental, or with commutation track
 - ENDAT Absolute encoders
 - HIPERFACE® encoders



Benefits

- High dynamics
- No gear reducer
- No backlash
- High accuracy
- Reduced maintenance
- Low noise
- Simplified machine design

400 VAC - Characteristics

Type		145ST		190ST		300ST	
Nominal speed (2 speeds can be selected)	[min ⁻¹]	500	1500	500	1500	200	800
Standstill torque	[Nm]	14.6 ... 47.4		36 ... 111		98 ... 235	
Current at continuous torque	[A]	2.3 ... 6.4	5.2 ... 15.7	5 ... 14	11.7 ... 23.3	7.3 ... 16.3	18.3 ... 55.5
Peak torque	[Nm]	55 ... 220		119 ... 476		387 ... 1161	
Current at peak torque	[A]	10.2 ... 35.6	23.1 ... 91.1	18.6 ... 73.2	48.9 ... 128.1	36.7 ... 96.8	92.6 ... 304.1
Nominal power	[W]	735 ... 2200	2032 ... 3850	1600 ... 3780	3780 ... 5355	1890 ... 4200	7060 ... 13860
Weight	[kg]	8.5 ... 25		18.2 ... 48.1		38 ... 65.2	
Number of poles		12		12		24	



www.parker-eme.com/st

Additional Media for Detailed Information



Catalog in PDF form

Precision Technology

Parker Electromechanical Europe

- more than 220 pages with all relevant information for project planning PDF with active table of content and active cross references see Literature at page:

► www.parker-eme.com/pm



Catalog in printed form

Precision Technology

Parker Electromechanical Europe

- more than 220 pages in printed form with all relevant information for project planning.
- We are pleased to present you this catalog during a personal consultation.

► sales.automation@parker.com



DVD

Literature & more (DVD 840-100013)

Electromechanical Automation Europe

Complete Parker EME product documentation available in several languages (including Precision catalog).

- Product Catalogs & Manuals
- Links to the Online product pages
- Links to Online Configurator
- ...



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