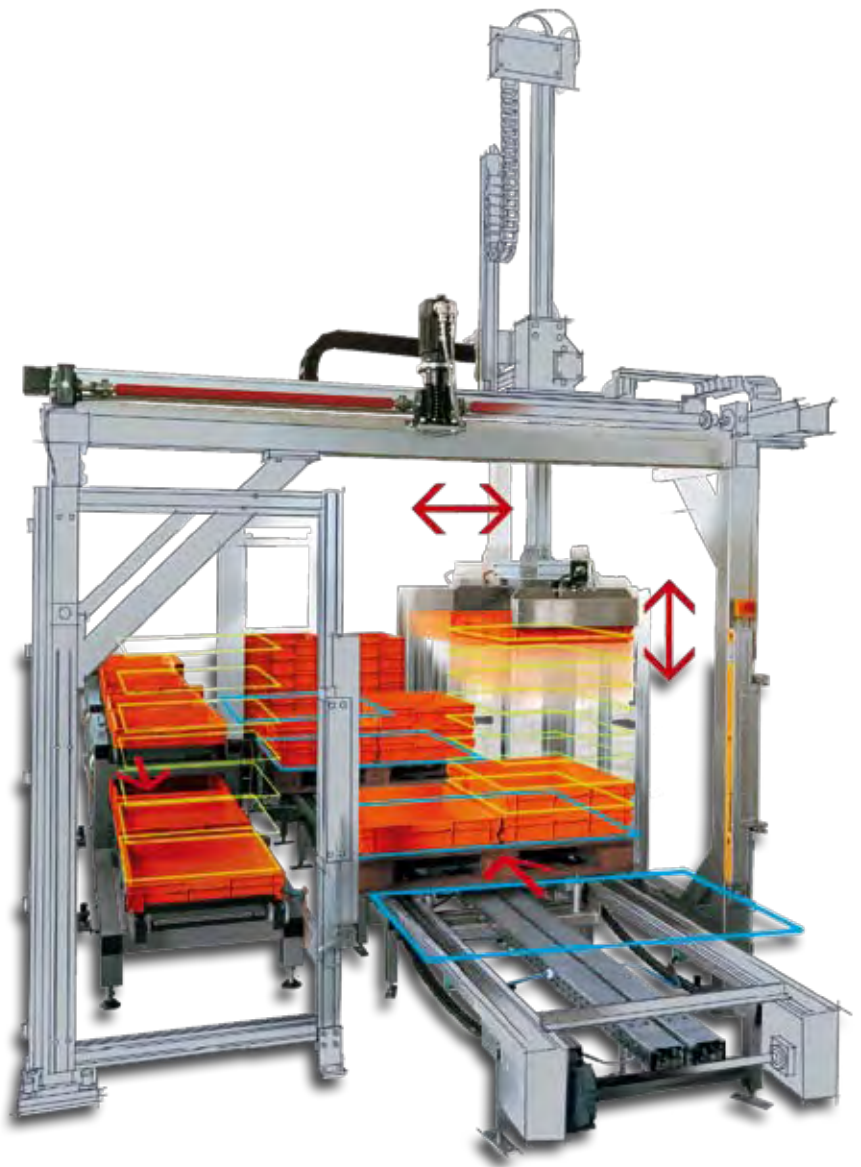




aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Linear Actuators

Product Overview



ENGINEERING YOUR SUCCESS.



WARNING – USER RESPONSIBILITY

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED ITEMS CAN CAUSE DEATH;
PERSONAL INJURY AND PROPERTY DAMAGE.**

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application,
- follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

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Parker Hannifin

The global leader in motion and control technologies and systems

Global Partnerships Global Support

Parker is committed to helping make our customers more productive and more profitable through our global offering of motion and control products and systems. In an increasingly competitive global economy, we seek to develop customer relationships as technology partnerships. Working closely with our customers, we can ensure the best selection of technologies to suit the needs of our customers' applications.

Electromechanical Technologies for High Dynamic Performance and Precision Motion

Parker electromechanical technologies form an important part of Parker's global motion and control offering. Electromechanical systems combine high performance speed and position control with the flexibility to adapt the systems to the rapidly changing needs of the industries we serve.

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sealing & shielding



Parker Hannifin Corporation

With annual sales exceeding \$12 billion, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of commercial, mobile, industrial and aerospace markets. The company employs more than 61,000 people in 48 countries

around the world. Parker has increased its annual dividends paid to shareholders for 52 consecutive years, among the top five longest-running dividend-increase records in the S&P 500 index. For more information, visit the company's web site at <http://www.parker.com>, or its investor information site at <http://www.phstock.com>.

Electromechanical Automation

Global products with local manufacturing and support

Global Product Design

Parker Hannifin has more than 40 years experience in the design and manufacturing of drives, controls, motors and mechanical products. With dedicated global product development teams, Parker draws on industry-leading technological leadership and experience from engineering teams in Europe, North America and Asia.

Local Application Expertise

Parker has local engineering resources committed to adapting and applying our current products and technologies to best fit our customers' needs. Parker's engineering resources also extend to the development and manufacture of complete systems for continuous process and motion control applications.

Manufacturing to Meet Our Customers' Needs

Parker is committed to meeting the increasing service demands that our customers require to succeed in the global industrial market. Parker's manufacturing teams seek continuous improvement through the implementation of lean manufacturing methods throughout the process. We measure ourselves on meeting our customers' expectations of quality and delivery, not just our own. In order to meet these expectations, Parker operates and continues to invest in our manufacturing facilities in Europe, North America and Asia. This allows us to minimize transportation time and cost and to be able to respond more quickly to customer needs.

Worldwide Electromechanical Automation Manufacturing Locations

Europe

Littlehampton, United Kingdom
Dijon, France
Offenburg, Germany
Milan, Italy

Asia

Shanghai, China
Chennai, India

North America

Rohnert Park, California
Irwin, Pennsylvania
Wadsworth, Ohio
Port Washington, New York
New Ulm, Minnesota



Offenburg, Germany

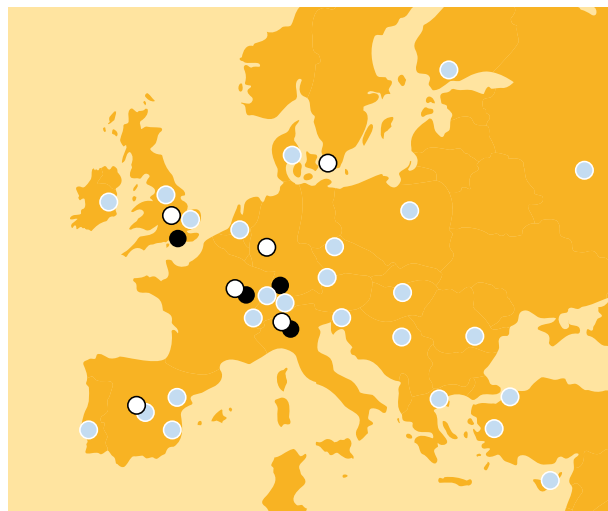


Littlehampton, UK

Local Manufacturing and Support in Europe

Parker provides sales assistance and local technical support through a **team of dedicated sales teams and authorized technical distributors**

throughout Europe. For contact information, please refer to the Sales Offices on the back cover of this document or visit www.parker.com.



● Manufacturing ○ Parker Sales Offices ● Distributors



Milan, Italy

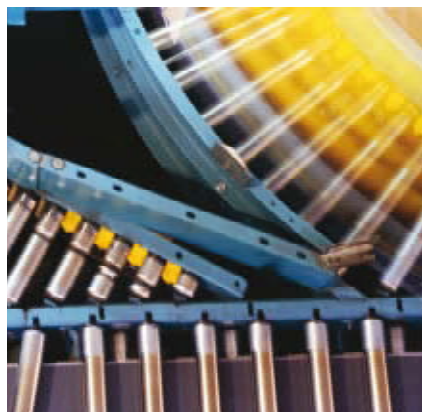


Dijon, France

Solutions to Improve Productivity, Increase Flexibility and Save Energy

Process Productivity and Reliability

Parker brings together the technology and experience required for continuous process applications across many industries. AC and DC variable speed drive products combined with application-specific function block-based configuration software ensure precise speed control and reliable performance. Parker combines more than 30 years of application experience with a global sales and support network that help you increase your machine availability.



Converting machinery

	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Folding, gluing, stitching and collating	✓	✓		✓
Coating, laminating and foil stamping	✓	✓	✓	✓
Slitting, cutting and rewinding	✓	✓	✓	✓

Plastics processing machinery

	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Plastic extrusion	✓		✓	
Injection moulding	✓		✓	✓
Thermal forming	✓		✓	✓

Wire and cable

	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Wire and cable manufacturing	✓	✓		✓
Winding/unwinding	✓	✓	✓	
Extrusion for wire and cable	✓	✓	✓	

Printing Machinery

	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Web/sheetfed offset	✓		✓	✓
Flexo printing	✓		✓	✓
Gravure printing	✓		✓	✓
Shaftless printing	✓		✓	✓

Other industries

	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Paper machinery	✓		✓	
Sugar processing	✓	✓		
Steel production	✓	✓	✓	
Construction materials	✓	✓		
Automotive test rigs	✓	✓	✓	

Energy Efficiency and Clean Power

Parker has developed the technology to maximize the efficient use of energy in industrial, mobile and infrastructure environments.

Hybrid Vehicle Technology

Parker has adapted its electric drive technologies for use in hybrid electric vehicles, including utility vehicles and passenger vehicles. Examples include inverters and motor drives, as well as electric drive motors.

Energy-savings for pumps, fans and compressors

Parker has the drive technology to help you make significant energy savings in the operation of pumps, fans and compressors in both industrial and infrastructure applications, including:

- Commercial refrigeration
- Water and wastewater treatment
- Building automation
- Industrial processes
- Hydraulic systems



Power Generation and Conversion

Using proven inverter technology, Parker has developed numerous solutions for the conversion of energy for commercial use from a variety of sources, including wind, wave and energy storage devices.

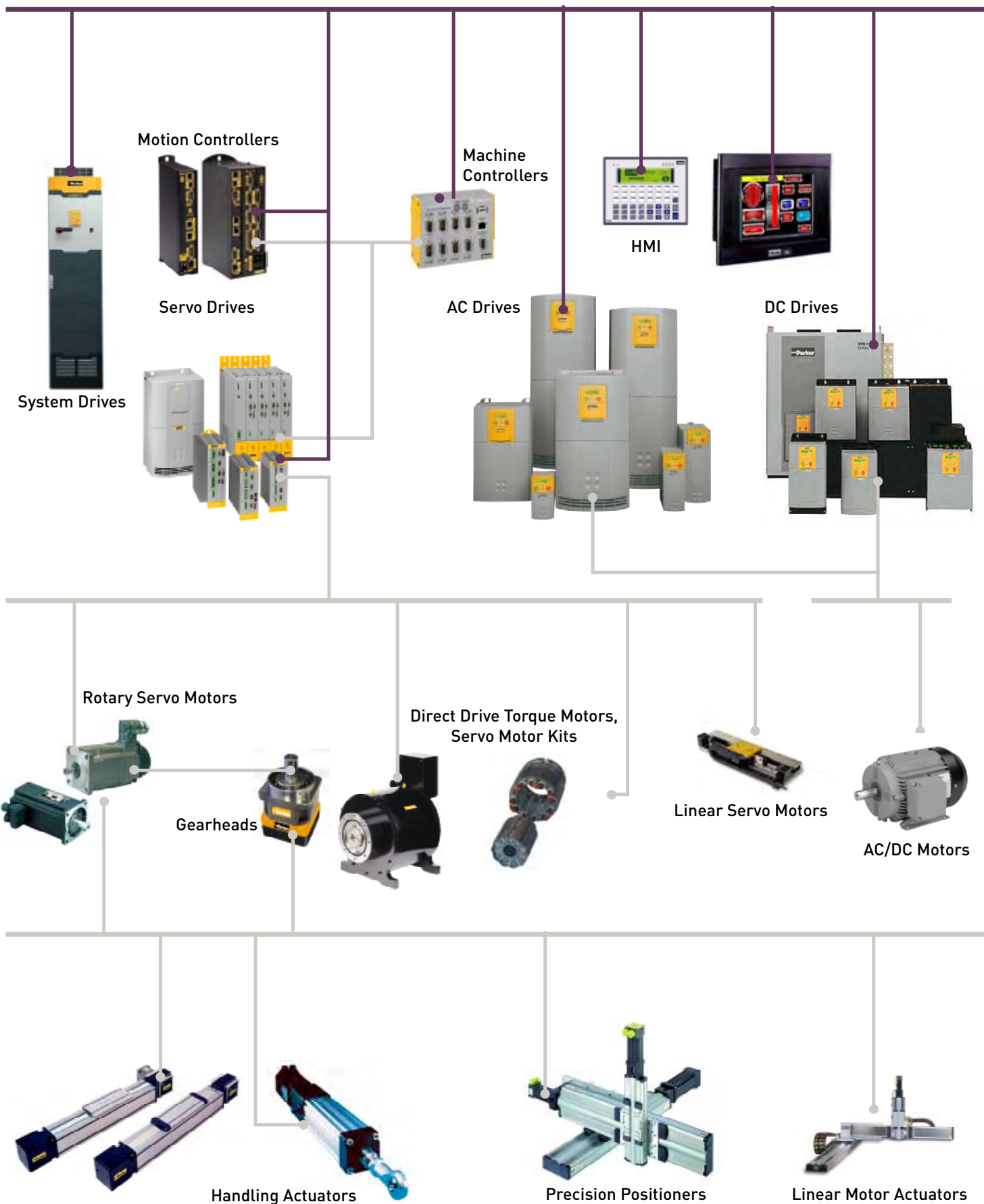
Motion Control Systems for Total Production Flexibility

Parker's electromechanical automation customers enjoy total production flexibility in their general and precision motion control applications. Complete packaged linear positioning systems, coupled to servo and stepper drives and controls, enable our customers to develop a complete motion solution with one partner. Parker provides the products for a wide range of motion needs- power, speed, travel, force- with easy to use controls designed to work on multiple control and communication platforms. Additionally, Parker's products can be easily customized to suit specific applications.

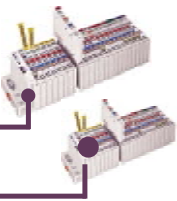


	Mechanical Actuators	Motors and Gearheads	Drives	Controls	HMI
Assembly machinery					
Pick and place	✓	✓	✓	✓	✓
Lifting	✓	✓	✓	✓	
Transfer machinery	✓	✓	✓	✓	✓
Automotive assembly					
Resistance welding	✓	✓	✓	✓	
Painting applications	✓	✓	✓	✓	✓
Transfer machinery	✓	✓	✓	✓	✓
Packaging machinery					
Primary, secondary, tertiary	✓	✓	✓	✓	✓
Handling machinery	✓	✓	✓	✓	✓
Food processing machinery					
Processing machinery	✓	✓	✓	✓	
Packaging machinery	✓	✓	✓	✓	
Handling machinery	✓	✓	✓	✓	✓
Material handling systems					
Transfer systems	✓	✓	✓	✓	✓
Pick and place systems	✓	✓	✓	✓	✓
Metal forming machinery					
Presses	✓	✓	✓	✓	✓
Tube bending	✓	✓	✓	✓	✓
Handling applications	✓	✓	✓	✓	✓
Machine tools					
Spindles		✓	✓		
Ancillary axes		✓	✓		
Semiconductor machinery					
Front end processes	✓	✓	✓	✓	✓
Inspection machinery	✓	✓	✓	✓	✓
Packaging machinery	✓	✓	✓	✓	✓
Lithography	✓	✓	✓	✓	
Medical devices					
Device manufacturing	✓	✓	✓	✓	✓
Product packaging and dispensing	✓	✓	✓	✓	✓
Scanning equipment	✓	✓	✓		
Pumps and analyzers		✓	✓		
Entertainment					
Theatre and studio automation	✓	✓	✓	✓	
Simulation and amusement rides	✓	✓	✓		

Complete Range of Solutions



Remote I/O



Stepper Drives



Stepper Motors



Gantry Systems

Value Added Services

In addition to providing products and systems, Parker also provides a number of value added services to our customers:

- Programming and commissioning services
- Power quality and energy surveys
- 24-hour support and service
- Product repairs
- Product training

Customization

Many automation applications cannot be solved with off the shelf products. Parker's products are designed to be versatile as well as easy to configure for the majority of industrial and process applications. Some customers require solutions that can't be found in a catalogue, and Parker has the resources and expertise available to provide customized solutions:

- Custom motor designs
- Customized mechanical positioning systems
- Customized control functionality
- Customized communication solutions



System Solutions

Parker offers system design and manufacturing in two main categories:

Drive Systems

Complete AC and DC drive systems across a wide power range, from less than 1 kW to more than 1 MW. Systems typically include electrical enclosure, ancillary electronic equipment and full documentation. Commissioning and support services are standard.

Mechanical Systems

Parker has more than 20 years of experience in providing a variety of multiple axis mechanical positioning systems, complete with motors, drives and controls. Typical applications include material transfer and pick and place gantry systems. Additionally, Parker designs and builds custom precision (micron and submicron level) positioning systems, integrating precision bearing, feedback and drive systems, including Parker's range of linear servo motors. Each system ships complete with motors, drives and controls, and can include the programming and commissioning.

Parker Linear Actuators Overview

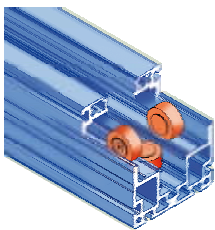
Benefits of Parker linear actuators

A part of Parker's mechanical components comprises linear actuators, vertical actuators, telescopic actuators and screw actuators, which are all based on an aluminium profile. Depending on the load, different sizes

with profile cross-sections between 40 mm and 180 mm are available. The carriages run either on sliding bearings, on plastic-sheathed rollers or steel rollers. As drive options,

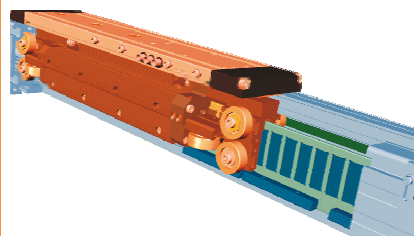
ballscrew drives, conventional toothed belt drives or a combination of toothed belt and rack-and-pinion-drive are available.

Profile



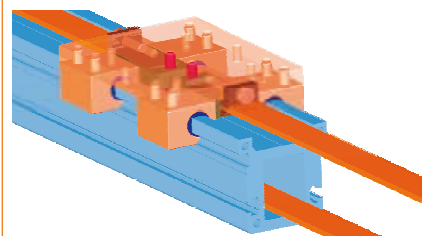
Anodized extruded aluminium profile, optimized for high rigidity and low mass.

Linear motor principle



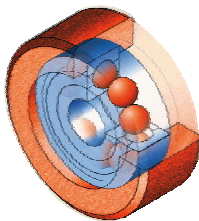
For highest dynamics and high precision

Sliding bearing guidance system



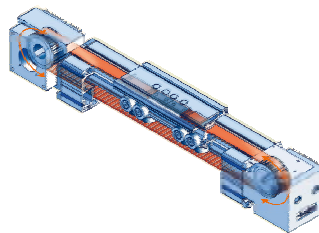
Clean operation without lubricants

Roller guiding system



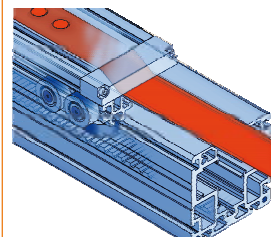
Plastic sheathed rollers; steel rollers for high payloads available as an option

Toothed belt drive



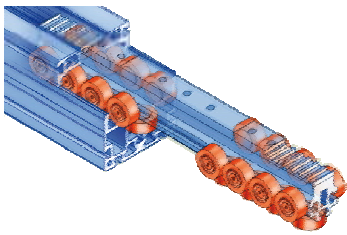
For high dynamics at small to medium stroke lengths

Protection against contamination



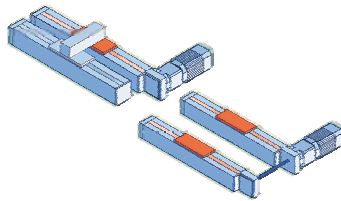
Optionally available stainless steel cover protects the actuator from contamination

Carriages for heavy loads



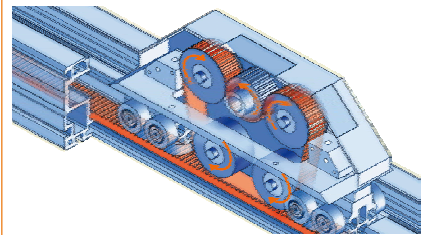
Extended carriage with double number of rollers

Drive options for heavy loads



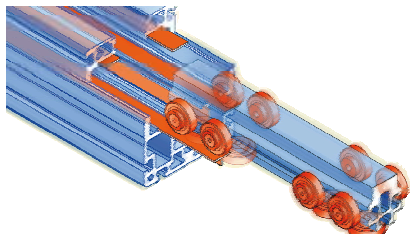
Double axis, following or synchronously driven

Rack-and-pinion drive



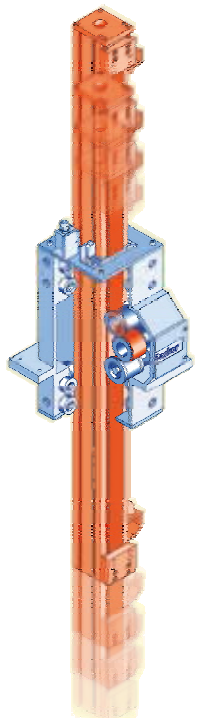
A short toothed belt runs on a tooth rack without lubrication. This ensures a consistent and high rigidity even with long strokes

Carriage with steel rollers



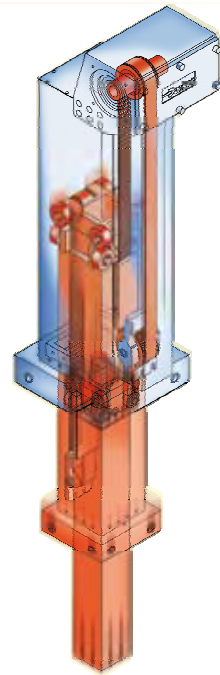
Steel rollers run on hardened steel strips inserted into the profile and ensure a high load-bearing capacity and rigidity.

Drive for vertical movements



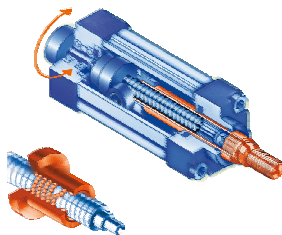
Drive station fixed, toothed belt and profile movable together

Compact drive for vertical strokes



Three-stage telescopic actuator featuring an extremely low height

Drive for short and precise movements



Ballscrew in the ET electro thrust cylinder

Accessories

A wide range of Parker accessories simplifies the integration

Motors and controllers

The correct gear-servomotor will, in combination with the optimal Parker servo amplifier, solve any positioning task.

All from one source

Our modular system allows a flexible, cost-efficient design of complex systems and plants. Please contact your local sales office for more information.

Parker Linear Actuators Overview

Toothed belt actuators

Parker's **LCB**, **HLE** and **HPLA** timing belt actuators can be easily combined with each other as well as with the rack-and-pinion or vertical actuators. A wide choice of accessories allows complete handling systems to be created with Parker components. Parker offers the ideal linear actuator for each application and task.

All toothed belt actuators feature high dynamics and are practically maintenance-free. Seven sizes from 40 mm up to 180 mm are available.

Areas of application

within the scope of progressive and cost-efficient machine and system design:

- Handling technology: e.g. palletizing, material feed and removal
- Textile machine construction: e.g. cross-, length cutting and stacking, quilting, seaming
- Process engineering: e.g. varnishing, coating, glueing
- Stock technology: e.g. commissioning, stock-keeping
- Construction technology: e.g. encasing, inserting steel reinforcements into concrete
- Clean room technology: e.g. wafer transport, wafer coating
- Machine tool manufacturing: e.g. charging workpieces, changing tools

LCB

Carriage with sliding bearing which represents a very compact and favourably-priced alternative to common toothed-belt actuators with high requirements for robustness.



- Available in 2 sizes
- Cost-efficient positioning actuator
- External sliding guide and toothed belt drive
- Low maintenance and low noise
- Simple mounting
- Clean operation without lubricants
- High resistance to flexing
- Very high torsional rigidity
- Dirt tolerant
- Easy maintenance, robust

HLE

Carriage with plastic-sheathed rollers. Available as single or double actuator.



- Available in 2 sizes
- Long strokes up to 20 m
- High speeds up to 5 m/s
- Nominal drive torque up to 108 Nm
- High repeatability up to ± 0.05 mm
- High mechanical efficiency of 95 %
- Low abrasion (suitable for clean room up to class 10)

HPLA

Carriage available either with plastic-sheathed rollers or with steel rollers on steel bands (with lubrication system).



- Available in 3 sizes
- Strokes up to 20 m
- High speeds up to 5 m/s
- Nominal drive torque up to 244 Nm
- High payloads up to 1600 kg
- Nominal thrust force up to 5500 N
- Repeatability up to ± 0.05 mm
- High mechanic efficiency

Type	Stroke up to [m]	Speed up to [m/s]	Acceleration up to [m/s ²]	Thrust force up to [N]	Typical Payload [kg]	Repeatability up to... [mm]	Frame size
LCB	5.5	8	20	560	30	± 0.2	40, 60
HLE	20	5	10	1350	300	± 0.05	100, 150
HPLA	20	5	10	5460	500	± 0.05	80, 120, 180

Screw actuator

ET Electro thrust cylinder

The drive via rack-and-pinion ensures high rigidity and repeatability. Profile cross-sections between 46.5 and 139.7 mm are available.

For precise motion, positioning, setting and actuating the ET electro thrust cylinder offers:

- Stroke up to 2400 mm
- Traction / thrust force up to 44500 N
- Repeatability ± 0.07 mm
- Speeds up to 1.3 m/s
- Screw pitch from 5 to 50 mm/rev
- 5 different sizes (+ET32 & ET100 with increased lifetime)
- High mechanical efficiency up to 90%
- Toothed belt drive (for parallel motor mounting)



Screw leads [mm]	Stroke up to [m]	Speed up to [m/s]	Acceleration up to [m/s ²]	Thrust force up to [kN]	Repeatability [mm]	Frame size ISO
5, 10, 16, 20, 25, 40, 50	2.4	1.3	10	0.6 ... 44.5	± 0.07	32, 50, 80, 100, 125

Linear motors

PowerRod



- 312 to 1860 N peak force
- 51 to 276 N continuous force
- IP67 protection class
- Integrated robust position sensor
- Repeatability up to $\pm 20\mu\text{m}$
- maintenance-free
- Suitable for the food industry
- High thermal efficiency
- Cost-efficient positioning drive

The motor variants guarantee high flexibility and positioning accuracy and provide a favourably-priced alternative to pneumatic cylinders.

PowerRod (PRA) - moving thrust rod

The PRA PowerRod Actuator was developed for the use in industrial automation systems, where different positions must be approached. The PRA motor drive is a very cost-effective alternative to air cylinders in applications requiring greater flexibility and control.

PowerRod actuator with outrigger bearings (PRR)

The outrigger bearings of the PRR actuator make it the ideal solution for applications subject to high side

loads requiring an anti-rotational device. The payload can either be mounted on the load attachment plate or on the forcer.

PowerRod motor component

The PowerRod (PRC + TRC) is similar to a pneumatic cylinder without thrust rod. Familiar form factor, integral position feedback and large air gap make integration very simple. PowerRod is the ideal solution for integration in pick-and-place gantries and general purpose handling systems.

Stroke up to [m]	Speed up to [m/s]	Acceleration up to [m/s ²]	Continuous / peak thrust force [N]	Repeatability [mm]
1.4	9.4	586	276 / 1860	± 0.02

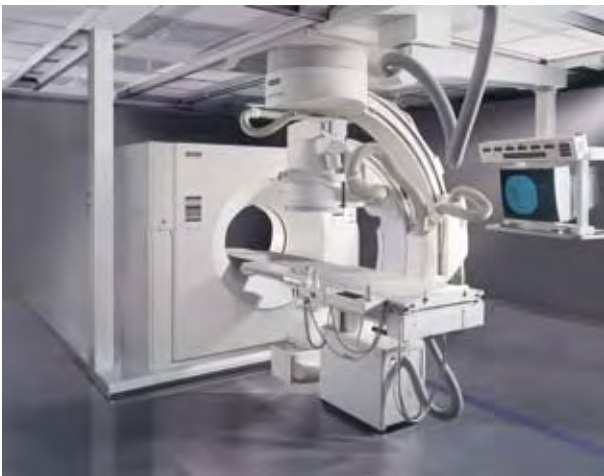
Toothed belt actuators

Parker's LCB, HLE and HPLA toothed belt actuators can be easily combined with each other as well as with the rack-and-pinion or vertical actuators. A wide choice of accessories allows complete handling systems to be created with Parker components. Parker offers the ideal linear actuator for each application and task. All toothed belt actuators feature high dynamics and are practically maintenance-free. There are seven sizes available from 40 x 40 mm to 180 x 180 mm.

Areas of application

within the scope of innovative and cost-effective machine and system design:

- Handling technology: e.g. palettizing, material feed and removal
- Textile machine construction: e.g. cross-, length cutting and stacking, quilting, seaming
- Process engineering: e.g. varnishing, coating, glueing
- Stock technology: e.g. commissioning, stock-keeping
- Construction technology: e.g. encasing, inserting steel reinforcements into concrete
- Clean room technology: e.g. wafer transport, wafer coating
- Machine tool manufacturing: e.g. charging of workpieces, changing tools



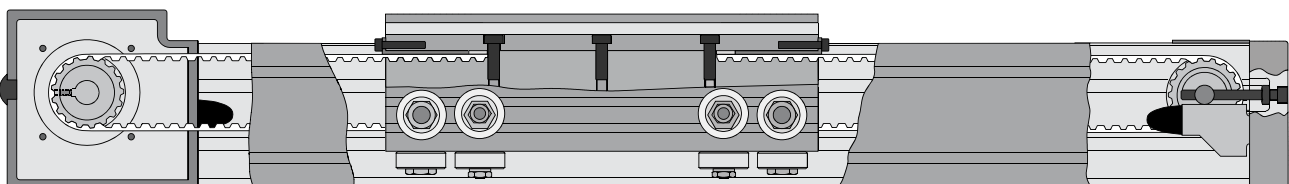
The principle of the toothed belt drive

A sophisticated technology

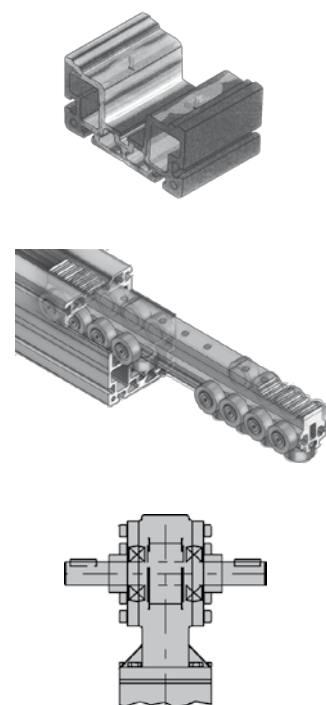
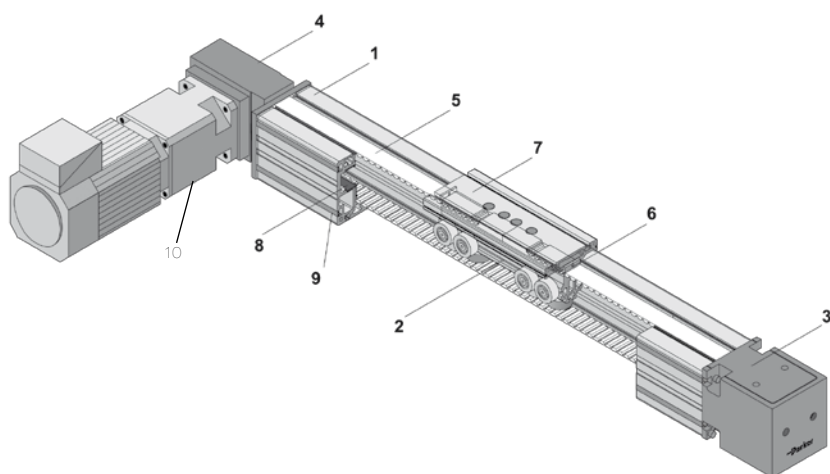
The toothed belt actuators consist of an extruded, self-supporting aluminium profile and a carriage, which is fitted backlash-free into the profile with the aid of rollers and is moved via a toothed belt.

The steel tension cords integrated into the belt provide the necessary stiffness and prevent the belt stretching. Special toothed pulleys ensure backlash-free operation -

and therefore excellent repeatability even with long strokes at high speeds.



Product design of the toothed belt drive



- The extruded aluminium profile **(1)** is optimized for highest stiffness (torsion and deflection) at the lowest possible mass.
- Mounting grooves on both sides and partly on the underside of the profile allows the mounting of additional mechanical components or the connection of several linear actuators with the aid of nuts. These grooves are also suitable as cable ducts if equipped with the optional cover profile **(9)**.
- For the HLE and HPLA, the carriage **(2)** is available in two sizes as a standard carriage with twelve rollers or as an extended carriage with twenty-four rollers. The cost-effective LCB actuator features a carriage without rollers, running on sliding bearings. Three lengths of sliding carriage are available. The distance between the sliding bearings increases with the carriage length.
- The HPLA carriage **(2)** is optionally available with steel rollers, which increases the load-bearing capacity or the payload considerably. For this option, steel strips **(8)** have to be inserted into the profile. The rolling-contact plastic or steel rollers with lifetime lubrication are aligned backlash-free in all directions via eccentric mountings.
- The tensioning station **(3)** is easily accessible and is therefore easy to maintain and mount. It is used to set the required pre-tension and the alignment of the timing belt (parallelism of the pulleys).
- The drive station **(4)** features several drive options. Everything is possible from the pulley directly on the gear shaft via a hollow shaft with bearing directly in the housing to the version with drive shaft on the left, on the right or on both sides.
- The practically backlash-free toothed belt **(5)** reinforced by steel tension cords guarantees high travel speeds and repeatabilities.
- The toothed belt fixing bracket and the wide area timing belt clamp **(6)** ensure a safe connection of toothed belt and carriage.
- The clamping system allows the toothed belt to be changed without removing the flange plate. This means that it is in most cases not necessary to remove the mounted components.
- The load attachment plate **(7)** of the HLE and HPLA actuators offers many component mounting possibilities due to the integrated longitudinal grooves on the surface. Simple and variable mounting of a tripping plate due to lateral longitudinal grooves on the load attachment plate. The unit height and the fixing points remain unchanged even if a steel strip cover is mounted subsequently.
- The optionally available Parker drive unit **(10)**, i.e. a servo motor with fitting planetary gearbox and servo controller, is the ideal solution for your dynamic and precise application.
- The linear actuator is also available in V2A as an option. The steel components are made of V2A material and the rollers and toothed pulleys are equipped with corrosion-free bearings. This makes the actuator ideal for use in clean-room or food processing industry applications.

LCB Compact linear actuator with sliding bearing

- Robust and compact linear actuator
- Cost-effective positioning actuator
- External sliding guide and toothed belt drive
- Low maintenance and low noise
- Simple mounting
- Clean operation without lubricants
- High resistance to flexing
- Very high torsional rigidity
- Dirt tolerant
- Easy maintenance, robust



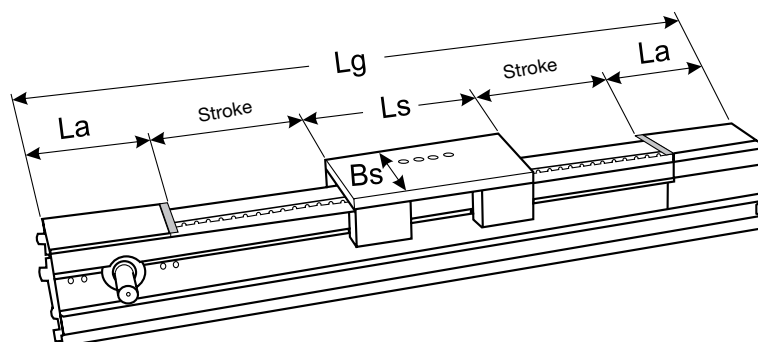
The linear actuators are available in two sizes: LCB 040 and LCB 060

The modular system allows the combination of actuators, including other types of linear actuator to build complete handling systems

Specifications

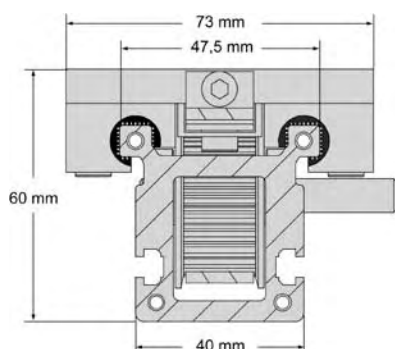
Frame sizes		LCB 040	LCB 060
Nominal data			
Maximum thrust force	[N]	160	560
Typical payload	[kg]	1 ... 6	1 ... 30
Max. static load bearing capacity	[N]	1250	3850
Max. stroke	[mm]	2000	5500
Max. speed	[m/s]	5	8
Repeatability	[mm]	± 0.2	± 0.2
Max. acceleration	[m/s ²]	20	20
Travel path per revolution	[mm/U]	125	170
Toothed belt width / pitch	[mm]	16/5	25/10
Maximum drive torque	[Nm]	3.2	15.2
Weight of base unit without stroke			
LCB with short sliding carriage	[kg]	1.47	4.33
LCB with medium sliding carriage	[kg]	1.66	4.71
LCB with long sliding carriage	[kg]	1.85	5.10
Weight of moved mass with short sliding carriage	[kg]	0.39	1.41
Weight of moved mass with medium sliding carriage	[kg]	0.46	1.53
Weight of moved mass with long sliding carriage	[kg]	0.53	1.66
Weight per metre of additional length	[kg/m]	2.45	5.21
Overall dimensions and physical data			
Length with short sliding carriage, zero stroke	[mm]	246	378
Length with medium sliding carriage, zero stroke	[mm]	296	428
Length with long sliding carriage, zero stroke	[mm]	346	478

Dimensions

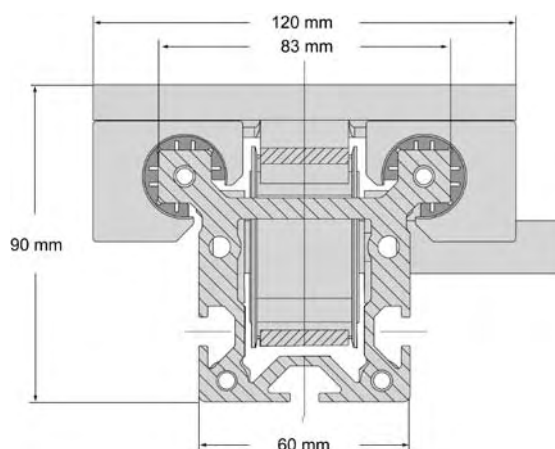


	LCB 040	LCB 060
Short sliding carriage Ls [mm]	100	150
Medium sliding carriage Ls [mm]	150	200
Long sliding carriage Ls [mm]	200	250
Width of sliding carriage Bs [mm]	73	120
Module stop La [mm]	73	114
Total length Lg [mm]	stroke + Ls + 2 La	stroke + Ls + 2 La
max. stroke [mm]	2000	5500

Cross section



LCB 040



LCB 060

Stroke lengths

possible stroke lengths [mm]															
Stroke	250	300	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000
LCB 040	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
LCB 060	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Stroke	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4740	5000	5250	5500	
LCB 060	x	x	x	x	x	x	x	x	x	x	x	x	x	x	

When determining the stroke, a safety travel on both sides of the travel path should be considered.

For additional information please see our product catalog 192-510012 or our website www.parker-eme.com/lbc.

HLE Linear actuator with plastic-sheathed rollers

For guiding, moving and positioning, even over long travels, we offer the HLE linear actuator:

- Long strokes up to 20 m
- High speeds up to 5 m/s
- Transmissible drive torque max. 108 Nm
- High load bearing capacity
- Repeatability up to ± 0.05 mm
- High mechanical efficiency of 95 %
- Low abrasion (suitable for clean room up to class 10)
- Low wear, low maintenance and low-noise operation
- High dynamics due to low-mass, backlash-free carriage



The linear actuators are available in two sizes (**HLE 100** and **HLE 150**). They are suitable for fast linear movements over long travel strokes. The actuators are available in many different configurations with various options and accessories.

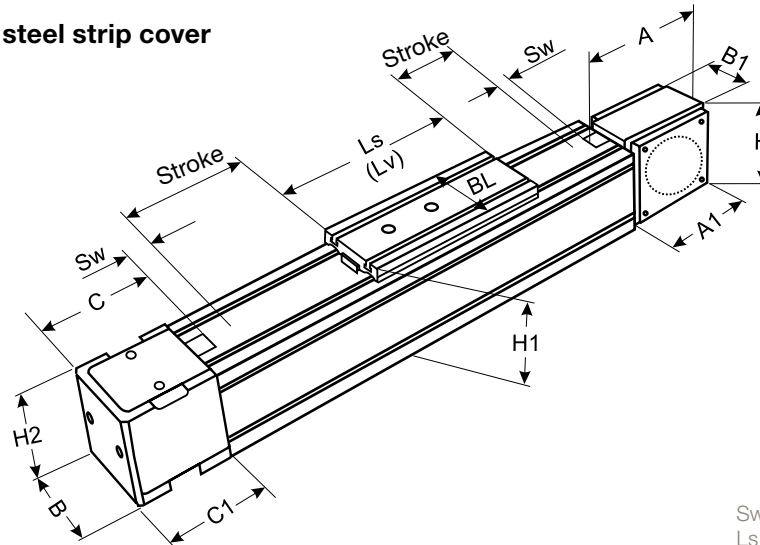
Specifications

Frame sizes	HLE 100		HLE 150	
	Standard	Steel strip cover	Standard	Steel strip cover
Weight of base unit without stroke				
HLE with standard carriage	11.5	12.7	28.6	31.2
HLE with extended carriage [kg]	14.6	15.8	35.9	38.5
Weight of standard carriage incl. load attachment plate [kg]	2.5	2.8	6.7	7.3
Weight of extended carriage incl. load attachment plate [kg]	4.1	4.4	10.9	11.5
Weight per metre of additional length [kg/m]	9.9	10.0	21.0	21.1
Travel lengths and speeds				
Maximum travel speed [m/s]	5.0		5.0	
Maximum acceleration [m/s²]	10.0		10.0	
Maximum travel path, standard carriage with one profile [mm]	6300	6210	9150	9060
Maximum travel path, extended carriage with one profile [mm]	6150	6060	9000	8910
Overall dimensions and physical data of guiding profile				
Cross-section [mm x mm]	100 x 100		150 x 150	
Forces and torques				
Nominal drive torque [Nm]	15.7		51.6	
Nominal belt traction force (payload) [N]	580		1350	
Repeatability up to 3 m [mm]¹	±0.05		±0.05	
Repeatability from 3 m [mm]¹	±0.1		±0.1	
Toothed pulley and toothed belt data				
Travel path per revolution [mm / U]	170		240	
Diameter of pulley [mm]	54.113		76.394	
Toothed belt width / pitch [mm]	25/10		32/10	
Mass of toothed belt [kg / m]	0.166		0.213	

¹ at a constant ambient and operating temperature

Dimensions

HLE without steel strip cover

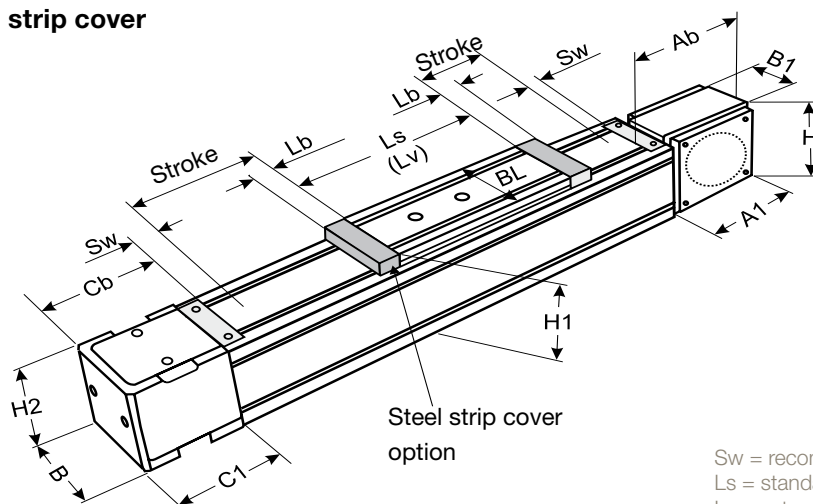


Sw = recommended safety travel
Ls = standard carriage
Lv = extended carriage

HLE with toothed belt without steel strip cover

	B	B1	BL	H	H1	H2	A1	A	C	C1	Ls	Lv	Sw
HLE 100	100	52	90	132	120	100	150	174	126	102	300	450	125
HLE 150	150	60	140	187	175	150	198	234	146	110	350	500	125

HLE with steel strip cover



Sw = recommended safety travel
Ls = standard carriage
Lv = extended carriage

HLE with toothed belt and steel strip cover

	B	B1	BL	H	H1	H2	A1	Ab	Cb	C1	Ls	Lv	Lb	Sw
HLE 100	100	52	90	132	120	100	150	219	171	102	300	450	35	125
HLE 150	150	60	140	187	175	150	198	279	191	110	350	500	35	125

For additional information please see our product catalog 192-510011 or our website www.parker-eme.com/hle.

HPLA Linear actuator optionally available with steel rollers

For guiding, moving and positioning, even over long travels, we offer the HPLA linear actuator:

- Travels up to 20 metres
- High speeds up to 5 m/s
- High payloads up to 1600 kg
- Nominal drive torque up to 244 Nm
- Nominal thrust force up to 5500 N
- Repeatability up to ± 0.05 mm
- High mechanical efficiency



The linear actuators are available in three sizes: **HPLA80, HPLA120 and HPLA180**

The modular system allows the combination of actuators including other types of actuator to build complete handling systems.

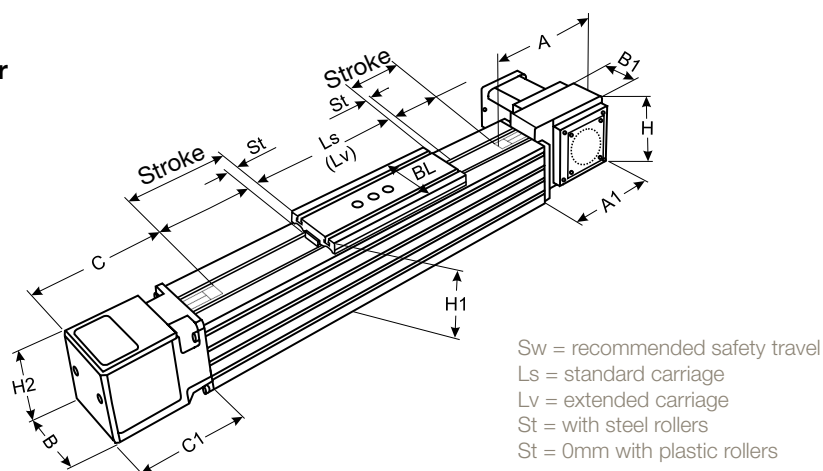
Specifications

Frame sizes		HPLA 080		HPLA 120		HPLA 180	
Roller guiding system		Plastic	Steel	Plastic	Steel	Plastic	Steel
Weight of base unit without stroke							
HPLA with standard carriage	[kg]	6.0	6.6	18.6	19.8	49.8	53.4
HPLA with steel strip cover	[kg]	6.8	7.5	20.2	21.6	57.2	61.6
HPLA with extended carriage	[kg]	7.8	8.6	23.5	25.2	67.4	72.6
HPLA with steel strip cover	[kg]	8.6	9.5	25.2	27.1	74.8	80.9
Weight of standard carriage & load attachment plate	[kg]	1.5	1.6	5.5	5.7	11.4	11.8
HPLA with steel strip cover	[kg]	1.7	1.8	5.8	6.0	12.3	12.6
Weight of extended carriage & load attacment plate	[kg]	2.4	2.6	8.5	8.9	20.3	21.0
HPLA with steel strip cover	[kg]	2.6	2.8	8.8	9.2	21.1	21.8
Weight per metre of additional length	[kg/m]	6.0	7.2	13.5	15.4	29.2	33.4
Weight with steel strip cover	[kg/m]	6.1	7.3	13.7	15.5	29.4	33.6
Travel lengths and speeds							
Max. travel speed	[m/s]	5.0					
Max. acceleration	[m/s²]	10.0					
Max. travel path (standard carriage)	[mm]	5610	5590	9560	9530	9440	9400
dito with steel strip cover	[mm]	5540	5520	9470	9440	9240	9200
Max. travel path (extended carriage)	[mm]	5460	5440	9360	9330	9140	9100
dito with steel strip cover	[mm]	5390	5370	9270	9240	8940	8900
Overall dimensions and physical data of guiding profile							
Cross section	[mm]	80 x 80		120 x 120		180 x 180	
Forces and torques							
max. drive torque	[Nm]	32		96		365	
max. thrust force	[N]	1114		2234		5457	
Repeatability up to 3 m	[mm] ¹	±0.05		±0.05		±0.05	
Repeatability from 3 m	[mm] ¹	±0.1		±0.1		±0.1	
Toothed pulley and toothed belt data							
Travel path per revolution	[mm/U]	180		270		420	
Number of teeth of pulley		18		27		21	
Toothed belt width / pitch	[mm]	25/10		32/10		56/20	

¹ at a constant ambient and operating temperature

Dimensions

HPLA without steel strip cover

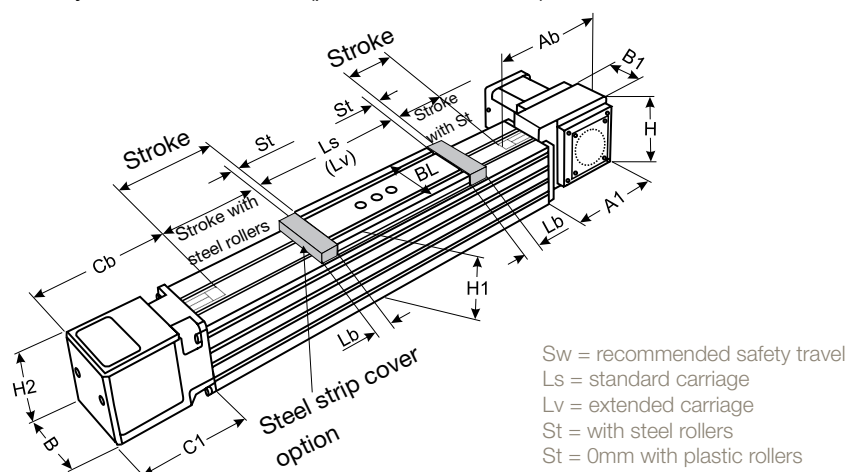


HPLA with toothed belt without steel strip cover

	B	B1	BL	H	H1	H2	A1	A	C	C1	Ls	Lv	St
HPLA 80	80	46	76	100	100	80	144	164	128	108	250	400	10
HPLA 120	120	60	110	135	143	120	185	205	160	140	300	500	13
HPLA 180	180	95	170	213	215	180	265	293	263	235	400	700	20

HPLA with steel strip cover

The optional steel strip cover is perfectly integrated into the linear actuator design and protects timing belt, rollers and the running surfaces of the profile reliably from contamination (protection class IP30).



HPLA with toothed belt and steel strip cover

	B	B1	BL	H	H1	H2	A1	Ab	Cb	C1	Ls	Lv	Lb	St
HPLA 80	80	46	76	100	100	80	144	199	163	108	250	400	40	10
HPLA 120	120	60	110	143	143	120	185	250	205	140	300	500	50	13
HPLA 180	180	95	170	215	215	180	265	393	363	235	400	700	100	20

Advantages of plastic roller guiding:

- clean operation, as the travel surface is free of lubricants
- low maintenance

Advantages of steel roller guiding on an integrated steel strip:

- high load bearing capacity
- high stiffness

For additional information please see our product catalog 192-580011 or our website www.parker-eme.com/hpla.

Special design with rack-and-pinion drive

Parker's rack-and-pinion actuators **HLEZ** and **HPLA-Z** can be combined with other linear actuators. Due to the modular design of the system, they can be combined to build complete handling systems.

Advantages of the rack-and-pinion drive:

- high, consistent stiffness independent of the stroke length or position
- very long strokes are possible (up to 50 m)
- high precision / any mounting position
- Several carriages on a single actuator are possible

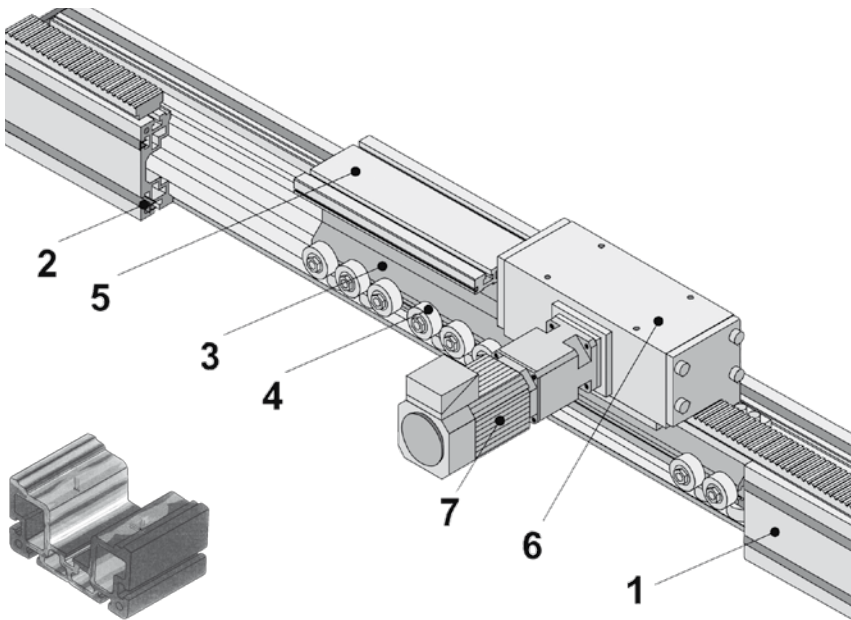
Areas of application

within the scope of innovative and cost-effective machine and system design:

- | | |
|---------------------------------|---|
| • Handling technology: | e.g. palettizing, material feed and removal |
| • Textile machine construction: | e.g. cross-, length cutting and stacking, quilting, seaming |
| • Process engineering: | e.g. varnishing, coating, glueing |
| • Stock technology: | e.g. commissioning, stock-keeping |
| • Construction technology: | e.g. encasing, inserting steel reinforcements into concrete |
| • Clean room technology: | e.g. wafer transport, wafer coating |
| • Machine tool manufacturing: | e.g. charging of the workpieces, changing the tools |
| • Testing technology: | e.g. guiding of ultrasonic sensors |



Product design of the rack-and-pinion drive



- The light-weight, compact and self-supporting aluminium profile **(1)** features clamping grooves **(2)** for the attachment of additional components and for connecting several linear actuators.
- The carriage **(3)** is available as a standard carriage with twelve rollers or as an extended carriage with twenty-four rollers.
- The HPLA-Z carriage is optionally available with steel rollers, which increase the load-bearing capacity or the payload considerably. For this, steel strips are inserted into the profile. The rolling-contact plastic or steel rollers **(4)** with lifetime lubrication are aligned backlash-free in all directions via eccentric mountings.
- The load attachment plate **(5)** offers a wide choice of options for fitting components.
- The tooth rack is well-protected within the profile of the HPLA-Z. Therefore a steel strip cover can be used.
- Parker's gear-servomotors **(7)** available as an option can be mounted on both sides of the drive station **(6)**.
- With the corresponding Parker servo controllers, the actuator is the ideal solution for your dynamic and precise applications.

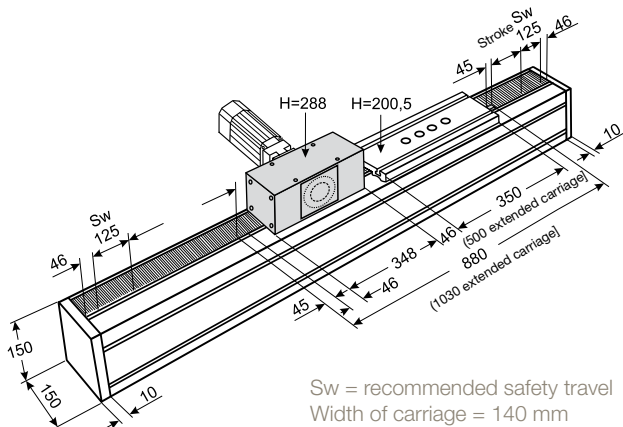
Specifications

Frame sizes		HLEZ 150	HPLAZ 180
Weight of base unit without stroke			
HLEZ with standard carriage	[kg]	53	71.8 (78.4) ¹
HLEZ with extended carriage	[kg]	61	88.6 (95.2) ¹
Mass of standard carriage with load attachment plate and drive module	[kg]	25.7	29.9 (32.5) ¹
Mass of extended carriage with load attachment plate and drive module	[kg]	29.7	37.2 (39.8) ¹
Mass of additional length (guiding profile + toothed rack)	[kg/m]	23.9	31.4 (31.5) ¹
Travel lengths and speeds			
Maximum travel speed	[m/s]	5.0	5.0
Maximum travel path, standard carriage with one profile	[mm]	8888	8880 (8680) ¹
Maximum travel path, extended carriage with one profile	[mm]	8738	8580 (8380) ¹
Maximum stroke with longitudinal flange	[m]	50	50
Efficiency	[%]	85	80
Overall dimensions and physical data of guiding profile			
Cross-section	[mm x mm]	150 x 150	180 x 180
Pulley data, torques and forces			
Travel path per revolution	[mm/U]	200	280
Number of teeth of drive pinion		20	28
Toothed belt width / pitch	[mm]	50/10	42/10
Thrust force	[N]	1000	1300
Repeatability	[mm]	±0.05	±0.05

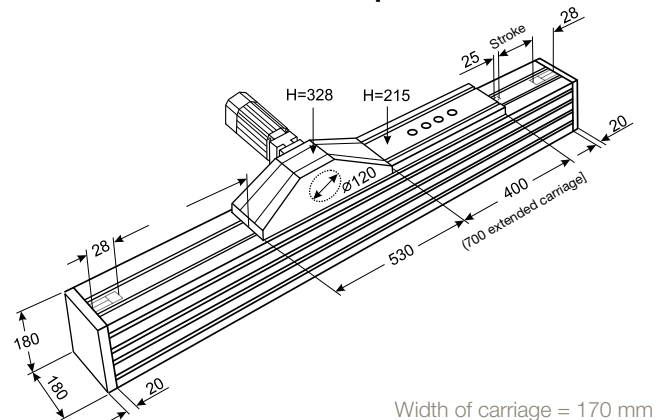
¹ HPLAZ180 Values in brackets apply to steel strip cover version

Dimensions

HLEZ 150

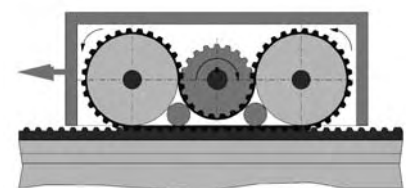


HPLAZ 180 without steel strip cover



Principle of the rack-and-pinion drive: A sophisticated technology

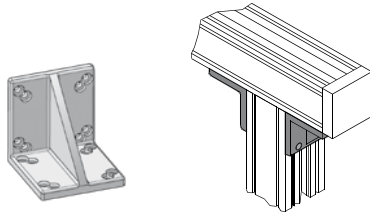
The rack-and-pinion drive offers all the advantages of a toothed belt drive, without its typical disadvantages. The consistently short toothed belt, which is independent of the travel stroke, reduces belt stretch to a minimum. The lateral deflection rollers pre-tension the system and eliminate the backlash. Contact rollers ensure that a sufficient number of teeth are in contact with the pulley. The combination of plastic toothed belt with toothed rack provides a safe and clean drive which does not require lubrication.



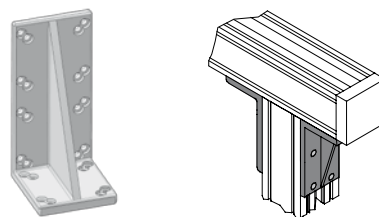
For additional information on the HLEZ see our product catalog 192-510011 or our website www.parker-eme.com/hle.
For additional information on the HPLAZ see our product catalog 192-580011 or our website www.parker-eme.com/hpla.

Accessories for toothed belt and rack-and-pinion

Assembly angle plate isosceles



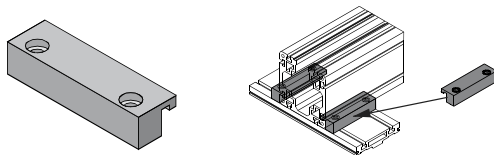
Assembly angle plate scalene



The assembly angle plates are used to connect linear actuators to the basic structure (as support, you may use a Parker profile), or with your construction elements.

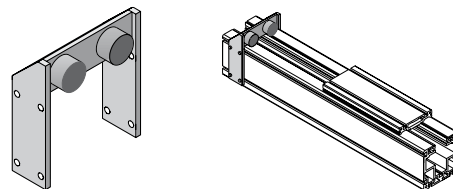
Toe Clamp

The toe clamps are used in conjunction with the standard load attachment plate to rapidly install and attach various combinations of linear actuators.



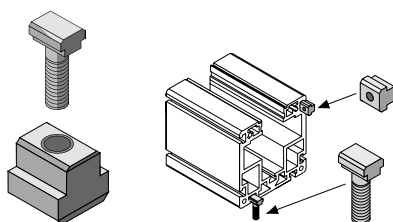
External stop buffer

The external stop buffer is mounted in the grooves of the profile and can be adjusted infinitely.



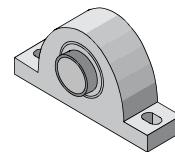
T-Nuts and bolts

The T nuts and bolts can be used to attach other components in the T-slots of the profile, or on the upper side of the load attachment plate.



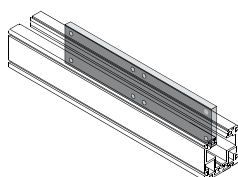
Intermediate shaft bearing for double actuators

The intermediate shaft bearing is used to support the connection shaft of a double actuator in the event of a long axis distance. The intermediate shaft bearing must be used if the critical rotational speed is exceeded with the double actuator connection shaft.



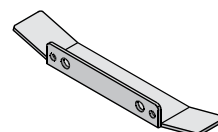
Longitudinal flanges

The usable stroke can be more than doubled when using the flange plates. A longitudinal flange is required if the travel path exceeds the profile length.



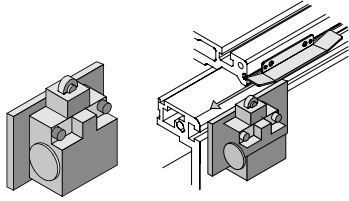
Tripping plate

The tripping plate is suitable for all standard load flange plates.



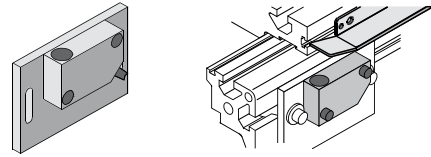
Mechanical limit switch

Switching button as per DIN EN50047. The contacts satisfy the safety requirements by forced opening.



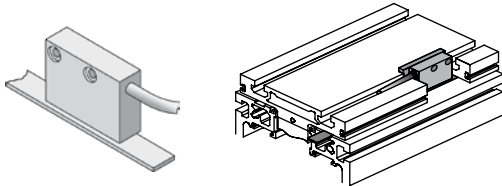
Electrical limit switches

The sensor is activated by a tripping plate on the side on the flange plate.



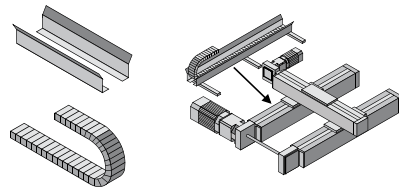
Linear encoder

The use of a linear encoder increases the static position stiffness of the linear actuator as well as the control properties and positioning accuracy. An additional cable carrier is required due to the moving sensor.



Cable carrier

A cable carrier is needed when making power connections to moving elements. Use only electrical cables which are suitable for use in cable carriers.



Motor and amplifier

Servo amplifier

For additional information please see our product catalog 192-120013 or our website www.parker-eme.com/c3.

Motors and gears

For additional information on motors please see our website www.parker-eme.com/sm and for gears www.parker-eme.com/gearbox.

Other accessories / software

DimAxes

Dimensioning tool for Parker linear actuators, for PC from Windows version 95
Download free of charge from:
<http://www.parker-eme.com/dimaxes>



Belt tension measuring device RSM

For accurately setting the toothed belt tension.



Screw actuator

ET Electro thrust cylinders

For precise motion, positioning, setting and actuating the ET electro thrust cylinder offers:

- Stroke up to 2400 mm
- Traction / thrust force up to 44500 N
- Repeatability ± 0.07 mm (up to ± 0.01 mm)
- Speeds up to 1.3 m/s
- Screw pitch from 5 to 50 mm/rev
- 5 different sizes (+ ET 100 fortified)
- High mechanical efficiency up to 90 %
- Toothed belt drive (for parallel motor mounting)



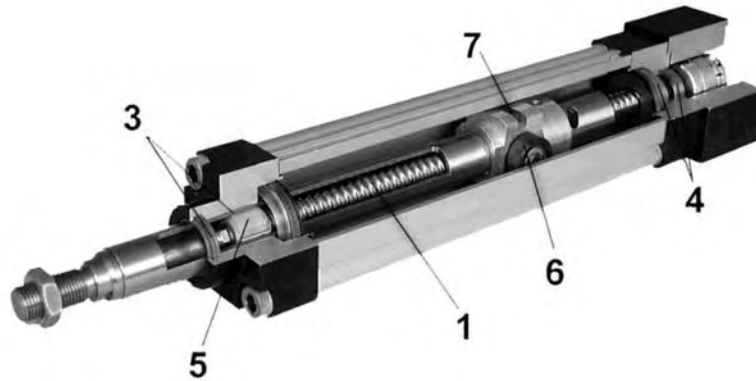
Areas of application

The electro thrust cylinder closes the gap between pneumatic and hydraulic drives. Together with the wide choice of accessories, it offers many possibilities in the field of:

- Material handling and feed systems:
 - wood and plastic working industry
 - vertical actuators for loading machine tools
 - in the automotive industry for transporting and feeding components
- Testing equipment and laboratory applications
- Valve and flap actuation
- Pick & Place tasks
- material feed unit for the food and beverage industry



Assembly Diagram



- A precision class C7 ballscrew **(1)** is used as a feed unit.
- The balls between spindle and nut ensure a low frictional resistance. This ensures an especially smooth operation, high lifetime and an excellent efficiency.
- The slip- and maintenance free timing belt transmission **(2)** (only with parallel drive) is available in transmission ratios of 1:1.5 (ET32); 1:1; 1.5:1 and 2:1.
- The extra long cylinder rod bearing **(3)** allows for high side load forces. A wiper ring prevents the ingress of external contamination.
- The rear screw support bearing **(4)** is designed to accommodate high axial and radial forces.
- The front screw support bearing is supported by a polymer sliding bearing **(5)**. This eliminates vibrations and run-out, improving position accuracy, dynamics and extending screw life.
- The integrated anti-rotate mechanism **(6)**, with three Nylatron NS wheels prevents rod-rotation and can absorb minor torsional movements.
- The permanent magnet **(7)** integrated into the screw nut serves to operate the home and limit switches, which can be fitted to a longitudinal groove in the cylinder body.



Special designs

- Positive Pressure Port
- Oil splash lubrication of the screw for high-duty applications
- Customized mountings and rod ends
- Mounting of customer motors
- Preparation of the cylinder for use under aggressive environmental conditions
- Overlong thrust rod
- Polished thrust rod
- Thrust rod hard-chrome plated
- IP65 rating:
 - Polyester/polyurethane cylinder body
 - Special dual piston rod seal
 - All external fixings in corrosion-resistant materials

Specifications

Cylinder size	ET 32		ET 50			ET 80			ET 100				ET 125				
Type	M05	M10	M05	M10	M16	M05	M10	M25	M05	M10	M20	M40	M05	M10	M20	M50	
Screw																	
Screw lead	[mm]	5	10	5	10	16	5	10	25	5	10	20	40	5	10	20	50
Screw diameter	[mm]	12		16			25			40				50			
Screw length with zero stroke																	
Parallel drive	[mm]	174.7	174.7	200.3	203.1	207.1	227.0	245.5	252.4	332.2	352.0	370.0	380.0	359.0	389.0	389.0	412.0
Inline drive	[mm]	160.7	160.7	190.7	193.7	197.7	211.2	229.8	236.6	309.4	329.2	347.2	357.2	400.5	430.5	430.5	453.5
Strokes and acceleration																	
Available strokes	[mm]	cont. from 50 ... 750		continuous from 50 ... 1000			continuous from 100 ... 1500			continuous from 100 ... 1500				continuous from 100 ... 2400			
Max. acceleration	[m/s²]	3	6	3	6	10	3	6	10	3	6	6	10	3	6	6	10
Forces																	
Max. thrust/traction force	[N]	600		3300			8300			21200				44500			
Typ. average thrust/trac-tion force	[N]	200		1000			2000			5000				10000			
Weight																	
Weight of base unit without stroke	[kg]	1.3		2.3			6.8			14.8				30			
Weight of additional length	[kg/m]	3		6			10			20				37			
Precision and backlash																	
Repeatability	[mm]	±0.07															
Backlash	[mm]	0.02 with inline drive / 0.025 with parallel or reverse drive															

Please take the bearing life-time into the calculation (for details please refer to our main catalog 192-550011).

Maximum speeds with different strokes

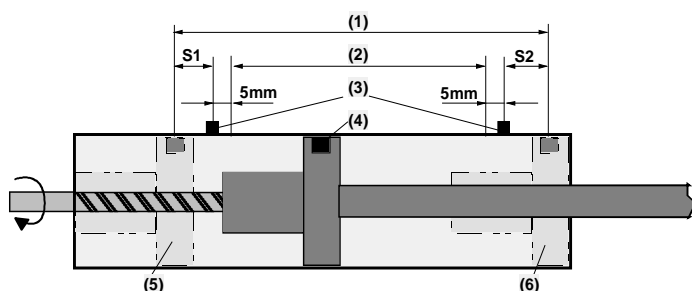
Cylinder size	ET 32		ET 50			ET 80			ET 100				ET 125			
Type	M05	M10	M05	M10	M16	M05	M10	M25	M05	M10	M20	M40	M05	M10	M20	M50
Stroke	Max. speed with stroke [mm/s]															
50 ... 300 [mm]	420	840	320	730	1170	270	540	1340	170	340	670	1340	140	270	540	1340
450 [mm]	420	840	320	630	1000	270	540	1340	170	340	670	1340	140	270	540	1340
600 [mm]	270	540	320	630	1000	270	540	1340	170	340	670	1340	140	270	540	1340
750 [mm]	190	380	230	450	720	270	540	1340	170	340	670	1340	140	270	540	1340
1000 [mm]	-	-	150	300	470	210	420	1040	170	340	670	1340	140	270	540	1340
1250 [mm]	-	-	-	-	-	150	290	720	170	340	670	1340	140	270	540	1340
1500 [mm]	-	-	-	-	-	110	210	530	160	310	610	1220	140	270	540	1340
1600 [mm]	-	-	-	-	-	-	-	-	-	-	-	-	140	270	540	1340
1800 [mm]	-	-	-	-	-	-	-	-	-	-	-	-	140	270	530	1340
2000 [mm]	-	-	-	-	-	-	-	-	-	-	-	-	120	230	450	1100
2200 [mm]	-	-	-	-	-	-	-	-	-	-	-	-	100	190	380	950
2400 [mm]	-	-	-	-	-	-	-	-	-	-	-	-	90	170	330	820

Definition of stroke, travel and safety travel, mounting of home and limit switches

- The stroke is the maximum possible stroke between the internal end stops.
- The travel is the distance which you need to move in your application. It is always shorter than the stroke.
- The safety travel (S1 and S2) is required to slow down the cylinder after it has passed a limit switch (Emergency stop, in order to avoid contact with the mechanical limit stops).
- For vertical mounting, S1 and S2 must in general be different.
- With demanding applications (great masses and high dynamics), the safety travel has to be calculated and enlarged accordingly.

Safety travel

Zylinder Baugröße	ET 32		ET 50			ET 80			ET 100				ET 125			
Typ	M05	M10	M05	M10	M16	M05	M10	M25	M05	M10	M20	M40	M05	M10	M20	M50
S1 [mm]	10	20	10	20	30	10	20	30	10	20	25	30	10	20	25	40
S2 [mm]	10	20	10	20	30	10	20	30	10	20	25	30	10	20	25	40



- (1): Stroke
- (2): Working stroke
- (3): Initiators
- (4): Magnet
- (5): Retracted cylinder position
- (6): Extended cylinder position

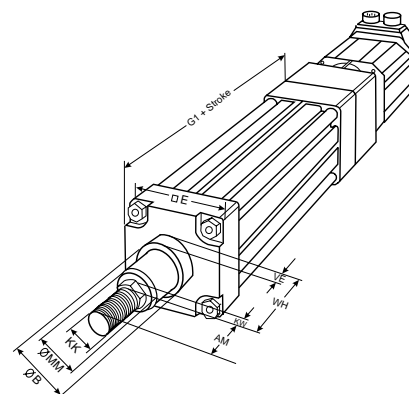
$$S_w = \text{Safety travel} = S1 + S2 + 10 \text{ mm}$$

S_w = recommended safety travel

Dimensions

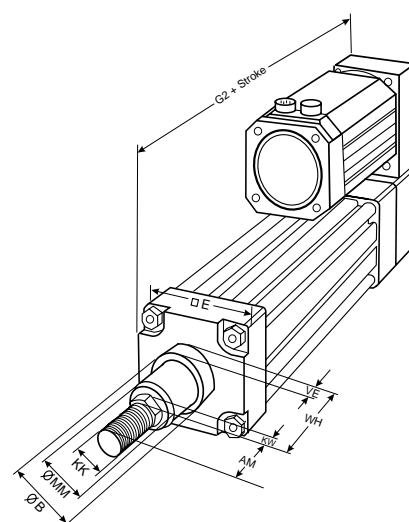
Cylinder	ET (inline/parallel)				
Size	AM	E	KK	Ø MM	KW
ET 32	22	46.5	M10 x 1.25	18	5
ET 50	32	63.5	M16 x 1.5	25	6.5
ET 80	40	95.3	M20 x 1.5	35	10
ET 100	54	114.0	M27 x 2.0	50	13
ET125	72	139.7	M36 x 2.0	70	13

Cylinder	Standard cylinder			IP 65 rating		
Size	VE	WH	ØB	VE	WH	ØB
ET 32	13	26	30	40	50	46
ET 50	16	37	40	43	64	62
ET 80	20	46	50	55	81	68
ET 100	20	51	65	60	91	89
ET 125	20	68	90	on request		



Motor mounting directly at the cylinder (inline)

Cylinder		Standard cylinder		IP 65 rating	
Size	Type	G1	G2	G1	G2
ET 32	M05	140.5	176.7	143.7	179.9
	M10	140.5	176.7	143.7	179.9
ETV 32	M05	138.0	163.2	141.2	166.4
	M10	140.8	166.0	144.0	169.2
ET 50	M05	160.4	199.5	163.6	202.7
	M10	163.4	202.5	166.6	205.7
	M16	167.4	206.5	170.6	209.7
ET 80	M05	173.0	228.3	176.2	231.5
	M10	191.6	246.9	194.8	250.1
	M25	198.4	253.7	201.6	256.9
ET 100	M05	259.7	335.5	262.9	338.7
	M10	279.5	355.3	282.7	358.5
	M20	297.5	373.3	300.7	376.5
	M40	307.6	383.4	310.8	386.6
ETV 100	M05	290.2	366.0	293.4	369.2
	M10	331.0	406.8	334.2	410.0
ET 125	M05	283.9	411.0	on request	
	M10	313.9	441.0		
	M20	313.9	441.0		
	M50	336.9	464.0		



Motor mounting parallel via toothed belt

In order to calculate the total length $G + \text{stroke}$, the desired travel must be added to $G1$ or $G2$.

Accessories for ET Electro thrust cylinders

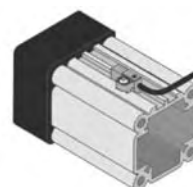
Piston Rod Guide Module



The rod guiding performs the following tasks:

- Rotation protection for higher torques
- Absorption of lateral forces
- Relieves the cylinder of lateral forces

Home / limit switches



Mounting types

Foot mounting



Mounting flanges



Centre trunnion mounting



Installation flanges



Rear Clevis



Rear Eye Mounting



Rod End

with external thread



with internal thread



Rod Clevis



Spherical Rod Eye



Motor and amplifier

Servo amplifier

For additional information please see our product catalog 192-120013 or our website www.parker-eme.com/c3.

Motors and gears

For additional information on motors please see our website www.parker-eme.com/sm and for gears www.parker-eme.com/gearbox.

For additional information please see our product catalog 192-550011 or our website www.parker-eme.com/et.

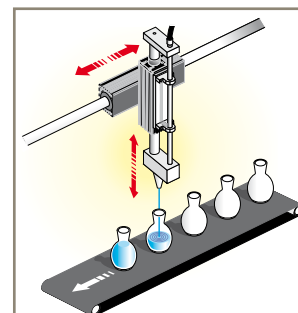
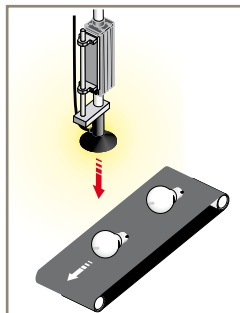
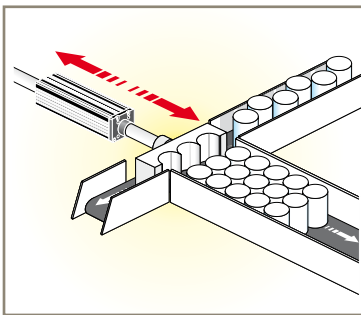
Linear motors

PowerRod

- 312 to 1860 N peak force
- 51 to 276 N continuous force
- IP67 protection class
- Integrated robust position sensor
- Repeatability up to $\pm 20 \mu\text{m}$
- maintenance-free
- Suitable for use in the food and beverage industry
- High thermal efficiency
- Cost-effective positioning drive



Areas of application



PowerRod (PRA) – moving thrust rod

The PRA PowerRod Actuator was developed for the use in industrial automation systems, where different positions must be approached.

The PRA motor drive is a very cost-effective alternative to air cylinders in applications requiring greater flexibility and control. The PRA is ideally suited for all thrust / traction and lifting applications. An internal dry bearing provides clean, quiet, maintenance-free performance. Long operating cycles are possible without additional cooling.



PRA 25



PRA 38

	PRA 25	PRA 38
Continuous force	51 ... 102 N	137 ... 276 N
Peak force	312 ... 780 N	744 ... 1860 N
Stroke	27 ... 309 mm	33 ... 318 mm
Speed	up to 5.9 m/s	up to 5.3 m/s
Acceleration without payload	up to 586 m/s ²	up to 391 m/s ²

PowerRod actuator with outrigger bearings (PRR)

The outrigger bearings of the PRR actuator make it the ideal solution for applications subject to high side loads requiring an anti-rotational device. The external bearing rails with ball bushings function as guides for the moved magnet rod. Those steel gearing rails with ball bushings offer maximum support against high lateral forces. Polymer bushings use aluminium rails for reduced weight and are ideal for fast vertical movements. The iron-sleeve design of the PRR primary component produces 20% more force than linear motor PRA 25. The patented design provides the optimal solution for pick-and-place gantries and general purpose material handling machines. The payload can either be mounted on the load attachment plate or on the forcer.



PRR 25

	PRR 25
Continuous force	61 ... 119 N
Peak force	344 ... 860 N
Stroke	28 ... 310 mm
Speed	up to 6.3 m/s
Acceleration without payload	up to 458 m/s ²

PowerRod motor component:

Forcer (PRC) and magnet rod (TRC) – moved forcer

The PowerRod (PRC + TRC) is similar to a pneumatic cylinder without thrust rod. Familiar form factor, integral position feedback and large air gap make integration very simple.

PowerRod is the ideal solution for integration in pick-and-place gantries and general purpose handling systems. The load is mounted directly to the forcer typically supported by a single bearing rail. The thrust rod is mounted level at both ends, the primary component is mounted on a suitable guiding. A large air gap reduces alignment constraints.



PRC 25 with TRC 25



PRC 38 with TRC 38

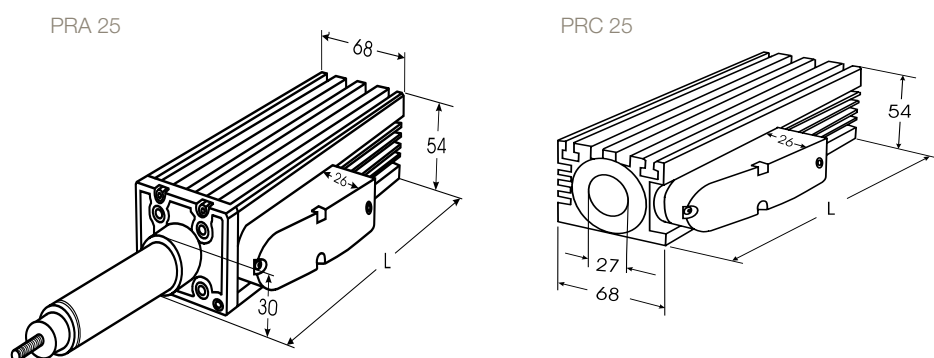
	PRC 25	PRC 38
Continuous force	51 ... 102 N	137 ... 276 N
Peak force	312 ... 780 N	744 ... 1860 N
Stroke	26 ... 1180 mm	7 ... 1362 mm
Speed	up to 8.7 m/s	up to 9.4 m/s
Acceleration without payload	up to 256 m/s ²	up to 307 m/s ²

PRA 25 / PRC 25

Specifications

		Motor phases series connection				Motor phases parallel connection			
Motor type PRA/PRC		2504	2506	2508	2510	2504	2506	2508	2510
PRA and PRC	Peak force [N] for 1 s	312	468	624	780	156	234	312	390
	Peak current [A] for 1 s	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1
	Standstill force [N] with heat dissipator	51.2	69.5	86.4	102.4	51.2	69.5	86.4	102.4
	Standstill current [A] with heat dissipator	2.3	2.1	1.9	1.8	4.6	4.2	3.9	3.7
	Standstill force [N] without heat dissipator	42.5	59.5	75.1	90.0	42.5	59.5	75.1	90.0
	Standstill current [A] without heat dissipator	1.9	1.8	1.7	1.6	3.8	3.6	3.4	3.3
	Force constant N/A (sine commutation)	22.1	33.1	44.1	55.2	11.0	16.5	22	27.6
	Supply voltage of servo drive [VAC]	230	230	230	230	230	230	230	230
	max. power loss [W] with heat dissipator	62.3	77.0	89.2	100.2	62.3	77.0	89.2	100.2
	max. power loss [W] without heat dissipator	43.1	56.4	67.6	77.3	43.1	56.4	67.6	77.3
PRA	Peak acceleration [m/s ²] without payload	394	483	542	586	197	241	271	293
	Maximum speed [m/s] without payload	5.9	5.3	4.7	4.2	4.4	5.1	5.6	5.8
PRC	Peak acceleration [m/s ²] without payload	223	223	235	256	111	111	117	128
	Maximum speed [m/s] without payload	8.7	6.5	5.4	4.6	7.3	7.2	7.6	7.0

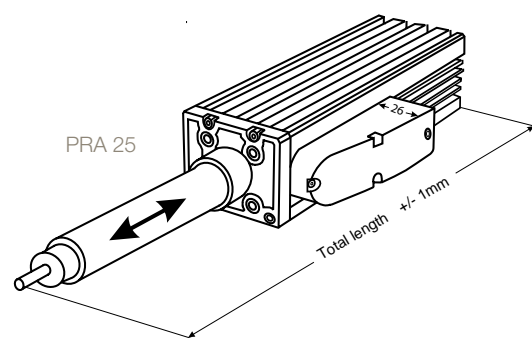
Values apply at an ambient temperature of 25°C.



		PRA				PRC			
Motor type PRA/PRC		2504	2506	2508	2510	2504	2506	2508	2510
L = Length	[mm]	188.5	239.5	290.5	341.5	160	211	262	313
max. stroke	[mm]	309	309	309	309	1180	1129	1078	1027
Weight of forcer	[kg]	1.25	1.70	2.25	2.65	1.15	1.60	2.15	2.55
Weight of rod	[kg/m]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5

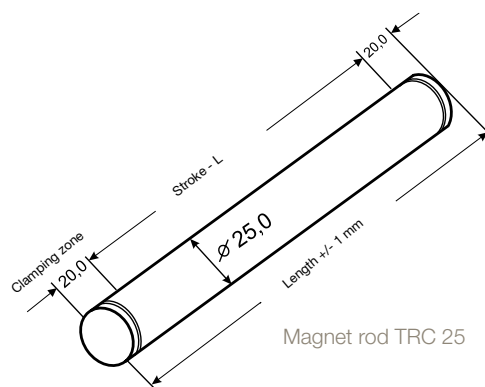
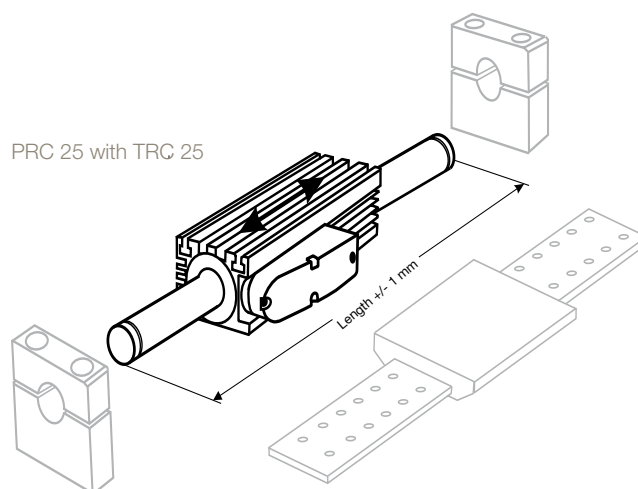
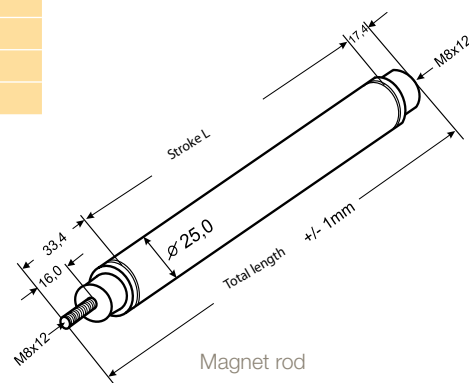
PRA 25

Stroke [mm]	Total length PRA 25 with TRA 25			
	2504	2506	2508	2510
27	266	317	368	419
53	292	343	394	445
78	317	368	419	470
104	343	394	445	496
130	369	420	471	522
155	394	445	496	547
181	420	471	522	573
206	445	496	547	598
232	471	522	573	624
258	497	548	599	650
283	522	573	624	675
309	548	599	650	701



PRC 25 with magnet rod TRC 25

Length TRC 25 [mm]	Stroke of forcer PRC			
	2504	2506	2508	2510
226	26	-	-	-
252	52	1	-	-
277	77	26	-	-
303	103	52	1	-
329	129	78	27	-
354	154	103	52	1
380	180	129	78	27
405	205	154	103	52
431	231	180	129	78
457	257	206	155	104
482	282	231	180	129
508	308	257	206	155
534	334	283	232	181
559	359	308	257	206
585	385	334	283	232
611	411	360	309	258
636	436	385	334	283
662	462	411	360	309
688	488	437	386	335
713	513	462	411	360
739	539	488	437	386
765	565	514	463	412
790	590	539	488	437
816	616	565	514	463
867	667	616	565	514
918	718	667	616	565
970	770	719	668	617
1021	821	770	719	668
1072	872	821	770	719
1124	924	873	822	771
1175	975	924	873	822
1226	1026	975	924	873
1278	1078	1027	976	925
1329	1129	1078	1027	976
1380	1180	1129	1078	1027



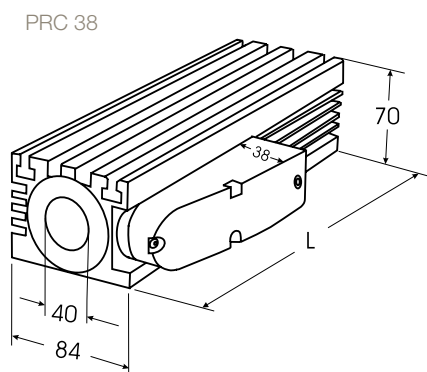
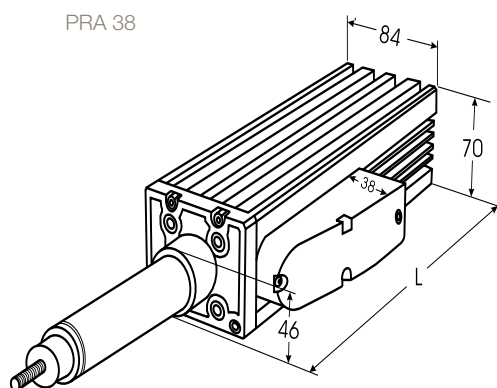
Terminal blocks are used to fix the TRC magnet rod. The moved mass is fixed to the PRC forcer with the aid of nuts. The guiding system for the forcer must be provided by the customer.

PRA 38/PRC 38

Specifications

		Motor phases series connection				Motor phases parallel connection			
	Motor type PRA/PRC	3804	3806	3808	3810	3804	3806	3808	3810
PRA and PRC	Peak force [N] for 1 s	744	1116	1488	1860	372	558	744	930
	Peak current [A] for 1 s	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1
	Standstill force [N] with heat dissipator	137.3	186.9	232.1	276.2	137.3	186.9	232.1	276.2
	Standstill current [A] with heat dissipator	2.6	2.4	2.2	2.1	5.2	4.7	4.4	4.2
	Standstill force [N] without heat dissipator	120.1	168.2	212.7	255.0	120.1	168.2	212.7	255.0
	Standstill current [A] without heat dissipator	2.3	2.1	2.0	1.9	4.6	4.3	4.0	3.9
	Force constant N/A (Sine commutation)	52.6	78.9	105.2	131.5	26.3	39.4	52.6	65.7
	Supply voltage of servo drive [VAC]	230	230	230	230	230	230	230	230
	Max. power loss [W] with heat dissipator	89.3	110.3	127.1	144.2	89.3	110.3	127.1	144.2
	Max. power loss [W] without heat dissipator	67.2	89.3	107.0	123.0	67.2	89.3	107.0	123.0
PRA	Peak acceleration [m/s ²] without payload	250	313	357	391	125	156	179	196
	Max. speed [m/s] without payload	4.7	3.8	3.1	2.6	4.9	5.3	4.9	4.4
PRC	Peak acceleration [m/s ²] without payload	244	276	295	307	122	138	147	154
	Max. speed [m/s] without payload	6.2	4.5	3.5	2.8	9.4	7.6	6.2	5.2

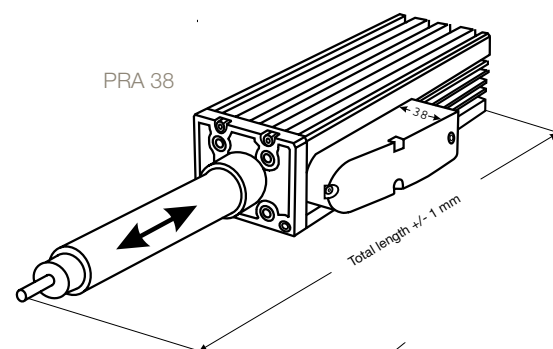
Values apply at an ambient temperature of 25°C



		PRA				PRC			
Motor type PRA/PRC		3804	3806	3808	3810	3804	3806	3808	3810
L = Length	[mm]	258	329	400	471	218	289	360	431
max. stroke	[mm]	318	318	318	318	1362	1291	1219	1148
Weight of forcer	[kg]	2.75	3.75	4.75	5.75	2.55	3.55	4.55	5.55
Weight of rod	[kg/m]	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3

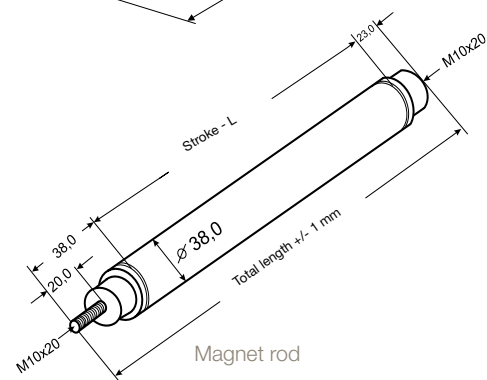
PRA 38

Stroke [mm]	Total length of PRA38 with TRA38			
	3804	3806	3808	3810
33	350	421	493	564
69	386	457	528	599
104	421	493	564	635
140	457	528	599	671
176	493	564	635	706
211	528	599	671	742
247	564	635	706	778
282	599	671	742	813
318	635	706	778	849

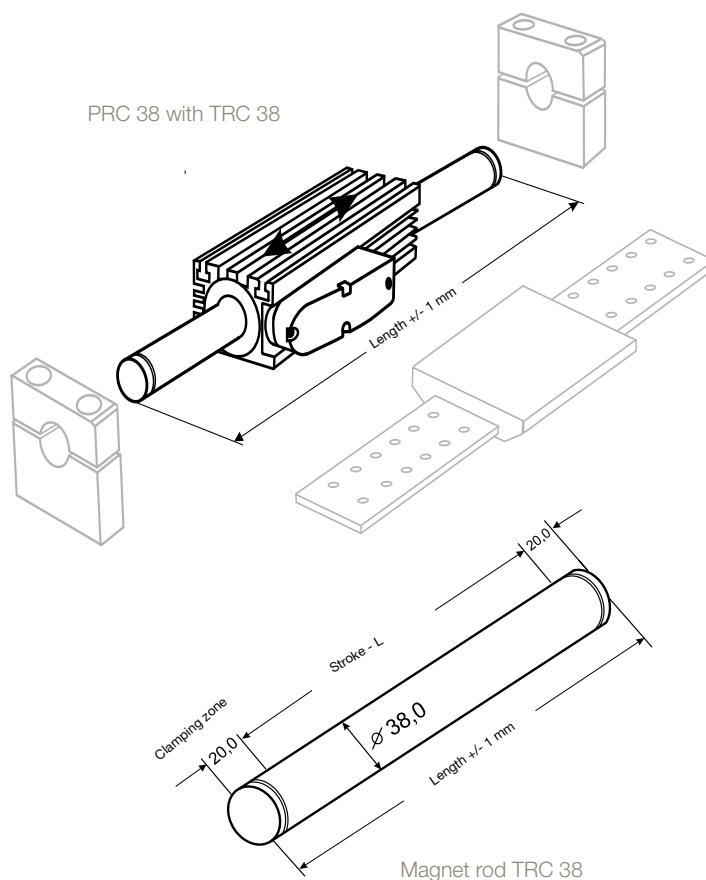


PRC 38 with magnet rod TRC 38

Length TRC38 [mm]	Stroke of the PRC forcer			
	3804	3806	3808	3810
265	7	-	-	-
337	79	8	-	-
372	114	43	-	-
408	150	79	8	-
444	186	115	44	-
479	221	150	79	8
515	257	186	115	44
550	292	221	150	79
586	328	257	186	115
622	364	293	222	151
657	399	328	257	186
693	435	364	293	222
729	471	400	329	258
764	506	435	364	293
800	542	471	400	329
836	578	507	436	365
871	613	542	471	400
907	649	578	507	436
943	685	614	543	472
978	720	649	578	507
1014	756	685	614	543
1050	792	721	650	579
1085	827	756	685	614
1121	863	792	721	650
1157	899	828	757	686
1192	934	863	792	721
1228	970	899	828	757
1263	1005	934	863	792
1299	1041	970	899	828
1335	1077	1006	935	864
1370	1112	1041	970	899
1406	1148	1077	1006	935
1442	1184	1113	1042	971
1477	1219	1148	1077	1006
1513	1255	1184	1113	1042
1549	1291	1220	1149	1078
1584	1326	1255	1184	1113
1620	1362	1291	1220	1149



PRC 38 with TRC 38



Clamping blocks are used to fix the TRC magnet rod. The moved mass is fixed to the PRC forcer with the aid of nuts. The guiding system for the forcer must be provided by the customer.

PRR 25 with rod guiding

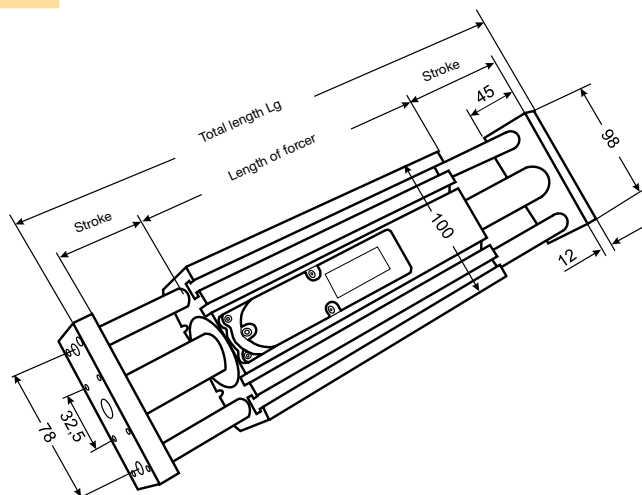
Specifications

	Motor phases series connection				Motor phases parallel connection			
Motor type PRR 25	2504	2506	2508	2510	2504	2506	2508	2510
Peak force [N] for 1 s	344	516	688	860	172	258	344	430
Peak current [A] for 1 s	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1
Standstill force [N] with heat dissipator	60.7	81.8	101.2	119.4	60.7	81.8	101.2	119.4
Standstill current [A] with heat dissipator	2.5	2.2	2.1	2.0	5.0	4.5	4.2	3.9
Standstill force [N] without heat dissipator	52.2	72.3	90.4	108.0	52.2	72.3	90.4	108.0
Standstill current [A] without heat dissipator	2.2	2.0	1.9	1.8	4.3	4.0	3.7	3.6
Force constant N/A (Sine commutation)	24.3	36.5	48.6	60.8	12.1	18.2	24.3	30.4
Supply voltage of servo drive [VAC]	230	230	230	230	230	230	230	230
Max. power loss [W] with heat dissipator	65.0	78.8	90.4	100.6	65.0	78.8	90.4	100.6
Max. power loss [W] without heat dissipator	48.1	61.5	72.1	82.4	48.1	61.5	72.1	82.4
With steel rods and ball bushings								
Peak acceleration [m/s ²] without payload	225	288	334	369	113	144	167	185
Max. speed [m/s] without payload	5.6	5.3	4.8	4.3	4.1	5.0	5.5	5.8
With aluminium rods and sliding bushings								
Peak acceleration [m/s ²] without payload	276	354	413	458	138	177	206	229
Max. speed [m/s] without payload	6.1	5.7	5.1	4.5	4.6	5.5	6.2	6.3

Values apply at an ambient temperature of 25°C.

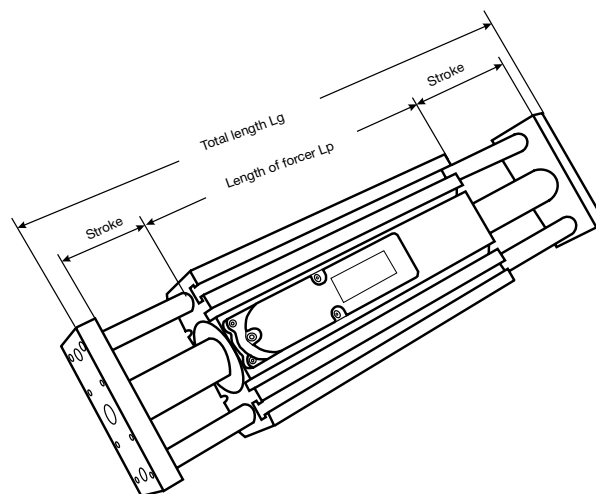
PRR 25

Motor type PRR	2504	2506	2508	2510
Length of forcer [mm]	181.5	232.5	283.5	334.5
max. stroke [mm]	310	310	310	310
Weight of forcer [kg]	1.65	2.25	2.85	3.45



PRR 25

Total stroke [mm]	Total length LG PRR [mm]			
	2504	2506	2508	2510
28	236	287	338	389
54	262	313	364	415
79	287	338	389	440
105	313	364	415	466
131	339	390	441	492
156	364	415	466	517
182	390	441	492	543
207	415	466	517	568
233	441	492	543	594
259	467	518	569	620
284	492	543	594	645
310	518	569	620	671



Ambient conditions	
Operating temperature	0 to 40°C
Height	1000 m above german reference surface
EMC	Industry (EN61000-6-3/EN61000-6-1)
Protection class	IP 67

Servo amplifier

The corresponding servo amplifiers for the individual PowerRods can be found in the servo catalog. Please contact our sales representatives, who will be pleased to advise you.

Motor and feedback cable

The PowerRods have two hard-wired cables for motor power and position sensor. Two cable types are available: Cable type S is a flexible cable, which is however not suitable for permanent flex operations (standard for PRA and PRR).

Cable type R is a highflex cable, which is suitable for permanent flex operations (standard for PRC and available as an option for PRA and PRR).

Position sensor

The integrated position sensor outputs analog, differential sine and cosine signals for providing position feedback. The corresponding Parker servo amplifiers can process the feedback signals as a standard.

Thermal Sensor

It is strongly recommended that the Parker motor temperature sensor is connected to the servo controller. This avoids the risk of motor damage caused by overheating.

For additional information please see our product catalog 192-570006 or our website www.parker-eme.com/powerrod.

Additional linear actuators

HTR Compact telescopic actuator

For vertical applications with minimum overall height

- Long stroke (maximum 4,000 mm) with minimum overall height
- High payload up to 50 kg
- Absorption of high lateral forces and torques
- Backlash-free guidance by means of adjustable plastic rollers mounted on roller bearings
- Low maintenance and low-noise rollers with PA coating
- Non-wearing and non-slip timing belt drive
- Can be combined with HLE and HPLA linear actuators
- Enclosed and torsion-resistant telescopic aluminium profiles



Areas of application

within the scope of progressive and cost-efficient machine and system design:

- Handling technology: e.g. palettizing, material feed and removal
- Textile machine construction: e.g. stacking
- Stock technology: e.g. commissioning, stock-keeping
- Construction technology: e.g. encasing, inserting steel reinforcements into concrete
- Machine tool manufacturing: e.g. charging of workpieces, changing tools

Specifications

Frame sizes		HTR 050	HTR 080
Weights, mass moments of inertia			
Weight of base unit without stroke	[kg]	12.8	35.3
Weight of additional length	[kg/m]	8.6	16.2
Weight of the moving parts. no stroke	[kg]	2.8	7.4
Weight of the moving parts, to be added per metre of stroke	[kg/m]	2.4	4.5
Travel lengths and speeds			
Maximum travel speed	[m/s]	5	5
Maximum stroke	[mm]	3000	4000
Maximum permissible acceleration	[m/s ²]	5	5
Precision			
Repeatability in one direction	[mm]	±0.2	±0.2
Overall dimensions & physical data			
Cross section of outer profile	[mm]	125 x 125 x 6	180 x 180 x 10
Cross section of middle profile	[mm]	80 x 80 x 6	125 x 125 x 6
Cross section of inner profile	[mm]	50 x 50 x 5	80 x 80 x 6
Torques, forces, dimensions of pulley and toothed belt			
Travel path per revolution	[mm/U]	340	480
Virtual diameter of pulley	[mm]	108.2	152.8
Maximum drive torque	[N]	24	66
Max. belt traction force	[N]	444	861
Typical payload	[kg]	25	50

For additional information please see our product catalog 192-560011 or our website www.parker-eme.com/htr.

HZR Toothed belt drive for Z-axis

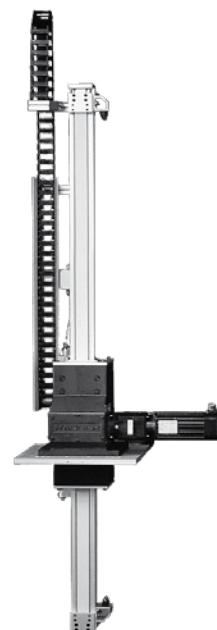
Designed for dynamic vertical applications

- High payload
- Absorption of high lateral forces and torques
- Backlash-free guidance by means of adjustable plastic rollers mounted on roller bearings
- Low maintenance and low-noise rollers with PA coating
- Non-wearing and non-slip timing belt drive
- Repeatability ± 0.2 mm
- High speeds up to 5 m/s

Areas of application

within the scope of innovative and cost-effective machine and system design:

- Handling technology: e.g. palettizing, material feed and removal
- Textile machine construction: e.g. stacking
- Stock technology: e.g. commissioning, stock-keeping
- Construction technology: e.g. encasing, inserting steel reinforcements into concrete
- Machine tool manufacturing: e.g. charging of workpieces, changing tools



Specifications

Frame sizes		HZR 050	HZR 080	HZR 100
Weights				
Weight of base unit without stroke	[kg]	12.4	30.7	50.2
Weight of additional length	[kg/m]	2.9	6.4	9.8
Strokes and speeds				
Maximum travel speed	[m/s]	5	5	5
Maximum stroke	[mm]	1500	1500	2000
Maximum permissible acceleration	[m/s²]	5	5	5
Precision				
Repeatability in one direction	[mm]	± 0.2	± 0.2	± 0.2
Overall dimensions & physical data				
Cross-section of moved profile	[mm]	50 x 50	80 x 80	100 x 100
Torques, forces, dimensions of pulley and toothed belt				
Travel path per revolution	[mm/U]	180	240	240
Diameter of pulley	[mm]	57.300	76.394	76.394
Toothed belt width / pitch	[mm]	25/10	32/10	50/10
Maximum drive torque	[Nm]	13	28.6	57.3
Maximum belt traction force	[N]	450	750	1500
Typical payload	[kg]	30	60	120

For additional information please see our product catalog 192-560011 or our website www.parker-eme.com/hzr.

BLMA Linear motors

- Up to 1693 N peak force
- Up to 844 N continuous force
- Integrated robust position sensor
- $\pm 10 \mu\text{m}$ repeatability
- Acceleration up to 50 m/s^2
- Speeds up to 7 m/s
- Maintenance-free
- Suitable for the food industry



Areas of application

within the scope of innovative and cost-effective machine and system design:

- Handling technology: e.g. material feed, removal
- Textile machine construction: e.g. cross-, length cutting
- Process engineering: e.g. varnishing, coating, glueing
- Clean room technology: e.g. wafer transport, wafer coating
- Machine tool manufacturing: e.g. charging of workpieces, changing tools

Specifications

Motor type	12-pin				20-pin			
Connection	series		parallel		series		parallel	
Roller guiding	plastic	steel	plastic	steel	plastic	steel	plastic	steel
Performance data								
Nominal thrust force air cooling [N]	310	385	310	385	510	625	510	625
Nominal current air cooling [A]	4.8	6.0	9.6	11.9	8.8	10.8	17.6	21.6
Nominal thrust force water cooling [N]	419	520	419	520	689	844	689	844
Nominal current water cooling [A]	6.5	8.0	13.0	16.1	11.9	1.6	23.8	29.1
Pulse thrust force [N]	892				1693			
Pulse current [A]	16.8		33.6		30.8		61.6	
Pulse current time [s]	5				5			
Max. mains voltage [VAC]	3-phase 3 x 400				3-phase 3 x 400			
Nominal speed [m/s]	5				5			
Max. speed [m/s]	7				7			
Max. acceleration [m/s²]	50				50			
typical acceleration [m/s²]	20				20			
Max. winding temperature [°C]	90	130	90	130	90	130	90	130
Surface temperature up to [°C]	55	75	55	75	65	95	65	95

For additional information please see our product catalog 192-590011 or our website www.parker-eme.com/blma.

Standard gantries

Gantry kits - Pre-engineered components for your system

Parker's gantry kits offer a building set for basic handling systems. In order to ensure simple and secure system selection, we focused on a few individual types. You just need to select a suitable basic system with the desired options. The components are matched in our factory. This minimizes the overhead for project planning and calculation.

Short delivery times and attractive price due to standard components

The gantry kits consist of the proven Parker standard components. We put our decade long experience into every component. Standard gantry robots do not have to be assembled in our factory – this saves time and money. Therefore we can offer you an extremely short delivery time of four weeks and an attractive price.

It's your choice!

Standard gantry robots in different stages of extension:

Basic version

Line gantry with x and z axis or gantry with x, y and z axis (all axes with gear), either in standard version or with steel strip cover for the x and y axes (protection class IP30), available with or without cable carrier (for all axes).

Additional drive package

Complete package including motors, controllers, motor and feedback cables and parameter lists in addition to the basic version.



For additional information please see our product catalog 192-700011 or our website www.parker-eme.com/gantry.

Precisions Automation

Customization and Services

Unlike many other motion technologies, electromechanical applications often require custom solutions. Our experienced engineers and technicians utilize systematic processes for handling component modifications or complete one-of-a kind systems. The System is the Product!

Parker Precision customers can receive many optional services such as:

- 3-D Custom Assembly Drawings
- Additional electronics available
- Life Load diagrams
- Initiators Integrated
- High-Flex Cabling Systems

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

- Cleanroom approved versions
 - Parker is equipped with particulate testing 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. Headquarter of european manufacturing is the facility in Offenburg, Germany

Industry's Best Lead Times

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

For additional information please see our website 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-pin	100 x 60	50 ... 1000	3.0	50 / 180	45	± 1.0
406LXR	8-pin	150 x 70	50 ... 1950	3.0	75 / 225	180	± 1.0
406LXR	12-pin	150 x 70	50 ... 1850	3.0	110 / 330	180	± 1.0
412LXR	12-pin	285 x 105	150 ... 3000	3.0	355 / 1000	950	± 1.0

For additional information please see our website 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

For additional information please see our website 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

For additional information please see our website www.parker-eme.com/hd.

Precision Miniature Tables

MX80 Series with 25 mm Height

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.

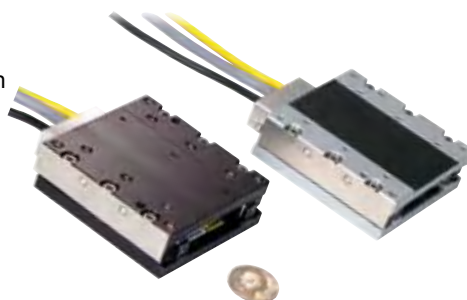
This redefines the term „automation with high efficiency“ within the world of miniature positioning systems.

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 (WxH) [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

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 (WxH) [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

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

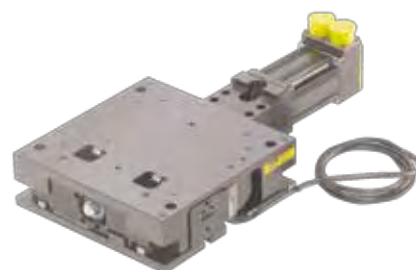
For additional information please see our website www.parker-eme.com/mx80.

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

For additional information please see our website www.parker-eme.com/zp200.

Direct Drive Rotary Stages

DDR Series

Parker Direct Drive Rotary Stages feature a robust construction and high performance in a compact package, providing smooth, near frictionless motion with zero backlash. Featuring an integral brushless DC servo motor, these rotary stages offer several distinct advantages over traditional worm gear-driven stages. The elimination of the worm gearing offers the ability to reduce wear with zero backlash while exhibiting near frictionless motion.

Its high positioning accuracy, solely based on the stage's encoder, provides repeatability within 2 encoder counts, with resolutions ranging to 1.4 arc-seconds. The RD Direct Drive features speeds up to 700 min⁻¹ with significant torque capability.



Applications

- Electronics production
- Fiber optics
- Medical technology
- Packaging
- Pharmaceutical

Features

- Precision rotary motion
- ZERO backlash
- Compact
- Rugged

Type	Axial load [N]	Vertical load at radius	Output torque		Maximum speed [min ⁻¹]
			continuous [Nm]	peak [Nm]	
R100D	750	200 N at 50 mm	0.65	1.96	700
R150D	1500	750 N at 75 mm	4.00	12.00	500
R200D	2500	1500 N at 100 mm	6.2	18.60	300

For additional information please see our website www.parker-eme.com/ddr.

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 1" 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

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 28mm)
- High-performance leadscrew drive train
- 1 mm, 3 mm, 10 mm, and 1" 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

equipment although it is not limited to these markets. Typical applications include transport of 0.5 to 1 kg payloads such as microplates, 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.

Model	Cross section [mm]	Travel [mm]	Max. Speed [mm/s]	Max. Axial Load [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

For additional information please see our website www.parker-eme.com/promech.

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.



K Series



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 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.

Model	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

For additional information please see our website www.parker-eme.com/stk.

For additional information please see our website 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

400VAC - Characteristics

		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 ⁽¹⁾	[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 ⁽²⁾	[Nm]	55 ... 220		119 ... 476		387 ... 1161	
Current at peak torque ⁽²⁾	[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 ⁽¹⁾	[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	

For additional information please see our product catalog 192-062011 or our website www.parker-eme.com/st.

Additional information available on:

www.parker-eme.com/la

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