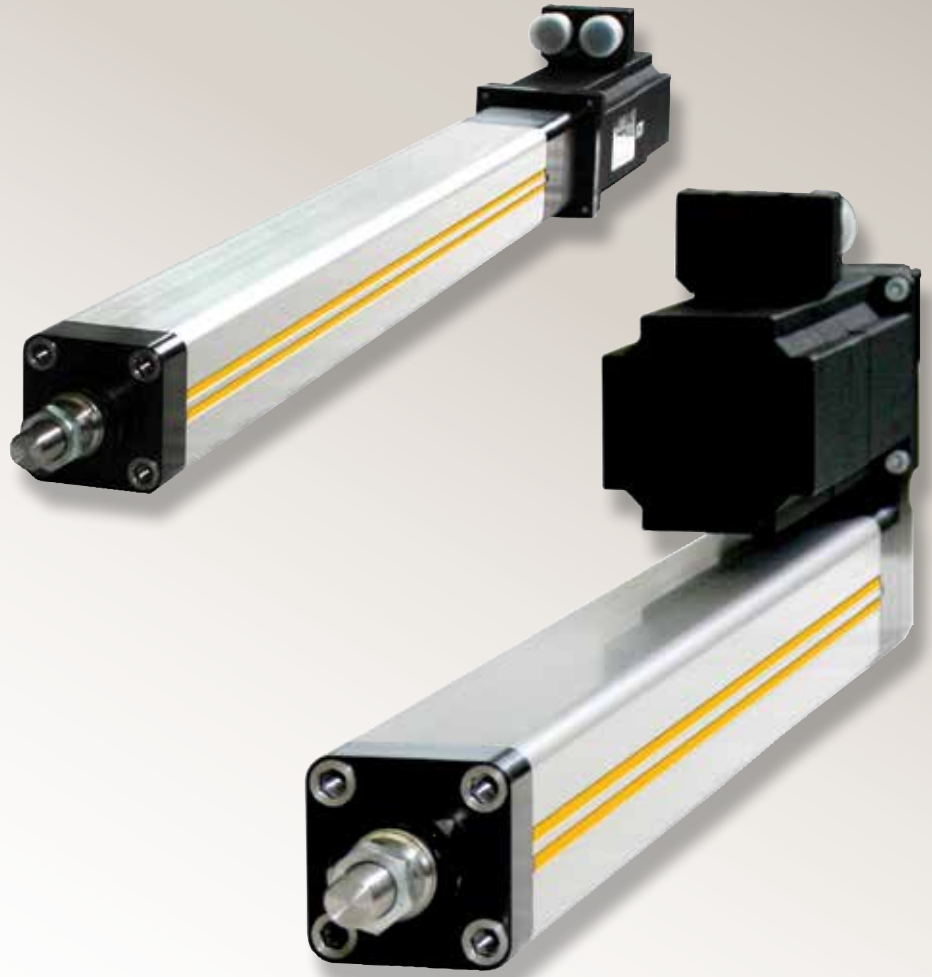


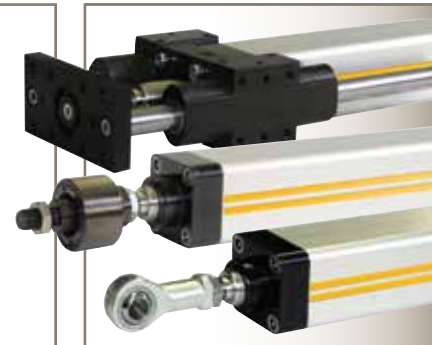


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ETH Cylinders

High Force Electric Actuators



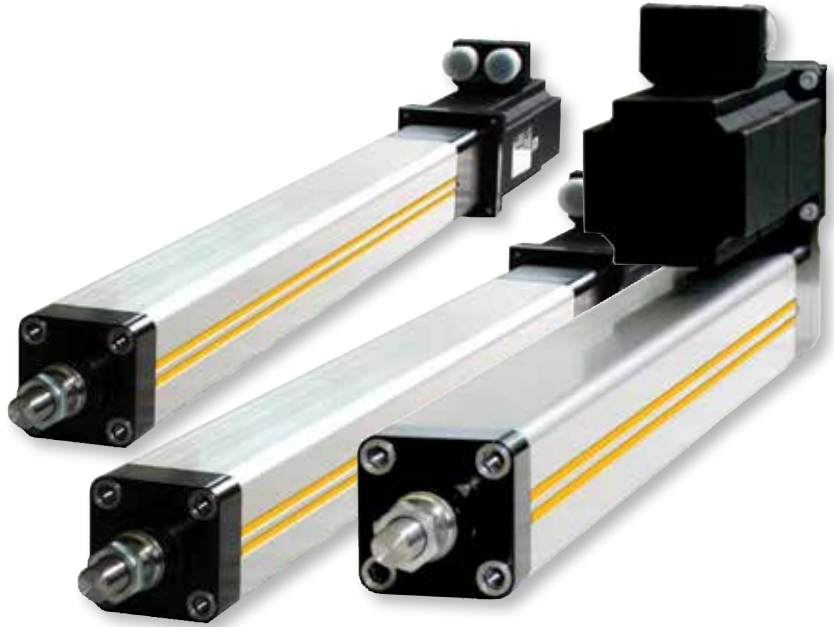
ENGINEERING YOUR SUCCESS.

ETH Series Electric Cylinders

The Parker ETH series is the next generation version of the well known, widely used ET Series.

The ETH design offers unrivaled power density due to larger screw and bearing designs in smaller packages. The result is a product that offers increased force output from a given frame size or increased product life at the same force output.

The ETH is a user-friendly design offered in a diversified range of configurations in order to meet specific application requirements.



Available in three profile sizes with both in-line and parallel motor configurations, ETH cylinders provide stroke lengths up to 1600 mm and speeds to 1.7 m/sec.

Typical ETH Applications

The ETH electric cylinder closes the gap between electromechanical and hydraulic cylinder performance making it suitable to use in higher force applications where increased

reliability is required in the production process. Taking the costs of the hydraulic system components into consideration you will find that in most cases an electromechanical system such as the ETH electric cylinder offers the more economical solution. Combined with a wide choice of accessories, it offers many possibilities in the following areas of application:

- **Test equipment and laboratory**
- **Valve and flap actuation**
- **Pressing**
- **Packaging machinery**
- **Food and beverage process automation**
- **Material handling and feed systems including: wood and plastic working, vertical actuators for machine tool loading, textile tensioning/gripping, automotive component transport/feeding**



ETH Solutions for Critical Conditions

If your electric cylinder installation needs to withstand harsh environmental conditions or meet a critical design specification, please contact us.

We offer many non-standard design options not covered in this brochure that will help match the ETH to your specific application requirements, including:

- **Oil-splash lubrication**
- **Customized mountings and rod ends**
- **Mounting of customer motors**
- **Hardened cylinder protection for aggressive environmental conditions**
- **Overlong, polished or chrome-plated thrust rods**
- **Rod bellows**
- **And more...**

Table of Contents

Features Overview

4 – 5	ETH Advantages, Performance Characteristics and Design Features
-------	---

Performance Overview

6	Performance (by Cylinder Size and Screw Lead)
7	ETH032 Speed-Thrust Performance
8	ETH050 Speed-Thrust Performance
9	ETH080 Speed-Thrust Performance

Motor Mounting Configurations

10 – 13	Inline Motor Mounting Configurations/Dimensions
14 – 17	Parallel Motor Mounting Configurations/Dimensions

Design Options and Accessories

18 – 21	Cylinder Mounting Options
22 – 25	Rod End Options
26 – 31	Force Sensor, Limit Sensor, Drive/Controller Accessories

Sizing/Selection – Performance with Select Motors

32	How to use ETH Speed-Thrust Graphs
33 – 34	ETH032 Force-Speed Performance w/Motors (170/340 VDC)
35 – 37	ETH050 Force-Speed Performance w/Motors (170/340/680 VDC)
38	ETH080 Force-Speed Performance w/Motors (340/680 VDC)

Sizing/Selection – Design Considerations/Calculations

39	Sizing/Selection Design Considerations Overview
40	Stroke, Usable Stroke and Safety Travel
41	Side Loads
42 – 43	Axial Forces
44 – 45	Service Life
46	Relubrication
47	Motor and Gearhead Sizing

Ordering Information

48 – 49	Order code matrix to build an ETH Cylinder
---------	--

If you don't find exactly what you are looking for in this brochure, please contact us for information on additional ETH configurations, other suitable Parker products, or to discuss your requirements with an application engineer.



Need more information? Visit our Website...

Complete up-to-date technical assistance can be found on the web at www.parkermotion.com. This includes all the latest information on current products, new product introductions, local assistance and support, plus a comprehensive “Engineering Reference Library” including: complete product catalog data, product selection Wizards, performance charts and graphs, engineering data and calculations, CAD drawings, local service and support directory, on-line purchasing, application stories and videos.

ETH Series Features Overview

Motor and cylinder design versatility and flexibility make the ETH Series the most user-friendly design.

For applications where overall length requirements restrict the actuator's footprint, the parallel motor configurations are the best solution. The parallel mount configuration is offered with multiple motor options, motor locations and motor orientations. This flexibility gives the user multiple smaller package solutions for solving applications that require increased force density in space-restricted applications.



New ETH Series Advantages

- **Unrivalled power density – high forces and small frame sizes**
- **Sensor cables can be concealed in the profile**
- **Optimized for safe handling and simple cleaning**
- **Long service life**
- **Reduced maintenance costs thanks to lubricating hole in the cylinder flange**
- **Pneumatic ISO flange norm (DIN ISO 15552:2005-12) conformity**
- **Anti-rotation device integrated**
- **Reduced noise emission**
- **Complete system from a single source: parker offers matching controllers, motors and gearheads for all ETH cylinders**

Performance Characteristics

For precise motion, positioning, setting and actuating, the electric cylinder offers:

- **High mechanical efficiency up to 90%**
- **Strokes up to 1600 mm**
- **High traction/thrust force up to 25 100 N**
- **Repeatability up to ± 0.03 mm**
- **Speeds up to 1.7 m/s**
- **Toothed belt drive (for parallel motor mounting)**
- **5 mm to 32 mm screw leads offering fine resolution or high speed options**
- **Three ISO cylinder profile sizes with 30, 40 or 60 mm diameter thrust rods**
- **Predefined standardized motor and gearhead flanges for simplified selection. The motors are available directly from Parker (all from one source).**
- **Three protection classes available:**
 - IP54 with galvanized steel hardware
 - IP54 with stainless steel hardware
 - IP65 epoxy coated cylinder

Design Features

① Support Bearing

The non-motor end of the screw is supported by a hardened polymer bushing which eliminates vibration and minimizes noise for smoother, quieter motion. This also improves precision, increases dynamic performance, and lengthens screw life.

② Precision Ballscrew Drive

The ETH drive train features a Class 7 ballscrew (ISO 3408) providing low frictional resistance for smooth motion over the entire speed range. This design also ensures longer product life, excellent efficiency and a lower dB rating. The ballscrew drive provides higher speeds and force capabilities than comparably-sized alternative drive mechanisms.

③ Unique Anti-rotation Guide

The ETH features a unique piston rod anti-rotation device. This high quality, maintenance free polymer bushing offers robust guidance that prevents the piston rod from twisting as the rod extends and retracts.

④ Screw Support Bearing

A set of double stacked angular contact bearings allows high thrust forces in both extend and retract directions. This design provides high force density and minimizes backlash when changing the direction of motion.

⑤ Piston Rod Support Bearing

The piston rod is supported by an extra long rod bushing. This bushing braces the rod in all directions allowing for smooth travel with high side loading capabilities.

⑤ Combination Lip and Wiper Seal

The lip and wiper seal keeps contaminants out and lubricating grease in for increased actuator life. For harsh environments, the ETH is available in a robust IP65 version for maximum protection.

⑥ Lubrication Port

The ETH comes standard with an integrated lubrication port located in the rear endcap of the cylinder, making scheduled maintenance quick, simple and easy. An optional lubrication bore is available in the middle of the cylinder body for applications where the integrated lubrication port is inaccessible.

⑦ Extruded Cylinder Body

The extrusion of the ETH was designed to reduce the number of negative geometry slots and grooves for a cleaner, and more environmentally friendly design. In addition to that, the ETH ships standard with sensor groove covers to help eliminate areas where debris can be trapped.

⑧ Home/End of Travel Sensors

The ETH was designed to use Parker's Global Series sensors which mount into the dovetail grooves that run the entire length of the cylinder body. The sensors mount flush to the extrusion body, having no effect on the overall product width. The sensor cables can be concealed with dovetail groove covers giving the actuator a clean, aesthetically appealing appearance. The Global Series sensors are compatible with other Parker products, including pneumatics, helping reduce inventory and spare part complexity.

⑨ Permanent magnets

All ETH cylinders are equipped with several permanent magnets integrated into the screw nut which actuate the home/end of travel sensors.

⑩ High Force Timing Belt

The parallel mount configuration utilizes a robust toothed timing belt, offering slip-free motion with minimal belt wear. The 1:1 ratio design was designed to transmit higher torques, allowing greater thrust forces at higher speeds. Contact the factory for additional timing belt ratios.

⑪ Belt Tensioning

A patent-pending belt tensioning station makes the parallel belt tensioning process quick and easy. This unique design allows for precise and repeatable tensioning, allowing for faster installation time and reduced down time.

⑫ Overhung Load Adaptor

For all parallel mounting options which do not include a gearhead, an Overhung Load Adaptor (OLA) is included as part of the actuator assembly. The OLA simplifies the motor mounting process and protects the bearings of the motor from the radial forces induced by the parallel belt tensioning.

⑬ Over-stroke Bumpers

Polyurethane over-stroke bumpers are designed in at both ends of the cylinder to protect the internal components from damage as a result of unintended crashes.

ETH Series Performance Overview

Performance by Cylinder Size and Screw Lead*

Cylinder Size		ETH032			ETH050			ETH080				
Screw Lead Designation		M05	M10	M16	M05	M10	M20	M05	M10	M32		
Screw Lead	mm	5	10	16	5	10	20	5	10	32		
Screw diameter	mm	16			20			32				
Available strokes**	mm	50-1000			50-1200			50-1600				
Max. speed at designated stroke:												
50 – 400 mm	mm/s	333	667	1067	333	667	1333	267	533	1707		
600 mm		286	540	855	333	666	1318	267	533	1707		
800 mm		196	373	592	238	462	917	267	533	1707		
1000 mm		146	277	440	177	345	684	264	501	1561		
1200 mm		–	–	–	139	270	536	207	394	1233		
1400 mm		–	–	–	–	–	–	168	320	1006		
1600 mm		–	–	–	–	–	–	140	267	841		
Max. Acceleration	m/s ²	4	8	12	4	8	15	4	8	15		
Axial Force – In-line	N	3600	3700	2400	9300	7000	4400	17800	25100	10600		
Axial Force – Parallel	N	n < 100		3600	3280	2050	9300	4920	2460	17800	11620	3630
@ “n” rpm		100 < n < 300		3600	2620	1640	7870	3930	1960	17800	11620	3630
Motor Speed		n > 300		3600	1820	1140	5480	2740	1370	17800	10720	3350
Axial Force – 2500 km Service Life	N	1130	1700	1610	2910	3250	2740	3140	7500	6050		
Thrust Force Factor In-line Motor	N/Nm	1131	565	353	1131	565	283	1131	565	177		
Transmissible Torque	Nm	n < 100		6.5			9.7			22.8		
Parallel Motor @ “n” rpm		100 < n < 300		5.2			7.7			22.8		
Motor Speed		n > 300		3.6			5.4			21.1		
Force Constant Parallel Motor	N/Nm	1018	509	318	1018	509	254	1018	509	159		
Max. Torque – No Load	Nm	0.77	0.85	0.94	0.85	1.28	1.70	1.87	2.13	2.38		
Weight – with zero stroke												
Basic unit (including cylinder rod)	kg	1.2	1.2	1.3	2.2	2.3	2.5	6.9	7.6	8.7		
Cylinder rod only		0.06			0.15			0.59				
Weight of additional length												
Basic unit (including cylinder rod)	kg/m	4.8			8.6			18.7				
Cylinder rod only		0.99			1.85			4.93				
Moments of Inertia												
In-line – without stroke	kgmm ²	7.1	7.6	12.9	25.3	25.7	33.1	166.2	164.5	252.9		
Parallel – without stroke		8.3	8.8	14.1	30.3	30.6	38.0	215.2	213.6	301.9		
In-line/Parallel – per meter stroke		kgmm ² /m	41.3	37.6	41.5	97.7	92.4	106.4	527.7	470.0	585.4	
Accuracy: Repeatability (ISO230-2)												
In-line	mm					±0.03						
Parallel						±0.05						
Efficiency – including friction torques												
In-line	%					90						
Parallel						81						
Temperature												
Operating	°C					-10 ... +70						
Ambient						-10 ... +40						
Storage						-20 ... +40						
Humidity	%	0 ... 95 % (non-condensing)										
Elevation (Max.)	m	3000										

* Technical data based on normal conditions and only for single cylinder and load mode. For compound loads, please verify in accordance with normal physical laws and technical standards whether individual ratings should be reduced. Please contact Parker with any questions.

** Refer to Ordering Information (page 49) for standard strokes available for specified model size and type.

ETH032 Speed-Thrust

See page 32 for instructions on how to use the data on these graphs

Maximum Thrust*:

- Inline motor mount
- Parallel motor with timing belt limitation
- Max thrust at 2540 km of life (see page 45 for details)

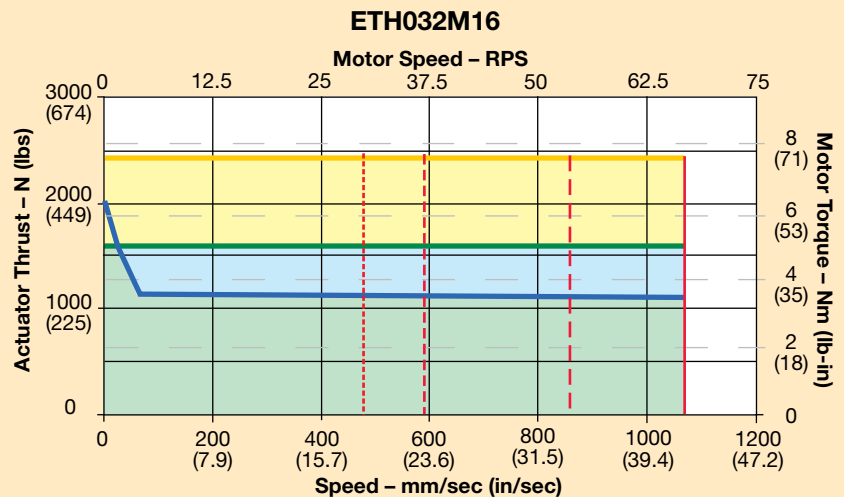
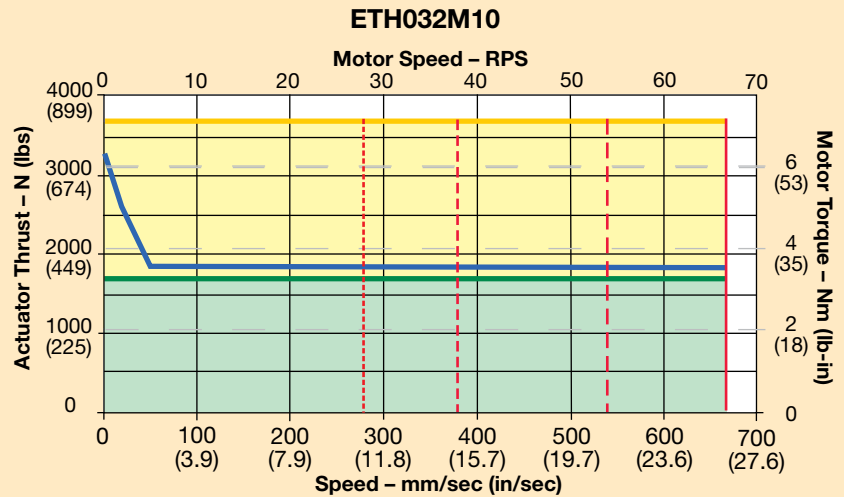
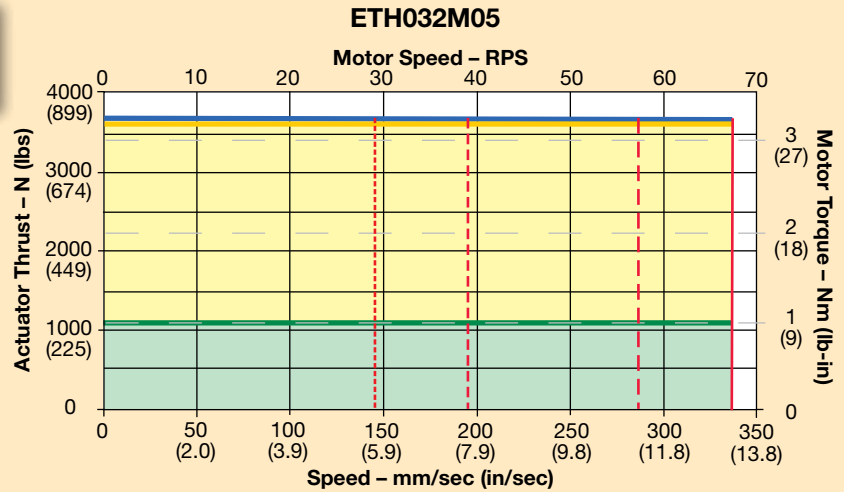
Maximum Speed:

- 1000 mm stroke
- 800 mm stroke
- 600 mm stroke
- Max actuator speed

Performance Zones:

- Full life region (greater than 2540 km of life)
- Acceptable zone for Inline motor mounts only (motor mount option A or B)
- Intermittent zone (operation will result in reduced life of the actuator and is not acceptable for parallel motor options if above the parallel limitation curve)

*Maximum thrust assumes a cylinder mounting orientation with a fixed mounting position and a guided load, for limitations on column buckling, please see page 43.



ETH Series Performance Overview

ETH050 Speed-Thrust

See page 32 for instructions on how to use the data on these graphs

Maximum Thrust*:

- Inline motor mount
- Parallel motor with timing belt limitation
- Max thrust at 2540 km of life (see page 45 for details)

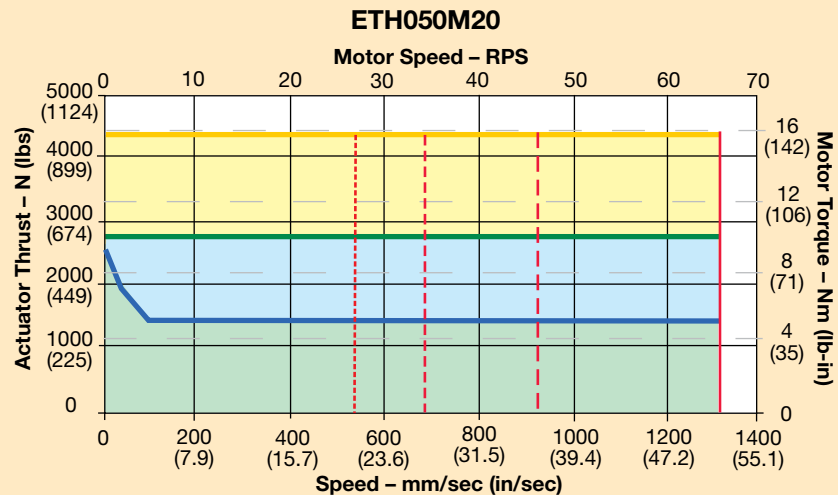
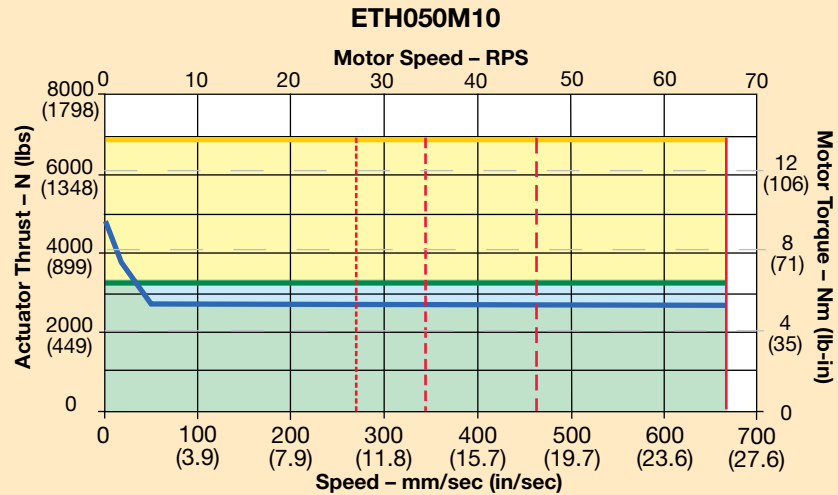
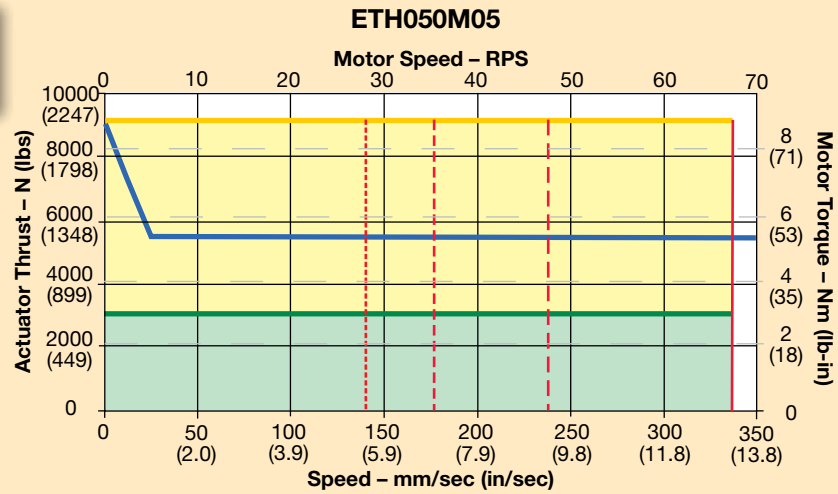
Maximum Speed:

- - - 1200 mm stroke
- - - 1000 mm stroke
- - - 800 mm stroke
- Max actuator speed

Performance Zones:

- Full life region (greater than 2540 km of life)
- Acceptable zone for Inline motor mounts only (motor mount option A or B)
- Intermittent zone (operation will result in reduced life of the actuator and is not acceptable for parallel motor options if above the parallel limitation curve)

*Maximum thrust assumes a cylinder mounting orientation with a fixed mounting position and a guided load, for limitations on column buckling, please see page 43.



ETH080 Speed-Thrust

See page 32 for instructions on how to use the data on these graphs

Maximum Thrust*:

- Inline motor mount
- Parallel motor with timing belt limitation
- Max thrust at 2540 km of life (see page 45 for details)

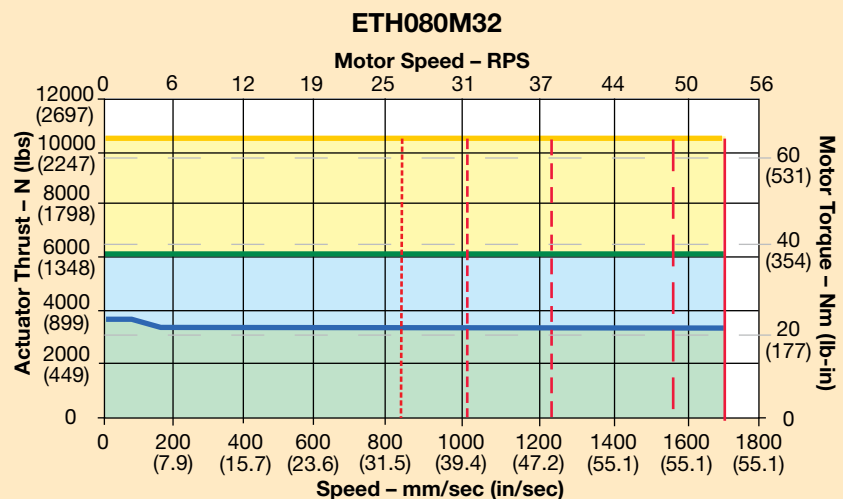
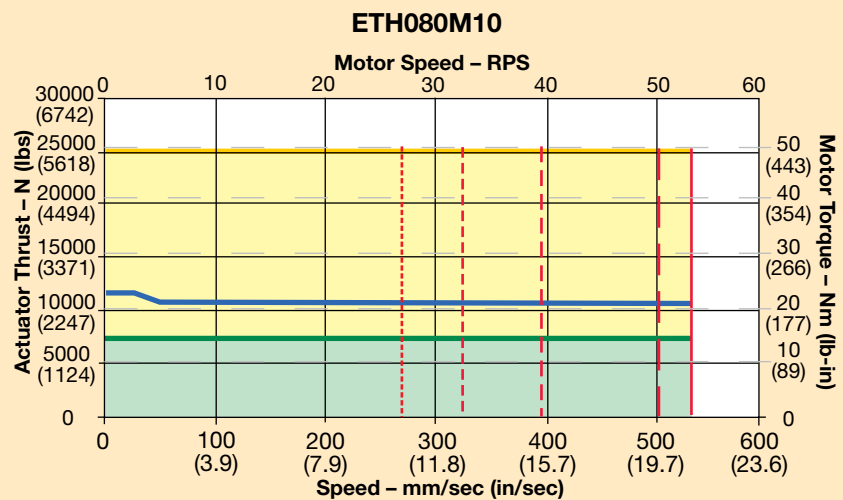
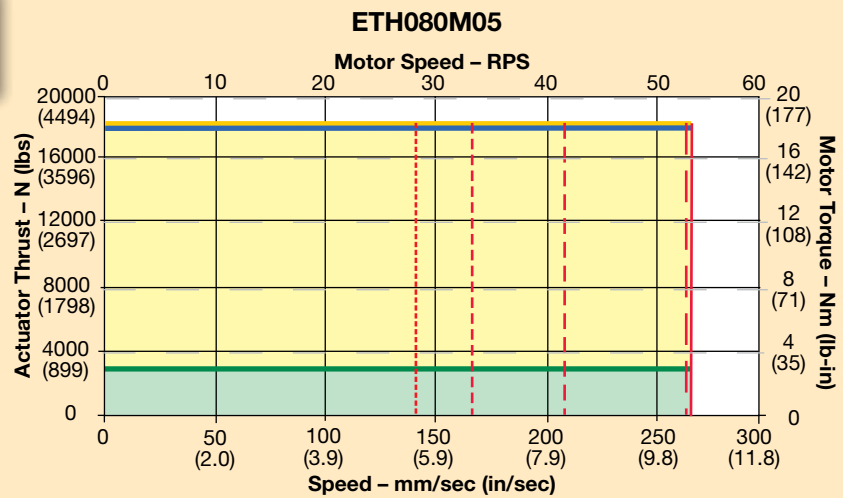
Maximum Speed:

- - - 1600 mm stroke
- - - 1400 mm stroke
- - - 1200 mm stroke
- - - 1000 mm stroke
- Max actuator speed

Performance Zones:

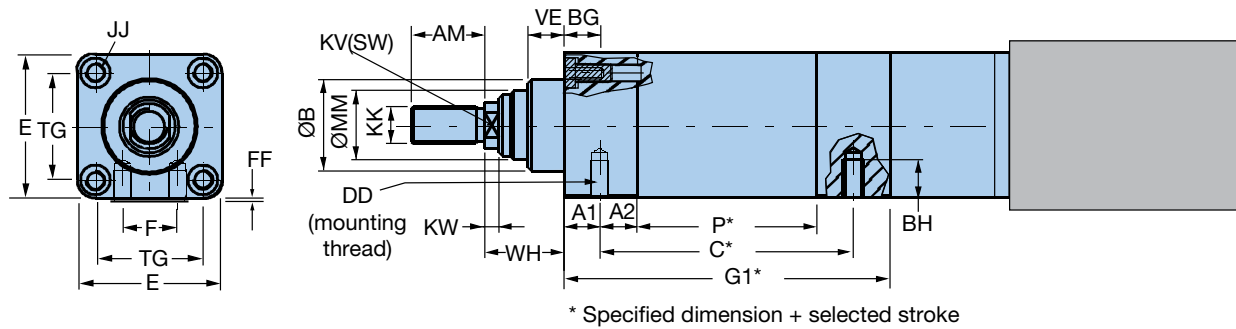
- Full life region (greater than 2540 km of life)
- Acceptable zone for Inline motor mounts only (motor mount option A or B)
- Intermittent zone (operation will result in reduced life of the actuator and is not acceptable for parallel motor options if above the parallel limitation curve)

*Maximum thrust assumes a cylinder mounting orientation with a fixed mounting position and a guided load, for limitations on column buckling, please see page 43.



ETH Motor Mounting Configurations

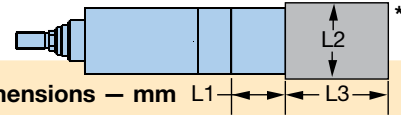
Inline Dimensions



Cylinder Size		ETH032			ETH050			ETH080		
Screw Lead		M05	M10	M16	M05	M10	M20	M05	M10	M32
C	IP54	93.5	103.0	106.5	99.5	105.5	117.5	141.5	159.5	189.5
	IP65	94.5	103.5	107.5	100.5	106.5	118.5	142.5	160.5	190.5
G1	IP54	133.0	142.0	146.0	154.0	160.0	172.0	197.0	215.0	245.0
	IP65	180.5	189.5	193.5	198.5	204.5	216.5	259.5	277.5	307.5
P		66.0	75.0	79.0	67.0	73.0	85.0	89.0	107.0	137.0
A1	IP54		14.0			15.5			21.0	
	IP65		60.0			58.5			82.0	
A2			17.0			18.5			32	
AM			22.0			32.0			40.0	
BG			16.0			25.0			26.0	
BH			9.0			12.7			18.5	
DD			M6x1.0			M8x1.25			M12x1.75	
E			46.5			63.5			95.0	
F			16.0			24.0			30.0	
FF			0.5			0.5			1.0	
JJ			M6x1.0 ⁽¹⁾			M8x1.25			M10x1.5	
KK			M10x1.25			M16x1.5			M20x1.5	
KV			10.0			17.0			22.0	
ØMM			22.0			28.0			45.0	
TG			32.5			46.5			72.0	
KW			5.0			6.5			10.0	
VE			12.0			16.0			20.0	
WH			26.0			37.0			46.0	
ØB			30.0			40.0			60.0	

⁽¹⁾ Thru holes should have a minimum diameter of 7 mm on any component attached to the front threaded screw holes on bolt pattern TG.

Inline Mounts with Xpress Motors



Flange & Coupling to Accept Xpress Motor			Dimensions — mm						
Cylinder Size	Xpress Order Code	Motor (w/Gearhead) Description	Pilot	Bolt Circle	Shaft Ø	Shaft Length	L1	L2	L3
ETH032	XPC	BE233FJ-KPSN	38.10	66.68	9.52	20.8	66.0	58.0	145.0
	XPD	BE233FJ-KPSB	38.10	66.68	9.52	20.8	66.0	58.0	177.0
	XPG	BE344LJ-KPSN	73.03	98.43	12.70	30.2	65.0	85.0	188.0
	XPH	BE344LJ-KPSB	73.03	98.43	12.70	30.2	65.0	85.0	231.0
ETH050	XPC	BE233FJ-KPSN	38.10	66.68	9.52	31.8	65.0	65.0	145.0
	XPD	BE233FJ-KPSB	38.10	66.68	9.52	31.8	65.0	65.0	177.0
	XPG	BE344LJ-KPSN	73.03	98.43	12.70	30.2	63.0	85.0	188.0
	XPH	BE344LJ-KPSB	73.03	98.43	12.70	30.2	63.0	85.0	231.0
	XPL ³	MPP1003D1E-KPSN	95.00	115.00	19.00	40.0	88.0	98.0	175.0
	XPM ³	MPP1003D1E-KPSB	95.00	115.00	19.00	40.0	88.0	98.0	223.0
	XPN	MPP1003D1E-KPSN ¹	73.03	98.43	12.70	31.8	63.0	100.0	288.0
	XPP	MPP1003D1E-KPSB ¹	73.03	98.43	12.70	31.8	63.0	100.0	336.0
	XPQ ³	MPP1003R1E-KPSN	95.00	145.00	19.00	40.0	88.0	98.0	175.0
	XPR ³	MPP1003R1E-KPSB	95.00	145.00	19.00	40.0	88.0	98.0	223.0
	XPS	MPP1003R1E-KPSN ¹	73.03	98.43	12.70	31.8	63.0	100.0	288.0
	XPT	MPP1003R1E-KPSB ¹	73.03	98.43	12.70	31.8	63.0	100.0	336.0
ETH080	XPG	BE344LJ-KPSN	73.03	98.43	12.70	30.2	92.5	98.0	188.0
	XPH	BE344LJ-KPSB	73.03	98.43	12.70	30.2	92.5	98.0	231.0
	XPL	MPP1003D1E-KPSN	95.00	115.00	19.00	40.0	101.5	98.0	175.0
	XPM	MPP1003D1E-KPSB	95.00	115.00	19.00	40.0	101.5	98.0	223.0
	XPN	MPP1003D1E-KPSN ¹	73.03	98.43	12.70	31.8	92.5	100.0	288.0
	XPP	MPP1003D1E-KPSB ¹	73.03	98.43	12.70	31.8	92.5	100.0	336.0
	XPQ	MPP1003R1E-KPSN	95.00	115.00	19.00	40.0	101.5	98.0	175.0
	XPR	MPP1003R1E-KPSB	95.00	115.00	19.00	40.0	101.5	98.0	223.0
	XPS	MPP1003R1E-NPSN ¹	73.03	98.43	12.70	31.8	92.5	100.0	288.0
	XPT	MPP1003R1E-NPSB ¹	73.03	98.43	12.70	31.8	92.5	100.0	336.0
	XPU	MPP1154B1E-KPSN	110.00	130.00	24.00	50.0	111.5	113.0	203.0
	XPV	MPP1154B1E-KPSB	110.00	130.00	24.00	50.0	111.5	113.0	252.0
	XPW	MPP1154B1E-KPSN ²	110.00	130.00	24.00	50.0	111.5	115.0	352.5
	XPX	MPP1154B1E-KPSB ²	110.00	130.00	24.00	50.0	111.5	115.0	401.5
	XPY	MPP1154P1E-KPSN ²	110.00	130.00	24.00	50.0	111.5	115.0	203.0
	XPZ	MPP1154P1E-KPSB ²	110.00	130.00	24.00	50.0	111.5	115.0	252.0
XP1	MPP1154P1E-KPSN ²	110.00	130.00	24.00	50.0	111.5	115.0	352.5	
XP2	MPP1154P1E-KPSB ²	110.00	130.00	24.00	50.0	111.5	115.0	401.5	

¹ With Parker PV34FE-003 gearhead

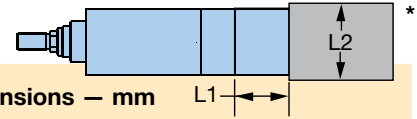
² With Parker PV115FB-003 gearhead

³ Requires coupling housing on ETH050 with a square dimension of 80 mm to accommodate a larger coupling.

* L1 = Length Coupling Housing + Flange
L2 = Maximum Motor or Gearhead Square Flange
L3 = Length Motor + Gearhead

ETH Motor Mounting Configurations

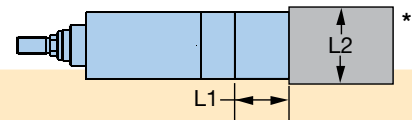
Inline Mounts for other Parker Motors



Flange & Coupling to Accept Parker Motor			Dimensions – mm					
Cylinder Size	Kit Order Code	Parker Motor Description	Pilot	Bolt Circle	Shaft Ø	Shaft Length	L1	L2
ETH032	KCB	SM23X	38.10	66.68	9.52	20.8	60.0	58.0
	KBB	BE23X	38.10	66.68	9.52	31.8	66.0	58.0
	KCA	SM16/BE16	20.00	46.69	6.35	25.0	62.0	58.0
	KEA	LV23/HV23	38.10	66.68	6.35	20.8	60.0	58.0
	KBC	BE34X	73.03	98.43	12.70	30.2	65.0	85.0
	KAA	MPP92/MPJ92	80.00	100.00	16.00	40.1	76.0	89.0
	KEB	LV34/HV34	73.03	98.43	12.70	37.1	73.0	85.0
ETH050	KCB	SM23X	38.10	66.68	9.52	20.8	57.5	65.0
	KBB	BE23X	38.10	66.68	9.52	31.8	65.0	65.0
	KBC	BE34X	73.03	98.43	12.70	30.2	63.0	85.0
	KAA	MPP92/MPJ92	80.00	100.00	16.00	40.1	74.0	90.0
	KEB	LV34/HV34	73.03	98.43	12.70	37.1	70.0	85.0
	KAB ¹	MPP100/MPJ100	95.00	115.00	19.00	40.1	88.0	98.0
ETH080	KBB	BE34X	73.03	98.43	12.70	30.2	92.5	98.0
	KAA	MPP92/MPJ92	80.00	100.00	16.00	40.1	101.5	98.0
	KAB	MPP100/MPJ100	95.00	115.00	19.00	40.0	101.5	98.0
	KAC	MPP115/MPJ115	110.00	130.00	24.00	50.0	111.5	113.0

¹ Requires coupling housing on ETH050 with a square dimension of 80 mm to accommodate a larger coupling.

Inline Mounts for Parker Gearheads

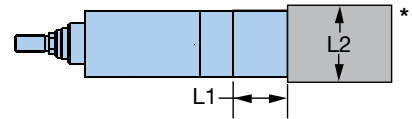


Flange & Coupling to Accept Parker Gearhead			Dimensions – mm					
Cylinder Size	Kit Order Code	Parker Gearhead Description	Pilot	Bolt Circle	Shaft Ø	Shaft Length	L1	L2
ETH032	PAN	PV60FB/PX60	50.00	70.00	16.00	25.0	61.0	62.0
	PCN	PV23FE/PX23	38.10	66.68	9.52	25.4	60.0	58.0
	PDN	PV34FE/PX34	73.03	98.43	12.70	31.8	65.0	85.0
ETH050	PAN	PV60FB/PX60	50.00	70.00	16.00	25.0	60.5	65.0
	PBN ¹	PV90FB/PX90	80.00	100.00	20.00	40.0	93.0	90.0
	PCN	PV23FE/PX23	38.10	66.68	9.52	25.4	65.0	65.0
	PDN	PV34FE/PX34	73.03	98.43	12.70	31.8	63.0	85.0
ETH080	PBN	PV90FB/PX90	80.00	100.00	20.00	40.0	101.5	90.0
	PJN	PV115FB/PX115	95.00	115.00	24.00	50.0	111.5	113.0
	PDN	PV34FE/PX34	73.03	98.43	12.70	31.8	92.5	98.0
	PEN	PV42FE/PX42	55.55	125.70	15.88	38.1	100.0	113.0

¹ Requires coupling housing on ETH050 with a square dimension of 80 mm to accommodate a larger coupling.

* L1 = Length Coupling Housing + Flange
L2 = Maximum Motor or Gearhead Square Flange

Inline Mounts for Non-Standard Motors



* L1 = Length Coupling Housing + Flange
L2 = Maximum Motor or Gearhead Square Flange

Inline Mounting Compatible Motor Dimensions – mm

Model	Maximum Motor Shaft Ø	
	With Key	Without Key
ETH032	16	16
ETH050	24	24
ETH080	28	28

Couplers

Order Code	Coupler Size (Motor Shaft Ø)	Compatibility		
		ETH032	ETH050	ETH080
A	No Coupler	•	•	•
B	0.25"	•		
C	0.375"	•	•	
D	0.5"	•	•	
E	0.625"	•	•	
H	6 mm	•	•	
J	8 mm	•		
K	9 mm	•	•	
L	11 mm	•	•	
M	14 mm	•	•	•
N ¹	16 mm	•	•	•
P ¹	19 mm		•	•
Q ¹	20 mm		•	•
R ¹	22 mm		•	•
S ¹	24 mm		•	•

¹ Requires coupling housing on ETH050 with a square dimension of 80 mm to accommodate a larger coupling.

Ordering Non-Standard Motor Mounts

Use the appropriate order codes from the charts to build the desired “Flange Only” or “Flange and Coupler” Kit Order Code. Note: all non-standard motor mount kits use three character descriptions beginning with an N, followed by a Coupler and a Flange designator.

① ② ③

Kit Order Code Designators:

N □ □

- ① Non-standard motor mount
- ② Coupler order code
- ③ Flange order code

Kit Order Code Examples

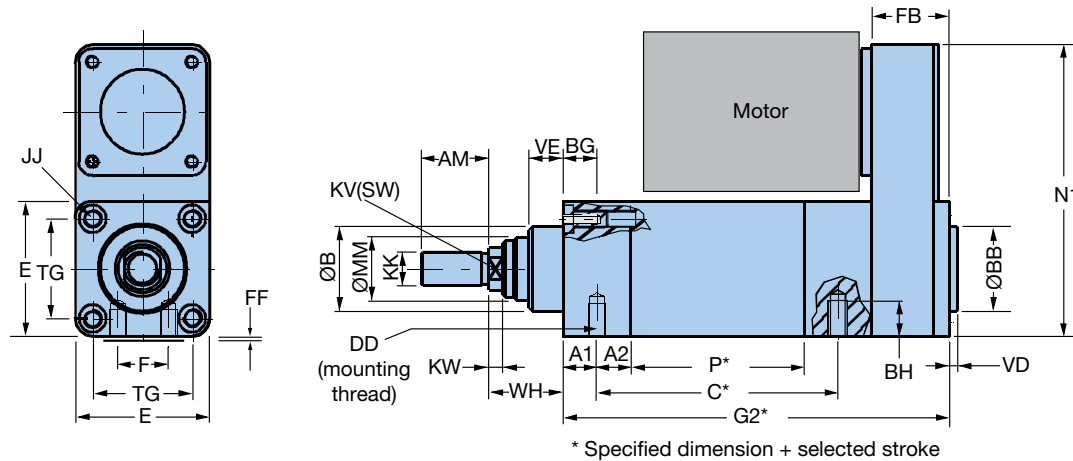
Kit Order Code Examples	Kit Order Code
No flange, no coupler	NAA
Flange C (for ETH050), no coupler	NAC
Flange C (for ETH050), 0.5" coupler	NDC

Flanges

Order Code	Dimensions – mm					Compatibility					
	Bolt Circle	Bolt Hole	Pilot Ø	Pilot Depth	Motor Shaft Length	ETH032		ETH050		ETH080	
						L1	L2	L1	L2	L1	L2
A	No Flange					0.0		0.0		0.0	
B	46.00	M3	30.00	3.5	25.0	60.0	58.0	–	–	–	–
C	63.00	M4	40.00	3.5	20.0	60.0	58.0	57.5	65.0	–	–
D	70.00	M5	50.00	3.5	30.0	67.0	65.0	65.5	65.0	–	–
E	75.00	M5	60.00	3.5	23.0	60.0	70.0	59.0	70.0	–	–
F	75.00	M5	60.00	3.5	30.0	66.0	70.0	59.0	70.0	–	–
G	90.00	M6	70.00	3.5	40.0	–	–	84.0	96.0	92.5	96.0
H	95.00	M5	50.00	3.5	30.0	76.0	82.0	65.5	82.0	–	–
J	100.00	M6	80.00	3.5	40.0	76.0	89.0	84.0	96.0	94.5	96.0
K	115.00	M8	95.00	3.5	40.0	–	–	84.0	100.0	94.5	100.0
L	130.00	M8	110.00	3.5	50.0	–	–	–	–	104.5	115.0
M	130.00	M8	95.00	3.5	50.0	–	–	–	–	101.5	115.0

ETH Motor Mounting Configurations

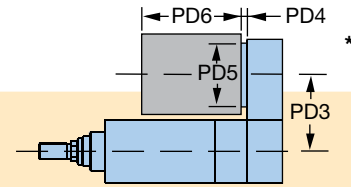
Parallel Dimensions



Cylinder Size		ETH032			ETH050			ETH080		
Screw Lead		M05	M10	M16	M05	M10	M20	M05	M10	M32
C	IP54	93.5	103.0	106.5	99.5	105.5	117.5	141.5	159.5	189.5
	IP65	94.5	103.5	107.5	100.5	106.5	118.5	142.5	160.5	190.5
G2	IP54	180.5	189.5	193.5	194.0	200.0	212.0	257.0	275.0	305.0
	IP65	228.5	237.5	241.5	239.0	245.0	257.0	320.0	338.0	368.0
P		66.0	75.0	79.0	67.0	73.0	85.0	89.0	107.0	137.0
A1	IP54		14.0			15.5			21.0	
	IP65		60.0			58.5			82.0	
A2			17.0			18.5			32	
AM			22.0			32.0			40.0	
BG			16.0			25.0			26.0	
BH			9.0			12.7			18.5	
DD			M6x1.0			M8x1.25			M12x1.75	
E			46.5			63.5			95.0	
F			16.0			24.0			30.0	
FF			0.5			0.5			1.0	
JJ			M6x1.0 ⁽¹⁾			M8x1.25			M10x1.5	
KK			M10x1.25			M16x1.5			M20x1.5	
KV			10.0			17.0			22.0	
ØMM			22.0			28.0			45.0	
TG			32.5			46.5			72.0	
KW			5.0			6.5			10.0	
N1			126.0			160.0			233.5	
FB	IP54		47.5			40.0			60.0	
	IP65		48.0			40.5			60.5	
VD			4.0			4.0			4.0	
ØBB			30.0			40.0			45.0	
VE			12.0			16.0			20.0	
WH			26.0			37.0			46.0	
ØB			30.0			40.0			60.0	

⁽¹⁾ Thru holes should have a minimum diameter of 7 mm on any component attached to the front threaded screw holes on bolt pattern TG.

Parallel Mounts with Xpress Motors



Flange & Coupling to Accept Xpress Motor			Dimensions — mm							
Cylinder Size	Xpress Order Code	Motor (w/Gearhead) Description	Bolt		Shaft		PD3	PD4	PD5	PD6
			Pilot	Circle	Shaft Ø	Length				
ETH032	XPC	BE233FJ-KPSN	38.10	66.68	9.52	31.8	67.5	78.5	62.0	145.0
	XPD	BE233FJ-KPSB	38.10	66.68	9.52	31.8	67.5	78.5	62.0	177.0
	XPG	BE344LJ-KPSN	73.03	98.43	12.70	30.2	67.5	78.5	80.0	188.0
	XPH	BE344LJ-KPSB	73.03	98.43	12.70	30.2	67.5	78.5	80.0	231.0
ETH050	XPC	BE233FJ-KPSN	38.10	66.68	9.52	31.8	87.5	78.5	62.0	145.0
	XPD	BE233FJ-KPSB	38.10	66.68	9.52	31.8	87.5	78.5	62.0	177.0
	XPG	BE344LJ-KPSN	73.03	98.43	12.70	30.2	87.5	84.0	90.0	188.0
	XPH	BE344LJ-KPSB	73.03	98.43	12.70	30.2	87.5	84.0	90.0	231.0
	XPL	MPP1003D1E-KPSN	95.00	115	19.00	40.0	87.5	92.5	100.0	175.0
	XPM	MPP1003D1E-KPSB	95.00	115	19.00	40.0	87.5	92.5	100.0	223.0
	XPN	MPP1003D1E-KPSN *	73.03	98.43	12.70	31.8	87.5	128.0	100.0	175.0
	XPP	MPP1003D1E-KPSB *	73.03	98.43	12.70	31.8	87.5	128.0	100.0	223.0
	XPQ	MPP1003R1E-KPSN	73.03	98.43	12.70	31.8	87.5	92.5	100.0	175.0
	XPR	MPP1003R1E-KPSB	73.03	98.43	12.70	31.8	87.5	92.5	100.0	223.0
	XPS	MPP1003R1E-KPSN *	73.03	98.43	12.70	31.8	87.5	128.0	100.0	175.0
	XPT	MPP1003R1E-KPSB *	73.03	98.43	12.70	31.8	87.5	128.0	100.0	223.0
ETH080	XPG	BE344LJ-KPSN	73.03	98.43	12.70	30.2	130.0	84.0	90.0	188.0
	XPH	BE344LJ-KPSB	73.03	98.43	12.70	30.2	130.0	84.0	90.0	231.0
	XPL	MPP1003D1E-KPSN	95.00	115.00	19.00	40.0	130.0	95.3	100.0	175.0
	XPM	MPP1003D1E-KPSB	95.00	115.00	19.00	40.0	130.0	95.3	100.0	223.0
	XPN	MPP1003D1E-KPSN **	73.03	98.43	12.70	31.8	130.0	137.0	100.0	175.0
	XPP	MPP1003D1E-KPSB **	73.03	98.43	12.70	31.8	130.0	137.0	100.0	223.0
	XPQ	MPP1003R1E-KPSN	95.00	115.00	19.00	40.0	130.0	95.3	100.0	175.0
	XPR	MPP1003R1E-KPSB	95.00	115.00	19.00	40.0	130.0	95.3	100.0	223.0
	XPS	MPP1003R1E-KPSN **	73.03	98.43	12.70	31.8	130.0	137.0	100.0	175.0
	XPT	MPP1003R1E-KPSB **	73.03	98.43	12.70	31.8	130.0	137.0	100.0	223.0
	XPU	MPP1154B1E-KPSN	110.00	130.00	24.00	50.0	130.0	127.0	115.0	203.0
	XPV	MPP1154B1E-KPSB	110.00	130.00	24.00	50.0	130.0	127.0	115.0	252.0
	XPW	MPP1154B1E-KPSN ***	110.00	130.00	24.00	50.0	130.0	170.0	115.0	203.0
	XPX	MPP1154B1E-KPSB ***	110.00	130.00	24.00	50.0	130.0	170.0	115.0	252.0
	XPY	MPP1154P1E-KPSN	110.00	130.00	24.00	50.0	130.0	127.0	115.0	203.0
	XPZ	MPP1154P1E-KPSB	110.00	130.00	24.00	50.0	130.0	127.0	115.0	252.0
XP1	MPP1154P1E-KPSN ***	110.00	130.00	24.00	50.0	130.0	170.0	115.0	203.0	
XP2	MPP1154P1E-KPSB ***	110.00	130.00	24.00	50.0	130.0	170.0	115.0	252.0	

* With Parker PV34FE-003 gearhead

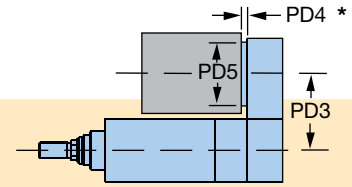
** With Parker PV90FB-003 gearhead

*** With Parker PV115FB-003 gearhead

* PD4 = Flange + Gearhead/overhung load adaptor
 PD5 = Flange + Gearhead/overhung load adaptor
 PD6 = Motor only

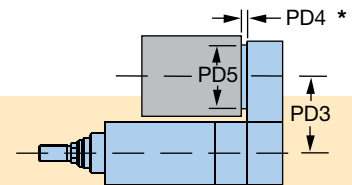
ETH Motor Mounting Configurations

Parallel Mounts for other Parker Motors



Flange & Coupling to Accept Parker Motor			Dimensions – mm						
Cylinder Size	Kit Order Code	Parker Motor Description							
			Pilot	Bolt Circle	Shaft Ø	Shaft Length	PD3	PD4	PD5
ETH032	KCB	SM23X	38.10	66.68	9.52	20.8	67.5	72.5	62.0
	KBB	BE23X	38.10	66.68	9.52	31.8	67.5	78.5	62.0
	KCA	SM16/BE16	20.00	46.69	6.35	25.0	67.5	72.5	62.0
	KEA	LV23/HV23	38.10	66.68	6.35	20.8	67.5	72.5	62.0
	KBC	BE34X	73.03	98.43	12.70	30.2	67.5	78.5	80.0
	KEB	LV34/HV34	73.03	98.43	12.70	37.1	67.5	78.5	80.0
ETH050	KCB	SM23X	38.10	66.68	9.52	20.8	87.5	72.5	62.0
	KBB	BE23X	38.10	66.68	9.52	31.8	87.5	78.5	62.0
	KBC	BE34X	73.03	98.43	12.70	30.2	87.5	84.0	90.0
	KAA	MPP92/MPJ92	80.00	100	16.00	40.1	87.5	92.5	90.0
	KEB	LV34/HV34	73.03	98.43	12.70	37.1	87.5	92.5	90.0
	KAB	MPP100/MPJ100	95.00	115	19.00	40.1	87.5	92.5	100.0
ETH080	KBB	BE34X	73.03	98.43	12.70	30.2	130.0	87.0	90.0
	KAA	MPP92/MPJ92	80.00	100.00	16.00	40.1	130.0	96.0	90.0
	KAB	MPP100/MPJ100	95.00	115.00	19.00	40.0	130.0	96.0	100.0
	KAC	MPP115/MPJ115	110.00	130.00	24.00	50.0	130.0	127.0	115.0

Parallel Mounts for Parker Gearheads



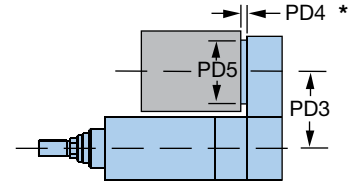
Flange & Coupling to Accept Parker Motor			Dimensions – mm						
Cylinder Size	Kit Order Code	Parker Gearhead Description							
			Pilot	Bolt Circle	Shaft Ø	Shaft Length	PD3	PD4	PD5
ETH032	PAN	PV60FB/PX60	50.00	70.00	16.00	25.0	67.5	12.0	62.0
ETH050	PAN	PV60FB/PX60	50.00	70.00	16.00	25.0	87.5	12.0	63.5
	PDN	PV34FE/PX34	73.03	98.43	12.70	31.8	87.5	15.0	90.0
ETH080	PBN	PV90FB/PX90	80.00	100.00	20.00	40.0	130.0	18.0	90.0
	PJN	PV115FB/PX115	110.00	130.00	24.00	50.0	130.0	20.0	115.0

* PD4 = Flange + Gearhead/overhung load adaptor
 PD5 = Flange + Gearhead/overhung load adaptor
 PD6 = Motor only

Parallel Mounts for Non-Standard Motors

Parallel Mounting Compatible Motor Dimensions - mm

Cylinder Size	Max. Shaft Ø		Max. Square Motor Flange
	With Key	Without Key	
ETH032	—	14 (w/PV60 gearhead)	85
ETH050	—	20 (w/PV90 gearhead) or	100
ETH080	—	24 (w/PV115 gearhead)	150



* PD4 = Flange + Gearhead/overhang load adaptor
 PD5 = Flange + Gearhead/overhang load adaptor
 PD6 = Motor only

Sleeves

Order Code	Sleeve Size (Motor Shaft Ø)	Compatibility		
		ETH032	ETH050	ETH080
A	No Coupler	•	•	•
B	0.25"	•		
C	0.375"	•	•	
D	0.5"	•	•	
E	0.625"	•	•	
H	6 mm	•	•	
J	8 mm	•		
K	9 mm	•	•	
L	11 mm	•	•	
M	14 mm	•	•	•
N	16 mm		•	•
P	19 mm		•	•
Q	20 mm		•	•
R	22 mm			•
S	24 mm			•

Ordering Non-Standard Motor Mounts

Use the appropriate order codes from the charts to build the desired "Flange Only" or "Flange and Sleeve" Kit Order Code. Note: all non-standard motor mount kits use three character descriptions beginning with an N, followed by a Sleeve and a Flange designator.

① ② ③

Kit Order Code Designators: N

- ① Non-standard motor mount
- ② Sleeves order code
- ③ Flange order code

Kit Order Code Examples

Kit Order Code Examples	Kit Order Code
No flange, no sleeve	NAA
Flange C (for ETH050), no sleeve	NAC
Flange C (for ETH050), 0.5" sleeve	NDC

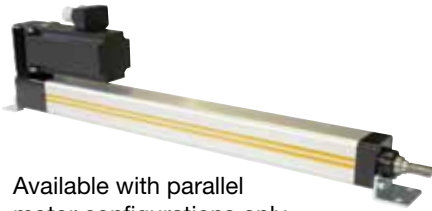
Flanges

Order Code	Dimensions – mm					Compatibility									
						ETH032			ETH050			ETH080			
	Bolt Circle	Bolt Hole	Pilot Ø	Pilot Depth	Motor Shaft Length	PD3	PD4	PD5	PD3	PD4	PD5	PD3	PD4	PD5	
A	No Flange					0.0			0.0			0.0			
B	46.00	M3	30.00	3.5	25.0	67.5	72.5	62.0	—	—	—	—	—	—	
C	63.00	M4	40.00	3.5	20.0	67.5	72.5	62.0	87.5	72.5	60.0	—	—	—	
D	70.00	M5	50.00	3.5	30.0	67.5	78.5	62.0	87.5	78.5	63.5	—	—	—	
E	75.00	M5	60.00	3.5	23.0	67.5	78.5	62.0	87.5	84.0	90.0	—	—	—	
F	75.00	M5	60.00	3.5	30.0	67.5	72.5	62.0	87.5	84.0	90.0	—	—	—	
G	90.00	M6	70.00	3.5	40.0	—	—	—	—	—	—	130.0	96.0	90.0	
H	95.00	M5	50.00	3.5	30.0	67.5	78.5	82.0	87.5	84.0	90.0	—	—	—	
J	100.00	M6	80.00	3.5	40.0	—	—	—	87.5	92.5	90.0	130.0	96.0	90.0	
K	115.00	M8	95.00	3.5	40.0	—	—	—	87.5	92.5	100.0	130.0	96.0	100.0	
L	130.00	M8	110.00	3.5	50.0	—	—	—	—	—	—	130.0	127.0	115.0	
M	130.00	M8	95.00	3.5	50.0	—	—	—	—	—	—	130.0	116.0	115.0	

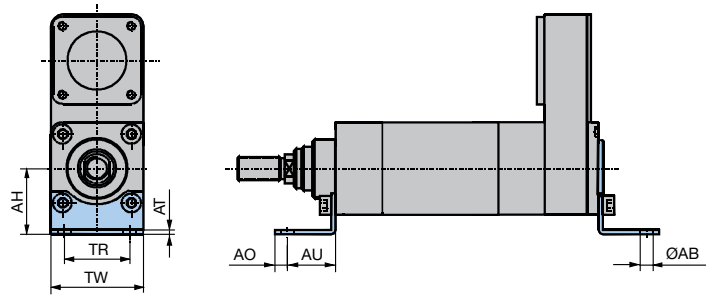
ETH Cylinder Mounting Options

Order Code

B Foot Mount



Available with parallel motor configurations only



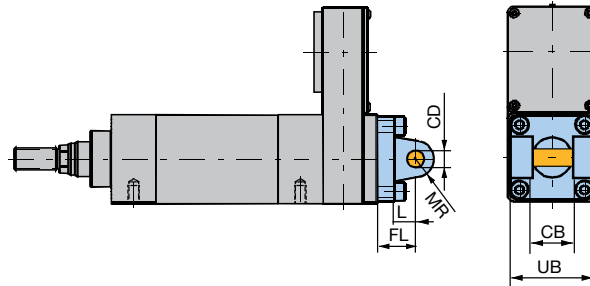
Size	Part Number* (1 piece each)		Dimensions – mm						
	Rear Bracket	Front Bracket	AH	AT	TR	ØAB (H14)	AO	AU	TW
ETH032	0111.065		32	4	32	7.0	8	24	48
ETH050	0121.065		45	4	45	9.0	12	32	65
ETH080	0131.065-01	0131.065-02	63	6	63	13.5	15	41	95

* Use order code when ordering cylinder; use part number for ordering spare replacement parts

C Rear Clevis Mount



Available with parallel motor configurations only



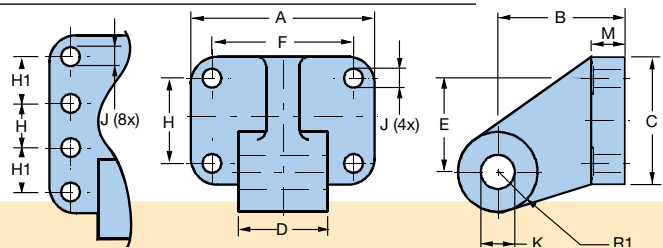
Size	Part Number*	Dimensions – mm					
		UB (h13)	CB (H14)	ØCD (H9)	MR	L	FL ±0.2
ETH032	0112.031	46.5	26	10	9.5	13	22
ETH050	0122.031	63.5	32	12	12.5	16	27
ETH080	0132.031	95	50	16	17.5	22	36

* Use order code when ordering cylinder; use part number for ordering spare replacement parts

Optional Bearing Block

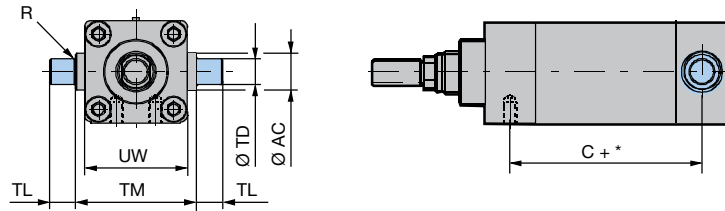


Mating mount bracket to rear clevis. Please order separately.



Cylinder Size	Part Number	Dimensions – mm											
		A	B	C	D	E	F	H	H1	ØJ (H13)	ØK (H9)	M	R1
ETH032	0112.039	55	32	55	26	43.0	38	38	—	9	10	8	11.0
ETH050	0122.039	70	45	70	32	52.5	48	48	—	11	12	12	13.0
ETH080	0132.039	95	63	150	50	130.5	72	45	40	13	16	16	16.5

D Center Trunnion Mount



Factory installed. Cannot be ordered separately.

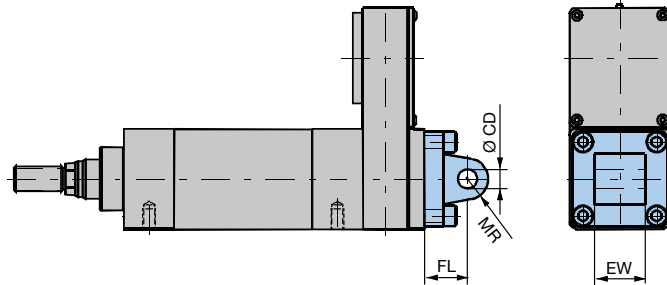
Cylinder Size	Dimensions – mm					
	UW	ØTD**	R	TL	TM	ØAC
ETH032	46.5	12	1	12	50	18
ETH050	63.5	16	1	16	75	25
ETH080	95.3	25	2	25	110	35

* Dimension C+ = Dimension + length of desired stroke (see page 40 for calculating stroke)

** : ØTD in accordance with ISO tolerance zone h8

Note: For relubrication option "1" (Integrated lubrication port) please see mounting method with option "D" center trunnion always on 6 o'clock!

E Rear Eye Mount



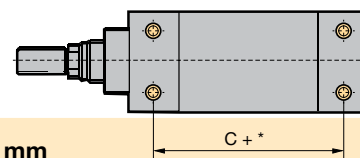
Available with parallel motor configurations only

Cylinder Size	Part Number*	Dimensions – mm			
		EW	ØCD	MR (H9)	FL ±0.2
ETH032	0112.033	26	10	11	22
ETH050	0122.033	32	12	13	27
ETH080	0132.033	50	16	17	36

* Use order code when ordering cylinder; use part number for ordering spare replacement parts

F Tapped Bottom Holes (Standard)

Mounting with 4 threaded holes on bottom of the cylinder.



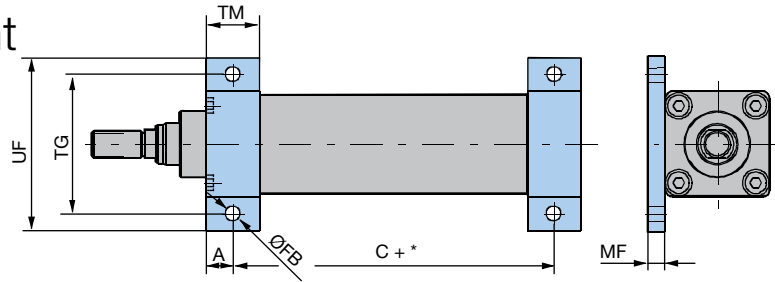
Cylinder Size	Dimension C + – mm									
	ETH032			ETH050			ETH080			
Screw Lead	M05	M10	M16	M05	M10	M20	M05	M10	M32	
C + *	IP54	93.5	103.0	106.5	99.5	105.5	117.5	141.5	159.5	189.5
	IP65	94.5	103.5	107.5	100.5	106.5	118.5	142.5	160.5	190.5

* Dimension C+ = Dimension + length of desired stroke (see page 40 for calculating stroke)

ETH Cylinder Mounting Options

Order
Code

G Side Flange Mount



Flanges are stainless steel

Cylinder Size	Part Number**	Dimensions – mm					
		TG	UF	ØFB	TM	MF	A
ETH032	1440.079	62	78	6.6	25	8	12.5
ETH050	1441.093	84	104	9.0	30	10	15.0
ETH080	0131.078	120	144	13.5	40	12	20.0

* Dimension C+ = Dimension + length of desired stroke (see page 40 for calculating stroke)

** Use order code when ordering cylinder; use part number for ordering spare replacement parts (one piece per part number)

H Rear Plate Mount

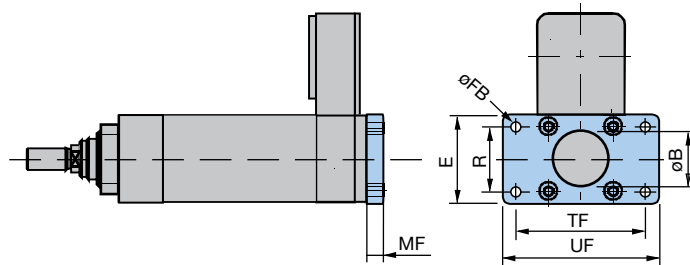


Plate is stainless steel

Cylinder Size	Part Number*	Dimensions – mm						
		MF	UF	TF	E	R	ØFB	ØB
ETH032	0111.064	10	80	64	48	32	7	30
ETH050	0121.064	12	110	90	65	45	9	40
ETH080	0131.064-01	16	150	126	95	63	12	45

* Use order code when ordering cylinder; use part number for ordering spare replacement parts (one piece per part number)

Order
Code

J Front Plate Mount

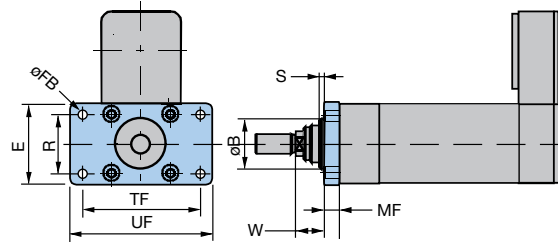
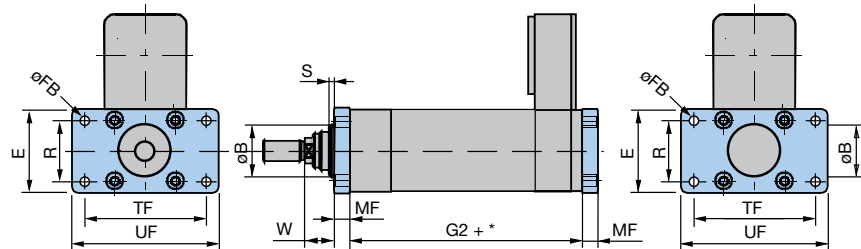
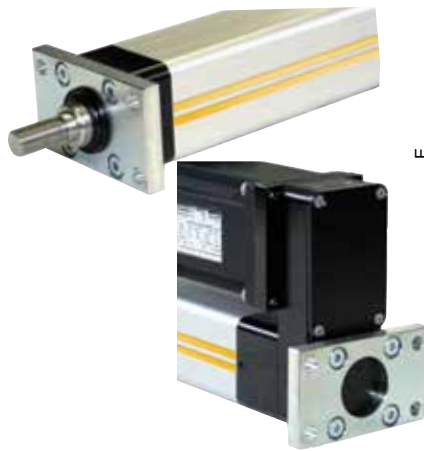


Plate is stainless steel

Cylinder Size	Part Number*	Dimensions – mm								
		S	W	MF	UF	TF	E	R	ØFB	ØB
ETH032	0111.064	2	16	10	80	64	48	32	7	30
ETH050	0121.064	4	25	12	110	90	65	45	9	40
ETH080	0131.064-02	4	30	16	150	126	95	63	12	60

* Use order code when ordering cylinder; use part number for ordering spare replacement parts (one piece per part number)

N Front & Rear Plate Mount



Plates are stainless steel

Cylinder Size	Part Number**	Dimensions – mm								
		S	W	MF	UF	TF	E	R	ØFB	ØB
ETH032	Front & Rear 0111.064	2	16	10	80	64	48	32	7	30
ETH050	Front & Rear 0121.064	4	25	12	110	90	65	45	9	40
ETH080	Front 0131.064-02	4	30	16	150	126	95	63	12	60
	Rear 0131.064-01									45

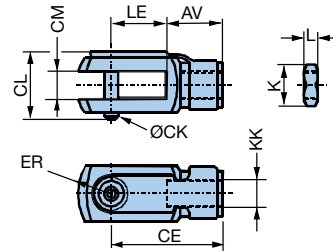
* Dimension G2+ (parallel) or G1+ (inline) = Dimension + length of desired stroke (see page 40 for calculating stroke)

** Use order code when ordering cylinder; use part number for ordering spare replacement parts (one piece per part number)

ETH Rod End Options

Order Code

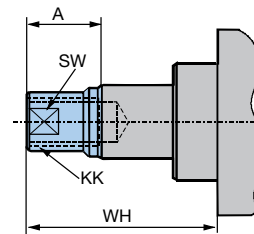
C Clevis Rod End



Cylinder Size	Part Number*	Mass [kg]	Dimensions – mm										
			KK	CL	CM	LE	CE	AV	ER	ØCK (h11/E9)	K	L	
ETH032	4309	0.09	M10 x 1.25	26.0	10.2	+0.13/-0.05	20	40	20	14	10	17	5
ETH050	4312	0.34	M16 x 1.5	39.0	16.2	+0.13/-0.05	32	64	32	22	16	24	8
ETH080	4314	0.69	M20 x 1.5	52.5	20.1	+0.02/-0.0	40	80	40	30	20	30	10

*Use order code when ordering cylinder; use part number for ordering spare replacement parts (cylinder rod with male thread is required)

F Female Threaded Rod End

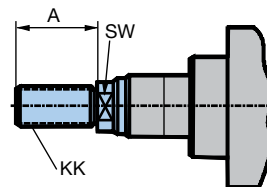


Cylinder Size	Part Number*	Mass [kg]	Dimensions – mm			
			A	KK	WH	SW**
ETH032	0111.029	0.04	14	M10 x 1.25	32	12
ETH050	0121.029	0.14	24	M16 x 1.5	50	20
ETH080	0131.029	0.42	29	M20 x 1.5	59	26

*Use order code when ordering cylinder; use part number for ordering spare replacement parts

** SW = width across flat (position of the flat is not fixed)

M Male Threaded Rod End

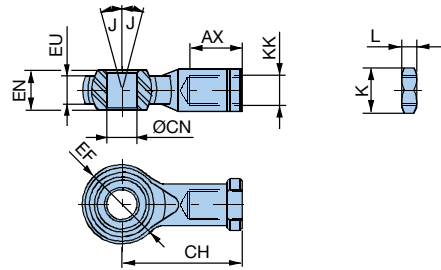


Cylinder Size	Part Number*	Mass [kg]	Dimensions – mm		
			A	KK	SW**
ETH032	0111.028	0.06	22	M10 x 1.25	10
ETH050	0121.028	0.15	32	M16 x 1.5	17
ETH080	0131.028	0.48	40	M20 x 1.5	22

*Use order code when ordering cylinder; use part number for ordering spare replacement parts

** SW = width across flat (position of the flat is not fixed)

S Spherical Rod End



Cylinder Size	Part Number*	Mass [kg]	Dimensions – mm									
			KK	ØCN (H9)	EN (h12)	EU	AX	CH	ØEF	J°	K	L
ETH032	4078-10	0.07	M10 x 1.25	10	14	10.5	20	43	28	13	17	5
ETH050	4078-16	0.23	M16 x 1.5	16	21	15.0	28	64	42	15	24	8
ETH080	4078-20	0.41	M20 x 1.5	20	25	18.0	33	77	50	14	30	10

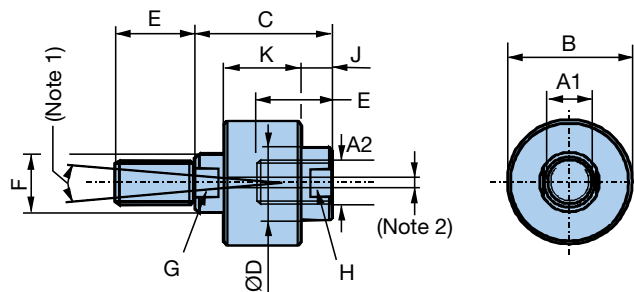
* Use order code when ordering cylinder; use part number for ordering spare replacement parts (cylinder rod with male thread is required)

L Alignment Coupler



The alignment coupler mounts on the end of the cylinder rod to:

- Balance misalignments
- Increase the mounting tolerance
- Simplify cylinder mounting
- Increase cylinder guide service life
- Compensate for offsets between components and relieves guides from lateral force influences
- Maintain traction/thrust force bearing capacity



(1) Angle offset $\pm 5^\circ$ from centerline (2) Axial offset: ± 1.5 mm from centerline

Cylinder Size	Part Number*	Mass [kg]	Dimensions – mm										
			A1	A2	B	C	ØD	E	F	G	H	J	K
ETH032	LC32-1010	0.26	M10x1.25	M10x1.25	40	51	19	19	16	13	16	13	26
ETH050	LC50-1616	0.64	M16x1.5	M16x1.5	54	59	32	29	25	22	29	14	33
ETH080	LC80-2020	1.30	M20x1.5	M20x1.5	54	59	32	29	25	22	29	14	33

*Use order code when ordering cylinder; use part number for ordering spare replacement parts (cylinder rod with male thread is required)