

# Electromechanical Automation Product Release



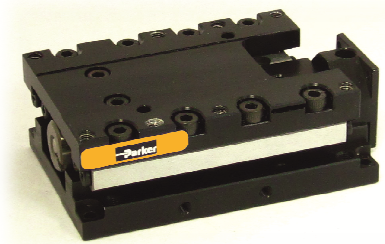
**Bulletin #** SR956  
**Date:** Wednesday, September 28, 2011  
**To:** All Master Price List Holders  
**Product:** MX45S  
**Subject:** Product Release

## Parker's Electromechanical Automation Division is pleased to announce the release of the MX45S

### Description

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Parker's Electromechanical Automation Division is pleased to announce the release and immediate availability of the MX45S linear positioner. The MX45S is a 45 mm wide miniature screw driven positioner based on the award winning MX80 family. Like its predecessor, the MX45S is designed for OEM's requiring reliable linear positioning in space restricted applications. Designed with anti-cage creep cross roller bearings, this miniature positioner allows users to position up to 7 Kg (15.4 lbs) of normal load on the available three standard travel lengths (5 mm, 15 mm and 25 mm). The MX45S can be supplied with a high efficiency leadscrew or a high-precision ballscrew, both of which are capable of producing 40 N of thrust at linear velocities of 20 mm/s and 30 mm/s respectively.



In addition to the standard features designed into the MX45S, there are several options available to help match the positioner's performance to the application requirements. These options include rotary and linear encoders, digital limit/home sensor packs and the ability to order and receive one of eleven pre-engineered multi-axis systems.

### Design Features

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- Ultra compact profile (25 mm high X 45 mm wide X 65, 75 or 90 mm long)
- 5, 15 and 25 mm travels
- Ballscrew or leadscrew drive options
- Anti-cage creep cross roller bearings
- Up to 40 N axial thrust
- 30 mm/s max velocity
- Stepper motor driven
- Optional digital limit/home sensor pack
- Optional rotary or linear encoders
- Standard multi-axis configurations

## Specifications

		MX45S Leadscrew Drive			MX45S Ballscrew Drive		
<b>Travel</b> <sup>1</sup>	mm	5	15	25	5	15	25
<b>Normal Load Capacity</b>	kg (lb)	5.0 (11.0)	5.0 (11.0)	7.0 (15.4)	5.0 (11.0)	5.0 (11.0)	7.0 (15.4)
<b>Thrust Load Capacity</b>	N (lb)	40 (9)			40 (9)		
<b>Maximum Velocity</b> <sup>2</sup>							
0.5 mm lead	mm/sec	10			—		
1.0 mm lead		20			30		
<b>Acceleration/Deceleration</b>	g	2			2		
<b>Running Torque</b>	mNm (oz-in)	11.0 (1.5)			11.0 (1.5)		
<b>Duty Cycle</b>	%	50			100		
<b>Straightness &amp; Flatness</b> <sup>3</sup>	µm	3	5	8	3	5	8
<b>Positional Accuracy</b> <sup>4</sup>							
With 2000 Count Rotary Encoder	µm	10	18	30	8	12	15
With 1 or 0.1 µm linear Encoder		6	10	12	6	10	12
<b>Bi-directional Repeatability</b> <sup>4,5</sup>							
With 2000 Count Rotary Encoder	µm	±8			±3		
With 1 µm Linear Encoder		±4			±2		
With 0.1 µm Linear Encoder		±2			±1		
<b>Input Inertia (without motor)</b>							
0.5 mm lead	10 <sup>8</sup> Kg-m <sup>2</sup>	2.37	2.76	3.14	—	—	—
1 mm lead		2.58	2.96	3.35	1.41	1.6	1.79
<b>Maximum Screw Speed</b>	rps	20			30		
<b>Screw Efficiency</b>							
0.5 mm lead	%	30			—		
1 mm lead		47			90		
<b>Screw Diameter</b>	mm	4.7			4.0		
<b>Bearing Coefficient of Friction</b>		0.003			0.003		
<b>Unit Mass</b>							
Stage Only		177	200	238	182	205	243
Carriage Only		70	82	100	73	84	104
<b>Additional Mass of Motors &amp; Options</b>							
NEMA 8 Stepper <sup>6</sup>	g	95			95		
Linear Encoder Option <sup>7</sup>		16			16		
Limit option Sensor Board <sup>7</sup>		5			5		
Limit Option Tripper Assembly <sup>7</sup>		12	13	15	12	13	15

**Notes:**

<sup>1</sup> Travel is in the direction of the motor mount only

<sup>2</sup> See speed/force curve on page 5 for performance with Parker motor.

<sup>3</sup> Measured at the carriage center, 35 mm above the mounting surface @ 20° C with no load. Unit bolted to granite surface, flat within 1 µm/300 mm.

<sup>4</sup> Total accuracy and bi-directional repeatability over full travel (peak to peak) (with 0.5 or 1 mm leadscrew)

<sup>5</sup> Repeatability valid with NEMA 8 stepper motor and encoder noted.

<sup>6</sup> Includes rotary encoder (part of base)

<sup>7</sup> Part of base

## Part Numbering

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
<b>Order Example:</b>	<b>MX45S</b>	<b>T01</b>	<b>S</b>	<b>K</b>	<b>D1</b>	<b>N00</b>	<b>E000</b>	<b>L0</b>	<b>K00</b>	<b>S</b>	
① <b>Series</b> <b>MX45S</b>							<b>E000</b> No Encoder <b>ER10</b> Rotary Encoder, 400-Line <sup>(1)</sup> (flying leads) <b>ER11</b> Rotary Encoder, 400-Line <sup>(1)</sup> (VIX connector) <b>ER12</b> Rotary Encoder, 400-Line <sup>(1)</sup> (ACR connector) <b>ER13</b> Rotary Encoder, 400-Line <sup>(1)</sup> (6K connector) <b>ER20</b> Rotary Encoder, 500-Line <sup>(1)</sup> (flying leads) <b>ER21</b> Rotary Encoder, 500-Line <sup>(1)</sup> (VIX connector) <b>ER22</b> Rotary Encoder, 500-Line <sup>(1)</sup> (ACR connector) <b>ER23</b> Rotary Encoder, 500-Line <sup>(1)</sup> (6K connector) <b>EL20</b> Linear Encoder <sup>(2)</sup> (1 µm resolution) <b>EL40</b> Linear Encoder <sup>(2)</sup> (0.1 µm resolution) <b>EL70</b> Linear Encoder <sup>(2)</sup> (sine output) * Consult factory for other encoder options <sup>(1)</sup> Encoder equipped with 1 meter high-flex cable <sup>(2)</sup> Encoder equipped with 1 meter high-flex cable, 15-pin D-sub connector; Z-channel in center position				
② <b>Travel</b> <b>T01</b> 5 mm <b>T02</b> 15 mm <b>T03</b> 25 mm											
③ <b>Grade</b> <b>S</b> Standard (specify leadscrew option, item 5) <b>P</b> Precision (specify ballscrew option, item 5)											
④ <b>Bearing Type*</b> <b>K</b> Anti-Creep System (ACS) Crossed Roller * Consult factory for other bearing options											
⑤ <b>Drive Type</b> <b>D1</b> 0.5 mm Leadscrew <sup>(1)</sup> <b>D2</b> 1 mm Leadscrew <sup>(1)</sup> <b>D3</b> 1 mm Ballscrew <sup>(2)</sup> <sup>(1)</sup> With standard grade only <sup>(2)</sup> With precision grade only											
⑥ <b>Motor Options (see page 9 for drive and drive/controller accessories)</b> <b>N00</b> No motor, no motor mount, no coupler <b>N08</b> No motor, NEMA 8 motor mount & coupler <b>N11</b> No motor, NEMA 11 motor mount & coupler <sup>(1)</sup> <b>M10</b> NEMA 8 stepper motor <sup>(2)</sup> <b>M11</b> NEMA 8 stepper motor <sup>(2)</sup> <sup>(1)</sup> Not available with T03 travel option on K20 and K22 X-Y axis bracket kits or Z-axis bracket kits (K22 thru K36) <sup>(2)</sup> With 1 meter cable, flying leads <sup>(3)</sup> With 1 meter cable with ion drive connector											
⑦ <b>Encoder Options (see page 8)*</b>											
								⑧ <b>Home/Limit Switch Options (see page 8)*</b> <b>L0</b> None <b>L2</b> N.O. Home/N.C. Limits, NPN, 1 meter cable to flying leads <b>L3</b> N.O. Home/N.C. Limits, PNP, 1 meter cable to flying leads *NC = Normally Closed; NO = Normally Open. Home switch not available with T01; use one of the limits as home for T01.			
									⑨ <b>Multi-axis Kit Options (see page 10)</b> <b>K00</b> No kit (single-axis) <b>K20</b> <b>K21</b> <b>K22</b> <b>K23</b> Refer to system kit configuration illustrations on page 10 <b>K24</b> <b>K31</b> <b>K32</b> Note: all appropriate mounting bracket hardware is included with the kit number <b>K33</b> <b>K34</b> <b>K35</b> <b>K36</b>		
										⑩ <b>Axis Designator</b> <b>S</b> None (single-axis) <b>X</b> X-axis for multi-axis system <b>Y</b> Y-axis for multi-axis system <b>Z</b> Z-axis for multi-axis system	

## Pricing

Base Model #	Description	
<b>MX45S</b>		
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Travel	Description	List
T01	5 mm travel.....	\$1,100
T02	15 mm travel.....	\$1,140
T03	25 mm travel.....	\$1,180
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Grade		
Code	Description	List
S	Standard.....	\$0
P	Precision.....	\$0
<hr/>		
Bearing Type		
Code	Description	List
K	Anti-cage Creep Cross Roller Bearing.....	\$200
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Drive Train		
Code	Description	List
D1	0.5 mm lead Lead Screw (Standard grade only).....	\$0
D2	1 mm lead Lead screw (Standard grade only).....	\$0
D3	1 mm lead Ball Screw (Precision grade only).....	\$400
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Motor Option		
Code	Description	List
N00	no motor, flange or coupling.....	\$0
N08	no motor, Nema 8 motor mount and coupling included.....	\$25
N11*	no motor, Nema 11 motor mount and coupling included.....	\$25
M10	Nema 8 stepper motor, 1 m cable, flying leads.....	\$160
M11	Nema 8 stepper motor, 1 m cable, ion drive connector.....	\$185
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* not available with T03 travel option		
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Encoder Option		
Code	Description	List
E000	None.....	\$0
ER10	Rotary encoder, 400 line, 1 m high-flex cable, flying leads.....	\$140
ER11	Rotary encoder, 400 line, 1 m high-flex cable, Vix connector.....	\$170
ER12	Rotary encoder, 400 line, 1 m high-flex cable, ACR connector.....	\$170
ER13	Rotary encoder, 400 line, 1 m high-flex cable, 6K connector.....	\$170
ER20	Rotary encoder, 500 line, 1 m high-flex cable, flying leads.....	\$155
ER21	Rotary encoder, 500 line, 1 m high-flex cable, Vix connector.....	\$185
ER22	Rotary encoder, 500 line, 1 m high-flex cable, ACR connector.....	\$185
ER23	Rotary encoder, 500 line, 1 m high-flex cable, 6K connector.....	\$185
EL20	Linear encoder, 1µm resolution, 1 m high-flex cable, 15 pin D-sub conn.....	\$750
EL30	Linear encoder, 0.5µm resolution, 1 m high-flex cable, 15 pin D-sub conn.....	\$750
EL40	Linear encoder, 0.1µm resolution, 1 m high-flex cable, 15 pin D-sub conn.....	\$900
EL50	Linear encoder, 5µm resolution, 1 m high-flex cable, 15 pin D-sub conn.....	\$650
EL70	Linear encoder, sine output, 1 m high-flex cable, 15 pin D-sub conn.....	\$600

## Pricing Continued

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Home/Limit Switches		
Code	Description	List
L0	No Home/Limits.....	\$0
L2	N.O. Home/N.C. Limits, NPN, 1 m cable to flying leads.....	\$224
L4	N.O. Home/N.C. Limits, PNP, 1 m cable to flying leads.....	\$224
Kit Number		
K00	Single axis	\$0
K20		\$50
K21		\$50
K22		\$100
K23		\$100
K24		\$100
K31	See Catalog for Configurations	\$150
K32		\$150
K33		\$150
K34		\$150
K35		\$150
K36		\$150

## Sales Tools

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Please see the Parker Electromechanical Automation Extranet for additional sales resources, brochure links, product presentations and e-configuration tools.

## Availability

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The MX45S is available immediately.

If you have any questions, please contact:

- Technical Assistance, Applications Engineering Department (e-mail: [emn\\_support@parker.com](mailto:emn_support@parker.com) or call 800-245-6903 North America, 724-861-8200 International)

**Note: All information contained in this bulletin is proprietary and not intended for unauthorized distribution.**