

# OSP-E..STR

## Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod



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# TRAPEZOIDAL SCREW ACTUATOR WITH INTERNAL PLAIN BEARING GUIDE AND PISTON ROD FOR INTERMITTENT APPLICATIONS

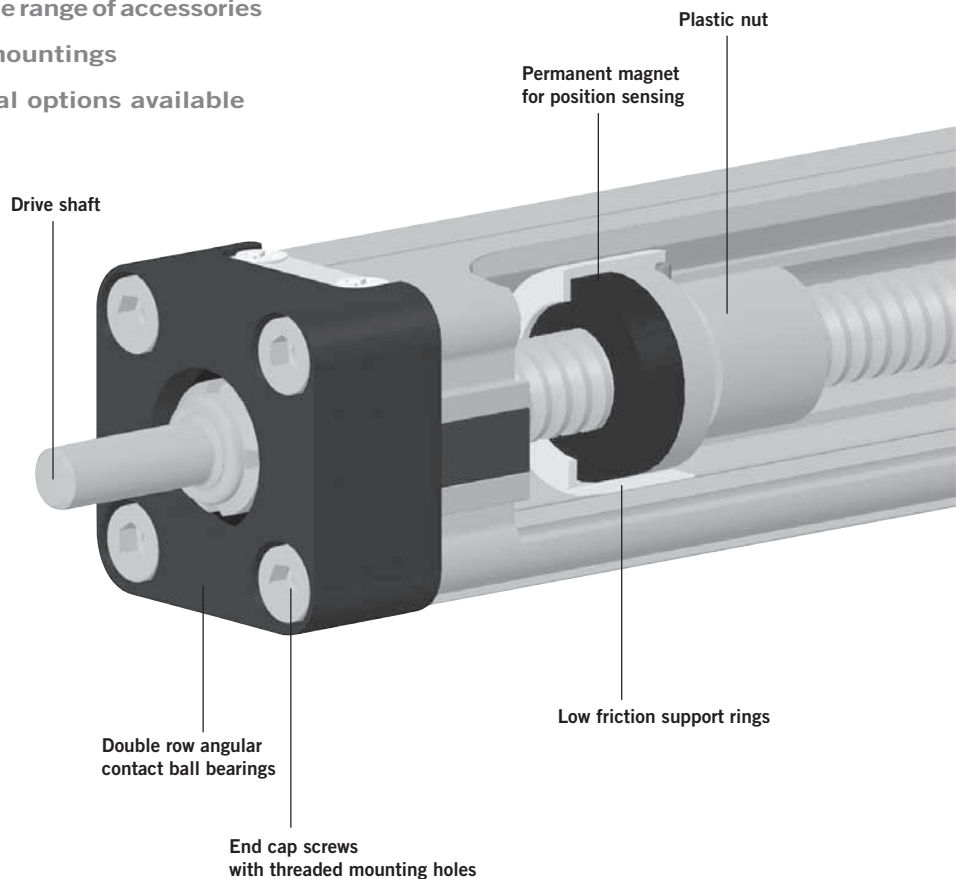
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

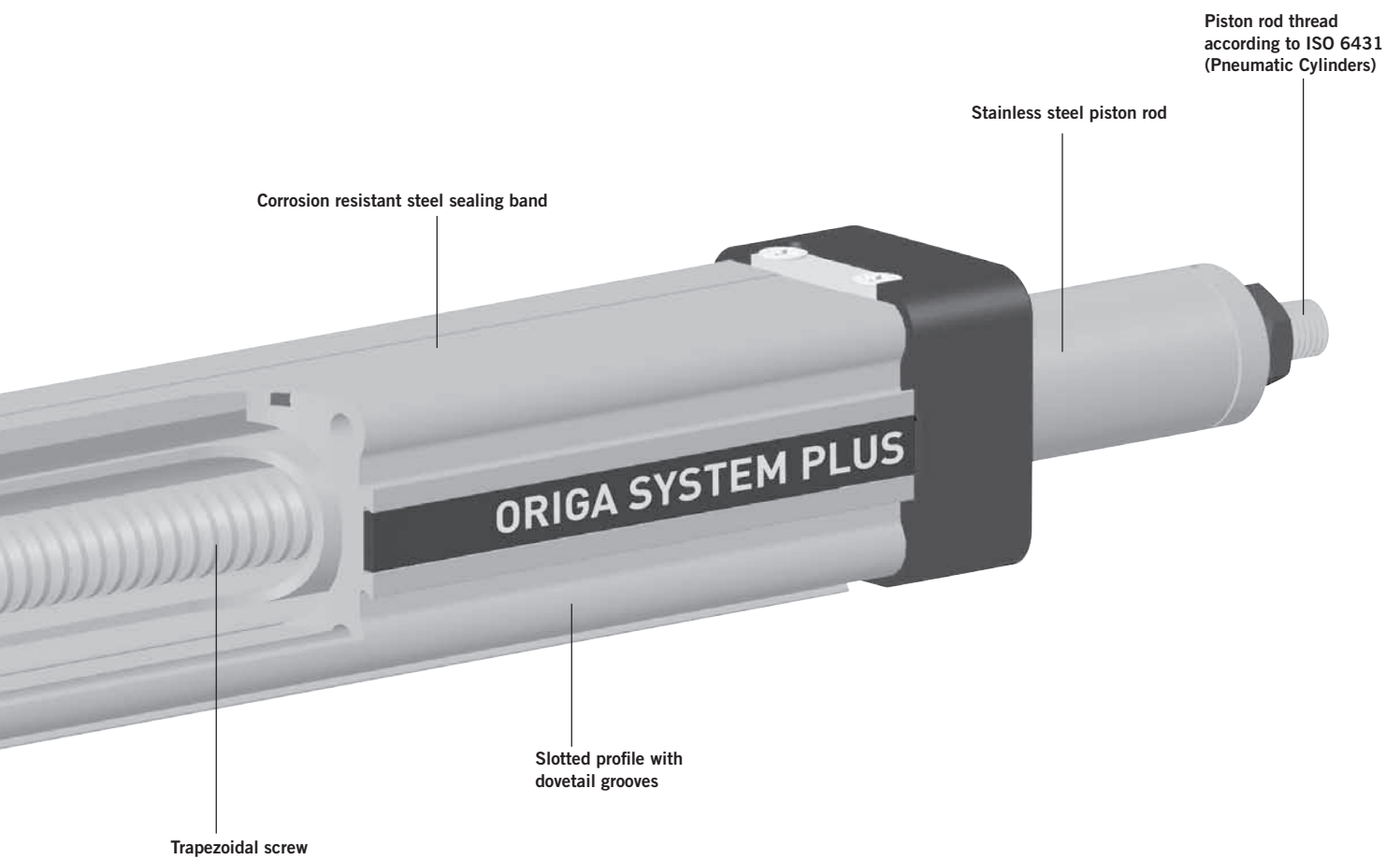
## Advantages

- Accurate path and position control
- High force output
- Self-locking
- Excellent slow speed characteristics
- Easy installation
- Low maintenance
- Ideal for level regulation, lifting and other applications with intermittent operations

## Features

- Piston rod-end dimensions conforming to ISO pneumatic standards
- Complete motor and control packages
- Diverse range of accessories and mountings
- Special options available





Take the easy route and load all the dimensions into your system. The file is suitable for all current CAD systems – available on CD-Rom or at [www.parker-origa.com](http://www.parker-origa.com)

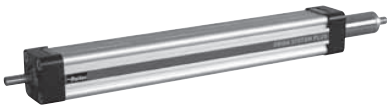


# OPTIONS AND ACCESSORIES

## OSP-E..STR TRAPEZOIDAL SCREW ACTUATOR WITH INTERNAL PLAIN BEARING GUIDE AND PISTON ROD

### STANDARD VERSIONS OSP-E..STR

Standard piston rod with internal guidance and integrated magnet set for contactless position sensing. Dovetail profile for mounting of accessories and the actuator itself.



### ACCESSORIES

#### MOTOR MOUNTINGS



#### END CAP MOUNTING

For end-mounting the actuator on the extending rod side.

#### Flange Mounting C

For end-mounting the actuator on the extending rod side.



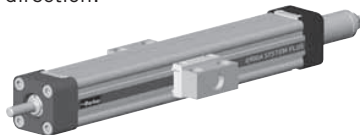
#### PROFILE MOUNTING

For mounting the actuator on the dovetail grooves and on the motor end.



#### Trunning mounting EN in combination with pivot mounting EL.

– steplessly adjustable in axial direction.



#### COMPENSATION

#### Piston Rod eye



#### Piston rod Clevis



#### Piston Rod compensating coupling

For compensating of radial and angular misalignments



#### MAGNETIC SWITCHES SERIES RST AND EST

For contactless position sensing of end stop and intermediate carrier positions.



Characteristics			
Characteristics	Symbol	Unit	Description
<b>General Features</b>			
Series			OSP-E..STR
Name			Trapezoidal Actuator with internal Plain Bearing Guide and Piston Rod
Mounting			See drawings
Temperature Range	$\vartheta_{\min}$ $\vartheta_{\max}$	°C °C	-20 +70
Weight (mass)		kg	See table
Installation			In any position
Material	Slotted profile		Extruded anodized aluminium
	Trapezoidal screw		Cold rolled steel
	Drive nut		Thermoplastic polyester
	Piston rod		Stainless steel
	Sealing band		Hardened, corrosion resistant steel
	Guide bearings		Low friction plastic
	Screws, nuts		zinc plated steel
	Mountings		zinc plated steel and aluminium
Encapsulation class		IP	54

Weight (mass) and Inertia						
Series	Weight (mass)[kg]		Moving mass [kg]		Inertia [x 10 <sup>-6</sup> kgm <sup>2</sup> ]	
	At stroke 0 m	Add per metre stroke	At stroke 0 m	Add per metre stroke	At stroke 0 m	Add per metre
OSP-E25STR	0.4	2.9	0.1	0.7	1.1	10.3
OSP-E32STR	0.9	5.4	0.2	1.2	3.9	29.6
OSP-E50STR	2.4	10.6	0.8	1.6	24.6	150

### Installation Instructions

Use the threaded holes in the free end cap and a profile mounting close to the motor end for mounting the actuator.

The piston rod is not locked against rotation and needs to be guided externally. A compensation part e. g. piston rod eye (see order instructions page 96) is recommended.

### Maintenance

All moving parts are long-term lubricated for a normal operational environment. Parker Origa recommends a check and lubrication of the actuator, and if necessary a change of wear parts, after an operation time of 12 months or 300 km travel of distance. Please refer to the operating instructions supplied with the actuator.

### First service start-up

The maximum values specified in the technical data sheet for the different products must not be exceeded. Before taking the actuator as a machine into service, the user must ensure the adherence to the EC Machine Directive 2006/42/EG.

### Contactless position sensing

Please use the magnetic switch mentioned below:

**KL3096** (Type RS-K, normally closed, Reed-contact, with cable)

**KL3098** (Type ES-S, Magnetic electronic, PNP-switch with DIN-plug)

# OSP-E..STR Trapezoidal Screw Actuator with internal Plain Bearing Guide and Piston Rod

Size 25, 32, 50



### Standard Version:

- Dovetail profile for mounting of accessories and the actuator itself
- Pitch of Trapezoidal Spindle:  
Type OSP-E25STR : 3 mm  
Type OSP-E32STR : 4 mm  
Type OSP-E50STR : 5 mm



# Sizing Performance Overview Maximum Loadings

## Sizing of Actuator

The following steps are recommended for selection :

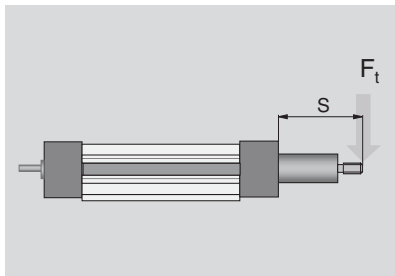
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.
2. Check the lifetime/travel distance in graph below.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in application

Performance Overview				
Characteristics	Unit	Description		
Size		<b>OSP-E25STR</b>	<b>OSP-E32STR</b>	<b>OSP-E50STR</b>
Pitch	[mm]	3	4	5
Max. speed	[m/s]	0.075	0.1	0.125
Linear motion per revolution, drive shaft	[mm]	3	4	5
Max. rpm, drive shaft	[min <sup>-1</sup> ]	1500 <sup>2)</sup>	1500	1500
Max. effective action force $F_A$	[N]	800	1600	3300
Corresponding torque on drive shaft	[Nm]	1.35	3.4	9.25
No-load torque	[Nm]	0.3	0.4	0.5
Max. allowable torque on drive shaft	[Nm]	1.7	4.4	12
Self-locking force $F_L$ <sup>1)</sup>	[N]	800	1600	3300
Typical repeatability	[mm/m]	±0,5	±0,5	±0,5
Max. Standard stroke length	[mm]	500	500	500

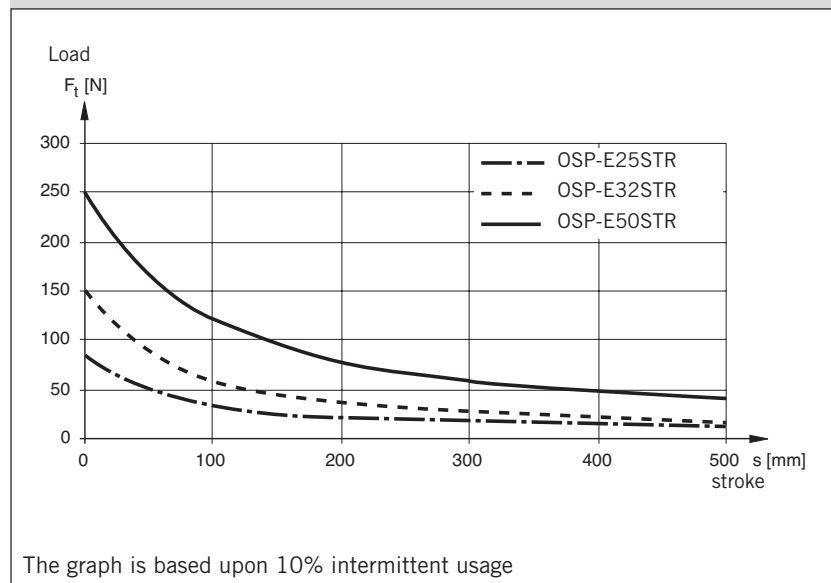
<sup>1)</sup> Related to screw types Tr 12x3, Tr 16x4, Tr 24x5 see page 93 – for inertia

<sup>2)</sup> from 0,4 m stroke max. 1200 min-1 permissible

## Transverse Force / stroke



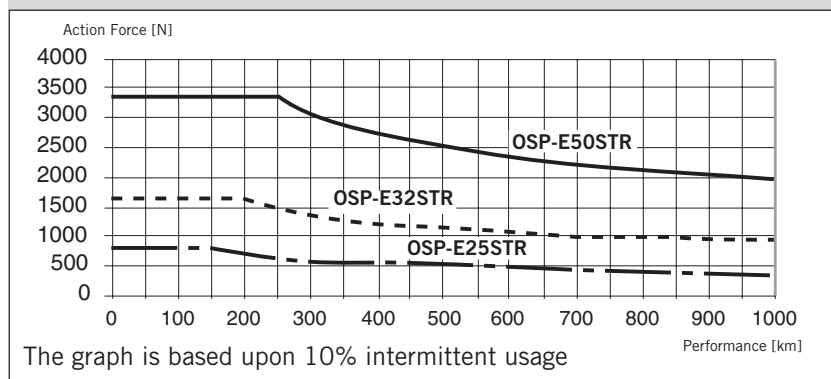
### Transverse Force / Stroke



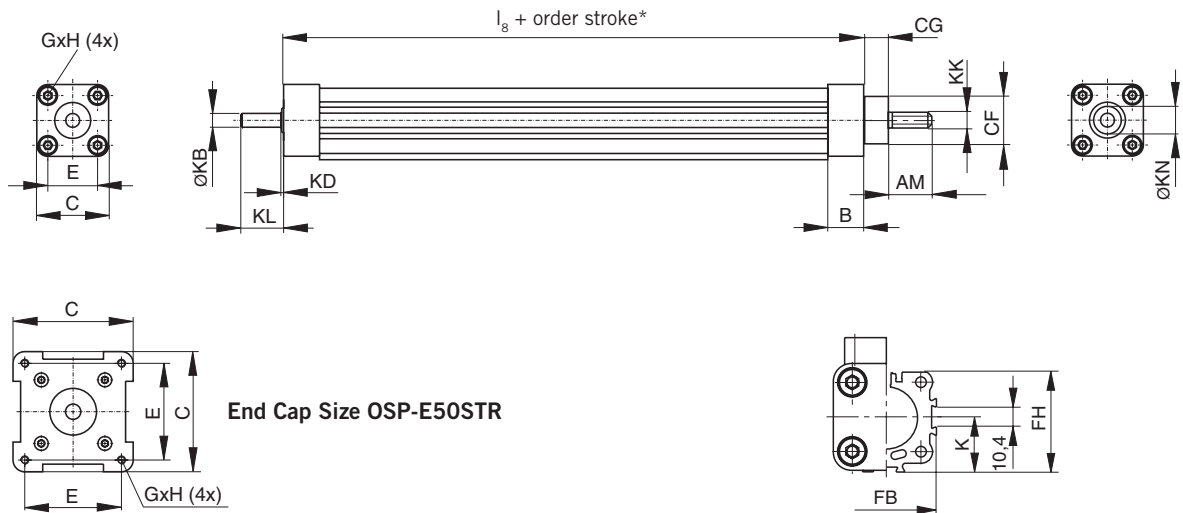
## Performance / Action Force

The Actuators are designed for a 10% intermittent usage. The performance to be expected depends on the maximum required actions force of the application. An increase of the action force will lead to a reduced performance.

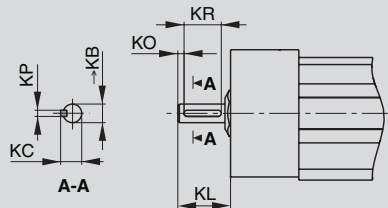
### Performance as a function of the action force



**OSP-E..STR**  
**Trapezoidal Screw Actuator with internal Plain Bearing Guide and Piston Rod – Basic Unit**



**Plain shaft with keyway (Option)**



**Dimension Table [mm]**

Series	∅KB <sub>n7</sub>	KC	KL Opt.3	Opt.4	KO	KP <sup>P9</sup>	KR
OSP-E25STR	6	6.8	17	24	2	2	12
OSP-E32STR	10	11.2	31	41	5	3	16
OSP-E50STR	15	17.0	43	58	6	5	28

**Option 3: Keyway**  
**Option 4: Keyway long version**

**\* NOTE:**

The mechanical end position must not be used as a mechanical end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 25 mm.

Order stroke = required travel + 2 x safety distance.

The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information, please contact your local Parker Origa representative.

**Dimension Table [mm]**

Series	B	C	E	G x H	K	l <sub>8</sub>	AM	CF	CG	FB	FH	KB	KD	KK	KL	KN
OSP-E25STR	22.0	41	27	M5 x10	21.5	83	20	22	26	40	39.5	6 <sub>n7</sub>	2	M10x1.25	17	13
OSP-E32STR	25.5	52	36	M6 x12	28.5	94	20	28	26	52	51.7	10 <sub>n7</sub>	2	M10x1.25	31	20
OSP-E50STR	33.0	87	70	M6 x12	43.0	120	32	38	37	76	77.0	15 <sub>n7</sub>	3	M16x1,5	43	28

Order Instructions OSPE25 — 3 0 3 0 0 — 00000 — 0 0 0 0 0 0

Size of drive	
25	Size 25
32	Size 32
50	Size 50

Type of drive	
3	Trapezoidal screw actuator with internal plain bearing guide and piston rod

Pitch	
3	3 mm (for size 25)
4	4 mm (for size 32)
5	5 mm (for size 50)

\* Option

Gear mounting *				
Size		25	32	50
0	without	x	x	x
1	LP050 i = 5	x	x	
2	LP050 i = 10	x	x	
3	LP070 i = 3		x	x
4	LP070 i = 5		x	x
5	LP070 i = 10		x	x

Info: For gears the mounting kit of the motor must be specified.  
 LP050: A0, A1, A2  
 LP070: A1, A2, A3

Order stroke
5 digits input in mm

Drive Shaft	
0 —	Plain Shaft
3 —*	Keyway
4 —*	Long with keyway

Mounting Kit for Motor and Gear *				
Size		25	32	50
A0	SY563T	x <sup>1</sup>	x <sup>1</sup>	
A1	SY873T	x <sup>1</sup>	x <sup>1</sup>	x <sup>1</sup>
A2	SMx60 xx xxx 8 11 ...	x <sup>1</sup>	x <sup>1</sup>	
A3	SMx82 xx xx 8 14 ...		x <sup>1</sup>	x <sup>1</sup>
A7	PS60		x <sup>1</sup>	x <sup>1</sup>
C0	LP050 / PV40-TA	x <sup>1</sup>	x <sup>1</sup>	
C1	LP070 / PV60-TA		x <sup>1</sup>	x <sup>1</sup>

x<sup>1</sup>: If a mounting kit is selected the **drive shaft** is a plain shaft

Info: Motor and Gear mounting dimensions see page 193



Piston rod mounting *	
0	Without
T	Piston rod eye
U	Piston rod clevis
V	Piston rod compensating coupling
see page 155 ff	

Niro	
0	Standard
1*	Niro screws

Magnetic switches *	
0	Without
1	1 pc. RS-K 2NO / 5m cable
2	1 pc. RS-K 2NC / 5m cable
3	2 pc. RS-K 2NC / 5m cable
4	2 pc. RS-K 2NC, 1 pc. RS-K 2NO / 5m cable
D	1 pc. ES-S PNP / M8 plug
E	2 pc. ES-S PNP / M8 plug
F	3 pc. ES-S PNP / M8 plug
see page 165 ff	

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
see page 141 ff	
K	1 pair trunnion mounting EN
L	1 pair trunnion EN and pivot mounting EL
see page 154	

End cap mounting *	
0	Without
1	1 pc. type A1SR (size 25 and 32) or C1SR (size 50)
2	1 pc. type C-E
see pages 141 ff	

Accessories - please order separately	
Description	Page
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Multi-Axis Systems for actuators	177 ff