

# Modular Electric Actuators OSP-E

ORIGA SYSTEM PLUS

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



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# Sizing Performance Overview

## Maximum Loadings

### Sizing of Actuator

The following steps are recommended for selection :

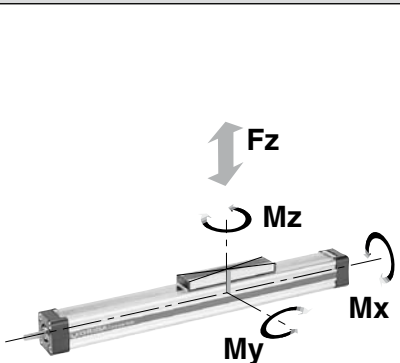
1. Check that maximum values in the table T3 are not exceeded.
2. Check the maximum values in graph on page 74 ff are not exceeded.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time of the application.
4. Check that the maximum allowable unsupported length is not exceeded (see on page 73 ff).

Performance Overview				
Characteristics	Unit	Description		
Size		OSP-E25ST	OSP-E32ST	OSP-E50ST
Pitch	[mm]	4	4	6
Max. speed	[m/s]	0.1	0.1	0.15
Linear motion per revolution drive shaft	[mm]	4	4	6
Max. rpm, drive shaft	[min <sup>-1</sup> ]	1500	1500	1500
Max. effective action force F <sub>A</sub>	[N]	600	1300	2 500
Corresponding torque on drive shaft	[Nm]	1.35	3.2	8.8
No-load torque	[Nm]	0.3	0.4	0.5
Max. allowable torque on drive shaft	[Nm]	1.55	4.0	9.4
Self-locking force F <sub>L</sub> <sup>1)</sup>	[N]	600	1300	2500
Repeatability	[mm/m]	±0.5	±0.5	±0.5
Max. Standard stroke length	[mm]	1100	2000	2500*

<sup>1)</sup> Related to screw types Tr 16x4, Tr 20x4, TR 30x6 see page 71 ff – for inertia.

\* For strokes longer than 2000 mm in horizontal applications, please contact our customer support.

### Forces, loads and moments



$$M = F \cdot l \text{ [Nm]}$$

$$M_x = M_{x \text{ static}} + M_{x \text{ dynamic}}$$

$$M_y = M_{y \text{ static}} + M_{y \text{ dynamic}}$$

$$M_z = M_{z \text{ static}} + M_{z \text{ dynamic}}$$

The distance l (lx, ly, lz) for calculation of the bending moments relates to the centre axis of the actuator.

### Combined Loads

If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here.

The maximum permissible loads must not be exceeded.

### Maximum Permissible Loads

T3

Size	Max. applied load [N] Fz	Max. moments [Nm]		
		Mx	My	Mz
OSP-E25ST	500	2	24	7
OSP-E32ST	1000	6	65	12
OSP-E50ST	1500	13	155	26

### Equation for Combined Loads

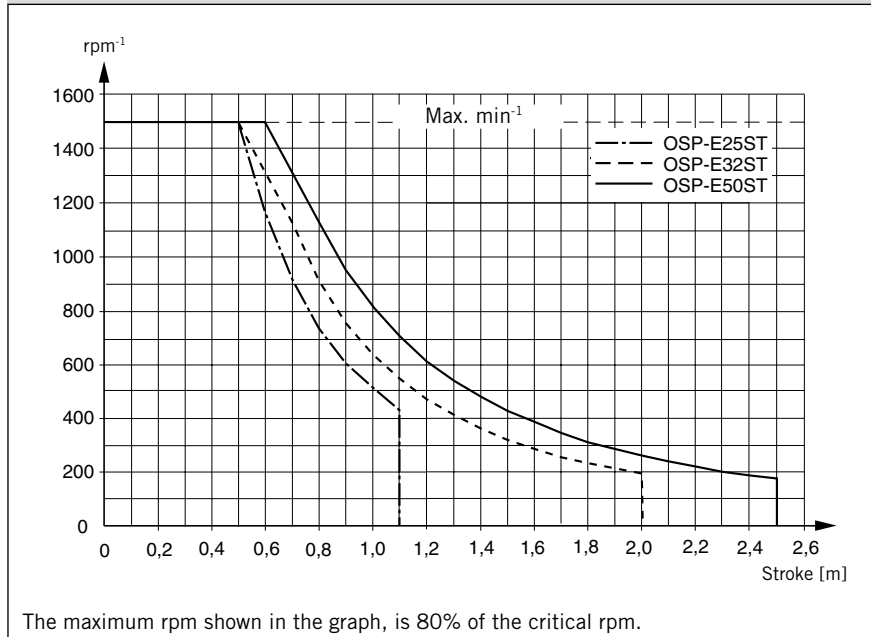
$$\frac{Fz}{Fz \text{ (max)}} + \frac{Mx}{Mx \text{ (max)}} + \frac{My}{My \text{ (max)}} + \frac{Mz}{Mz \text{ (max)}} \leq 1$$

The total of the loads must not exceed >1 under any circumstances.

## Maximum rpm / Stroke

At longer strokes the speed has to be reduced according to the adjacent graphs.

### Maximum rpm / Stroke

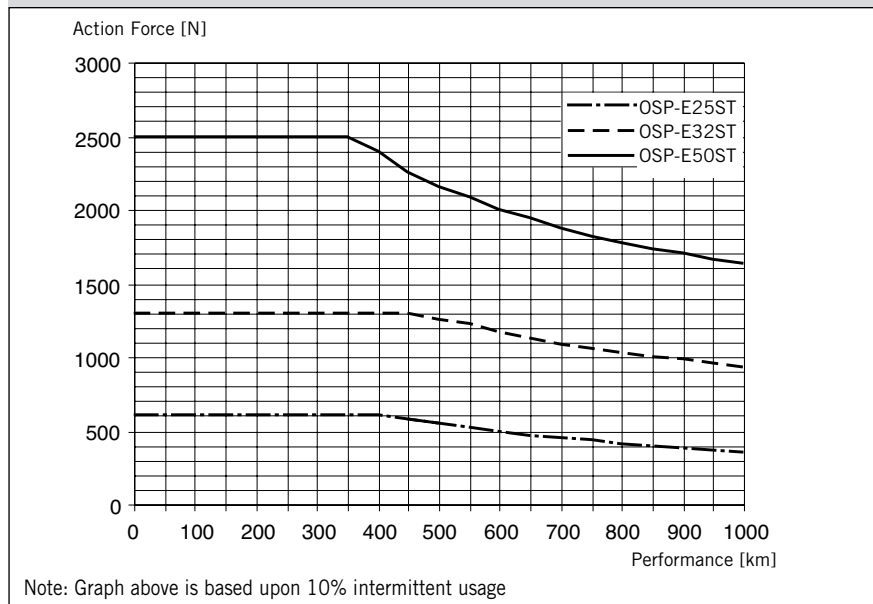


## Performance / Action Force

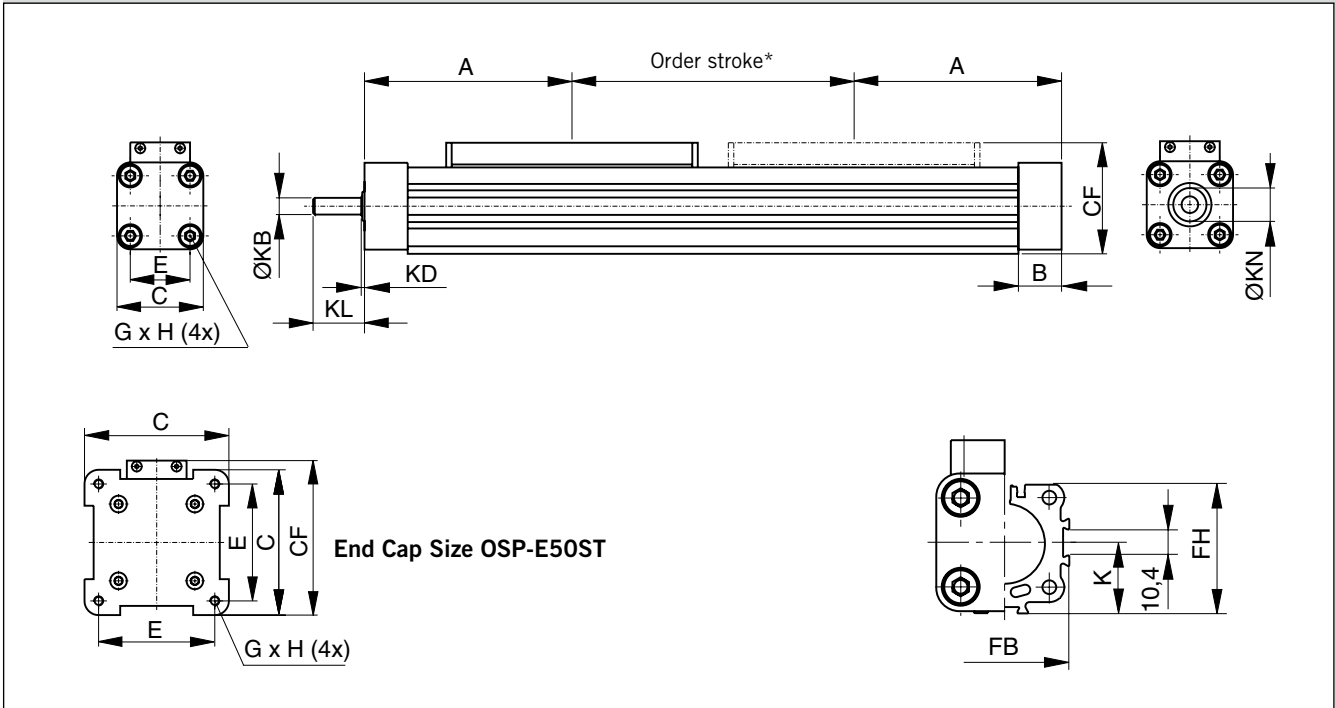
The actuators are designed for a 10% intermittent usage.

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.

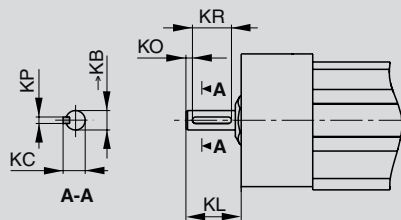
### Performance as a function of the action force



**OSP-E..ST**  
Trapezoidal Screw Actuator with internal Plain Bearing Guide – Basic Unit



**Plain Shaft with Keyway (Option)**



Dimension Table [mm]

Series	ØKB <sub>h7</sub>	KC	KL Opt.3	Opt.4	KO	KP <sup>P9</sup>	KR
OSP-E25ST	6	6.8	17	24	2	2	12
OSP-E32ST	10	11.2	31	41	5	3	16
OSP-E50ST	15	17	43	58	6	5	28

Option 3: Keyway  
Option 4: Keyway long version

**\* NOTE:**

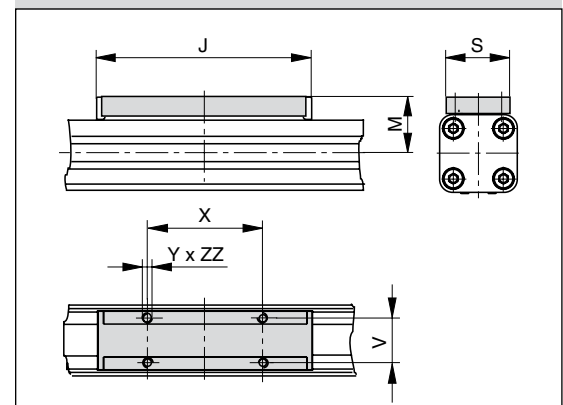
The mechanical end position must not be used as a mechanical end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 25 mm.

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.

**Standard Carrier**



Dimension Table [mm]

Series	A	B	C	E	G x H	J	K	M	S	V	X	Y	CF	FB	FH	KB	KD	KL	KN	ZZ
OSP-E25ST	100	22	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5	40	39.5	6 <sub>h7</sub>	2	17	13	8
OSP-E32ST	125	25.5	52	36	M6 x 12	152	28.5	38	36	27	90	M6	66.5	52	51.7	10 <sub>h7</sub>	2	31	20	10
OSP-E50ST	175	33	87	70	M6 x 12	200	43	49	36	27	110	M6	92.5	76	77	15 <sub>h7</sub>	3	43	28	10

Order Instructions	OSPE25	—	2	0	4	0	0	—	00000	—	0	0	0	0	0	0
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Size of drive	
25	Size 25
32	Size 32
50	Size 50

Type of drive	
2	Trapezoidal screw actuator with internal plain bearing guide

Carriage	
0	Standard
4	Position measurement system SFI-plus * (see page 159 ff)

Pitch	
4	4 mm (for size 25 and 32)
6	6 mm (for size 50)

Gear *	
0	Without
A	External gear, i = 3
B	External gear, i = 5
C	External gear, i = 10
F	External gear, i = 25
G	External gear, i = 50
H	External gear, i = 100

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

Order stroke	
5 digits input in mm	

Niro	
0	Standard
1	Niro screws

End cap mounting *	
0	Without
1	1 pc. type A1 (size 25 and 32) or C1 (size 50)
2	1 pc. type A2 (size 25 and 32) or C2 (size 50)
3	1 pc. type A3 (size 25 and 32) or C3 (size 50)
4	1 pc. type B1 (size 25 and 32) or C4 (size 50)
5	1 pc. type B4 (size 25 and 32)
see page 129 and 143 ff	

Guide position	
0	Standard

External guide / carriage mounting	
0	Without
2	SL Slide line
6	PL Proline
D	HD Heavy duty
E	PS Power slide 25/25
F	PS Power slide 25/35, 32/35
G	PS Power slide 25/44, 32/44
H	PS Power slide 50/60
I	PS Power slide 50/76
M	Inversion
R	Compensation
S	Compensation low back lash
see pages 101 ff	

\* Option

<b>Magnetic switches *</b>	
0	Without
1	1 pc. RST-K 2NO / 5m cable
2	1 pc. RST-K 2NC / 5m cable
3	2 pc. RST-K 2NC / 5m cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5m cable
5	1 pc. RST-S 2NO / M8 plug
6	1 pc. RST-S 2NC / M8 plug
7	2 pc. RST-S 2NC / M8 plug
8	2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug
A	1 pc. EST-S NPN / M8 plug
B	2 pc. EST-S NPN / M8 plug
C	3 pc. EST-S NPN / M8 plug
D	1 pc. EST-S PNP / M8 plug
E	2 pc. EST-S PNP / M8 plug
F	3 pc. EST-S PNP / M8 plug
see page 154 ff	

<b>Profile mounting *</b>	
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
K	1 pair type E2
L	1 pair type E3
M	1 pair type E4
N	2 pair type E2
P	2 pair type E3
Q	2 pair type E4
R	3 pair type E2
S	3 pair type E3
T	3 pair type E4
see page 135 ff	

#### Accessories - please order separately

Description	Page
Motor mounting	121 ff
Multi-axis system for actuators	170 ff