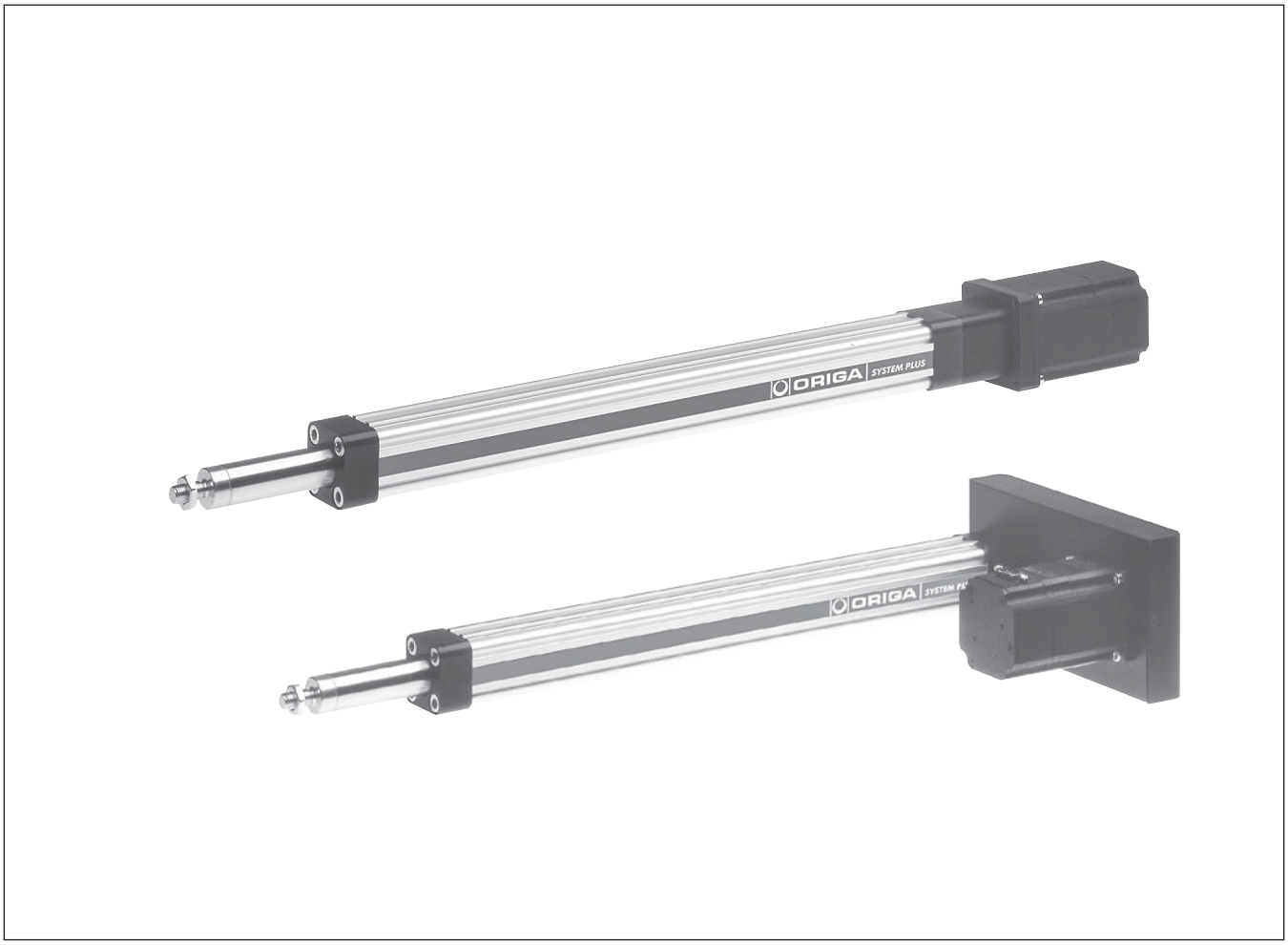
Linear Drive with Ball Screw Drive and Piston Rod Series OSP-E..SBR



Overview 69-72
Technical Data.....73-75
Dimensions 75

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ELECTRIC LINEAR DRIVE FOR PRECISE AND HIGH SPEED POSITIONING OF HIGH MASSES

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

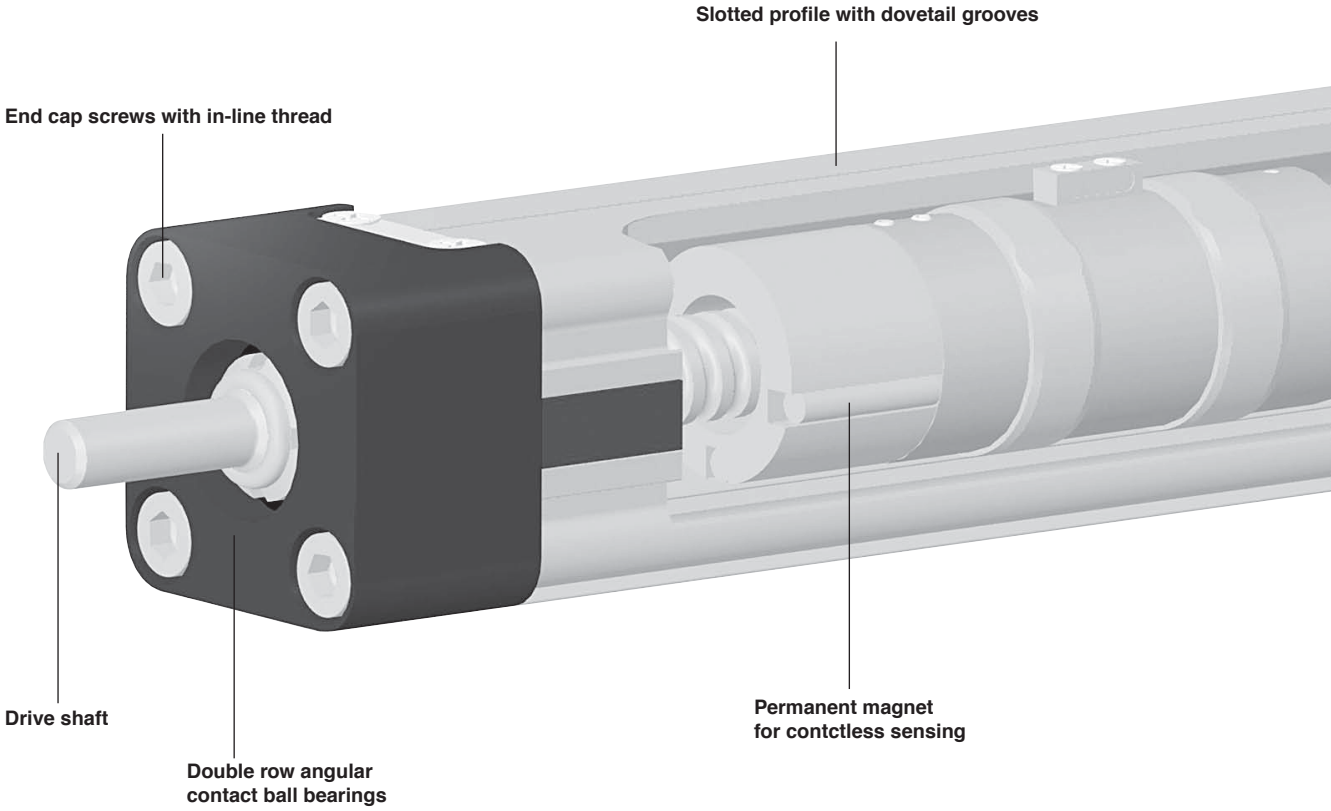
Linear Drive with Ball Screw Drive, Internal Plain Bearing Guide and Piston Rod

Advantages

- **High output force**
- **Excellent running characteristics**
- **Accurate path and position control**
- **High levels of repeatability**

Features

- **Extending drive rod**
- **Ball screw spindle**
- **Non-rotating drive rod**
- **Continuous duty operation**
- **Large range of accessories**



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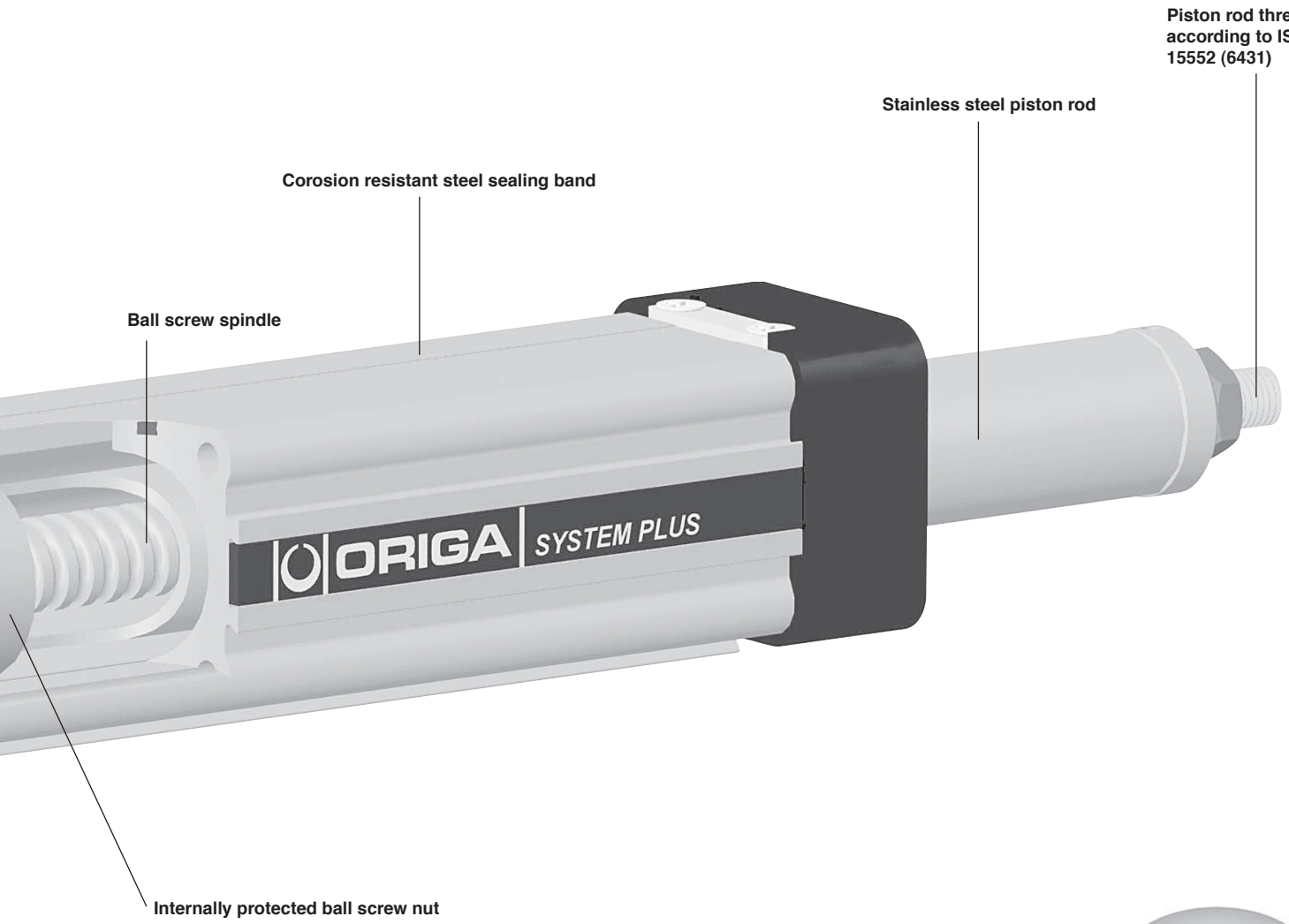

To simplify design work OSP-E system CAD files are available, which are compatible with most common CAD systems

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SERIES OSP-E, LINEAR DRIVE WITH BALL SCREW DRIVE, INTERNAL PLAIN BEARING GUIDE AND PISTON ROD

STANDARD VERSIONS OSP-E..SBR

Pages 73-75

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

BALL SCREW PITCH

The ball screws spindles are available in various pitches:
OSP-E25SBR: 5 mm
OSP-E32SBR: 5, 10 mm
OSP-E50SBR: 5, 10, 25 mm

ACCESSORIES

MOTOR MOUNTINGS

Page 119

END CAP MOUNTING

Page 127
For end-mounting the actuator on the extending rod side

MID SECTION SUPPORT

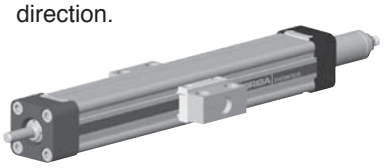
Page 131
For mounting the actuator on the dovetail grooves and on the motor end

FLANGE MOUNTING C

Page 128
For end-mounting the actuator on the extending rod side.

TRUNNION MOUNTING EN

Page 135
Trunning mounting EN in combination with pivot mounting EL.
– steplessly adjustable in axial direction.



PISTON ROD EYE

Page 144

PISTON ROD CLEVIS

Page 144

PISTON ROD COMPENSATING COUPLING

Page 145
For compensating of radial and angular misaligments

MAGNETIC SWITCHES SERIES RS AND ES

Page 148
For contactless position sensing of end stop and intermediate carrier positions.

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Linear Drive with Ball Screw Drive and Piston Rod

Series OSP-E..SBR
Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

Characteristics				
Characteristics		Symbol	Unit	Description
General Features				
Series				OSP-E..SBR
Name				Linear drive with ball screw drive bear and piston rod
Mounting				See drawings
Temperature range		ϑ_{min} ϑ_{max}	°C °C	-20 +80
Weight (mass)			kg	See table
Installation				In any position
Material	Slotted profile			Al anodized
	Ball screw			Steel
	Ball nut			Steel
	Piston rod			Stainless steel
	Guide bearings			Low friction plastic
	Sealing band			Hardened, corrosion resistant steel
	Screws, nuts			Zinc plated steel
	Mountings			Zinc plated steel and aluminum
Encapsulating class			IP	54

Weight (mass) and Inertia

Series	Weight (Mass) (kg)		Moving Mass (kg)		Inertia (x 10^{-6} kgm^2)	
	At stroke 0 m	Add per meter stroke	At stroke 0 m	Add per meter stroke	At Stroke 0 m	Add per meter stroke
OSP-E25SBR	0.7	3.0	0.2	0.9	1.2	11.3
OSP-E32SBR	1.7	5.6	0.6	1.8	5.9	32.0
OSP-E50SBR	4.5	10.8	1.1	2.6	50.0	225.0

Standard Version:

- Standard carrier with internal plain bearing guide
- Pitches of Ball Screw Spindle:
  Type OSP-E25SBR : 5 mm
  Type OSP-E32SBR: 5, 10 mm
  Type OSP-E50SBR: 5, 10, 25 mm

Option:

- Key way version

Installation Instructions

Use the threaded holes in the free end cap and a mid-section support close to the motor end for mounting the linear actuator.

Maintenance

All moving parts are long-term lubricated for a normal operational environment. PARKER-ORIGA recommends a check and lubrication of the linear drive, and if necessary a change of wear parts, after an operation time of 12 months or 3000 km travel of distance.
Please refer to the operating instructions supplied with the drive.

First service start-up

The maximum values specified in the technical data sheet for the different products must not be exceeded. Before taking the linear drive machine into service, the user must ensure the adherence to the EC Machine Directive 91/368/EEC.

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Sizing Performance Overview Maximum Loadings

Sizing of Linear Drive

The following steps are recommended for selection :

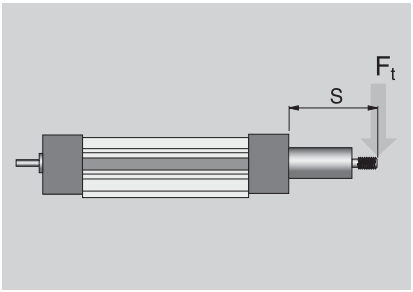
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.
2. Check the lifetime/travel distance in graph below.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in application.

Performance overview

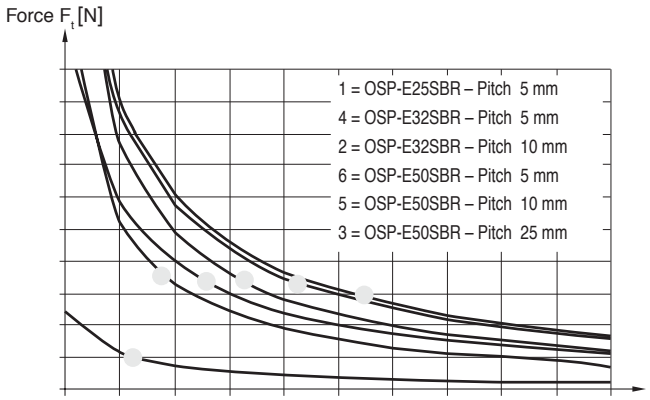
Characteristics	Unit	Description					
Series		**OSP-E25SBR**	**OSP-E32SBR**		**OSP-E50SBR**		
Pitch	[mm]	5	5	10	5	10	25
Max. speed	[m/s]	0.25	0.25	0.5	0.25	0.5	1.25
Linear motion per revolution drive shaft	[mm]	5	5	10	5	10	25
Max. rpm drive shaft	[min^{-1}]	3000	3000		3000		
Max. effective action force F_A	[N]	260	900		1200		
Corresponding torque drive shaft	[Nm]	0.45	1.1	1.8	1.3	2.8	6.0
No-load torque	[Nm]	0.2	0.2	0.3	0.3	0.4	0.5
Max. allowable torque on drive shaft	[Nm]	0.6	1.5	2.8	4.2	7.5	20
Max. allowable acceleration	[m/s^2]	5	5		5		
Typical repeatability	[mm/m]	±0.05	±0.05		±0.05		
Max.Standard stroke length	[mm]	500	500		500		

Transverse Force / Stroke

The permissible transverse force is reduced with increasing stroke length. according to the adjacent graphs.



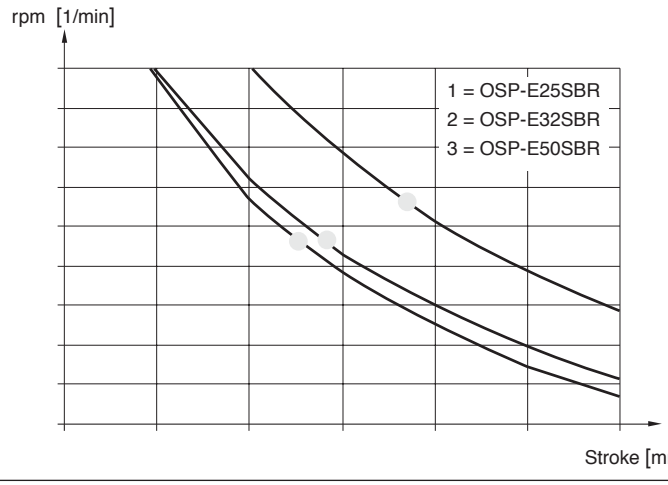
Transverse Force / Stroke



Maximum rpm / Stroke

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

Maximum rpm / Stroke



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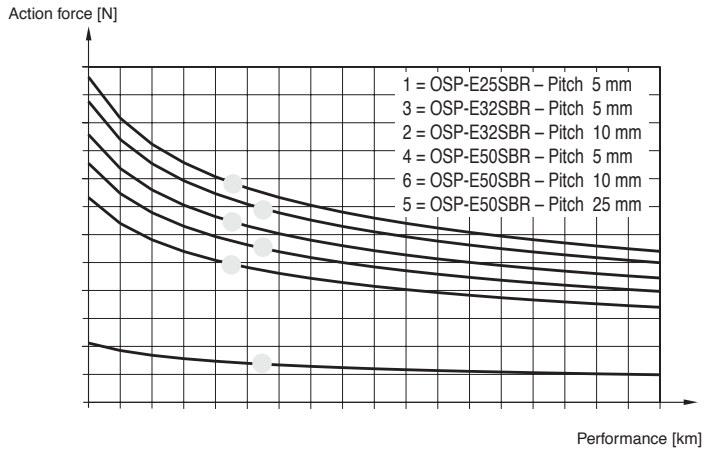
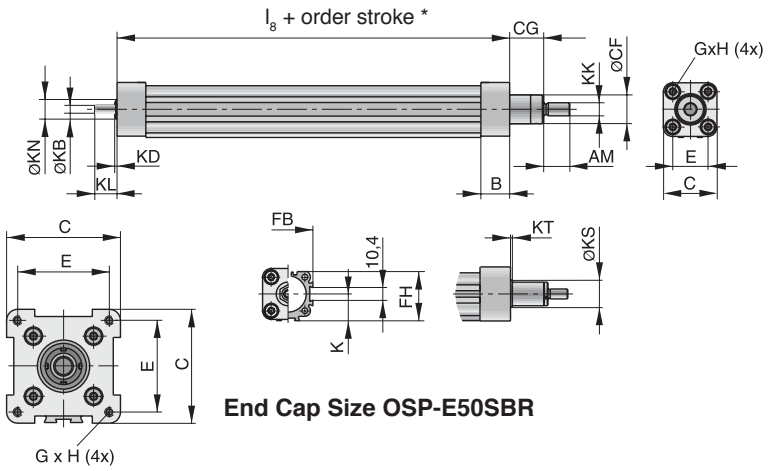
Performance / Action force

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

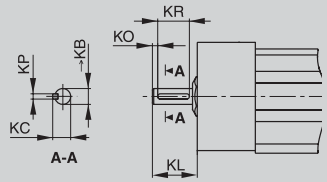


Linear Drive with Ball Screw Drive and Piston Rod – Basic Unit
Series OSP-E..SBR



End Cap Size OSP-E50SBR

Plain shaft with keyway (Option)



Dimension Table [mm]

Series	⌀KB_{h7}	KC	KL Opt.3	KL Opt.4	KO	KP^{P9}	KR
OSP-E25SBR	6	6.8	17	24	2	2	12
OSP-E32SBR	10	11.2	31	41	5	3	16
OSP-E50SBR	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 mechancial 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_8	AM	⌀CF	CG	FB	FH	⌀KB	KD	KK	KL	⌀KN	⌀KS	KT
OSP-E25SBR	22	41	27	M5 x 10	21.5	110	20	22	26	40	39.5	6_{h7}	2	M10x1.25	17	13	–	–
OSP-E32SBR	25.5	52	36	M6 x 12	28.5	175.5	20	28	26	52	51.7	10_{h7}	2	M10x1.25	31	20	33	2
OSP-E50SBR	33	87	70	M6 x 12	43	206	32	38	37	76	77	15_{h7}	3	M16x1.5	43	28	44	3

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Notes

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