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

Modular Electric Actuators OSP-E

ORIGA SYSTEM PLUS

ENGINEERING YOUR SUCCESS.

OSP Concept

ORIGA SYSTEM PLUS
– One Concept
– Three Actuator Options

Based on the concept of the rodless pneumatic cylinder, well proven worldwide, Parker now offers the complete solution for actuator systems. Developed for absolute reliability, high performance, easy handling and optimized design, ORIGA SYSTEM PLUS can master even the most difficult installation requirements.

ORIGA SYSTEM PLUS

is a completely modular concept, enabling pneumatic and electric actuators to be combined with guides and control modules for all kinds of applications. The main system carriers are the actuators themselves, consisting of extruded aluminium profiles with double dovetail slots on three sides, providing direct mounting for all modular options.

MODULAR SYSTEM

- **Electric Belt Actuator**
  – For applications with higher speeds and precise movement and positioning for longer travel.
- **Electric Screw Actuator**
  – For higher actuator power and precise movement and positioning.
- **Pneumatic Actuator**
  – For a wide variety of applications with simple handling, combined with simple control possibilities and a broad power spectrum
  – Ideal for fast, repetitive movements and simple positioning duties.
- 18 additional guide variants provide any required precision, performance and load capacity.
- Compact solutions, easy to install and simple to retrofit.
- Valves and control elements can be mounted directly on the pneumatic actuator.
- A wide range of mounting options provides great installation flexibility.

For further information see the Pneumatic Actuators Catalogue P-A4P011GB.

ORIGA SYSTEM PLUS
– One Concept
– Three Actuator Options

* Information on Pneumatic Actuators, see catalogue P-A4P011GB

Basic Linear Drive Standard Version
- Series OSP-P*
- Series OSP-E Belt Drive
  Belt Drive with Integrated Guides
  Vertical Belt Drive with Recirculating Ball Bearing Guide
- Series OSP-E
  Screw Drive (Ball Screw, Trapezoidal Screw)

Air Connection on the End-face or Both at One End
- Series OSP-P*

Clean Room Cylinders certified to DIN EN ISO 146644-1
- Series OSP-P*
- Series OSP-E..SB

Products in ATEX-Version
- Series OSP-P* Rodless Cylinder

Products in ATEX-Version
- Series OSP-P*
  Rodless Cylinders with Plain Bearing SLIDELINE

Cylinders for Synchronised Counter-Rotation of the Cylinders
- Series OSP-P*

Integrated 3/2-Way Valves
- Series OSP-P*

Compensation
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

End Cap Mounting
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

Profile Mounting
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

Inversion Mounting
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

Multi-Axis Systems Connecting Elements
- Adapter Plates
- Intermediate Drive Shafts

Duplex-Connection
- Series OSP-P*

Multiplex-Connection
- Series OSP-P*

Linear Guides - SLIDELINE
- Series OSP-P*
- Series OSP-E Screw

Linear Guides - POWERSLIDE
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

Linear Guides - PROLINE
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

Linear Guides - STARLINE
- Series OSP-P*

Linear Guides - KF
- Series OSP-P*

Heavy Duty-Guides HD
- Series OSP-P*
- Series OSP-E Screw

Brakes
- Active Brakes*
- Passive Brakes*

Planetary Gears PV
- Series OSP-E Belt*
- Series OSP-E Screw

Magnetic Sensor
- Series OSP-P*
- Series OSP-E Belt
- Series OSP-E Screw

SFI-plus Dispacement Measuring Systems
- Series OSP-P*
- Series OSP-E Screw

Actuators	OSP-E20 -BHD [1]	OSP-E25 -BHD [1], [2]	OSP-E32 -BHD [1], [2]	OSP-E50 -BHD [1], [2]	OSP-E20 -BV [3]	OSP-E25 -BV [3]	OSP-E25 -B [4]	OSP-E32 -B [4]	OSP-E50 -B [4]	OSP-E25 -SB [5]	OSP-E32 -SB [5]
Effective Action Force F_A[N]	450 - 550	550 - 1070	1030 - 1870	1940 - 3120	450 - 650	1050 - 1490	50	100 - 150	300 - 425	250	600
Max. Velocity v [m/s]	3.0	10.0 / 5	10.0 / 5	10.0 / 5	3.0	5.0	2.0	3.0	5.0	0.25	0.5
Integrated Magnets	□	□	□	□	–	–	□	□	□	□	□
Free Choice of Stroke Length [mm] **	1 - 5760	1 - 7000	1 - 7000	1 - 7000	1 - 1000	1 - 1500	1 - 3000	1 - 5000	1 - 5000	1 - 1100	1 - 2000
Temperature Range [°C]	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-20 – +80	-20 – +80
Tandem Version	O	O	O	O	O	O	O	O	O	O	O
Bi-parting Version	O	O	O	O	–	–	O	O	O		
Stainless Steel Parts	X	X	X	X	X	X	O	O	O	X	X
Integrated Planetary Gearbox LPB***	–	O	O	O	–	–	–	–	–	–	–
Self Guidance											
F [N]	1600	3000 / 986	10000 / 1348	15000 / 3704	1600	3000	160	300	850	500	1200
M_x [Nm]	21	50 / 11	120 / 19	180 / 87	20	50	2	8	16	2	8
M_y [Nm]	150	500 / 64	1000 / 115	1800 / 365	100	200	12	25	80	12	25
M_z [Nm]	150	500 / 64	1400 / 115	2500 / 365	100	200	8	16	32	8	16
Slideline											
F [N]	–	–	–	–	–	–	–	–	–	675	925
M_x [Nm]	–	–	–	–	–	–	–	–	–	14	29
M_y [Nm]	–	–	–	–	–	–	–	–	–	34	60
M_z [Nm]	–	–	–	–	–	–	–	–	–	34	60
Proline											
F [N]	–	–	–	–	–	–	986	1348	3582	986	1348
M_x [Nm]	–	–	–	–	–	–	19	33	128	19	33
M_y [Nm]	–	–	–	–	–	–	44	84	287	44	84
M_z [Nm]	–	–	–	–	–	–	44	84	287	44	84
Powerslide											
F [N]	–	–	–	–	–	–	910 - 1190	1400 - 2300	3000 - 4000	910-1190	1400-2300
M_x [Nm]	–	–	–	–	–	–	14 - 20	20 - 50	90 - 140	14-20	20-50
M_y [Nm]	–	–	–	–	–	–	63 - 175	70 - 175	250 - 350	63-175	70-175
M_z [Nm]	–	–	–	–	–	–	63 - 175	70 - 175	250 - 350	63-175	70-175
HD-Guide (Heavy Duty)											
F [N]	–	–	–	–	–	–	–	–	–	6000	6000
M_x [Nm]	–	–	–	–	–	–	–	–	–	260	285
M_y [Nm]	–	–	–	–	–	–	–	–	–	320	475
M_z [Nm]	–	–	–	–	–	–	–	–	–	320	475
Accessories											
Multi-Axis-System											
Connecting Elements	O	O	O	O	O	O	O	O	O	O	O
Connecting Shaft	O	O	O	O	O	O	O	O	O	O	O
Special Actuators											
Clean Room	X	X	X	X	X	X	X	X	X	O	O
Mountings											
Compensation	X	X	X	X	X	X	O	O	O	O	O
End Cap Mounting / Midsection Support	O	O	O	O	X	X	O	O	O	O	O
Inversion Mounting	X	X	X	X	X	X	O	O	O	O	O
Adapter Profile / T-Nut Profile	O	O	O	O	X	X	O	O	O	O	O
Magnetic Sensors											
Reeds Sensors RS (NO. NC)	O	O	O	O	O	O	O	O	O	O	O
Electronic Sensors ES (PNP. NPN)	O	O	O	O	O	O	O	O	O	O	O
Measuring Systems											
SFI-plus Displacement Measuring System	X	X	X	X	X	X	X	X	X	O	O
Motor Package (Stepper / Servo)	O	O	O	O	O	O	O	O	O	O	O
Gearbox											
Planetary Gears	O	O	O	O	O	O	O	O	O	O	O

□ = Standard Version
O = Option
X = Currently not available
* = Other Temperature Ranges on Request
** = exc. Safety Clearance from Mechanical End Position other Stroke Lengths on Request
*** = Ratio i = 3, 5, 10

[1] = Actuator with Belt and Integrated Ball Bearing Guide
[2] = Actuator with Belt and Integrated Roller Guide
[3] = Vertical Actuator with Belt and Integrated Ball Bearing Guide
[4] = Actuator with Belt and Internal Plain Bearing Guide
[5] = Actuator with Ball Screw Actuator and Internal Plain Bearing Guide
[6] = Actuator with Trapezoidal Screw Actuator and Internal Plain Bearing Guide
[7] = Actuator with Ball Screw Actuator, Internal Plain Bearing Guide and Piston Rod
[8] = Actuator with Trapezoidal Screw Actuator, Internal Plain Bearing Guide and Piston Rod

Actuators	OSP-E50 -SB [5]	OSP-E25 -ST [6]	OSP-E32 -ST [6]	OSP-E50 -ST [6]	OSP-E25 -SBR [7]	OSP-E32 -SBR [7]	OSP-E50 -SBR [7]	OSP-E25 -STR [8]	OSP-E32 -STR [8]	OSP-E50 -STR [8]
Effective Action Force F_A[N]	1500	600	1300	2500	260	900	1200	800	1600	3300
Max. Velocity v [m/s]	1.25	0.1	0.1	0.15	0.25	0.5	1.25	0.075	0.1	0.125
Integrated Magnets	□	□	□	□	□	□	□	□	□	□
Free Choice of Stroke Length [mm] **	1 - 3200	1 - 1100	1 - 2000	1 - 2500	1 - 500	1 - 500	1 - 500	1 - 500	1 - 500	1 - 500
Temperature Range [°C]	-20 – +80	-20 – +70	-20 – +70	-20 – +70	-20 – +80	-20 – +80	-20 – +80	-20 – +70	-20 – +70	-20 – +70
Tandem Version	O	O	O	O	–	–	–	–	–	–
Bi-parting Version										
Stainless Steel Parts	X	X	X	X	X	X	X	X	X	X
Integrated Planetary Gearbox LPB***	–	–	–	–	–	–	–	–	–	–
Self-Guidance										
F [N]	3000	500	1000	1500	–	–	–	–	–	–
M_x [Nm]	16	2	6	13	–	–	–	–	–	–
M_y [Nm]	80	24	65	155	–	–	–	–	–	–
M_z [Nm]	32	7	12	26	–	–	–	–	–	–
Slideline										
F [N]	2000	675	925	2000	–	–	–	–	–	–
M_x [Nm]	77	14	29	77	–	–	–	–	–	–
M_y [Nm]	180	34	60	180	–	–	–	–	–	–
M_z [Nm]	180	34	60	180	–	–	–	–	–	–
Proline										
F [N]	3582	986	1348	3582	–	–	–	–	–	–
M_x [Nm]	128	19	33	128	–	–	–	–	–	–
M_y [Nm]	287	44	84	287	–	–	–	–	–	–
M_z [Nm]	287	44	84	287	–	–	–	–	–	–
Powerslide										
F [N]	3000-4000	900-1190	1400-2300	3000-4000	–	–	–	–	–	–
M_x [Nm]	90-140	14-20	20-50	90-140	–	–	–	–	–	–
M_y [Nm]	250-350	63-175	70-175	250-350	–	–	–	–	–	–
M_z [Nm]	250-350	63-175	70-175	250-350	–	–	–	–	–	–
HD-Guide (Heavy Duty)										
F [N]	18000	6000	6000	18000	–	–	–	–	–	–
M_x [Nm]	1100	260	285	1100	–	–	–	–	–	–
M_y [Nm]	1400	320	475	1400	–	–	–	–	–	–
M_z [Nm]	1400	320	475	1400	–	–	–	–	–	–
Accessories										
Multi-Axis System										
Connecting Elements	O	O	O	O	O	O	O	O	O	O
Connectiing Shaft	O	O	O	O	O	O	O	O	O	O
Special Actuators										
Clean Room	O	X	X	X	X	X	X	X	X	X
Mountings										
Compensation	O	O	O	O	–	–	–	–	–	–
End Cap Mounting / Midsection Support	O	O	O	O	O	O	O	O	O	O
Inversion Mounting	O	O	O	O	–	–	–	–	–	–
Adapter Profile / T-Nut Profile	O	O	O	O	O	O	O	O	O	O
Magnetic Sensors										
Reed Sensors RS (No. NC)	O	O	O	O	O	O	O	O	O	O
Electronic Sensors ES (PNP. NPN)	O	O	O	O	O	O	O	O	O	O
Measuring systems										
SFI-plus Displacement Measuring System	O	O	O	O	–	–	–	–	–	–
Motor Package (Stepper / Servo)	O	O	O	O	O	O	O	O	O	O
Gearbox										
Planetary Gears	O	O	O	O	O	O	O	O	O	O

□ = Standard vVersion
O = Option
X = Currently not available
* = Other Temperature Ranges on Request
** = exc. Safety Clearance from Mechanical End Position
Other Stroke Lengths on Request
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[1] = Actuator with Belt and Integrated Ball Bearing Guide
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[7] = Actuator with Ball Screw Actuator, Internal Plain Bearing Guide and Piston Rod
[8] = Actuator with Trapezoidal Screw Actuator, Internal Plain Bearing Guide and Piston Rod

ONE Complete System
– SEVEN Actuator Options for All Possible Applications

Series OSP-E..BHD
Belt Actuator with Integrated Guide
– Ball Bearing Guide
– Roller Guide

Series OSP-E..BV
Vertical Belt Actuator with Integrated Ball Bearing Guide

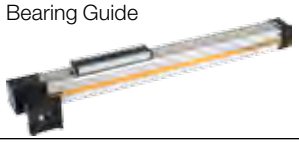
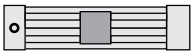
Series OSP-E..B
Belt Actuator with Internal Guide

Series OSP-E..SB
Ball Screw Actuator with Internal Plain Bearing Guide

Series OSP-E..ST
Trapezoidal Screw Actuator with Internal Plain Bearing Guide

Series OSP-E..SBR
Ball Screw Actuator with Internal Plain Bearing Guide and Piston Rod

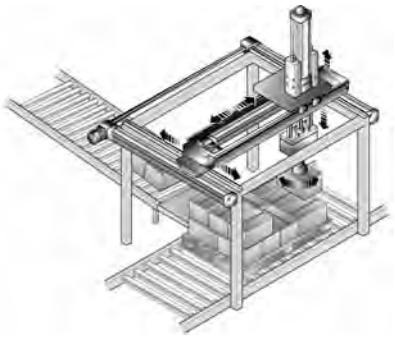
Series OSP-E..STR
Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod

Description	**Belt-Actuators – Basic Versions**		
	Belt Actuator with Integrated Guide 	Vertical Belt Actuator with Integrated Ball Bearing Guide 	Belt Actuator with Internal Plain Bearing Guide 
Standard Versions	 – Direction of Motion – Position of the Drive Shaft	– Position of the Drive Shaft	 – Position of the Drive Shaft
Options	– Tandem – Bi-parting – Integrated Planetary Gearbox	– Tandem	– Tandem – Bi-parting – Niro
Mountings			
Compensation	–	–	O
End Cap Mounting	O	–	O
Profile Mounting	O	–	O
Inversion Mounting	–	–	O
Accessories			
Magnetic Sensors	O	O	O
Motor Mountings	O	O	O
Linear Guides	–	–	O
Multi-Axis Connection System	O	O	O

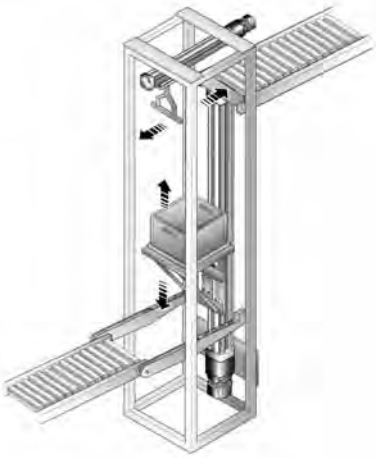
Description	**Screw-Actuators - Basic Versions**		
	Ball Screw Actuator with Internal Plain Bearing Guide 	Trapezoidal Screw Actuator with Internal Plain Bearing Guide 	Screw Actuator with Internal Plain Bearing Guide and Piston Rod – Ball Screw – Trapezoidal Screw 
Standard Versions	 – Spindle pitch of the Ball Screws		
Options	– Clean Room Version – Displacement Measuring System SFI-plus	– Displacement Measuring System SFI-plus	
Mountings			
Compensation	O	O	–
End Cap Mounting	O	O	O
Profile Mounting	O	O	O
Inversion Mounting	O	O	–
Accessories			
Magnetic Sensors	O	O	O
Motor Mounting	O	O	O
Flansh Mounting	–	–	O
Trunnion Mounting	–	–	O
Piston Rod Knuckle	–	–	O
Linear Guide	O	O	–
Multi-Axis Connection System	O	O	O

Applications for OSP-E Actuators

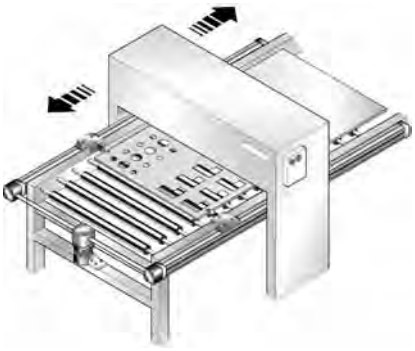
Auto Handling
– high speed pick and place movements



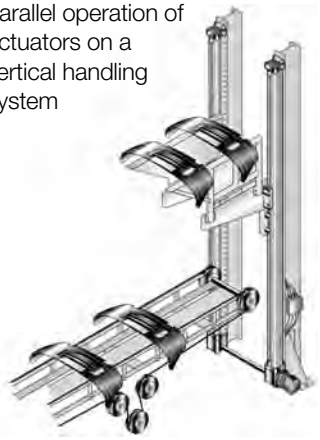
Material Handling Systems
– vertical and horizontal transfer movements



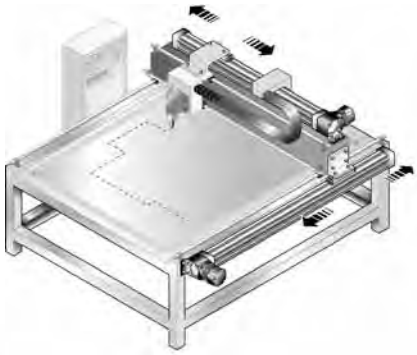
Punching Machines
– accurate feeding and positioning



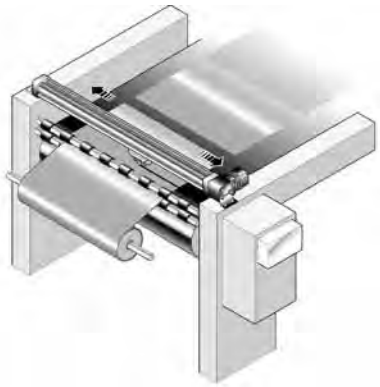
Mechanical Handling
– parallel operation of actuators on a vertical handling system



Profile Cutting Machines
– intricate profile movements of water jets and lasers

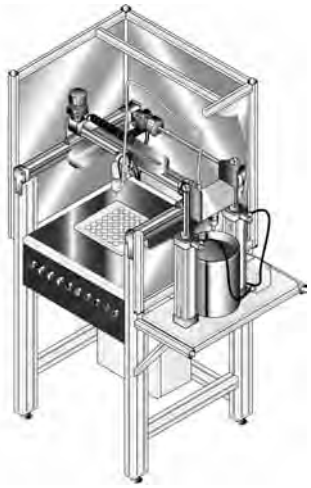


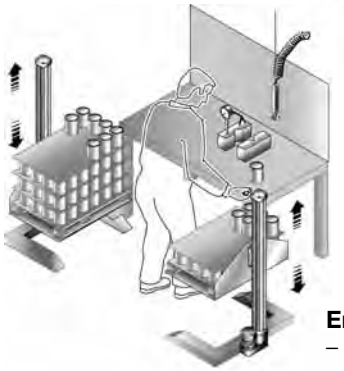
Slitting Machines
– high speed traverse applications for the slicing of papers and textiles



Spray Coating
– synchronized high speed bi-parting movements

Automated Filling Machines
– accurate 3-axis positioning



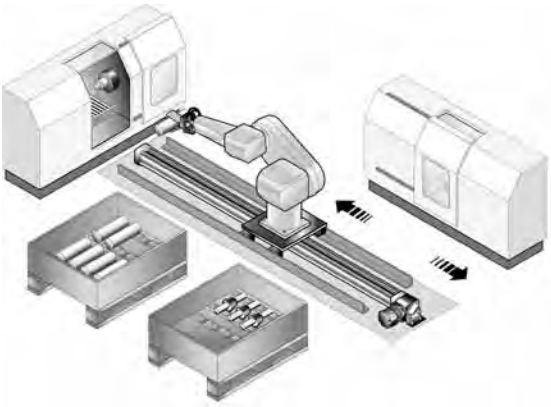


Automatic Doors and Guards
– simple bi-parting operation

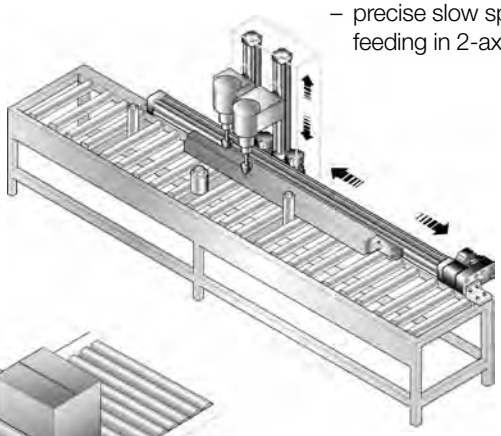
Ergonomic Workstations
– adjustment of working levels

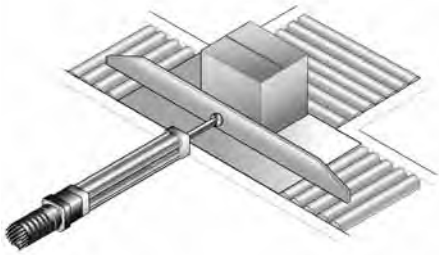
Applications for OSP-E Actuators

Robotic Installations
– traverse of robots between work stations

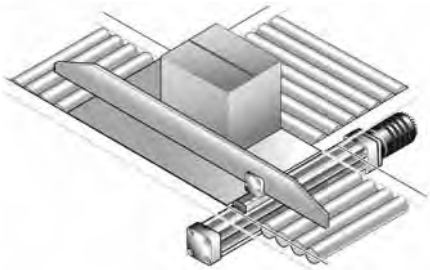


Milling Machines
– precise slow speed feeding in 2-axis

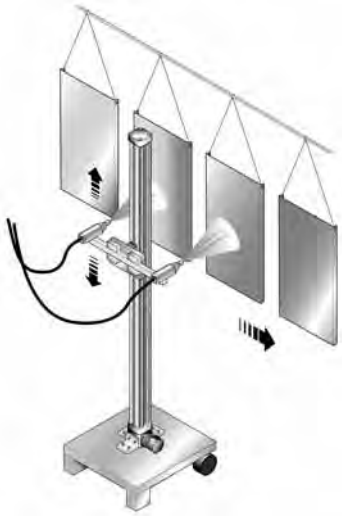




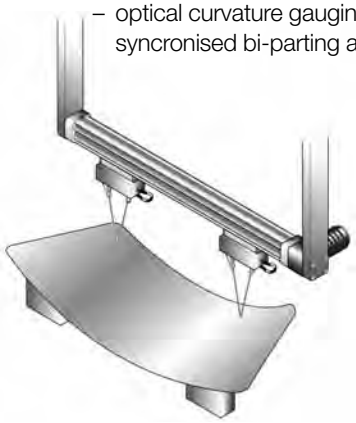
Conveyor Systems
– simple cross-transfer actuators



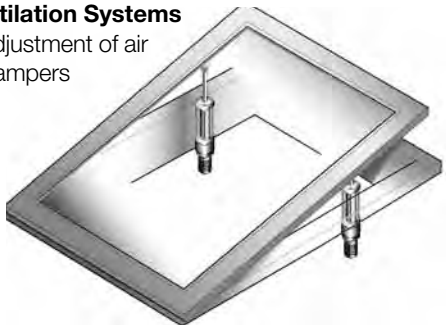
Spraying Equipment
– precision reciprocating action



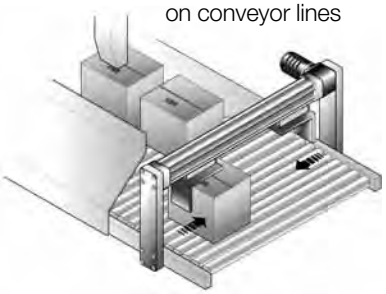
Measuring Systems
– optical curvature gauging using syncronised bi-parting actuation



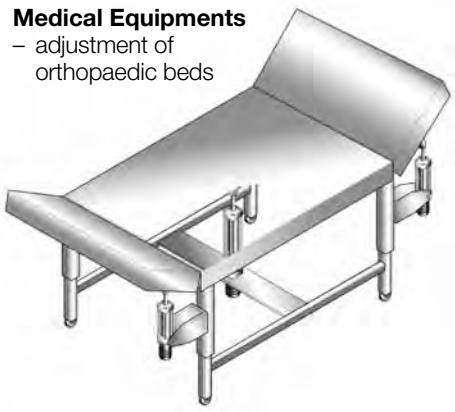
Ventilation Systems
– adjustment of air dampers



Conveyor Systems
– centring of packages on conveyor lines



Medical Equipments
– adjustment of orthopaedic beds



Mobile Lifting Systems
– lifting devices for industrial safety

OSP-E..BHD Belt Actuator with Integrated Guide

Ball Bearing Guide
Roller Guide

Content

Belt Actuator with Integrated Guide for Heavy Duty Applications

The latest generation of high capacity actuators, the OSP-E..BHD series combines robustness, precision and high performance. The aesthetic design is easily integrated into any machine constructions by virtue of extremely adaptable mountings.

Belt Actuator with Integrated Guide - selective with Ball Bearing Guide or Roller Guide

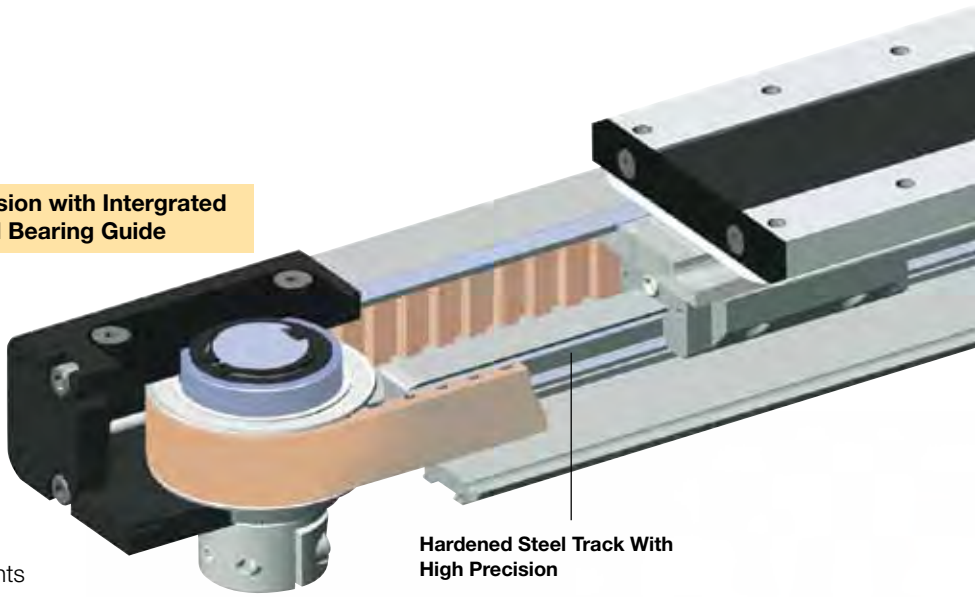
Advantages:

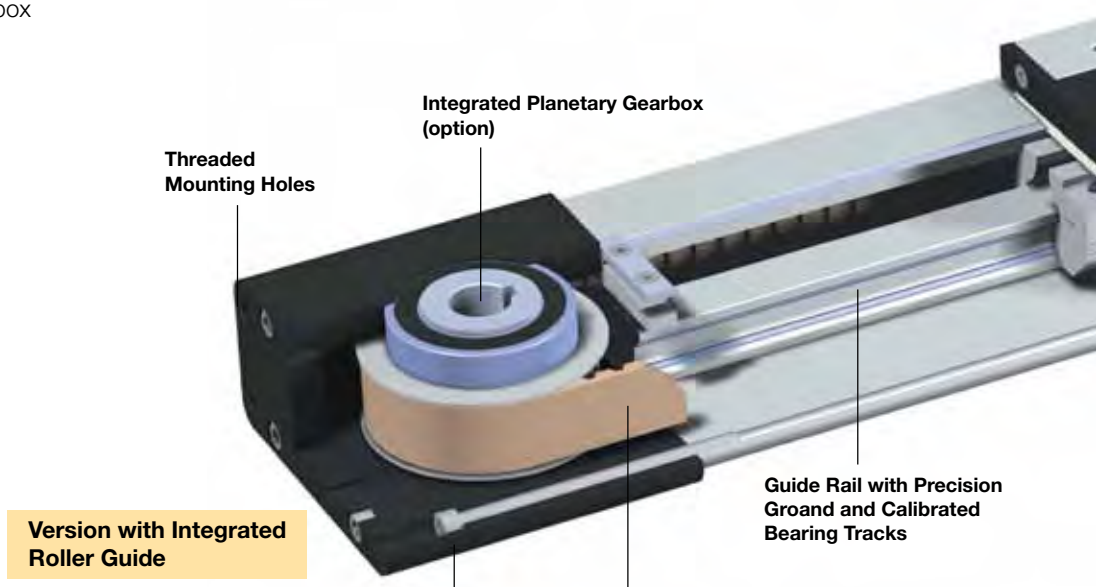
- Accurate Path and Position Control
- High Force Output
- High Speed Operation
- High Load Capacity
- Easy Installation
- Low Maintenance
- Ideal for Multi-Axis Applications

Features:

- Integrated Ball Bearing Guide or Integrated Roller Guide
- Diverse Range of Multi-Axis Connection Elements
- Diverse Range of Accessories and Mountings
- Complete Motor and Control Packages
- Optional Integrated Planetary Gearbox
- Special Options on Request

Version with Intergrated Ball Bearing Guide



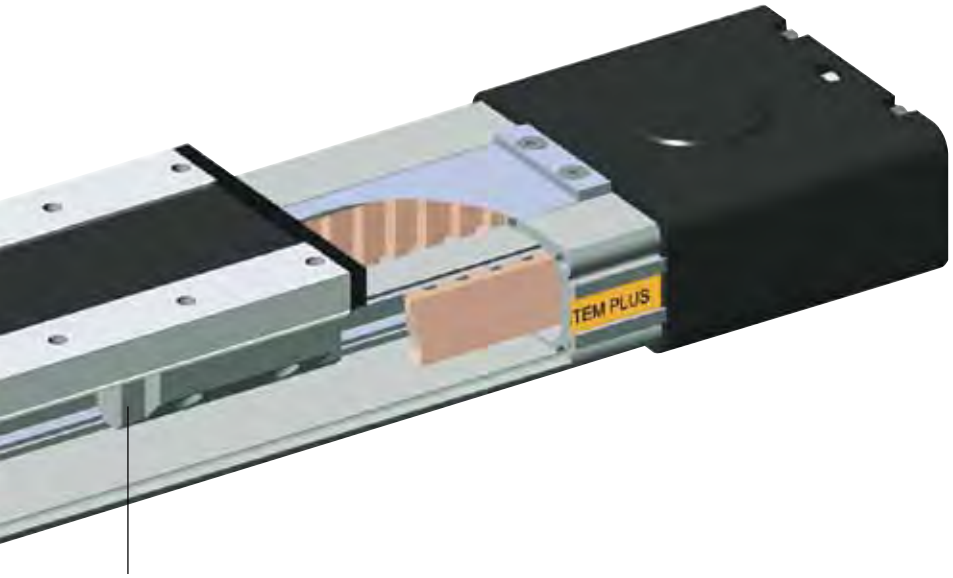


Version with Integrated Roller Guide

Drive Shaft Versions

Clamp Shaft

Plain Shaft

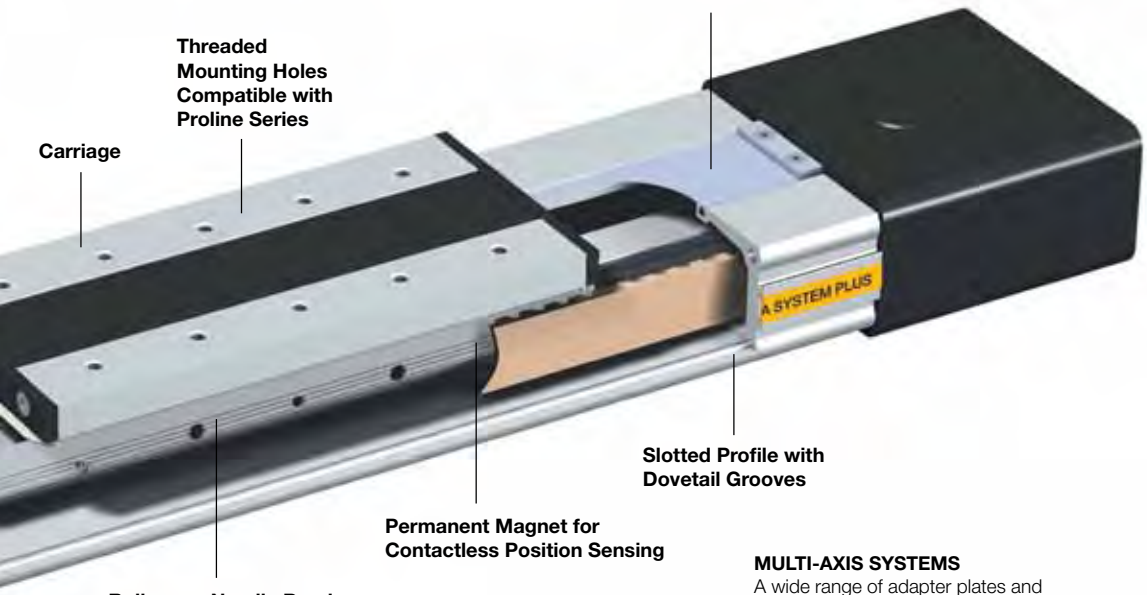


Steel Runner Block with Integrated Scraper System and Grease Nipples

Corrosion Resistant Steel Sealing Band

Threaded Mounting Holes Compatible with Proline Series

Carriage



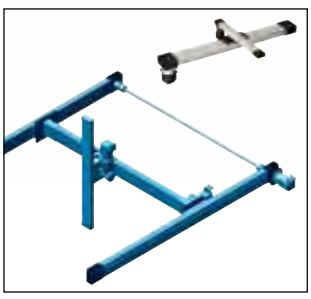
Slotted Profile with Dovetail Grooves

Permanent Magnet for Contactless Position Sensing

Rollers on Needle Bearings For Smooth Operation up to 10 m/s.

BI-PARTING Version
for perfectly synchronised bi-parting movements.

MULTI-AXIS SYSTEMS
A wide range of adapter plates and intermediate drive shafts simplify engineering and installation



Drive Shaft OPTIONS

Clamp Shaft and Plain Shaft

Hollow Shaft with Keyway

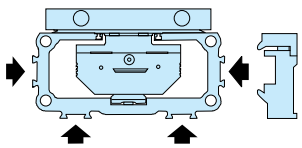
OPTION

Integrated planetary gearbox

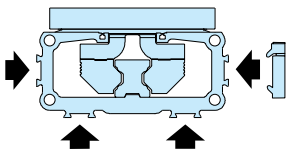
- **Highly compact and rigid solution fully integrated in the drive cap housing**
- **Purpose designed for the BHD series**
- **Available with three standard ratios (3, 5 and 10)**
- **Very low backlash**
- **A wide range of available motor flanges**

The dovetailed mounting rails of the new linear actuator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.

Version with Integrated Ball Bearing Guide



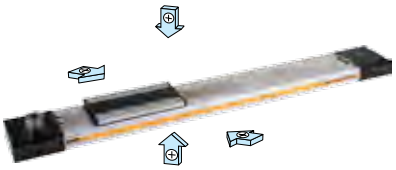
Version with Integrated Roller guide



OSP-E..BHD Belt Actuator with Integrated Guide

Standard Versions
OSP-E..BHD

Standard carrier with integrated guide and magnets for contactless position sensing. Dovetail profile for mounting of accessories and the actuator itself.

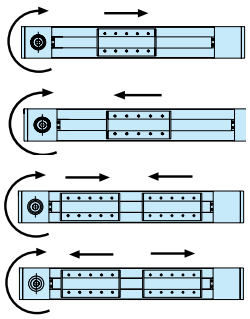


Drive Shaft with Clamp Shaft

Drive Shaft with Plain Shaft

Actuating Direction

Important in parallel operations, e.g. with intermediate drive shaft



Standard

Standard – bi-parting Version

Options

Tandem

For higher moment support

Bi-parting Version

For perfectly synchronised bi-parting movements.

Drive Shaft with Clamp and Plain Shaft

For connections with intermediate drive shaft

Hollow Shaft with Keyway

For close coupling of motors and external gears

Integrated Planetary Gearbox

For compact installation and very low backlash

Accessories

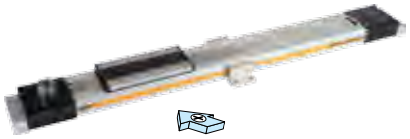
Motor Mountings

End Cap Mounting

For mounting the actuators on the end cap.

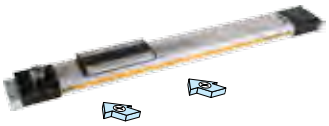
Profile Mounting

For supporting long actuators or mounting the actuators on dovetail grooves



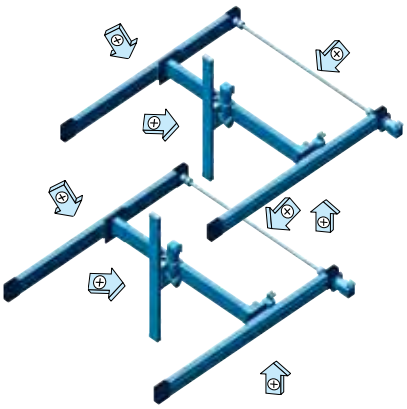
Magnetic Sensors Type RS / ES

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



Multi-Axis-Systems

For modular assembly of actuators up to multi-axis systems.



Standard Versions

- Belt Actuator with Integrated Ball Bearing Guide
- Drive Shaft with Clamp Shaft or Plain Shaft
- Choice of Motor Mounting Side
- Dovetail Profile for Mounting of Accessories and the Actuator itself

Options

- Tandem Version for Higher Moments
- Bi-parting Version for Synchronised Movements
- Integrated Planetary Gearbox
- Drive Shaft with
  - Clamp Shaft and Plain Shaft
  - Hollow Shaft with Keyway
- Special Drive Shaft Versions on Request

Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..BHD
Name				Belt Acutator with Integrated Ball Bearing Gear
Mounting				see drawings
Ambient Temperature Range		ϑ_{min} ϑ_{max}	°C °C	-30 +80
Weight (mass)			kg	see table
Installation				in any position
Material	Slotted profile			Extruded Anodized Aluminium
	Belt			Steel-corded Polyurethane
	Pulley			Aluminium
	Guide			Ball Bearing Guide
	Guide Rail			Hardened Steel Rail with High Precision, Accuracy Class N
	Guide Carrier			Steel Carrier with Integrated Wiper System, Grease Nipples, Preloaded 0.02 x C, Accuracy Class H
	Sealing Band			Hardened, Corrision Resistant Steel
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Protection Class			IP	54

Weight (mass) and Inertia

Series	Weight (mass) [kg]			Inertia [x 10^{-6} kgm^2]		
	at stroke 0 m	add per metre stroke	moving mass	at stroke 0 m	add per metre stroke	per kg mass
OSP-E20BHD	2.8	4.0	0.8	280	41	413
OSP-E25BHD	4.3	4.5	1.5	1,229	227	821
OSP-E32BHD	8.8	7.8	2.6	3,945	496	1459
OSP-E50BHD	26.0	17.0	7.8	25,678	1,738	3,103
OSP-E20BHD*	4.3	4.0	1.5	540	41	413
OSP-E25BHD*	6.7	4.5	2.8	2,353	227	821
OSP-E32BHD*	13.5	7.8	5.2	7,733	496	1,459
OSP-E50BHD*	40.0	17.0	15.0	49,180	1,738	3,103

*Version: Tandem and Bi-parting (Option)

Installations Instructions

Use the threaded holes in the end cap for mounting the actuator. Check if profile mountings are needed using the maximum allowable unsupported length graph on page 17. At least one end cap must be secured to prevent axial sliding when profile mountings are used.

Maintenance

Depending on operating conditions, inspection of the actuator is recommended after 12 months or 3000 km operation. 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.

Sizing of Actuator

The following steps are recommended:

1. Determination of the lever arm length l_x, l_y and l_z from m_e to the centre axis of the actuator.
2. Calculation of the load F_x or F_y to the carrier caused by m_e
   $F = m_e \cdot g$
3. Calculation of the static and dynamic force F_A which must be transmitted by the belt.
   $F_{A(horizontal)} = F_a + F_0$
   $= m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$
   $F_{A(vertical)} = F_g + F_a + F_0$
   $= m_g \cdot g + m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$
4. Calculation of all static and dynamic moments M_x, M_y and M_z which occur in the application.
   $M = F \cdot l$
5. Selection of maximum permissible loads via Table T3.
6. Calculation and checking of the combined load, which must not be higher than 1.
7. Checking of the maximum torque that occurs at the drive shaft in Table T2.
8. Checking of the required action force F_A with the permissible load value from Table T1.

For motor sizing, the effective torque must be determined, taking into account the cycle time.

Legend

- l = distance of a mas s in the x-, y- and z-direction from the guide [m]
- m_e = external moved mass [kg]
- m_{LA} = moved mass of actuator [kg]
- m_g = total moved mass ($m_e + m_{LA}$) [kg]
- $F_{x/y}$ = load excerted on the carrier in dependence of the installation position [N]
- F_A = action force [N]
- M_0 = no-load torque [Nm]
- U_{ZR} = circumference of the pulley (linear movement per revolution) [m]
- g = gravity [m/s²]
- $a_{max.}$ = maximum acceleration [m/s²]

Performance Overview

T1

Characteristics		Unit	Description			
Series			OSP-E20BHD	OSP-E25BHD	OSP-E32BHD	OSP-E50BHD
Max. Speed		[m/s]	3[1)]	5[1)]	5[1)]	5[1)]
Linear Motion per Revolution of Drive Shaft		[mm]	125	180	240	350
Max. rpm on Drive Shaft		[min⁻¹]	2,000	1,700	1,250	860
Max. Effective Action Force F_A at Speed	< 1 m/s:	[N]	550	1,070	1,870	3,120
	1-3 m/s:	[N]	450	890	1,560	2,660
	> 3 m/s:	[N]	–	550	1,030	1,940
No-load Torque		[Nm]	0.6	1.2	2.2	3.2
Max. Acceleration/Deceleration		[m/s²]	50	50	50	50
Repeatability		[mm/m]	±0.05	±0.05	±0.05	±0.05
Max. Standard Stroke Length		[mm]	5,760[2)]	5,700[2)]	5,600[2)]	5,500[2)]

[1)] up to 10 m/s on request
[2)] longer strokes on request

Maximum Permissible Torque on Drive Shaft Speed / Stroke

T2

OSP-E20BHD				OSP-E25BHD				OSP-E32BHD				OSP-E50BHD			
Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]
1	11	1	11	1	31	1	31	1	71	1	71	1	174	1	174
2	10	2	11	2	28	2	31	2	65	2	71	2	159	2	174
3	9	3	8	3	(25)	3	31	3	59	3	60	3	153	3	138
4		4	7	4	23	4	25	4	56	4	47	4	143	4	108
5		5	5	5	22	5	(21)	5	52	5	38	5	135	5	89

Important:
The maximum permissible torque on the drive shaft is the lowest value of the speed- or stroke-dependent torque value.

Example above:
OSP-E25BHD, stroke 5 m, required speed 3 m/s from table T2 speed 3 m/s gives 25 Nm and stroke 5 m gives 21 Nm. Max. torque for this application is 21 Nm.

Maximum Permissible Loads

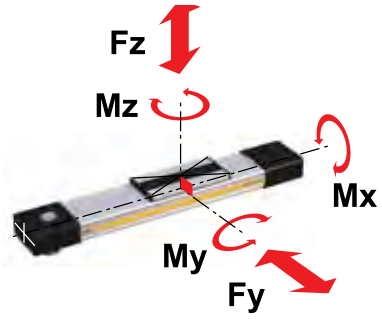
T3

Series	Max. Applied Load		Max. Moments [Nm]		
	F_y [N]	F_z [N]	M_x	M_y	M_z
OSP-E20BHD	1,600	1,600	21	150	150
OSP-E25BHD	2,000	3,000	50	500	500
OSP-E32BHD	5000	10,000	120	1,000	1,400
OSP-E50BHD	12,000	15,000	180	1,800	2,500

Loads, Forces and Moments

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.



Equation of Combined Loads

$$\frac{F_y}{F_y\,(max)} + \frac{F_z}{F_z\,(max)} + \frac{M_x}{M_x\,(max)} + \frac{M_y}{M_y\,(max)} + \frac{M_z}{M_z\,(max)} \leq 1$$

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

$M = F \cdot l$ [Nm]
$M_x = M_{x\,static} + M_{x\,dynamic}$
$M_y = M_{y\,static} + M_{y\,dynamic}$
$M_z = M_{z\,static} + M_{z\,dynamic}$

The distance (l_x, l_y, l_z) for calculation of moments relates to the centre axis of the actuator. Bending moments are calculated from the centre of the actuator and F indicates actual force.

Maximum Permissible Unsupported Length

Stroke Length

The stroke lengths of the actuators are available in multiples of 1 mm up to 5,700 mm.

Other stroke lengths are available on request. The end of stroke must not be used as a mechanical stop.
Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm.

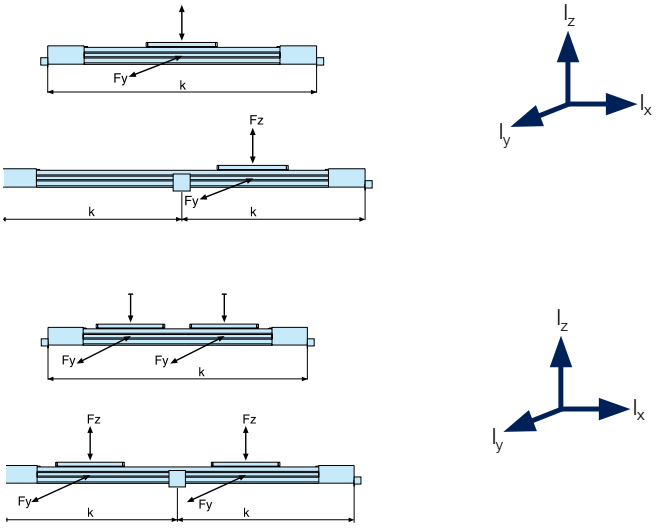
The use of an AC motor with frequency converter normally requires a larger clearance than that required for servo systems.
For advice, please contact your local Parker technical support department.

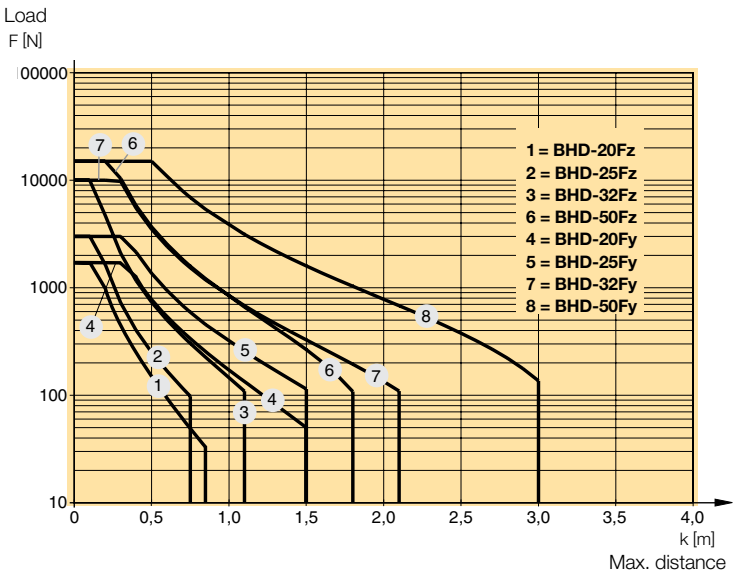
* For Bi-parting version the max. load (F) is the total load of both carriers
$F = F_{carrier\ 1} + F_{carrier\ 2}$

k = Max. permissible distance between mountings/Profile Mounting for a given load F.

When loadings are below or up to the curve in the graph below the deflection will be max. 0.01 % of distance k.

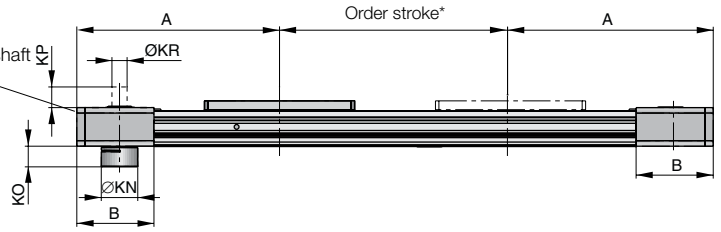
Maximum Permissible Unsupported Length – Placing of Profile Mounting

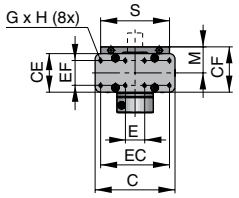


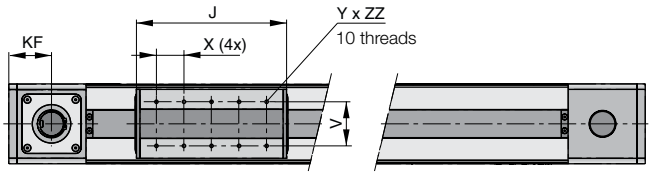


OSP-E..BHD
Linear Drive with Toothed Belt and Integrated Recirculating Ball Bearing Guide - Basic Unit

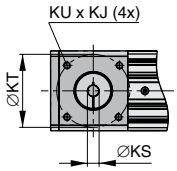
Drive shaft versions with
- clamp shaft
- plain shaft or
- clamp shaft with plain shaft (Option)





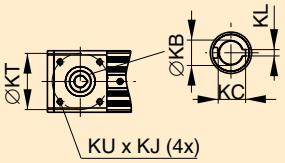


Mounting holes for motor flange or external planetary gearbox **1)**



Hollow shaft with Keyway (Option)
Dimension Table [mm]

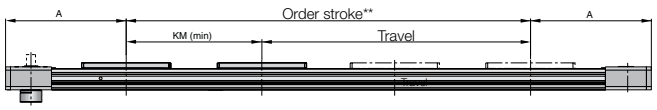
Series	KB*	KC	KL	KT	KU x KJ
OSP-E20BHD	12^{H7}	13.8	4	65.7	M6 x 8
OSP-E25BHD	16^{H7}	18.3	5	82	M8 x 8
OSP-E32BHD	22^{H7}	24.8	6	106	M10 x 12
OSP-E50BHD	32^{H7}	35.3	10	144	M12 x 19



1) Note: The mounting holes for the coupling housing / motor flange / gearbox are located on the opposite side to the carrier (motor mounting standard). They also can be located on the same side as the carrier (motor mounting 180° standard).

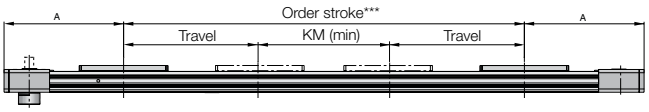
*** Note:** The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm. Order stroke = required travel + 2 x safety distance. The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information please contact you local Parker representative.

Option Tandem - Series OSP-E.. BHD



** Order stroke = required travel + KM min + 2 x safety distance

Option - Bi-Parting - Series OSP-E.. BHD



Dimension Table [mm]

Series	A	B	C	E	GxH	J	K	M	S	V	X	YxZZ	CE	CF	EC	EF	FB
OSP-E20BHD	185	76.5	73	18	M5x8.5	155	21.1	27.6	67	51	30	M5x8	38	49.0	60	27	73
OSP-E25BHD	218	88.0	93	25	M5x10	178	21.5	31.0	85	64	40	M6x8	42	52.5	79	27	92
OSP-E32BHD	262	112	116	28	M6x12	218	28.5	38.0	100	64	40	M6x10	56	66.5	100	36	116
OSP-E50BHD	347	147	175	18	M6x12	288	43.0	49.0	124	90	60	M6x10	87	92.5	158	70	164

Series	FH	KF	KM_{min}	$KM_{empf.}$	KN	KO	KP	KR	KS	KT	KUxKJ
OSP-E20BHD	36.0	42.5	180	220	27	18.0	25	12_{h7}	12^{H7}	65.7	M6x8
OSP-E25BHD	39.5	49.0	210	250	34	21.7	30	16_{h7}	16^{H7}	82.0	M8x8
OSP-E32BHD	51.7	62.0	250	300	53	30.0	30	22_{h7}	22^{H7}	106.0	M10x12
OSP-E50BHD	77.0	79.5	354	400	75	41.0	35	32_{h7}	32^{H7}	144.0	M12x19

(Other dimensions for KS and KB for special drive shafts on request – see order instructions.)

Features

- Highly Compact and Rigid Solutio Fully Integrated in the Drive Cap Housing
- Purpose Designed for the BHD Series.
- Available with three Standard Ratios (3, 5 and 10)
- Very Low Backlash
- Wide Range of Available Motor Flanges

Material: Aluminium (AL-H) / Steel (St-H)

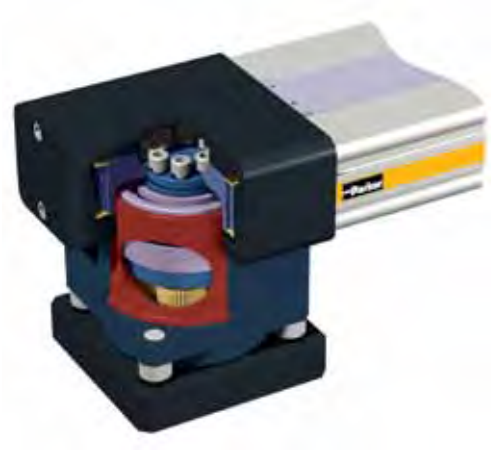
Standard Version:

- Gearbox on Opposite Side to Carrier

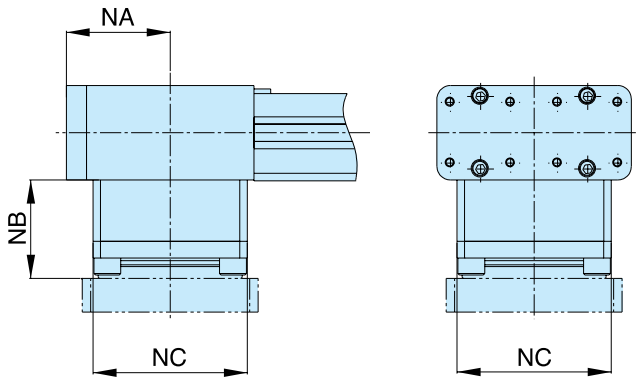
Note: When ordering, specify model/Type of motor and manufacturer for correct motor flange.

Please contact your local Parker technical support for available motor flange.

Series OSP-E..BHD – with Integrated Planetary Gearbox (Option)



Dimensions



Performance Overview

Characteristics	Symbol	Unit	Description		
Series			**OSP-E25BHD**	**OSP-E32BHD**	**OSP-E50BHD**
Ratio (1-stage)	i			3/5/10	
Max. Axial Load	$F_{a\,max}$	[N]	1,550	1,900	4,000
Torsional Rigidity (i=5)	$C_{t.21}$	[Nm/arcmin]	3.3	9.5	25.0
Torsional Rigidity (i=3/10)	$C_{t.21}$	[Nm/arcmin]	2.8	7.5	22.0
Torsional Backlash	J_t	[arcmin]		<12	
Linear Motion per Revolution of Drive Shaft		[mm]	220	280	360
Nominal Input Speed	n_{nom}	[min^{-1}]	3,700	3,400	2,600
Max. Input Speed	n_{1max}	[min^{-1}]		6,000	
No-load Torque at Nominal Input Speed	T_{012}	[Nm]	<0.14	<0.51	<1.50
Lifetime		[h]		20,000	
Efficency	η	[%]		>97	
Noise Level (n_1=3000 min^{-1})	L_{PA}	[db]	<70	<72	<74

Dimension Table [mm] and Additional Weight

Series	NA	NB	NC	Weight (mass) [kg]
OSP-E25BHD	49	43	76	2.6
OSP-E32BHD	62	47	92	4.9
OSP-E50BHD	80	50	121	9.6

Standard Versions

- Belt Acutator with Integrated Roller Guide
- Drive Shaft with Clamp Shaft or Plain Shaft
- Choice of Motor Mounting Side
- Dovetail Profile for Mounting of Accessories and the Actuator Itself

Options

- Tandem Version for Higher Moments
- Bi-parting Version for Synchronised Movements
- Integrated Planetary Gearbox
- Drive shaft with
  - clamp shaft and plain shaft
  - hollow shaft with keyway
- Special Drive Shaft Versions on Request

Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..BHD
Name				Linear Drive with Toothed Belt and Integrated Roller Guide
Mounting				see drawings
Ambient Temperature Range		ϑ_{min} ϑ_{max}	°C °C	-30 +80
Weight (mass)			kg	see table
Installation				in any position
Material	Slotted Profile			Extruded Anodized Aluminium
	Toothed Belt			Steel-corded Polyurethane
	Pulley			Aluminium
	Guide			Roller Guide
	Guide Rail			Aluminium
	Track			High Alloyed Steel
	Roller Cartige			Steel rollers in Aluminium Housing
	Sealing Band			Hardended, Corrision Resistant Steel
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Protection Class			IP	54

Weight (mass) and Inertia

Series	Weight (mass) [kg]			Inertia [x 10^{-6} kgm^2]		
	at stroke 0 m	ad per metre stroke	Moving mass	at stroke 0 m	ad per metre stroke	Moving mass
OSP-E25BHD	3.8	4.3	1.0	984	197	821
OSP-E32BHD	7.7	6.7	1.9	3,498	438	1,459
OSP-E50BHD	22.6	15.2	4.7	19,690	1,489	3,103
OSP-E25BHD*	5.7	4.3	2.0	1,805	197	821
OSP-E32BHD*	11.3	6.7	3.8	6,358	438	1,459
OSP-E50BHD*	31.7	15.2	9.4	34,274	1,489	3,103

* Version: Tandem and Bi-parting (Option)

Installation Instructions

Use the threaded holes in the end cap for mounting the actuator. Check if profile mountings are needed using the maximum allowable unsupported length graph on page 22.
At least one end cap must be secured to prevent axial sliding when profile mountings are used.

Maintenance

Depending on operating conditions, inspection of the actuator is recommended after 12 months or 3000 km operation. 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.

Performance Overview (T1)

Characteristics		Symbol	Description		
Series			**OSP-E25BHD**	**OSP-E32BHD**	**OSP-E50BHD**
Max. Speed		[m/s]	10	10	10
Linear Motion per Revolution Drive Shaft		[m/s]	180	240	350
Max. rpm. Drive Shaft		[min^{-1}]	3,000	2,500	1,700
Max. Effective Action Force F_A at Speed	< 1 m/s:	[N]	1,070	1,870	3,120
	1-3 m/s:	[N]	890	1,560	2,660
	> 3-10 m/s:	[N]	550	1,030	1,940
No-load Torque		[Nm]	1.2	2.2	3.2
Max. Acceleration/Deceleration		[m/s^2]	40	40	40
Repeatability		[mm/m]	±0.05	±0.05	±0.05
Max. Standard Stroke Length		[mm]	7,000	7,000	7,000

Maximum Permissible Torque on Drive Shaft Speed and Stroke (T2)

OSP-E25BHD				OSP-E32BHD				OSP-E50BHD			
Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]
1	31	1	31	1	71	1	71	1	174	1	174
2	28	2	31	2	65	2	71	2	159	2	174
3	(25)	3	31	3	59	3	60	3	153	3	138
4	23	4	25	4	56	4	47	4	143	4	108
5	22	5	(21)	5	52	5	38	5	135	5	89
6	21	6	17	6	50	6	32	6	132	6	76
7	19	7	15	7	47	7	28	7	126	7	66
8	18			8	46			8	120		
9	17			9	44			9	116		
10	16			10	39			10	108		

Important:
The maximum permissible torque on the drive shaft is the lowest value of the speed- or stroke-dependent torque value.

Example above:
OSP-E25BHD, stroke 5 m, required speed 3 m/s from table T2 speed 3 m/s gives 25 Nm and stroke 5 m gives 21 Nm. Max. torque for this application is 21 Nm.

Maximum Permissible Loads (T3)

Series	Max. applied load	Max. moments [Nm]		
	F_y , F_z [N]	M_x	M_y	M_z
OSP-E25BHD	986	11	64	64
OSP-E32BHD	1,348	19	115	115
OSP-E50BHD	3,704	87	365	365

Sizing of Actuator

The following steps are recommended:

1. Determination of the lever arm length l_x, l_y and l_z from m_e to the centre axis of the actuator.
2. Calculation of the load F_x or F_y to the carrier caused by m_e
   $F = m_e \cdot g$
3. Calculation of the static and dynamic force F_A which must be transmitted by the belt.
   $F_{A(horizontal)} = F_a + F_0$
   $= m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$
   $F_{A(vertical)} = F_g + F_a + F_0$
   $= m_g \cdot g + m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$
4. Calculation of all static and dynamic bending moments M_x, M_y and M_z which occur in the application
   $M = F \cdot l$
5. Selection of maximum permissible loads via Table T3.
6. Calculation and checking of the combined load, which must not be higher than 1.
7. Checking of the maximum torque that occurs at the drive shaft in Table T2.
8. Checking of the required action force F_A with the permissible load value from Table T1.

For motor sizing, the effective torque must be determined, taking into account the cycle time.

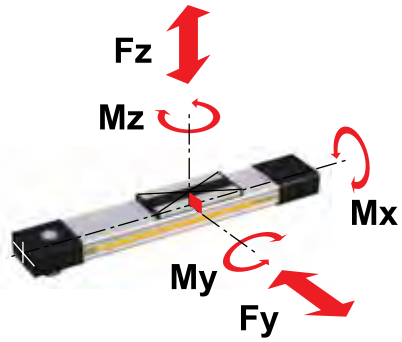
Legend

l = distance of a mass in the x-, y- and z-direction from the guide [m]
m_e = external moved mass [kg]
m_{LA} = moved mass of actuator [kg]
m_g = total moved mass ($m_e + m_{LA}$) [kg]
$F_{x/y}$ = load excerted on the carrier in dependence of the installation position [N]
F_A = action force [N]
M_0 = no-load torque [Nm]
U_{ZR} = circumference of the pulley (linear movement per revolution) [m]
g = gravity [m/s^2]
$a_{max.}$ = maximum acceleration [m/s^2]

Loads, Forces and Moments

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.



Equation of Combined Loads

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

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

$M = F \cdot l$ [Nm]
$M_x = M_{x\,static} + M_{x\,dynamic}$
$M_y = M_{y\,static} + M_{y\,dynamic}$
$M_z = M_{z\,static} + M_{z\,dynamic}$

The distance (l_x, l_y, l_z) for calculation of moments relates to the centre axis of the actuator. Bending moments are calculated from the centre of the actuator and F indicates actual force.

Maximum Permissible Unsupported Length

Stroke length

The stroke lengths of the actuators are available in multiples of 1 mm up to 5700 mm.

Other stroke lengths are available on request.
The end of stroke must not be used as a mechanical stop.
Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm.
The use of an AC motor with frequency converter normally requires a larger clearance than that required for servo systems.

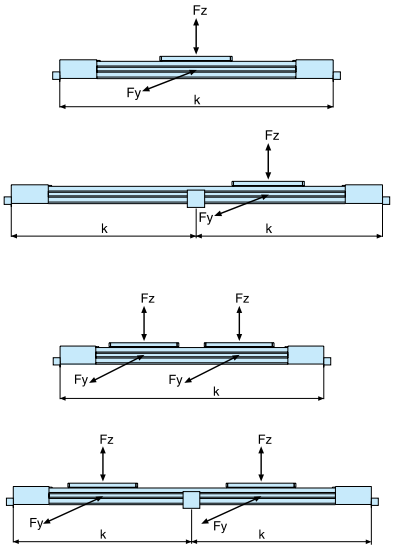
For advice, please contact your local Parker technical support department.

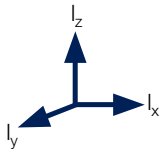
* For the bi-parting version the maximum load (F) complies with the total of the load at both carriers.
$F = F_{carriage\ 1} + F_{carriage\ 2}$

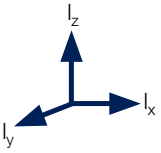
k = Maximum permissible distance between mountings/mid-section support for a given load F.

If the loads are below or up to the curve in the graph the deflection will be max. 0.01 % of distance k.

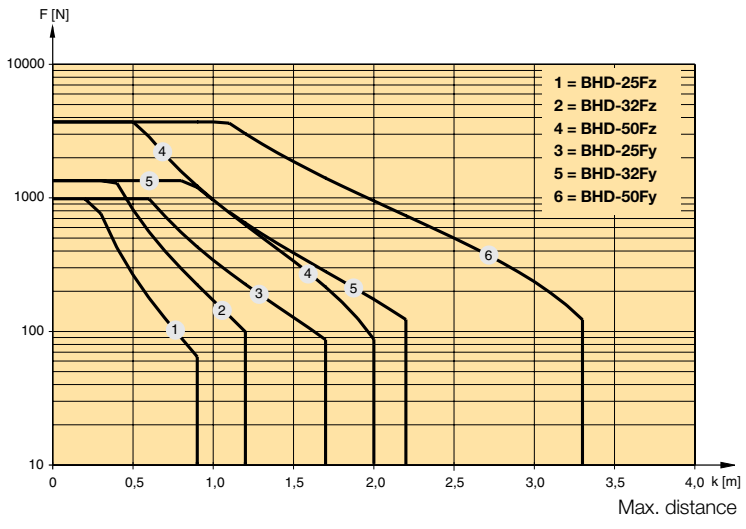
Maximum Permissible Unsupported Length – Placing of Profile Mounting





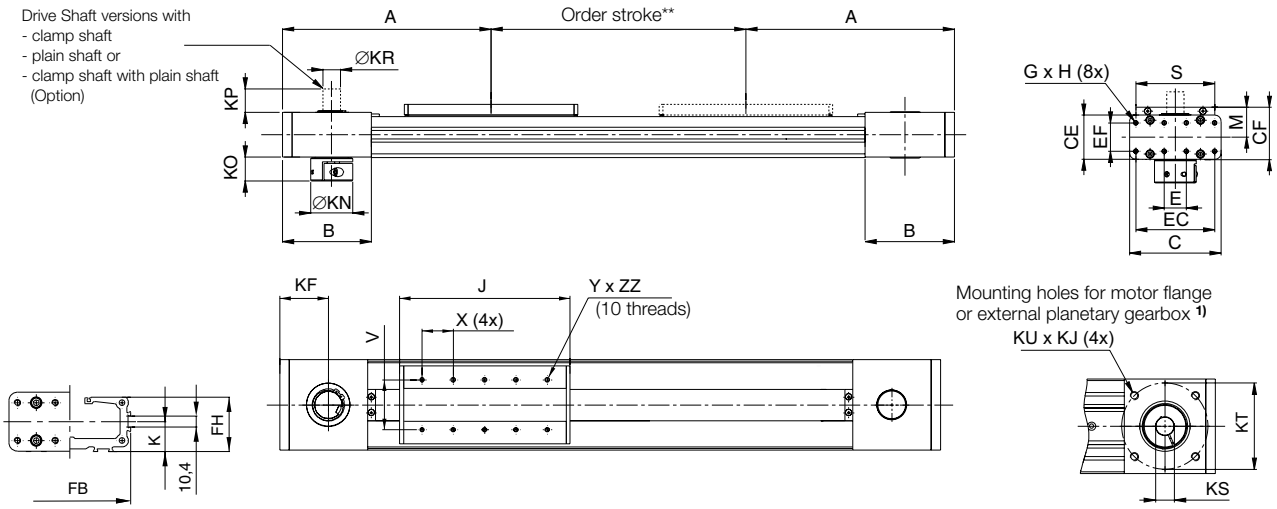


Loads



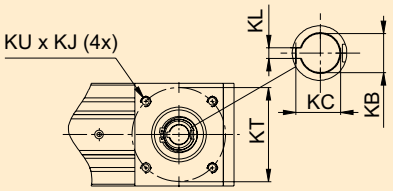
Max. distance

Linear Drive with Toothed Belt and Integrated Roller Guide - Basic Unit OSP-E..BHD



Hollow Shaft with Keyway (Option)
Dimension [mm]

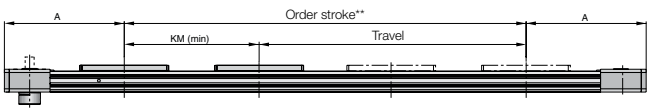
Series	KB*	KC	KL	KT	KU x KJ
OSP-E25BHD	16^{H7}	18.3	5	82	M8 x 8
OSP-E25BHD	22^{H7}	24.8	6	106	M10 x 12
OSP-E50BHD	32^{H7}	35.3	10	144	M12 x 19



1) Note: The mounting holes for the coupling housing / motor flange / gearbox are located on the opposite side to the carrier (motor mounting standard). They also can be located on the same side as the carrier (motor mounting 180° standard).

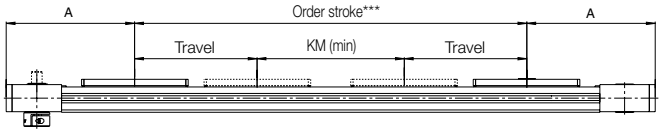
*** Note:** The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm. Order stroke = required travel + 2 x safety distance.
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information please contact you local Parker representative.

Option Tandem



** Order stroke = required travel + KM min + 2 x safety distance

Option - Bi-Parting



*** Order stroke = 2 x required travel + KM min + 2 x safety distance

Dimension Table [mm]

Series	A	B	C	E	GxH	J	K	M	S	V	X	YxZZ	CE	CF
OSP-E25BHD	218	88.0	93	25	M5x10	178	21.5	31.0	85	64	40	M6x8	42	52.5
OSP-E32BHD	262	112	116	28	M6x12	218	28.5	38.0	100	64	40	M6x10	56	66.5
OSP-E50BHD	347	147	175	18	M6x12	263	43.0	49.0	124	90	60	M6x10	87	92.5

Series	EC	EF	FB	FH	KF	KM_{min}	$KM_{empf.}$	KN	KO	KP	KR	KS	KT	KUxKJ
OSP-E25BHD	79	27	92	39.5	49.0	210	250	34	21.7	30	16_{h7}	16^{H7}	82.0	M8x8
OSP-E32BHD	100	36	116	51.7	62.0	250	300	53	30.0	30	22_{h7}	22^{H7}	106.0	M10x12
OSP-E50BHD	158	70	164	77.0	79.5	295	350	75	41.0	35	32_{h7}	32^{H7}	144.0	M12x19

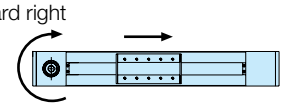
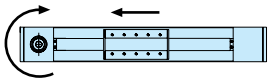
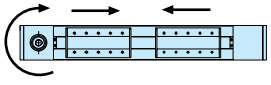
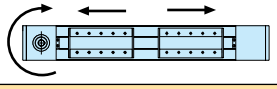
Other dimensions for KS and KB for special drive shafts on request - see other instructions.

Order Instructions	OSPE20	–	6	0	0	02	–	00000	–	0	00	0	0	0

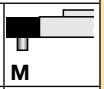
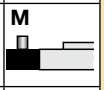
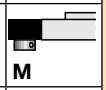
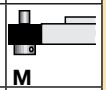
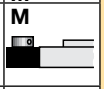
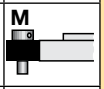
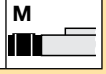
Size of Actuator	
20	Size 20 (only Type of actuator 6)
25	Size 25
32	Size 32
50	Size 50

Type of Actuator	
5	Belt Actuator with Integrated Roller Guide (for size 25, 32 and 50)
6	Belt Actuator with Integrated Ball Bearing Guide

Carriage	
0	Standard
1*	Tandem
2*	Bi-parting

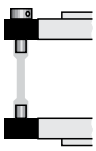
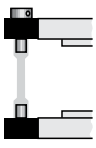
Operating Direction	
0	Standard right 
1	Standard left 
2	Bi-parting right 
3	Bi-parting left 

Order stroke
5 digits input in mm

Drive Shaft	Special drive shaft on request (8/9)	Motor mounting position see **M**
0 A	Plain Shaft	
0 B	Plain Shaft	
0 2	Clamp Shaft	
0 3*	Clamp Shaft with Plain Shaft	
0 4	Clamp Shaft	
0 5*	Clamp Shaft with Plain Shaft	
0 6*	Hollow Shaft with Keyway	
0 7*	Hollow Shaft with Keyway	

Integrated Gear *		
1 x**	Ratio i=3	
2 x**	Rratio i=5	
3 x**	Ratio i=10	
4 x**	Ratio i=3	
5 x**	Ratio i=5	
6 x**	Ratio i=10	

OSP-E.. BHD as Parallel Actuator with Intermediate Drive Shaft MAS-..

OSP-E..60**0**0**5**-..	**M** 
OSP-E..60**1**0**A**-..	
OSP-E..60**0**0**3**-..	**M** 
OSP-E..60**1**0**B**-..	

Drive shaft
Operating direction

Magnetic Sensors *	see page 165 ff
0	without
1	1 pc. RST-K 2NO / 5 m cable
2	1 pc. RST-K 2NC / 5 m cable
3	2 pc. RST-K 2NC / 5 m cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m 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

Mounting Kit for Gear *					
Size		**20**	**25**	**32**	**50**
A7	PS60	x [2]	x [1]		
A8	PS90			x [1]	
A9	PS115				x [1]
C0	LP050 / PV40-TA	x [1]			
C1	LP070 / PV60-TA	x [2]	x [1]		
C2	LP090 / PV90-TA			x [1]	
C3	LP120				x [1]

x [1]: Kit for **Drive Shaft** with clamp shaft (02 / 03 / 04 / 05)

x [2]: Kit for **Drive Shaft** with plain shaft (0A / 0B)

Info: Motor and gear mounting dimensions see page 191

Profile Mounting *	see page 147 ff
0	without
1	1 Pair Type E1
2	1 Pair Type D1
3	1 Pair Type MAE
4	2 Pair Type 1
5	2 Pair Type D1
6	2 Pair Type MAE
7	3 Pair Type 1
8	3 Pair Type D1
9	3 Pair Type MAE
A	4 Pair Type 1
B	4 Pair Type D1
C	4 Pair Type MAE

Niro	
0	Standard
1*	Niro Screws

End Cap Mounting *	see page 141 ff
0	without
A	1 pair Type CN
B	1 pair Type CO

Accessories - please order separately	
Description	**Page**
Motor Mountings	135
Multi-Axis Systems for Actuators	177 ff

***** Option
** for sizes 25, 32 and 5

OSP-E.. BV Vertical Belt Actuator with Integrated Ball Bearing Guide

Content

Vertical Belt Actuator with Integrated Ball Bearing Guide in Multi-Axis Systems

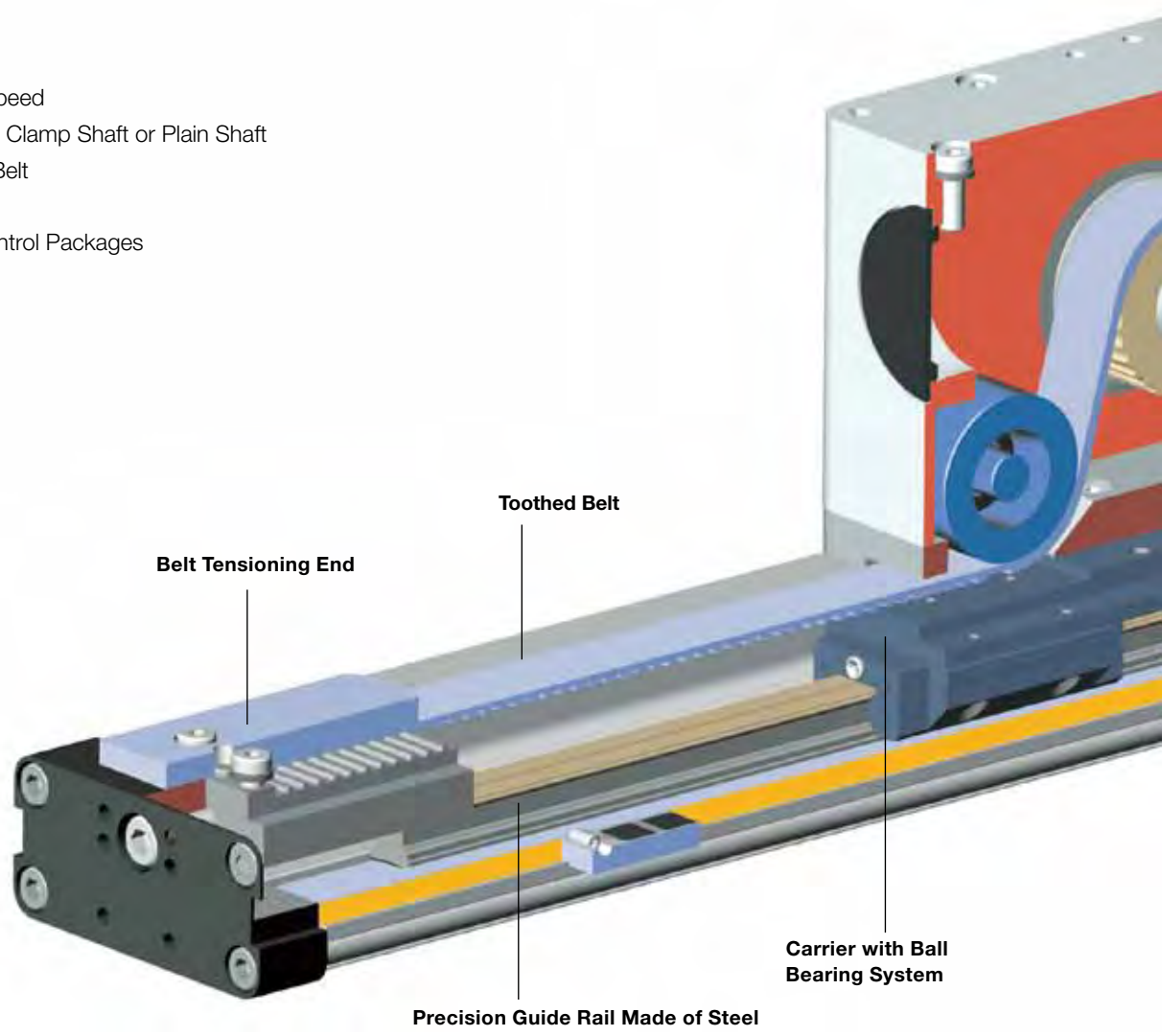
The OSP-E..BV vertical belt actuator with integrated ball bearing guide has been specially developed for lifting movements in the Z-axis.
The especially low vibration OSP-E..BV vertical actuator in combination with the heavy duty series OSP-E..BHD meets the highest demands in portal and handling applications.

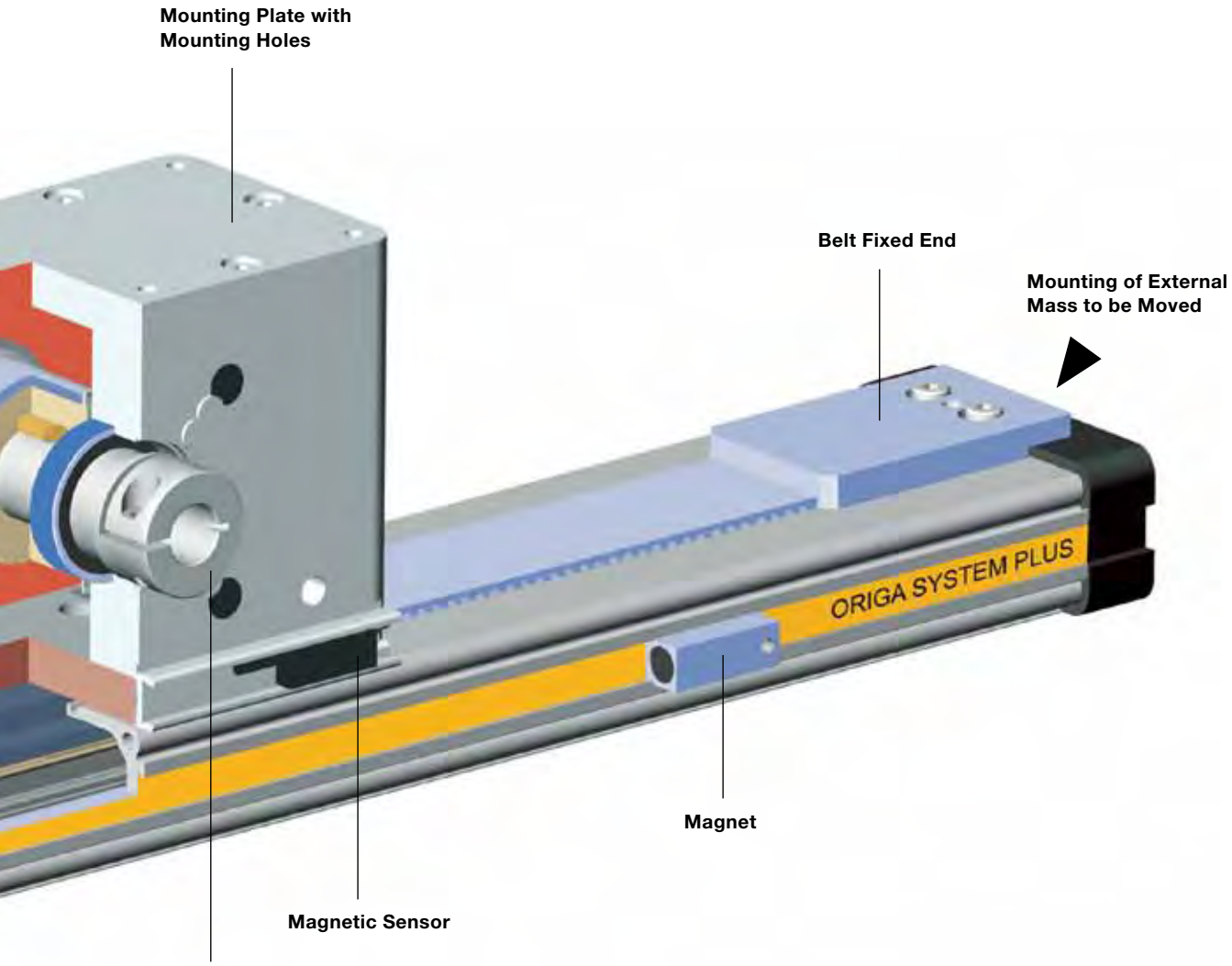
Advantages

- Fixed Actuator Head for Low Moving Mass
- Integrated ball bearing guide for high bending moments
- Magnetic Sensor set for contactless position sensing
- Easy to install
- Low Maintenance

Features

- High Acceleration and Speed
- Drive Shaft Versions with Clamp Shaft or Plain Shaft
- Power Transmission by Belt
- Moving Axis Profile
- Complete Motor and Control Packages




Mounting Plate with
Mounting Holes
Belt Fixed End
Mounting of External
Mass to be Moved
ORIGA SYSTEM PLUS
Magnet
Magnetic Sensor
Drive Shaft with Clamp
Shaft or Plain Shaft

OSP-E..BV, Vertical Belt Actuator with Integrated Ball Bearing Guide

Standard Version
OSP-E..BV

Standard actuator head with clamp shaft or plain shaft and integrated ball bearing guide with two carriers. Choice of side on which gearbox or motor is to be mounted.

Drive Shaft with Clamp Shaft

Drive Shaft with Plain Shaft

Drive Shaft with Clamp Shaft and Plain Shaft

Drive Shaft with Double Plain Shaft

Options

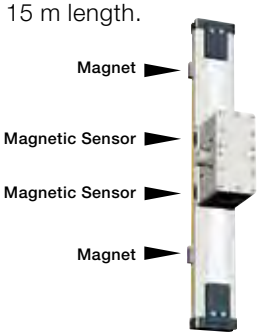
Tandem
Additional actuator head and two additional carriers for higher bending moments.

Hollow shaft with keyway
For direct connection of gearbox or motor with keyway.

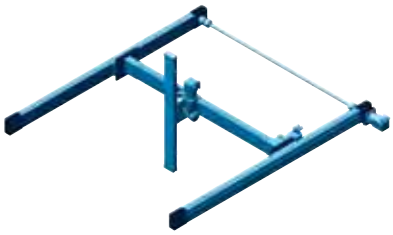
Accessories

Motor Mountings
For connection of gearbox or motor direct to drive shaft with clamp shaft, or with a motor coupling to drive shaft with plain shaft.

Magnetic Sensors Set
Magnetic Sensors with connector, mounting rail and magnets for contactless sensing of the end positions. Cable (suitable for cable chain) can be ordered separately in 5 m, 10 m or 15 m length.



Multi-Axis-Systems
For modular assembly of actuators up to multi-axis systems.



OSP-E..BV Vertical Belt Acutator with Integrated Ball Bearing Guide - Size 20, 25

Standard Version

- Vertical Belt Acutator with Integrated Ball Bearing Guide
- Drive Shaft with Clamp Shaft or Plain Shaft
- Choice of Motor Mounting Side

Options

- Tandem Version for Higher Moments
- Drive Shaft with
  - Clamp Shaft and Plain Shaft or Double Plain shaft
  - Hollow Shaft with Keyway
- Special Drive Shaft Versions on Request

Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..BV
Name				Vertical Belt Actuator with Integrated Ball Bearing Guide
Mounting				see drawings
Temperature Range		ϑ_{min} ϑ_{max}	°C °C	-30 +80
Weight (mass)			kg	see table
Installation				Vertical
Material	Profile			Extruded Anodized Aluminium
	Belt			Steel-Corded Polyurethane
	Pulley			Aluminium
	Guide			Ball Bearing Guide
	Guide Rail			Hardened Steel Rail with High Precision, Accuracy Class N
	Guide Carrier			Steel Carrier with Integrated Wiper System, Grease Nipples, Preloaded 0.08 x C, Accuracy Class N
	Sealing Band			Hardended, Corrision Resistant Steel
	Screws, Nuts			Zinc Plated Steel
Encapsulating Class			IP	20

Weight (mass) and Inertia

Series	Total weight (Mass) [kg]		Moving mass [kg]		Inertia [x 10^{-6} kgm^2]		
	At stroke 0 m	Actuator head	At stroke 0 m	Add per metre stroke	At Stroke 0 m	Add per metre stroke	Add per kg mass
OSP-E20BV	3.4	1.9	1.6	4.0	486	1,144	289
OSP-E25BV	7.7	5.3	2.4	4.4	1,695	2,668	617
OSP-E20BV*	5.3	2 x 1.9	1.6	4.0	533	1,144	289
OSP-E25BV*	13	2 x 5.3	2.4	4.4	1,915	2,668	617

* Version: Tandem (Option)

Installation Instructions

Make sure that the OSP-E..BV is always operated by motor with holding brake on the actuator side. For the mounting of the external mass to be moved there are threaded holes in the end caps. Before mounting, check the correct centre of gravity distance from the table.
Mount the external mass on the belt fixed end, so that the belt tension can be checked and adjusted at the belt tensioning end without dismantling.

Maintenance

Depending on operating conditions, inspection of the actuator is recommended after 12 months or 3000 km operation. 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.

Sizing of Actuator

The following steps are recommeded:

1. Determination of the lever arm length l_x, l_y and l_z from m_e to the centre axis of the actuator.

2. Calculation of the static and dynamic force F_A which must be transmitted by the belt.
   $F_A = F_g + F_a + F_0$
   $= m_g \cdot g + m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$

3. Calculation of all static and dynamic moments M_x, M_y and M_z which occur in the application.
   $M = F \cdot l$

4. Selection of maximum permissible loads via Table T3.

5. Calculation and checking of the combined load, which must not be higher than 1.

6. Checking of the maximum moment that occurs at the drive shaft in Table T2.

7. Checking of the required action force F_A with the permissible load value from Table T1.

For motor sizing, the effective torque must be determined, taking into account the cycle time.

Legend

l = distance of a mass in the x-, y- and z-direction from the guide [m]
m_e = external moved mass [kg]
m_{LA} = moved mass of actuator [kg]
m_g = total moved mass ($m_e + m_{LA}$) [kg]
F_A = action force [N]
M_0 = no-load torque [Nm]
U_{ZR} = circumference of the pulley (linear movement per revolution) [m]
g = gravity [m/s²]
a_{max} = maximum acceleration [m/s²]

Performance Overview

T1

Characteristics		Unit	Description	
Series			OSP-E20BV	OSP-E25BV
Max. Speed		[m/s]	3.0	5.0
Linear Motion per Revolution of Drive Shaft		[mm/U]	108	160
Max. rpm. Drive Shaft		[min^{-1}]	1700	1875
Max. Effective Action Force F_A at Speed	1m/s	[N]	650	1,430
	1 - 2 m/s	[N]	450	1,200
	>3 - 5 m/s	[N]	–	1,050
No-Load Torque [2]		[Nm]	0.6	1.2
Max. Acceleration/Deceleration		[m/s²]	20	20
Repeatability		+/- [mm/m]	0.05	0.05
Max. Standard Stroke Length [1]		[mm]	1,000	1,500
Max. Recomended Permissible Mass [3]		[kg]	10	20

[1] Longer strokes on request
[2] As a result of static friction force
[3] vertical

Max. Permissible Torque on Drive Shaft Speed / Stroke

T2

OSP-E-20BV				OSP-E-25BV			
Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]
1	19	1	17	1	36	1	(36)
2	17	2	11	2	30	2	36
3	16			3	(30)		
				4	28		
				5	27		

Important:
The maximum permissible torque on the drive shaft is the lowest value of the speed- or stroke-dependent torque value.

Example above:
OSP-E25BV required speed v = 3 m/s and stroke = 1 m.

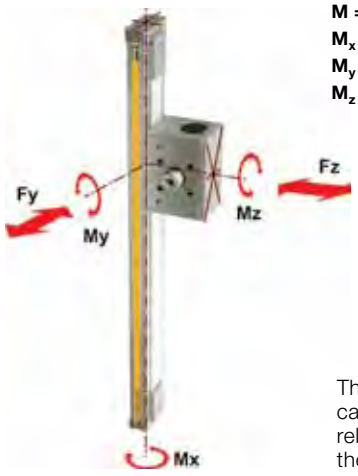
Accordingly Table T2 shows permissible moments of 30 Nm for the speed and 36 Nm for the stroke. Therefore the maximum moment at the drive shaft is determined by the speed and must not exceed 30 Nm.

Maximum Permissible Loads

T3

Series	Max. applied load		Max. moments		
	F_y [N]	F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
OSP-E20BV	1600	1600	20	100	100
OSP-E25BV	2000	3000	50	200	200

Forces, Loads and Moments



$M = F \cdot l$ [Nm]
$M_x = M_{x\ statically} + M_{x\ dynamically}$
$M_y = M_{y\ statically} + M_{y\ dynamically}$
$M_z = M_{z\ statically} + M_{z\ dynamically}$

The distance (l_x, l_y, l_z) for calculation of 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.

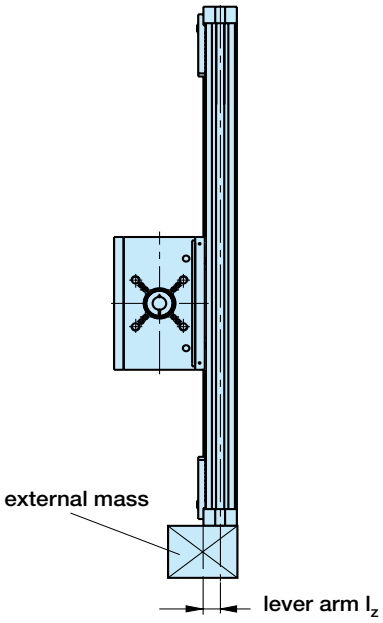
Equation of Combined Loads

$$\frac{F_y}{F_y\,(max)} + \frac{F_z}{F_z\,(max)} + \frac{M_x}{M_x\,(max)} + \frac{M_y}{M_y\,(max)} + \frac{M_z}{M_z\,(max)} \leq 1$$

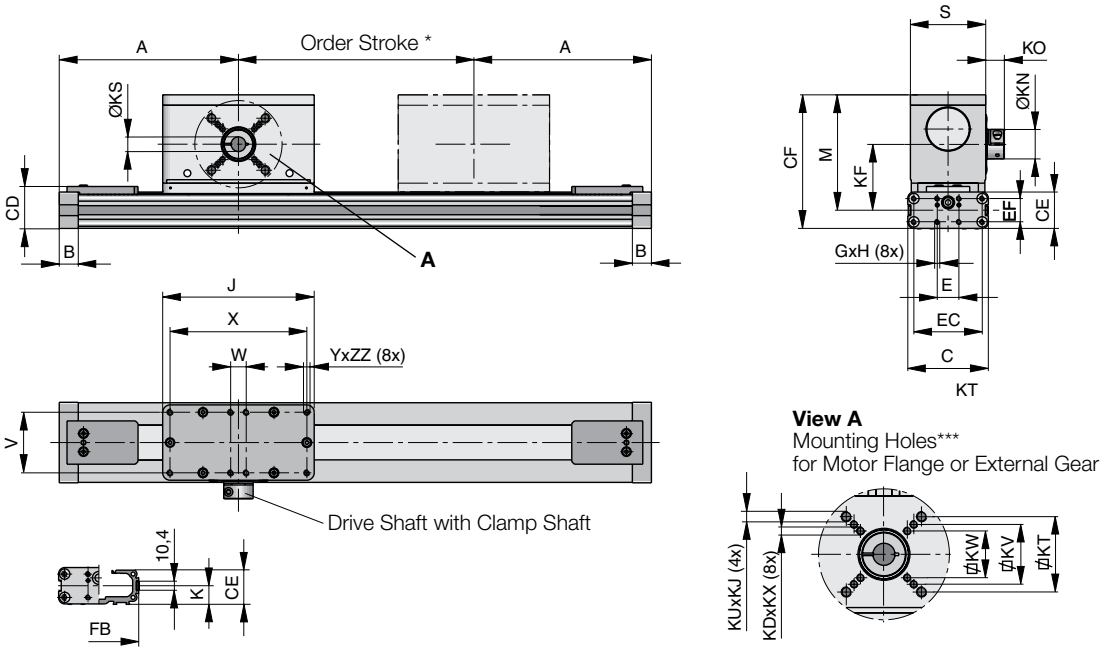
The total of the loads must not exceed >1 under any circumstances.

Distance of Centre of Gravity of External Mass from Mid-Point of Actuator

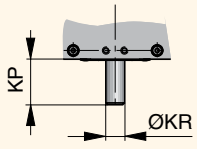
Mass [kg]	OSP-E20BV		OSP-E25BV	
	Lever arm l_z [mm]	Max. permissible acceleration/ deceleration [m/s²]	Lever arm l_z [mm]	Max. permissible acceleration/ deceleration [m/s²]
> 3 to 5	0	20	50	20
> 5 to 10	0	20	40	20
> 10 to 15	-	-	35	20
> 15 to 20	-	-	30	15



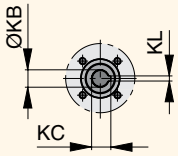
OSP-E..BV
Vertical Belt Actuator with Integrated Ball Bearing Guide – Basic Unit



Plain Shaft



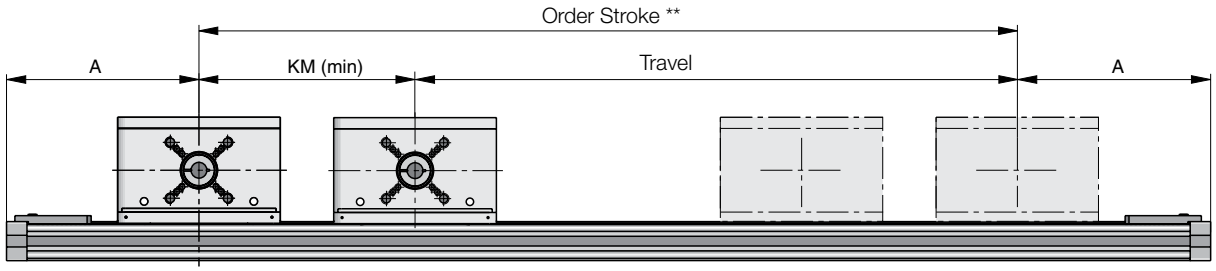
Hollow Shaft with Keyway (Option)



Series	ØKB	KC	KL	KP	ØKR
OSP-E20BV	12^{H7}	13.8	4	28.5	12_{h7}
OSP-E25BV	16^{H7}	18.3	5	31.5	16_{h7}

*** 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 100 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 you local Parker representative.

Option – Tandem



** Order stroke = required travel + KM min + 2 x safety distance.

*** The mounting holes for the coupling housing are on the motor-mounting side. Therefore please ensure that the motor mounting side is correctly stated when ordering the actuator. (For special drive shafts, other dimensions for KS and KB are available on request – see order instructions.)

Dimension Table [mm]

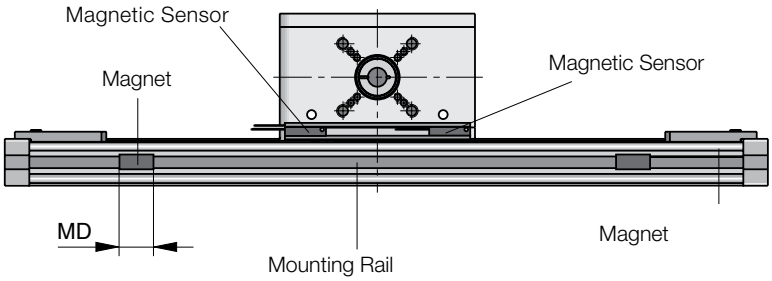
Series	A	B	C	E	GxH	J	K	M	S	V	W	X	Y	CD	CE	CF
OSP-E20BV	148	22	93	25	M5x12	139	21.1	102.3	68	51	40	120	M6	40.4	34	123.3
OSP-E25BV	210	22	93	25	M5x12	175	21.5	133.5	87	70	18	158	M6	49.0	42	154.5

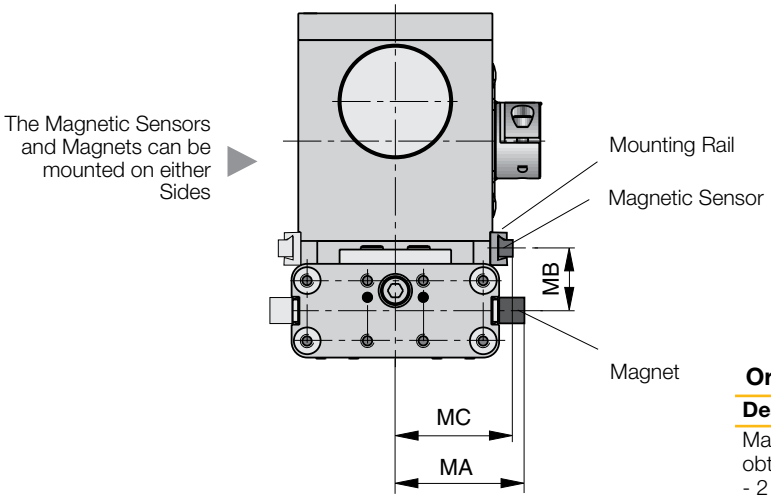
Series	EC	EF	FB	FH	KDxKX	KF	KM_{min}	KN	KO	KS	KT	KUxKJ	KV	KW	ZZ
OSP-E20BV	59	21	73	36.0	–	61.3	155	27	16	12^{H7}	46.5	M6x10	36	–	10
OSP-E25BV	79	27	92	39.5	M6x16	76.0	225	34	21.5	16^{H7}	58.0	M8x16	46	36	10

Contactless Position Sensing with Magnetic Sensors

The magnetic sensor set, comprising two magnetic sensors, a mounting rail and two magnets, is for contactless sensing of the end positions. The mounting rail and magnetic sensors are mounted on the actuator head and the magnets are mounted in the dovetail slot on the profile. The magnetic sensors are the RST-S Type (connector version). For the connecting cable Parker recommends the use of cable suitable for cable chain.

Dimensions





Dimension table [mm]

Series	MA	MB	MC	MD
OSP-E20BV	46	23.7	42.3	35
OSP-E25BV	56	26.0	51.0	35

Order Instructions

Description	Ident-No.
Magnetic sensor set, obtaining: - 2 sensors, Reed NC, Type P8S-GESNX - 1 mounting rail - 2 magnets	**18210**
Connecting cable, suitable for cable chain	
5 m	**KL3186**
10 m	**KL3217**
15 m	**KL3216**

Order Instructions	OSPE20	–	7	0	0	02	–	00000	–	0	00	0	0	0

Size	
20	Size 20
25	Size 25

Type of Actuator	
7	Vertical Belt Actuator with Integrated Ball Bearing Guide

Actuator Head	
0	Standard
1*	Tandem

Order Stroke
5 digits input in mm

Drive Shaft		
Motor Mounting Position see **M**		
0 A	Plain Shaft / Motor Standard	**M** 
0 B	Plain Shaft / Motor 180° Standard	 **M**
0 C*	Double Plain Shaft / Motor Standard	**M** 
0 D*	Double Plain Shaft / Motor 180° Standard	 **M**
0 2	Clamp Shaft / Motor Standard	**M** 
0 3*	Clamp Shaft with Plain Shaft / Motor Standard *	**M** 
0 4	Clamp Shaft / Motor 180° Standard	 **M**
0 5*	Clamp Shaft with Plain Shaft / Motor 180° Standard *	 **M**
0 6*	Hollow Shaft / Motor Standard *	**M** 
0 7*	Hollow Shaft / Motor 180° Standard *	 **M**

Special Drive Shaft on Request (8/9)

Magnetic Sensors *	see page 165 ff
0	without
2*	2pc. RST-S NC / M8 plug / Magnets

Mounting Kit for Motor and Gear *			
Size		**20**	**25**
A3	SMx82 xx xx 8 14 …	x [2]	x [2]
A7	PS60	x [2]	x [1]
C0	LP050 / PV40-TA	x [1]	
C1	LP070 / PV60-TA	x [2]	x [1]

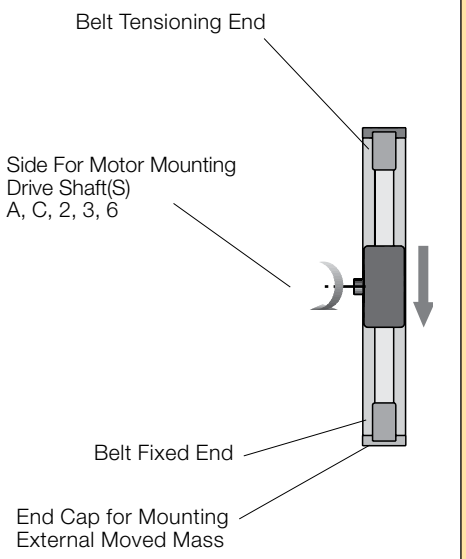
X [1]: Kit for **Drive Shaft** with Clamp Shaft (02 / 03 / 04 / 05)

X [2]: Kit for **Drive Shaft** with Plain Shaft (0A / 0B / 0C / 0D)

Info: Motor and Gear Mounting Dimensions see page 191

Niro	
0	Standard
1*	Niro Screws

Function and Motor Mounting



* Option

Accessories - please order separately	
Description	**Page**
Motor Mounting	135
Multi-Axis System for Actuators	177 ff

OSP-E..B
Belt Actuator with Internal Plain Bearing Guide

Content

Belt actuator with Internal Plain Bearing Guide for Point-to-Point Applications

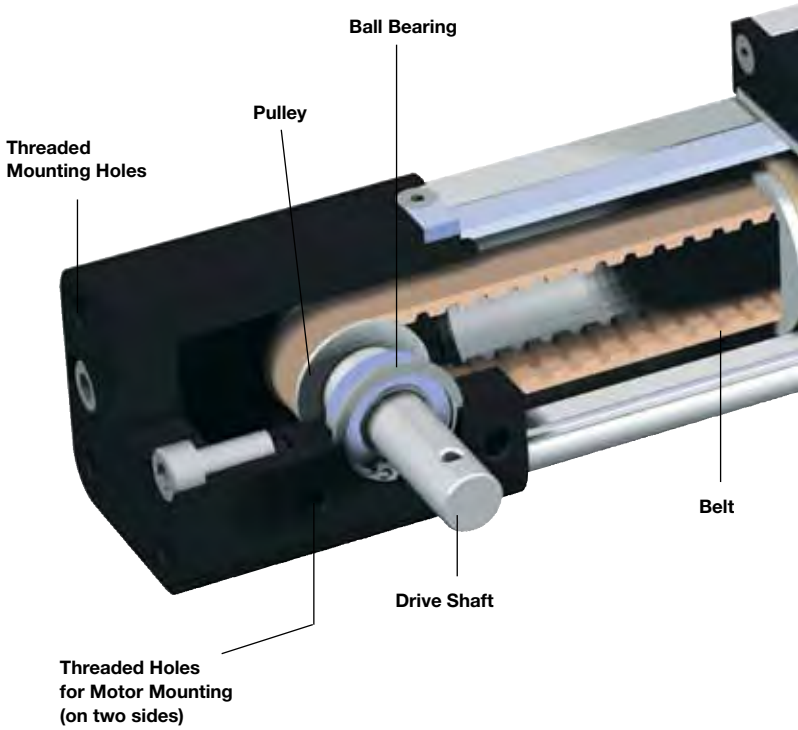
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

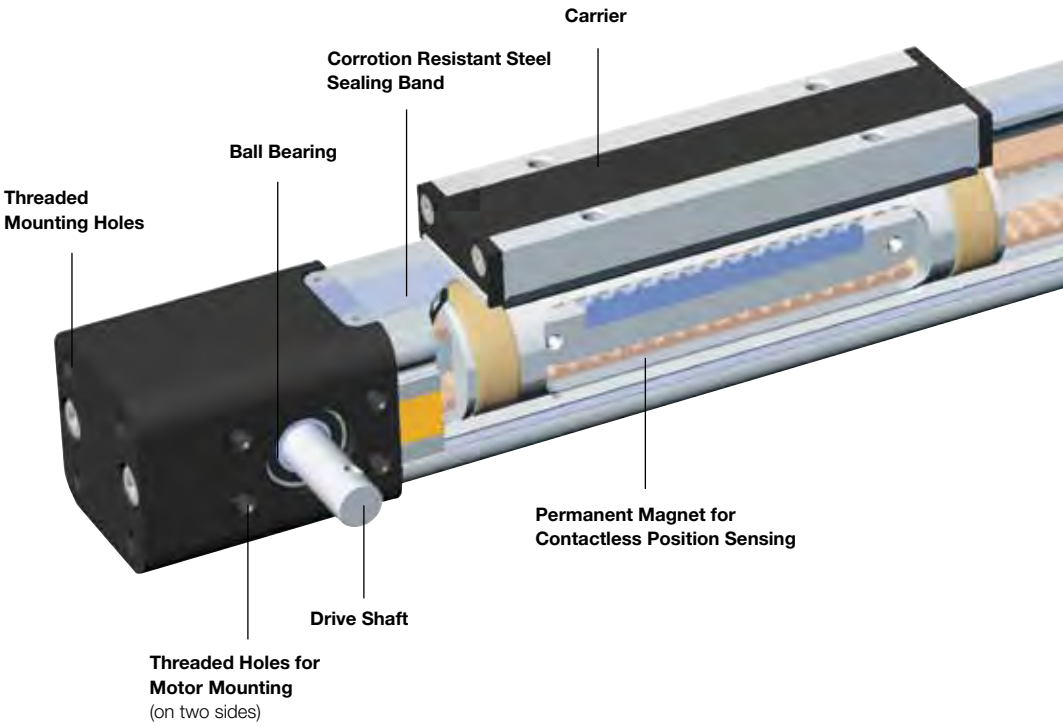
Advantages

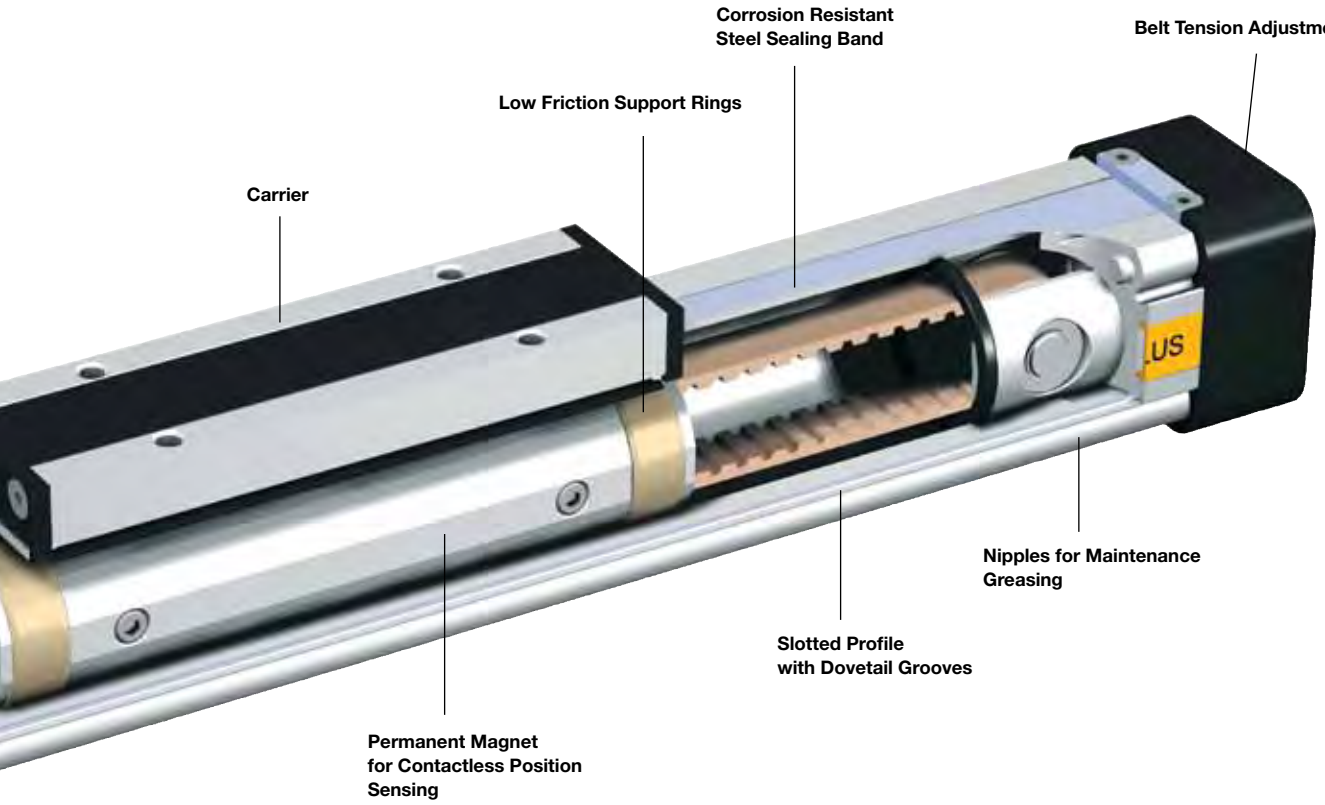
- Precise Path and Position Control
- High Speed Operation
- Easy Installation
- Low Maintenance
- Ideal for Precise Point-to-Point Applications

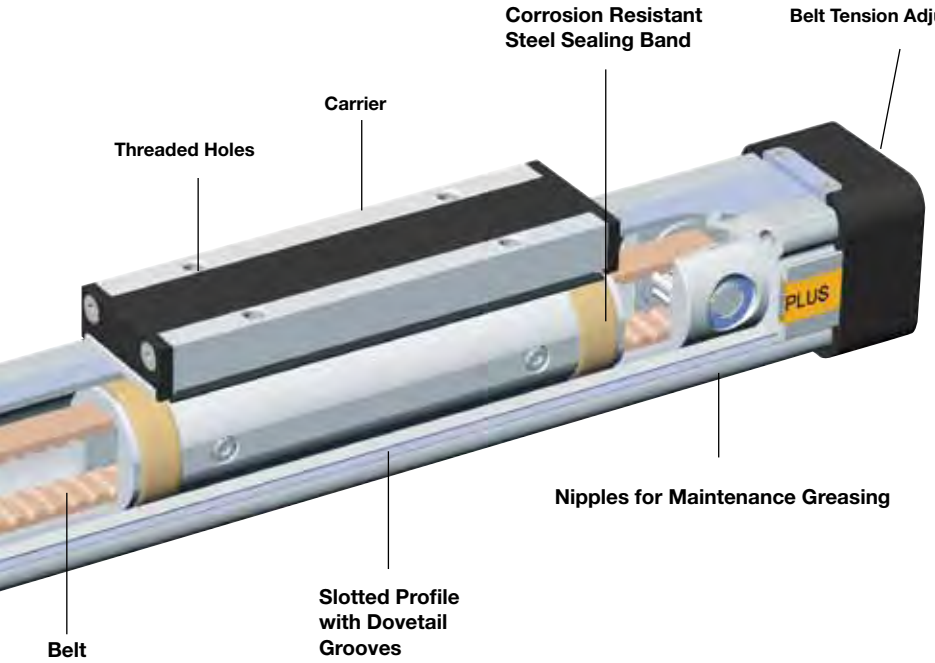
Features

- Integrated Drive and Guidance System
- Tandem Configuration with Increased Carrier Distance for Higher Moment Supports
- Long Available Strokes
- Complete Motor and Control Packages
- Diverse Range of Accessories and Mountings
- Bi-Parting and Special Options Available





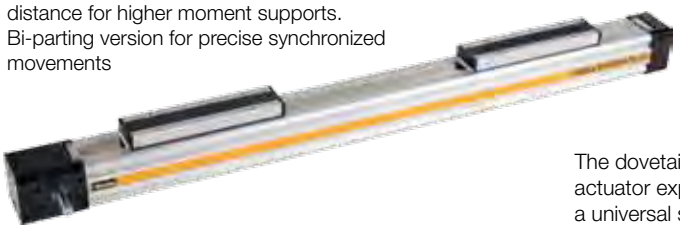




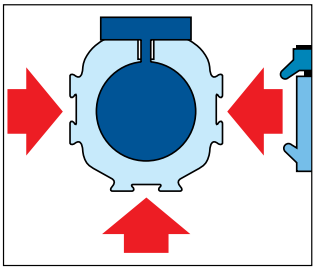
POWERSLIDE
Roller bearing precision guidance for smooth travel and high dynamic or static loads.

PROLINE
The compact aluminium roller guide for high loads and velocities.

Tandem configuration with increased carrier distance for higher moment supports.
Bi-parting version for precise synchronized movements



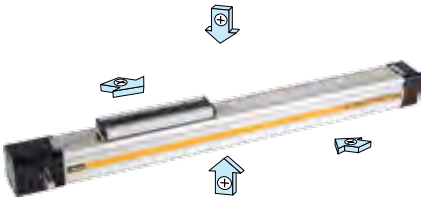
The dovetailed mounting rails of the new actuator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.



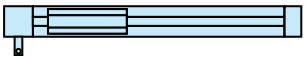
OSP-E..B Belt Actuator with internal Plain Bearing Guide

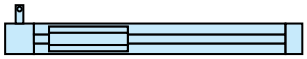
STANDARD VERSIONS
OSP-E..B

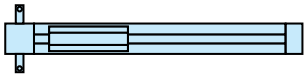
Carrier with internal guidance and magnet packet for contactless position sensing. Dovetail profile for mounting of accessories and the actuator itself.



Drive Shaft Versions
– Plain shaft or
– Double plain shaft (Option) e.g. to drive two actuators in parallel.


Standard


Standard


Option

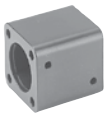
OPTIONS

Tandem
For higher moment support.

Bi-parting
For perfectly synchronised bi-parting movements.

Accessories

Motor Mounting



End Cap Mounting

For end-mounting of the actuator.

Profile Mounting

For supporting long actuators or mounting the actuator on the dovetail grooves.

Clevis Mounting

Carrier with tolerance and parallelism compensation to drive external linear guides.

Inversion Mounting

The inversion mounting, mounted on the carrier, transfers the driving force to the opposite side, e.g. for dirty environments.

Magnetic Sensors
Series RST and EST

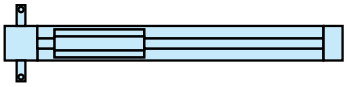
For contactless position sensing of end stop and intermediate carrier positions.

Standard Version

- Standard carrier with internal plain bearing guide
- Dovetail profile for Mounting of Accessories and the Actuator itself
- Position of Drive Shafts

Options

- Tandem-Version
- Bi-parting Version for Synchronised Movements
- Drive shaft with double plain shaft



Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..BHD
Name				Belt Actuator with Internal Plain Bearing Guide
Mounting				see drawings
Temperature Range		ϑ_{min} ϑ_{max}	°C °C	-30 +80
Weight (mass)			kg	see table
Installation				see table
Material	Slotted Profile			Extruded Anodized Aluminium
	Belt			Steel-corded Polyurethane
	Pulley			Aluminium
	Guide Bearings			Low Friction Plastic
	Sealing Band			Hardened Corrosion Resistant Steel
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Encapulsation Class			IP	54

Weight (mass) and Inertia

Series	Weight (mass) [kg]			Inertia [x 10^{-6} kgm^2]	
	at stroke 0 m	ad per metre stroke	moving mass	at stroke 0 m	ad per metre stroke
OSP-E25B	0.9	1.6	0.2	25	6.6
OSP-E32B	1.9	3.2	0.4	43	10
OSP-E50B	5.2	6.2	1.0	312	45
OSP-E25B*	1.2	1.6	0.5	48	6.6
OSP-E32B*	2.3	3.2	0.8	83	10
OSP-E50B*	6.3	6.2	2.1	585	45

*Version: Tandem and Bi-parting (Option)

Installation Instructions

Use the threaded holes in the end cap for mounting the actuator. See if profile mountings are needed using the maximum allowable unsupported length graph on page 45.
At least one end cap must be secured to prevent axial sliding when profile mounting is used. When the actuator is moving an externally guided load, the compensation must be used.

The actuators can be fitted with the standard carrier mounting facing in any direction. To prevent contamination such as fluid ingress, the actuator should be fitted with its sealing band facing downwards. The inversion mounting can be fitted to transfer the driving force to the opposite side.

Maintenance

All moving parts are long-term lubricated for a normal operational environment. Parker recommends a check and lubrication of the actuator, and if necessary a change of the belt and wear parts, after an operation time of 12 months of operation or 3 000 km travel of distance.
Additional greasing is easily done by using nipples in the slotted profile. 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.

Sizing of Actuator

The following steps are recommended for selection:

1. Required acceleration see table
2. Required torque is shown on page 46 and 47.
3. Check that maximum values in the table 3 are not exceeded .
4. Drive shaft by using table T2. (Pay attention to note under table) If value is lower than required, overview the moving profile or select if possible a bigger unit.
5. Before sizing and specifying the motor, the average torque must be calculated using the cycle time of the application.
6. Check that the maximum allowable unsupported length is not exceeded (see on page 45).

Performance Overview (T1)

Characteristics		Unit	Description		
Size			**OSP-E 25B**	**OSP-E 32B**	**OSP-E 50B**
Max. Speed		[m/s]	2	3	5
Linear Motion per Revolution, Drive Shaft		[mm]	60	60	100
Max. rpm Drive Shaft		[min^{-1}]	2,000	3,000	3,000
Max. Effective Action Force F_A at Speed	< 1 m/s	[N]	50	150	425
	1 - 2 m/s	[N]	50	120	375
	> 2 m/s	[N]	-	100	300
No-load Torque		[Nm]	0.4	0.5	0.6
Max. Acceleration/Deceleration		[m/s^2]	10	10	10
Repeatability		[mm/m]	±0.05	±0.05	±0.05
Max. Stroke Length OSP-E..B		[mm]	3,000	5,000	5,000
Max. Stroke Length OSP-E..B*		[mm]	2 x 1,500	2 x 2,500	2 x 2,500

*Bi-parting version

Maximum Permissible Torque on Drive Shaft Speed / Stroke (T2)

OSP-E-25B				OSP-E-32B				OSP-E-32B			
Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]
1	0.9	1	0.9	1	2.3	1	2.3	1	10.0	1	10.0
2	0.9	2	0.9	2	2.0	2	(2.3)	2	9.5	2	10.0
		3	0.9	3	(1.8)	3	2.3	3	9.0	3	9.0
						4	2.3	4	8.0	4	7.0
						5	1.8	5	7.5	5	6.0

Important: The maximum permissible torque on the drive shaft is the lowest value of the speed- or stroke-dependent torque value.

Example above: OSP-E32B stroke 2 m, required speed 3 m/s; From table T2: speed 3 m/s gives 1.8 Nm and stroke 2 m gives 2.3 Nm. Max. torque for this application is 1.8 Nm.

Maximum Permissible Loads (T3)

Series	Max. applied load F_z [N]	Max. moments [Nm] M_x	M_y	M_z
OSP-E25B	160	2	12	8
OSP-E32B	300	8	25	16
OSP-E50B	850	16	80	32
OSP-E..B Bi-partional	The maximum load F must be equally distributed among the two carriers.			

Combined Loads

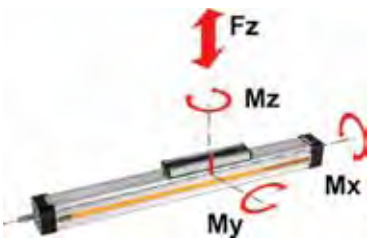
If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here.
The maximum permissible loads must not be exceeded.

Equation of Combined Loads

$$\frac{F_y}{F_y\,(max)} + \frac{F_z}{F_z\,(max)} + \frac{M_x}{M_x\,(max)} + \frac{M_y}{M_y\,(max)} + \frac{M_z}{M_z\,(max)} \leq 1$$

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

Forces, Loads and Moments



$M = F \cdot l$ [Nm]
$M_x = M_{x\,statically} + M_{x\,dynamically}$
$M_y = M_{y\,statically} + M_{y\,dynamically}$
$M_z = M_{z\,statically} + M_{z\,dynamically}$

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

Stroke Length

The stroke lengths of the actuators are available in multiples of 1 mm up to max.

OSP-E25B: 3 m / 2 x 1.5 m *

OSP-E32B: 5 m / 2 x 2.5 m *

OSP-E50B: 5 m / 2 x 2.5 m *

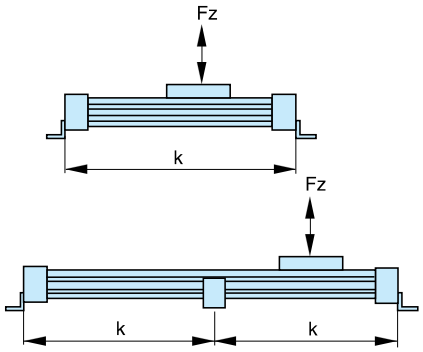
* Version: Bi-partional

Other stroke lengths are available on request.

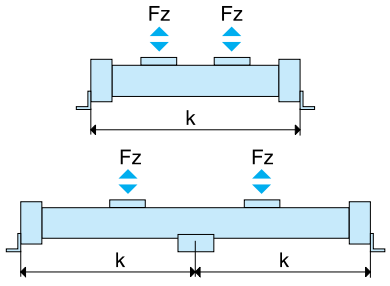
The end of stroke must not be used as a mechanical stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft.
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For advise, please contact your local Parker technical support department.

Maximum Permissible Unsupported Length – Placing of Profile Mounting

Series OSP-E..B

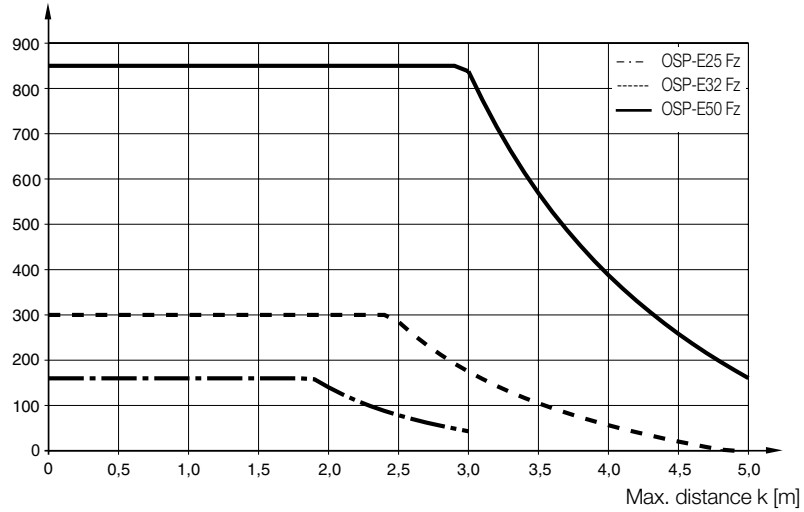


Series OSP-E..B
Bi-parting version



k = Maximum permissible distance between mountings/mid-section support for a given load F.

Load F [N]



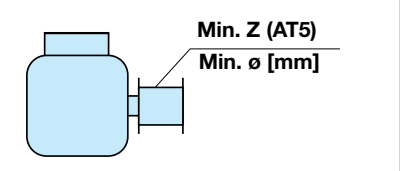
(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k)

Mounting on the Drive Shaft

Do not expose the drive shaft to uncontrolled axial or radial forces when mounting coupler or pulley, a steadying block should be used.

Pulley

Minimum allowable number of teeth Z (AT5) at maximum applied torque.



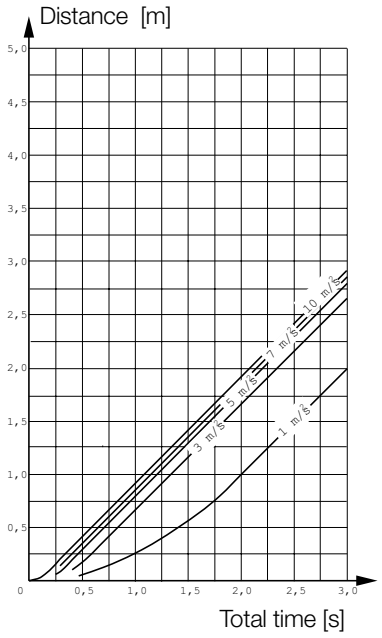
Series	Min. Z	Min Ø
OSP-E25B	24	38
OSP-E32B	24	38
OSP-E50B	36	57

Distance / Time Graph

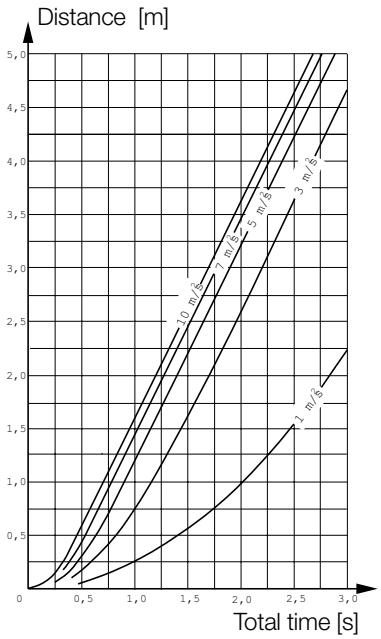
Using the required travel distance and total time, the adjacent graphs show the required acceleration based on maximum speed.

The graphs assume that acceleration and deceleration are equal. Please note that specifying non-essential high acceleration or short cycle time will result in an oversized motor.

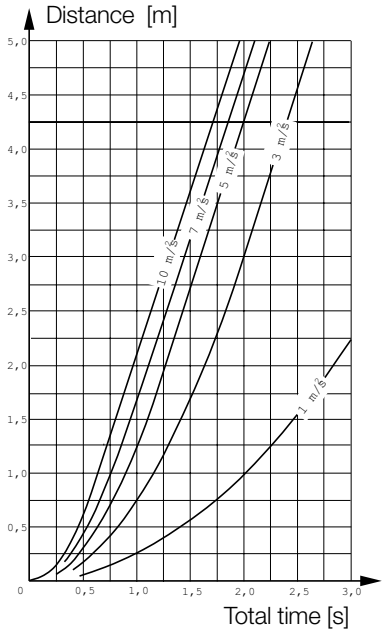
Max. Speed 1 m/s



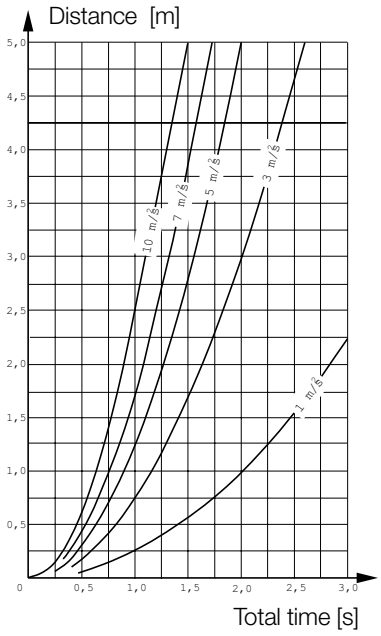
Max. Speed 2 m/s



Max. Speed 3 m/s



Max. Speed 5 m/s

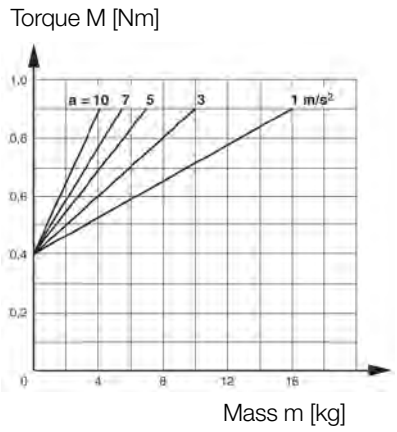


Required Torque / Mass

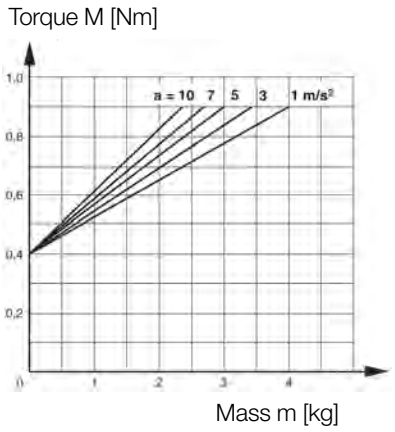
Using the known mass, the direction of the application and the required acceleration from the distance-time graphs, the actuator can be sized and the required torque is shown in the adjacent graphs.
Mass in graphs = Load + moving mass of the actuator (according to the weight chart on data sheet 43 ff).

Please note: When using an additional guide, please add the mass of the carriage to the total moving mass.

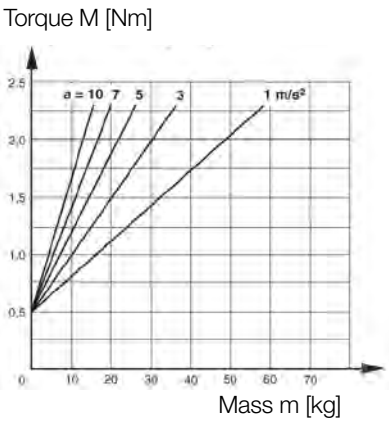
Size OSP-E25B, Horizontal Application



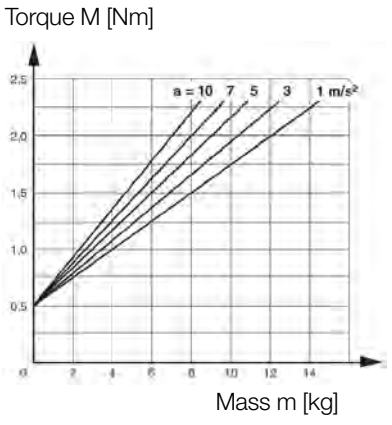
Size OSP-E25B, Vertical Application



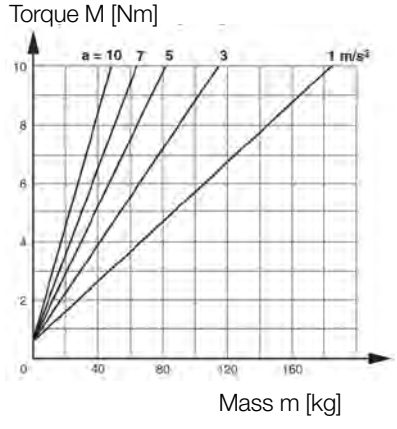
Size OSP-E32B, Horizontal Application



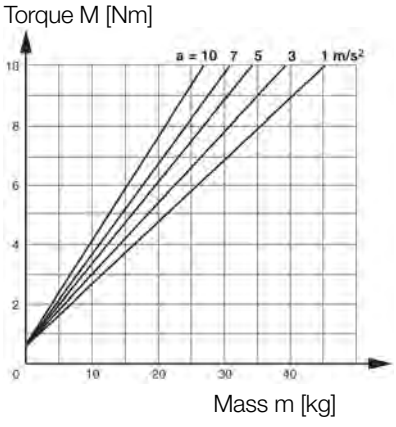
Size OSP-E32B, Vertical Application



Size OSP-E50B, Horizontal Application

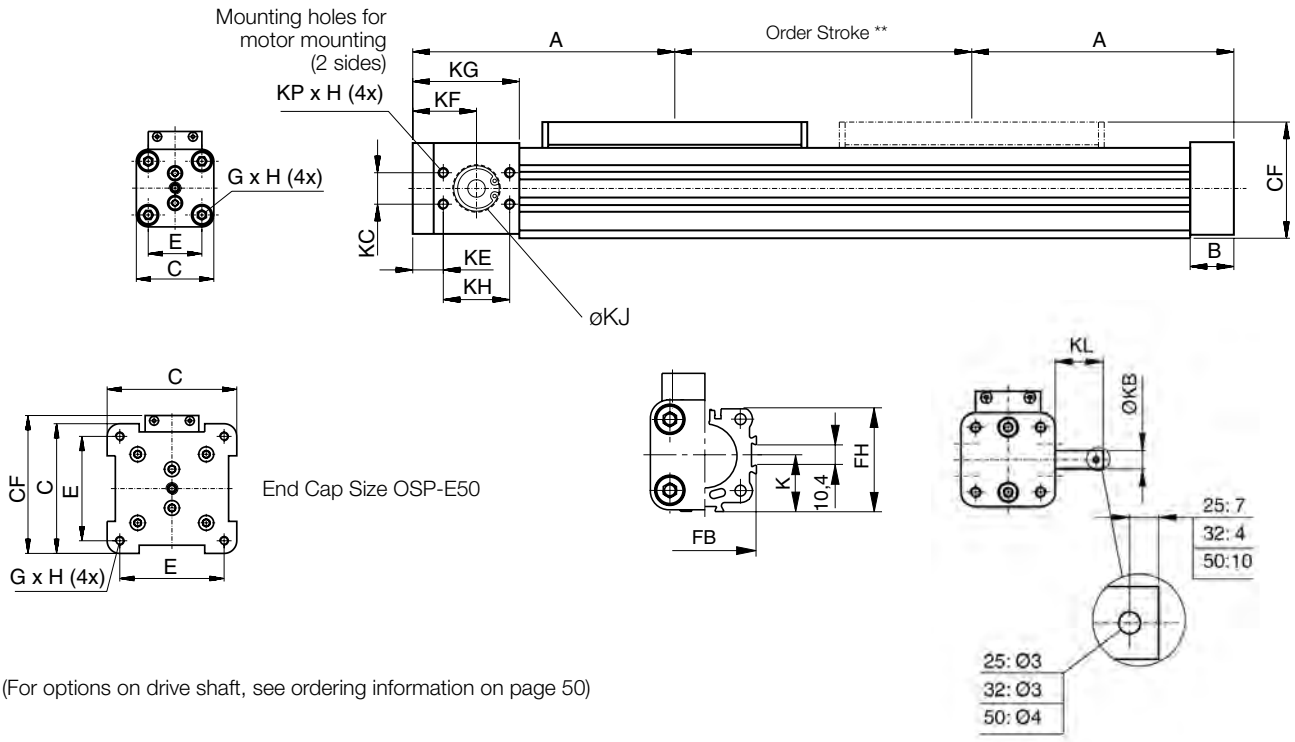


Size OSP-E50B, Vertical Application



OSP-E Belt Actuator with Internal Plain Bearing Guide

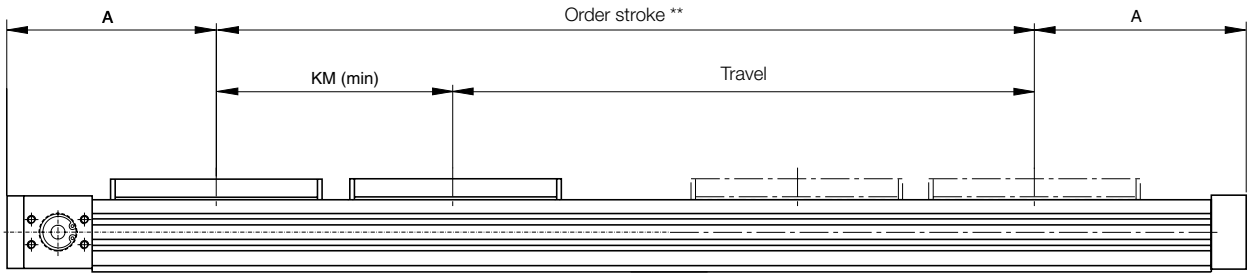
OSP-E.. B - Basic Unit



(For options on drive shaft, see ordering information on page 50)

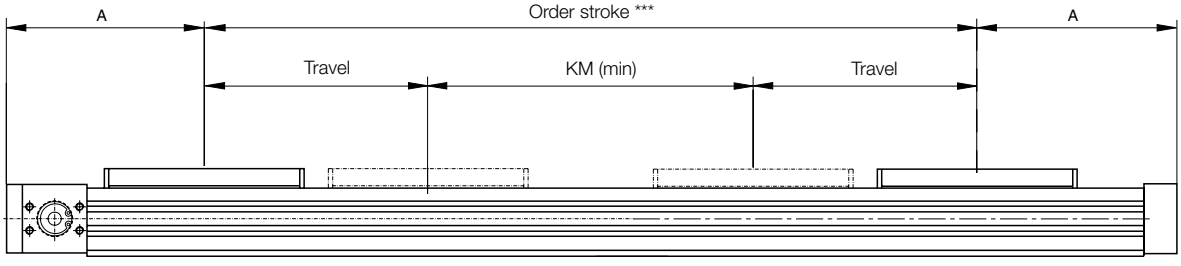
* **Note:** The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm. Order stroke = required travel + 2 x safety distance.
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information please contact you local Parker representative.

Option – Tandem



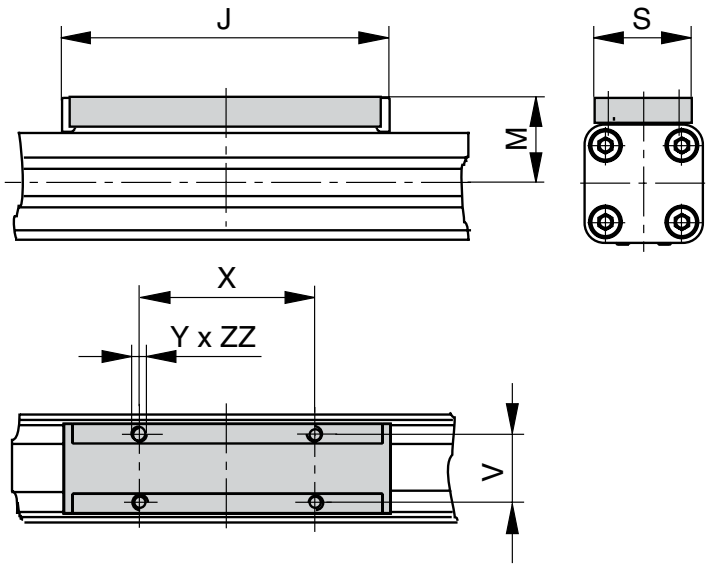
** Order stroke = required travel + KM min + 2 x safety distance

Option – Bi-parting



*** Order stroke = 2 x required travel + KM min + 2 x safety distance

Standard Carrier



Dimension Table [mm]

Series	A	B	C	E	G x H	J	K	M	S	V	X	Y	CF
OSP-E25B	125	22	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5
OSP-E32B	150	25	52	36	M6 x 12	152	28.5	38	36	27	90	M6	66.5
OSP-E50B	200	25	87	70	M6 x 12	200	43.0	49	36	27	110	M6	92.5

Series	FB	FH	KB	KC	KE	KF	KG	KH	KJ	KL	KM_{min}	$KM_{recc.}$	KP x H	ZZ
OSP-E25B	40	39.5	10_{j6}	15	22.0	37.0	57	30	19^{H7}	24	130	190	M5 x 10	8
OSP-E32B	52	51.7	10_{j6}	18	17.5	36.5	61	38	26^{H7}	26	170	230	M6 x 12	10
OSP-E50B	76	77.0	16_{h8}	32	23.5	48.5	85	50	40^{H7}	34	220	320	M8 x 16	10

Order Instructions	OSPE25	–	0	0	0	0	0 –	00000	–	0	0	0	0	0	0

Size of Actuator

25	Size 25
32	Size 32
50	Size 50

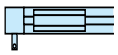
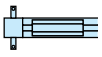
Type of Actuator

0	Belt Actuator with Internal Plain Bearing Guide

Carriage

0	Standard
1*	Tandem
2*	Bi-parting

Drive Shaft / Motor Mounting Position

0	Plain Shaft / Motor Standard	
1	Plain Shaft / Motor 180° Standard	
2*	Double Plain Shaft	

Order Stroke

5 digits input in mm

Mounting Kit for Motor and Gear

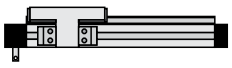
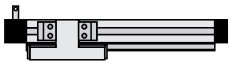
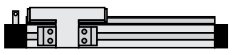
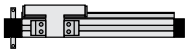
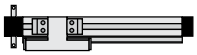
Size		25	32	50
0 -	without	x	x	x
A 0	SY563T	x	x	
A 1	SY873T	x	x	x
A 2	SMx60 xx xxx 8 11 …	x	x	
A 3	SMx82 xx xx 8 14 …		x	x
A 4	SMx100 xx xx 5 19…			x
A 7	PS60		x	x
C 0	LP050 / PV40-TA	x	x	
C 1	LP070 / PV60-TA		x	x

Info: Motor and gear mounting dimensions see page 191

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

Guide Position		
0	Standard	
1	180° Standard	
0	Standard	
1	180° Standard	
0	Standard	
1	180° Standard	

External Guide / Carriage Mounting* see page 99 ff	
0	without
6	PL Proline
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

Niro	
0	Standard
1*	Niro

Accessories - please order separately	
Description	**Page**
Motor Mounting	136 ff
Multi-Axis System for Actuators	177 ff

Magnetic Sensors * see page 165 ff	
0	without
1	1 pc. RST-K 2NO / 5 m Cable
2	1 pc. RST-K 2NC / 5 m Cable
3	2 pc. RST-K 2NC / 5 m Cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m 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

Profile Mounting * see pages 147 ff and 161 ff	
0	without
1	1 Pair Type E1
2	1 Pair Type D1
3	1 Pair Type MAE
4	2 Pair Type 1
5	2 Pair Type D1
6	2 Pair Type MAE
7	3 Pair Type 1
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

End Cap Mounting * see pages 147 and 161 ff	
0	without
1	1 Pair Type A1 (size 25 and 32) or C1 (size 50)
2	1 Pair Type A2 (size 25 and 32) or C2 (size 50)
3	1 Pair Type A3 (size 25 and 32) or C3 (size 50)
4	1 Pair Type B1 (size 25 and 32) or C4 (size 50)
5	1 Pair Type B4 (size 25 and 32)

***** Option

OSP-E..SB Ball Screw Actuator with Internal Plain Bearing Guide

Content

Ball Screw Actuator with Internal Plain Bearing Guide for High Accuracy Applications

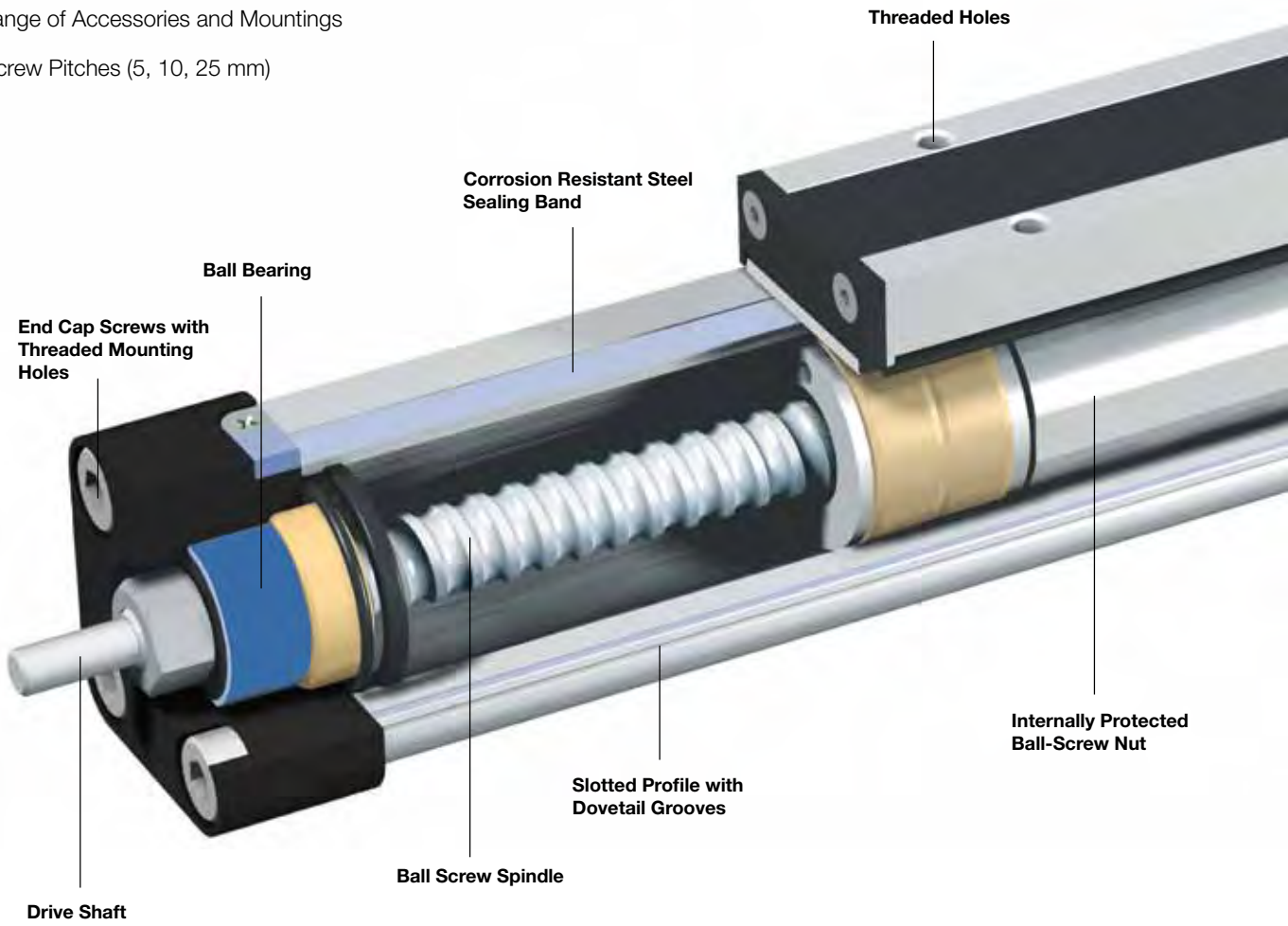
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

Advantages

- Accurate Path And Position Control
- High Force Output
- Easy Installation
- Excellent Slow Speed Characteristics
- Ideal for Precise Traverse Operations (e.g. Machine Feeds) and Lifting Applications

Features

- Integrated Drive and Guidance System
- Complete Motor and Control Packages
- Diverse Range of Accessories and Mountings
- Optimal Screw Pitches (5, 10, 25 mm)



Clean Room-Version
certified to DIN EN ISO 14644-1

SLIDELINE
Combination with linear guides provides for heavier loads.

POWERSLIDE
Roller bearing precision guidance for smooth travel and high dynamic or static loads.

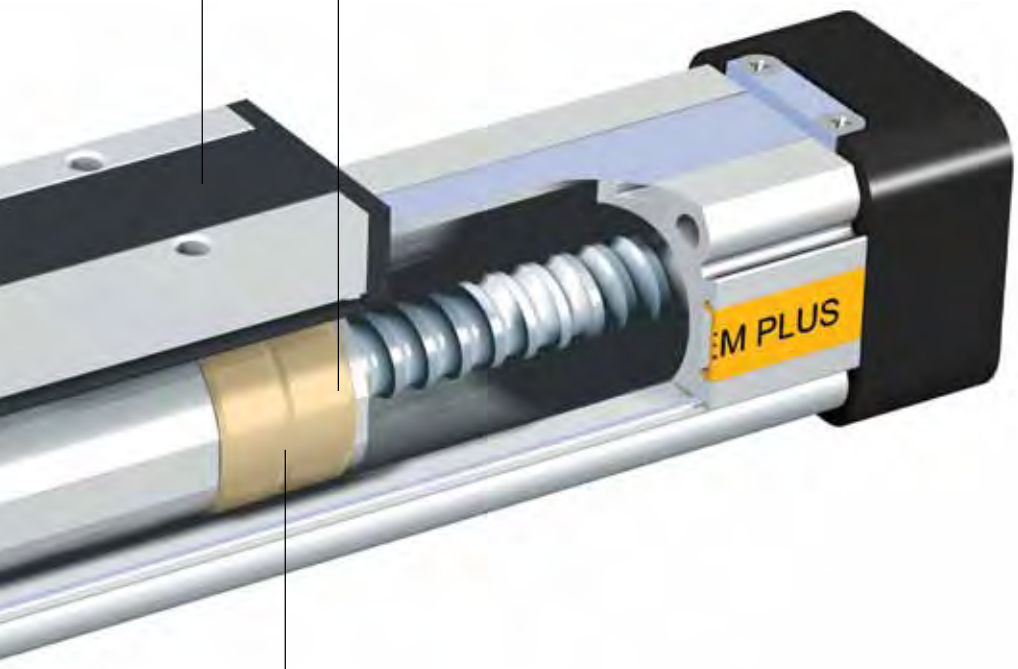
PROLINE
The compact aluminium roller guide for high loads and velocities.

Heavy Duty guide
HD linear guides for heavy duty applications

SFI-plus
displacement measuring system

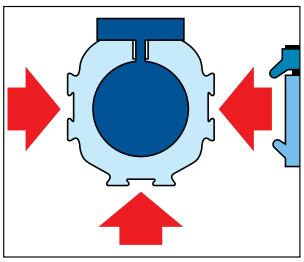
Low Friction Support Rings

Carrier



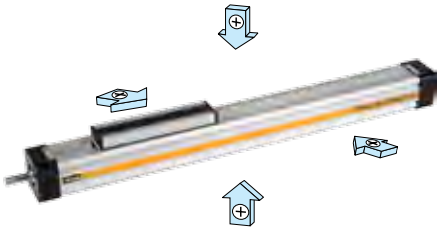
Permanent Magnet for Contactless Sensing

The dovetailed mounting rails of the new actuator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.



OSP-E..SB
Ball Screw Actuator with internal Plain Bearing Guide

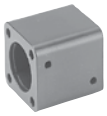
Standard Version
OSP-E..SB
Standard carrier with internal guidance and integrated magnet set for contactless position sensing.
Dovetail profile for mounting of accessories and the actuator itself.



Ball Screw Pitch
The ball screws spindles are available in various pitches:
OSP-E25SB: 5 mm
OSP-E32SB: 5, 10 mm
OSP-E50SB: 5, 10, 25 mm

Accessories

Motor Mountings



End Cap Mounting
For end-mounting of the actuator.

Inversion Mounting
The inversion mounting, mounted on the carrier, transfers the driving force to the opposite side, e.g. for dirty environments.

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

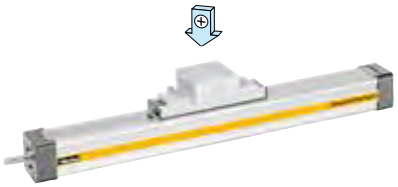
Options

Tandem
For higher moment support.

Clean Room
certified to DIN EN ISO 14644-1

Profile Mounting
For supporting long actuators or mounting the actuator on the dovetail grooves.

Clevis Mounting
Carrier with tolerance and parallelism compensation to drive external linear guides.



Measuring System - SFI PLUS
Incremental measuring system with practically relevant resolution.

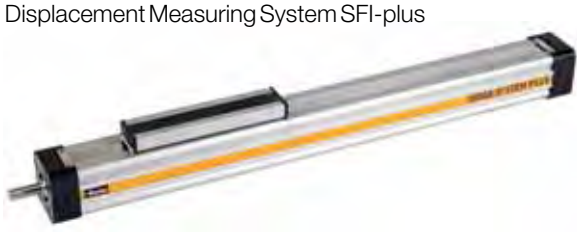
Standard Versions:

- Standard Carrier with Internal Plain Bearing Guide
- Dovetail Profile for Mounting of Accessories and the Actuator Itself
- Pitches of Ball Screw Spindle

Type OSP-E25: 5 mm
Type OSP-E32: 5 , 10 mm
Type OSP-E50: 5 , 10, 25 mm

Options:

- Tandem-Version
- Clean room-version, according to DIN EN ISO 14644-1
- Displacement Measuring System SFI-plus



Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..SB
Name				Ball Screw Acutator with Internal Plain Bearing Guide
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			Extruded Anodized Aluminium
	Ball Screw			Hardened Steel
	Ball Screw Nut			Hardened Steel
	Guide Bearings			Low Fricition Plastic
	Sealing Band			Hardened, Corrision Resistant Steel
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Protection Class			IP	54

Weight (mass) and Inertia

Series	Weight (mass) [kg]			Inertia [x 10^{-6} kgm^2]				
	at stroke 0 m	Add per metre stroke	Moving mass	at stroke 0 m	at stroke 0 m	per kg mass 5 mm*	10 mm*	25 mm*
OSP-E25SB	0.8	2.3	0.2	2.2	11	0.6	-	-
OSP-E32SB	2.0	4.4	0.4	8.4	32	0.6	2.5	-
OSP-E50SB	5.2	9.4	1.2	84.0	225	0.6	2.5	15.8

*pitch

Installation Instructions

Use the threaded holes in the free end cap and a profile mounting close to the motor end for mounting the actuator.
See if profile mountings are needed using the maximum permissible unsupported length graph on page 59. At least one end cap must be secured to prevent axial sliding when Profile Mounting is used. When the actuator is moving an externally guided load, the Compensation must be used (see page 109).
The actuators can be fitted with the standard carrier mounting facing in any direction.
To prevent contamination such as fluid ingress, the actuator should be fitted with its sealing band facing downwards.
The inversion mounting can be fitted to transfer the driving force to the opposite side.

Maintenance

All moving parts are long-term lubricated for a normal operational environment. Parker recommends a check and lubrication of the actuator, 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 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.

Sizing of Actuator

The following steps are recommended for selection :

1. Recommended maximum acceleration is shown in graphs on page 61.

2. Required torque is shown in graphs

3. Check that maximum values in the adjacent charts are not exceeded.

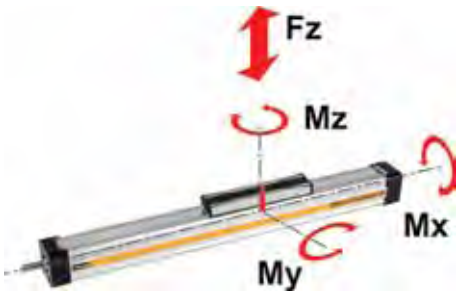
4.When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time of the application.

5. Check that the maximum allowable unsupported length is not exceeded (see on page 59 ff)

Performance Overview

Characteristics	Unit	Description					
Size		**OSP-E 25B**	**OSP-E 32B**		**OSP-E 50B**		
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. effecitve action force F_A corresponding torque on drive shaft	[N] [Nm]	250 0.35	600 0.75	600 1.3	1500 1.7	3.1	7.3
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
Repeatability	[mm]	±0.05	±0.05		±0.05		
Max. Standard stroke length	[mm]	1100	2000		3200		

Forces, Loads and Moments



M = F · l [Nm]

$M_x = M_{x\ statically} + M_{x\ dynamically}$
$M_y = M_{y\ statically} + M_{y\ dynamically}$
$M_z = M_{z\ statically} + M_{z\ dynamically}$

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

Maximum Permissible Loads

Series	Max. applied load [N]	Max. moments [Nm]		
	F_z, F_y	M_x	M_y	M_z
OSP-E25SB	500	2	12	8
OSP-E32SB	1200	8	25	16
OSP-E50SB	3000	16	80	32

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.

Equation of Combined Loads

$$\frac{F_y}{F_y\,(max)} + \frac{F_z}{F_z\,(max)} + \frac{M_x}{M_x\,(max)} + \frac{M_y}{M_y\,(max)} + \frac{M_z}{M_z\,(max)} \leq 1$$

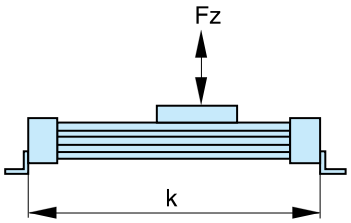
The total of the loads must not exceed >1 under any circumstances.

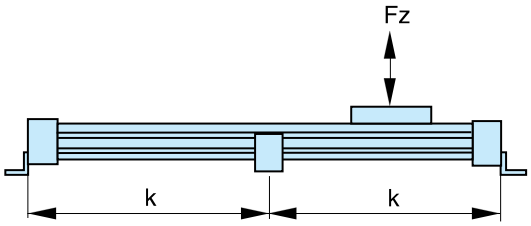
Stroke Length

The stroke lengths of the actuators are available in multiples of 1 mm up to above maximum stroke lengths.
OSP-E25SB: max. 1100 mm
OSP-E32SB: max. 2000 mm
OSP-E50SB: max. 3200 mm
Other stroke lengths are available on request.

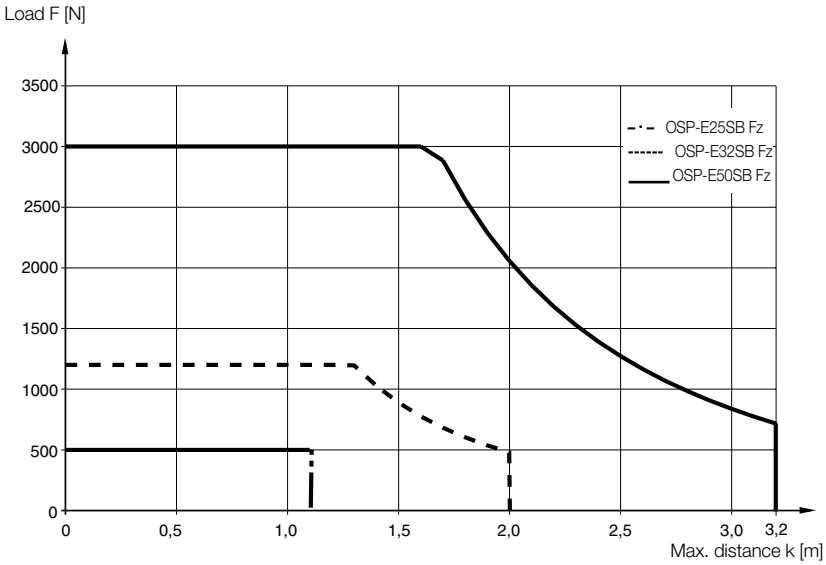
The end of stroke must not be used as a mechanical stop. Allow an additional safety clearance of minimum 25 mm at both ends.
The use of an AC motor with frequency converter normally requires a larder safety clearance than that required for servo systems. For advise, please contact your local Parker technical support department.

Maximum Permissible Unsupported Length – Placing of Profile Mounting





k = Maximum permissible distance between mountings/mid-section support for a given load F.



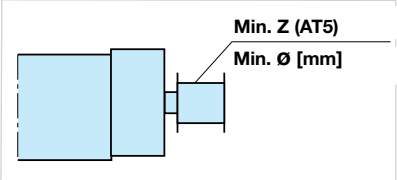
(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

Mounting on the Drive Shaft

Do not expose the drive shaft to uncontrolled axial or radial forces when mounting coupling or pulley, a steadying block should be used.

Pulleys

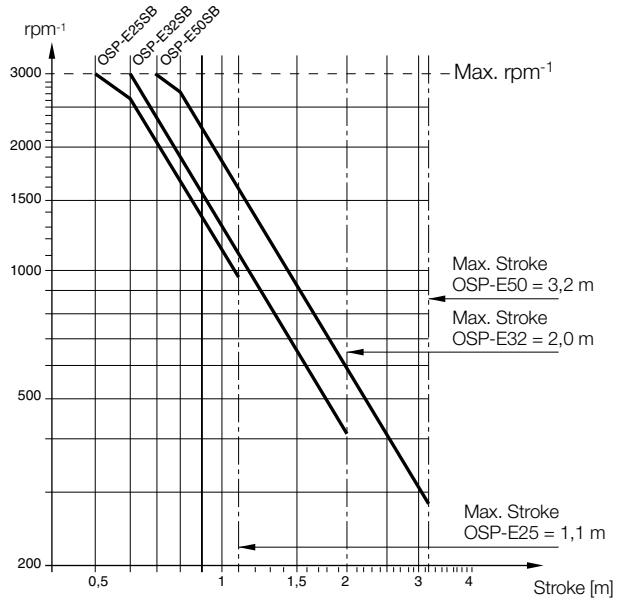
Minimum allowable number of teeth (AT5) and diameter of pulley at maximum applied torque.



Series	Min. Z	Min Ø
OSP-E25B	24	38
OSP-E32B	24	38
OSP-E50B	36	57

Maximum rpm / Stroke

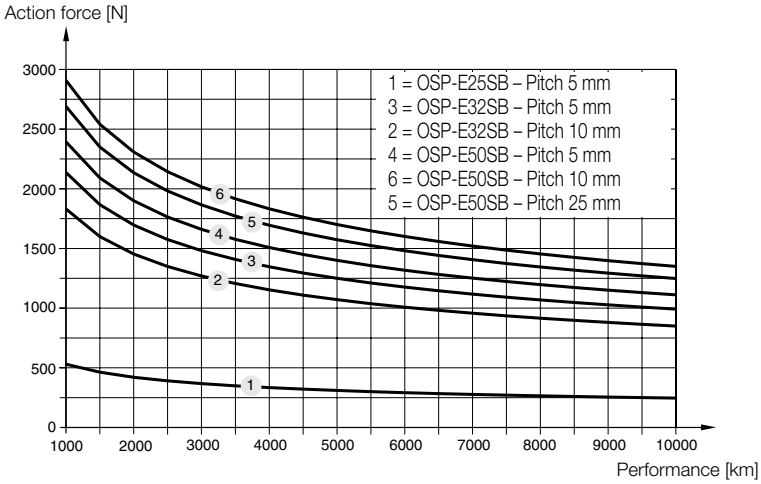
At longer strokes the speed has to be reduced according to the adjacent graphs.



The maximum rpm shown in the graph, is 80% of the critical rpm.

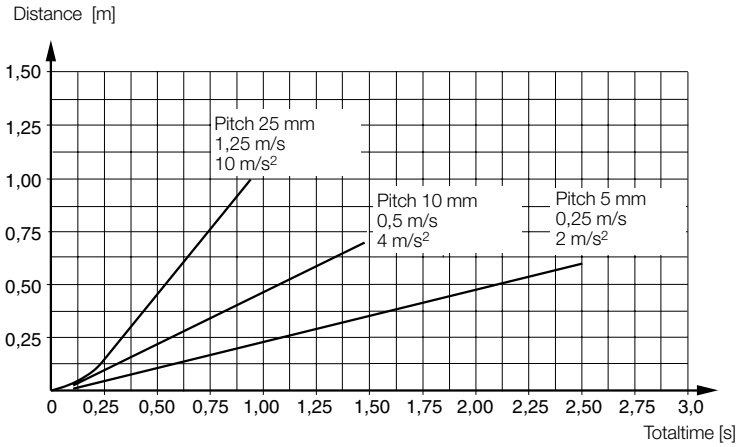
Performance / Action Force

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.



Distance / Time Graph

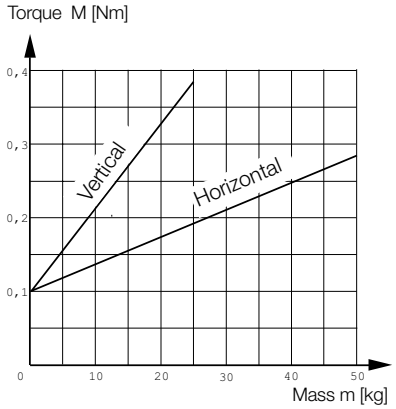
The adjacent graphs show travel distance and total time at maximum speed and recommended maximum acceleration. The graph assumes that acceleration and deceleration are equal.



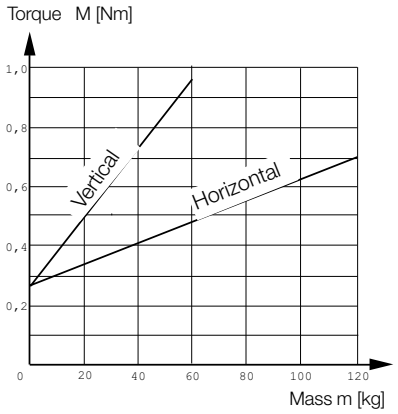
Using the known mass, the direction of the application and the recommended acceleration, the actuator can be sized and the required torque is shown in the adjacent graphs.
Mass in graphs = Load + moving mass of the actuator according to the weight chart (see table on page 61).

Please mind: If an additional guide is used, mind the weight of the guide carriage.

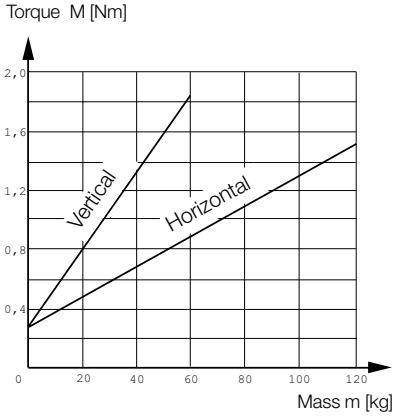
Size OSP-E25SB, Pitch 5mm
Acceleration 2 m/s²



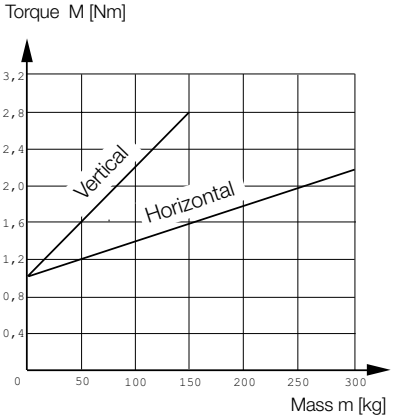
Size OSP-E32SB, Pitch 5 mm
Acceleration 2 m/s²



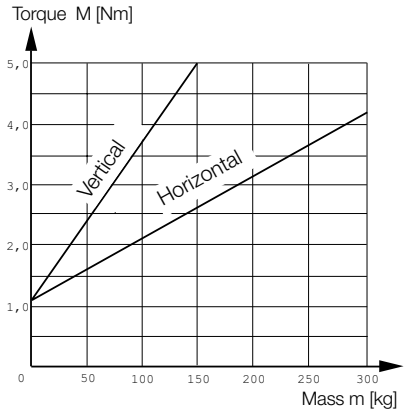
Size OSP-E32SB, Pitch 10 mm
Acceleration 4 m/s²



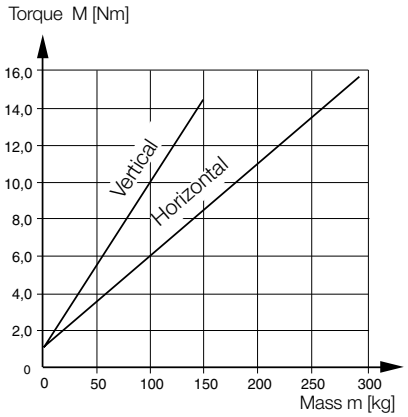
Size OSP-E50SB, Pitch 5 mm
Acceleration 2 m/s²



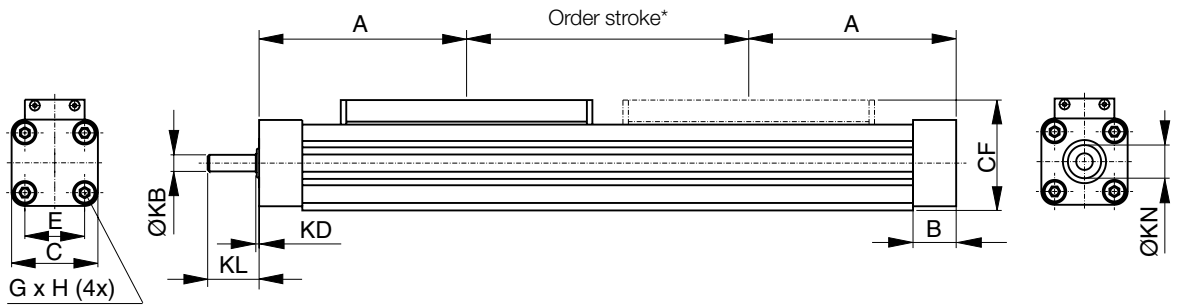
Size OSP-E50SB, Pitch 10 mm
Acceleration 4 m/s²

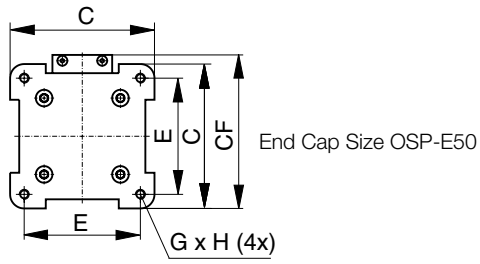


Size OSP-E50SB, Pitch 25 mm
Acceleration 10 m/s²

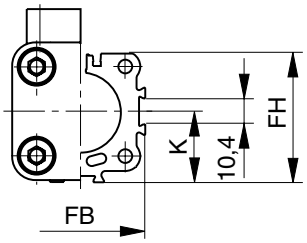


OSP-E..SB
Ball Screw Actuator with Internal Plain Bearing Guide – Basic Unit

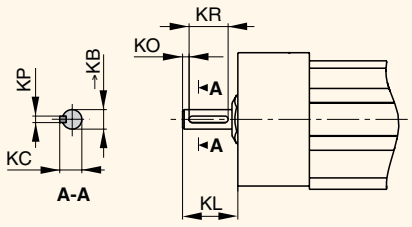




End Cap Size OSP-E50



Plain Shaft with Keyway (Option)

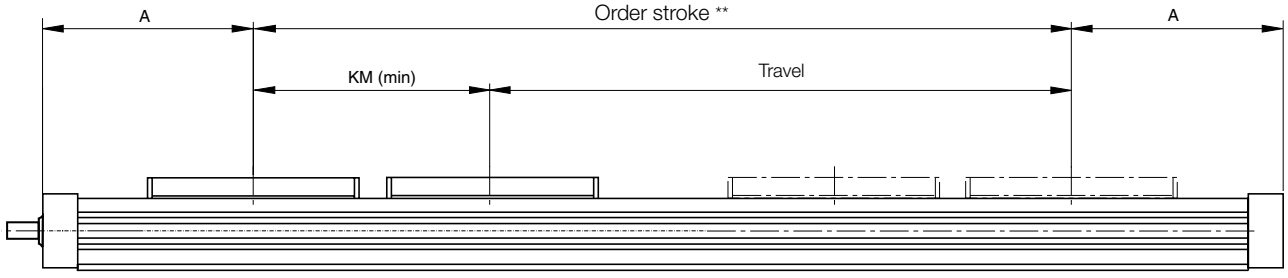


Series	ØKB$_{h7}$	KC	KL		KO	KP^{P9}	KR
			Opt. 3	Opt. 4			
OSP-E25SB	6	6.8	17	24	2	2	12
OSP-E32SB	10	11.2	31	41	5	3	16
OSP-E50SB	15	17.0	43	58	6	5	28

Option 3: Keyway
Option 4: Keyway long version

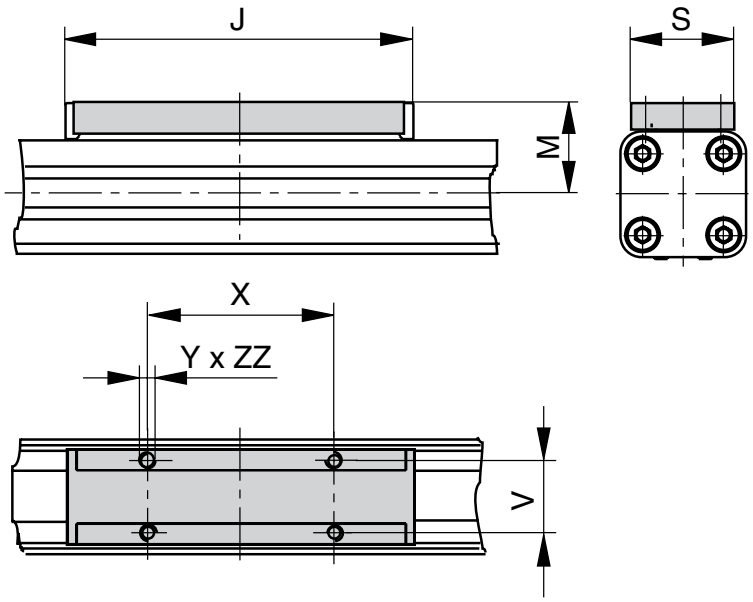
* **Note:** The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 25 mm. Order stroke = required travel + 2 x safety distance. The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information, please contact your local Parker representative.

Option – Tandem



** Order stroke = required travel + KM min + 2 x safety distance

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	KM $_{min}$	KN	ZZ
OSP-E25SB	100	22.0	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5	40	39.5	6_{h7}	2	17	120	13	8
OSP-E32SB	125	25.5	52	36	M6 x 12	152	28.5	38	36	27	90	M6	66.5	52	51.7	10_{h7}	2	31	165	20	10
OSP-E50SB	175	33.0	87	70	M6 x 12	200	43.0	49	36	27	110	M6	92.5	76	77.0	15_{h7}	3	43	235	28	10

Order Instructions	OSPE25	–	1	0	3	0	0 –	00000	–	0	0	0	0	0	0

Size of Actuator	
25	Size 25
32	Size 32
50	Size 50

Type of Actuator	
1	Ball Screw Actuator with Internal Plain Bearing Guide

Carriage	
0	Standard
1 *	Tandem
3 *	Clean Room
4 *	Position Measurement System SFI-plus (see page 171 ff)

Pitch	
3	5 mm (size 25, 32 and 50)
4	10 mm (size 32 and 50)
5	25 mm (size 50)

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 [1]	x [1]	
A1	SY873T	x [1]	x [1]	x [1]
A2	SMx60 xx xxx 8 11 …	x [1]	x [1]	
A3	SMx82 xx xx 8 14 …		x [1]	x [1]
A7	PS60		x [1]	x [1]
C0	LP050 / PV40-TA	x [1]	x [1]	
C1	LP070 / PV60-TA		x [1]	x [1]

x [1]: If a mounting kit is selected the **drive shaft** is a plain shaft

Info: Motor and gear mounting dimensions see page 191

Guide Position	
0	Standard

External Guide / Carriage Mounting see page 155 ff	
0	without
2	SL Slideline
6	PL Proline
D	HD Heavy duty
E	PS Powerslide 25/25
F	PS Powerslide 25/35, 32/35
G	PS Powerslide 25/44, 32/44
H	PS Powerslide 50/60
I	PS Powerslide 50/76
M	Inversion
R	Compensation
S	Compensation Low Back Lash

Niro	
0	Standard
1*	Niro Screw

Accessories - please order separately	
Description	**Page**
Motor Mounting	137 ff
Multi-Axis System for Actuators	177 ff

Magnetic Sensors *	see page 165 ff
0	without
1	1 pc. RST-K 2NO / 5 m Cable
2	1 pc. RST-K 2NC / 5 m Cable
3	2 pc. RST-K 2NC / 5 m Cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m 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

Profile Mounting *	see pages 147 ff and 161 ff
0	without
1	1 Pair Type 1
2	1 Pair Type D1
3	1 Pair Type MAE
4	2 Pair Type 1
5	2 Pair Type D1
6	2 Pair Type MAE
7	3 Pair Type 1
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

End Cap Mounting *	see page 141 ff and 161 ff
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)

***** Option

OSP-E..ST Trapezoidal Screw Actuator with Internal Plain Bearing Guide

Content

Trapezoidal Screw Actuator with Internal Plain Bearing Guide for Intermittent Applications

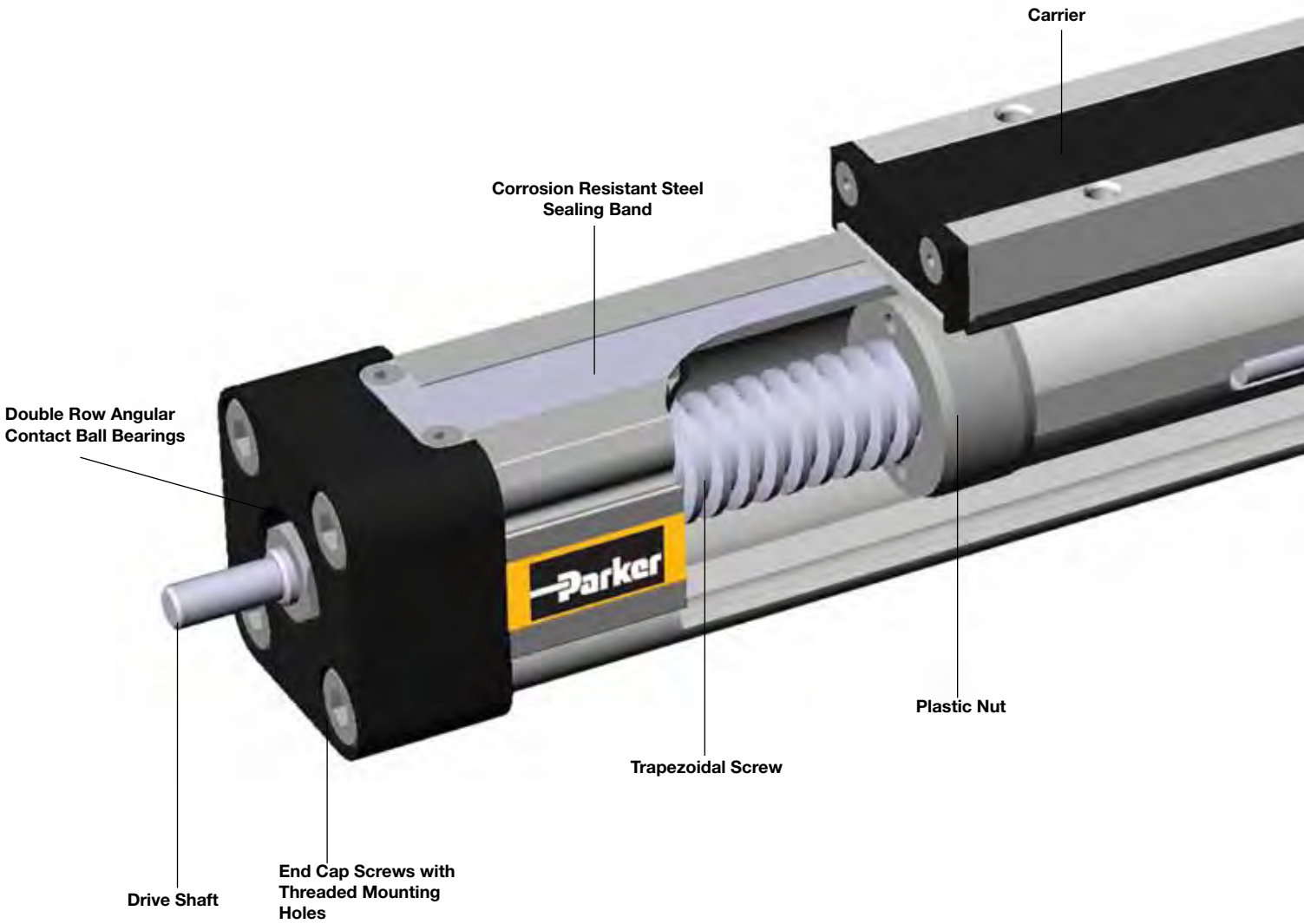
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

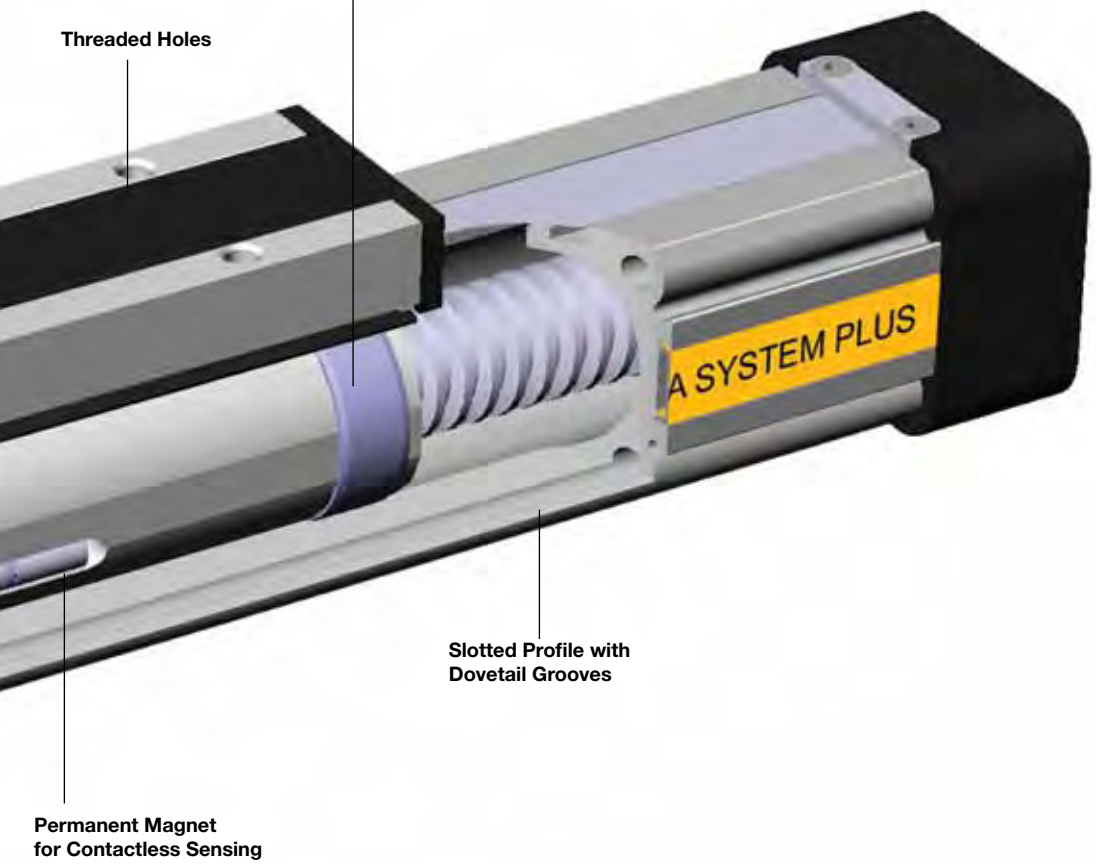
Advantages

- 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

- Integrated Drive and Guidance System
- Complete Motor and Control Packages
- Diverse Range of Accessories and Mountings
- Special Options Available





SLIDELINE
Combination with linear guides provides for heavier loads.

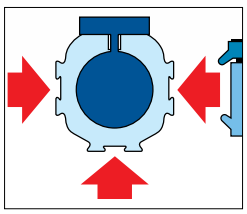
POWERSLIDE
Roller bearing precision guidance for smooth travel and high dynamic or static loads.

PROLINE
The compact aluminium roller guide for high loads and velocities.

Heavy Duty guide
HD linear guides for heavy duty applications

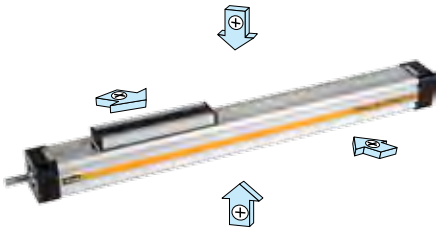
SFI-plus
displacement measuring system

The dovetailed mounting rails of the new acutator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.

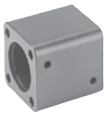


OSP-E..ST Trapezoidal Screw Actuator with Internal Plain Bearing Guide

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



Accessories
Motor Mountings



Inversion Mounting
The inversion mounting, mounted on the carrier, transfers the driving force to the opposite side, e.g. for dirty environments.

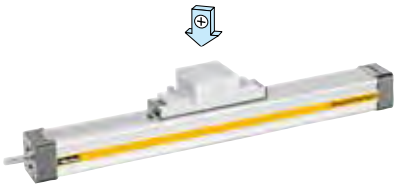
End Cap Mounting
For end-mounting of the actuator

Magnetic Sensors Series RST and EST
For contactless position sensing of end stop and intermediate carrier positions.

Profile Mounting
For supporting long actuators or mounting the actuator on the dovetail grooves.

Measuring System - SFI PLUS
Incremental measuring system with practically relevant resolution.

Clevis Mounting
Carrier with tolerance and parallelism compensation to drive external linear guides.



Standard Version

- Standard Carrier with Internal Plain Bearing Guide
- Dovetail Profile for Mounting of Accessories and the Actuator itself
- Pitch of Trapezoidal Spindle:

Type OSP-E25ST : 4 mm
Type OSP-E32ST: 4 mm
Type OSP-E50ST: 6 mm

Options

- Displacement Measuring System SFI-plus
- Keyway

Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..ST
Name				Trapezoidal Screw Actuator with Internal Plain Bearing Guide
Mounting				see drawings
Temperature Range		ϑ_{min} ϑ_{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
	Guide Bearings			Low Friction Plastic
	Sealing Band			Hardened, corrosion restiant steel
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Protection Class			IP	54

Weight (mass) and Inertia

Series	Weight (mass) [kg]			Inertia [x 10^{-6} kgm^2]		
	at stroke 0 m	add per metre stroke	moving mass	at stroke 0 m	add per metre	per kg mass
OSP-E25ST	0.9	2.8	0.2	6.0	30	0.4
OSP-E32ST	2.1	5.0	0.5	21.7	81	0.4
OSP-E50ST	5.1	10.6	1.3	152.0	400	0.9

Installation Instructions

Use the threaded holes in the free end cap and a profile mounting close to the motor end for mounting the actuator.
See if profile mountings are needed using the maximum permissible unsupported length graph on page 73. At least one end cap must be secured to prevent axial sliding when Profile Mounting is used. When the actuator is moving an externally guided load, the compensation must be used. The actuators can be fitted with the standard carrier mounting facing in any direction.
To prevent contamination such as fluid ingress, the drive should be fitted with its sealing band facing downwards.
The inversion mounting can be fitted to transfer the driving force to the opposite side.

Maintenance

All moving parts are long-term lubricated for a normal operational environment. Parker 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 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 actuator machine into service, the user must ensure the adherence to the EC Machine Directive 2006/42/EG.

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).

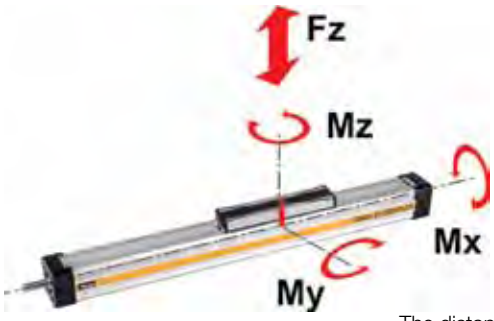
Performance Overview

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^{-1}]	1,500	1,500	1,500
Max. Effective Action Force F_A Corresponding Torque on Drive Shaft	[N] [Nm]	600 1.35	1,300 3.2	2,500 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_L 1)	[N]	600	1,300	2,500
Repeatability	[mm]	±0.05	±0.05	±0.05
Max. Standard Stroke Length	[mm]	1,100	2,000	2,500*

1) Related to screw Type s Tr 16x4. Tr 20x4. TR 30x6 see page 71 ff – for inertia.

* For strokes longer than 2,000 mm in horizontal apllications. please contact our customer support.

Forces, Loads and Moments



$M = F \cdot l$ [Nm]
$M_x = M_{x\,static} + M_{x\,dynamic}$
$M_y = M_{y\,static} + M_{y\,dynamic}$
$M_z = M_{z\,static} + M_{z\,dynamic}$

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

Maximal Permissible Loads

T3

Size	Max. applied load [N]	Max. moments [Nm]		
	F_z, F_y	M_x	M_y	M_z
OSP-E25ST	500	2	24	7
OSP-E32ST	1000	6	65	12
OSP-E50ST	1500	13	155	26

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.

Equation of Combined Loads

$$\frac{F_y}{F_y\,(max)} + \frac{F_z}{F_z\,(max)} + \frac{M_x}{M_x\,(max)} + \frac{M_y}{M_y\,(max)} + \frac{M_z}{M_z\,(max)} \leq 1$$

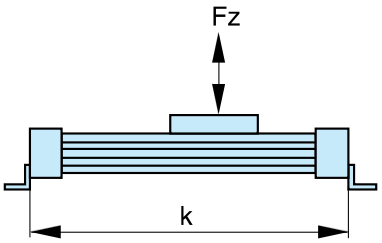
Stroke Length

The stroke lengths of the actuators are available in multiples of 1 mm up to the following maximum stroke lengths.
OSP-E25ST: max. 1100 mm
OSP-E32ST: max. 2000 mm
OSP-E50ST: max. 2500 mm *
Other stroke lengths are available on request.

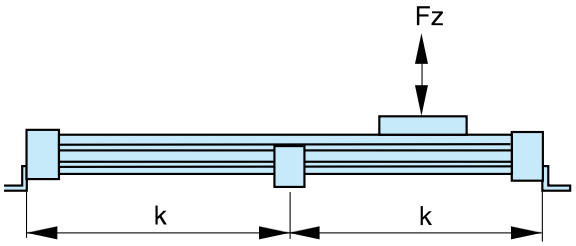
* For strokes longer than 2000 mm in horizontal applications, please contact our customer support

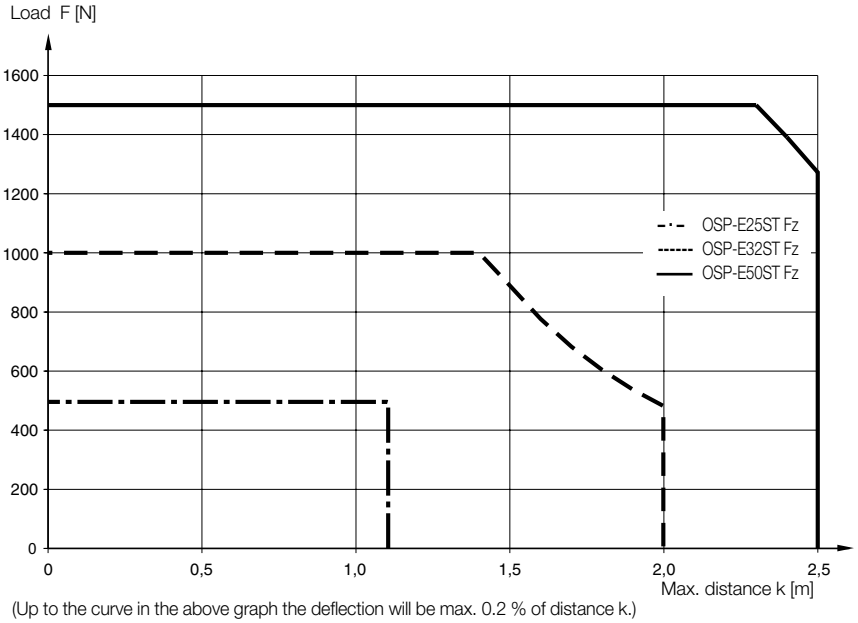
The end of stroke must not be used as a mechanical stop. Allow an additional safety clearance of minimum 25 mm at both ends. The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For advise, please contact your local Parker technical support department.

Maximum Permissible Unsupported Length – Placing of Profile Mounting



k = Maximum permissible distance between mountings/mid-section support for a given load F.





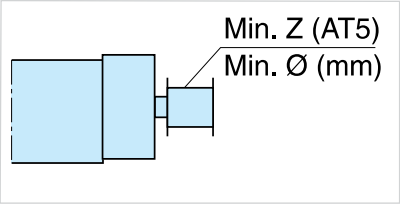
(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

Mounting on the Drive Shaft

Do not expose the drive shaft to uncontrolled axial or radial forces when mounting coupling or pulley, a steadying block should be used.

Pulleys

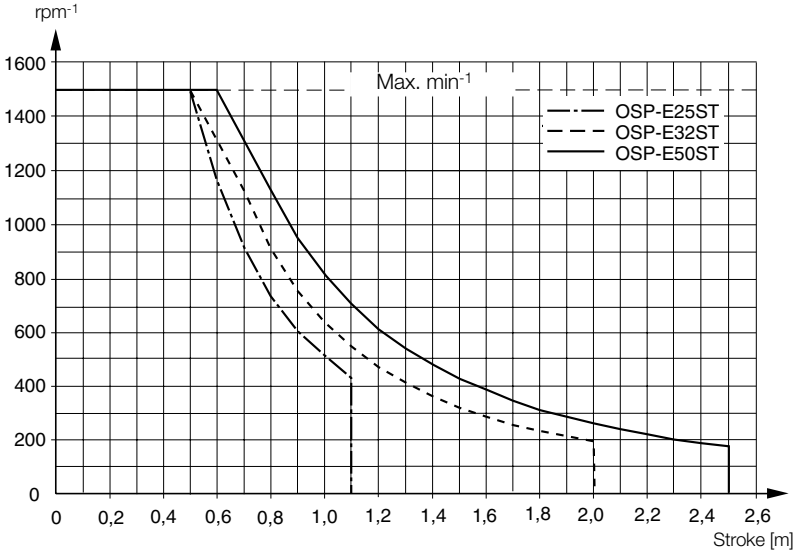
Minimum allowable number of teeth (AT5) and diameter of pulley at maximum applied torque.



Series	Min. Z	Min Ø
OSP-E25ST	24	38
OSP-E32ST	24	38
OSP-E50ST	36	57

Maximum rpm / Stroke

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

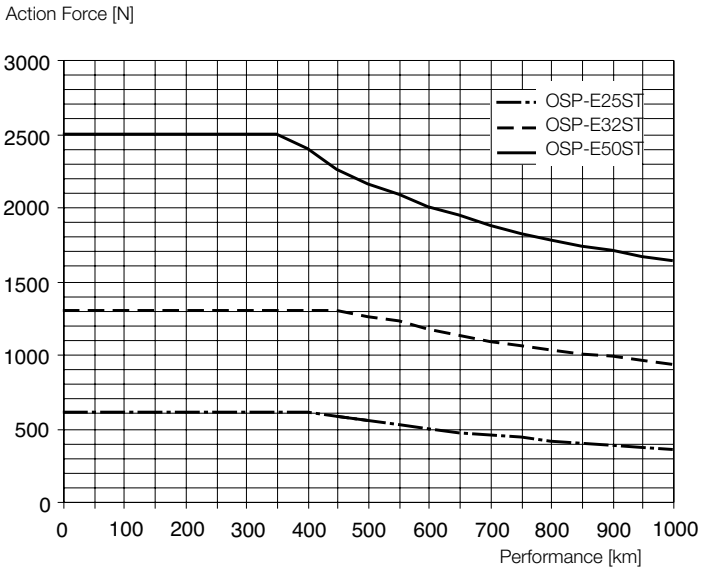


The maximum rpm shown in the graph, is 80% of the critical rpm.

Performance as a Function of the Action Force

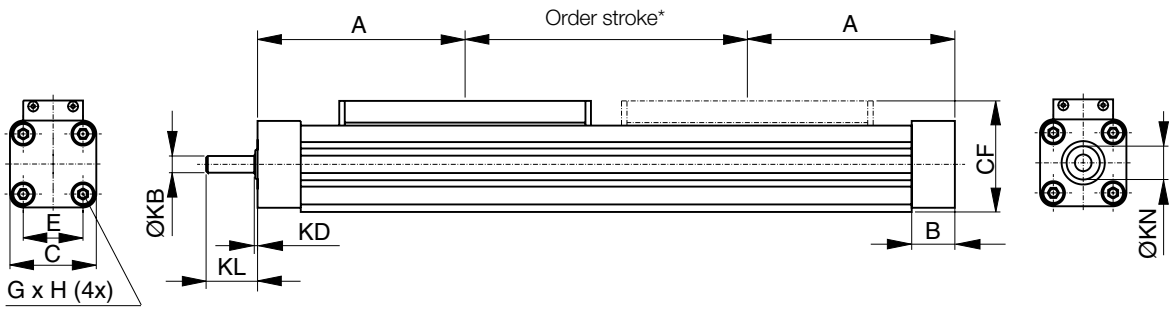
The actuators are designed for a 10% intermittent usage.

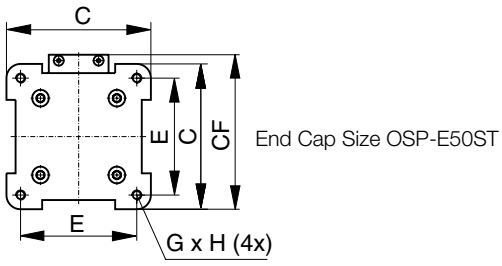
The performance to be expected depends on the maximum required actions force of the application.
An increase of the action force will lead to a reduced performance.



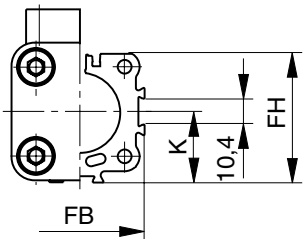
Note: Graph above is based upon 10% intermittent usage.

OSP-E..ST
Trapezoidal Screw Actuator with Internal Plain Bearing Guide - Basic Unit

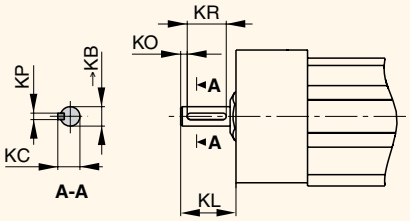




End Cap Size OSP-E50ST



Plain Shaft with Keyway (Option)

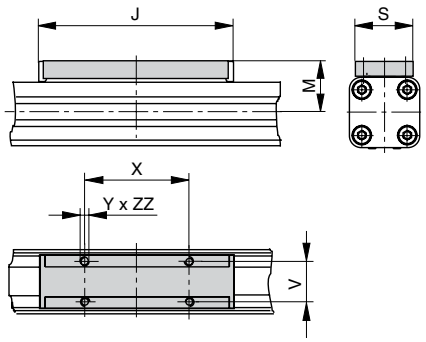


Series	ØKB$_{h7}$	KC	KL	KP	KO	KP^{P9}	KR
			Opt. 3	Opt. 4			
OSP-E20ST	6	6.8	17	24	2	2	12
OSP-E25ST	10	11.2	31	41	5	3	16
OSP-E50ST	15	17.0	43	58	6	5	28

Option 3: Keyway
Option 4: Keyway long version

*** Note:** The mechanical end position must not be used as a 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 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	22.0	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5	40	39.5	6_{h7}	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_{h7}	2	31	20	10
OSP-E50ST	175	33.0	87	70	M6 x 12	200	43.0	49	36	27	110	M6	92.5	76	77.0	15_{h7}	3	43	28	10

Order Instructions	OSPE25	–	2	0	4	0	0 –	00000	–	0	0	0	0	0	0

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)

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 [1]	x [1]	
A1	SY873T	x [1]	x [1]	x [1]
A2	SMx60 xx xxx 8 11 …	x [1]	x [1]	
A3	SMx82 xx xx 8 14 …		x [1]	x [1]
A7	PS60		x [1]	x [1]
C0	LP050 / PV40-TA	x [1]	x [1]	
C1	LP070 / PV60-TA		x [1]	x [1]

x [1]: If a mounting kit is selected the **drive shaft** is a plain shaft

Info: Motor and gear mounting dimensions see page 191

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

Guide Position	
0	Standard

External Guide / Carriage Mounting see pages 101 ff	
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

Niro	
0	Standard
1 *	Niro Screws

* Option

Accessories - please order separately	
Description	**Page**
Motor Mounting	137 ff
Multi-Axis System for Actuators	177 ff

***** Option

Magnetic Sensors * see page 165 ff	
0	without
1	1 pc. RST-K 2NO / 5 m cable
2	1 pc. RST-K 2NC / 5 m cable
3	2 pc. RST-K 2NC / 5 m cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m 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

Profile Mounting * see page 147 and 161 ff	
0	without
1	1 Pair Type 1
2	1 Pair Type D1
3	1 Pair Type MAE
4	2 Pair Type 1
5	2 Pair Type D1
6	2 Pair Type MAE
7	3 Pair Type 1
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

End Cap Mounting *see page 129 and 143 ff	
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)

OSP-E..SBR Ball Screw Actuator with Internal Plain Bearing Guide and Piston Rod

Contents

Ball Screw Actuator with internal Plain Bearing Guide and Piston Rod for Accurate Piston Rod Applications

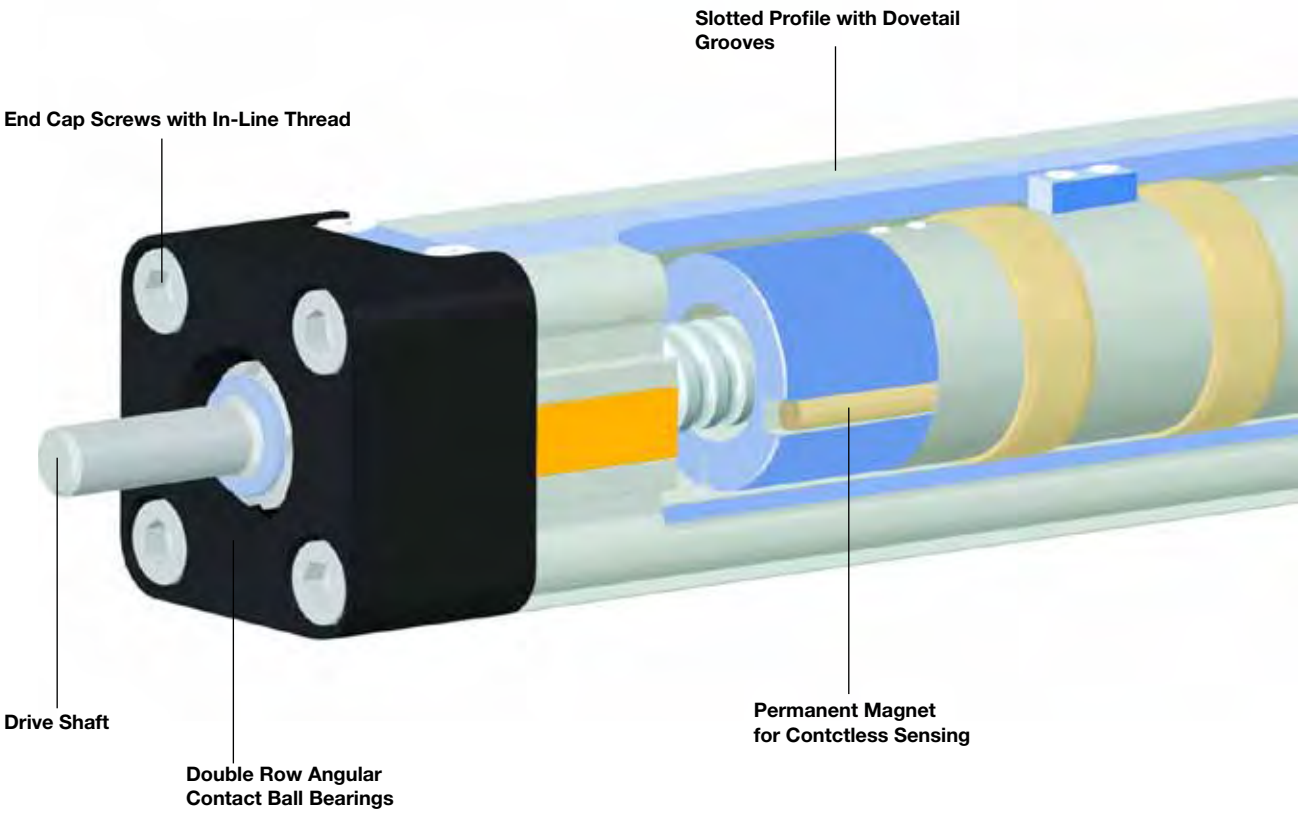
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

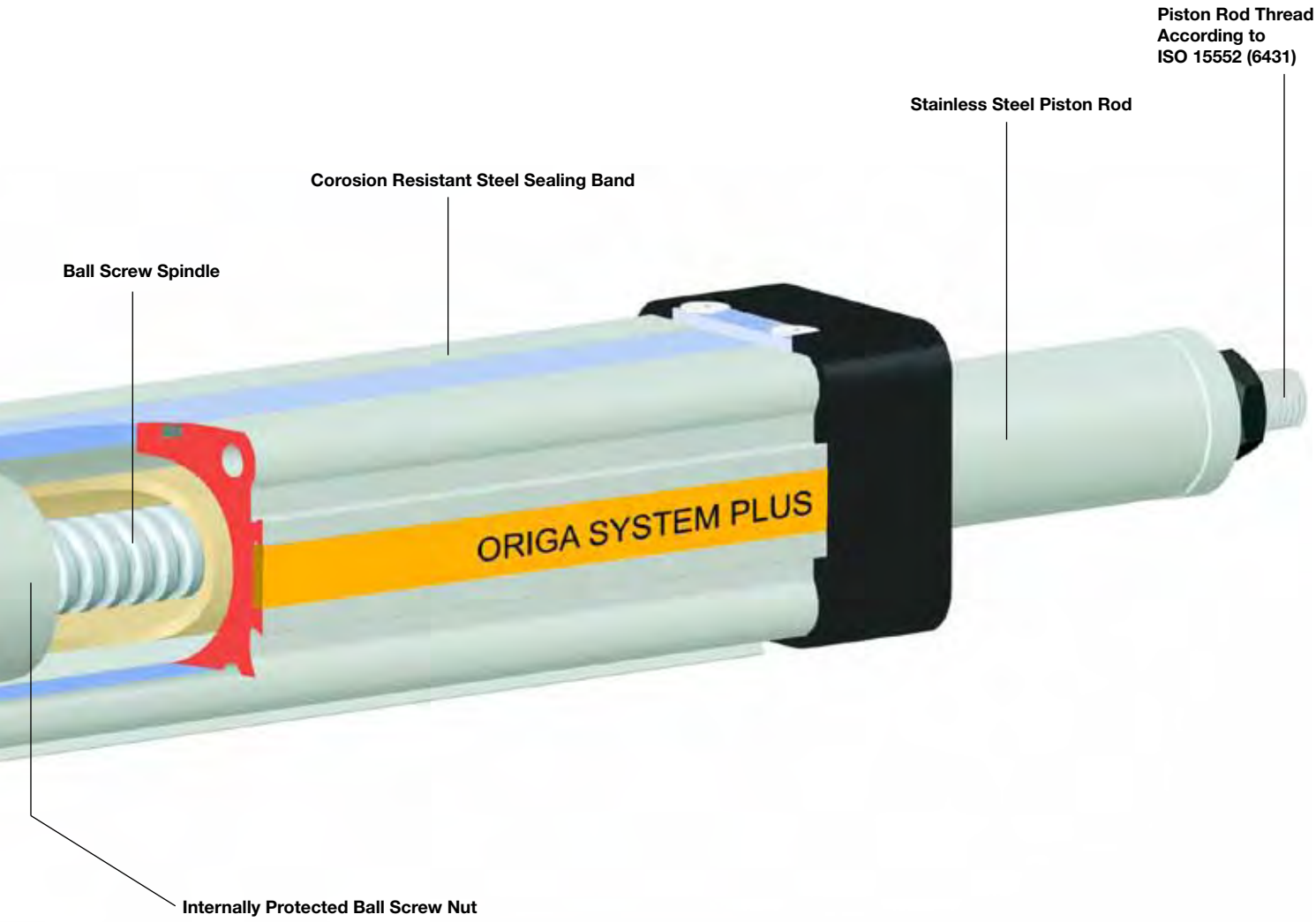
Advantages

- 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




Piston Rod Thread
According to
ISO 15552 (6431)
Stainless Steel Piston Rod
Corosion Resistant Steel Sealing Band
Ball Screw Spindle
ORIGA SYSTEM PLUS
Internally Protected Ball Screw Nut

OSP-E..SBR
Ball Screw Actuator with Internal Plain Bearing Guide and Piston Rod

Standard Versions
OSP-E..SBR

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

Ball Screw Pitch

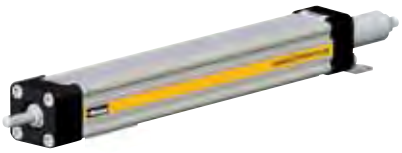
The ball screws spindles are available in various pitches:
OSP-E25SBR: 5 mm
OSP-E32SBR: 5, 10 mm
OSP-E50SBR: 5, 10, 25 mm

Accessories

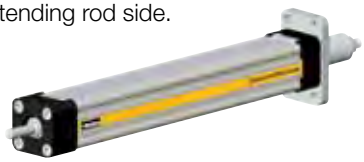
Motor Mountings

End Cap Mounting

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

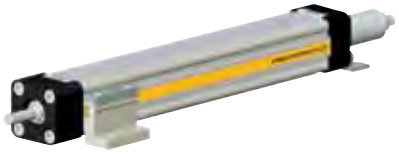


Flange Mounting C
For end-mounting the actuator on the extending rod side.



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 misaligments

Magnetic Sensors
Series RST and EST

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

Standard Version:

- Standard Piston Rod 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:

- Keyway Version

Characteristics

		Unit	Symbol	Description
General Features				
Series				OSP-E..SBR
Name				Ball Screw Actuator with Internal Plain Bearing Guide 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 Plasitc
	Sealing Band			Hardened, Corrosion Resistant Steel
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Protection 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 metre stroke	at stroke 0 m	add per metre stroke	at stroke 0 m	add per metre stroke
OSP-E25ST	0.7	3.0	0.2	0.9	1.2	11.3
OSP-E32ST	1.7	5.6	0.6	1.8	5.9	32.0
OSP-E50ST	4.5	10.8	1.1	2.6	50.0	225.0

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 locked against rotations, but must not be used for radial loads Mx, that need to be guided externally. A compensation part e. g. piston rod eye (see order instructions page 86) is recommended.

Maintenance

All moving parts are long-term lubricated for a normal operational environment. Parker recommends a check and lubrication of the actuator, 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 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.

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
Linearer Motion per Revolution Drive Shaft	[mm]	5	5	10	5	10	25
Maximum rpm. Drive Shaft	[min^{-1}]	3000	3000		3000		
Max. Effective Action Force F_A Corresponding Torque Drive Shaft	[N] [Nm]	260 0.45	900 1.1	1.8	1200 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]	±0.05	±0.05		±0.05		
Max. Standard Stroke	[mm]	500	500		500		

Sizing of Actuator

The following steps are recommended for selection :

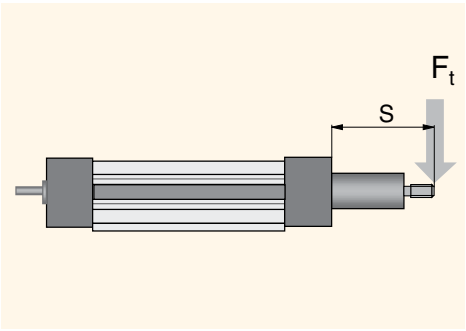
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.

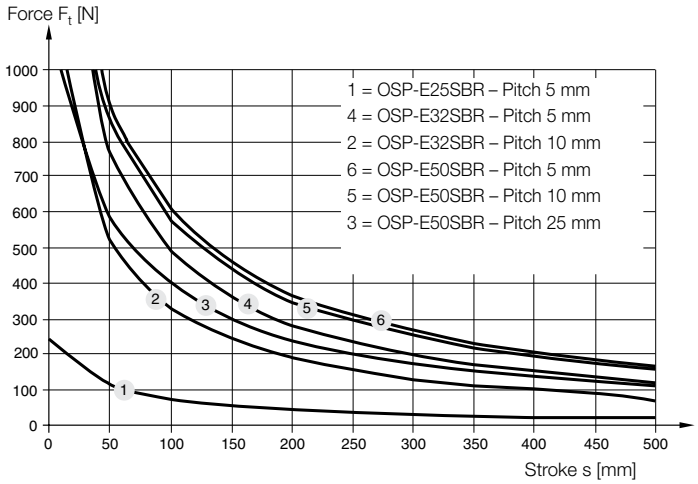
2. Check the lifetime/travel distance in graph below.

3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in applicationg.

Transverse Force / Stroke

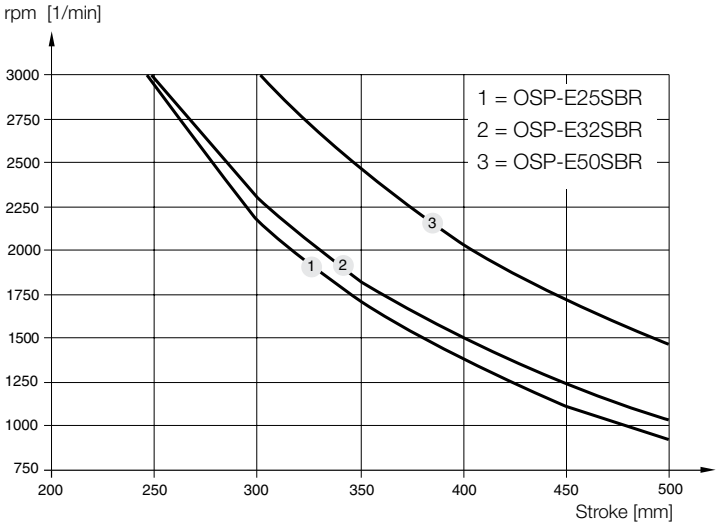
The permissible transverse force is reduced with increasing stroke length according to the adjacent graphs.





Maximum rpm / Stroke

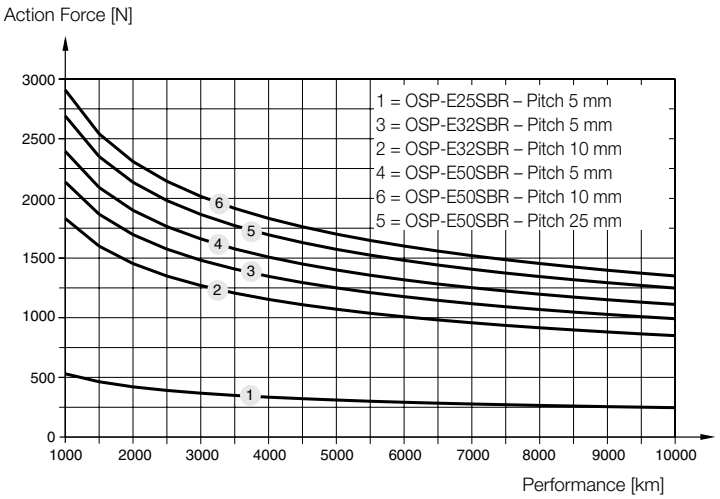
At longer stokes the speed has to be reduced according to the adjacent graphs.



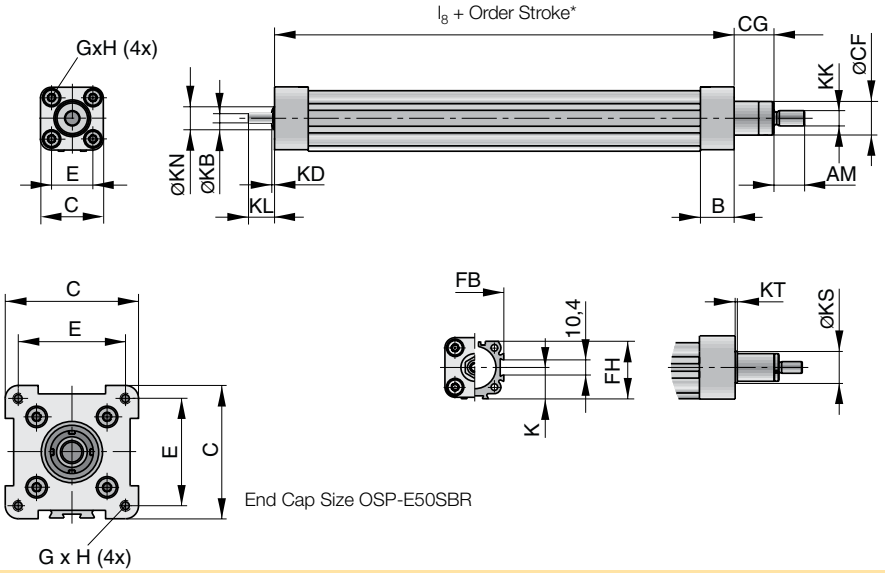
Performance as a Function of the Action Force

The performance to be expected depends on the maximum required actions force of the application.

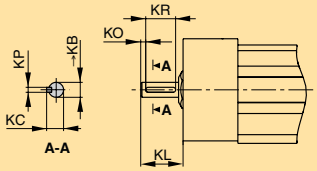
An increase of the action force will lead to a reduced performance.



OSP-E..SBR
Ball Screw Actuator with Internal Plain Bearing Guide and Piston Rod - Basic Unit



Plain Shaft with Keyway (Option)



Series	ØKB$_{h7}$	KC	KL		KO	KP^{P9}	KR
			Opt. 3	Opt. 4			
OSP-E25SBR	6	6.8	17	24	2	2	12
OSP-E32SBR	10	11.2	31	41	5	3	16
OSP-E50SBR	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 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 representative.

Dimension [mm]

Series	B	C	E	G x H	K	l_8	AM	ØCF	CG	FB	FH	ØKB	KD	KK	KL	ØKN	ØKS	KT
OSP-E25SBR	22.0	41	27	M5 x 10	21.5	110.0	20	22	26	40	39.5	6_{h7}	2	M10 x 1.25	17	13	-	-
OSP-E32SBR	25.5	52	36	M6 x 12	28.5	175.5	20	28	26	52	51.7	10_{h7}	2	M10 x 1.25	31	20	33	2
OSP-E50SBR	33.0	87	70	M6 x 12	43.0	206.0	32	38	37	76	77.0	15_{h7}	3	M16 x 1.5	43	28	44	3

Order Instructions	OSPE25	–	4	0	5	0	0 –	00000	–	0	0	0	0	0	0

Size of Drive	
25	Size 25
32	Size 32
50	Size 50

Type of Drive	
4	Ball Screw Actuator with Internal Plain Bearing Guide And Piston Rod

Pitch	
5	5 mm (for size 25, 32 and 50)
7	10 mm (for size 32 and 50)
8	25 mm (for size 50)

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 [1]	x [1]	
A1	SY873T	x [1]	x [1]	x [1]
A2	SMx60 xx xxx 8 11 …	x [1]	x [1]	
A3	SMx82 xx xx 8 14 …		x [1]	x [1]
A7	PS60		x [1]	x [1]
C0	LP050 / PV40-TA	x [1]	x [1]	
C1	LP070 / PV60-TA		x [1]	x [1]

x [1]: If a mounting kit is selected the **drive shaft** is a plain shaft

Info: Motor and gear mounting dimensions see page 191

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

Piston Rod Mounting * see page 155 ff	
0	without
T	Piston Rod Eye
U	Piston Rod Clevis
V	Piston Rod Compensating Coupling

Niro	
0	Standard
1*	Niro Screws

Magnetic Sensors * see page 165 ff	
0	without
1	1 pc. RST-K 2NO / 5 m Cable
2	1 pc. RST-K 2NC / 5 m Cable
3	2 pc. RST-K 2NC / 5 m Cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m 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

Profile mounting * see page 141ff	
0	without
1	1 Pair Type 1
2	1 Pair Type D1
3	1 Pair Type MAE
4	2 Pair Type 1
5	2 Pair Type D1
6	2 Pair Type MAE
7	3 Pair Type 1
8	3 Pair Type D1
9	3 Pair Type MAE
	see page 154
K	1 Pair Trunnion Mounting EN
L	1 Pair Trunnion EN and Pivot Mounting EL

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

Accessories - please order separately	
Description	**Page**
Motor Mounting	137 ff
Multi-Axis System for Actuators	177 ff

***** Option

Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod

Content

Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod for Intermittent Applications

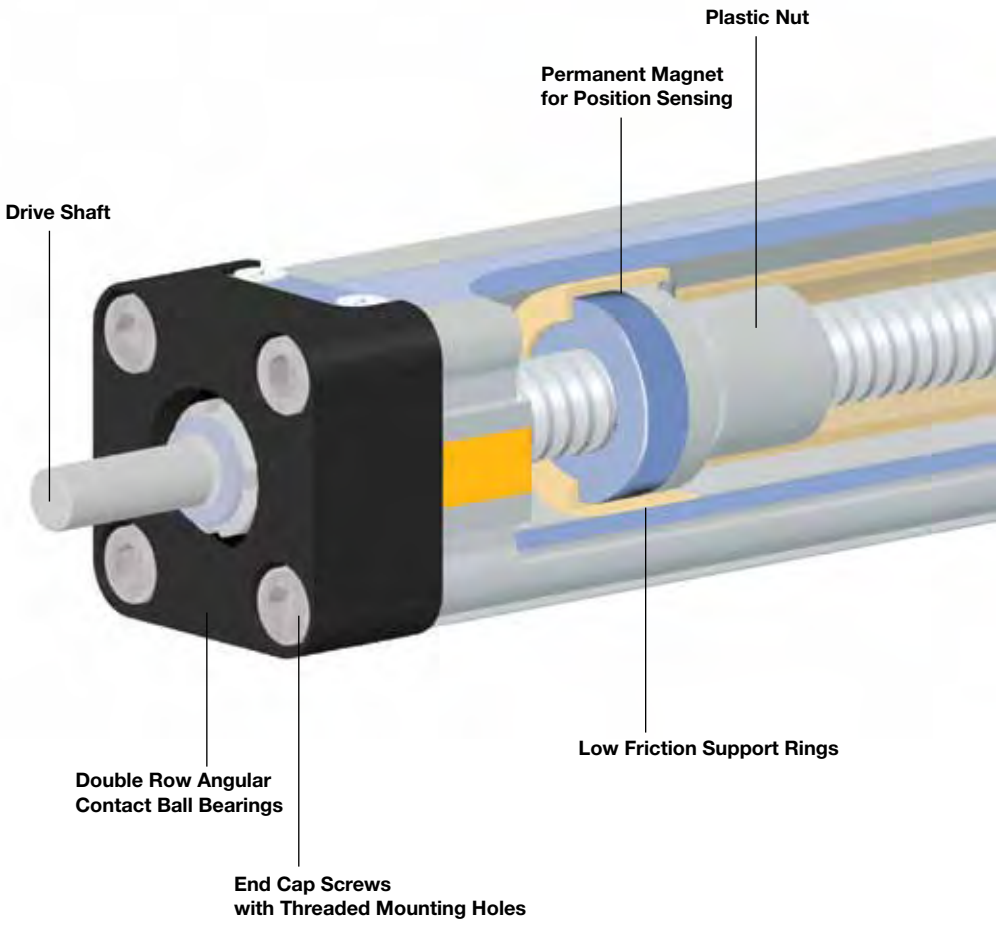
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

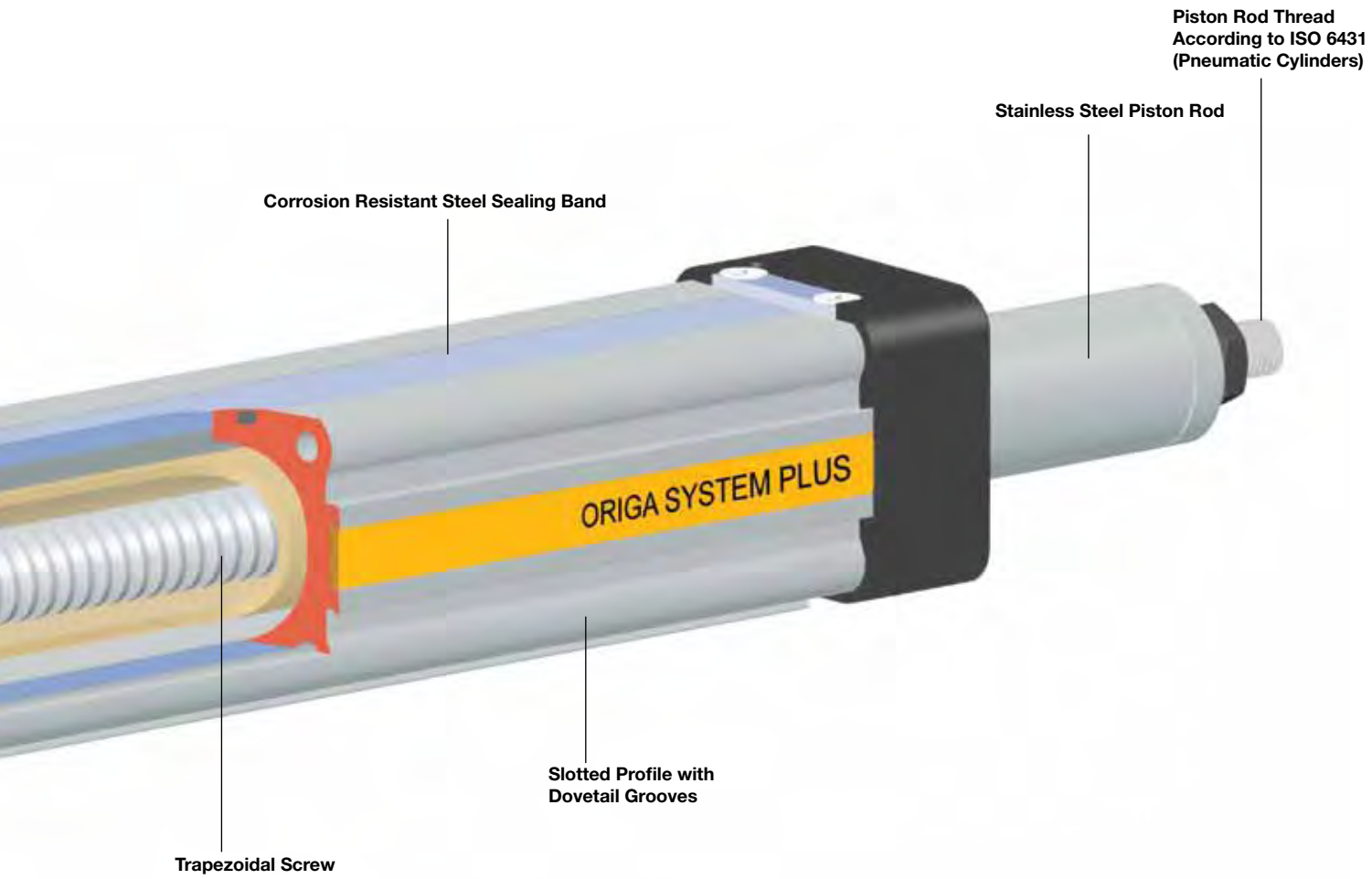
Advantages

- 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




Piston Rod Thread
According to ISO 6431
(Pneumatic Cylinders)
Stainless Steel Piston Rod
Corrosion Resistant Steel Sealing Band
ORIGA SYSTEM PLUS
Slotted Profile with
Dovetail Grooves
Trapezoidal Screw

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

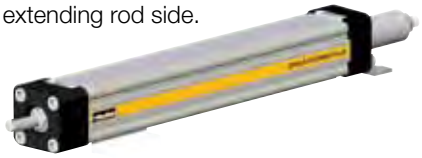
Standard Versions
OSP-E..STR

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

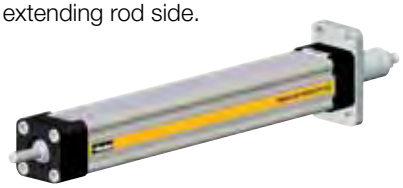
Accessories

Motor Mountings

End Cap Mounting
For end-mounting the actuator on the extending rod side.

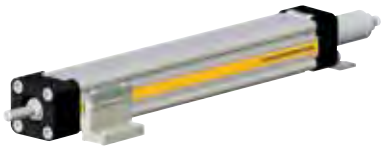


Flange Mounting C
For end-mounting the actuator on the extending rod side.



Profile Mounting

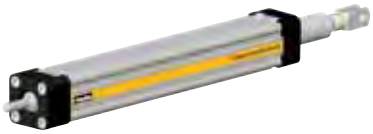
For mounting the actuator on the dovetail grooves and on the motor end.



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

Compensation Piston Rod Eye

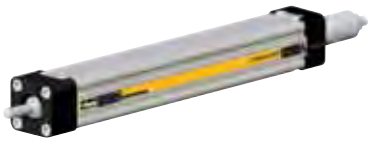
Piston Rod Clevis



Piston Rod Compensating Coupling
For compensating of radial and angular misaligments

Magnetic Sensors Series RST and EST

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



Standard Version

- Dovetail Profile for Mounting of Accessoires and the Acutator Itself
- Pitch of Trapezoidal Spindle

Type OSP-E25STR : 3 mm
Type OSP-E32STR: 4 mm
Type OSP-E50STR: 5 mm

Characteristics

		Symbol	Unit	Description
General Features				
Series				OSP-E..STR
Name				Trapezoidal Actuator with Internal Plain Bearing Guide and Piston Rod
Mounting				see drawings
Temperature Range		ϑ_{min} ϑ_{max}	°C °C	-20 +70
Weight (mass)			kg	see table
Installation				in any position
	Slotted Profile			Extruded Anodized Aluminium
Material	Trapezoidal Screw			Cold Rolled Steel
	Drive Nut			Thermoplastic Polyester
	Piston Rod			Stainless Steel
	Sealing Band			Hardened, Corrision Resistant Steel
	Guide Bearings			Low Friction Plastic
	Screws, Nuts			Zinc Plated Steel
	Mountings			Zinc Plated Steel and Aluminium
Protection Class			IP	54

Weight (Masse) and Inertia

Series	Weight (mass) [kg]		Moving Mass[kg]		Inerita [x 10^{-6} kgm^2]	
	At stroke 0 m	Add per metre stroke	At stroke 0 m	Add per metre stroke	At stroke 0 m	Add per metre stroke
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 sensor mentioned below:

KL3096 (Type RS-K, normaly closed, Reed-contact, with cable)
KL3098 (Type ES-S, Magnetic electronic, PNP-sensor with DIN-plug)

Performance Overview

Characteristics	Unit	Description		
Size		**OSP-E25STR**	**OSP-E32STR**	**OSP-E50STR**
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^{-1}]	1500[2)]	1500	1500
Max. Effective Force Action F_A Corresponding Torque on Drive Shaft	[N] [Nm]	800 1.35	1600 3.4	3300 9.25
No-loads 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[1)]	[N]	800	1600	3300
Typical Repeatability	[mm]	±0.05	±0.05	±0.05
Max. Standard Stroke Length	[mm]	500	500	500

[1)] Related to screw Type s Tr 12x3, Tr 16x4, Tr 24x5 see page 93 – for inertia
[2)] from 0.4 m stroke max. 1200 min -1 permissible

Sizing of Actuator

The following steps are recommended for selection :

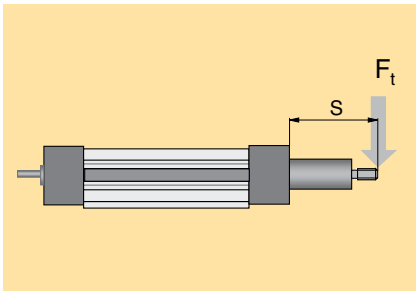
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.

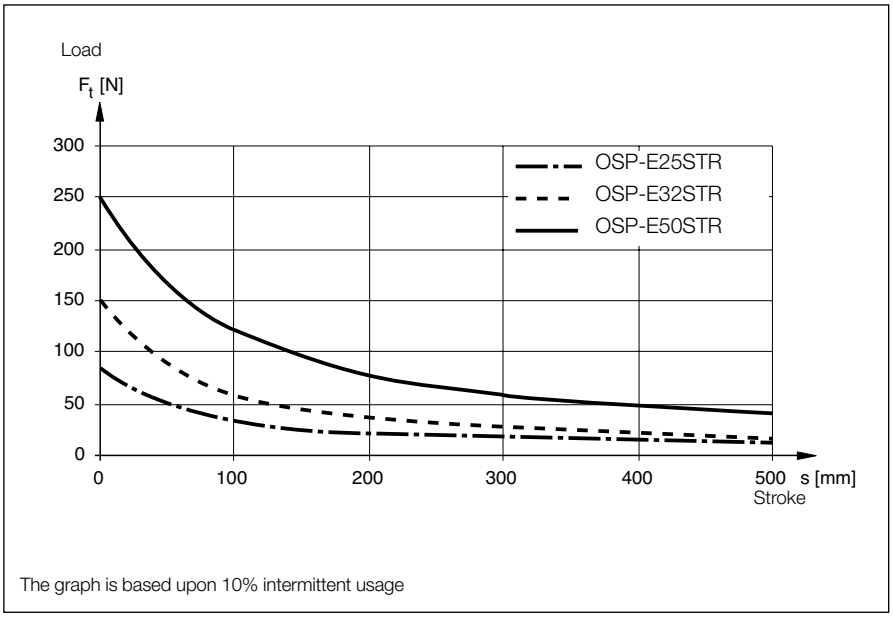
2. Check the lifetime/travel distance in graph below.

3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in application

Transverse Force / Stroke

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



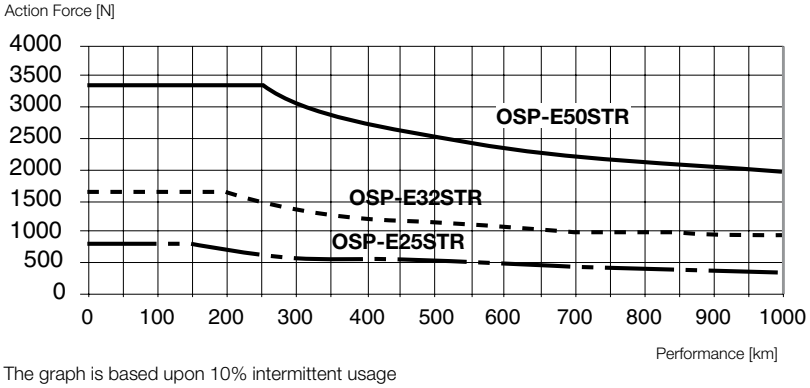


The graph is based upon 10% intermittent usage

Performance / Action Force

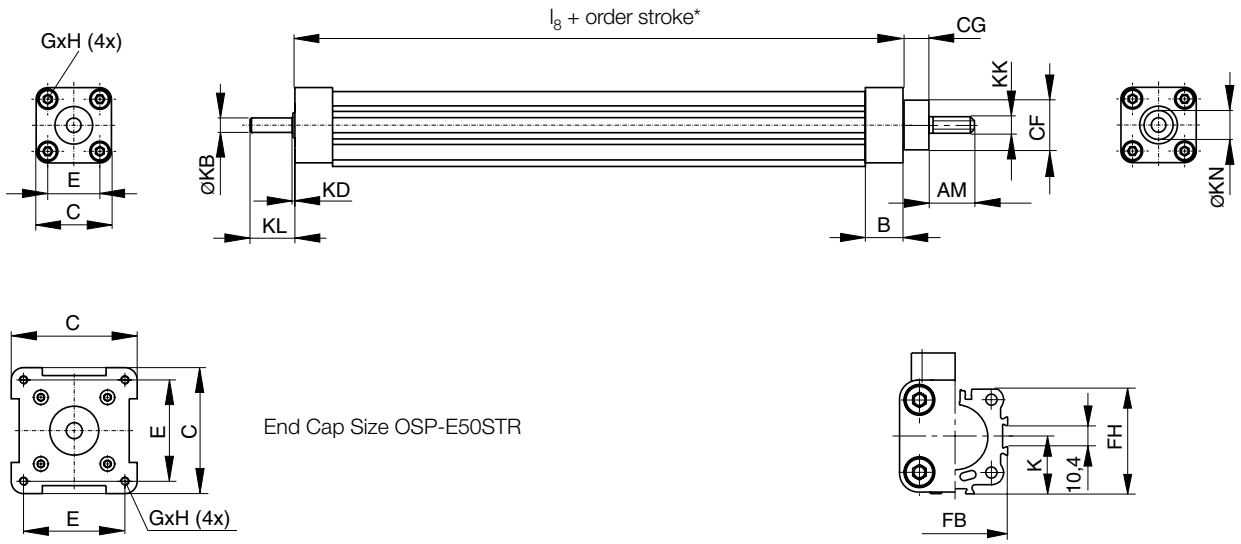
The Actuators are designed for a 10% intermittent usage.

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.

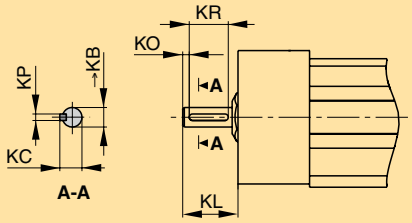


The graph is based upon 10% intermittent usage

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



Plain Shaft with Keyway (Option)



Series	⌀KB_{h7}	KC	KL		KO	KP^{P9}	KR
			Opt. 3	Opt. 4			
OSP-E25SBR	6	6.8	17	24	2	2	12
OSP-E32SBR	10	11.2	31	41	5	3	16
OSP-E50SBR	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 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 representative.

Dimension [mm]

Series	B	C	E	G x H	K	l_8	AM	CF	CG	FB	FH	KB	KD	KK	KL	KN
OSP-E25STR	22.0	41	27	M5 x 10	21.5	83.0	20	22	26	40	39.5	6_{h7}	2	M10 x 1.25	17	13
OSP-E32STR	25.5	52	36	M6 x 12	28.5	94.0	20	28	26	52	51.7	10_{h7}	2	M10 x 1.25	31	20
OSP-E50STR	33.0	87	70	M6 x 12	43.0	120.0	32	38	37	76	77.0	15_{h7}	3	M16 x 1.5	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)

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 [1]	x [1]	
A1	SY873T	x [1]	x [1]	x [1]
A2	SMx60 xx xxx 8 11 …	x [1]	x [1]	
A3	SMx82 xx xx 8 14 …		x [1]	x [1]
A7	PS60		x [1]	x [1]
C0	LP050 / PV40-TA	x [1]	x [1]	
C1	LP070 / PV60-TA		x [1]	x [1]

x [1]: If a mounting kit is selected the **drive shaft** is a plain shaft

Info: Motor and gear mounting dimensions see page 191

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

Magnetic Sensors *	see page 165 ff
0	without
1	1 pc. RS-K 2NO / 5 m Cable
2	1 pc. RS-K 2NC / 5 m Cable
3	2 pc. RS-K 2NC / 5 m Cable
4	2 pc. RS-K 2NC, 1 pc. RS-K 2NO / 5 m 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

Piston Rod Mounting *	see page 155 ff
0	without
T	Piston Rod Eye
U	Piston Rod Clevis
V	Piston Rod Compensating Coupling

Niro	
0	Standard
1*	Niro Screws

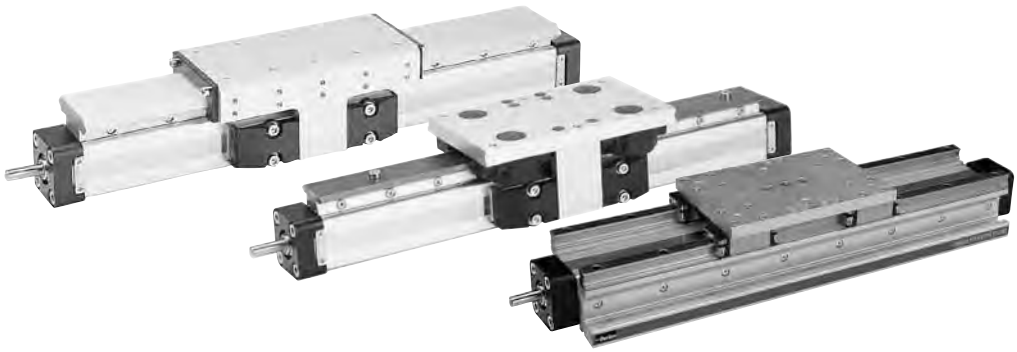
Profile Mounting *	see page 141 ff
0	Without
1	1 Pair Type 1
2	1 Pair Type D1
3	1 Pair Type MAE
4	2 Pair Type 1
5	2 Pair Type D1
6	2 Pair Type MAE
7	3 Pair Type 1
8	3 Pair Type D1
9	3 Pair Type MAE
	see page 154
K	1 Pair Trunnion Mounting EN
L	1 Pair Trunnion EN and Pivot Mounting EL

End Cap Mounting *	see pages 141 ff
0	without
1	1 pc. Type A1SR (size 25 and 32) or C1SR (size 50)
2	1 pc. Type C-E

Accessories - please order separately	
Description	**Page**
Motor Mountings	137 ff
Multi-Axis Systems for Actuators	177 ff

***** Option

Linear Guides



Content

Adaptive Modular System

The Origa System Plus – OSP – provides a comprehensive range of linear guides for the pneumatic and electric actuators.

Versions:

Electric Acutator Series:

- **OSP-E..B**
- **OSP-E..SB**
- **OSP-E..ST**
- **Sizes** 25, 32, 50

Advantages:

- Takes High Loads and Moments
- High Precision
- Smooth Operation
- Can be Retrofitted
- Can be Installed in any Position

Electric Acutator

– **Series OSP-E..B** (Belt)
– **Series OSP-E..SB** (Ball Screw)
– **Series OSP-E..ST** (Trapezoidal Screw)

SLIDELINE

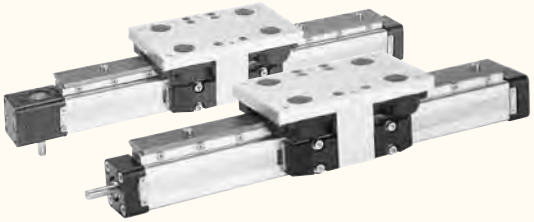
The cost-effective plain bearing guide for medium loads.
– for screw actuators only Series OSP-E..SB, OSP-E..ST

see page 101ff

POWERSLIDE

The roller guide for heavy loads.

see page103ff



PROLINE

The ball bushing guide for heavy loads and speed.

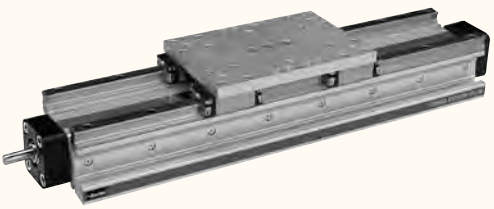
see page 107ff

HD-Guide (heavy-duty guide)

The ball bearing guide for the heaviest loads and greatest accuracy.

– for Screw Actuators only Series OSP-E..SB, OSP-E..ST

see page 111ff



Series SL 25 to 50 for for Actuator

• Series OSP-E Screw

Technical Data

The table shows the maximum permissible values for smooth operation, which must not be exceeded even under dynamic conditions.

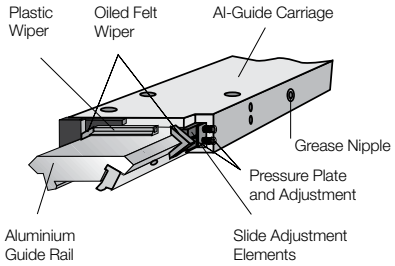
The load and moment figures apply to speeds v < 0.2 m/s.

Features

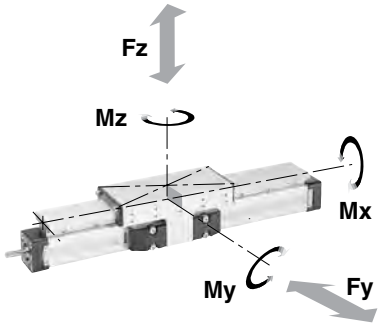
- Anodised Aluminium Guide Rail with Prism-Shaped Slideway Arrangement
- Adjustable Plastic Slide Elements
- Composite Sealing System with Plastic and Felt Wiper Elements to Remove Dirt and Lubricate the Slideways.
- Corrosion-resistant Version Available on request.

Versions

– for Electric Actuator Series OSP-E Screw



Loads, Forces and Moments



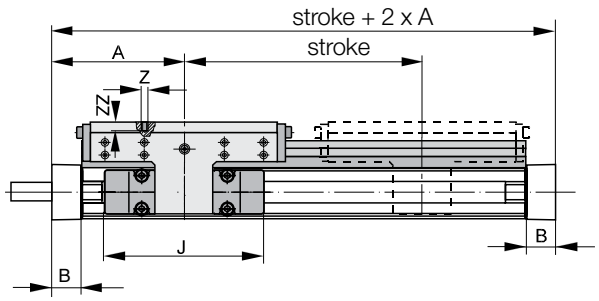
Series	Max. Moments [Nm]			Max. Load [N]	Mass of Drive with Guide [kg]		Weight Carriage	Order No. SLIDELINE [1] without break for OSP-E Screw
					0 mm Stroke	per 100 mm Stroke		
	M_x	M_y	M_z	F	OSP-E Screw	OSP-E Screw	[kg]	
SL25	14	34	34	675	1.8	0.42	0.61	**20342FIL**
SL32	29	60	60	925	3.6	0.73	0.95	**20196FIL**
SL50	77	180	180	2,000	8.7	1.44	2.06	**20195FIL**

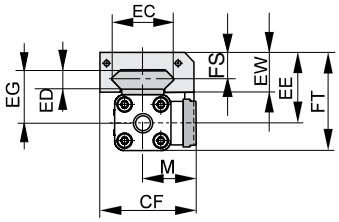
[1] Corrosion resistant fixtures available on request

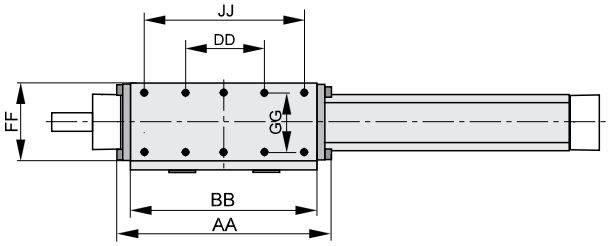
Guide Mountings see page 149

Dimensions

Series OSP-E Screw







For further mounting elements and options see accessories.

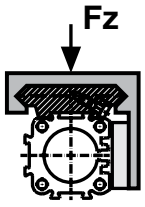
Dimension Table [mm]

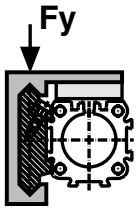
Series	A	B	J	M	Z	AA	BB	DD	CF	EC	ED	EE	EG	EW	FF	FT	FS	GG	JJ	ZZ
SL 25	100	22.0	117	40.5	M6	162	142	60	72.5	47	12	53	39	30	64	73.5	20	50	120	12
SL 32	125	25.5	152	49.0	M6	205	185	80	91.0	67	14	62	48	33	84	88.0	21	64	160	12
SL 50	175	33.0	200	62.0	M6	284	264	120	117	94	14	75	56	39	110	118.5	26	90	240	16

Guide Mounting (see page 149)

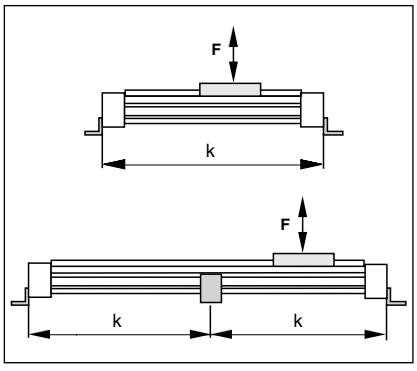
Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator.
The diagrams show the maximum permissible unsupported length in relation to loading.

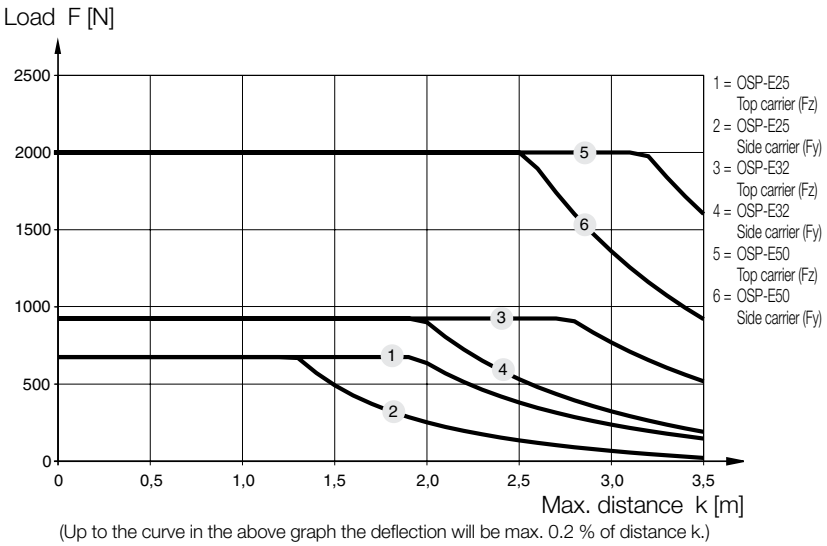
Load case 1
Top carrier





Load case 2
Side carrier





(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

Series PS 25 to 50 for Acutator

- Series OSP-E Belt *
- Series OSP-E Screw

* Series PS for OSP-E Bi-parting version on request

Technical Data

The table shows the maximum permissible values for smooth operation, which must not be exceeded even under dynamic conditions.

For further information and technical data see data sheets for actuators.

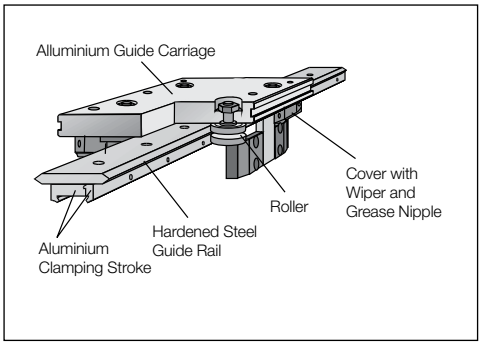
Features:

- Anodised Aluminium Guide Carriage with Vee Rollers Having 2 Rows of Ball Bearings
- Hardened Steel Guide Rail
- Several Guide Sizes Can be Used on the Same Drive
- Max. Speed v = 3 m/s
- Tough Roller Cover With Wiper and Grease Nipple
- Any Length of Stroke Up To 3,500 mm (longer strokes on request). The Maximum Stroke Lengths of Actuators OSP-E..B, OSP-E..SB and OSP-E..ST must be observed.

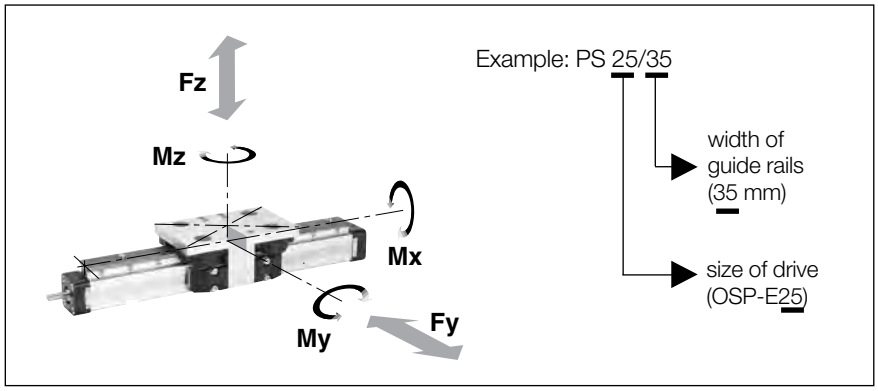
OSP-E Belt: For position of guides see page109

Versions

– for Electric Acutator:
Series OSP-E Belt
Series OSP-E Screw



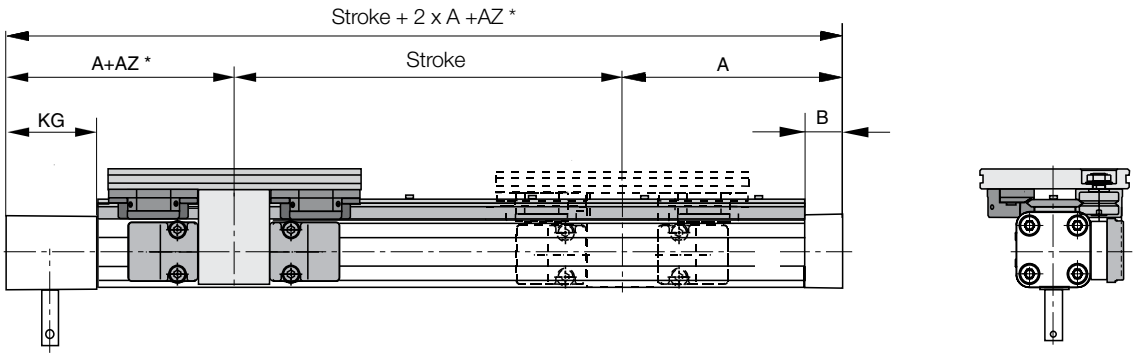
Loads, Force and Moment



Series	Max. Moments [Nm]			Max. Load [N]	Mass of Drive with Guide [kg]				Mass *	Order No. Powerslide for	
					with 0 mm Stroke		increase per 100 mm Stroke		of Guide Carriage		
	M_x	M_y	M_z	F_y, F_z	OSP-E Belt	OSP-E Screw	OSP-E Belt	OSP-E Screw	[kg]	OSP-E* Belt	OSP-E Screw
PS 25/25	14	63	63	910	1.9	1.8	0.30	0.37	0.7	**20304FIL**	**20015FIL**
PS 25/32	17	70	70	1,010	2.1	1.9	0.34	0.41	0.8	**20305FIL**	**20016FIL**
PS 25/44	20	175	175	1,190	3.0	2.7	0.42	0.49	1.5	**20306FIL**	**20017FIL**
PS 32/35	20	70	70	1,400	3.1	3.2	0.51	0.63	0.8	**20307FIL**	**20286FIL**
PS 32/44	50	175	175	2,300	4.0	4.1	0.59	0.70	1.5	**20308FIL**	**20287FIL**
PS 50/60	90	250	250	3,000	8.8	8.7	1.04	1.36	2.3	**20309FIL**	**20288FIL**
PS 50/76	140	350	350	4,000	12.2	12.0	1.28	1.6	4.9	**20310FIL**	**20289FIL**

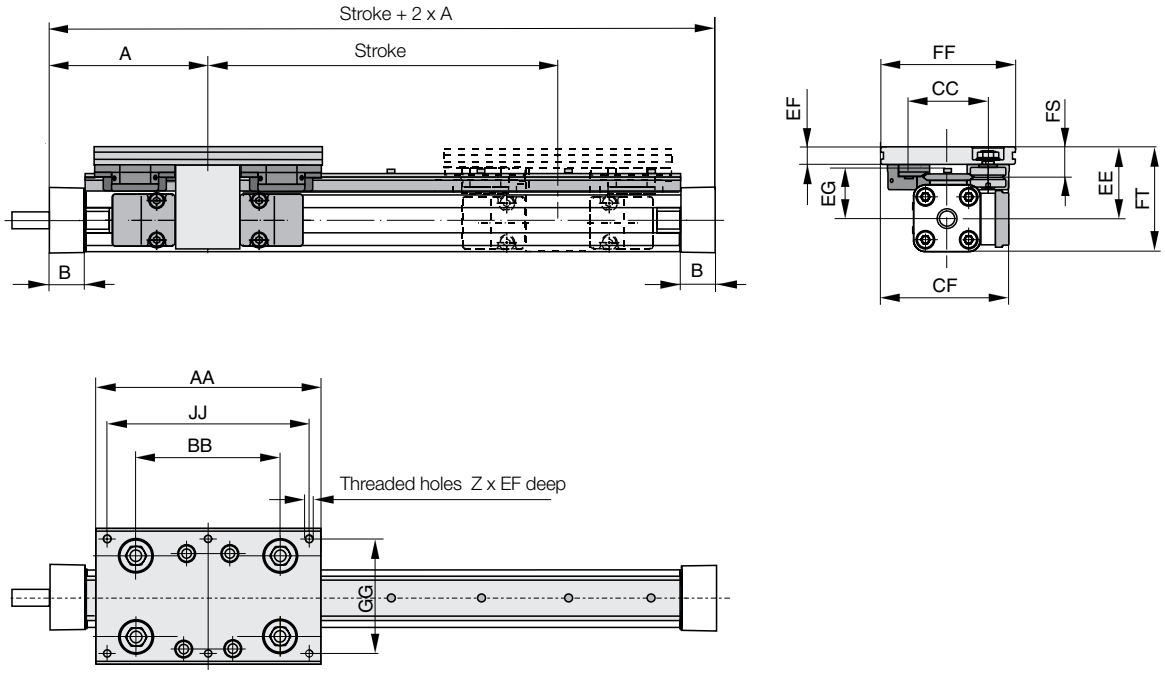
Mountings see page 149

Dimensions - Series OSP-E Belt



* **Please note:** The dimension „AZ" must be added to „A". Stroke length to order is stroke + dimension „AZ" + safety clearance. Please also note the effect of dimension „AZ" when retrofitting a guide – contact your local Parker technical support department.

Dimensions - Series OSP-E Screw

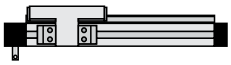
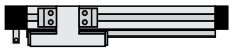


Dimensions [mm]

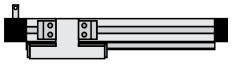
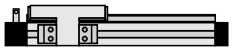
Series	A		B		Z	AA	AZ	BB	CC	CF	EE	EF	EG	FF	FS	FT	GG	JJ	KG
	OSP-E Belt	OSP-E Screw	OSP-E Belt	OSP-E Screw															
PS 25/25	125	100	22	22.0	6 x M6	145	5	90	47	79.5	53.0	11.0	39.0	80	20.0	73.5	64	125	57
PS 25/35	125	100	22	22.0	6 x M6	156	10	100	57	89.5	52.5	12.5	37.5	95	21.5	73.0	80	140	57
PS 25/44	125	100	22	22.0	6 x M8	190	27	118	73	100.0	58.0	15.0	39.0	116	26.0	78.5	96	164	57
PS 32/35	150	125	25	25.5	6 x M6	156	-	100	57	95.5	58.5	12.5	43.5	95	21.5	84.5	80	140	61
PS 32/44	150	125	25	25.5	6 x M8	190	6	118	73	107.0	64.0	15.0	45.0	116	26.0	90.0	96	164	61
PS 50/60	200	175	25	33.0	6 x M8	240	5	167	89	130.5	81.0	17.0	61.0	135	28.5	123.5	115	216	85
PS 50/76	200	175	25	33.0	6 x M10	280	25	178	119	155.5	93.0	20.0	64.0	185	39.0	135.5	160	250	85

OSP-E Belt – If Combined with a Linear Guide, please also state position of Linear Guide!

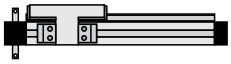
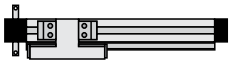
Position of Drive Shaft
Standard = 0

Position of Linear Guide
Standard Position of the Guide on the Opposite Side of the Drive Shaft 
Opposite to Standard Position of the Guide on the Side of the Drive Shaft 

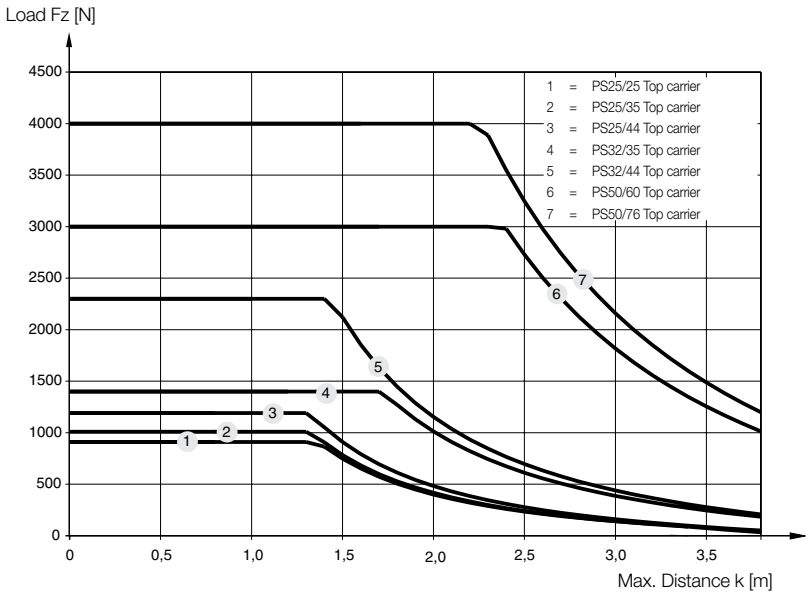
Position of Drive Shaft
Opposite to Standard = 1

Position of Linear Guide
Standard Position of the Guide on the Opposite Side of the Drive Shaft 
Opposite to Standard Position of the Guide on the Side of the Drive Shaft 

Position of Drive Shaft
Both Sides = 2

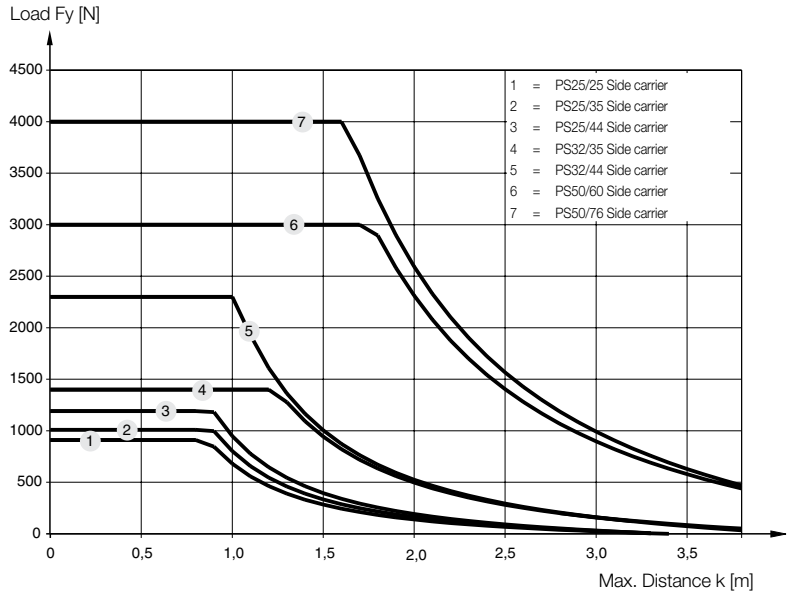
Position of Linear Guide
Standard Position of the Guide on the Opposite Side of the Drive Shaft 
Opposite to Standard Position of the Guide on the Side of the Drive Shaft 

Load Case 1 - Top Carrier



(Up to the curve in the above graph the deflection will be max. 0.2 %of distance k

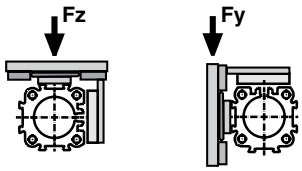
Load Case 2 - Side Carrier



(Up to the curve in the above graph the deflection will be max. 0,2 % of distance k)

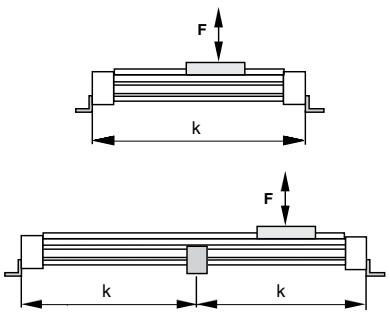
Guide Mounting (see page 149)

Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator. The diagrams show the maximum permissible unsupported length in relation to loading.



Load Case 1
Top carrier

Load Case 2
Side Carrier



1. Calculation of Load Factor L_F

Performance

Calculation of performance is achieved in two stages:

- Determination of load factor L_F from the loads to be carried
- Calculation of service life in km

$$L_F = \frac{F_y}{F_{y\,max}} + \frac{F_z}{F_{z\,max}} + \frac{M_x}{M_{x\,max}} + \frac{M_y}{M_{y\,max}} + \frac{M_z}{M_{z\,max}}$$

with combined loads, L_F must not exceed the value 1

2. Calculation of Performance

Lubrication

For maximum system life, lubrication of the rollers must be maintained at all times.

Only high quality lithium-based greases should be used.

Lubrication intervals are dependent on environmental conditions (temperature, running speed, grease quality etc.) therefore the installation should be regularly inspected.

- **For PS 25/25, PS 25/35 and PS 32/35:** **Service life [km]** $= \frac{106}{(L_F + 0{,}02)^3}$
- **For PS 25/44, PS 32/44 and PS 50/60:** **Service life [km]** $= \frac{314}{(L_F + 0{,}015)^3}$
- **For PS 50/76:** **Service life [km]** $= \frac{680}{(L_F + 0{,}015)^3}$

Series PL 25 to 50 for Acutator

- Series OSP-E Belt *
- Series OSP-E Screw

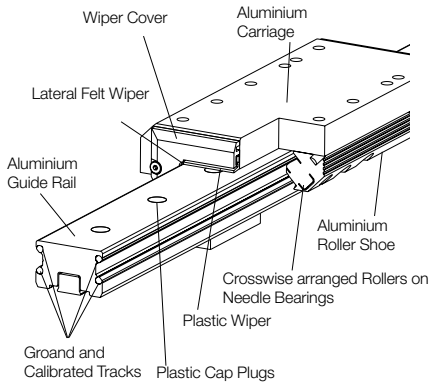
Features:

- High Precision
- High Velocities (10 m/s)
- Smooth Operation - Low Noise
- Integrated Wiper System
- Life Time Lubrication
- Compact Dimensions - Compatible to Slideline Plain Bearing Guide
- Version available up to 3,750 mm
  The maximum stroke lengths of actuatorsOSP-E..B, OSP-E..SB and OSP-E..ST must be observed

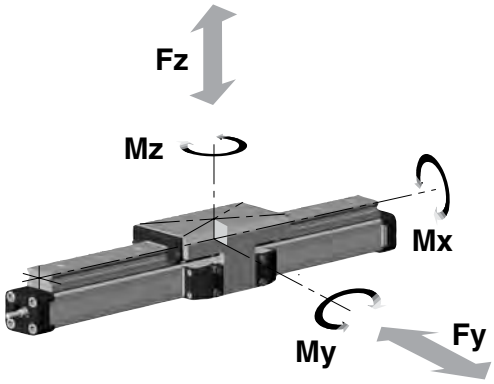
* Series PL for OSP-E Bi-parting version on request.

Versions

– For Electric Acutator:
  Series OSP-E Belt
  Series OSP-E Screw



Loads, Forces and Moments



Technical Data

The table shows the maximum permissible loads. If multiple moments and forces act upon the cylinder simultaneously, the following equation applies:

$$\frac{F_y}{F_{y\,max}} + \frac{F_z}{F_{z\,max}} + \frac{M_x}{M_{x\,max}} + \frac{M_y}{M_{y\,max}} + \frac{M_z}{M_{z\,max}} \leq 1$$

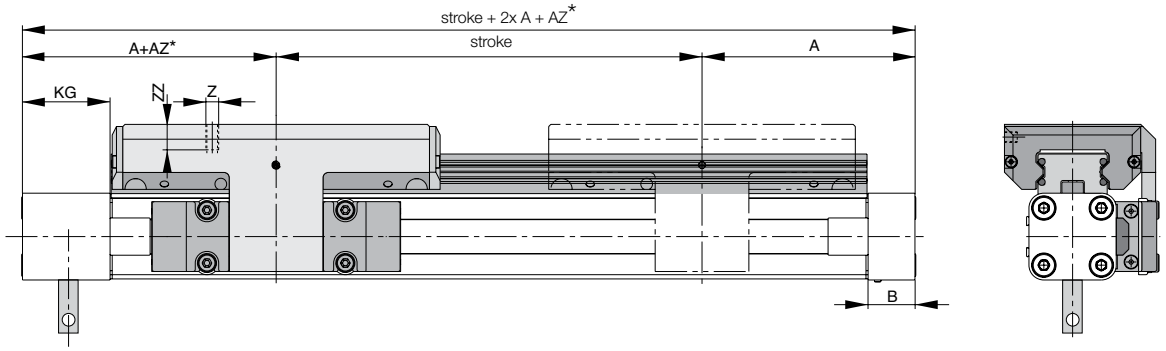
With a load factor of ≤ 1, the service life is 5000 km.
The sum of the loads must not exceed > 1.

The table shows the maximum permissible values for light, shock-free operation, which must not be exceeded even under dynamic conditions.

Series	Max. Moments [Nm]			Max. Load [N]	Mass of Drive with Guide [kg]				Mass Guide Carriage	Order No. PROLINE [1] for	
					bei 0 mm Stroke		increase per 100 mm stroke				
	M_x	M_y	M_z	F_y, F_z	OSP-E Belt	OSP-E Screw	OSP-E Belt	OSP-E Screw	[kg]	OSP-E* Belt	OSP-E Screw
PL25	19	44	44	986	1.9	1.8	0.33	0.40	0.75	**20874FIL**	**20856FIL**
PL32	33	84	84	1,348	3.6	3.7	0.58	0.70	1.18	**20875FIL**	**20857FIL**
PL50	128	287	287	3,582	8.9	8.8	1.00	1.32	2.50	**20876FIL**	**20859FIL**

[1] Stainless steel on request

Dimensions Series OSP-E Belt PL25, PL32, PL50

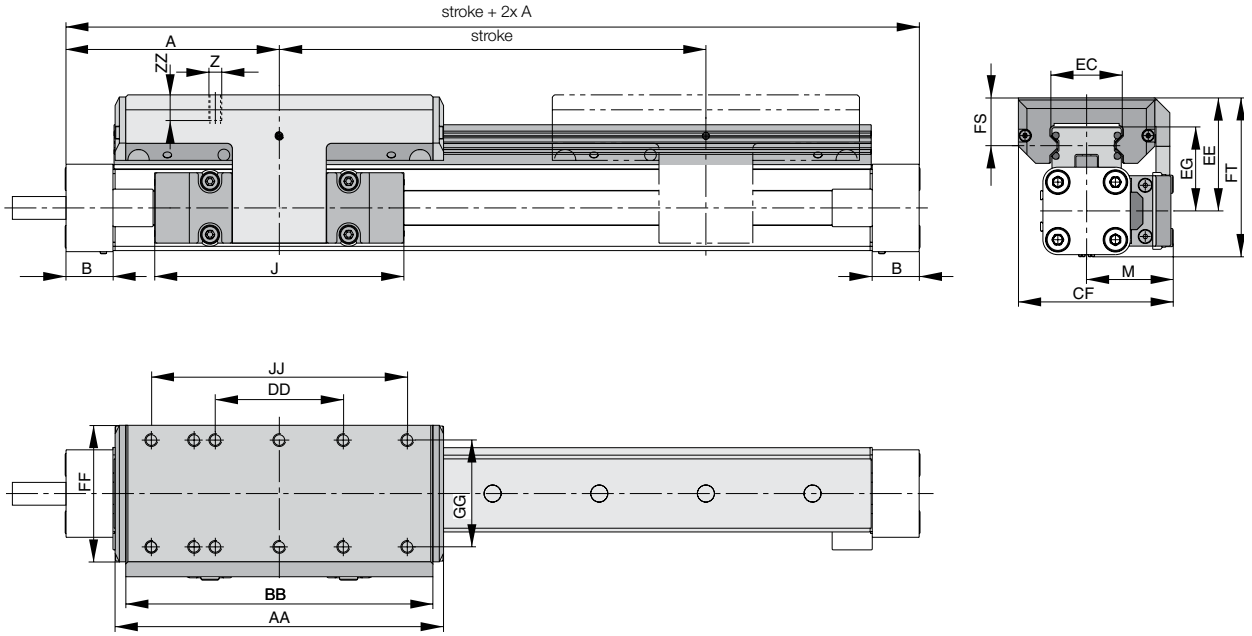


***Please note:** Dimension "AZ" must be added to dimension "A". The stroke to be ordered will be: stroke + min. dimension "AZ" + additional length.
Please observe the effect of dimension "AZ" when retrofitting a guide. Please contact our application engineers.

Dimension Table [mm] Series OSP-E Belt PL25, PL32, PL50

Series	A	B	J	M	Z	AA	AZ	BB	DD	CF	EC	EE	EG	FF	FS	FT	GG	JJ	KG	ZZ
PL25	125	22	117	40.5	M6	154	10	144	60	72.5	32.5	53	39	64	23	74.0	50	120	57	12
PL32	150	25	152	49.0	M6	197	11	187	80	91.0	42.0	62	48	84	25	88.0	64	160	61	12
PL50	200	25	200	62.0	M6	276	24	266	120	117.0	63.0	75	57	110	29	118.0	90	240	85	16

Dimensions Series OSP-E Screw PL25, PL32, PL50

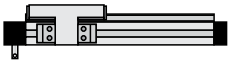
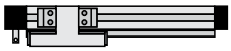


Dimension Table [mm] OSP-E Screw PL25, PL32, PL50

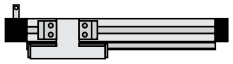
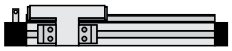
Series	A	B	J	M	Z	AA	BB	DD	CF	EC	EE	EG	FF	FS	FT	GG	JJ	ZZ
PL25	100	22	117	40.5	M6	154	144	60	72.5	32.5	53	39	64	23	74	50	120	12
PL32	125	25.5	152	49.0	M6	197	187	80	91.0	42.0	62	48	84	25	88	64	160	12
PL50	175	33.0	200	62.0	M6	276	266	120	117.0	63.0	75	57	110	29	118	90	240	16

OSP-E Belt – If combined with a linear guide, please also state position of linear guide!

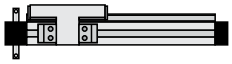
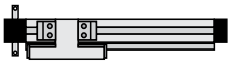
Position of Drive Shaft
Standard = 0

Position of Guide
Standard Guide Opposite the Drive Shaft 
Opposite to Standard Guide on Same Side as Drive Shaft 

Position of Drive Shaft
Opposite to Standard = 1

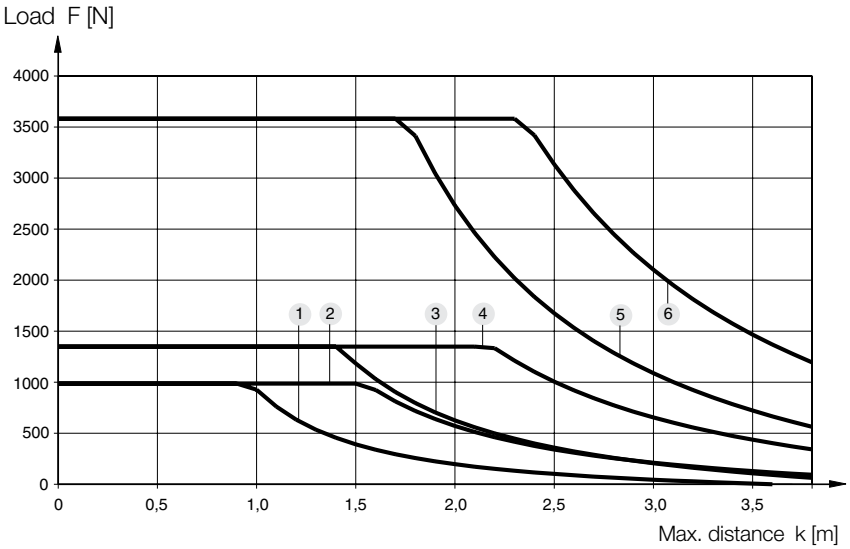
Position of Guide
Standard Guide Opposite the Drive Shaft 
Opposite to Standard Guide on Same Side as Drive Shaft 

Position of Drive Shaft
Both Sides = 2

Position of Guide
Standard Guide Opposite the Drive Shaft 
Opposite to Standard Guide on Same Side as Drive Shaft 

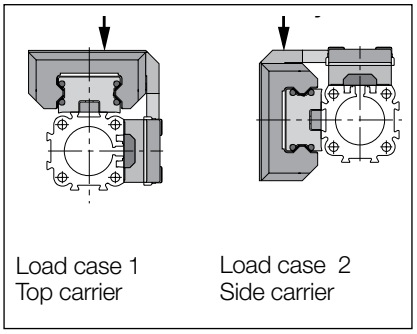
Guide Mounting (see page 149)

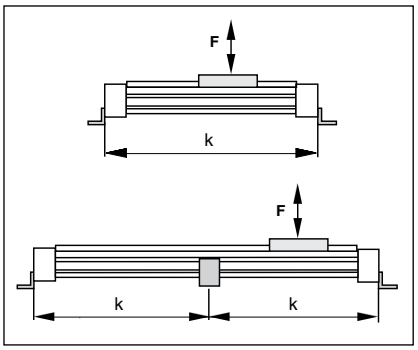
Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator. The diagrams show the maximum permissible unsupported length in relation to loading.



(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

1 = OSP-E25 Side carrier (Fy)
3 = OSP-E32 Side carrier (Fy)
5 = OSP-E50 Side carrier (Fy)
2 = OSP-E25 Top carrier (Fz)
4 = OSP-E32 Top carrier (Fz)
6 = OSP-E50 Top carrier (Fz)





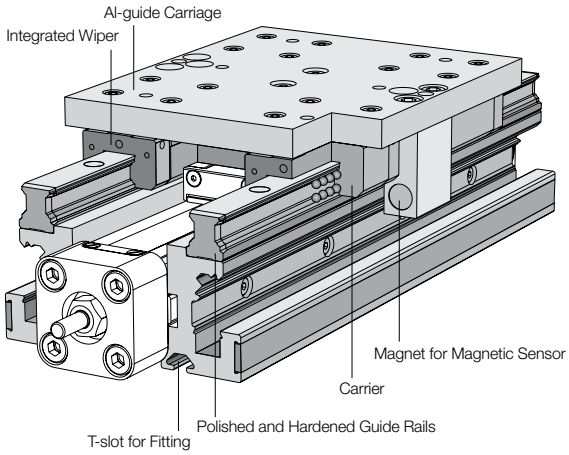
Series HD 25 to 50 for Actuator

- Series OSP-E..SB, ..ST

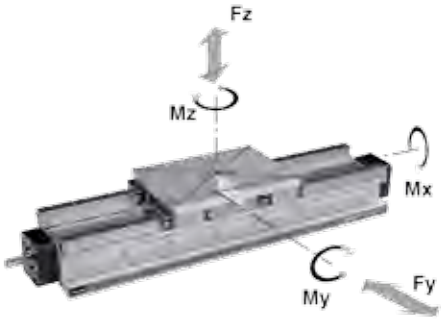
Features:

- Guide System 4-row Ball Bearing Guide
- Polished and Hardened Guide Rails of Steel
- For Highest Loads in all Directions
- Highest Precision
- Integrated Wiper
- Grease Nipple for Relubrication
- Anodized Guide Carriage with the Same Connecting Dimensions as OSP-Guide GUIDELINE
- Maximum Velocity v = 5 m/s

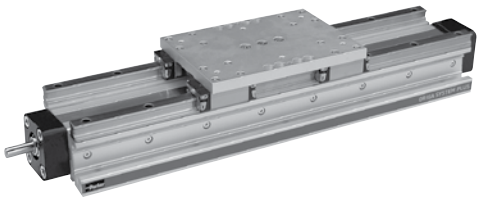
Version - for Electric Actuator: Series OSP-E Screw



Loads, Forces and Moments



OSP-E..SB, ..ST



Technical Data

For the maximum permissible loads please refer to the table below. If several forces and moments loads act upon the guide simultaneously, the following equation will apply:

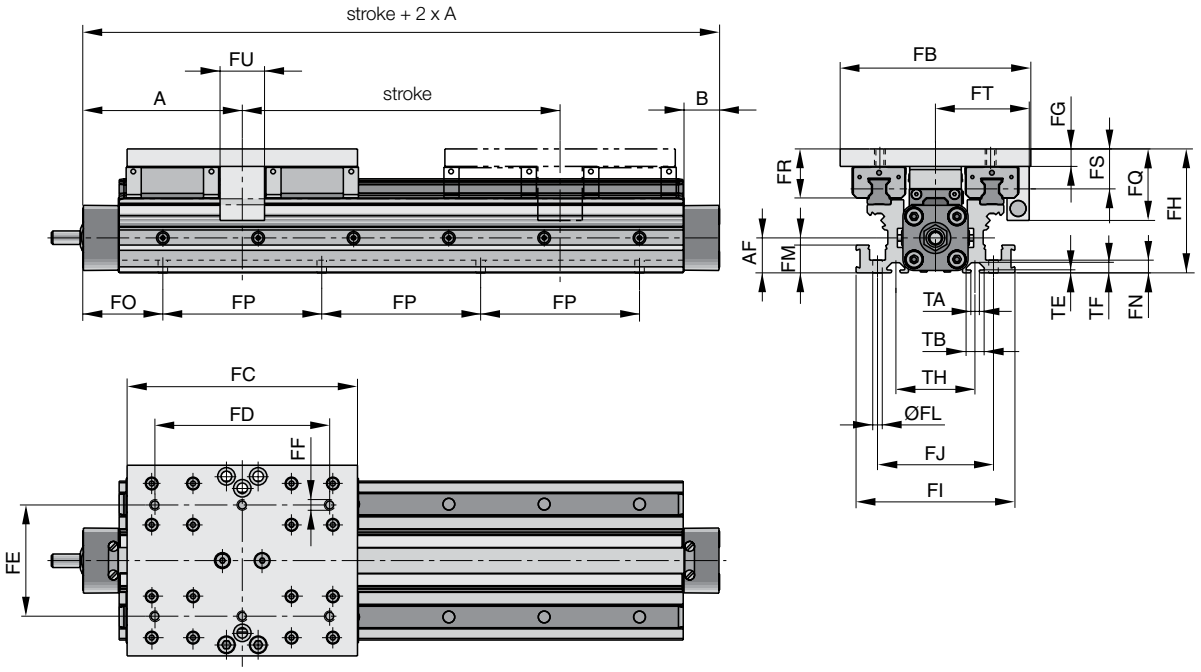
$$\frac{F_y}{F_{y\,max}} + \frac{F_z}{F_{z\,max}} + \frac{M_x}{M_{x\,max}} + \frac{M_y}{M_{y\,max}} + \frac{M_z}{M_{z\,max}} \leq 1$$

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

The table shows the maximum permissible values for light, shock-free operation which must not be exceeded even under dynamic conditions.

Series	Max. Moments [Nm]			Max. Load [N]		Mass of Acutator with Guide [kg]				Mass Guide-Carrier	Order No. HD-Guide for OSP-E
						at 0 mm stroke		increase per 100 mm stroke			
	M_x	M_y	M_z	F_y	F_z	OSP-E..SB	OSP-E..ST	OSP-E..SB	OSP-E ..ST	[kg]	
HD 25	260	320	320	6,000	6, 000	3,215	3,315	0,957	1,007	1,289	**21246FIL**
HD 32	285	475	475	6,000	6,000	4,868	4,968	1,198	1,258	1,367	**21247FIL**
HD 50	1,100	1,400	1,400	18,000	18,000	13,218	13,318	2,554	2,674	3,551	**21249FIL**

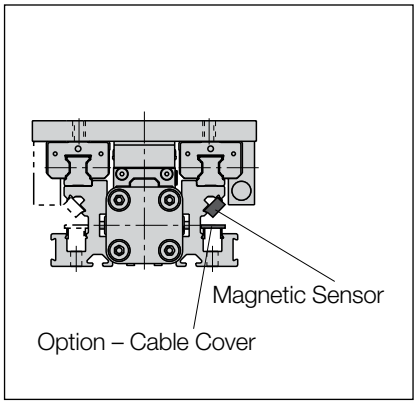
Dimension Series OSP-E Screw HD25, HD32, HD50



Hint: he heavy-duty guide HD must be fitted to a level surface over the entire length. If T-nuts are used, the distance between them must not exceed 100 mm.

Arrangement of Magnetic Sensors:

The magnetic sensors can be fitted to either side over the entire length.



Dimension Table [mm]

Series	A	B	AF	FB	FC	FD	FE	FF	FG	FH	FI	FJ	ØFL
HD25	100	22.0	22	120	145	110	70	M6	11	78	100	73	6.0
HD32	125	25.5	30	120	170	140	80	M6	11	86	112	85	6.0
HD50	175	33.0	48	180	200	160	120	M8	14	118	150	118	7.5

Series	FM	FN	FP	FQ	FR	FS	FT	FU	TA	TB	TE	TF	TH
HD25	17.5	8	100	45	31	25.0	59	28	5.2	11.5	1.8	6.4	50
HD32	17.5	8	100	45	31	25.0	63	30	5.2	11.5	1.8	6.4	60
HD50	22.0	10	100	58	44	35.5	89	30	8.2	20.0	4.5	12.3	76

FO			
OSP-E..SB. ..ST			
x	HD25	HD32	HD50
00	50.0	75.0	75.0
01	50.5	75.5	75.5
02	51.0	76.0	76.0
03	51.5	76.5	76.5
04	52.0	77.0	77.0
05	52.5	77.5	77.5
06	53.0	78.0	78.0
07	53.5	78.5	78.5
08	54.0	79.0	79.0
09	54.5	79.5	79.5
10	55.0	80.0	80.0
11	55.5	80.5	80.5
12	56.0	81.0	81.0
13	56.5	81.5	81.5
14	57.0	82.0	82.0
15	57.5	82.5	82.5
16	58.0	83.0	83.0
17	58.5	83.5	83.5
18	59.0	84.0	84.0
19	59.5	84.5	84.5
20	60.0	85.0	85.0
21	60.5	85.5	85.5
22	61.0	36.0	86.0
23	61.5	36.5	86.5
24	62.0	37.0	87.0
25	62.5	37.5	87.5
26	63.0	38.0	88.0
27	63.5	38.5	88.5
28	64.0	39.0	89.0
29	64.5	39.5	89.5
30	65.0	40.0	90.0
31	65.5	40.5	90.5
32	66.0	41.0	91.0

FO			
OSP-E..SB. ..ST			
x	HD25	HD32	HD50
33	66.5	41.5	91.5
34	67.0	42.0	92.0
35	67.5	42.5	92.5
36	68.0	43.0	93.0
37	68.5	43.5	43.5
38	69.0	44.0	44.0
39	69.5	44.5	44.5
40	70.0	45.0	45.0
41	70.5	45.5	45.5
42	71.0	46.0	46.0
43	71.5	46.5	46.5
44	72.0	47.0	47.0
45	72.5	47.5	47.5
46	73.0	48.0	48.0
47	73.5	48.5	48.5
48	74.0	49.0	49.0
49	74.5	49.5	49.5
50	75.0	50.0	50.0
51	75.5	50.5	50.5
52	76.0	51.0	51.0
53	76.5	51.5	51.5
54	77.0	52.0	52.0
55	77.5	52.5	52.5
56	78.0	53.0	53.0
57	78.5	53.5	53.5
58	79.0	54.0	54.0
59	79.5	54.5	54.5
60	80.0	55.0	55.0
61	80.5	55.5	55.0
62	81.0	56.0	56.0
63	82.0	56.5	56.5
64	82.0	57.0	57.0
65	32.5	57.5	57.5

FO			
OSP-E..SB. ..ST			
66	33.0	58.0	58.0
67	33.5	58.5	58.5
68	34.0	59.0	59.0
69	34.5	59.5	59.5
70	35.0	60.0	60.0
71	35.5	60.5	60.5
72	36.0	61.0	61.0
73	36.5	61.5	61.5
74	37.0	62.0	62.0
75	37.5	62.5	62.5
76	38.0	63.0	63.0
77	38.5	63.5	63.5
78	39.0	64.0	64.0
79	39.5	64.5	64.5
80	40.0	65.0	65.0
81	40.5	65.5	65.5
82	41.0	66.0	66.0
83	41.5	66.5	66.5
84	42.0	67.0	67.0
85	42.5	67.5	67.5
86	43.0	68.0	68.0
87	43.5	68.5	68.5
88	44.0	69.0	69.0
89	44.5	69.5	69.5
90	45.0	70.0	70.0
91	45.5	70.5	70.5
92	46.0	71.0	71.0
93	46.5	71.5	71.5
94	47.0	72.0	72.0
95	47.5	72.5	72.5
96	48.0	73.0	73.0
97	48.5	73.5	73.5
98	49.0	74.0	74.0
99	49.5	74.5	74.5

Note:

The dimenison FO is derived from the last two digits of the stroke:

Sample:
stroke 15**25** mm

For a cylinder OSP-E25 the table shows that for x = 25 mm:
FO = 62.5 mm

PS / RS
Planetary / Angular Gears

The requirements between transmissible power and size of gear is defined by the use and required resolution.
A gear can be used to reduce the required torque of the motor and to achieve a good inertia mismatch.

The PS gear boxes incorporate dual angular contact bearings, providing higher radial load capacities while maintaining high input speeds. The lifetime expectance of newly designed needle bearings is significantly high.

Maintenance: The PS series is lifetime lubricatied.

Technical Data PS60

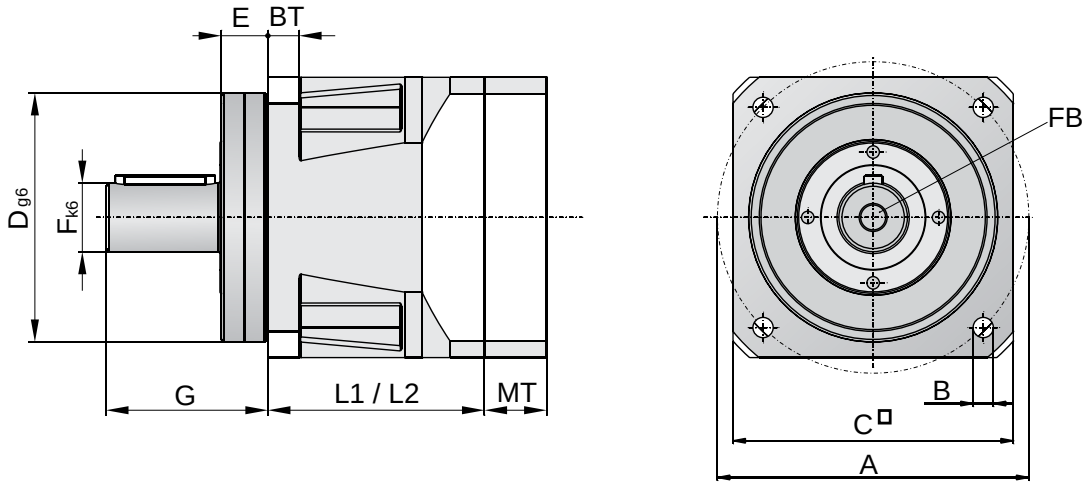
Characteristics	Symbol	Unit	1-stage			2-stage		
Ratio	i		3	5	10	20	50	100
Norminal Torque	T_{nom}	Nm	27	37	32	37	37	32
Maximum Accelleration Torque	T_{acc}	Nm	34	48	37	48	48	37
Emergency Stop	T_{em}	Nm	80	70	60	70	70	60
Nominal Speed	N_{nom}	min^{-1}	3,000	3,500	4,000	4,500	4,800	5,200
Maximum Speed	N_{max}	min^{-1}	6.000					
Inertia	J	$kgcm^2$	0.25	0.15	0.14	0.15	0.13	0.13
Backlash		arcmin	<6			<8		
Efficiency at Norminal Torque	η	%	97			94		
Operating Noise at 3000 min^{-1}		dB(A)	<62					
Lifetime		h	>20.000					
Protection Class		IP	65					
Operating Temperature		°C	- 20 to +90					
Weight	m	kg	1.3			1.7		

Technical Data PS90

Characteristics	Symbol	Unit	1-stage			2-stage		
Ratio	i		3	5	10	20	50	100
Norminal Torque	T_{nom}	Nm	76	110	93	110	110	93
Maximum Accelleration Torque	T_{acc}	Nm	105	123	112	123	123	112
Emergency Stop	T_{em}	Nm	260	230	200	230	230	200
Nominal Speed	N_{nom}	min-1	2,500	3,000	3,500	4,000	4,400	4,800
Maximum Speed	N_{max}	min-1	5,500					
Inertia	J	$kgcm^2$	0.97	0.51	0.37	0.51	0.37	0.37
Backlash		arcmin	<6			<8		
Efficiency at Norminal Torque	η	%	97			94		
Operating Noise at 3000 min^{-1}		dB(A)	<62					
Lifetime		h	>20.000					
Protection Class		IP	65					
Operating Temperature		°C	- 20 to +90					
Weight	m	kg	3.0			5.0		

Technical Data PS115

Characteristics	Symbol	Unit	1-stage			2-stage		
Ratio	i		3	5	10	20	50	100
Norminal Torque	T_{nom}	Nm	172	230	205	230	230	205
Maximum Accelleration Torque	T_{acc}	Nm	225	285	240	285	285	240
Emergency Stop	T_{em}	Nm	600	500	430	500	500	430
Nominal Speed	N_{nom}	min^{-1}	2,000	2,500	3,000	3,500	3,800	4,200
Maximum Speed	N_{max}	min^{-1}	4,500					
Inertia	J	$kgcm^2$	3.40	1.70	1.10	1.70	1.10	1.10
Backlash		arcmin	<4			<6		
Efficiency at Norminal Torque	η	%	97			94		
Operating Noise at 3000 min-1		dB(A)	<65					
Lifetime		h	>20,000					
Protection Class		IP	65					
Operating Temperature		°C	- 20 to +90					
Weight	m	kg	7.0			10.0		



Dimension Table [mm]

Type	ø A	ø B	BT	□C	ø D_{h6}	E	ø F_{k6}	FB	G
PS60	70	5.5	8	62	50	11.0	16	M5x8	40
PS90	100	6.5	10	90	80	15.0	22	M8x16	52
PS115	130	8.5	14	115	110	16.0	32	M12x25	68

Dimension Table [mm]

Type	MF*	MG**	MT	L1 (1-stage)	L2 (2-stage)
PS60	≤ 14	16 - 35	16.5	59.8	94.8
		> 35 - 41	22.5		
PS90	≤ 19	20 - 40	20.0	69.5	113.0
		> 40 - 48	28.5		
PS115	≤ 24	22 - 50	24.0	90.2	143.4
		> 50 - 61	35.0		

* MF = maximum diameter of motor shaft
** MG = length of motor shaft that specifies a thickness of motor flange MT

Angular Gears - Series RS60, RS90, RS115

The requirements between transmissible power and size of gear is defined by the use and required resolution. A gear can be used to reduce the required torque of the motor and to achieve a good inertia mismatch.

The RS gear boxes incorporate dual angular contact bearings, providing higher radial load capacities while maintaining high input speeds. The lifetime expectance of newly designed needle bearings is significantly high.
An angular gear is often used if space is limited and a compact motor and a gear mounting is needed.

Maintenance: The RS series is lifetime lubricatied.

Technical Data RS60

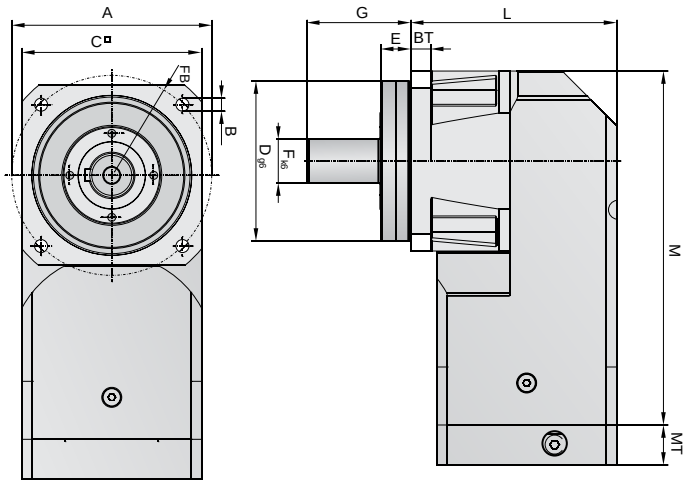
Characteristics	Symbol	Unit	1-stage		2-stage		
Ratio	i		5	10	20	50	100
Nominal Torque	T_{nom}	Nm	13	24	35	35	30
Maximum Accelleration Torque	T_{acc}	Nm	19	36	45	45	37
Emergency Stop	T_{em}	Nm	40	72	80	80	60
Nominal Speed	N_{nom}	min^{-1}	3,200	3,200	3,700	4,200	4,200
Maximum Speed	N_{max}	min^{-1}			6,000		
Inertia	J	$kgcm^2$	0.22	0.19	0.17	0.15	0.15
Backlash	η	arcmin	<14			<12	
Efficiency at Nominal Torque		%			94		
Operating Noise at 3,000 min^{-1}		dB(A)			<65		
Lifetime		h			>20,000		
Protection		IP			65		
Operating Temperature		°C			- 20 to +90		
Weight	m	kg			2.0		

Technical Data RS90

Characteristics	Symbol	Unit	1-stage		2-stage		
Ratio	i		5	10	20	50	100
Nominal Torque	T_{nom}	Nm	55	80	88	88	86
Maximum Accelleration Torque	T_{acc}	Nm	83	120	123	123	112
Emergency Stop	T_{em}	Nm	150	240	250	250	200
Nominal Speed	N_{nom}	min^{-1}	2,800	2,800	3,300	3,800	3,800
Maximum Speed	N_{max}	min^{-1}			5,300		
Inertia	J	$kgcm^2$	0.81	0.61	0.51	0.40	0.40
Backlash		arcmin	<12			<10	
Efficiency at Nominal Torque	η	%			94		
Operating Noise at 3000 min^{-1}		dB(A)			<68		
Lifetime		h			>20,000		
Protection Class		IP			65		
Operating Temperature		°C			- 20 to +90		
Weight	m	kg			6.0		

Technical Data RS115

Characteristics	Symbol	Unit	1-stage		2-stage		
Ratio	i		5	10	20	50	100
Nominal torque	T_{nom}	Nm	85	160	220	220	195
Maximum accelleration torque	T_{acc}	Nm	127	240	255	255	240
Emergency stop	T_{em}	Nm	270	480	510	510	430
Nominal speed	N_{nom}	min^{-1}	2,400	2,400	2,900	3,400	3,400
Maximum speed	N_{max}	min^{-1}			4,500		
Inertia	J	$kgcm^2$	2.50	1.90	1.40	1.10	1.10
Backlash		arcmin	<12			<10	
Efficiency at nominal torque	η	%			94		
Operating noise at 3000 min^{-1}		dB(A)			<68		
Lifetime		h			>20,000		
Protection		IP			65		
Operating temperature		°C			- 20 to +90		
Weight	m	kg			11,0		



Dimension Table [mm]

Type	ø A	ø B	BT	□C	ø D_{h6}	E	ø F_{k6}	FB	G
RS60	70	5.5	8	62	50	11.0	16	M5x8	40
RS90	100	6.5	10	90	80	15.0	22	M8x16	52
RS115	130	8.5	14	115	110	16.0	32	M12x25	68

Dimension Table [mm]

Type	MF*	MG**	MT	H	L	M
RS60	≤ 14	16 - 35	16.5	47.0	76.8	124.7
		> 35 - 41	22.5			
RS90	≤ 19	20 - 40	20.0	58.0	103.0	177.0
		> 40 - 48	28.5			
RS115	≤ 24	22 - 50	24.0	74.0	132.0	211.0
		> 50 - 61	35.0			

*MF = maximum Diameter of motor shaft
**MG =length of motor shaft that specifies a thickness of motor flange MT

EasyDrive Packages

Microstepping Controller

The microstepping controller has outstanding characteristics, for both slow and fast movements. Its step resolution from 400 to 51,200 steps per revolution is freely programmable and allows ideal adjustment to requirements regarding speed and response characteristics.

Technical Data - Microstepping Controller

Characteristics	Symbol	Unit	
Output Voltage Motor	U_{bP}	VDC	48 - 80 (+5% to -15%)
Nominal Output Current	I_{nP}	A	5.6
Peak Output Current	I_{pP}	A	8
Motor Inductance		mH	0.5 to 20
Output Voltage Logic	U_{bL}	VDC	24 (+/- 12.5%)
Nominal Current Logic	I_{nL}	mA	250
Resolution Motor (freely selectable)		Inc./rev	400 to 51,200
Digital Inputs			5
Digital Outputs			3
Com Port			RS232
User Interface			EasyDrive
Certification			CE / UL (E194158)

Servo Controller

The servo controller should be selected for dynamic motion profiles, since it can deliver for the motor a peak current which is 3 times higher than the rated current. Optimising the closed loop parameters allows the system consistency to be adapted to the individual application's requirements and thus generate an excellent motion profile.

The EasyDrive user menue allows you to do commissioning quickly and easily without the need to go through user manuals.

Technical Data - Servo Controller

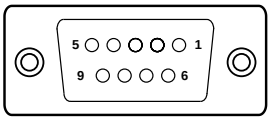
Characteristics	Symbol	Unit	
Output Voltage Motor	U_{bP}	VDC	48 - 80 (+5% to -15%)
Nominal Output Current	I_{nP}	A	5
Peak Output Current	I_{pP}	A	15
Motor Inductance		mH	0.5 to 10
Output Voltage Logic	U_{bL}	VDC	24 (+/- 12.5%)
Nominal Current Logic	I_{nL}	mA	250
Resolver		pulses/rev	4,096
Digital Inputs			5
Digital Outputs			3
Com Port			RS232
User Interface			EasyDrive
Certification			CE / UL (E194158)

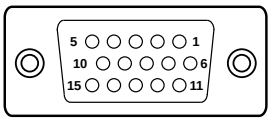
Supply and Motor Connector
Terminal Block X1

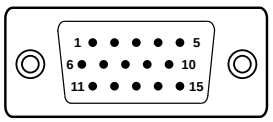
Pin	Connection	
	Microstepper	**Servo**
1	Motor Phase B-	Brake
2	Motor Phase B+	Motor Phase W
3	Motor Phase A-	Motor Phase V
4	Motor Phase A+	Motor Phase U
5	Motor Ground	
6	Logic 0VDC	
7	Logic +24VDC	
8	Ground	
9	Power 0VDC	
10	Power +48 to +80VDC	

RS232 Com-port
D-SUB 9-pole X3

Pin	Connection
1	-
2	Drive Clear (low activ)
3	Ground
4	Rx
5	Tx
6	-
7	Tx (D loop)
8	-
9	+ 5V Supply







Resolver Feedback
D-SUB 15-pole X2

Pin	Connection
1	-
2	-
3	Ground
4	REF. res +
5	+ 5V supply
6	Motor -
7	- Sin
8	+ Sin
9	-
10	Motor +
11	- Cos
12	+ Cos
13	-
14	-
15	REF.res -

Digital Inputs and Outputs
D-SUB 15-pole X5

Pin	Connection
1	0 V
2	0 V
3	0 V
4	Output 2
5	Output 1
6	Input 5
7	Input 4
8	Input 3 (Homing)
9	Input 2
10	Input 1 (Start / Stop)
11	+ 24 V
12	+ 24 V
13	+ 24 V
14	Output 3
15	Analog Monitor

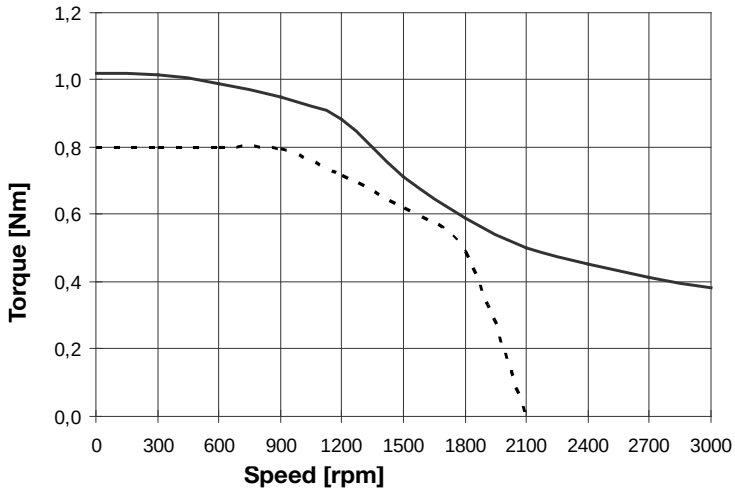
Stepper Motor

The 2-phase hybrid stepper motors were designed to suit most industrial applications that require special rigidity and reliability. The typical characteristic torque curve shows the maximum torque for the stepper motor, that must not be exceeded. For industrial applications motors usually are sized within the secure torque curve.

Technical Data - Stepper Motor

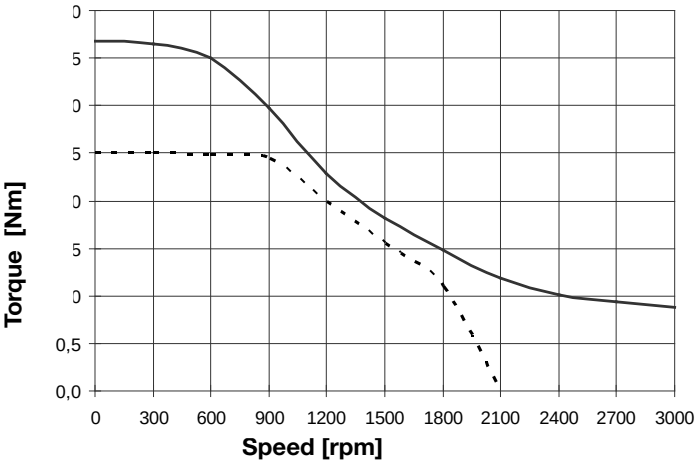
Characteristics	Symbol	Unit	SY563T	SY873T
Holding Torque	M_h	Nm	1.2	5.4
Nominal Speed	n_n	min^{-1}	900	900
Nominal Torque	M_n	Nm	0.8	2.5
Critical Speed	n_l	min^{-1}	1,800	1,800
Torque at Critical Speed	M_l	Nm	0.5	1.2
Current per Phase (parallel)	I_{ph}	A	6.5	8.4
Inductivity per Phase		mH	1.2	1.7
Inertia	J	$kgcm^2$	0.38	1.95
Weight	m	kg	1.4	3.7

Torque Curve SY563T

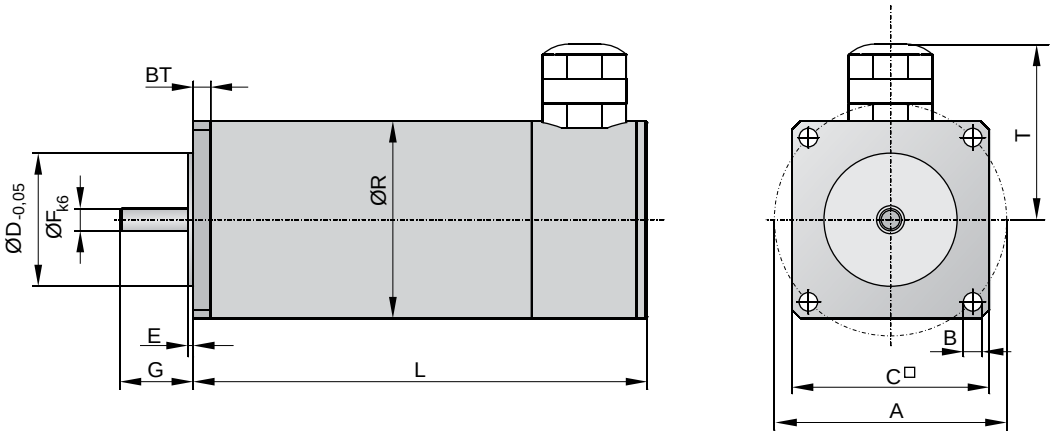


characteristic torque curve
secure torque curve

Torque Curve SY873T



Dimensions



DC Steppermotor SY

Dimension Table [mm]

Type	ø A	ø B	BT	□ C	ø D	E	ø F	G	L	R
SY563T	66.5	5.3	5	56.5	38.1	2.5	6.35	21.0	130.0	56.5
SY873T	99.0	6.5	6	86.0	73.0	3.0	9.52	31.5	149.5	86.0

Servo Motor

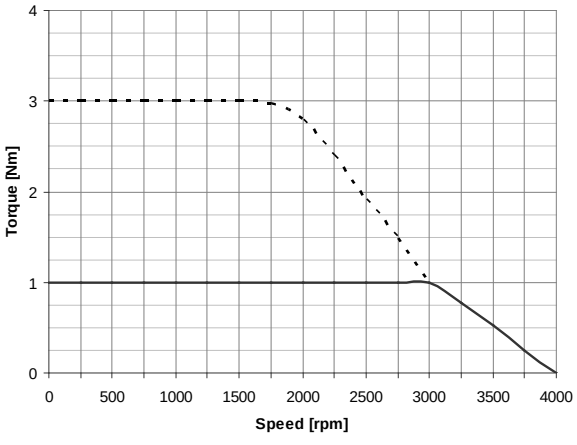
The dynamic, brushless SMB servomotors show excellent power density. With their high quality Neodym magnets they give outstanding values for torque and dynamics while they have a very compact design.

Technical Data

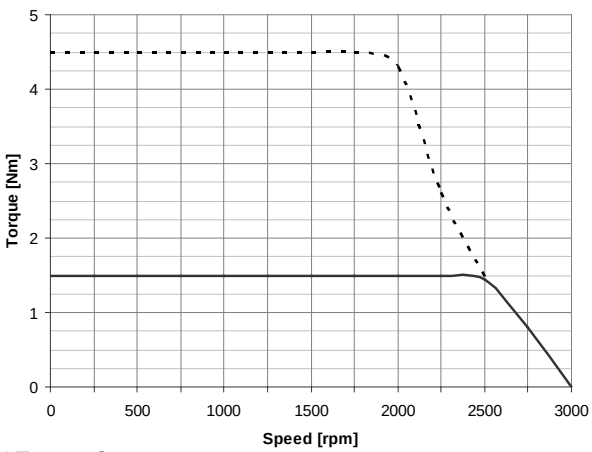
Characteristics	Symbol	Unit	SMB60-30	SMB82-25
Motor				
Stand Still Torque	M_{ss}	Nm	1.4	3.0
Stand Still Current	I_{ss}	A	1.0	1.2
Nominal Speed	$_{nn}$	min^{-1}	3,000	2,500
Nominal Torque	M_n	Nm	1.0	1.5
Nominal Current	I_n	A	0.9	1.1
Peak Torque	M_p	N_m	3.0	4.5
Peak Current	I_p	A	2.7	3.3
Torque constant	K	Nm/A	0.90	0.73
Rotor Inertia	J	$kgcm^2$	0.3	1.4
Weight	m	kg	1.5	3.5
Holding Brake				
Holding Torque	M_{BR}	N_m	2.2	5.0
Supply Voltage	U_{BR}	VDC	24.0	24.0
Supply Current	I_{BR}	A	0.34	0.50
Inertia	J_{BR}	$kgcm^2$	0.13	0.43
Weight	m_{BR}	kg	0.3	0.7

The typical torque curve of a servo motor shown in the graphic beside. Shortly the nominal torque curve can be exceeded to at maximum the peak torque curve. The RMS torque of the application must not exceed the nominal torque value of the motor.

Torque curve SMB60

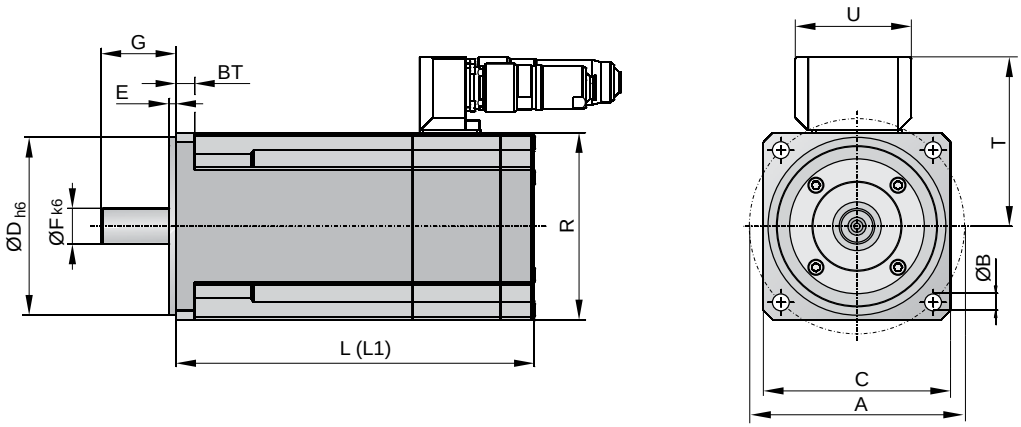


Torque curve SMB82



Nominal Torque Curve
Peak Torque Curve

Dimension



Dimension Table [mm]

Type	ø A	ø B	BT	□ C	ø D_{h6}	E	ø F_{k6}	G	L (without brake)	L1 (with brake)	R	T	U
SMx60	63	5.5	7	60	40	2.5	11	23	129.5	161.0	60	70	62
SMx82	100	6.5	10	82	80	3.5	14	30	163.5	206.5	82	81	62

EasyDrive Stepper packages

Type of drive		Coupling Housing	Motor Coupling	Motor Flange	
OSP-E25B		20606FIL	10802FIL	12020FIL	
			18284FIL	15021FIL	
OSP-E32B		20607FIL	12164FIL	16083FIL	
			10842FIL	12022FIL	
OSP-E50B		20608FIL	10845FIL	16072FIL	
OSP-E25S*		20137FIL	12071FIL	12058FIL	
			16004FIL	12181FIL	
OSP-E32S*		20138FIL	12164FIL	12163FIL	
			10842FIL	12063FIL	
OSP-E50S*		20139FIL	12079FIL	16072FIL	

EasyDrive Servo packages

Type of drive		Coupling Housing	Motor Coupling	Motor Flange	
OSP-E25B		20606FIL	10803FIL	16060FIL	
OSP-E32B		20607FIL	12074FIL	16021FIL	
			10801FIL	15293FIL	
OSP-E50B		20608FIL	10804FIL	12024FIL	
Type of Drive		**Coupling Housing**	**Motor Coupling**	**Motor Flange**	
OSP-E25S*		20137FIL	12070FIL	16068FIL	
OSP-E32S*		20138FIL	12074FIL	18315FIL	
			10801FIL	12134FIL	
OSP-E50S*		20139FIL	12075FIL	12065FIL	

* OSP-E, ..SB, ..ST, ..SBR, .. STR

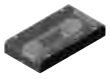
** EasyDrive packages consisting of controller, motor and 5 m cable (motor/feedback)

Accessoiries

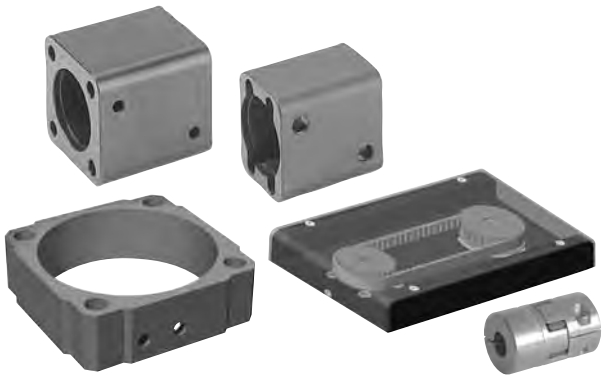
Description	Comment	Order No.
Power Supply	XLPSU 80VDC@3A / 24VDC@0,25A	**18356FIL**
I/O Connection Cable	D-SUB 15-pole flying leads, 5 m	**18357FIL**
Communication Cable	RS232 COM cable, 2 m	**18358FIL**

	EasyDrive Packages**
	18300FIL (EasyDrive Stepper SY563T)
	18301FIL (EasyDrive Stepper SY873T)
	18300FIL (EasyDrive Stepper SY563T)
	18301FIL (EasyDrive Stepper SY873T)
	18301FIL (EasyDrive Stepper SY873T)
	18300FIL (EasyDrive Stepper SY563T)
	18301FIL (EasyDrive Stepper SY873T)
	18300FIL (EasyDrive Stepper SY563T)
	18301FIL (EasyDrive Stepper SY873T)
	18301FIL (EasyDrive Stepper SY873T)

	EasyDrive Packages**
	18302FIL (EasyDrive Servo SMB60) 18312FIL (EasyDrive Servo SMBA60)
	18302FIL (EasyDrive Servo SMB60) 18312FIL (EasyDrive Servo SMBA60)
	18303FIL (EasyDrive Servo SMB82) 18304FIL (EasyDrive Servo SMBA82)
	18303FIL (EasyDrive Servo SMB82) 18304FIL (EasyDrive Servo SMBA82)
	EasyDrive Packages
	18302FIL (EasyDrive Servo SMB60) 18312FIL (EasyDrive Servo SMBA60)
	18302FIL (EasyDrive Servo SMB60) 18312FIL (EasyDrive Servo SMBA60)
	18303FIL (EasyDrive Servo SMB82) 18304FIL (EasyDrive Servo SMBA82)
	18303FIL (EasyDrive Servo SMB82) 18304FIL (EasyDrive Servo SMBA82)

Description	Illustration		Page
Motor Mountings		Coupling Housing, Motor Flange, Motor Coupling	133 ff
		Belt Gear	
End Cap Mountings			141 ff
		Flange C-E	
Profile Mountings		Mid Section Support Guide Mounting	147 ff
		Adapter Profile	
		Trunnion and Pivot Mounting	
Compensations		Clevis Mounting	155 ff
		Inversion Mounting	
		Piston Rod Eye, Piston Rod Clevis, Piston Rod Compensating Coupling	
Guide Mountings		End Cap Mounting Profile Mounting	161 ff
Magnetic Sensors			165 ff
Displacement Measuring System SFI-plus			171 ff
Cable Cover			175 ff

Motor Mountings



Content

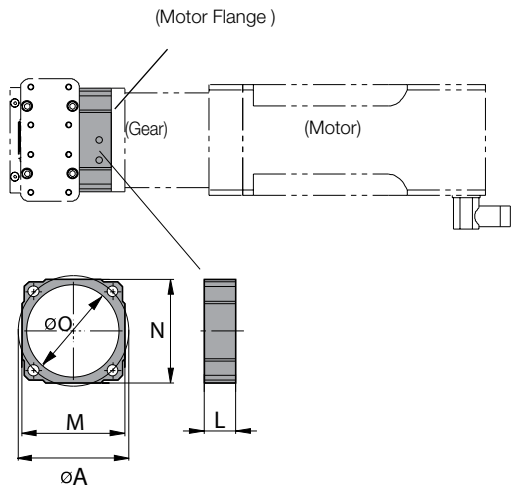
- **OSP-E..BHD Belt Actuator with Integrated Guide**

Via the coupling housing the gear or the motor can be fitted directly to the actuator and the drive shafts by means of a motor flange.

The motor flange matches the above mentioned coupling housing and has be reworked to match the respective type of motor.

Motor flanges for the available range of gears, servo and stepper motors are included in the respective data sheet, including technical data and dimensions. Please refer to the respective catalogues.

Coupling Housing (for gear or motor mounting)

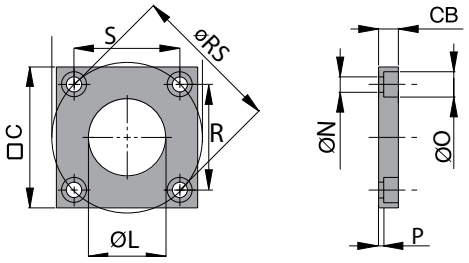


Coupling Housing (for gear or motor mounting)

Series	Ø A	L	M	N	Ø O	Order No.
OSP-E20BHD	65.8	19	60	60	48	**16215FIL**
OSP-E20BHD*	65.8	79	60	60	48	**16269FIL**
OSP-E25BHD	82.0	22	76	76	68	**12300FIL**
OSP-E32BHD	106.0	30	98	98	88	**12301FIL**
OSP-E50BHD	144.0	41	130	130	118	**12302FIL**

* Coupling housing for gear or motor mounting with a motor coupling

Motor Flange (semi-finished)



Motor Flange (semi-finished)

Series	□ C	CB	Ø L	Ø N	Ø O	P	R	S	Ø RS	Order No.
OSP-E20BHD	75	10	25	6.6	11	3.2	46.5	46.5	65.8	**16216FIL**
OSP-E25BHD	90	14	36	9.0	15	5.5	57.9	57.9	82.0	**12308FIL**
OSP-E32BHD	100	14	55	11.0	18	3.5	74.9	74.9	106.0	**12309FIL**
OSP-E50BHD	125	18	77	13.5	20	5.5	101.8	101.8	144.0	**12310FIL**

Motor Flange (finished)

Series	Comment	Order No. *
OSP-E20BHD	for PV40-TA / LP050	**16224FIL**
OSP-E20BHD	for PV60-TA / LP070 (with gear mounting 15166)	**16273FIL**
OSP-E20BHD	for PS60	**18283FIL**
OSP-E25BHD	for PV60-TA / LP070	**12311FIL**
OSP-E25BHD	for PS60	**18413FIL**
OSP-E32BHD	for PV90-TA / LP090	**12312FIL**
OSP-E32BHD	for PS90	**18419FIL**
OSP-E50BHD	for PV115-TA / LP120	**12313FIL**
OSP-E50BHD	for PS115	**18422FIL**

*Motor Coupling not included

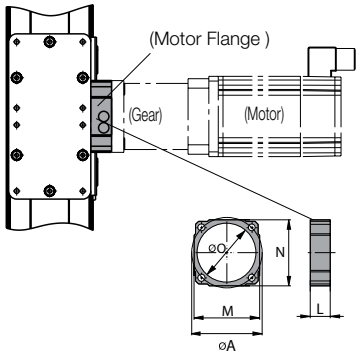
- **OSP-E..BV Vertical Belt Actuator with Integrated Ball Bearing Guide**

The coupling housing with suitable motor flange allows proper connection between the drive shaft of the actuator and the gear shaft or motor shaft. The gear or motor can either be fitted to the actuator directly or indirectly. If a Parker Origa gear is used, direct clamping of the gear shaft into to the drive shaft with clamping Stroke. As an alternative the gear or motor can be fitted to the actuator via a motor coupling.

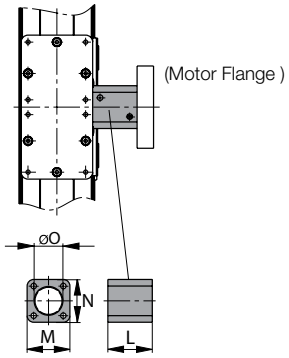
[1] **Hint:** when selecting the type of motor mounting please observe the respective drive shaft versions in accordance with the ordering code of the actuator (page 36).

Coupling Housing

for Direct Clamping



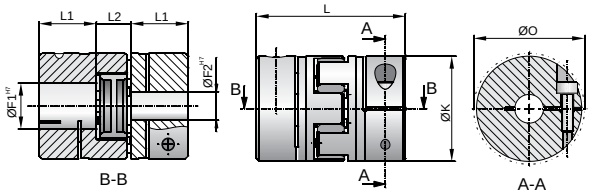
for Clamping with Motor Clamping



Series	Ø A	L	M	N	Ø O	Order No.
OSP-E20BV	65.8	19	60	60	48	**16215FIL**
OSP-E20BV*	65.8	79	60	60	48	**16269FIL**
OSP-E25BV	82.0	22	76	76	68	**12300FIL**
OSP-E25BV*	65.8	84	87	87	48	**20139FIL**

* Coupling housing for gear or motor mounting with a motor coupling

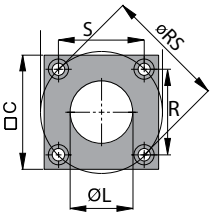
Universal Motor Coupling

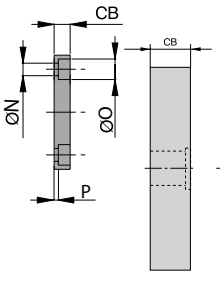


Series	Ø F_1^{H7}	Ø F_2^{H7}	Ø F^{H7}	Ø K	L	L_1	L_2	Ø O	Order No.
OSP-E20BV	12	9.5	8 - 24	40	66	25	16	46	**16268FIL**
OSP-E25BV	16	9.5	8 - 24	40	66	25	16	46	**10845FIL**

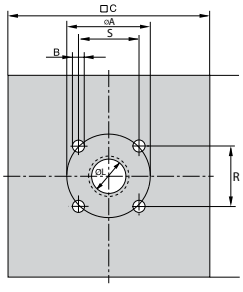
Motor Flange

(semi-finished)





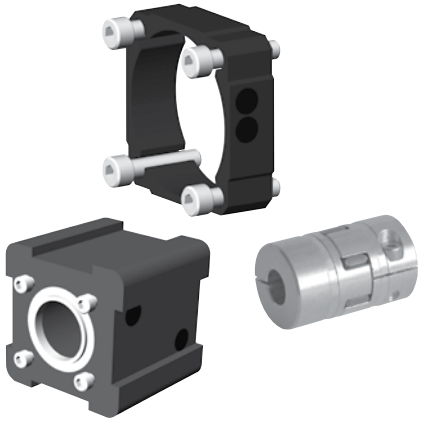
universal



Series	□C	CB	Ø L	Ø N	Ø O	P	R	S	Ø RS	Order No.
OSP-E20BV	75	10	25	6.6	11	3.2	46.5	46.5	65.8	**16216FIL**
OSP-E20BV*	120	15	25	6.6	11	3.0	46.5	46.5	65.8	**16267FIL**
OSP-E25BV	90	14	36	9.0	15	5.5	58.0	58.0	82.0	**12308FIL**
OSP-E25BV*	120	15	35	6.6	11	3.0	46.0	46.0	65.0	**12069FIL**

Motor Flange (finished)

Series	Comment	Order No.
OSP-E20BV	for PV40-TA / LP050 (for Standard Clamp Shaft)	**16224FIL**
OSP-E20BV	for PV60-TA / LP070 (for Plain Shaft)	**16273FIL**
OSP-E20BV	for PS60 (for Plain Shaft)	**18283FIL**
OSP-E25BV	for PV60-TA / LP070	**12311FIL**
OSP-E25BV	for PS60	**18413FIL**

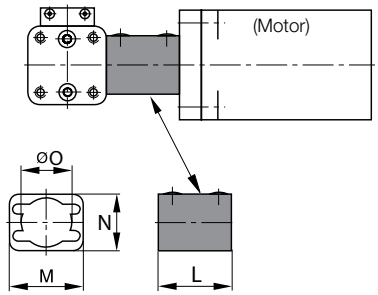


- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**

The coupling housing with suitable motor flange allows easy and inherently stable connection of the gear or the motor to the actuator.

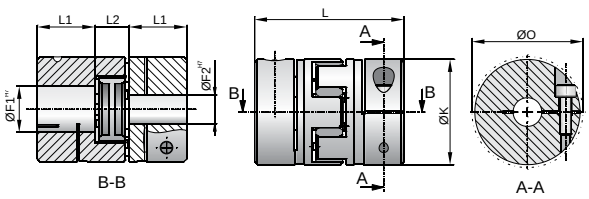
Hint: Let us know the mounting dimensio ns of your motor. Upon request we will be pleased to check and manufacture a motor flange that will come up to your individual needs. (Also see “motor flange for freely selectable mounting dimensions” page 126 ff)

Coupling Housing (for gear or motor mounting)



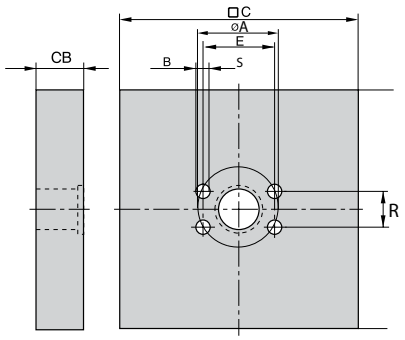
Series	Ø A	L	M	N	Ø O	Order No.
OSP-E25B	33.5	47	40	30	25	**20606FIL**
OSP-E32B	42.0	49	49	38	33	**20607FIL**
OSP-E50B	59.4	76	65	54	48	**20608FIL**

Motor Coupling Dimension [mm] and Order No.



Series	Ø F_1^{H7}	Ø F_2^{H7}	Ø F^{H7}	Ø K	L	L1	L2	Ø O	Order No.
OSP-E25B	10	4.0	4 - 11	20	30	10	10	23.4	**12073FIL**
OSP-E32B	10	6.0	5 - 16	30	35	11	13	32.2	**15197FIL**
OSP-E50B	16	9.5	8 - 24	40	66	25	16	46.0	**10845FIL**

Motor Flange (universal)

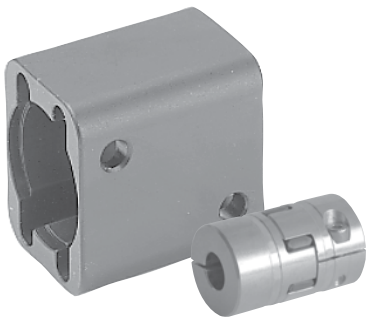


Series	□ C	CB	Ø L	Ø N	Ø O	P	R	S	Ø RS	Order No.
OSP-E25B	100	20	16	5.5	10	3.0	30.0	15.0	33.5	**12050FIL**
OSP-E32B	100	20	22	6.6	11	4.0	38.0	18.0	42.0	**12053FIL**
OSP-E50B	120	15	35	9.0	15	3.0	50.0	32.0	59.4	**12056FIL**

Motor Flange (finished)

Series	Comment	Order No. *
OSP-E25B	for PV40-TA / LP050 (Motor Coupling12080)	**16076FIL**
OSP-E32B	for PV40-TA / LP050 (Motor Coupling10841)	**16090FIL**
OSP-E32B	for PV60-TA / LP070 (Motor Coupling12980)	**15930FIL**
OSP-E32B	for PS60 (Motor Coupling12980)	**18272FIL**
OSP-E50B	for PV60-TA / LP070 (Motor Coupling12981)	**16057FIL**
OSP-E50B	for PS60 (Motor Coupling12981)	**18277FIL**

*Motor coupling not included

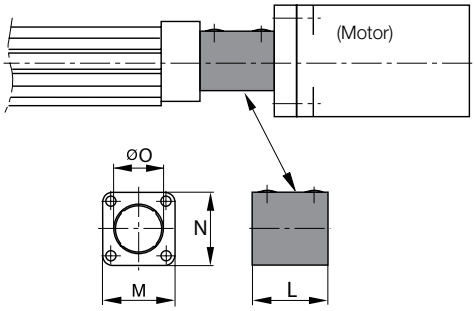


- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**
- **OSP-E..SBR, ..STR Screw Actuator with Internal Plain Bearing Guide and Piston Rod**

The coupling housing with suitable motor flange allows easy and inherently stable connection of the gear or the motor to the actuator.

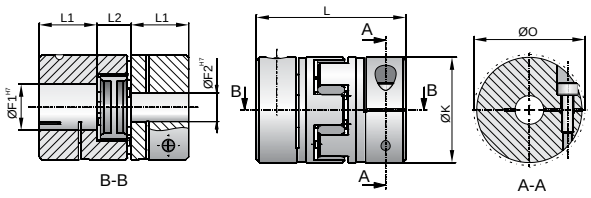
Hint: Let us know the mounting dimensions of your motor. Upon request we will be pleased to check and manufacture a motor flange that will come up to your individual needs. (Also see “configurable motor flange” page 128)

Coupling Housing (for Motor)



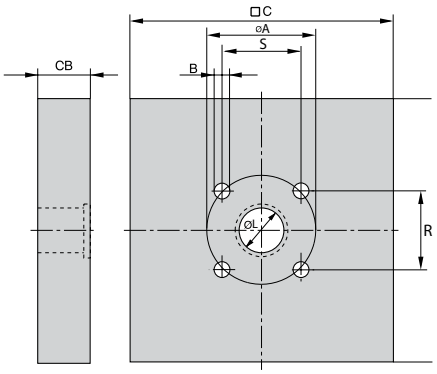
Series	Ø A	L	M	N	Ø O	Order No.
OSP-E25S...	38.2	38	41	41	25	**20137FIL**
OSP-E32S...	50.9	54	52	52	33	**20138FIL**
OSP-E50S...	65.0	84	87	87	48	**20139FIL**

Motor Coupling Dimension [mm] and Order No.



Series	Ø F_1^{H7}	Ø F_2^{H7}	Ø F^{H7}	Ø K	L	L1	L2	Ø O	Order No.
OSP-E25S...	6	6.0	4 - 11	20	30	10	10	23.4	**12073FIL**
OSP-E32S...	10	6.0	5 - 16	30	35	11	13	32.2	**15197FIL**
OSP-E50S...	15	9.5	8 - 24	40	66	25	16	46.0	**12079FIL**

Motor Flange (universal)

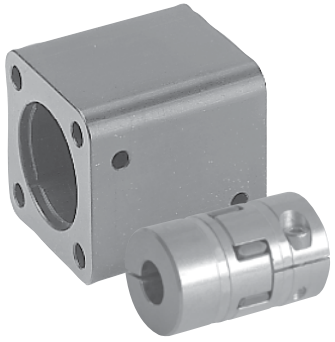


Series	□ C	CB	Ø L	Ø N	Ø O	P	R	S	Ø RS	Order No.
OSP-E25S...	100	20	16	5.5	10	3.0	27.0	27.0	38.2	**12060FIL**
OSP-E32S...	100	20	22	6.6	11	4.0	36.0	36.0	50.9	**12064FIL**
OSP-E50S...	120	15	35	6.6	11	3.0	46.0	46.0	65.0	**12069FIL**

Motor Flange (finished)

Series	Comment	Order No. *
OSP-E25S...	for PV40-TA / LP050 (Motor Coupling12072)	**16058FIL**
OSP-E32S...	for PV40-TA / LP050 (Motor Coupling10841)	**16070FIL**
OSP-E32S...	for PV60-TA / LP070 (Motor Coupling12980)	**15803FIL**
OSP-E32S...	for PS60 (with Motor Coupling12980)	**18281FIL**
OSP-E50S...	for PV60-TA / LP070 (Motor Coupling15227)	**15526FIL**
OSP-E50S...	for PS60 (with Motor Coupling15227)	**18283FIL**

*Motor coupling not included



- **OSP-E..B Ball Actuator with Internal Plain Bearing Guide**
- **OSP-E..SB, .. ST - Screw Actuator with Internal Plain Bearing Guide**
- **OSP-E..SBR, STR - Screw Actuator with Internal Plain Bearing Guide and Piston Rod**

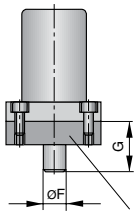
The motor flange for motors with freely selectable mounting dimensions offers flexible possibilities to connect most different type s of motors to the electric actuators OSP-E. The drive shafts of actuator and motor are connected with a motor coupling in the coupling housing and the motor flange is centred.

Hint: Please check the following data for the connection of the motor to the freely selectable motor flange and state when ordering:

1. mounting angle W of the motor
2. bore hole version B as thread M or counterbore S
3. pitch circle diameter A as a function of M or S
4. Diameter of centring spigot D
5. Length of motor shaft G

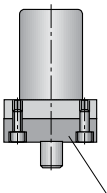
Variable Dimensions for Flange

Version Thread „M“
Flange plate with thread,
Motor flange with through bolt



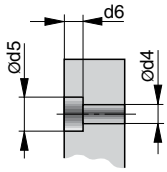
Flange plate

Version Thread „S“
Flange plate with through bore
Motor flange with thread

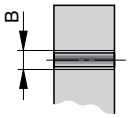


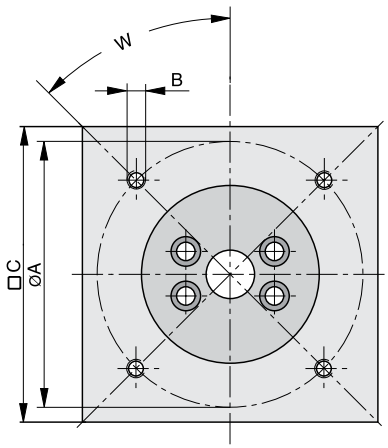
Flange plate

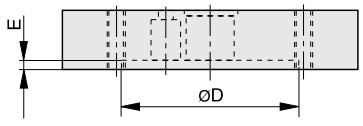
Version Counterbore „S“



Version Thread „M“







Counterbore Dimensions [mm]

Screw Size	Ød4	Ød5	d6
M4x16	4.5	8.0	4.6
M5x22	5.5	10.0	5.7
M6x20	6.6	11.0	6.8
M8x25	9.0	15.0	9.0
M10x25	11.0	18.0	11

Dimension [mm] – Version for Belt Drive

W		45 °			90 °		
Size		25	32	50	25	32	50
A	min. Vers. S	48 + Ød5	60 + Ød5	80 + Ød5	40 + Ød5	49 + Ød5	65 + Ød5
	max. Vers. S	135 - Ød5	135 - Ød5	160 - Ød5	100 - Ød5	100 - Ød5	120 - Ød5
	min. Vers. M	45 + B	55 + B	75 + B	40 + B	48 + B	50 + B
	max. Vers. M	135 - B	135 - B	160 - B	96 - B	96 - B	116 - B
B	max.	M10			M10		
D	min.	20	30	40	20	30	40
	max.	98	98	118	85	85	105
G	min.	18	21	32	18	21	32
	max.	33	35	45	33	35	45
C		100	100	120	100	100	120

Dimension Table of the Variable Dimension [mm] – Version for Screw Drive

W		45 °			90 °		
Size		25	32	50	25	32	50
A	min. Vers. S	58 + Ød5	74 + Ød5	123 + Ød5	41 + Ød5	52 + Ød5	87 + Ød5
	max. Vers. S	135 - Ød5	135 - Ød5	160 - Ød5	100 - Ød5	100 - Ød5	120 - Ød5
	min. Vers. M	52 + B	68 + B	82 + B	30 + B	40 + B	50 + B
	max. Vers. M	135 - B	135 - B	160 - B	96 - B	96 - B	116 - B
B	max.	M10			M10		
D	min.	20	30	40	20	30	40
	max.	98	98	118	85	85	105
G	min.	18	21	32	18	21	32
	max.	33	35	45	33	35	45
C		100	100	120	100	100	120

Legend

W [°] = Angle of fastening boreholes
A [mm] = Pitch circle diameter
B = Thread size of fastening screw (version: M = thread, S = counterbore)
D [mm] = Diameter of centring spigot
E [mm] = Depth of centring spigot
F [mm] = Diameter of motor shaft
G [mm] = Length of motor shaft

Order Instructions

Description	**Ident-Nr.**
Article is configurable customized	**18184FIL**

• Series OSP-E..SB, ..ST, ..SBR, ..STR Actuator with Screw

The belt gear with its freely selectable mounting dimensions offers the possibility to fit most different Type s of motors to the actuator parallel to the motor axis. After the flange dimensions of the motor had been checked, the mounting side of the motor will be prepared for the individual demands of the customer.

When ordering please observe the version of the drive shaft of the actuator OSP-E with spindle. This version can either be ordered with plain shaft or plain shaft with keyway (Option). (If the version keyway is selected, the delivery period may be elongated.)

Versions of Drive Shaft OSP-E with Screw

Order No.	Drive Shaft
OSP-E..-*.. .. ..0-.....	Plain
OSP-E..-*.. .. ..3-.....	Keyway
OSP-E..-*.. .. ..4-.....	Keyway long

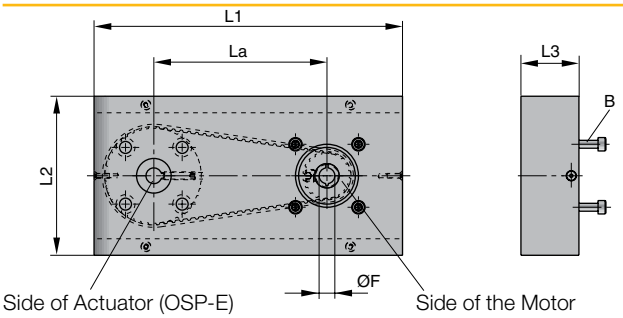
*1=SB, 2=ST, 3=STR, 4=SBR

Max. Allowed Moment M [Nm] for Belt Gear

Size	Transmission 1:1	2:1
25	5	5
32	10	10
50	20	20

Beware of the max. allowed moments of the corresponding actuator

Belt Gear

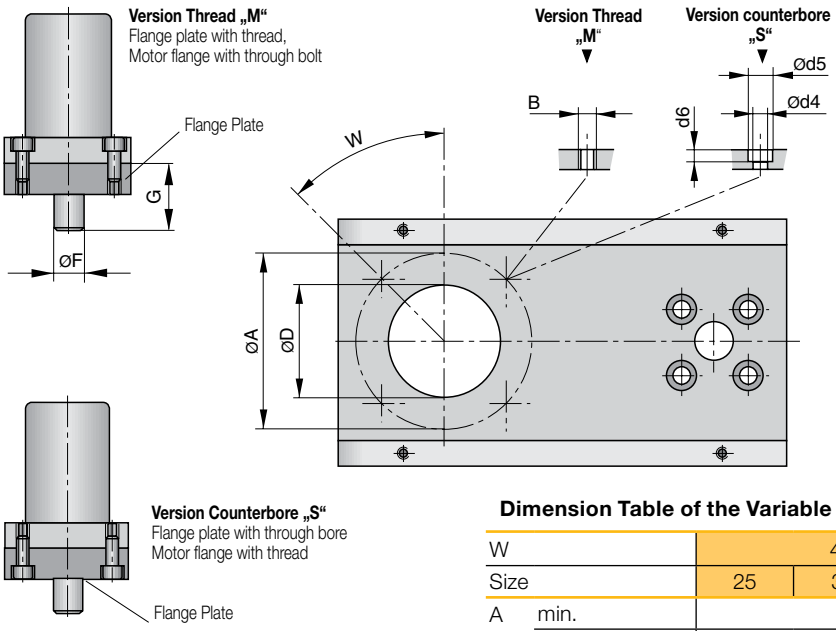


Dimension [mm] and Order Instructions

Series	L1	L2	L3	La 1:1	La 2:1	B	Ø F*	Order No.
OSP-E25	186	101	30	110	109,3	M4 - M10	6, 7, 8, 9, 10, 11	**15576FIL**
OSP-E32	196	101	37	110	111,4		8, 9, 10, 11, 12, 14	**15576FIL**
OSP-E50	234	101	50	135	133,7		12, 14, 16, 19	**15576FIL**

* other diameters on request

Variable Dimensions for Motor Mounting



Screw Size	Ø d4	Ø d5	d6
M4	4.5	8	4.5
M5	5.5	10	5.3
M6	6.6	11	6.3
M8	9.0	15	5.5
M10	11	18	6.7

Dimension Table of the Variable Dimensions [mm]

W		45 °			90 °		
Size		25	32	50	25	32	50
A	min.	30			30		
	max. Vers. S	110 - Ød5			70 - Ød5	70 - Ød5	80 - Ød5
	max. Vers. M	110 - Ød4			70 - Ød4	70 - Ød4	80 - Ød4
B	max.	M 8			M 8		
D	min.	20			20		
	max.	80	80	100	60	60	70
G	min.	16	20	30	16	20	30
	max.	23	30	40	23	30	40
ØF	[mm]	6, 7, 8, 9, 10, 11	8, 9, 10, 11, 12, 14	12, 14, 16, 19	6, 7, 8, 9, 10, 11	8, 9, 10, 11, 12, 14	12, 14, 16, 19

End Cap Mounting

Content

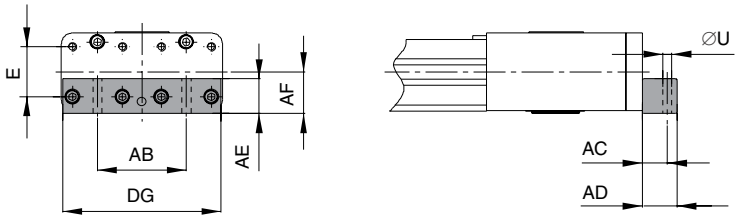
• Series OSP-E..BHD for Actuator with Belt and Integrated Guides

On the end-face of each end cap there are eight threaded holes for mounting the actuator.

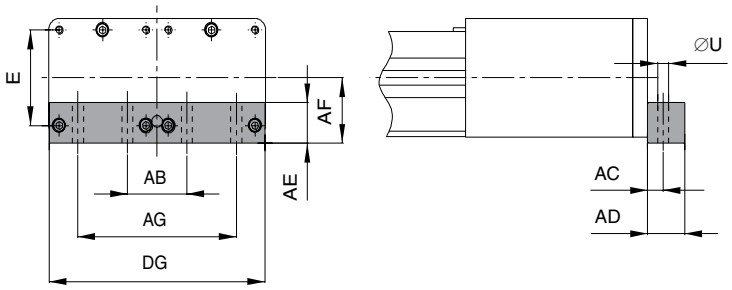
Material: Anodized Aluminium

The mountings are supplied in pairs.

Series OSP-E20BHD to E32BHD: Type CN-20, CN-25, CN-32



Series OSP-E50BHD: Type CN-50M



Dimension [mm] and Order Instructions

Series	Type	E	ØU	AB	AC	AD	AE	AF	AG	DG	Order No. *
OSP-E20BHD	CN-20	27	6.6	40	10.0	20	20	22	–	74	**16213FIL**
OSP-E25BHD	CN-25	27	6.6	52	16.0	25	25	22	–	91	**12266FIL**
OSP-E32BHD	CN-32	36	9.0	64	18.0	25	25	30	–	114	**12267FIL**
OSP-E50BHD	CN-50	70	9.0	48	12.5	30	30	48	128	174	**12268FIL**

(*= Pair

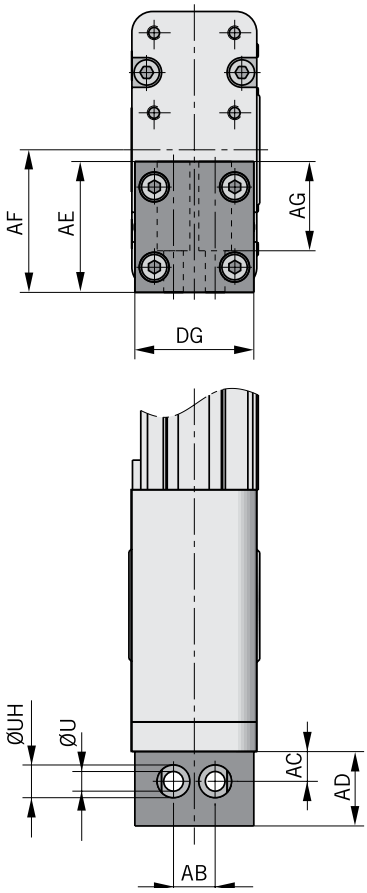
• Series OSP-E..BHD Actuator with Belt and Integrated Guide

On the end-face of each end cap there are eight threaded holes each for mounting the actuator.

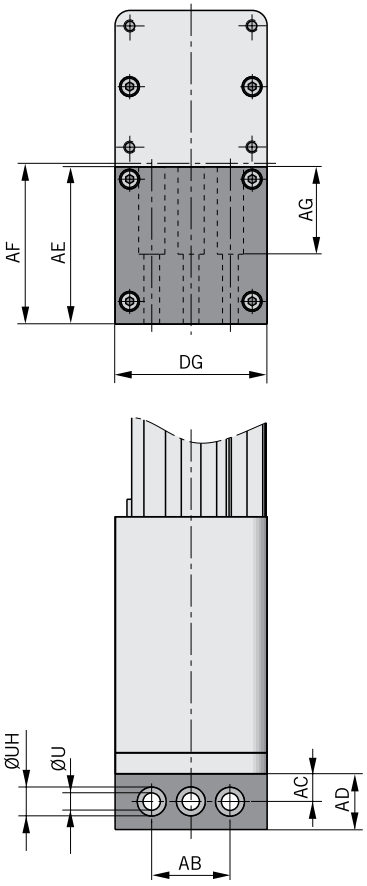
Material: Anodized Aluminium.

The mountings are supplied in pairs.

Series OSP-E20BHD to E32BHD: Type CO-20, CO-25, CO-32



Series OSP-E50BHD: Type CO-50



Dimension Table [mm] and Order Instructions

Series	Type	ØU	AB	AC	AD	AE	AF	AG	ØUH	DG	Order No. (*
OSP-E20BHD	CO-20	6.6	18	15	22	42	45	39	11	40	**16241FIL**
OSP-E25BHD	CO-25	6.6	14	10	25	44	48	30	11	40	**16245FIL**
OSP-E32BHD	CO-32	9.0	19	12	28	60	62	42	15	56	**16246FIL**
OSP-E50BHD	CO-50	9.0	45	16	32	90	92	50	15	87	**16247FIL**

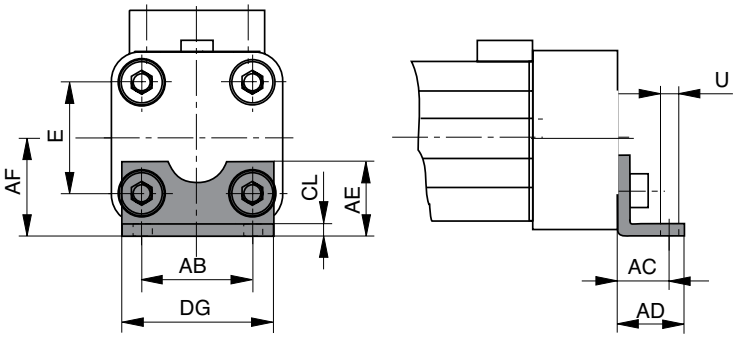
(*= Pair

- **Series OSP-E...B Belt Actuator with Internal Plain Bearing Guide**
- **Series OSP-E..SB, .. ST Screw Actuator with Internal Plain Bearing Guide**

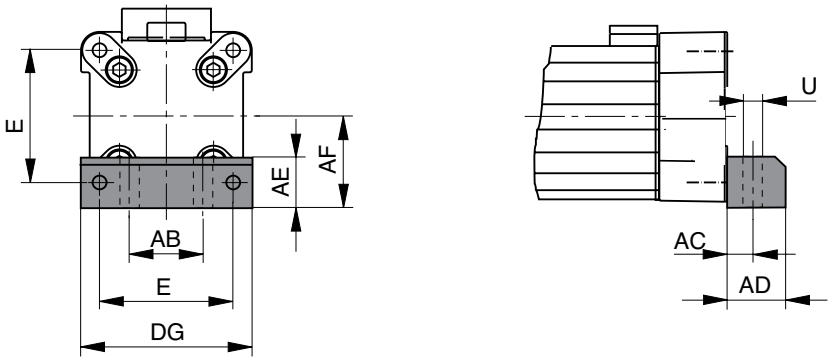
On the end-face of each end cap there are four threaded holes for mounting the actuator. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

Material: Series OSP-25 to 32: Galvanised steel.
Series OSP-50: Anodized Aluminium.
The mountings are supplied as pairs

Series OSP-E25 to E32: Type A1



Series OSP-E50: Type C1



Dimension Table [mm] and Order Instructions

Series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order No. (* Type A1	Type C1
OSP-E25	27	5.8	27	16.0	22	18	22	2.5	39	**2010FIL**	**-**
OSP-E32	36	6.6	36	18.0	26	20	30	3.0	50	**3010FIL**	**-**
OSP-E50	70	9.0	40	12.5	24	30	48	-	86	**-**	**5010FIL**

(*=Pair

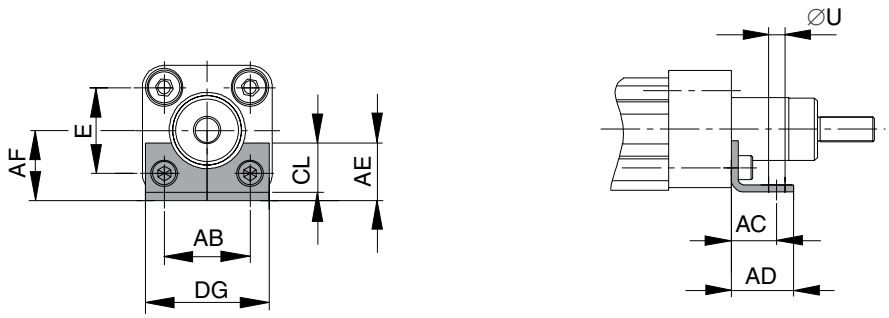
Important:
With the OSP-E Screw series, the end cap mounting can only be used at the end opposite to the drive shaft.
We recommend the application of two mid section supports (page 136 ff) at the drive shaft end of the actuator.

• OSP-E..SBR, ..STR Actuator with Screw and Extending Rod

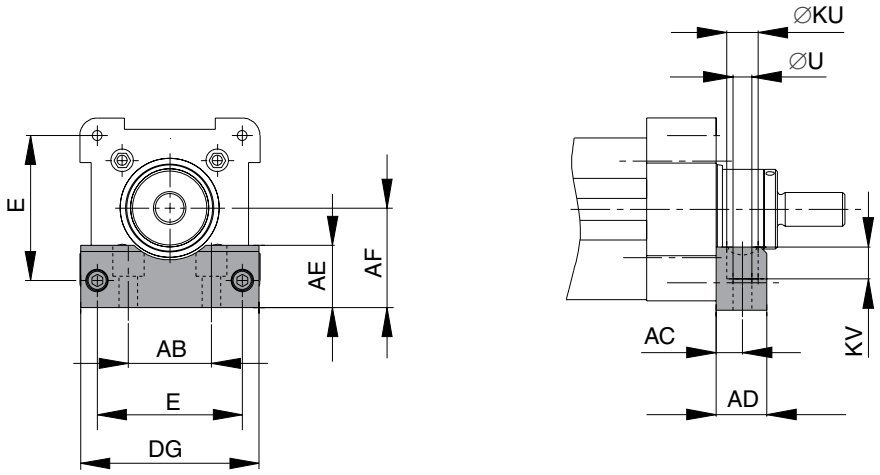
On the end-face of each end cap there are four threaded holes for mounting the actuator. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

Material: Series OSP-25 to 32: Galvanised steel.
Series OSP-50: Anodized Aluminium.
The mountings are supplied as pairs

Series OSP-E25SBR, 25STR to E32 SBR, 32STR: Type A1SR



Series OSP-E50SBR, 50STR: Type C1SR



Dimension [mm] and Order Instructions

Series	E	ØU	AB	AC	AD	AE	AF	CL	DG	øKU	KV	Order No. (* Type A1SR C1SR	Type
OSP-E25SBR, STR	27	5.8	27	16.0	22	18	22	2.5	39	-	-	**12263FIL**	**-**
OSP-E32SBR, STR	36	6.6	36	18.0	26	20	30	3.0	50	-	-	**12264FIL**	**-**
OSP-E50SBR, STR	70	9.0	40	12.5	24	30	48	-	86	15	15	**-**	**12265FIL**

(*= Single

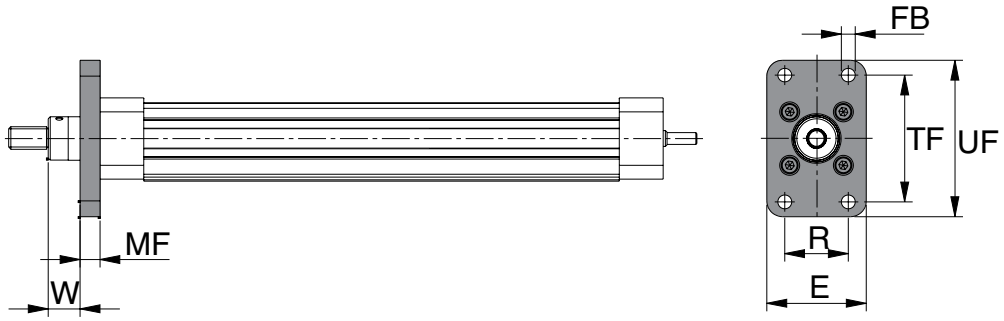
Important:
With the OSP-E Screw series, the end cap mounting can only be used at the end opposite to the drive shaft. We recommend the application of two mid section supports (page 136 ff) at the drive shaft end of the actuator.

• Series OSP-E..SBR, ..STR Actuator with Screw and Piston Rod

The flange mounting C-E can only be mounted at the piston rod end of the actuator.

Material: Aluminium

Series OSP-E25SBR, STR to E50SBR, STR: Type C-E..



Dimension [mm] and Order Instructions

Series	Type	ØFB	E	MF	R	TF	UF	W	Order No.
OSP-E20SBR, STR	C-E25	7	50	10	32	64	79	16	**12232FIL**
OSP-E32SBR, STR	C-E32	9	56	10	36	72	90	16	**12233FIL**
OSP-E50SBR, STR	C-E50	12	100	16	63	126	153	21	**12234FIL**

Profile Mounting

Content

• Series OSP-E

Material: Anodized Aluminum
Stainless Steel Version on request.

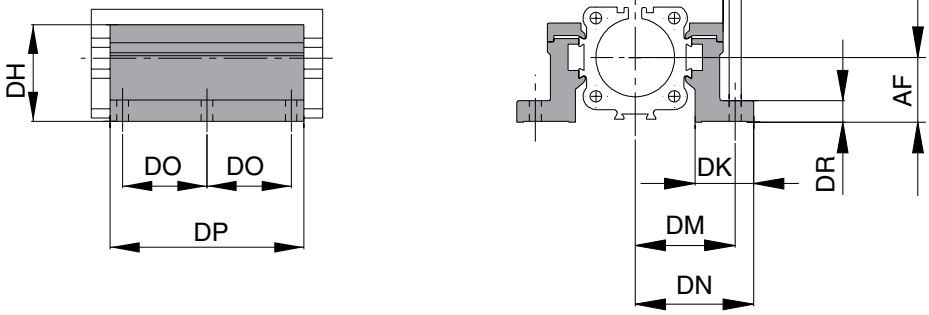
The mountings are supplied in pairs.

Weight (mass) [kg]

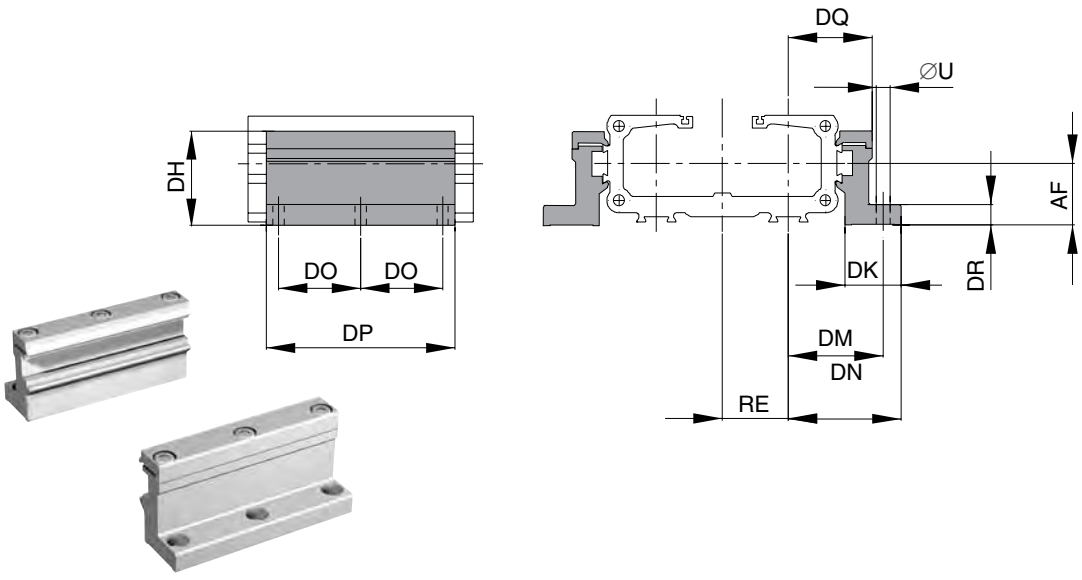
Series	Weight (mass) [kg] (Pair)
MAE-20	0.3
MAE-25	0.3
MAE-32	0.4
MAE-50	0.8

Series OSP-E25 to E50, Type MAE-..

OSP-E..B, ..SB, ..ST, ..SBR, ..STR



Series OSP-E20BHD to E50BHD, Type MAE-..



Dimension [mm] and Order Instructions

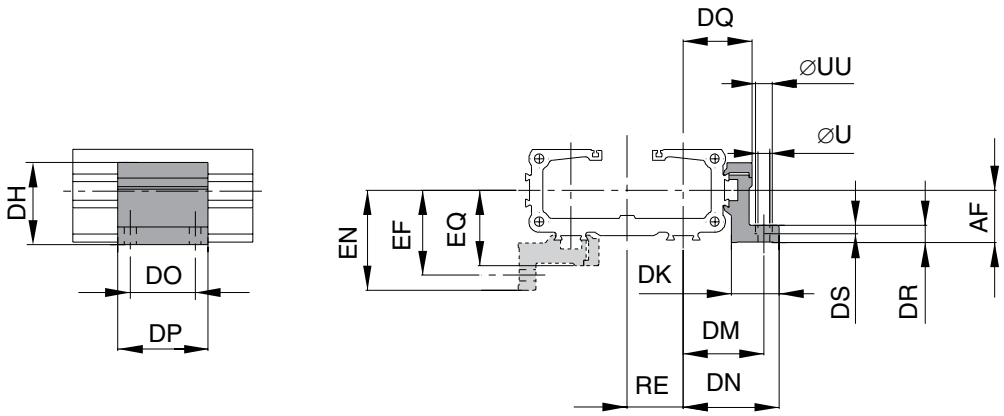
Series	Typ	R	U	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DT	EF	EM	EN	EQ	RE	Order No.
OSP-E20	MAE-20	M5	5.5	22	27	38	26	33.5	41.0	40	92	28.0	8	10	41.5	28.5	49	36	23	**12278FIL**
OSP-E25	MAE-25	M5	5.5	22	27	38	26	40.0	47.5	40	92	34.5	8	10	41.5	28.5	49	36	26	**12278FIL**
OSP-E32	MAE-32	M5	5.5	30	33	46	27	46.0	54.5	40	92	40.5	10	10	48.5	35.5	57	43	32	**12279FIL**
OSP-E50	MAE-50	M6	7.0	48	40	71	34	59.0	67.0	45	112	52.0	10	11	64.0	45.0	72	57	44	**12280FIL**

• Series OSP-E ..BHD Belt Actuator with Integrated Guide

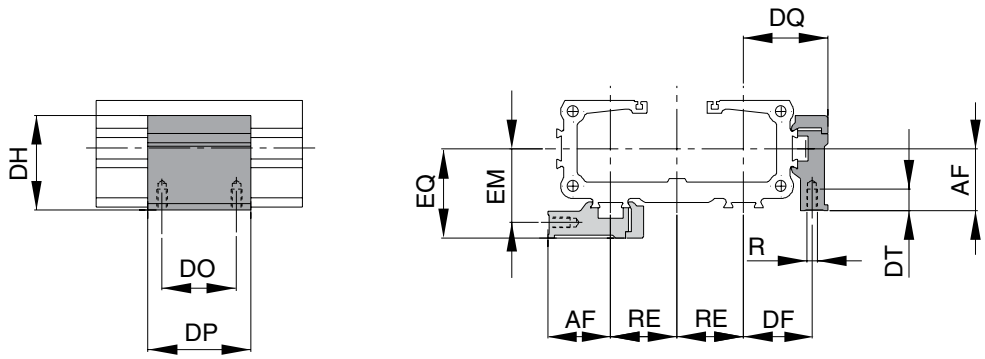
Note on Types E1 and D1: The Profile Mounting can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different. For design notes, see page 14 ff. Stainless steel version on request.

The mountings are supplied singly.

Series OSP-E20BHD to E50BHD: Type E1 (Mountings with Through Holes)



Series OSP-E20BHD to E50BHD: Type D1 (Mountings with Internal Thread)



Dimension [mm] and Order Instructions

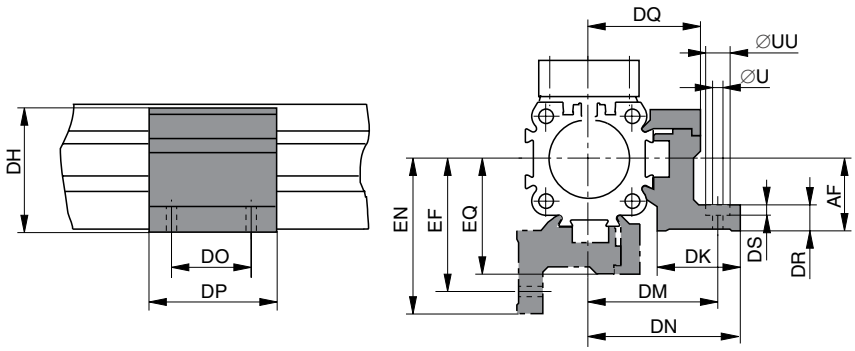
Series	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ	RE	Order No. Type E1	Order No. Type D1
OSP-E20	M5	5.5	10	22	20.5	38	26	33.5	41.0	36	50	28.0	8	5.7	10	41.1	28.1	48.6	35.6	23	**20009FIL**	**20008FIL**
OSP-E25	M5	5.5	10	22	27.0	38	26	40.0	47.5	36	50	34.5	8	5.7	10	41.5	28.5	49.0	36.0	26	**20009FIL**	**20008FIL**
OSP-E32	M5	5.5	10	30	33.0	46	27	46.0	54.5	36	50	40.5	10	5.7	10	48.5	35.5	57.0	43.0	32	**20158FIL**	**20157FIL**
OSP-E50	M6	7.0	-	48	40.0	71	34	59.0	67.0	45	60	52.0	10	-	11	64.0	45.0	72.0	57.0	44	**15536FIL**	**15534FIL**

- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**
- **OSP-E..SBR, ..STR Screw Actuator with Internal Plain Bearing Guide and Piston Rod**

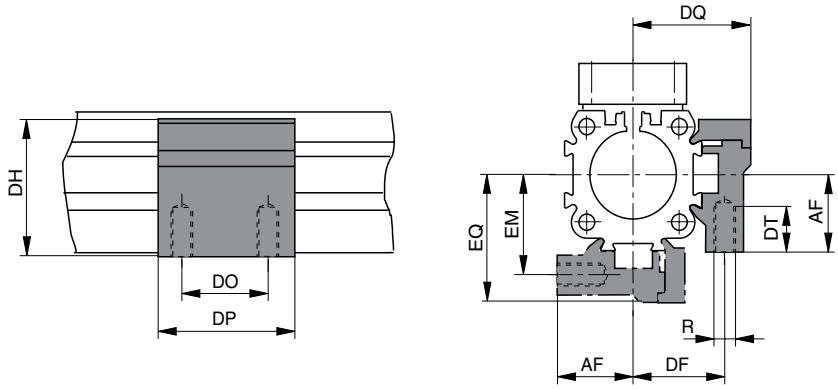
Note on Types E1 and D1: The profile mounting can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different.

Stainless steel version on request.

Series OSP-E25, E32, E50, Type E1
(Mountings with Through Holes)



Series OSP-E25, E32, E50, Type D1
(Mountings with Internal Thread)



Dimension [mm] and Order Instructions

Series	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ	Order No. Type E1	Order No. Type D1
OSP-E25	M5	5.5	10	22	27	38	26	40	47.5	36	50	34.5	8	5.7	10	41.5	28.5	49	36	**20009FIL**	**20008FIL**
OSP-E32	M5	5.5	10	30	33	46	27	46	54.5	36	50	40.5	10	5.7	10	48.5	35.5	57	43	**20158FIL**	**20157FIL**
OSP-E50	M6	7.0	-	48	40	71	34	59	67.0	45	60	52.0	10	-	11	64.0	45.0	72	57	**20163FIL**	**20162FIL**

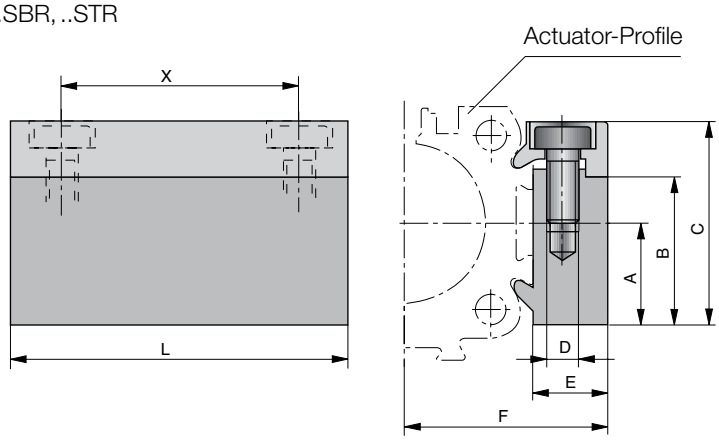
• OSP-E Adaptor Profile OSP

- A Universal Attachement for Mounting of Additional Items
- Solid Material

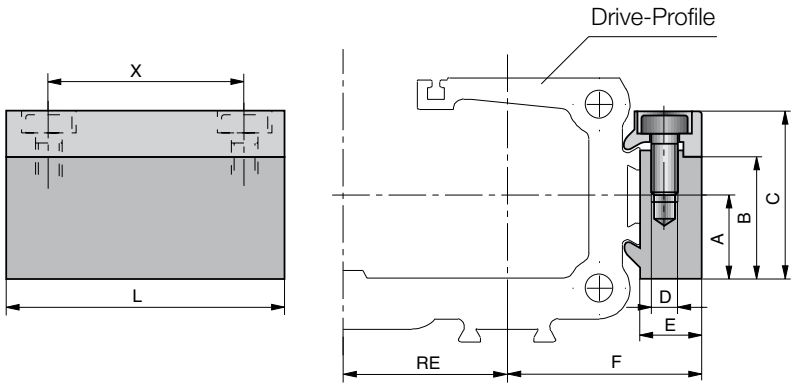
The mountings are supplied singly.

Series OSP-E25 to E50

OSP-E..B, ..SB, ..ST, ..SBR, ..STR



Series OSP-E20BHD to E50 BHD



Dimension [mm] and Order Instructions

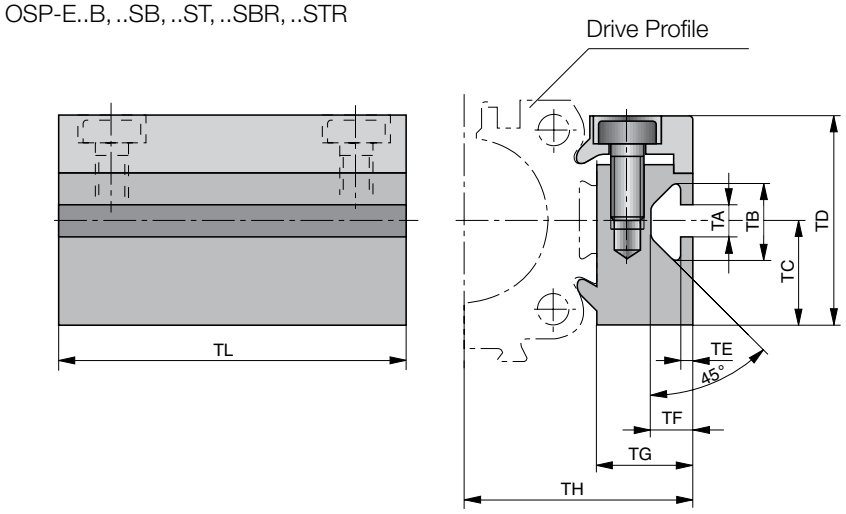
Series	A	B	C	D	E	F	L	X	RE	Order No. Standard	Stainless
OSP-E20	16.0	23.0	32.0	M5	10.5	24.0	50.0	36.0	23.0	**20006FIL**	**20186FIL**
OSP-E25	16.0	23.0	32.0	M5	10.5	30.5	50.0	36.0	26.0	**20006FIL**	**20186FIL**
OSP-E32	16.0	23.0	32.0	M5	10.5	36.5	50.0	36.0	32.0	**20006FIL**	**20186FIL**
OSP-E50	20.0	33.0	43.0	M6	14.0	52.0	80.0	65.0	44.0	**20025FIL**	**20267FIL**

• Series OSP-E T-Slot OSP

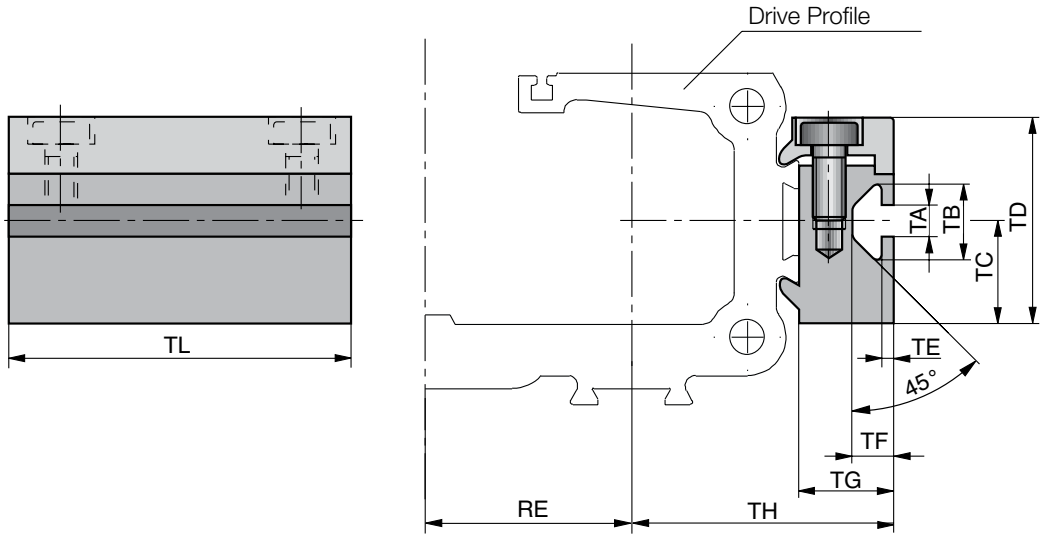
A universal Attachment for Mounting with Standard T-nuts.

Series OSP-E25 to E50

OSP-E..B, ..SB, ..ST, ..SBR, ..STR



Series OSP-E20BHD to E50BHD



Dimension [mm] and Order Instructions

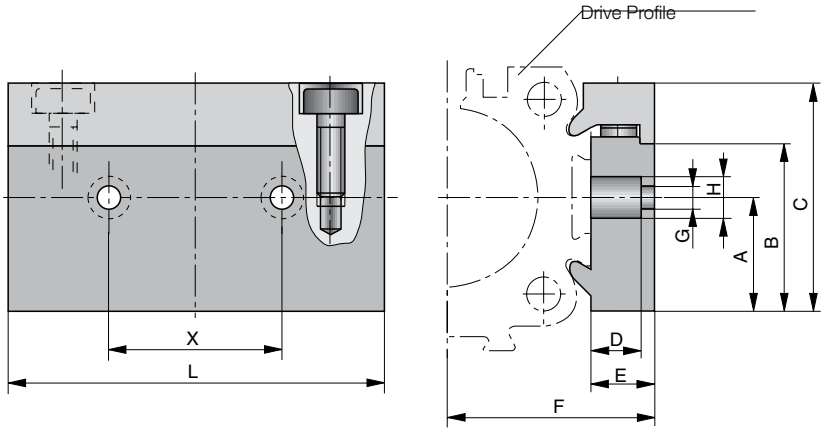
Series	RE	TA	TB	TC	TD	TE	TF	TG	TH	TL	Order No. Standard	Stainless
OSP-E20	23	5.0	11.5	16	32	1.8	6.4	14.5	28	50	**20007FIL**	**20187FIL**
OSP-E25	26	5.0	11.5	16	32	1.8	6.4	14.5	34.5	50	**20007FIL**	**20187FIL**
OSP-E32	32	5.0	11.5	16	32	1.8	6.4	14.5	40.5	50	**20007FIL**	**20187FIL**
OSP-E50	44	8.2	20.0	20	43	4.5	12.3	20.0	58.0	80	**20026FIL**	**20268FIL**

to connect

- **OSP-E with System Profiles**
- **OSP-E with Series OSP-E or OSP-P**

The mountings are supplied singly.

Adaptor Profile

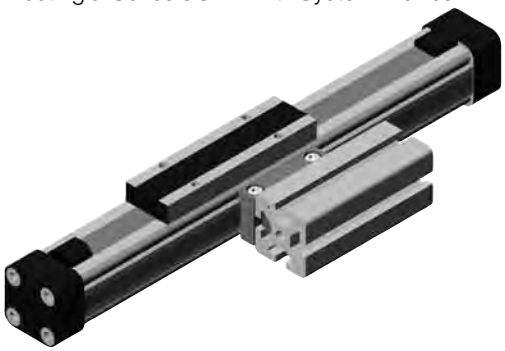


Dimension [mm] and Order Instructions

Series	for the connection to the driver of	A	B	C	D	E	F	G	H	L	X	Order No.
OSP-E25	OSP32-50	16	23	32	8.5	10.5	30.5	6.6	11	60	27	**20850FIL**
OSP-E32	OSP32-50	16	23	32	8.5	10.5	36.5	6.6	11	60	27	**20850FIL**
OSP-E50	OSP32-50	20	33	43	8.0	14.0	52	6.6	11	60	27	**20851FIL**

Connecting Possibilities

Connecting of Series OSP-E with System Profiles



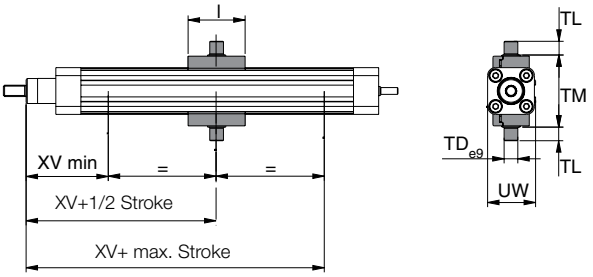
Connecting of Series OSP-E mit Series OSP-E/OSP-P

• OSP-E..SBR, ..STR for Actuator with Spindle Drive and Piston Rod

The trunnion mounting is fitted to the dovetail rails of the actuator profile and is continuously adjustable in axial direction.

The mountings are supplied in pairs.

Series OSP-E25SBR, 25STR to 50SBR, 50STR: Type EN-..



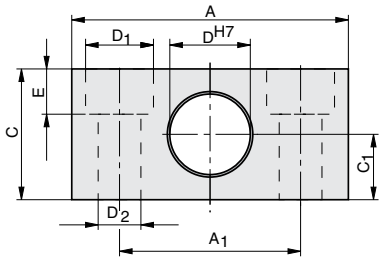
Material: Al

Dimension [mm] and Order Instructions - for Trunnion Mounting EN-..

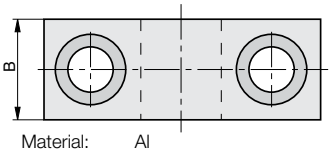
Series	Typ	l	ØTD e9	TL	TM	UW	XV min	XV+ 1/2 Stroke	XV+ max. Stroke	Order No.
OSP-E25SBR. STR	EN-E25	50	12	12	63	42	73.0	83	62.0	**12235FIL**
OSP-E32SBR. STR	EN-E32	50	16	16	75	52	76.5	90	69.5	**12236FIL**
OSP-E50SBR. STR	EN-E50	80	20	20	108	87	110	110	84.0	**12237FIL**

Series OSP-E25SBR, 25STR to 50SBR, 50STR: Type EL-..

Trunnion Mounting EN



Pivot Mounting EL



Material: Al

Dimension [mm] and Order Instructions – Pivot Mounting EL-..

Series	Typ	A	A_1	B	C	C_1	ØD^{H7}	ØD_1	ØD_2	E	Weight. (mass) (kg)	Order No.
OSP-E25SBR. STR	EL-032	55	36	20	26	13	12	13.5	8.4	9	0.06	**PD23381**
OSP-E32SBR. STR	EL-040/050	55	36	20	26	13	16	13.5	8.4	9	0.06	**PD23382**
OSP-E50SBR. STR	EL-063/080	65	42	25	30	15	20	16.5	10.5	11	0.10	**PD23383**

Compensation

Content

- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**

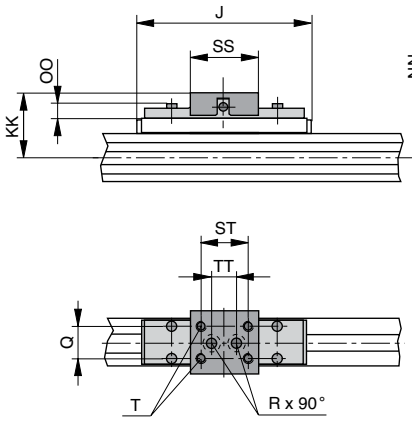
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a Compensation. Freedom of movement is provided as follows:

- Tilting in Direction of Movement
- Vertical Compensation
- Tilting Sideways
- Horizontal Compensation.

A stainless steel version is also available.

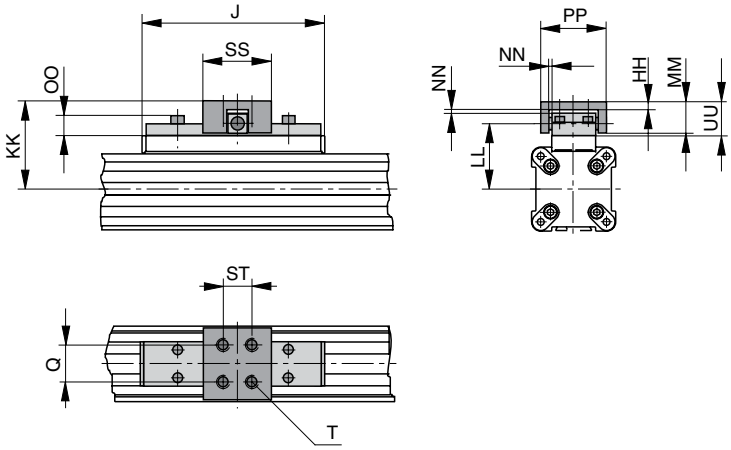
Series OSP-E25 to E32

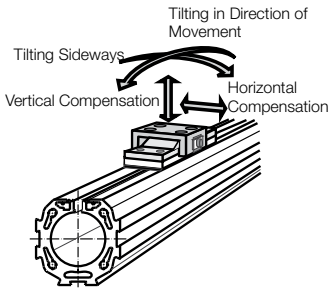
OSP-E..B, ..SB, ..ST



Series OSP-E50

OSP-E..B, ..SB, ..ST





Dimension [mm]

Series	J	Q	T	øR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order No. Standard	Stainless
OSP-E25	117	16	M5	5.5	3.5	52	39	19	2	9	38	40	30	16	21	**20005FIL**	**20092FIL**
OSP-E32	152	25	M6	6.6	6.0	68	50	28	2	13	62	60	46	40	30	**20096FIL**	**20094FIL**
OSP-E50	200	25	M6	-	6.0	79	61	28	2	13	62	60	46	-	30	**20097FIL**	**20095FIL**

*Dimension NN gives the possible plus and minus play in horizontal and vertical movement, which also makes tilting sideways possible.

- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**

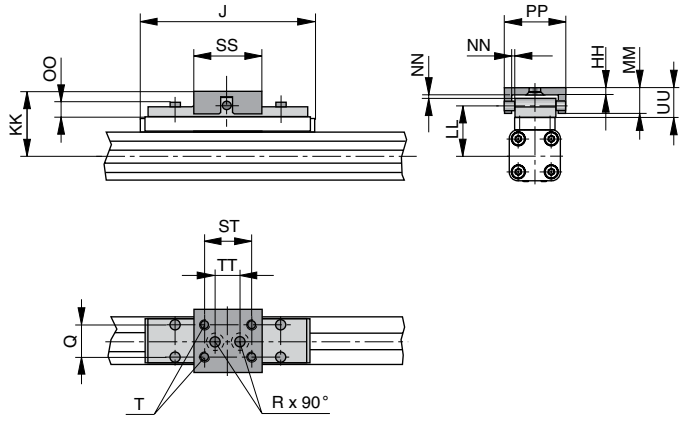
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a clevis mounting. In the drive direction the clevis mounting has a low backlash fit. Freedom of movement is provided as follows:

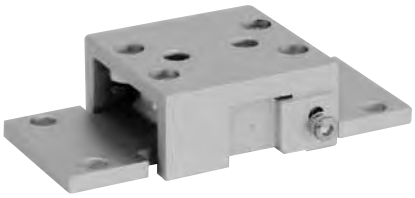
- Tilting in Direction of Movement
- Vertical Compensation
- Tilting Sideways
- Horizontal Compensation

A stainless steel version is also available.

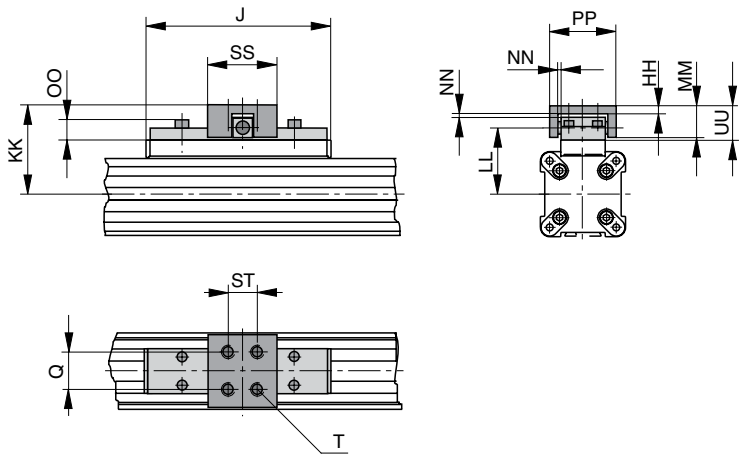
Series OSP-E25 to E32

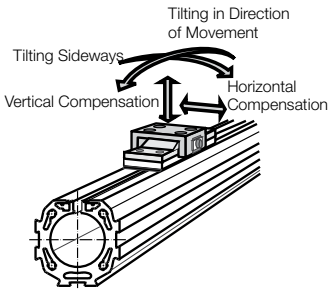
OSP-E..B, ..SB, ..ST





Series OSP-E50





Dimension [mm]

Series	J	Q	T	øR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order No. Standard	Stainless
OSP-E25	117	16	M5	5.5	3.5	52	39	19	2	9	49	40	30	16	21	**20496FIL**	**20498FIL**
OSP-E32	152	25	M6	6.6	6.0	68	50	28	2	13	69	60	46	40	30	**20497FIL**	**20499FIL**
OSP-E50	200	25	M6	-	6.0	79	61	28	2	13	69	60	46	-	30	**20812FIL**	**20818FIL**

*Dimension NN gives the possible plus and minus play in horizontal and vertical movement, which also makes tilting sideways possible.

- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**

In dirty environments, or where there are special space problems, inversion of the cylinder is recommended. The inversion bracket transfers the driving force to the opposite side of the cylinder. The size and position of the mounting holes are the same as on the standard cylinder.

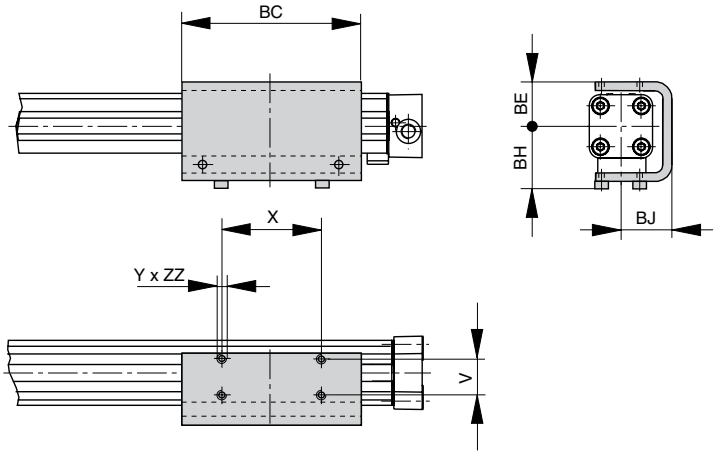
Stainless steel version on request.

Please note: Other components of the OSP system such as **profile mountings, magnetic** switches can still be mounted on the free side of the cylinder.

Important Note: May be used in combination with Compensation, ref. dimensions in page 143.

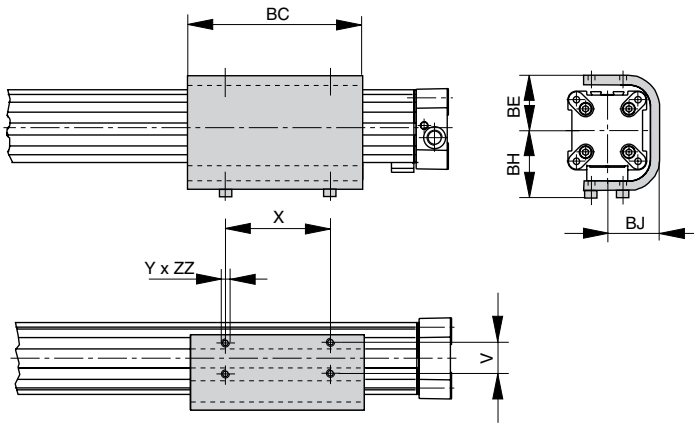
Series OSP-E25 to E32

OSP-E..B, ..SB, ..ST



Series OSP-E50

OSP-E..B, ..SB, ..ST

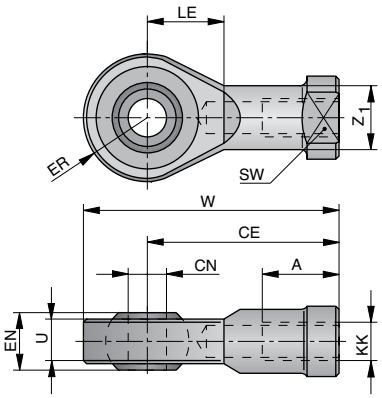


Dimension [mm] and Order Instructions

Series	V	X	Y	BC	BE	BH	BJ	ZZ	Order No.
OSP-E25	25	65	M5	117	31	43	33.5	6	**20037FIL**
OSP-E32	27	90	M6	150	38	51	39.5	6	**20161FIL**
OSP-E50	27	110	M6	200	55	65	52	8	**20166FIL**

• **OSP-E..SBR. ..STR Screw Actuator with Internal Plain Bearing Guide and Piston Rod**

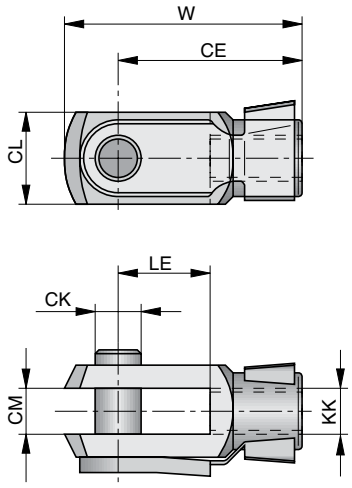
Piston Rod Eye according to (CETOP RP103P) Typ: GA-..



Dimension [mm] and Order Instructions. Weight

Series	Typ	A	CE	ØCN	EN	ER	KK	LE	SW	U	W	ØZ_1	Weight [kg]	Order No.
OSP-E25SBR, STR	GA-M 10x1.25	20	43	10	14	14	M10x1.25	15	17	10.5	57	15	0.072	**KY6147**
OSP-E32SBR, STR	GA-M 10x1.25	20	43	10	14	14	M10x1.25	15	17	10.5	57	15	0.072	**KY6147**
OSP-E50SBR, STR	GA-M 16x1.5	28	64	16	21	21	M16x1.5	22	22	15	85	22	0.21	**KY6150**

Piston Rod Clevis according to ISO 814 (CETOP RP102P) Type: GK-..

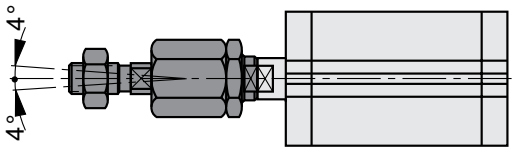


Dimension [mm] and Order Instructions, Weight

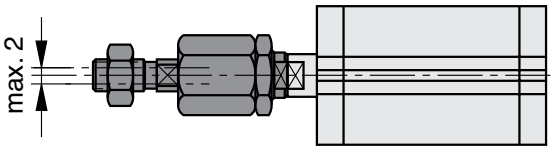
Series	Typ	ØCK	CE	CL	CM	KK	LE	W	Weight [kg]	Order No.
OSP-E25SBR, STR	GK-M 10x1.25	10	40	20	10	M10x1.25	20	52	0.08	**KY6135**
OSP-E32SBR, STR	GK-M 10x1.25	10	40	20	10	M10x1.25	20	52	0.08	**KY6135**
OSP-E50SBR, STR	GK-M 16x1.5	16	64	32	16	M16x1.5	32	83	0.30	**KY6139**

- **OSP-E..SBR, STR Screw Acutator with Internal Plain Bearing Guide and Piston Rod**

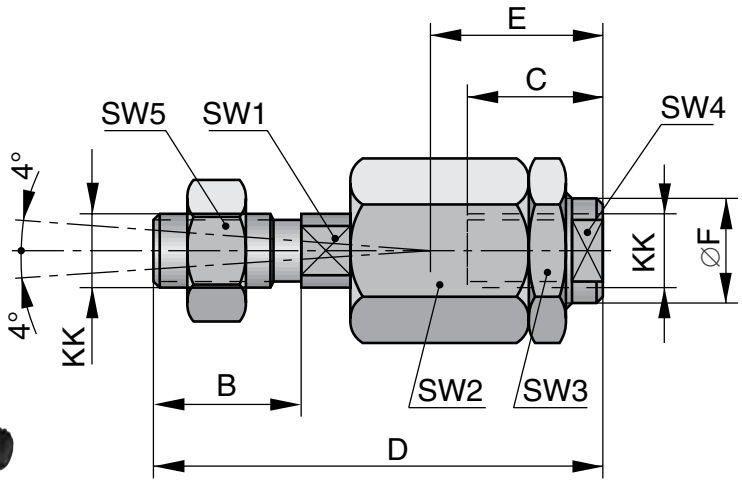
Angular Compensation



Radial Compensation of the Centre Axis



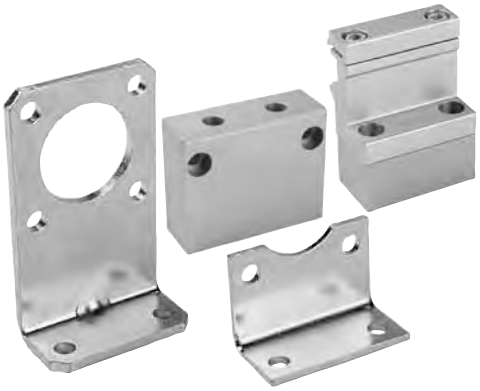
Piston Rod Compensating Coupling Type: AK-..



Dimension [mm] and Order Instructions, Weight

Series	Type	B	C	D ±2	E	ØF	KK	SW1	SW2	SW3	SW4	SW5	Weight [kg]	Order No.
OSP-E25SBR, STR	AK-M10x1.25	20	23	73	31	21.5	M10x1.25	12	30	30	19	17	0.218	**KY1129**
OSP-E32SBR, STR	AK-M10x1.25	20	23	73	31	21.5	M10x1.25	12	30	30	19	17	0.218	**KY1129**
OSP-E50SBR, STR	AK-M16x1.5	40	32	108	45	33.5	M16x1.5	19	41	41	30	30	0.637	**KY1133**

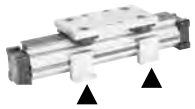
Guide Mounting



Content

- **OSP-E..B Belt Acutator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**

Overview

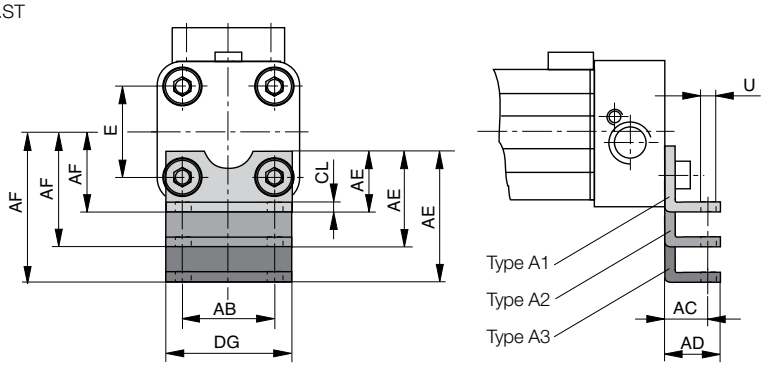
Type of Mounting	Type	Versions - OSP-Guide									
		SLIDELINE PROLINE MULTIBRAKE			POWERSLIDE						
		25	32	50	25/ 25	25/ 35	25/ 44	32/ 35	32/ 44	50/ 60	50/ 76
End Cap Mounting 	Type A1										
	Type A2	O	O								
	Type A3				O	O		O			
End Cap Mounting reinforced 	Type B1	X	X		X	X	X	X	X		
	Type B3										
	Type B4						O		O		
End Cap Mounting 	Type C1			X						X	X
	Type C2			O							
	Type C3									O	
	Type C4										O
Mid-Section Support Narrow	Type D1	X	X	X	X	X	X	X	X	X	X
	Type E1	X	X	X	X	X	X	X	X	X	X
Mid-Section Support Wide 	Type E2	O	O	O							
	Type E3				O	O		O		O	
	Type E4						O		O		O

X = mounting position carriage top (12 clock position)
O = mounting position carriage side (3 or 9 clock position)
= available components

*** Please note:**
With series OSP-E-spindle the end cap mountings A, B and C can only be fitted to the side opposite to the drive shaft. On the side of the drive shaft we recommend to use our profile mountings (page 135 ff).

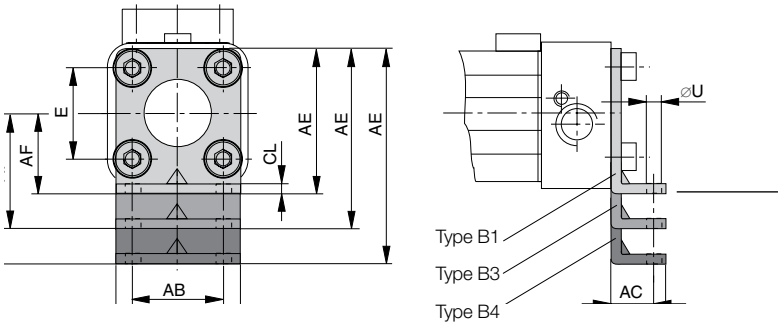
Series OSP – E25, E32: Type A

OSP-E..B, ..SB, ..ST



Series OSP – E25, E32: Type B

OSP-E..B, ..SB, ..ST



At the end face of each end caps there are four holes with internal threads to fix the drive. The hole layout is square so that the drive can be fitted on the bottom, the top or either side.

Material: Series OSP-25, 32: steel, zinc galvanized series OSP-50: Aluminium, anodized. **The mountings are supplied in pairs.**

Dimension [mm]
- AE and AF (depending on type of mounting)

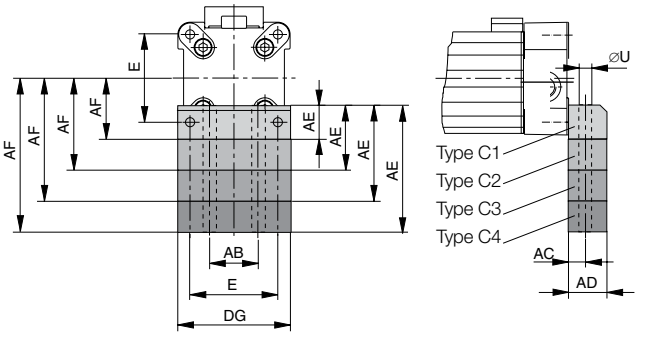
Type. of mount.	Dimension AE at Size			Dimension AF at Size		
	25	32	50	25	32	50
A1	18	20	-	22	30	-
A2	33	34	-	37	44	-
A3	45	42	-	49	52	-
B1	42	55	-	22	30	-
B3	-	-	-	-	-	-
B4	80	85	-	60	60	-
C1	-		30	-	-	48
C2	-		39	-	-	57
C3	-		54	-	-	72
C4	-		77	-	-	95

Dimension [mm]

Series	E	øU	AB	AC	AD	CL	D
OSP-E25	27	5.8	27	16	22	2.5	39
OSP-E32	36	6.6	36	18	26	3.0	50
OSP-E50	70	9.0	40	12.5	24	-	86

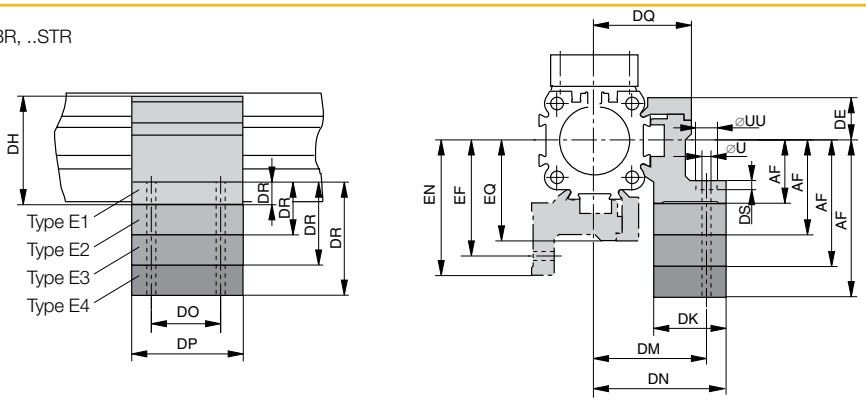
* see survey for mounting type on page 129 ff.

Series OSP – E50: Type C



Series OSP-E25, E32, E50 : Type E (mounting with through hole)

OSP-E..B, ..SB, ..ST, ..SBR, ..STR



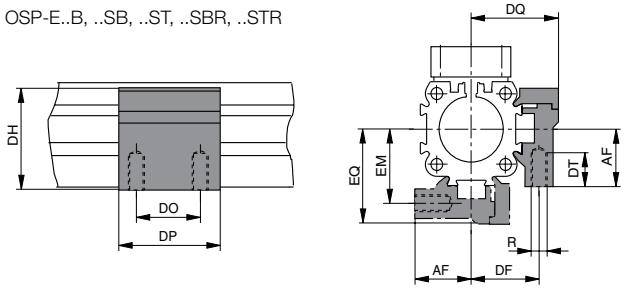
Information on type E1 and D1: The Profile Mountings can also be fitted to the bottom side of the drive. In this case please observe the new centre line dimensions of the drive. For layout information please refer to the page 100 ff. Stainless version on request.

Dimension [mm]
- Dimension DR and AF (depending on type of mounting)

Type of mount.	Dimension DR at Size			Dimension AF at Size		
	25	32	50	25	32	50
D1	-	-	-	22	30	48
E1	8	10	10	22	30	48
E2	23	24	19	37	44	57
E3	35	32	31	49	52	72
E4	46	40	57	60	60	95

Series OSP-E25, E32, E50 : Type D1 (mounting with internal thread)

OSP-E..B, ..SB, ..ST, ..SBR, ..STR



Dimension [mm]

Series	R	U	UU	DE	DF	DH	DK	DM	DN	DO	DP	DQ	DS	DT	EF	EM	EN	EQ
OSP-E25	M5	5.5	10	16	27	38	26	40	47.5	36	50	34.5	5.7	10	41.5	28.5	49	36
OSP-E32	M5	5.5	10	16	33	46	27	46	54.5	36	50	40.5	5.7	10	48.5	35.5	57	43
OSP-E50	M5	7	-	23	40	71	34	59	67	45	60	52	-	11	64	45	72	57

Order Instructions for Mountings Type A - Type B - Type C - Type D - Type E

Type of Mouting (Versions)	Order No. Size		
	25	32	50
A1[1)]	2010FIL	3010FIL	-
A2[1)]	2040FIL	3040FIL	-
A3[1)]	2060FIL	3060FIL	-
B1[1)]	20311FIL	20313FIL	-
B3[1)]	-	-	-
B4[1)]	20312FIL	20314FIL	-
C1[1)]	-		5010FIL
C2[1)]	-		20349FIL
C3[1)]	-		20350FIL
C4[1)]	-		20351FIL
D1[2)]	20008FIL	20157FIL	20162FIL
E1[2)]	20009FIL	20158FIL	20163FIL
E2[2)]	20352FIL	20355FIL	20361FIL
E3[2)]	20353FIL	20356FIL	20362FIL
E4[2)]	20354FIL	20357FIL	20363FIL

[1)] The mountings are supplied in pairs. [2)] The mountings are supplied simply.

Magnetic Field Sensors

Type P8S-G

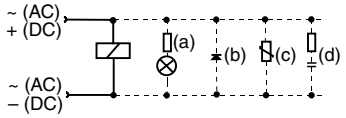
The new generation of t-slot sensors convince with easy mounting avoiding special tools and with a drop-in mounting. Due to new electronic the hysterisis is very small and allows a very accurate switching point.
Magnetic Field Sensors are used for contactless electric sensing of the carrier position, e.g. for end or homing positions of a linear actuator. The field of magnets mounted as standard into the carriage activate the sensor.

Electric Service Life, Protective Measures

Type RS magnetic sensors are sensitive to excessive currents and inductions. With high switching frequencies and inductive loads such as relays, solenoid valves or lifting magnets, service life will be greatly reduced.
With resistive and capacitative loads with high switch-on current, such as light bulbs, a protective resistor should be fitted. This also applies to long cable lengths and voltages over 100 V.

In the switching of inductive loads such as relays, solenoid valves and lifting magnets, voltage peaks (transients) are generated which must be suppressed by protective diodes, RC loops or varistors.

Connection Examples
Load with protective circuits
(a) Protective resistor for light bulb
(b) Freewheel diode on inductivity
(c) Varistor on inductivity
(d) RC element on inductivity

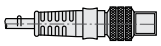
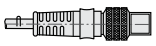


For the type ES, external protective circuits are not normally needed.

Carriage Speed / Reaction Time

Carriage speed and switching distance affect signal duration and should be considered in conjunction with the minimum reaction time of ancillary control equipment.
In accordance to this, the contact travel must be included in the calculation.

$$\text{Min. reaction time} = \frac{\text{Switching distance}}{\text{Piston speed}}$$

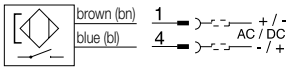
Series		**P8S-G[1] - insertable into T-Slot from top**					
Type		**M8R[2]**		**FL[3]**	**M8R[2]**		**FL[3]**
							
CE, cULus, RoHs							
Output Function		0,3m Cable	3m Cable	10m Cable	0,3m Cable	3m Cable	10m Cable
PNP	NO	P8S-GPCHX	P8S-GPFAX	P8S-GPFDX			
	NC	P8S-GQCHX	P8S-GQFAX	P8S-GQFDX			
NPN	NO	P8S-GNCHX	P8S-GNFAX	P8S-GNFDX			
	NC	P8S-GMCHX	P8S-GMFAX	P8S-GMFDX			
REED	NO				P8S-GRCHX	P8S-GRFAX	P8S-GRFDX
	NC				P8S-GECNX	P8S-GEFFX	P8S-GEFRX
Technical Data		**Electrical**			**Reed**		
Electrical Characteristics							
Electric Configuration		3-pole			2-pole		
Indicator LED yellow		yes			yes (not NC)		
Operating Voltage U_b [V]		10 - 30 DC			10 - 30 AC/DC		
Ripple of U_b [%]		≤ 10			≤ 10		
Voltage Drop U_d [V]		≤ 2			≤ 3		
Power Consumption [4] [mA]		≤ 10					
Continous Current I_a [mA]		≤ 100			≤ 500 (NO ≤ 100)		
Max. Switching Capacity [W]		≤ 6			≤ 10		
Switchable Capacity Load @ 100W @ 24VDC [nF]					100		
Switching Frequency [Hz]		≤ 1.000			≤ 400		
Time delay before availability [ms]		0.5 / 0.5			1.5 / 0.5		
Sensitivity [mT]		2,8			3		
Hysteresis [mT]		0,7			≥ 0,2		
EMC [6]		yes			yes		
Lifetime		unlimited			≥ $20*10^6$ Cycles		
Short Circuit Protection [5], Reverse Polarity Protection, Power-Up Pulse Suppression, Protection for Inductive Load		yes					
ATEX Version		on request					
Mechanical Characteristics							
Housing		PA12					
Cable Type		PUR / black					
Cable Cross Section [mm²]	Connector 3-pole	3 x 0,14		3 x 0,14	Connector 3-pole	2 x 0,14	2 x 0,14
Bending Radius Fixed Installation [mm]		≥ 30					
Bending Radius Moving [mm]		≥ 45					
Shock Resistance							
Protection [7] [IP]		67					
Ambient Temperature Range T_a [°C]		-25 ... +75					
Shock [8] / Vibration [9]		30 g, 11 ms / 10 to 55 Hz, 1 mm					

[1]) without OSP-E..STR
[2]) plug M8 with rotable nut
[3]) Cable with Flying Leads
[4]) unloaded Ub = 24V
[5]) clocked
[6]) to EN 60529
[7]) to EN 60529
[8]) to EN 60068-2-27
[9]) to EN 60068-2-6

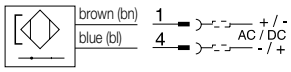
Switching Function and Electrical Connection

Reed 2-pole

normally open

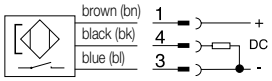


normally closed

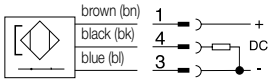


PNP 3-pole

normally open

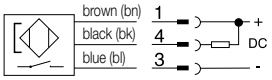


normally closed

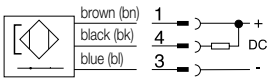


NPN 3-pole

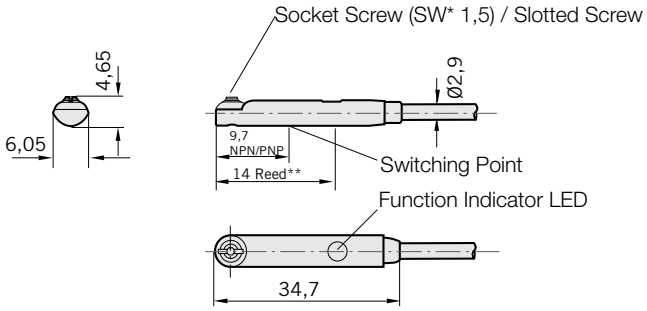
normally open

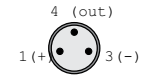


normally closed



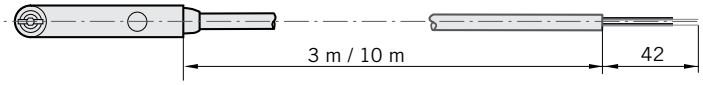
Dimensions [mm]- Type P8S-G



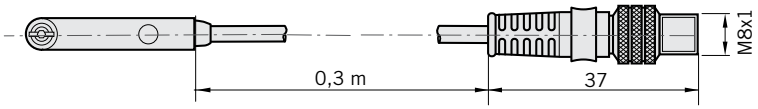


PIN assignment
(view of pins)
to DIN EN 50044

P8S-... cable with flying leads

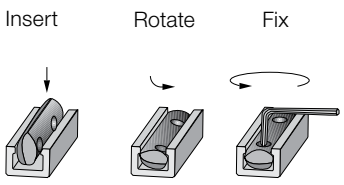


P8S-... plug M8, rotable

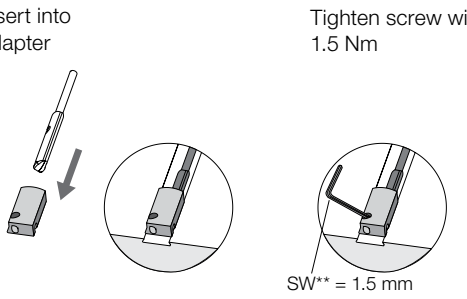


* = Wrench Size
** = Switching Point Reed

Installation for T-Slot Sensors



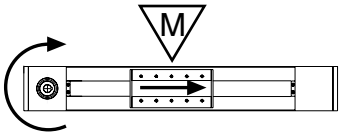
Installation for Dove Tail Groove



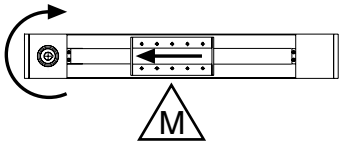
*Adapter included in scope of supply of magnetic sensors P8S.
**= Wrench Size

Position of Magnetic Sensors / Permanent Magnets OSP-E..BHD

Standard Version

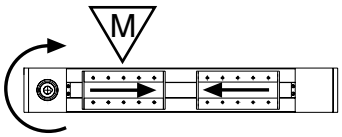


Drive Shaft Option = 0*

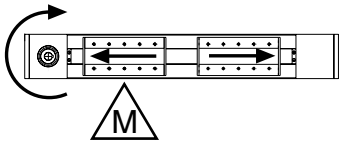


Drive Shaft Option = 1*

Bi-parting Version



Drive Shaft Option = 2*

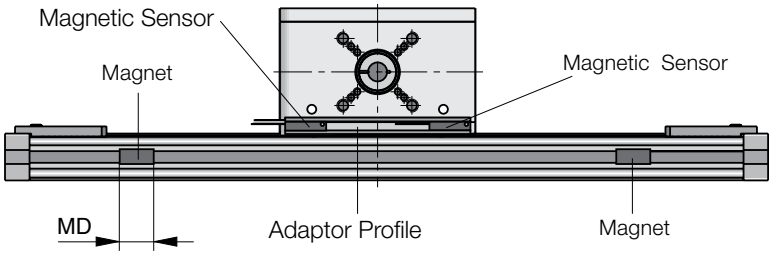


Drive Shaft Option = 3*

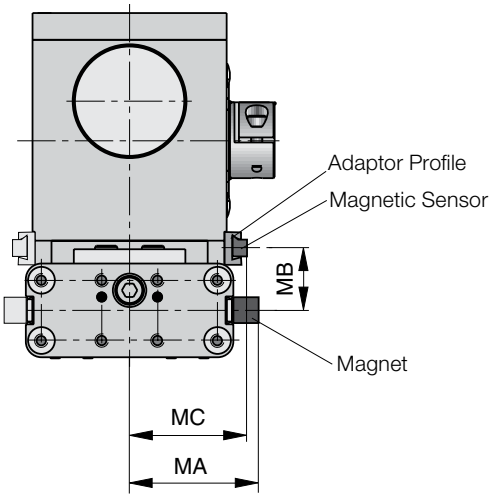
* Drive shaft oder code BHD page 24

When arranging the magnetic sensors, please mind the position of the magnets integrated in the carrier as a function of the operating direction. „M“ indicates where magnet is fitted in carrier.

Dimensions for Magnetic Sensor Set Series OSP-E..BV



The magnetic sensor as well as the magnet can be fitted to either side

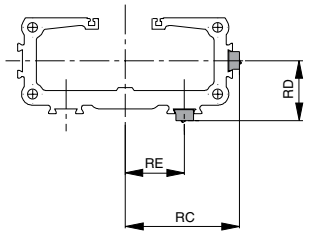


Dimensions see page 35

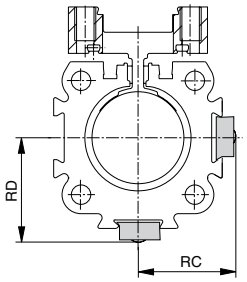
Magnetic sensors and magnets are externally fitted to the OSP-E..BV. For this purpose please order the magnetic sensor set (consisting of 2 magnetic sensors, 1 fastening rail and 2 magnets) for contactless position sensing.

Dimension [mm]

OSP-E.. BHD



OSP-E.. B, ..SB, ..ST.., ..SBR, ..STR



Dimension [mm]

Series	Dimensions						
	RC	RD	RE	MA	MB	MC	MD
OSP-E20BHD	41.5	26.6	23	–	–	–	–
OSP-E25BHD	51	27	26	–	–	–	–
OSP-E32BHD	63	34	32	–	–	–	–
OSP-E50BHD	87	48	34	–	–	–	–
OSP-E20BV	–	–	–	46	23.7	42.3	35
OSP-E25BV	–	–	–	56	26	51	35
OSP-E25*	25	27	–	–	–	–	–
OSP-E32*	31	34	–	–	–	–	–
OSP-E50*	43	48	–	–	–	–	–

* = ..B, ..SB, ..ST, ..SBR, ..STR

Order Numbers

Magnetic Sensor for OSP-E..STR (low sensitivity)	
Reed NO (2-wire), S-slot, flying leads, 5 m	KL3096*
Reed NC (2-wire), S-slot, flying leads, 5 m	KL3388*
PNP NO (3-wire), S-slot, M8 connector, 100 mm	KL3098*
Magnetic Sensor Set for OSP-E..BV	
2 Magnetic sensor, Reed NC (2-wire), 1 mounting rail, 2 magnets	18210FIL
Connection Cables, Suitable for Cable Chain	
M8 Plug with 5 m Cable	KL3186*
M8 Plug with 10 m Cable	KL3217*
M8 Plug with 15 m Cable	KL3216*

* Detailed specifications for KL-Series on request.

Position Measuring System SFI-plus

ORIGA-Sensoflex (incremental displacement measuring system)

Series SFI-plus
- **OSP-E..SB Ball Screw Acutator with Internal Plain Bearing Guide**
- **OSP-E..ST Trapezoidal Screw Acutator with Internal Plain Bearing Guide**

Special Properties

- Contactless, Magnetic Displacement Measuring System
- Freely Selectable Displacement Length up to 32 m
- Resolution 0.1 mm
- Displacement Speed up to 10 m/s
- Suited for Linear and Gyratory Movements
- For Almost all Control and Display Units with Suitable Counter Input

The magnetic displacement measuring system SFI-plus consists of 2 main components:

- **Measuring Scale** self-adhesive, magnetic measuring scale

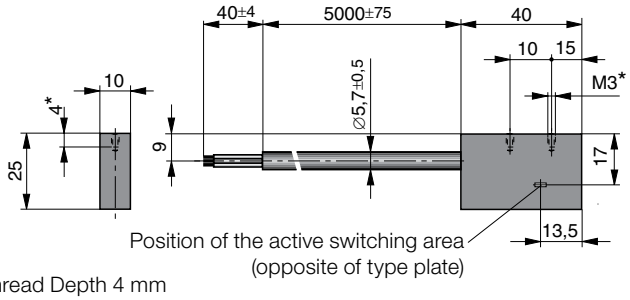
- **Sensing Head** converts the magnetic poles into electric signals which are then processed by counter inputs down stream (e.g. PLC, PC, digital counters)

Series SFI- Plus SensoFlex Incremental

Type	
Output Function	**21210FIL**
Resolution [mm]	0.1 / 1 Flank Evaluation
Pole Length Scale [mm]	5
Max. Speed [m/s]	10
Repeating Accuracy	± 1 Increment
Distance Sensor / Scale [mm]	2
Switching Output	Push-Pull
Electric Characteristics	
Operating Voltage U_b [V DC]	10 - 30
Voltage Drop [V]	≤ 2
Continuous Current per Output [mA]	≤ 40
Power Consumption [1] [mA]	≤ 15
Short-circuit Protection, Reverse Voltage Protection, Protection against Inductive Switch-off Peak	yes
Electrostatic Discharge [kV]	8 kV Contact A, 15 kV without Contact A
Fast Transists Signals, Burst (DC-Connections) [kV]	1, A - 2, B
Mechanical Characteristics	
Housing	Aluminium
Cable Length [m]	5.0 – Fixed, Open End
Cable Cross-section [mm^2]	6 x 0.14 + 2 x 0.22
Type of Cable	PUR, Black
Bending Radius [mm]	41
Ambient Conditions	
Encapsulation Class [2] [IP]	67
Ambient Temperature Range T_a [°C]	-25 to +85
Shock [3] / Vibration [4]	(11 ms) 300 m/s^2 / (55 Hz to 2000 Hz) 300 m/s^2

[1]) U_b = 24V, Switched on , no load
[2]) according to EN60529
[3]) according to EN 60068-2-6
[4]) according to EN 60068-2-27

Dimensions [mm] - Reading Head

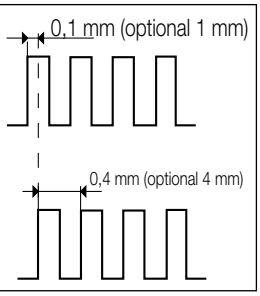


* Max. Thread Depth 4 mm

Sensing head

The sensing head supplies two pulsating, 90° out of phase counter signals (phase A/B) with a resolution of 0,4 mm (option 4 mm). External pulse edge control can improve the resolution to 0.1.mm (option 1 mm). The counting direction automatically results from the phase shift of the counter signal.

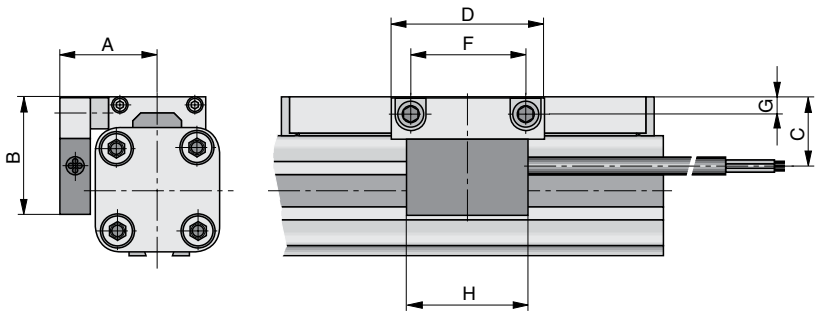
Signal Curve - Sensing Head OUT

$U_a = U_e$	Phase B	U_{a1}	0°	
	Phase A	U_{a2}	90°	

Electric Connection

colour	Designation
bn = brown	+ DC
bl = blue	- DC
bk = black	Phase A
wt = white	Phase B

Dimensions [mm] - in Combination with OSP-E Actuators



SFI-plus in connection with electric actuators of series OSP-E..ST

The SFI-plus can be mounted directly to the electric actuator of series OSP-E..ST by means of a special mounting kit.
The position of the sensing head is generally staggered by 90° to the carrier. For later installation a corresponding carrier kit with threaded holes can be ordered.

SFI-plus in connection with electric actuators of series OSP-E..SB

The displacement measuring system in connection with series OSP-E..SB can only be retrofitted, if the system is reconditioned by the manufacturer.

Dimension [mm]

Series	A	B	C	D	F	G	H
OSP-E25SB, ST	32.0	39.0	23.0	50.0	38.0	5.5	40.0
OSP-E32SB, ST	37.5	46.0	30.0	50.0	38.0	6.5	40.0
OSP-E50SB, ST	49.5	55.0	39.0	50.0	38.0	6.5	40.0

Order Instructions

Description	Order No.
Sensing Head with Measuring Scale – Resolution 0,1 mm (please Indicate Scale Length)	**21240FIL**
Sensing Head – Resolution 0.1 mm (spare part)	**21210FIL**
Measuring Scale per meter for (to be replaced)	**21235FIL**
Mounting kit for OSP-P25	**21213FIL**
Mounting kit for OSP-P32	**21214FIL**
Mounting kit for OSP-P50	**21216FIL**

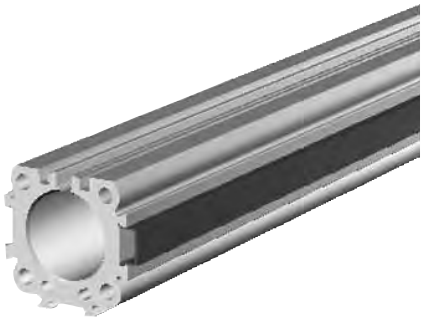
* The overall length of the measuring scale results from the dead length of the actuator and the stroke length. For dead lengths for actuators of series OSP-E see table.

Series	Dead Lengths (mm)
OSP-E25SB, ST	154
OSP-E32SB, ST	196
OSP-E50SB, ST	280

Example:
Actuator OSP-E, Ø25 mm, Stroke 1000 mm

Dead Length	+	Stroke	=	Overall Length of the Measuring Scale
154 mm	+	1,000 mm	=	1,154 mm

Cable Cover

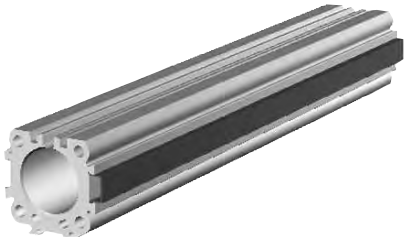


OSP-E

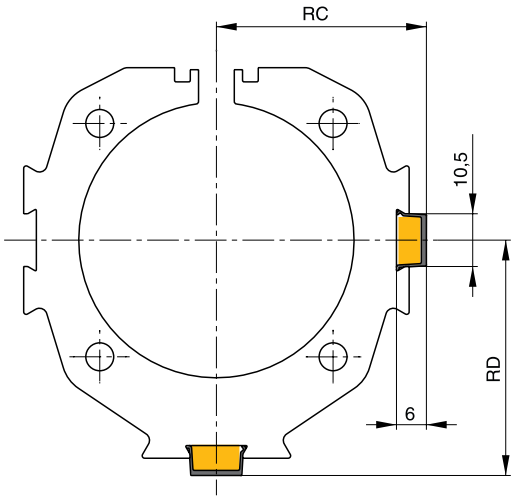
Cable Cover - Ø 20, 25, 32, 50 mm

For clean guidance of magnetic switch cables along the cylinder body.
Contains a maximum of 3 cables with diameter 3 mm.

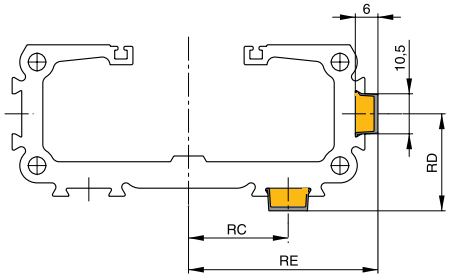
Material: Plastic
Colour: Red
Temperature Range: –10 to +80°C



Series OSP-E..B, ..SB, ..ST, ..SBR, ..STR – Dimensions [mm]



Series OSP-E..BHD – Dimensions [mm]

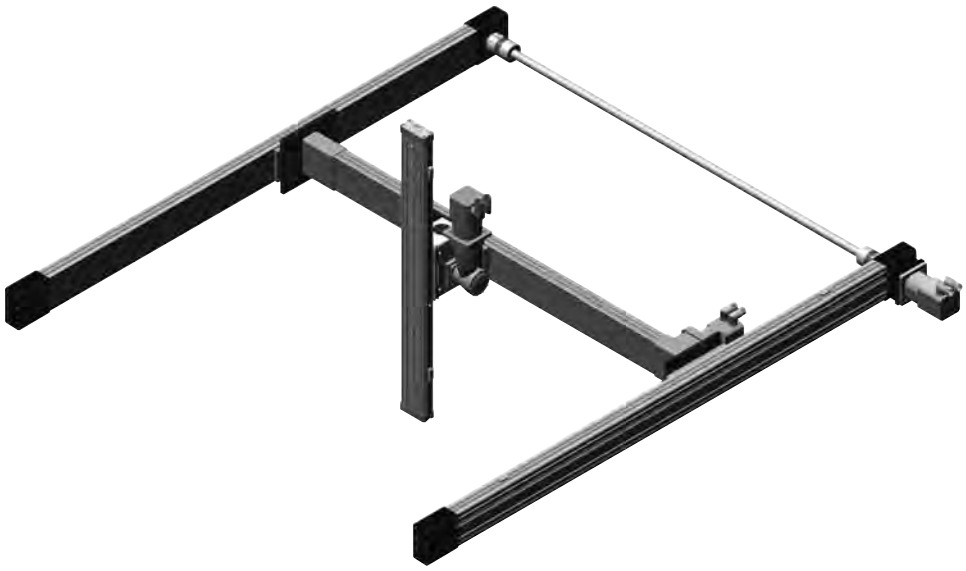


Dimension [mm] and Order Instructions

Series	RC	RD	RE	Order No.
OSP-E25*	23.5	25.5	-	**13039FIL** Miinimum Length: 1 m Max. Profile Length: 2 m Multiple Profiles can be used.
OSP-E32*	29.5	32.0	-	
OSP-E50*	41.5	46.5	-	
OSP-E20BHD	23.0	25.0	40.0	
OSP-E25BHD	26.0	25.5	49.5	
OSP-E32BHD	32.0	32.0	61.5	
OSP-E50BHD	44.0	46.5	85.5	

*B, SB, ST, SBR, STR

OSP-E Multi-Axis Connections for Electric Actuators



Content

The System Concept

Multi-Axis Connection System – Simplifies Engineering and Installation

A completely new system for easy connection of OSP-E actuators in multi-axis systems.

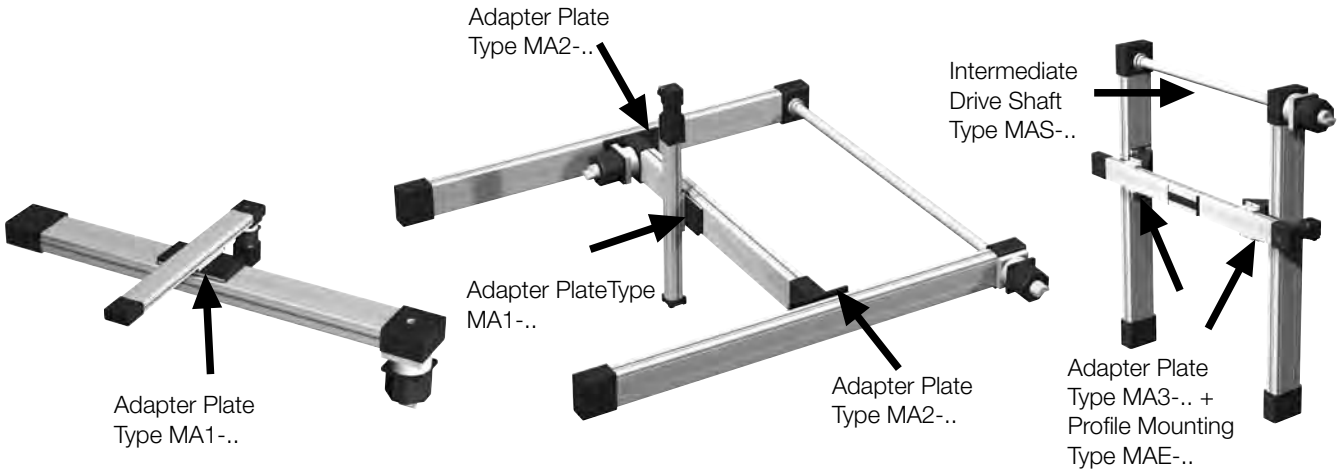
Multi-Axis-Connections

With this highly adaptable system for connection of actuators in multi-axis arrangements, Parker offers design engineers complete flexibility. A wide range of adapter plates, profile mountings and intermediate drive shafts simplify engineering and installation.

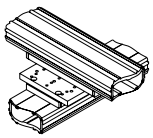
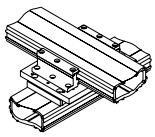
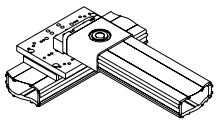
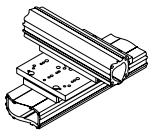
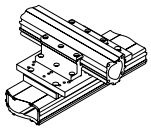
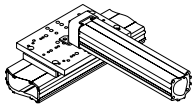
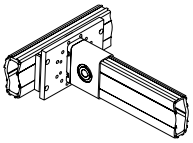
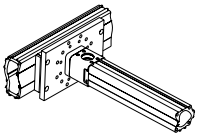
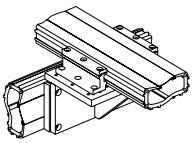
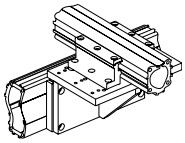
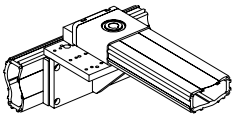
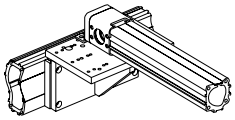
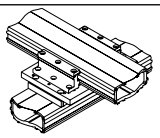
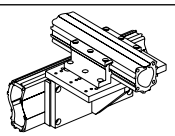
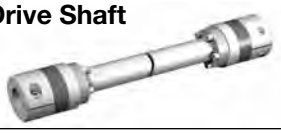
The connection system enables
actuators to be mounted in
carrier to carrier,
carrier to profile,
carrier to end cap mounting,
carrier to end cap.

Developed for the heavy-duty belt drive series OSP-E..BHD, the system provides cross-connection with the same series and also other actuator series in the ORIGA SYSTEM PLUS range.

Multi-Axis-Connection System

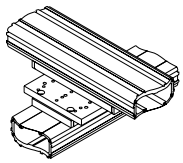


* For available standard combinations see page 170.

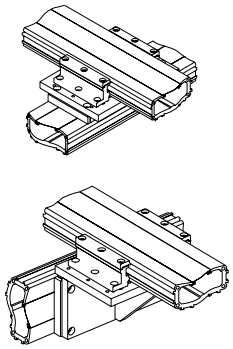
Adapter Plate Type MA1-..* For connecting carrier to carrier, carrier to profile mounting or carrier to end cap mounting. 	Combination C* 	Combination P* 	Combination EM* 
	Combination C* 	Combination P* 	Combination EM* 
Adapter Plate Type MA2-..* For connecting carrier to end cap 	Combination E* 	Combination E* 	Combination E* 
Adapter Plate Type MA3-..* For connecting 90° carrier to profile mounting or carrier to end cap mounting. 	Combination P* 	Combination P* 	
	Combination EM* 	Combination EM* 	
Profile Mounting Type MAE-.. 			
Intermediate Drive Shaft Type MAS-.. 			

Available Mounting Combination

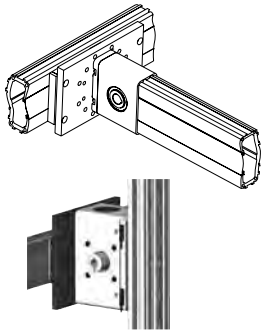
Combination C*



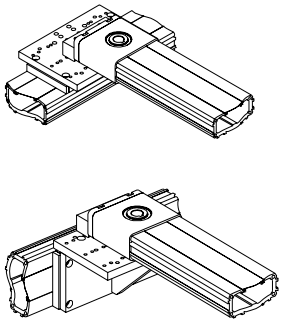
Combination P



Combination E*



Combination EM*



Illustrations show OSP-E..BHD examples

Series		25BHD				32BHD				50BHD				25BV	25B/SB/ST				32B/SB/ST				50B/SB/ST			
	Type	C [1]	P [2]	E [3]	EM [4]	C [5]	P [6]	E [7]	EM [8]	C [9]	P [10]	E [11]	EM [12]	E [11]	C [13]	P [14]	E [15]	EM [16]	C [17]	P [18]	E [19]	EM [20]	C [21]	P [22]	E [23]	EM [24]
OSP-E25BHD	MA1-25	X	X		X	X	X		X						X	X		X	X	X		X	X	X		X
OSP-E32BHD	MA1-32	X	X		X	X	X		X	X	X		X						X	X		X	X	X		X
OSP-E50BHD	MA1-50	X	X		X	X	X		X	X	X		X						X				X	X		X
OSP-E25BHD	MA2-25			X				X																	X	
	MA2-32													X												
OSP-E32BHD	MA2-32			X				X				X		X											X	
OSP-E50BHD	MA2-50			X				X				X		X											X	
OSP-E25BHD	MA3-25		X		X		X		X							X		X		X		X		X		X
OSP-E32BHD	MA3-32		X		X		X		X		X		X							X		X		X		X
OSP-E50BHD	MA3-50		X		X		X		X		X		X											X		X

Abbreviations:
C = MAn to Carrier
P = MAn to Profile Mounting
E = MAn to End Cap
EM = MAn to End Cap Mounting (n = 1, 2, 3)

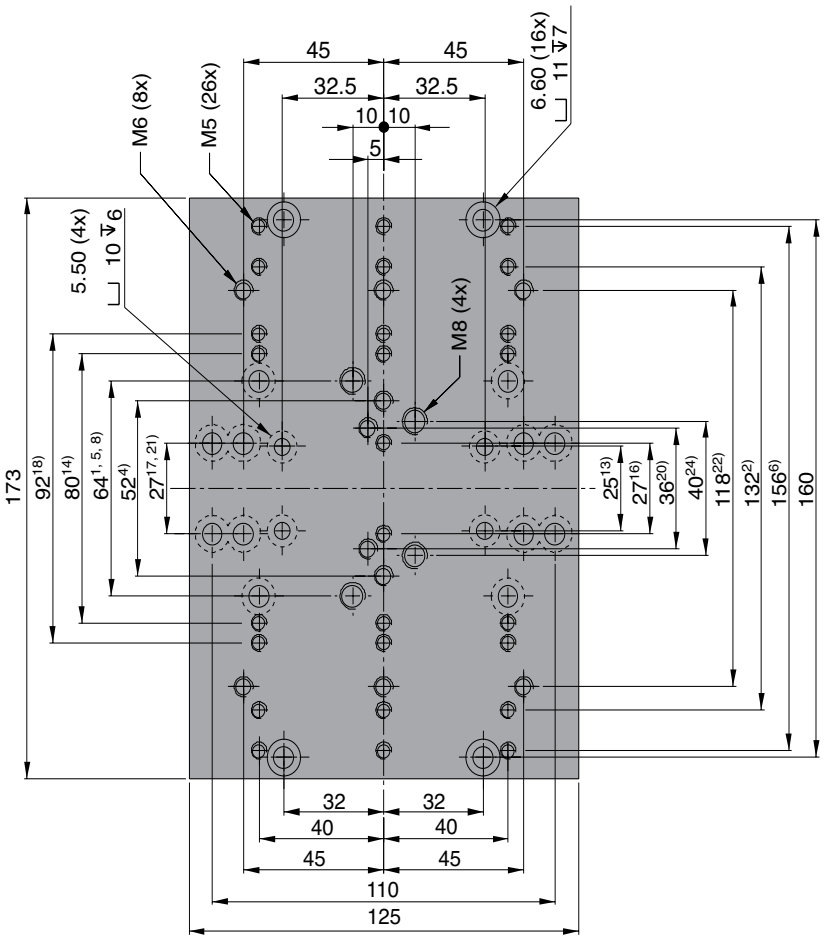
* For type OSP-E..SBR/..STR combination P is available only.

Values in superscript refer to corresponding adapter plate dimensions on page 167 ff. E.g. dimensions corresponding to combination option "C" for adapter plate MA1-50 connected to an OSP-E32BHD carrier are shown with superscript number 5 on the MA1-50 adapter plate page 167 ff.

Other combinations on request.

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 25, Typ: MA1-25



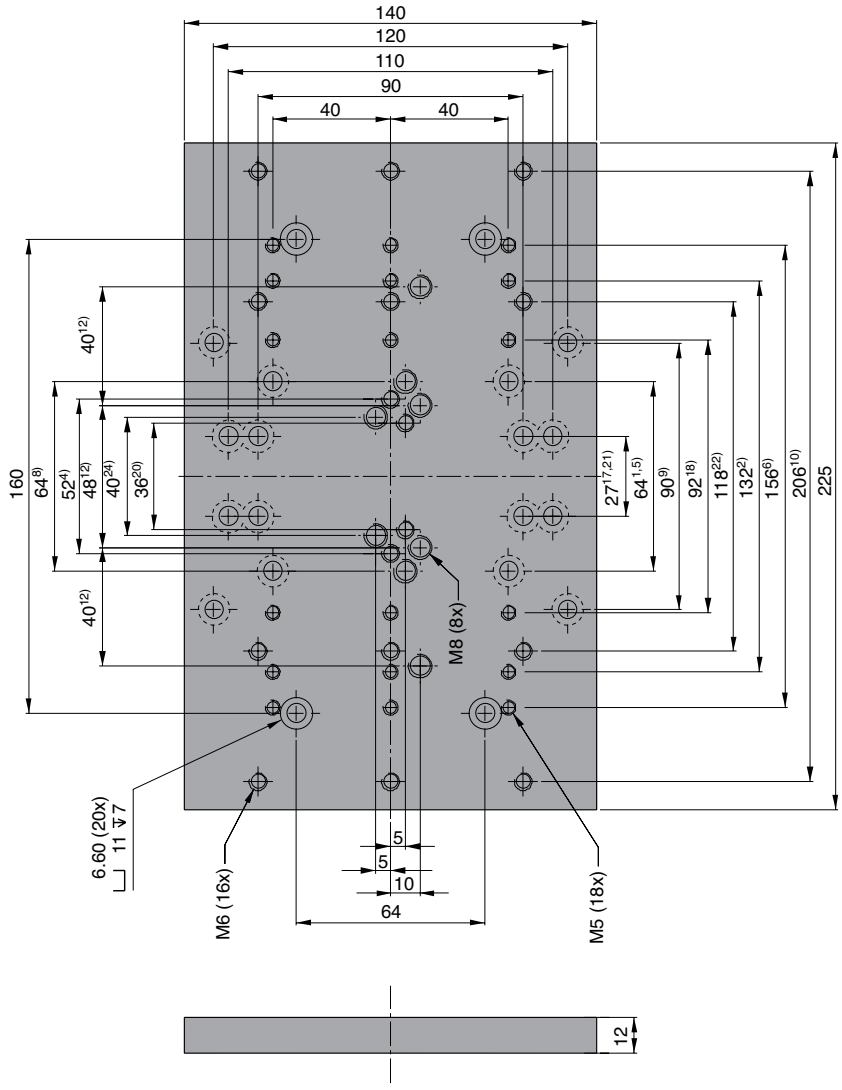
Dimensions with superscript values refer to the corresponding available options detailed on page 180.
e.g. Dimensions with superscript number 5 correspond to the option ”C” for OSP-E32BHD actuator.

Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA1-25	0.7	**12269FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 32, Type: MA1-32



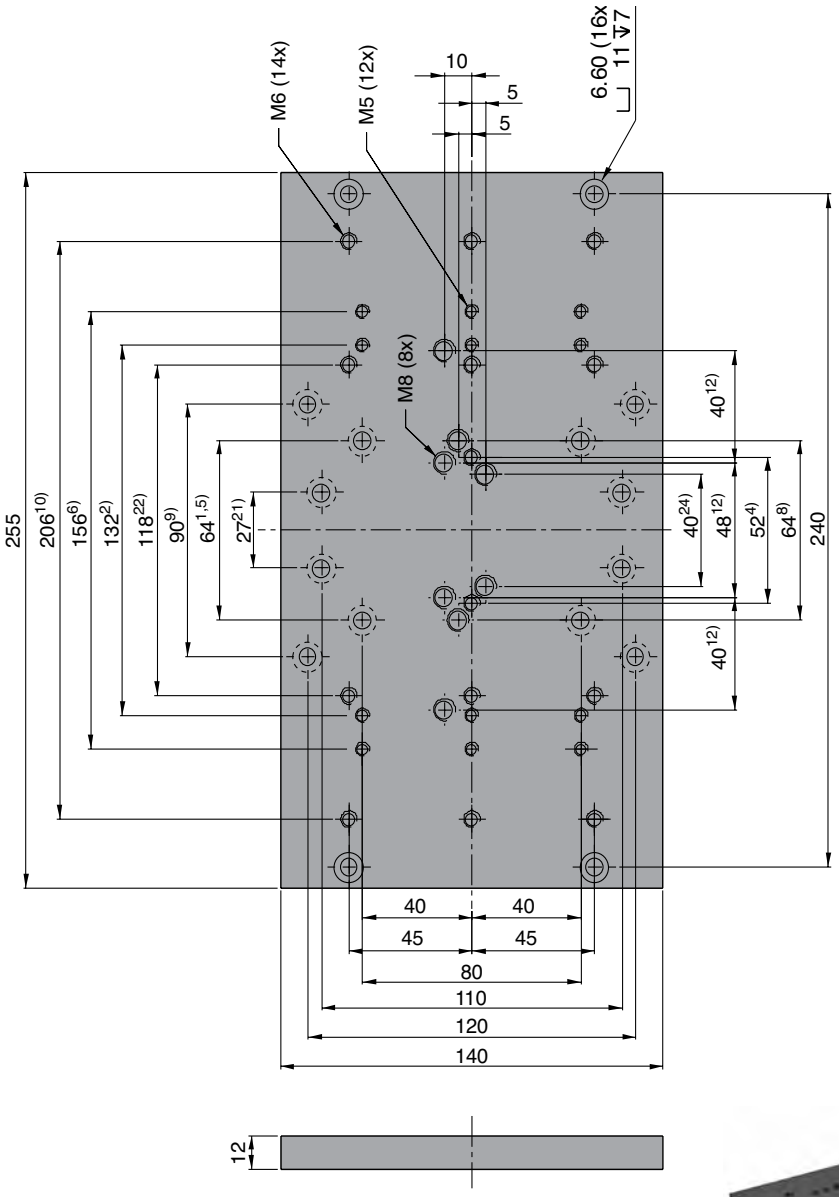
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 5 correspond to the option ”C” for OSP-E32BHD actuator.

Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA1-32	1.0	**12272FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 50, Type: MA1-50



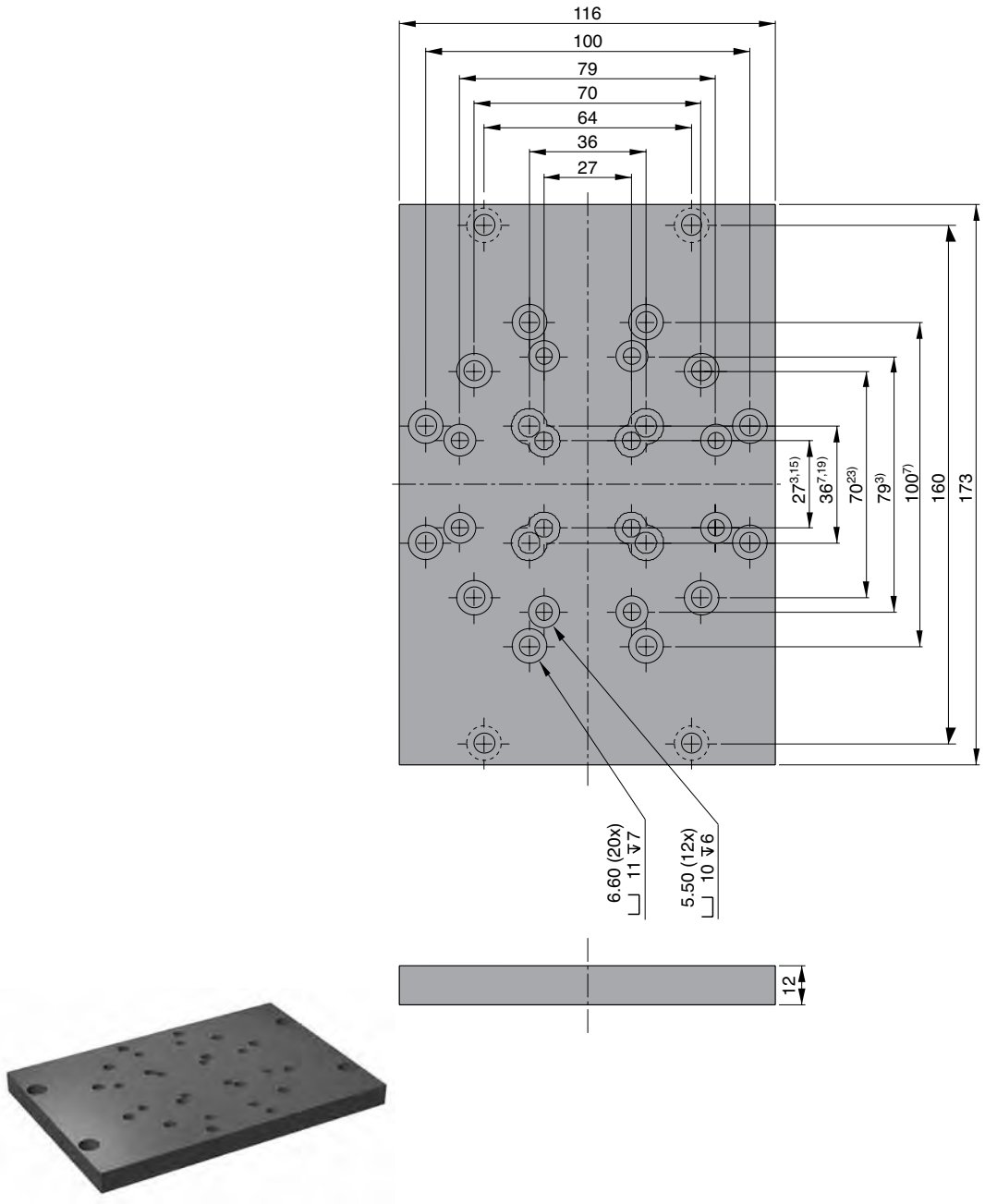
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 5 correspond to the option ”C” for OSP-E32BHD actuator.

Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA1-50	1.1	**12275FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 25, Type: MA2-25



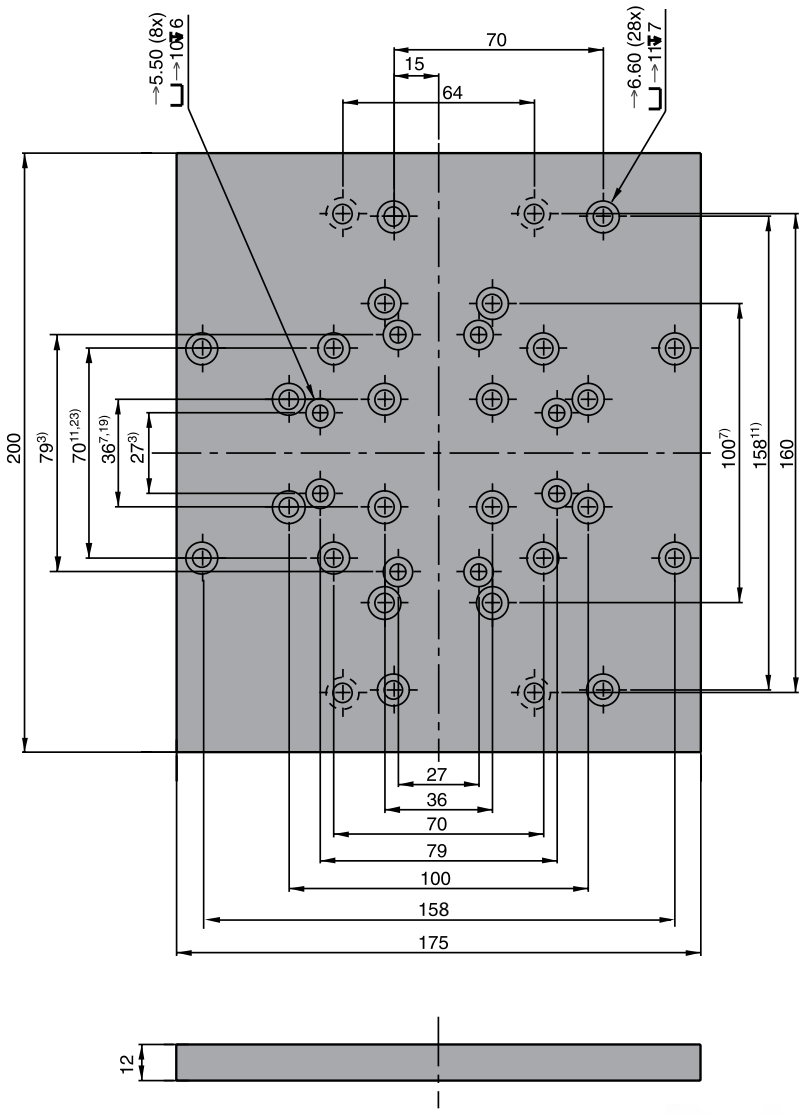
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 5 correspond to the option "C" for OSP-E32BHD actuator.

Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA2-25	0,6	**12270FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 25/OSP-E32 Type: MA2-32



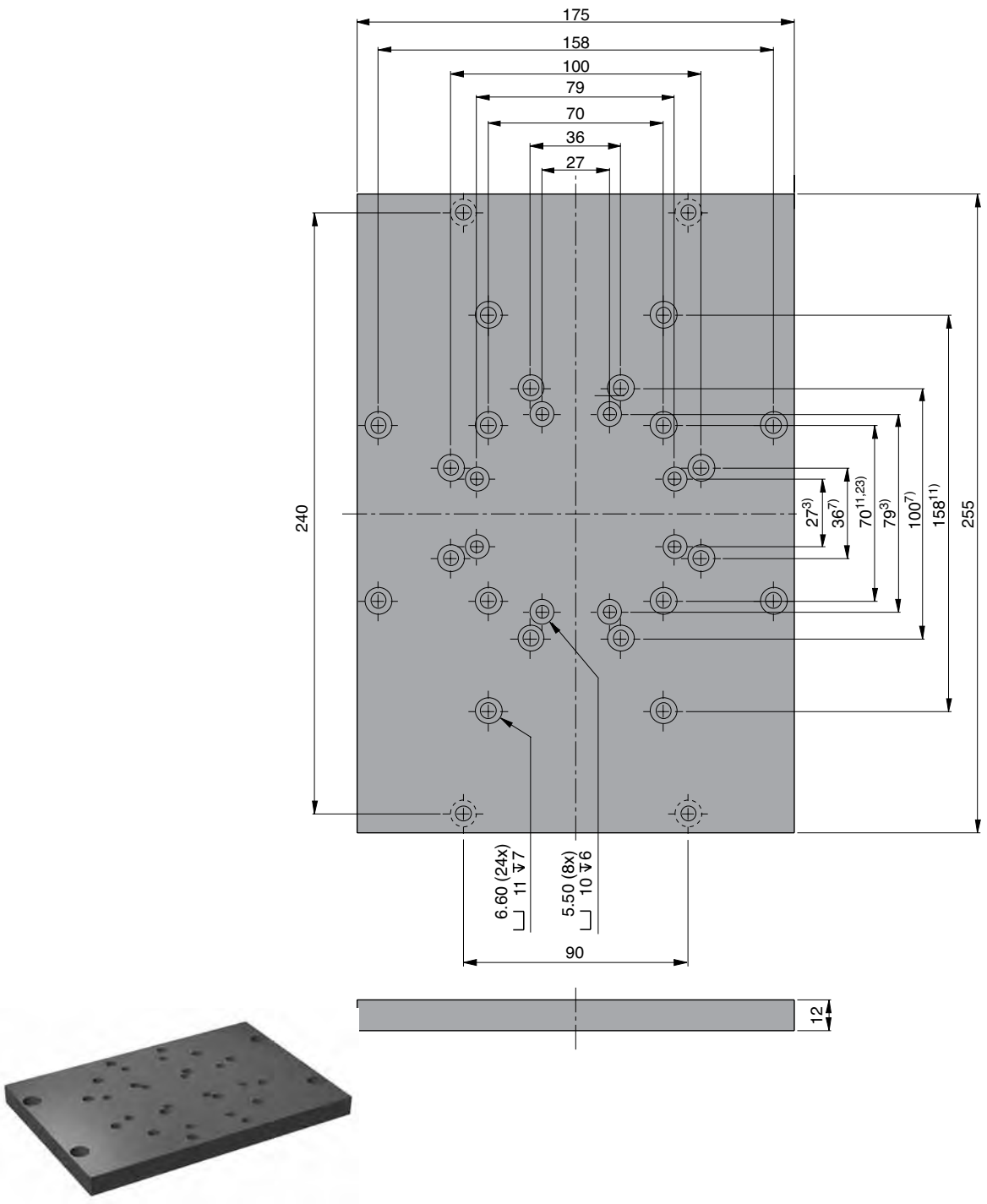
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E. g. Dimensions with superscript number 5 correspond to the option ”E” for OSP-E32BHD actuator.

Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA2-32	1.1	**12273FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 50, Type: MA2-50



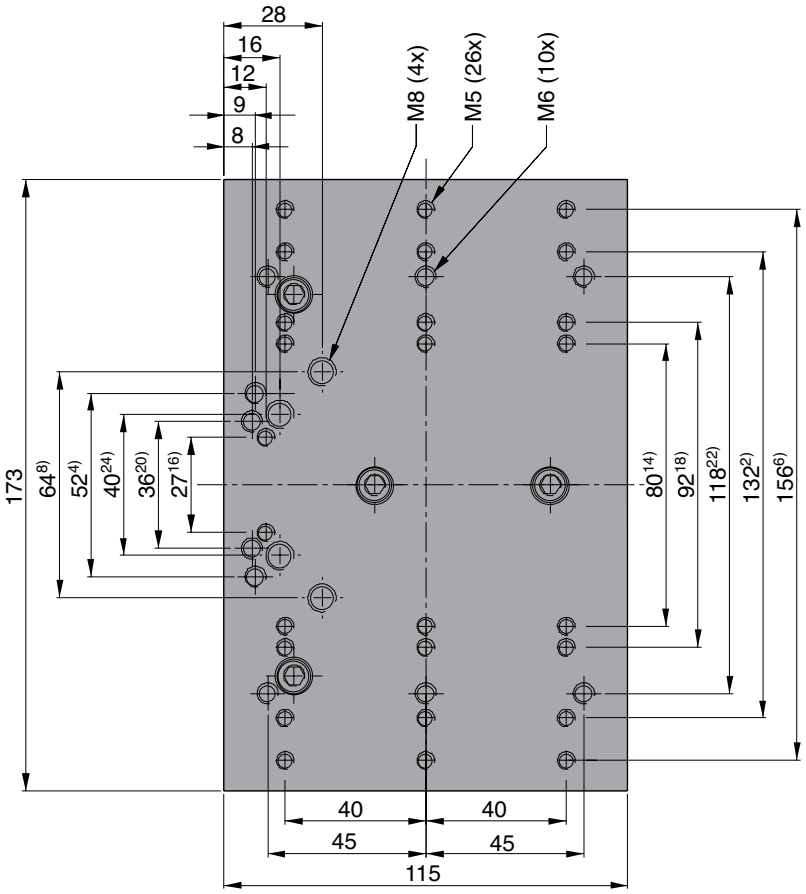
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 5 correspond to the option ”E” for OSP-E32BHD actuator.

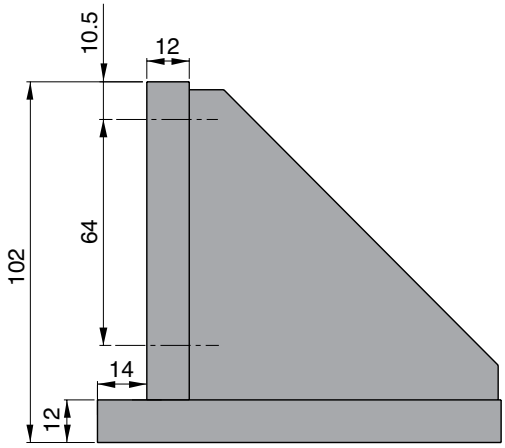
Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA2-50	1.4	**12276FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 50, Type: MA3-25





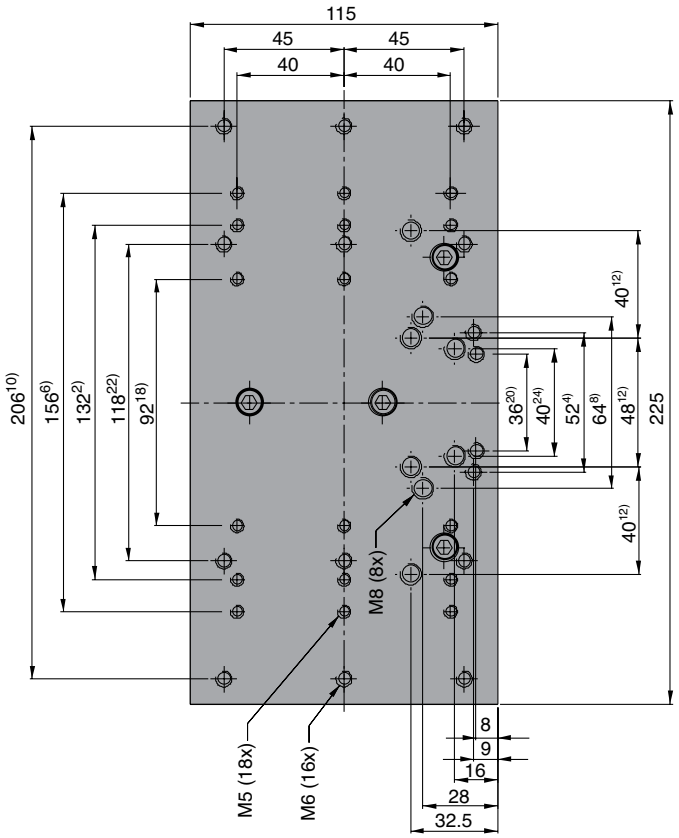
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E. g. dimensions with superscript number 5 correspond to the option ”EM” for OSP-E32BHD actuator.

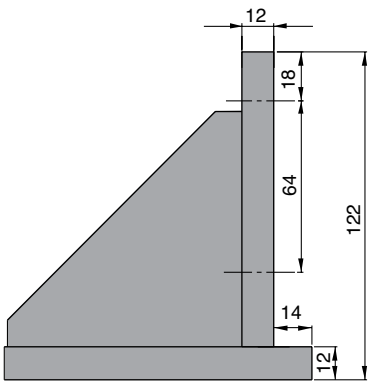
Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA3-25	1.3	**12271FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 32, Type: MA3-32





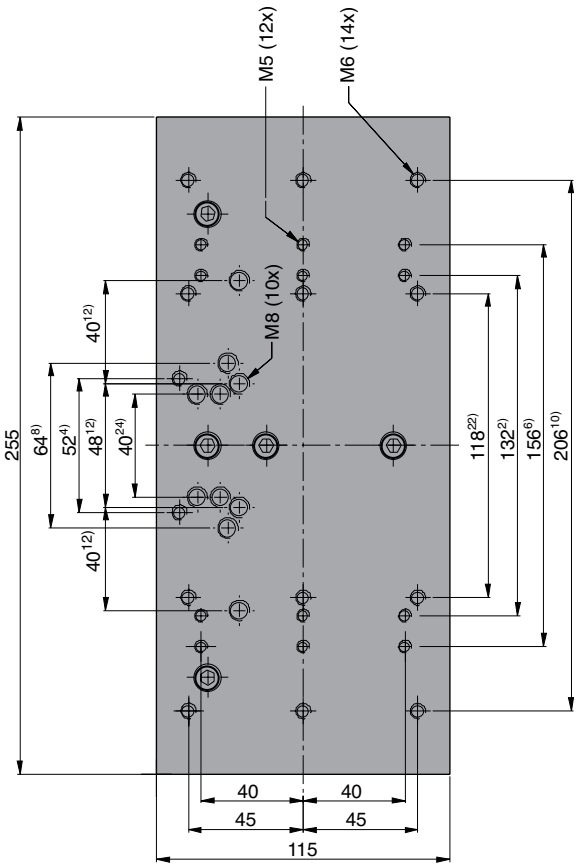
Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 5 correspond to the option ”EM” for OSP-E32BHD actuator.

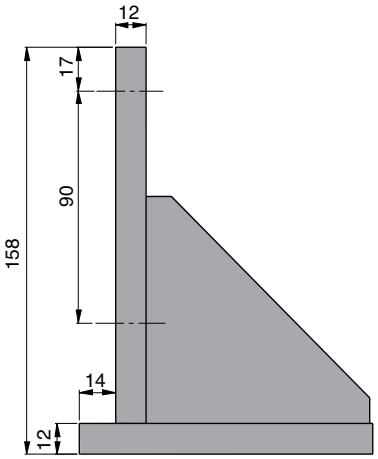
Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA3-32	1.8	**12274FIL**

Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Dimensions [mm] Adapter Plate OSP-E 50, Type: MA3-50





Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 4 correspond to the option ”EM” for OSP-E25BHD actuator.

Order Instructions and Weight

Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA3-50	2.3	**12277FIL**

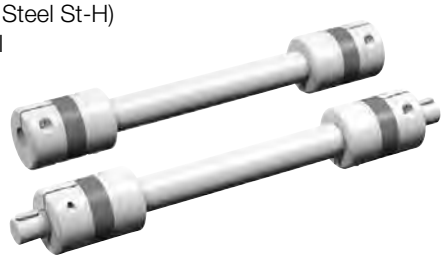
Linear Acutators see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Complete Intermediate Drive Shaft - Size 20, 25, 32, 50

for Actuator Series OSP-E..BHD

Note: For Series OSP-E..BHD with integrated gearbox, please contact your local Parker technical support.

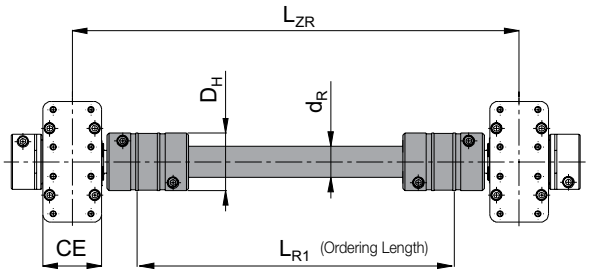
Material:
Aluminium (AL-H) / Steel St-H)
Polyurethane/Hytrel



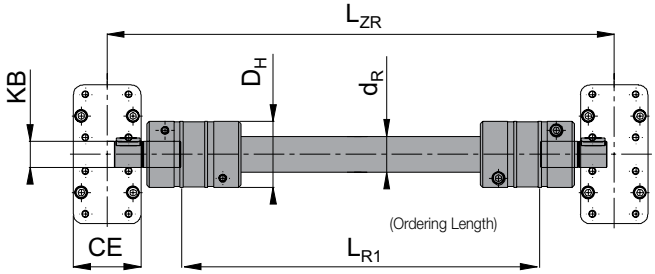
Features:

- Backlash-free shaft connection under pre-stress
- Design up to speed 1500 rpm
- Intermediate Drive Shaft with Double Coupling for Larger Displacements of Parallel Actuators
- Easy to Mount

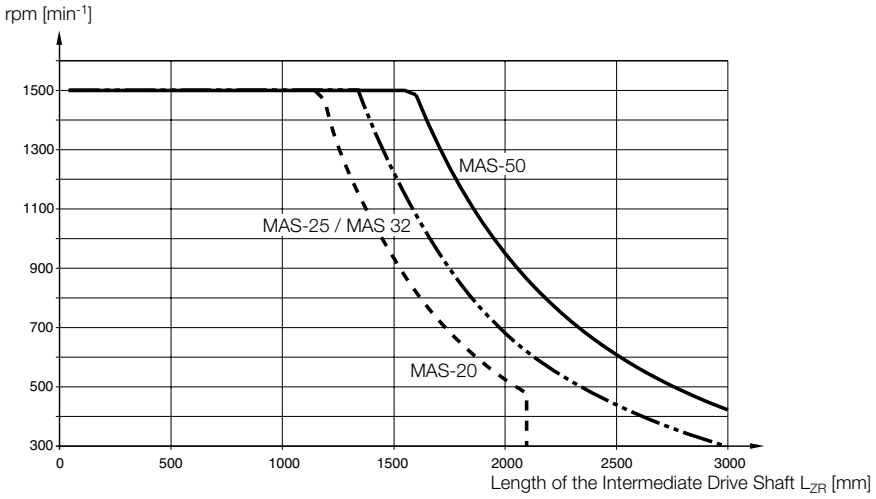
Intermediate Drive Shaft with Clamp Shaft
Series OSP-E25BHD to E50BHD, Type MAS-..



Intermediate Drive Shaft with Plain Shaft and Keyway
Series OSP-E25BHD to E50BHD, Type MAS-..



Critical Speed v. for Coupling Length



Characteristics / Dimension [mm] and Order Instructions

Series	Type	Max. Torque [Nm] **	CE	DH	KB***	LZR	LR1	dR	Order No. * for clamp shaft	for hollow shaft
OSP-E20BHD	MAS-20	28	38	40	12_{k6}	< 2100	L_{ZR} - 98	20 x 3,0	**16256 - ...**	**16257 - ...**
OSP-E25BHD	MAS-25	39	42	55	16_{k6}	< 3000	L_{ZR} - 112	25 x 2,5	**12305 - ...**	**12281 - ...**
OSP-E32BHD	MAS-32	42	56	55	22_{k6}	< 3000	L_{ZR} - 126	25 x 2,5	**12306 - ...**	**12282 - ...**
OSP-E50BHD	MAS-50	102	87	65	32_{k6}	< 3000	L_{ZR} - 167	35 x 4,0	**12307 - ...**	**12283 - ...**

* Complete with L_{R1} in mm. Example: 12305 - 1200 (Length L_{R1} = 1200 mm)
** For higher torque requirement, please contact your local Parker technical support
*** Other dimensions for KB on request.

Mounting Dimensions for Motor and Gears

Code	Description	A	B*	D	E	F	G
for motor and gears with clearance mounting holes							
A0	SY563T	66.50	M4	38.10	2.50	6.35	21.00
A1	SY873T	99.00	M6	73.00	3.00	9.52	31.50
A2	SMx60 xx xxx 8 11 …	63.00	M5	40.00	2.50	11.00	23.00
A3	SMx82 xx xx 8 14 …	100.00	M6	80.00	3.50	14.00	30.00
A4	SMx100 xx xx 5 19…	115.00	M8	95.00	3.50	19.00	40.00
A5	SMx115 xx xx 5 24… / SMx142 xx xx 5 24…	165.00	M10	130.00	3.50	24.00	50.00
A6	SMx115 xx xx 5 28… / SMx142 xx xx 5 28…	165.00	M10	130.00	3.50	28.00	60.00
A7	PS60	70.00	M5	50.00	11.00	16.00	40.00
A8	PS90	100.00	M6	80.00	15.00	22.00	52.00
A9	PS115	130.00	M8	110.00	16.00	32.00	68.00
for gears with threaded mounting holes							
C0	LP050 / PV40-TA	44.00	S4	35.00	6.50	12.00	24.50
C1	LP070 / PV60-TA	62.00	S5	52.00	8.00	16.00	36.00
C2	LP090 / PV90-TA	80.00	S6	68.00	10.00	22.00	46.00
C3	LP120	108.00	S8	90.00	12.00	32.00	70.00

* size of thread (e.g. M4) or counter bore (e.g. S4) used to mount motor or gear to the flange plate

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