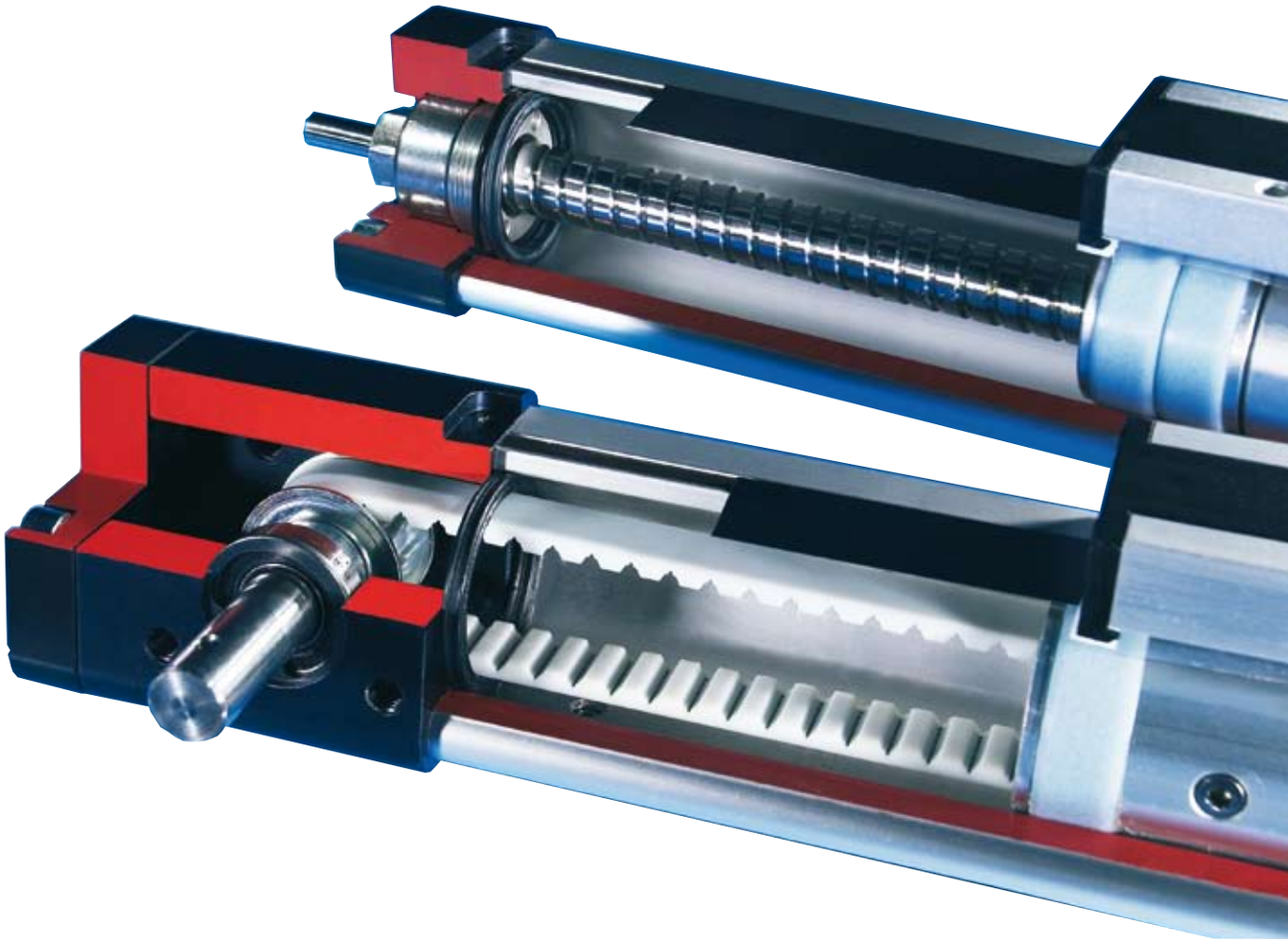


Modular Electric Actuators OSP-E

ORIGA SYSTEM PLUS

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

Parker

ORIGA

ENGINEERING YOUR SUCCESS.

Contents
Modular Electric Actuators

OSP
ORIGA
SYSTEM
PLUS

OSP Concept

The
System Concept

ORIGA SYSTEM PLUS
– ONE CONCEPT
– THREE ACTUATOR OPTIONS

Based on the concept of the rodless pneumatic cylinder, well proven worldwide, Parker Origa 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.

For further information see the Pneumatic Actuators Catalogue A4P011E.

- 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.

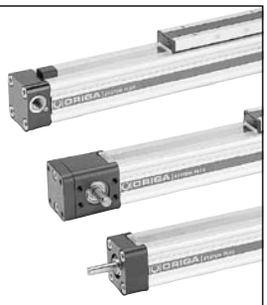
The
System Concept

ORIGA SYSTEM PLUS
– ONE CONCEPT
– THREE ACTUATOR OPTIONS

*** Information on Pneumatic Actuators, see Catalogue P-A4 P011E**

Basic Actuator – Standard Version

- Series OSP-P*
- Series OSP-E
  Belt with internal Plain Bearing Guide
  Belt with integrated Guide
  Vertical Belt with integrated Guide
- Series OSP-E
  Ball screw with internal Plain Bearing Guide,
  Trapezoidal Screw with internal Plain Bearing Guide

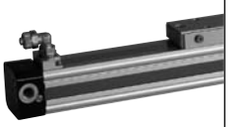


Air Connection on the End-face or both at One End

- Series OSP-P*

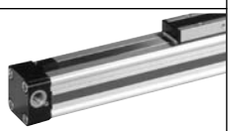
Clean Room Cylinders certified to DIN EN ISO 146644-1

- Series OSP-P*
- Series OSP-E..SB



Products in ATEX-Version

- Series OSP-P*
  Rodless Cylinders

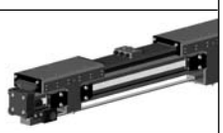


Products in ATEX-Version

- Series OSP-P*
  Rodless Cylinders
  with plain baering SLIDELINE

Cylinders for synchronized counter-rotation of the cylinders

- Series OSP-P*

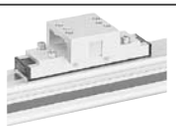


Integrated 3/2-Way Valves

- 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

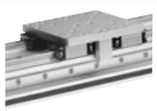
- Series OSP-P*

Linear Guides – KF

- Series OSP-P*

Heavy Duty-Guides – HD

- Series OSP-P*
- Series OSP-E Screw



Brakes

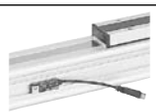
- Active Brakes*
- Passive Brakes*

Planetary gears PV

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

Magnetic Switches

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



SFI-Plus Dispacemet Mesuring Systems

- Series OSP-P*
- Series OSP-E Screw

Electric Actuator OSP-E, Modular Components - Overview

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)]
Effective action force F_A [N]	450 - 550	550 - 1070	1030 - 1870	1940 - 3120	450 - 650	1050 - 1490	50	100 - 150	300 - 425
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
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
Temperature range [°C]	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80	-30 – +80
Tandem Version	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	X	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
Mx [Nm]	21	50 / 11	120 / 19	180 / 87	20	50	2	8	16
My [Nm]	150	500 / 64	1000 / 115	1800 / 365	100	200	12	25	80
Mz [Nm]	150	500 / 64	1400 / 115	2500 / 365	100	200	8	16	32
Slideline									
F [N]	–	–	–	–	–	–	–	–	–
Mx [Nm]	–	–	–	–	–	–	–	–	–
My [Nm]	–	–	–	–	–	–	–	–	–
Mz [Nm]	–	–	–	–	–	–	–	–	–
Proline									
F [N]	–	–	–	–	–	–	986	1348	3582
Mx [Nm]	–	–	–	–	–	–	19	33	128
My [Nm]	–	–	–	–	–	–	44	84	287
Mz [Nm]	–	–	–	–	–	–	44	84	287
Powerslide									
F [N]	–	–	–	–	–	–	910 - 1190	1400 - 2300	3000 - 4000
Mx [Nm]	–	–	–	–	–	–	14 - 20	20 - 50	90 - 140
My [Nm]	–	–	–	–	–	–	63 - 175	70 - 175	250 - 350
Mz [Nm]	–	–	–	–	–	–	63 - 175	70 - 175	250 - 350
HD-Guide (Heavy Duty)									
F [N]	–	–	–	–	–	–	–	–	–
Mx [Nm]	–	–	–	–	–	–	–	–	–
My [Nm]	–	–	–	–	–	–	–	–	–
Mz [Nm]	–	–	–	–	–	–	–	–	–
Accessories									
Multi-Axis System									
Connecting elements	O	O	O	O	O	O	O	O	O
Connecting shaft	O	O	O	O	O	O	O	O	O
Special Actuators									
Clean Room	X	X	X	X	X	X	X	X	X
Gearbox									
Planetary gears	O	O	O	O	O	O	O	O	O
Mountings									
Compensation	X	X	X	X	X	X	O	O	O
End Cap Mounting / Midsection Support	O	O	O	O	X	X	O	O	O
Inversion Mounting	X	X	X	X	X	X	O	O	O
Adapter Profile / T-Nut Profile	O	O	O	O	X	X	O	O	O
Magnetic switches									
Reed Switches RS (NO, NC)	O	O	O	O	O	O	O	O	O
Electronic Switches ES (PNP, NPN)	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
Motor package (stepper / servo)	O	O	O	O	O	O	O	O	O

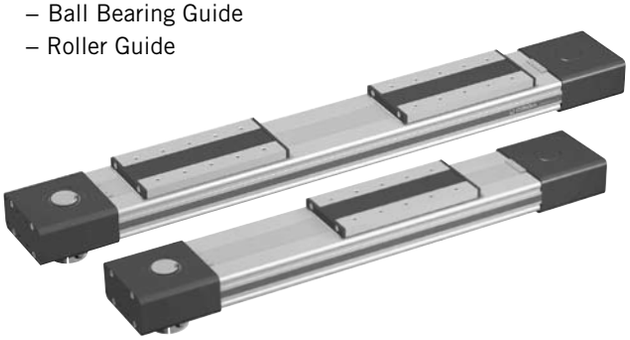
□ = Standard version
O = Option
X = Currently not available
* = other temperature ranges on request
** = **exc. safety clearance from mechanical end position**
other stroke lengths on request
*** = ratio i = 3, 5, 10

[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

	OSP-E25 -SB [5]	OSP-E32 -SB [5]	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]
	250	600	1500	600	1300	2500	260	900	1200	800	1600	3300
	0.25	0.5	1.25	0.1	0.1	0.15	0.25	0.5	1.25	0.075	0.1	0.125
	□	□	□	□	□	□	□	□	□	□	□	□
	1 - 1100	1 - 2000	1 - 3200	1 - 1100	1 - 2000	1 - 2500	1 - 500	1 - 500	1 - 500	1 - 500	1 - 500	1 - 500
	-20 – +80	-20 – +80	-20 – +80	-20 – +70	-20 – +70	-20 – +70	-20 – +80	-20 – +80	-20 – +80	-20 – +70	-20 – +70	-20 – +70
	O	O	O	O	O	O	–	–	–	–	–	–
	X	X	X	X	X	X	X	X	X	X	X	X
	–	–	–	–	–	–	–	–	–	–	–	–
	500	1200	3000	500	1000	1500	–	–	–	–	–	–
	2	8	16	2	6	13	–	–	–	–	–	–
	12	25	80	24	65	155	–	–	–	–	–	–
	8	16	32	7	12	26	–	–	–	–	–	–
	675	925	2000	675	925	2000	–	–	–	–	–	–
	14	29	77	14	29	77	–	–	–	–	–	–
	34	60	180	34	60	180	–	–	–	–	–	–
	34	60	180	34	60	180	–	–	–	–	–	–
	986	1348	3582	986	1348	3582	–	–	–	–	–	–
	19	33	128	19	33	128	–	–	–	–	–	–
	44	84	287	44	84	287	–	–	–	–	–	–
	44	84	287	44	84	287	–	–	–	–	–	–
	910-1190	1400-2300	3000-4000	900-1190	1400-2300	3000-4000	–	–	–	–	–	–
	14-20	20-50	90-140	14-20	20-50	90-140	–	–	–	–	–	–
	63-175	70-175	250-350	63-175	70-175	250-350	–	–	–	–	–	–
	63-175	70-175	250-350	63-175	70-175	250-350	–	–	–	–	–	–
	6000	6000	18000	6000	6000	18000	–	–	–	–	–	–
	320	475	1400	320	475	1400	–	–	–	–	–	–
	260	285	1100	260	285	1100	–	–	–	–	–	–
	320	475	1400	320	475	1400	–	–	–	–	–	–
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	X	X	X	X	X	X	X	X	X
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	O	O	O	–	–	–	–	–	–
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	O	O	O	–	–	–	–	–	–
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	O	O	O	O	O	O	O	O	O
	O	O	O	O	O	O	–	–	–	–	–	–
	O	O	O	O	O	O	O	O	O	O	O	O

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..B
Belt Actuator with Internal Guide

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

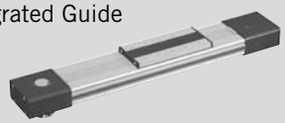
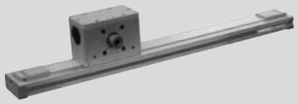
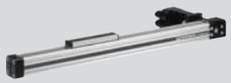
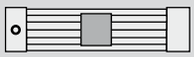
Series OSP-E..SB
Ball Screw Actuator with internal Plain Bearing Guide

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 ctuator with Internal Plain Bearing Guide and Piston Rod

STANDARD VERSIONS, OPTIONS AND ACCESSORIES

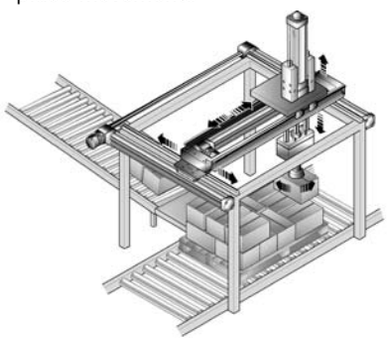
Description	**Belt-Actuators – Basic Versions**		
	Belt Actuator with integrated Guide 	Vertical Belt Actuator with integrated Ball Bearing Guide 	Belt Actuator with internal Plain Bearing Guide 
Standard Versions	 – Direction of motion – Position of the drive shaft	– Position of the drive shaft	 – Position of the drive shaft
Options	– Tandem – Bi-directional – Integrated Planetary Gearbox	– Tandem	– Tandem – Bi-directional – Niro
Mountings			
Compensation	–	–	O
End Cap Mounting	O	–	O
Profile Mounting	O	–	O
Inversion Mounting	–	–	O
Accessories			
Magnetic Switches	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 Switches	O	O	O
Motor Mounting	O	O	O
Flansh Mounting	–	–	O
Trunnion Mounting	–	–	O
Piston Rod Knuckle	–	–	O
Linear Guides	O	O	–
Multi-Axis Connection System	O	O	O

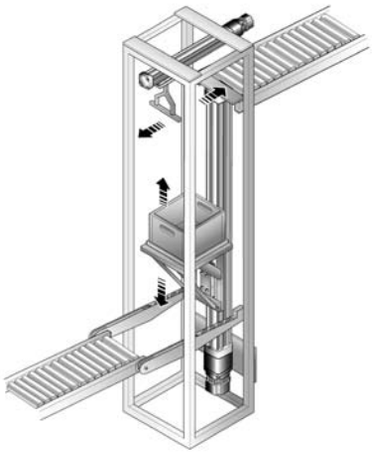
Examples

APPLICATIONS FOR OSP-E ACTUATORS

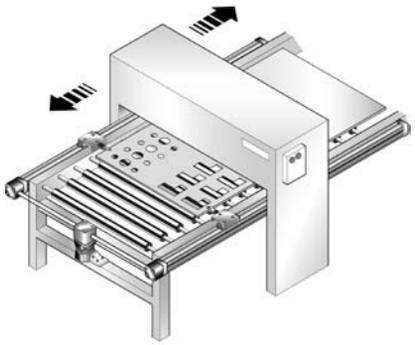
Auto Handling
– high speed pick and place movements



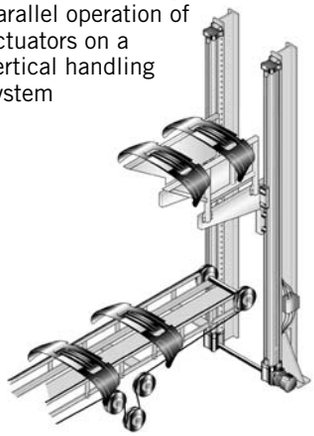
Material Handling Systems
– vertical and horizontal transfer movements



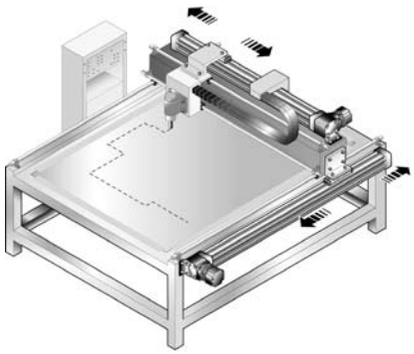
Punching Machines
– accurate feeding and postioning



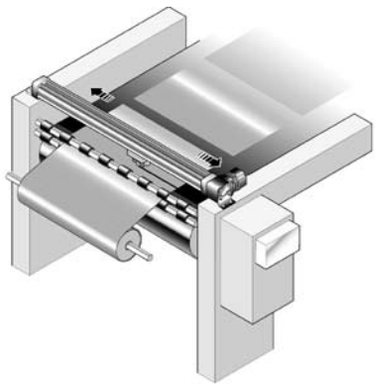
Mechanical Handling
– parallel operation of actuators on a vertical handling system



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



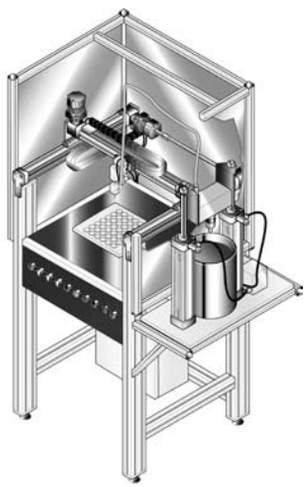
Slitting Machines
– high speed traverse applications for the slicing of papers and textiles

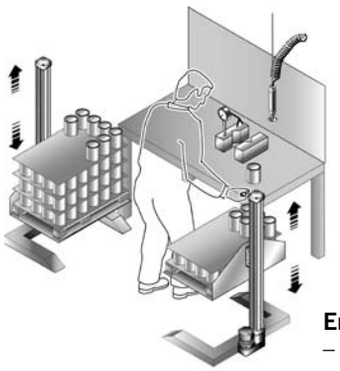


Spray Coating
– synchronized high speed bi-parting movements

Automated Filling Machines
– accurate 3-axis positioning

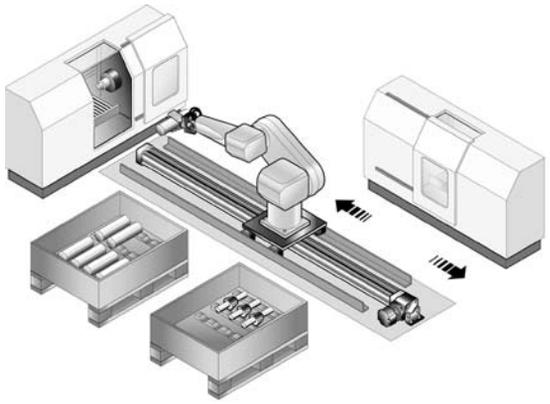
Automatic Doors and Guards
– simple bi-parting operation



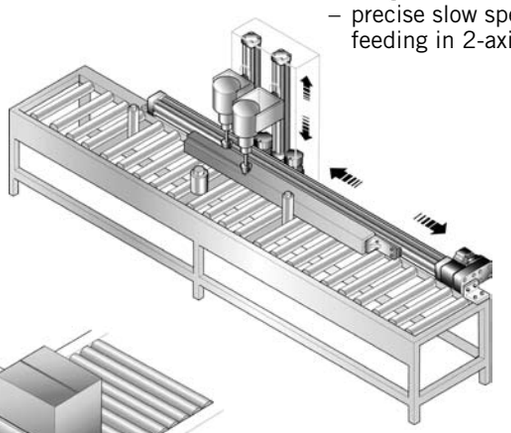


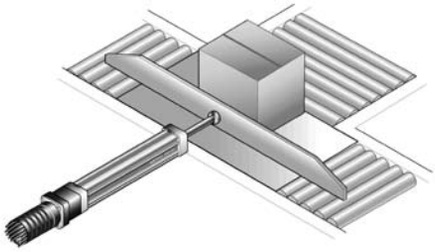
Ergonomic Workstations
– adjustment of working levels

Robotic Installations
– traverse of robots between work stations

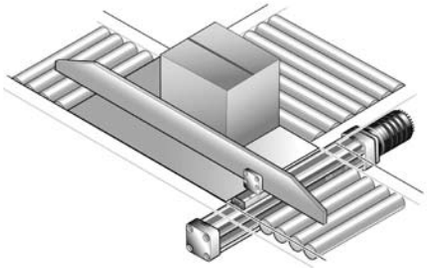


Milling Machines
– precise slow speed feeding in 2-axis

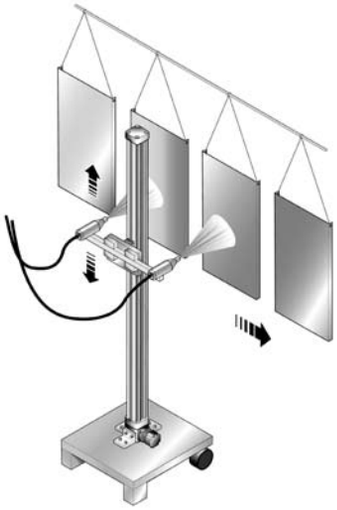




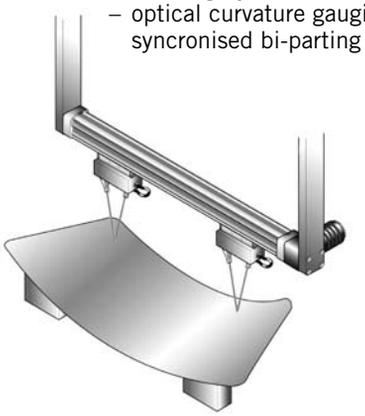
Conveyor Systems
– simple cross-transfer actuators



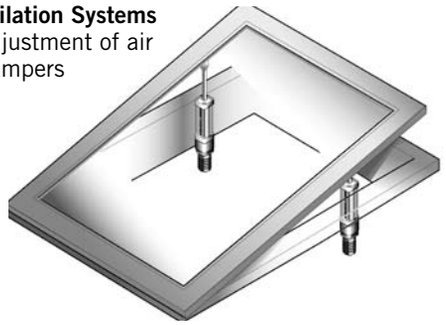
Spraying Equipment
– precision reciprocating action



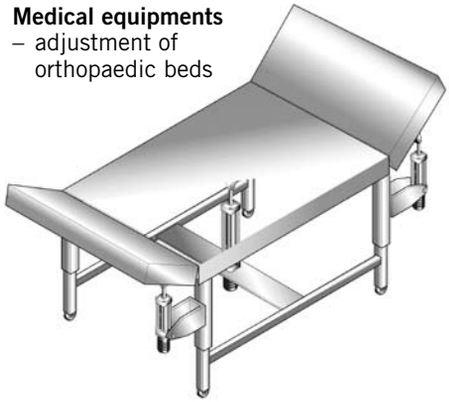
Measuring Systems
– optical curvature gauging using syncronised bi-parting actuation



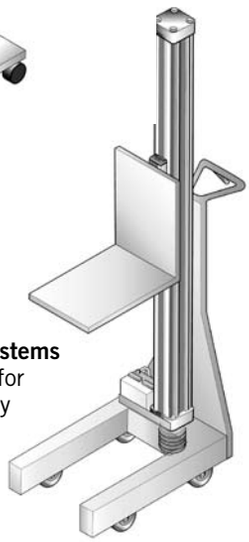
Ventilation Systems
– adjustment of air dampers



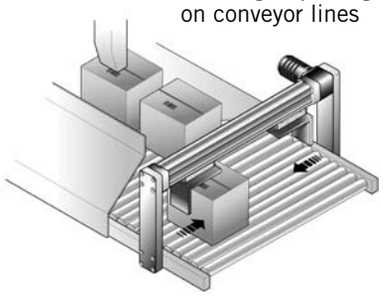
Medical equipments
– adjustment of orthopaedic beds



Mobile Lifting Systems
– lifting devices for industrial safety



Conveyor Systems
– centring of packages on conveyor lines



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

Contents

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

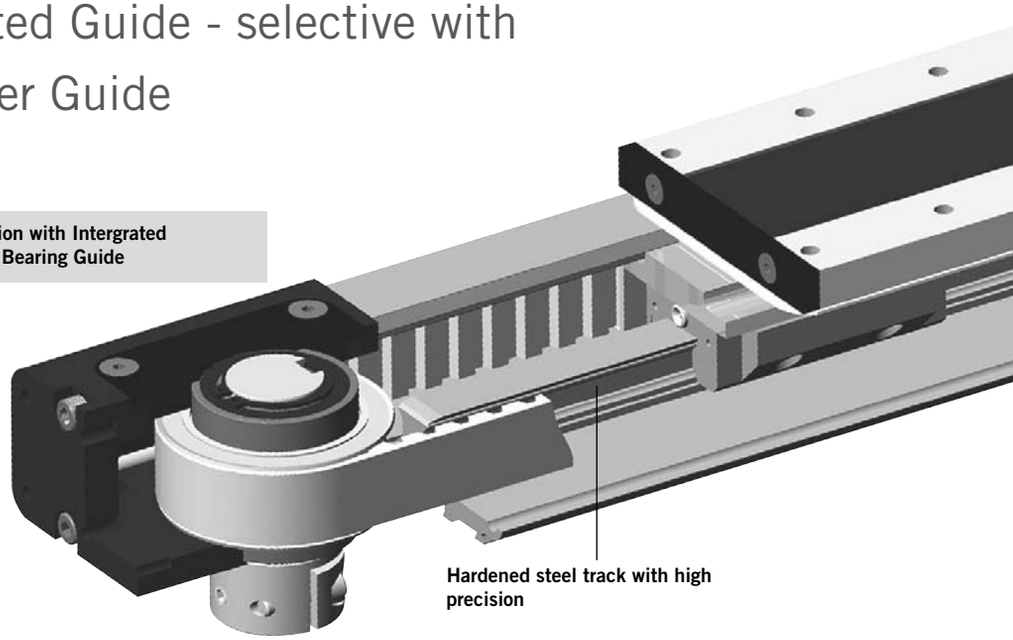
Advantages:

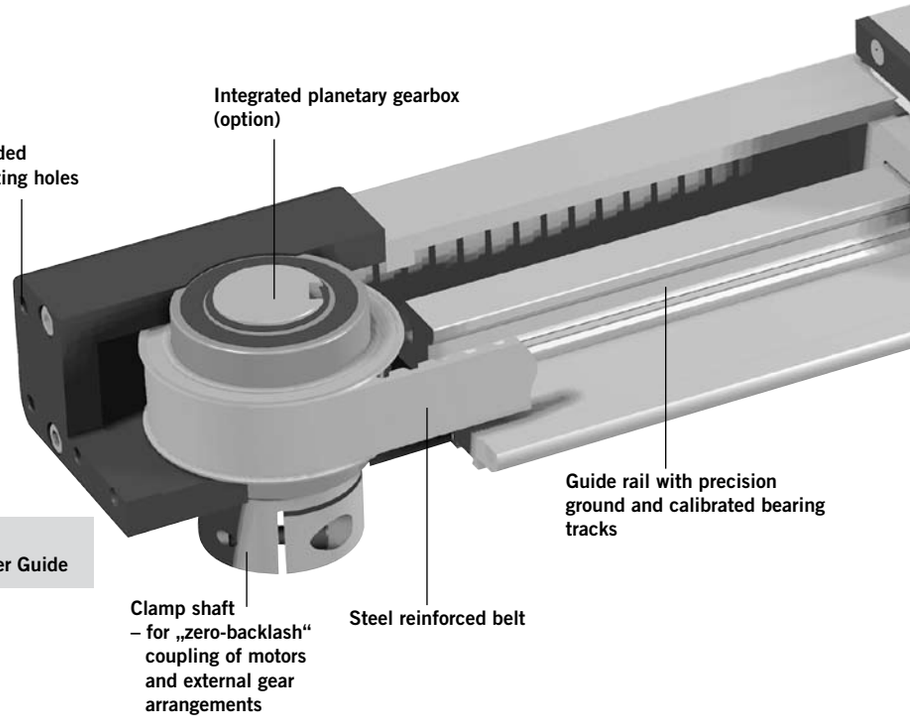
- Accurate path and position control
- High force output
- High speed operation
- High load capacity
- Easy installation
- Low maintenance
- Ideal for multi-axis applications

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



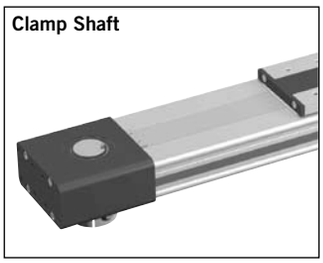


Version with Integrated Roller Guide

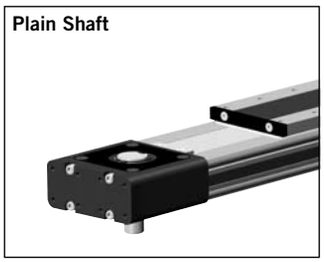
Take the easy route and load all the dimensions into your system. The file is suitable for all current CAD systems – available on CD-Rom or at www.parker-origa.com

Drive Shaft Versions

Clamp Shaft

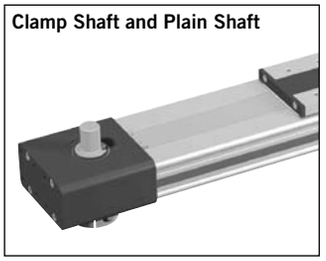


Plain Shaft

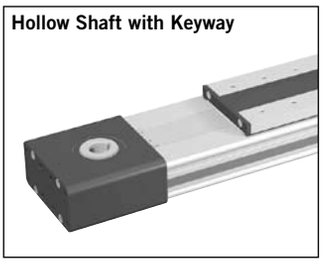


Drive Shaft OPTIONS

Clamp Shaft and Plain Shaft

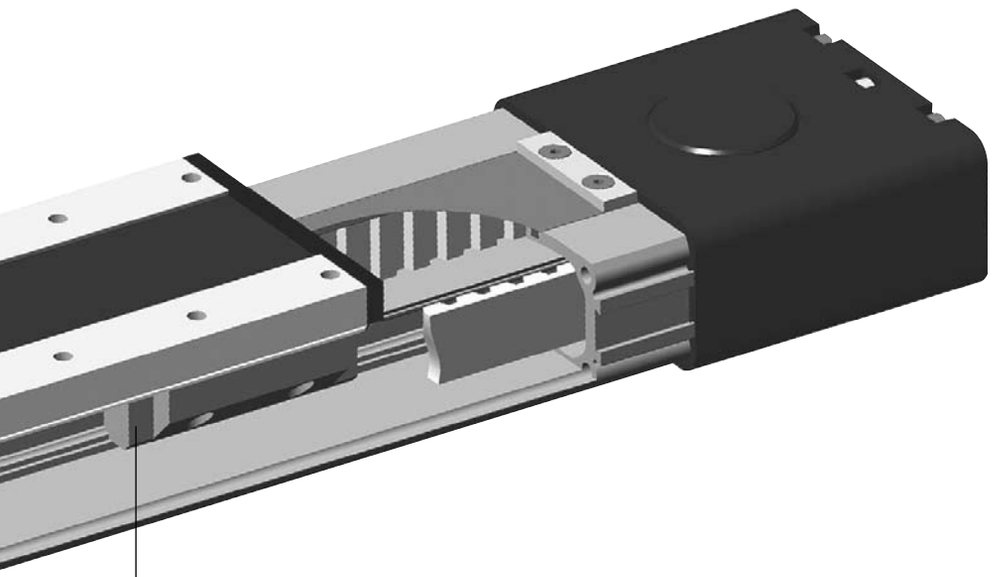


Hollow Shaft with Keyway

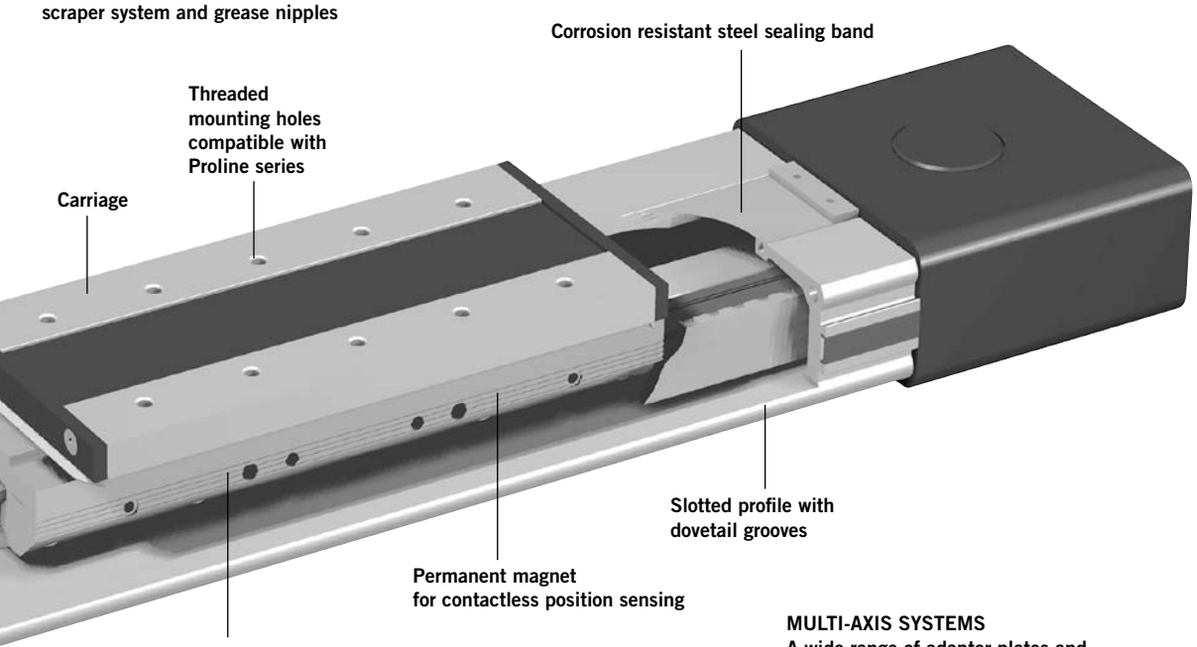


OPTION
Integrated planetary gearbox

- **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**



Steel runner block with integrated scraper system and grease nipples



Corrosion resistant steel sealing band

Threaded mounting holes compatible with Proline series

Carriage

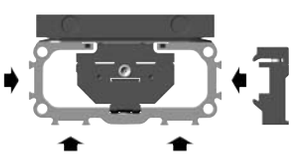
Slotted profile with dovetail grooves

Permanent magnet for contactless position sensing

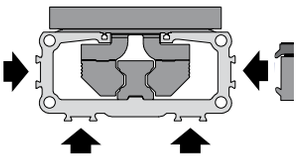
Rollers on needle bearings for smooth operation up to 10 m/s.

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

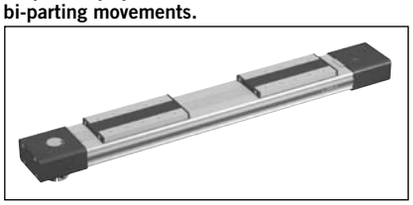


Version with Integrated Roller guide



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

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

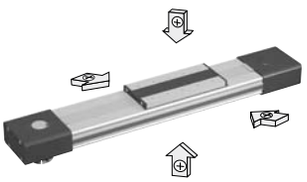


OPTIONS AND ACCESSORIES

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.

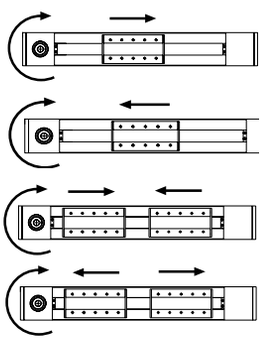


DRIVE SHAFT WITH CLAMP SHAFT

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 SHAFT 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

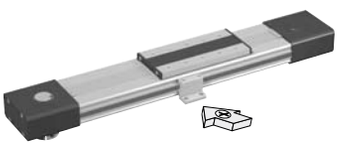
MOTOR MOUNTINGS

END CAP MOUNTING

For mounting the actuators on the end cap.

PROFILE MOUNTING

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

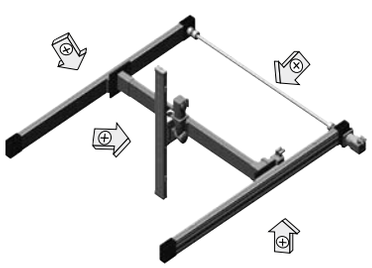


MAGNETIC SWITCHES TYPE RS AND ES

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

MULTI-AXIS SYSTEMS

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



OSP-E..BHD Belt Actuator

with integrated Ball Bearing Guide

Size 20 to 50

OSP
ORIGA SYSTEM PLUS

Characteristics

Characteristics			Symbol	Unit	Description
General Features					
Series					OSP-E..BHD
Name					Belt Actuator with integrated Ball Bearing 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
	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, corrosion resistant steel
	Screws, nuts				Zinc plated steel
	Mountings				Zinc plated steel and aluminium
Encapsulation 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	0.8	280	41	413
OSP-E25BHD	4.3	4.5	1.5	1229	227	821
OSP-E32BHD	8.8	7.8	2.6	3945	496	1459
OSP-E50BHD	26	17	7.8	25678	1738	3103
OSP-E20BHD*	4.3	4	1.5	540	41	413
OSP-E25BHD*	6.7	4.5	2.8	2353	227	821
OSP-E32BHD*	13.5	7.8	5.2	7733	496	1459
OSP-E50BHD*	40	17	15	49180	1738	3103

* Version: Tandem and Bi-parting (Option)

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

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 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 91/368/EEC.

Sizing Performance Overview Maximum Loadings

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 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/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}]	2000	1700	1250	860
Max. effective Action force F_A at speed	< 1 m/s:	[N]	550	1070	1870	3120
	1-3 m/s:	[N]	450	890	1560	2660
	> 3 m/s:	[N]	–	550	1030	1940
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]	5760[2)]	5700[2)]	5600[2)]	5500[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]		
	Fy[N]	Fz[N]	Mx	My	Mz
OSP-E20BHD	1600	1600	21	150	150
OSP-E25BHD	2000	3000	50	500	500
OSP-E32BHD	5000	10000	120	1000	1400
OSP-E50BHD	12000	15000	180	1800	2500

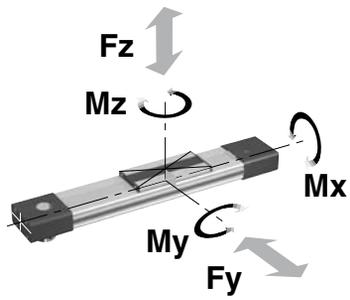
Combined Loads
If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here. The maximum permissible loads must not be exceeded.

Equation for 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.

Forces, loads and moments

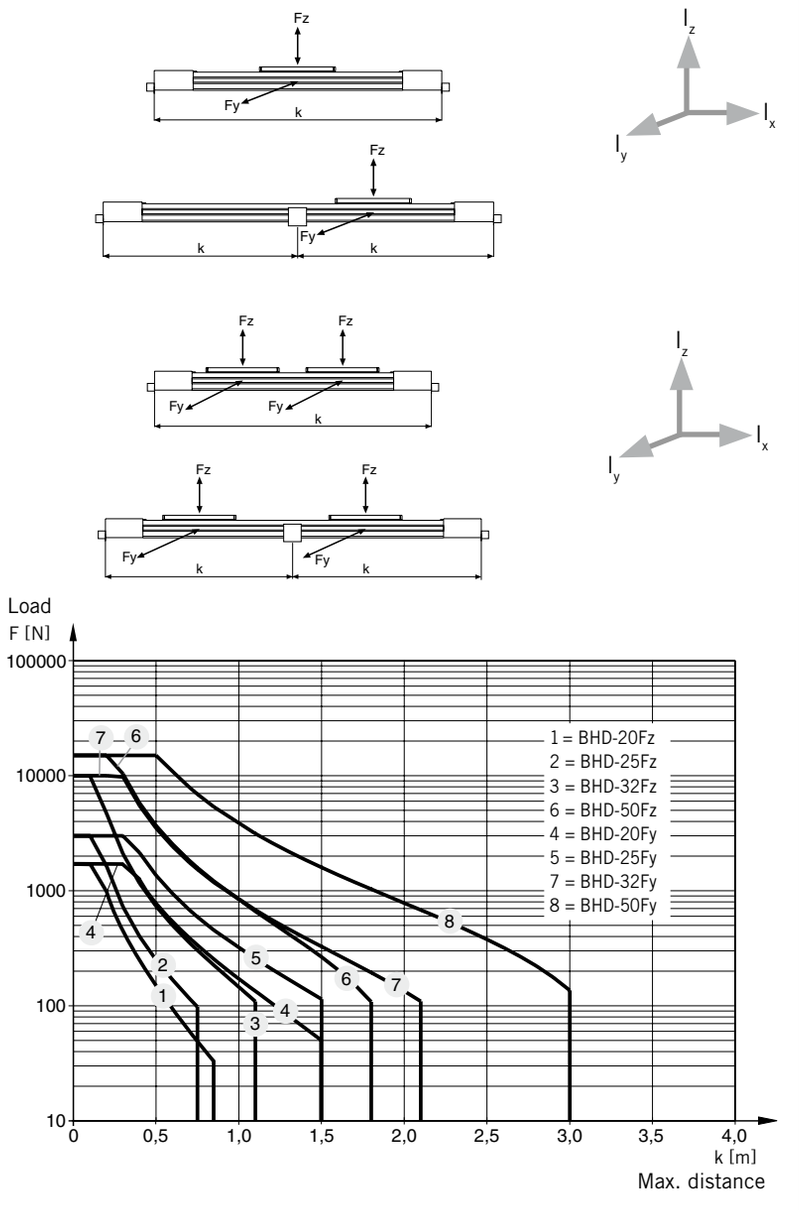


The distance (l_x, l_y, l_z) for calculation of moments relates to the centre axis of the actuator. Bending moments are calculated from the centre of the actuator and F indicates actual force.

$M = F \cdot l$ [Nm]

$M_x = M_{x\,static} + M_{x\,dynamic}$
$M_y = M_{y\,static} + M_{y\,dynamic}$
$M_z = M_{z\,static} + M_{z\,dynamic}$

Maximum Permissible Unsupported Length – Placing of Profile mounting



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 clear-ance 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 Origa technical support department.

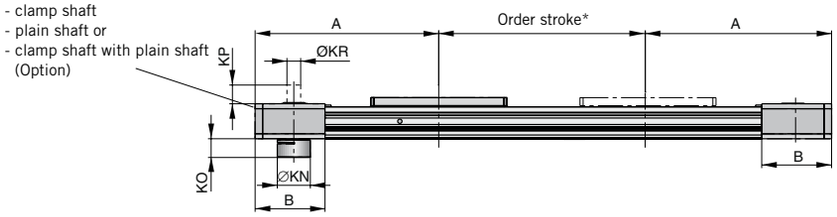
* For Bi-parting version the max. load (F) is the total load of both carriers $F = F_{carrier\ 1} + F_{carrier\ 2}$

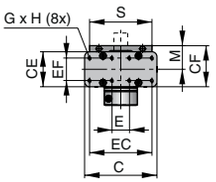
k = Max. permissible distance between mountings/Profile Mounting for a given load F.

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

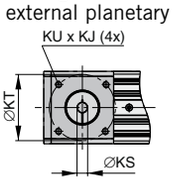
OSP-E..BHD
Belt Actuator with Integrated Ball Bearing Guide – Basic Unit

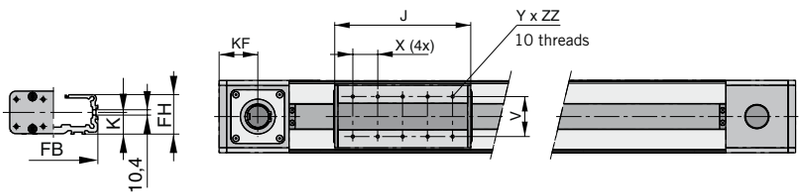
Drive shaft versions with
- clamp shaft
- plain shaft or
- clamp shaft with plain shaft (Option)





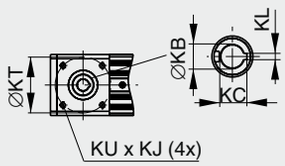
Mounting holes for motor flange or external planetary gearbox [1)]





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



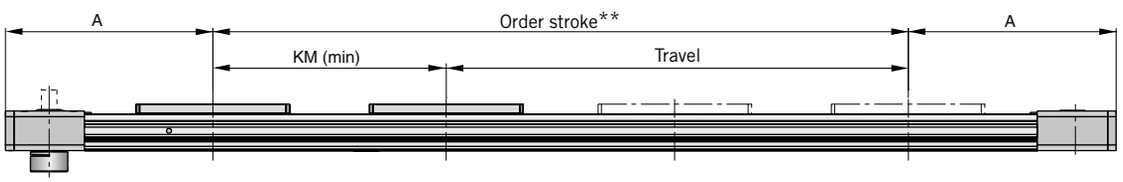
[1)] Note:
The mounting holes for the coupling housing / motor flange / gearbox are located on the opposite side to the carrier (motor mounting standard).
They also can be located on the same side as the carrier (motor mounting 180° standard).

*** 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.

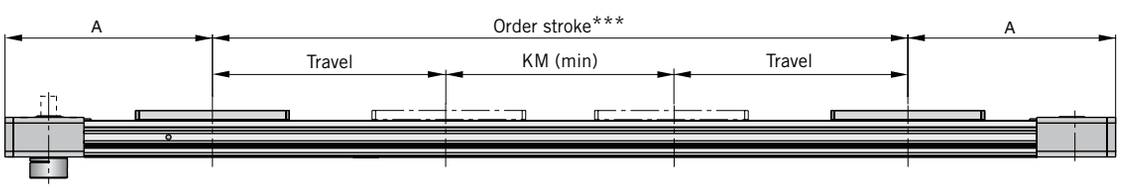
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.
For further information please contact you local Parker Origa representative.

Option – Tandem



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

Option – Bi-Parting



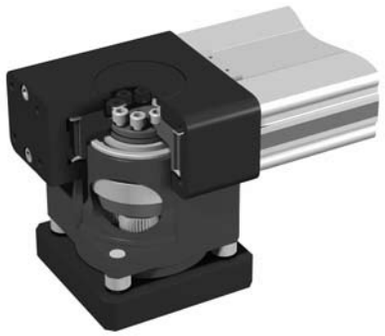
*** Order stroke = 2 x required travel + KM min + 2 x safety distance

Dimension Table [mm]

Series	A	B	C	E	GxH	J	K	M	S	V	X	YxZZ	CE	CF	EC	EF	FB	FH	KF	KM_{min}	$KM_{rec.}$	KN	KO	KP	KR	KS	KT	KUxKJ
OSP-E20BHD	185	76.5	73	18	M5x8.5	155	21.1	27.6	67	51	30	M5x8	38	49	60	27	73	36	42.5	180	220	27	18	25	12_{h7}	12^{H7}	65.7	M6x8
OSP-E25BHD	218	88	93	25	M5x10	178	21.5	31	85	64	40	M6x8	42	52.5	79	27	92	39.5	49	210	250	34	21.7	30	16_{h7}	16^{H7}	82	M8x8
OSP-E32BHD	262	112	116	28	M6x12	218	28.5	38	100	64	40	M6x10	56	66.5	100	36	116	51.7	62	250	300	53	30	30	22_{h7}	22^{H7}	106	M10x12
OSP-E50BHD	347	147	175	18	M6x12	288	43	49	124	90	60	M6x10	87	92.5	158	70	164	77	79.5	354	400	75	41	35	32_{h7}	32^{H7}	144	M12x19

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

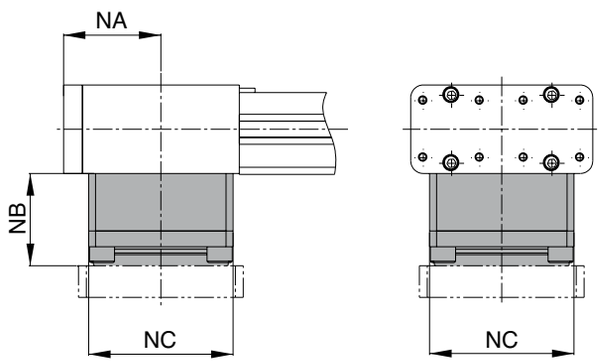
Series OSP-E..BHD – with Integrated Planetary Gearbox (Option)



Performance Overview

Characteristics		Unit	Description		
Series			**OSP-E25BHD**	**OSP-E32BHD**	**OSP-E50BHD**
Ratio (1-stage)	i		3/5/10		
Max. axial load	F_{amax}	[N]	1550	1900	4000
Torsional rigidity (i=5)	$C_{t.21}$	[Nm/arcmin]	3.3	9	24
Torsional rigidity (i=3/10)	$C_{t.21}$	[Nm/arcmin]	2.8	7.5	20.5
Torsional backlash	J_t	[arcmin]	<12		
Linear motion per revolution of drive shaft		[mm]	220	280	360
Nominal input speed	n_{nom}	[min^{-1}]	3700	3400	2600
Max. input speed	n_{1max}	[min^{-1}]	6000		
No-load torque at Nominal input speed	T_{012}	[Nm]	<0.14	<0.51	<1.5
Lifetime		[h]	20 000		
Efficiency	η	[%]	>97		
Noise level (n_1=3000 min^{-1})	L_{PA}	[db]	<70	<72	<74

Dimensions



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	79.5	49.5	121	9.6

Integrated Planetary Gearbox

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
- A wide range of available motor flanges

Please contact your local Parker Origa technical support for 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.

OSP-E...BHD

Belt Actuator with integrated Roller Guide

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

Characteristics

Characteristics		Symbol	Unit	Description
General Features				
Series				OSP-E..BHD
Name				Belt Actuator with integrated Roller Guide
Mounting				see drawings
Ambient Temperatur 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			Roller Guide
	Guide rail			Aluminium
	Track			high alloyed steel
	Roller cartridge			Steel rollers in aluminium housing
	Sealing band			Hardened, corrosion resistant steel
	Screws, nuts			Zinc plated steel
	Mountings			Zinc plated steel and aluminium
Encapsulation class			IP	54

Standard Versions

- Belt Actuator 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

Weight (mass) and Inertia

Series	Weight (mass)[kg] at stroke 0 m	ad per metre stroke	Moving mass	Inertia [x 10^{-6} kgm^2] at stroke 0 m	ad per metre stroke
OSP-E25BHD	3.8	4.3	1.0	984	197
OSP-E32BHD	7.7	6.7	1.9	3498	438
OSP-E50BHD	22.6	15.2	4.7	19690	1489
OSP-E25BHD*	5.7	4.3	2.0	1805	197
OSP-E32BHD*	11.3	6.7	3.8	6358	438
OSP-E50BHD*	31.7	15.2	9.4	34274	1489

*Version: Tandem and Bi-parting (Option)

Installation Instructions

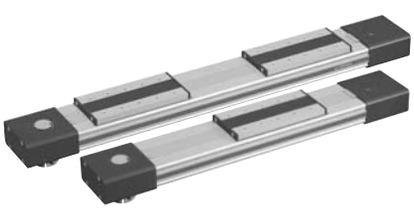
Use the threaded holes in the end cap for mounting the actuator.
Check if profile mountings are needed using the maximum allowable unsupported length graph on page 22.
At least one end cap must be secured to prevent axial sliding when profile mountings are used.

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 91/368/EEC.



Performance Overview (T1)

Characteristics		Unit	Description		
Series			**OSP-E25BHD**	**OSP-E32BHD**	**OSP-E50BHD**
Max. speed		[m/s]	10	10	10
Linear motion per revolution drive shaft		[mm]	180	240	350
Max. rpm. drive shaft		[min^{-1}]	3000	2500	1700
Max. effective action force F_A at speed	< 1 m/s:	[N]	1070	1870	3120
	1-3 m/s:	[N]	890	1560	2660
	> 3-10 m/s:	[N]	550	1030	1940
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]	7000	7000	7000

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 Fy, Fz [N]	Max. moments [Nm] Mx	My	Mz
OSP-E25BHD	986	11	64	64
OSP-E32BHD	1348	19	115	115
OSP-E50BHD	3704	87	365	365

Sizing Performance Overview Maximum Loadings

Sizing of Actuator

The following steps are recommended:

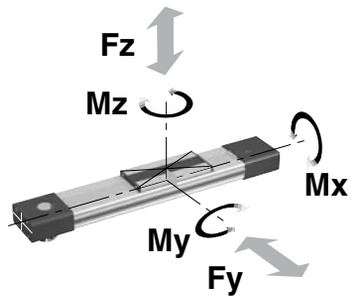
1. Determination of the lever arm length l_x, l_y and l_z from m_e to the centre axis of the actuator.
2. Calculation of the load F_x or F_y to the carrier caused by m_e
   $F = m_e \cdot g$
3. Calculation of the static and dynamic force F_A which must be transmitted by the belt.
   $F_{A(horizontal)} = F_a + F_0$
   $= m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$
   $F_{A(vertical)} = F_g + F_a + F_0$
   $= m_g \cdot g + m_g \cdot a + M_0 \cdot 2\pi / U_{ZR}$
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]

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_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 Origa 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.

Combined Loads

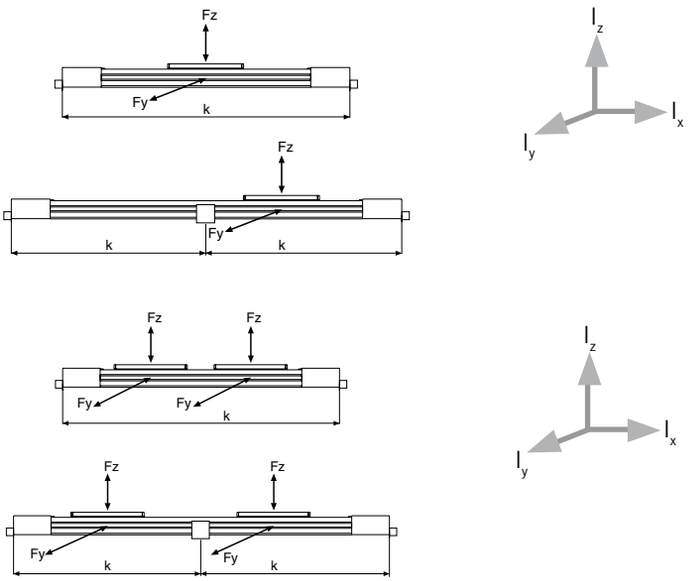
If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here. The maximum permissible loads must not be exceeded.

Equatation for Combined Loads

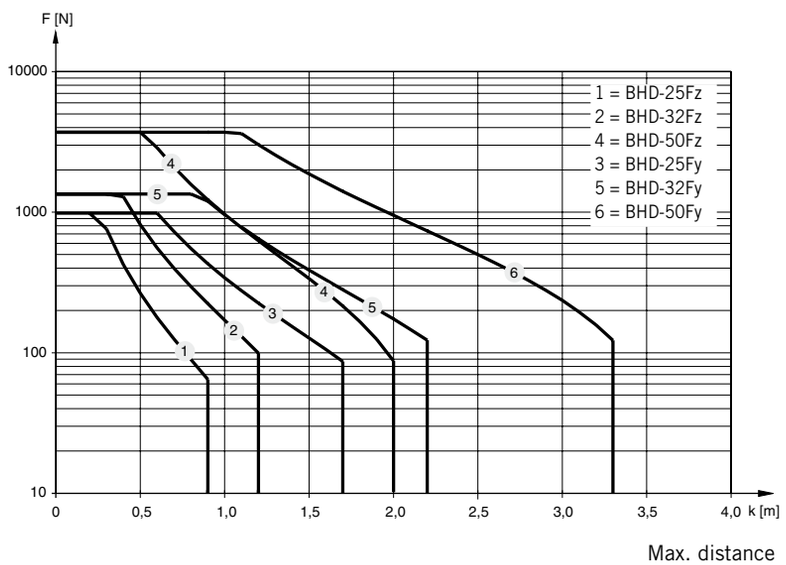
$$\frac{Fy}{Fy\,(max)} + \frac{Fz}{Fz\,(max)} + \frac{Mx}{Mx\,(max)} + \frac{My}{My\,(max)} + \frac{Mz}{Mz\,(max)} \leq 1$$

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

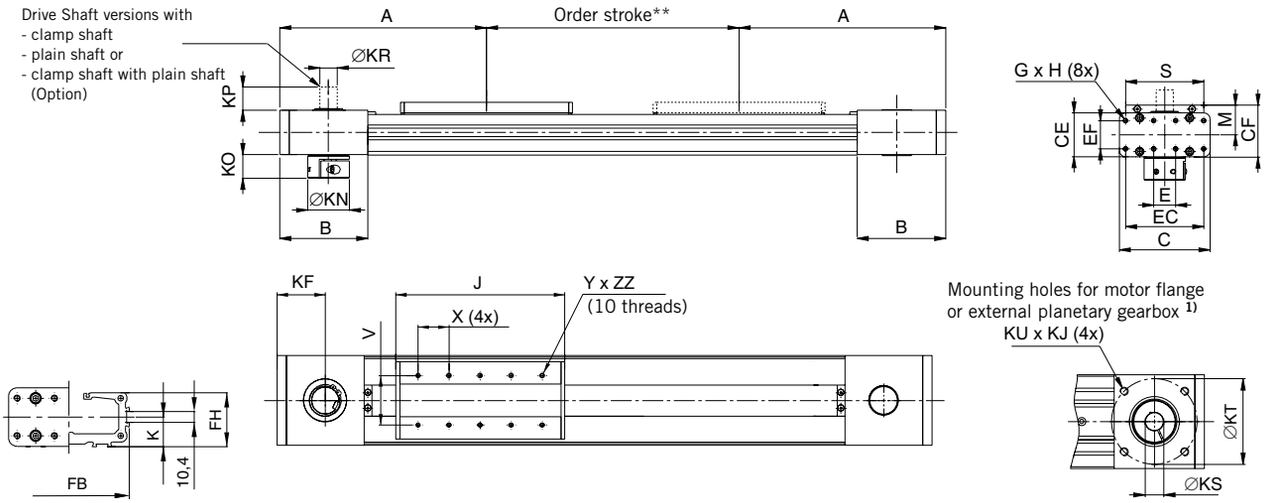
Maximum Permissible Unsupported Length – Placing of Profile Mounting



Loads

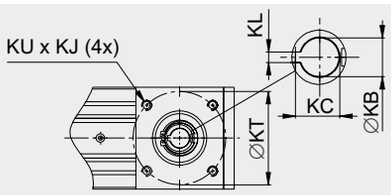


OSP-E..BHD
Belt Actuator with Integrated Roller Guide – Basic Unit



Hollow shaft with keyway (Option)
Dimension table [mm]

Series	KB	KC	KL	KT	KUxKJ
OSP-E25BHD	16^{H7}	18.3	5	82	M8x8
OSP-E32BHD	22^{H7}	24.8	6	106	M10x12
OSP-E50BHD	32^{H7}	35.3	10	144	M12x19



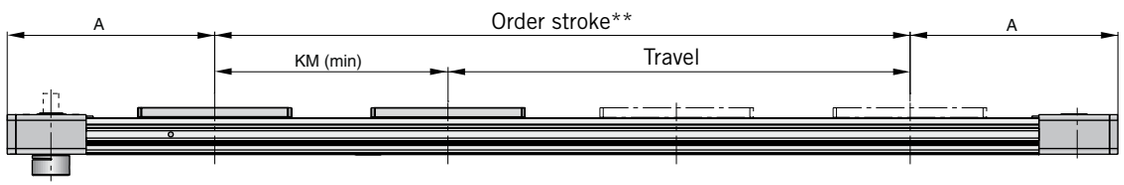
1) Note:
The mounting holes for the coupling housing / motor flange / gearbox are located on the opposite side to the carrier (motor mounting standard).
They also can be located on the same side as the carrier (motor mounting 180° standard).

*** 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.

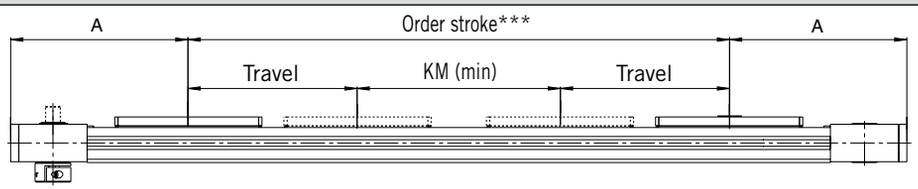
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.
For further information please contact you local Parker Origa representative.

Option – Tandem



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

Options – 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	EC	EF	FB	FH	KF	KM_{min}	$KM_{rec.}$	KN	KO	KP	KR	KS	KT	KUxKJ
OSP-E25BHD	218	88	93	25	M5x10	178	21.5	31	85	64	40	M6x8	42	52.5	79	27	92	39.5	49	210	250	34	21.7	30	16_{h7}	16^{H7}	82	M8x8
OSP-E32BHD	262	112	116	28	M6x12	218	28.5	38	100	64	40	M6x10	56	66.5	100	36	116	51.7	62	250	300	53	30	30	22_{h7}	22^{H7}	106	M10x12
OSP-E50BHD	347	147	175	18	M6x12	263	43	49	124	90	60	M6x10	87	92.5	158	70	164	77	79.5	295	350	75	41	35	32_{h7}	32^{H7}	144	M12x19

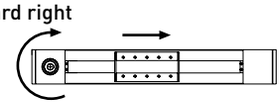
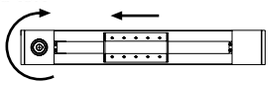
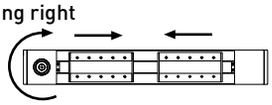
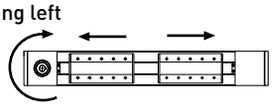
(Other dimensions for KS and KB for special drive shafts on request – see order instructions.)

Order Instructions	OSPE20	—	6	0	0	0	2	—	00000	—	0	00	0	0	0

Size of actuator	
20	Size 20 (only drive 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

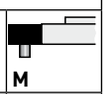
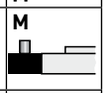
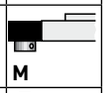
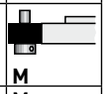
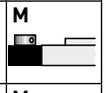
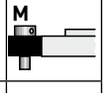
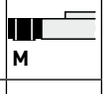
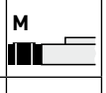
Carriage	
0	Standard
1	Tandem *
2	Bi-parting *

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

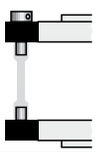
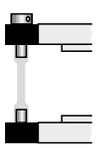
Gear *		
0	Without	
1	Integrated gear ratio i=3, motor standard **	
2	Integrated gear ratio i=5, motor standard **	
3	Integrated gear ratio i=10, motor standard **	
4	Integrated gear ratio i=3, motor 180° standard **	
5	Integrated gear ratio i=5, motor 180° standard **	
6	Integrated gear ratio i=10, motor 180° standard **	
A	External gear, i = 3	
B	External gear, i = 5	
C	External gear, i = 10	
F	External gear, i = 25	
G	External gear, i = 50	
H	External gear, i = 100	

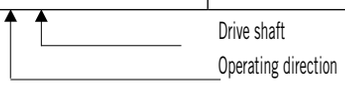
* Option
** for sizes 25, 32 and 5

Order stroke
5 digits input in mm

Drive Shaft		
Side where motor is fitted see **M**		
A	Plain shaft	
B	Plain shaft	
2	Clamp shaft	
3	Clamp shaft with plain shaft (Option)	
4	Clamp shaft	
5	Clamp shaft with plain shaft (Option)	
6	Hollow shaft with keyway (Option)	
7	Hollow shaft with keyway (Option)	
X	Non-integrated gear	
Special drive shaft on request		

OSP-E.. BHD as parallel actuator with intermediate drive shaft MAS-..

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



Magnetic switches *	
0	Without
1	1 pc. RST-K 2NO / 5m cable
2	1 pc. RST-K 2NC / 5m cable
3	2 pc. RST-K 2NC / 5m cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5m cable
5	1 pc. RST-S 2NO / M8 plug
6	1 pc. RST-S 2NC / M8 plug
7	2 pc. RST-S 2NC / M8 plug
8	2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug
A	1 pc. EST-S NPN / M8 plug
B	2 pc. EST-S NPN / M8 plug
C	3 pc. EST-S NPN / M8 plug
D	1 pc. EST-S PNP / M8 plug
E	2 pc. EST-S PNP / M8 plug
F	3 pc. EST-S PNP / M8 plug
see page 153 ff	

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
A	4 pair type E1
B	4 pair type D1
C	4 pair type MAE
see page 135 ff	

End cap mounting *	
0	Without
A	1 pair type CN
B	1 pair type CO
see page 129 ff	

Niro	
0	Standard
1	Niro screws *

Accessories - please order separately	
Description	**Page**
Motor mountings	121
Multi-Axis Systems for actuators	167

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

Contents

VERTICAL BELT ACTUATOR WITH INTEGRATED BALL BEARING GUIDE IN MULTI-AXIS SYSTEMS

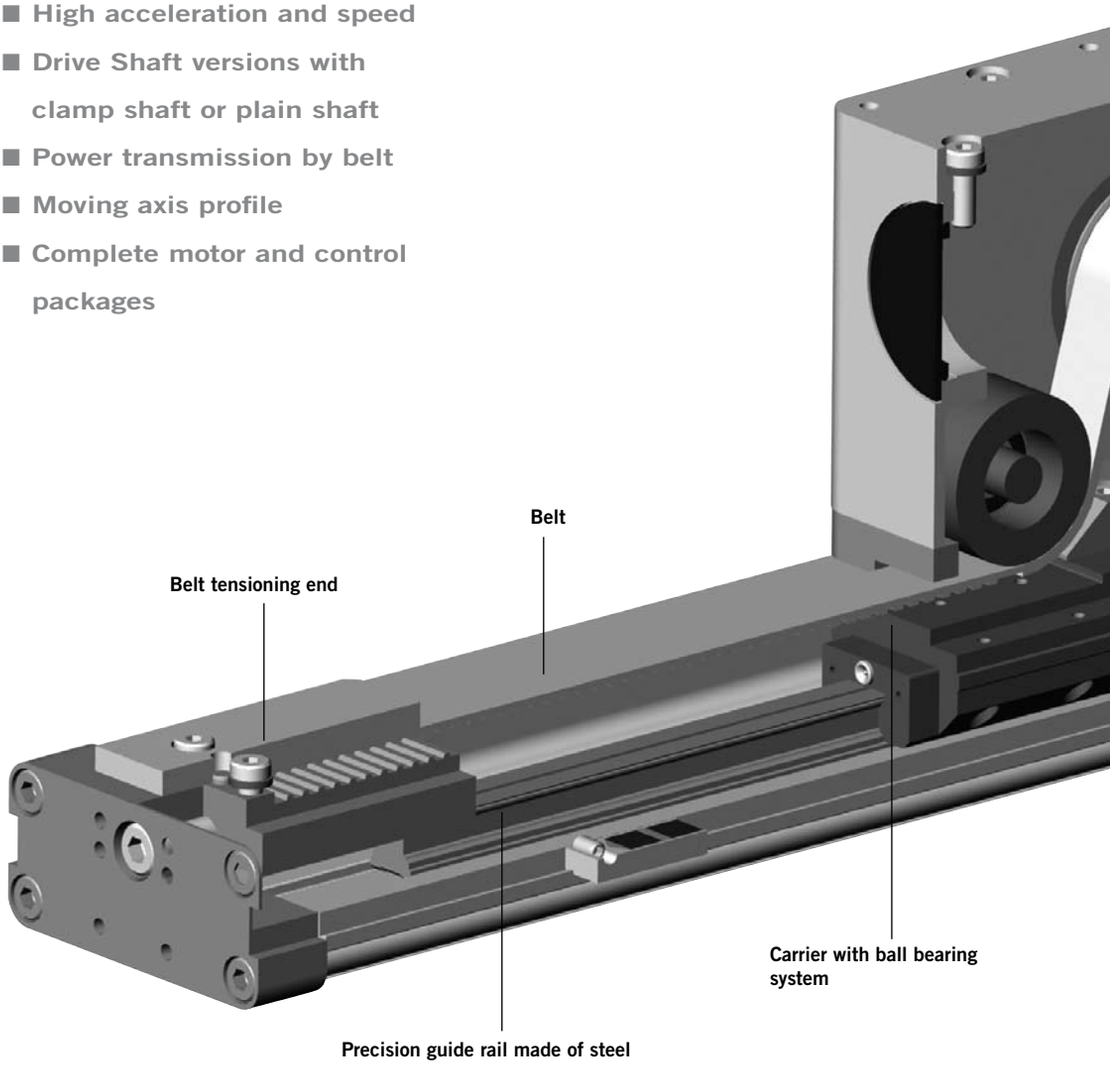
The OSP-E..BV vertical belt actuator with integrated ball bearing guide has been specially developed for lifting movements in the Z-axis.
The especially low vibration OSP-E..BV vertical actuator in combination with the heavy duty series OSP-E..BHD meets the highest demands in portal and handling applications.

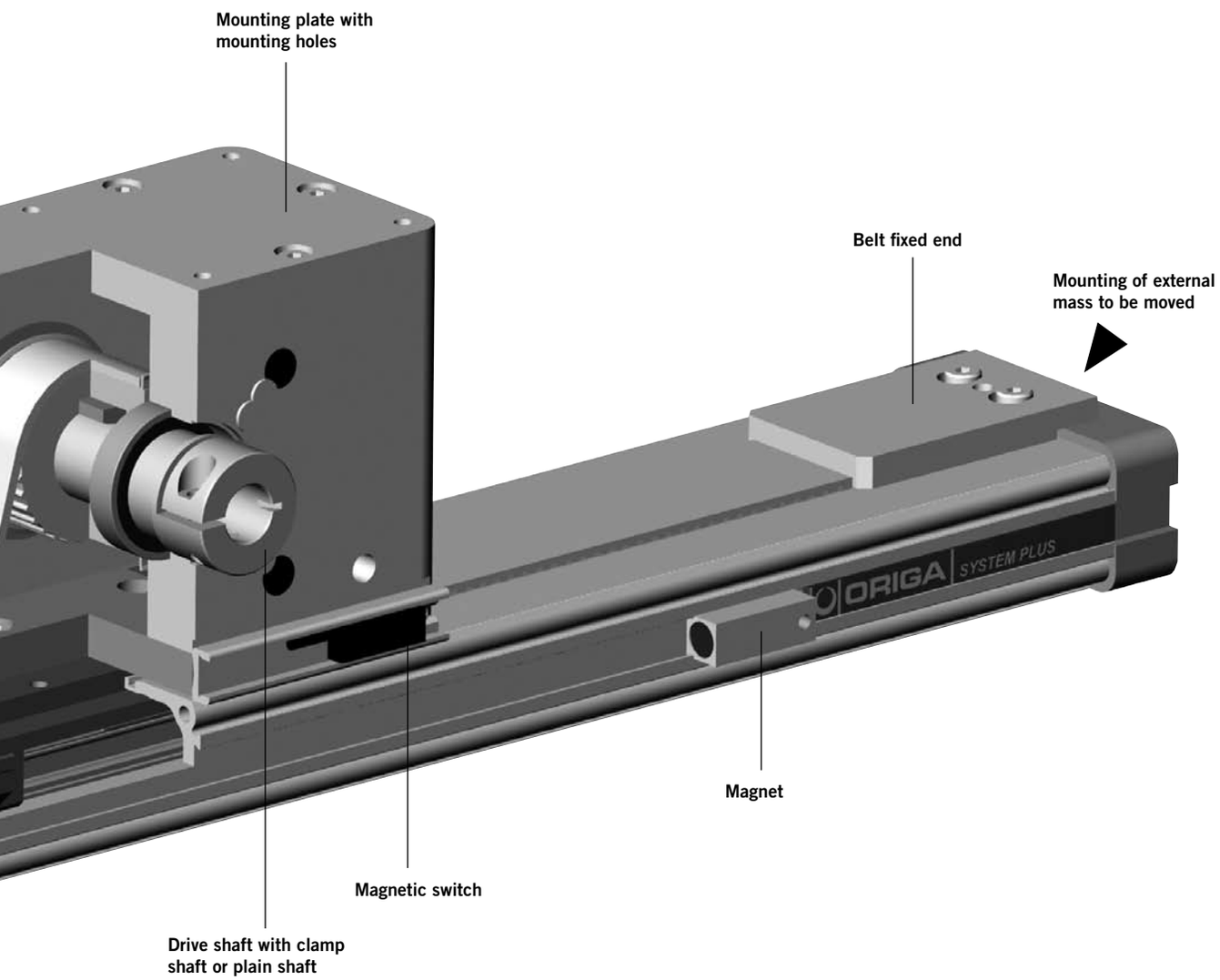
Advantages

- Fixed actuator head for low moving mass
- Integrated ball bearing guide for high bending moments
- Magnetic switch 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





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

OPTIONS AND ACCESSORIES

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.

DRIVE SHAFT
"CLAMP SHAFT AND PLAIN SHAFT"
OR "DOUBLE PLAIN SHAFT"
e.g. for parallel operation of two Z-axes with an intermediate drive shaft.

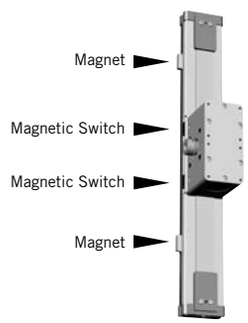
HOLLOW SHAFT WITH KEYWAY
For direct connection of gearbox or motor with keyway.

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 SWITCHES SET

Magnetic switches 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 Actuator

with integrated Ball Bearing Guide

Size 20, 25

Characteristics				
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
	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	1144	289
OSP-E25BV	7.7	5.3	2.4	4.4	1695	2668	617.5
OSP-E20BV*	5.3	2 x 1.9	1.6	4.0	533	1144	289
OSP-E25BV*	13	2 x 5.3	2.4	4.4	1915	2668	617.5

* Version: Tandem (Option)

Standard Version:

- Vertical Belt actuator 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.

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 on
Data Sheet.
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 91/368/EEC.

Sizing Performance Overview Maximum Loadings

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 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
Belt			35ATL3	40 ATL5
Max. rpm. drive shaft		[min^{-1}]	1700	1875
Max. effective action force F_A at speed	1m/s	[N]	650	1430
	1 - 2 m/s	[N]	450	1200
	> 3 - 5 m/s	[N]	–	1050
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]	1000	1500
Max. recomended permissible mass [3]		[kg]	10	20

[1] Longer strokes on request and only with profile stiffening
[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	10.5	2	30	2	36
3	15.5			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.

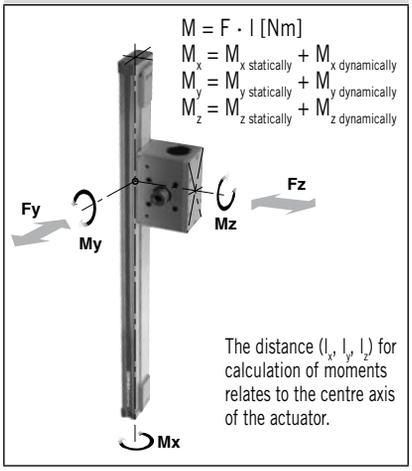
Accordingly Table T2 shows permissible moments of 30 Nm for the speed and 36 Nm for the stroke. Therefore the maximum moment at the drive shaft is determined by the speed and must not exceed 30 Nm.

Maximum Permissible Loads

T3

Series	Max. applied load		Max. moments		
	Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]
OSP-E20BV	1600	1600	20	100	100
OSP-E25BV	2000	3000	50	200	200

Forces, loads and moments



Equation for Combined Loads

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

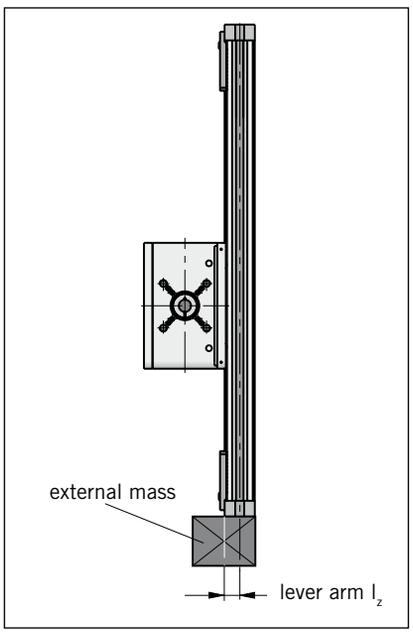
The total of the loads must not exceed >1 under any circumstances.

Combined Loads

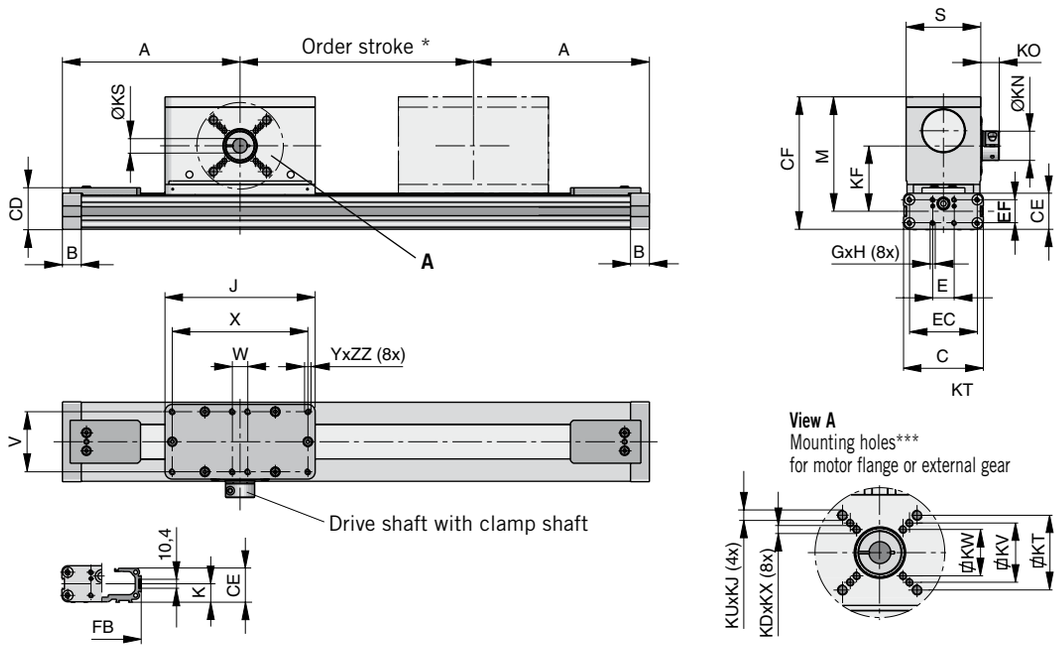
If the actuator is subjected to several forves, loads and moments at the same time, the maximum load is calculated with the equation shown here. The maximum permissible loads must not be exceeded.

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

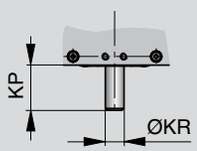
Mass [kg]	OSP-E20BV		OSP-E25BV	
	Lever arm l_z [mm]	Max. permissible acceleration/ deceleration [m/s²]	Lever arm l_z [mm]	Max. permissible acceleration/ deceleration [m/s²]
> 3 to 5	0	20	50	20
> 5 to 10	0	20	40	20
> 10 to 15	-	-	35	20
> 15 to 20	-	-	30	15



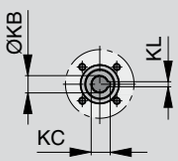
OSP-E..BV
Vertical Belt Actuator with integrated Ball Bearing Guide – Basic Unit



Plain shaft



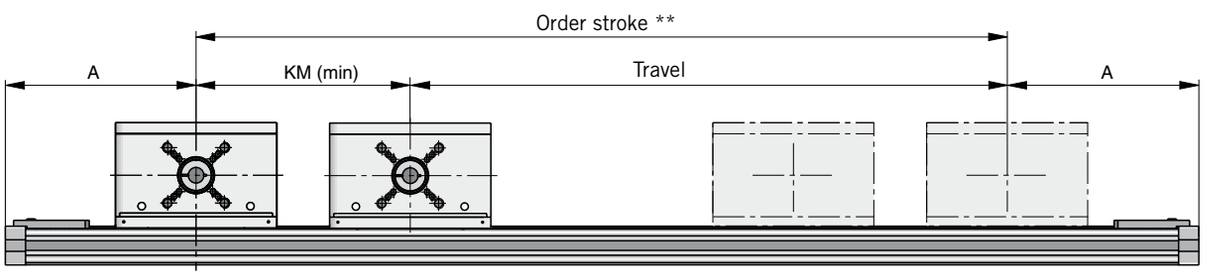
Hollow shaft with keyway (Option)



Series	ØKB	KC	KL	KP	ØKR
OSP-E22BV	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 Origa representative.

Option – Tandem



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

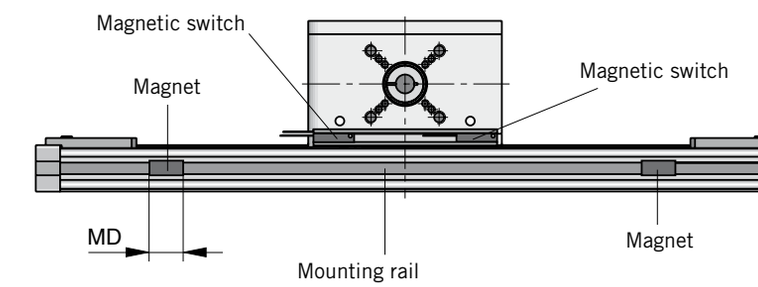
Dimension Table [mm]																
Series	**A**	**B**	**C**	**E**	**GxH**	**J**	**K**	**M**	**S**	**V**	**W**	**X**	**Y**	**CD**	**CE**	**CF**
OSP-E20BV	148	22	93	25	M5x12	139	21.1	102.3	68	51	40	120	M6	40.4	34	123.3
OSP-E25BV	210	22	93	25	M5x12	175	21.5	133.5	87	70	18	158	M6	49	42	154.5

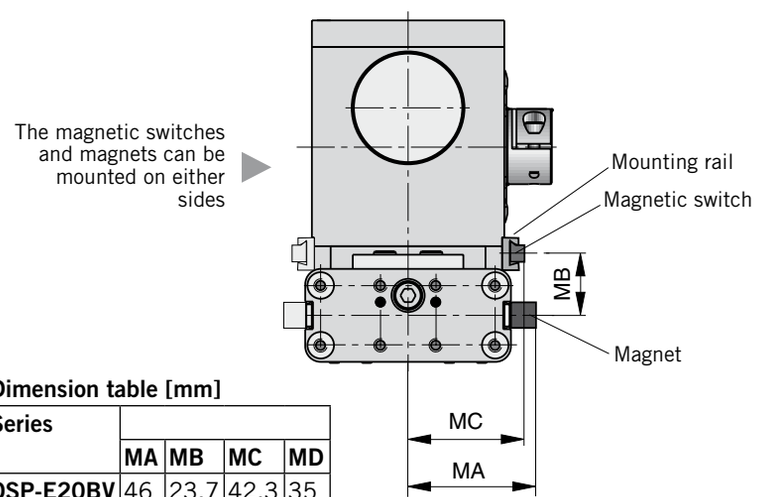
Series	**EC**	**EF**	**FB**	**FH**	**KDxKX**	**KF**	**KM_{min}**	**KN**	**KO**	**KS**	**KT**	**KUxKJ**	**KV**	**KW**	**ZZ**
OSP-E20BV	59	21	73	36.0	–	61.3	155	27	16	12^{H7}	46.5	M6x10	36	–	10
OSP-E25BV	79	27	92	39.5	M6x16	76	225	34	21.5	16^{H7}	58	M8x16	46	36	10

*** 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.)

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

Contactless Position Sensing with Magnetic Switches

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

Order instructions

Description	**Ident-No.**
Magnetic switch set, obtaining: - 2 magnetic switches - KL3087, TypRST-S - 1 mounting rail - 2 magnets	**15886**
Connecting cable, suitable for cable chain	
5 m	**KL3186**
10 m	**KL3217**
15 m	**KL3216**

Order Instructions	OSPE20	—	7	0	0	0	2	—	00000	—	0	0	0	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 *

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

Order stroke
5 digits input in mm

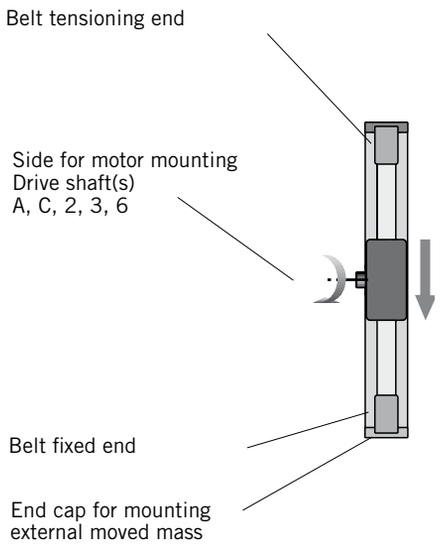
Drive shaft / motor mounting position		
Motor mounting position see **M**		
A	Plain shaft / motor standard	**M** 
B	Plain shaft / motor 180° standard	 **M**
C	Double plain shaft / motor standard	**M** 
D	Double plain shaft / motor 180° standard	 **M**
2	Clamp shaft / motor standard	**M** 
3	Clamp shaft with plain shaft / motor standard *	**M** 
4	Clamp shaft / motor 180° standard	 **M**
5	Clamp shaft with plain shaft / motor 180° standard *	 **M**
6	Hollow shaft / motor standard *	**M** 
7	Hollow shaft / motor 180° standard *	 **M**
Special drive shaft on request		

*** Option**

Magnetic switches *	
0	Without
2	2pc. RST-S NC / M8 plug / Magnets
see page 153 ff	

Niro	
0	Standard
1	Niro screws

Function and Motor Mounting



Accessories - please order separately

Description	Page
Motor mounting	121
Multi-axis system for actuators	167 ff

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

Contents

BELT ACTUATOR WITH INTERNAL PLAIN BEARING GUIDE FOR POINT-TO-POINT APPLICATIONS

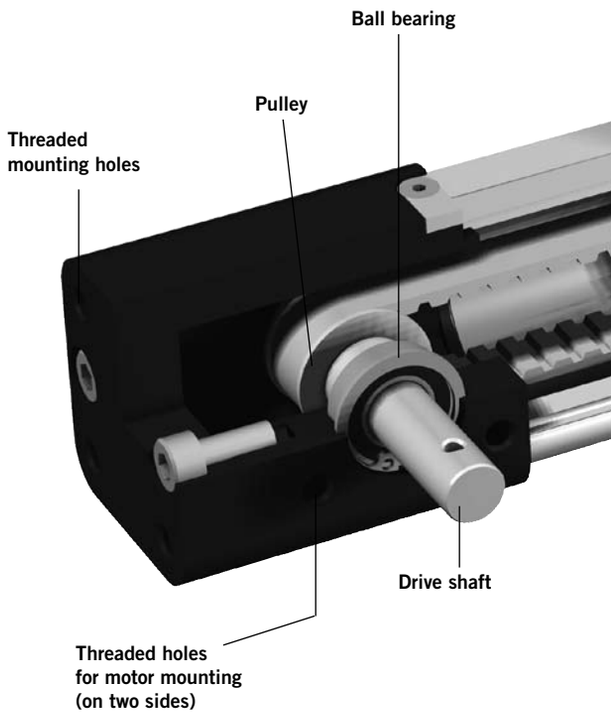
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

Advantages

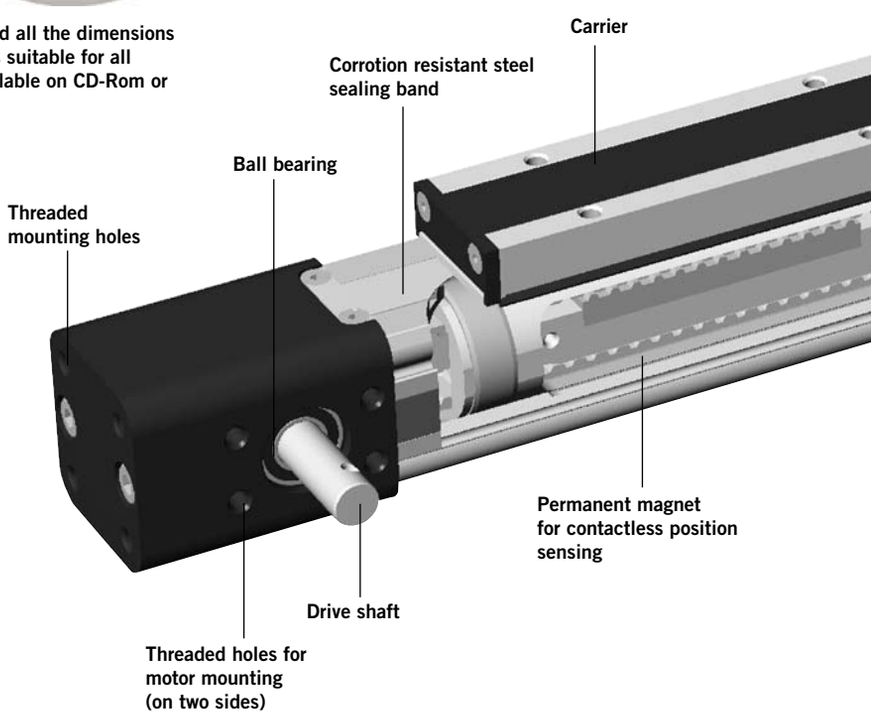
- Precise path and position control
- High speed operation
- Easy installation
- Low maintenance
- Ideal for precise point-to-point applications

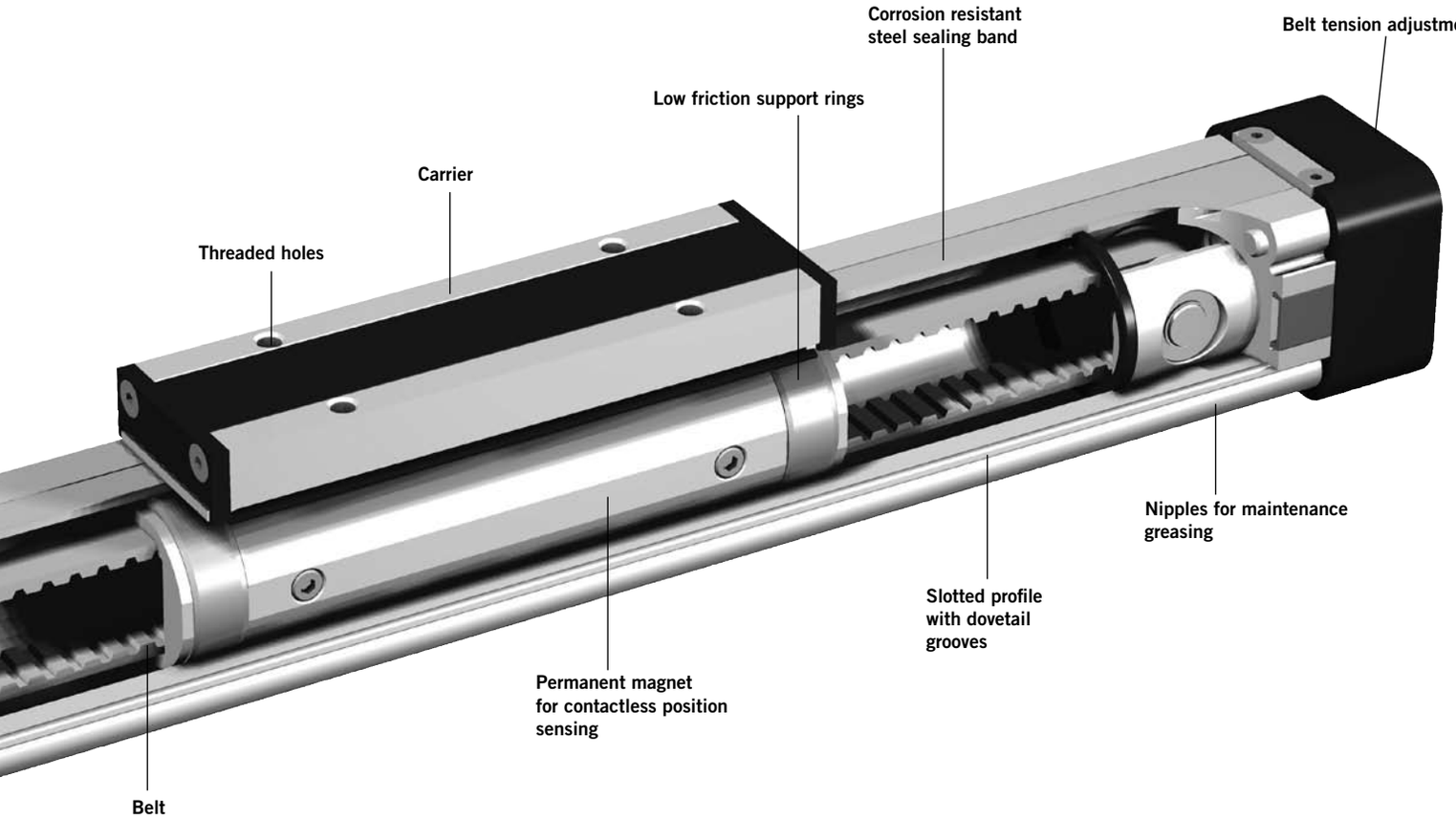
Features

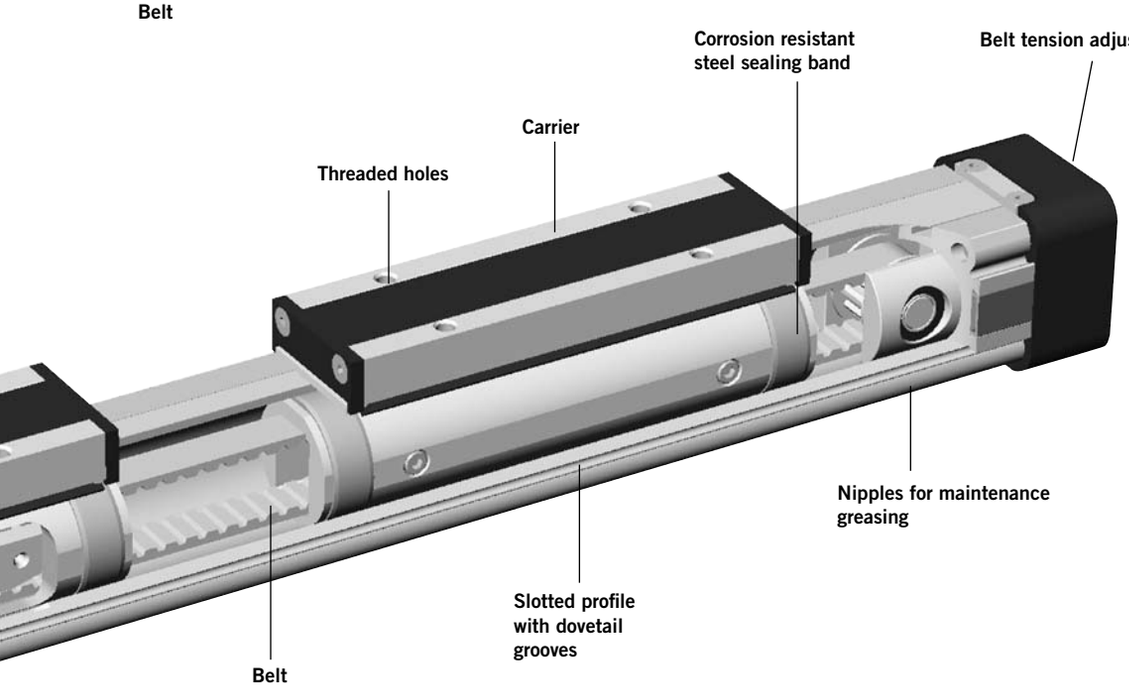
- Integrated drive and guidance system
- Tandem configuration with increased carrier distance for higher moment supports
- Long available strokes
- Complete motor and control packages
- Diverse range of accessories and mountings
- Bi-parting and special options available



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



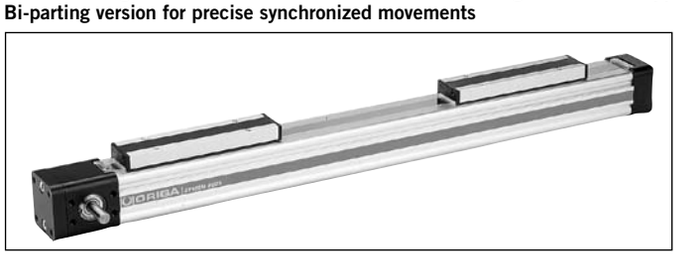




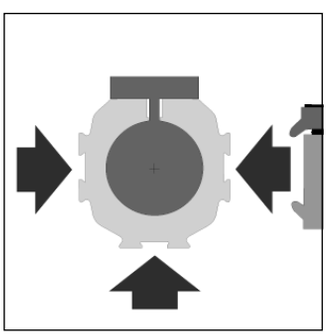
POWERSLIDE
Roller bearing precision guidance for smooth travel and high dynamic or static loads.

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.

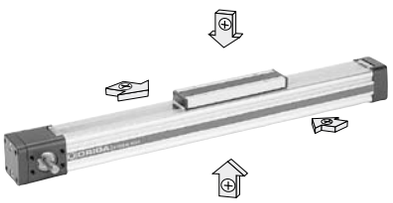


OPTIONS AND ACCESSORIES

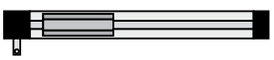
OSP-E..B
BELT ACTUATOR WITH INTERNAL PLAIN BEARING GUIDE

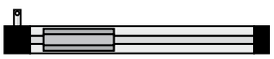
STANDARD VERSIONS OSP-E..B

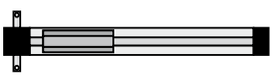
Carrier with internal guidance and magnet packet for contactless position sensing. Dovetail profile for mounting of accessories and the actuator itself.



DRIVE SHAFT VERSIONS
– Plain shaft or
– double plain shaft (Option)
e.g. to drive two actuators in parallel.







OPTIONS

TANDEM
For higher moment support.

BI-PARTING
For perfectly synchronised bi-parting movements.

ACCESSORIES

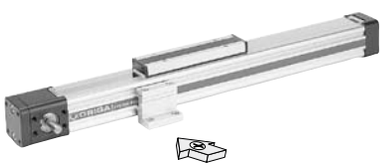
MOTOR MOUNTING

END CAP MOUNTING

For end-mounting of the actuator.

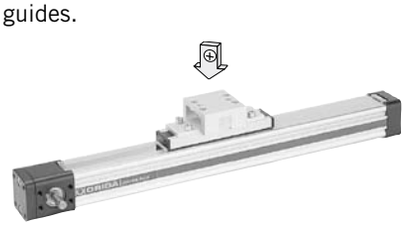
PROFILE MOUNTING

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



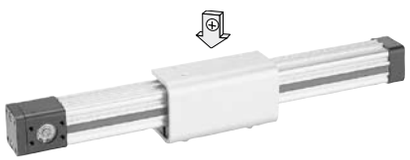
CLEVIS MOUNTING

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 SWITCHES SERIES RST AND EST

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

OSP-E..B Belt Actuator

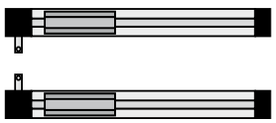
with internal Plain Bearing Guide

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

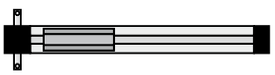
Standard Versions:

- 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 synchronized movements
- Drive shaft with double plain shaft



Characteristics

Characteristics		Symbol	Unit	Description
General Features				
Series				OSP-E..B
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
Encapsulation class		IP	54	

Weight (mass) and Inertia

Series	Weight (mass) [kg]			Inertia [x 10^{-6} kgm^2]	
	at stroke 0 m	ad per meter stroke	moving mass	at stroke 0 m	ad per meter stroke
OSP-E25B	0.9	1.6	0.2	25.3	6.6
OSP-E32B	1.9	3.2	0.40	43.3	10
OSP-E50B	5.2	6.2	1.0	312.2	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 Origa 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 91/368/EEC.

Sizing Performance Overview Maximum Loadings

Sizing of Actuator

The following steps are recommended for selection:

1. Required acceleration,
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

Characteristics		Unit	Description		
Size			**OSP-E25B**	**OSP-E32B**	**OSP-E50B**
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	< 1 m/s:	[N]	50	150	425
action force	1- 2 m/s:	[N]	50	120	375
F_A at speed	> 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]	3000	5000	5000
Max. stroke length OSP-E..B*		[mm]	2 x 1500	2 x 2500	2 x 2500

* Bi-parting version

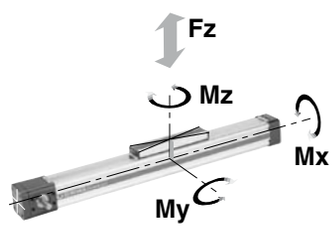
Maximum Permissible Torque on Drive Shaft Speed / Stroke (T2)

OSP-E25B				OSP-E32B				OSP-E50B			
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.

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.

Maximum Permissible Loads (T3)

Series	Max. applied load Fz [N]	Max. moments [Nm] Mx	My	Mz
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

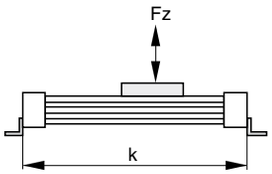
If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here.
The maximum permissible loads must not be exceeded.

Equation for Combined Loads

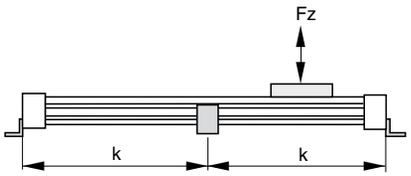
$$\frac{Fz}{Fz\,(max)} + \frac{Mx}{Mx\,(max)} + \frac{My}{My\,(max)} + \frac{Mz}{Mz\,(max)} \leq 1$$

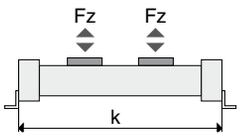
The total of the loads must not exeed >1 under any circumstances.

Maximum permissible unsupported length – Placing of Profile Mounting

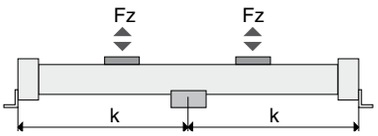


Series OSP-E..B

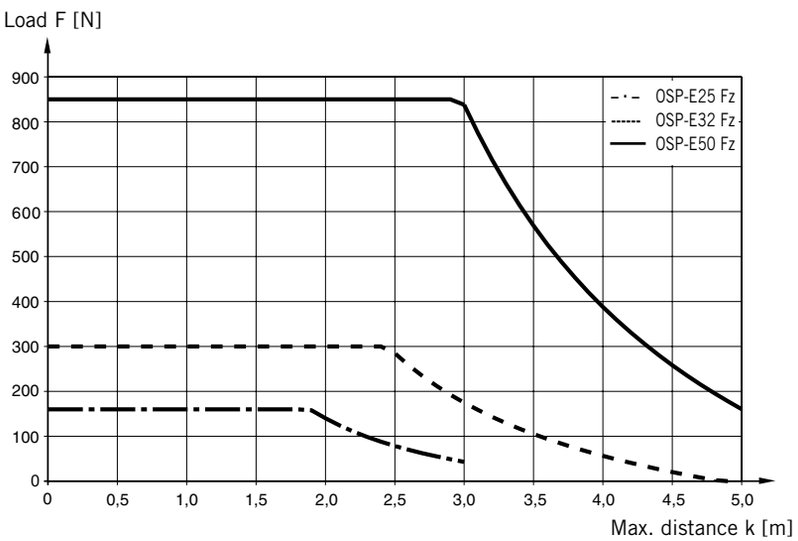




Series OSP-E..B
Bi-parting version



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



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

Maximum Permissible Unsupported Length

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.

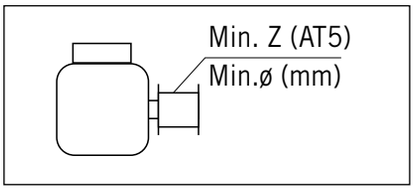
The end of stroke must not be used as a mechanical stop.
Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft.
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.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

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

Required Acceleration

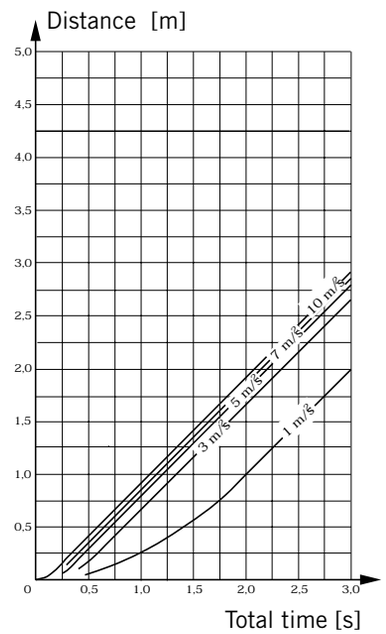
Distance / Time Graph

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

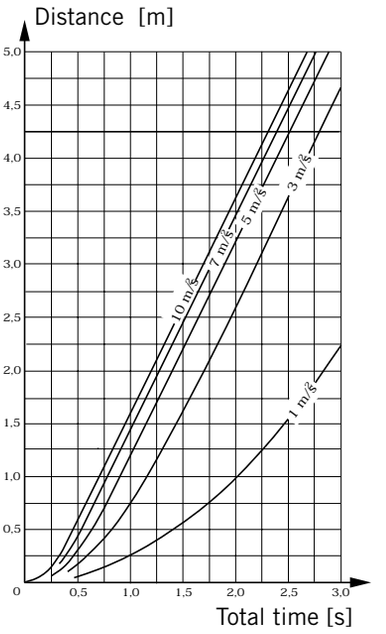
The graphs assume that acceleration and deceleration are equal.

Please note that specifying non-essential high acceleration or short cycle time will result in an oversized motor.

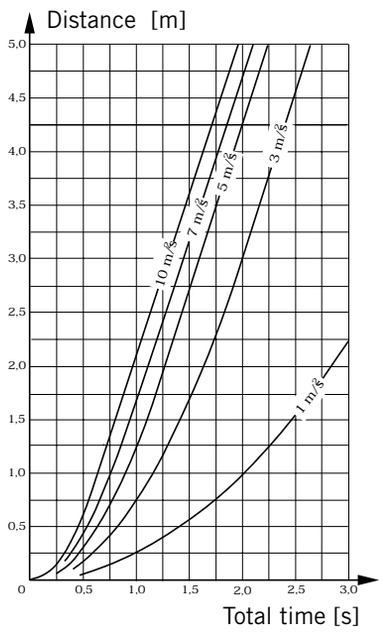
Max. speed 1 m/s



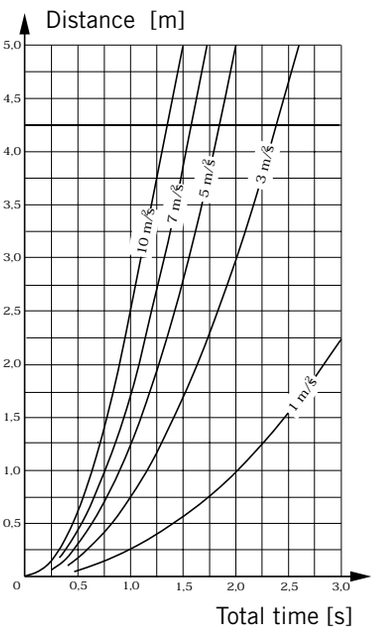
Max. speed 2 m/s



Max. speed 3 m/s



Max. speed 5 m/s

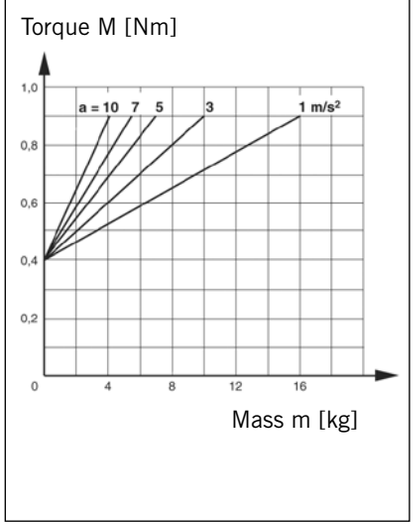


Required Torque / Mass

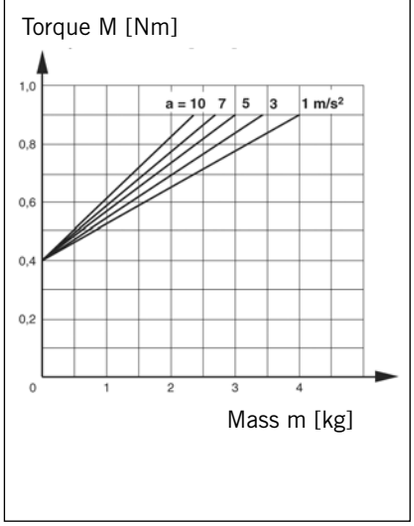
Using the known mass, the direction of the application and the required acceleration from the distance-time graphs, the actuator can be sized and the required torque is shown in the adjacent graphs. Mass in graphs = Load + moving mass of the actuator (according to the weight chart on data sheet 43 ff).

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

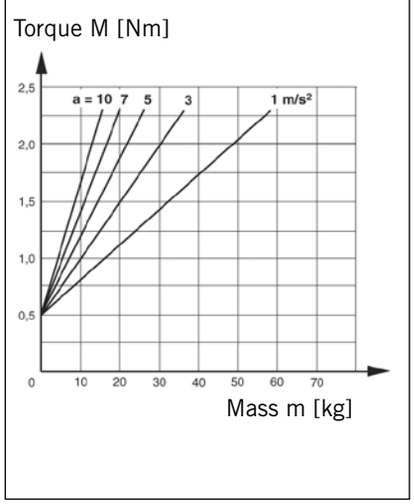
Size OSP-E25B, Horizontal Application



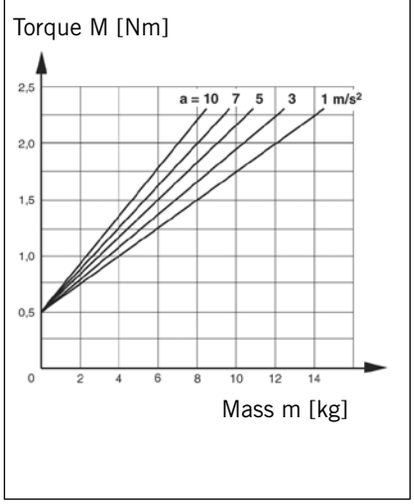
Size OSP-E25B, Vertical Application



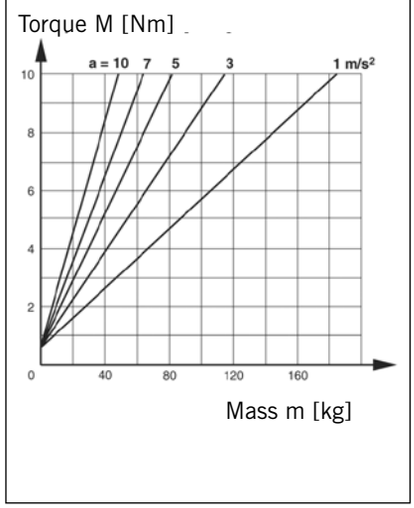
Size OSP-E32B, Horizontal Application



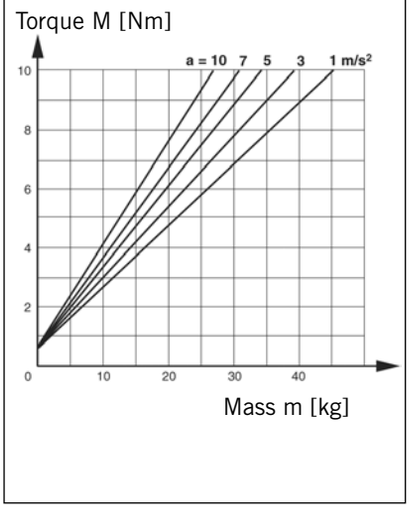
Size OSP-E32B, Vertical Application



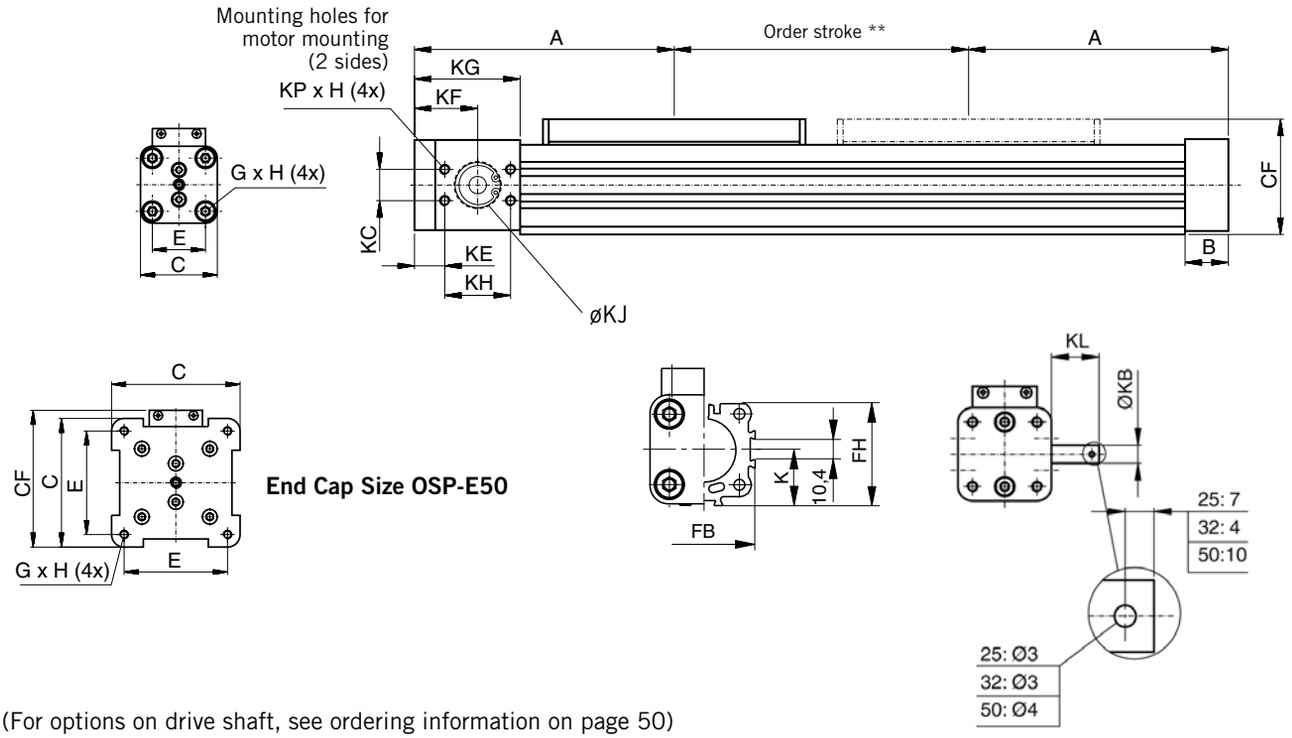
Size OSP-E50B, Horizontal Application



Size OSP-E50B, Vertical Application



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



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

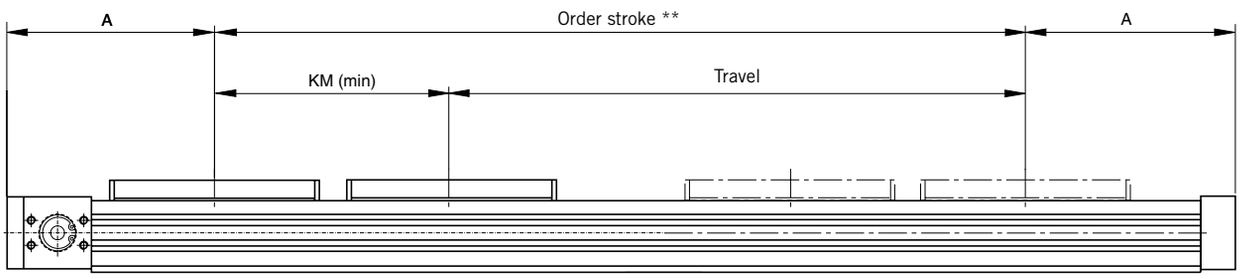
*** Note:**

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 move ment of one revolution of the drive shaft, but at least 100 mm.

Order stroke = required travel + 2 x safety distance.

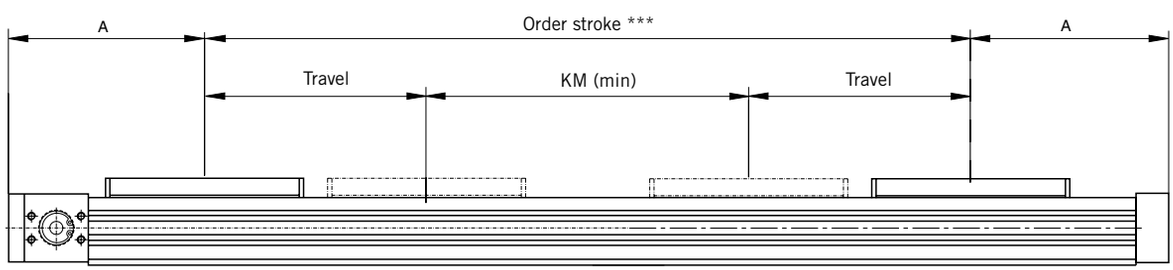
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.
For further information please contact you local Parker Origa representative.

Option – Tandem



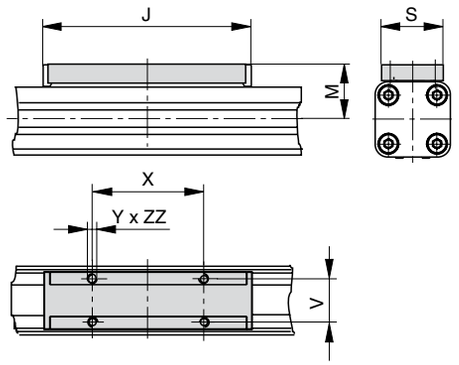
** Order stroke = required travel + KM min + 2 x safety distance

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	49	36	27	110	M6	92.5

Series	FB	FH	KB	KC	KE	KF	KG	KH	KJ	KL	KM_{min}	$KM_{empf.}$	KP x H	ZZ
OSP-E25B	40	39.5	10_{j6}	15	22	37	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	16_{h8}	32	23.5	48.5	85	50	40^{H7}	34	220	320	M8 x 12	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 *

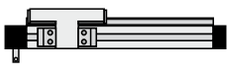
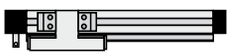
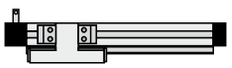
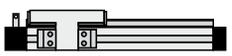
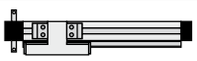
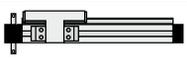
Drive shaft / motor mounting position		
0	Plain shaft / motor standard	
1	Plain shaft / motor 180° standard	
2	Double plain shaft	

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

Order stroke
5 digits input in mm

Niro	
0	Standard
1	Niro *

* Option

Guide position		
0	Standard	
1	180° Standard	
0	Standard	
1	180° Standard	
0	Standard	
1	180° Standard	

External guide / carriage mounting	
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
see page 99 ff	

Magnetic switches *	
0	Without
1	1 pc. RST-K 2NO / 5m cable
2	1 pc. RST-K 2NC / 5m cable
3	2 pc. RST-K 2NC / 5m cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5m cable
5	1 pc. RST-S 2NO / M8 plug
6	1 pc. RST-S 2NC / M8 plug
7	2 pc. RST-S 2NC / M8 plug
8	2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug
A	1 pc. EST-S NPN / M8 plug
B	2 pc. EST-S NPN / M8 plug
C	3 pc. EST-S NPN / M8 plug
D	1 pc. EST-S PNP / M8 plug
E	2 pc. EST-S PNP / M8 plug
F	3 pc. EST-S PNP / M8 plug
see page 153 ff	

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
K	1 pair type E2
L	1 pair type E3
M	1 pair type E4
N	2 pair type E2
P	2 pair type E3
Q	2 pair type E4
R	3 pair type E2
S	3 pair type E3
T	3 pair type E4
see pages 135 ff and 149 ff	

End cap mounting *	
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)
see pages 129 and 151 ff	

Accessories - please order separately

Description	Page
Motor mounting	121 ff
Multi-axis system for actuators	167 ff

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

Contents

BALL SCREW ACTUATOR WITH INTERNAL PLAIN BEARING GUIDE FOR HIGH ACCURACY APPLICATIONS

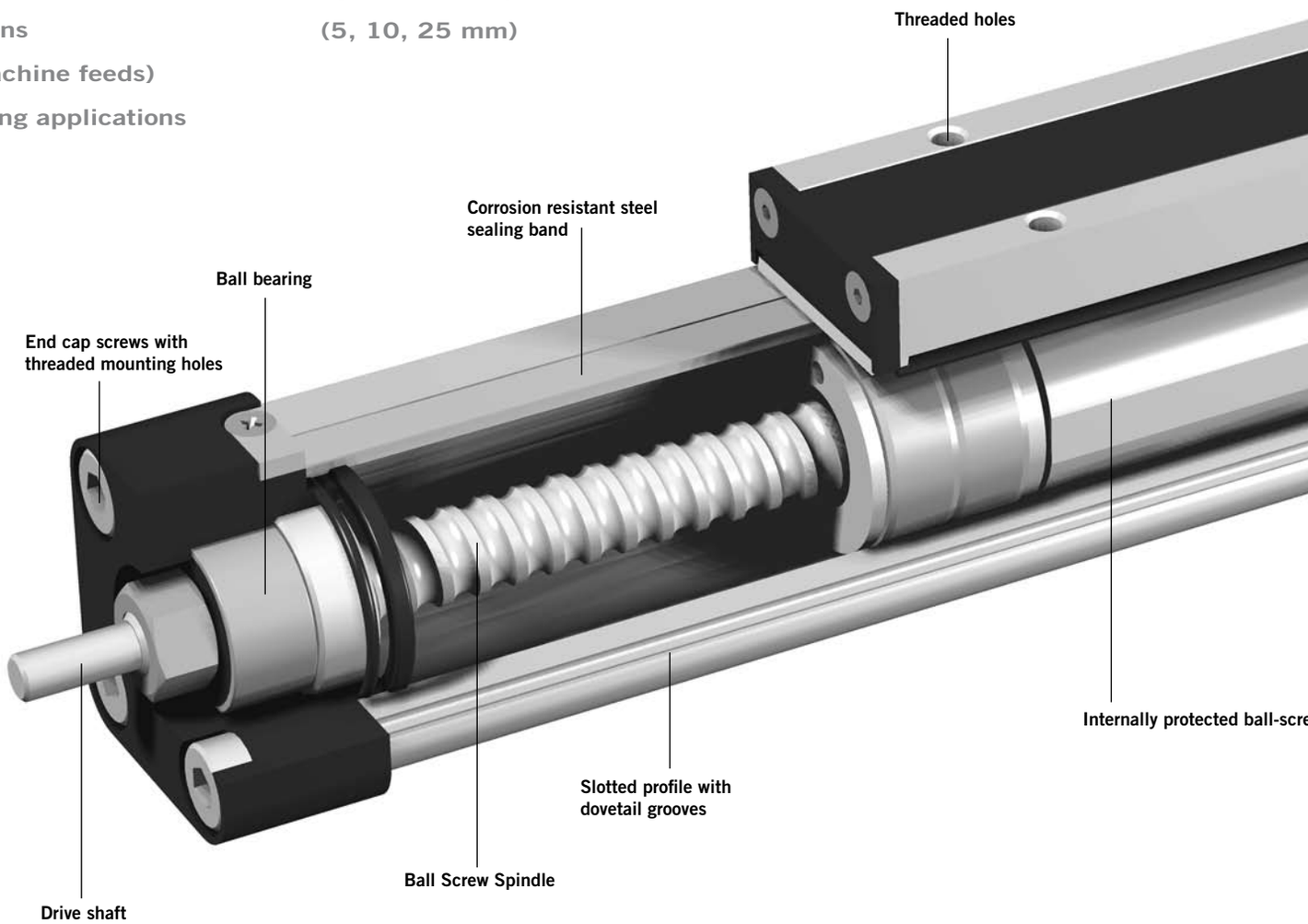
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

Advantages

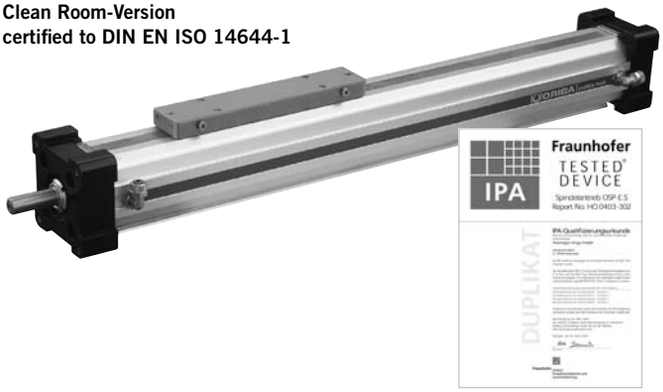
- Accurate path and position control
- High force output
- Easy installation
- Excellent slow speed characteristics
- Ideal for precise traverse operations (e.g. machine feeds) and lifting applications

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.

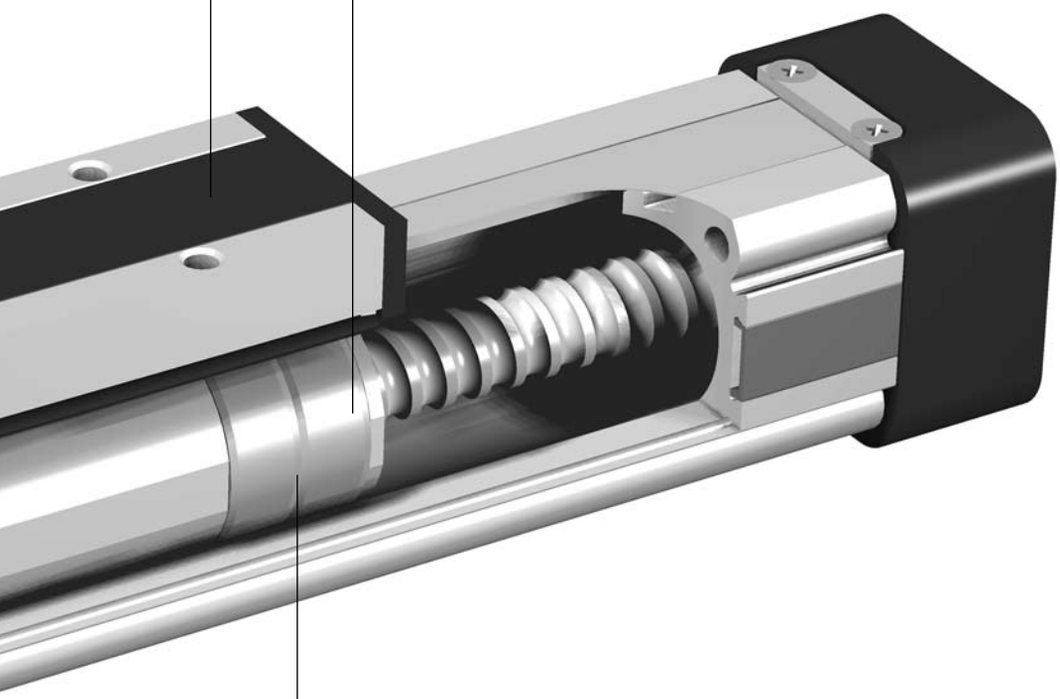
PROLINE
The compact aluminium roller guide for high loads and velocities.

Heavy Duty guide HD
linear guides for heavy duty applications

SFI-plus
displacement measuring system

Low friction support rings

Carrier

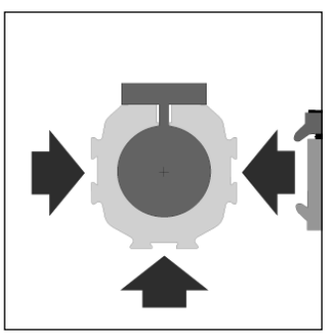


Permanent magnet for contactless sensing

ew nut

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

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.

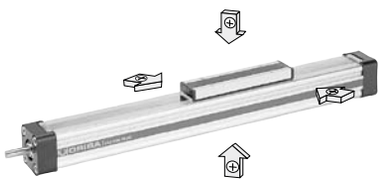


OPTIONS AND ACCESSORIES

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

OPTIONS

TANDEM
For higher moment support.

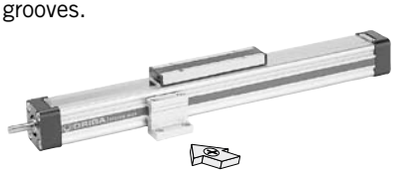
CLEAN ROOM
certified to DIN EN ISO 14644-1

ACCESSORIES

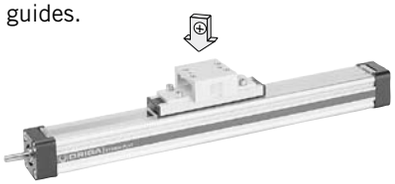
MOTOR MOUNTINGS

END CAP MOUNTING
For end-mounting of the actuator.

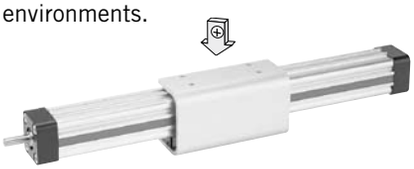
PROFILE MOUNTING
For supporting long actuators or mounting the actuator on the dovetail grooves.



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

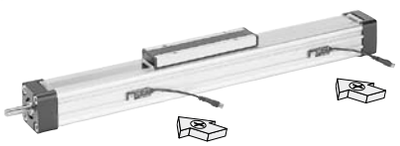


INVERSION MOUNTING
The inversion mounting, mounted on the carrier, transfers the driving force to the opposite side, e.g. for dirty environments.



MAGNETIC SWITCHES SERIES RST AND EST

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



MEASURING SYSTEM - SFI-PLUS
Incremental measuring system with practically relevant resolution.

OSP-E..SB Ball Screw Actuator

with internal Plain Bearing Guide

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

Characteristics

Characteristics		Symbol	Unit	Description
General Features				
Series				OSP-E..SB
Name				Ball Screw Actuator 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 friction plastic
	Sealing band			Hardened, corrosion resistant steel
	Screws, nuts			zinc plated steel
	Mountings			zinc plated steel and aluminium
Encapsulation 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
OSP-E25SB	0.8	2.3	0.2	2.2	11.3
OSP-E32SB	2.0	4.4	0.4	8.4	32
OSP-E50SB	5.2	9.4	1.2	84	225

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 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 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 91/368/EEC.

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

Sizing Performance Overview Maximum Loadings

Sizing of Actuator

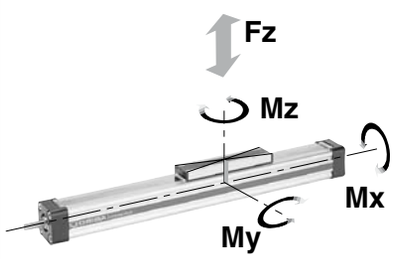
The following steps are recommended for selection :

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					
Series		**OSP-E25SB**	**OSP-E32SB**		**OSP-E50SB**		
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}]	3 000	3 000		3 000		
Max. effective action force F_A	[N]	250	600		1 500		
Corresponding torque on drive shaft	[Nm]	0.35	0.75	1.3	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/m]	±0.05	±0.05		±0.05		
Max. Standard stroke length	[mm]	1100	2000		3200		

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.

Maximum permissible Loads (T3)

Series	Max. applied load [N] Fz	Max. moments [Nm] Mx	My	Mz
OSP-E25SB	500	2	12	8
OSP-E32SB	1 200	8	25	16
OSP-E50SB	3 000	16	80	32

Combined Loads

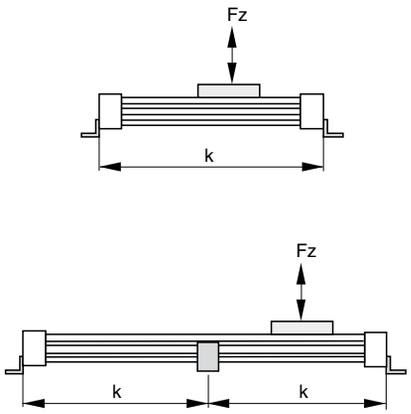
If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here.
The maximum permissible loads must not be exceeded.

Equation for combined loads

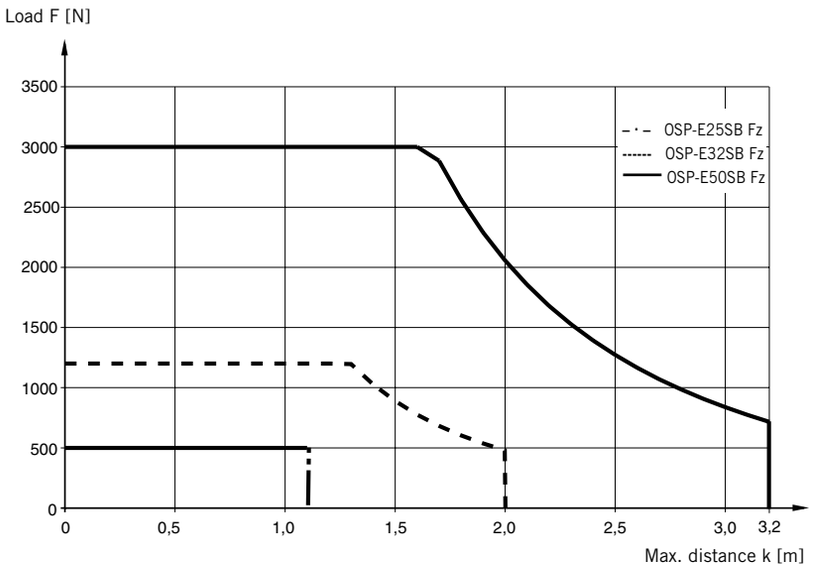
$$\frac{Fz}{Fz\,(max)} + \frac{Mx}{Mx\,(max)} + \frac{My}{My\,(max)} + \frac{Mz}{Mz\,(max)} \leq 1$$

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

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.)

Maximum Permissible Unsupported Length

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

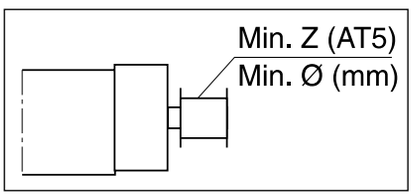
Other stroke lengths are available on request.
The end of stroke must not be used as a mechanical stop.
Allow an additional safety clearance of minimum 25 mm at both ends.
The use of an AC motor with frequency converter normally requires a larder safety clearance than that required for servo systems.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

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.

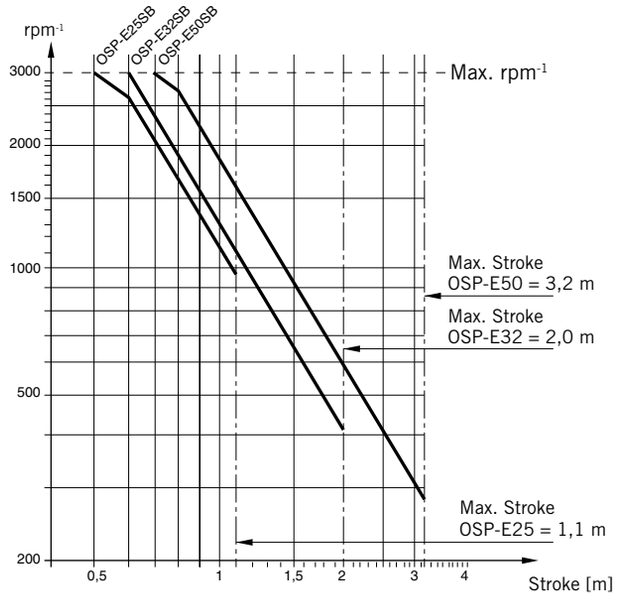


Size	Min. Z	Min. Ø
OSP-E25SB	24	38
OSP-E32SB	24	38
OSP-E50SB	36	57

Maximum rpm / Stroke

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

Maximum rpm / Stroke

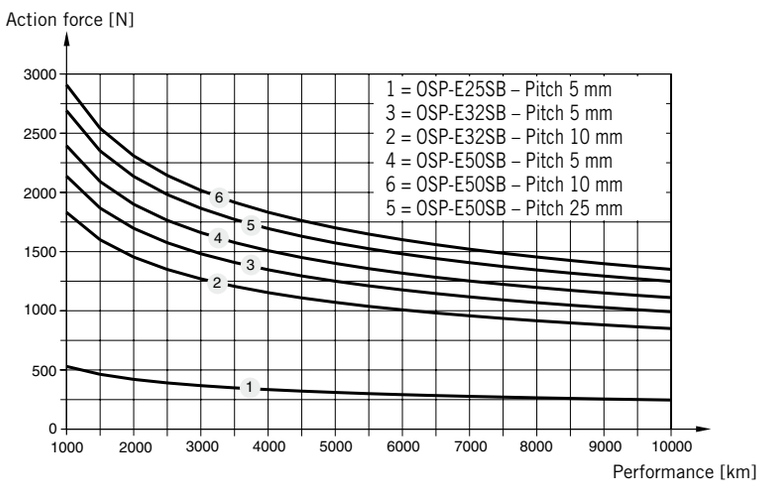


The maximum rpm shown in the graph, is 80% of the critical rpm.

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.

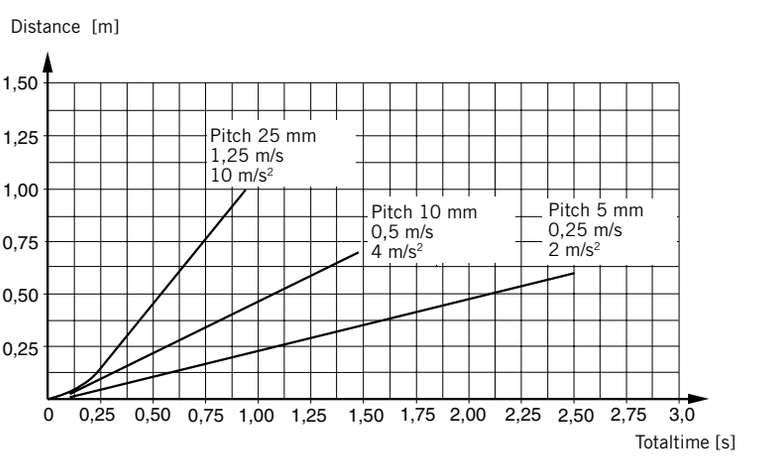
Performance as a function of the action force



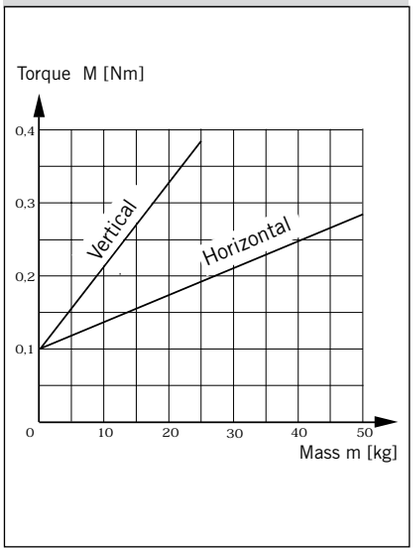
Distance / Time Graph

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.

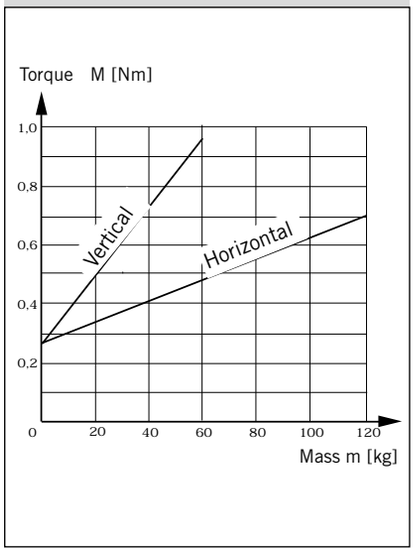
Distance / Time Graph



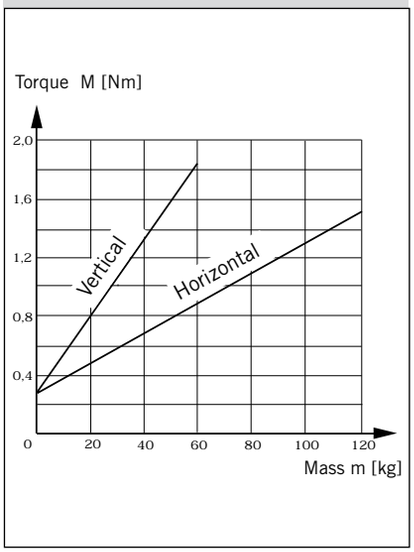
Size OSP-E25SB, Pitch 5mm
Acceleration 2 m/s²



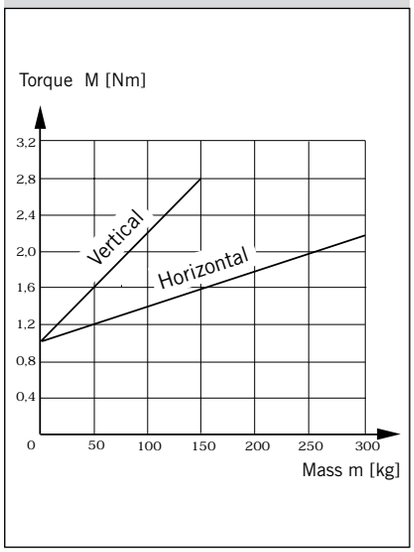
Size OSP-E32SB, Pitch 5 mm
Acceleration 2 m/s²



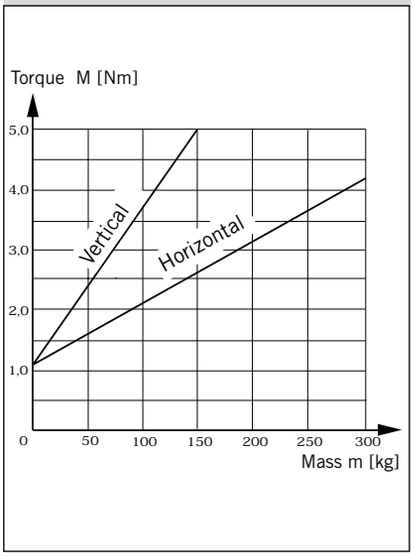
Size OSP-E32SB, Pitch 10 mm
Acceleration 4 m/s²



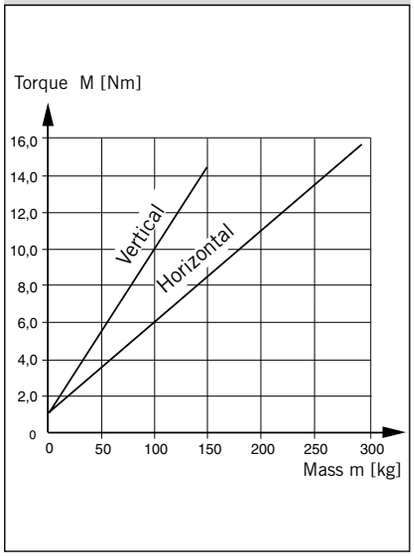
Size OSP-E50SB, Pitch 5 mm
Acceleration 2 m/s²



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



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

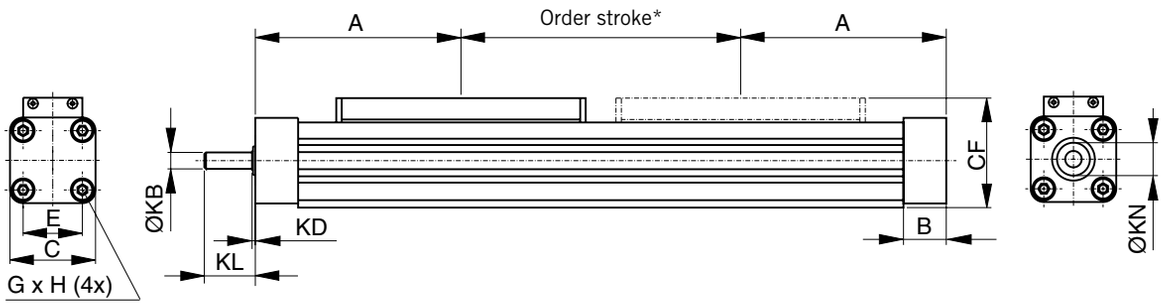


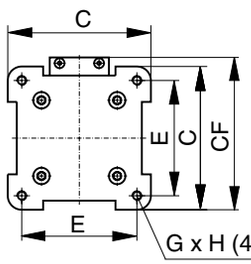
Required Torque / Mass

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).

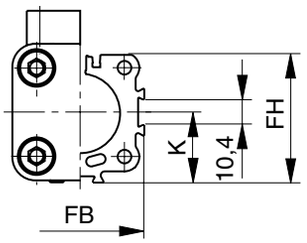
Please mind:
If an additional guide is used, mind the weight of the guide carriage.

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

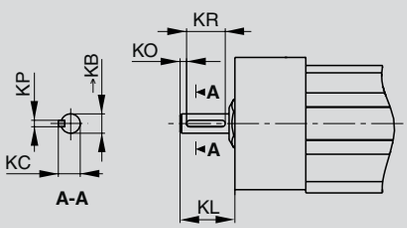




End Cap Size OSP-E50



Plain shaft with keyway (Option)



Dimension Table [mm]

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

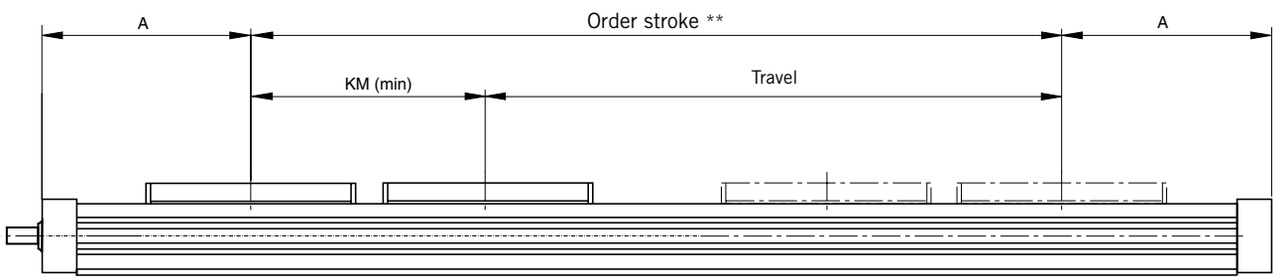
Option 3: Keyway
Option 4: Keyway long version

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

Order stroke = required travel + 2 x safety distance.

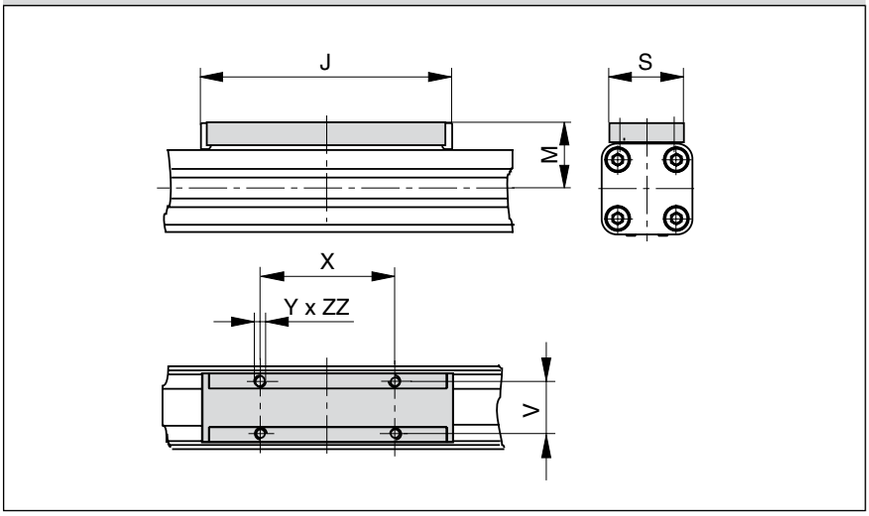
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information, please contact your local Parker Origa representative.

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	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	87	70	M6 x 12	200	43	49	36	27	110	M6	92.5	76	77	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 159 ff)

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

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

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

Order stroke
5 digits input in mm

Niro	
0	Standard
1	Niro screws *

* Option

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

Guide position	
0	Standard

External guide / carriage mounting	
0	Without
2	SL Slide line
6	PL Proline
D	HD Heavy duty
E	PS Power slide 25/25
F	PS Power slide 25/35, 32/35
G	PS Power slide 25/44, 32/35
H	PS Power slide 50/60
I	PS Power slide 50/76
M	Inversion
R	Compensation
S	Compensation low back lash
see page 99 ff	

Magnetic switches *	
0	Without
1	1 pc. RST-K 2NO / 5m cable
2	1 pc. RST-K 2NC / 5m cable
3	2 pc. RST-K 2NC / 5m cable
4	2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5m cable
5	1 pc. RST-S 2NO / M8 plug
6	1 pc. RST-S 2NC / M8 plug
7	2 pc. RST-S 2NC / M8 plug
8	2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug
A	1 pc. EST-S NPN / M8 plug
B	2 pc. EST-S NPN / M8 plug
C	3 pc. EST-S NPN / M8 plug
D	1 pc. EST-S PNP / M8 plug
E	2 pc. EST-S PNP / M8 plug
F	3 pc. EST-S PNP / M8 plug
see page 153 ff	

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
K	1 pair type E2
L	1 pair type E3
M	1 pair type E4
N	2 pair type E2
P	2 pair type E3
Q	2 pair type E4
R	3 pair type E2
S	3 pair type E3
T	3 pair type E4
see pages 135 ff and 152 ff	

Accessories - please order separately	
Description	**Page**
Motor mounting	121 ff
Multi-axis system for actuators	167 ff

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

Contents

TRAPEZOIDAL SCREW ACTUATOR WITH INTERNAL PLAIN BEARING GUIDE FOR INTERMITTENT APPLICATIONS

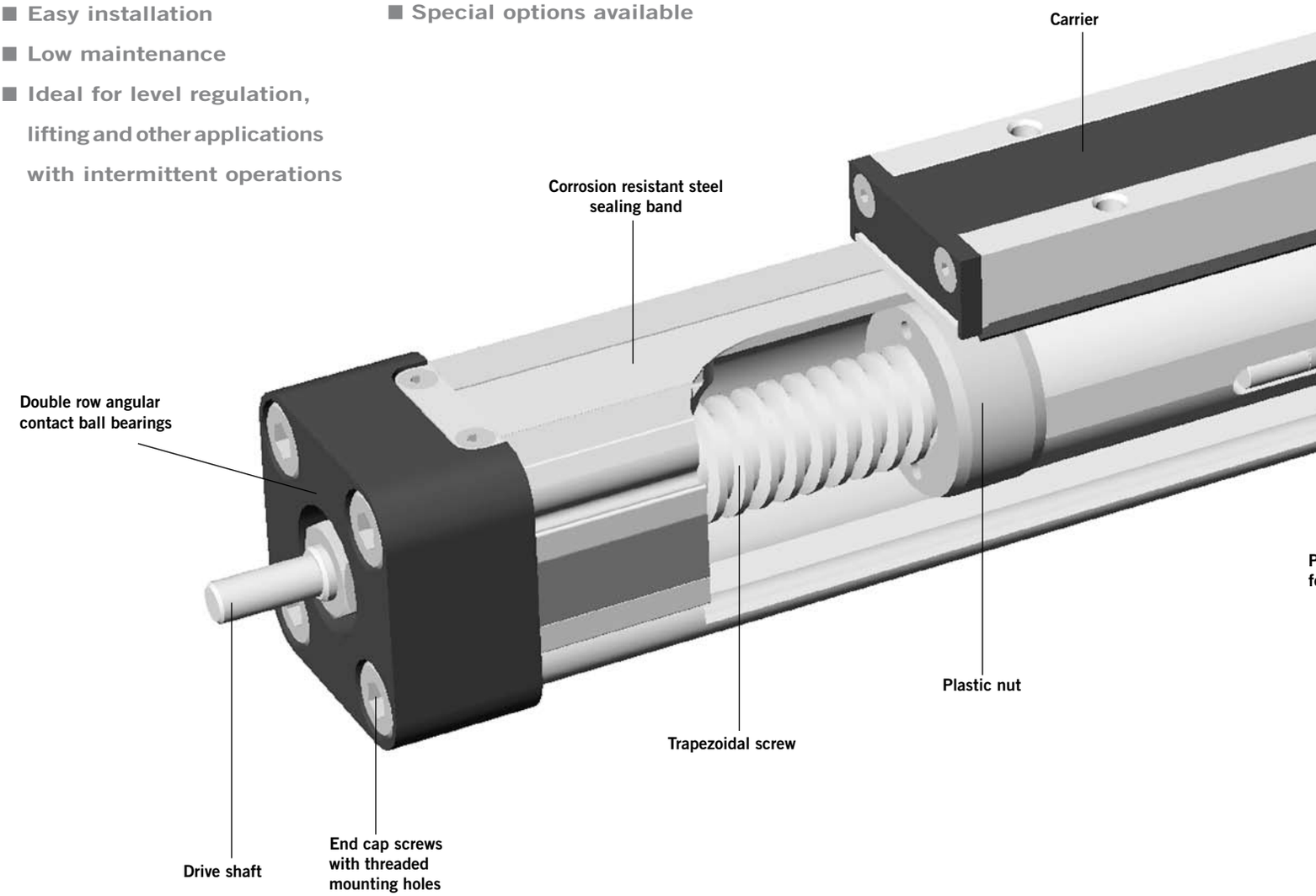
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

Advantages

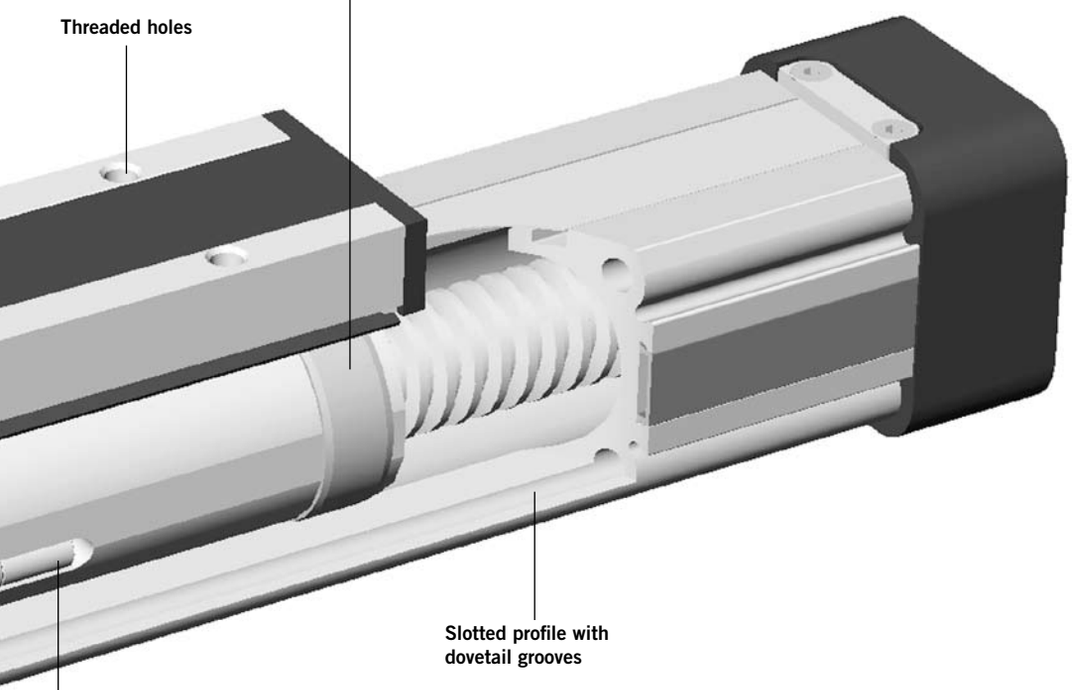
- Accurate path and position control
- High force output
- Self-locking
- Excellent slow speed characteristics
- Easy installation
- Low maintenance
- Ideal for level regulation, lifting and other applications with intermittent operations

Features

- Integrated drive and guidance system
- Complete motor and control packages
- Diverse range of accessories and mountings
- Special options available



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



SLIDELINE
Combination with sliding guide for heavy-duty operation

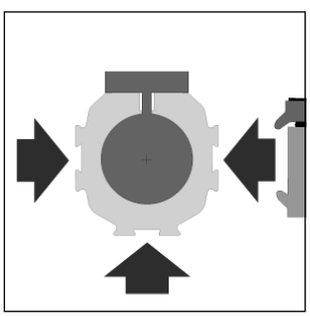
POWERSLIDE
Roller bearing precision guidance for smooth travel and high dynamic or static loads.

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 actuator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.

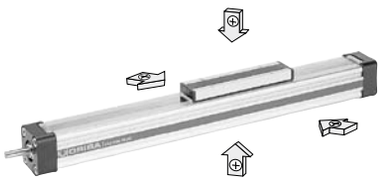


OPTIONS AND ACCESSORIES

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

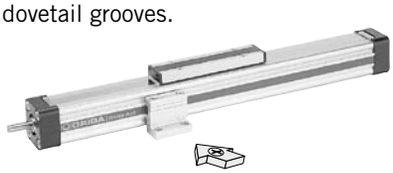
MOTOR MOUNTINGS

END CAP MOUNTING

For end-mounting of the actuator

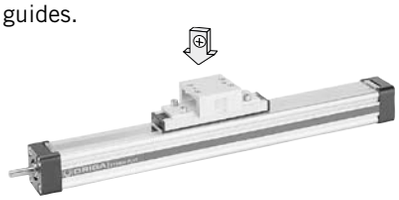
PROFILE MOUNTING

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.

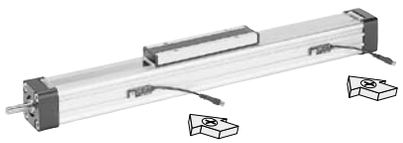


INVERSION MOUNTING

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

MAGNETIC SWITCHES
SERIES RST UND EST

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



MEASURING SYSTEM - SFI-PLUS

Incremental measuring system with practically relevant resolution.

OSP-E..ST Trapezoidal Screw Actuator

with internal Plain Bearing Guide

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

Standard Versions:

- 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

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
Encapsulation class			IP	54

Weight (mass) and Inertia

Series	Weight (mass)[kg] At stroke 0 m	Add per metre stroke	Moving mass	Inertia [x 10-6 kgm2] At stroke 0 m	Add per metre
OSP-E25ST	0.9	2.8	0.2	6	29.6
OSP-E32ST	2.1	5.0	0.5	21.7	81
OSP-E50ST	5.1	10.6	1.3	152	400

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 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 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 91/368/EEC.

Sizing Performance Overview Maximum Loadings

Sizing of Actuator

The following steps are recommended for selection :

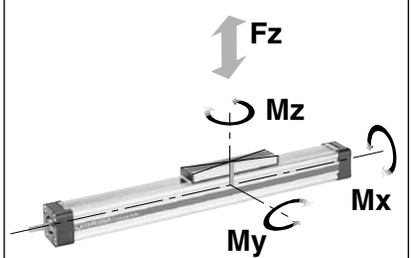
1. Check that maximum values in the table T3 are not exceeded.
2. Check the maximum values in graph on page 74 ff are not exceeded.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time of the application.
4. Check that the maximum allowable unsupported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

Performance Overview

Characteristics	Unit	Description		
Size		OSP-E25ST	OSP-E32ST	OSP-E50ST
Pitch	[mm]	4	4	6
Max. speed	[m/s]	0.1	0.1	0.15
Linear motion per revolution drive shaft	[mm]	4	4	6
Max. rpm, drive shaft	[min^{-1}]	1500	1500	1500
Max. effective action force F_A Corresponding torque on drive shaft	[N] [Nm]	600 1.35	1300 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	1300	2500
Repeatability	[mm/m]	±0.5	±0.5	±0.5
Max. Standard stroke length	[mm]	1100	2000	2500*

[1)] Related to screw types Tr 16x4, Tr 20x4, TR 30x6 see page 71 ff – for inertia.
* For strokes longer than 2000 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.

Combined Loads

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

Maximum Permissible Loads T3

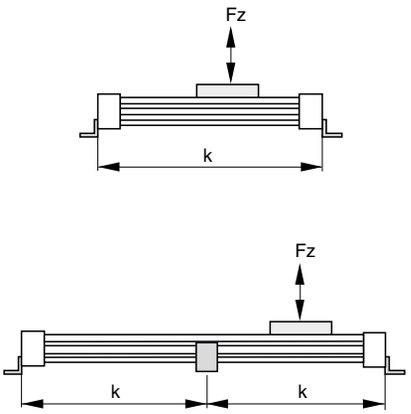
Size	Max. applied load [N] Fz	Max. moments [Nm] Mx	My	Mz
OSP-E25ST	500	2	24	7
OSP-E32ST	1000	6	65	12
OSP-E50ST	1500	13	155	26

Equation for Combined Loads

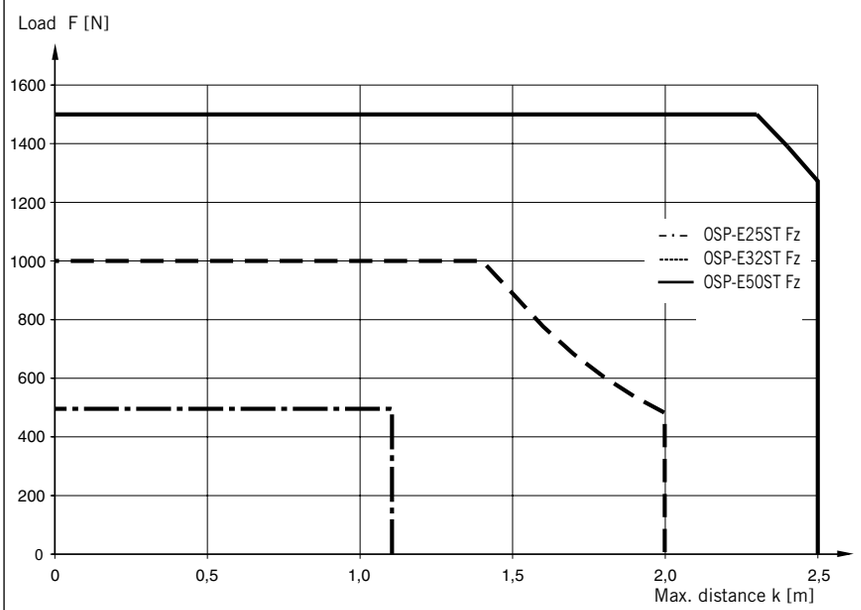
$$\frac{Fz}{Fz\,(max)} + \frac{Mx}{Mx\,(max)} + \frac{My}{My\,(max)} + \frac{Mz}{Mz\,(max)} \leq 1$$

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

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.)

Maximum Permissible Unsupported Length

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

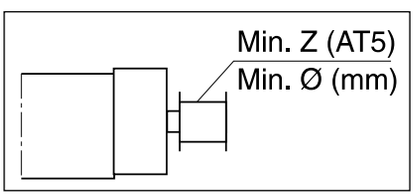
The end of stroke must not be used as a mechanical stop.
Allow an additional safety clearance of minimum 25 mm at both ends.
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.
For advise, please contact your local Parker Origa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

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.

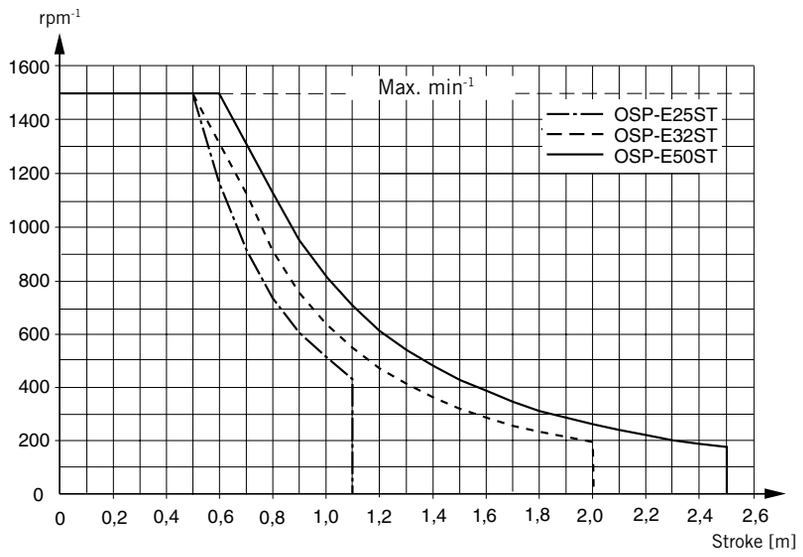


Size	Min. Z	Min. ø
OSP-E25ST	24	38
OSP-E32ST	24	38
OSP-E50ST	36	57

Maximum rpm / Stroke

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

Maximum rpm / Stroke



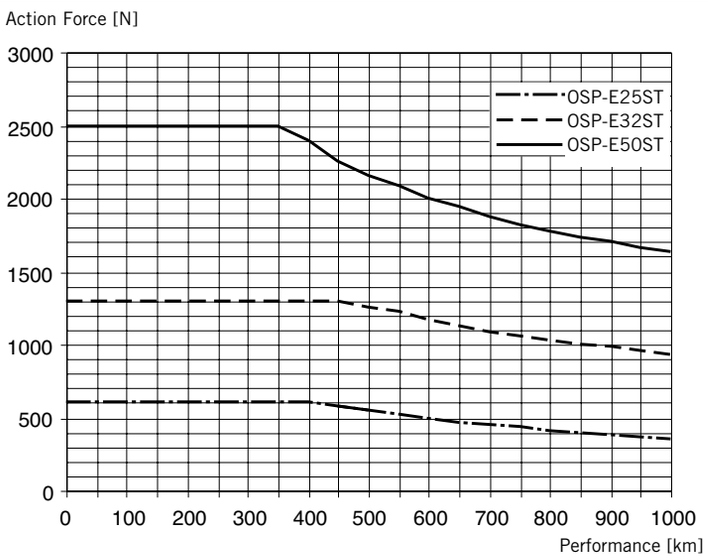
The maximum rpm shown in the graph, is 80% of the critical rpm.

Performance / Action Force

The actuators are designed for a 10% intermittent usage.

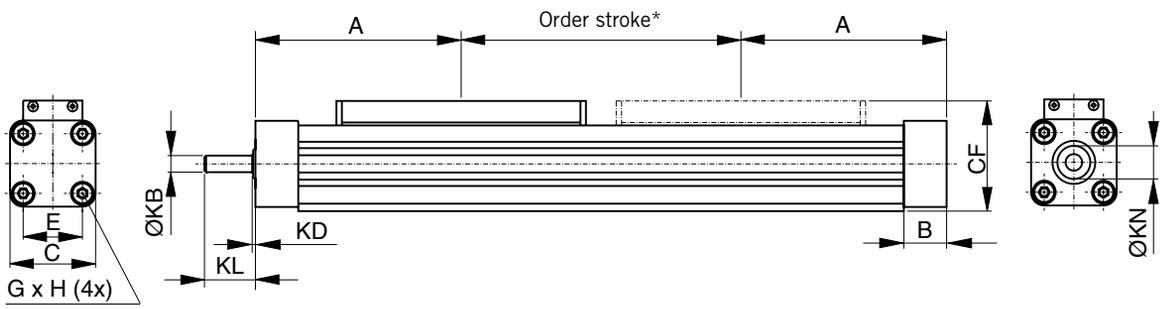
The performance to be expected depends on the maximum required actions force of the application.
An increase of the action force will lead to a reduced performance.

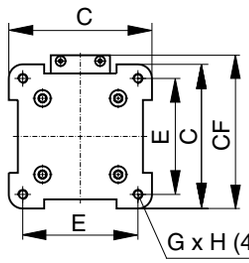
Performance as a function of the action force



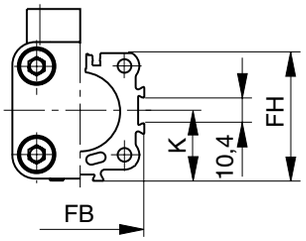
Note: Graph above is based upon 10% intermittent usage

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

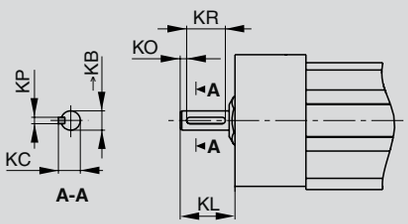




End Cap Size OSP-E50ST



Plain Shaft wit Keywey (Option)



Dimension Table [mm]

Series	⌀KB_{h7}	KC	KL Opt.3	KL Opt.4	KO	KP^{P9}	KR
OSP-E25ST	6	6.8	17	24	2	2	12
OSP-E32ST	10	11.2	31	41	5	3	16
OSP-E50ST	15	17	43	58	6	5	28

Option 3: Keyway
Option 4: Keyway long version

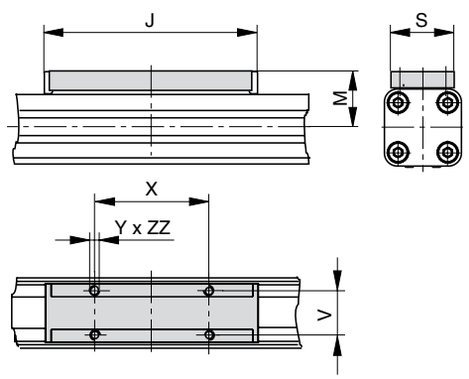
*** NOTE:**
The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 25 mm.

Order stroke = required travel + 2 x safety distance.

The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.

For further information, please contact your local Parker Origa representative.

Standard Carrier



Dimension Table [mm]

Series	A	B	C	E	G x H	J	K	M	S	V	X	Y	CF	FB	FH	KB	KD	KL	KN	ZZ
OSP-E25ST	100	22	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5	40	39.5	6_{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	87	70	M6 x 12	200	43	49	36	27	110	M6	92.5	76	77	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)

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

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

Order stroke
5 digits input in mm

Niro	
0	Standard
1	Niro screws

* Option

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

Guide position	
0	Standard

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

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

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
K	1 pair type E2
L	1 pair type E3
M	1 pair type E4
N	2 pair type E2
P	2 pair type E3
Q	2 pair type E4
R	3 pair type E2
S	3 pair type E3
T	3 pair type E4
see page 135 ff	

Accessories - please order separately	
Description	**Page**
Motor mounting	121 ff
Multi-axis system for actuators	170 ff

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

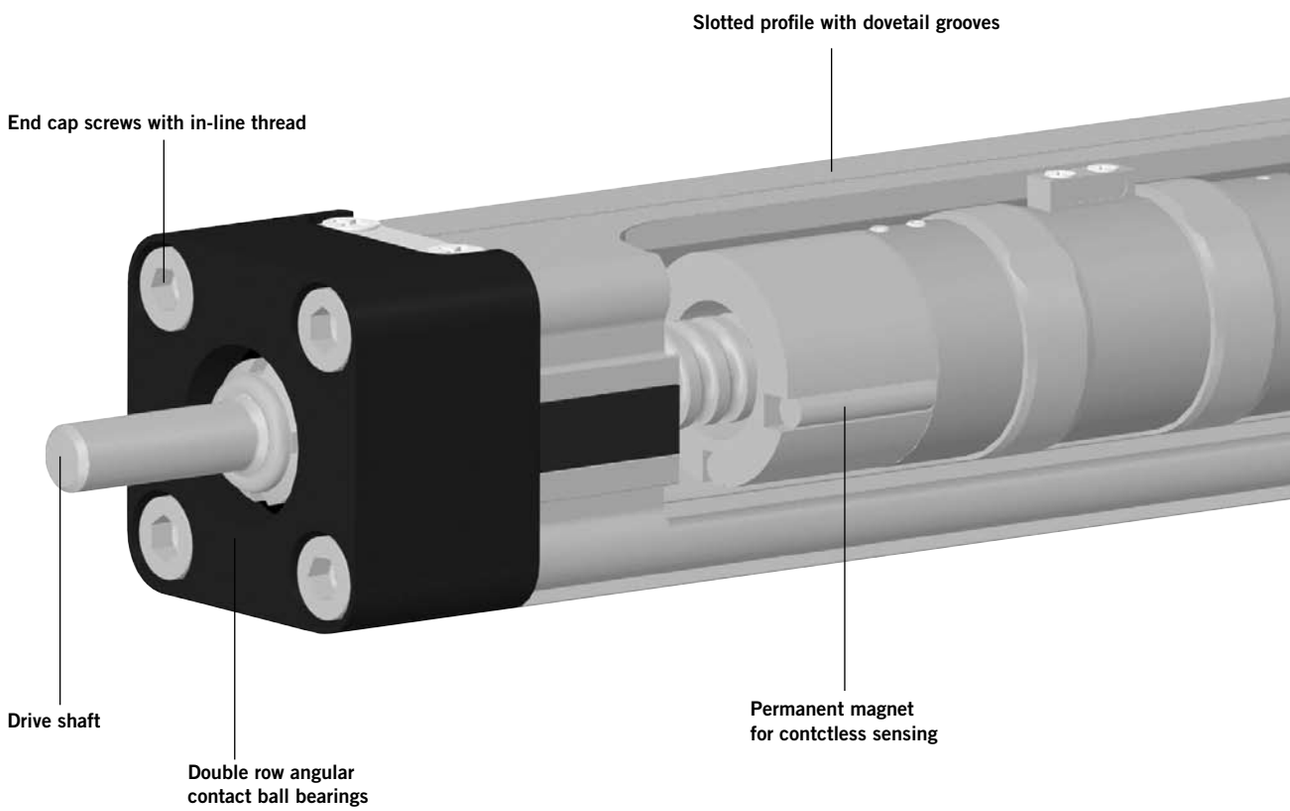
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

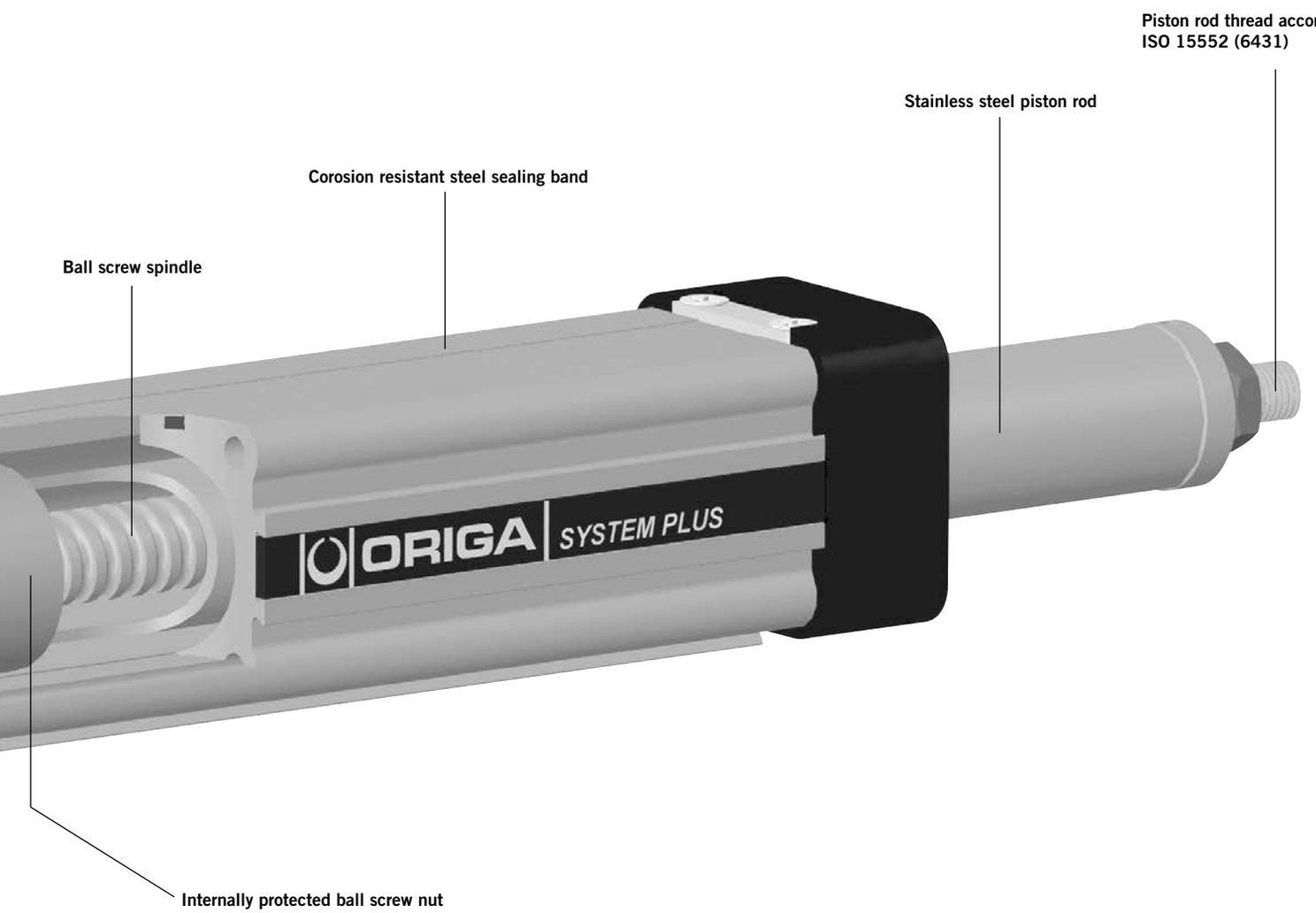
Advantages

- 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





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

OPTIONS AND ACCESSORIES

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 SWITCHES
SERIES RST AND EST

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

OSP-E..SBR Ball Screw Actuator

with internal Plain Bearing Guide and Piston Rod

Size 25, 32, 50

Characteristics

Characteristics		Symbol	Unit	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 plastic
	Sealing band			Hardened, corrosion resistant steel
	Screws, nuts			Zinc plated steel
	Mountings			Zinc plated steel and aluminium
Encapsulation class			IP	54

Weight (Mass) and Inertia

Series	Weight (Mass) [kg]		Moving Mass [kg]		Inertia [x 10-6 kgm2]	
	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-E25SBR	0.7	3.0	0.2	0.9	1.2	11.3
OSP-E32SBR	1.7	5.6	0.6	1.8	5.9	32.0
OSP-E50SBR	4.5	10.8	1.1	2.6	50.0	225.0

Standard Version:
- Standard 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:
- Key way version

Installation Instructions

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

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 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 91/368/EEC.

Sizing
Performance Overview
Maximum Loadings

Sizing of Actuator

The following steps are recommended for selection :

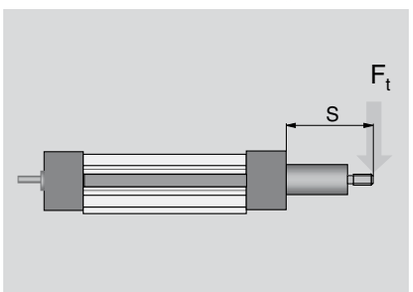
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.
2. Check the lifetime/travel distance in graph below.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in applicationg.

Performance overview

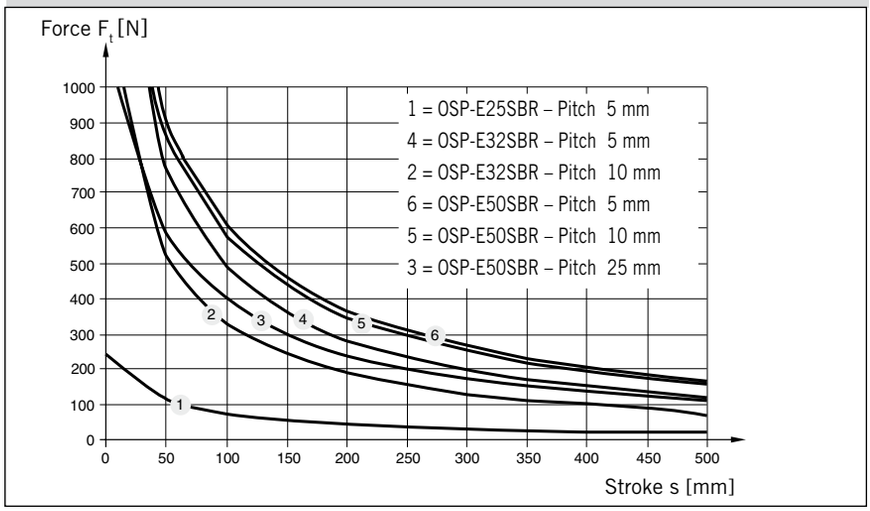
Characteristics	Unit	Description					
Series		**OSP-E25SBR**	**OSP-E32SBR**		**OSP-E50SBR**		
Pitch	[mm]	5	5	10	5	10	25
Max. speed	[m/s]	0.25	0.25	0.5	0.25	0.5	1.25
Linear motion per revolution drive shaft	[mm]	5	5	10	5	10	25
Max. rpm drive shaft	[min^{-1}]	3000	3000		3000		
Max. effective action force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

Transverse Force / Stroke

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



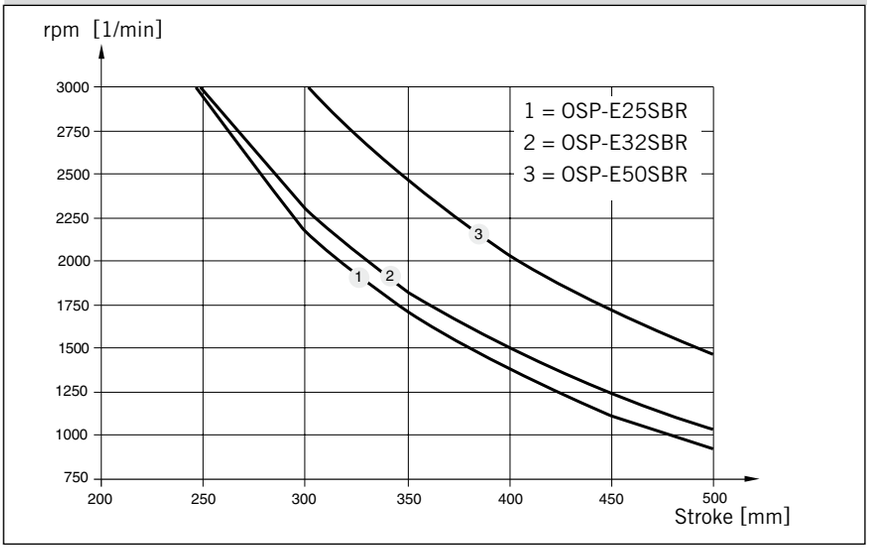
Transverse Force / Stroke



Maximum rpm / Stroke

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

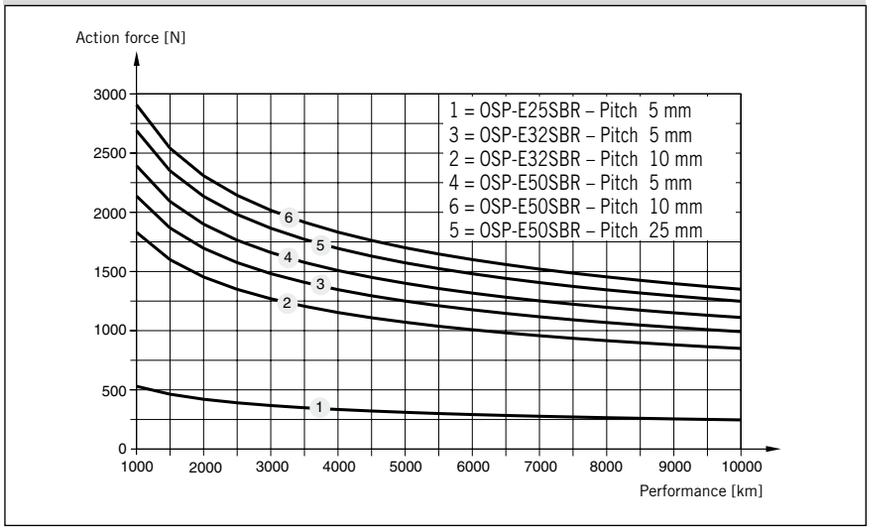
Maximum rpm / Stroke



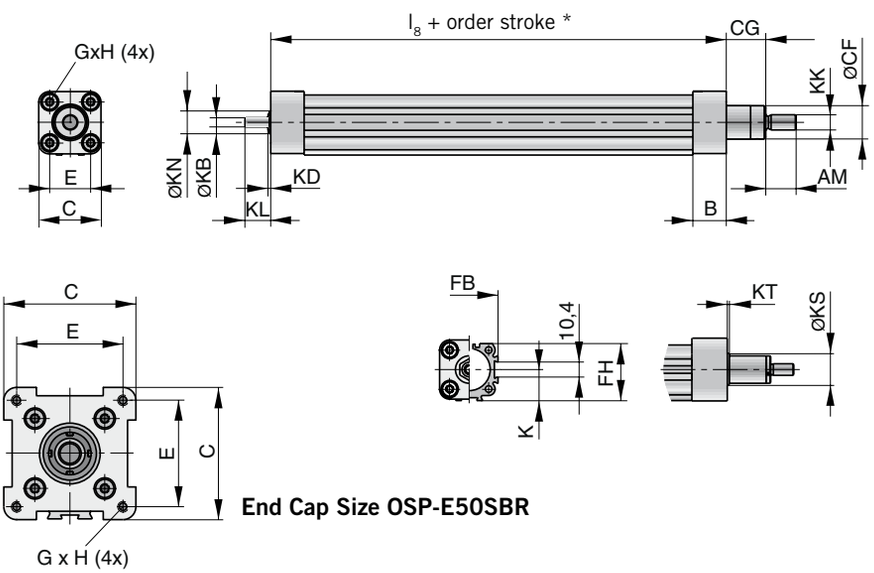
Performance / Action force

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

Performance as a function of the action force

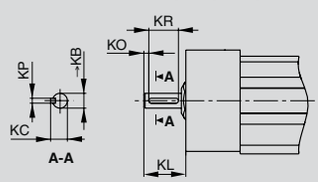


OSP-E..SBR
Ball Screw Actuator with internal Plain Bearing Guide and Piston Rod – Basic Unit



End Cap Size OSP-E50SBR

Plain shaft with keyway (Option)



Dimension Table [mm]

Series	⌀KB_{h7}	KC	KL Opt.3	KL Opt.4	KO	KP^{P9}	KR
OSP-E25SBR	6	6.8	17	24	2	2	12
OSP-E32SBR	10	11.2	31	41	5	3	16
OSP-E50SBR	15	17	43	58	6	5	28

Option 3: Keyway
Option 4: Keyway long version

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

Order stroke = required travel + 2 x safety distance.

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

Dimension Table [mm]

Series	B	C	E	G x H	K	l_8	AM	⌀CF	CG	FB	FH	⌀KB_{h7}	KD	KK	KL	⌀KN	⌀KS	KT
OSP-E25SBR	22	41	27	M5 x 10	21.5	110	20	22	26	40	39.5	6_{h7}	2	M10x1.25	17	13	–	–
OSP-E32SBR	25.5	52	36	M6 x 12	28.5	175.5	20	28	26	52	51.7	10_{h7}	2	M10x1.25	31	20	33	2
OSP-E50SBR	33	87	70	M6 x 12	43	206	32	38	37	76	77	15_{h7}	3	M16x1.5	43	28	44	3

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)
?	16 mm (for size 32)
8	25 mm (for size 50)

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

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

Order stroke
5 digits input in mm

Niro	
0	Standard
1	Niro screws *

End cap mounting *	
0	Without
1	1 pc. type A1SR (size 25 and 32) or C1SR (size 50)
2	1 pc. type C-E
see pages 128 and 142 ff	

Piston rod mounting *	
0	Without
T	Piston rod eye
U	Piston rod clevis
V	Piston rod compensating coupling
see page 143 ff	

* Option

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

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
see page 135 ff	
K	1 pair trunnion mounting EN
L	1 pair trunnion EN and pivot mounting EL
see page 142	

Accessories - please order separately	
Description	**Page**
Motor mounting	121 ff

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

Contents

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

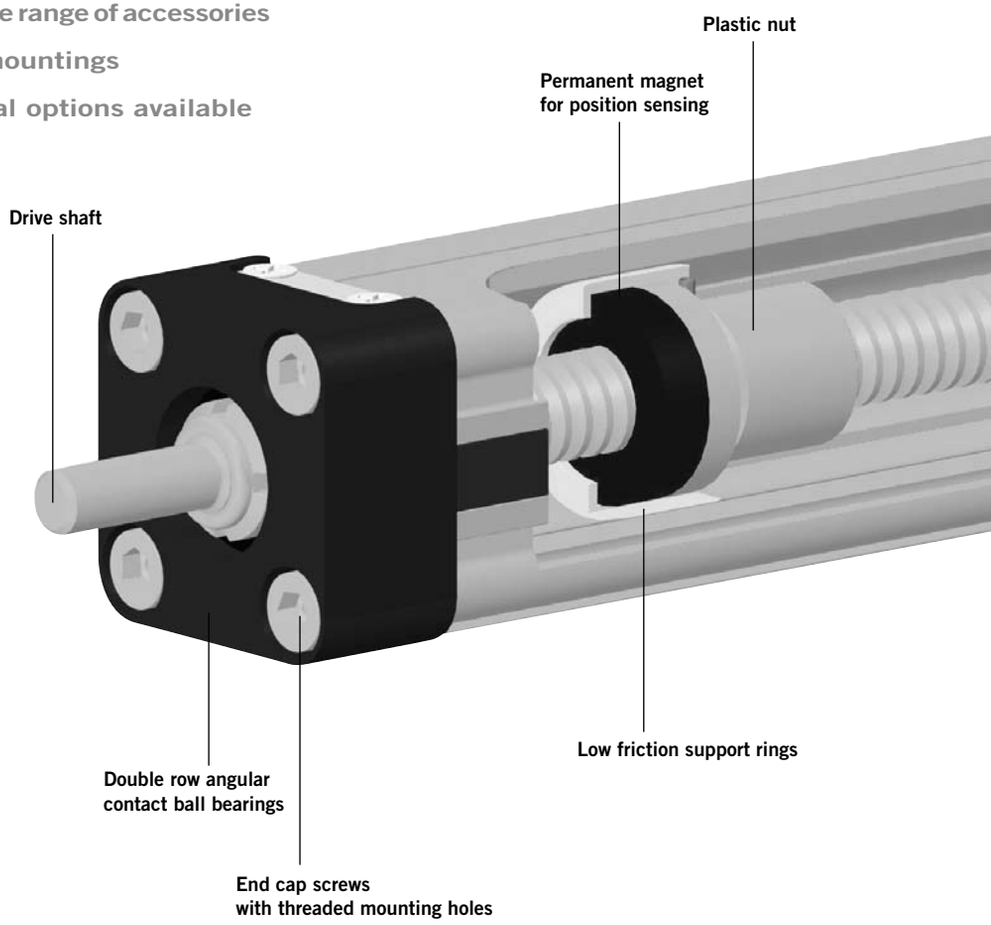
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

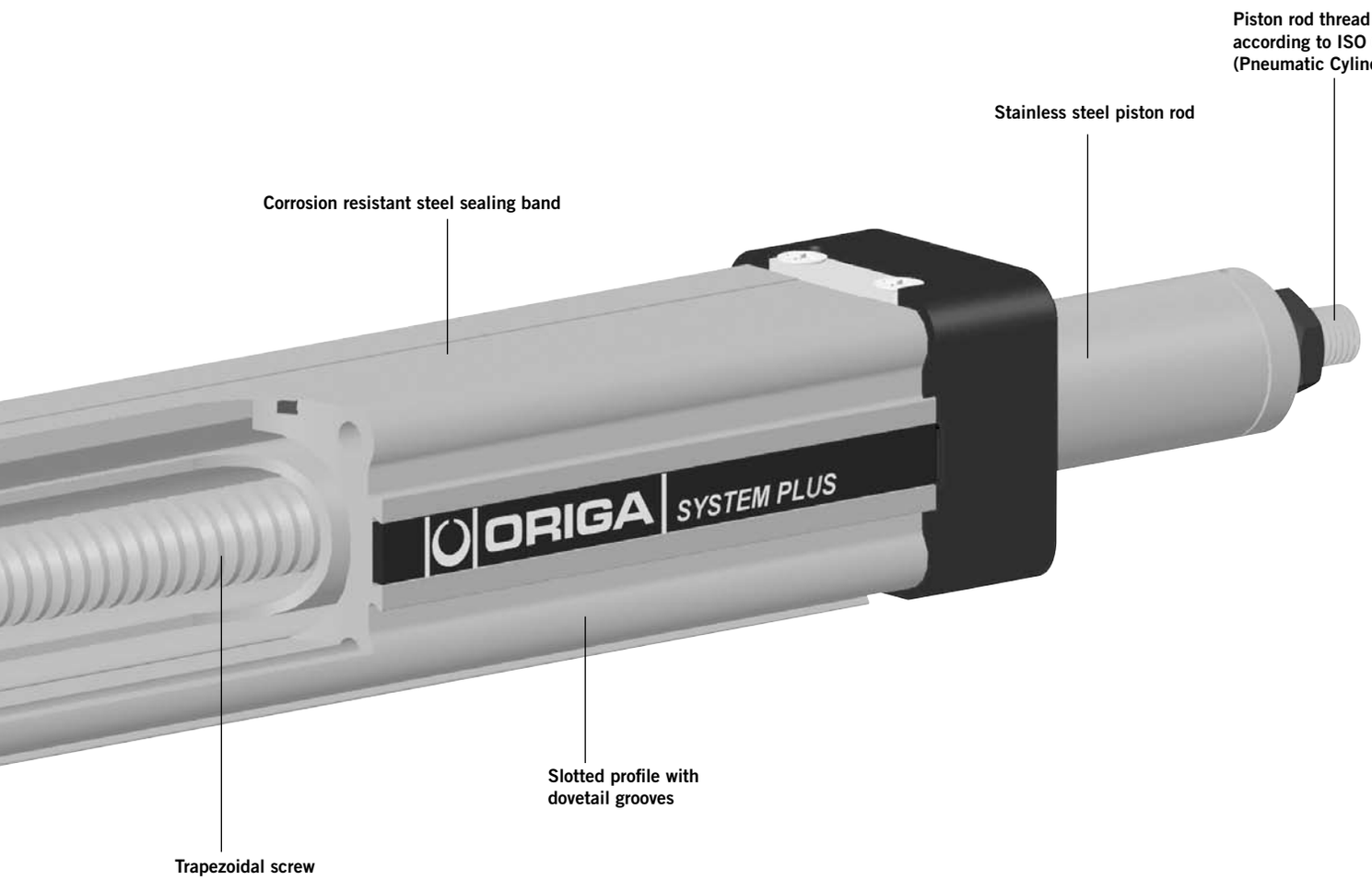
Advantages

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

Features

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





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

OPTIONS AND ACCESSORIES

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

STANDARD VERSIONS OSP-E..STR

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

ACCESSORIES

MOTOR MOUNTINGS

END CAP MOUNTING

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

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

PROFILE MOUNTING

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

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

COMPENSATION
Piston Rod eye

Piston rod Clevis

Piston Rod compensating coupling

For compensating of radial and angular misaligments

MAGNETIC SWITCHES
SERIES RST AND EST

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

OSP-E..STR Trapezoidal Screw Actuator

with internal Plain Bearing Guide and Piston Rod

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

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

Characteristics

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
Material	Slotted profile			Extruded anodized aluminium
	Trapezoidal screw			Cold rolled steel
	Drive nut			Thermoplastic polyester
	Piston rod			Stainless steel
	Sealing band			Hardened, corrosion resistant steel
	Guide bearings			Low friction plastic
	Screws, nuts			zinc plated steel
	Mountings			zinc plated steel and aluminium
Encapsulation class			IP	54

Weight (mass) and Inertia

Series	Weight (mass)[kg]		Moving mass [kg]		Inertia [x 10-6 kgm2]	
	At stroke 0 m	Add per metre stroke	At stroke 0 m	Add per metre stroke	At stroke 0 m	Add per metre
OSP-E25STR	0.4	2.9	0.1	0.7	1.1	10.3
OSP-E32STR	0.9	5.4	0.2	1.2	3.9	29.6
OSP-E50STR	2.4	10.6	0.8	1.6	24.6	150

Installation Instructions

Use the threaded holes in the free end cap and a profile mounting close to the motor end for mounting the actuator.
The actuator can be fitted in any position. To prevent contamination such as fluid ingress, the actuator should be fitted with its sealing band facing downwards.

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 91/368/EEC.

Contactless position sensing

Please use the magnetic switch mentioned below:

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

Sizing
Performance Overview
Maximum Loadings

Sizing of Actuator

The following steps are recommended for selection :

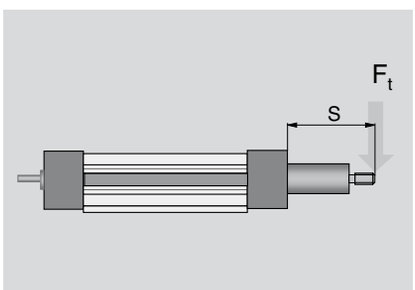
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.
2. Check the lifetime/travel distance in graph below.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in application

Performance Overview

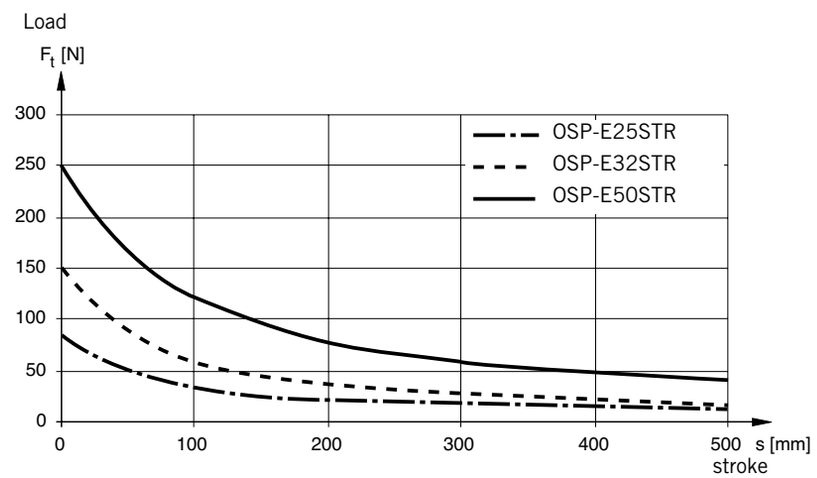
Characteristics	Unit	Description		
Size		**OSP-E25STR**	**OSP-E32STR**	**OSP-E50STR**
Pitch	[mm]	3	4	5
Max. speed	[m/s]	0.075	0.1	0.125
Linear motion per revolution, drive shaft	[mm]	3	4	5
Max. rpm, drive shaft	[min^{-1}]	1500 [2)]	1500	1500
Max. effective action force F_A Corresponding torque on drive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

[1)] Related to screw types Tr 12x3, Tr 16x4, Tr 24x5
see page 93 – for inertia
[2)] from 0,4 m stroke max. 1200 min-1 permissible

Transverse
Force / stroke



Transverse Force / Stroke

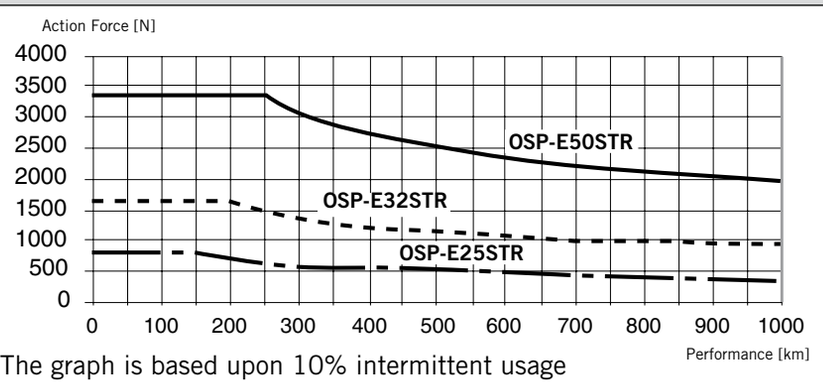


The graph is based upon 10% intermittent usage

Performance / Action Force

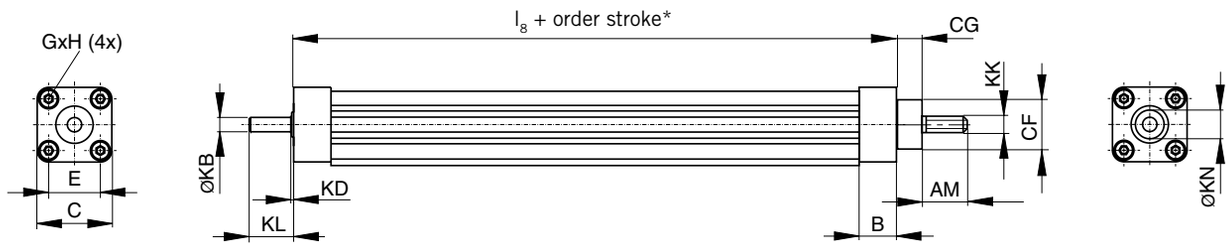
The Actuators are designed for a 10% intermittent usage.
The performance to be expected depends on the maximum required actions force of the application.
An increase of the action force will lead to a reduced performance.

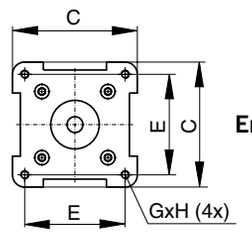
Performance as a function of the action force



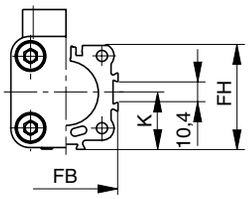
The graph is based upon 10% intermittent usage

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

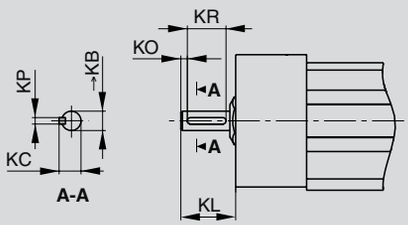




End Cap Size OSP-E50STR



Plain shaft with keyway (Option)



Dimension Table [mm]

Series	⌀KB_{h7}	KC	KL Opt.3	KL Opt.4	KO	KP^{P9}	KR
OSP-E25STR	6	6.8	17	24	2	2	12
OSP-E32STR	10	11.2	31	41	5	3	16
OSP-E50STR	15	17	43	58	6	5	28

Option 3: Keyway
Option 4: Keyway long version

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

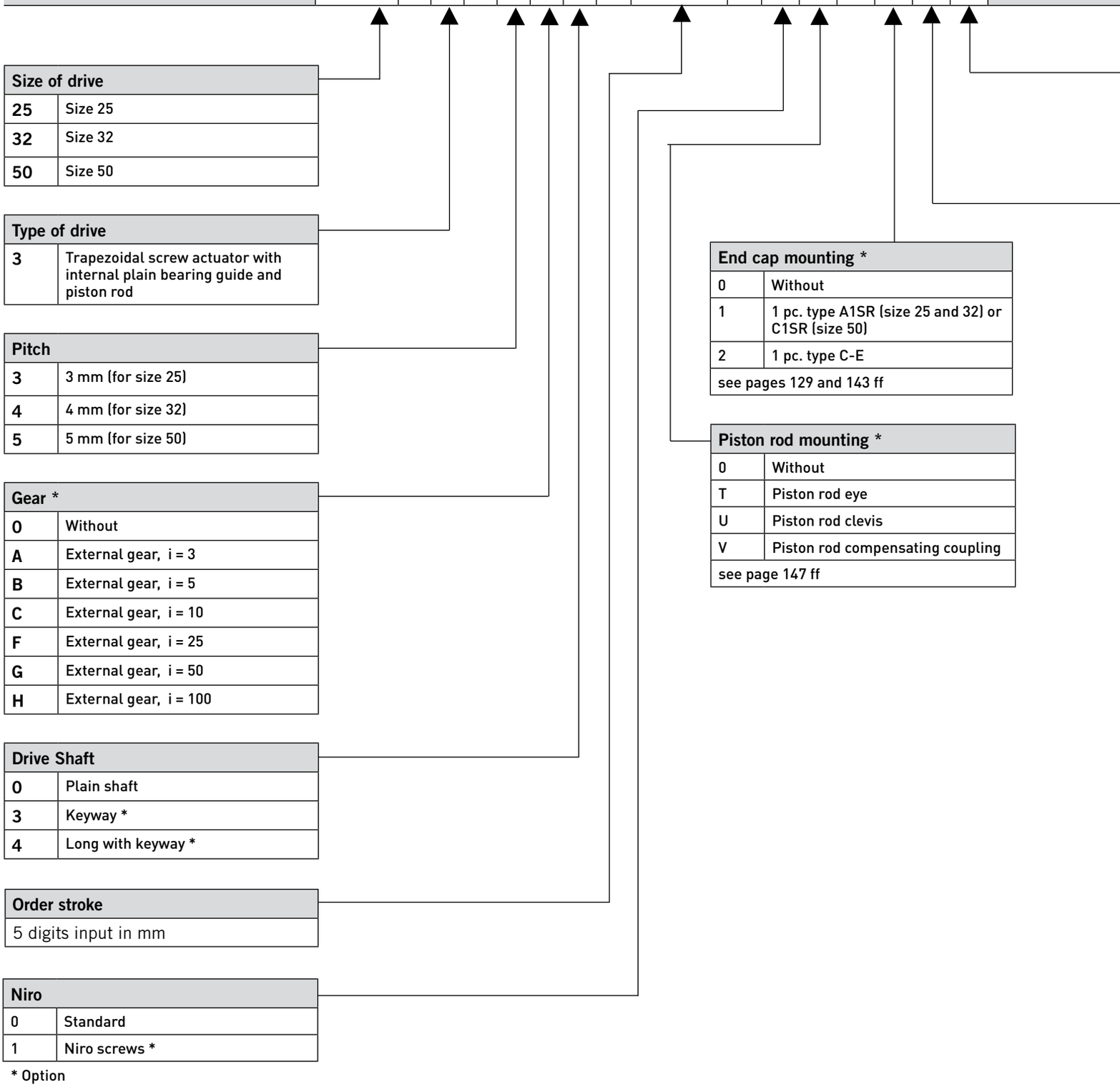
Order stroke = required travel + 2 x safety distance.

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

Dimension Table [mm]

Series	B	C	E	G x H	K	l_8	AM	CF	CG	FB	FH	KB	KD	KK	KL	KN
OSP-E25STR	22	41	27	M5 x10	21.5	83	20	22	26	40	39.5	6_{h7}	2	M10x1.25	17	13
OSP-E32STR	25.5	52	36	M6 x12	28.5	94	20	28	26	52	51.7	10_{h7}	2	M10x1.25	31	20
OSP-E50STR	33	87	70	M6 x12	43	120	32	38	37	76	77	15_{h7}	3	M16x1,5	43	28

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



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

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

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

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

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

Order stroke
5 digits input in mm

Niro	
0	Standard
1	Niro screws *

End cap mounting *	
0	Without
1	1 pc. type A1SR (size 25 and 32) or C1SR (size 50)
2	1 pc. type C-E
see pages 129 and 143 ff	

Piston rod mounting *	
0	Without
T	Piston rod eye
U	Piston rod clevis
V	Piston rod compensating coupling
see page 147 ff	

* Option

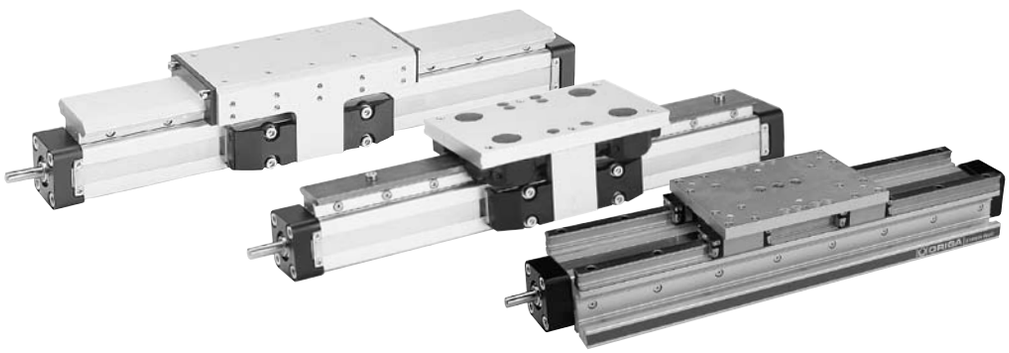
Magnetic switches *	
0	Without
1	1 pc. RS-K 2NO / 5m cable
2	1 pc. RS-K 2NC / 5m cable
3	2 pc. RS-K 2NC / 5m cable
4	2 pc. RS-K 2NC, 1 pc. RS-K 2NO / 5m cable
D	1 pc. ES-S PNP / M8 plug
E	2 pc. ES-S PNP / M8 plug
F	3 pc. ES-S PNP / M8 plug
see page 154 ff	

Profile mounting *	
0	Without
1	1 pair type E1
2	1 pair type D1
3	1 pair type MAE
4	2 pair type E1
5	2 pair type D1
6	2 pair type MAE
7	3 pair type E1
8	3 pair type D1
9	3 pair type MAE
see page 135 ff	
K	1 pair trunnion mounting EN
L	1 pair trunnion EN and pivot mounting EL
see page 142	

Accessories - please order separately

Description	Page
Motor mountings	121
Multi-Axis Systems for actuators	167 ff

Linear Guides



Contents

OSP
ORIGA SYSTEM PLUS

Adaptive modular system

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

Versions:

Electric actuator
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

Linear Guides

Electric actuator
– **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

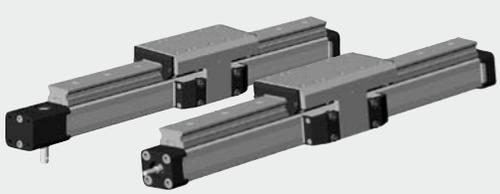
See page 101 ff

POWERSLIDE
The roller guide for heavy loads.

See page 103 ff

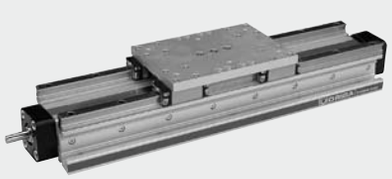
PROLINE
The ball bushing guide for heavy loads and speed.

See page 107 ff



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 111 ff



SLIDELINE Plain Bearing Guide

OSP ORIGA SYSTEM PLUS

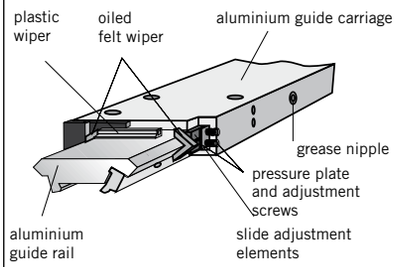
Series SL 25 to 50
for Actuator
• Series OSP-E Screw

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

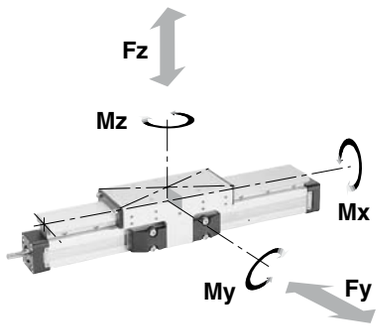


Technical Data

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.

Loads, forces and moments



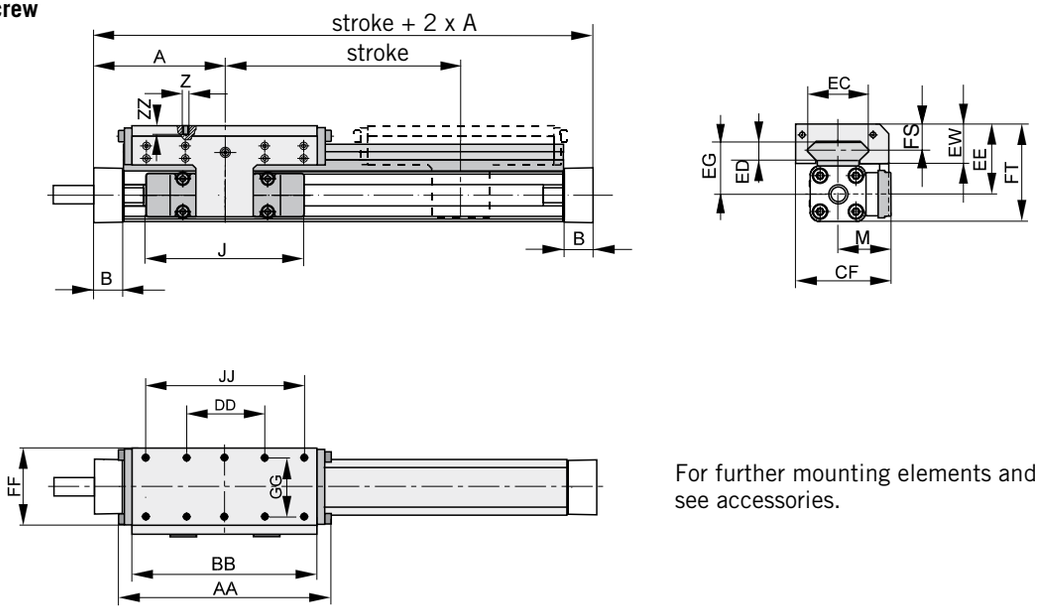
Series	Max. Moments [Nm]			Max. Load [N]	Mass of Drive with guide [kg]		Masse of guide carriage [kg]	Ident-Nr. SLIDELINE [1] without brake for OSP-E Screw
	Mx	My	Mz	F	with 0 mm stroke OSP-E Screw	inrease per 100 mm stroke OSP-E Screw		
SL 25	14	34	34	675	1.8	0.42	0.61	**20342**
SL 32	29	60	60	925	3.6	0.73	0.95	**20196**
SL50	77	180	180	2000	8.7	1.44	2.06	**20195**

[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.

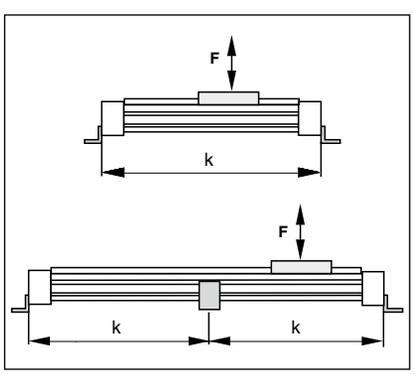
Dimension Table [mm]

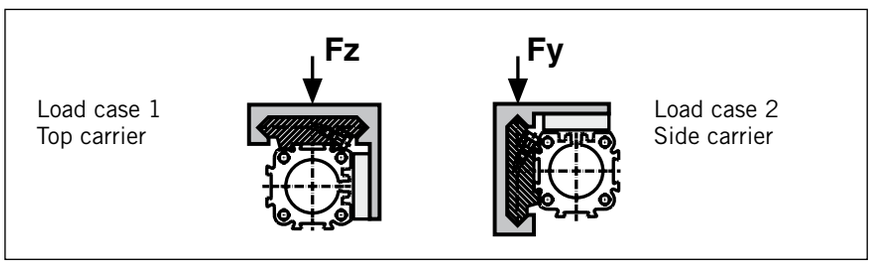
Series	A	B	J	M	Z	AA	BB	DD	CF	EC	ED	EE	EG	EW	FF	FT	FS	GG	JJ	ZZ
SL 25	100	22	117	40.5	M6	162	142	60	72.5	47	12	53	39	30	64	73.5	20	50	120	12
SL 32	125	25.5	152	49	M6	205	185	80	91	67	14	62	48	33	84	88	21	64	160	12
SL 50	175	33	200	62	M6	284	264	120	117	94	14	75	56	39	110	118.5	26	90	240	16

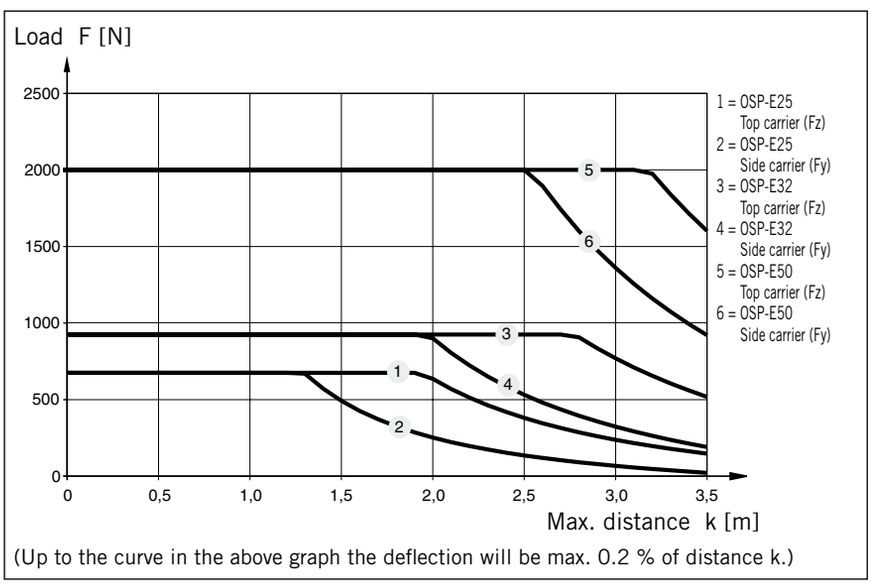
Guide Mounting

(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.







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

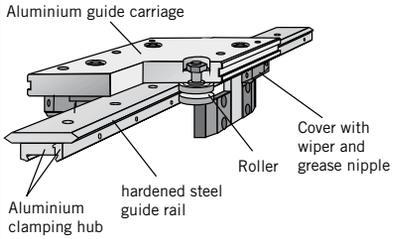
POWERSLIDE Roller Guide

ORIGA SYSTEM PLUS

Series PS 25 to 50
for Actuator
- **Series OSP-E Belt ***
- **Series OSP-E Screw**

Versions

– for electric actuator:
Series OSP-E Belt
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.

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

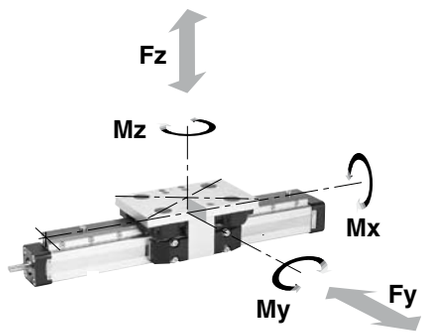
Features:

- 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 3500 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

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

Loads, forces and moments

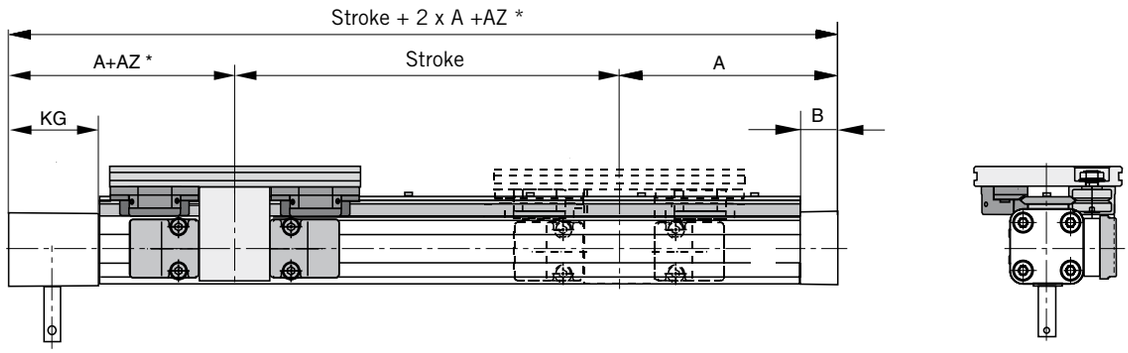


Example: PS 25/35
- width of guide rail (35 mm)
- Size of drive (OSP-E25)

Series	Max. Moments [Nm]			Max. Load [N]	Mass of drive with guide [kg] with 0 mm stroke		increase per 100 mm stroke		Mass * of guide carriage [kg]	Order No. Powerslide for	
	Mx	My	Mz	Fy, Fz	OSP-E Belt	OSP-E Screw	OSP-E Belt	OSP-E Screw		**OSP-E*** Belt	**OSP-E** Screw
PS 25/25	14	63	63	910	1.9	1.8	0.30	0.37	0.7	**20304**	**20015**
PS 25/35	17	70	70	1010	2.1	1.9	0.34	0.41	0.8	**20305**	**20016**
PS 25/44	20	175	175	1190	3.0	2.7	0.42	0.49	1.5	**20306**	**20017**
PS 32/35	20	70	70	1400	3.1	3.2	0.51	0.63	0.8	**20307**	**20286**
PS 32/44	50	175	175	2300	4.0	4.1	0.59	0.70	1.5	**20308**	**20287**
PS 50/60	90	250	250	3000	8.8	8.7	1.04	1.36	2.3	**20309**	**20288**
PS 50/76	140	350	350	4000	12.2	12.0	1.28	1.6	4.9	**20310**	**20289**

For **Mountings** see **page 149**.

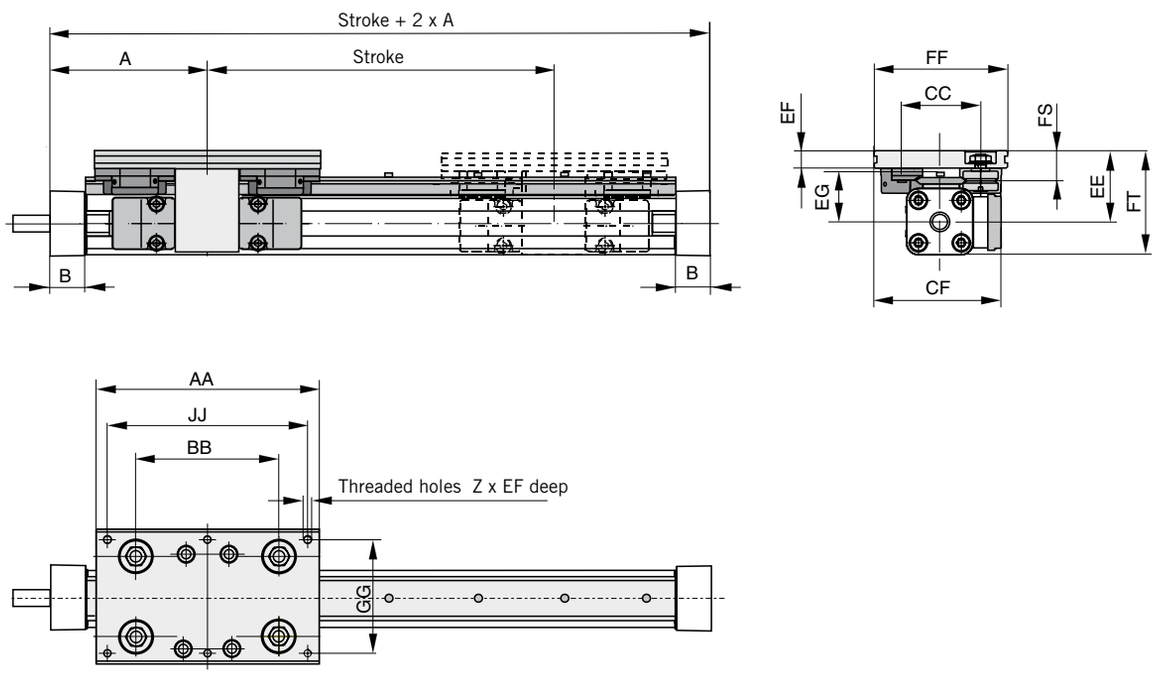
Dimensions – Series OSP-E Belt



*** 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 Origa technical support department.

Dimensions – Series OSP-E Screw



Dimension Table [mm]

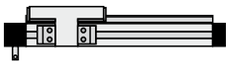
Series	A OSP-E Belt	A OSP-E Screw	B OSP-E Belt	B OSP-E Screw	Z	AA	AZ	BB	CC	CF	EE	EF	EG	FF	FS	FT	GG	JJ	KG
PS 25/25	125	100	22	22	6xM6	145	5	90	47	79.5	53	11	39	80	20	73,5	64	125	57
PS 25/35	125	100	22	22	6xM6	156	10	100	57	89.5	52.5	12.5	37.5	95	21.5	73	80	140	57
PS 25/44	125	100	22	22	6xM8	190	27	118	73	100	58	15	39	116	26	78.5	96	164	57
PS 32/35	150	125	25	25.5	6xM6	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	6xM8	190	6	118	73	107	64	15	45	116	26	90	96	164	61
PS 50/60	200	175	25	33	6xM8	240	5	167	89	130.5	81	17	61	135	28.5	123.5	115	216	85
PS 50/76	200	175	25	33	6xM10	280	25	178	119	155.5	93	20	64	185	39	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

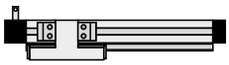


Opposite to Standard
Position of the guide on the side of the drive shaft

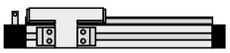
Position of Drive Shaft
Opposite to Standard = 1

Position of Linear Guide

Standard
Position of the guide on the opposite side of the drive shaft



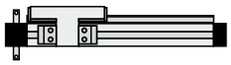
Opposite to Standard
Position of the guide on the side of the drive shaft



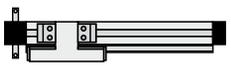
Position of Drive Shaft
Both Sides = 2

Position of Linear Guide

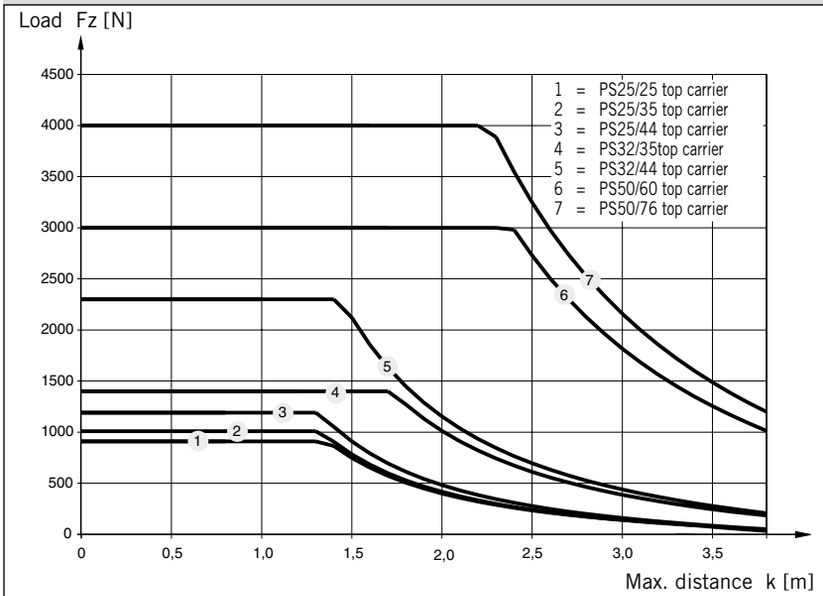
Standard
Position of the guide on the opposite side of the drive shaft



Opposite to Standard
Position of the guide on the side of the drive shaft

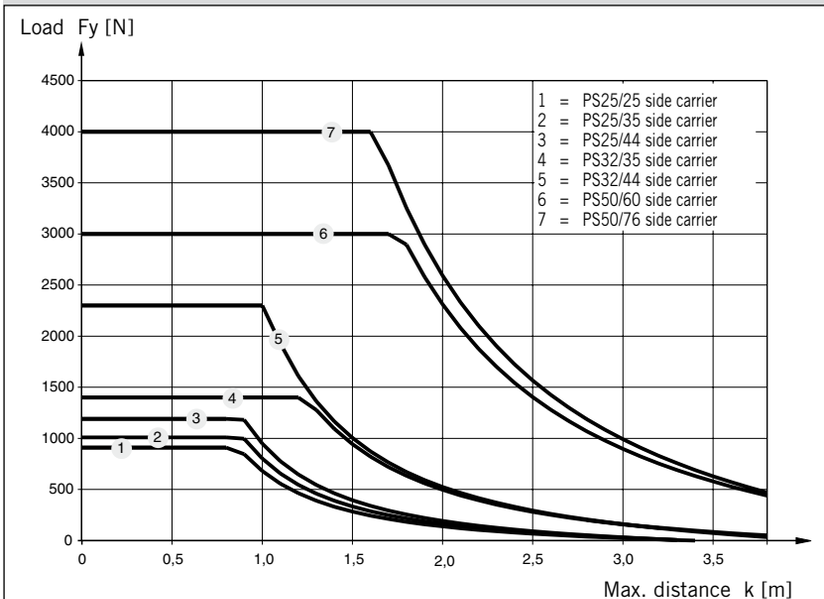


Load Case 1 – Top Carrier



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

Load Case 2 – Side Carrier

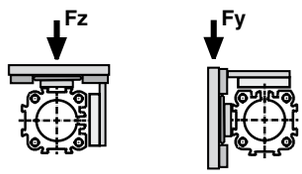


(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

Guide Mounting

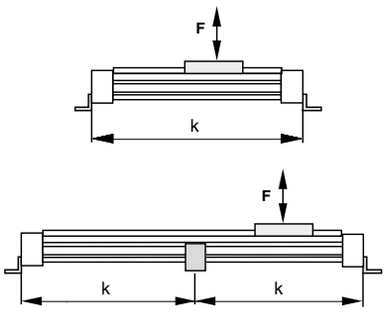
(see page 149)

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



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

1. Calculation of load factor L_F

$$L_F = \frac{Fy}{Fy_{max}} + \frac{Fz}{Fz_{max}} + \frac{Mx}{Mx_{max}} + \frac{My}{My_{max}} + \frac{Mz}{Mz_{max}}$$

with combined loads, L_F must not exceed the value 1

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.

2. Calculation of Performance

- **For PS 25/25, PS 25/35 and PS 32/35:**

$$\text{Service life [km]} = \frac{106}{(L_F + 0{,}02)^3}$$

- **For PS 25/44, PS 32/44 and PS 50/60:**

$$\text{Service life [km]} = \frac{314}{(L_F + 0{,}015)^3}$$

- **For PS 50/76:**

$$\text{Service life [km]} = \frac{680}{(L_F + 0{,}015)^3}$$

PROLINE Aluminium Roller Guide

OSP
ORIGA SYSTEM PLUS

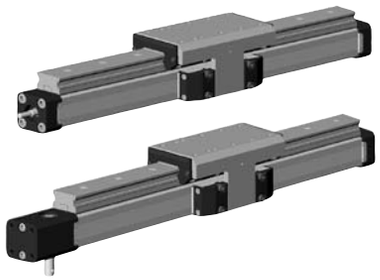
Series PL 25 to 50
for Actuator
- **Series OSP-E Belt ***
- **Series OSP-E Screw**

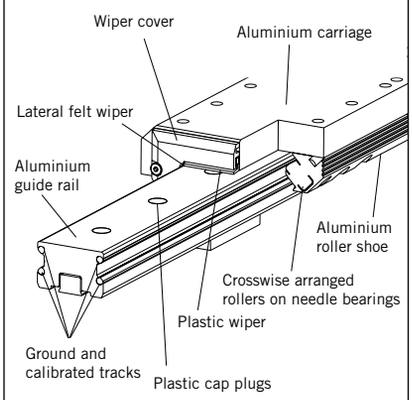
Features:
- High precision
- High velocities (10 m/s)
- Smooth operation - low noise
- Integated wiper system
- Compact dimensions - compatible to Slideline plain bearing guide
- Stainless steel version available on request
- Any length of stroke up to 3750 mm
  The maximum stroke lengths of actuators
  OSP-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 Actuator:
Series OSP-E Belt
Series OSP-E Screw





Technical Data

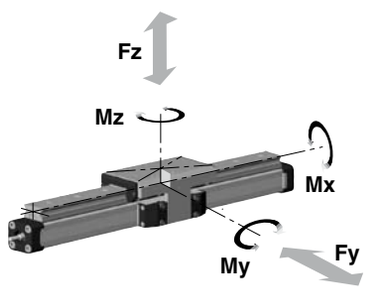
The table shows the maximum permissible loads. If multiple moments and forces act upon the cylinder simultaneously, the following equation applies:

$$\frac{Fy}{Fy_{max}} + \frac{Fz}{Fz_{max}} + \frac{Mx}{Mx_{max}} + \frac{My}{My_{max}} + \frac{Mz}{Mz_{max}} \leq 1$$

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

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

Loads, Forces and Moments

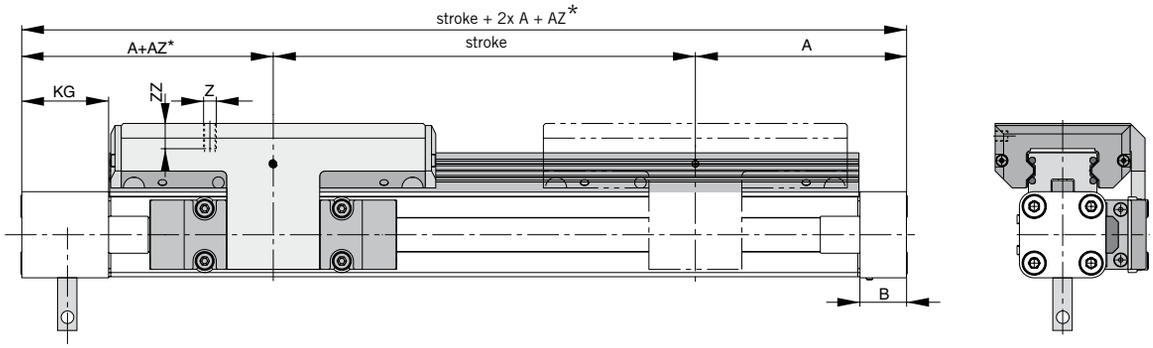


Series	Max. Moments [Nm]			Max. Load [N]	Mass of drive with guide [kg] with 0 mm stroke		increase per 100 mm stroke		Mass guide-carriage [kg]	Order No. PROLINE [1] for	
	Mx	My	Mz	Fy, Fz	OSP-E Belt	OSP-E Screw	OSP-E Belt	OSP-E Screw		OSP-E Belt*	OSP-E Screw
PL 25	19	44	44	986	1.9	1.8	0.33	0.40	0.75	**20874**	**20856**
PL 32	33	84	84	1348	3.6	3.7	0.58	0.70	1.18	**20875**	**20857**
PL 50	128	287	287	3582	8.9	8.8	1.00	1.32	2.50	**20876**	**20859**

[1] Stainless steel version on request

For **Mountings** see page 149

Dimensions Series OSP-E Belt PL25, PL32, PL50

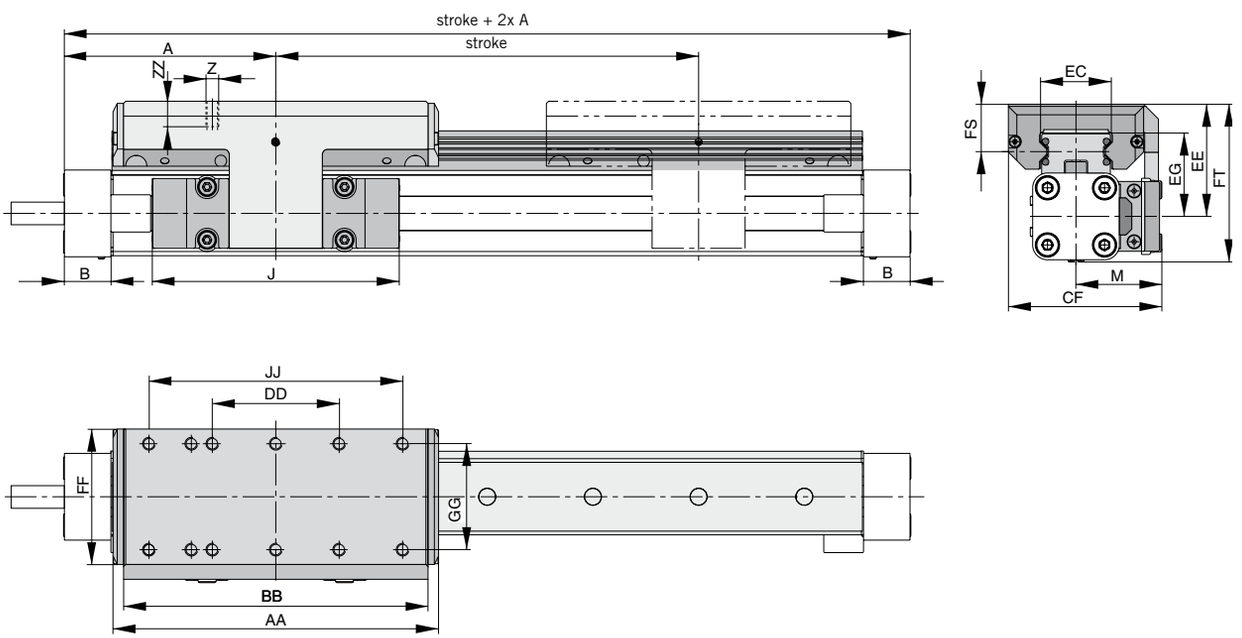


* **Please observe:**
Dimension "AZ" must be added to dimension "A". The stroke to be ordered will be: stroke + min. dimension "AZ" + additional length.
Please observe the effect of dimension "AZ" when retrofitting a guide. Please contact our application engineers.

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	73.5	50	120	57	12
PL32	150	25	152	49	M6	197	11	187	80	91	42	62	48	84	25	88	64	160	61	12
PL50	200	25	200	62	M6	276	24	266	120	117	63	75	57	110	29	118.5	90	240	85	16

Dimensions Series OSP-E Screw PL25, PL32, PL50

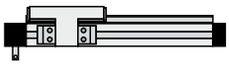
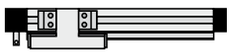


Dimension Table [mm] OSP-E Screw PL25, PL32, PL50

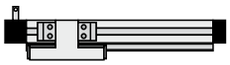
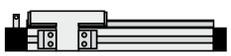
Series	A	B	J	M	Z	AA	BB	DD	CF	EC	EE	EG	FF	FS	FT	GG	JJ	ZZ
PL25	100	22	117	40.5	M6	154	144	60	72.5	32.5	53	39	64	23	73.5	50	120	12
PL32	125	25.5	152	49	M6	197	187	80	91	42	62	48	84	25	88	64	160	12
PL50	175	33	200	62	M6	276	266	120	117	63	75	57	110	29	118.5	90	240	16

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

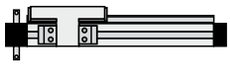
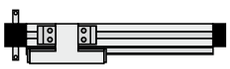
Position of Drive Shaft
Standard = 0

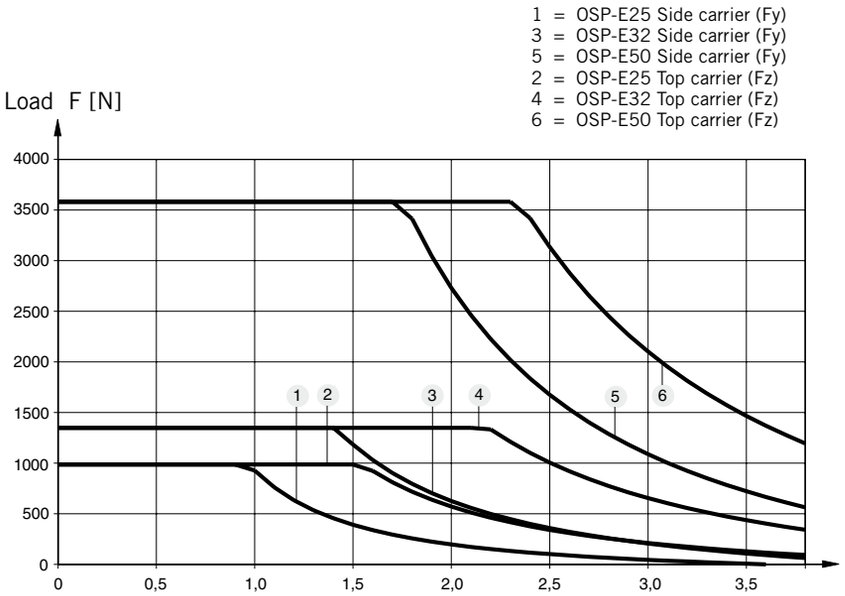
Position of Guide
Standard Guide opposite the drive shaft 
Opposite to Standard Guide on same side as drive shaft 

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 

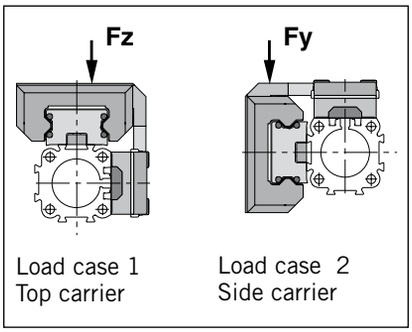


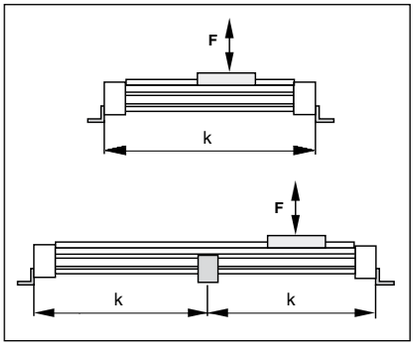
(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

Guide Mounting

(see page 149)

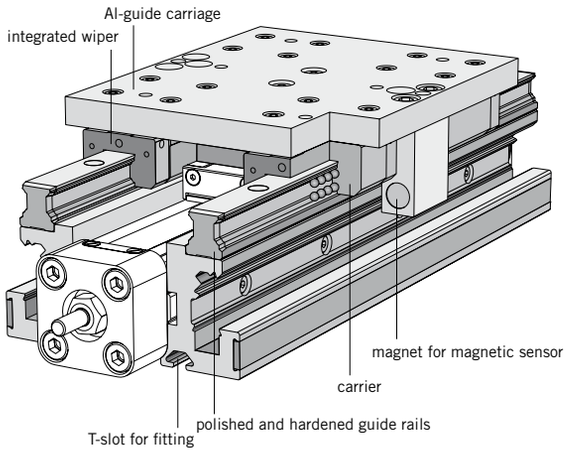
Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator. The diagrams show the maximum permissible unsupported length in relation to loading.





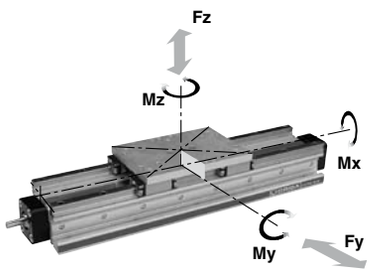
HD Heavy-duty-Guide

Version for Electric Actuator: Series OSP-E Screw

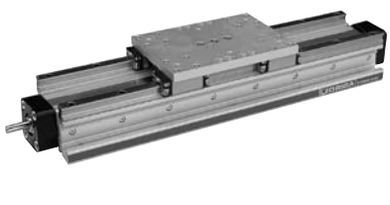


Series HD 25 to 50
for Actuator
- Series OSP-E..SB, ..ST

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:

$$\frac{Fy}{Fy_{max}} + \frac{Fz}{Fz_{max}} + \frac{Mx}{Mx_{max}} + \frac{My}{My_{max}} + \frac{Mz}{Mz_{max}} \leq 1$$

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

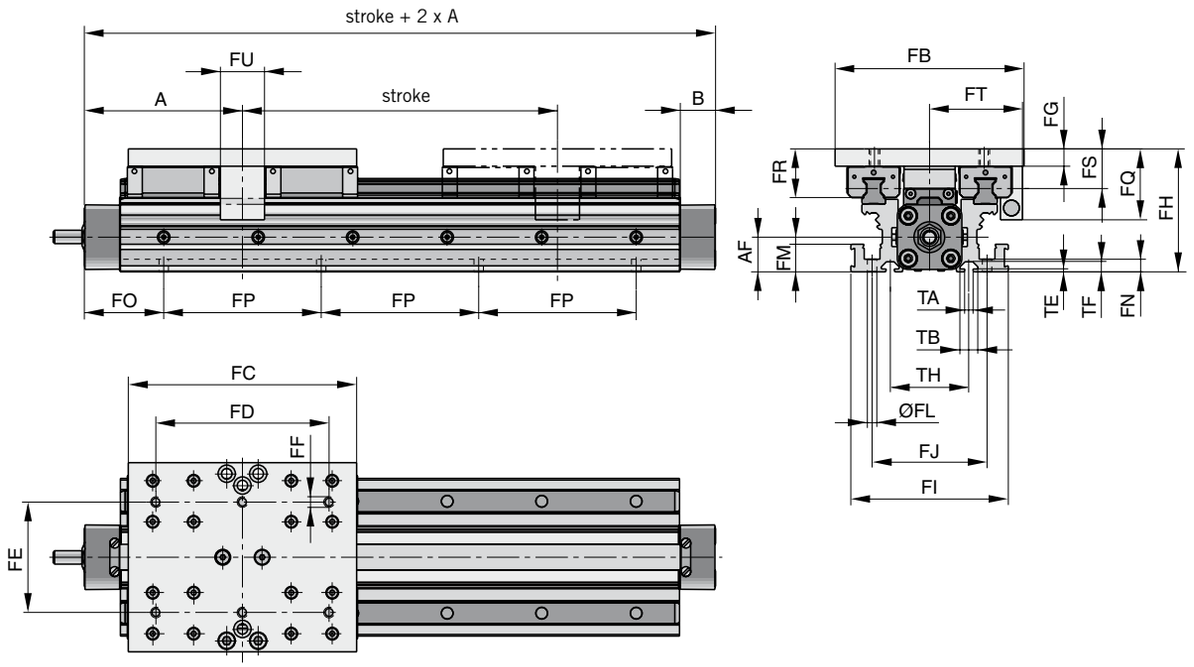
The table shows the maximum permissible values for light, shock-free operation which must not be exceeded even under dynamic conditions.

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 dimension s as OSP-guide GUIDELINE
- maximum velocity v = 5 m/s

Series	Max. Moments [Nm]			Max. Load [N]		Mass of actuator with guide [kg] at 0 mm stroke		ad per 100 mm stroke		Mass guide-carrier [kg]	Order No HD-guide for OSP-E
	Mx	My	Mz	Fy	Fz	OSP-E..SB	OSP-E..ST	OSP-E..SB	OSP-E..ST		
HD 25	260	320	320	6000	6000	3.215	3.315	0.957	1.007	1.289	**21246**
HD 32	285	475	475	6000	6000	4.868	4.968	1.198	1.258	1.367	**21247**
HD 50	1100	1400	1400	18000	18000	13.218	13.318	2.554	2.674	3.551	**21249**

Dimensions Series OSP-E Screw HD25, HD32, HD50



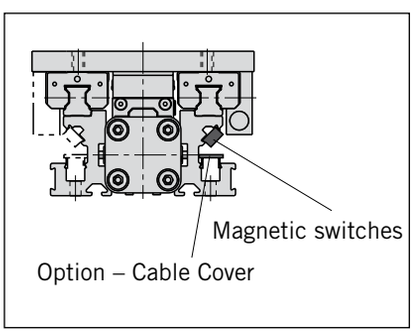
Hint:

The 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 switches:

The magnetic switches 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	22	120	145	110	70	M6	11	78	100	73	6
HD32	125	25.5	30	120	170	140	80	M6	11	86	112	85	6
HD50	175	33	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	59	28	5.2	11.5	1.8	6.4	50
HD32	17.5	8	100	45	31	25	63	30	5.2	11.5	1.8	6.4	60
HD50	22	10	100	58	44	35.5	89	30	8.2	20	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	365	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
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

FO			
OSP-E..SB, ..ST			
x	HD25	HD32	HD50
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	55.5
62	81.0	56.0	56.0
63	81.5	56.5	56.5
64	82.0	57.0	57.0
65	32.5	57.5	57.5
66	33.0	58.0	58.0
67	33.5	58.5	58.5
68	34.0	59	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 dimension 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

PV
Planetary Gears

Contents

Planetary Gears

Series
PV040, 060

The requirements between transmissible power and size of gear is given from purpose and a feasible resolution. Respectively the realization is not only preset by actuator and motor, more than takes the gear an important part of design.

Maintenance
The serie PV is maintenace free, i.e. containing lubrication for lifetime.

Specifications - Series PV040

Specification	Symbol	Unit					
Stages			1-stage		2-stage		
Ratio	i		5	10	25	50	100
Maximum acceleration output torque	T_{2B}	Nm	11.8	7	13	13	7
Nominal output torque	T_{2N}	Nm	6.2	3.5	6.7	6.7	3.5
Emergency stop	T_{2Not}	Nm	16	9.2	16	16	9.2
Nominal input speed	n_{1N}	min^{-1}	4500		4500		
Maximum input speed	n_{1Max}	min^{-1}	8000		8000		
Backlash	j_t	arcmin	Standard < 15		Standard < 18		
Efficiency at nominal torque	η	%	96		> 94		
Inertia	J_1	$kgcm^2$	0.018	0.016	0.017	0.016	0.016
Degree of protection			IP64		IP64		
Weight	m	kg					

Specifications - Series PV060

Specification	Symbol	Unit						
Stages			1-stage			2-stage		
Ratio	i		3	5	10	25	50	100
Maximum acceleration output torque	T_{2B}	Nm	24	36.4	21.2	40	40	21.2
Nominal output torque	T_{2N}	Nm	12	19.6	10.6	20.0	20.0	10.6
Emergency stop	T_{2Not}	Nm	55	55	39	55	55	39
Nominal input speed	n_{1N}	min^{-1}	4000			4000		
Maximum input speed	n_{1Max}	min^{-1}	6000			6000		
Backlash	j_t	arcmin	Standard ≤ 12			Standard ≤ 16		
Efficiency at nominal torque	η	%	> 96			> 94		
Inertia	J_1	$kgcm^2$	0.140	0.084	0.007	0.083	0.070	0.070
Degree of protection			IP64			IP64		
Weight	m	kg						

Planetary Gears

Series PV090, 115

Specifications - Series PV090

Specification	Symbol	unit						
Stages			1-stage			2-stage		
Ratio	i		3	5	10	25	50	100
Maximum acceleration output torque	T_{2B}	Nm	70	108	66	126	126	66
Nominal output torque	T_{2N}	Nm	35	58	33	63	63	33
Emergency stop	T_{2Not}	Nm	170	170	122	170	170	122
Nominal input speed	n_{1N}	min^{-1}	3500			3500		
Maximum input speed	n_{1Max}	min^{-1}	6000			6000		
Backlash	j_t	arcmin	Standard ≤ 10			Standard ≤ 14		
Efficiency at nominal torque	η	%	> 96			> 94		
Inertia	J_1	$kgcm^2$	0.740	0.390	0.300	0.390	0.300	0.300
Degree of protection			IP64			IP64		
Weight	m	kg						

Specifications - Series PV115

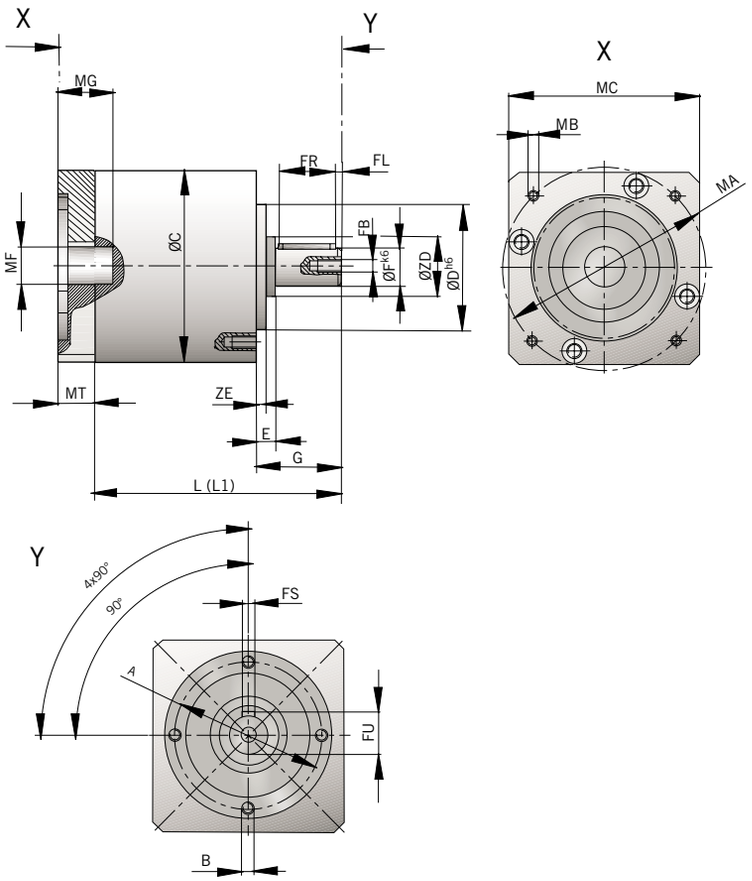
Specification	Symbol	Unit						
Stages			1-stage			2-stage		
Ratio	i		3	5	10	25	50	100
Maximum acceleration output torque	T_{2B}	Nm						
Nominal output torque	T_{2N}	Nm						
Emergency stop	T_{2Not}	Nm						
Nominal input speed	n_{1N}	min^{-1}						
Maximum input speed	n_{1Max}	min^{-1}						
Backlash	j_t	arcmin	Standard ≤			Standard ≤		
Efficiency at nominal torque	η	%	>			>		
Inertia	J_1	$kgcm^2$						
Degree of protection			IP64			IP64		
Weight	m	kg						

Planetary Gears

Series PV040, 060, 090, 115

Dimensions

Dimensions [mm]



Dimensions Table [mm]

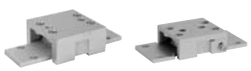
Type	A	B	C	D	ZD	E	ZE	F	G
PV040	44	M4x10	50	35	18	6,5	3	12	25
PV060	60	M5x10	70	52	28	8	5	16	36
PV090	80	M6x12	90	68	38	10	5	22	46
PV115									

Type	FB	FL	FR	FS	FU	MC	MT	MG	MF
PV040	M4x8	1.3	16	4	13.5	min. 50	13.7	12-20	≤ 11
PV060	M5x12	2.2	25	5	18	min. 70	16.5	16-25.4	≤ 16
PV090	M8x13	3.2	28	6	24.5	min. 90	20.0	20-31.8	≤ 24
PV115									

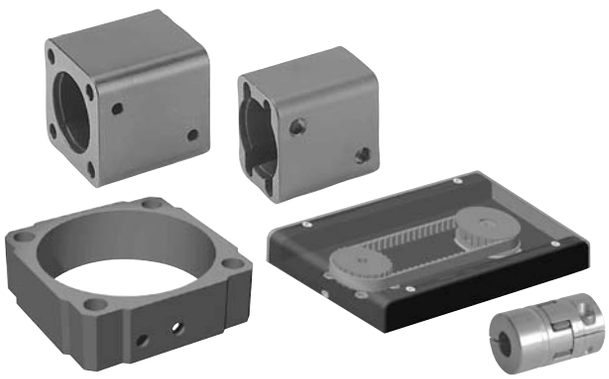
Type	L (1-stage)	L1 (2-stage)
PV040	73.5	88
PV060	103	123
PV090	131.5	155
PV115		

Order No.	18185

Accessories for Electric Actuators

Description	**Illustration**		**Page**
Motor Mountings		Coupling housing, motor flange, motor coupling	121 - 127
		Belt Gear	128
End Cap Mountings			129 - 133
		Flange C-E	134
Profile Mountings		Mid section support Guide Mounting	135 - 138
		Adapter profiles	139 - 141
		Trunnion and Pivot Mounting	142
Compensations		Clevis Mounting	143 - 145
		Inversion Mounting	146
		Piston Rod Eye, Piston Rod Clevis, Piston Rod Compensating Coupling	147 - 148
Guide Mountings		End Cap mounting Profile Mounting	149 - 152
Magnetic Switches			153 - 157
Displacement Measuring System SFI-plus			159 - 162
Cable Cover			164 - 165

Motor Mounting



Contents

Coupling Housing

Motor Flange

Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

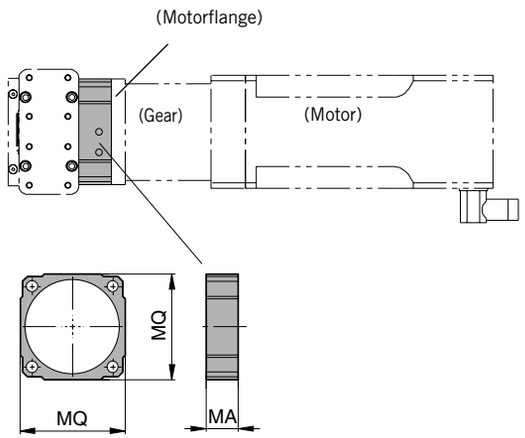
- **OSP-E..BHD**
  Belt Actuator with integrated guide

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.

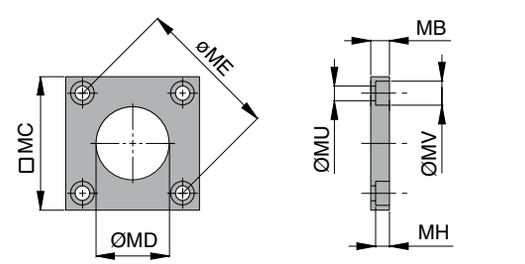
Coupling Housing (for gear or motor mounting)



Dimension Table [mm] and Order Instructions

Series	Description	MA	MQ	Order No.
OSP-E20BHD	Coupling Housing	19	60	**16215**
OSP-E20BHD	Motor Flange PV040	–	–	**16224**
OSP-E25BHD	Coupling Housing	22	76	**12300**
OSP-E25BHD	Motor Flange PV060	–	–	**12311**
OSP-E32BHD	Coupling Housing	30	98	**12301**
OSP-E32BHD	Motor Flange PV090	–	–	**12312**
OSP-E50BHD	Coupling Housing	41	128	**12302**
OSP-E50BHD	Motor Flange PV115	–	–	**12313**

Motor Flange (semi-finished)



Dimension Table [mm] and Order Instructions

Series	MB	MC	MD	ME	MH	MU	MV	Order No.
OSP-E20BHD	10	75	25	65.8	6.8	6.6	11	**16216**
OSP-E25BHD	14	90	36	82	8.5	9	15	**12308**
OSP-E32BHD	14	100	55	106	10.5	11	18	**12309**
OSP-E50BHD	18	125	77	144	12.5	13.5	20	**12310**

Coupling Housing

Motor Flange Motor Coupling

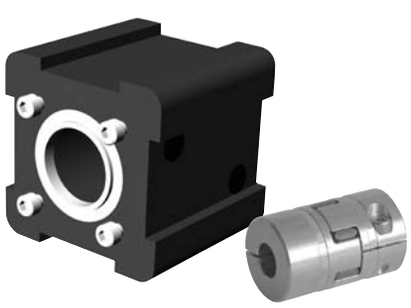
Size 20, 25

OSP
ORIGA SYSTEM PLUS

- **OSP-E..BV**
  Vertical belt actuator with integrated ball bearing guide

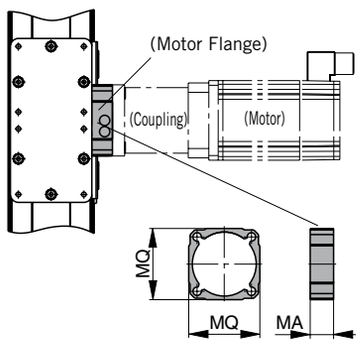
The coupling housing with suitable motor flange allows proper connection between the drive shaft of the actuator and the gear shaft or motor shaft. The gear or motor can either be fitted to the actuator directly or indirectly.
If a Parker Origa gear is used, direct clamping of the gear shaft into to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

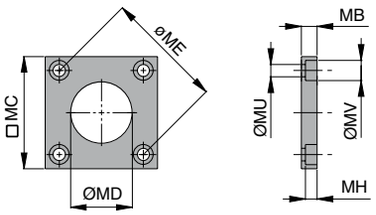


Motor Mountings for OSP-E..BV with drive shaft, clamping hub, version 2-5[1]

Coupling Housing for direct clamping



Motor Flange (semi-finished)

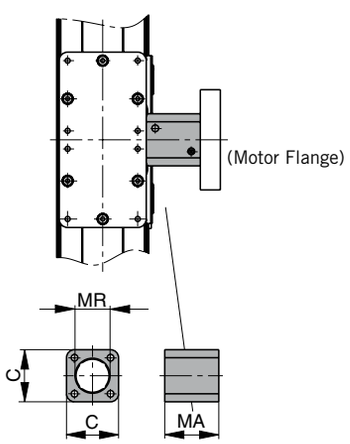


Dimension Table [mm] and Order Instructions

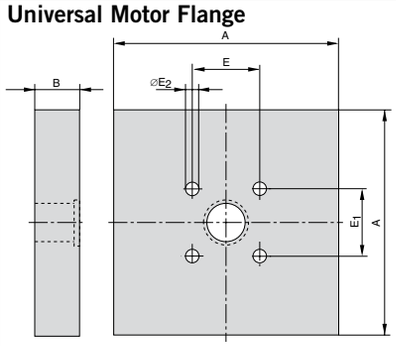
Series	Description	MA	MB	MC	MD	ME	MH	MQ	MU	MV	Order-No.
OSP-E20BV	Coupling Housing	19	–	–	–	–	–	60	–	–	**16215**
OSP-E20BV	Motor flange semi-finished	–	10	75	25	65,8	6,8	–	6,6	11	**16216**
OSP-E20BV	Motor flange PV040	–	–	–	–	–	–	–	–	–	**16224**
OSP-E25BV	Coupling Housing	22	–	–	–	–	–	76	–	–	**12300**
OSP-E25BV	Motor flange semi-finished	–	14	90	36	82	8,5	–	9	15	**12308**
OSP-E25BV	Motor flange PV060	–	–	–	–	–	–	–	–	–	**12311**

Motor Mountings for OSP-E..BV with plain shaft, version A-D[1]

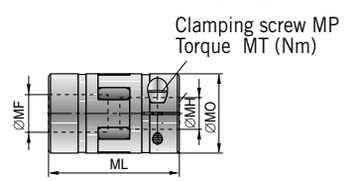
Coupling Housing for clamping with Motor Coupling



Universal Motor Flange



Universal Motor Coupling



Dimension Table [mm] and Order Instructions

Series	Description	A	B	C	E	E_1	E_2	MA	MR	Order-No.
OSP-E20BV	Coupling Housing	–	–	60	–	–	–	79	46.5	**16269**
OSP-E20BV	Universal-Motor Flange	120	15	–	46.5	46.5	6.6	–	–	**16267**
OSP-E25BV	Coupling Housing	–	–	87	–	–	–	84	48	**20139**
OSP-E25BV	Universal-Motor Flange	120	15	–	46	46	6.6	–	–	**12069**

Dimension Table [mm] and Order Instructions for Universal Motor Coupling

Series	MF	ML	MH	MO	MT [Nm]	Order-No.
OSP-E20BV	12^{H7}	66	9.5^{H7}	40	10.5	**16268**
OSP-E25BV	16^{H7}	66	9.5^{H7}	40	10.5	**10845**

Coupling Housing
Motor Flange
Motor Coupling

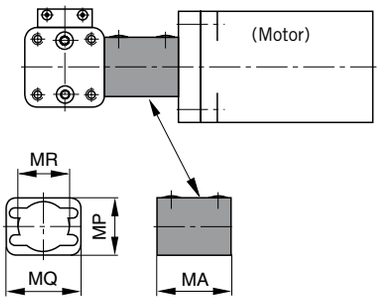
Size 25, 32, 50

- **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)

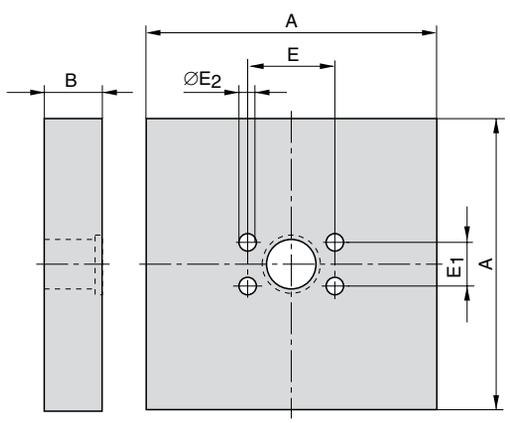


Dimension Table [mm] and Order Instructions

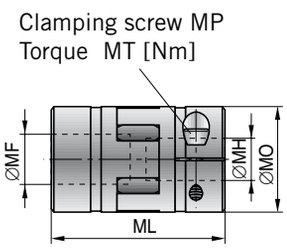
Series	Typ	MA	MP	MQ	MR	Order No.
OSP-E25B	**250**	47	30	40	25	**20606**
OSP-E32B	**320**	49	38	49	33	**20607**
OSP-E50B	**500**	76	54	65	48	**20608**

Universal Motor Flange and Motor Coupling

Universal Motor Flange



Universal Motor Coupling



Dimension Table [mm] and Order Instructions

Series	Description	A	B	E	E_1	E_2	Order-No.
OSP-E25B	Motor flange semi-finished	100	20	30	15	5.5	**12050**
OSP-E25B	Motor flange PV040	Ø 80	15	30	15	5.5	**16076**
OSP-E32B	Motor flange semi-finished	100	20	38	18	6.6	**12053**
OSP-E32B	Motor flange PV040	Ø 80	15	38	18	6.6	**16090**
OSP-E50B	Motor flange semi-finished	120	15	50	32	9.0	**12056**
OSP-E50B	Motor flange PV060	□ 80	22	50	32	9.0	**16057**

Dimension Table [mm] and Order Instructions for Universal Motor Coupling

Series	MF^{H7}	ML	MH^{H7} *	MO	MT [Nm]	Order No.
OSP-E25B	10	30	4	20	0.76	**15231**
OSP-E32B	10	35	6	30	1.34	**15197**
OSP-E50B	16	66	9.5	40	10.5	**10845**

* can be bored out to motor shaft diameter by customer.
Other dimensions on request

Coupling Housing
Motor Flange
Motor Coupling

Size 25, 32, 50

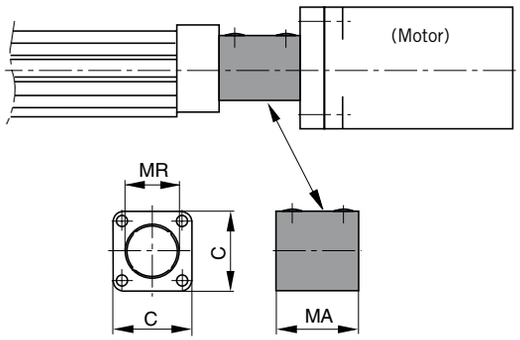
OSP
ORIGA SYSTEM PLUS

- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal screw actuator with internal plain bearing guide
- **OSP-E..SBR**
  Ball screw actuator with internal plain bearing guide ans piston rod
- **OSP-E..STR**
  Trapezoidal 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)



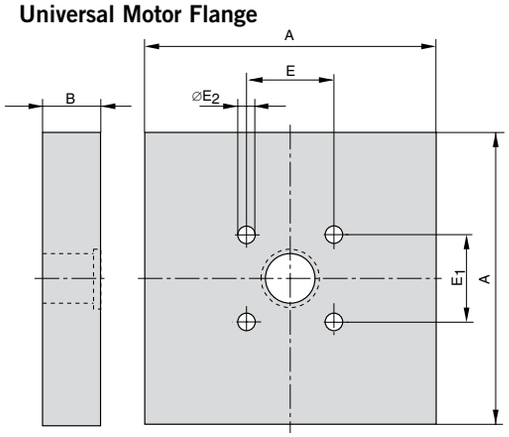
Dimension Table [mm] and Order Instructions

Series	Typ	MA	C	MR	Order No.
OSP-E25*	**251**	38	41	25	**20137**
OSP-E32*	**321**	54	52	33	**20138**
OSP-E50*	**501**	84	87	48	**20139**

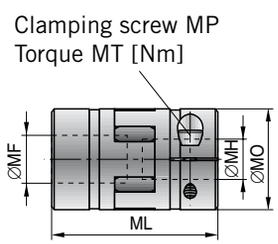
* ..SB, ..ST, ..SBR, ..STR

Universal Motor Flange and Motor Coupling

Universal Motor Flange



Universal Motor Coupling



Dimension Table [mm] and Order Instructions

Series	Description	A	B	E	E_1	E_2	Order-No.
OSP-E25B	Motor flange semi-finished	100	20	27	27	5.5	
OSP-E25B	Motor flange PV040	Ø 80	15	27	27	5.5	**16058**
OSP-E32B	Motor flange semi-finished	100	20	36	36	6.6	
OSP-E32B	Motor flange PV040	Ø 80	15	36	36	6.6	**16070**
OSP-E50B	Motor flange semi-finished	120	15	46	46	9.0	
OSP-E50B	Motor flange PV060	Ø 80	19,5	46	46	6.6	**15526**

Dimension Table [mm] and Order Instructions for Universal Motor Coupling

Series	MF^{H7}	ML	MH^{H7} **	MO	MT [Nm]	Order No.
OSP-E25*	6	30	6	20	0.76	**12073**
OSP-E32*	10	35	6	30	1.34	**15197**
OSP-E50*	15	66	9.5	40	10.5	**12079**

* ..SB, ..ST, ..SBR, ..STR
** can be bored out to motor shaft diameter by customer.
Other dimensions on request.

Motor Flange

for freely selectable mounting dimensions

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **OSP-E..B**
  Ball actuator with internal plain bearing guide
- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal screw actuator with internal plain bearing guide
- **OSP-E..SBR**
  Ball screw actuator with internal plain bearing guide ans piston rod
- **OSP-E..STR**
  Trapezoidal 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 types 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.

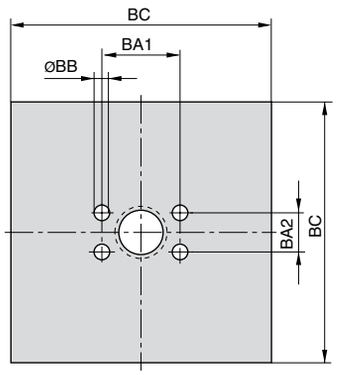
Hint

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

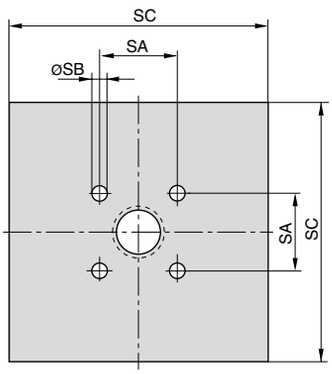
1. mounting angle W of the motor
2. bore hole version B as thread M or counterbore S
3. pitch circle diameter A as a function of M or S
4. Diameter of centring spigot D
5. Length of motor shaft G

Flange version

Belt drive



Screw drive

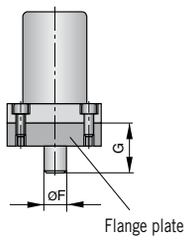


Dimension Table [mm] and Order Instructions

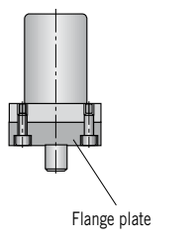
Size	BA1	BA2	ØBB	BC	SA	ØSB	SC	Order No.
25	30	15	5.5	100	27	5.5	100	**18184**
32	38	18	6.6	100	36	6.6	100	**18184**
50	50	32	9.0	120	46	6.6	120	**18184**

Variable Dimensions for Flange

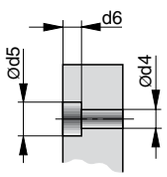
Version Thread „M“
Flange plate with thread,
Motor flange with through bolt



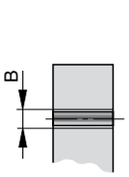
Version Counterbore „S“
Flange plate with through bore
Motor flange with thread

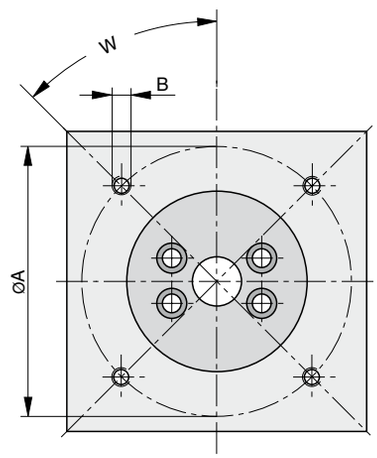


Version Counterbore „S“



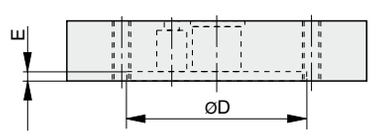
Version Thread „M“





Counterbore Dimensions [mm]

Scew.Size B	Ø d4	Ø d5	d6
M4x16	4.5	8	4.6
M5x22	5.5	10	5.7
M6x20	6.6	11	6.8
M8x25	9	15	9
M10x25	11	18	11



Dimension table of the variable dimensions [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

Dimension table of the variable dimensions [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	525 + 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	210	32
	max.	33	35	45	33	35	45

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

Belt Gear

for freely selectable mounting dimensions

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **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 types 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.)

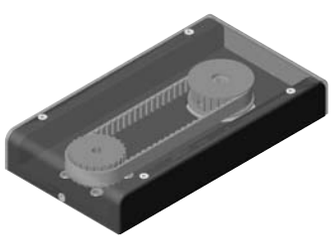
Ausführungen der Antriebswelle OSP-E with Screw

Order no.	Drive shaft
OSP-E..-*.. .. ..0-.....	Plain
OSP-E..-*.. .. ..3-.....	Key way
OSP-E..-*.. .. ..4-.....	Key way,long
*1=SB, 2=ST, 3=STR, 4=SBR	

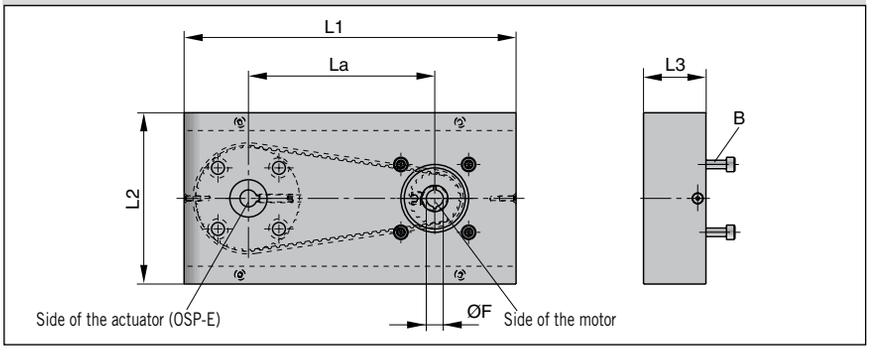
Max. allowed Moments M [Nm] for Belt Gear

Size	Transmission ratio 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

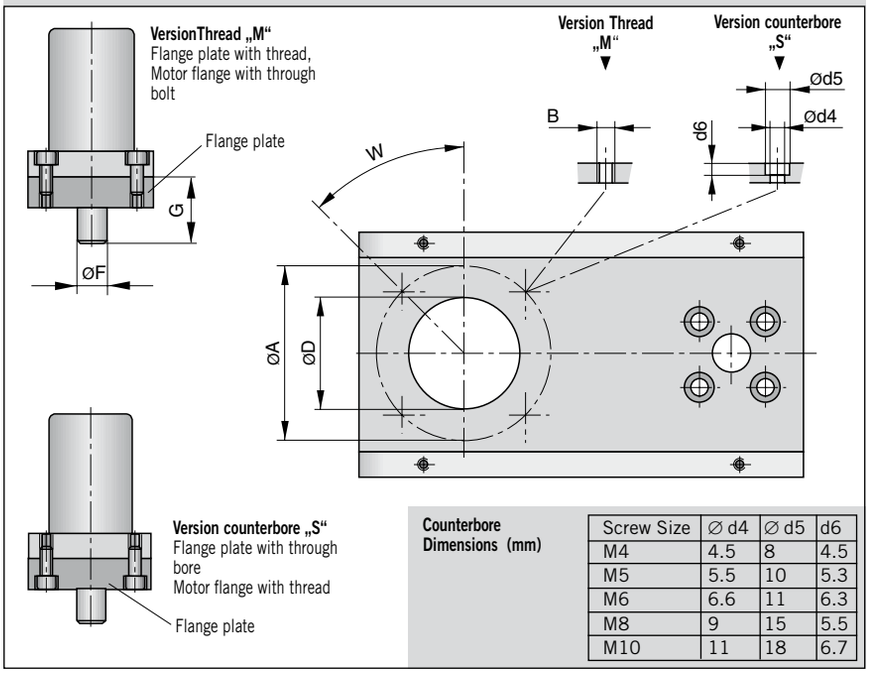


Dimension Table [mm] and Order Instructions

Series	L1	L2	L3	La 1:1	La 2:1	B	∅ F*	Order No.
OSP-E25	186	101	30	110	109.3	M4 – M10	6, 7, 8, 9, 10, 11	**15576**
OSP-E32	196	101	37	110	111.4		8, 9, 10, 11, 12, 14	**15576**
OSP-E50	234	101	50	135	133.7		12, 14, 16, 19	**15576**

* other diameters on request

Variable Dimensions for Motor Mounting



Counterbore Dimensions (mm)

Screw Size	∅ d4	∅ d5	d6
M4	4.5	8	4.5
M5	5.5	10	5.3
M6	6.6	11	6.3
M8	9	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

Contents

End Cap Mounting

Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

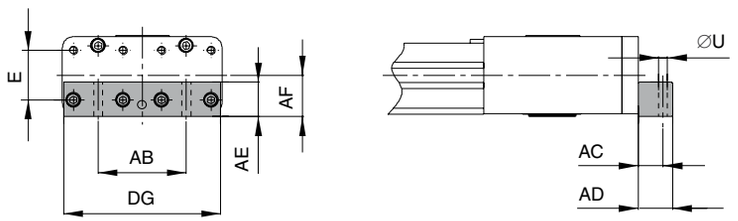
- **Series OSP-E..BHD For Actuator with Belt and integrated Guides**

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

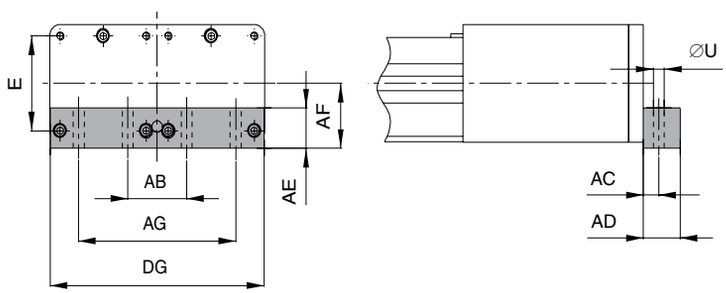
Material:
Anodized aluminium.

The mountings are supplied in pairs.

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



Series OSP-E50BHD: Type C50

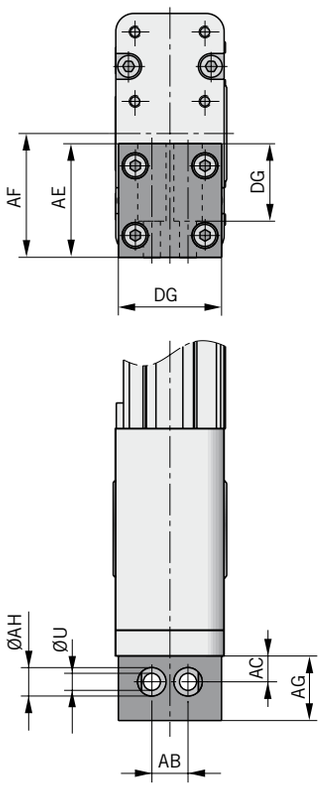


Dimension Table [mm] and Order Instructions

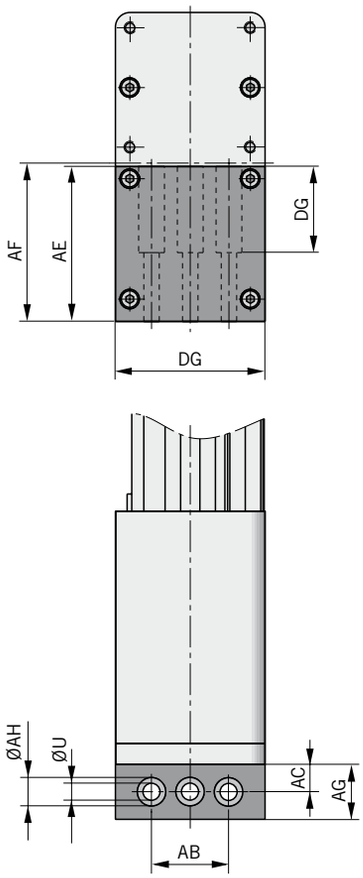
Series	Type	E	ØU	AB	AC	AD	AE	AF	AG	DG	Order No. *)
OSP-E20BHD	CN-20	27	6,6	40	10	20	20	22	–	74	**16213**
OSP-E25BHD	CN-25	27	6,6	52	16	25	25	22	–	91	**12266**
OSP-E32BHD	CN-32	36	9	64	18	25	25	30	–	114	**12267**
OSP-E50BHD	CN-50	70	9	48	12,5	30	30	48	128	174	**12268**

*) = Pair

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



Series OSP-E50BHD: Type CO-50



End Cap Mounting

Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **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.

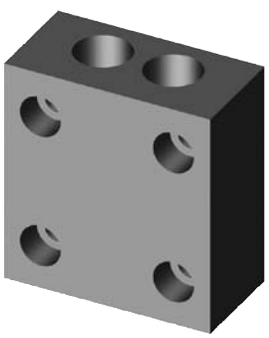
Material:
Anodized aluminium.

The mountings are supplied in pairs.

Dimension Table [mm] and Order Instructions

Series	Type	ØU	AB	AC	AD	AE	AF	AG	ØAH	DG	Order No. *)
OSP-E20BHD	**CO-20**	6,6	18	15	22	42	45	39	11	40	**16241**
OSP-E25BHD	**CO-25**	6,6	14	10	25	44	48	30	11	40	**16245**
OSP-E32BHD	**CO-32**	9	19	12	28	60	62	42	15	56	**16246**
OSP-E50BHD	**CO-50**	9	45	16	32	90	92	50	15	87	**16247**

*) = Pair



End Cap Mounting

Size 25, 32, 50

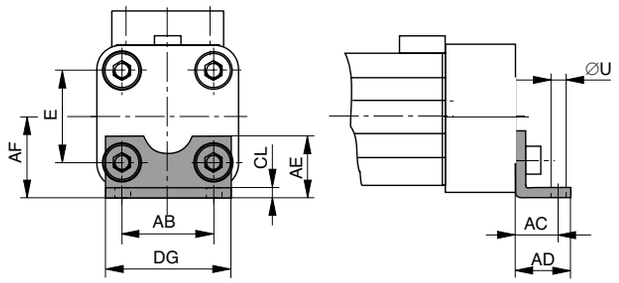
- **Series OSP-E..SBR, ..STR Actuator with Screw and extending rod**

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.

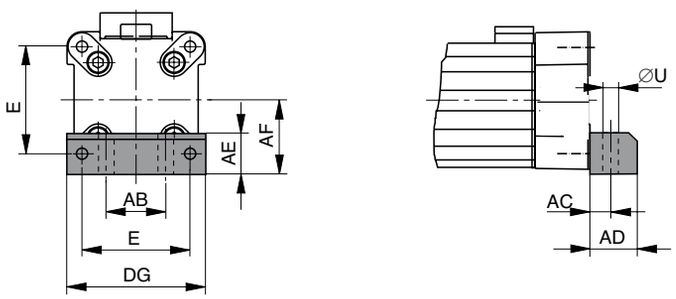
Material:
Series OSP-25 to 32:
Galvanised steel.
Series OSP-50:
Anodized aluminium.

The mountings are supplied as pairs

Series OSP-E25 to E32: Type A1



Series OSP-E50: Type C1



Dimension Table [mm] and Order Instruction

Series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order No. *) Typ A1	Typ C1
OSP-E25	27	5,8	27	16	22	18	22	2,5	39	**2010**	–
OSP-E32	36	6,6	36	18	26	20	30	3	50	**3010**	–
OSP-E50	70	9	40	12,5	24	30	48	–	86	–	**5010**

***) = 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.

End Cap Mounting

Size 25, 32, 50

OSP ORIGA SYSTEM PLUS

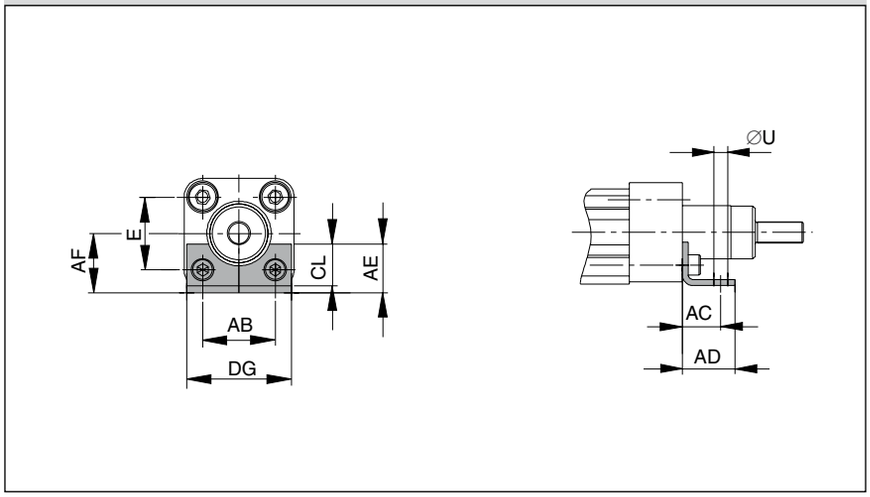
- **Series OSP-E..SBR, ..STR Actuator with Screw and extending rod**

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.

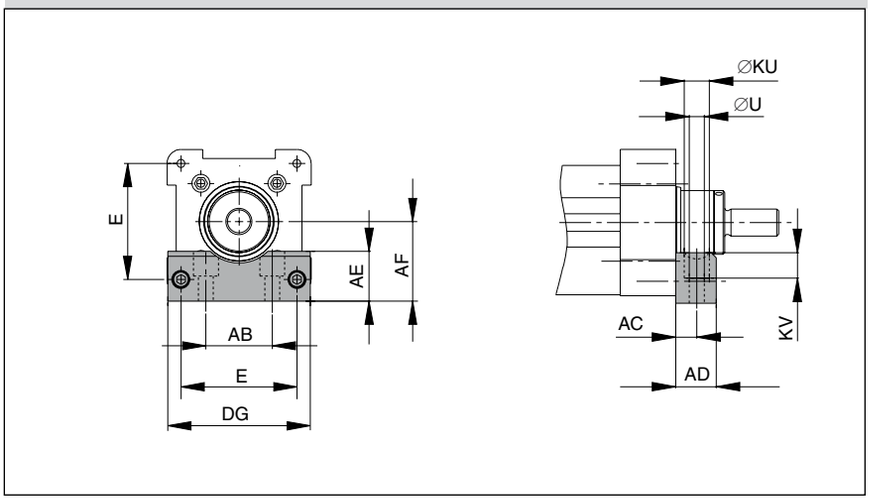
Material:
Series OSP-25 to 32:
Galvanised steel.
Series OSP-50:
Anodized aluminium.

The mountings are supplied as pairs

Series OSP-E25SBR, 25STR to E32SBR, 32STR: Type A1SR



Series OSP-E50SBR, 50STR: Type C1SR



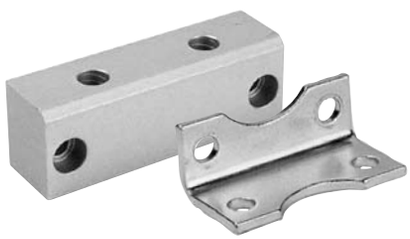
Dimension Table [mm] and Order Instruction

Series	E	øU	AB	AC	AD	AE	AF	CL	DG	øKU	KV	Order No. *) Type A1SR	Type C1SR
OSP-E25SBR, STR	27	5,8	27	16	22	18	22	2,5	39	–	–	**12263**	–
OSP-E32SBR, STR	36	6,6	36	18	26	20	30	3	50	–	–	**12264**	–
OSP-E50SBR, STR	70	9	40	12,5	24	30	48	–	86	15	15	–	**12265**

***) = 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.



Flange Mounting C-E

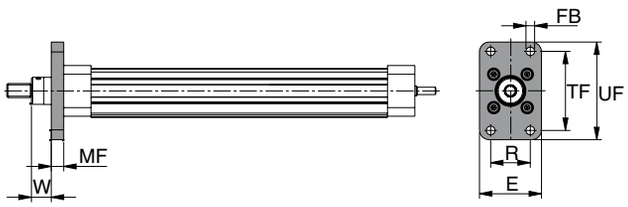
Size 25, 32, 50

- **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 Table [mm] and Order Instructions

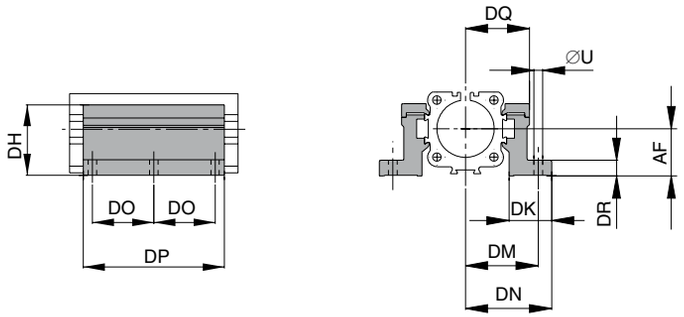
Series	Type	ø FB	E	MF	R	TF	UF	W	Order No.
OSP-E25SBR, STR	**C-E25**	7	50	10	32	64	79	16	**12232**
OSP-E32SBR, STR	**C-E32**	9	56	10	36	72	90	16	**12233**
OSP-E50SBR, STR	**C-E50**	12	100	16	63	126	153	21	**12234**

Profile Mounting

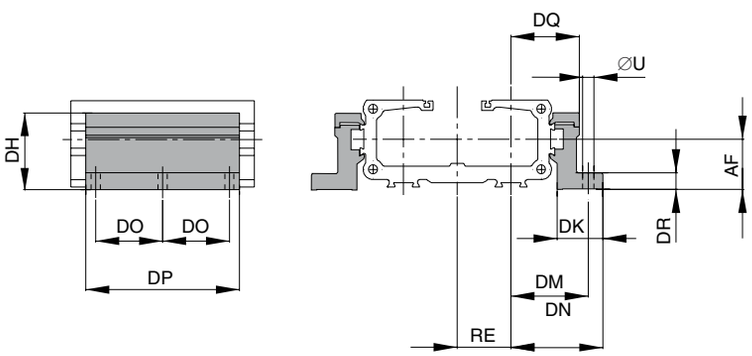
Contents

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

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



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



Profile Mountings for Multi-Axis Systems

Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **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

Dimension Table [mm] and Order Instructions

Series	Type	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	40	92	28	8	10	41,5	28.5	49	36	26	**12278**
OSP-E25	**MAE-25**	M5	5.5	22	27	38	26	40	47.5	40	92	34.5	8	10	41.5	28.5	49	36	26	**12278**
OSP-E32	**MAE-32**	M5	5.5	30	33	46	27	46	54.5	40	92	40.5	10	10	48.5	35.5	57	43	32	**12279**
OSP-E50	**MAE-50**	M6	7	48	40	71	34	59	67	45	112	52	10	11	64	45	72	57	44	**12280**

Profile Mounting

Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

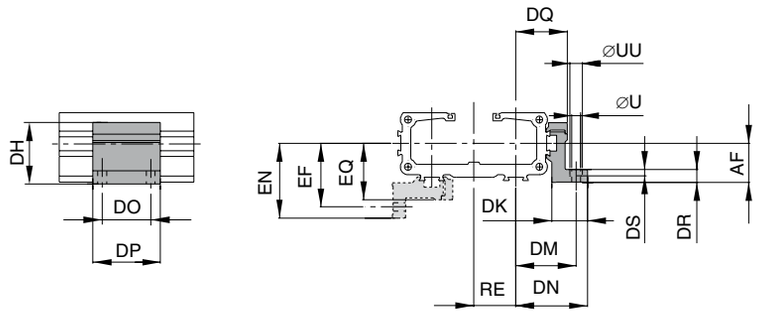
- **OSP-E ..BHD**
  Belt actuator with integrated guide

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.

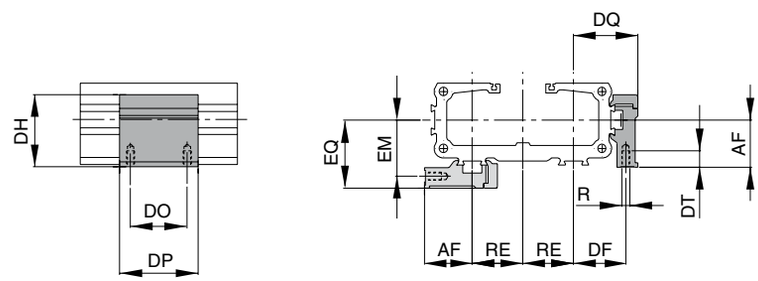
Stainless steel version on request.

The mountings are supplied singly.

Series OSP-E20BHD to E50BHD: Type E1
(Mounting with through holes)



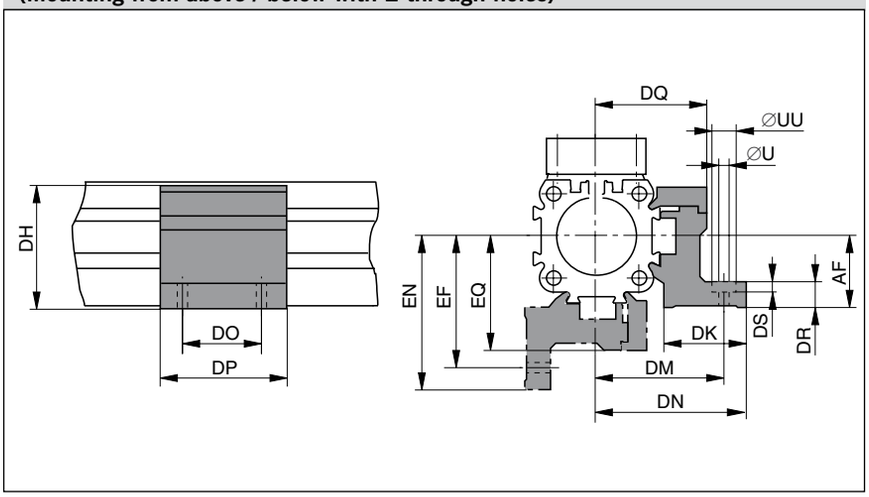
Series OSP-E20BHD to E50BHD: Type D1
(Mountings with internal thread)



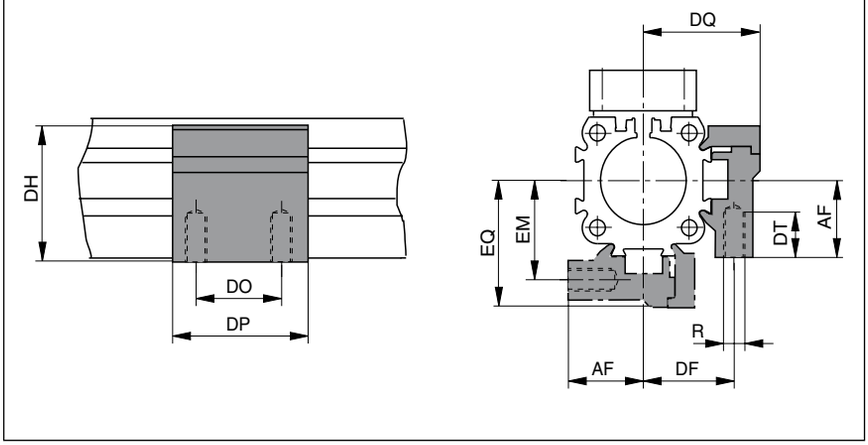
Dimension Table [mm] and Order Instructions

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	36	50	28	8	5.7	10	41.1	28.1	48.6	35.6	23	**20009**	**20008**
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	26	**20009**	**20008**
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	32	**20158**	**20157**
OSP-E50	M6	7	–	48	40	71	34	59	67	45	60	52	10	–	11	64	45	72	57	44	**15536**	**15534**

Series OSP-E25, E32, E50, Type E1
(Mounting from above / below with 2 through holes)



Series OSP-E25, E32, E50, Type D1
(Mountings from below with 2 screws, internal thread)



Profile Mounting

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **OSP-E..B**
  Belt actuator with internal plain bearing guide
- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal screw actuator with internal plain bearing guide
- **OSP-E..SBR**
  Ball screw actuator with internal plain bearing guide ans piston rod
- **OSP-E..STR**
  Trapezoidal 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.

For design notes, see page 42 ff.

Stainless steel version on request.

Dimension Table [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	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	**20009**	**20008**
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	**20158**	**20157**
OSP-E50	M6	7	–	48	40	71	34	59	67	45	60	52	10	–	11	64	45	72	57	**20163**	**20162**

Adapter Profile

Size 20, 25, 32, 50

OSP
ORIGA
SYSTEM
PLUS

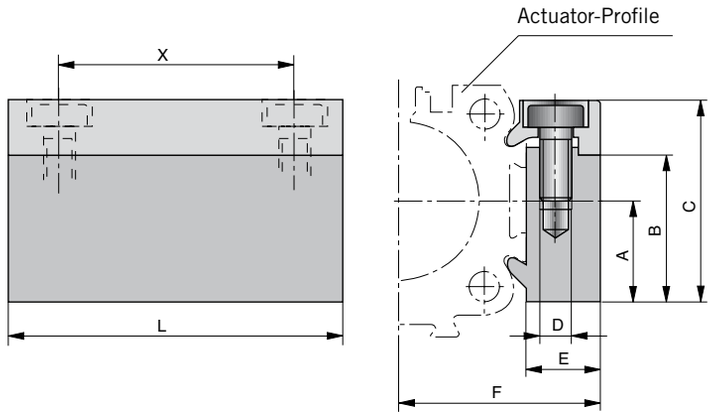
- **Series OSP-E**

Adaptor Profile OSP
- A universal attachment for mounting of additional items
- Solid material

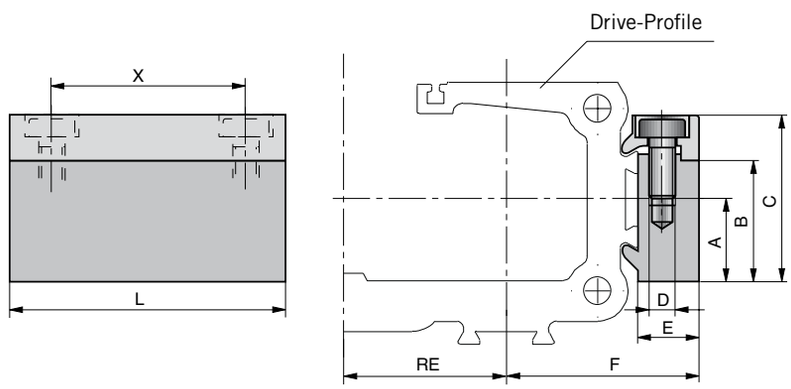
The mountings are supplied singly.

Series OSP-E25 to E50

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



Series OSP-E20BHD to E50BHD

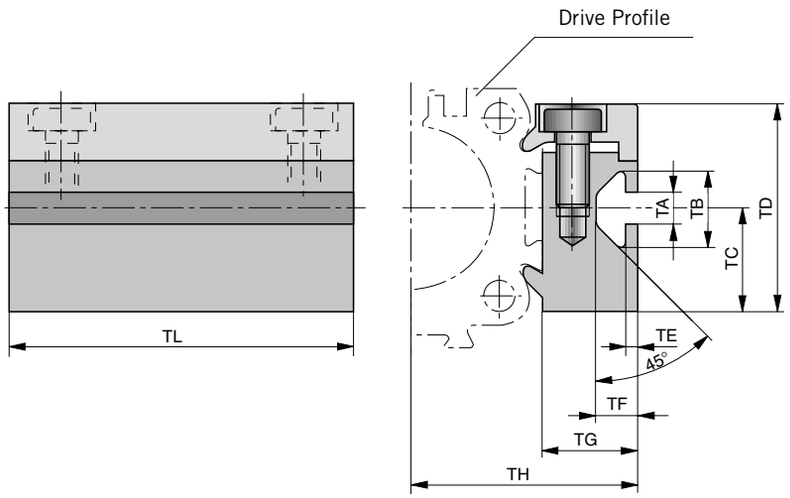


Dimension Table [mm] and Order Instructions

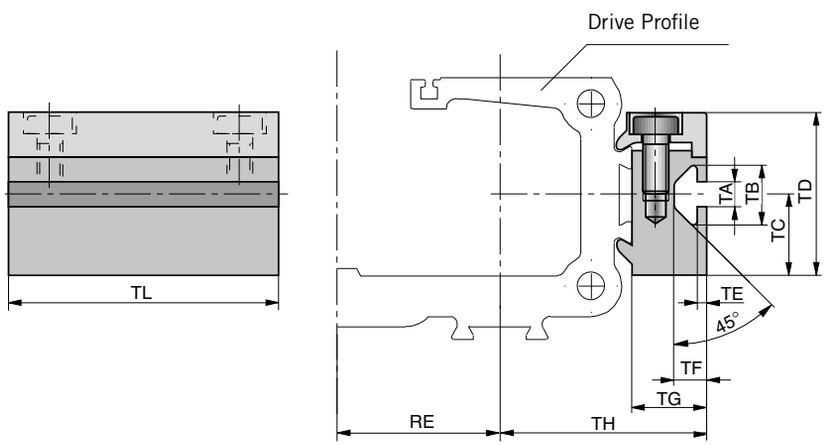
Series	A	B	C	D	E	F	L	X	RE	Order No. Standard	Order No. Stainless
OSP-E20	16	23	32	M5	10.5	24	50	36	23	**20006**	**20186**
OSP-E25	16	23	32	M5	10.5	30.5	50	36	26	**20006**	**20186**
OSP-E32	16	23	32	M5	10.5	36.5	50	36	32	**20006**	**20186**
OSP-E50	20	33	43	M6	14	52	80	65	44	**20025**	**20267**

Series OSP-E25 to E50

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



Series OSP-E20BHD to E50BHD



Adapter Profile

T-slot

Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **Series OSP-E**

T-Nut Profile OSP

- A universal attachment for mounting with standard T-nuts.

The mountings are supplied singly.

Dimension Table [mm] and Order Instructions

Series	RE	TA	TB	TC	TD	TE	TF	TG	TH	TL	Order No. Standard	Order No. Stainless
OSP-E20	23	5	11.5	16	32	1.8	6.4	14.5	28	50	**20007**	**20187**
OSP-E25	26	5	11.5	16	32	1.8	6.4	14.5	34.5	50	**20007**	**20187**
OSP-E32	32	5	11.5	16	32	1.8	6.4	14.5	40.5	50	**20007**	**20187**
OSP-E50	44	8,2	20	20	43	4.5	12.3	20	58	80	**20026**	**20268**

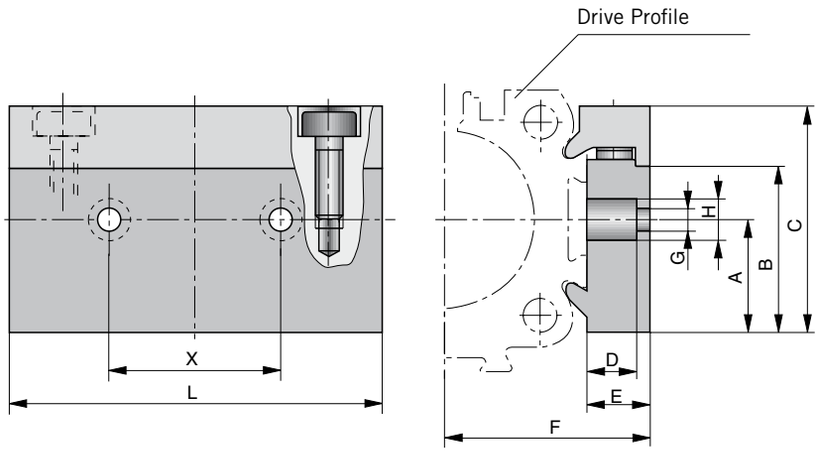
Adapter Profile

Connector

Size 25, 32, 50

to connect
- **Series OSP-E with system profiles**
- **Series OSP-E with Series OSP-E or OSP-P**

Adaptor Profile



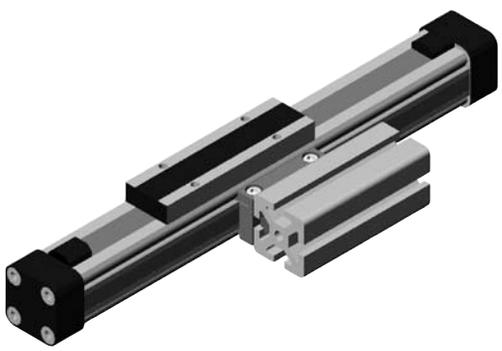
Dimension Table [mm] and Order Instructions

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	**20850**
OSP-E32	OSP32-50	16	23	32	8.5	10.5	36.5	6.6	11	60	27	**20850**
OSP-E50	OSP32-50	20	33	43	8	14	52	6.6	11	60	27	**20851**

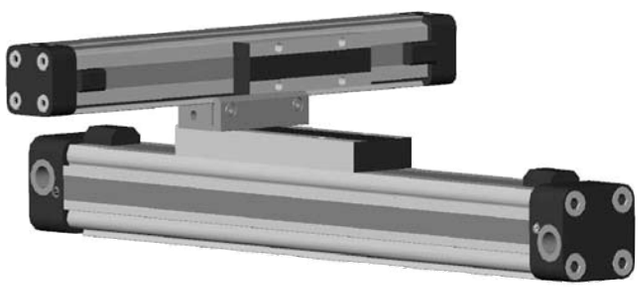
The mountings are supplied singly.

Connecting possibilities

Connection of series OSP-E with system profiles



Connection of series OSP-E with series OSP-E/OSP-P



Trunnion Mounting EN

Pivot Mounting EL

Size 25, 32, 50

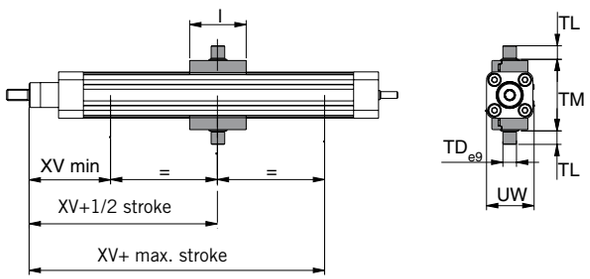
OSP ORIGA SYSTEM PLUS

- **Series 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-..

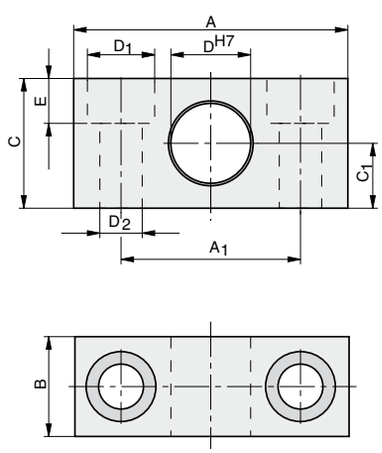


Material: Aluminium

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

Series	Type	l	ø TD e9	TL	TM	UW	XV min	XV+ 1/2Strroke	XV+ max.Stroke	Order No.
OSP-E25SBR, STR	EN-E25	50	12	12	63	42	73	83	62	**12235**
OSP-E32SBR, STR	EN-E32	50	16	16	75	52	76.5	90	69.5	**12236**
OSP-E50SBR, STR	EN-E50	80	20	20	108	87	110	110	84	**12237**

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

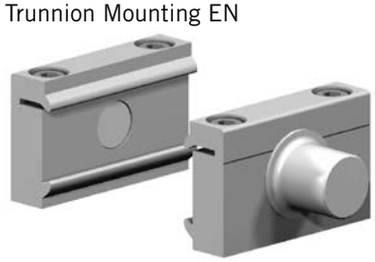


Material: Aluminium

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

Series	Type	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	PD 23381
OSP-E32SBR, STR	EL-040/050	55	36	20	26	13	16	13.5	8.4	9	0.06	PD 23382
OSP-E50SBR, STR	EL-063/080	65	42	25	30	15	20	16.5	10.5	11	0.10	PD 23383

Trunnion Mounting EN



Pivot Mounting EL

Compensation

Contents

Clevis Mounting

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **OSP-E..B**
  Belt actuator with internal plain bearing guide
- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal 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.

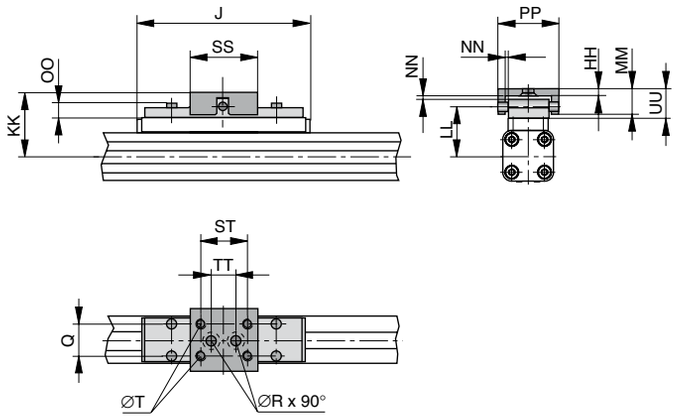
Freedom of movement is provided as follows:

- **Tilting in direction of movement**
- **Vertical compensation**
- **Tilting sideways**
- **Horizontal compensation**

A stainless steel version is also available.

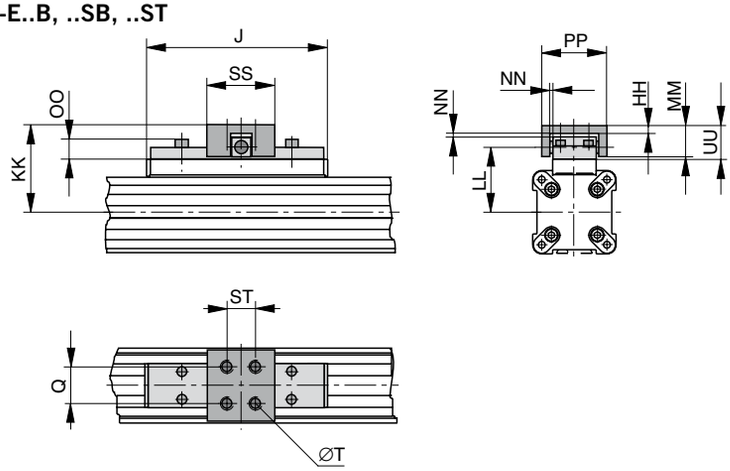
Series OSP-E25 to E32

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



Series OSP-E50

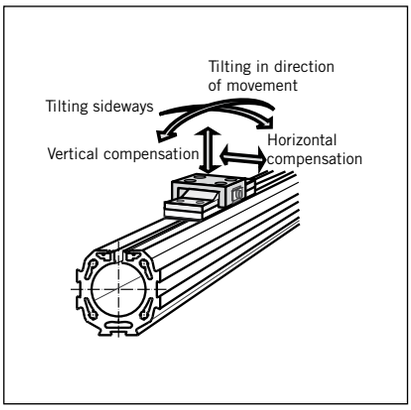
OSP-E..B, ..SB, ..ST



Dimension Table [mm] and Order Instructions

Series	J	Q	T	øR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order No. Standard	Order No. Stainless
OSP-E25	117	16	M5	5.5	3.5	52	39	19	2	9	38	40	30	16	21	**20005**	**20092**
OSP-E32	152	25	M6	6.6	6	68	50	28	2	13	62	60	46	40	30	**20096**	**20094**
OSP-E50	200	25	M6	–	6	79	61	28	2	13	62	60	46	–	30	**20097**	**20095**

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

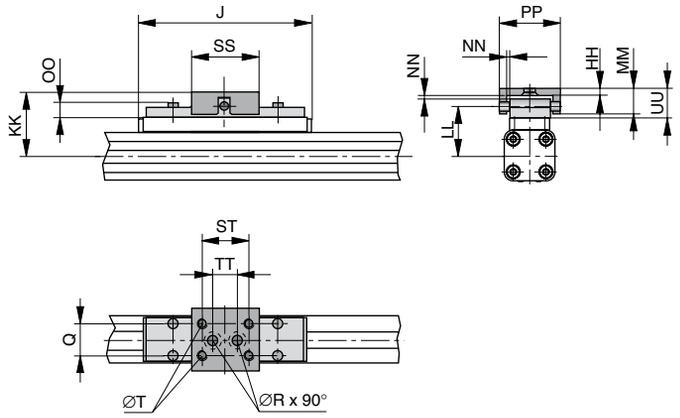


Please note:

When using additional inversion mountings, take into account the dimensions on pages 22, 44, 58, 72 ff.

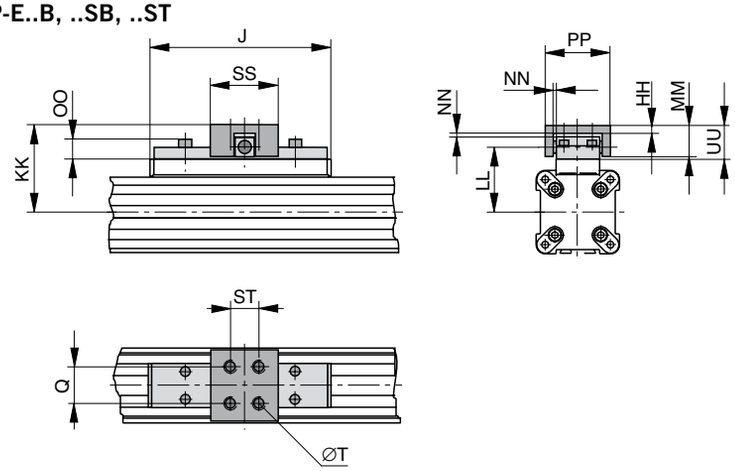
Series OSP-E25 to E32

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



Series OSP-E50

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



Clevis Mounting, low back lash

Size 25, 32, 50

OSP
ORIGA SYSTEM PLUS

- **OSP-E..B**
  Belt actuator with internal plain bearing guide
- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal 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.

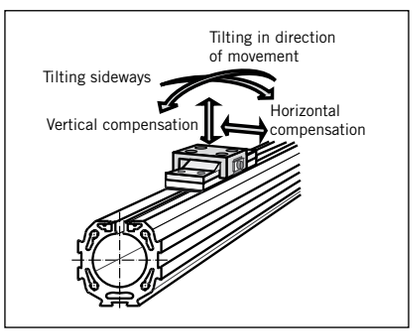
Dimension Table [mm] and Order Instructions

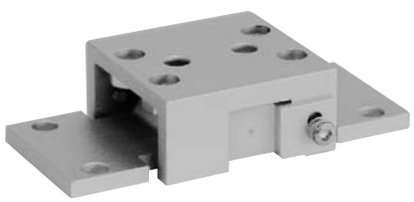
Series	J	Q	T	øR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order No. Standard	Order No. Stainless
OSP-E25	117	16	M5	5.5	3.5	52	39	19	2	9	49	40	30	16	21	**20496**	**20498**
OSP-E32	152	25	M6	6.6	6	68	50	28	2	13	69	60	46	40	30	**20497**	**20499**
OSP-E50	200	25	M6	–	6	79	61	28	2	13	69	60	46	–	30	**20812**	**20818**

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

Please note:

When using additional inversion mountings, take into account the dimensions in data sheet page 125 ff





Inversion Mounting

Size 25, 32, 50

- **OSP-E..B**
  Belt actuator with internal plain bearing guide
- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal 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.

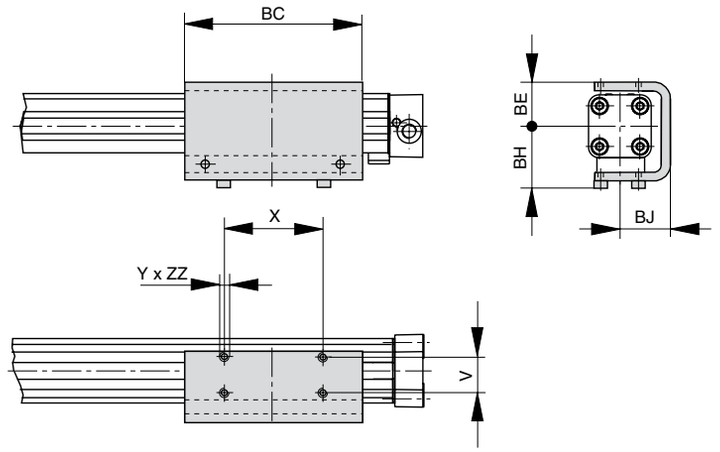
Stainless steel version on request.

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.

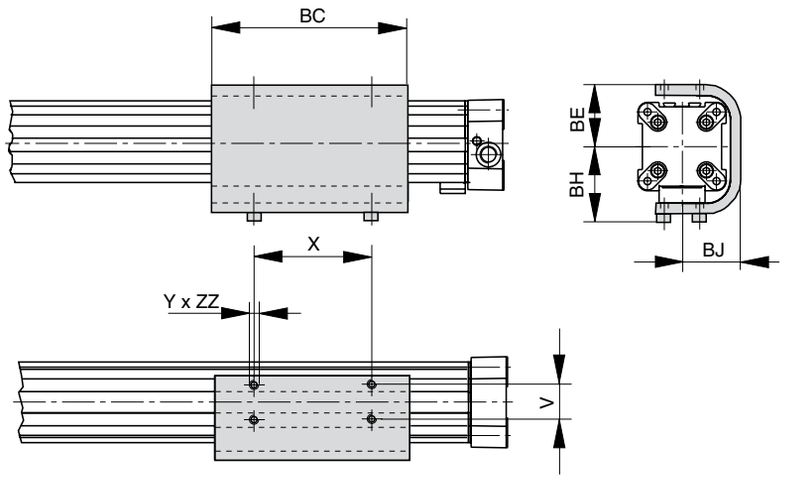
Series OSP-E25 to E32

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



Series OSP-E50

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

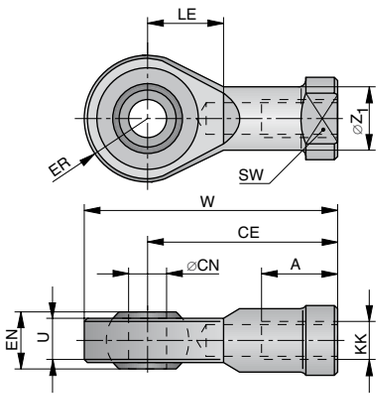


Dimension Table (mm) and Order Instructions

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

Piston Rod Eye according to ISO 8139

Piston Rod Eye according to ISO 8139 (CETOP RP103 P)
Type: GA-..



OSP
ORIGA SYSTEM PLUS

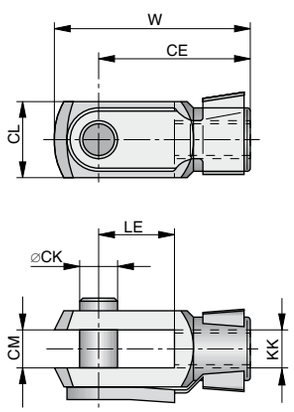
- **OSP-E..SBR**
  Ball screw actuator with internal plain bearing guide ans piston rod
- **OSP-E..STR**
  Trapezoidal screw actuator with internal plain bearing guide and piston rod

Order Instructions, Dimension Table [mm], Weight

Series	Type	A	CE	øCN	EN	ER	KK	LE	SW	U	W	øZ1	Weight [kg]	Order No.
OSP-E25SBR, STR	GA-M10x1.25	20	43	10	14	14	M10x1.25	15	17	10.5	57	15	0.072	KY6147
OSP-E32SBR, STR	GA-M10x1.25	20	43	10	14	14	M10x1.25	15	17	10.5	57	15	0.072	KY6147
OSP-E50SBR, STR	GA-M16x1.5	28	64	16	21	21	M16x1.5	22	22	15	85	22	0.21	KY6150

Piston Rod Clevis according to ISO 8140

Piston Rod Clevis according to ISO 8140 (CETOP RP102P)
Type: GK-..

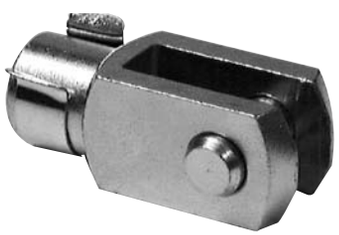


OSP
ORIGA SYSTEM

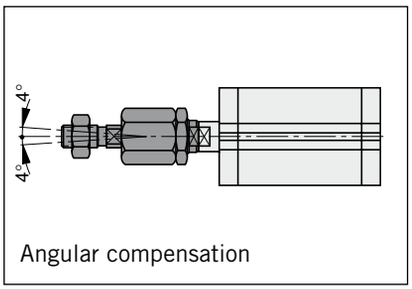
- **OSP-E..SBR**
  Ball screw actuator with internal plain bearing guide ans piston rod
- **OSP-E..STR**
  Trapezoidal screw actuator with internal plain bearing guide and piston rod

Order Instructions, Dimension Table [mm], Weight

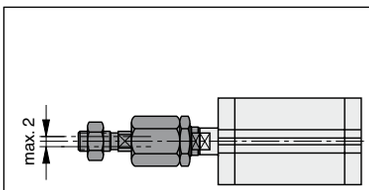
Series	Type	øCK	CE	CL	CM	KK	LE	W	Weight[kg]	Order No.
OSP-E25SBR, STR	GK-M10x1.25	10	40	20	10	M10x1.25	20	52	0.08	KY6135
OSP-E32SBR, STR	GK-M10x1.25	10	40	20	10	M10x1.25	20	52	0.08	KY6135
OSP-E50SBR, STR	GK-M16x1.5	16	64	32	16	M16x1.5	32	83	0.30	KY6139



Piston Rod Compensating Coupling



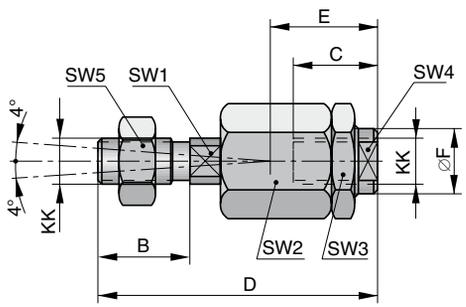
Angular compensation



Radial compensation of the centre axis

- **Series OSP-E..SBR, ..STR**
- **OSP-E..SBR**
  Ball screw actuator with internal plain bearing guide ans piston rod
- **OSP-E..STR**
  Trapezoidal screw actuator with internal plain bearing guide and piston rod

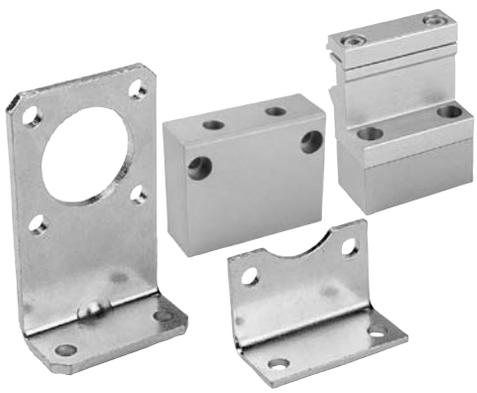
Piston Rod compensating coupling
Type: AK-..



Order Instructions, Dimension Table [mm], Weight

Series	Type	B	C	D ±2	E	ØF	KK	SW1	SW2	SW3	SW4	SW5	Weight [kg]	Order No.
OSP-E25SBR, STR	AK-M 10x1.25	20	23	73	31	21,5	M10x1.25	12	30	30	19	17	0.218	**KY 1129**
OSP-E32SBR, STR	AK-M 10x1.25	20	23	73	31	21,5	M10x1.25	12	30	30	19	17	0.218	**KY 1129**
OSP-E50SBR, STR	AK-M16x1.5	40	32	108	45	33,5	M16x1.5	19	41	41	30	30	0.637	**KY 1133**

Guide Mounting



Contents

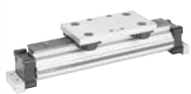
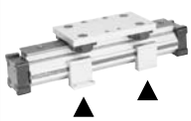
Overview

Mountings for Linear Drive Actuators OSP-E with OSP-Guides

OSP
ORIGA SYSTEM PLUS

- **OSP-E..B**
  Belt actuator with internal plain bearing guide
- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal screw actuator with internal plain bearing guide

Overview

Type of mounting des Zylinders	Type	Versions – OSP-guide SLIDELINE PROLINE MULTIBRAKE 25	32	50	POWERSLIDE 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
Mid-Section Support wide  ▲ ▲	Type E1	X	X	X	X	X	X	X	X	X	X
	Type E2	O	O	O							
	Type E3				O	O		O		O	
	Type E4						O		O		O

X = mounting position carriage top (12 clock position)

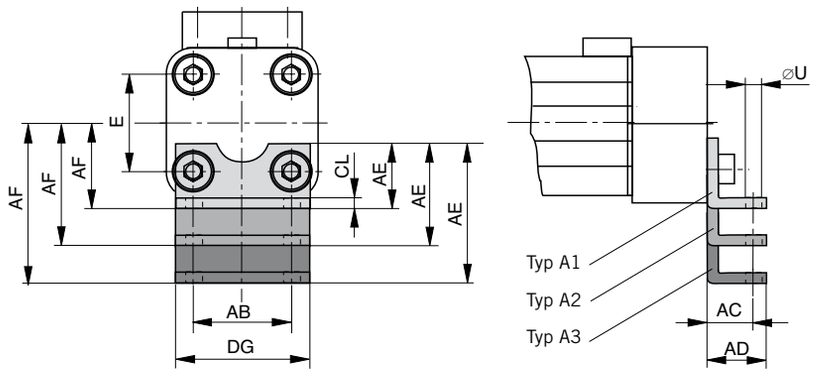
O = mounting position carriage side (3 or 9 clock position)

= 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).

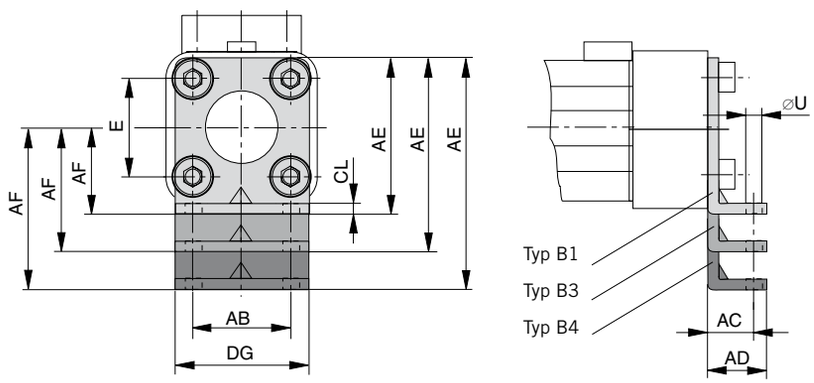
Series OSP – E25, E32: Type A

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



Series OSP – E25, E32: Type B

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



End Cap Mounting *

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.

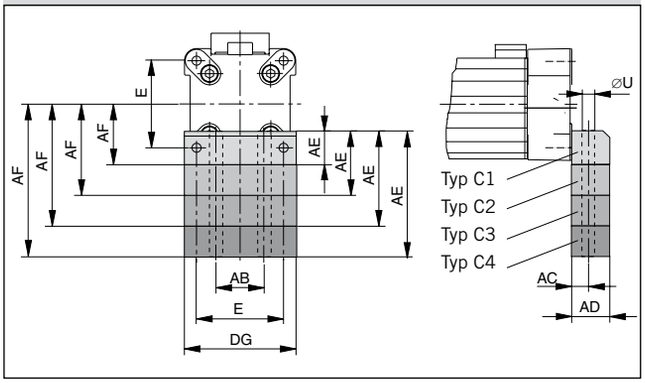
Material: series OSP-25, 32: steel, zinc galvanized
series OSP-50: aluminium, anodized

The mountings are supplied in pairs.

Dimension Table [mm]
– Dimension AE and AF (Depending on type of mounting)

Type of mount.	Dimension AE at size			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

Series OSP – E50: Type C



Dimension Table [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	50
OSP-E50	70	9	40	12.5	24	-	86

* see survey for mounting types on page 129 ff

Mid Section Support

Information on type E1 and D1:

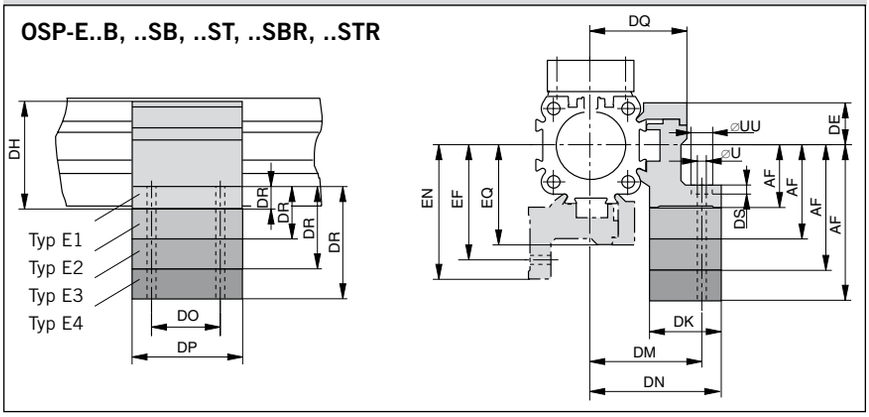
The Profile Mountings can also be fitted to the bottom side of the drive. In this case please observe the new centre line dimensions of the drive.

For layout information please refer to the page 100 ff.

Stainless version on request.

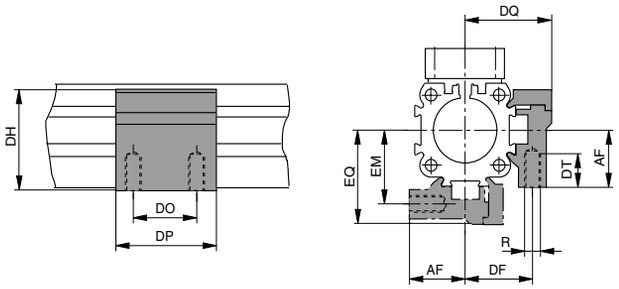
Series OSP-E25, E32, E50: Type E.
(Mounting with through hole)

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



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

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



Dimension Table [mm]
– Dimension DR and AF (Depending on type of mounting)

Type of mount.	Dimensions DR at size			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

Dimension Table [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	M6	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 mounting (Versions)	Order No. Size		
	25	32	50
A1 *1)	2010	3010	–
A2 *1)	2040	3040	–
A3 *1)	2060	3060	–
B1 *1)	20311	20313	–
B3 *1)	–	–	–
B4 *1)	20312	20314	–
C1 *1)	–	–	5010
C2 *1)	–	–	20349
C3 *1)	–	–	20350
C4 *1)	–	–	20351
D1 *2)	20008	20157	20162
E1 *2)	20009	20158	20163
E2 *2)	20352	20355	20361
E3 *2)	20353	20356	20362
E4 *2)	20354	20357	20363

*1) The mountings are supplied in pairs
*2) The mountings are supplied simply

Magnetic Switches

Contents

Magnetic Switches

OSP ORIGA SYSTEM PLUS

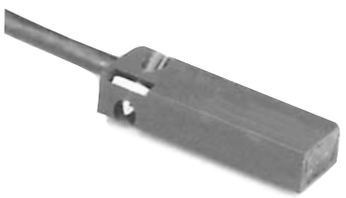
Type RS-.
Type ES-.

For electric sensing of the carrier position, e.g. at the end positions, magnetic switches may be fitted. The magnetic switches can as well be used as cut-out switches for a lot of intermediate positions.

Position sensing is contactless and is based on magnets fitted as standard to the carrier. A yellow LED indicates operating status.

Piston 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.

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



Characteristics

Characteristics		Symbol	Unit	Description
Electric Characteristics			**Type RS**	**Type ES**
Operating voltage	U_B	V	10-240 AC/DC (NO) 10-150 AC/DC (NC) 10-70 AC/DC (NO/NC)**	10-30 DC
Connection			Two wire	Three wire
Switching function			Normally open (NO) Normally closed (NC)	NPN (NO) PNP (NC)
Max. permanent switching current	I_{Dmax}	mA	200	200
Max. switching capacity		VA (W)	10 VA	—
Residual voltage at I_{Lmax}		V	< 3	< 3
Max. current consumption		mA	—	< 20
Status indicator			LED, yellow	
Typical switching time		ms	On: < 2	On: < 2
Switch-off delay		ms	—	approx. 25
Pole reversal			LED without function	—
Pole reversal protection			—	built in
Short circuit protection			—	built in
Switchable capacity		µF	0.1 at 100 Ω, 24 VDC	
Switching distance		mm	approx. 15	approx. 15
Hysteresis for OSP		mm	approx. 8	approx. 3
Mechanical Characteristics				
Housing			Macrolon, grey	
Insulation class			F to VDE 0580	
Connection*) Type RS-K			Cable, 5 m long	
Type RS-S			3-pole Connector M8, Cable length ca. 100mm**	3-pole Connector M8, Cable length ca. 100mm
Cable cross section (highly flexible)		mm^2	2 x 0.14	3 x 0.14
Cable (highly flexible *)			PVC	PUR, black
Wire colours			brown AC/DC+ blue or white signal output	Pin 1 = +, brown Pin 3 = 0 V, blue Pin 4 = Signal black or white
Minimum permissible bending radius of cable fixed		mm	≥ 20	
moving		mm	≥ 70	
Switching point accuracy		mm	± 0.2	
Temperature range *) [1]	ϑ_{min} ϑ_{max}	°C °C	-25 other temperature ranges +80 on request	
Service life, switching cycles			3 x 10^6 up to 6 x 10^6	theoretically unlimited
Electric protection		IP	67 according to DIN EN 60529	
Shock resistance			m/s^2 (contact switches)	100 500
Weight (mass)		kg	0.12	

*) other versions on request
**)RS with connector (RS-S)
[1] for the magnetic switch temperature range, please take into account the surface temperature and the self-heating properties of the actuator.

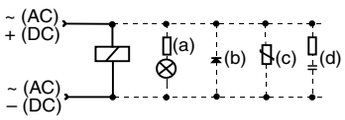
Magnetic Switches RS and ES

Electric Service Life
Protective Measures
Type RS magnetic switches 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

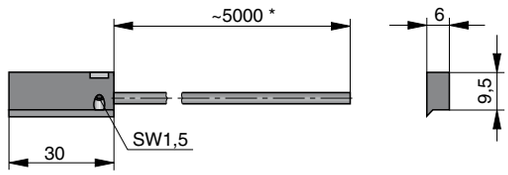


For the type ES, external protective circuits are not normally needed.

Type RS
In the type RS contact is made by a mechanical reed switch encapsulated in glass.

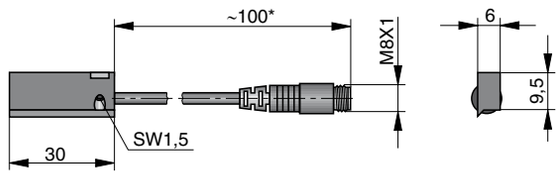
Type ES
In the type ES contact is made by an electronic switch – without bounce or wear and protected from pole reversal. The output is short circuit proof and insensitive to shocks and vibrations.

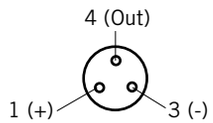
Dimensions [mm] – Type RS-K



* Length with possible minus tolerance, see chart below

Dimensions [mm] – Type ES-S / RS-S**





PIN assignment
(view of pins)
according to DIN EN 50044

* * Length with possible minus tolerance, see table below

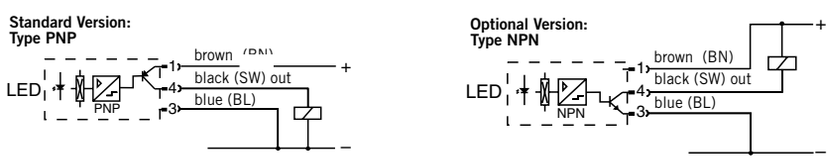
**Operating voltage max. 70 V

Length of connection cable with length tolerance

Sensor Order No.	Nominal cable length	max. Length tolerance
KL3087	100 mm	– 20 mm
KL3047	100 mm	– 20 mm
KL3054	100 mm	– 20 mm
KL3060	145 mm	± 5 mm
KL3048	5000 mm	– 50 mm
KL3045	5000 mm	– 50 mm

Electric Connection Type RS

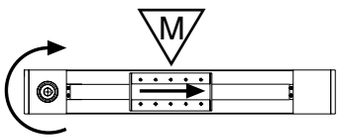
Electric Connection Type ES



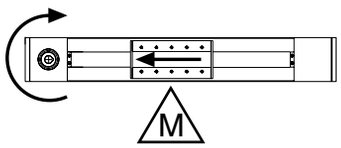
Positioning of Magnetic Sensors/Permanent Magnets — OSP-E..BHD

When arranging the magnetic switches, 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.

Standard Version

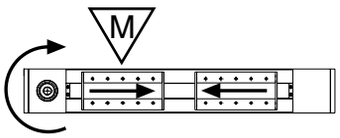


Drive Shaft Option = 0

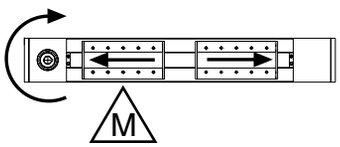


Drive Shaft Option = 1

Bi-Parting Version



Drive Shaft Option = 2

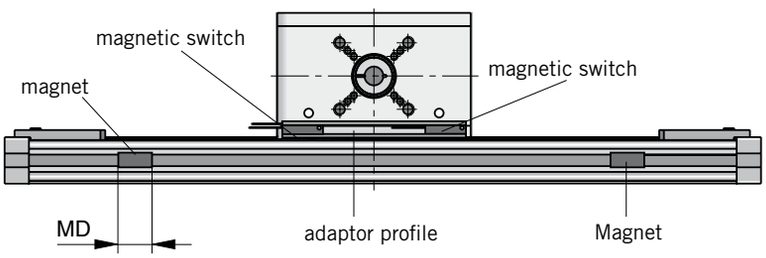


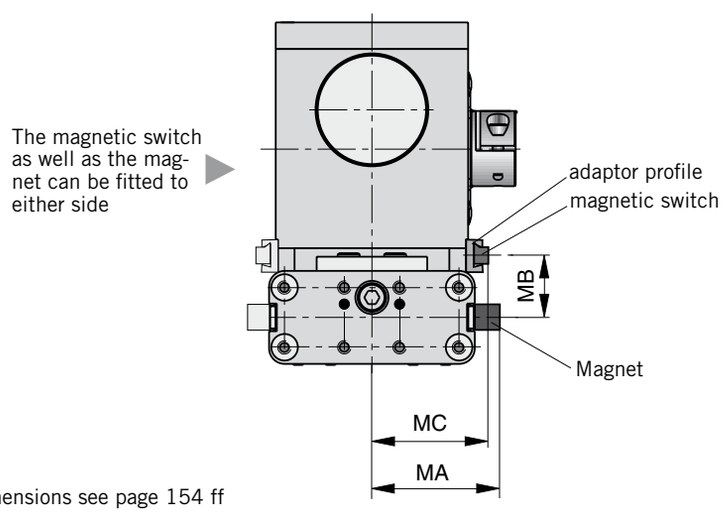
Drive Shaft Option = 3

Dimensions for magnetic switch set Series OSP-E..BV

Magnetic switch and magnet are externally fitted to the OSP-E..BV.

For this purpose please order the magnetic switch set (consisting of 2 magnetic switches, 1 fastening rail and 2 magnets) for contactless position sensing.

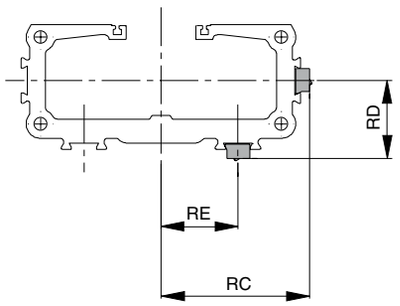




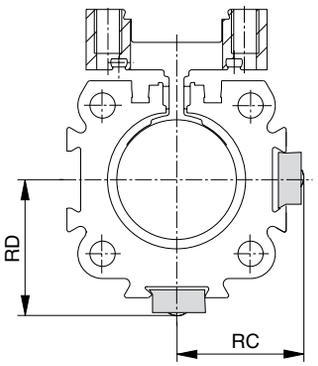
Dimensions see page 154 ff

Dimensions

OSP-E..BHD



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



Dimension Table (mm)

Series	Dimension						
	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 Instructions

Description	Function	Series	Cable Length [mm]	**Type**	**Order No.**
Magnetic switches, Reed contact, with M8-Connector PIN 3 neutral (ES-S compatible connector)	NC 1+ 4 max. 70 V/0.2 A	all*	100	**RS-S**	**KL3087**
	NO 1+ 4 max. 70 V/0.2 A	all*	100	**RS-S**	**KL3047**
Magnetic switches, Reed contact, with cable	NC bn+ max. 150 V/0.2 A	all*	5000	**RS-K**	**KL3048**
	NO bn+ max. 240 V/0.2 A	all*	5000	**RS-K**	**KL3045**
	NC bn+ max. 240 V/0.2 A	OSP-E..STR	5000	**RS-K**	**KL3096**
Magnetic switches, electronical with M8-connector	NPN (NO) NPN	all*	100	**ES-S**	**KL 3060**
	PNP (NC) PNP	all*	100	**ES-S**	**KL 3054**
	PNP (NC) PNP	OSP-E..STR	100	**ES-S**	**KL 3098**
Magnetic switch set **	NC 1+ 4 max. 70 V/0.2 A	OSP-E..BV	2 x 100	**RS-S**	**15886**
Connecting cable					
suitable for cable chain			5000		**KL3186**
suitable for cable chain			10000		**KL3217**
suitable for cable chain			15000		**KL3216**
standard			5000		**4041**
standard			10000		**KL9074**

* = except for OSP-E..STR
** = consisting of 2 magnetic switches KL 3087, 1 fastening rail, 2 magnets

Position Measuring System SFI-plus

Contents

Displacement Measuring System

for automated movement

ORIGA-Sensoflex

(Incremental Displacement Measuring System)

Series SFI-plus

- **OSP-E..SB**
  Ball screw actuator with internal plain bearing guide
- **OSP-E..ST**
  Trapezoidal screw actuator 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

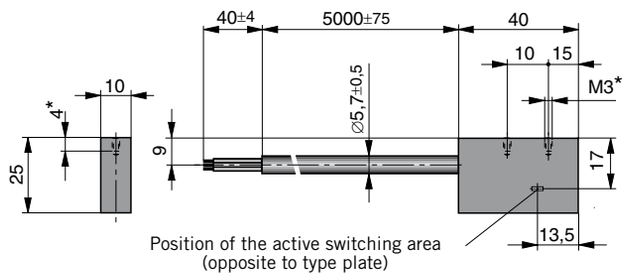
The magnetic displacement measuring system SFI-plus consists of 2 main components:

- **Measuring scale**
  self-adhesive, magnetic measuring scale
- **Sensing head**
  converts the magnetic poles into electric signals which are then processed by counter inputs downstream (e.g. PLC, PC, digital counters)

Characteristics

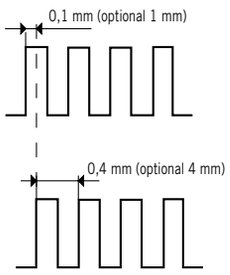
Characteristics	Unit	Description
Type		**21210**
Output function		
Resolution	mm	0.1
Pole length scale	mm	5
Max. speed	m/s	10
Repeating accuracy		± 1 increment
Distance sensor/scale mm		≤ 4
Tangential deviation	≤ 5°	
Possible lateral deviation	mm	≤ ± 1.5
Switching output		PNP
Electric Characteristics		
Operating voltage U_b	V DC	18 – 30
Voltage drop	V	≤ 2
Continuous current per output	mA	≤ 20
Power consumption at U_b = 24V, switched on, no-load	mA	≤ 50
Short-circuit protection		yes
Reverse voltage protection		yes
Protection against inductive switch-off peak		yes
Power-up pulse suppression		yes
EMC		
Electrostatic discharge	kV	6, B, according to EN 61000-4-2
Electromagnetic field	V/m	10, A, according to EN61000-4-3
Fast transients signals, burst (signal connections)	kV	1, B, according to EN 61000-4-4
Fast transients signals, burst (DC-connections)	kV	2, B, according to EN 61000-4-4
EMC immunity, surge (signal-connections)	kV	1, B, according to EN 61000-4-5
EMC immunity, surge (DC-connections)	kV	0,5, B, according to EN 61000-4-5
HF cable fed	V	10, A, according to EN 61000-4-6
Magnetic field at 50 Hz	A/m	30, A, according to EN 61000-4-8
Radio frequency interference		according to EN 61000-6-4
Radiated disturbances		according to EN 55011, group 1, A
Mechanical parameters		
Housing		Aluminium
Cable length	m	5.0 – fixed, open end
Cable cross-section	mm^2	4 x 0.14
Type of cable		PUR, black
Bending radius	mm	≥ 36
Weight (mass)	kg	approx. 0.165
Ambient conditions/shock resistance		
Encapsulation class	IP	67 according to EN60529
Ambient temperature range		°C -25 to +80
Broad band noise according to EN 60068-2-64	g	5.5 Hz to 2 kHz, 0.5 h per axis
Vibration according to EN 60068-2-6	g	12, 10 Hz to 2 kHz, 2 mm, 5 h per axis
Shock acc. EN 60068-2-27	g	100, 6 ms, 50 shocks per axis
Continuous shock according to EN 60068-2-29	g	5, 2 ms, 8000 shocks per axis

Dimensions [mm] – Reading Head

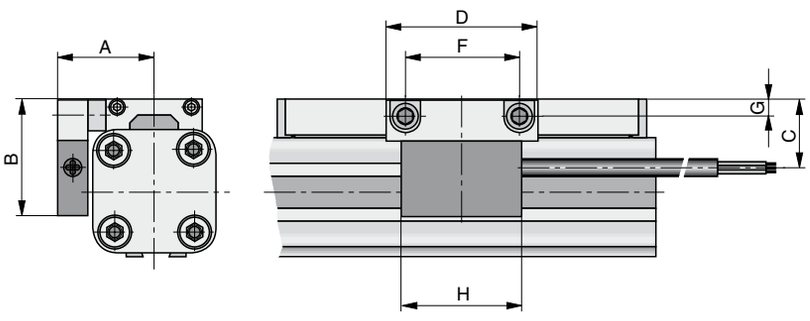


* Max. thread depth 4mm

Signal curve – sensing head OUT

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

Dimensions – in combination with OSP-E actuators



Dimension Table [mm]

Series	A	B	C	D	F	G	H
OSP-E25SB, ST	32	39	23	50	38	5.5	40
OSP-E32SB, ST	37.5	46	30	50	38	6.5	40
OSP-E50SB, ST	49.5	55	39	50	38	6.5	40

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.

Electric connection

colour	Designation
bn = brown	+ DC
bl = blue	– DC
bk = black	phase A
wt = white	phase B

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.

Order Instructions

Description	Order No.
Sensing head with measuring scale – resolution 0.1 mm (please indicate scale length)	**21240**
Sensing head - resolution 0.1 mm (spare part)	**21210**
Measuring scale per meter for (to be replaced)	**21235**
Mounting kit for OSP-P25	**21213**
Mounting kit for für OSP-P32	**21214**
Mounting kit for für OSP-P50	**21216**

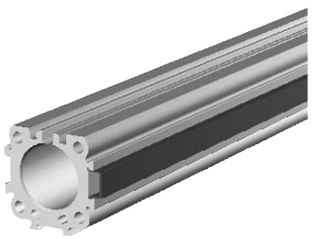
* The overall length of the measuring scale results from the dead length of the actuator and the stroke length.
For dead lengths for actuators of series OSP-E see table.

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 + 1000 mm = 1154 mm

Cable Cover



Contents

Cable Cover

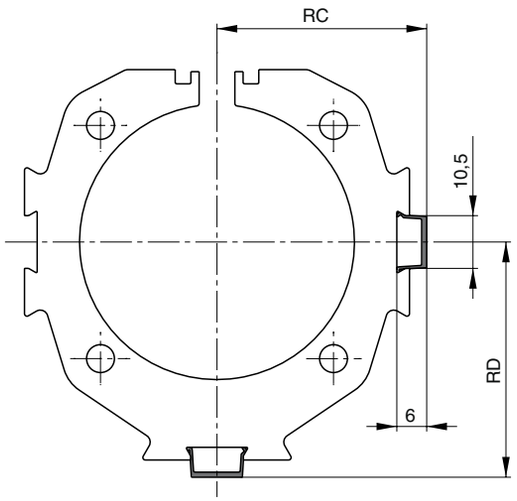
Size 20, 25, 32, 50

OSP
ORIGA SYSTEM PLUS

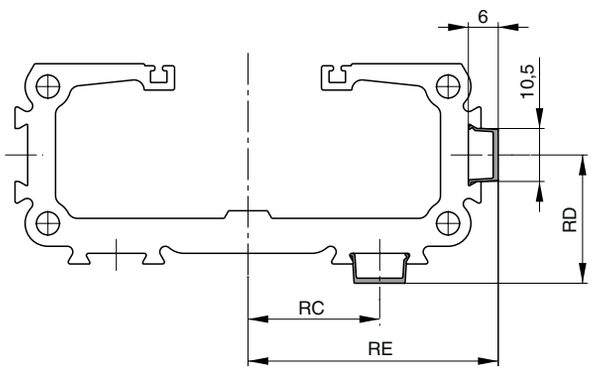
For clean guidance of magnetic switch cables along the cylinder body.
Contains a maximum of 3 cables with diameter 3 mm.

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

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



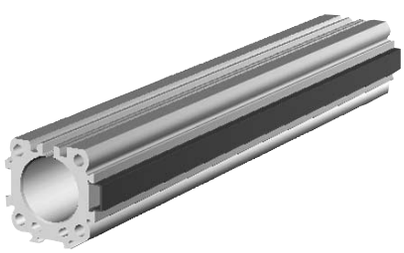
Series OSP-E..BHD – Dimensions [mm]



Dimension Table [mm] and Order Instructions

for Series	RC	RD	RE	Order No.
OSP-E25 *	23.5	25.5	–	**13039**
OSP-E32 *	29.5	32	–	
OSP-E50 *	41.5	46.5	–	Minimum length: 1m Max. profile length: 2m Multiple profiles can be used.
OSP-E20BHD	23	25	40	
OSP-E25BHD	26	25.5	49.5	
OSP-E32BHD	32	32	61.5	
OSP-E50BHD	44	46.5	85.5	

* B, SB, ST, SBR, STR



OSP-E
Multi-Axis Connections for Electric Actuators

Contents

MULTI-AXIS CONNECTION SYSTEM – SIMPLIFIES ENGINEERING AND INSTALLATION

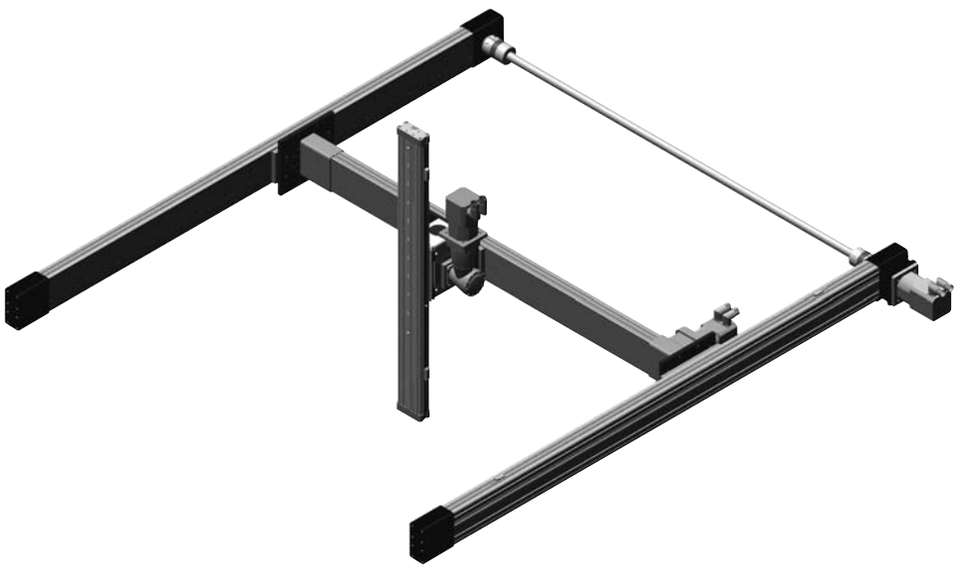
A completely new system for easy connection of OSP-E actuators in multi-axis systems.

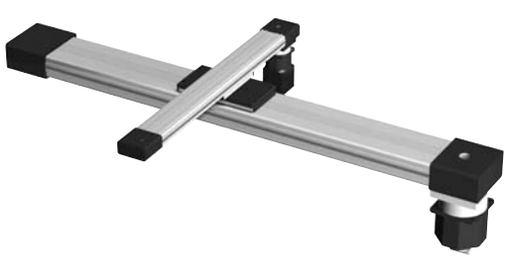
MULTI-AXIS CONNECTIONS

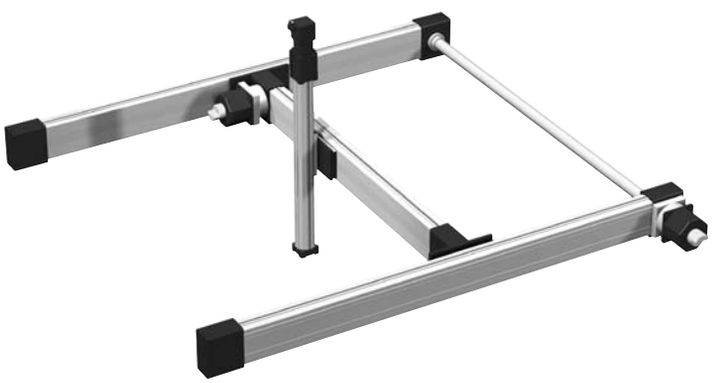
With this highly adaptable system for connection of actuators in multi-axis arrangements,
Parker Origa offers design engineers complete flexibility.
A wide range of adapter plates, profile mountings and intermediate drive shafts simplify engineering and installation.

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

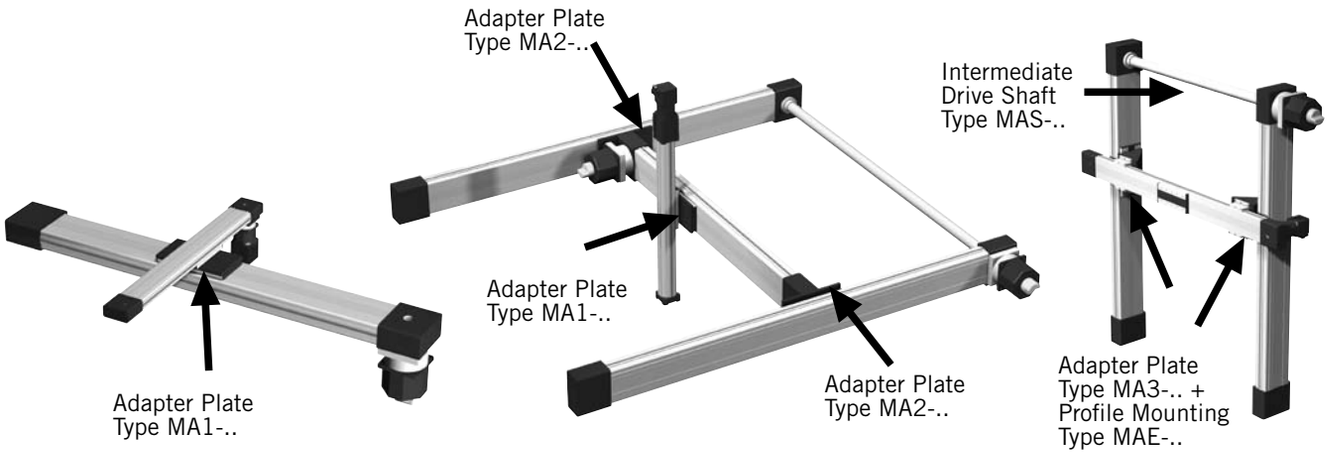
Developed for the heavy-duty belt drive series OSP-E..BHD, the system provides cross-connection with the same series and also other actuator series in the
ORIGA SYSTEM PLUS range.



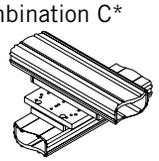
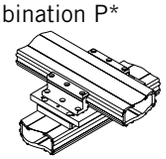
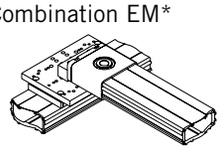
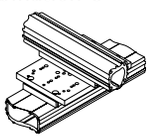
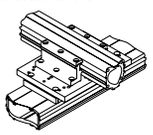
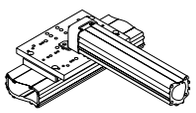
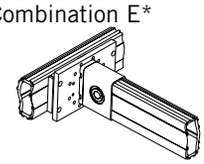
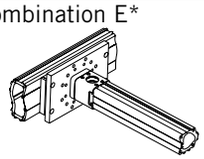
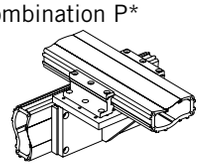
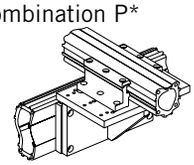
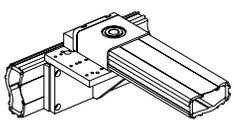
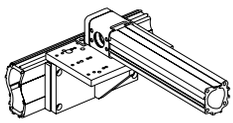
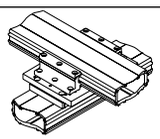
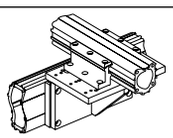




MULTI-AXIS CONNECTION SYSTEM



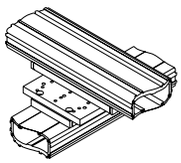
*** For available standard combinations, see page 170.**

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-.. 			

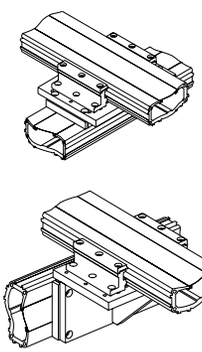
AVAILABLE MOUNTING COMBINATIONS

Available Mounting Combinations

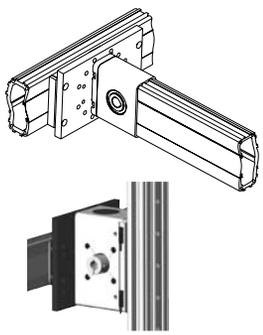
Combination C*



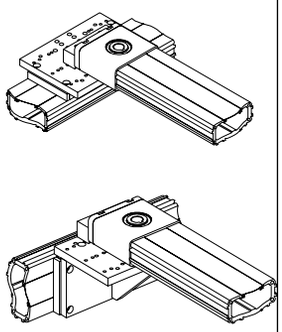
Combination P



Combination E*



Combination EM*



Illustrations just 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 only combination P is available.

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.

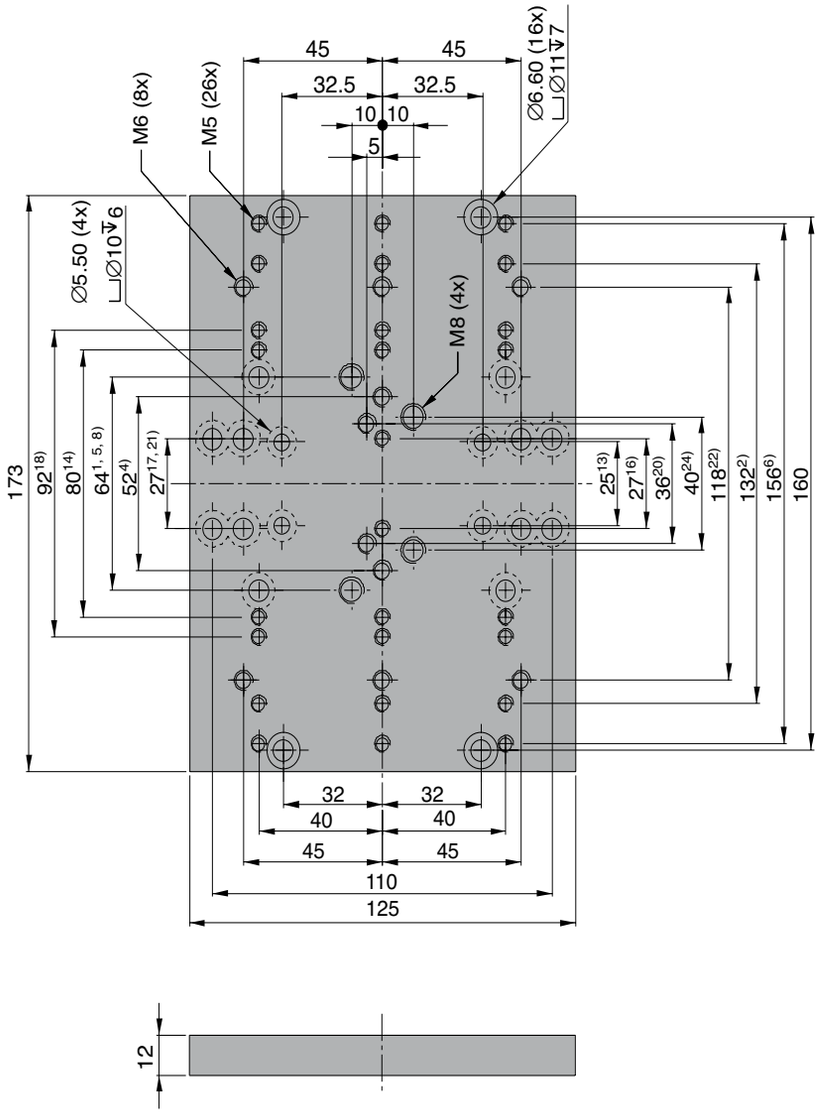
For **Actuators see** page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E25

OSP ORIGA SYSTEM PLUS

Type: MA1-25

Dimensions [mm] Adapter Plate Type MA1-25



Dimensions with superscript values refer to the corresponding available options detailed on page 170.
e.g. Dimensions with superscript number 5 correspond to the option "C" for OSP-E32BHD actuator.

Order Instructions and Weight

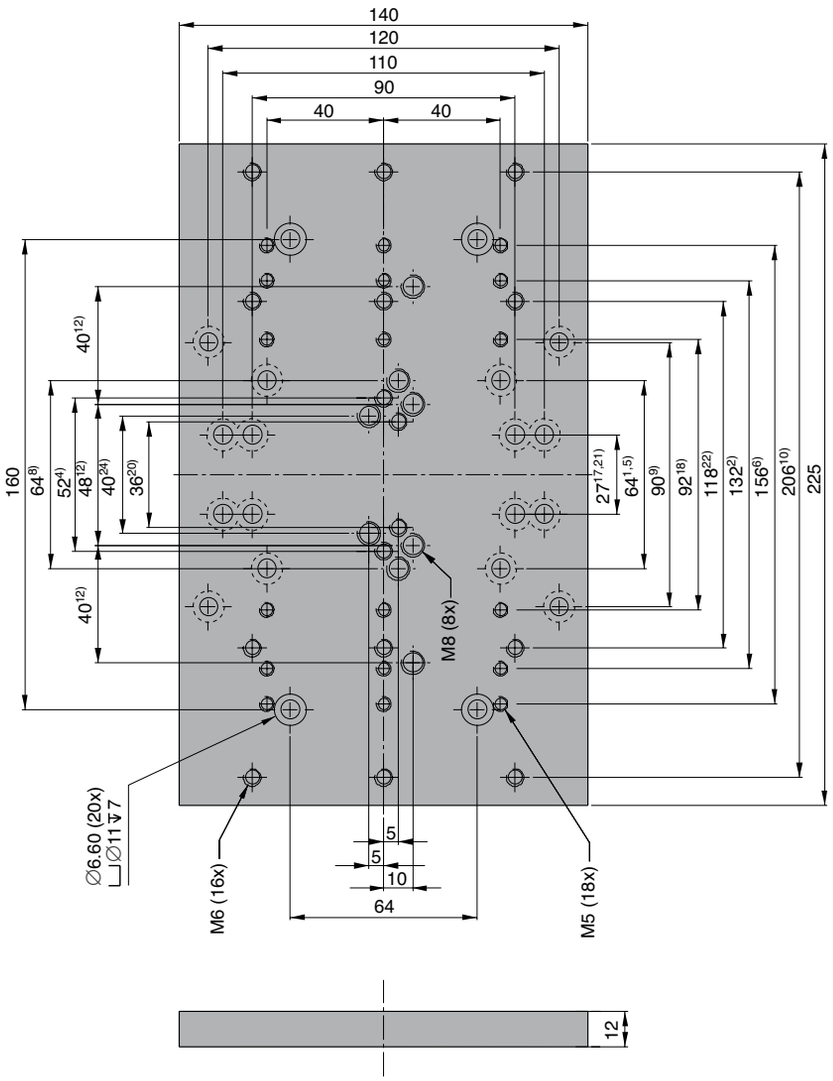
Description	Weight(mass) [kg]	**Order -No.**
Adapter Plate Type MA1-25	0.7	**12269**

For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E32

Type: MA1-32

Dimensions [mm] Adapter Plate Type MA1-32



Dimensions with superscript values refer to the corresponding available options detailed on page 170.
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	**12272**

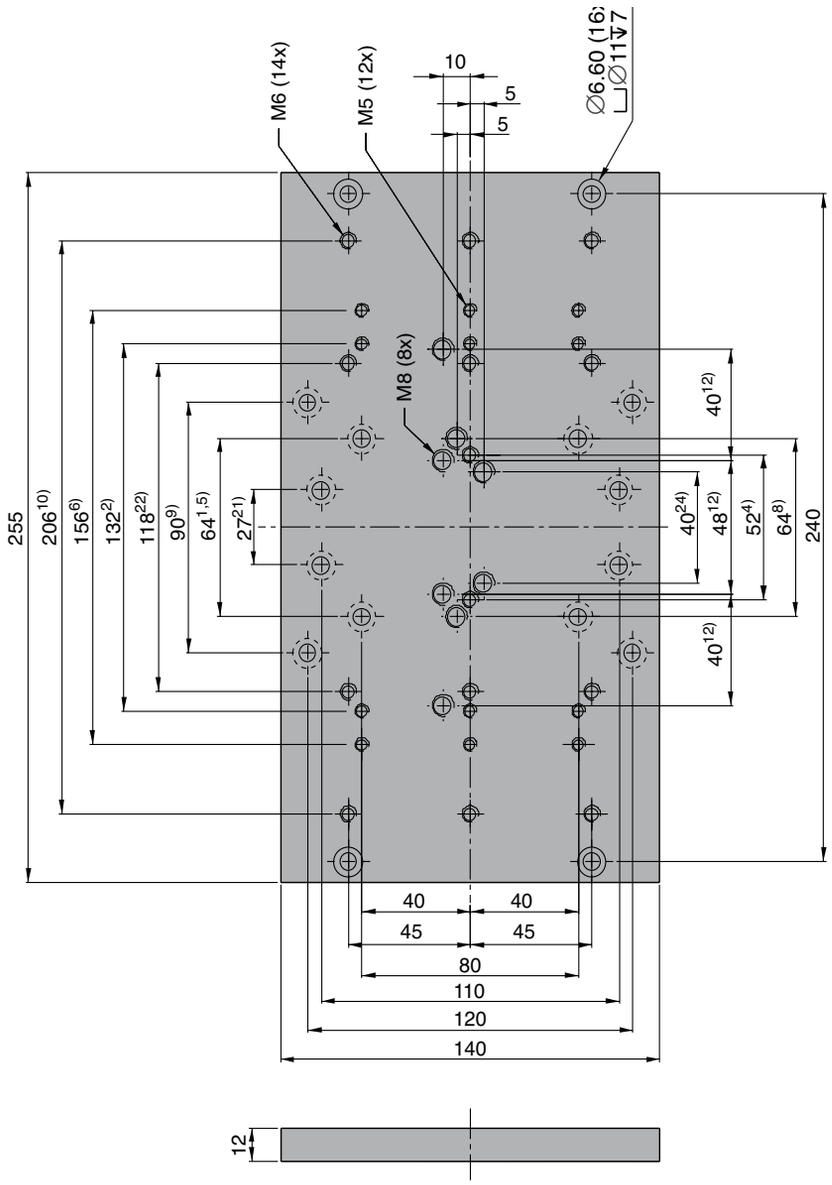
For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E50

OSP
ORIGA SYSTEM PLUS

Type: MA1-50

Dimensions [mm Adapter Plate Type MA1-50



Dimensions with superscript values refer to the corresponding available options detailed on page 170.
e.g. Dimensions with superscript number 5 correspond to the option "C" for OSP-E32BHD actuator.

Order Instructions and Weight

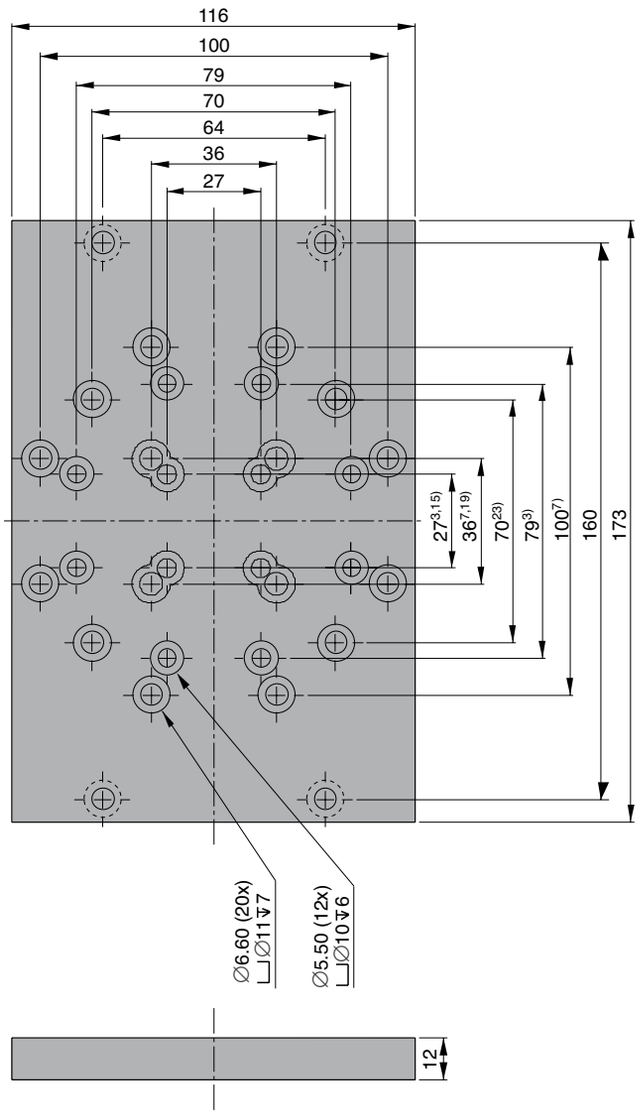
Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA1-50	1.1	**12275**

For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E25

Type: MA2-25

Dimensions [mm] Adapter Plate Type MA2-25



Dimensions with superscript values refer to the corresponding available options detailed on page 170.
e.g. Dimensions with superscript number 5 correspond to the option "C" for OSP-E32BHD actuator.

Order Instructions and Weight

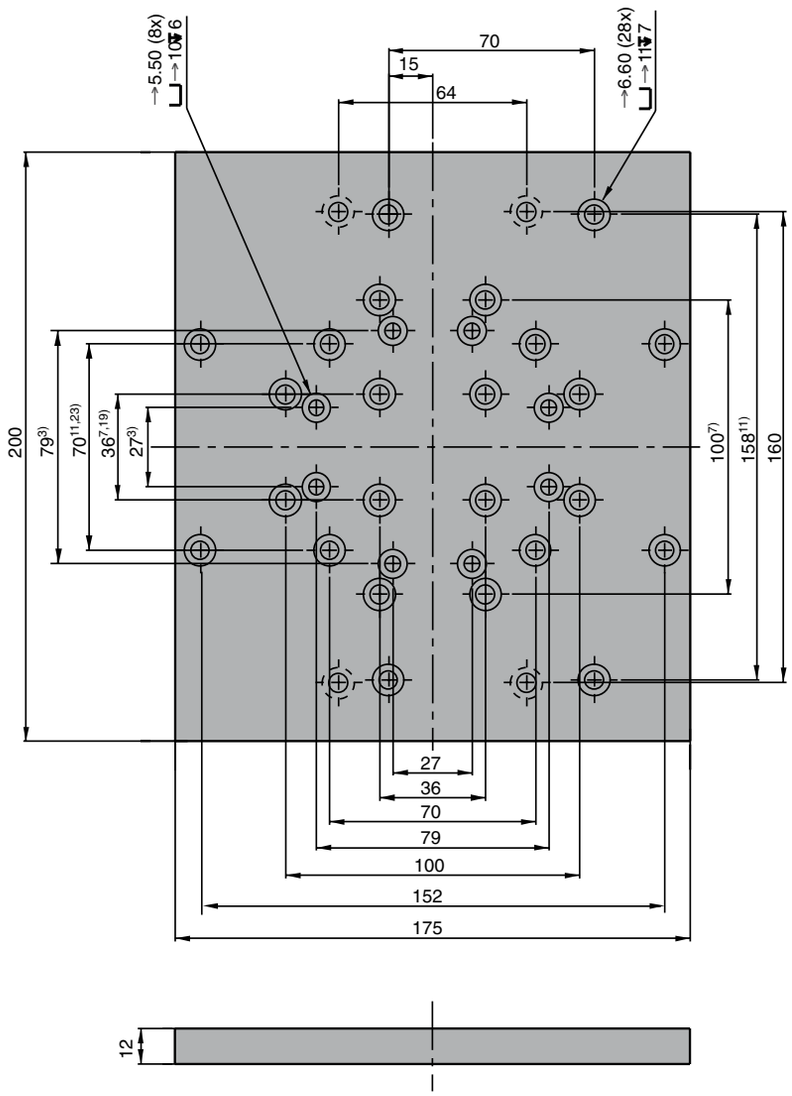
Description	Weight (mass) [kg]	**Order No.**
Adapter Plate Type MA2-25	0.6	**12270**

For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E32

Type: MA2-32

Dimensions [mm] Adapter Plate Type MA2-32



Dimensions with superscript values refer to the corresponding available options detailed on page 170.
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	**12273**

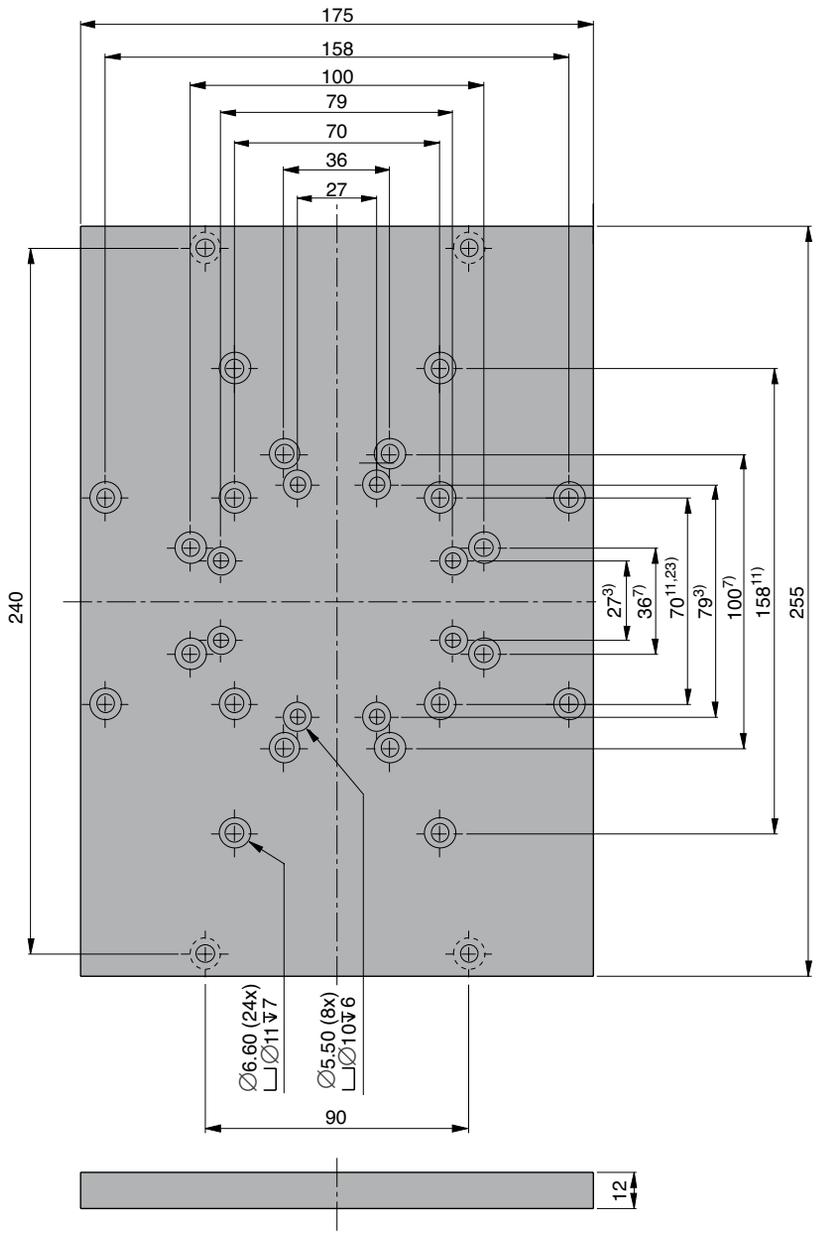
For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E50

OSP
ORIGA SYSTEM PLUS

Type: MA2-50

Dimensions [mm] Adapter Plate Type MA2-50



Dimensions with superscript values refer to the corresponding available options detailed on page 170.
e.g. Dimensions with superscript number 5 correspond to the option "E" for OSP-E32BHD actuator.

Order Instructions and Weight

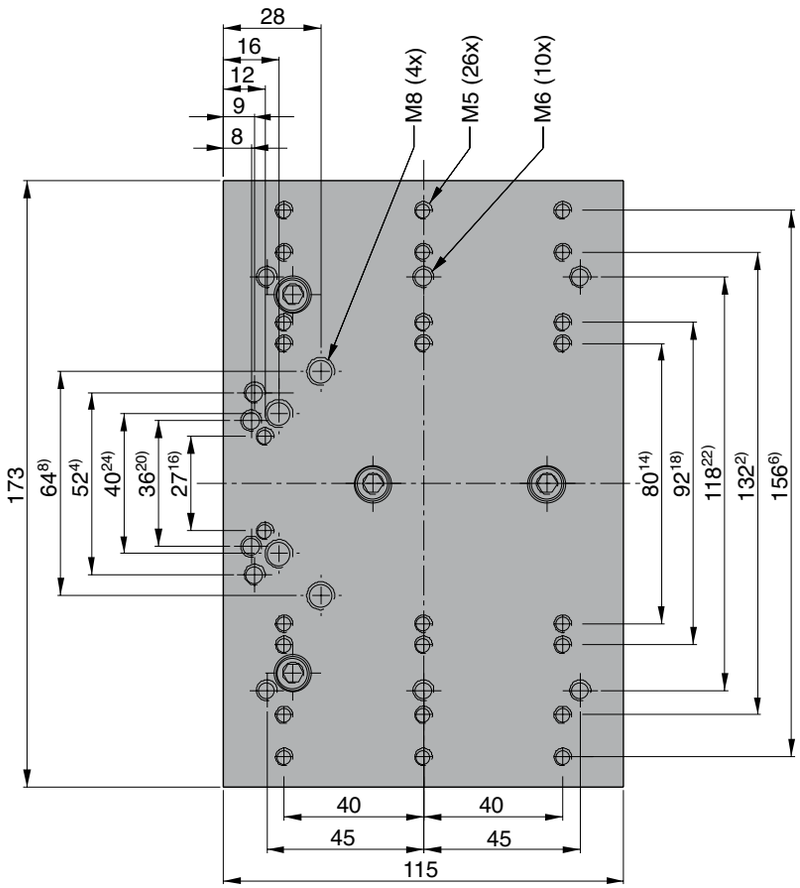
Description	Weight (mass) [kg]	Order No.
Adapter Plate Type MA2-50	1.4	**12276**

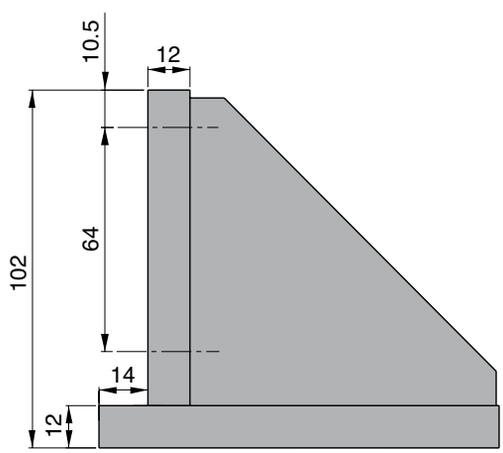
For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Adapter Plate
for OSP-E25

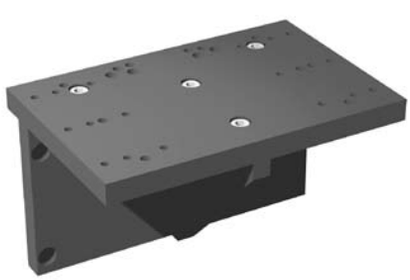
Type: MA3-25

Dimensions [mm] Adapter Plate Type MA3-25





Dimensions with superscript values refer to the corresponding available options detailed on page 170.
e.g. Dimensions with superscript number 5 correspond to the option "EM" for OSP-E32BHD actuator.



Order Instructions and Weight

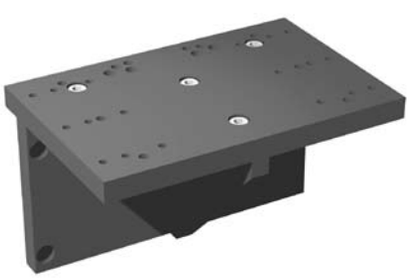
Description	Weight(mass) [kg]	Order No.
Adapter Plate Type MA3-25	1.3	**12271**

For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

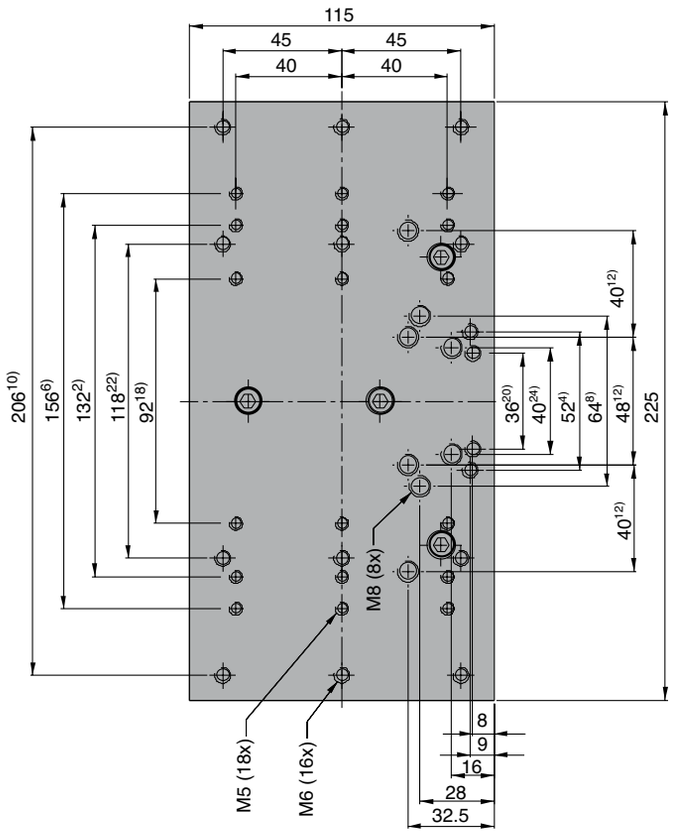
Adapter Plate
for OSP-E32

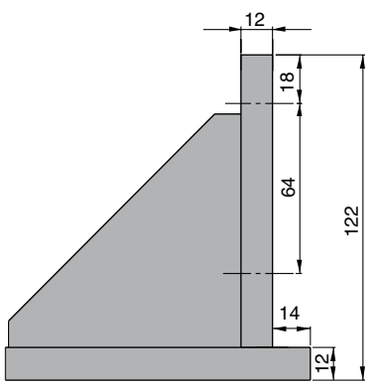
OSP
ORIGA SYSTEM PLUS

Type: MA3-32



Dimensions [mm Adapter Plate Type MA3-32





Dimensions with superscript values refer to the corresponding available options detailed on page 170.
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	**12274**

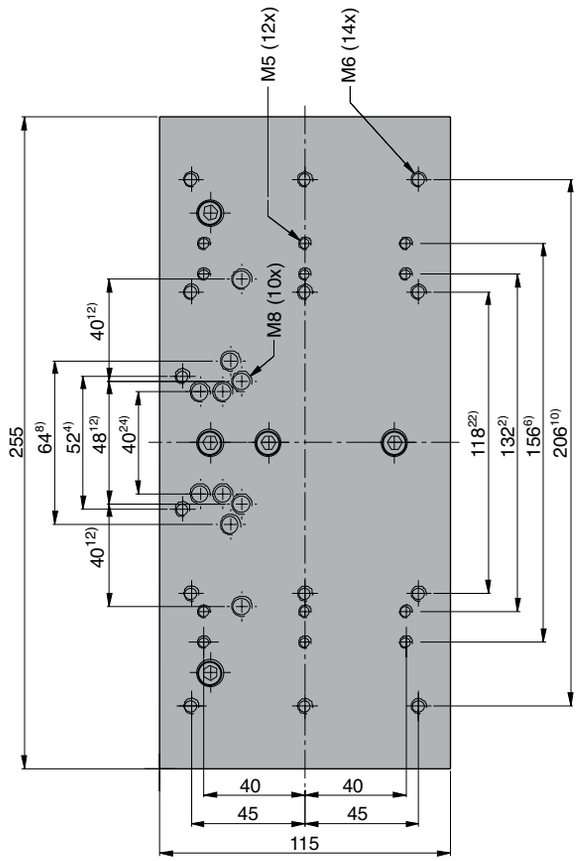
For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

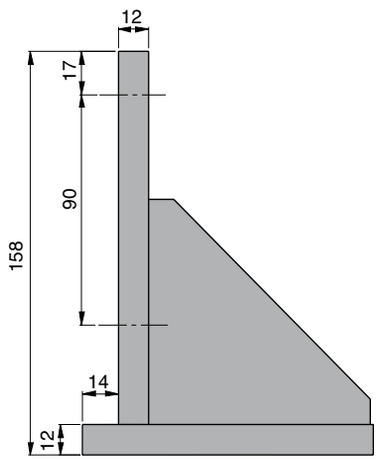
Adapter Plate
for OSP-E50

OSP ORIGA SYSTEM PLUS

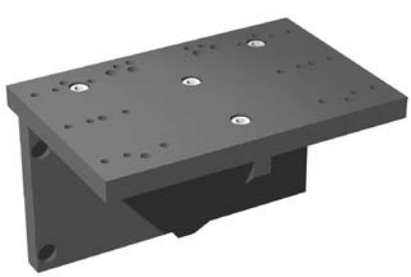
Type: MA3-50

Dimensions [mm] Adapter Plate Type MA3-50





Dimensions with superscript values refer to the corresponding available options detailed on page 170.
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	**12277**

For **Actuators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

Multi-Axis-System Accessories

Complete Intermediate Drive Shaft

Size 25, 32, 50

OSP ORIGA SYSTEM PLUS

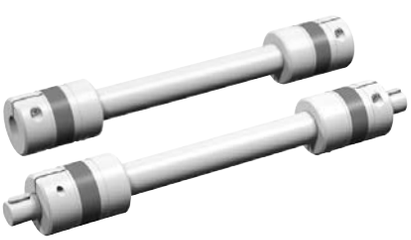
for Actuator
- **Series OSP-E..BHD**

Note:
For Series OSP-E..BHD with integrated gearbox, please contact your local Parker Origa technical support.

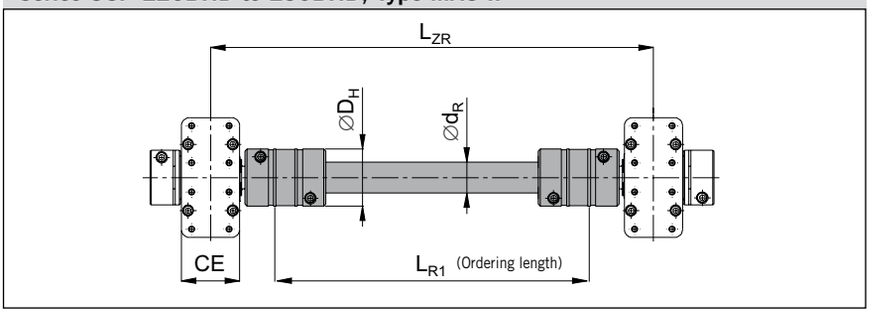
For other series on request.

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

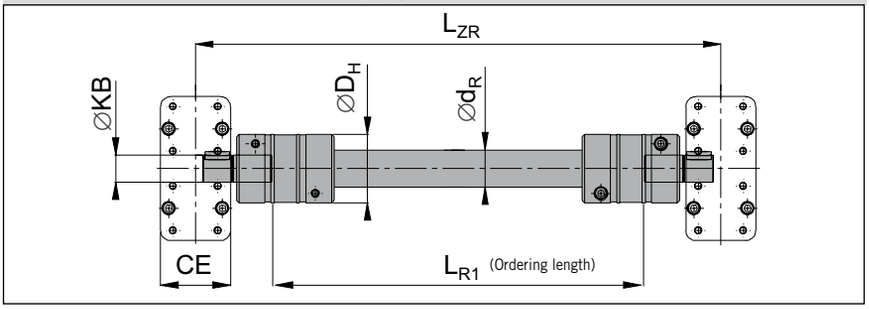
Material:
Aluminium (AL-H) / Steel (St-H)
Polyurethane/Hytrel



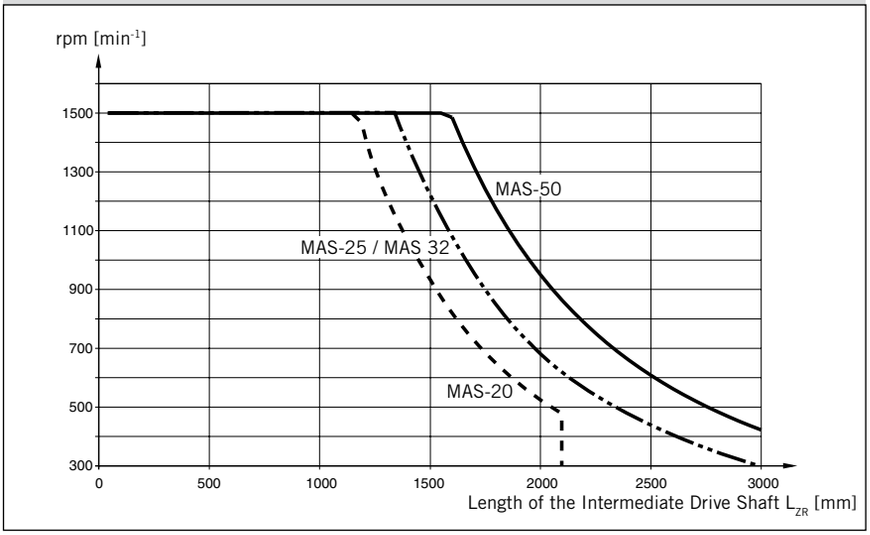
Intermediate Drive Shaft with Clamp Shaft
Series OSP-E20BHD to E50BHD, Type MAS-..



Intermediate Drive Shaft with Plain Shaft and Keyway
Series OSP-E20BHD to E50BHD, Type MAS-..



Critical Speed v. for Coupling Length



Characteristics / Dimension Table [mm] and Order No.

Series	Type	Max. Torque- [Nm] **	CE	D_H	KB***	L_{ZR}	L_{R1}	d_R	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} Length in mm.**
Example: 12305 - 1200
(Length L_{R1} = 1200 mm)

** For higher torque requirement, please contact your local Parker Origa technical support

*** Other dimensions for KB on request.

Parker Worldwide

AE – UAE, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe,
Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

CH – Switzerland, Etoy
Tel: +41 (0) 21 821 02 30
parker.switzerland@parker.com

CL – Chile, Santiago
Tel: +56 2 623 1216

CN – China, Shanghai
Tel: +86 21 5031 2525

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 33 00 01
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HK – Hong Kong
Tel: +852 2428 8008

HU – Hungary, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IN – India, Mumbai
Tel: +91 22 6513 7081-85

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

JP – Japan, Tokyo
Tel: +(81) 3 6408 3901

KR – South Korea, Seoul
Tel: +82 2 559 0400

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
parker.easteurope@parker.com

LV – Latvia, Riga
Tel: +371 6 745 2601
parker.latvia@parker.com

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NL – The Netherlands,
Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Ski
Tel: +47 64 91 10 00
parker.norway@parker.com

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SG – Singapore
Tel: +65 6887 6300

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TH – Thailand, Bangkok
Tel: +662 717 8140

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

UA – Ukraine, Kiev
Tel +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom,
Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

US – USA, Cleveland
Tel: +1 216 896 3000

VE – Venezuela, Caracas
Tel: +58 212 238 5422

ZA – South Africa,
Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

European Product Information Centre
Free phone: 00 800 27 27 5374
(from AT, BE, CH, CZ, DE, DK, ES, FI, FR, IE, IT, NL, NO, PL, PT, RU, SE, UK, ZA)

P-A4P017E July 2009

Parker-Origa GmbH
Industriestr. 8
70794 Filderstadt, Deutschland
Tel. +49 7185 17030
Fax +49 7158 64870
www.parker-origa.com