


# Modular Electric Actuators OSP-E

ORIGA SYSTEM PLUS

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

Parker

ENGINEERING YOUR SUCCESS.

**OSP Concept**

**Origa System Plus**
Electric Actuator OSP-E, Modular Components - Overview 4
Applications for OSP-E Actuators 8

**Belt Actuator**
OSP-E..BHD, Belt Actuator with Integrated Guide 11
— Ball Bearing Guide 15
— Roller Guide 20
OSP-E..BV, Vertical Belt Actuator with Integrated Ball Bearing Guide 27
OSP-E..B, Belt Actuator with Internal Plain Bearing Guide 39

**Screw Actuator**
OSP-E..SB, Ball Screw Actuator with Internal Plain Bearing Guide 53
OSP-E..ST, Trapezoidal Screw Actuator with Internal Plain Bearing Guide 67
OSP-E..SBR, Ball Screw Aktuator with Internal Plain Bearing Guide and Piston Rod 79
OSP-E..STR, Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod 89

**Linear Guides**
SLIDELINE - Plain Bearing Guide 101
POWERSLIDE - Roller Guide 103
PROLINE - Aluminium Roller Guide 107
HD - Heavy-duty Guide 111

**Gears**
PS/RS - Planetary / Angular Gears 115

**Motor and Drives**
EasyDrive Packages 121

**Accessories**
Motor Mounting 133
End Cap Mounting 141
Profile Mounting 147
Compensation 155
Guide Mounting 161
Magnetic Sensors 165
Measuring System - SFI-plus 171
Cable Cover 175

**Multi Axis Connections**
Overview 178
Adapter Plate 181
Intermediate Drive Shaft 190

The right to introduce technical modifications is reserved



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# ORIGA SYSTEM PLUS
# – One Concept
# – Three Actuator Options

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

## ORIGA SYSTEM PLUS

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



## MODULAR SYSTEM

- **Electric Belt Actuator**
  – For applications with higher speeds and precise movement and positioning for longer travel.
- **Electric Screw Actuator**
  – For higher actuator power and precise movement and positioning.
- **Pneumatic Actuator**
  – For a wide variety of applications with simple handling, combined with simple control possibilities and a broad power spectrum
  – Ideal for fast, repetitive movements and simple positioning duties.

- 18 additional guide variants provide any required precision, performance and load capacity.
- Compact solutions, easy to install and simple to retrofit.
- Valves and control elements can be mounted directly on the pneumatic actuator.
- A wide range of mounting options provides great installation flexibility.

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



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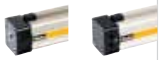
## ORIGA SYSTEM PLUS
## – One Concept
## – Three Actuator Options

* Information on Pneumatic Actuators, see catalogue P-A4P011GB

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



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



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



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



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



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



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



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



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



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



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



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



**Duplex-Connection**
- Series OSP-P*



**Multiplex-Connection**
- Series OSP-P*



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



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



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



**Linear Guides - STARLINE**
- Series OSP-P*



**Linear Guides - KF**
- Series OSP-P*



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



**Brakes**
- Active Brakes*
- Passive Brakes*



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



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



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



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

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

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



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P-A4P017GB

# OSP-E

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

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O = Option
X = Currently not available
* = Other Temperature Ranges on Request
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[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

## ONE Complete System
## – SEVEN Actuator Options for All Possible Applications

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



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



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



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



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



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

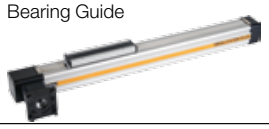
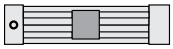
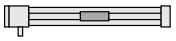


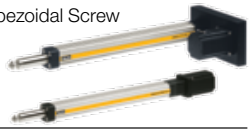
**Series OSP-E..STR**
Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod





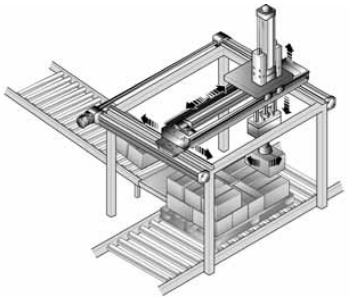
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| **Description** | **Belt-Actuators – Basic Versions** | | |
|---|---|---|---|
| | Belt Actuator with Integrated Guide  | Vertical Belt Actuator with Integrated Ball Bearing Guide  | Belt Actuator with Internal Plain Bearing Guide  |
| Standard Versions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

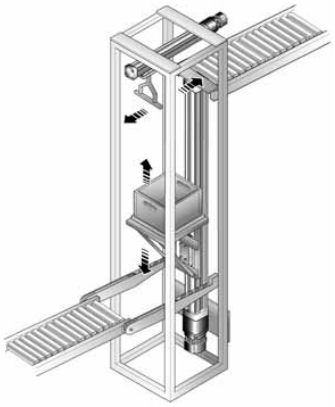
| **Description** | **Screw-Actuators - Basic Versions** | | |
|---|---|---|---|
| | Ball Screw Actuator with Internal Plain Bearing Guide  | Trapezoidal Screw Actuator with Internal Plain Bearing Guide  | Screw Actuator with Internal Plain Bearing Guide and Piston Rod<br>– Ball Screw<br>– Trapezoidal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

## Applications for OSP-E Actuators

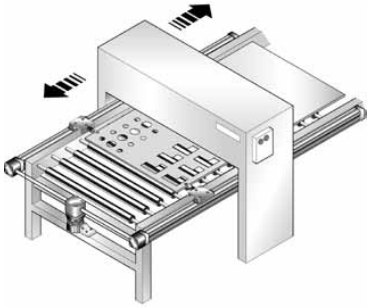
**Auto Handling**
– high speed pick and place movements



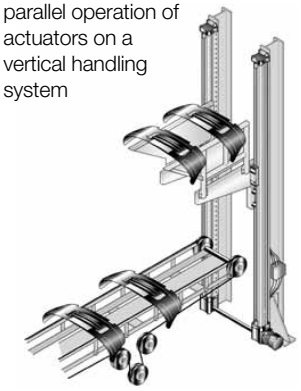
**Material Handling Systems**
– vertical and horizontal transfer movements



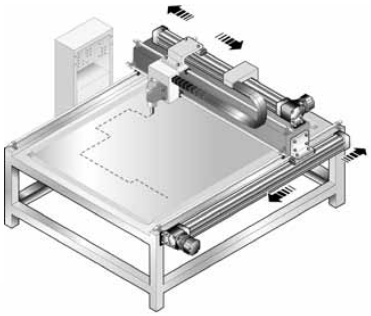
**Punching Machines**
– accurate feeding and positioning



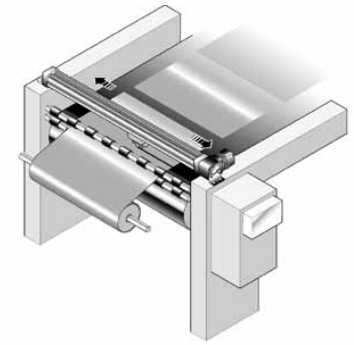
**Mechanical Handling**
– parallel operation of actuators on a vertical handling system



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

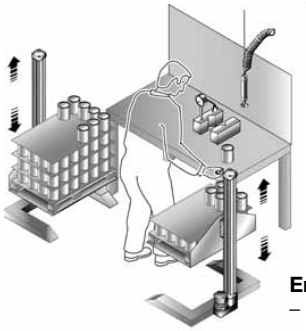


**Slitting Machines**
– high speed traverse applications for the slicing of papers and textiles

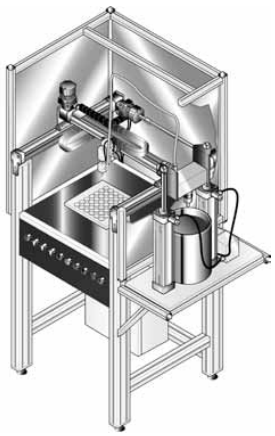


**Spray Coating**
– synchronized high speed bi-parting movements





**Automated Filling Machines**
– accurate 3-axis positioning



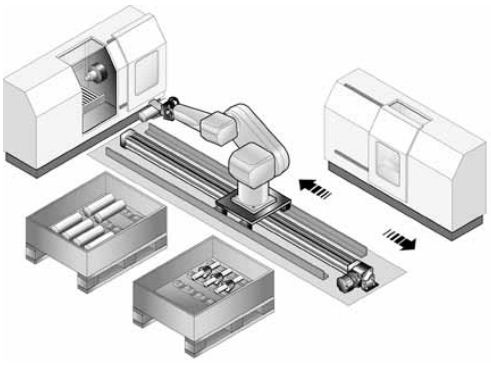
**Automatic Doors and Guards**
– simple bi-parting operation



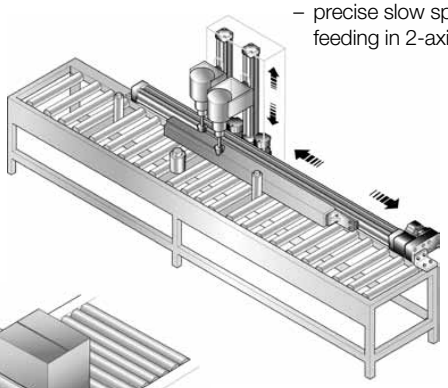
**Ergonomic Workstations**
– adjustment of working levels

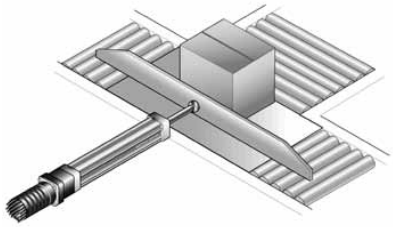
## Applications for OSP-E Actuators

**Robotic Installations**
– traverse of robots between work stations

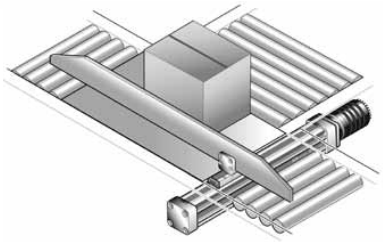


**Milling Machines**
– precise slow speed feeding in 2-axis

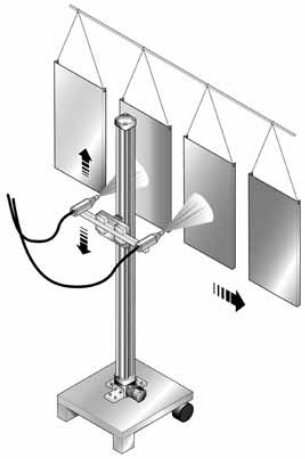




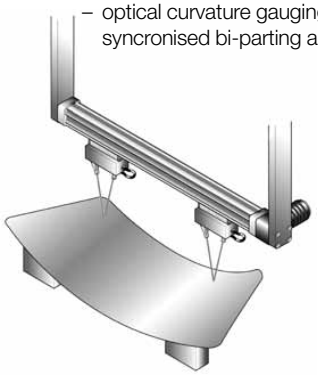
**Conveyor Systems**
– simple cross-transfer actuators



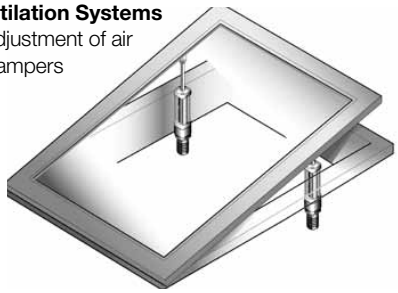
**Spraying Equipment**
– precision reciprocating action



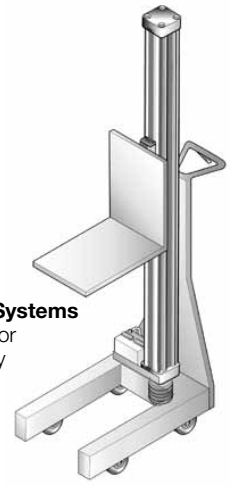
**Measuring Systems**
– optical curvature gauging using syncronised bi-parting actuation



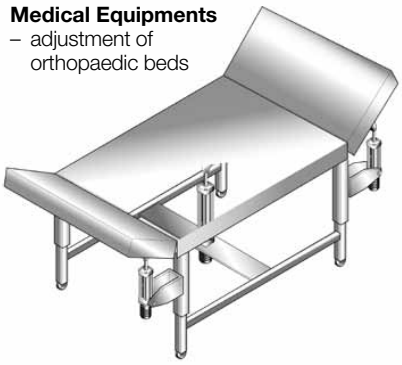
**Ventilation Systems**
– adjustment of air dampers



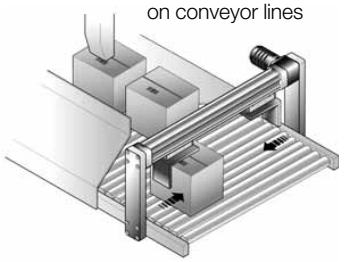
**Mobile Lifting Systems**
– lifting devices for industrial safety



**Medical Equipments**
– adjustment of orthopaedic beds



**Conveyor Systems**
– centring of packages on conveyor lines



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

## Ball Bearing Guide
## Roller Guide



**Content**


| Description | Page |
|---|---|
| Overview | 12 |
| **Versions with Ball Bearing Guide** | |
| Technical Data | 15 |
| Dimensions | 18 |
| Order Instructions | 24 |
| **Version with Roller Guide** | |
| Technical Data | 20 |
| Dimensions | 23 |
| Order Instructions | 24 |

# Belt Actuator with Integrated Guide for Heavy Duty Applications

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

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

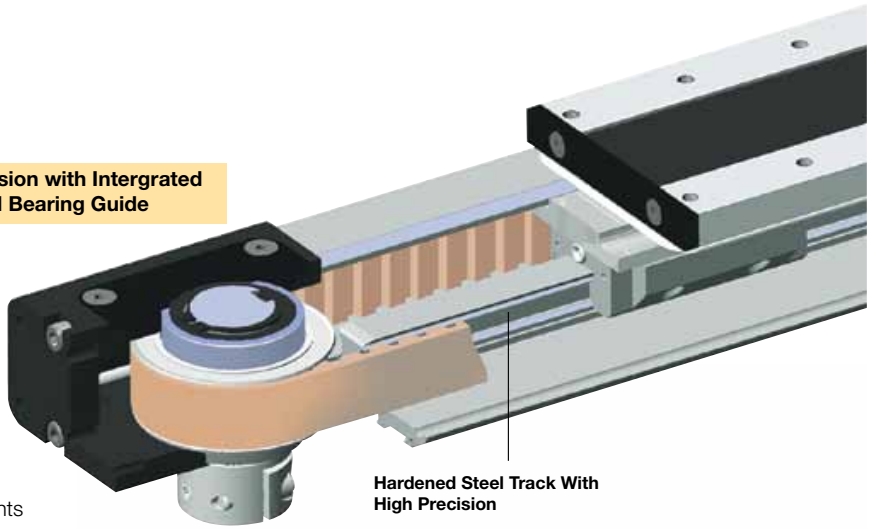
**Advantages:**

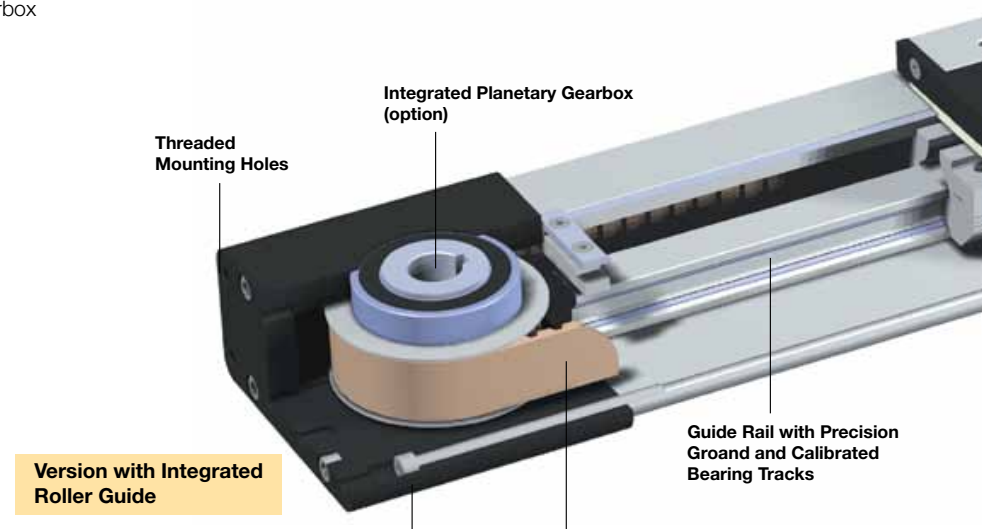
- Accurate Path and Position Control
- High Force Output
- High Speed Operation
- High Load Capacity
- Easy Installation
- Low Maintenance
- Ideal for Multi-Axis Applications

**Features:**

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

**Version with Intergrated Ball Bearing Guide**




**Version with Integrated Roller Guide**

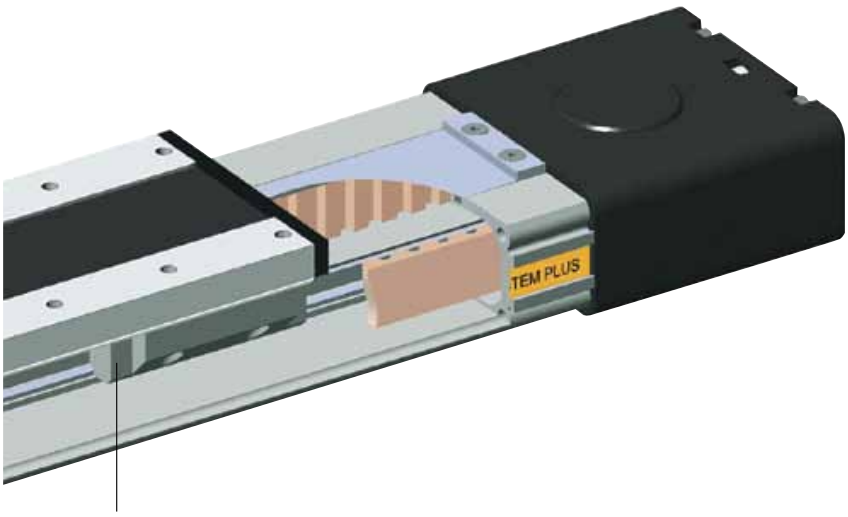
## Drive Shaft Versions

**Clamp Shaft**



**Plain Shaft**



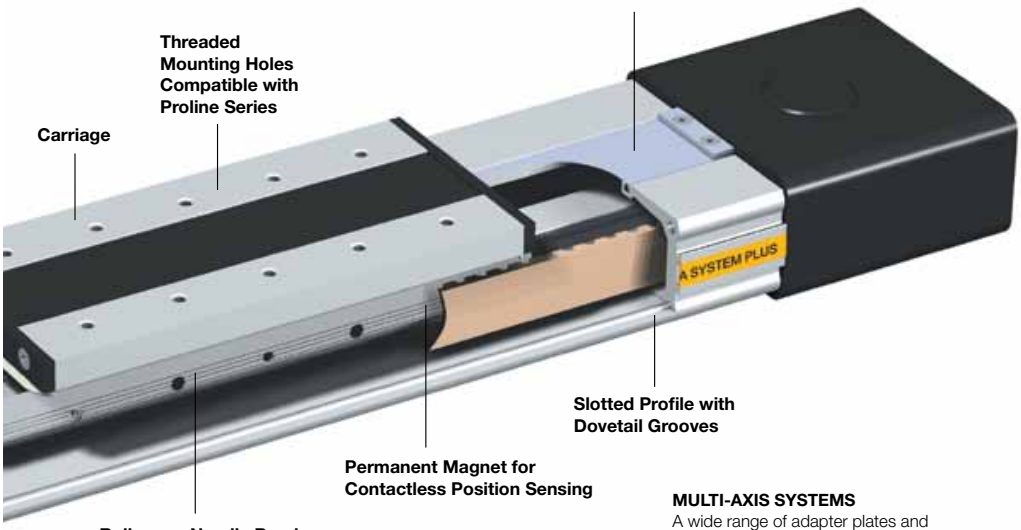



**Steel Runner Block with Integrated Scraper System and Grease Nipples**

**Corrosion Resistant Steel Sealing Band**

**Threaded Mounting Holes Compatible with Proline Series**

**Carriage**

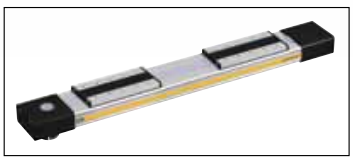



**Slotted Profile with Dovetail Grooves**

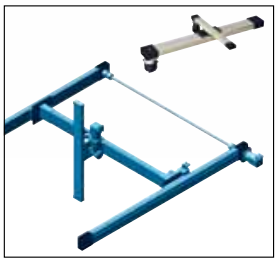
**Permanent Magnet for Contactless Position Sensing**

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

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



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

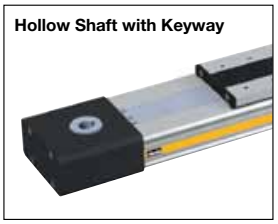


## Drive Shaft OPTIONS

**Clamp Shaft and Plain Shaft**

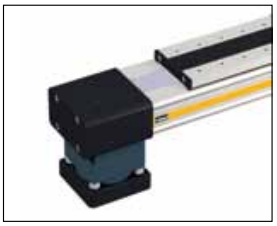


**Hollow Shaft with Keyway**



## OPTION

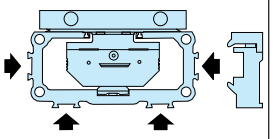
**Integrated planetary gearbox**



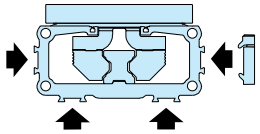
- **Highly compact and rigid solution fully integrated in the drive cap housing**
- **Purpose designed for the BHD series**
- **Available with three standard ratios (3, 5 and 10)**
- **Very low backlash**
- **A wide range of available motor flanges**

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

**Version with Integrated Ball Bearing Guide**



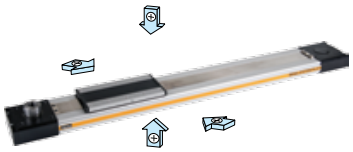
**Version with Integrated Roller guide**



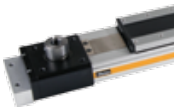
## OSP-E..BHD Belt Actuator with Integrated Guide

**Standard Versions**
**OSP-E..BHD**

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



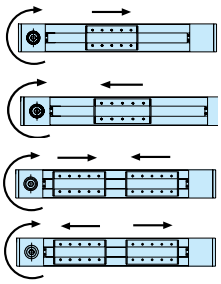
**Drive Shaft with Clamp Shaft**



**Drive Shaft with Plain Shaft**



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




**Options**

**Tandem**
For higher moment support



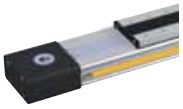
**Bi-parting Version**
For perfectly synchronised bi-parting movements.



**Drive Shaft with Clamp and Plain Shaft**
For connections with intermediate drive shaft



**Hollow Shaft with Keyway**
For close coupling of motors and external gears



**Integrated Planetary Gearbox**
For compact installation and very low backlash



**Accessories**

**Motor Mountings**



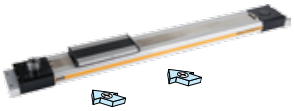
**End Cap Mounting**
For mounting the actuators on the end cap.



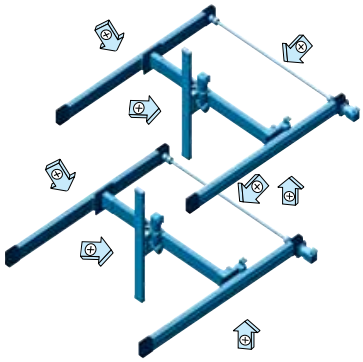
**Profile Mounting**
For supporting long actuators or mounting the actuators on dovetail grooves



**Magnetic Sensors Type RS / ES**
For contactless position sensing of end stop and intermediate carrier positions.



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





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# OSP-E

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

**Size 20 to 50**

### Standard Versions

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

### Options

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

### Characteristics

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

### Weight (mass) and Inertia

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

*Version: Tandem and Bi-parting (Option)



### Installations Instructions

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

### First service start-up

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

### 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.

### Sizing of Actuator

The following steps are recommended:

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

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

### Legend

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

### Performance Overview (T1)

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

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

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

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

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

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

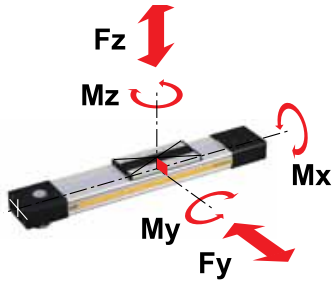
### Maximum Permissible Loads (T3)

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

## Loads, Forces and Moments

### Combined Loads

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




### Equation of Combined Loads

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

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

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

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

## Maximum Permissible Unsupported Length

### Stroke Length

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

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

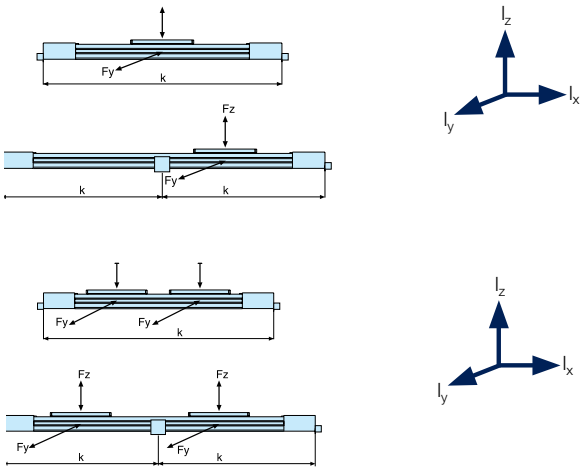
The use of an AC motor with frequency converter normally requires a larger clearance than that required for servo systems.
For advice, please contact your local Parker technical support department.

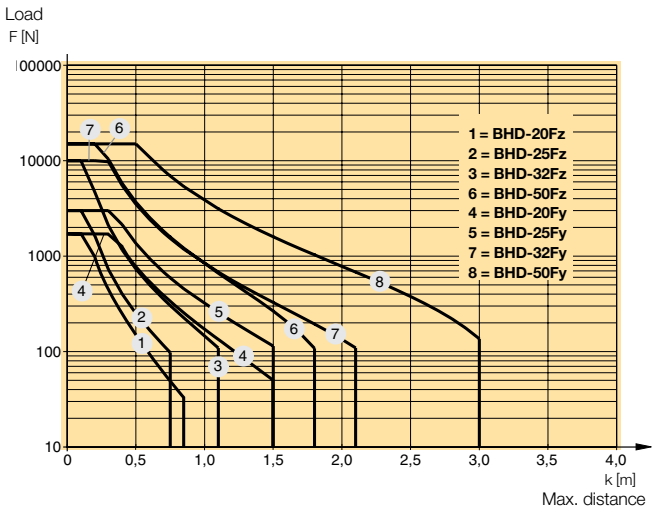
* For Bi-parting version the max. load (F) is the total load of both carriers
$F = F_{carrier\ 1} + F_{carrier\ 2}$

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

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

### Maximum Permissible Unsupported Length – Placing of Profile Mounting

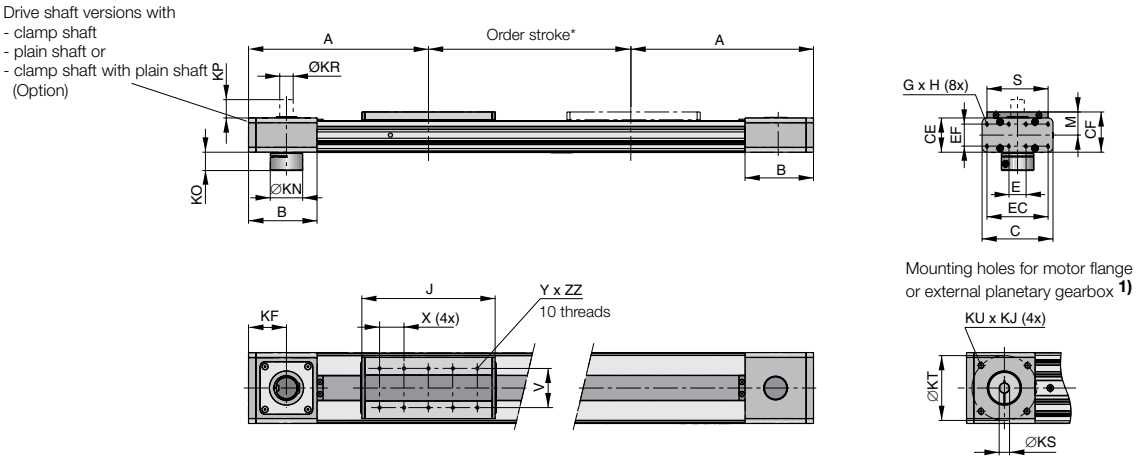




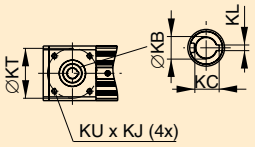

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## OSP-E..BHD
## Linear Drive with Toothed Belt and Integrated Recirculating Ball Bearing Guide - Basic Unit




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

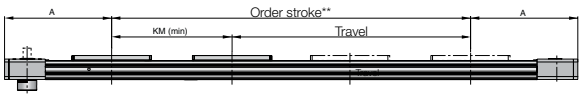
| Series | KB* | KC | KL | KT | KU x KJ |
|---|---|---|---|---|---|
| OSP-E20BHD | $12^{H7}$ | 13.8 | 4 | 65.7 | M6 x 8 |
| OSP-E25BHD | $16^{H7}$ | 18.3 | 5 | 82 | M8 x 8 |
| OSP-E32BHD | $22^{H7}$ | 24.8 | 6 | 106 | M10 x 12 |
| OSP-E50BHD | $32^{H7}$ | 35.3 | 10 | 144 | M12 x 19 |



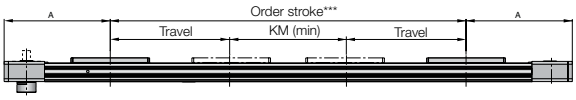

1) **Note:** The mounting holes for the coupling housing / motor flange / gearbox are located on the opposite side to the carrier (motor mounting standard). They also can be located on the same side as the carrier (motor mounting 180° standard).

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

### Option Tandem - Series OSP-E.. BHD




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




** Order stroke = 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E20BHD | 185 | 76.5 | 73 | 18 | M5x8.5 | 155 | 21.1 | 27.6 | 67 | 51 | 30 | M5x8 | 38 | 49.0 | 60 | 27 | 73 |
| OSP-E25BHD | 218 | 88.0 | 93 | 25 | M5x10 | 178 | 21.5 | 31.0 | 85 | 64 | 40 | M6x8 | 42 | 52.5 | 79 | 27 | 92 |
| OSP-E32BHD | 262 | 112 | 116 | 28 | M6x12 | 218 | 28.5 | 38.0 | 100 | 64 | 40 | M6x10 | 56 | 66.5 | 100 | 36 | 116 |
| OSP-E50BHD | 347 | 147 | 175 | 18 | M6x12 | 288 | 43.0 | 49.0 | 124 | 90 | 60 | M6x10 | 87 | 92.5 | 158 | 70 | 164 |

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

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

### Features

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

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

### Standard Version:

- Gearbox on Opposite Side to Carrier

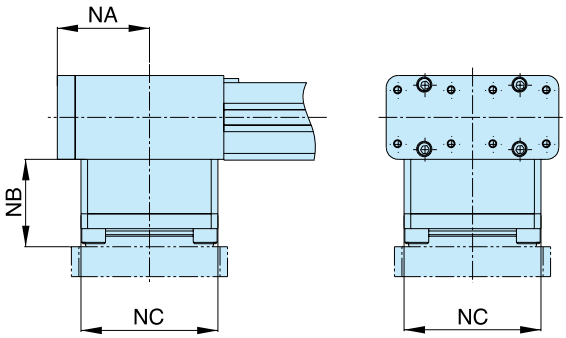
**Note:** When ordering, specify model/Type of motor and manufacturer for correct motor flange.

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

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



### Dimensions




### Performance Overview

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

### Dimension Table [mm] and Additional Weight

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

P-A4P017GB

**OSP-E**

# OSP-E...BHD Belt Actuator with integrated Roller Guide

**Size 25, 32, 50**

## Standard Versions

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

## Options

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

## Characteristics

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



## Weight (mass) and Inertia

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

* Version: Tandem and Bi-parting (Option)

### Installation Instructions

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

### Maintenance

Depending on operating conditions, inspection of the actuator is recommended after 12 months or 3000 km operation. Please refer to the operating instructions supplied with the actuator.

### First Service Start-up

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

## Performance Overview (T1)

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

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

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

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

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

## Maximum Permissible Loads (T3)

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

## Sizing of Actuator

The following steps are recommended:

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

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

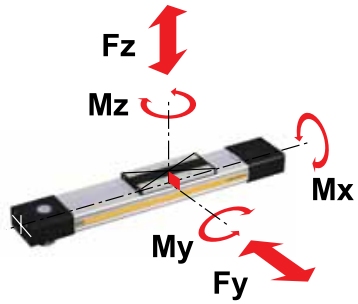
### Legend

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

## Loads, Forces and Moments

### Combined Loads

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




### Equation of Combined Loads

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

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

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

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

### Maximum Permissible Unsupported Length

#### Stroke length

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

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

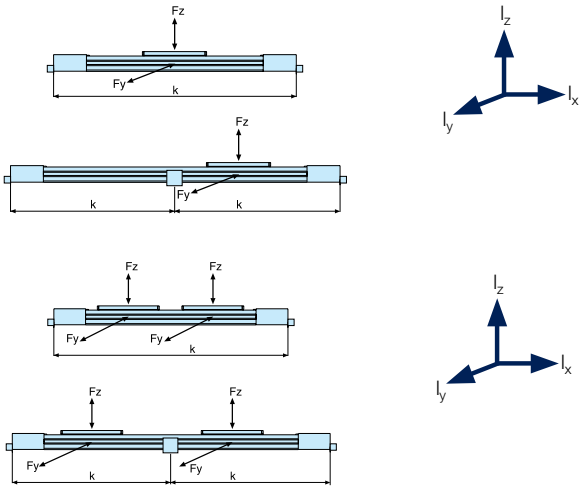
For advice, please contact your local Parker technical support department.

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

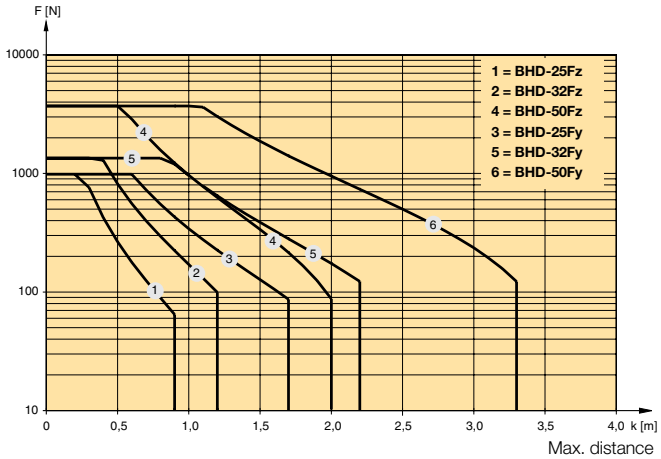
k = Maximum permissible distance between mountings/mid-section support for a given load F.

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

### Maximum Permissible Unsupported Length – Placing of Profile Mounting




Loads

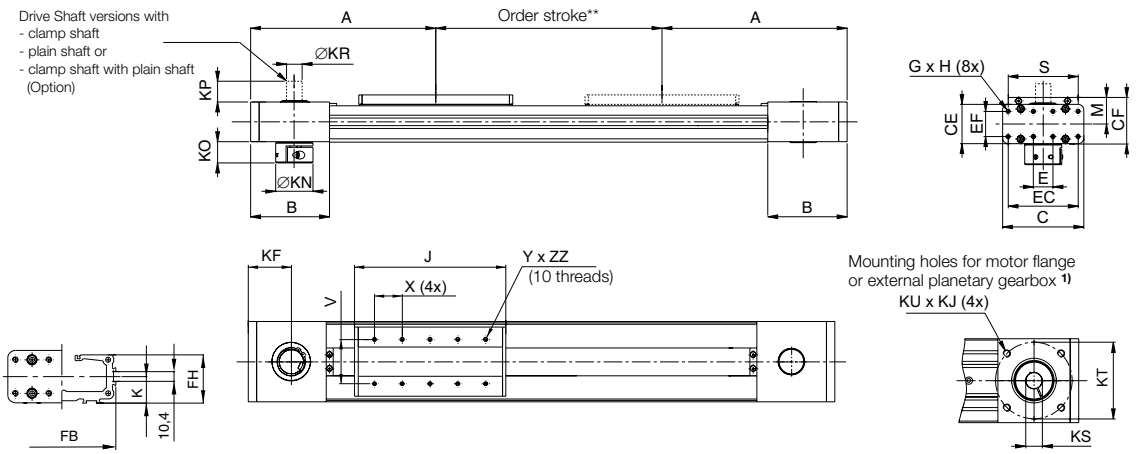



Max. distance



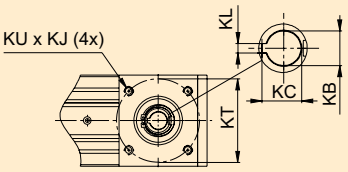
Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

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




**Hollow Shaft with Keyway (Option)**
**Dimension [mm]**

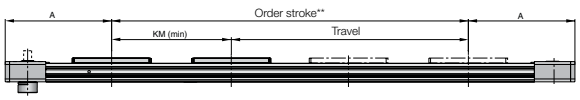
| Series | KB* | KC | KL | KT | KU x KJ |
|---|---|---|---|---|---|
| OSP-E25BHD | $16^{H7}$ | 18.3 | 5 | 82 | M8 x 8 |
| OSP-E25BHD | $22^{H7}$ | 24.8 | 6 | 106 | M10 x 12 |
| OSP-E50BHD | $32^{H7}$ | 35.3 | 10 | 144 | M12 x 19 |




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

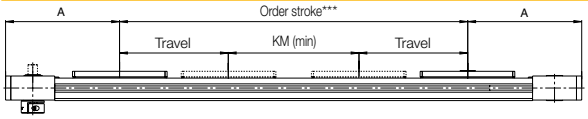
*** Note:** The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm. Order stroke = required travel + 2 x safety distance.
The use of an AC motor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

### Option Tandem




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

### Option - Bi-Parting




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

### Dimension Table [mm]

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

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

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



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# OSP-E

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

**Size of Actuator**

| | |
|---|---|
| **20** | Size 20 (only Type of actuator 6) |
| **25** | Size 25 |
| **32** | Size 32 |
| **50** | Size 50 |

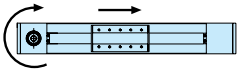
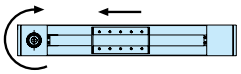
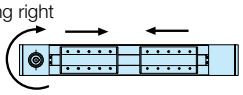
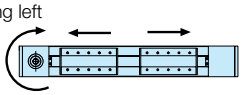
**Type of Actuator**

| | |
|---|---|
| **5** | Belt Actuator with Integrated Roller Guide (for size 25, 32 and 50) |
| **6** | Belt Actuator with Integrated Ball Bearing Guide |

**Carriage**

| | |
|---|---|
| **0** | Standard |
| **1*** | Tandem |
| **2*** | Bi-parting |

**Operating Direction**

| | |
|---|---|
| **0** | Standard right  |
| **1** | Standard left  |
| **2** | Bi-parting right  |
| **3** | Bi-parting left  |

**Order stroke**

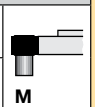
5 digits input in mm

**Drive Shaft** Special drive shaft on request (8/9)

Motor mounting position see **M**

| | | |
|---|---|---|
| **0 A** | Plain Shaft |  |
| **0 B** | Plain Shaft |  |
| **0 2** | Clamp Shaft |  |
| **0 3*** | Clamp Shaft with Plain Shaft |  |
| **0 4** | Clamp Shaft |  |
| **0 5*** | Clamp Shaft with Plain Shaft |  |
| **0 6*** | Hollow Shaft with Keyway |  |
| **0 7*** | Hollow Shaft with Keyway |  |

**Integrated Gear ***

| | | |
|---|---|---|
| **1 x**** | Ratio i=3 |  |
| **2 x**** | Rratio i=5 | |
| **3 x**** | Ratio i=10 | |
| **4 x**** | Ratio i=3 |  |
| **5 x**** | Ratio i=5 | |
| **6 x**** | Ratio i=10 | |

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

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

Drive shaft

Operating direction

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

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

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

**Info:** Motor and gear mounting dimensions see page 191

| Niro | |
|---|---|
| **0** | Standard |
| **1*** | Niro Screws |

| Magnetic Sensors * | see page 165 ff |
|---|---|
| **0** | without |
| **1** | 1 pc. RST-K 2NO / 5 m cable |
| **2** | 1 pc. RST-K 2NC / 5 m cable |
| **3** | 2 pc. RST-K 2NC / 5 m cable |
| **4** | 2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m cable |
| **5** | 1 pc. RST-S 2NO / M8 plug |
| **6** | 1 pc. RST-S 2NC / M8 plug |
| **7** | 2 pc. RST-S 2NC / M8 plug |
| **8** | 2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug |
| **A** | 1 pc. EST-S NPN / M8 plug |
| **B** | 2 pc. EST-S NPN / M8 plug |
| **C** | 3 pc. EST-S NPN / M8 plug |
| **D** | 1 pc. EST-S PNP / M8 plug |
| **E** | 2 pc. EST-S PNP / M8 plug |
| **F** | 3 pc. EST-S PNP / M8 plug |

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

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

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

* Option
** for sizes 25, 32 and 5

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



**Content**


| Description | Page |
|---|---|
| Overview | 28 |
| Technical Data | 31 |
| Dimensions | 34 |
| Order Instructions | 36 |




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

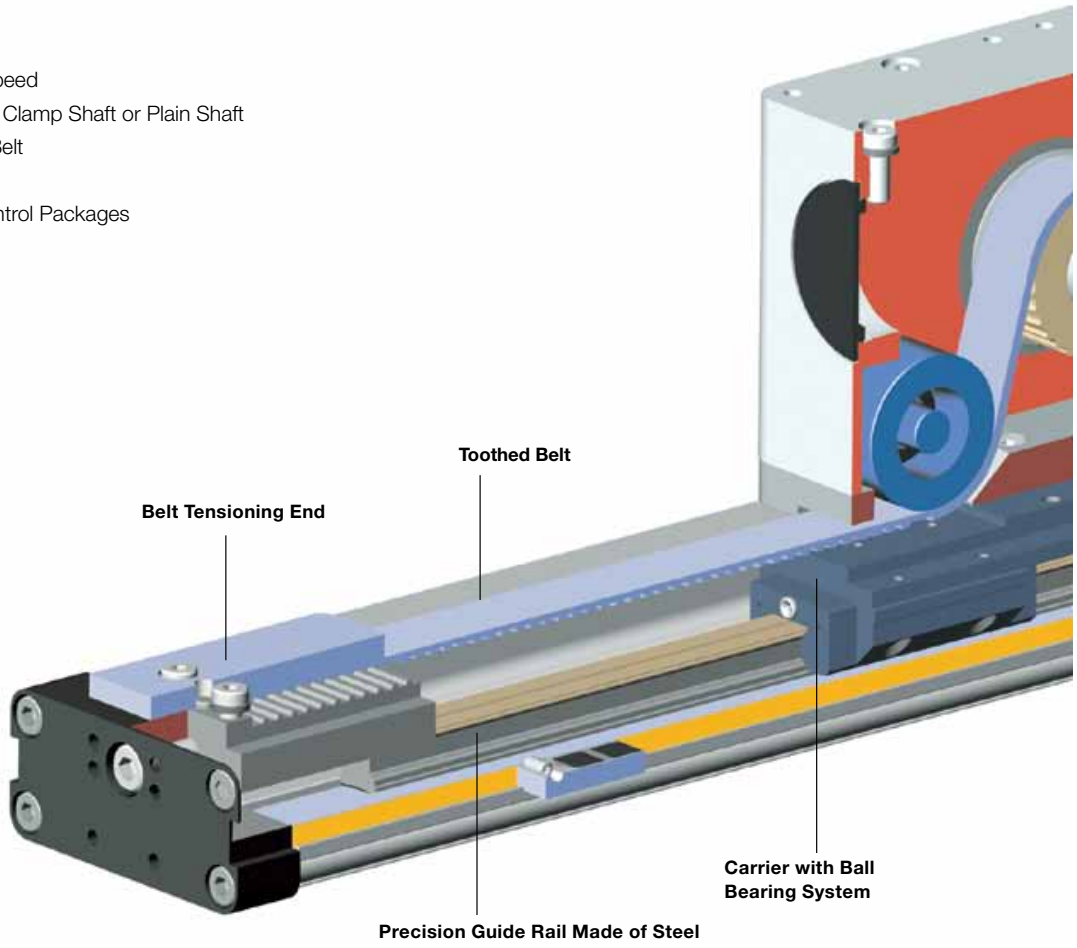
The OSP-E..BV vertical belt actuator with integrated ball bearing guide has been specially developed for lifting movements in the Z-axis.
The especially low vibration OSP-E..BV vertical actuator in combination with the heavy duty series OSP-E..BHD meets the highest demands in portal and handling applications.

### Advantages

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

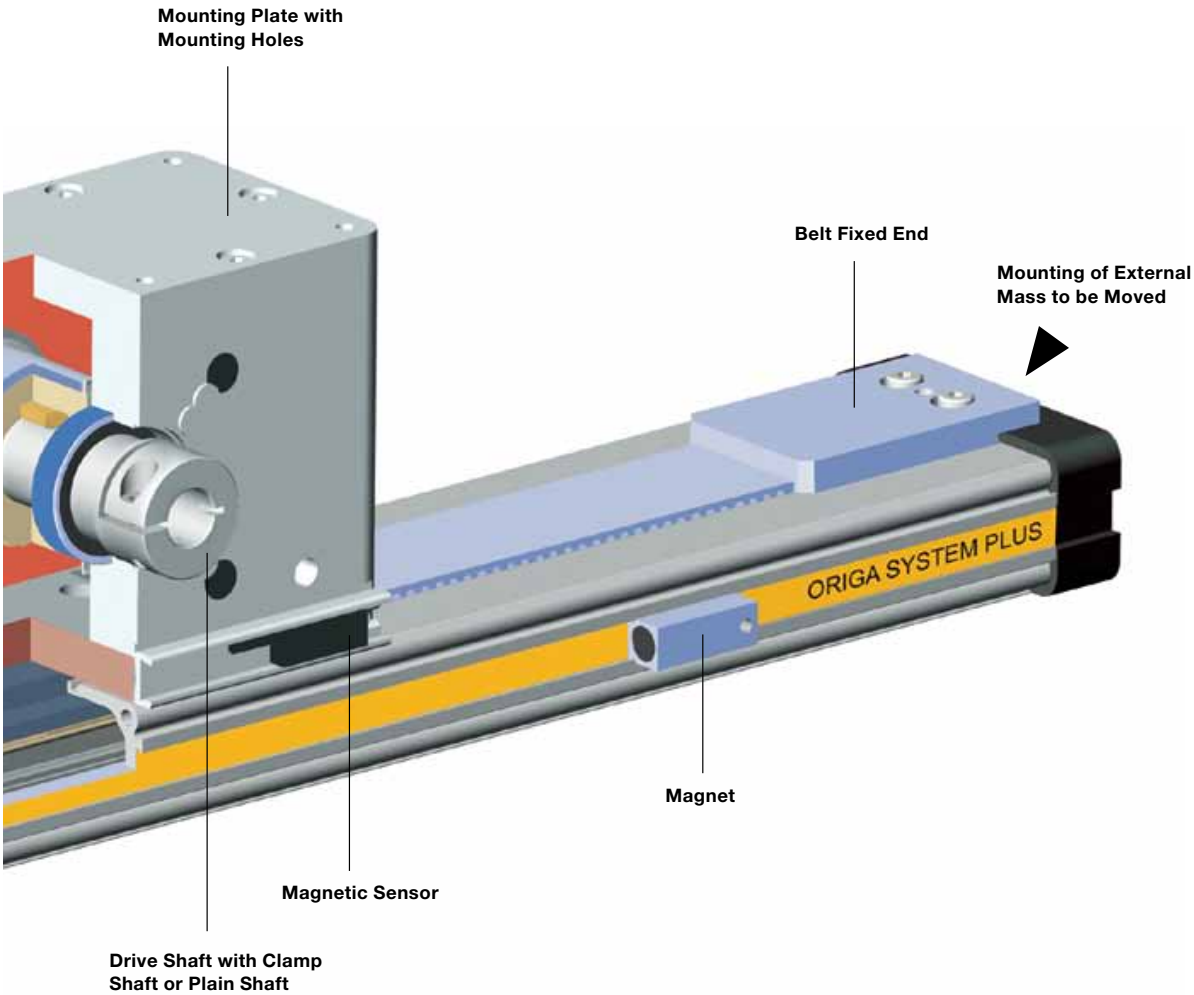
### Features

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






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

### Standard Version
### OSP-E..BV

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

**Drive Shaft with Clamp Shaft**



**Drive Shaft with Plain Shaft**



**Drive Shaft with Clamp Shaft and Plain Shaft**



**Drive Shaft with Double Plain Shaft**



### Options

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



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

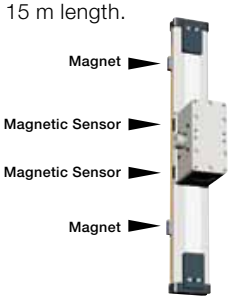


### Accessories

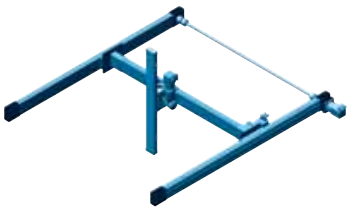
**Motor Mountings**
For connection of gearbox or motor direct to drive shaft with clamp shaft, or with a motor coupling to drive shaft with plain shaft.



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




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



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

## Standard Version

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

## Options

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

## Characteristics

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

## Weight (mass) and Inertia

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

* Version: Tandem (Option)



## Installation Instructions

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

## Maintenance

Depending on operating conditions, inspection of the actuator is recommended after 12 months or 3000 km operation. Please refer to the operating instructions supplied with the actuator.

## First service start-up

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



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### Sizing of Actuator

The following steps are recommeded:

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

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

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

4. Selection of maximum permissible loads via Table T3.

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

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

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

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

### Legend

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

### Performance Overview

T1

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

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

### Max. Permissible Torque on Drive Shaft Speed / Stroke

T2

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

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

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

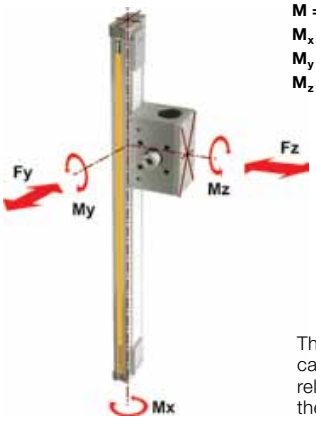
Accordingly Table T2 shows permissible moments of 30 Nm for the speed and 36 Nm for the stroke. Therefore the maximum moment at the drive shaft is determined by the speed and must not exceed 30 Nm.

## Maximum Permissible Loads

T3

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

## Forces, Loads and Moments




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

The distance ($l_x$, $l_y$, $l_z$) for calculation of moments relates to the centre axis of the actuator.

## Combined Loads

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

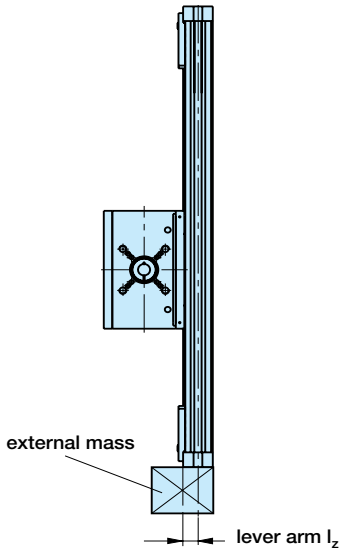
## Equation of Combined Loads

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

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

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

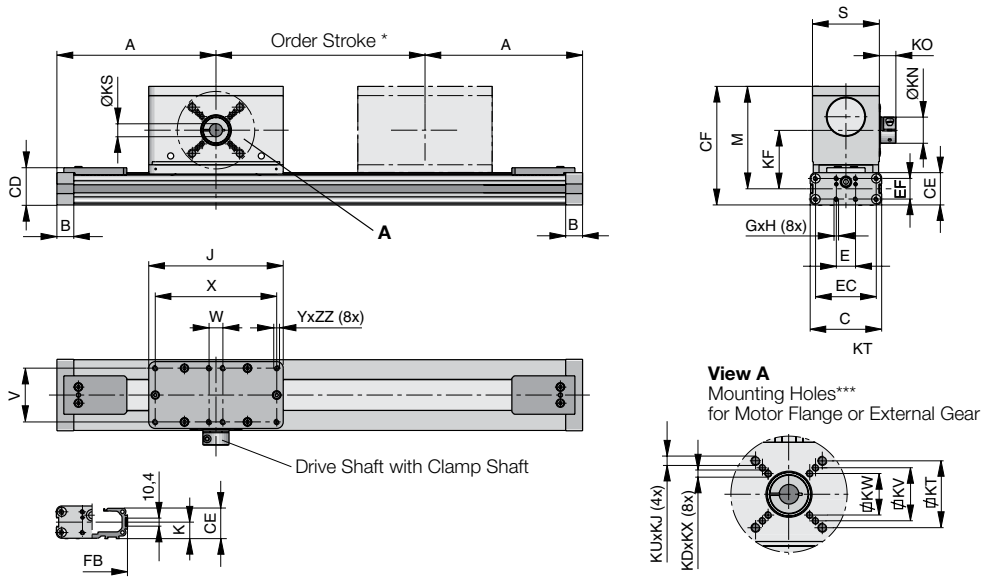
| Mass [kg] | OSP-E20BV | | OSP-E25BV | |
|---|---|---|---|---|
| | Lever arm $l_z$ [mm] | Max. permissible acceleration/ deceleration [m/s$^2$] | Lever arm $l_z$ [mm] | Max. permissible acceleration/ deceleration [m/s$^2$] |
| > 3 to 5 | 0 | 20 | 50 | 20 |
| > 5 to 10 | 0 | 20 | 40 | 20 |
| > 10 to 15 | - | - | 35 | 20 |
| > 15 to 20 | - | - | 30 | 15 |



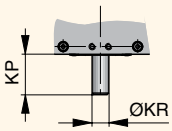



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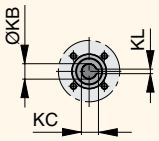
## OSP-E..BV
## Vertical Belt Actuator with Integrated Ball Bearing Guide – Basic Unit




**Plain Shaft**



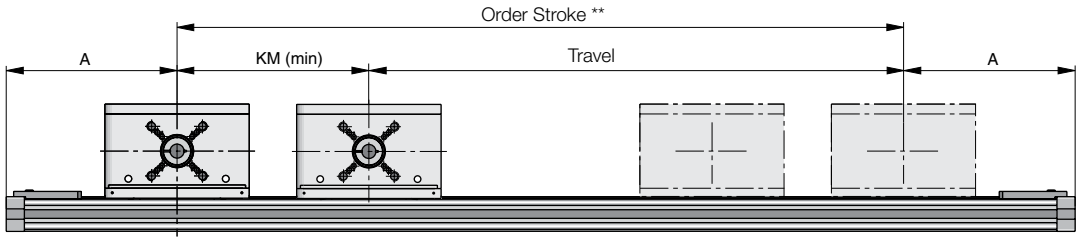

**Hollow Shaft with Keyway (Option)**




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

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

## Option – Tandem




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

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



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### Dimension Table [mm]

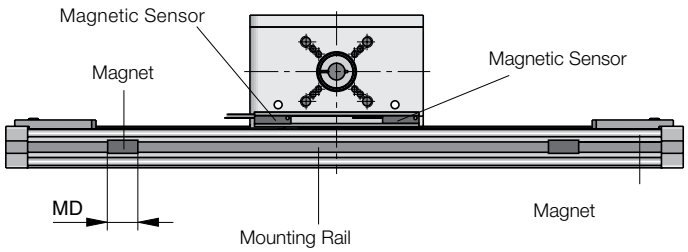
| Series | A | B | C | E | GxH | J | K | M | S | V | W | X | Y | CD | CE | CF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E20BV | 148 | 22 | 93 | 25 | M5x12 | 139 | 21.1 | 102.3 | 68 | 51 | 40 | 120 | M6 | 40.4 | 34 | 123.3 |
| OSP-E25BV | 210 | 22 | 93 | 25 | M5x12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

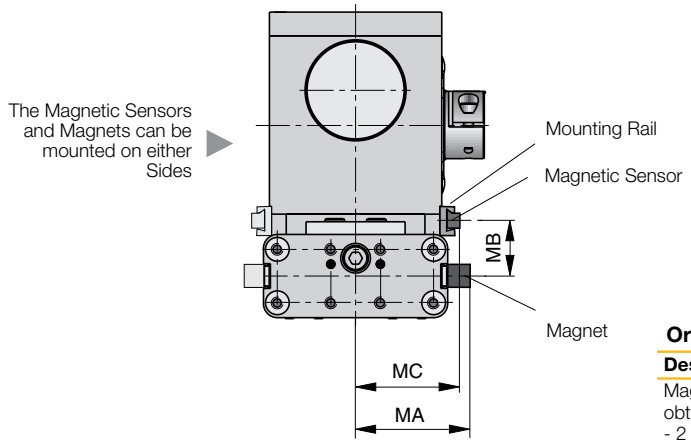
| Series | EC | EF | FB | FH | KDxKX | KF | $KM_{min}$ | KN | KO | KS | KT | KUxKJ | KV | KW | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E20BV | 59 | 21 | 73 | 36.0 | – | 61.3 | 155 | 27 | 16 | $12^{H7}$ | 46.5 | M6x10 | 36 | – | 10 |
| OSP-E25BV | 79 | 27 | 92 | 39.5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

## Contactless Position Sensing with Magnetic Sensors

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

### Dimensions




### Dimension table [mm]

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

### Order Instructions

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



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# OSP-E

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

| Size | |
|---|---|
| 20 | Size 20 |
| 25 | Size 25 |

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

| Actuator Head | |
|---|---|
| 0 | Standard |
| 1* | Tandem |

| Order Stroke |
|---|
| 5 digits input in mm |

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

Special Drive Shaft on Request (8/9)



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

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

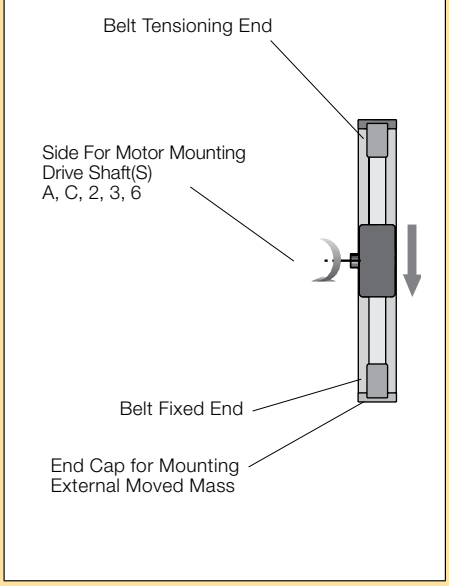
X [1]: Kit for **Drive Shaft** with Clamp Shaft (02 / 03 / 04 / 05)

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

**Info:** Motor and Gear Mounting Dimensions see page 191

| Niro | |
|---|---|
| **0** | Standard |
| **1*** | Niro Screws |

**Function and Motor Mounting**




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

* Option



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Pneumatic Division - Europe

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



**Content**


| Description | Page |
|---|---|
| Overview | 40 |
| Technical Data | 43 |
| Dimensions | 48 |
| Order Instructions | 50 |

P-A4P017GB
**OSP-E**

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

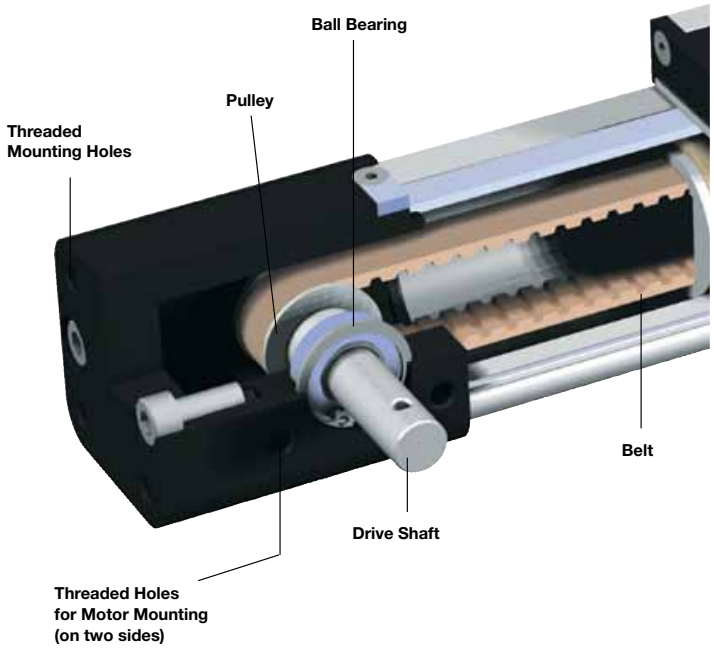
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

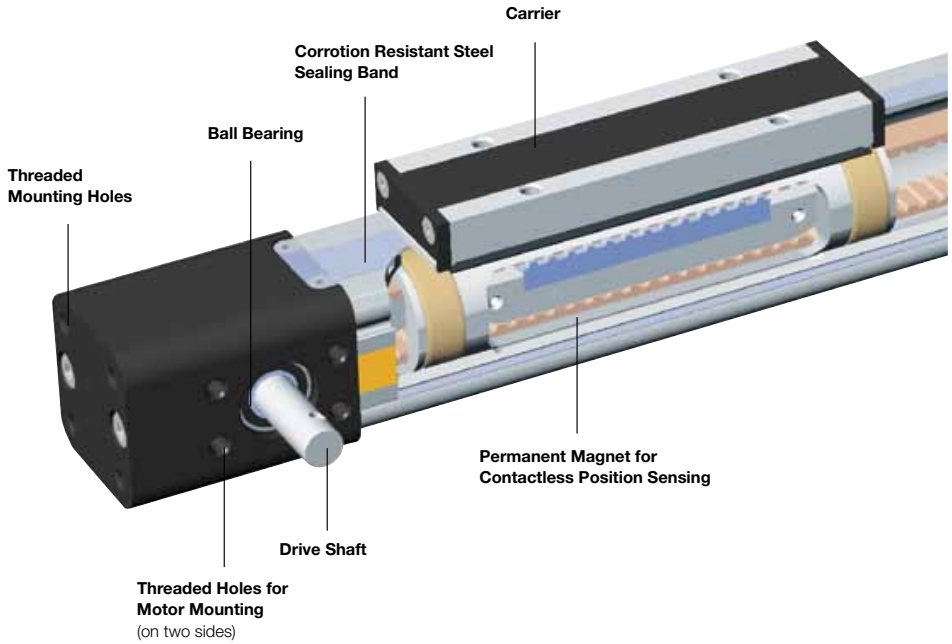
### Advantages

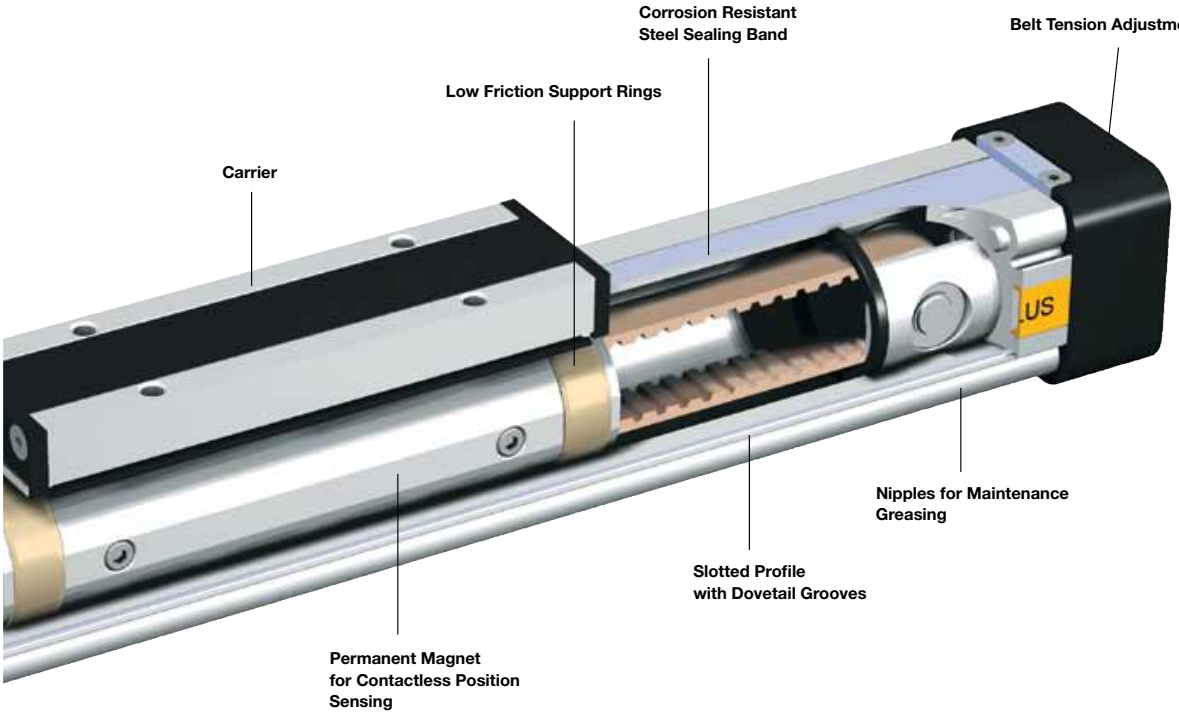
- Precise Path and Position Control
- High Speed Operation
- Easy Installation
- Low Maintenance
- Ideal for Precise Point-to-Point Applications

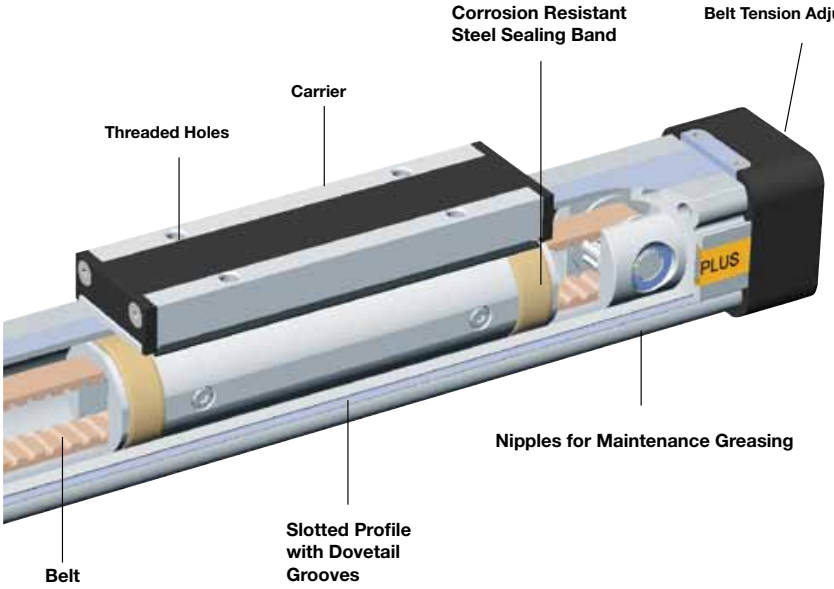
### Features

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






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



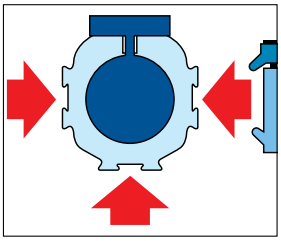
**PROLINE**
The compact aluminium roller guide for high loads and velocities.



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



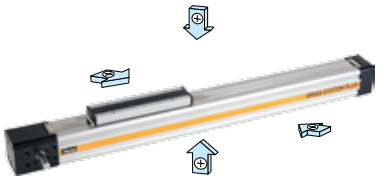
The dovetailed mounting rails of the new actuator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.



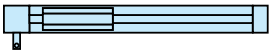
## OSP-E..B Belt Actuator with internal Plain Bearing Guide

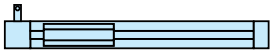
### STANDARD VERSIONS
### OSP-E..B

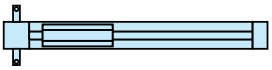
Carrier with internal guidance and magnet packet for contactless position sensing. Dovetail profile for mounting of accessories and the actuator itself.



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


**Standard**


**Standard**


**Option**

## OPTIONS

**Tandem**
For higher moment support.

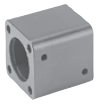


**Bi-parting**
For perfectly synchronised bi-parting movements.



### Accessories

**Motor Mounting**



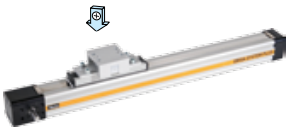
**End Cap Mounting**
For end-mounting of the actuator.



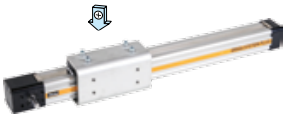
**Profile Mounting**
For supporting long actuators or mounting the actuator on the dovetail grooves.



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



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



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





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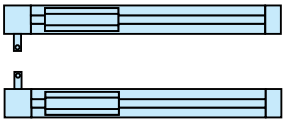
P-A4P017GB

**OSP-E**

# OSP-E..B Belt Actuator with Internal Plain Bearing Guide - Size 25, 32, 50

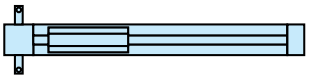
## Standard Version

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



## Options

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



## Characteristics

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

## Weight (mass) and Inertia

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

*Version: Tandem and Bi-parting (Option)



### Installation Instructions

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

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

### Maintenance

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

### First service start-up

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

### Sizing of Actuator

The following steps are recommended for selection:

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

### Performance Overview (T1)

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

*Bi-parting version

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

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

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

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

### Maximum Permissible Loads (T3)

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

### Combined Loads

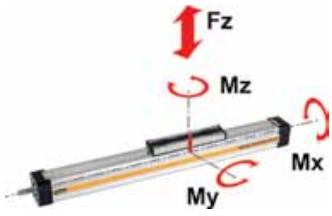
If the actuator is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here.
The maximum permissible loads must not be exceeded.

### Equation of Combined Loads

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

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

### Forces, Loads and Moments




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

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

## Stroke Length

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

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

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

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

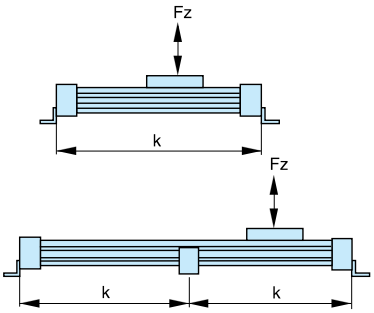
* Version: Bi-partional

Other stroke lengths are available on request.

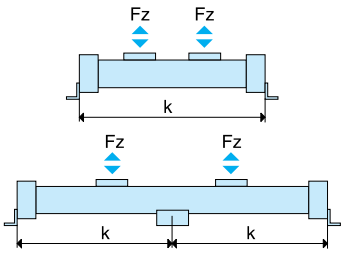
**The end of stroke must not be used as a mechanical stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft.**
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo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

### Maximum Permissible Unsupported Length – Placing of Profile Mounting

**Series OSP-E..B**

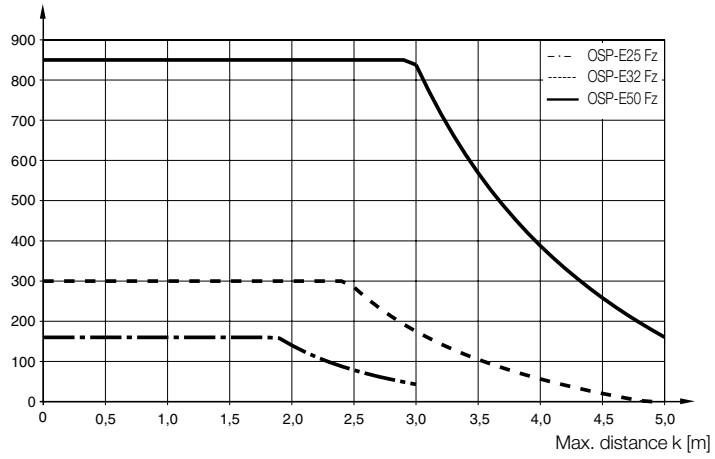



**Series OSP-E..B**
Bi-parting version




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

Load F [N]



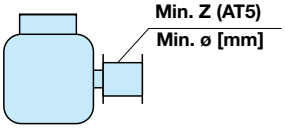

(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k)

### Mounting on the Drive Shaft

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

### Pulley

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




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



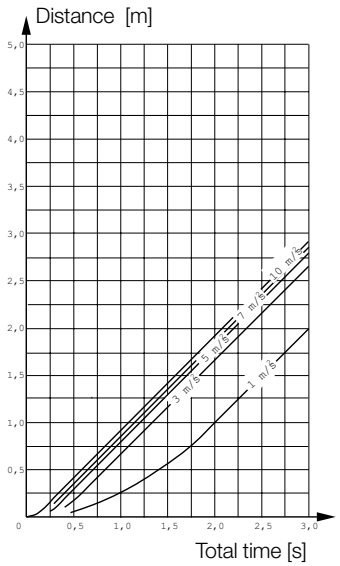
Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

## Distance / Time Graph

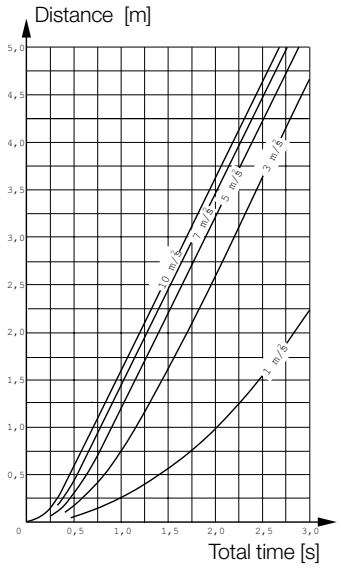
Using the required travel distance and total time, the adjacent graphs show the required acceleration based on maximum speed.

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

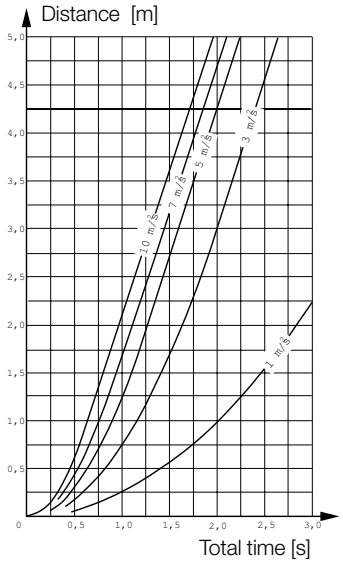
### Max. Speed 1 m/s



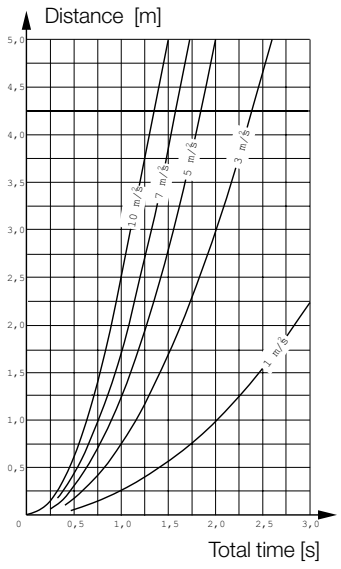

### Max. Speed 2 m/s




### Max. Speed 3 m/s




### Max. Speed 5 m/s

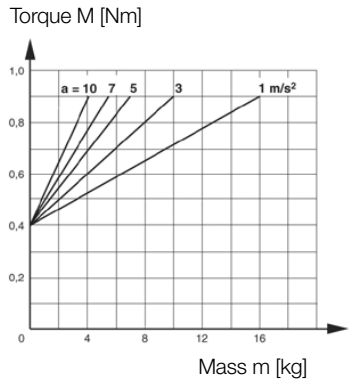


## Required Torque / Mass

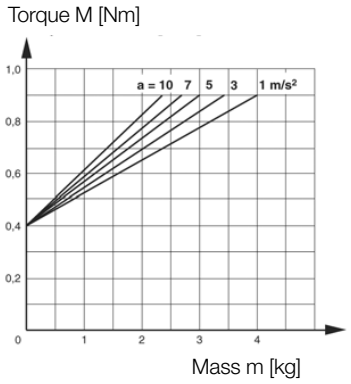
Using the known mass, the direction of the application and the required acceleration from the distance-time graphs, the actuator can be sized and the required torque is shown in the adjacent graphs.
Mass in graphs = Load + moving mass of the actuator (according to the weight chart on data sheet 43 ff).

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

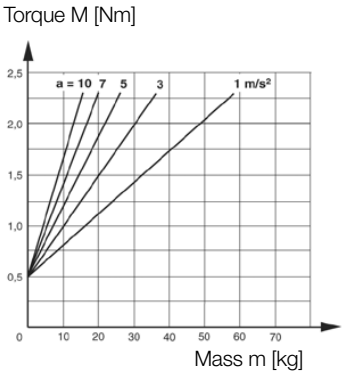
### Size OSP-E25B, Horizontal Application



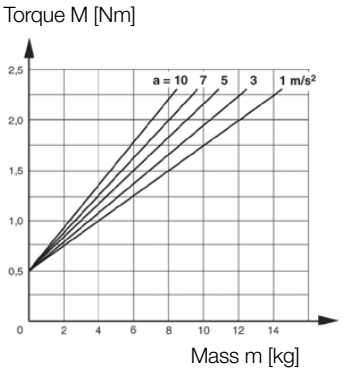

### Size OSP-E25B, Vertical Application



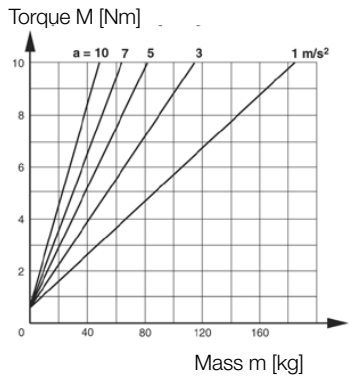

### Size OSP-E32B, Horizontal Application



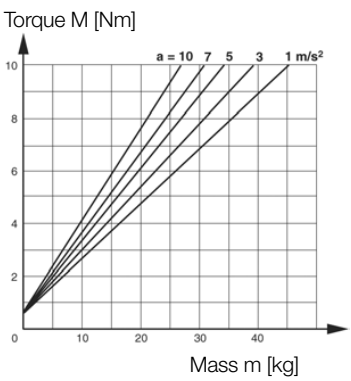

### Size OSP-E32B, Vertical Application




### Size OSP-E50B, Horizontal Application

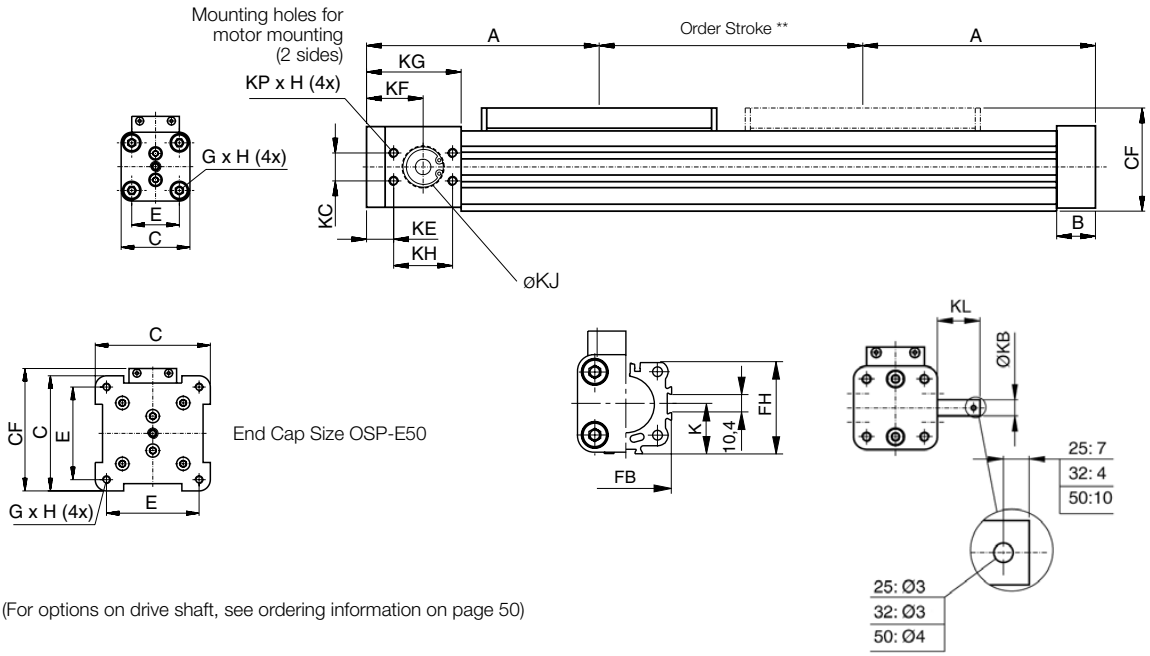



### Size OSP-E50B, Vertical Application



## OSP-E Belt Actuator with Internal Plain Bearing Guide

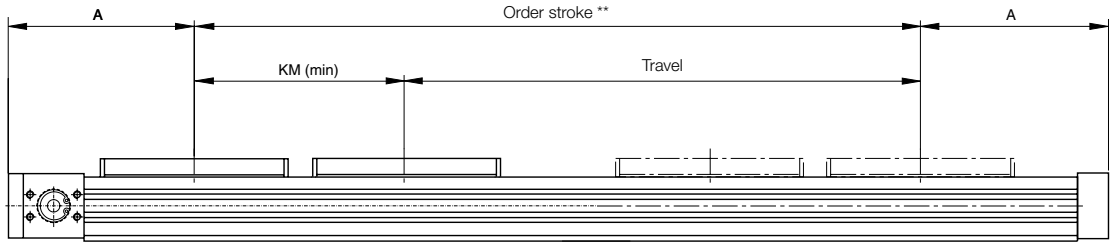
### OSP-E.. B - Basic Unit




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

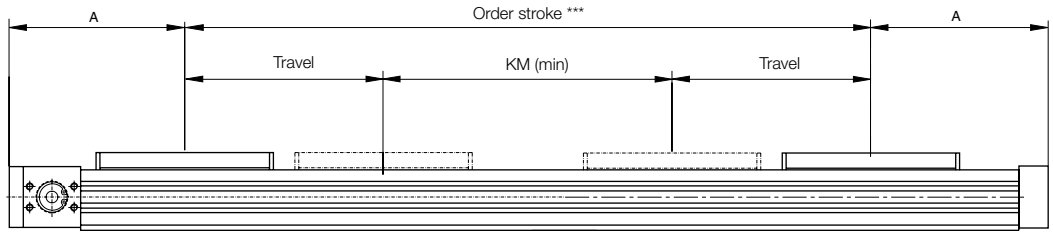
* **Note:** The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm. Order stroke = required travel + 2 x safety distance.
The use of an AC motor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

### Option – Tandem



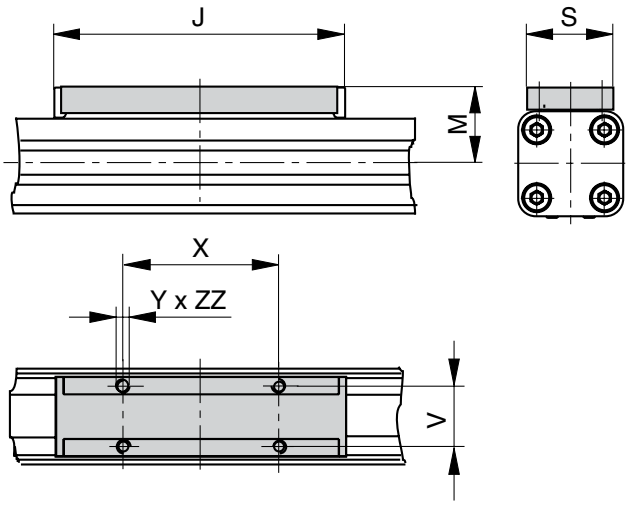

** Order stroke = required travel + KM min + 2 x safety distance

### Option – Bi-parting




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

## Standard Carrier




### Dimension Table [mm]

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

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

# OSP-E

| Order Instructions | OSPE25 | – | 0 | 0 | 0 | 0 | 0 – | 00000 | – | 0 | 0 | 0 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Size of Actuator**

| | |
|---|---|
| **25** | Size 25 |
| **32** | Size 32 |
| **50** | Size 50 |

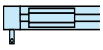
**Type of Actuator**

| | |
|---|---|
| **0** | Belt Actuator with Internal Plain Bearing Guide |

**Carriage**

| | |
|---|---|
| **0** | Standard |
| **1*** | Tandem |
| **2*** | Bi-parting |

**Drive Shaft / Motor Mounting Position**

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

**Order Stroke**

5 digits input in mm

**Mounting Kit for Motor and Gear**

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

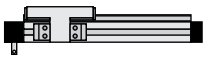
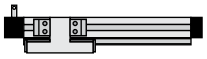
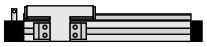
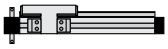
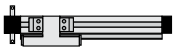
**Info:** Motor and gear mounting dimensions see page 191

**Gear Mounting***

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

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

# OSP-E

| Guide Position | | |
|---|---|---|
| 0 | Standard |  |
| 1 | 180° Standard |  |
| 0 | Standard |  |
| 1 | 180° Standard |  |
| 0 | Standard |  |
| 1 | 180° Standard |  |

| External Guide / Carriage Mounting* see page 99 ff | |
|---|---|
| 0 | without |
| 6 | PL Proline |
| E | PS Power Slide 25/25 |
| F | PS Power Slide 25/35, 32/35 |
| G | PS Power Slide 25/44, 32/44 |
| H | PS Power Slide 50/60 |
| I | PS Power Slide 50/76 |
| M | Inversion |
| R | Compensation |
| S | Compensation Low Back Lash |

| Niro | |
|---|---|
| 0 | Standard |
| 1* | Niro |

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

| Magnetic Sensors * see page 165 ff | |
|---|---|
| 0 | without |
| 1 | 1 pc. RST-K 2NO / 5 m Cable |
| 2 | 1 pc. RST-K 2NC / 5 m Cable |
| 3 | 2 pc. RST-K 2NC / 5 m Cable |
| 4 | 2 pc. RST-K 2NC, 1 pc. RST-K 2NO / 5 m Cable |
| 5 | 1 pc. RST-S 2NO / M8 plug |
| 6 | 1 pc. RST-S 2NC / M8 plug |
| 7 | 2 pc. RST-S 2NC / M8 plug |
| 8 | 2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug |
| A | 1 pc. EST-S NPN / M8 plug |
| B | 2 pc. EST-S NPN / M8 plug |
| C | 3 pc. EST-S NPN / M8 plug |
| D | 1 pc. EST-S PNP / M8 plug |
| E | 2 pc. EST-S PNP / M8 plug |
| F | 3 pc. EST-S PNP / M8 plug |

| Profile Mounting * see pages 147 ff and 161 ff | |
|---|---|
| 0 | without |
| 1 | 1 Pair Type E1 |
| 2 | 1 Pair Type D1 |
| 3 | 1 Pair Type MAE |
| 4 | 2 Pair Type 1 |
| 5 | 2 Pair Type D1 |
| 6 | 2 Pair Type MAE |
| 7 | 3 Pair Type 1 |
| 8 | 3 Pair Type D1 |
| 9 | 3 Pair Type MAE |
| K | 1 Pair Type E2 |
| L | 1 Pair Type E3 |
| M | 1 Pair Type E4 |
| N | 2 Pair Type E2 |
| P | 2 Pair Type E3 |
| Q | 2 Pair Type E4 |
| R | 3 Pair Type E2 |
| S | 3 Pair Type E3 |
| T | 3 Pair Type E4 |

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

* Option



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Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

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



**Content**


| Description | Page |
|---|---|
| Overview | 54 |
| Technical Data | 57 |
| Dimensions | 62 |
| Order Instructions | 64 |




Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

P-A4P017GB
**OSP-E**

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

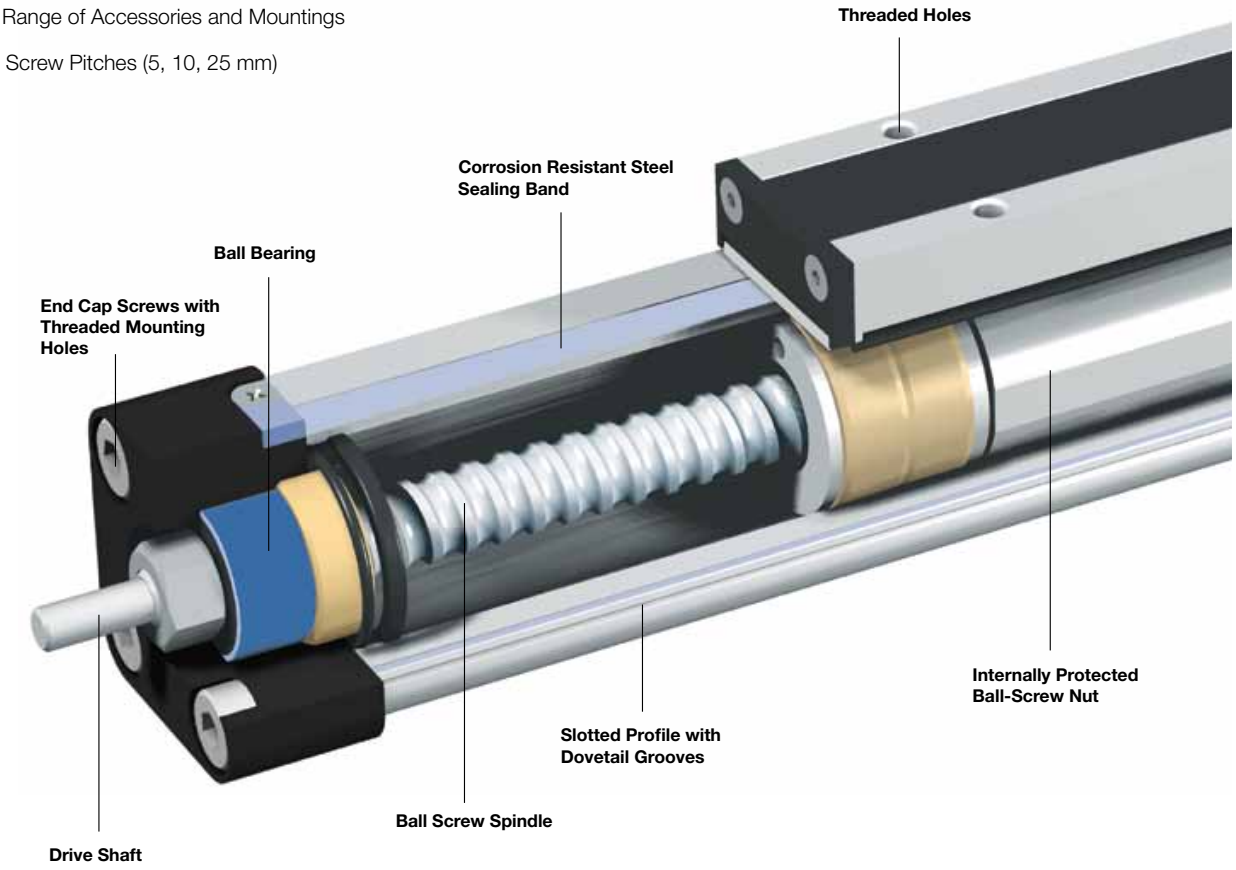
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

### Advantages

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

### Features

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



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




**SLIDELINE**
Combination with linear guides provides for heavier loads.



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



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



**Heavy Duty guide**
HD linear guides for heavy duty applications

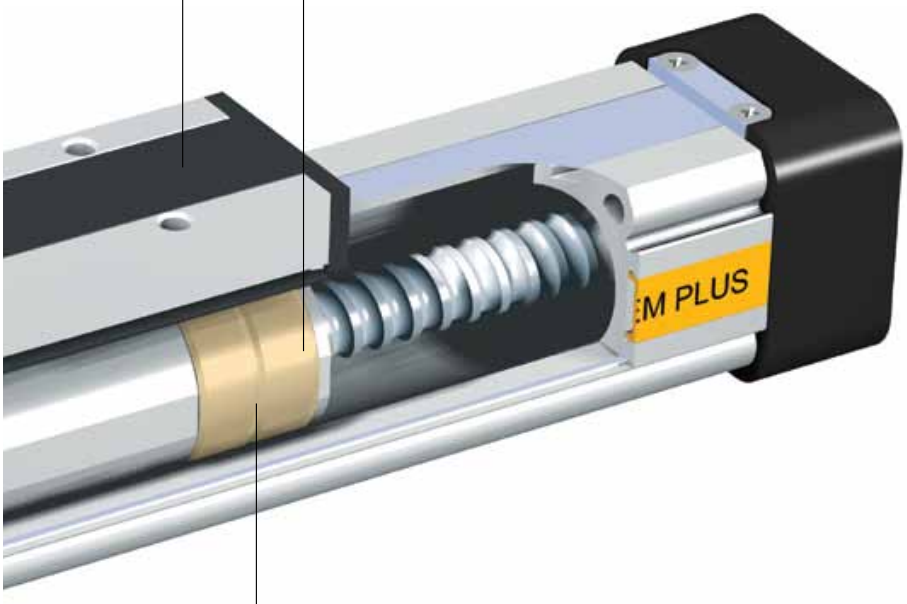


**SFI-plus**
displacement measuring system



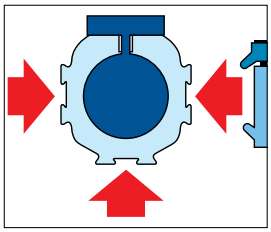
**Low Friction Support Rings**

**Carrier**




**Permanent Magnet for Contactless Sensing**

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

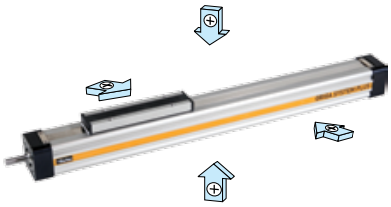




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## OSP-E..SB
## Ball Screw Actuator with internal Plain Bearing Guide

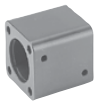
**Standard Version**
**OSP-E..SB**
Standard carrier with internal guidance and integrated magnet set for contactless position sensing.
Dovetail profile for mounting of accessories and the actuator itself.



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

**Accessories**

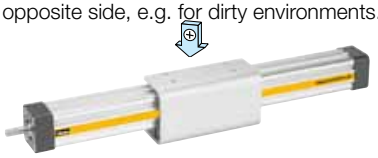
**Motor Mountings**



**End Cap Mounting**
For end-mounting of the actuator.



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



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



**Options**

**Tandem**
For higher moment support.



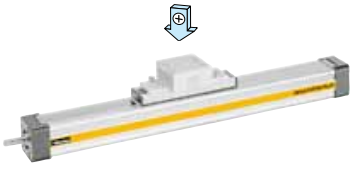
**Clean Room**
certified to DIN EN ISO 14644-1



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



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



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



P-A4P017GB

**OSP-E**

# OSP-E..SB Ball Screw Actuator with Internal Plain Bearing Guide - Size 25, 32, 50

## Standard Versions:

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

  **Type OSP-E25:** 5 mm

  **Type OSP-E32:** 5 , 10 mm

  **Type OSP-E50:** 5 , 10, 25 mm

## Options:

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



## Characteristics

| | | Symbol | Unit | Description |
|---|---|---|---|---|
| General Features | | | | |
| Series | | | | OSP-E..SB |
| Name | | | | Ball Screw Acutator with Internal Plain Bearing Guide |
| Mounting | | | | see drawings |
| Temperature Range | | $\vartheta_{min}$<br>$\vartheta_{max}$ | °C<br>°C | -20<br>+80 |
| Weight (mass) | | | kg | see table |
| Installation | | | | in any position |
| | Slotted Profile | | | Extruded Anodized Aluminium |
| Material | Ball Screw | | | Hardened Steel |
| | Ball Screw Nut | | | Hardened Steel |
| | Guide Bearings | | | Low Fricition Plastic |
| | Sealing Band | | | Hardened, Corrision Resistant Steel |
| | Screws, Nuts | | | Zinc Plated Steel |
| | Mountings | | | Zinc Plated Steel and Aluminium |
| Protection Class | | | IP | 54 |

## Weight (mass) and Inertia

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

*pitch

### Installation Instructions

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

### Maintenance

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

### First service start-up

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

### Sizing of Actuator

The following steps are recommended for selection :

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

2. Required torque is shown in graphs

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

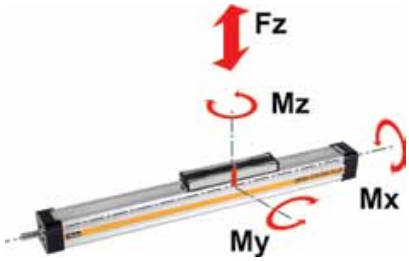
4.When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time of the application.

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

### Performance Overview

| Characteristics | Unit | Description | | | | | |
|---|---|---|---|---|---|---|---|
| **Size** | | **OSP-E 25B** | **OSP-E 32B** | | **OSP-E 50B** | | |
| Pitch | [mm] | 5 | 5 | 10 | 5 | 10 | 25 |
| Max. speed | [m/s] | 0.25 | 0.25 | 0.5 | 0.25 | 0.5 | 1.25 |
| Linear motion per revolution drive shaft | [mm] | 5 | 5 | 10 | 5 | 10 | 25 |
| Max. rpm. drive shaft | [min$^{-1}$] | 3000 | 3000 | | 3000 | | |
| Max. effecitve action force $F_A$ corresponding torque on drive shaft | [N]<br>[Nm] | 250<br>0.35 | 600<br>0.75 | 600<br>1.3 | 1500<br>1.7 | 3.1 | 7.3 |
| No-load torque | [Nm] | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 |
| Max. allowable torque on drive shaft | [Nm] | 0.6 | 1.5 | 2.8 | 4.2 | 7.5 | 20 |
| Repeatability | [mm] | ±0.05 | ±0.05 | | ±0.05 | | |
| Max. Standard stroke length | [mm] | 1100 | 2000 | | 3200 | | |

### Forces, Loads and Moments




**M = F · l [Nm]**

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

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

### Maximum Permissible Loads

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

### Combined Loads

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

### Equation of Combined Loads

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

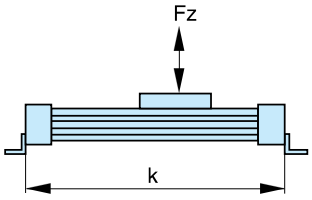
The total of the loads must not exceed >1 under any circumstances.

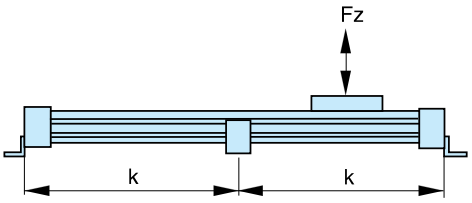
### Stroke Length

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

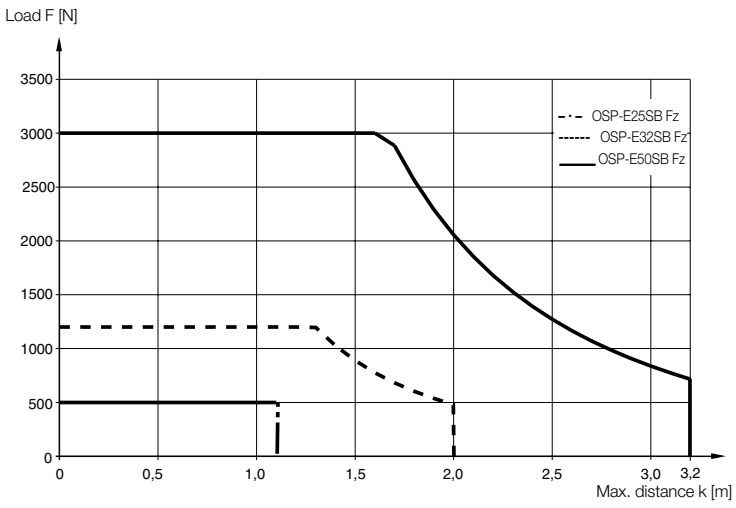
**The end of stroke must not be used as a mechanical stop. Allow an additional safety clearance of minimum 25 mm at both ends.**
The use of an AC motor with frequency converter normally requires a larder safety clearance than that required for servo systems. For advise, please contact your local Parker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

## Maximum Permissible Unsupported Length – Placing of Profile Mounting




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



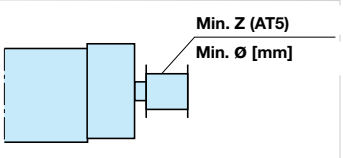

(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

### Mounting on the Drive Shaft

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

### Pulleys

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



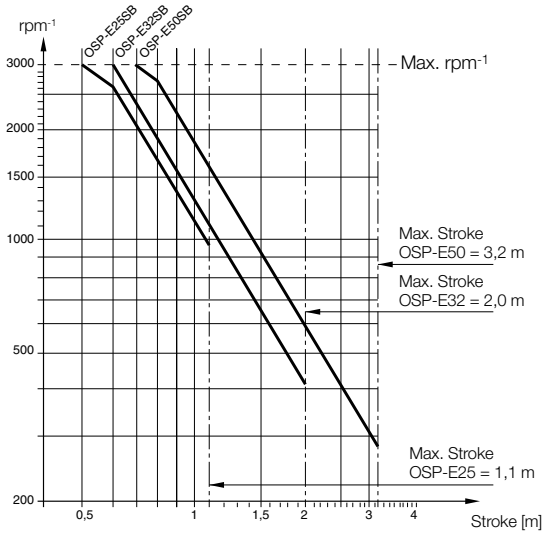

| Series | Min. Z | Min Ø |
|---|---|---|
| OSP-E25B | 24 | 38 |
| OSP-E32B | 24 | 38 |
| OSP-E50B | 36 | 57 |



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## Maximum rpm / Stroke

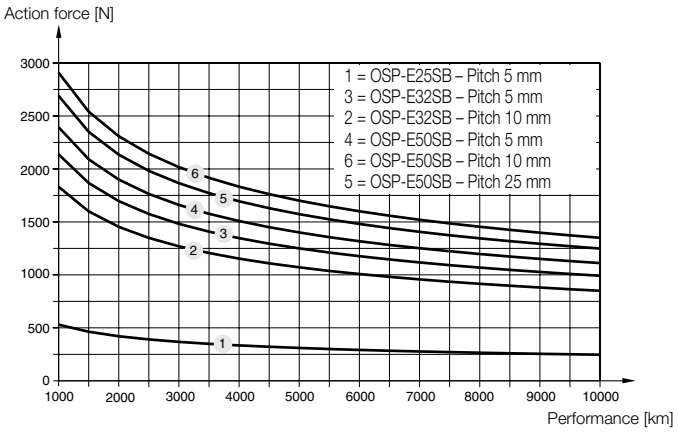
At longer strokes the speed has to be reduced according to the adjacent graphs.




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

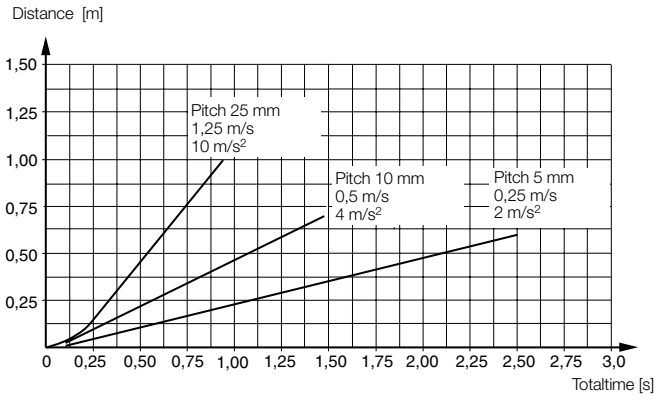
## Performance / Action Force

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




## Distance / Time Graph

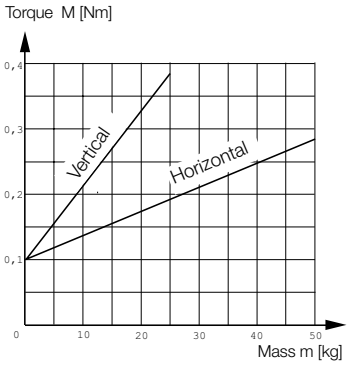
The adjacent graphs show travel distance and total time at maximum speed and recommended maximum acceleration. The graph assumes that acceleration and deceleration are equal.



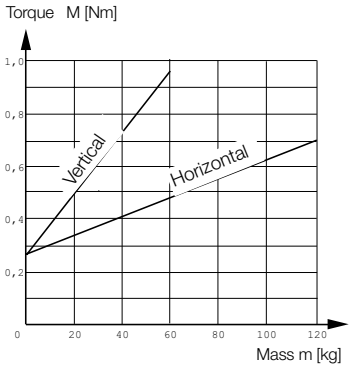
Using the known mass, the direction of the application and the recommended acceleration, the actuator can be sized and the required torque is shown in the adjacent graphs.
Mass in graphs = Load + moving mass of the actuator according to the weight chart (see table on page 61).

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

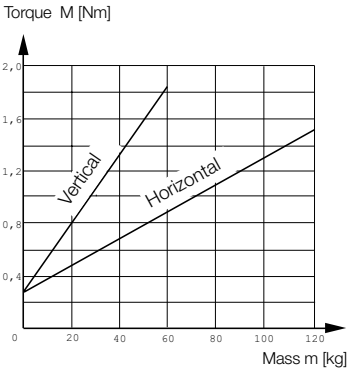
**Size OSP-E25SB, Pitch 5mm**
**Acceleration 2 m/s²**



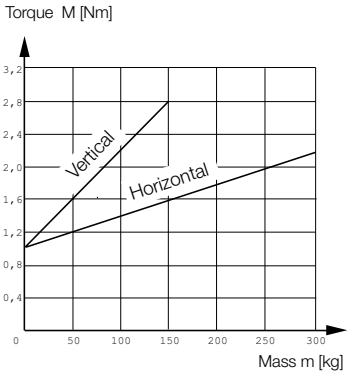

**Size OSP-E32SB, Pitch 5 mm**
**Acceleration 2 m/s²**



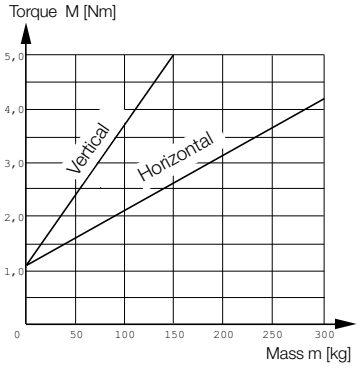

**Size OSP-E32SB, Pitch 10 mm**
**Acceleration 4 m/s²**



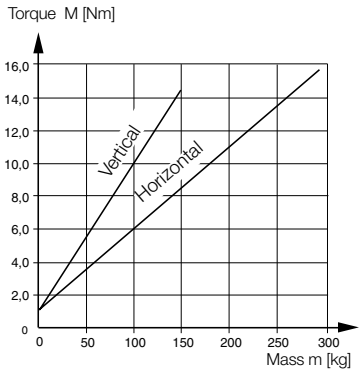

**Size OSP-E50SB, Pitch 5 mm**
**Acceleration 2 m/s²**




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



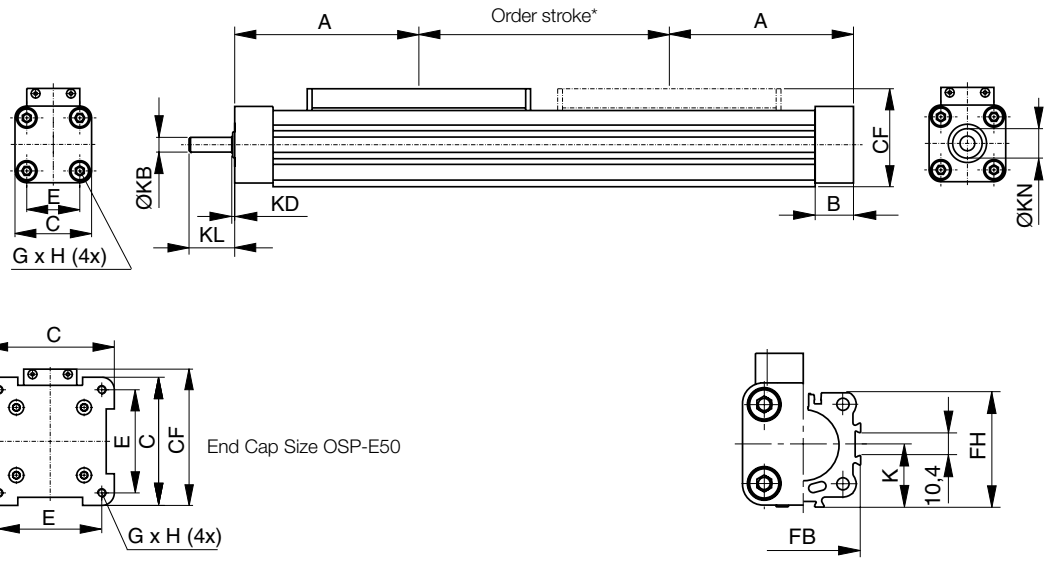

**Size OSP-E50SB, Pitch 25 mm**
**Acceleration 10 m/s²**



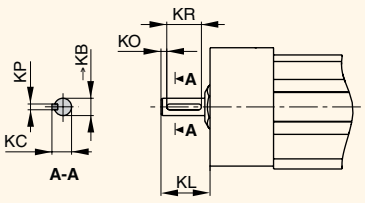



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## OSP-E..SB
## Ball Screw Actuator with Internal Plain Bearing Guide – Basic Unit




### Plain Shaft with Keyway (Option)

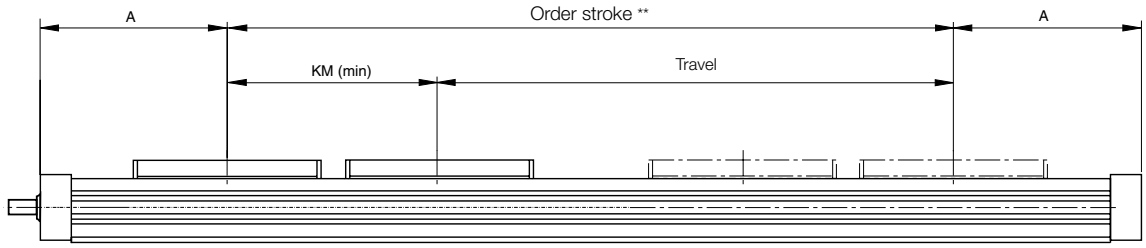



| Series | ⌀$KB_{h7}$ | KC | KL | | KO | $KP^{P9}$ | KR |
|---|---|---|---|---|---|---|---|
| | | | Opt. 3 | Opt. 4 | | | |
| OSP-E25SB | 6 | 6.8 | 17 | 24 | 2 | 2 | 12 |
| OSP-E32SB | 10 | 11.2 | 31 | 41 | 5 | 3 | 16 |
| OSP-E50SB | 15 | 17.0 | 43 | 58 | 6 | 5 | 28 |

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

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

### Option – Tandem

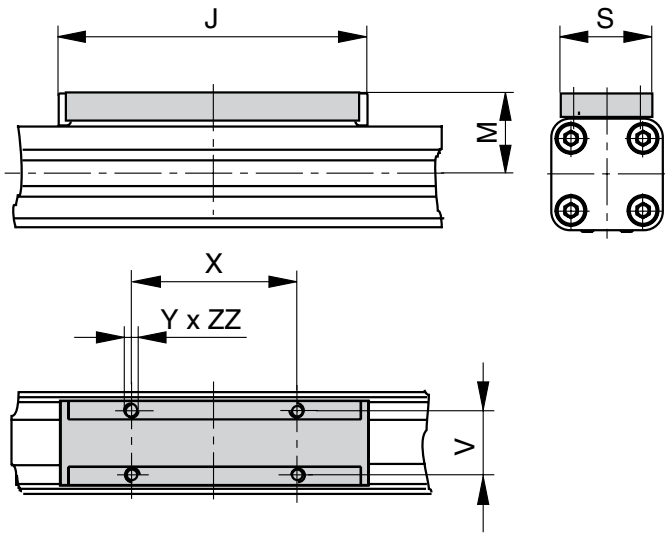



** Order stroke = required travel + KM min + 2 x safety distance



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## Standard Carrier




### Dimension table [mm]

| Series | A | B | C | E | G x H | J | K | M | S | V | X | Y | CF | FB | FH | KB | KD | KL | KM $_{min}$ | KN | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OSP-E25SB** | 100 | 22.0 | 41 | 27 | M5 x 10 | 117 | 21.5 | 31 | 33 | 25 | 65 | M5 | 52.5 | 40 | 39.5 | $6_{h7}$ | 2 | 17 | 120 | 13 | 8 |
| **OSP-E32SB** | 125 | 25.5 | 52 | 36 | M6 x 12 | 152 | 28.5 | 38 | 36 | 27 | 90 | M6 | 66.5 | 52 | 51.7 | $10_{h7}$ | 2 | 31 | 165 | 20 | 10 |
| **OSP-E50SB** | 175 | 33.0 | 87 | 70 | M6 x 12 | 200 | 43.0 | 49 | 36 | 27 | 110 | M6 | 92.5 | 76 | 77.0 | $15_{h7}$ | 3 | 43 | 235 | 28 | 10 |



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# OSP-E

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

| Size of Actuator | |
|---|---|
| **25** | Size 25 |
| **32** | Size 32 |
| **50** | Size 50 |

| Type of Actuator | |
|---|---|
| **1** | Ball Screw Actuator with Internal Plain Bearing Guide |

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

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

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

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

| Order stroke |
|---|
| 5 digits input in mm |

| Drive Shaft | |
|---|---|
| **0 –** | Plain Shaft |
| **3 –*** | Keyway |
| **4 –*** | Long with Keyway |

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

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

**Info:** Motor and gear mounting dimensions see page 191

| Guide Position | |
|---|---|
| **0** | Standard |

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

| Niro | |
|---|---|
| **0** | Standard |
| **1*** | Niro Screw |

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

| Magnetic Sensors * see page 165 ff | |
|---|---|
| **0** | without |
| **1** | 1 pc. RST-K 2NO / 5 m Cable |
| **2** | 1 pc. RST-K 2NC / 5 m Cable |
| **3** | 2 pc. RST-K 2NC / 5 m Cable |
| **4** | 2 pc. RST-K 2NC,<br>1 pc. RST-K 2NO / 5 m Cable |
| **5** | 1 pc. RST-S 2NO / M8 plug |
| **6** | 1 pc. RST-S 2NC / M8 plug |
| **7** | 2 pc. RST-S 2NC / M8 plug |
| **8** | 2 pc. RST-S 2NC, 1 pc. RST-S 2NO / M8 plug |
| **A** | 1 pc. EST-S NPN / M8 plug |
| **B** | 2 pc. EST-S NPN / M8 plug |
| **C** | 3 pc. EST-S NPN / M8 plug |
| **D** | 1 pc. EST-S PNP / M8 plug |
| **E** | 2 pc. EST-S PNP / M8 plug |
| **F** | 3 pc. EST-S PNP / M8 plug |

| Profile Mounting * see pages 147 ff and 161 ff | |
|---|---|
| **0** | without |
| **1** | 1 Pair Type 1 |
| **2** | 1 Pair Type D1 |
| **3** | 1 Pair Type MAE |
| **4** | 2 Pair Type 1 |
| **5** | 2 Pair Type D1 |
| **6** | 2 Pair Type MAE |
| **7** | 3 Pair Type 1 |
| **8** | 3 Pair Type D1 |
| **9** | 3 Pair Type MAE |
| **K** | 1 Pair Type E2 |
| **L** | 1 Pair Type E3 |
| **M** | 1 Pair Type E4 |
| **N** | 2 Pair Type E2 |
| **P** | 2 Pair Type E3 |
| **Q** | 2 Pair Type E4 |
| **R** | 3 Pair Type E2 |
| **S** | 3 Pair Type E3 |
| **T** | 3 Pair Type E4 |

| End Cap Mounting * see page 141 ff and 161 ff | |
|---|---|
| **0** | without |
| **1** | 1 pc. Type A1 (size 25 and 32) or C1 (size 50) |
| **2** | 1 pc. Type A2 (size 25 and 32) or C2 (size 50) |
| **3** | 1 pc. Type A3 (size 25 and 32) or C3 (size 50) |
| **4** | 1 pc. Type B1 (size 25 and 32) or C4 (size 50) |
| **5** | 1 pc. Type B4 (size 25 and 32) |

* Option

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



**Content**


| Description | Page |
|---|---|
| Overview | 68 |
| Technical Data | 71 |
| Dimensions | 73 |
| Order Instructions | 76 |




**Parker Hannifin Corporation**
Pneumatic Division - Europe

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P-A4P017GB

**OSP-E**

# Trapezoidal Screw Actuator with Internal Plain Bearing Guide for Intermittent Applications

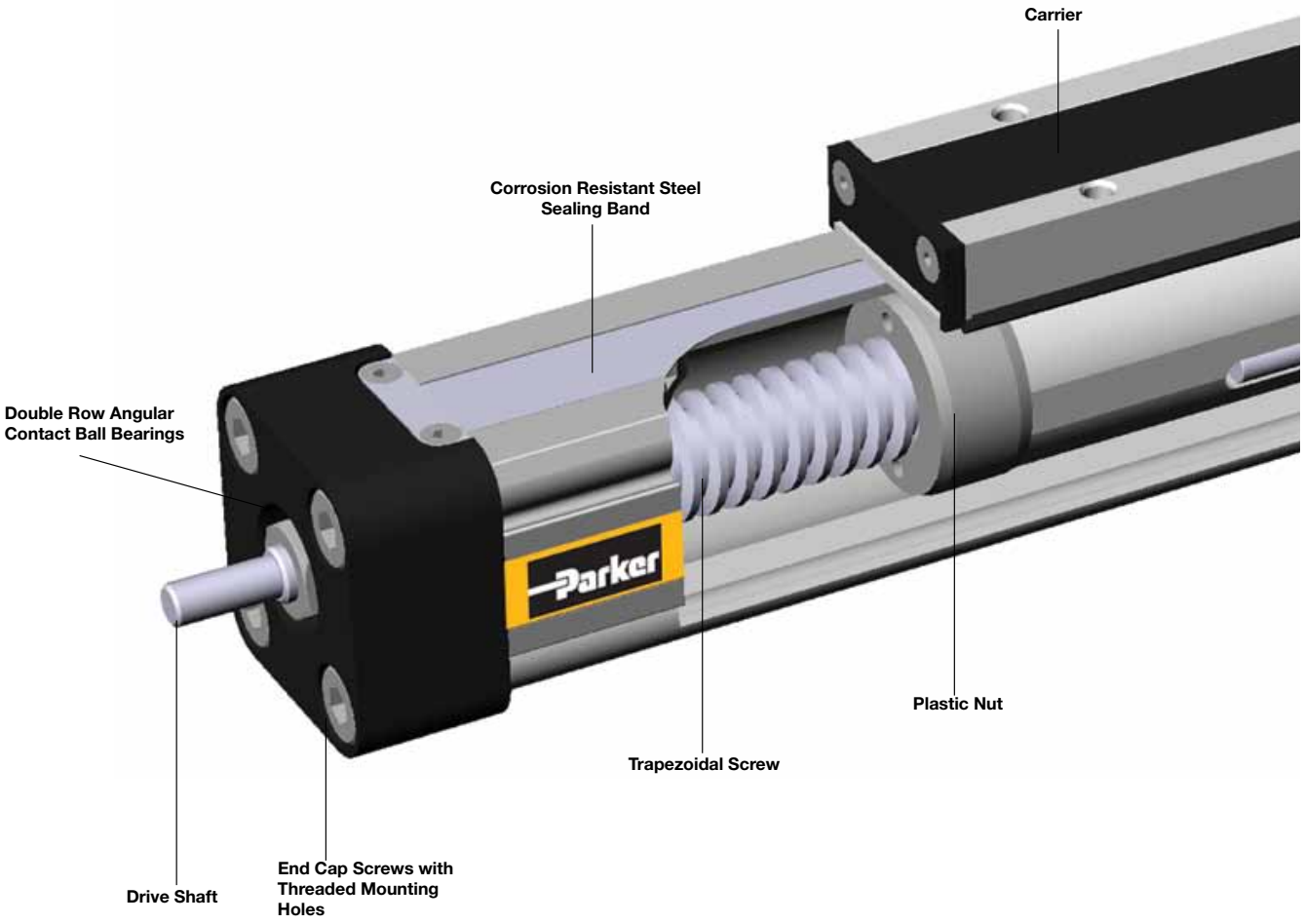
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

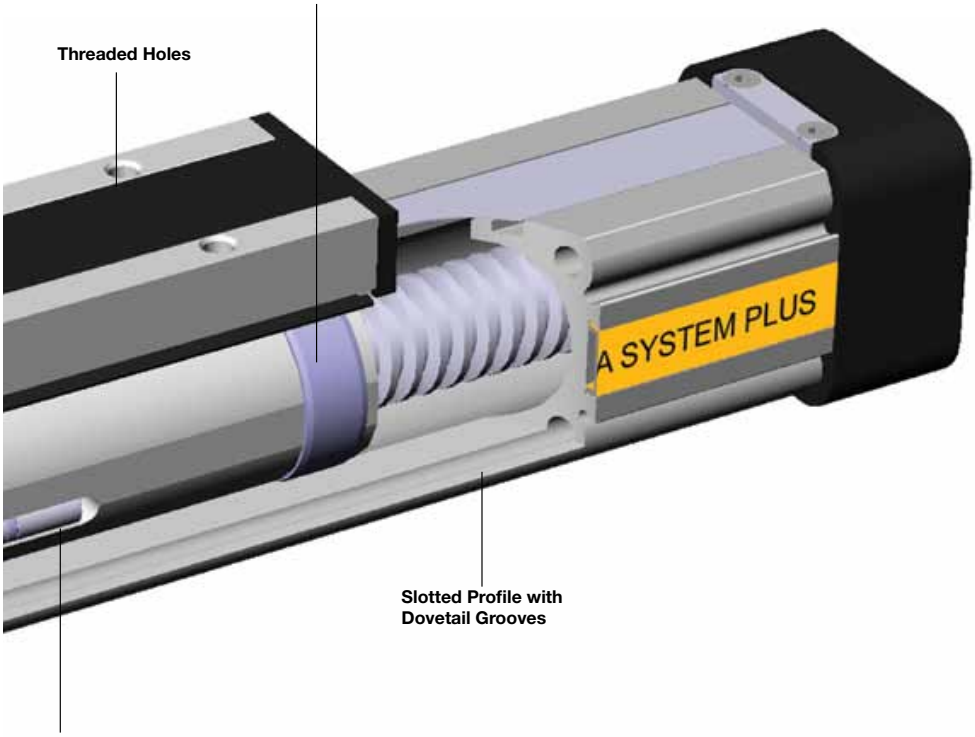
### Advantages

- Accurate Path and Position Control
- High Force Output
- Self-Locking
- Excellent Slow Speed Characteristics
- Easy Installation
- Low Maintenance
- Ideal for Level Regulation, Lifting and Other Applications with Intermittent Operations

### Features

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






**SLIDELINE**
Combination with linear guides provides for heavier loads.



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



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



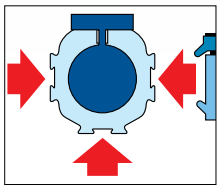
**Heavy Duty guide**
HD linear guides for heavy duty applications



**SFI-plus**
displacement measuring system

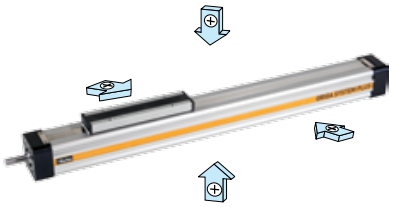


The dovetailed mounting rails of the new acutator expand its function into that of a universal system carrier.
Modular system components are simply clamped on.

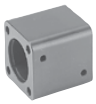


## OSP-E..ST Trapezoidal Screw Actuator with Internal Plain Bearing Guide

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



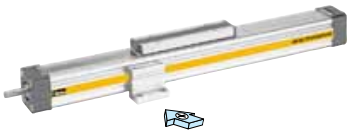
**Accessories**
**Motor Mountings**



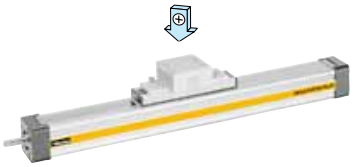
**End Cap Mounting**
For end-mounting of the actuator



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



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



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



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



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



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

**Size 25, 32, 50**

## Standard Version

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

  **Type OSP-E25ST :** 4 mm

  **Type OSP-E32ST:** 4 mm

  **Type OSP-E50ST:** 6 mm

## Options

- Displacement Measuring System SFI-plus
- Keyway



## Characteristics

| | | Symbol | Unit | Description |
|---|---|---|---|---|
| **General Features** | | | | |
| Series | | | | OSP-E..ST |
| Name | | | | Trapezoidal Screw Actuator with Internal Plain Bearing Guide |
| Mounting | | | | see drawings |
| Temperature Range | | $\vartheta_{min}$<br>$\vartheta_{max}$ | °C<br>°C | -20<br>+70 |
| Weight (mass) | | | kg | see table |
| Installation | | | | in any position |
| Material | Slotted Profile | | | Extruded Anodized Aluminium |
| | Trapezoidal Screw | | | Cold Rolled Steel |
| | Drive Nut | | | Thermoplastic Polyester |
| | Guide Bearings | | | Low Friction Plastic |
| | Sealing Band | | | Hardened, corrosion restiant steel |
| | Screws, Nuts | | | Zinc Plated Steel |
| | Mountings | | | Zinc Plated Steel and Aluminium |
| Protection Class | | | IP | 54 |

## Weight (mass) and Inertia

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

### Installation Instructions

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

### Maintenance

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

### First service start-up

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

### Sizing of Actuator

The following steps are recommended for selection :

1. Check that maximum values in the table T3 are not exceeded.

2. Check the maximum values in graph on page 74 ff are not exceeded.

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

4. Check that the maximum allowable unsupported length is not exceeded (see on page 73 ff).

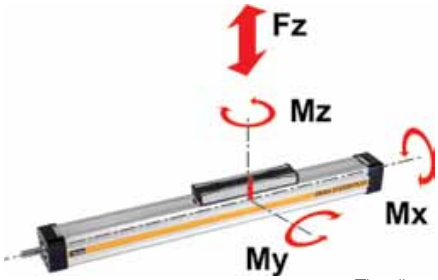
### Performance Overview

| Characteristics | Unit | Description | | |
|---|---|---|---|---|
| **Size** | | **OSP-E25ST** | **OSP-E32ST** | **OSP-E50ST** |
| Pitch | [mm] | 4 | 4 | 6 |
| Max. Speed | [m/s] | 0.1 | 0.1 | 0.15 |
| Linear Motion per Revolution Drive Shaft | [mm] | 4 | 4 | 6 |
| Max. rpm. Drive Shaft | [min$^{-1}$] | 1,500 | 1,500 | 1,500 |
| Max. Effective Action Force $F_A$ Corresponding Torque on Drive Shaft | [N]<br>[Nm] | 600<br>1.35 | 1,300<br>3.2 | 2,500<br>8.8 |
| No-load Torque | [Nm] | 0.3 | 0.4 | 0.5 |
| Max. Allowable Torque on Drive Shaft | [Nm] | 1.55 | 4.0 | 9.4 |
| Self-locking Force $F_L$ 1) | [N] | 600 | 1,300 | 2,500 |
| Repeatability | [mm] | ±0.05 | ±0.05 | ±0.05 |
| Max. Standard Stroke Length | [mm] | 1,100 | 2,000 | 2,500* |

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

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

### Forces, Loads and Moments




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

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

### Maximal Permissible Loads

T3

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

### Combined Loads

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

### Equation of Combined Loads

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

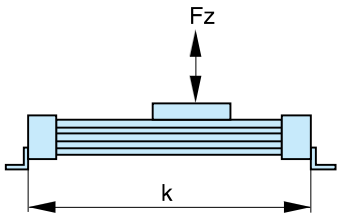
### Stroke Length

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

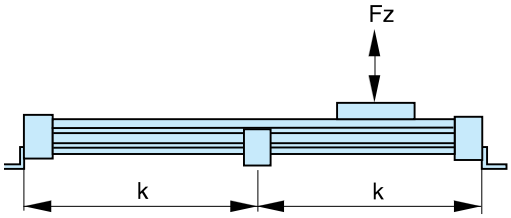
* For strokes longer than 2000 mm in horizontal applications, please contact our customer support

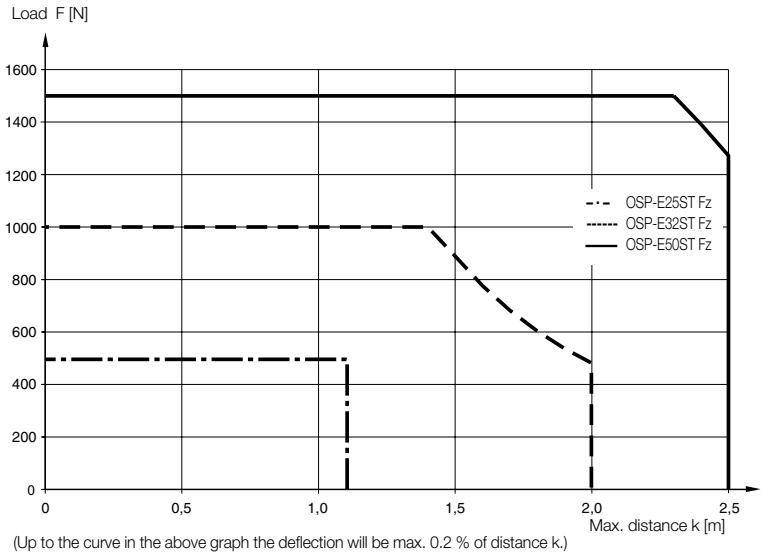
**The end of stroke must not be used as a mechanical stop. Allow an additional safety clearance of minimum 25 mm at both ends.** The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For advise, please contact your local Parker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

## Maximum Permissible Unsupported Length – Placing of Profile Mounting




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



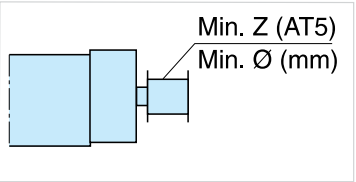

(Up to the curve in the above graph the deflection will be max. 0.2 % of distance k.)

### Mounting on the Drive Shaft

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

### Pulleys

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



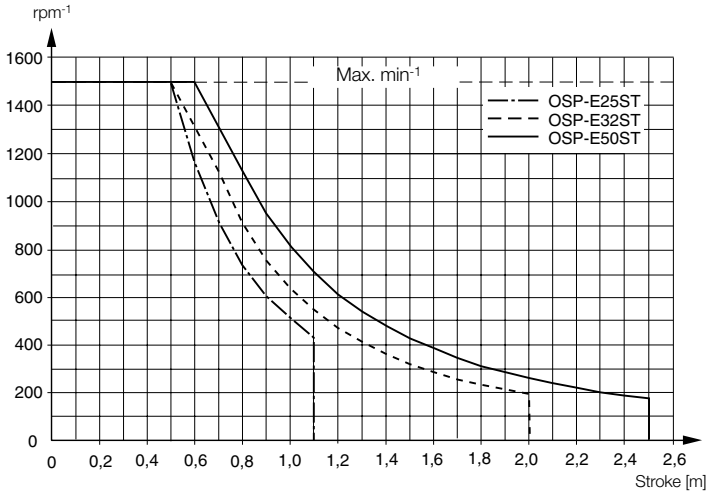

| Series | Min. Z | Min Ø |
|---|---|---|
| OSP-E25ST | 24 | 38 |
| OSP-E32ST | 24 | 38 |
| OSP-E50ST | 36 | 57 |



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## Maximum rpm / Stroke

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

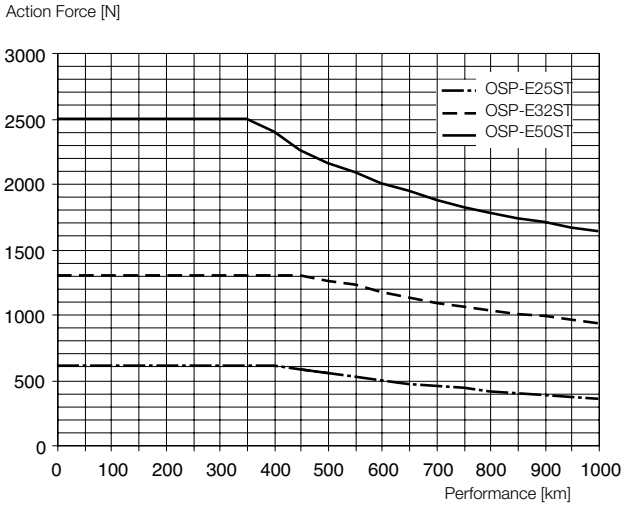



The maximum rpm shown in the graph, is 80% of the critical rpm.

## Performance as a Function of the Action Force

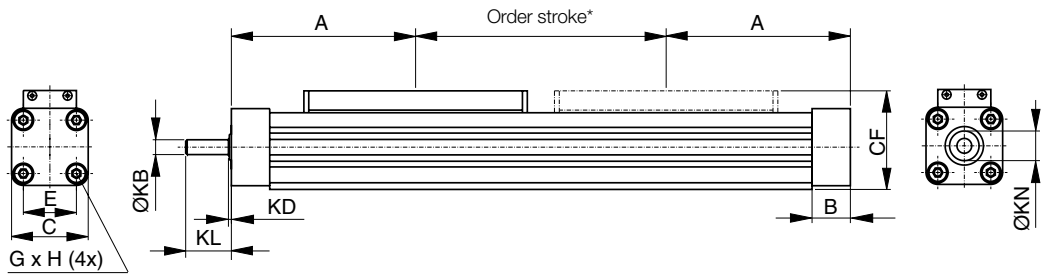
The actuators are designed for a 10% intermittent usage.

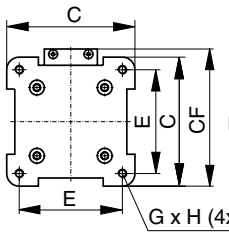
The performance to be expected depends on the maximum required actions force of the application.
An increase of the action force will lead to a reduced performance.



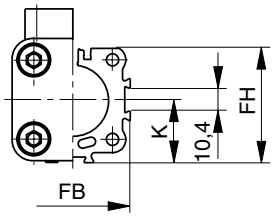

Note: Graph above is based upon 10% intermittent usage.

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

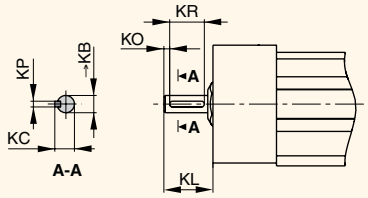



End Cap Size OSP-E50ST




### Plain Shaft with Keyway (Option)

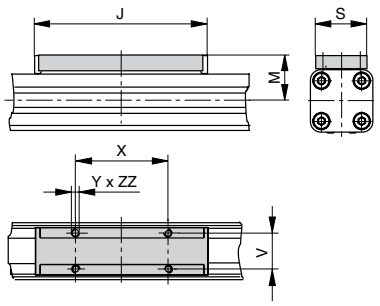



| Series | ØKB$_{h7}$ | KC | KL | KP | KO | KP$^{P9}$ | KR |
|---|---|---|---|---|---|---|---|
| | | | Opt. 3 | Opt. 4 | | | |
| **OSP-E20ST** | 6 | 6.8 | 17 | 24 | 2 | 2 | 12 |
| **OSP-E25ST** | 10 | 11.2 | 31 | 41 | 5 | 3 | 16 |
| **OSP-E50ST** | 15 | 17.0 | 43 | 58 | 6 | 5 | 28 |

Option 3: Keyway
Option 4: Keyway long version

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

### Standard Carrier




### Dimension Table [mm]

| Series | A | B | C | E | G x H | J | K | M | S | V | X | Y | CF | FB | FH | KB | KD | KL | KN | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OSP-E25ST** | 100 | 22.0 | 41 | 27 | M5 x 10 | 117 | 21.5 | 31 | 33 | 25 | 65 | M5 | 52.5 | 40 | 39.5 | $6_{h7}$ | 2 | 17 | 13 | 8 |
| **OSP-E32ST** | 125 | 25.5 | 52 | 36 | M6 x 12 | 152 | 28.5 | 38 | 36 | 27 | 90 | M6 | 66.5 | 52 | 51.7 | $10_{h7}$ | 2 | 31 | 20 | 10 |
| **OSP-E50ST** | 175 | 33.0 | 87 | 70 | M6 x 12 | 200 | 43.0 | 49 | 36 | 27 | 110 | M6 | 92.5 | 76 | 77.0 | $15_{h7}$ | 3 | 43 | 28 | 10 |



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# OSP-E

| 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 Mounting * | | | | |
|---|---|---|---|---|
| **Size** | | **25** | **32** | **50** |
| **0** | without | x | x | x |
| **1** | LP050 i = 5 | x | x | |
| **2** | LP050 i = 10 | x | x | |
| **3** | LP070 i = 3 | | x | x |
| **4** | LP070 i = 5 | | x | x |
| **5** | LP070 i = 10 | | x | x |

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

| Order Stroke |
|---|
| 5 digits input in mm |

| Drive Shaft | |
|---|---|
| **0 –** | Plain Shaft |
| **3 –*** | Keyway |
| **4 –*** | Long with Keyway |

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

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

**Info:** Motor and gear mounting dimensions see page 191

| Guide Position | |
|---|---|
| **0** | Standard |

| External Guide / Carriage Mounting see pages 101 ff | |
|---|---|
| **0** | without |
| **2** | SL Slide Line |
| **6** | PL Proline |
| **D** | HD Heavy Duty |
| **E** | PS Power Slide 25/25 |
| **F** | PS Power Slide 25/35, 32/35 |
| **G** | PS Power Slide 25/44, 32/44 |
| **H** | PS Power Slide 50/60 |
| **I** | PS Power Slide 50/76 |
| **M** | Inversion |
| **R** | Compensation |
| **S** | Compensation Low Back Lash |

| Niro | |
|---|---|
| **0** | Standard |
| **1 *** | Niro Screws |

* Option

| Magnetic Sensors * see page 165 ff | |
|---|---|
| **0** | without |
| **1** | 1 pc. RST-K 2NO / 5 m cable |
| **2** | 1 pc. RST-K 2NC / 5 m cable |
| **3** | 2 pc. RST-K 2NC / 5 m cable |
| **4** | 2 pc. RST-K 2NC,<br>1 pc. RST-K 2NO / 5 m cable |
| **5** | 1 pc. RST-S 2NO / M8 plug |
| **6** | 1 pc. RST-S 2NC / M8 plug |
| **7** | 2 pc. RST-S 2NC / M8 plug |
| **8** | 2 pc. RST-S 2NC,<br>1 pc. RST-S 2NO / M8 plug |
| **A** | 1 pc. EST-S NPN / M8 plug |
| **B** | 2 pc. EST-S NPN / M8 plug |
| **C** | 3 pc. EST-S NPN / M8 plug |
| **D** | 1 pc. EST-S PNP / M8 plug |
| **E** | 2 pc. EST-S PNP / M8 plug |
| **F** | 3 pc. EST-S PNP / M8 plug |

| Profile Mounting * see page 147 and 161 ff | |
|---|---|
| **0** | without |
| **1** | 1 Pair Type 1 |
| **2** | 1 Pair Type D1 |
| **3** | 1 Pair Type MAE |
| **4** | 2 Pair Type 1 |
| **5** | 2 Pair Type D1 |
| **6** | 2 Pair Type MAE |
| **7** | 3 Pair Type 1 |
| **8** | 3 Pair Type D1 |
| **9** | 3 Pair Type MAE |
| **K** | 1 Pair Type E2 |
| **L** | 1 Pair Type E3 |
| **M** | 1 Pair Type E4 |
| **N** | 2 Pair Type E2 |
| **P** | 2 Pair Type E3 |
| **Q** | 2 Pair Type E4 |
| **R** | 3 Pair Type E2 |
| **S** | 3 Pair Type E3 |
| **T** | 3 Pair Type E4 |

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

| End Cap Mounting * see page 129 and 143 ff | |
|---|---|
| **0** | without |
| **1** | 1 pc. Type A1 (size 25 and 32) or C1 (size 50) |
| **2** | 1 pc. Type A2 (size 25 and 32) or C2 (size 50) |
| **3** | 1 pc. Type A3 (size 25 and 32) or C3 (size 50) |
| **4** | 1 pc. Type B1 (size 25 and 32) or C4 (size 50) |
| **5** | 1 pc. Type B4 (size 25 and 32) |

* Option

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



**Contents**


| Description | Page |
|---|---|
| Overview | 80 |
| Technical Data | 83 |
| Dimensions | 85 |
| Order Instructions | 86 |


The right to introduce technical modifications is reserved



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Pneumatic Division - Europe

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P-A4P017GB
**OSP-E**

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

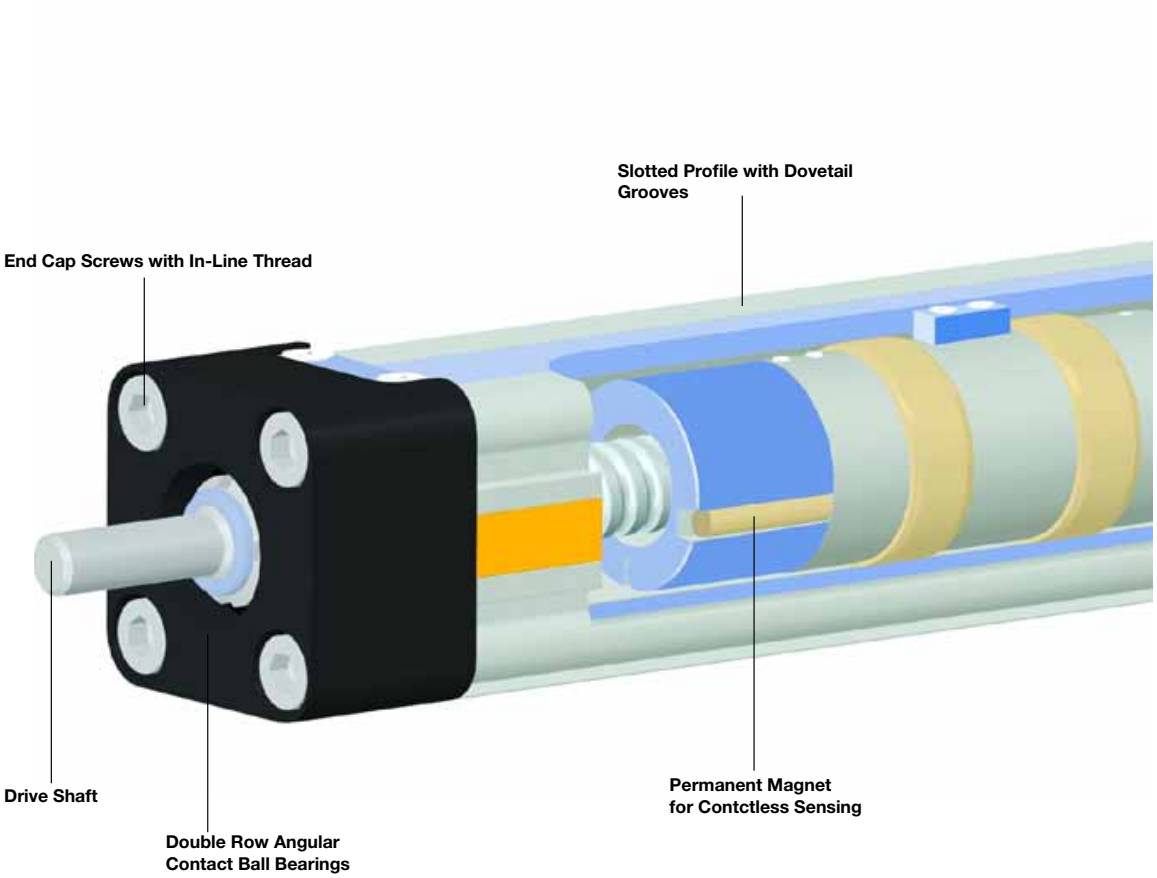
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

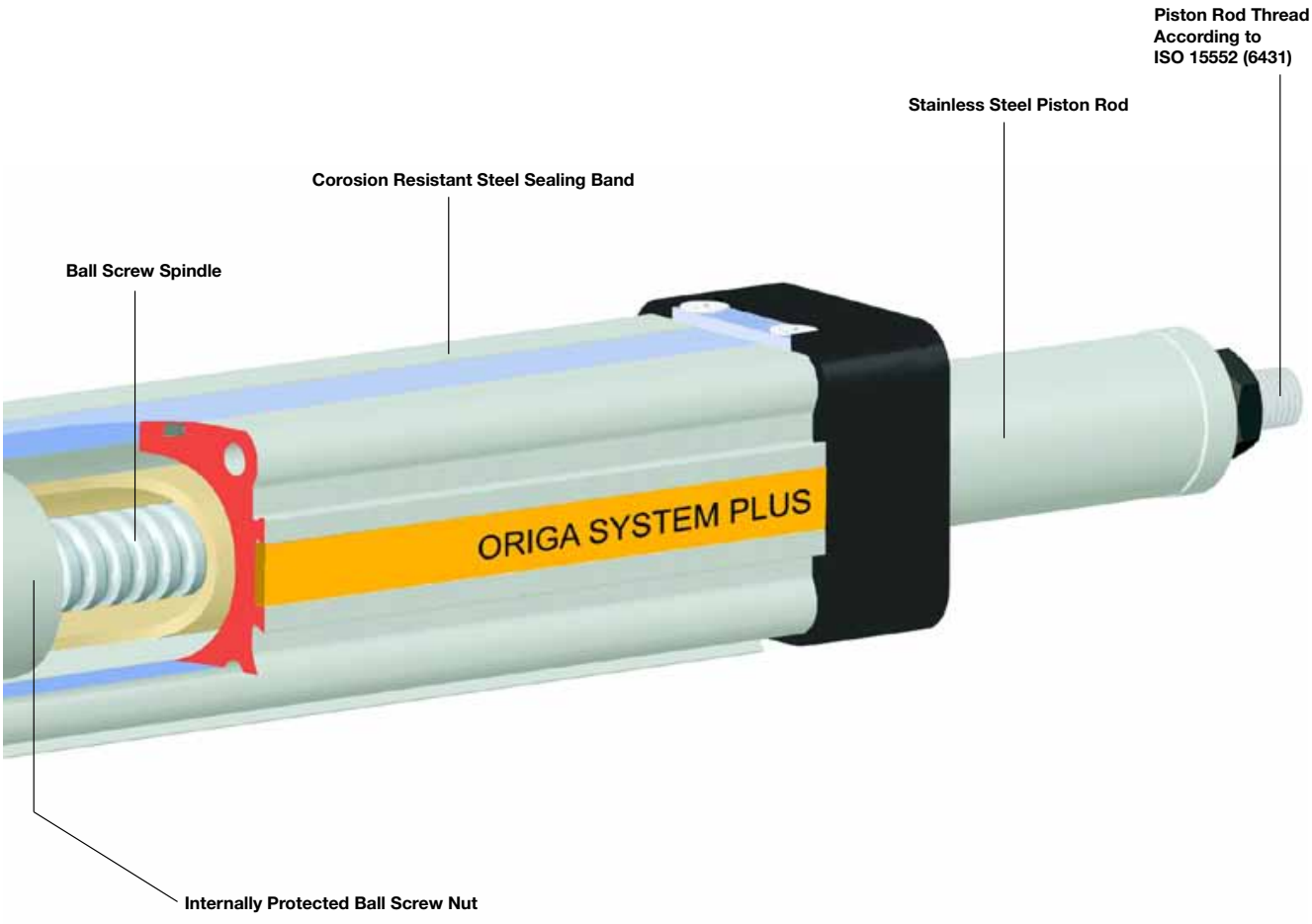
### Advantages

- 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








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

**Standard Versions**
**OSP-E..SBR**

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



**Ball Screw Pitch**

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

### Accessories

**Motor Mountings**



**End Cap Mounting**

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



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



**Profile Mounting**

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



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



**Compensation**
Piston Rod eye



**Piston rod Clevis**



**Piston Rod Compensating Coupling**

For compensating of radial and angular misaligments



**Magnetic Sensors**
**Series RST and EST**

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





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P-A4P017GB

# OSP-E OSP-E..SBR Ball Screw Actuator with Internal Plain Bearing Guide and Piston Rod - Size 25, 32, 50

**Standard Version:**

- Standard Piston Rod with Internal Plain Bearing Guide
- Pitches of Ball Screw Spindle:

  **Type OSP-E25SBR:** 5 mm

  **Type OSP-E32SBR:** 5, 10 mm

  **Type OSP-E50SBR:** 5, 10, 25 mm

**Option:**

- Keyway Version



## Characteristics

| | | Unit | Symbol | Description |
|---|---|---|---|---|
| General Features | | | | |
| Series | | | | OSP-E..SBR |
| Name | | | | Ball Screw Actuator with Internal Plain Bearing Guide and Piston Rod |
| Mounting | | | | see drawings |
| Temperature Range | | $\vartheta_{min}$<br>$\vartheta_{max}$ | °C<br>°C | -20<br>+80 |
| Weight (mass) | | | kg | see table |
| Installation | | | | in any position |
| Material | Slotted Profile | | | Al Anodized |
| | Ball Screw | | | Steel |
| | Ball Nut | | | Steel |
| | Piston Rod | | | Stainless Steel |
| | Guide Bearings | | | Low Friction Plasitc |
| | Sealing Band | | | Hardened, Corrosion Resistant Steel |
| | Screws, Nuts | | | Zinc Plated Steel |
| | Mountings | | | Zinc Plated Steel and Aluminium |
| Protection Class | | | IP | 54 |

## Weight (mass) and Inertia

| Series | Weight (mass) [kg] | | Moving Mass[kg] | | Inertia [x $10^{-6}$ kgm$^2$] | |
|---|---|---|---|---|---|---|
| | at stroke 0 m | add per metre stroke | at stroke 0 m | add per metre stroke | at stroke 0 m | add per metre stroke |
| OSP-E25ST | 0.7 | 3.0 | 0.2 | 0.9 | 1.2 | 11.3 |
| OSP-E32ST | 1.7 | 5.6 | 0.6 | 1.8 | 5.9 | 32.0 |
| OSP-E50ST | 4.5 | 10.8 | 1.1 | 2.6 | 50.0 | 225.0 |

**Installation Instructions**

Use the threaded holes in the free end cap and a profile mounting close to the motor end for mounting the actuator.
The piston rod is locked against rotations, but must not be used for radial loads Mx, that need to be guided externally. A compensation part e. g. piston rod eye (see order instructions page 86) is recommended.

**Maintenance**

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

**First service start-up**

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

## Performance Overview

| Characteristics | Unit | Description | | | | | |
|---|---|---|---|---|---|---|---|
| **Series** | | **OSP-E25SBR** | **OSP-E32SBR** | | **OSP-E50SBR** | | |
| Pitch | [mm] | 5 | 5 | 10 | 5 | 10 | 25 |
| Max. Speed | [m/s] | 0.25 | 0.25 | 0.5 | 0.25 | 0.5 | 1.25 |
| Linearer Motion per Revolution Drive Shaft | [mm] | 5 | 5 | 10 | 5 | 10 | 25 |
| Maximum rpm. Drive Shaft | [min$^{-1}$] | 3000 | 3000 | | 3000 | | |
| Max. Effective Action Force $F_A$<br>Corresponding Torque Drive Shaft | [N]<br>[Nm] | 260<br>0.45 | 900<br>1.1 | 1.8 | 1200<br>1.3 | 2.8 | 6.0 |
| No-load Torque | [Nm] | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 |
| Max. Allowable Torque on Drive Shaft | [Nm] | 0.6 | 1.5 | 2.8 | 4.2 | 7.5 | 20 |
| Max. Allowable Acceleration | [m/s$^2$] | 5 | 5 | | 5 | | |
| Typical Repeatability | [mm] | ±0.05 | ±0.05 | | ±0.05 | | |
| Max. Standard Stroke | [mm] | 500 | 500 | | 500 | | |

### Sizing of Actuator

The following steps are recommended for selection :

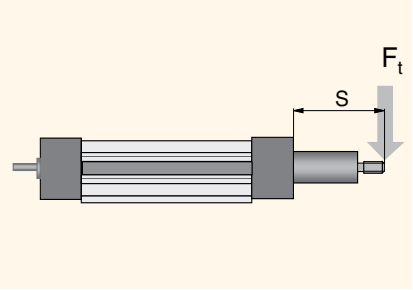
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.

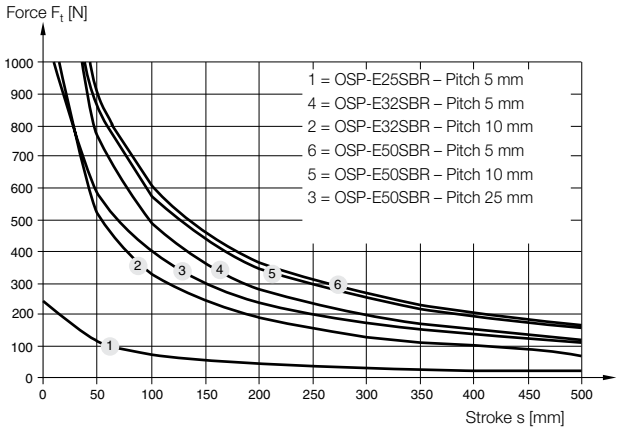
2. Check the lifetime/travel distance in graph below.

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

## Transverse Force / Stroke

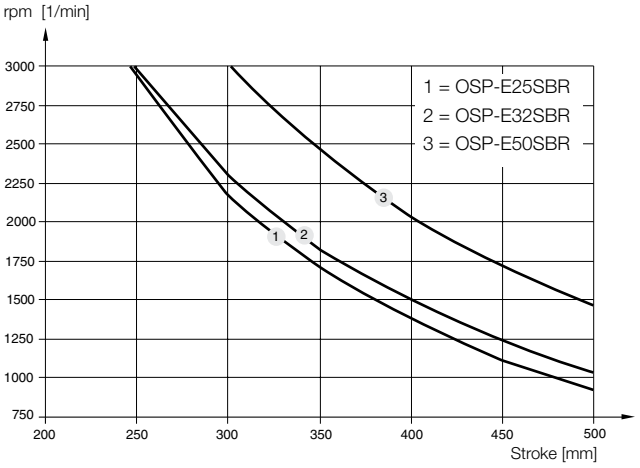
The permissible transverse force is reduced with increasing stroke length according to the adjacent graphs.




## Maximum rpm / Stroke

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



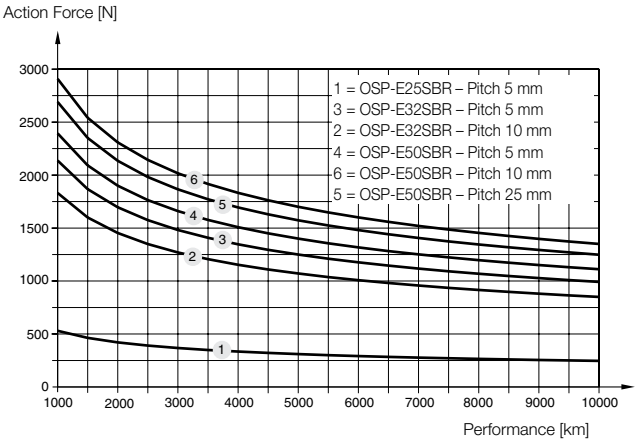



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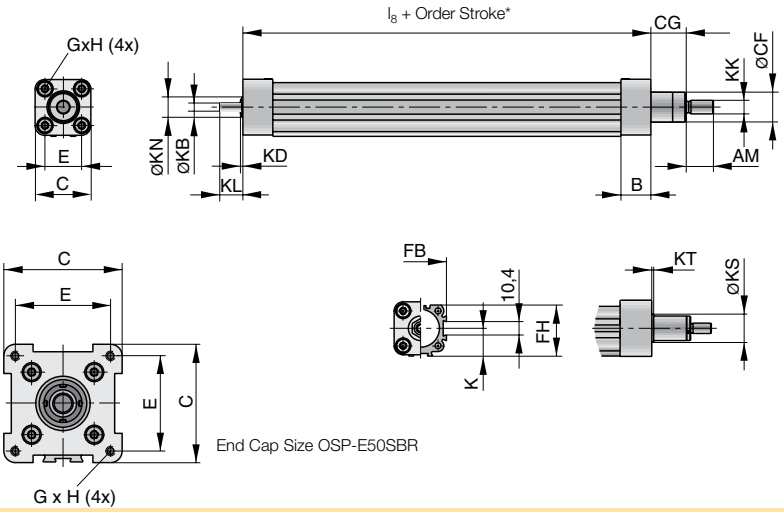
## Performance as a Function of the Action Force

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

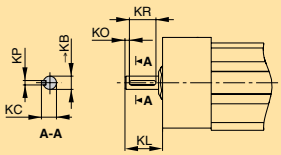
An increase of the action force will lead to a reduced performance.




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




### Plain Shaft with Keyway (Option)




| Series | ØKB$_{h7}$ | KC | KL | | KO | KP$^{P9}$ | KR |
|---|---|---|---|---|---|---|---|
| | | | Opt. 3 | Opt. 4 | | | |
| OSP-E25SBR | 6 | 6.8 | 17 | 24 | 2 | 2 | 12 |
| OSP-E32SBR | 10 | 11.2 | 31 | 41 | 5 | 3 | 16 |
| OSP-E50SBR | 15 | 17.0 | 43 | 58 | 6 | 5 | 28 |

Option 3: Keyway  Option 4: Keyway long Version

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

### Dimension [mm]

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



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# OSP-E

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

| Size of Drive | |
|---|---|
| **25** | Size 25 |
| **32** | Size 32 |
| **50** | Size 50 |

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

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

| Order stroke |
|---|
| 5 digits input in mm |

| Drive Shaft | |
|---|---|
| **0 –** | Plain Shaft |
| **3 –*** | Keyway |
| **4 –*** | Long with Keyway |

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

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

**Info:** Motor and gear mounting dimensions see page 191

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

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



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

| Niro | |
|---|---|
| **0** | Standard |
| **1*** | Niro Screws |

| Magnetic Sensors * see page 165 ff | |
|---|---|
| **0** | without |
| **1** | 1 pc. RST-K 2NO / 5 m Cable |
| **2** | 1 pc. RST-K 2NC / 5 m Cable |
| **3** | 2 pc. RST-K 2NC / 5 m Cable |
| **4** | 2 pc. RST-K 2NC,<br>1 pc. RST-K 2NO / 5 m Cable |
| **5** | 1 pc. RST-S 2NO / M8 plug |
| **6** | 1 pc. RST-S 2NC / M8 plug |
| **7** | 2 pc. RST-S 2NC / M8 plug |
| **8** | 2 pc. RST-S 2NC,<br>1 pc. RST-S 2NO / M8 plug |
| **A** | 1 pc. EST-S NPN / M8 plug |
| **B** | 2 pc. EST-S NPN / M8 plug |
| **C** | 3 pc. EST-S NPN / M8 plug |
| **D** | 1 pc. EST-S PNP / M8 plug |
| **E** | 2 pc. EST-S PNP / M8 plug |
| **F** | 3 pc. EST-S PNP / M8 plug |

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

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

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

* Option



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



**Content**


| Description | Page |
|---|---|
| Overview | 90 |
| Technical Data | 93 |
| Dimensions | 95 |
| Order Instructions | 96 |


The right to introduce technical modifications is reserved



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P-A4P017GB
**OSP-E**

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

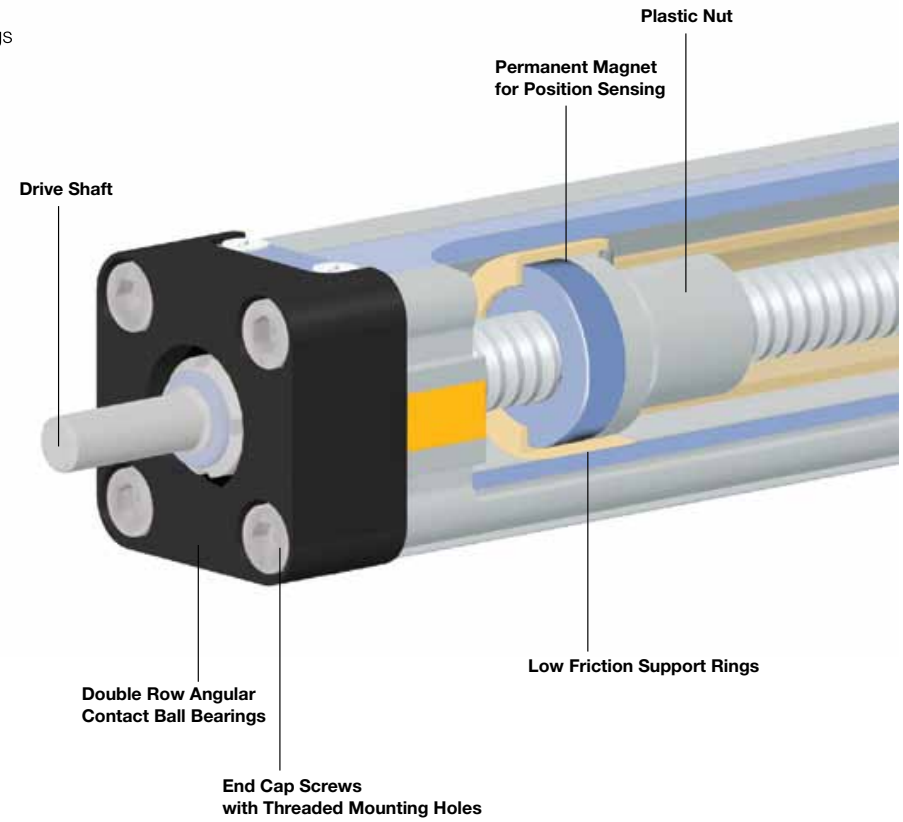
A completely new generation of actuators which can be integrated into any machine layout neatly and simply.

**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

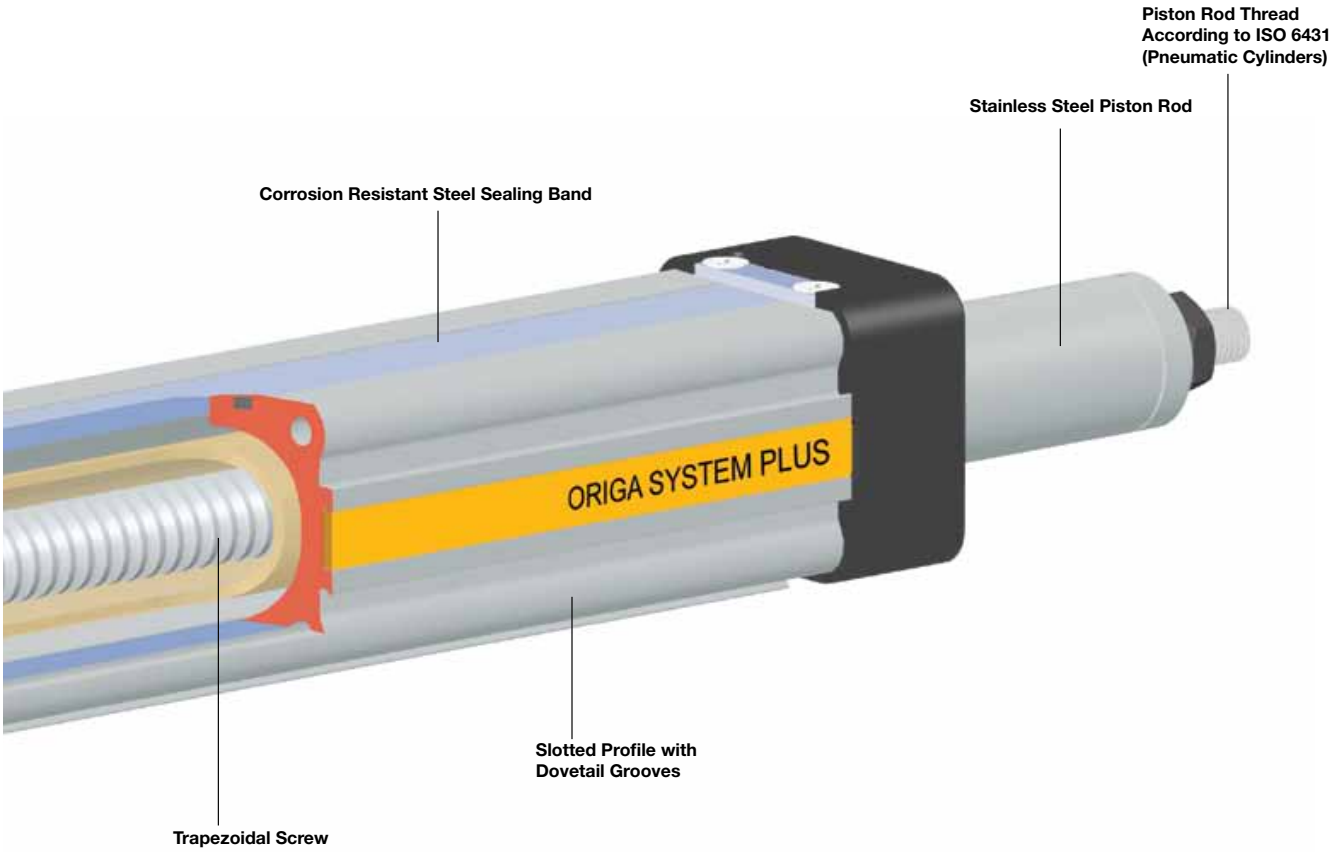
**Features**

- Piston Rod-End Dimensions Conforming to ISO Pneumatic Standards
- Complete Motor and Control Packages
- Diverse Range of Accessories and Mountings
- Special Options Available






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

**Standard Versions**
**OSP-E..STR**

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

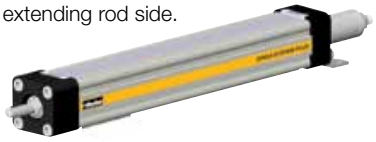


### Accessories

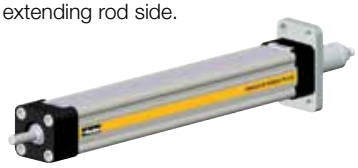
**Motor Mountings**



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



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



**Profile Mounting**

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



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



**Compensation Piston Rod Eye**



**Piston Rod Clevis**



**Piston Rod Compensating Coupling**
For compensating of radial and angular misaligments



**Magnetic Sensors Series RST and EST**

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





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**OSP-E**

# OSP-E..STR Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod - Size 25, 32, 50

## Standard Version

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

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



## Characteristics

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

## Weight (Masse) and Inertia

| Series | Weight (mass) [kg] | | Moving Mass[kg] | | Inerita [x $10^{-6}$ kgm$^2$] | |
|---|---|---|---|---|---|---|
| | At stroke 0 m | Add per metre stroke | At stroke 0 m | Add per metre stroke | At stroke 0 m | Add per metre stroke |
| OSP-E25STR | 0.4 | 2.9 | 0.1 | 0.7 | 1.1 | 10.3 |
| OSP-E32STR | 0.9 | 5.4 | 0.2 | 1.2 | 3.9 | 29.6 |
| OSP-E50STR | 2.4 | 10.6 | 0.8 | 1.6 | 24.6 | 150 |

### Installation Instructions

Use the threaded holes in the free end cap and a profile mounting close to the motor end for mounting the actuator.
The piston rod is not locked against rotation and needs to be guided externally. A compensation part e. g. piston rod eye (see order instructions page 96) is recommended.

### Maintenance

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

### First service start-up

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

### Contactless position sensing

Please use the magnetic sensor mentioned below:

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

### Performance Overview

| Characteristics | Unit | Description | | |
|---|---|---|---|---|
| **Size** | | **OSP-E25STR** | **OSP-E32STR** | **OSP-E50STR** |
| Pitch | [mm] | 3 | 4 | 5 |
| Max. Speed | [m/s] | 0.075 | 0.1 | 0.125 |
| Linear Motion per Revolution, Drive Shaft | [mm] | 3 | 4 | 5 |
| Max. rpm, Drive Shaft | [min$^{-1}$] | 1500[2)] | 1500 | 1500 |
| Max. Effective Force Action $F_A$ Corresponding Torque on Drive Shaft | [N]<br>[Nm] | 800<br>1.35 | 1600<br>3.4 | 3300<br>9.25 |
| No-loads Torque | [Nm] | 0.3 | 0.4 | 0.5 |
| Max. Allowable Torque on Drive Shaft | [Nm] | 1.7 | 4.4 | 12 |
| Self-locking Force $F_L$[1)] | [N] | 800 | 1600 | 3300 |
| Typical Repeatability | [mm] | ±0.05 | ±0.05 | ±0.05 |
| Max. Standard Stroke Length | [mm] | 500 | 500 | 500 |

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

### Sizing of Actuator

The following steps are recommended for selection :

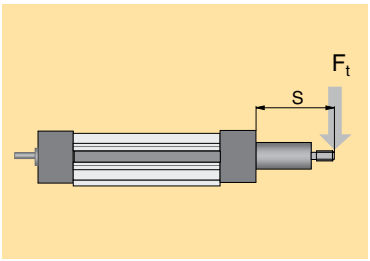
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.

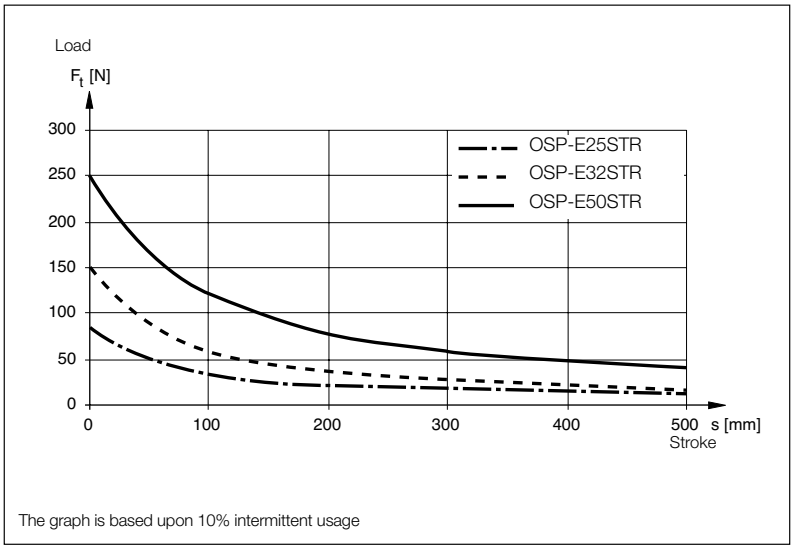
2. Check the lifetime/travel distance in graph below.

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

## Transverse Force / Stroke

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



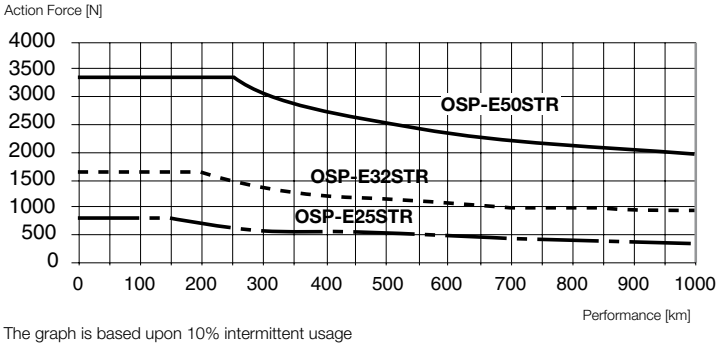




The graph is based upon 10% intermittent usage

## Performance / Action Force

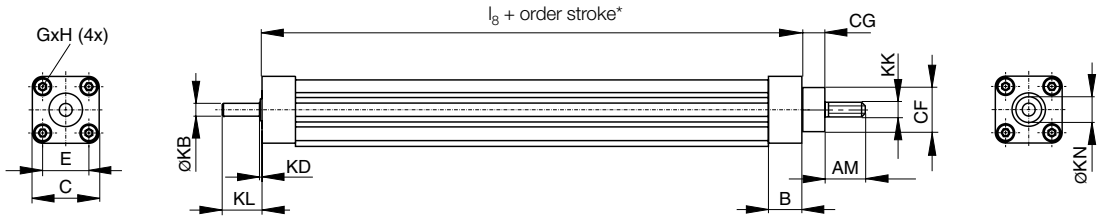
The Actuators are designed for a 10% intermittent usage.

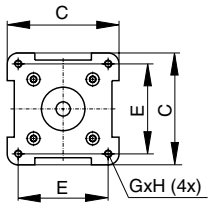
The performance to be expected depends on the maximum required actions force of the application.
An increase of the action force will lead to a reduced performance.



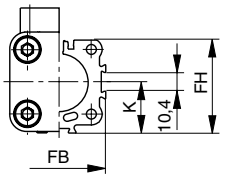

The graph is based upon 10% intermittent usage

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

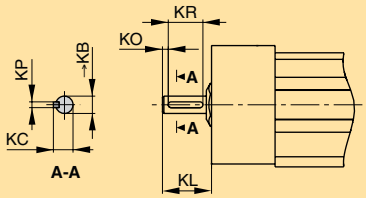



End Cap Size OSP-E50STR




### Plain Shaft with Keyway (Option)




| Series | ⌀$KB_{h7}$ | KC | KL | | KO | $KP^{P9}$ | KR |
|---|---|---|---|---|---|---|---|
| | | | Opt. 3 | Opt. 4 | | | |
| OSP-E25SBR | 6 | 6.8 | 17 | 24 | 2 | 2 | 12 |
| OSP-E32SBR | 10 | 11.2 | 31 | 41 | 5 | 3 | 16 |
| OSP-E50SBR | 15 | 17.0 | 43 | 58 | 6 | 5 | 28 |

Option 3: Keyway  Option 4: Keyway long version

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

### Dimension [mm]

| Series | B | C | E | G x H | K | $l_8$ | AM | CF | CG | FB | FH | KB | KD | KK | KL | KN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OSP-E25STR** | 22.0 | 41 | 27 | M5 x 10 | 21.5 | 83.0 | 20 | 22 | 26 | 40 | 39.5 | $6_{h7}$ | 2 | M10 x 1.25 | 17 | 13 |
| **OSP-E32STR** | 25.5 | 52 | 36 | M6 x 12 | 28.5 | 94.0 | 20 | 28 | 26 | 52 | 51.7 | $10_{h7}$ | 2 | M10 x 1.25 | 31 | 20 |
| **OSP-E50STR** | 33.0 | 87 | 70 | M6 x 12 | 43.0 | 120.0 | 32 | 38 | 37 | 76 | 77.0 | $15_{h7}$ | 3 | M16 x 1.5 | 43 | 28 |



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# OSP-E

| Order Instructions | OSPE25 | – | 3 | 0 | 3 | 0 | 0 – | 00000 | – | 0 | 0 | 0 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Size of Drive | |
|---|---|
| **25** | Size 25 |
| **32** | Size 32 |
| **50** | Size 50 |

| Type of Drive | |
|---|---|
| **3** | Trapezoidal Screw Actuator with Internal Plain Bearing Guide and Piston Rod |

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

| Order Stroke |
|---|
| 5 digits input in mm |

| Drive Shaft | |
|---|---|
| **0 –** | Plain Shaft |
| **3 –*** | Keyway |
| **4 –*** | Long with Keyway |

**Mounting Kit for Motor and Gear** *

| Size | | 25 | 32 | 50 |
|---|---|---|---|---|
| **A0** | SY563T | x [1] | x [1] | |
| **A1** | SY873T | x [1] | x [1] | x [1] |
| **A2** | SMx60 xx xxx 8 11 … | x [1] | x [1] | |
| **A3** | SMx82 xx xx 8 14 … | | x [1] | x [1] |
| **A7** | PS60 | | x [1] | x [1] |
| **C0** | LP050 / PV40-TA | x [1] | x [1] | |
| **C1** | LP070 / PV60-TA | | x [1] | x [1] |

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

**Info:** Motor and gear mounting dimensions see page 191

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

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

| Magnetic Sensors * | see page 165 ff |
|---|---|
| **0** | without |
| **1** | 1 pc. RS-K 2NO / 5 m Cable |
| **2** | 1 pc. RS-K 2NC / 5 m Cable |
| **3** | 2 pc. RS-K 2NC / 5 m Cable |
| **4** | 2 pc. RS-K 2NC,<br>1 pc. RS-K 2NO / 5 m Cable |
| **D** | 1 pc. ES-S PNP / M8 plug |
| **E** | 2 pc. ES-S PNP / M8 plug |
| **F** | 3 pc. ES-S PNP / M8 plug |

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

| Niro | |
|---|---|
| **0** | Standard |
| **1*** | Niro Screws |

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

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

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

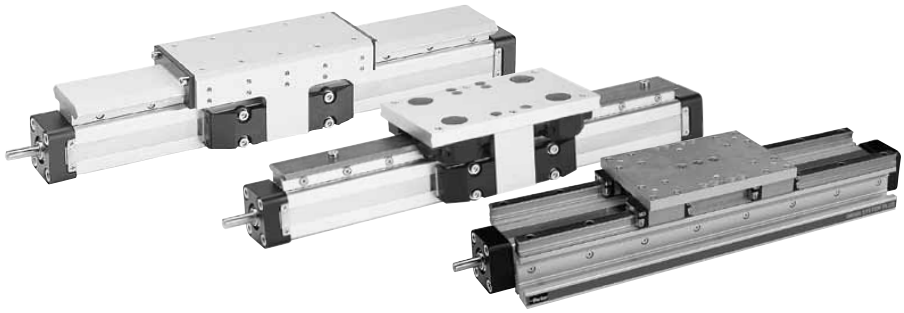
* Option



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# Linear Guides



**Content**


| Description | Page |
|---|---|
| Overview | 100 |
| SLIDELINE - Plain Bearing Guide | 101 |
| POWERSLIDE - Roller Guide | 103 |
| PROLINE - Aluminium Roller Guide | 107 |
| HD - Heavy Duty Guide | 111 |




**Parker Hannifin Corporation**
Pneumatic Division - Europe

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## Adaptive Modular System

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

**Versions:**

**Electric Acutator Series:**

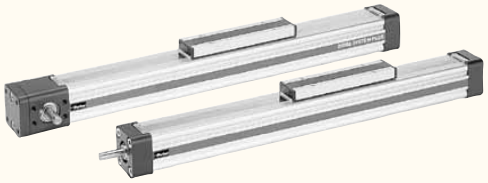
- **OSP-E..B**
- **OSP-E..SB**
- **OSP-E..ST**
- **Sizes** 25, 32, 50

**Advantages:**

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

**Electric Acutator**

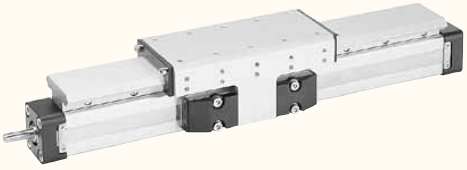
**– Series OSP-E..B** (Belt)
**– Series OSP-E..SB** (Ball Screw)
**– Series OSP-E..ST** (Trapezoidal Screw)



**SLIDELINE**

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

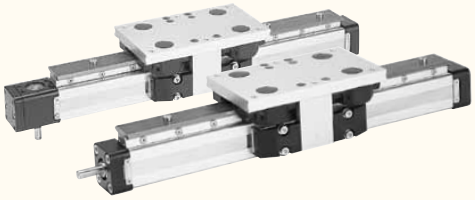
see page 101ff



**POWERSLIDE**

The roller guide for heavy loads.

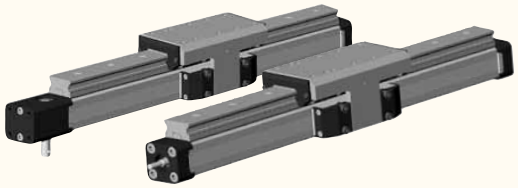
see page103ff



**PROLINE**

The ball bushing guide for heavy loads and speed.

see page 107ff

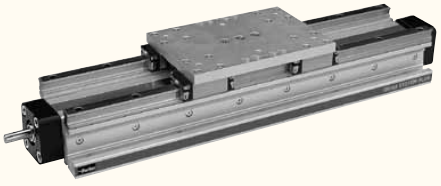


**HD-Guide (heavy-duty guide)**

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

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

see page 111ff



## Series SL 25 to 50 for for Actuator

• Series OSP-E Screw

### Technical Data

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

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

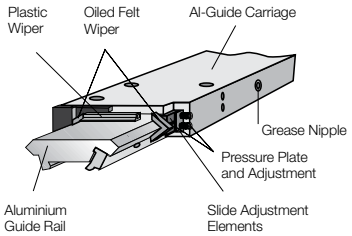
### Features

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

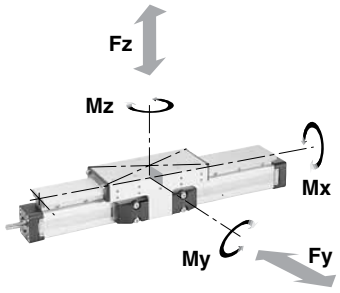
### Versions

– for Electric Actuator Series OSP-E Screw






### Loads, Forces and Moments




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

[1] Corrosion resistant fixtures available on request

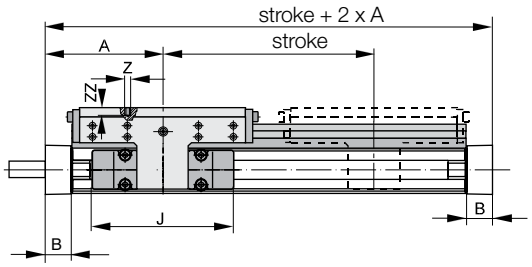
Guide Mountings see page 149

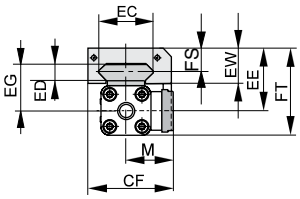


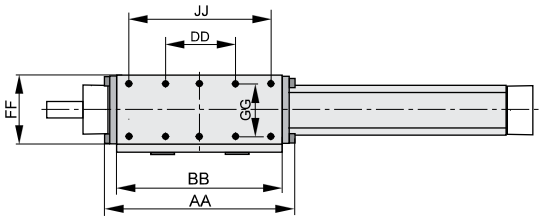
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## Dimensions

Series OSP-E Screw




For further mounting elements and options see accessories.

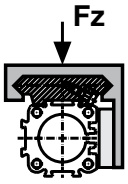
### Dimension Table [mm]

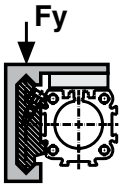
| Series | A | B | J | M | Z | AA | BB | DD | CF | EC | ED | EE | EG | EW | FF | FT | FS | GG | JJ | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SL 25** | 100 | 22.0 | 117 | 40.5 | M6 | 162 | 142 | 60 | 72.5 | 47 | 12 | 53 | 39 | 30 | 64 | 73.5 | 20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

## Guide Mounting (see page 149)

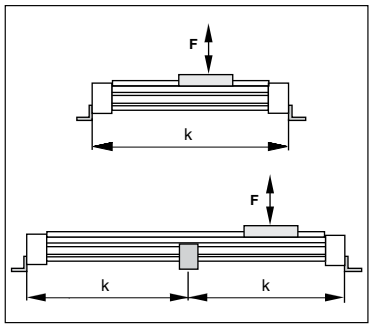
Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator.
The diagrams show the maximum permissible unsupported length in relation to loading.

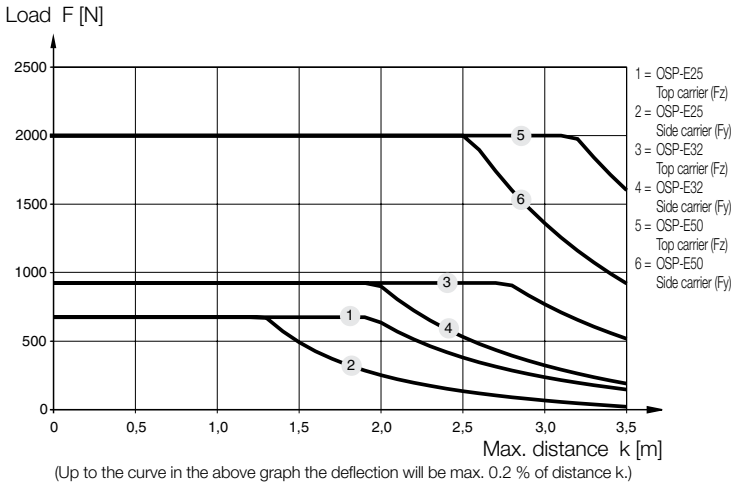
Load case 1
Top carrier




Load case 2
Side carrier




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



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## Series PS 25 to 50 for Acutator

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

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

## Technical Data

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

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

## Features:

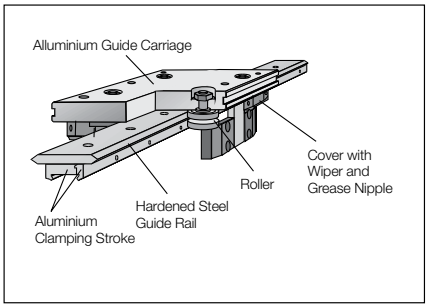
- Anodised Aluminium Guide Carriage with Vee Rollers Having 2 Rows of Ball Bearings
- Hardened Steel Guide Rail
- Several Guide Sizes Can be Used on the Same Drive
- Max. Speed v = 3 m/s
- Tough Roller Cover With Wiper and Grease Nipple
- Any Length of Stroke Up To 3,500 mm (longer strokes on request).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

**OSP-E Belt:** For position of guides see page109

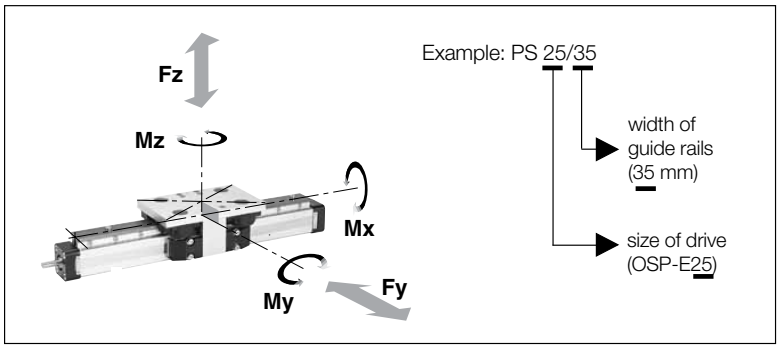
## Versions

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






## Loads, Force and Moment



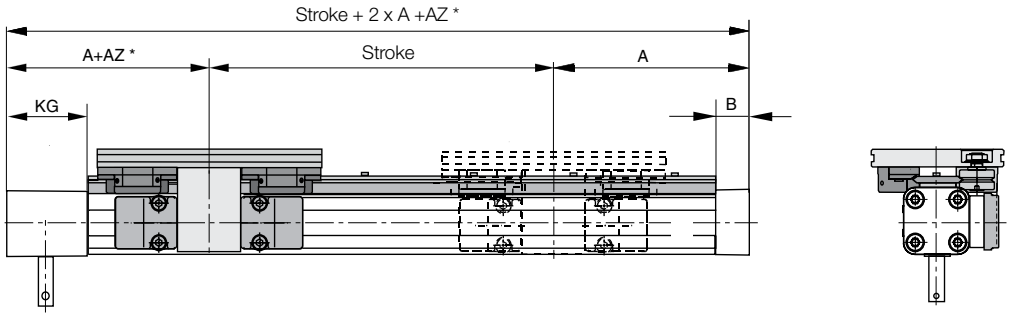

| Series | Max. Moments [Nm] | | | Max. Load [N] | Mass of Drive with Guide [kg] | | | | Mass * | Order No. Powerslide for | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | with 0 mm Stroke | | increase per 100 mm Stroke | | of Guide Carriage | | |
| | $M_x$ | $M_y$ | $M_z$ | $F_y$, $F_z$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

Mountings see page 149



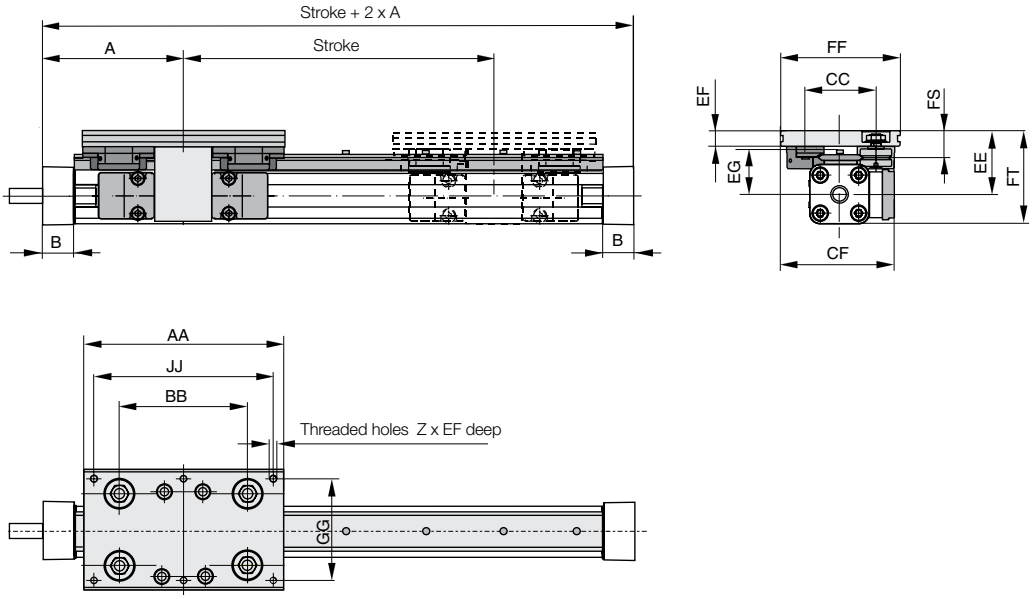
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## Dimensions - Series OSP-E Belt




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

## Dimensions - Series OSP-E Screw




## Dimensions [mm]

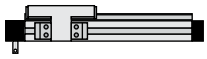
| Series | A | | B | | Z | AA | AZ | BB | CC | CF | EE | EF | EG | FF | FS | FT | GG | JJ | KG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OSP-E Belt | OSP-E Screw | OSP-E Belt | OSP-E Screw | | | | | | | | | | | | | | | |
| **PS 25/25** | 125 | 100 | 22 |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



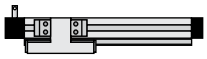
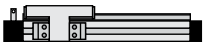
Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

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

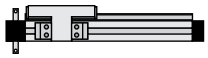
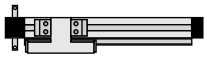
**Position of Drive Shaft**
**Standard = 0**

| Position of Linear Guide |
|---|
| Standard<br>Position of the Guide on the Opposite Side of the Drive Shaft<br> |
| Opposite to Standard<br>Position of the Guide on the Side of the Drive Shaft<br> |

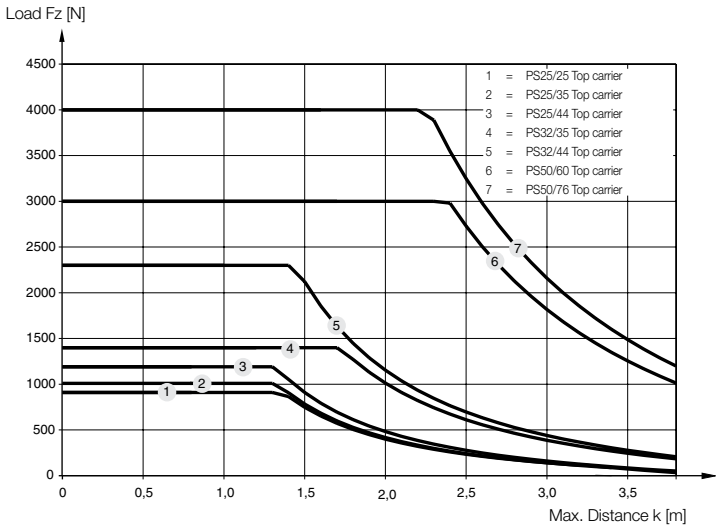
**Position of Drive Shaft**
**Opposite to Standard = 1**

| Position of Linear Guide |
|---|
| Standard<br>Position of the Guide on the Opposite Side of the Drive Shaft<br> |
| Opposite to Standard<br>Position of the Guide on the Side of the Drive Shaft<br> |

**Position of Drive Shaft**
**Both Sides = 2**

| Position of Linear Guide |
|---|
| Standard<br>Position of the Guide on the Opposite Side of the Drive Shaft<br> |
| Opposite to Standard<br>Position of the Guide on the Side of the Drive Shaft<br> |

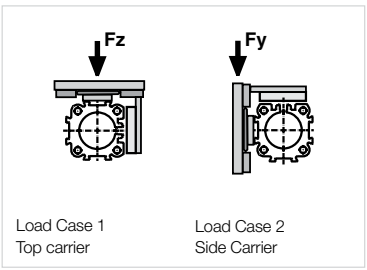
## Load Case 1 - Top Carrier



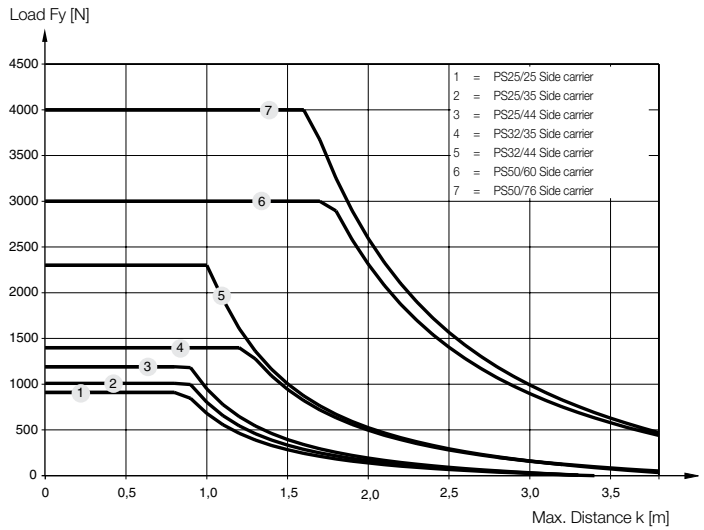

(Up to the curve in the above graph the deflection will be max. 0.2 %of distance k

## Guide Mounting (see page 149)

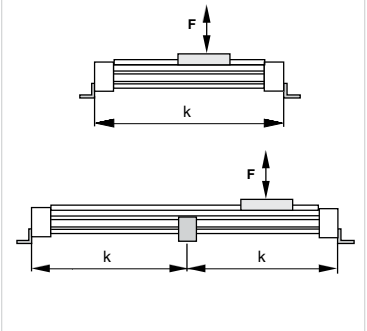
Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator. The diagrams show the maximum permissible unsupported length in relation to loading.




## Load Case 2 - Side Carrier




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






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## 1. Calculation of Load Factor $L_F$

### Performance

Calculation of performance is achieved in two stages:

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

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

with combined loads, $L_F$ must not exceed the value 1

## 2. Calculation of Performance

### Lubrication

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

Only high quality lithium-based greases should be used.

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

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

### Series PL 25 to 50 for Acutator

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

### Features:

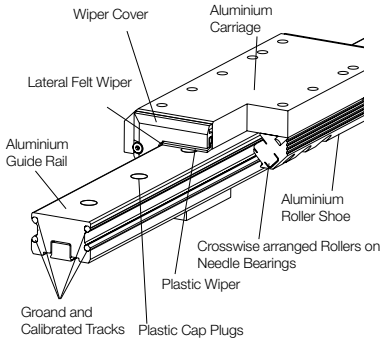
- High Precision
- High Velocities (10 m/s)
- Smooth Operation - Low Noise
- Integrated Wiper System
- Life Time Lubrication
- Compact Dimensions - Compatible to Slideline Plain Bearing Guide
- Version available up to 3,750 mm
  The maximum stroke lengths of actuatorsOSP-E..B, OSP-E..SB and OSP-E..ST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

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

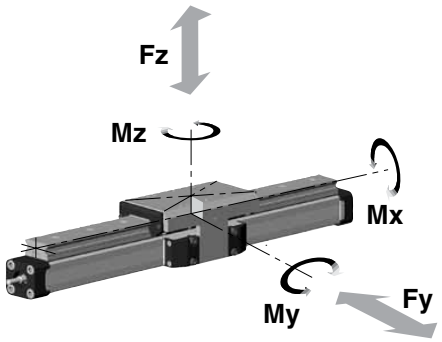
## Versions

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






## Loads, Forces and Moments




## Technical Data

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

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

With a load factor of ≤ 1, the service life is 5000 km.

The sum of the loads must not exceed > 1.

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

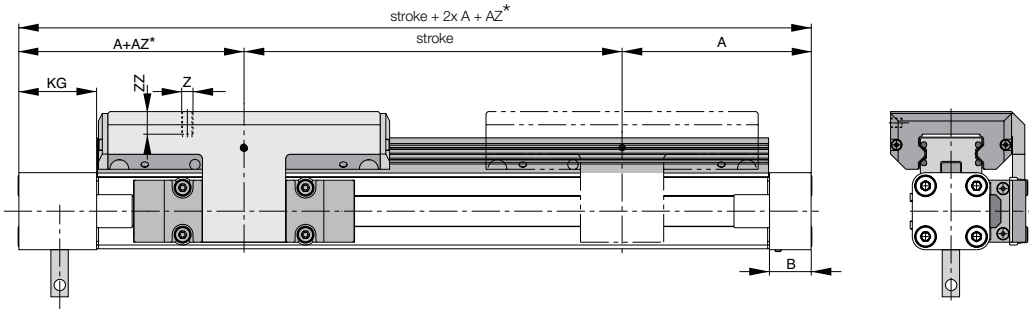
| Series | Max. Moments [Nm] | | | Max. Load [N] | Mass of Drive with Guide [kg] bei 0 mm Stroke | | increase per 100 mm stroke | | Mass Guide Carriage | Order No. PROLINE [1] for | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $M_x$ | $M_y$ | $M_z$ | $F_y$, $F_z$ | OSP-E Belt | OSP-E Screw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

[1] Stainless steel on request



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## Dimensions Series OSP-E Belt PL25, PL32, PL50

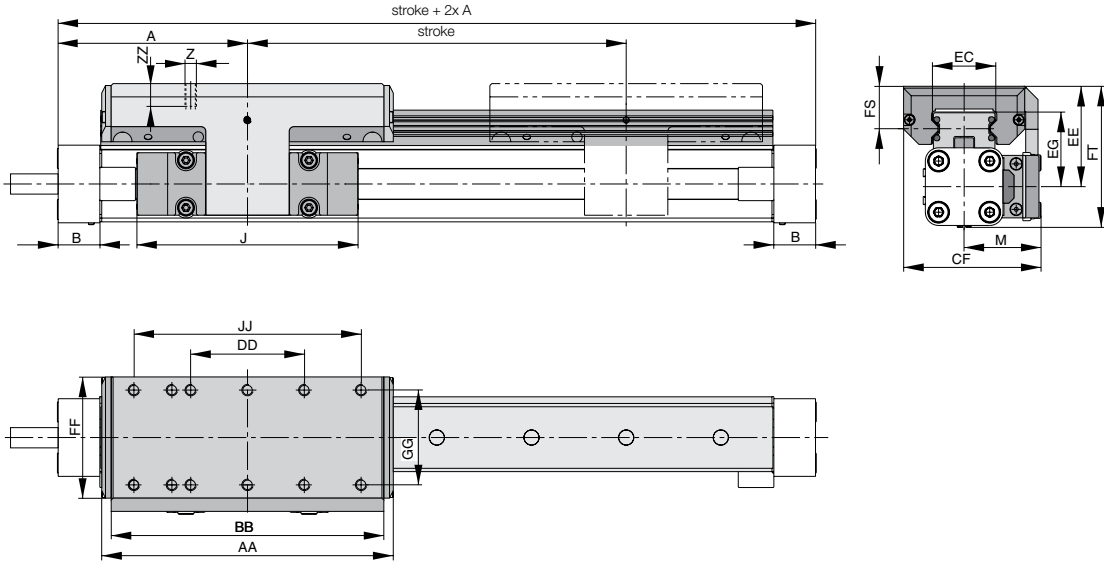



***Please note:** Dimension "AZ" must be added to dimension "A". The stroke to be ordered will be: stroke + min. dimension "AZ" + additional length. Please observe the effect of dimension "AZ" when retrofitting a guide. Please contact our application engineers.

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

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

## Dimensions Series OSP-E Screw PL25, PL32, PL50




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

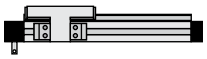
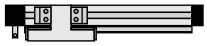
| Series | A | B | J | M | Z | AA | BB | DD | CF | EC | EE | EG | FF | FS | FT | GG | JJ | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PL25** | 100 | 22 | 117 | 40.5 | M6 | 154 | 144 | 60 | 72.5 | 32.5 | 53 | 39 | 64 | 23 | 74 | 50 | 120 | 12 |
| **PL32** |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



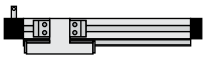
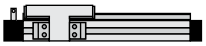
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**OSP-E Belt** – If combined with a linear guide, please also state position of linear guide!

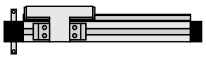
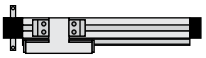
**Position of Drive Shaft**
**Standard = 0**

| Position of Guide |
|---|
| Standard<br>Guide Opposite the Drive Shaft<br> |
| Opposite to Standard<br>Guide on Same Side as Drive Shaft<br> |

**Position of Drive Shaft**
**Opposite to Standard = 1**

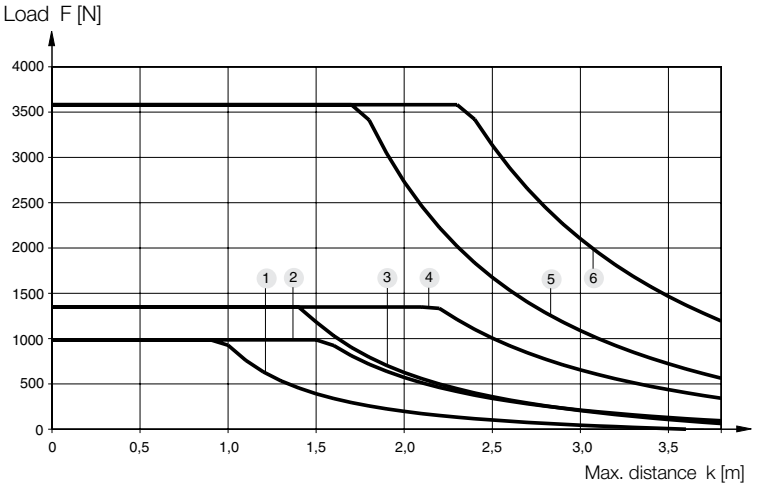
| Position of Guide |
|---|
| Standard<br>Guide Opposite the Drive Shaft<br> |
| Opposite to Standard<br>Guide on Same Side as Drive Shaft<br> |

**Position of Drive Shaft**
**Both Sides = 2**

| Position of Guide |
|---|
| Standard<br>Guide Opposite the Drive Shaft<br> |
| Opposite to Standard<br>Guide on Same Side as Drive Shaft<br> |

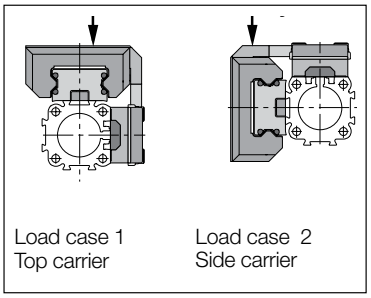
## Guide Mounting (see page 149)

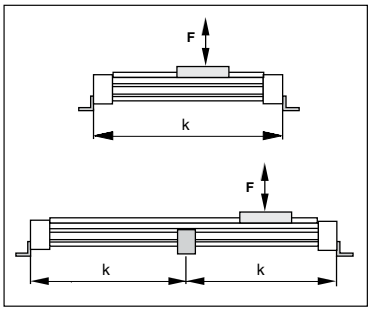
Guide mountings are required from a certain stroke length to prevent excessive deflection and vibration of the actuator. The diagrams show the maximum permissible unsupported length in relation to loading.




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

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





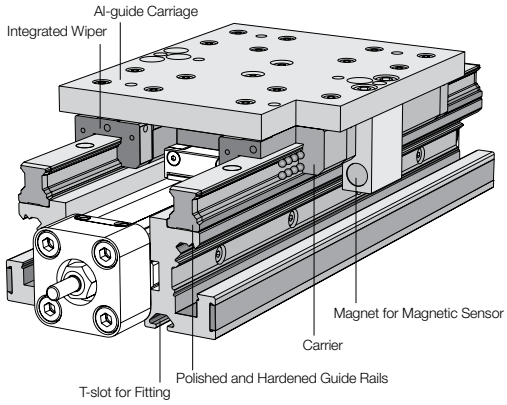

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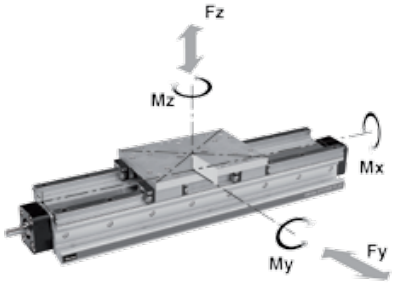
**Series HD 25 to 50** for Actuator
- Series OSP-E..SB, ..ST

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

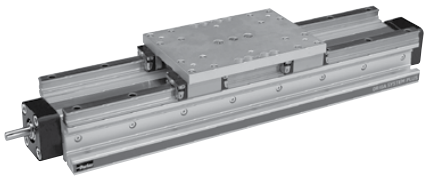
## Version - for Electric Actuator: Series OSP-E Screw




## Loads, Forces and Moments




## OSP-E..SB, ..ST



## Technical Data

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

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

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

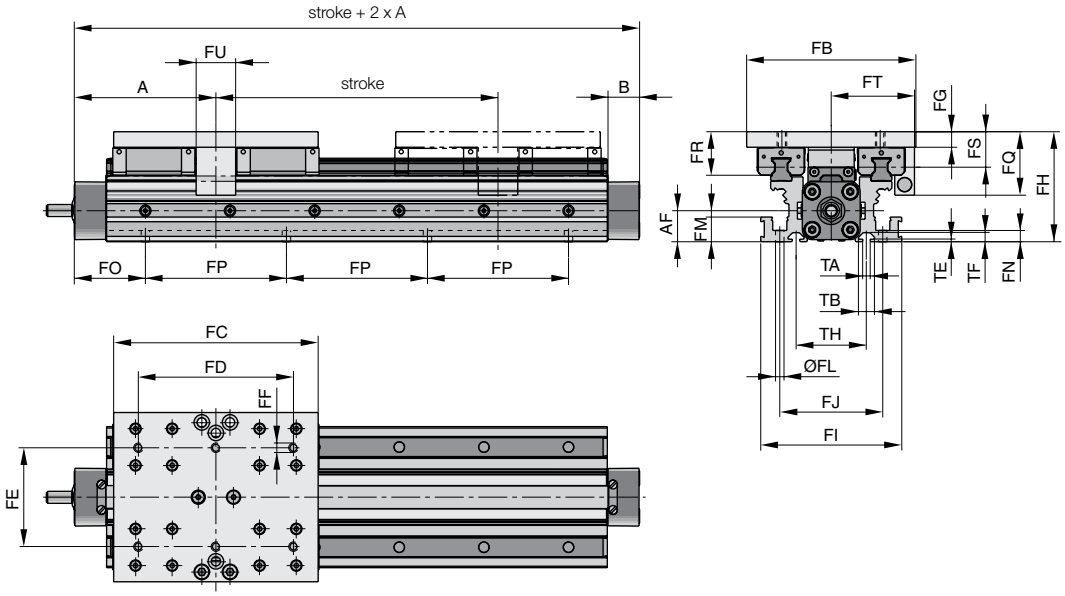
The table shows the maximum permissible values for light, shock-free operation which must not be exceeded even under dynamic conditions.

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



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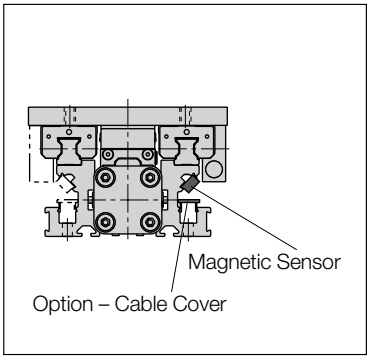
## Dimension Series OSP-E Screw HD25, HD32, HD50




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

### Arrangement of Magnetic Sensors:

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






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# OSP-E

## Dimension Table [mm]

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

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

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

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

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

**Note:**

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

**Sample:**
stroke 15**25** mm




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

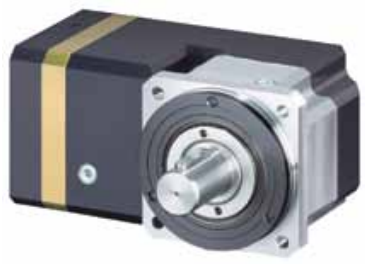


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# PS / RS
# Planetary / Angular Gears





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

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

**Maintenance:** The PS series is lifetime lubricatied.

### Technical Data PS60

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

### Technical Data PS90

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

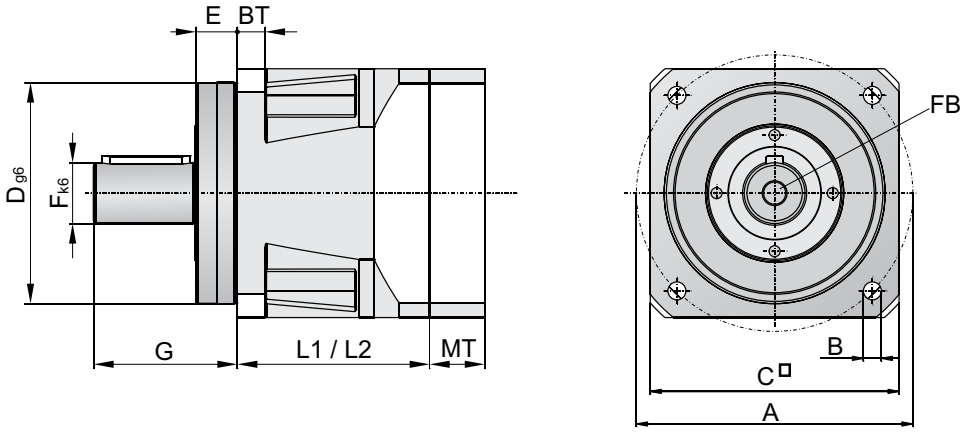




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### Technical Data PS115

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




### Dimension Table [mm]

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

### Dimension Table [mm]

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

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



## Angular Gears - Series RS60, RS90, RS115

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

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

**Maintenance:** The RS series is lifetime lubricatied.

**Technical Data RS60**

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

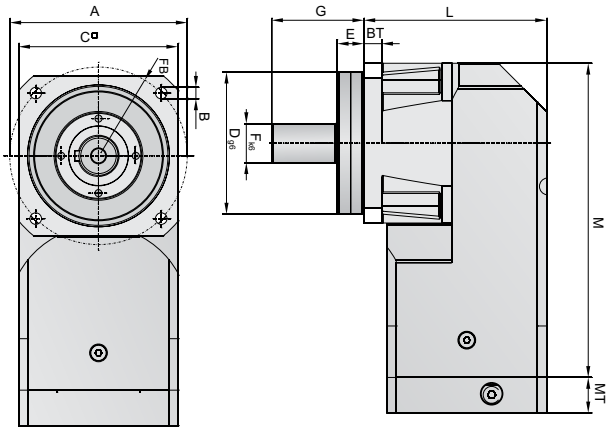
**Technical Data RS90**

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



### Technical Data RS115

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




### Dimension Table [mm]

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

### Dimension Table [mm]

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

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





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# EasyDrive Packages





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## Microstepping Controller

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

**Technical Data - Microstepping Controller**

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

## Servo Controller

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

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

**Technical Data - Servo Controller**

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

**Supply and Motor Connector**
**Terminal Block X1**

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

**RS232 Com-port**
**D-SUB 9-pole X3**

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




**Resolver Feedback**
**D-SUB 15-pole X2**

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

**Digital Inputs and Outputs**
**D-SUB 15-pole X5**

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



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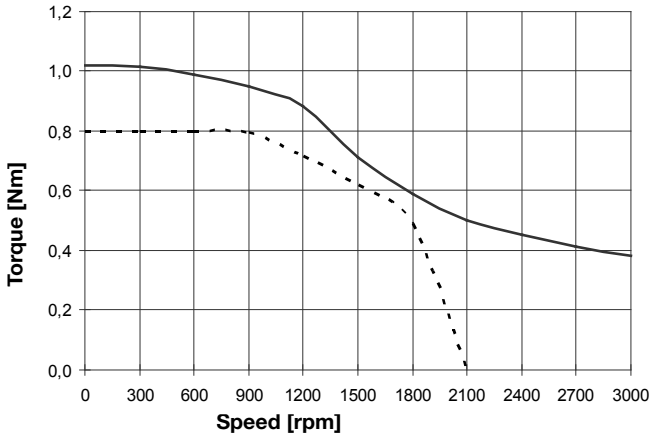
## Stepper Motor

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

**Technical Data - Stepper Motor**

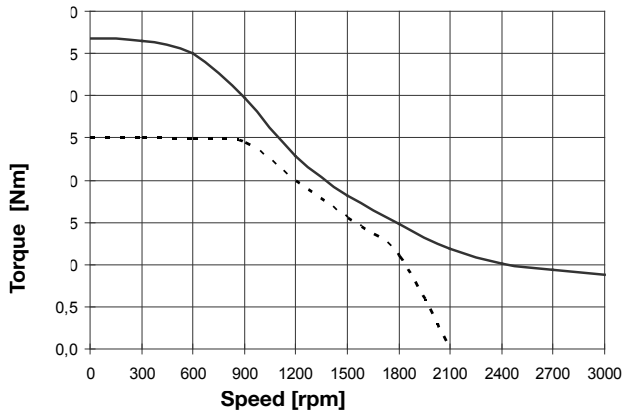
| Characteristics | Symbol | Unit | SY563T | SY873T |
|---|---|---|---|---|
| Holding Torque | $M_h$ | Nm | 1.2 | 5.4 |
| Nominal Speed | $n_n$ | $min^{-1}$ | 900 | 900 |
| Nominal Torque | $M_n$ | Nm | 0.8 | 2.5 |
| Critical Speed | $n_l$ | $min^{-1}$ | 1,800 | 1,800 |
| Torque at Critical Speed | $M_l$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

**Torque Curve SY563T**



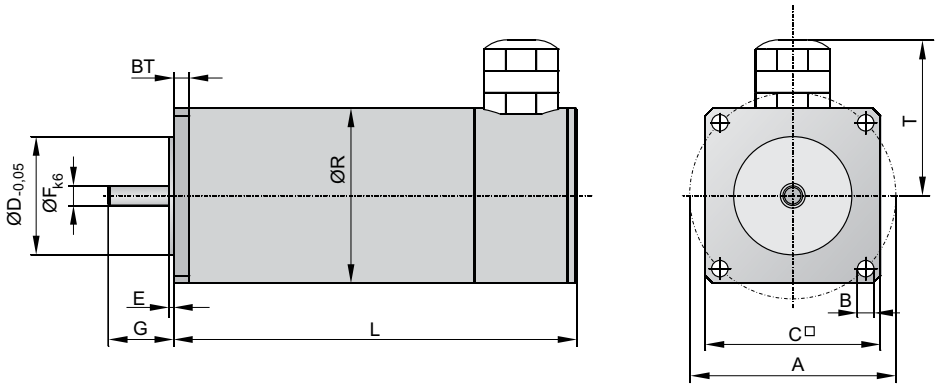

characteristic torque curve
secure torque curve

**Torque Curve SY873T**






## Dimensions




## DC Steppermotor SY

**Dimension Table [mm]**

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





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## Servo Motor

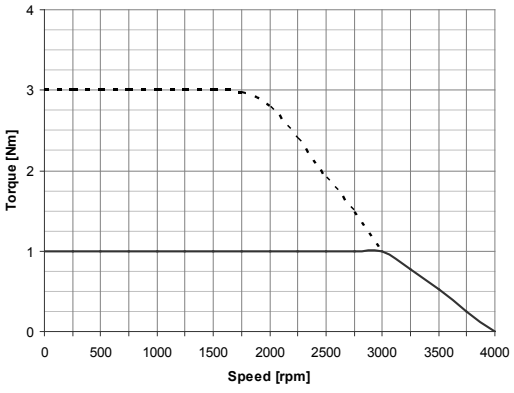
The dynamic, brushless SMB servomotors show excellent power density. With their high quality Neodym magnets they give outstanding values for torque and dynamics while they have a very compact design.

**Technical Data**

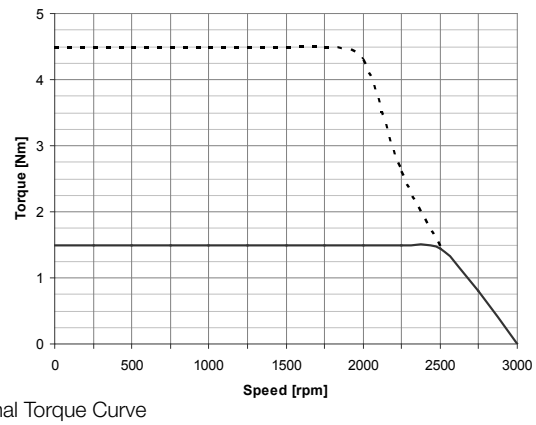
| Characteristics | Symbol | Unit | SMB60-30 | SMB82-25 |
|---|---|---|---|---|
| **Motor** | | | | |
| Stand Still Torque | $M_{ss}$ | Nm | 1.4 | 3.0 |
| Stand Still Current | $I_{ss}$ | A | 1.0 | 1.2 |
| Nominal Speed | $_{nn}$ | $min^{-1}$ | 3,000 | 2,500 |
| Nominal Torque | $M_n$ | Nm | 1.0 | 1.5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

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

**Torque curve SMB60**

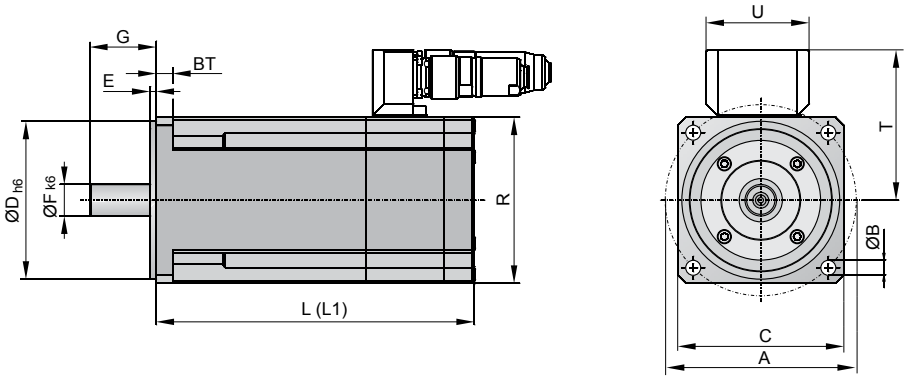



**Torque curve SMB82**




Nominal Torque Curve
Peak Torque Curve

## Dimension




### Dimension Table [mm]

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





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# OSP-E

## EasyDrive Stepper packages

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

## EasyDrive Servo packages

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

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

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

## Accessoiries

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

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





| | |
|---|---|
| | **EasyDrive Packages**** |
| | 18302FIL (EasyDrive Servo SMB60)<br>18312FIL (EasyDrive Servo SMBA60) |
| | 18302FIL (EasyDrive Servo SMB60)<br>18312FIL (EasyDrive Servo SMBA60) |
| | 18303FIL (EasyDrive Servo SMB82)<br>18304FIL (EasyDrive Servo SMBA82) |
| | 18303FIL (EasyDrive Servo SMB82)<br>18304FIL (EasyDrive Servo SMBA82) |
| | |
| | **EasyDrive Packages** |
| | 18302FIL (EasyDrive Servo SMB60)<br>18312FIL (EasyDrive Servo SMBA60) |
| | 18302FIL (EasyDrive Servo SMB60)<br>18312FIL (EasyDrive Servo SMBA60) |
| | 18303FIL (EasyDrive Servo SMB82)<br>18304FIL (EasyDrive Servo SMBA82) |
| | 18303FIL (EasyDrive Servo SMB82)<br>18304FIL (EasyDrive Servo SMBA82) |







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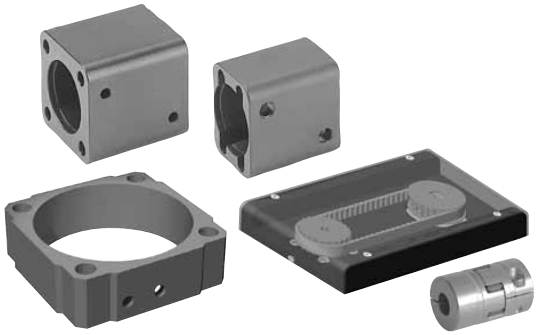
| Description | Illustration | | Page |
|---|---|---|---|
| Motor Mountings |  | Coupling Housing, Motor Flange, Motor Coupling | 133 ff |
| |  | Belt Gear | |
| End Cap Mountings |  | | 141 ff |
| |  | Flange C-E | |
| Profile Mountings |  | Mid Section Support Guide Mounting | 147 ff |
| |  | Adapter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



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# Motor Mountings



**Content**


| Description | Page |
|---|---|
| Coupling Housing, Motor Flanges (OSP-E..BHD) | 134 |
| Coupling Housing, Motor Flanges, Motor Coupling (OSP-E..BV) | 135 |
| Coupling Housing, Motor Flanges, Motor Coupling (OSP-E..B) | 136 |
| Coupling Housing, Motor Flanges, Motor Coupling (OSP-E ..SB, ..ST, ..SBR, ..STR) | 137 |
| Motor Flanges for Freely Selectable Mounting Dimensions (OSP-E..B, ..SB, ..ST, ..SBR, ..STR) | 138 |
| Belt Gear for freely Selectable Mounting Dimensions (OSP-E..SB, ..ST, ..SBR, ..STR) | 140 |




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

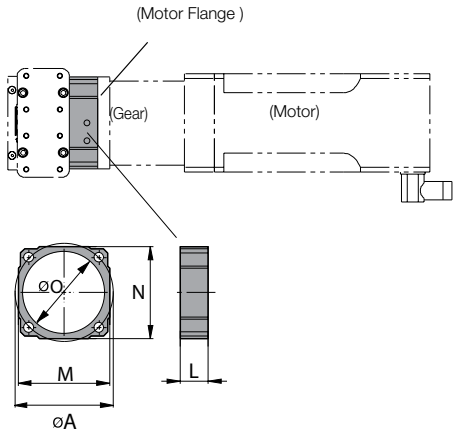
Via the coupling housing the gear or the motor can be fitted directly to the actuator and the drive shafts by means of a motor flange.



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

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

## **Coupling Housing** (for gear or motor mounting)

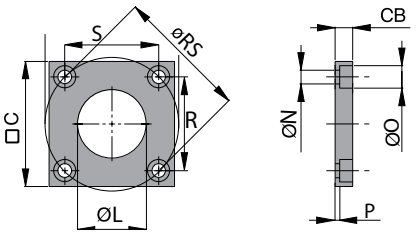



**Coupling Housing (for gear or motor mounting)**

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

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

## **Motor Flange** (semi-finished)




**Motor Flange** (semi-finished)

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

**Motor Flange** (finished)

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

*Motor Coupling not included

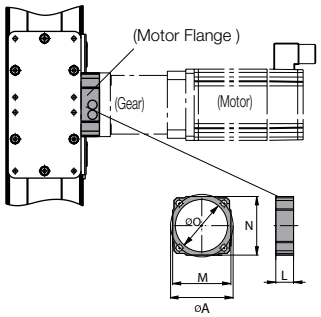
- **OSP-E..BV Vertical Belt Actuator with Integrated Ball Bearing Guide**

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

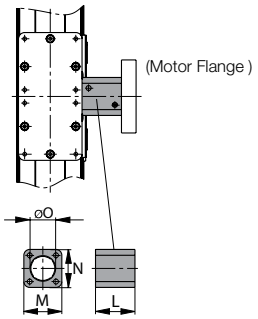
[1] **Hint:** when selecting the type of motor mounting please observe the respective drive shaft versions in accordance with the ordering code of the actuator (page 36).

## Coupling Housing

for Direct Clamping



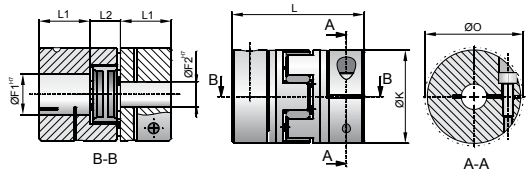

for Clamping with Motor Clamping




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

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

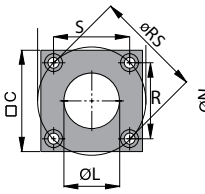
## Universal Motor Coupling

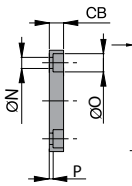



| Series | Ø $F_1^{H7}$ | Ø $F_2^{H7}$ | Ø $F^{H7}$ | Ø K | L | $L_1$ | $L_2$ | Ø O | Order No. |
|---|---|---|---|---|---|---|---|---|---|
| OSP-E20BV | 12 | 9.5 | 8 - 24 | 40 | 66 | 25 | 16 | 46 | **16268FIL** |
| OSP-E25BV | 16 | 9.5 | 8 - 24 | 40 | 66 | 25 | 16 | 46 | **10845FIL** |

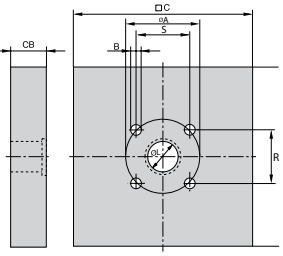
## Motor Flange

(semi-finished)



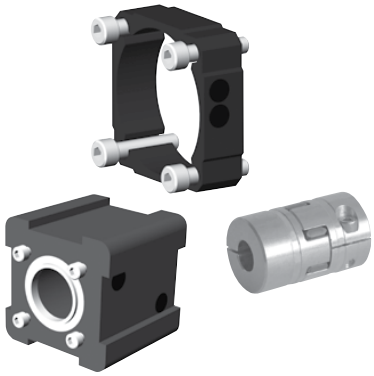

universal




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

### Motor Flange (finished)

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

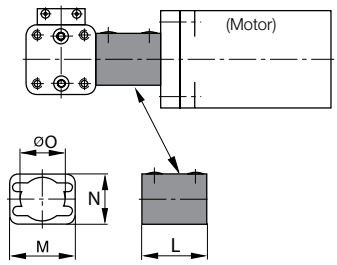


- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**

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

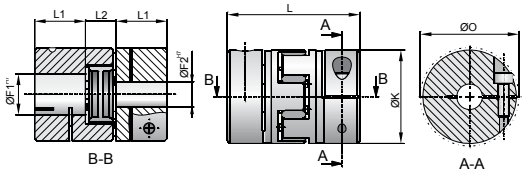
**Hint:** Let us know the mounting dimensio ns of your motor. Upon request we will be pleased to check and manufacture a motor flange that will come up to your individual needs. (Also see “motor flange for freely selectable mounting dimensions” page 126 ff)

## Coupling Housing (for gear or motor mounting)



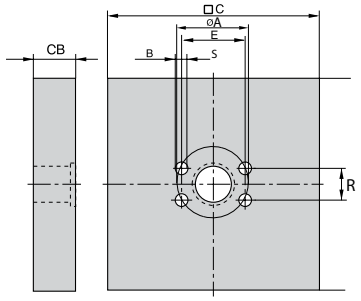

| Series | Ø A | L | M | N | Ø O | Order No. |
|---|---|---|---|---|---|---|
| OSP-E25B | 33.5 | 47 | 40 | 30 | 25 | **20606FIL** |
| OSP-E32B | 42.0 | 49 | 49 | 38 | 33 | **20607FIL** |
| OSP-E50B | 59.4 | 76 | 65 | 54 | 48 | **20608FIL** |

## Motor Coupling Dimension [mm] and Order No.




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

## Motor Flange (universal)

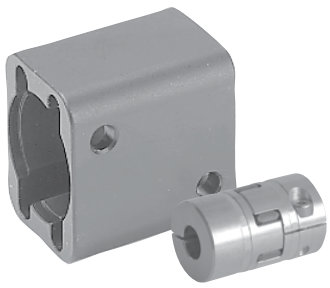



| Series | □C | CB | Ø L | Ø N | Ø O | P | R | S | Ø RS | Order No. |
|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E25B | 100 | 20 | 16 | 5.5 | 10 | 3.0 | 30.0 | 15.0 | 33.5 | **12050FIL** |
| OSP-E32B | 100 | 20 | 22 | 6.6 | 11 | 4.0 | 38.0 | 18.0 | 42.0 | **12053FIL** |
| OSP-E50B | 120 | 15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

## Motor Flange (finished)

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

*Motor coupling not included

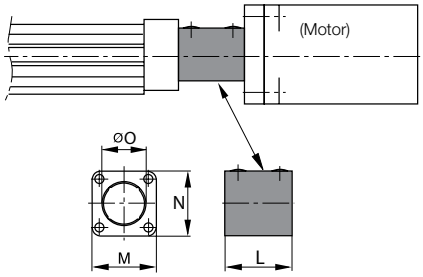


- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**
- **OSP-E..SBR, ..STR Screw Actuator with Internal Plain Bearing Guide and Piston Rod**

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

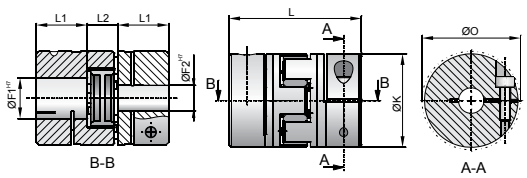
**Hint:** Let us know the mounting dimensions of your motor. Upon request we will be pleased to check and manufacture a motor flange that will come up to your individual needs. (Also see "configurable motor flange" page 128)

## Coupling Housing (for Motor)



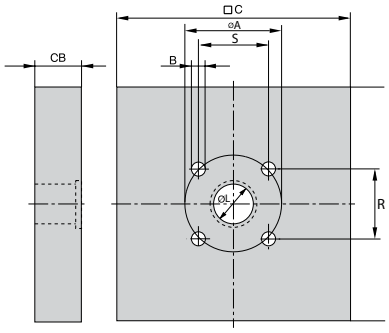

| Series | Ø A | L | M | N | Ø O | Order No. |
|---|---|---|---|---|---|---|
| OSP-E25S... | 38.2 | 38 | 41 | 41 | 25 | **20137FIL** |
| OSP-E32S... | 50.9 | 54 | 52 | 52 | 33 | **20138FIL** |
| OSP-E50S... | 65.0 | 84 | 87 | 87 | 48 | **20139FIL** |

## Motor Coupling Dimension [mm] and Order No.




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

## Motor Flange (universal)

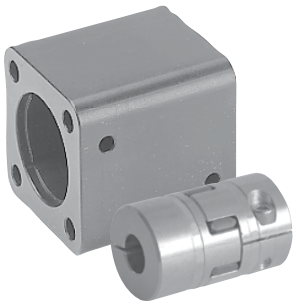



| Series | □C | CB | Ø L | Ø N | Ø O | P | R | S | Ø RS | Order No. |
|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E25S... | 100 | 20 | 16 | 5.5 | 10 | 3.0 | 27.0 | 27.0 | 38.2 | **12060FIL** |
| OSP-E32S... | 100 | 20 | 22 | 6.6 | 11 | 4.0 | 36.0 | 36.0 | 50.9 | **12064FIL** |
| OSP-E50S... |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

## Motor Flange (finished)

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

*Motor coupling not included



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

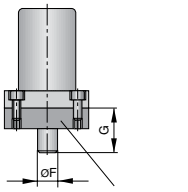
The motor flange for motors with freely selectable mounting dimensions offers flexible possibilities to connect most different type s of motors to the electric actuators OSP-E. The drive shafts of actuator and motor are connected with a motor coupling in the coupling housing and the motor flange is centred.

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

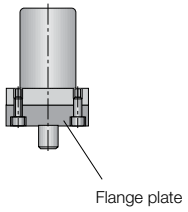
1. mounting angle W of the motor
2. bore hole version B as thread M or counterbore S
3. pitch circle diameter A as a function of M or S
4. Diameter of centring spigot D
5. Length of motor shaft G

## Variable Dimensions for Flange

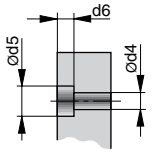
**Version Thread „M“**
Flange plate with thread,
Motor flange with through bolt



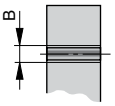

**Version Counterbore „S“**
Flange plate with through bore
Motor flange with thread

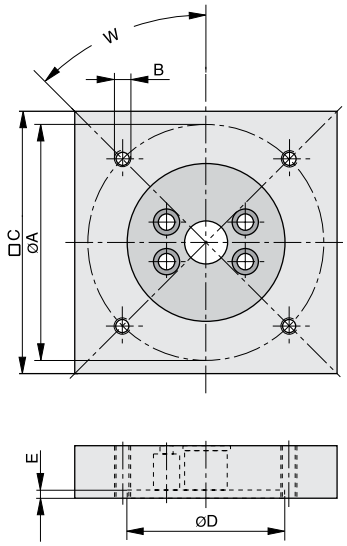



**Version Counterbore „S“**




**Version Thread „M“**




**Counterbore Dimensions [mm]**

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



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### Dimension [mm] – Version for Belt Drive

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

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

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

**Legend**

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

**Order Instructions**

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



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

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

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

**Versions of Drive Shaft OSP-E with Screw**

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

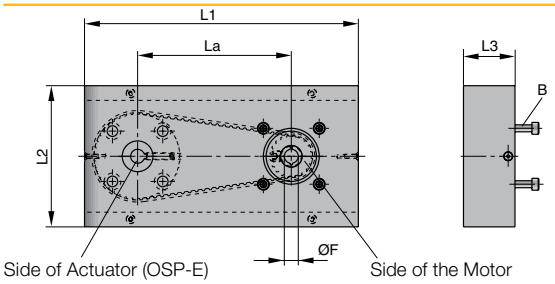
*1=SB, 2=ST, 3=STR, 4=SBR

**Max. Allowed Moment M [Nm] for Belt Gear**

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

Beware of the max. allowed moments of the corresponding actuator

## Belt Gear

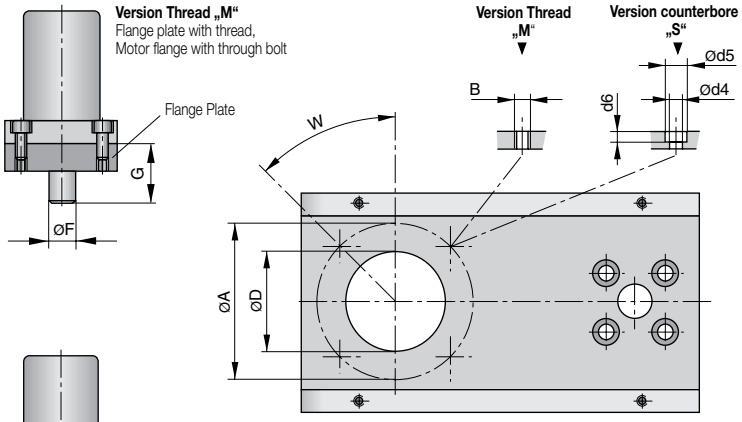


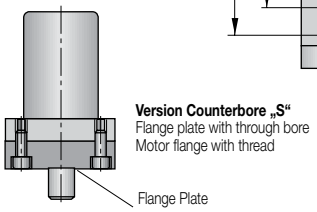

**Dimension [mm] and Order Instructions**

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

* other diameters on request

## Variable Dimensions for Motor Mounting




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

**Dimension Table of the Variable Dimensions [mm]**

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



# End Cap Mounting



**Content**


| Description | Page |
|---|---|
| End Cap Mounting (OSP-E..BHD) | 142 |
| End Cap Mounting (OSP-E..SBR, ..STR) | 144 |
| Flange Mounting C-E (OSP-E..SBR, ..STR) | 146 |




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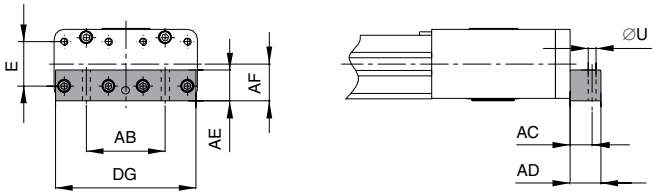
**• Series OSP-E..BHD for Actuator with Belt and Integrated Guides**

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

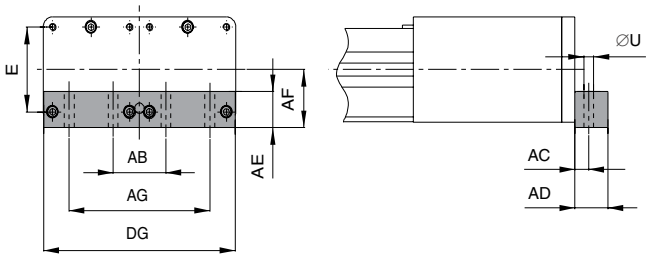
**Material:** Anodized Aluminium

**The mountings are supplied in pairs.**

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




## Series OSP-E50BHD: Type CN-50M






### Dimension [mm] and Order Instructions

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

(*= Pair



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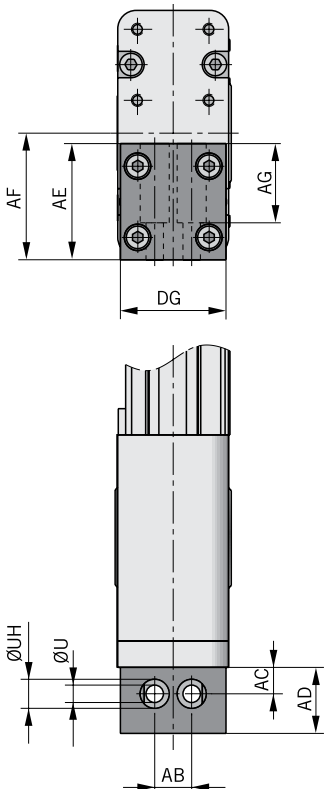
**• Series OSP-E..BHD Actuator with Belt and Integrated Guide**

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

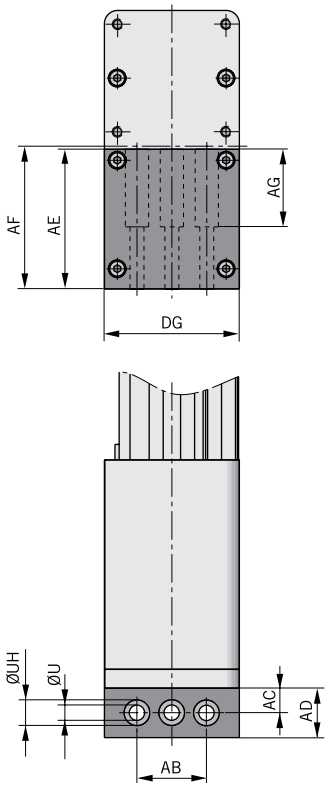
**Material:** Anodized Aluminium.

**The mountings are supplied in pairs.**

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



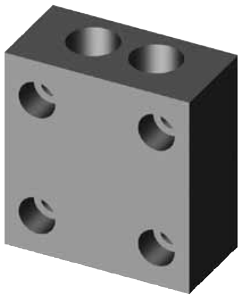

**Series OSP-E50BHD:**
**Type CO-50**




**Dimension Table [mm] and Order Instructions**

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

(* = Pair

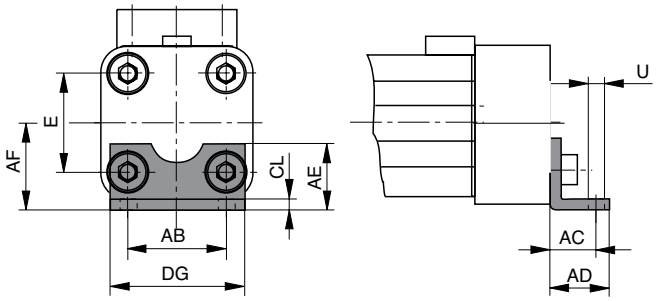


- **Series OSP-E...B Belt Actuator with Internal Plain Bearing Guide**
- **Series OSP-E..SB, .. ST Screw Actuator with Internal Plain Bearing Guide**

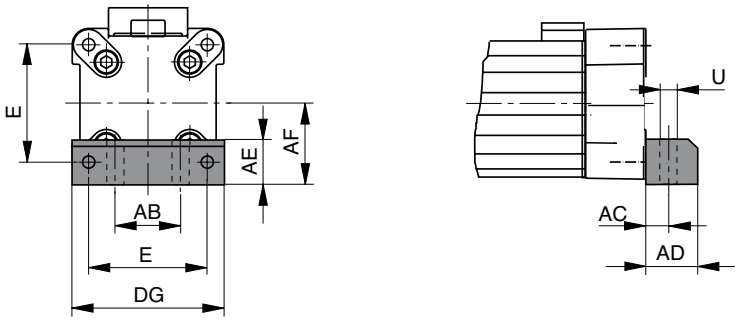
On the end-face of each end cap there are four threaded holes for mounting the actuator. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

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

## Series OSP-E25 to E32: Type A1




## Series OSP-E50: Type C1




## Dimension Table [mm] and Order Instructions

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

(*= Pair



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



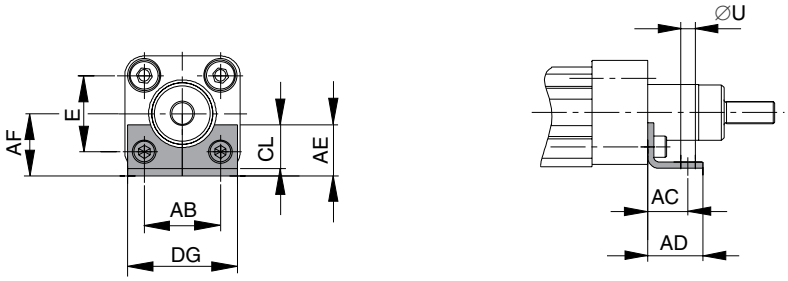
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## • OSP-E..SBR, ..STR Actuator with Screw and Extending Rod

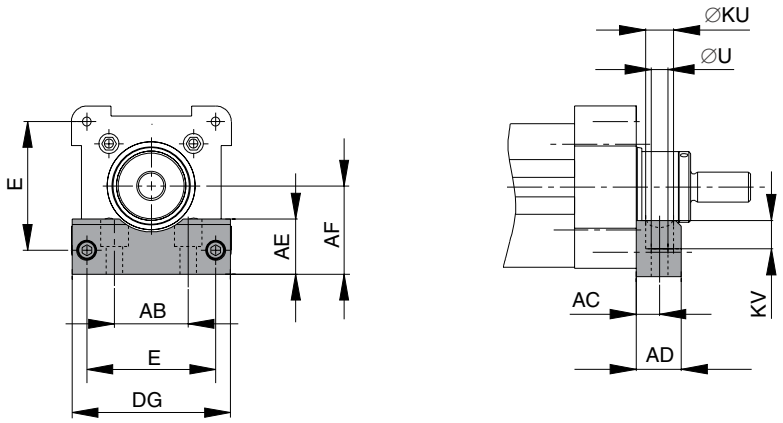
On the end-face of each end cap there are four threaded holes for mounting the actuator. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

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

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




### Series OSP-E50SBR, 50STR: Type C1SR




### Dimension [mm] and Order Instructions

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

(*= Single

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





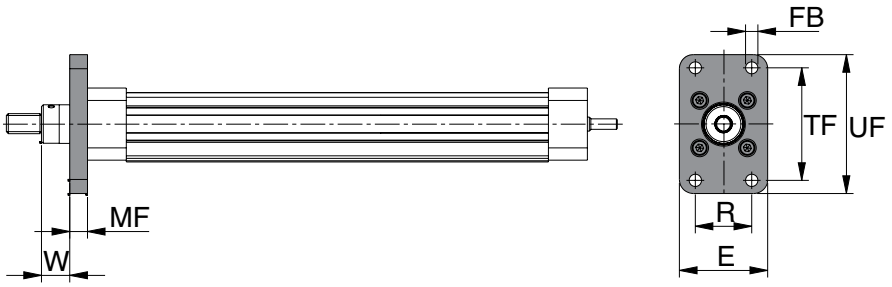
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**• Series OSP-E..SBR, ..STR Actuator with Screw and Piston Rod**

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

**Material:** Aluminium

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




### Dimension [mm] and Order Instructions

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





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# Profile Mounting



**Content**


| Description | Page |
|---|---|
| Profile Mounting | 148 |
| Adaptor Profile | 151 |
| Connection Profile | 153 |
| Trunnion / Pivot Mounting EN/EL | 154 |




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- **Series OSP-E**

Material: Anodized Aluminum
Stainless Steel Version on request.

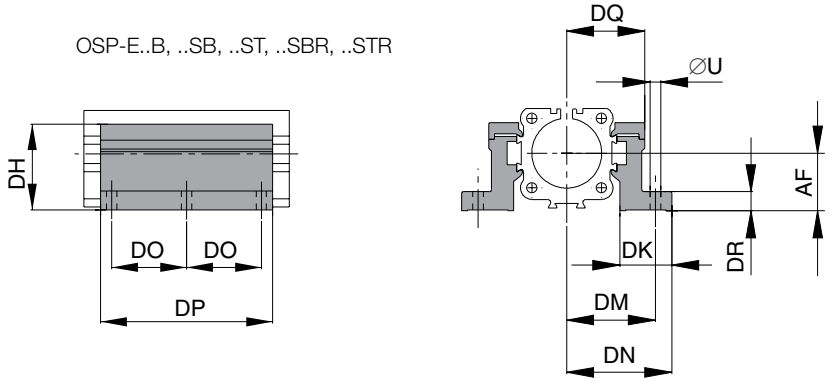
**The mountings are supplied in pairs.**

**Weight (mass) [kg]**

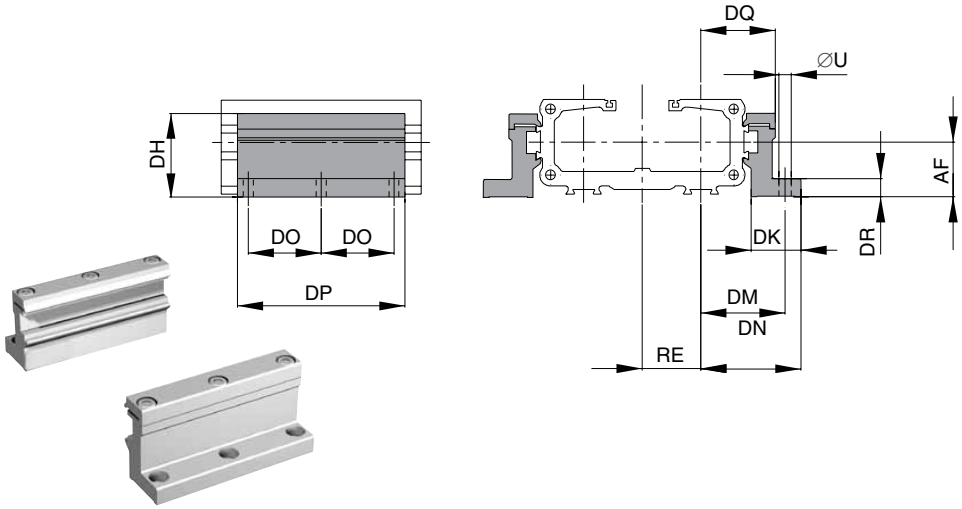
| Series | Weight (mass) [kg] (Pair) |
|---|---|
| MAE-20 | 0.3 |
| MAE-25 | 0.3 |
| MAE-32 | 0.4 |
| MAE-50 | 0.8 |

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

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




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




## Dimension [mm] and Order Instructions

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



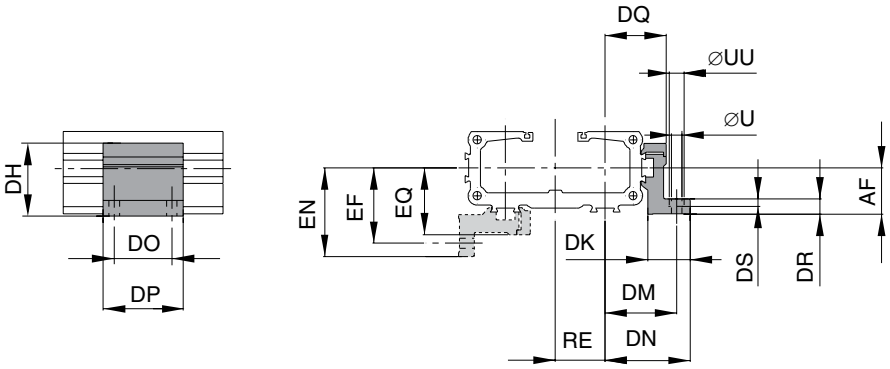
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## • Series OSP-E ..BHD Belt Actuator with Integrated Guide

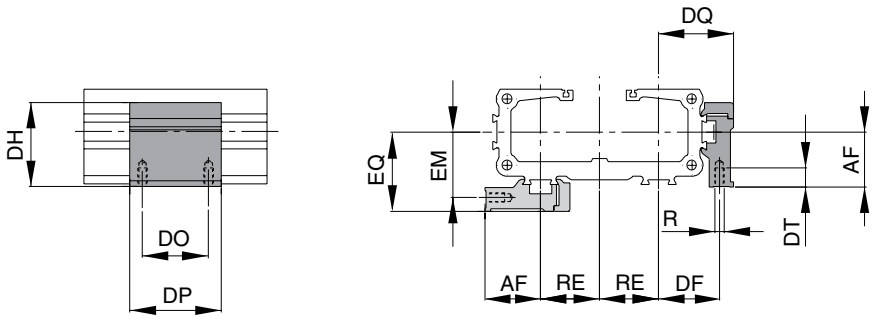
**Note on Types E1 and D1:** The Profile Mounting can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different. For design notes, see page 14 ff. Stainless steel version on request.

**The mountings are supplied singly.**

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




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






### Dimension [mm] and Order Instructions

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



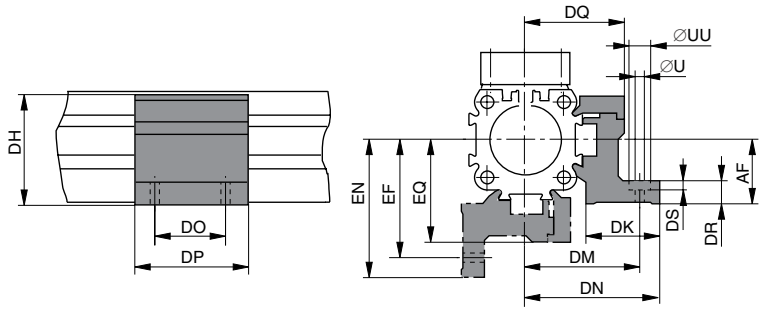
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- **OSP-E..B Belt Actuator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**
- **OSP-E..SBR, ..STR Screw Actuator with Internal Plain Bearing Guide and Piston Rod**

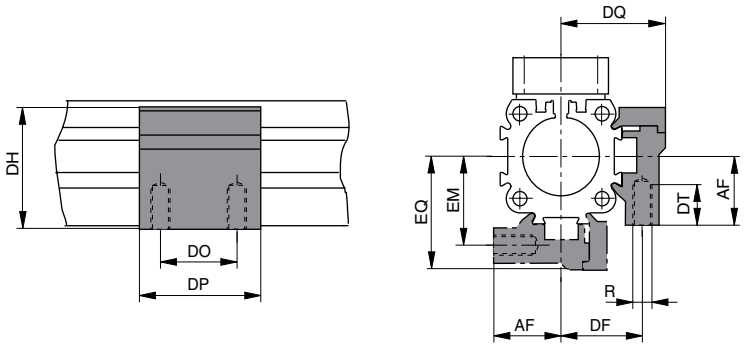
**Note on Types E1 and D1:** The profile mounting can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different.

Stainless steel version on request.

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




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






### Dimension [mm] and Order Instructions

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

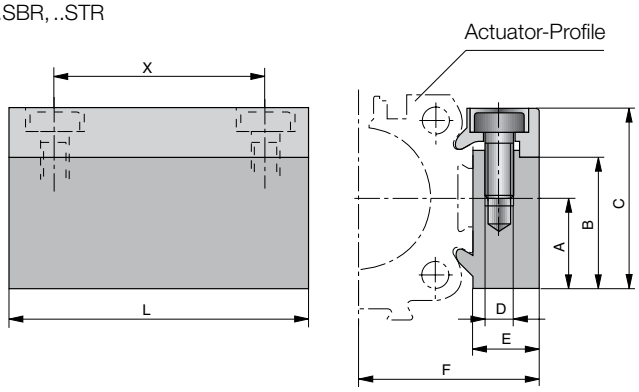
- **OSP-E Adaptor Profile OSP**

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

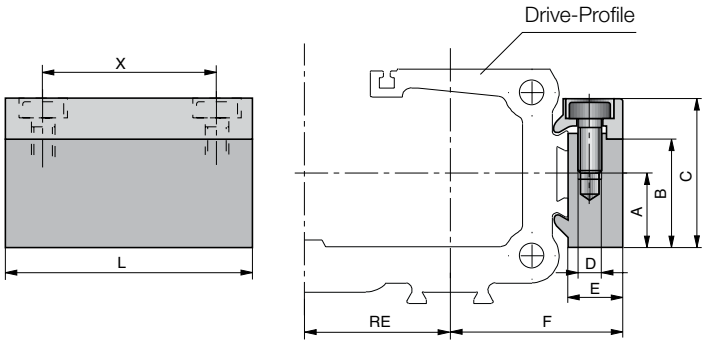
**The mountings are supplied singly.**

## Series OSP-E25 to E50

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




## Series OSP-E20BHD to E50 BHD




### Dimension [mm] and Order Instructions

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

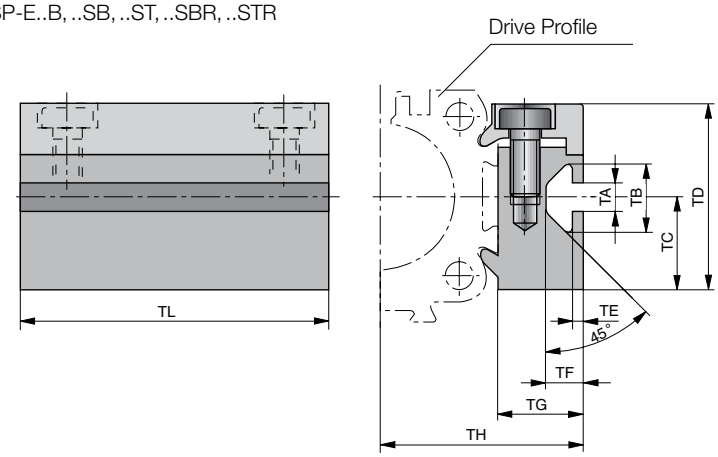


- **Series OSP-E T-Slot OSP**

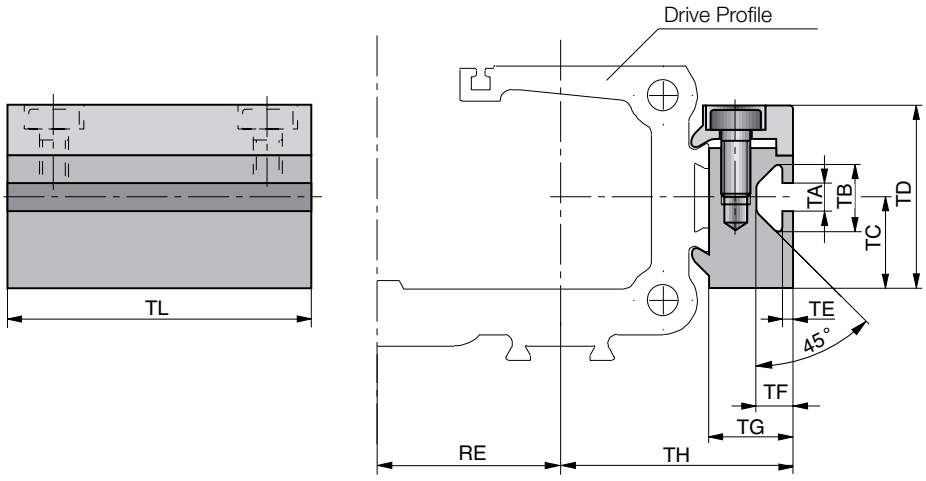
A universal Attachment for Mounting with Standard T-nuts.

## Series OSP-E25 to E50

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




## Series OSP-E20BHD to E50BHD






### Dimension [mm] and Order Instructions

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



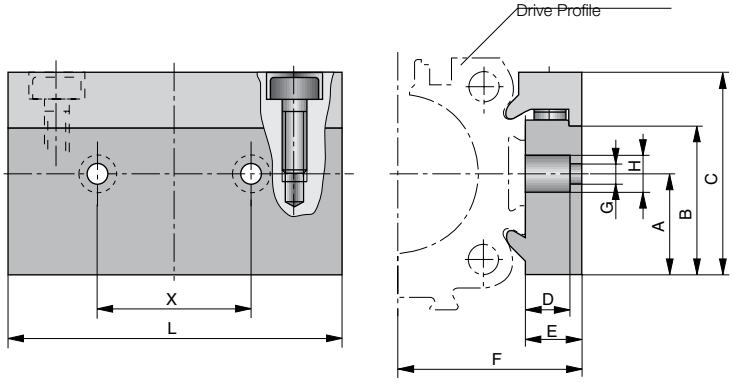
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to connect

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

**The mountings are supplied singly.**

## Adaptor Profile




## Dimension [mm] and Order Instructions

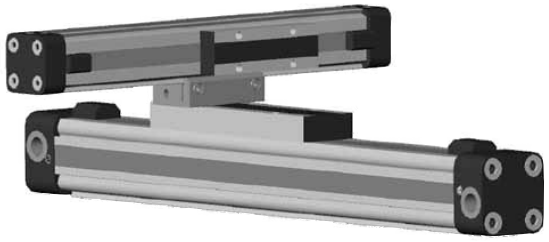
| Series | for the connection to the driver of | A | B | C | D | E | F | G | H | L | X | Order No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E25 | OSP32-50 | 16 | 23 | 32 | 8.5 | 10.5 | 30.5 | 6.6 | 11 | 60 | 27 | **20850FIL** |
| OSP-E32 | OSP32-50 | 16 | 23 | 32 | 8.5 | 10.5 | 36.5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

## Connecting Possibilities

Connecting of Series OSP-E with System Profiles



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



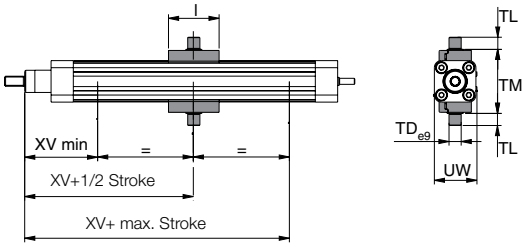


## • OSP-E..SBR, ..STR for Actuator with Spindle Drive and Piston Rod

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

**The mountings are supplied in pairs.**

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




Material: Al

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

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

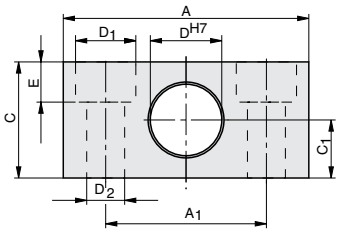
### Series OSP-E25SBR, 25STR to 50SBR, 50STR: Type EL-..

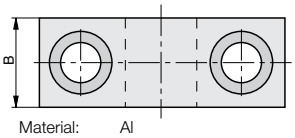
Trunnion Mounting EN



Pivot Mounting EL






Material: Al

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

| Series | Typ | A | $A_1$ | B | C | $C_1$ | ØD$^{H7}$ | Ø$D_1$ | Ø$D_2$ | E | Weight. (mass) (kg) | Order No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E25SBR. STR | EL-032 | 55 | 36 | 20 | 26 | 13 | 12 | 13.5 | 8.4 | 9 | 0.06 | **PD23381** |
| OSP-E32SBR. STR | EL-040/050 | 55 | 36 | 20 | 26 | 13 | 16 | 13.5 | 8.4 | 9 | 0.06 | **PD23382** |
| OSP-E50SBR. STR | EL-063/080 | 65 | 42 | 25 | 30 | 15 | 20 | 16.5 | 10.5 | 11 | 0.10 | **PD23383** |



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# Compensation



**Content**


| Description | Page |
|---|---|
| Compensation (OSP-E..B, ..SB, ..ST) | 156 |
| Inversion Mounting (OSP-E..B, ..SB, ..ST) | 158 |
| Piston Rod Eye ISO 8139 | 159 |
| Piston Rod Clevis ISO 8140 | 159 |
| Piston Rod Compensation Coupling | 160 |

# OSP-E

## Clevis Mounting - Size 25, 32, 50

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

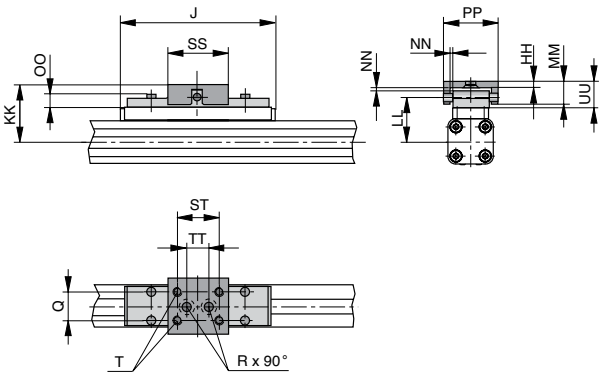
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a Compensation. Freedom of movement is provided as follows:

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

A stainless steel version is also available.

### Series OSP-E25 to E32

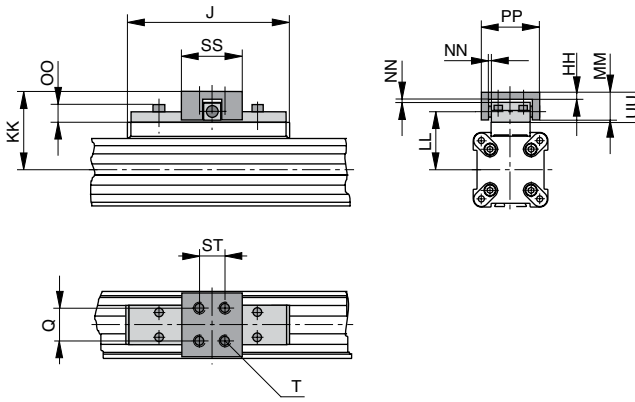
OSP-E..B, ..SB, ..ST

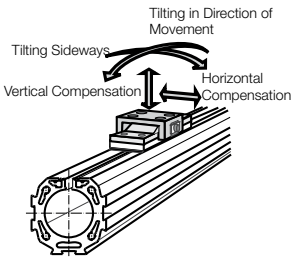





### Series OSP-E50

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




### Dimension [mm]

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

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

# OSP-E

## Clevis Mounting, Low Back Lash - Size 25, 32, 50

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

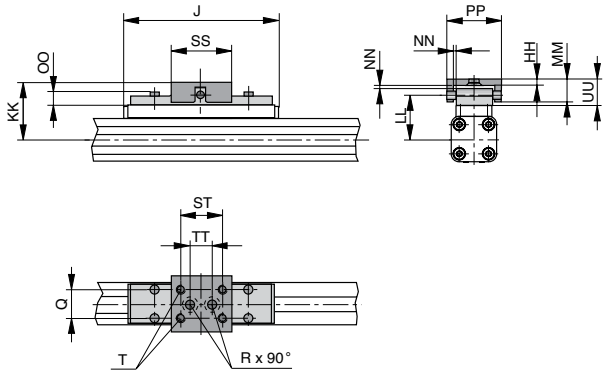
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a clevis mounting. In the drive direction the clevis mounting has a low backlash fit. Freedom of movement is provided as follows:

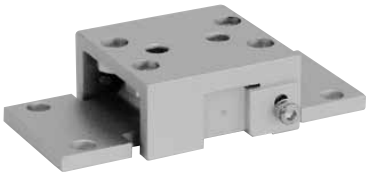
- Tilting in Direction of Movement
- Vertical Compensation
- Tilting Sideways
- Horizontal Compensation

A stainless steel version is also available.

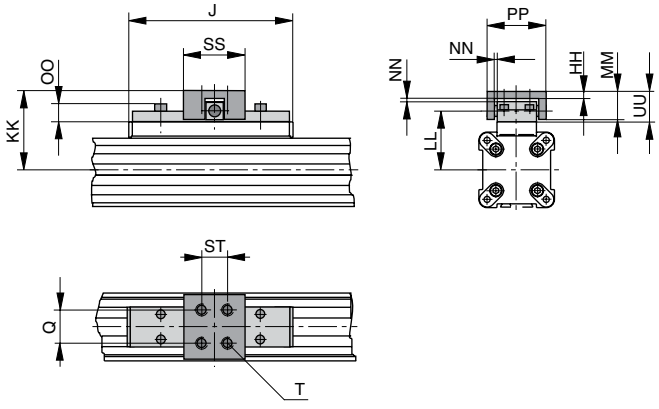
### Series OSP-E25 to E32

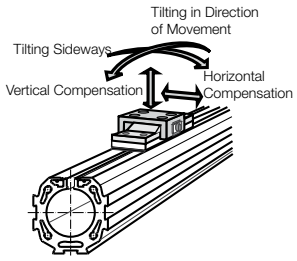
OSP-E..B, ..SB, ..ST



### Series OSP-E50




### Dimension [mm]

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

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

# OSP-E

## Inversion Mounting - Size 25, 32, 50

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

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

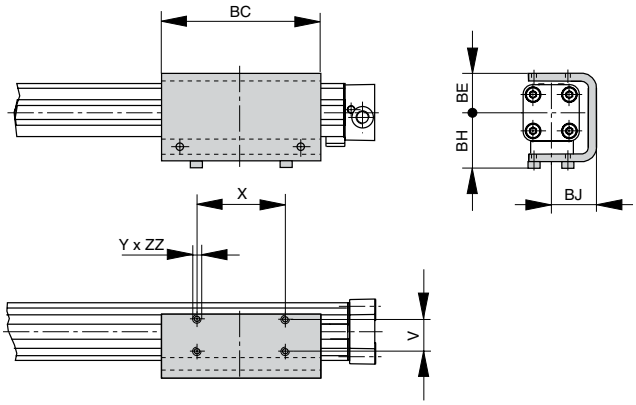
Stainless steel version on request.

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

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

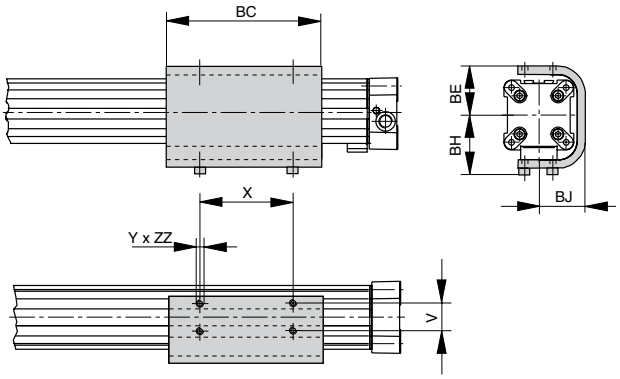
### Series OSP-E25 to E32

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




### Series OSP-E50

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



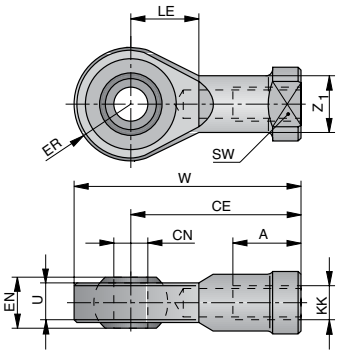



### Dimension [mm] and Order Instructions

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

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

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

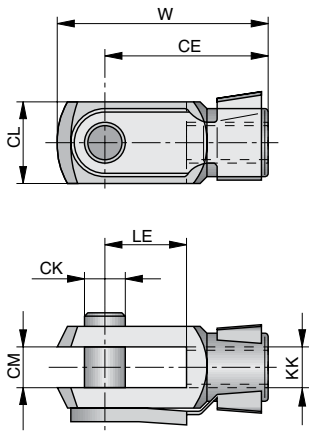


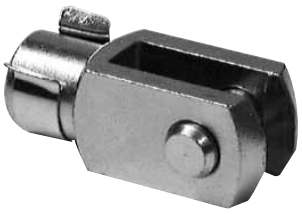



### Dimension [mm] and Order Instructions. Weight

| Series | Typ | A | CE | ØCN | EN | ER | KK | LE | SW | U | W | $ØZ_1$ | Weight [kg] | Order No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E25SBR, STR | GA-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 814 (CETOP RP102P) Type: GK-..



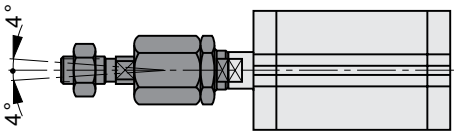



### Dimension [mm] and Order Instructions, Weight

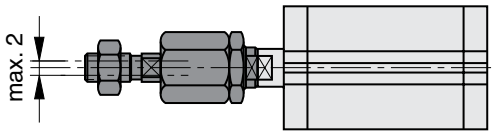
| Series | Typ | ØCK | CE | CL | CM | KK | LE | W | Weight [kg] | Order No. |
|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E25SBR, STR | GK-M 10x1.25 | 10 | 40 | 20 | 10 | M10x1.25 | 20 | 52 | 0.08 | **KY6135** |
| OSP-E32SBR, STR | GK-M 10x1.25 | 10 | 40 | 20 | 10 | M10x1.25 | 20 | 52 | 0.08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

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

### Angular Compensation

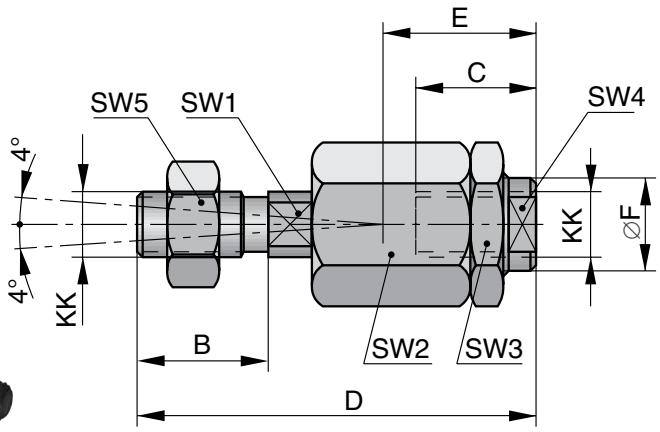



### Radial Compensation of the Centre Axis




### Piston Rod Compensating Coupling Type: AK-..





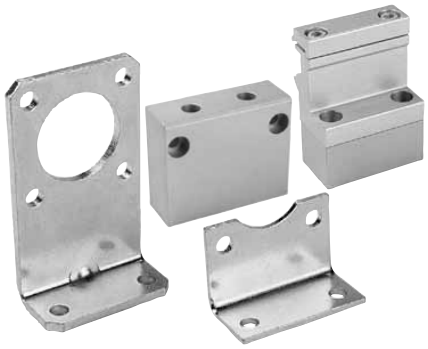

### Dimension [mm] and Order Instructions, Weight

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



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# Guide Mounting



**Content**

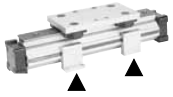

| Description | Page |
|---|---|
| Overview | 162 |
| End Cap Mounting | 163 |
| Profile Mounting | 164 |




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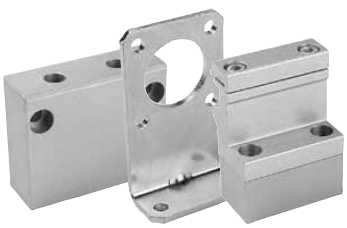
- **OSP-E..B Belt Acutator with Internal Plain Bearing Guide**
- **OSP-E..SB, ..ST Screw Actuator with Internal Plain Bearing Guide**

## Overview

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

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

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

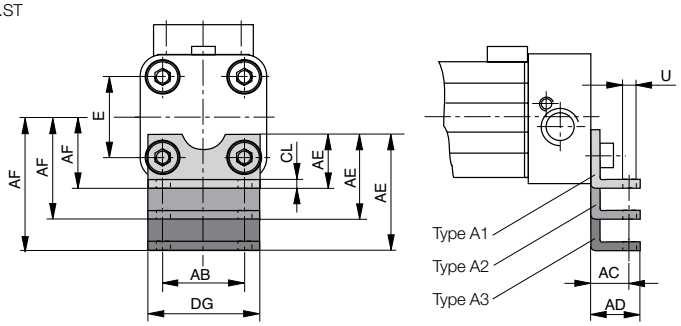




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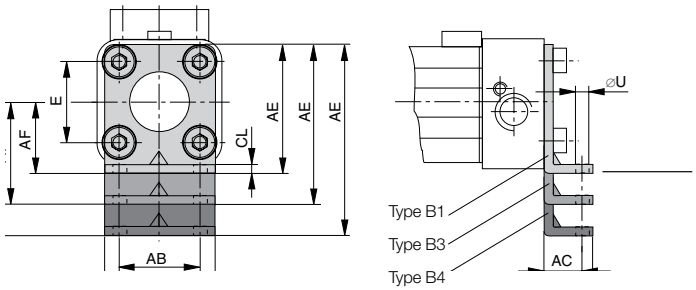
## Series OSP – E25, E32: Type A

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




## Series OSP – E25, E32: Type B

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




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

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

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

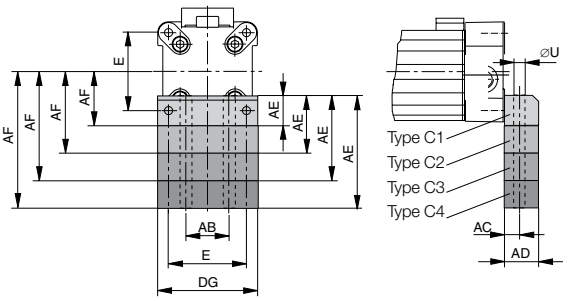
| Type. of mount. | Dimension AE at Size | | | Dimension AF at Size | | |
|---|---|---|---|---|---|---|
| | 25 | 32 | 50 | 25 | 32 | 50 |
| A1 | 18 | 20 | - | 22 | 30 | - |
| A2 | 33 | 34 | - | 37 | 44 | - |
| A3 | 45 | 42 | - | 49 | 52 | - |
| B1 | 42 | 55 | - | 22 | 30 | - |
| B3 | - | - | - | - |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

### Dimension [mm]

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

* see survey for mounting type on page 129 ff.

## Series OSP – E50: Type C



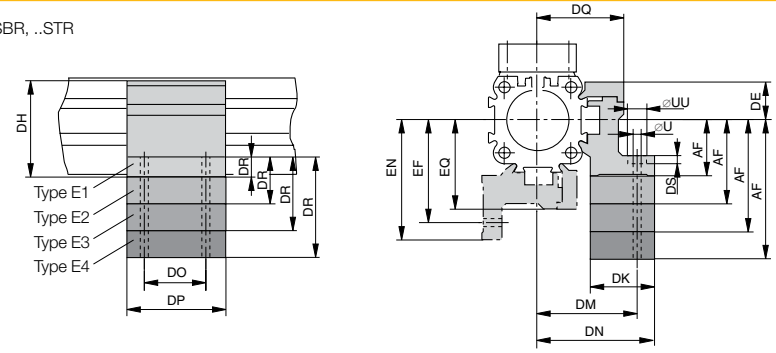





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## Series OSP-E25, E32, E50 : Type E (mounting with through hole)

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



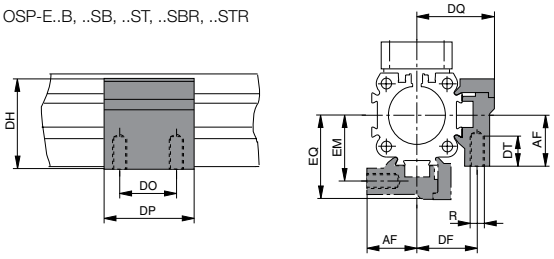

**Information on type E1 and D1:** The Profile Mountings can also be fitted to the bottom side of the drive. In this case please observe the new centre line dimensions of the drive. For layout information please refer to the page 100 ff. Stainless version on request.

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

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

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

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




## Dimension [mm]

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

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

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



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



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# Magnetic Field Sensors



## Type P8S-G

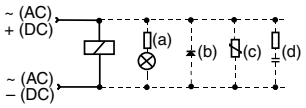
The new generation of t-slot sensors convince with easy mounting avoiding special tools and with a drop-in mounting. Due to new electronic the hysterisis is very small and allows a very accurate switching point.
Magnetic Field Sensors are used for contactless electric sensing of the carrier position,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

## Electric Service Life, Protective Measures

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

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

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



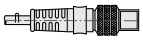
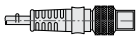

For the type ES, external protective circuits are not normally needed.

## Carriage Speed / Reaction Time

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

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

Technische Änderungen vorbehalten

| **Series** | | **P8S-G[1] - insertable into T-Slot from top** | | | | | |
|---|---|---|---|---|---|---|---|
| **Type** | | **M8R[2]** | | **FL[3]** | **M8R[2]** | | **FL[3]** |
|  | |  | |  |  | |  |
| **CE, cULus, RoHs** | | | | | | | |
| **Output Function** | | 0,3m Cable | 3m Cable | 10m Cable | 0,3m Cable | 3m Cable | 10m Cable |
| PNP | NO | P8S-GPCHX | P8S-GPFAX | P8S-GPFDX | | | |
| | NC | P8S-GQCHX | P8S-GQFAX | P8S-GQFDX | | | |
| NPN | NO | P8S-GNCHX | P8S-GNFAX | P8S-GNFDX | | | |
| | NC | P8S-GMCHX | P8S-GMFAX | P8S-GMFDX | | | |
| REED | NO | | | | P8S-GRCHX | P8S-GRFAX | P8S-GRFDX |
| | NC | | | | P8S-GECNX | P8S-GEFFX | P8S-GEFRX |
| **Technical Data** | | **Electrical** | | | **Reed** | | |
| **Electrical Characteristics** | | | | | | | |
| Electric Configuration | | 3-pole | | | 2-pole | | |
| Indicator LED yellow | | yes | | | yes (not NC) | | |
| Operating Voltage $U_b$ [V] | | 10 - 30 DC | | | 10 - 30 AC/DC | | |
| Ripple of $U_b$ [%] | | ≤ 10 | | | ≤ 10 | | |
| Voltage Drop $U_d$ [V] | | ≤ 2 | | | ≤ 3 | | |
| Power Consumption [4] [mA] | | ≤ 10 | | | | | |
| Continous Current $I_a$ [mA] | | ≤ 100 | | | ≤ 500 (NO ≤ 100) | | |
| Max. Switching Capacity [W] | | ≤ 6 | | | ≤ 10 | | |
| Switchable Capacity Load @ 100W @ 24VDC [nF] | | | | | 100 | | |
| Switching Frequency [Hz] | | ≤ 1.000 | | | ≤ 400 | | |
| Time delay before availability [ms] | | 0.5 / 0.5 | | | 1.5 / 0.5 | | |
| Sensitivity [mT] | | 2,8 | | | 3 | | |
| Hysteresis [mT] | | 0,7 | | | ≥ 0,2 | | |
| EMC [6] | | yes | | | yes | | |
| Lifetime | | unlimited | | | ≥ 20*10⁶ Cycles | | |
| Short Circuit Protection [5], Reverse Polarity Protection, Power-Up Pulse Suppression, Protection for Inductive Load | | yes | | | | | |
| ATEX Version | | on request | | | | | |
| **Mechanical Characteristics** | | | | | | | |
| Housing | | PA12 | | | | | |
| Cable Type | | PUR / black | | | | | |
| Cable Cross Section [mm²] | Connector 3-pole | 3 x 0,14 | | 3 x 0,14 | Connector 3-pole | 2 x 0,14 | 2 x 0,14 |
| Bending Radius Fixed Installation [mm] | | ≥ 30 | | | | | |
| Bending Radius Moving [mm] | | ≥ 45 | | | | | |
| **Shock Resistance** | | | | | | | |
| Protection [7] [IP] | | 67 | | | | | |
| Ambient Temperature Range $T_a$ [°C] | | -25 ... +75 | | | | | |
| Shock [8] / Vibration [9] | | 30 g, 11 ms / 10 to 55 Hz, 1 mm | | | | | |

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



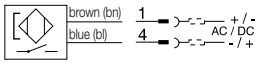
**Parker Hannifin Corporation**
Pneumatic Division - Europe

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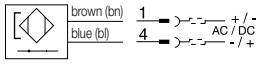
## Switching Function and Electrical Connection

Reed 2-pole

normally open

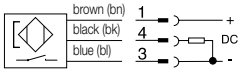



normally closed

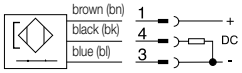



PNP 3-pole

normally open

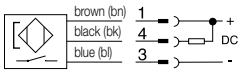



normally closed

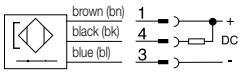



NPN 3-pole

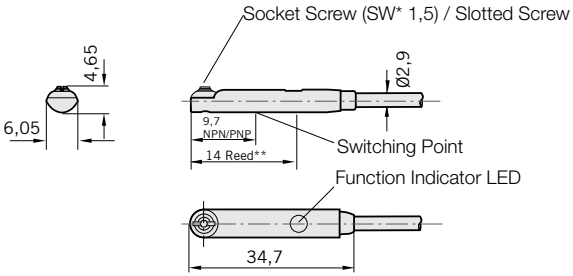
normally open

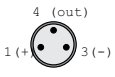



normally closed



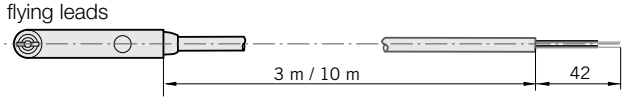

## Dimensions [mm] - Type P8S-G



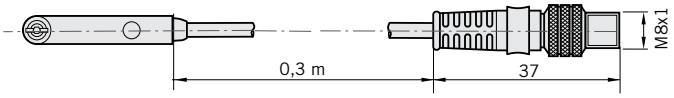




PIN assignment
(view of pins)
to DIN EN 50044

P8S-... cable with flying leads

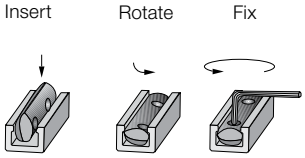



P8S-... plug M8, rotable

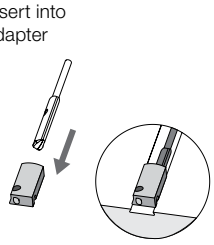


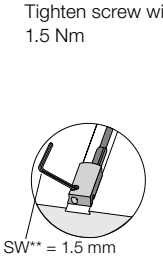

* = Wrench Size
** = Switching Point Reed

## Installation for T-Slot Sensors




## Installation for Dove Tail Groove



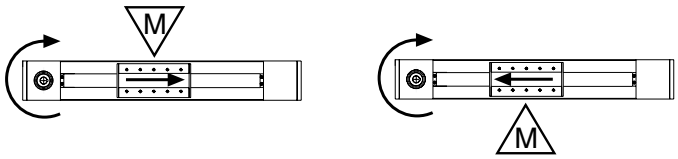

*Adapter included in scope of supply of magnetic sensors P8S.
**= Wrench Size



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

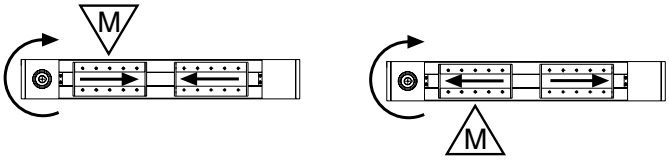
**Standard Version**




Drive Shaft Option = 0*

Drive Shaft Option = 1*

**Bi-parting Version**



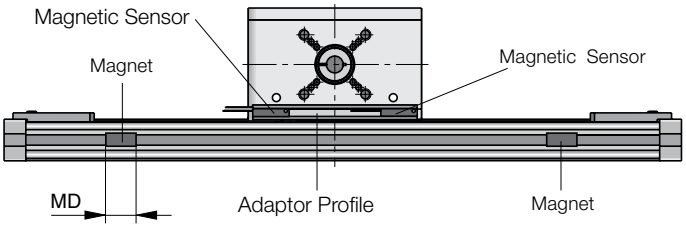

Drive Shaft Option = 2*

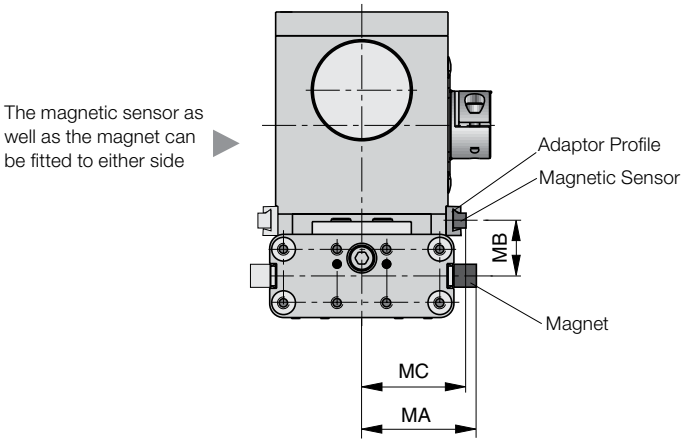
Drive Shaft Option = 3*

* Drive shaft oder code BHD page 24

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

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



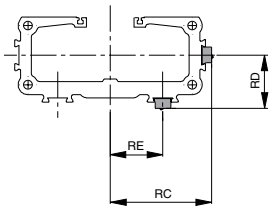




Dimensions see page 35

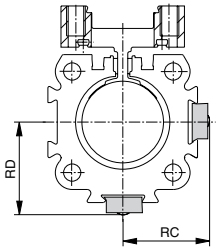
Magnetic sensors and magnets are externally fitted to the OSP-E..BV. For this purpose please order the magnetic sensor set (consisting of 2 magnetic sensors, 1 fastening rail and 2 magnets) for contactless position sensing.

## Dimension [mm]

OSP-E.. BHD




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




## Dimension [mm]

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

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

## Order Numbers

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

* Detailed specifications for KL-Series on request.



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P-A4P017GB
**OSP-E**

# Position Measuring System SFI-plus




## **ORIGA-Sensoflex** (incremental displacement measuring system)

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

## Special Properties

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

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

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

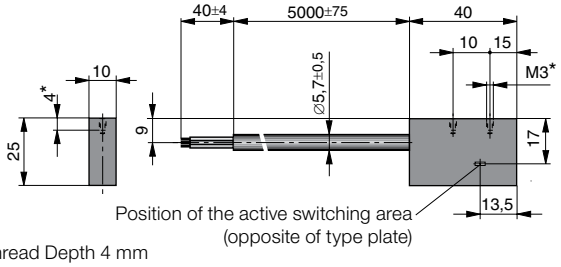
- **Sensing Head** converts the magnetic poles into electric signals which are then processed by counter inputs down stream (e.g. PLC, PC, digital counters)

## Series SFI- Plus SensoFlex Incremental

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

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

## Dimensions [mm] - Reading Head

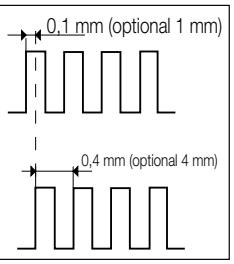



* Max. Thread Depth 4 mm

### Sensing head

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

## Signal Curve - Sensing Head OUT

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



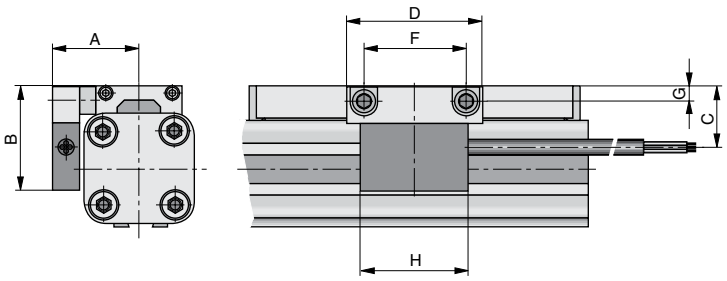
### Electric Connection

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



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




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

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

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

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

## Dimension [mm]

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

## Order Instructions

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

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

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



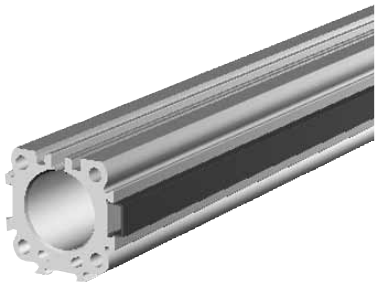
**Example:**
Actuator OSP-E, Ø25 mm, Stroke 1000 mm

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



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# Cable Cover





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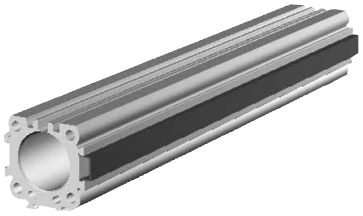
P-A4P017GB

## OSP-E

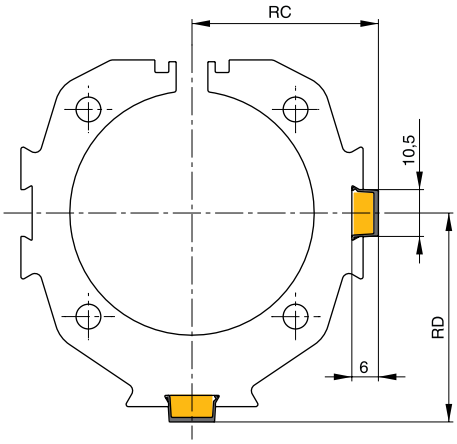
## Cable Cover - Ø 20, 25, 32, 50 mm

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

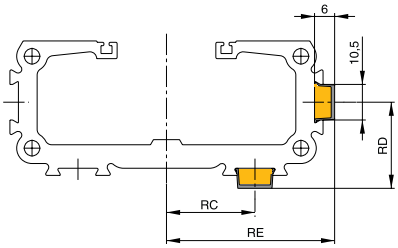
**Material:** Plastic
**Colour:** Red
**Temperature Range:** –10 to +80°C



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




### Series OSP-E..BHD – Dimensions [mm]

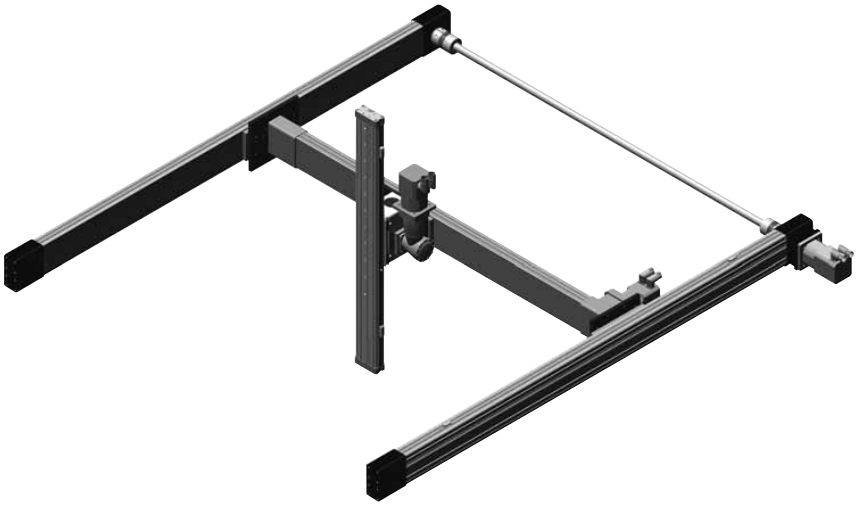



### Dimension [mm] and Order Instructions

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

*B, SB, ST, SBR, STR

# OSP-E Multi-Axis Connections for Electric Actuators



**Content**


| Description | Page |
|---|---|
| Overview | 179 |
| Adapter Plates | 181 |
| Intermediate Drive Shafts | 191 |

## The System Concept

### Multi-Axis Connection System – Simplifies Engineering and Installation

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

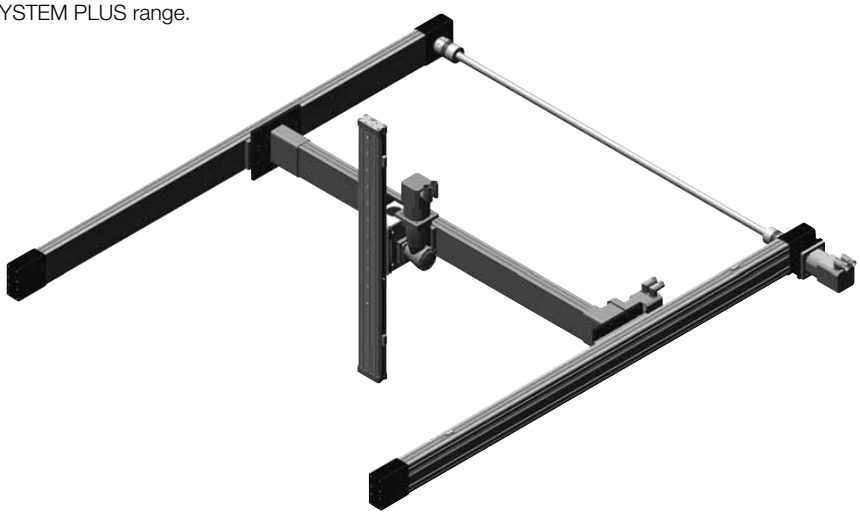
### Multi-Axis-Connections

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

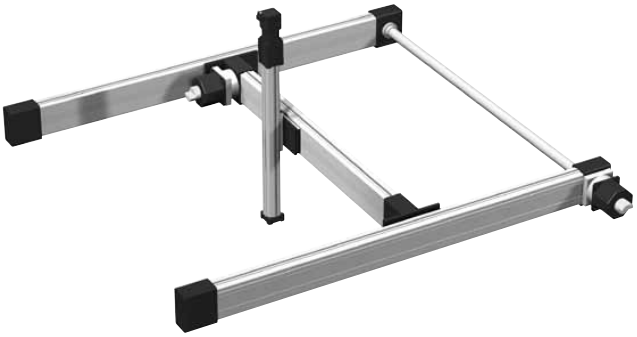
The connection system enables
actuators to be mounted in
carrier to carrier,
carrier to profile,
carrier to end cap mounting,
carrier to end cap.

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





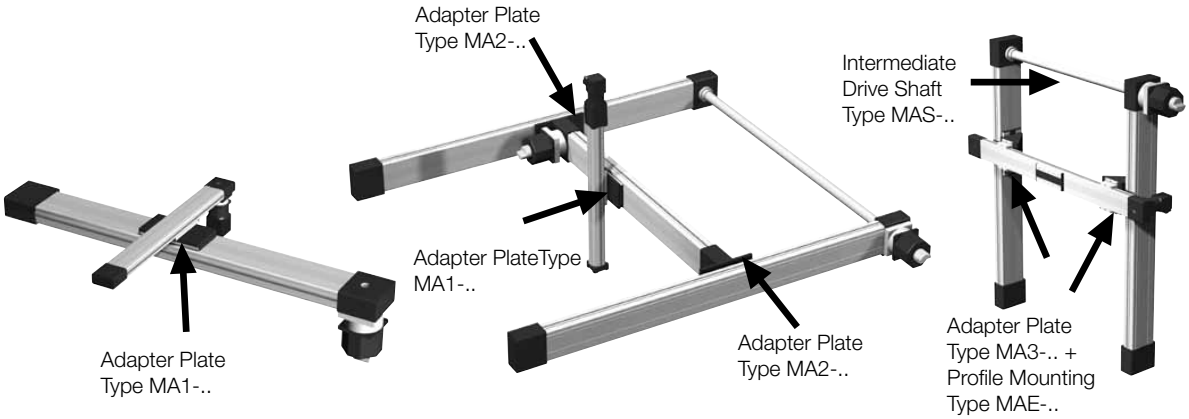




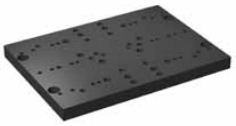
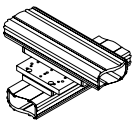
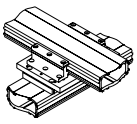
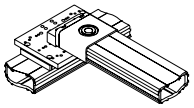
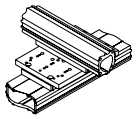
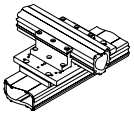
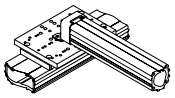
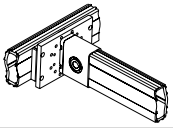
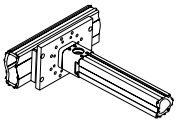
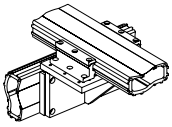
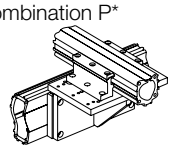
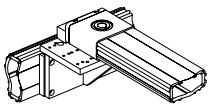
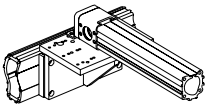
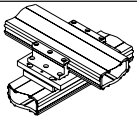
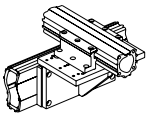
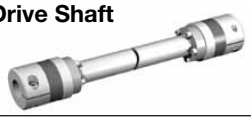


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## Multi-Axis-Connection System




* For available standard combinations see page 170.

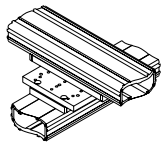
| | | | |
|---|---|---|---|
| **Adapter Plate Type MA1-..*** For connecting carrier to carrier, carrier to profile mounting or carrier to end cap mounting.  | Combination C*  | Combination P*  | Combination EM*  |
| | Combination C*  | Combination P*  | Combination EM*  |
| **Adapter Plate Type MA2-..*** 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-..**  | | | |



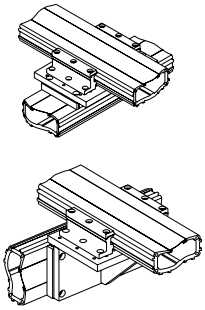
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## Available Mounting Combination

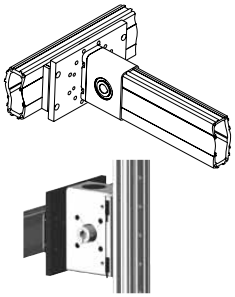
Combination C*



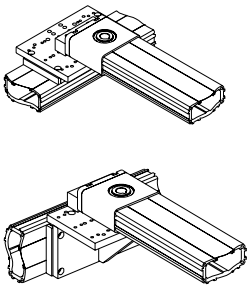
Combination P



Combination E*



Combination EM*



Illustrations show OSP-E..BHD examples

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

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

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

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

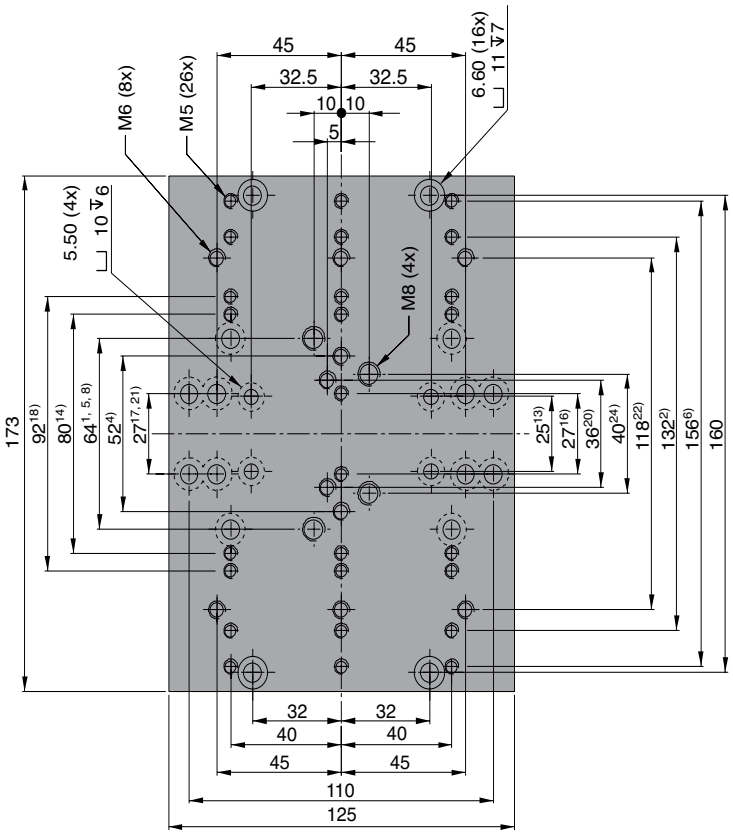
Other combinations on request.

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



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






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

### Order Instructions and Weight

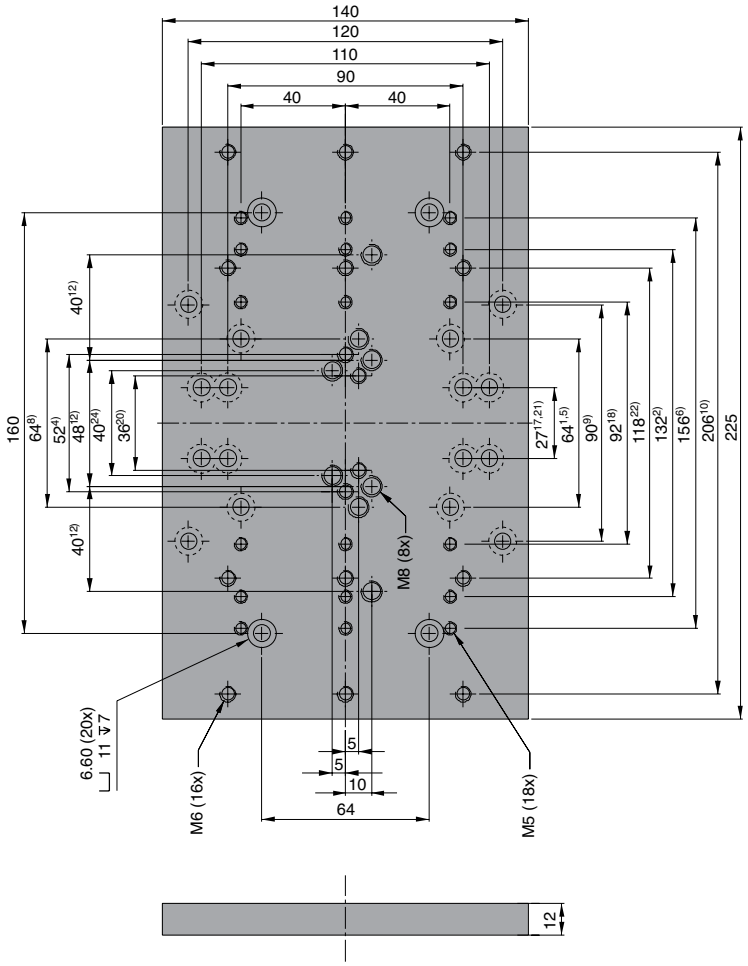
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA1-25 | 0.7 | **12269FIL** |

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



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






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

**Order Instructions and Weight**

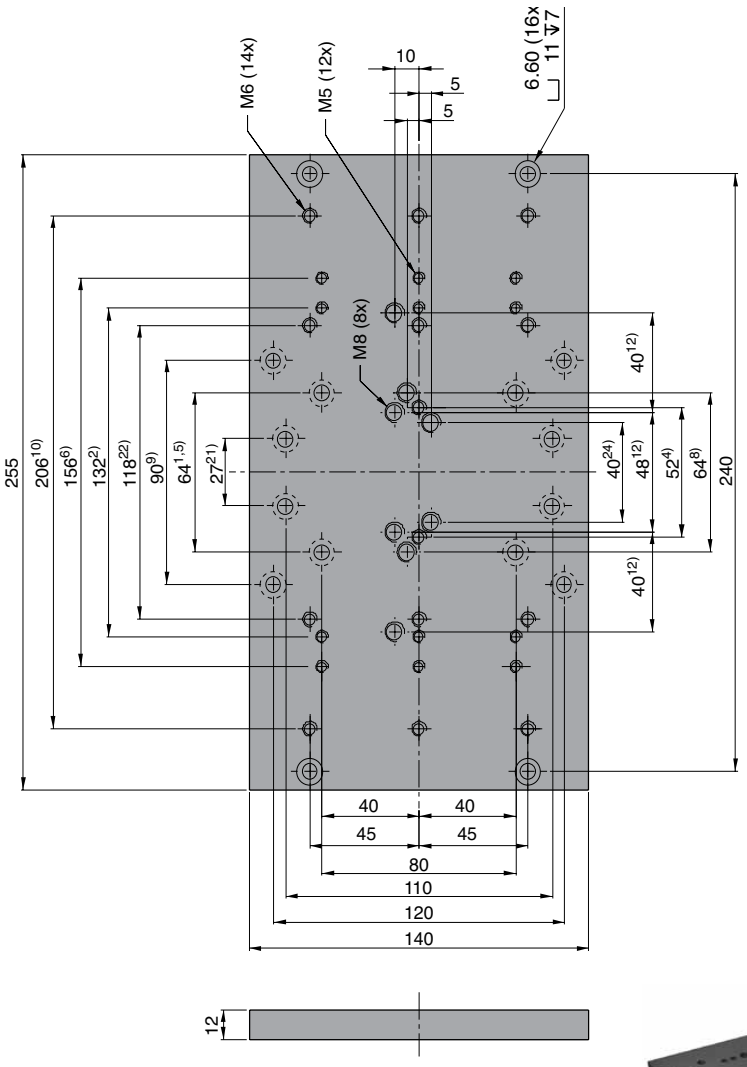
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA1-32 | 1.0 | **12272FIL** |

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



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






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

**Order Instructions and Weight**

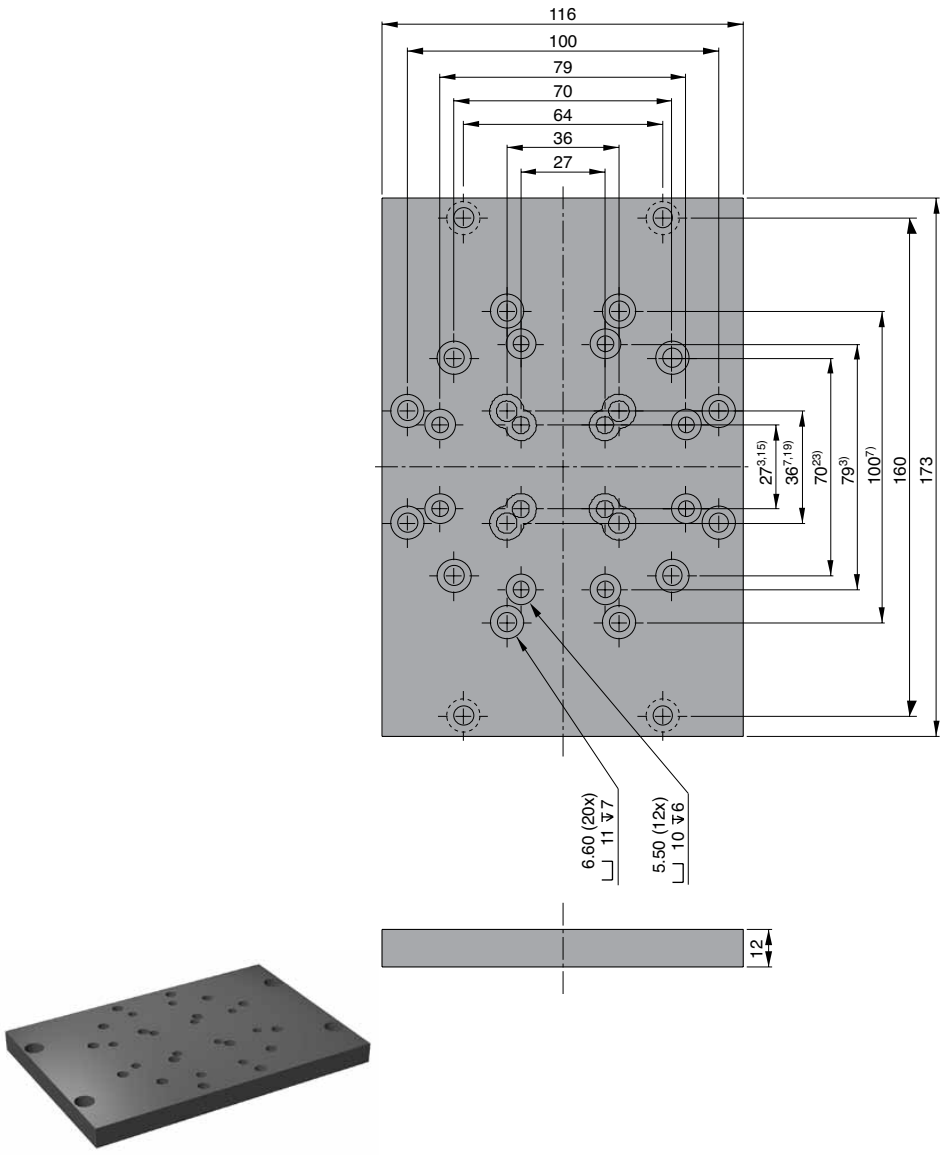
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA1-50 | 1.1 | **12275FIL** |

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



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






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

**Order Instructions and Weight**

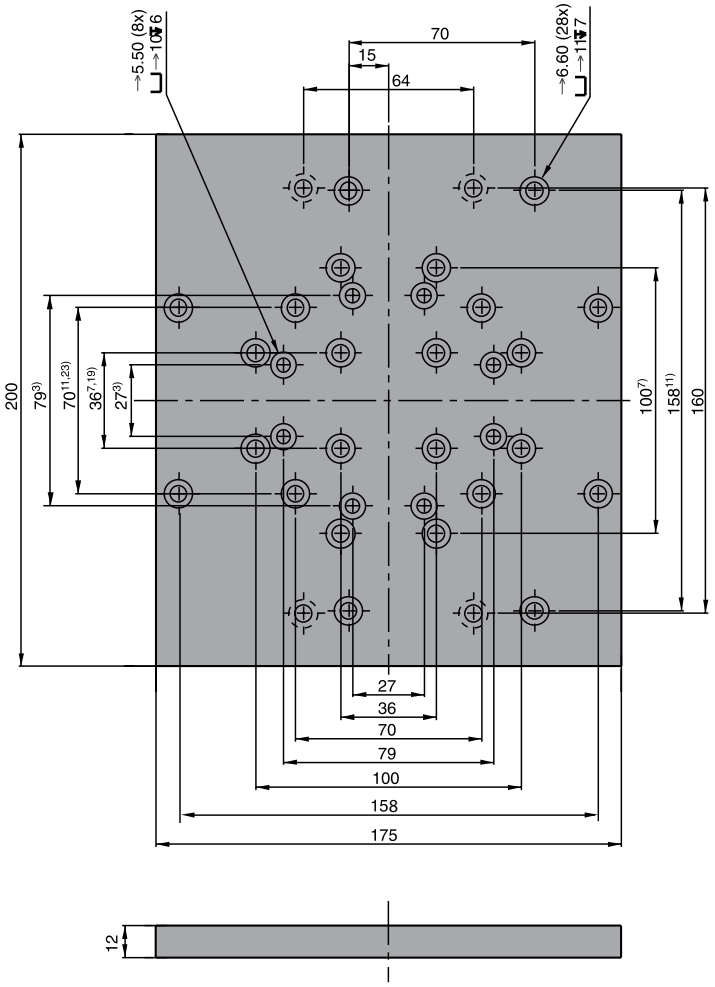
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA2-25 | 0,6 | **12270FIL** |

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



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






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

**Order Instructions and Weight**

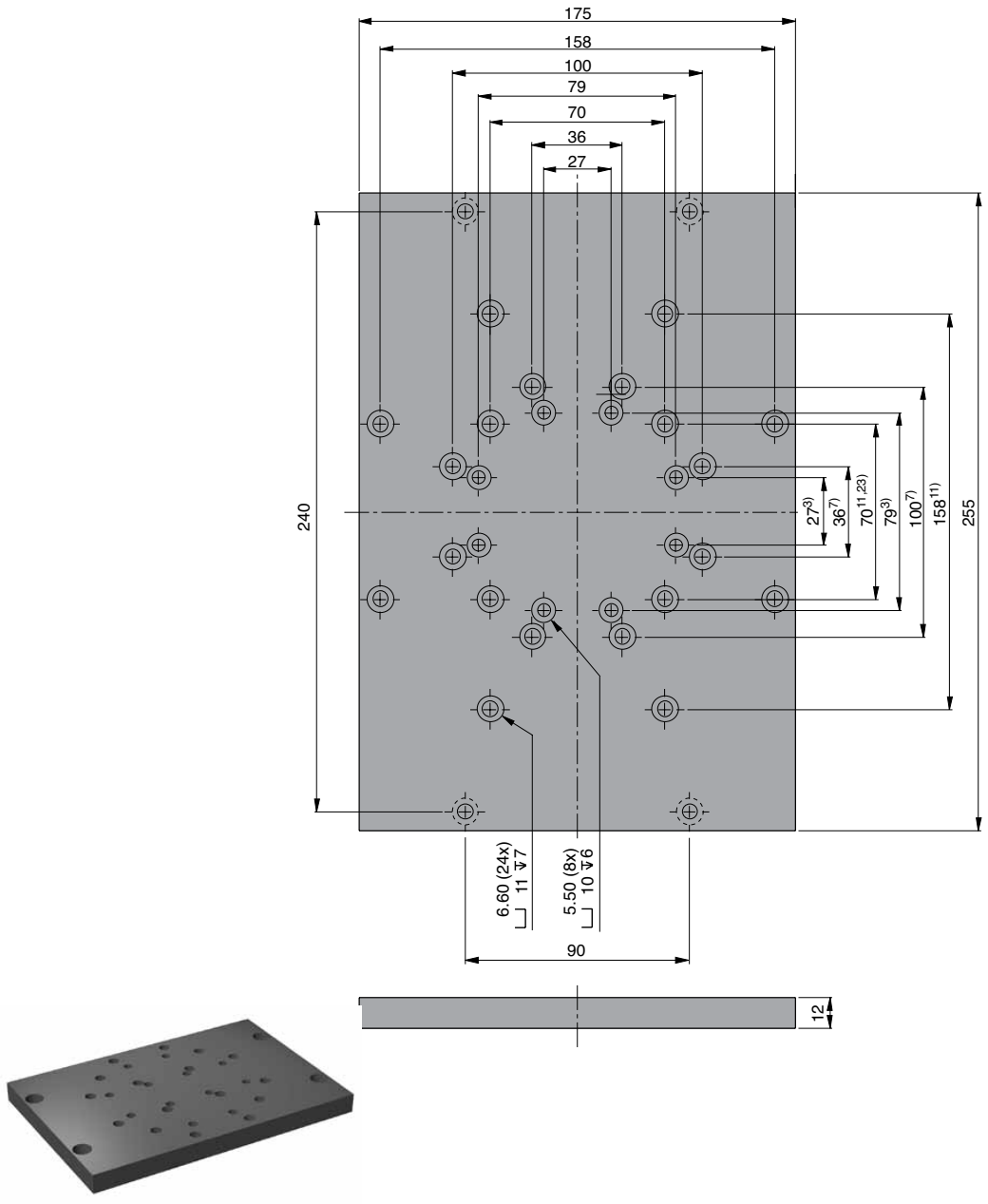
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA2-32 | 1.1 | **12273FIL** |

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



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




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

**Order Instructions and Weight**

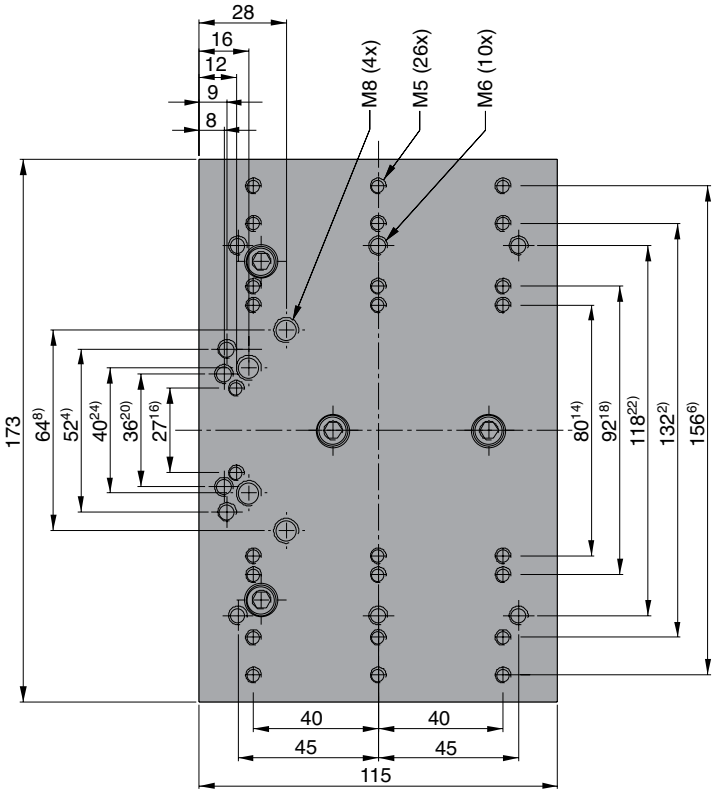
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA2-50 | 1.4 | **12276FIL** |

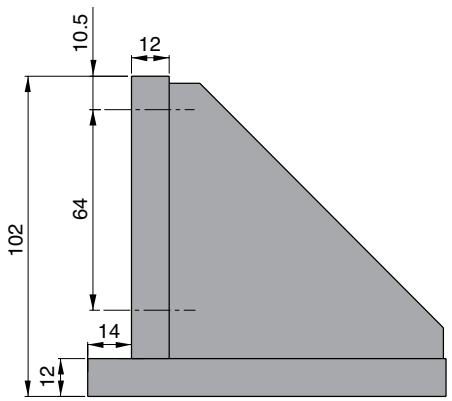
**Linear Acutators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

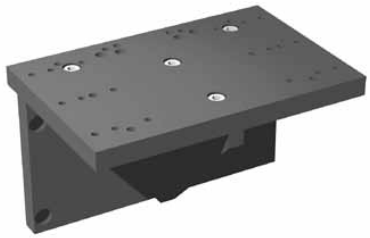


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## Dimensions [mm] Adapter Plate OSP-E 50, Type: MA3-25



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

**Order Instructions and Weight**

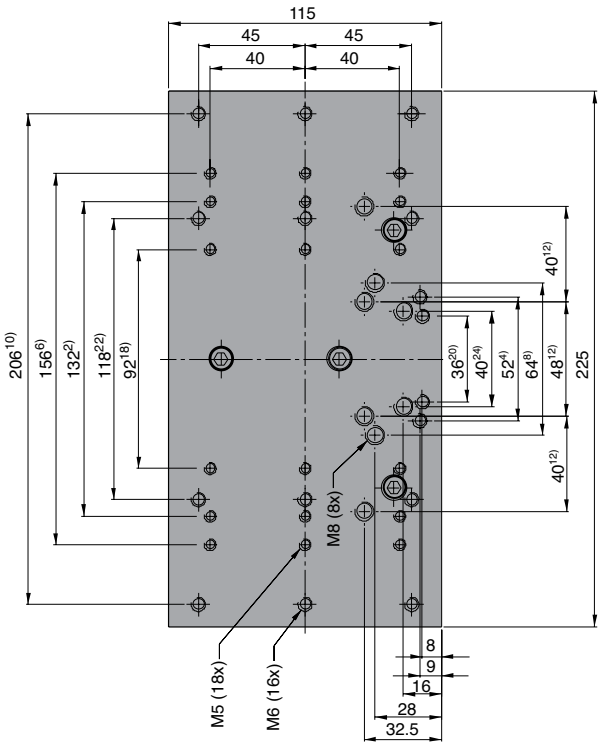
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA3-25 | 1.3 | **12271FIL** |

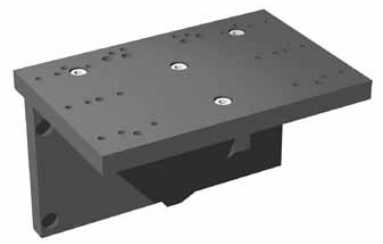
**Linear Acutators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

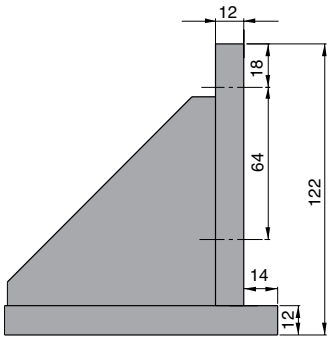


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## Dimensions [mm] Adapter Plate OSP-E 32, Type: MA3-32






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

### Order Instructions and Weight

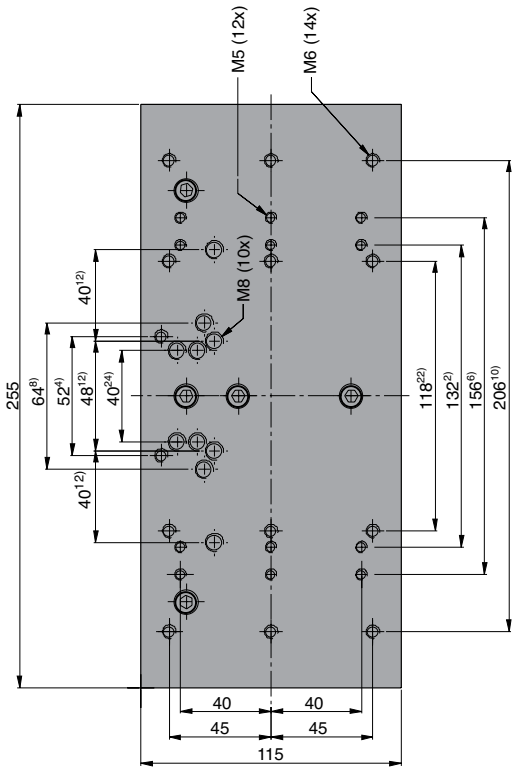
| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA3-32 | 1.8 | **12274FIL** |

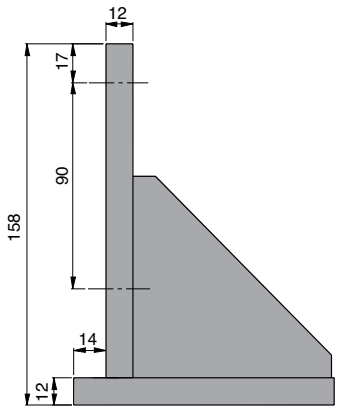
**Linear Acutators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

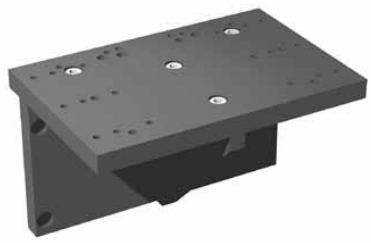


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## Dimensions [mm] Adapter Plate OSP-E 50, Type: MA3-50



Dimensions with superscript values refer to the corresponding available options detailed on page 180. E.g. dimensions with superscript number 4 correspond to the option "EM" for OSP-E25BHD actuator.

**Order Instructions and Weight**

| Description | Weight (mass) [kg] | Order No. |
|---|---|---|
| Adapter Plate Type MA3-50 | 2.3 | **12277FIL** |

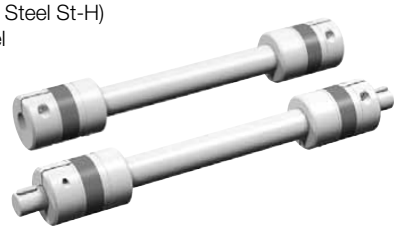
**Linear Acutators** see page 11 ff, 27 ff, 39 ff, 43 ff, 53 ff, 67 ff, 79 ff

## Complete Intermediate Drive Shaft - Size 20, 25, 32, 50

for Actuator Series OSP-E..BHD

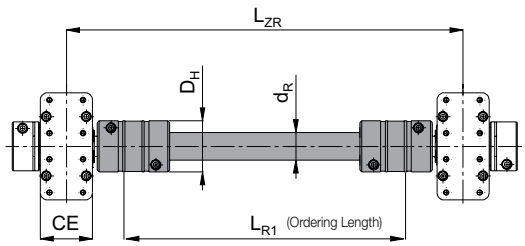
**Note:** For Series OSP-E..BHD with integrated gearbox, please contact your local Parker technical support.

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

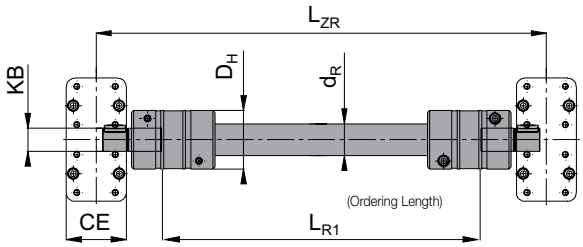


**Features:**
- Backlash-free shaft connection under pre-stress
- Design up to speed 1500 rpm
- Intermediate Drive Shaft with Double Coupling for Larger Displacements of Parallel Actuators
- Easy to Mount

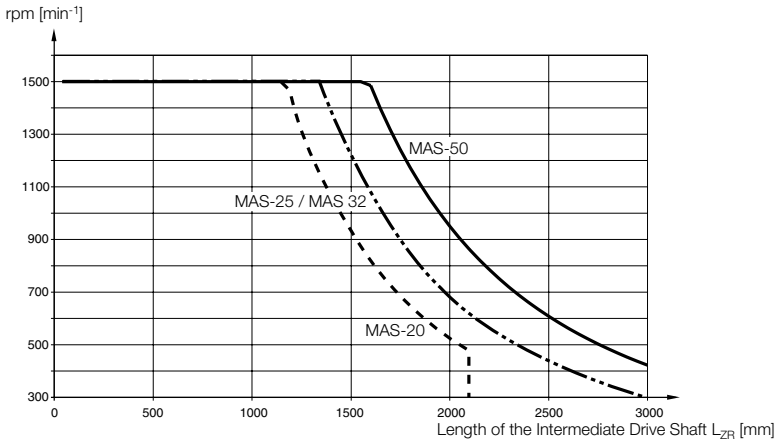
**Intermediate Drive Shaft with Clamp Shaft**
**Series OSP-E25BHD to E50BHD, Type MAS-..**




**Intermediate Drive Shaft with Plain Shaft and Keyway**
**Series OSP-E25BHD to E50BHD, Type MAS-..**




## Critical Speed v. for Coupling Length




## Characteristics / Dimension [mm] and Order Instructions

| Series | Type | Max. Torque [Nm] ** | CE | DH | KB*** | LZR | LR1 | dR | Order No. * for clamp shaft | for hollow shaft |
|---|---|---|---|---|---|---|---|---|---|---|
| OSP-E20BHD | MAS-20 | 28 | 38 | 40 | $12_{k6}$ | < 2100 | $L_{ZR}$ - 98 | 20 x 3,0 | **16256 - ...** | **16257 - ...** |
| OSP-E25BHD | MAS-25 | 39 | 42 | 55 | $16_{k6}$ | < 3000 | $L_{ZR}$ - 112 | 25 x 2,5 | **12305 - ...** | **12281 - ...** |
| OSP-E32BHD | MAS-32 | 42 | 56 | 55 | $22_{k6}$ | < 3000 | $L_{ZR}$ - 126 | 25 x 2,5 | **12306 - ...** | **12282 - ...** |
| OSP-E50BHD | MAS-50 | 102 | 87 | 65 | $32_{k6}$ | < 3000 | $L_{ZR}$ - 167 | 35 x 4,0 | **12307 - ...** | **12283 - ...** |

* Complete with $L_{R1}$ in mm. Example: 12305 - 1200 (Length $L_{R1}$ = 1200 mm)
** For higher torque requirement, please contact your local Parker technical support
*** Other dimensions for KB on request.



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**Mounting Dimensions for Motor and Gears**

| Code | Description | A | B* | D | E | F | G |
|---|---|---|---|---|---|---|---|
| **for motor and gears with clearance mounting holes** | | | | | | | |
| A0 | SY563T | 66.50 | M4 | 38.10 | 2.50 | 6.35 | 21.00 |
| A1 | SY873T | 99.00 | M6 | 73.00 | 3.00 | 9.52 | 31.50 |
| A2 | SMx60 xx xxx 8 11 … | 63.00 | M5 | 40.00 | 2.50 | 11.00 | 23.00 |
| A3 | SMx82 xx xx 8 14 … | 100.00 | M6 | 80.00 | 3.50 | 14.00 | 30.00 |
| A4 | SMx100 xx xx 5 19… | 115.00 | M8 | 95.00 | 3.50 | 19.00 | 40.00 |
| A5 | SMx115 xx xx 5 24… / SMx142 xx xx 5 24… | 165.00 | M10 | 130.00 | 3.50 | 24.00 | 50.00 |
| A6 | SMx115 xx xx 5 28… / SMx142 xx xx 5 28… | 165.00 | M10 | 130.00 | 3.50 | 28.00 | 60.00 |
| A7 | PS60 | 70.00 | M5 | 50.00 | 11.00 | 16.00 | 40.00 |
| A8 | PS90 | 100.00 | M6 | 80.00 | 15.00 | 22.00 | 52.00 |
| A9 | PS115 | 130.00 | M8 | 110.00 | 16.00 | 32.00 | 68.00 |
| **for gears with threaded mounting holes** | | | | | | | |
| C0 | LP050 / PV40-TA | 44.00 | S4 | 35.00 | 6.50 | 12.00 | 24.50 |
| C1 | LP070 / PV60-TA | 62.00 | S5 | 52.00 | 8.00 | 16.00 | 36.00 |
| C2 | LP090 / PV90-TA | 80.00 | S6 | 68.00 | 10.00 | 22.00 | 46.00 |
| C3 | LP120 | 108.00 | S8 | 90.00 | 12.00 | 32.00 | 70.00 |

* size of thread (e.g. M4) or counter bore (e.g. S4) used to mount motor or gear to the flange plate



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