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# Modular Pneumatic Linear Drive Systems





ORIGA SYSTEM PLUS


PDE2690TCUK May 2016



ENGINEERING YOUR SUCCESS.


# OSP-P Modular Pneumatic Linear Drive Systems

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**Important**

Before attempting any external or internal work on the cylinder or any connected components, make sure the cylinder is vented and disconnect the air supply in order to ensure isolation of the air supply.



**Note**

All technical data in this catalogue are typical data only.  
Air quality is essential for maximum cylinder service life (see ISO 8573).



**WARNING**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

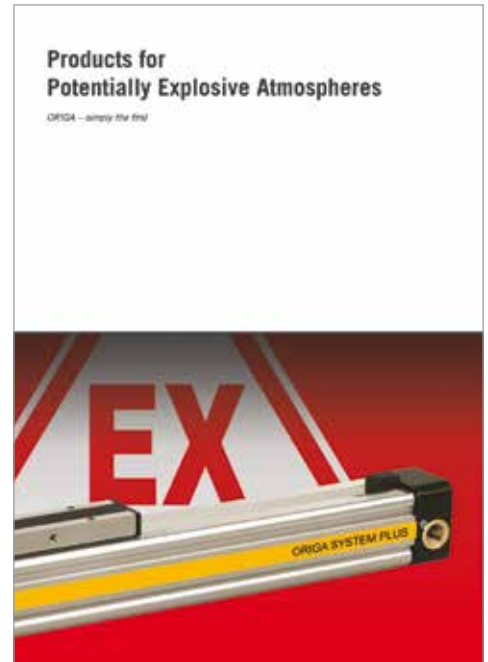
This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

**SALE CONDITIONS**

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered into by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).

**Parker Origa rodless pneumatic cylinders are the first rodless cylinders that have been approved for use in potentially explosive atmospheres in Equipment Group II, Category 2 GD.**

**The Cylinders are to the ATEX Certification 94/9/EG (ATEX 95) for Pneumatic Components.**



## Special Versions



for use in Ex-Areas



Low Temperature Version  
for temperatures down to  
-40°C



for Clean Room Applications  
certified to  
DIN EN ISO 14644-1



Slow Speed Version  
 $v = 0.005 - 0.2 \text{ m/s}$



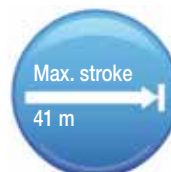
Stainless steel version  
for special applications



High Speed Version  
 $v_{max.} = 30 \text{ m/s}$



with special pneumatic  
cushioning system for cycle  
time optimization,  
for  $\varnothing 16$  to  $50 \text{ mm}$   
– on request



Cylinders with extreme long  
strokes  
Stroke length up to  $41 \text{ m}$



High Temperature Version  
for temperatures up to  
 $+120^\circ\text{C}$

# One Concept - Three Drive Options

Based on the Parker Origa rodless cylinder, proven in world wide markets, Parker Origa now offers the complete solution for linear drive systems. Designed for absolute reliability, high performance, ease of use and optimised engineering the ORIGA SYSTEM PLUS satisfies even the most demanding applications.

## ORIGA SYSTEM PLUS

is a totally modular concept which offers the choice of pneumatic or electric actuation, with guidance and control modules to suit the exact needs of individual installations.

The actuators at the core of the system all have a common aluminium extruded profile, with double dovetail mounting rails on three sides, these are the

principle building blocks of the system to which all modular options are directly attached.



### SYSTEM MODULARITY

#### • Pneumatic Drive

- For all round versatility and convenience, combining ease of control and broad performance capability. Ideally suited for point-to-point operations, reciprocating movements and simple traverse / transfer applications.

#### • Electric Screw Drive

- For high force capability and accurate path and position control.

For additional informations on electrical linear drives OSP-E, please refer to catalogue P-A4 P017E.

#### • Electric Belt Drive

- For high speed applications, accurate path and position control and longer strokes.

For additional informations on electrical linear drives OSP-E, please refer to catalogue P-A4 P017E.

- Different guidance options provide the necessary level of precision, performance and duty for various applications.
- Compact solutions, which are simple to install and can be easily retro-fitted.
- Valves and control options can be directly mounted to the actuator system.
- Diverse mounting options to provide total installation flexibility.





**\* Information on electrical linear drives series OSP-E, please refer to catalogue P-A4P017GB**

<p>Basic Linear Drive Standard Version</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E* Belt drive Belt drive with integrated Guides Vertical belt drive with recirculating ball bearing guide</li> <li>• Series OSP-E* Screw drive (Ball Screw, Trapezoidal Screw)</li> </ul>		<p>BASIC GUIDE</p> <ul style="list-style-type: none"> <li>• Series OSP-P-BG</li> </ul>	
<p>Air Connection on the End-face or both at One End</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>		<p>Duplex Connection</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>	
<p>Long-Stroke Cylinders for strokes up to 41 m</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>		<p>Multiplex Connection</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>	
<p>Clean Room Cylinder certified to DIN EN ISO 14644-1</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E..SB</li> </ul>		<p>Linear Guides – SLIDELINE</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Screw drive*</li> </ul>	
<p>Products for ATEX Areas</p> <ul style="list-style-type: none"> <li>• Series OSP-P Rodless Cylinders</li> </ul> 		<p>Linear Guides – POWERSLIDE</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>	
<p>Products for ATEX Areas</p> <ul style="list-style-type: none"> <li>• Series OSP-P Rodless Cylinders with Linear Guide BASIC GUIDE</li> </ul> 		<p>Linear Guides – PROLINE</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>	
<p>Products for ATEX Areas</p> <ul style="list-style-type: none"> <li>• Series OSP-P Rodless Cylinders with Linear Guide SLIDELINE</li> </ul> 		<p>Linear Guides – STARLINE</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>	
<p>Bi-parting Version</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>		<p>Linear Guides – KF</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>	
<p>Integrated 3/2 Way Valves</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>		<p>Heavy Duty Linear Guides – HD</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Screw drive*</li> </ul>	
<p>Clevis Mounting</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>		<p>Intermediate stop module – ZSM</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> </ul>	
<p>End Cap Mounting</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>		<p>Brakes</p> <ul style="list-style-type: none"> <li>• Active Brakes</li> <li>• Passive Brakes</li> </ul>	
<p>Mid-Section Support</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>		<p>Magnetic Switches</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> <li>• ATEX-Versions</li> </ul> 	
<p>Inversion Mounting</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>		<p>SENSOFLEX-Measuring system</p> <ul style="list-style-type: none"> <li>• Series SFI-plus</li> </ul>	
<p>Inversion Mounting</p> <ul style="list-style-type: none"> <li>• Series OSP-P</li> <li>• Series OSP-E Belt drive*</li> <li>• Series OSP-E Screw drive*</li> </ul>		<p>Variable Stop VS</p> <ul style="list-style-type: none"> <li>• Series OSP-P with Linear Guide STL, KF, HD</li> </ul>	

## OSP-P Modular Pneumatic Linear Drive Systems

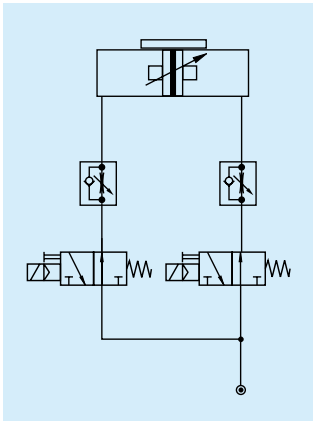
Linear Drives	OSP-P10	OSP-P16	OSP-P25	OSP-P32	OSP-P40	OSP-P50	OSP-P63	OSP-P80
Theoretical force at 6 bar [N]	47	120	295	483	754	1178	1870	3010
Effective force at 6 bar [N]	32	78	250	420	640	1000	1550	2600
Velocity v [m/s]	>0.005	>0.005	>0.005	>0.005	>0.005	>0.005	>0.005	>0.005
Magnetic piston (three sides)	X	☐	☐	☐	☐	☐	☐	☐
Lubrication - prelubricated	☐	☐	☐	☐	☐	☐	☐	☐
Multiple air ports (4 x 90°)	X	☐	☐	☐	☐	☐	☐	☐
Both Air Connections at End-face	X	○	○	○	○	○	○	○
Air Connection on the End-face	X	○	○	○	○	○	○	○
Cushioning	☐	☐	☐	☐	☐	☐	☐	☐
Cushioning length [mm]	2,50	11	17	20	27	30	32	39
Stroke length [mm]	1 - 6000	1 - 6000	1 - 6000	1 - 6000	1 - 6000	1 - 6000	1 - 6000	1 - 6000
Pressure range $p_{max}$ [bar]	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Temperature range [°C]	-10 - +80	-10 - +80	-10 - +80	-10 - +80	-10 - +80	-10 - +80	-10 - +80	-10 - +80
Viton / chemical resistance	○	○	○	○	○	○	○	○
Stainless steel parts	○	○	○	○	○	○	○	○
Clevis Mounting	○	○	○	○	○	○	○	○
Slow speed lubrication	○	○	○	○	○	○	○	○
Duplex Connection / Multiplex Connection	X	on request	○	○	○	○	on request	on request
Tandem piston	○	○	○	○	○	○	○	○
<b>Basic Cylinder</b>								
F [N]	20	120	300	450	750	1200	1650	2400
$M_x$ [Nm]	0.2	0.45	1.5	3	6	10	12	24
$M_y$ [Nm]	1	4	15	30	60	115	200	360
$M_z$ [Nm]	0.3	0.5	3	5	8	15	24	48
<b>Basic Guide</b>								
F [N]	X	X	590	850	1600	2000	X	X
$M_x$ [Nm]	X	X	10	17	39	67	X	X
$M_y$ [Nm]	X	X	28	43	110	165	X	X
$M_z$ [Nm]	X	X	28	43	110	165	X	X
<b>Slideline</b>								
F [N]	X	325	675	925	1600	2000	2500	2500
$M_x$ [Nm]	X	6	14	29	50	77	120	120
$M_y$ [Nm]	X	11	34	60	110	180	260	260
$M_z$ [Nm]	X	11	34	60	110	180	260	260
<b>Proline</b>								
F [N]	X	542	857	1171	2074	3111	X	X
$M_x$ [Nm]	X	8	16	29	57	111	X	X
$M_y$ [Nm]	X	12	39	73	158	249	X	X
$M_z$ [Nm]	X	12	39	73	158	249	X	X
<b>Powerslide</b>								
F [N]	X	1400	1400 - 3000	1400 - 3000	3000	3000 - 4000	X	X
$M_x$ [Nm]	X	14	14 - 65	20 - 65	65 - 90	90 - 140	X	X
$M_y$ [Nm]	X	45	63 - 175	70 - 175	175 - 250	250 - 350	X	X
$M_z$ [Nm]	X	45	63 - 175	70 - 175	175 - 250	250 - 350	X	X
<b>Starline</b>								
F [N]	X	1000	3100	3100	4000-7500	4000-7500	X	X
$M_x$ [Nm]	X	15	50	62	150	210	X	X
$M_y$ [Nm]	X	30	110	160	400	580	X	X
$M_z$ [Nm]	X	30	110	160	400	580	X	X
- variable Stop	X	○	○	○	○	○	X	X

## OSP-P Modular Pneumatic Linear Drive Systems

Linear Drives	OSP-P10	OSP-P16	OSP-P25	OSP-P32	OSP-P40	OSP-P50	OSP-P63	OSP-P80
<b>KF-Guide</b>								
F [N]	X	1000	3100	3100	4000-7100	4000-7500	X	X
M <sub>x</sub> [Nm]	X	12	35	44	119	170	X	X
M <sub>y</sub> [Nm]	X	25	90	133	346	480	X	X
M <sub>z</sub> [Nm]	X	25	90	133	346	480	X	X
- variable Stop	X	○	○	○	○	○	X	X
<b>HD Heavy Duty Guide</b>								
F [N]	X	X	6000	6000	15000	18000	X	X
M <sub>x</sub> [Nm]	X	X	260	285	800	1100	X	X
M <sub>y</sub> [Nm]	X	X	320	475	1100	1400	X	X
M <sub>z</sub> [Nm]	X	X	320	475	1100	1400	X	X
- Variable Stop	X	X	○	○	○	○	X	X
- Intermediate stop module	X	X	○	X	X	X	X	X
<b>ACTIVE Brake</b>								
Braking force at 6 bar (brake surface dry) [N]	X	X	350	590	900	1400	2170	4000
<b>Slideline SL / Proline PL with Brakes</b>								
ACTIVE Brake								
SL Braking force at 6 bar (brake surface dry) [N]	X	X	325	545	835	1200	X	X
PL Braking force at 6 bar (brake surface dry) [N]	X	X	on request	on request	on request	on request	X	X
Passive Brake Multibrake								
SL Braking force (brake surface dry) [N]	X	X	470	790	1200	1870	2900	2900
PL Braking force (brake surface dry) [N]	X	X	315	490	715	1100	-	-
<b>Magnetic Switches</b>								
T-Slot-Version	○	○	○	○	○	○	○	○
ATEX-Version for EX- Areas 	○	○	○	○	○	○	○	○
<b>Displacement measuring systems</b>								
SFI-plus incremental	X	X	○	○	○	○	○	○
<b>Integrated valves 3/2 WV NO VOE</b>	X	X	○	○	○	○	on request	on request
<b>Mountings</b>								
End Cap Mounting / Mid-Section Support	○	○	○	○	○	○	○	○
Inversion Mounting	X	○	○	○	○	○	○	○
Shock absorber for intermediate positioning	X	X	on request	on request	on request	on request	X	X
Adaptor Profile / T-Slot Profile	X	○	○	○	○	○	○/X	X
<b>Special Cylinders</b>								
Special Pneumactical Cushioning System	X	on request	on request	on request	on request	on request	X	X
Clean Room Cylinders to DIN EN ISO 14644-1	X	○	○	○	X	X	X	X
Long-Stroke Cylinders (max. stroke length 41 m)	X	X	X	X	X	○	○	○
ATEX-Version for EX-Areas 	○	○	○	○	○	○	○	○
Bi-parting Version	X	X	X	X	○	X	X	X
High-Speed up to 30 m/s	X	on request	on request	on request	X	X	X	X

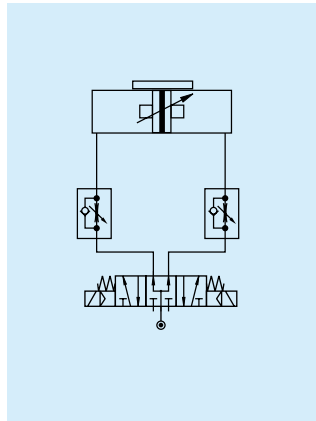
- = Standard version  
 ▲ = longer strokes on request  
 \* = other temperature ranges on request  
 ○ = Option  
 X = not applicable

**Control examples for OSP-P**



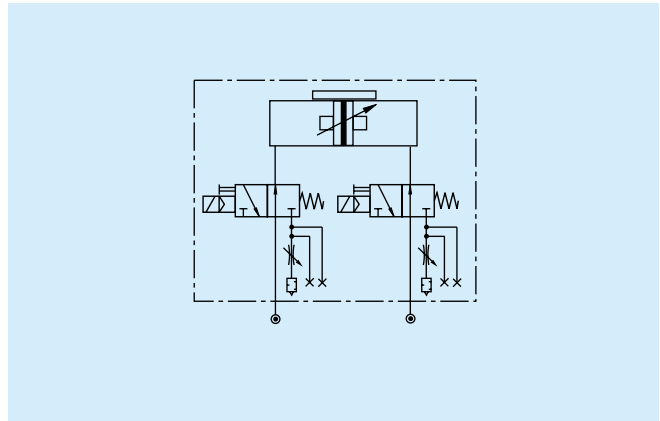
Circuit diagram for end of stroke application. Intermediate positioning is also possible.

The cylinder is controlled by two 3/2-way valves (normally open). The speed can be adjusted independantly for both directions.



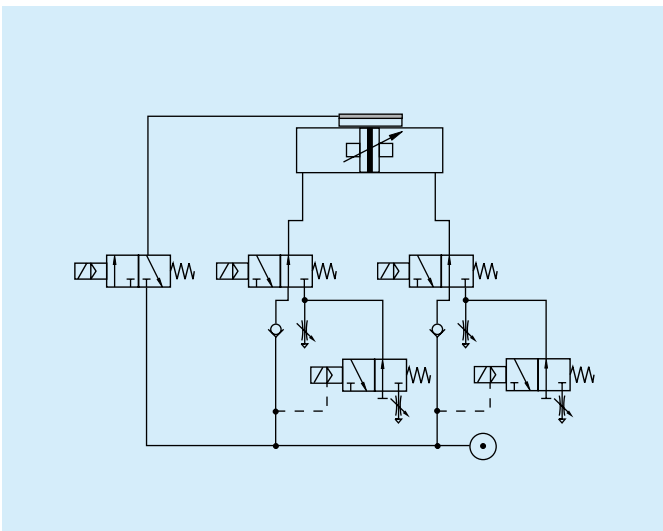
Circuit diagram for end of stroke application. Intermediate positioning is also possible.

The cylinder is controlled by a 5/3-way valve (middle position pressurized). The speed can be adjusted independantly for both directions.



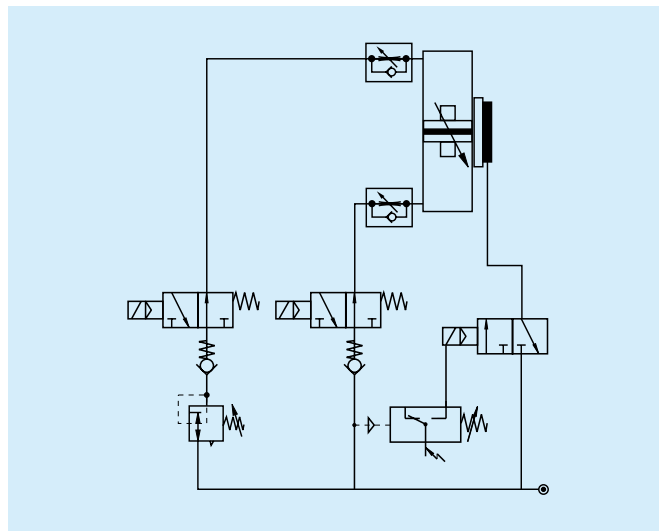
The optional integrated VVOE Valves offer optimal control, and allow accurate

positioning of intermediate positions and the lowest possible speeds.



Fast/Slow speed cycle control with pneumatic brake for accurate positioning at high velocities. Additional 3/2-way valves with adjustable throttle valves at the exhaust of the standard directional control valves for two displacement speeds

in each direction of the piston's travel. The valve controlling the brake is activated after the slow speed cycle is activated

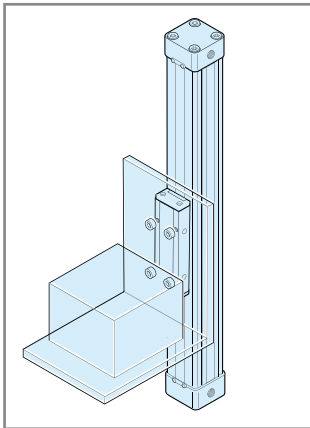


The combination of an OSP-cylinder with the passive MULTIBRAKE as shown here, allows accurate positioning and safety in case of loss of pneumatic air pressure.

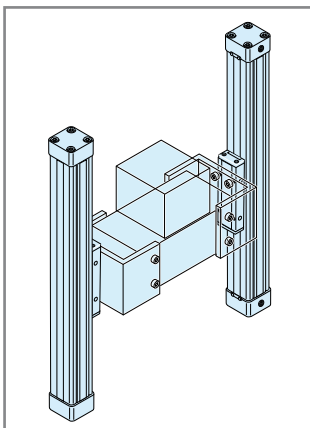
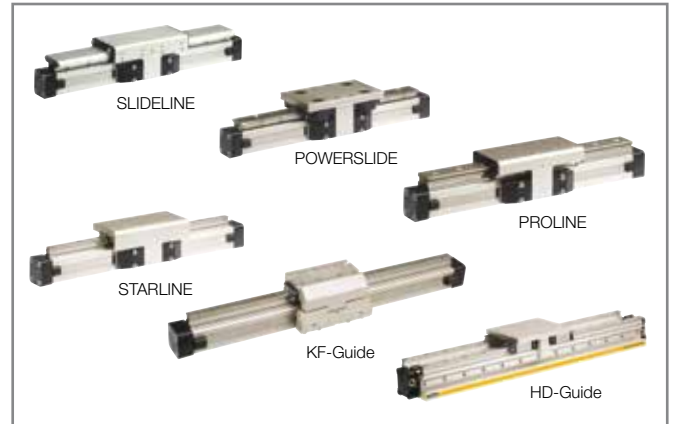


## OSP-P Application examples

**ORIGA SYSTEM PLUS** – rodless linear drives offer maximum flexibility for any application.



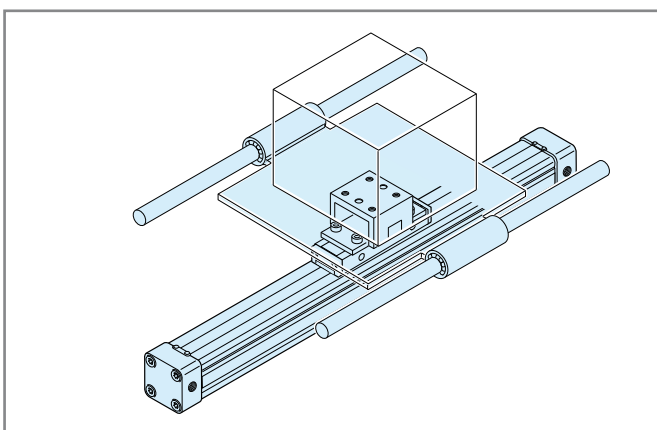
The high load capacity of the piston can cope with high bending moments without additional guides.



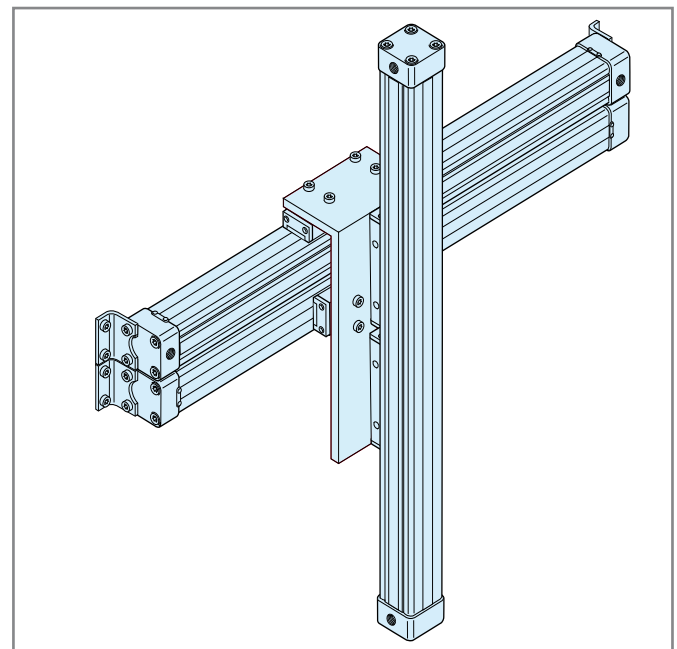
The mechanical design of the OSP-P allows synchronised movement of two cylinders.

Integrated guides offer optimal guidance for applications requiring high performance, easy assembly and maintenance free operation.

Optimal system performance by combining multi-axis cylinder combinations.



When using external guides, the clevis mounting is used to compensate for deviations in parallelism.




For further information and assembly instructions, please contact your local Parker Origa dealer.



# Rodless Pneumatic Cylinders

## OSP-P Series



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# Origa System Plus

## - Innovation from a proven design

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

### A NEW MODULAR LINEAR DRIVE SYSTEM

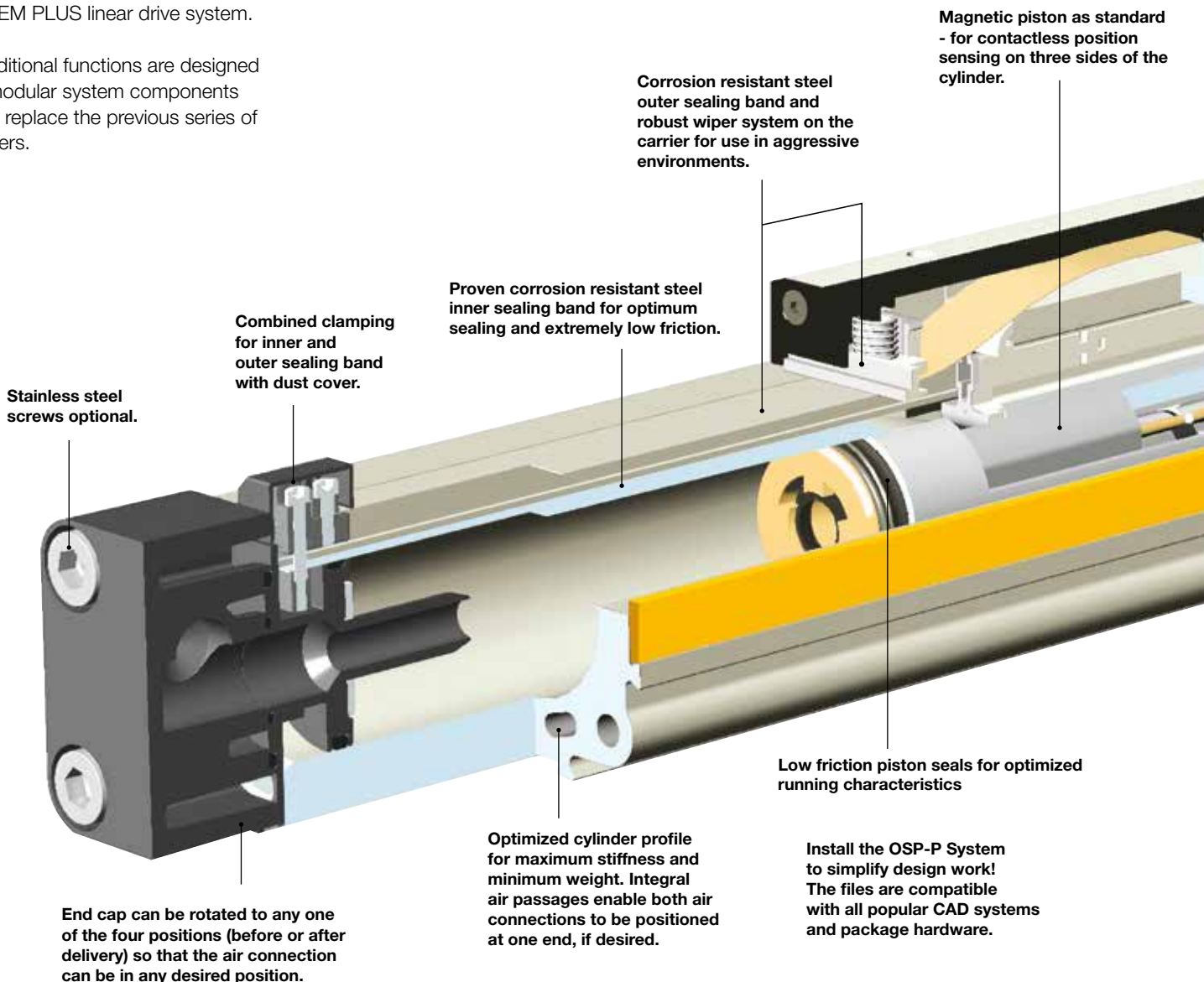
With this second generation linear drive Parker Origa offers design engineers complete flexibility. The well known ORIGA cylinder has been further developed into a combined linear actuator, guidance and control package. It forms the basis for the new, versatile ORIGA SYSTEM PLUS linear drive system.

All additional functions are designed into modular system components which replace the previous series of cylinders.

### MOUNTING RAILS ON 3 SIDES

Mounting rails on 3 sides of the cylinder enable modular components such as linear guides, brakes, valves, magnetic switches etc. to be fitted to the cylinder itself. This solves many installation problems, especially where space is limited.

The modular system concept forms an ideal basis for additional customer specific functions.



# OSP-P Modular Pneumatic Linear Drive Systems

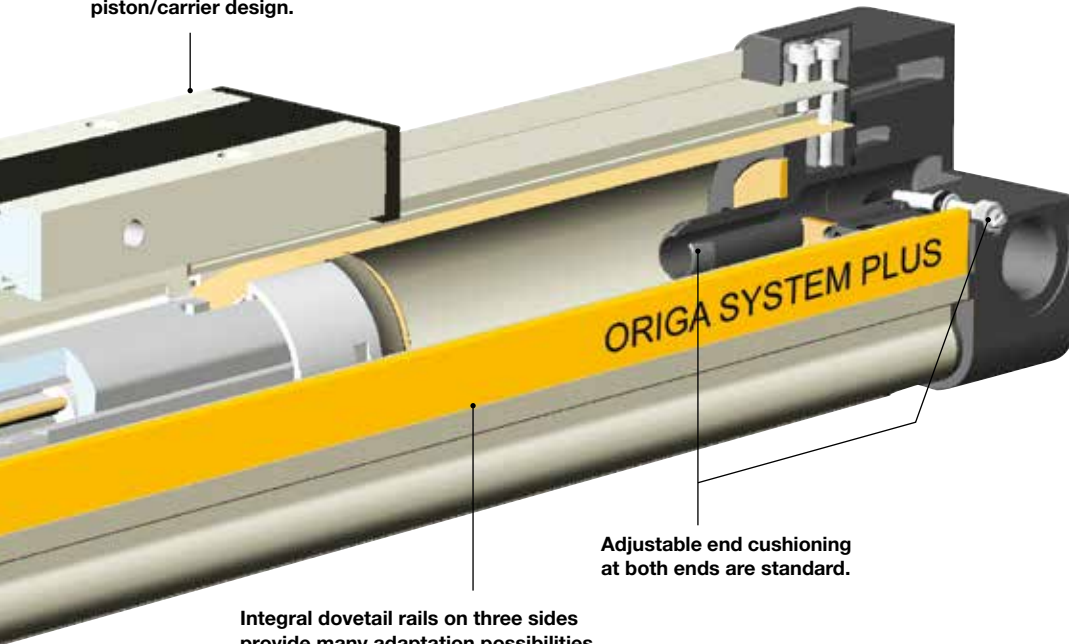
**Clean Room Version**  
certified to DIN EN ISO 14644-1



**Rodless Cylinder**  
for synchronized bi-parting movements



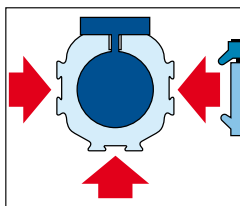
New low profile piston/carrier design.



Adjustable end cushioning at both ends are standard.

Integral dovetail rails on three sides provide many adaptation possibilities (linear guides, magnetic switches, etc.).

Modular system components are simply clamped on.



**INTEGRATED VOE VALVES**  
The complete compact solution for optimal cylinder control.



**SENSOFLEX SFI-plus**  
incremental measuring system with 0.1 (1.0) mm resolution.



**BASIC GUIDE**  
Compact, robust plain bearing guide for medium loads.



**SLIDELINE**  
Guide system for moderate loads. Optional with Active- / Passive-Brake.



**POWERSLIDE**  
Roller guide for high loads and rough conditions.



**PROLINE**  
The compact aluminium roller guide for high loads and velocities. Optional with Active- / Passive-Brake.



**STARLINE**  
Recirculating ball bearing guide for very high loads and precision.



**KF GUIDE**  
Recirculating ball bearing guide – the mounting dimensions correspond to FESTO Type: DGPL-KF



**HEAVY DUTY GUIDE HD**  
for heavy duty applications.



**VARIABLE STOP VS**  
The variable stop provides simple stroke limitation.



**PASSIVE BRAKE**  
reacts automatically to pressure failure.



**ACTIVE BRAKE**  
pneumatic brake for secure, positive stopping at any position.



## Options and Accessories for system versatility

### Series OSP-P

#### STANDARD VERSIONS OSP-P10 to P80

Standard carrier with integral guidance. End cap can be rotated 4 x 90° to position air connection on any side.

Magnetic piston as standard.  
Dovetail profile for mounting of accessories and the cylinder itself.



#### LONG-STROKE VERSION

For extremely long strokes up to max. 41m



#### BASIC CYLINDER OPTIONS

##### CLEAN ROOM CYLINDERS

For use in clean room applications, certified with the IPA-Certificate (to DIN EN ISO 14644-1).

The special design of the linear drive enables all emissions to be led away.



##### ATEX-Version

For use in Ex-Areas



##### BOTH AIR CONNECTIONS AT ONE END

For simplified tubing connections and space saving.



##### STAINLESS VERSION

For use in constantly damp or wet environments. All screws are A2 quality stainless steel (material no.1.4301 / 1.4303)



##### INTEGRATED VOE VALVES

The complete compact solution for optimal cylinder control.



##### SLOW SPEED OPTIONS

Specially formulated grease lubrication facilitates slow, smooth and uniform piston travel in the speed range from 0.005 to 0.2 m/s.

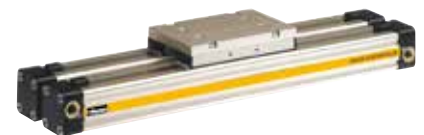
Minimum achievable speeds are dependent on several factors. Please consult our technical department.

Slow speed lubrication in combination with Viton® on demand. Oil free operation preferred.



##### DUPLEX CONNECTION

The duplex connection combines two OSP-P cylinders of the same size into a compact unit with high performance.



##### VITON® VERSION

For use in an environment with high temperatures or in chemically aggressive areas.

All seals are made of Viton®. Corrosion resistant steel sealing bands.



##### END-FACE AIR CONNECTION

To solve special installation problems.



##### MULTIPLEX CONNECTION

The multiplex connection combines two or more OSP-P cylinders of the same size into one unit.

The orientation of the carriers can be freely selected.





**ACCESSORIES**

**MAGNETIC SWITCHES  
TYPE RS, ES, RST, EST**

For electrical sensing of end and intermediate piston positions, also in EX-Areas.



**MOUNTING FOR  
OSP-P10 UP TO P80**

**CLEVIS MOUNTING**

Carrier with tolerance and parallelism compensation for driving loads supported by external linear guides.



**MID-SECTION SUPPORT**

For supporting long cylinders or mounting the cylinder by its dovetail rails.



**END CAP MOUNTING**

For end-mounting of the cylinder.



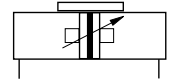
**INVERSION MOUNTING**

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



## OSP-P Modular Pneumatic Linear Drive Systems

### Rodless Pneumatic Cylinder Ø 10-80 mm




#### Standard Versions:

- Double-acting with adjustable end cushioning
- With magnetic piston for position sensing

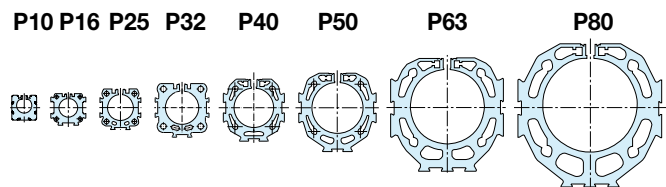
Long-Stroke Cylinders for stroke lengths up to 41 m  
See page 26



#### Special Versions:

- Cushioning system for cycle time optimization (on request)
- Clean room cylinders
- ATEX-Version 
- Stainless steel screws
- Slow speed lubrication
- Viton® seals
- Both air connections on one end
- Air connection on the end-face
- Integrated Valves
- End cap can be rotated 4 x 90° to position air connection as desired
- Free choice of stroke length up to 6000 mm, Long-Stroke version (Ø50-80mm) for stroke lengths up to 41 m

#### Size Comparison



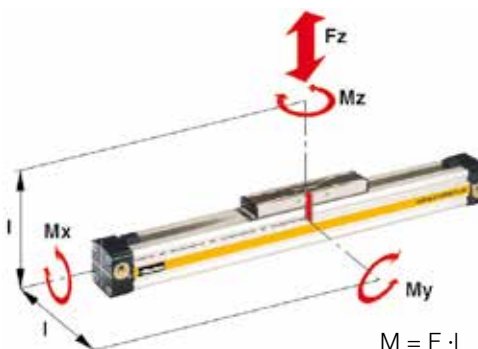
Characteristics	Description
<b>General Features</b>	
Type	Rodless cylinder
Series	OSP-P
System	Double-acting, with cushioning, position sensing capability
Mounting	See drawings
Air Connection	Threaded
Ambient temperature range	$T_{min}$ -10 °C Other temperature ranges $T_{max}$ +80 °C on request
Installation	In any position
Medium	Filtered, unlubricated compressed air (other media on request)
Lubrication	Permanent grease lubrication (additional oil mist lubrication not required) Option: special slow speed grease
<b>Material</b>	
Cylinder Profile	Anodized aluminium
Carrier (piston)	Anodized aluminium
End caps	Aluminium, lacquered / Plastic (P10)
Sealing bands	Corrosion resistant steel
Seals	NBR (Option: Viton®)
Screws	Galvanized steel Option: stainless steel
Dust covers, wipers	Plastic
Max. operating pressure $p_{max}$	8 bar

# OSP-P Modular Pneumatic Linear Drive Systems

## Loads, Forces and Moments

### Choice of cylinder is decided by:

- Permissible loads, forces and moments
- Performance of the pneumatic end cushions.



$M = F \cdot l$   
Bending moments are calculated from the centre of the linear actuator

The main factors here are the mass to be cushioned and the piston speed at start of cushioning (unless external cushioning is used, e. g. hydraulic shock absorbers).

The adjacent table shows the maximum values for light, shock-free operation, which must not be exceeded even in dynamic operation. Load and moment data are based on speeds  $v \leq 0.5$  m/s.

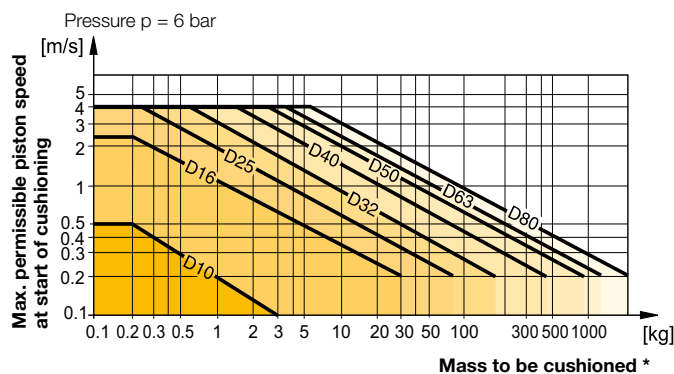
When working out the action force required, it is essential to take into account the friction forces generated by the specific application or load.

Cylinder-Series Ø [mm]	Theoretical Action Force at 6 bar [N]	effective Action Force $F_A$ at 6 bar [N]	max. Moments			max. Load F [N]	Cushion Length [mm]
			$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]		
<b>OSP-P10</b>	47	32	0.2	10.3	20	2.5 *	
<b>OSP-P16</b>	120	78	0.45	40.5	120	11	
<b>OSP-P25</b>	295	250	1.5	15	3	300	17
<b>OSP-P32</b>	483	420	3	30	5	450	20
<b>OSP-P40</b>	754	640	6	60	8	750	27
<b>OSP-P50</b>	1178	1000	10	115	15	1200	30
<b>OSP-P63</b>	1870	1550	12	200	24	1650	32
<b>OSP-P80</b>	3016	2600	24	360	48	2400	39

\* A rubber element (non-adjustable) is used for end cushioning. To deform the rubber element enough to reach the absolute end position would require a  $\Delta p$  of 4 bar!

## Cushioning Diagram

Work out your expected moving mass and read off the maximum permissible speed at start of cushioning. Alternatively, take your desired speed and expected mass and find the cylinder size required. Please note that piston speed at start of cushioning is typically ca. 50 % higher than the average speed, and that it is this higher speed which determines the choice of cylinder.



## Weight (mass) [kg]

Cylinder series (Basic cylinder)	Weight (Mass) [kg]	
	At 0 mm stroke	per 100 mm stroke
<b>OSP-P10</b>	0.087	0.052
<b>OSP-P16</b>	0.22	0.1
<b>OSP-P25</b>	0.65	0.197
<b>OSP-P32</b>	1.44	0.354
<b>OSP-P40</b>	1.95	0.415
<b>OSP-P50</b>	3.53	0.566
<b>OSP-P63</b>	6.41	0.925
<b>OSP-P80</b>	12.46	1.262

\* For cylinders with linear guides or brakes, please be sure to take the mass of the carriage or the brake housing into account.

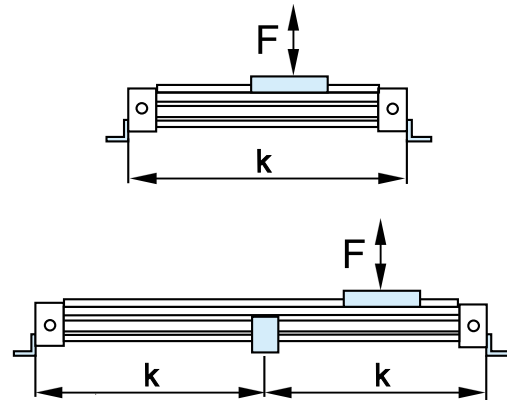
If the permitted limit values are exceeded, either additional shock absorbers should be fitted in the area of the centre of gravity or you can consult us about our special cushioning system – we shall be happy to advise you on your specific application.

**Mid-Section Supports**

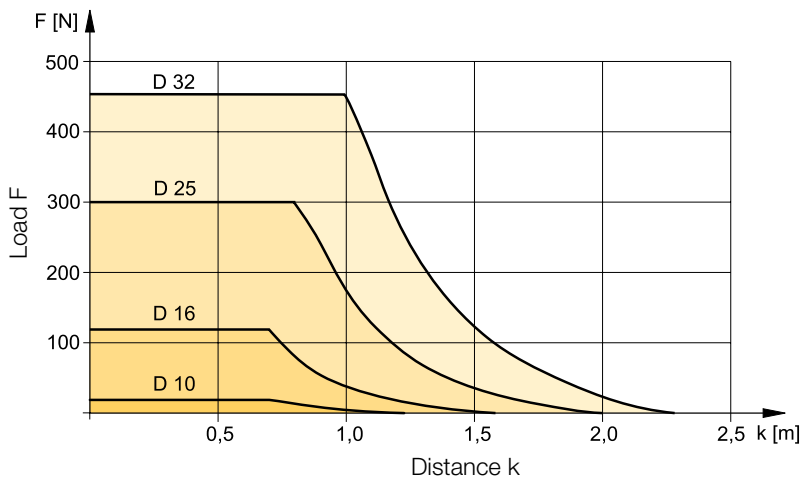
To avoid excessive bending and oscillation of the cylinder, mid-section supports are required dependent on specified stroke lengths and applied loads.

The diagrams show the maximum possible support spacings depending on the load.

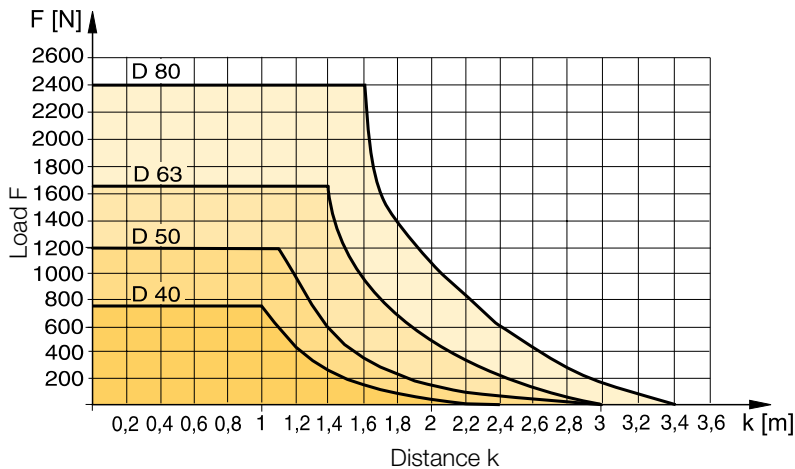
Bending up to max. 0.5 mm is permissible between supports. The mid-section supports are clamped on to the dovetail profile of the cylinder tube. They are also able to take the axial forces.



**Permissible Support Spacings: OSP - P10 - P32**



**Permissible Support Spacings: OSP - P40 - P80**

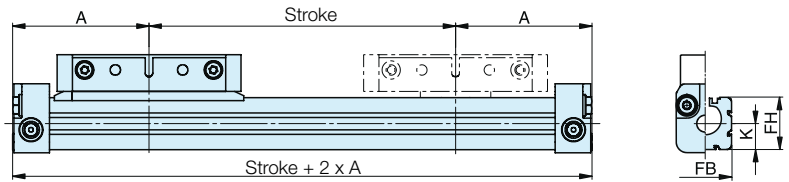


# OSP-P Modular Pneumatic Linear Drive Systems

## Cylinder Stroke and Dead Length A

- Free choice of stroke length up to 6000 mm in 1 mm steps.
- Longer strokes on request

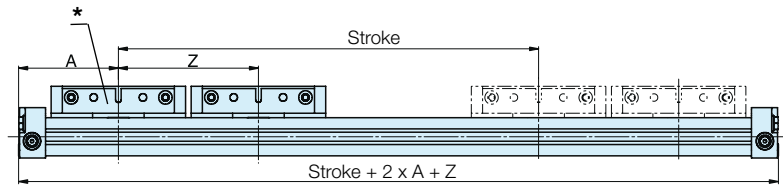
## Dimensions of Basic Cylinder OSP-P10



## Tandem Cylinder

Two pistons are fitted: dimension "Z" is optional. (Please note minimum distance "Zmin").

- Free choice of stroke length up to 6000 mm in 1 mm steps
- Longer strokes on request
- Stroke length to order is stroke + dimension "Z"

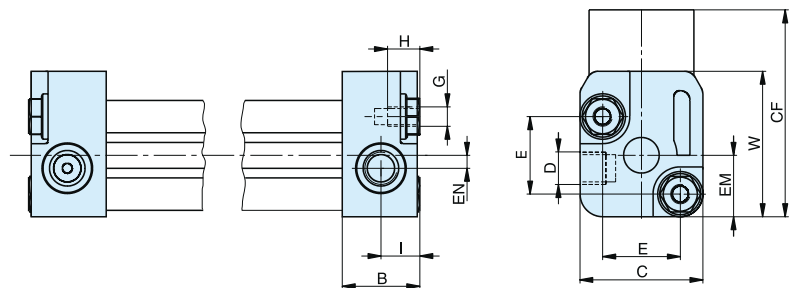


## End Cap / Air Connection - Series OSP-P10

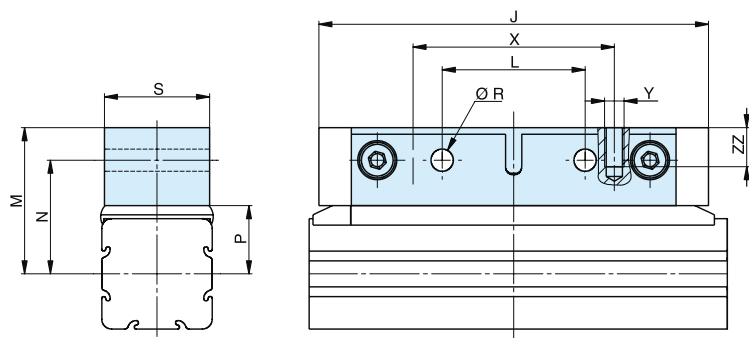
### Please note:

To avoid multiple actuation of magnetic switches, the second piston is not equipped with magnets.

\* Piston with magnet



## Carrier - Series OSP-P10



## Dimensions [mm]

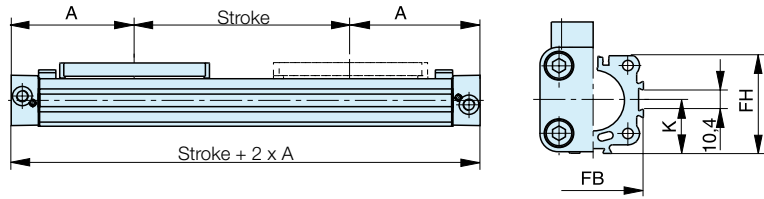
Series	A	B	C	D	E	G	H	I	J	K	L	M	N	P	R	S	W	X	Y	Z <sub>min</sub>	CF	EM	EN	FB	FH	ZZ
OSP-P10	44.5	12	19	M5	12	M3	5	6	60	8.5	22	22.5	17.5	10.5	3.4	16	22.5	31	M3	64	32	9.5	2	17	17	6

# OSP-P Modular Pneumatic Linear Drive Systems

## Cylinder Stroke and Dead Length A

- Free choice of stroke length up to 6000 mm in 1 mm steps.
- Longer strokes on request

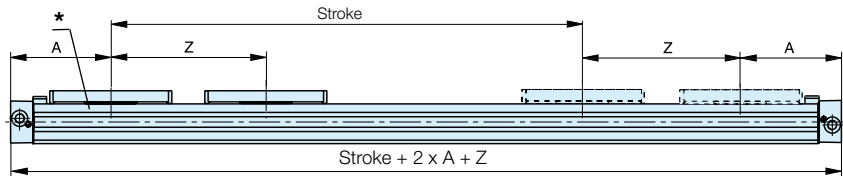
## Dimensions of Basic Cylinder OSP-P16\_P80



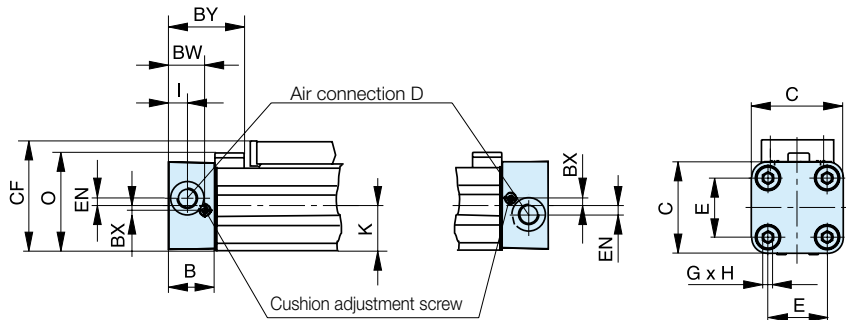
## Tandem Cylinder

Two pistons are fitted: dimension "Z" is optional. (Please note minimum distance "Zmin").

- Free choice of stroke length up to 6000 mm in 1 mm steps
- Longer strokes on request
- Stroke length to order is stroke + dimension "Z"



## End Cap/Air Connection can be rotated 4 x 90° Series OSP-P16 to P32

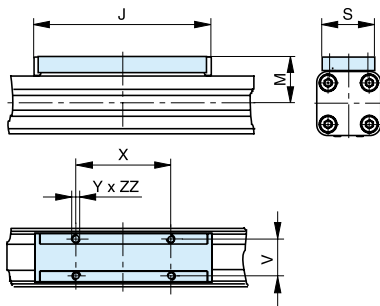


### Please note:

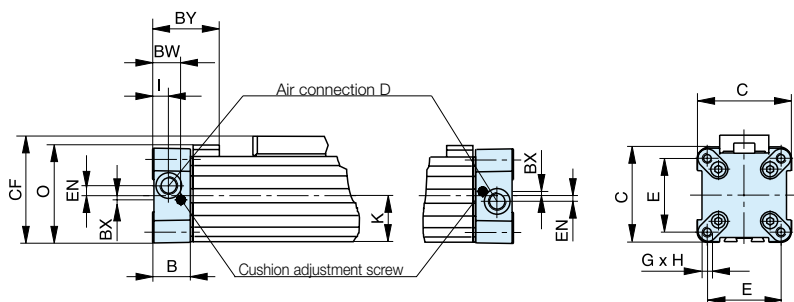
To avoid multiple actuation of magnetic switches, the second piston is not equipped with magnets.

\* Piston with magnet

## Carrier Series OSP-P16 to P80



## End Cap/Air Connection can be rotated 4 x 90° Series OSP-P40 to P80



## Dimensions [mm]

Series	A	B	C	D	E	G	H	I	J	K	M	O	S	V	X	Y	Z <sub>min</sub>	BW	BX	BY	CF	EN	FB	FH	ZZ
OSP-P16	65	14	30	M5	18	M3	9	5.5	69	15	23	33.2	22	16.5	36	M4	81	10.8	1.8	28.4	38	3	30	27.2	7
OSP-P25	100	22	41	G1/8	27	M5	15	9	117	21.5	31	47	33	25	65	M5	128	17.5	2.2	40	52.5	3.6	40	39.5	8
OSP-P32	125	25.5	52	G1/4	36	M6	15	11.5	152	28.5	38	59	36	27	90	M6	170	20.5	2.5	44	66.5	5.5	52	51.7	10
OSP-P40	150	28	69	G1/4	54	M6	15	12	152	34	44	72	36	27	90	M6	212	21	3	54	78.5	7.5	62	63	10
OSP-P50	175	33	87	G1/4	70	M6	15	14.5	200	43	49	86	36	27	110	M6	251	27	-	59	92.5	11	76	77	10
OSP-P63	215	38	106	G3/8	78	M8	21	14.5	256	54	63	107	50	34	140	M8	313	30	-	64	117	12	96	96	16
OSP-P80	260	47	132	G1/2	96	M10	25	22	348	67	80	133	52	36	190	M10	384	37.5	-	73	147	16.5	122	122	20



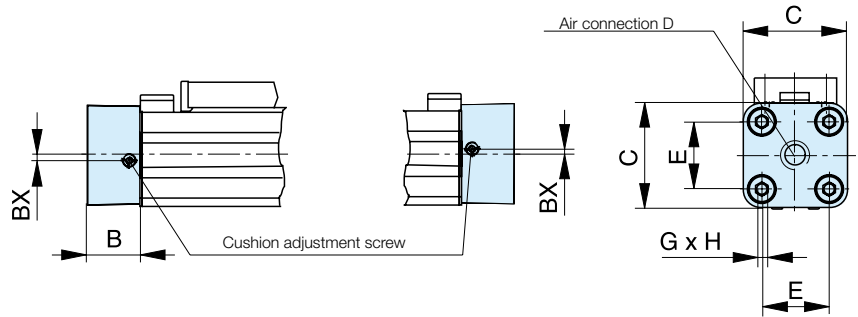
## OSP-P Modular Pneumatic Linear Drive Systems

### Air Connection on the End-face

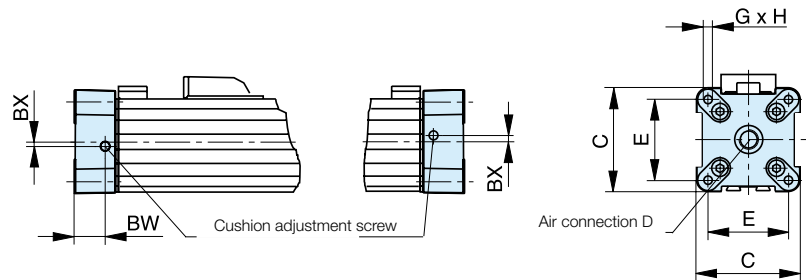


In some situations it is necessary or desirable to fit a special end cap with the air connection on the end-face instead of the standard end cap with the air connection on the side. The special end cap can also be rotated 4 x 90° to locate the cushion adjustment screw as desired. Supplied in pairs.

### Dimensions - Series OSP-P16 to P32



### Dimensions - Series OSP-P40 to P80



### Dimensions [mm]

Series	B	C	D	E	G	H	BX	BW
OSP-P16	14	30	M5	18	M3	9	1.8	10.8
OSP-P25	22	41	G1/8	27	M5	15	2.2	17.5
OSP-P32	25.5	52	G1/4	36	M6	15	2.5	20.5
OSP-P40	28	69	G1/4	54	M6	15	3	21
OSP-P50	33	87	G1/4	70	M6	15	-	27
OSP-P63	38	106	G3/8	78	M8	21	-	30
OSP-P80	47	132	G1/2	96	M10	25	-	37.5

# OSP-P Modular Pneumatic Linear Drive Systems

## Both Air Connections at One End

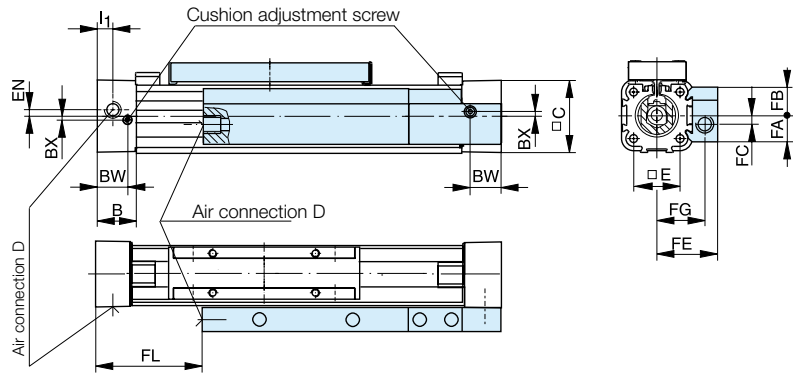


A special end cap with both air connections on one side is available for situations where shortage of space, simplicity of installation or the nature of the process make it desirable. Air supply to the other end is via internal air passages (OSP-P25 to P80) or via a hollow aluminium profile fitted externally (OSP-P16). In this case the end caps cannot be rotated.

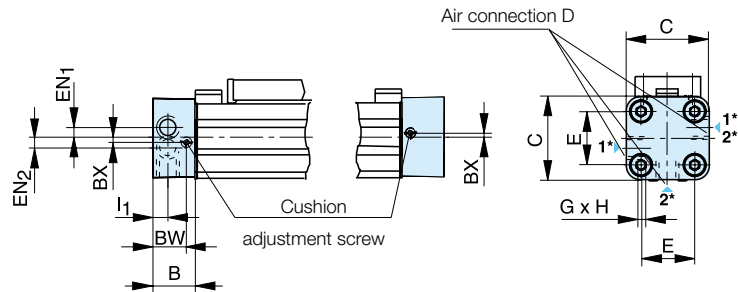
### Please note:

When combining the OSP-P16 single end porting with inversion mountings, RS magnetic switches can only be mounted directly opposite to the external air-supply profile.

## Dimensions - Series OSP-P16

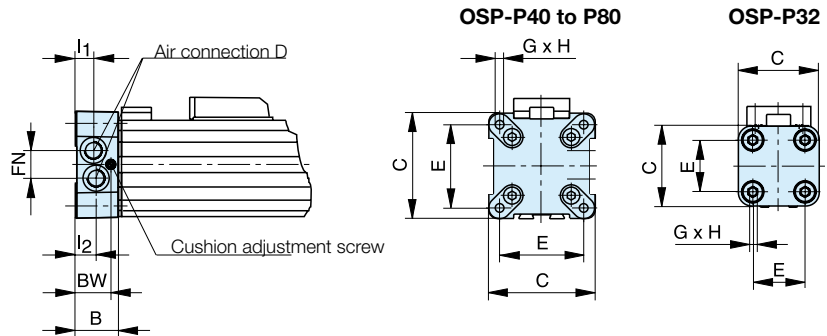


## Dimensions - Series OSP-P25



\* Versions of air connection positions 1=>1 or 2=>2, the unused connection must be closed!

## Dimensions - Series OSP-P32 to P80



## Dimensions [mm]

Series	B	C	D	E	G	H	I <sub>1</sub>	I <sub>2</sub>	BX	BW	EN	EN <sub>1</sub>	EN <sub>2</sub>	FA	FB	FC	FE	FG	FL	FN
OSP-P16	14	30	M5	18	M3	9	5.5	-	1.8	10.8	3	-	-	12.6	12.6	4	27	21	36	-
OSP-P25	22	41	G1/8	27	M5	15	9	-	2.2	17.5	-	3.6	3.9	-	-	-	-	-	-	-
OSP-P32	25.5	52	G1/8	36	M6	15	12.2	10.5	-	20.5	-	-	-	-	-	-	-	-	-	15.2
OSP-P40	28	69	G1/8	54	M6	15	12	12	-	21	-	-	-	-	-	-	-	-	-	17
OSP-P50	33	87	G1/4	70	M6	15	14.5	14.5	-	27	-	-	-	-	-	-	-	-	-	22
OSP-P63	38	106	G3/8	78	M8	21	16.5	13.5	-	30	-	-	-	-	-	-	-	-	-	25
OSP-P80	47	132	G1/2	96	M10	25	22	17	-	37.5	-	-	-	-	-	-	-	-	-	34.5

**Integrated 3/2 Way Valves VOE  
Series OSP-P25, P32, P40 and P50**



For optimal control of the OSP-P cylinder, 3/2 way valves integrated into the cylinder's end caps can be used as a compact and complete solution. They allow for easy positioning of the cylinder, smooth operation at the lowest speeds and fast response, making them ideally suited for the direct control of production and automation processes.

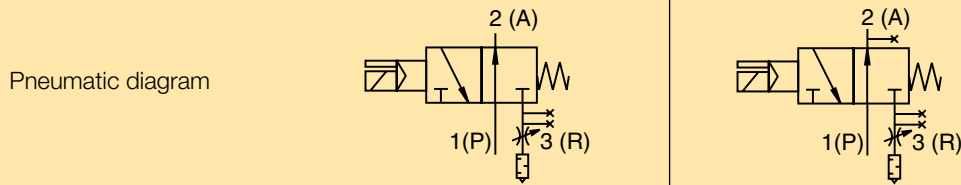


**Features:**

- Complete compact solution
- Various connection possibilities:  
Free choice of air connection with rotating end caps with VOE valves, Air connection can be rotated 4 x 90°
- Solenoid can be rotated 4 x 90°,
- Pilot valve can be rotated 180°
- High piston velocities can be achieved with max. 3 exhaust ports
- Minimal installation requirements
- Requires just one air connection per valve
- Optimal control of the OSP-P cylinder
- Excellent positioning characteristics
- Integrated operation indicator
- Integrated exhaust throttle valve
- Manual override - indexed
- Adjustable end cushioning
- Easily retrofitted – please note the increase in the overall length of the cylinder!

**Characteristics 3/2 Way Valves VOE**

Characteristics 3/2 Way Valves with spring return



Type	VOE-25	VOE-32	VOE-40	VOE-50
Actuation	electrical			
Basic position	P → A open, R closed			
Type	Poppet valve, non overlapping			
Mounting	integrated in end cap			
Installation	in any position			
Port size	G 1/8	G 1/4	G 3/8	G 3/8
Temperature	-10°C to +50°C *			
Operating pressure	2-8 bar			
Nominal voltage	24 V DC		/	230 V AC, 50 Hz
Power consumption	2.5 W		/	6 VA
Duty cycle	100%			
Electrical Protection	IP 65 DIN 40050			

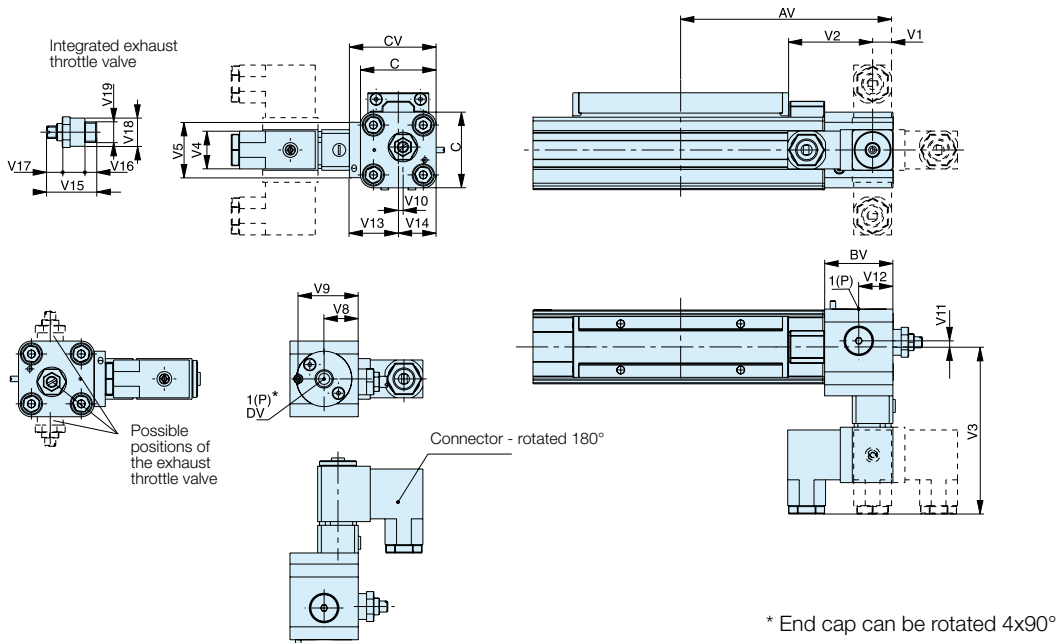
\* other temperature ranges on request

For further technical information see catalogue P-A4P011GB



# OSP-P Modular Pneumatic Linear Drive Systems

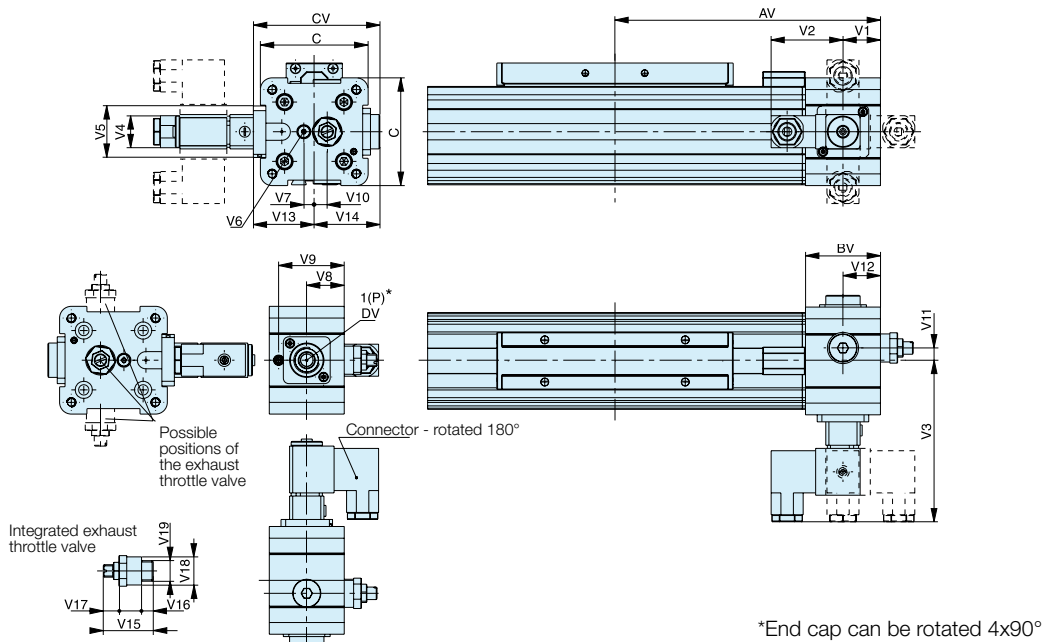
## Dimensions - VOE Valves OSP-P25 and P32



### Dimensions [mm]

Series	AV	BV	C	CV	DV	V1	V2	V3	V4	V5	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19
<b>OSP-P25</b>	115	37	41	47	G1/8	11	46	90.5	22	30	18.5	32.5	2.5	3.3	18.5	26.5	20.5	24	5	4	14	G1/8
<b>OSP-P32</b>	139	39.5	52	58	G1/4	20.5	46	96	22	32	20.5	34.7	6	5	20.5	32	26	32	7.5	6	18	G1/4

## Dimensions - VOE Valves OSP-P40 and P50



### Dimensions [mm]

Series	AV	BV	C	CV	DV	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19
<b>OSP-P40</b>	170	48	69	81	G3/8	24	46	103	22	33	M5	6.7	24	42	8.3	8.3	24	39	42	32	7.5	6	18	G1/4
<b>OSP-P50</b>	190	48	87	82	G3/8	24	46	102	22	33	M5	4.5	24	42	12.2	12.2	24	38	44	32	7.5	6	18	G1/4

Order Instructions - Basic Cylinder

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
OSPP	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

<b>Piston-Ø</b>	<b>Stroke Length</b> In mm (5 digits)	<b>Piston Mounting</b>	<b>add. Guide Carriage</b>	<b>Measuring system</b>
10		0 without	0 without	0 without
16		1 clevis mounting		X SFI 0.1 mm
25				Y SFI 1 mm
32				
40				
50				
63				
80				

<b>Screws</b>	<b>Cushioning</b>	<b>Version / Piston</b>	<b>Lubrication</b>	<b>End cap position</b>	<b>Guides/ Brakes/ Inversion</b>	<b>Cover / Cable Channel</b>
0 standard	0 standard	0 standard	0 standard	0 l+r 0° = in front	0 without	0 standard
1 Stainless	1 max. length <sup>3)</sup>	1 Tandem	1 slow speed <sup>2)3)</sup>	1 l+r 90° = underneath	A Activebrake AB Ø 25-80	1 Cable channel
				2 l+r 180° = at the back	M Inversion Ø 16-80	2 Cable channel two-sided
				3 l+r 270° = same side as outerband	N Duplex Ø 25,32,40,50	X without cover rail

<b>Air Connection</b>	<b>Seals</b>
0 standard	0 standard (NBR)
1 end face	1 Viton <sup>® 1)</sup>
2 both at one end	
3 left stand. right end face	
4 right stand. left end face	
A 3/2 Way valve VOE 24 V = Ø 25,32,40,50	
B 3/2 Way valve VOE 230 V~ / 110 V= Ø 25,32,40,50	
C 3/2 Way valve VOE 48 V = Ø 25,32,40,50	
E 3/2 Way valve VOE 110 V~ Ø 25,32,40,50	

<b>7</b>	l 0° = in front; r 90° = underneath
<b>8</b>	l 180° = at the back; r 90° = underneath
<b>9</b>	l 270° = same side as outerband; r 90° = underneath
<b>A</b>	l 0° = in front; r 180° = at the back
<b>B</b>	l 90° = underneath; r 180° = at the back
<b>C</b>	l 270° = same side as outerband; r 180° = at the back
<b>D</b>	l 0° = in front; r 270° = same side as outerband
<b>E</b>	l 90° = underneath; r 270° = same side as outerband
<b>F</b>	l 180° = at the back; r 270° = same side as outerband

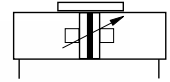
1) Viton with VOE not available.  
2) Slow speed lubrication in combination with Viton® seals on demand  
3) „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.

Accessories - please order separately

Description	Further information see
End Cap Mountings	Page 97
Mid-Section Support	Page 98
Adaptor Profile	Page 109
T-Slot Profile	Page 110
Multiplex Connection	Page 113
Magnetic Switches	Page 114

## OSP-P Modular Pneumatic Linear Drive Systems

### Long Stroke Cylinder Ø 50-80 mm for strokes up to 41 m



#### Standard Versions:

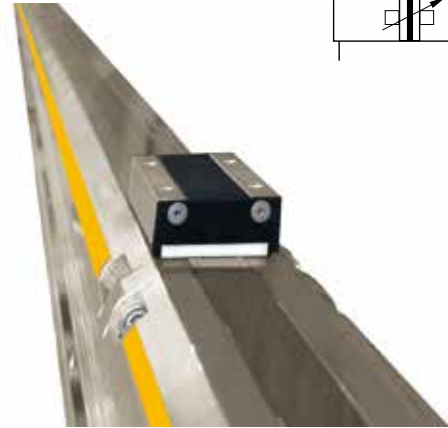
- Double-acting with adjustable end cushioning
- With magnetic piston for position sensing

#### Special Versions:

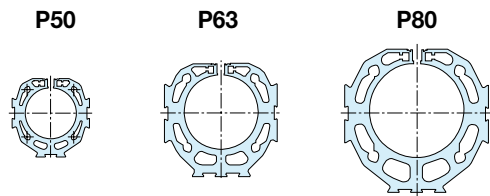
- Stainless steel screws
- Slow speed lubrication
- Viton® seals

#### Options:

- Displacement measuring system SFI-plus
- Active brake AB..



#### Size Comparison



#### Weight (mass) [kg]

Cylinder series (Basic cylinder)	Weight (Mass) [kg]	
	At 0 mm stroke	per 100 mm stroke
<b>OSP-P50LS</b>	3.53	0.566
<b>OSP-P63LS</b>	6.41	0.925
<b>OSP-P80LS</b>	12.46	1.262

Characteristics	Description
<b>General Features</b>	
Type	Rodless cylinder
Series	OSP-P
System	Double-acting, with cushioning, position sensing capability
Mounting	See drawings
Air Connection	Threaded
Ambient temperature range	$T_{min}$ 10 °C Other temperature ranges $T_{max}$ +40 °C on request
Installation	Vertical, horizontal (piston at top or at bottom)
Medium	Filtered, unlubricated compressed air (other media on request)
Lubrication	Permanent grease lubrication (additional oil mist lubrication not required) Option: special slow speed grease
<b>Material</b>	
Cylinder Profile	Anodized aluminium
Carrier (piston)	Anodized aluminium
End caps	Anodized aluminium
Sealing bands	Corrosion resistant steel
Seals	NBR (Option: Viton®)
Screws	Galvanized steel Option: stainless steel
Dust covers, wipers	Plastic
Max. operating pressure $p_{max}$	8 bar
Max. speed $v$	2 m/s

For further technical information see catalogue P-A4P011GB

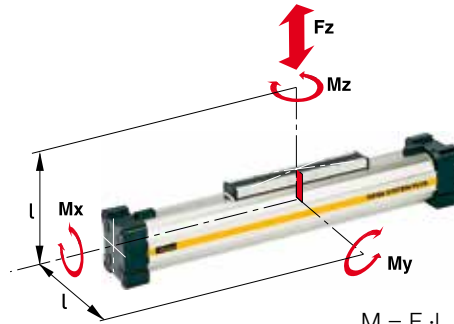


# OSP-P Modular Pneumatic Linear Drive Systems

## Loads, Forces and Moments

### Choice of cylinder is decided by:

- Permissible loads, forces and moments
- Performance of the pneumatic end cushions.



$M = F \cdot l$   
Bending moments are calculated from the centre of the linear actuator

The main factors here are the mass to be cushioned and the piston speed at start of cushioning (unless external cushioning is used, e. g. hydraulic shock absorbers).

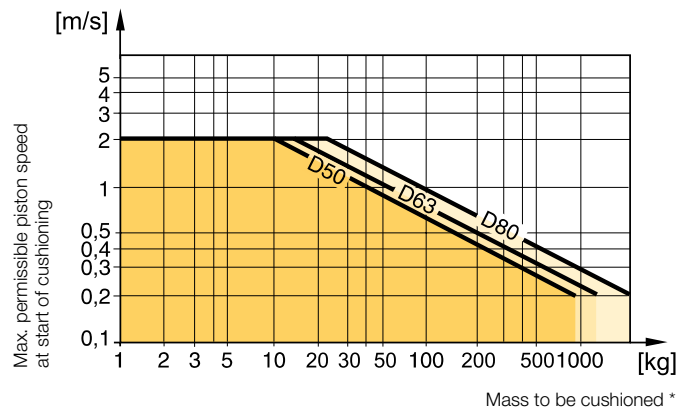
The adjacent table shows the maximum values for light, shock-free operation, which must not be exceeded even in dynamic operation. Load and moment data are based on speeds  $v \leq 0.5$  m/s.

When working out the action force required, it is essential to take into account the friction forces generated by the specific application or load.

Cylinder-Series Ø [mm]	Theoretical Action Force at 6 bar [N]	effektive Action Force $F_A$ at 6 bar [N]	max. Moments			max. Load F [N]	Cushion Length [mm]
			$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]		
<b>OSP-P50LS</b>	1178	1000	10	115	15	1200	30
<b>OSP-P63LS</b>	1870	1550	12	200	24	1650	32
<b>OSP-P80LS</b>	3016	2600	24	360	48	2400	39

## Cushioning Diagram

Work out your expected moving mass and read off the maximum permissible speed at start of cushioning. Alternatively, take your desired speed and expected mass and find the cylinder size required. Please note that piston speed at start of cushioning is typically ca. 50 % higher than the average speed, and that it is this higher speed which determines the choice of cylinder. If these maximum permissible values are exceeded, additional shock absorbers must be used.



Horizontal application, pressure  $p = 6$  bar

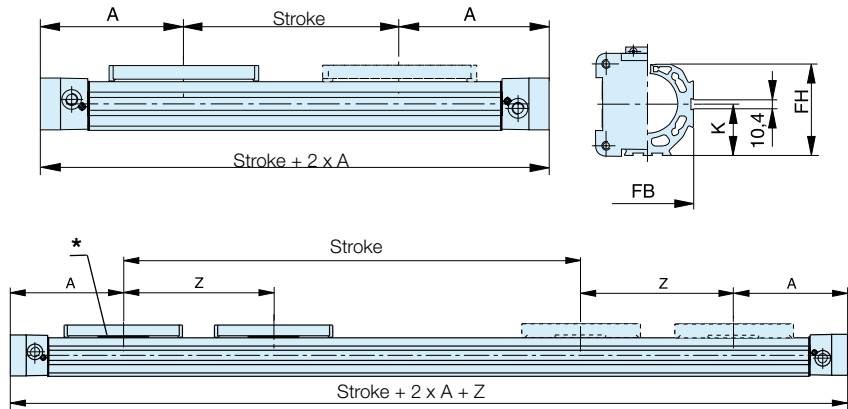
\* For cylinders with brakes, please be sure to take the mass of the brake housing into account.

If the permitted limit values are exceeded, additional shock absorbers should be fitted in the area of the centre of gravity.

**Cylinder Stroke and Dead Length A**

- Free choice of stroke length up to 41.000 mm in 1 mm steps.

**Dimensions of Basic Cylinder OSP-P50LS to P80LS**



**Tandem Cylinder**

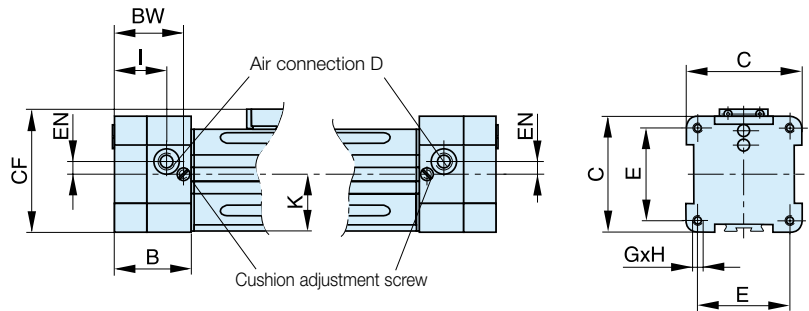
Two pistons are fitted: dimension "Z" is optional. (Please note minimum distance "Zmin").

- Free choice of stroke length up to 41.000 mm in 1 mm steps
- Stroke length to order is stroke + dimension "Z"

**Please note:**

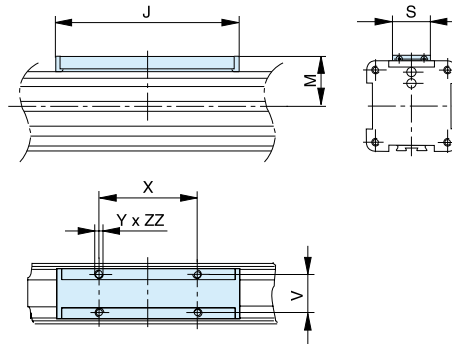
To avoid multiple actuation of magnetic switches, the second piston is not equipped with magnets.

\* Piston with magnet



**Note:** End caps are not turnable.

**Carrier Series OSP-P50LS to P80LS**



**Dimensions [mm]**

Series	A	B	C	D	E	G	H	I	J	K	M	S	V	X	Y	Z <sub>min</sub>	BW	CF	EN	FB	FH	ZZ
<b>OSP-P50LS</b>	200	58	87	G1/4	70	M6	15	39.5	200	43	49	36	27	110	M6	251	52	92.5	10	76	77	10
<b>OSP-P63LS</b>	250	73	106	G3/8	78	M8	21	49.5	256	54	63	50	34	140	M8	313	65	117	12	96	96	16
<b>OSP-P80LS</b>	295	82	132	G1/2	96	M10	25	57	348	67	80	52	36	190	M10	384	72.5	147	16.5	122	122	20

# OSP-P Modular Pneumatic Linear Drive Systems

## Linear Drive Accessories Ø 50-80 mm Mid-Section Support E1, E1L



### For Linear Drive:

- Series OSP-P..LS

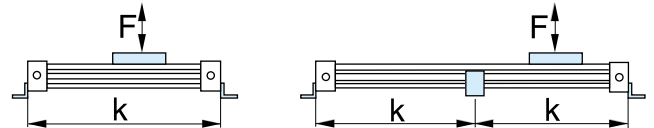
### Note on Types E1 and E1L (P50LS – P80LS):

The mid-section support can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different.

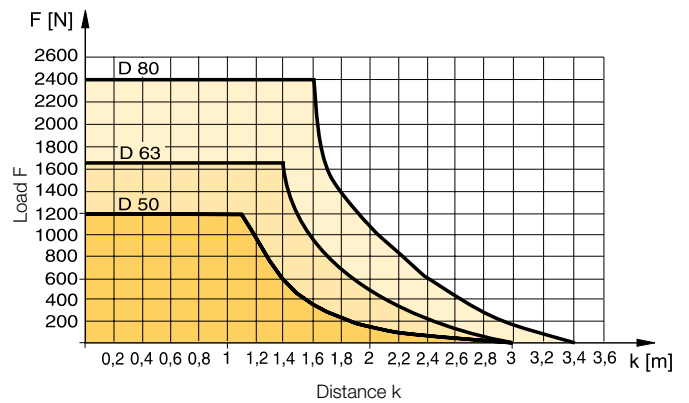
For mounting the Long-Stroke cylinder, a mid-section support Type E1 (fixed support) is required. Depending on the stroke length and the load, additional E1L supports (movable supports) may be required.

For permissible support spacings see diagram.

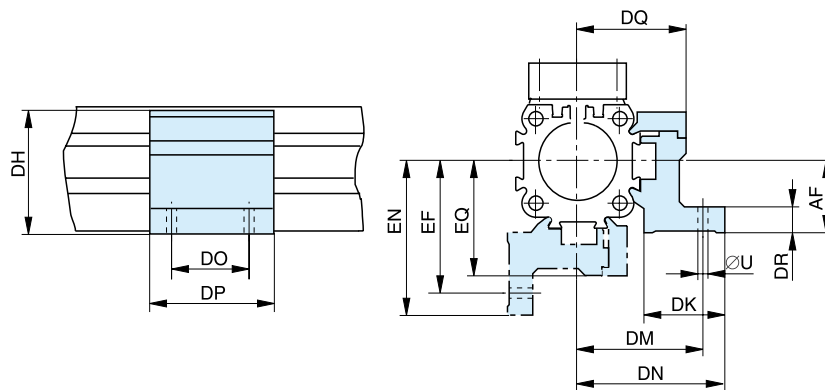
Stainless steel version on request.



### Permissible Support Spacings: OSP - P50LS to P80LS



### Series OSP-P50LS to P80LS: Type E1, E1L (Mounting from above / below using a cap screw)



### Dimensions [mm] - Series OSP-P50LS to P80LS

Series	R	U	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DT	EF	EM	EN	EQ	Order No. Type E1 fixed support	Order No. Type E1L movable support
OSP-P50LS	M6	7	48	40	71	34	59	67	45	60	52	10	11	64	45	72	57	20163FIL	21352FIL
OSP-P63LS	M8	9	57	47.5	91	44	73	83	45	65	63	12	16	79	53.5	89	69	20452FIL	21353FIL
OSP-P80LS	M10	11	72	60	111.5	63	97	112	55	80	81	15	25	103	66	118	87	20482FIL	21354FIL

**Order Instructions - Long Stroke Cylinder****Note:**

Assembly and commissioning of the Long-Stroke cylinder is carried out on site by ORIGA technical personnel.

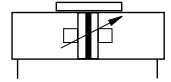
For more information on ordering and installation please contact your sales or customer service partner.

**Accessories** - please order separately

Description	Further information see
Clevis Mounting	Page 92
End Cap Mountings	Page 93
Mid-Section Support	Page 94
Inversion Mounting	Page 104
Adaptor Profile	Page 105
T-Slot Profile	Page 106
Connection Profile	Page 107
Magnetic Switches	Page 110
Cable Cover	Page 117

## OSP-P Modular Pneumatic Linear Drive Systems

### Clean Room Cylinder Ø 16-32 mm Certified to DIN EN ISO 14644-1



#### Standard Versions:

- Double-acting with adjustable end cushioning
- With magnetic piston for position sensing
- Stainless steel screws

#### Special Versions:

- Slow speed lubrication
- Viton® seals

#### Features:

- Clean room classification  
ISO Class 4 at  $v_m = 0.14$  m/s  
ISO Class 5 at  $v_m = 0.5$  m/s
- Suitable for smooth slow speed operation down to  $v_{min} = 0.005$  m/s
- Optional stroke length up to 1200 mm (longer strokes on request)
- Low maintenance
- Compact design with equal force and velocity in both directions
- Aluminium piston with bearing rings to support high direct and cantilever loads



#### Size Comparison

P16



P25



P32



#### Weight (mass) [kg]

Cylinder series (Basic cylinder)	Weight (Mass) [kg]	
	At 0 mm stroke	per 100 mm stroke
<b>OSP-P16</b>	0.22	0.1
<b>OSP-P25</b>	0.65	0.197
<b>OSP-P32</b>	1.44	0.354

Characteristics	Description
<b>General Features</b>	
Type	Rodless cylinder
Series	OSP-P
System	Double-acting, with cushioning, position sensing capability
Mounting	See drawings
Air Connection	Threaded
Ambient temperature range	$T_{min}$ -10 °C Other temperature ranges $T_{max}$ +80 °C on request
Installation	In any position
Medium	Filtered, unlubricated compressed air (other media on request)
Lubrication	Permanent grease lubrication (additional oil mist lubrication not required) Option: special slow speed grease
<b>Material</b>	
Cylinder Profile	Anodized aluminium
Carrier (piston)	Anodized aluminium
End caps	Aluminium, lacquered
Sealing bands	Corrosion resistant steel
Seals	NBR (Option: Viton®)
Screws	Stainless steel
Covers	Anodised aluminium
Guide plate	Plastic
Max. operating pressure $p_{max}$	8 bar

**Certification**

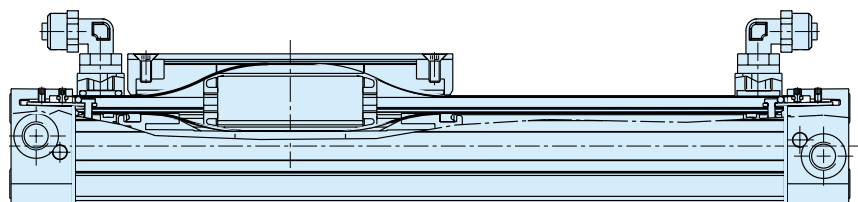
Based on the Parker Origa rodless cylinder, proven in world wide markets, Parker Origa now offers the only rodless cylinder on the market with a certification from IPA Institute for the cleanroom specification according to DIN EN ISO 14644-1.



**Function**

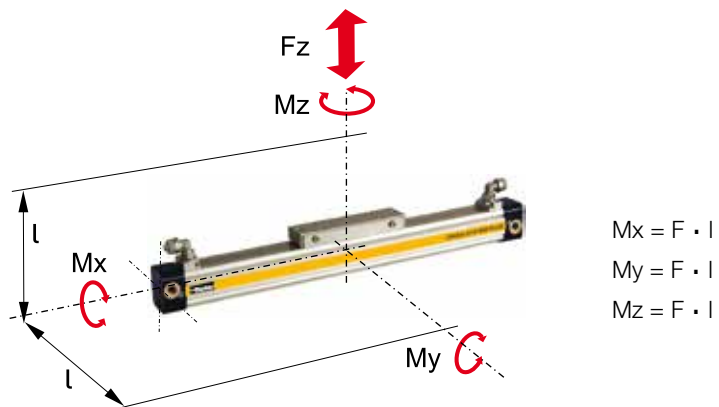
The clean room cylinders of the ORIGA SYSTEM PLUS (OSP-P) combines the efficiency of the Parker Origa slot seal system with vacuum protection against progressive wear and contamination from the sliding components. A partial vacuum drawn between inner and outer sealing bands prevents emission into the clean room. To achieve the necessary vacuum a suction flow of ca. 4 m³/h is required.

**Function Diagram**



**Loads, Forces and Moments**

Load and moment data are based on speeds  $v \leq 0.2$  m/s. The adjacent table shows the maximum values for light, shock-free operation which must not be exceeded even in dynamic operation.

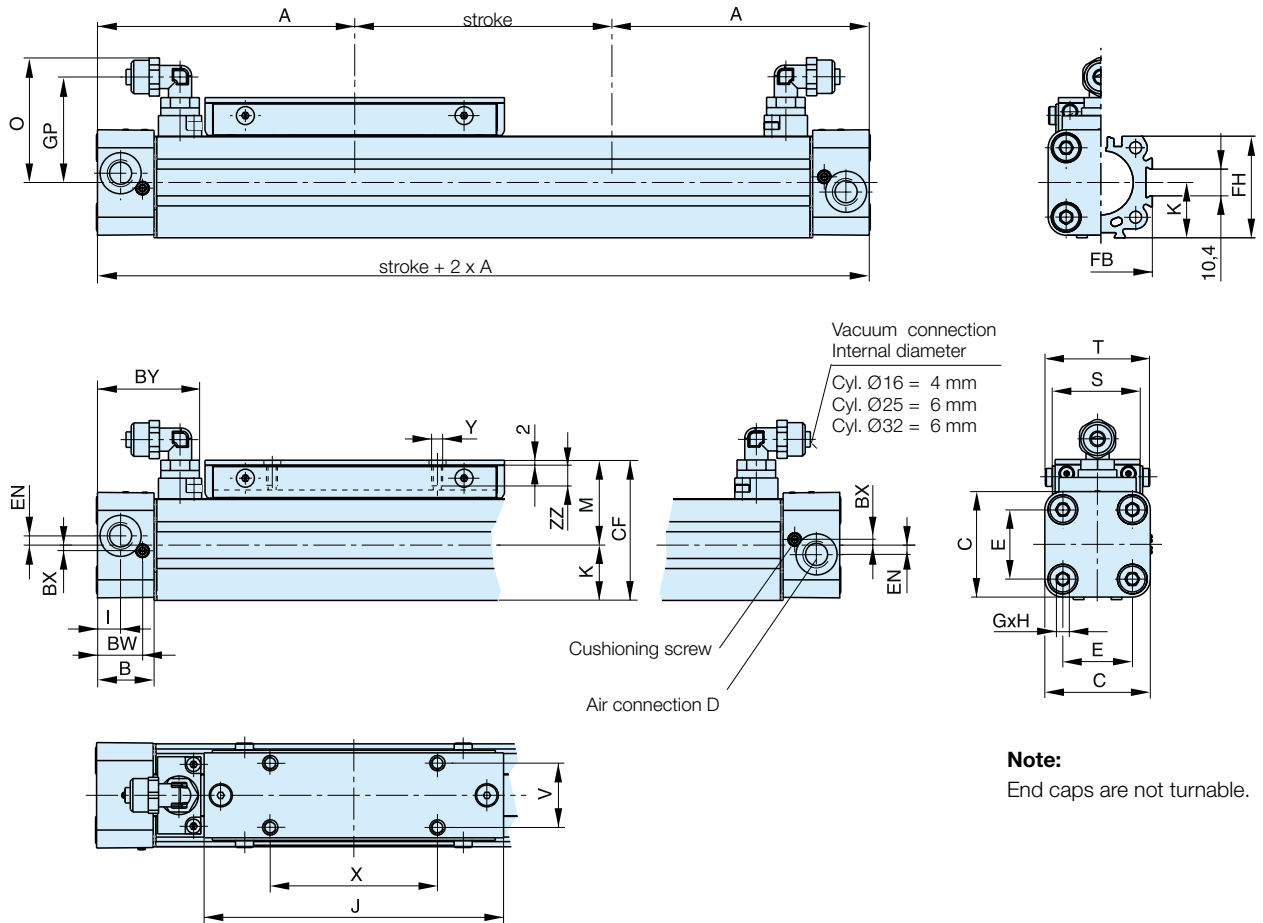


Series	Effective Force at 6 bar [N]	Max. Moment			Max. Load $F_z$ [N]	Cushion Length [mm]
		$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]		
<b>OSP-P16</b>	78	0.45	4	0.5	120	11
<b>OSP-P25</b>	250	1.5	15	3.0	300	17
<b>OSP-P32</b>	420	3.0	30	5.0	450	20



# OSP-P Modular Pneumatic Linear Drive Systems

## Dimensions [mm]



## Dimensions [mm]

Series	A	B	C	D	E	G	H	I	J	K	M	O	S
OSP-P16	65	14	30	M5	18	M3	9	5.5	69	15	25	31	24
OSP-P25	100	22	41	G1/8	27	M5	15	9	117	21.5	33	48.5	35
OSP-P32	125	25.5	52	G1/4	36	M6	15	11.5	152	28.5	40	53.6	38

Series	T	V	X	Y	BW	BX	BY	CF	EN	FB	FH	GP	ZZ
OSP-P16	29.6	16.5	36	M4	10.8	1.8	28.5	40	3	30	27.2	25.7	7
OSP-P25	40.6	25	65	M5	17.5	2.2	40.5	54.5	3.6	40	39.5	41	8
OSP-P32	45	27	90	M6	20.5	2.5	47.1	68.5	5.5	52	51.7	46.2	10

**Order Instructions - Clean Room Cylinder**

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
<b>OSPP</b>	25	4	7	0	0	1	01100	0	0	0	0	0	0	0	0	0

Piston-Ø	
16	
25	
32	

Stroke Length	
in mm (5 digits) <sup>2)</sup>	

Piston Mounting	
0	without

add. Guide Carriage	
0	without

Measuring system	
0	without

Screws	
1	Stainless

Cushioning	
0	Standard

Version / Piston	
4	Clean room

Lubrication	
0	Standard
1	Slow speed <sup>1)</sup>

End cap position	
0	L+R 0° = in front

Guides/ Brakes/ Inversion	
0	without

Cover / Cable Channel	
0	Standard
1	Cable channel
2	Cable channel two-sided
X	without Cover rail

Air Connection	
7	End cap Clean room

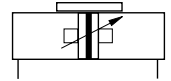
Seals	
0	Standard (NBR)
1	Viton®

<sup>1)</sup> The combination „Slow speed lubrication“ and „Viton®“ sealings“ are available on request.  
<sup>2)</sup> max. stroke lengths 1200 mm, longer strokes on request.

**Accessories** - please order separately

Description	Further information see
End Cap Mountings	Page 93
Mid-Section Support	Page 94
Adaptor Profile	Page 105
T-Slot Profile	Page 106
Connection Profile	Page 107
Magnetic Switches	Page 110

**Components for EX-Areas**



**Information for ATEX-Directives**

The rodless pneumatic cylinders of Parker Origa are the first linear drive unit, for that Ex range in the group of equipment II, Category 2 GD are certified.

Detail informations for use pneumatic components in Ex-Areas see leaflet PDE2584TCUK „EU Directive 94/9/EG (ATEX 95) for Pneumatic Components“.

**Rodless Cylinder Ø 10-80 mm  
Basic Cylinder - Series: OSP-P .. ATEX**



**BASIC GUIDE Ø 25-50 mm  
Basic Guide - Series: BG .. ATEX**



**Plain Bearing Guide Ø 16-80 mm  
SLIDELINE - Series: SL .. ATEX**



**Technical Data (deviant to the Standard Cylinder)**

Characteristics	Description
<b>General Features</b>	
Ambient temperature range $T_{min}$ / $T_{max}$	-10 °C / +60 °C
Max. switching frequency	1 (double stroke/s) Basic cylinder 0.5 (1stroke/s) Cylinder with guide
Operating pressure range $p_{max}$	Max. 8 bar
Max. speed $v_{max}$ (guide BASIC GUIDE)	3 (Basic cylinder) 2 (Cylinder with guide SLIDELINE and cylinder with guide BASIC GUIDE)
Medium	Filtered, unlubricated compressed air – free from water and dirt to ISO 8573-1 Solids: Class 7 particle size < 40 µm for Gas Water content: pressure dew point +3 °C, class 4, but at least 5 °C below minimum operating temperature
Noise level	70 dB (A)
<b>Information for materials</b>	
Aluminium	See data sheet "Material"
Lubrication	See security data sheet "Grease for use in Cylinder with guides"
Sealing bands	Corrosion resistant steel

**Equipment Group II Categorie 2GD**

Rodless cylinder: II 2GD c T4 T135°C -10°C ≤ Ta ≤ +60°C

Series	Size	Stroke range	Accessories
OSP-P	Ø 10 to 80	1– 6000 mm	Mountings programme
BASIC GUIDE	Ø 25 to 50	1– 6000 mm	Mountings programme
SLIDELINE	Ø 16 to 80	1– 5500 mm	Mountings programme

**Order Instructions - ATEX Cylinder \***

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
<b>OSPP</b>	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Piston-Ø</th></tr> <tr><td>10</td></tr> <tr><td>16</td></tr> <tr><td>25</td></tr> <tr><td>32</td></tr> <tr><td>40</td></tr> <tr><td>50</td></tr> <tr><td>63</td></tr> <tr><td>80</td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Version / Piston</th></tr> <tr><td>6 ATEX standard</td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Air Connection</th></tr> <tr><td>0 Standard</td></tr> <tr><td>1 end face</td></tr> <tr><td>2 both at one end (not turnable)</td></tr> <tr><td>3 left stand. right end face</td></tr> <tr><td>4 right stand. left end face</td></tr> </table>	Piston-Ø	10	16	25	32	40	50	63	80	Version / Piston	6 ATEX standard	Air Connection	0 Standard	1 end face	2 both at one end (not turnable)	3 left stand. right end face	4 right stand. left end face	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Stroke Length</th></tr> <tr><td>In mm (5 digits)</td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Screws</th></tr> <tr><td>0 standard</td></tr> <tr><td>1 stainless</td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Lubrication</th></tr> <tr><td>0 standard</td></tr> <tr><td>1 slow speed<sup>2)3)</sup></td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Seals</th></tr> <tr><td>0 standard (NBR)</td></tr> <tr><td>1 Viton®<sup>1)</sup></td></tr> </table>	Stroke Length	In mm (5 digits)	Screws	0 standard	1 stainless	Lubrication	0 standard	1 slow speed <sup>2)3)</sup>	Seals	0 standard (NBR)	1 Viton® <sup>1)</sup>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">End cap position</th></tr> <tr><td>0 l+r 0° = in front</td></tr> <tr><td>1 l+r 90° = underneath</td></tr> <tr><td>2 l+r 180° = at the back</td></tr> <tr><td>3 l+r 270° = same side as outerband</td></tr> <tr><td>4 l 90° = underneath; r 0° = in front</td></tr> <tr><td>5 l 180° = at the back; r 0° = in front</td></tr> <tr><td>6 l 270° = same side as outerband; r 0° = in front</td></tr> <tr><td>7 l 0° = in front; r 90° = underneath</td></tr> <tr><td>8 l 180° = at the back; r 90° = underneath</td></tr> <tr><td>9 l 270° = same side as outerband; r 90° = underneath</td></tr> <tr><td>A l 0° = in front; r 180° = at the back</td></tr> <tr><td>B l 90° = underneath; r 180° = at the back</td></tr> <tr><td>C l 270° = same side as outerband; r 180° = at the back</td></tr> <tr><td>D l 0° = in front; r 270° = same side as outerband</td></tr> <tr><td>E l 90° = underneath; r 270° = same side as outerband</td></tr> <tr><td>F l 180° = at the back; r 270° = same side as outerband</td></tr> </table>	End cap position	0 l+r 0° = in front	1 l+r 90° = underneath	2 l+r 180° = at the back	3 l+r 270° = same side as outerband	4 l 90° = underneath; r 0° = in front	5 l 180° = at the back; r 0° = in front	6 l 270° = same side as outerband; r 0° = in front	7 l 0° = in front; r 90° = underneath	8 l 180° = at the back; r 90° = underneath	9 l 270° = same side as outerband; r 90° = underneath	A l 0° = in front; r 180° = at the back	B l 90° = underneath; r 180° = at the back	C l 270° = same side as outerband; r 180° = at the back	D l 0° = in front; r 270° = same side as outerband	E l 90° = underneath; r 270° = same side as outerband	F l 180° = at the back; r 270° = same side as outerband	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Piston Mounting</th></tr> <tr><td>0 without</td></tr> <tr><td>1 clevis mounting Ø 16-80</td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">Cushioning</th></tr> <tr><td>0 standard</td></tr> <tr><td>1 max. length<sup>3)</sup></td></tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th style="text-align: left;">add. 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End cap position (air connection)

270° same side as outerband

180° at the back

end-face

0° in front

90° underneath

Cylinder R (right end side)

end-face

0° in front

90° underneath

Cylinder L (left end side)

\* Order instructions BASIC GUIDE ATEX-Version see page 36

<sup>1)</sup> Slow speed lubrication in combination with Viton® seals on demand.

<sup>2)</sup> „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.

**Accessories** - please order separately

Description	Further information see
End Cap Mounting for OSP-P Basic Cylinder	Page 93
End Cap Mounting for OSP-P Basic Cylinder with SLIDELINE	Page 44
Mid-Section Support for OSP-P Basic Cylinder	Page 94
Mid-Section Support for OSP-P Basic Cylinder with SLIDELINE	Page 44
Adaptor Profile	Page 105
T-Slot Profile	Page 106
Magnetic Switches ATEX Version	Page 114

## OSP-P Modular Pneumatic Linear Drive Systems

### Synchronised Rodless Cylinder Ø 40 mm For synchronised bi-parting movements Type OSP-P40-SL-BP



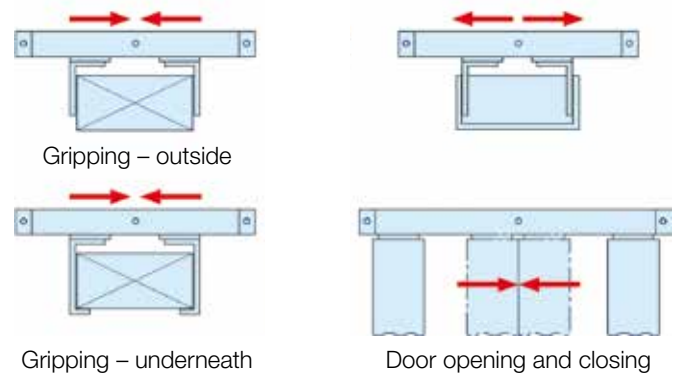
#### Applications:

- Opening and closing operations
- Gripping of workpieces – outside
- Gripping of hollow workpieces – inside
- Gripping underneath larger objects
- Clamping force adjustable via pressure regulator

#### Features:

- Accurate bi-parting movement through toothed belt synchronization
- Optimum slow speed performance
- Increased action force
- Anodized aluminium guide rail with prism-form slideway arrangement
- Adjustable polymer slide units
- Combined sealing system with polymer and felt elements to remove dirt and lubricate the slideway
- Integrated grease nipples for guide lubrication

#### Applications:



Characteristics	Description	
<b>General Features</b>		
Type	Rodless cylinder for synchronised bi-parting movements	
Series	OSP-P	
System	Double-acting with end cushioning for contactless position sensing	
Guide	Slideline SL40	
Synchronisation	Toothed belt	
Mounting	See drawings	
Ambient temperature range	-10 °C to +60 °C	
Installation	In any position	
Medium	Filtered, unlubricated compressed air (other media on request)	
Lubrication	Special slow speed grease - additional oil mist lubrication not required	
Operating pressure $p_{max}$	6 bar	
Cushioning middle position	Elastic buffer	
Max. speed $v_{max}$	0.2 m/s	
Max. stroke of each stroke	500 mm	
Max. mass per guide carrier	25 kg	
<b>Max. moments on guide carrier</b>		
Lateral moment $Mx_{max}$	25 Nm	
Axial moment $My_{max}$	46 Nm	
Rotating moment $Mz_{max}$	46 Nm	
<b>Material</b>		
Toothed belt	Steel-corded polyurethane	
Belt wheel	Aluminium	

# OSP-P Modular Pneumatic Linear Drive Systems

## Function:

The OSP-P40-SL-BP bidirectional linear drive is based on the OSP-P40 rodless pneumatic cylinder and adapted SLIDELINE SL40 polymer plain-bearing guides.

Two pistons in the cylinder bore are connected via yokes and carriers to the SLIDELINE guide carriers, which handle the forces and moments generated.

The bi-parting movements of the guide carriers are accurately synchronized by a recirculating toothed belt.

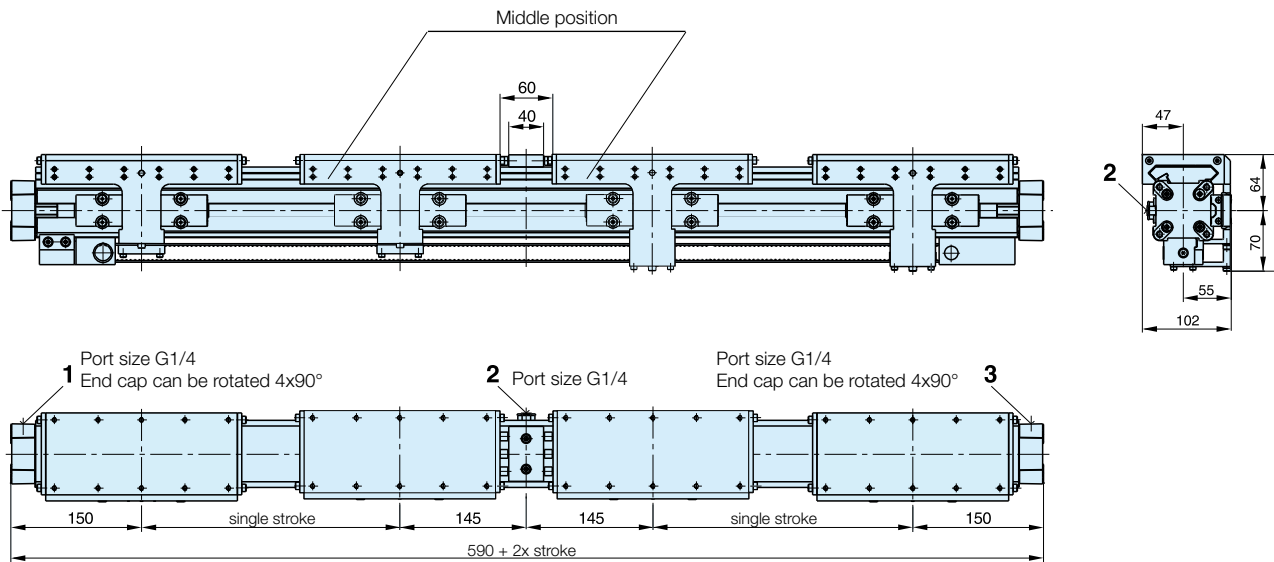
The two pistons are driven from the middle to the end positions via a common G1/4 air connection in the middle of the cylinder, and are driven from the end positions to the middle via an air connection in each end cap.

End position cushioning is provided by adjustable air cushioning in the end caps, and middle position cushioning by rubber buffers.

## Weight (mass) [kg]

Cylinder series (Basic cylinder)	Weight (mass) [kg]	
	At 0 mm stroke	per 100 mm stroke
<b>OSP-P40-SL-BP</b>	10.33	2.13

## Dimensions [mm]



### Air connections:

To drive the guide carriers to the middle position: pressurize ports 1 and 3.

To drive the guide carriers to the end positions: pressurize port 2.

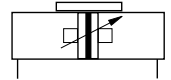
## Order Instructions

Description	Type	Order No. **
Rodless cylinder for synchronized bi-parting movements	<b>OSP-P40-SL-BP</b>	<b>21315</b>

**Note:** Order stroke = 2 x single stroke

\*\* Please use this order pattern: Order-No. + „order stroke in mm“ (5 digits)  
Example: for single stroke 100 mm = order stroke 2x100 mm = 200 mm: 21315-00200

**Plain Bearing BASIC GUIDE**  
**Ø 25-50 mm**



**Series OSPP-BG**

**Standard Versions:**

- Double-acting with adjustable end cushioning
- With magnetic piston for position sensing

**Special Versions:**

- Stainless steel screws
- Slow speed lubrication
- Viton® seals
- Both air connections on one end
- Air connection on the end-face
- Integrated Valves VOE

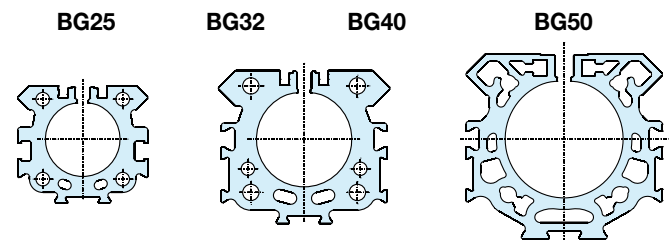


- End cap can be rotated 4 x 90° to position air connection as desired
- Free choice of stroke length up to 6000 mm.

**Weight (mass) [kg]**

Cylinder series (Basic cylinder)	Weight (mass) [kg]	
	At 0 mm stroke	per 100 mm stroke
<b>OSPP-BG25</b>	1.09	0.22
<b>OSPP-BG32</b>	2.26	0.38
<b>OSPP-BG40</b>	3.52	0.41
<b>OSPP-BG50</b>	5.30	0.58

**Size Comparison**



Characteristics	Description
<b>General Features</b>	
Type	Rodless cylinder
Series	OSPP-BG
System	Double-acting, with cushioning, position sensing capability
Mounting	See drawings
Air Connection	Threaded
Ambient temperature range	$T_{min}$ -10 °C Other temperature ranges $T_{max}$ +80 °C on request
Installation	Free
Medium	Filtered, unlubricated compressed air (other media on request)
Lubrication	Permanent grease lubrication (additional oil mist lubrication not required)
Option:	special slow speed grease
<b>Material</b>	
Cylinder Profile	Anodized aluminium
Carrier (piston)	Anodized aluminium
End caps	Al, catalytically coated
Sealing bands	Corrosion resistant steel
Seals	NBR (Option: Viton®)
Screws	Galvanized steel Option: stainless steel
Dust covers, wipers	Plastic
Max. operating pressure $p_{max}$	8 bar



**Plain Bearing Guide**  
**BASIC GUIDE**

**Series BG 25 to 50 for Linear Drive**  
**Compact, robust plain bearing guide**  
**for medium loads**

**Features:**

- Compact: guide rail integrated in cylinder profile tube
- Robust: wiper system and grease nipples for long service life
- smooth operation
- simple to (re-) adjust
- Integrated grease nipples
- Any length of stroke up to 6000 mm (longer strokes on request)



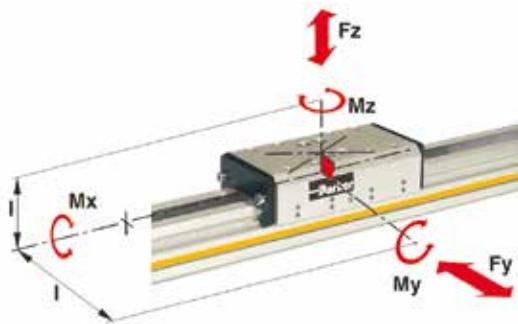
**Options:**

- Corrosion resistant version available on request
- VOE-Valves

**Accessories:**

- Mid-Section Support
- End Cap Mountings
- Magnetic Switches

**Loads, Forces and Moments**



**Technical Data**

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

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

**\* Please note:**

In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

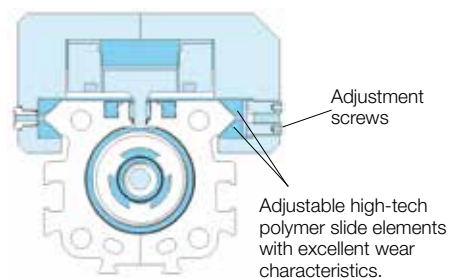
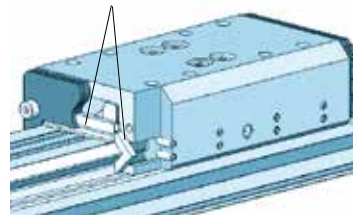
$$\frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

The sum of the loads should not exceed >1.

Series	Max. Moments [Nm]			Max. Load [Nm]	Mass of Basic Guide [kg]		Mass* of guide carriage [kg]	Cushion Length [mm]
	Mx	My	Mz		Fy, Fz	at 0mm stroke		
<b>BG25</b>	10	28	28	590	1.09	0.22	0.29	17
<b>BG32</b>	17	43	43	850	2.26	0.38	0.69	20
<b>BG40</b>	39	110	110	1600	3.52	0.41	1.37	27
<b>BG50</b>	67	165	165	2000	5.30	0.58	1.91	30

**Loads, Forces and Moments**

Composite sealing system with high-tech polymer and felt wiper elements to remove dirt and lubricate the slideways.

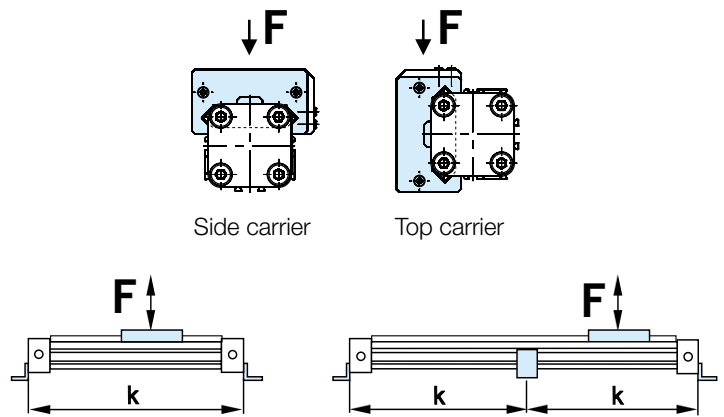


**Mid-Section Support**

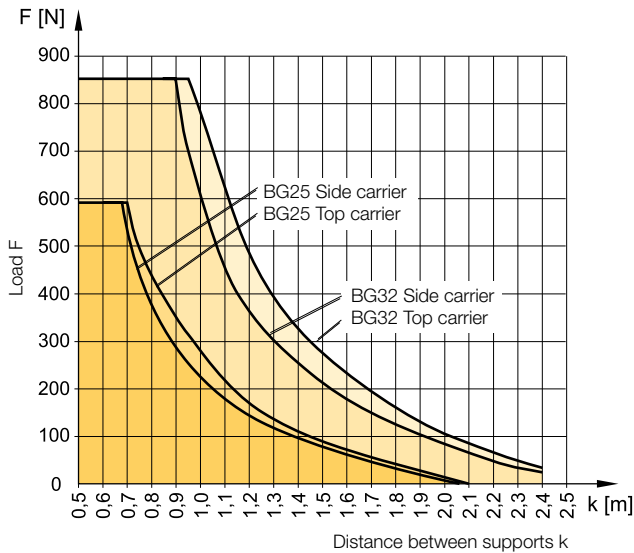
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

**Note:**

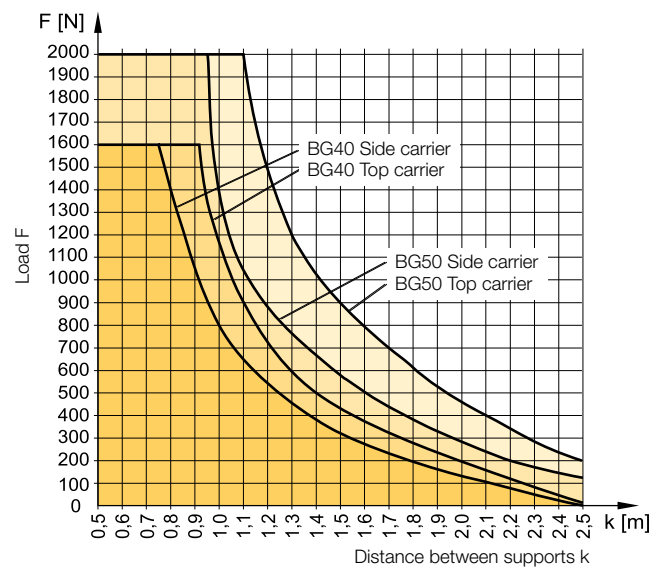
For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1 m.



**Permissible unsupported length: BG25, BG32**

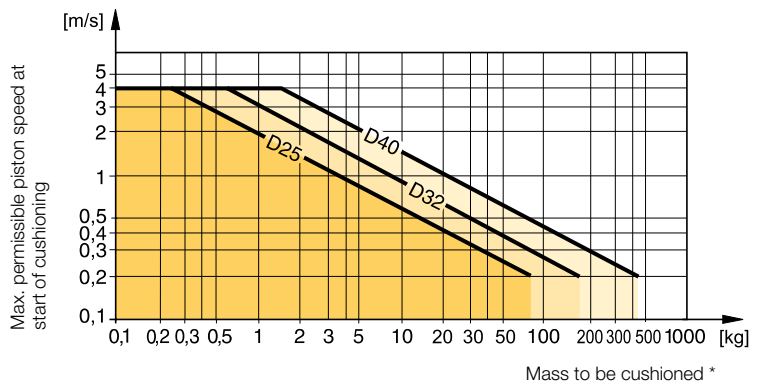


**Permissible unsupported length BG40, BG50**



**Cushioning Diagram**

Work out your expected moving mass and read off the maximum permissible speed at start of cushioning. Alternatively, take your desired speed and expected mass and find the cylinder size required. Please note that piston speed at start of cushioning is typically approx. 50 % higher than the average speed, and that it is this higher speed which determines the choice of cylinder.



Horizontal application, pressure  $p = 6$  bar

\* The mass of the carrier has to be taken into account.

If the permitted limit values are exceeded, additional shock absorbers should be fitted in the area of the centre of gravity.

# OSP-P Modular Pneumatic Linear Drive Systems

## Cylinder Stroke and Dead Length A

- Free choice of stroke length up to 6000 mm in 1 mm steps.
- Longer strokes on request.

## Dimensions

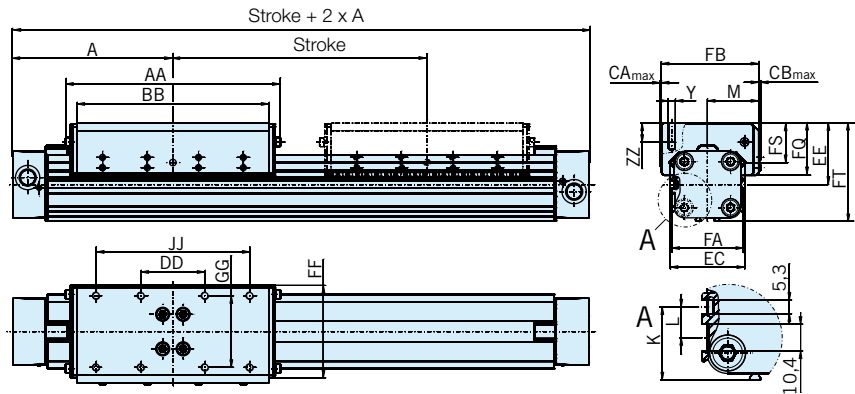


Fig. A shows BG32, BG40 and BG50

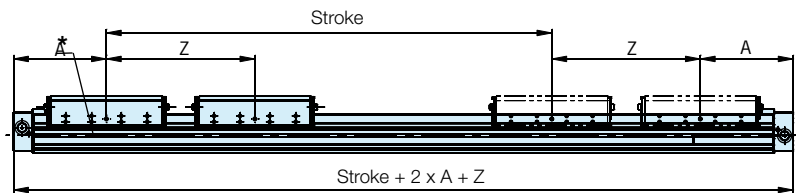
## Tandem Cylinder

Two pistons are fitted: dimension "Z" is optional. (Please note minimum distance "Zmin").

- Available sizes Ø 25, 32, 40, 50
- Free choice of stroke length up to 6000 mm in 1 mm steps
- Longer strokes on request
- Stroke length to order is stroke + dimension "Z"

Other mountings and options see accessories.

## Tandem Cylinder



### Please note:

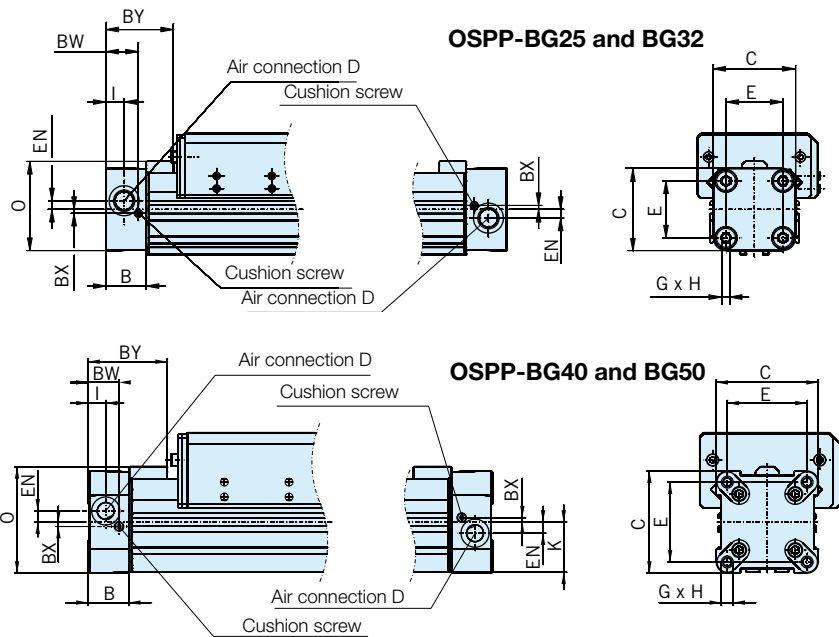
To avoid multiple actuation of magnetic switches, the second piston is not equipped with magnets.

## Standard air connection

End cap can be rotated 4 x 90°. The air connection and cushion screw can therefore be positioned as desired.

\* Piston with magnet

## End Cap/Air Connection can be rotated 4 x 90°



## Dimensions [mm]

Series	A	B	C	D	E	G	H	I	K	L	M	O	Y	Z <sub>min</sub>	AA	BB	BW
<b>BG25</b>	100	22	41	G1/8	27	M5	15	9	17.5	-	32	47	M6	128	126	108	17.5
<b>BG32</b>	125	25.5	52	G1/4	36	M6	15	11.5	28.5	12	40	59	M6	170	168	150	20.5
<b>BG40</b>	150	28	69	G1/4	54	M6	15	12	34.5	12	47	72	M6	212	198	178	21
<b>BG50</b>	175	33	87	G1/4	70	M6	15	14.5	43.5	12	54	86	M6	251	240	220	27
Series	BX	BY	CA <sub>max</sub>	CB <sub>max</sub>	DD	EC	EE	EN	FA	FB	FF	FQ	FS	FT	GG	JJ	ZZ
<b>BG25</b>	2.2	40	1.5	1.5	40	44	38	3.6	44	60	56	32	24	59.5	43	80	12
<b>BG32</b>	2.5	44	0	2	50	58	48	5.5	56	76	72	40.8	30.8	76.5	56	120	12
<b>BG40</b>	3	54	0	1	70	67	58	7.5	67	89	84	48	36	92.5	60	140	12
<b>BG50</b>	-	59	0	0	100	77.5	63	11	80	101	94	49	36	106.5	78	200	12

# OSP-P Modular Pneumatic Linear Drive Systems

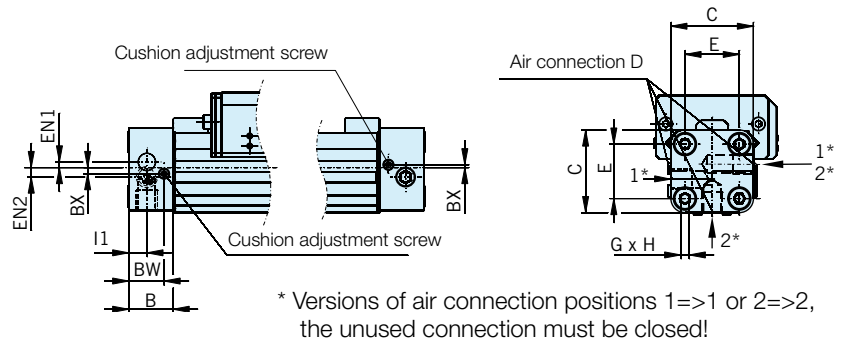
## Both Air Connections at One End

A special end cap with both air connections on one side is available for situations where shortage of space, simplicity of installation or the nature of the process make it desirable.

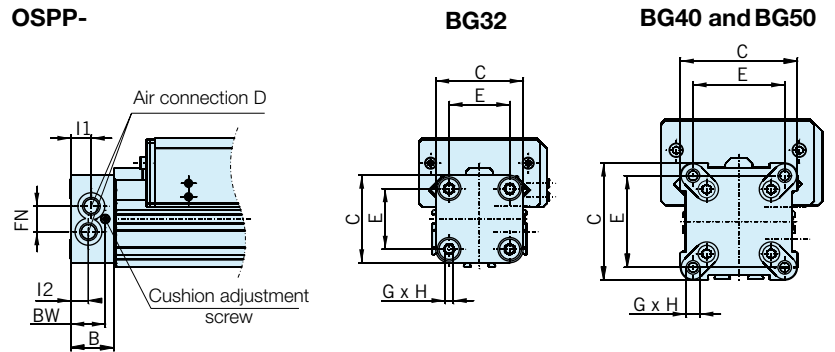
Air supply to the other end is given via internal air passages.

In this case the end caps cannot be rotated.

### End cap - Air connection both at one end Series OSPP-BG 25



### End cap - Air connection both at one end Series OSPP-BG 32 to BG50



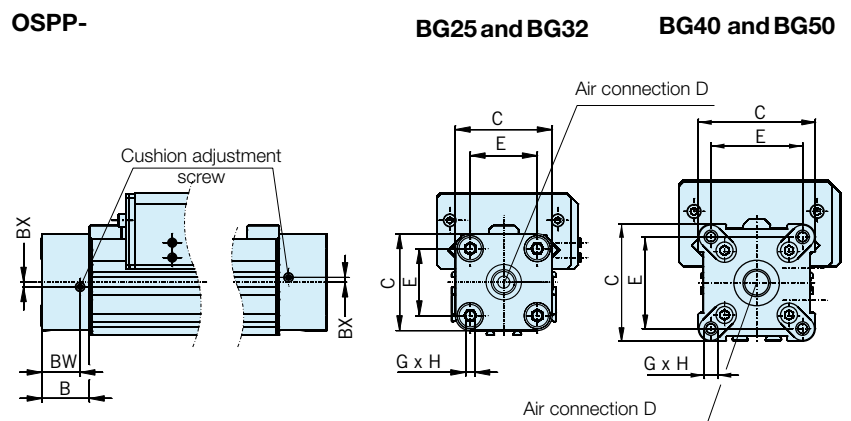
## Air Connection on the End-face

In some situations it is necessary or desirable to fit a special end cap with the air connection on the end-face instead of the standard end cap with the air connection on the side.

The special end cap can also be rotated 4 x 90° to locate the cushion adjustment screw as desired.

Supplied in pairs.

### End cap - Air connection on the End-face Series OSPP-BG 25 to BG50



## Dimensions [mm]

Series	B	C	D	E	G	H	BW	BX	BY	EN1	EN2	FN	I1	I2
<b>BG25</b>	22	41	G1/8	27	M5	15	17.5	2.2	40	3.6	3.9	-	9	-
<b>BG32</b>	25.5	52	G1/4	36	M6	15	20.5	2.5	44	-	-	15.2	12.2	10.5
<b>BG40</b>	28	69	G1/4	54	M6	15	21	3	54	-	-	17	12	12
<b>BG50</b>	33	87	G1/4	70	M6	15	27	-	59	-	-	22	14.5	14.5

**Linear Drive Accessories Ø 25-50 mm**

**End Cap Mountings**

**For Linear Drive:**

- Series OSPP-BG

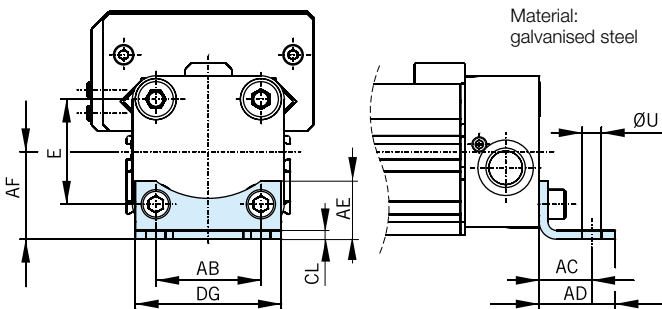
On the end-face of each cylinder end cap there are four threaded holes for mounting the cylinder. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

The air connection can still be positioned as desired.



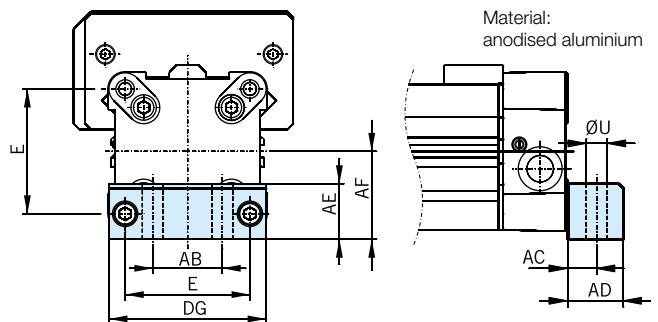
**Series OSPP-BG25 and BG32: Type A1**

(Supplied in pairs)



**Series OSPP-BG40 and BG50: Type C1**

(Supplied in pairs)



**Mid-Section Support**

**For Linear Drive:**

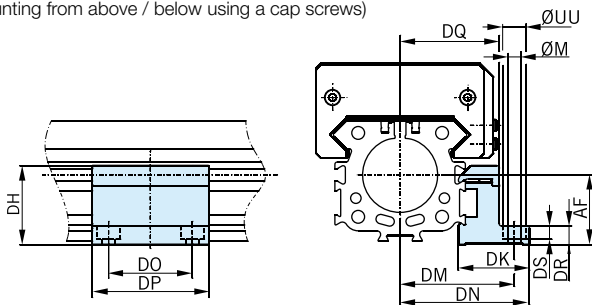
- Series OSPP-BG

For permissible support spacings see diagram page 41. Stainless steel version on request.



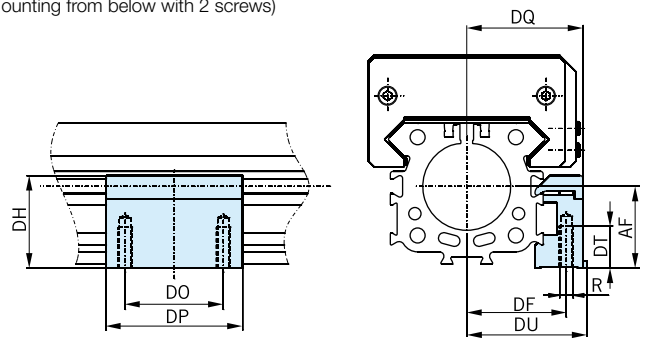
**Series OSPP-BG25 and BG50: Type E1BG**

(Mounting from above / below using a cap screws)



**Series OSPP-BG25 and BG50: Type D1BG**

(Mounting from below with 2 screws)



**Dimensions [mm]**

Series	E	R	ØU	ØM	AB	AC	AD	AE	AF	CL	DF	DG
<b>BG25</b>	27	M5	5.8	5.5	27	16	22	18	22	2.5	29	39
<b>BG32</b>	36	M5	6.6	5.5	36	18	26	20	30	3	36.5	50
<b>BG40</b>	54	M6	9	7	30	12.5	24	24	38	-	39	68
<b>BG50</b>	70	M6	9	7	40	12.5	24	30	48	-	45.5	86

**Ident-No.**

Series	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	DU	ØUU	TypeA1*	TypeC1*	TypeE1BG	TypeD1BG
<b>BG25</b>	20	30.5	42	49.5	36	50	35	8	5.7	15	36.5	10	<b>2010FIL</b>	-	<b>21482FIL</b>	<b>21483FIL</b>
<b>BG32</b>	34	30.5	49	55.5	36	50	42.5	8	5.7	15	42.5	10	<b>3010FIL</b>	-	<b>21487FIL</b>	<b>21488FIL</b>
<b>BG40</b>	43	34	56	63	45	60	48	10	-	11	48	-	-	<b>4010FIL</b>	<b>21510FIL</b>	<b>21511FIL</b>
<b>BG50</b>	56	34	62.5	69.5	45	60	54	23	-	11	54.5	-	-	<b>5010FIL</b>	<b>21594FIL</b>	<b>21593FIL</b>

\* = Pair

Order Instructions- BASIC GUIDE

1-6	7+8	9	10	11	12	13	14-18	19	20	21	22	23	24	25
<b>OSPPBG</b>	25	0	0	0	0	0	01100	0	0	0	0	0	0	0

**Piston-Ø**

25
32
40
50

**Stroke**

Input in mm  
(5 digits)

**Piston Mounting**

0	without
---	---------

**Cover / Cable Channel**

0	standard
1	cable channel dove tail Ø32, 40, 50
2	cable channel dove tail two-sided Ø32, 40, 50

**Version / Piston**

0	Standard
1	Tandem
* 6	ATEX Standard <sup>3)</sup>

**Screws**

0	standard
1	stainless

**Cushioning**

0	standard
---	----------

**Lubrication**

0	standard
1	slow speed <sup>2)</sup>

**End cap position**

0	l+r0° = in front
1	l+r90° = underneath
2	l+r180° = at the back
3	l+r270° = same side as outerband
4	l 190° = underneath; r 0° = in front
5	l 180° = at the back; r 0° = in front
6	l 270° = same side as outerband; r 0° = in front
7	l 0° = in front; r 90° = underneath
8	l 180° = at the back; r 90° = underneath
9	l 270° = same side as outerband; r 90° = underneath
A	l 0° = in front; r 180° = at the back
B	l 90° = underneath; r 180° = at the back
C	l 270° = same side as outerband; r 180° = at the back
D	l 0° = in front; r 270° = same side as outerband
E	l 90° = underneath; r 270° = same side as outerband
F	l 180° = at the back; r 270° = same side as outerband

**Air Connection**

0	standard
1	on the end face
2	both at one end (not turnable)
3	left standard right end face
4	right standard left end face
A	3/2 way valve VOE 24 V = Ø25, 32, 40, 50
B	3/2 way valve VOE 230 V~/110V = Ø25, 32, 40, 50
C	3/2 way valve VOE 48 V = Ø25, 32, 40, 50
E	3/2 way valve VOE 110 V = Ø25, 32, 40, 50

**Seals**

0	standard (NBR)
1	Viton <sup>® 1)</sup>

End cap position (air connection)

Cylinder R (right end side)

Cylinder L (left end side)

<sup>1)</sup> Viton with VOE not possible.

<sup>2)</sup> "Slow speed lubrication" in combination with „Viton<sup>®</sup>“ seals on demand.

<sup>3)</sup> ATEX with VOE not possible.

**Accessories** - please order separately

Description	Further information see
End Cap Mounting	Page 93
Mid-Section Support	Page 94
Magnetic Switches	Page 110

# OSP

ORIGA  
SYSTEM  
PLUS

## Adaptive modular system

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

### Advantages:

- Takes high loads and forces
- High precision
- Smooth operation
- Can be retrofitted
- Can be installed in any position

### Rodless Pneumatic Cylinder Series OSP - P

Piston diameters 10 – 80 mm

See page 16 (Standard)

See page 35 (ATEX-Version)



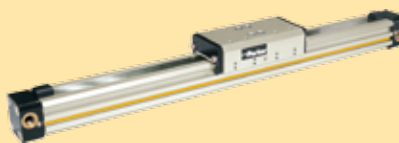
### BASIC GUIDE

Compact, robust plain bearing guide for medium loads.

Piston diameters 25 – 50 mm

See page 39 (Standard)

See page 35 (ATEX-Version)



## Linear Guides

### SLIDELINE

The cost-effective plain bearing guide for medium loads. Active/ Passive Brake optional.

Piston diameters 16 – 80 mm

See page 47 (Standard)

See page 35 (ATEX-Version)



### POWERSLIDE

The roller guide for heavy loads and hard application conditions

Piston diameters 16 – 50 mm

See page 50



### PROLINE

The compact aluminium roller guide for high loads and velocities.

Active/ Passive Brake optional.

Piston diameters 16 – 50 mm

See page 55



### STARLINE

Recirculating ball bearing guide for very high loads and precision

Piston diameters 16 – 50 mm

See page 58



### KF GUIDE

Recirculating ball bearing guide.

Correspond to FESTO dimensions (Type DGPL-KF)

Piston diameters 16 – 50 mm

See page 65



### HD HEAVY DUTY GUIDE

Recirculating ball bearing guide for highest loads and greatest accuracy.

Piston diameters 25 – 50 mm

See page 72





**Plain Bearing Guide  
SLIDELINE**

**Series SL 16 to 80 for Linear Drive**

**Features:**

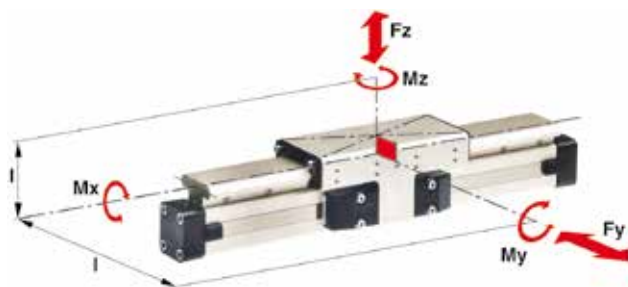
- ATEX-version (without brake) is also available  
See page 35
- Anodised aluminium guide rail with prism-shaped slideway arrangement
- Adjustable plastic slide elements – optional with integral brake
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideways
- Corrosion resistant version available on request
- Any length of stroke up to 5500 mm (longer strokes on request)



**Integrated Brake (optional)  
for series OSP-P25 to OSP-P50:**

- Actuated by pressure
- Released by exhausting and spring return

**Loads, Forces and Moments**



**Technical Data**

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

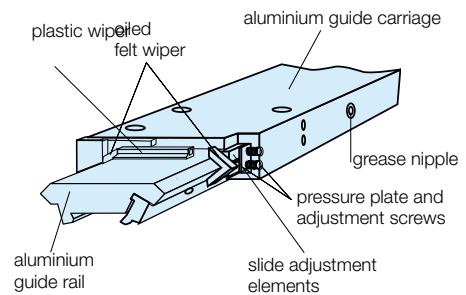
The load and moment figures apply to speeds  $v < 0.2$  m/s.

**\* Please note:**

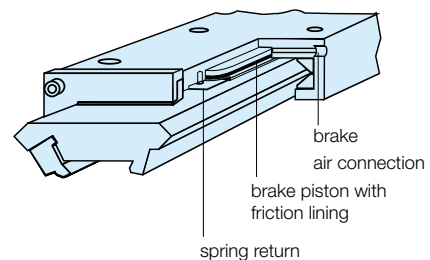
In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

- 1) Only with integrated brake: Braking force on dry oil-free surface. Values are decreased for lubricated slideways
- 2) Corrosion resistant fixtures available on request

**Carriage Without Brake**



**Option - Integrated Brake**

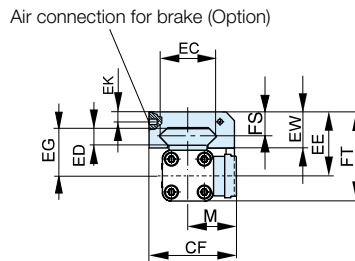
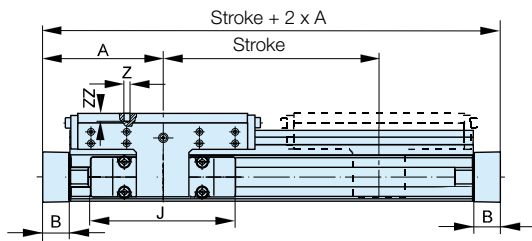


Series	For linear drive	Max. moments [Nm]			Max. loads [N]	Maximum braking force at 6 bar [N] <sup>1)</sup>	Mass of linear drive with guide [kg]		Mass* of guide carriage [kg]	Order-No. ** SLIDELINE <sup>2)</sup> Guide without cylinder	
		Mx	My	Mz			Fy, Fz	with 0 mm stroke		increase per 100 mm stroke	without brake
<b>SL16</b>	OSP-P16	6	11	11	325	-	0.57	0.22	0.23	<b>20341</b>	-
<b>SL25</b>	OSP-P25	14	34	34	675	325	1.55	0.39	0.61	<b>20342</b>	<b>20409</b>
<b>SL32</b>	OSP-P32	29	60	60	925	545	2.98	0.65	0.95	<b>20196</b>	<b>20410</b>
<b>SL40</b>	OSP-P40	50	110	110	1600	835	4.05	0.78	1.22	<b>20343</b>	<b>20411</b>
<b>SL50</b>	OSP-P50	77	180	180	2000	1200	6.72	0.97	2.06	<b>20195</b>	<b>20412</b>
<b>SL63</b>	OSP-P63	120	260	260	2500	-	11.66	1.47	3.32	<b>20853</b>	-
<b>SL80</b>	OSP-P80	120	260	260	2500	-	15.71	1.81	3.32	<b>21000</b>	-

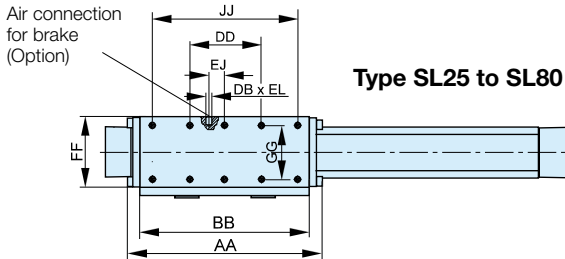
\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
Example: SLIDELINE guide without brake D25 mm, stroke 1000 mm: 20342-01000



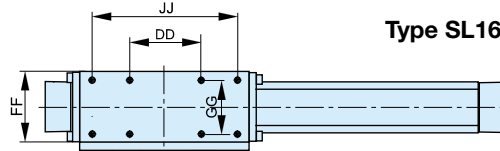
## Dimensions



For further mounting elements and options see accessories.



Type SL25 to SL80



Type SL16

## Dimensions [mm]

Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	ED	EE	EG	EJ	EK	EL	EW	FF	FT	FS	GG	JJ	ZZ
SL16	65	14	69	31	M4	106	88	-	30	55	36	8	40	30	-	-	-	22	48	55	14	36	70	8
SL25	100	22	117	40.5	M6	162	142	M5	60	72.5	47	12	53	39	22	6	6	30	64	73.5	20	50	120	12
SL32	125	25.5	152	49	M6	205	185	M5	80	91	67	14	62	48	32	6	6	33	84	88	21	64	160	12
SL40	150	28	152	55	M6	240	220	M5	100	102	77	14	64	50	58	6	6	34	94	98.5	21.5	78	200	12
SL50	175	33	200	62	M6	284	264	M5	120	117	94	14	75	56	81	6	6	39	110	118.5	26	90	240	16
SL63	215	38	256	79	M8	312	292	-	130	152	116	18	86	66	-	-	-	46	152	139	29	120	260	14
SL80	260	47	348	96	M8	312	292	-	130	169	116	18	99	79	-	-	-	46	152	165	29	120	260	14

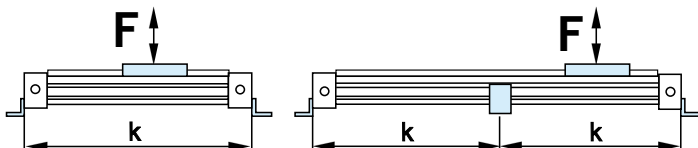
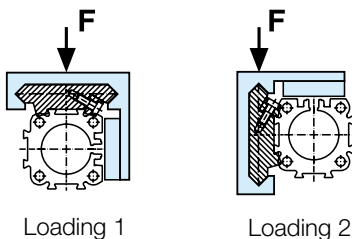
## Mid-Section Support

Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading.

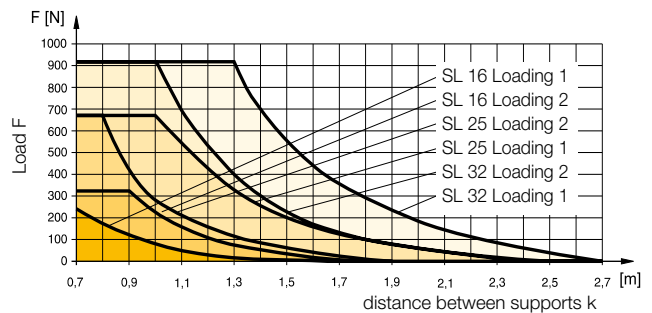
A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

### Note:

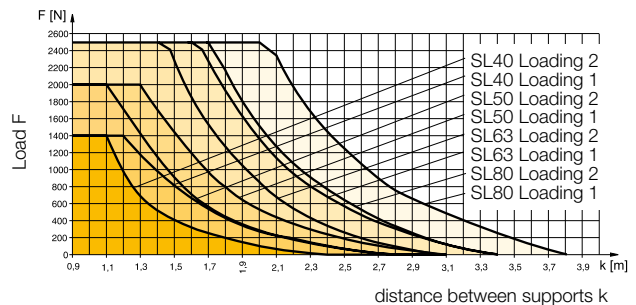
For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1 m.



### Permissible unsupported length: SL 16, SL 25, SL 32



### Permissible unsupported length: SL40, SL50, SL63, SL80



Order Instructions- SLIDELINE

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
OSPP	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

**Piston-Ø**

16
25
32
40
50
63
80

**Stroke**

Input in mm (5 digits)

**Piston Mounting**

0	without
---	---------

**Measuring system**

0	without
X	SFI 0.1 mm
Y	SFI 1 mm

**Screws**

0	standard
1	stainless

**Cushioning**

0	standard
---	----------

**Version / Piston**

0	standard
1	Tandem

**Lubrication**

0	standard
1	slow speed <sup>2)</sup>

**End cap position**

0	l+r 0° = in front
1	l+r 90° = underneath
2	l+r 180° = at the back
3	l+r 270° = same side as outerband
4	l 90° = underneath; r 0° = in front
5	l 180° = at the back; r 0° = in front
6	l 270° = same side as outerband; r 0° = in front
7	l 0° = in front; r 90° = underneath
8	l 180° = at the back; r 90° = underneath
9	l 270° = same side as outerband; r 90° = underneath
A	l 0° = in front; r 180° = at the back
B	l 90° = underneath; r 180° = at the back
C	l 270° = same side as outerband; r 180° = at the back
D	l 0° = in front; r 270° = same side as outerband
E	l 90° = underneath; r 270° = same side as outerband
F	l 180° = at the back; r 270° = same side as outerband

**Guides/ Brakes/ Inversion**

0	without
2	Slideline SL Ø 16-80
3	Slideline with Activebrake SL-AB Ø 25-50
4	Slideline with Multibrake SL-MB Ø 25-80

**Cover / Cable Channel**

0	standard
1	cable channel
2	cable channel two-sided
X	without Coverrail

**Air Connection**

0	standard
1	on the end face
2	both at one end (not turnable)
3	left standard right end face
4	right standard left end face
A	3/2 way valve VOE 24 V = Ø 25,32,40,50
B	3/2 way valve VOE 230 V~/110 V= Ø 25,32,40,50
C	3/2 way valve VOE 48 V= Ø 25,32,40,50
E	3/2 way valve VOE 110 V~ Ø 25,32,40,50

**Seals**

0	standard (NBR)
1	Viton <sup>® 1)</sup>

**add. Guide Carriage**

0	without
2	Guide Carriage Slideline SL Ø 16-80
3	Guide Carriage Slideline Activebrake SL-AB Ø 26-50
4	Guide Carriage Slideline Multibrake SL-MB Ø 25-80
M	Guide Carriage Slideline Multibrake SL-MB without brakefunction Ø 25-80

End cap position (air connection)

<sup>1)</sup> Viton with VOE not possible.

<sup>2)</sup> "Slow speed lubrication" in combination with „Viton®“ seals on demand.

**Roller Guide  
POWERSLIDE**

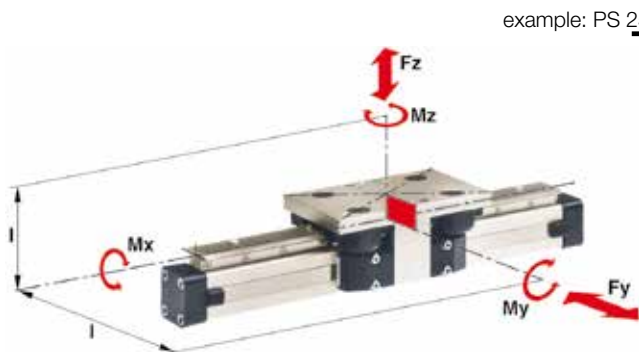
**Series PS 16 to 50 for Linear Drive**



**Features:**

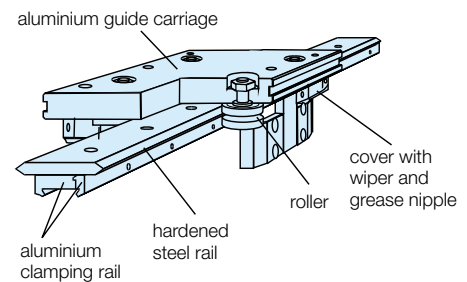
- Anodised aluminium guide carriage with vee rollers having 2 rows of ball bearings
- Hardened steel guide rail
- Several guide sizes can be used on the same drive
- Corrosion resistance version available on request
- Max. speed  $v = 3 \text{ m/s}$ ,
- Tough roller cover with wiper and grease nipple
- Any length of stroke up to 3500 mm, (longer strokes on request)

**Loads, Forces and Moments**



example: PS 25/35

width of guide rail (35 mm)  
size of drive OSP-P25



**Technical Data**

The table shows the maximum per-missible values for smooth operation, which should not be exceeded even under dynamic conditions.

**\* Please note:**

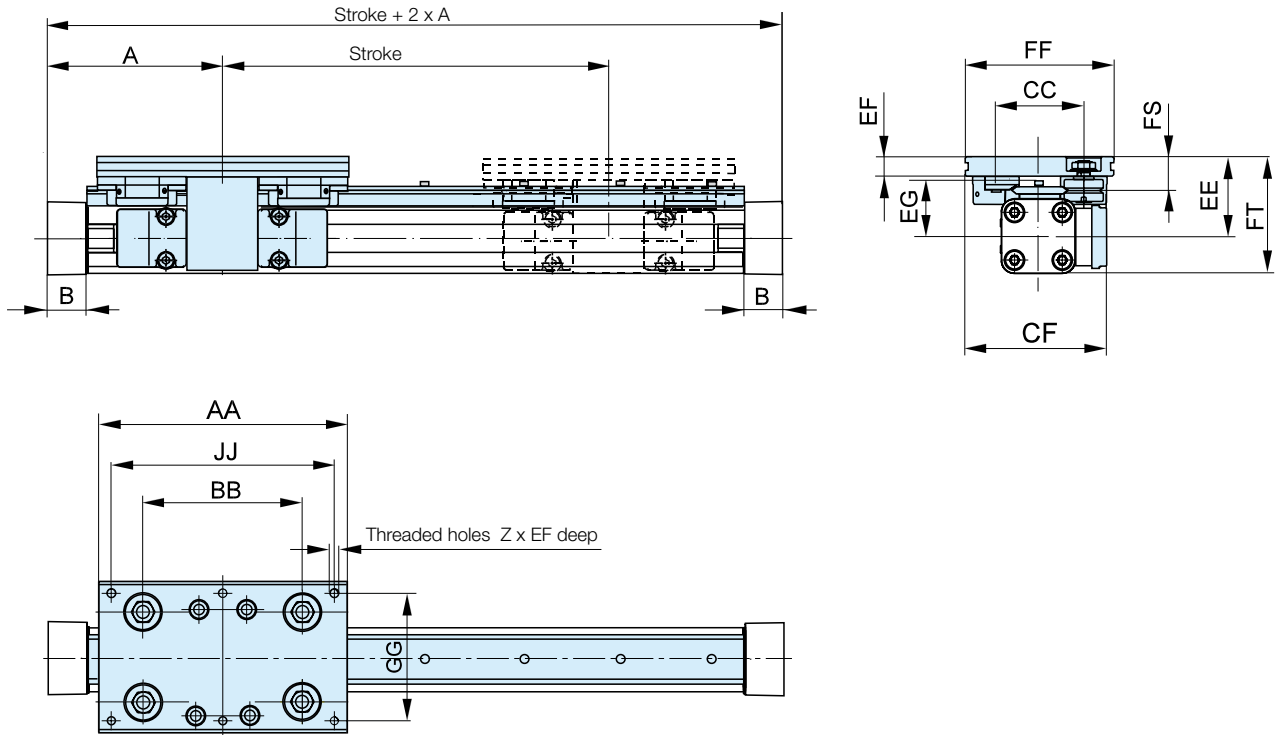
In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

Series	For linear drive	Max. Moment [Nm]			Max. loads [N]	Mass of linear drive with guide [kg]		Mass* guide carriage [kg]	Order-No** POWERSLIDE Guide without cylinder <sup>1)</sup>
		Mx	My	Mz		Fy, Fz	with 0 mm stroke		
<b>PS 16/25</b>	OSP-P16	14	45	45	1400	0.93	0.24	0.7	<b>20285</b>
<b>PS 25/25</b>	OSP-P25	14	63	63	1400	1.5	0.4	0.7	<b>20015</b>
<b>PS 25/35</b>	OSP-P25	20	70	70	1400	1.7	0.4	0.8	<b>20016</b>
<b>PS 25/44</b>	OSP-P25	65	175	175	3000	2.6	0.5	1.5	<b>20017</b>
<b>PS 32/35</b>	OSP-P32	20	70	70	1400	2.6	0.6	0.8	<b>20286</b>
<b>PS 32/44</b>	OSP-P32	65	175	175	3000	3.4	0.7	1.5	<b>20287</b>
<b>PS 40/44</b>	OSP-P40	65	175	175	3000	4.6	1.1	1.5	<b>20033</b>
<b>PS 40/60</b>	OSP-P40	90	250	250	3000	6	1.3	2.2	<b>20034</b>
<b>PS 50/60</b>	OSP-P50	90	250	250	3000	7.6	1.4	2.3	<b>20288</b>
<b>PS 50/76</b>	OSP-P50	140	350	350	4000	11.5	1.8	4.9	<b>20289</b>

<sup>1)</sup> corrosion resistance version available on request (max. loads and moments are 25% lower)

\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
Example: PS25/25 Guide D25 mm, stroke 1000 mm: 20015-01000

**Dimensions**



**Dimensions [mm]**

Series	A	B	Z	AA	BB	CC	CF	EE	EF	EG	FF	FS	FT	GG	JJ
<b>PS 16/25</b>	65	14	4xM6	120	65	47	80	49	12	35	80	21	64	64	100
<b>PS 25/25</b>	100	22	6xM6	145	90	47	79.5	53	11	39	80	20	73.5	64	125
<b>PS 25/35</b>	100	22	6xM6	156	100	57	89.5	52.5	12.5	37.5	95	21.5	73	80	140
<b>PS 25/44</b>	100	22	6xM8	190	118	73	100	58	15	39	116	26	78.5	96	164
<b>PS 32/35</b>	125	25.5	6xM6	156	100	57	95.5	58.5	12.5	43.5	95	21.5	84.5	80	140
<b>PS 32/44</b>	125	25.5	6xM8	190	118	73	107	64	15	45	116	26	90	96	164
<b>PS 40/44</b>	150	28	6xM8	190	118	73	112.5	75	15	56	116	26	109.5	96	164
<b>PS 40/60</b>	150	28	6xM8	240	167	89	122.5	74	17	54	135	28.5	108.5	115	216
<b>PS 50/60</b>	175	33	6xM8	240	167	89	130.5	81	17	61	135	28.5	123.5	115	216
<b>PS 50/76</b>	175	33	6xM10	280	178	119	155.5	93	20	64	185	39	135.5	160	250

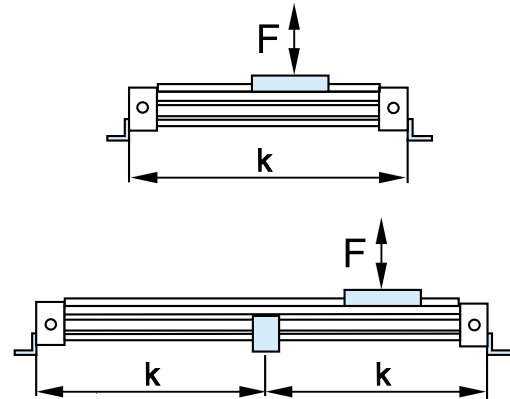
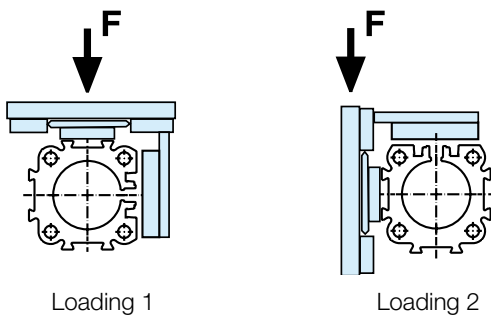
# OSP-P Modular Pneumatic Linear Drive Systems

## Mid-Section Support

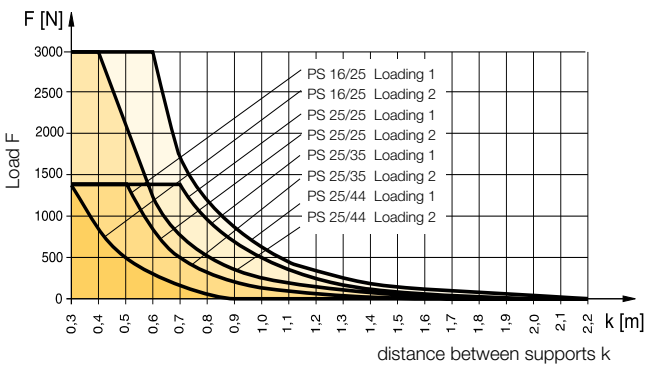
Mid section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

### Note

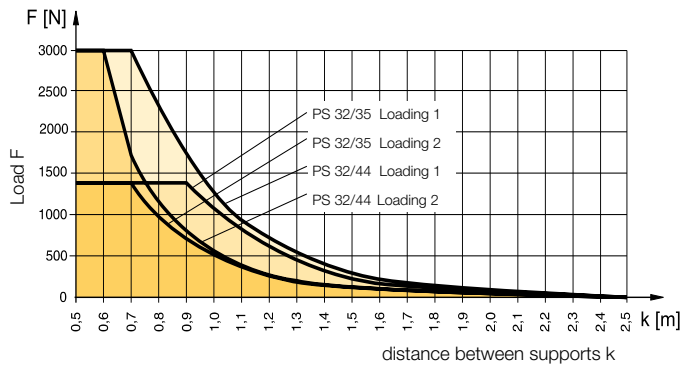
For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1m.



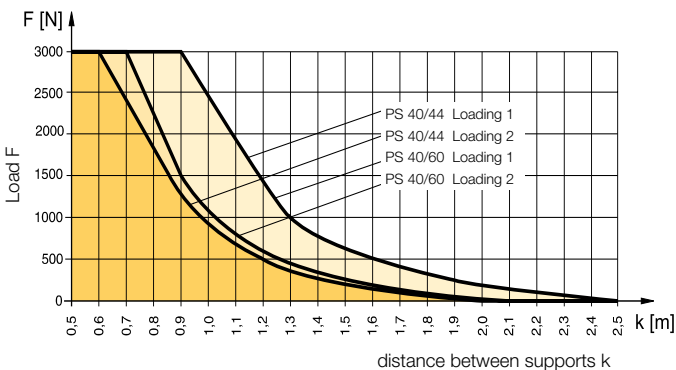
**Permissible unsupported length: PS 16/25, PS 25/25, PS 25/35, PS 25/44**



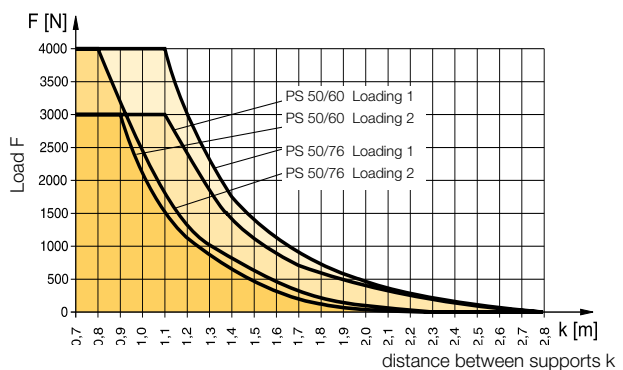
**Permissible unsupported length: PS 32/35, PS 32/44**



**Permissible unsupported length: PS 40/44, PS 40/60**



**Permissible unsupported length: PS 50/60, PS 50/76**



## Service Life

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

## 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 dependant on environmental conditions (temperature, running speed, grease quality etc.) therefore the installation should be regularly inspected.

## 1. Calculation of load factor $L_F$

$$L_F = \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}}$$

with combined loads,  $L_F$  should not exceed the value 1.

## 2. Service Life Calculation

- For PS 16/25, 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, PS 40/44, PS 40/60 and PS 50/60:  $\text{Service life [km]} = \frac{314}{(L_F + 0,015)^3}$
- For PS 50/76:  $\text{Service life [km]} = \frac{680}{(L_F + 0,015)^3}$



**Order Instructions- POWERSLIDE**

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
<b>OSPP</b>	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

**Piston-Ø**

16
25
32
40
50

**Stroke**

Input in mm (5 digits)

**Piston Mounting**

0	without
---	---------

**Measuring system**

0	without
X	SFI 0.1 mm
Y	SFI 1 mm

**Screws**

0	standard
1	stainless

**Cushioning**

0	standard
1	max. length <sup>3)</sup>

**Version / Piston**

0	standard
1	Tandem

**Lubrication**

0	standard
1	Slow speed <sup>2)3)</sup>

**End cap position**

0	l+r 0° = in front
1	l+r 90° = underneath
2	l+r 180° = at the back
3	l+r 270° = same side as outerband
4	l 90° = underneath; r 0° = in front
5	l 180° = at the back; r 0° = in front
6	l 270° = same side as outerband; r 0° = in front
7	l 0° = in front; r 90° = underneath
8	l 180° = at the back; r 90° = underneath
9	l 270° = same side as outerband; r 90° = underneath
A	l 0° = in front; r 180° = at the back
B	l 90° = underneath; r 180° = at the back
C	l 270° = same side as outerband; r 180° = at the back
D	l 0° = in front; r 270° = same side as outerband
E	l 90° = underneath; r 270° = same side as outerband
F	l 180° = at the back; r 270° = same side as outerband

**Guides/ Brakes/ Inversion**

0	without
E	PSXX/25 Powerslide Ø 16, 25
F	PSXX/35 Powerslide Ø 25, 32
G	PSXX/44 Powerslide Ø 25, 32, 40
H	PSXX/60 Powerslide Ø 40, 50
I	PSXX/76 Powerslide Ø 50

**Cover / Cable Channel**

0	standard
1	cable channel
2	cable channel two-sided
X	without Cover rail

**add. Guide Carriage**

0	without
E	Guide Carriage Powerslide PSXX/25 Ø 16, 25
F	Guide Carriage Powerslide PSXX/35 Ø 25, 32
G	Guide Carriage Powerslide PSXX/44 Ø 25, 32, 40
H	Guide Carriage Powerslide PSXX/60 Ø 40, 50
I	Guide Carriage Powerslide PSXX/76 Ø 50

**Air Connection**

0	standard
1	on the end face
2	both at one end (not turnable)
3	left standard right end face
4	right standard left end face
A	3/2 way valve VOE 24 V= Ø 25,32,40,50
B	3/2 way valve VOE 230 V~/110 V= Ø 25,32,40,50
C	3/2 way valve VOE 48 V= Ø 25,32,40,50
E	3/2 way valve VOE 110 V~/ Ø 25,32,40,50

**Seals**

0	standard (NBR)
1	Viton® <sup>1)</sup>

End cap position (air connection)

Cylinder R (right end side)

Cylinder L (left end side)

<sup>1)</sup> Viton with VOE not possible.

<sup>2)</sup> "Slow speed lubrication" in combination with „Viton®“ seals on demand.

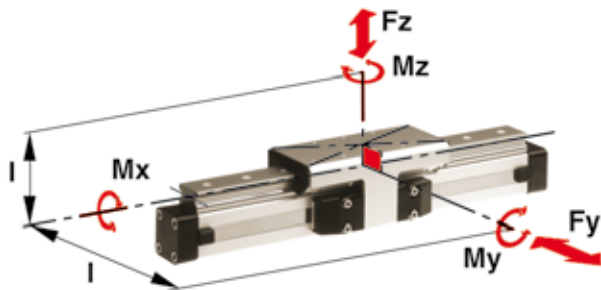
<sup>3)</sup> „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.

## Aluminium Roller Guide PROLINE Series PL 16 to 50 for Linear Drive

### Features:

- High precision
- High velocities (10 m/s)
- Smooth operation - low noise
- Integrated wiper system
- Long life lubrication
- Compact dimensions - compatible to Slideline plain bearing guide
- Any length of stroke up to 3750 mm

### Loads, Forces and Moments



### Technical Data

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

$$\frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

The sum of the loads should not exceed >1. With a load factor of less than 1, service life is 8000 km

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

**\* Please note:**

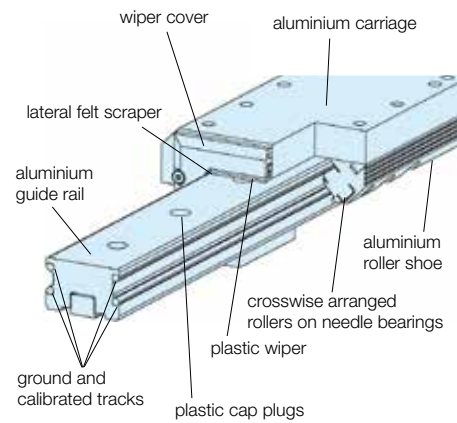
The mass of the carriage has to be added to the total moving mass when using the cushioning diagram



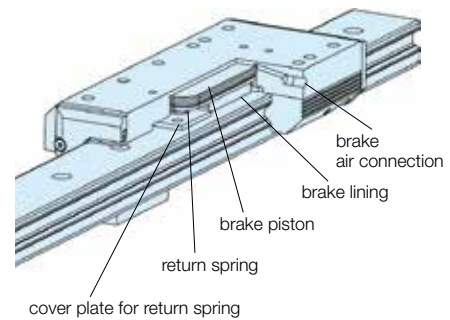
### Integrated Brake (optional) for series OSP-P25 to OSP-P50:

- Actuated by pressurisation
- Released by depressurisation and spring actuation

### Carriage Without Brake



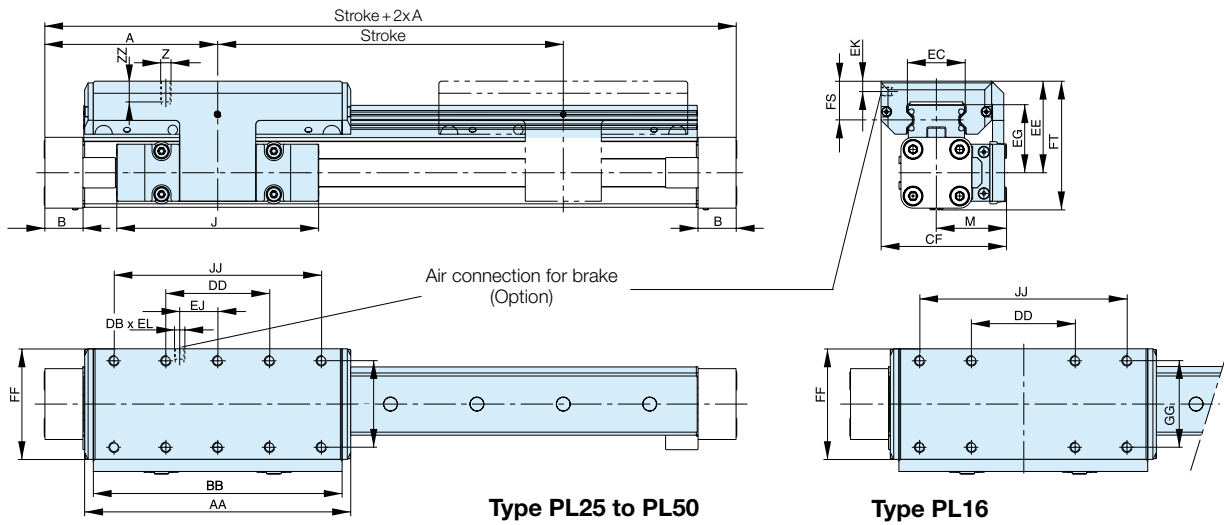
### Option - Integrated Brake



Series	For linear drive	Max. Moment [Nm]			Max. loads [N]	Maximum braking force at 6 bar [N <sup>1)</sup>	Mass of linear drive with guide [kg]		Mass* guide carriage [kg]	Order-No** PROLINE Guide without cylinder	
		Mx	My	Mz			Fy, Fz	with 0mm stroke		increase per 100mm stroke	without Brake
PL 16	OSP-P16	8	12	12	542	-	0.55	0.19	0.24	20855	-
PL 25	OSP-P25	16	39	39	857	on request	1.65	0.40	0.75	20856	20860
PL 32	OSP-P32	29	73	73	1171	on request	3.24	0.62	1.18	20857	20861
PL 40	OSP-P40	57	158	158	2074	on request	4.35	0.70	1.70	20858	20862
PL 50	OSP-P50	111	249	249	3111	on request	7.03	0.95	2.50	20859	20863

\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
Example: PROLINE guide without brake D16mm, stroke 1000mm: 20855-01000

**Dimensions - Series OSP-P PL16, PL25, PL32, PL40, PL50**



**Dimensions [mm] Series OSP-P PL16, PL25, PL32, PL40, PL50**

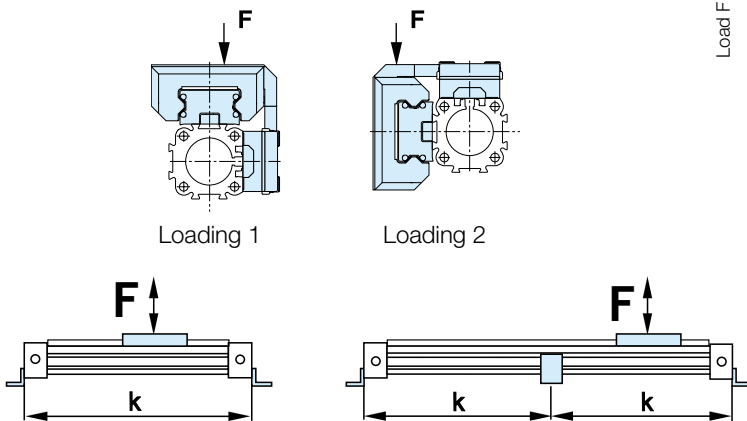
Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EJ	EK	EL	FF	FS	FT	GG	JJ	ZZ
PL16	65	14	69	31	M4	98	88	-	30	55	23	40	30	-	-	-	48	17	55	36	70	8
PL25	100	22	117	40.5	M6	154	144	M5	60	72.5	32.5	53	39	22	6	6	64	23	73.5	50	120	12
PL32	125	25.5	152	49	M6	197	187	M5	80	91	42	62	48	32	6	6	84	25	88	64	160	12
PL40	150	28	152	55	M6	232	222	M5	100	102	47	64	50.5	58	6	6	94	23.5	98.5	78	200	12
PL50	175	33	200	62	M6	276	266	M5	120	117	63	75	57	81	6	6	110	29	118.5	90	240	16

**Mid-Section Support**

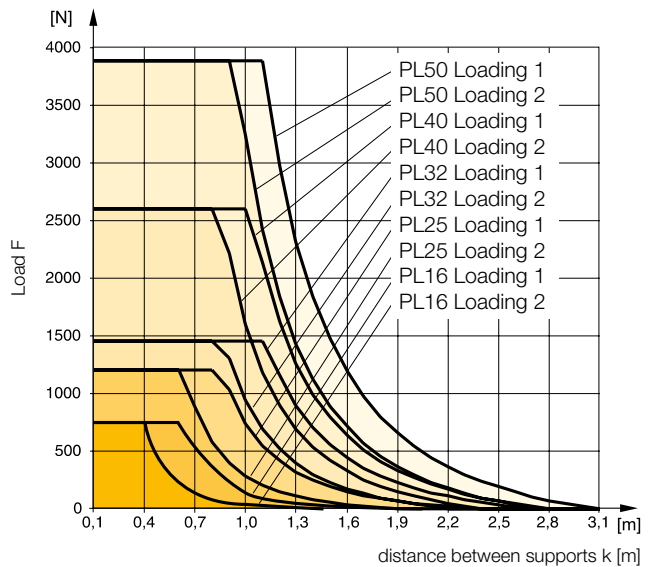
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

**Note:**

For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1 m.



**Permissible Unsupported Length PL16, PL25, PL32, PL40 and PL50**



Order Instructions- PROLINE

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
OSPP	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

<b>Piston-Ø</b>	<b>Stroke</b> Input in mm (5 digits)	<b>Piston Mounting</b>	<b>Measuring system</b>
16		0 without	0 without
25			X SFI 0.1 mm
32			Y SFI 1 mm
40			
50			

<b>Screws</b>	<b>Cushioning</b>
0 standard	0 standard
	1 max. length <sup>3)</sup>

<b>Version / Piston</b>	<b>Lubrication</b>	<b>End cap position</b>	<b>Guides/ Brakes/ Inversion</b>	<b>Cover / Cable Channel</b>
0 standard	0 standard	0 l+r 0° = in front	0 without	0 standard
1 Tandem	1 Slow speed <sup>2)3)</sup>	1 l+r 90° = underneath	6 Proline PL Ø 16-50	1 cable channel
		2 l+r 180° = at the back	7 Proline with Activebrake PL-AB Ø 25-50	2 cable channel two-sided
		3 l+r 270° = same side as outerband	8 Proline with Multibrake PL-MB Ø 25-50	X without Cover rail

<b>Air Connection</b>	<b>Seals</b>
0 standard	0 standard (NBR)
1 on the end face	1 Viton <sup>® 1)</sup>
2 both at one end (not turnable)	
3 left standard right end face	
4 right standard left end face	
A 3/2 way valve VOE 24V = Ø 25, 32, 40, 50	
B 3/2 way valve VOE 230V~/110V= Ø 25, 32, 40, 50	
C 3/2 way valve VOE 48V = Ø 25, 32, 40, 50	
E 3/2 way valve VOE 110V~ Ø 25, 32, 40, 50	

<b>add. Guide Carriage</b>
0 without
6 Guide Carriage Proline PL Ø 16-50
7 Guide Carriage Proline Activebrake PL-AB Ø 25-50
8 Guide Carriage Proline Multibrake PL-MB Ø 25-50
N Guide Carriage Proline Multibrake PL-MB without brake function Ø 25-50

End cap position  
(air connection)

Cylinder R  
(right end side)

Cylinder L  
(left end side)

1) Viton with VOE not possible.

2) "Slow speed lubrication" in combination with „Viton<sup>®</sup>“ seals on demand.

3) „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.

**Recirculating Ball Bearing Guide  
STARLINE  
Series STL 16 to 50 for Linear Drive**



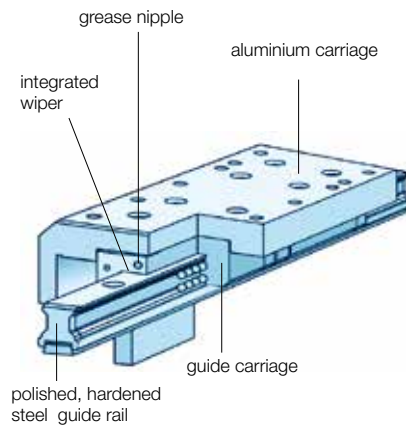
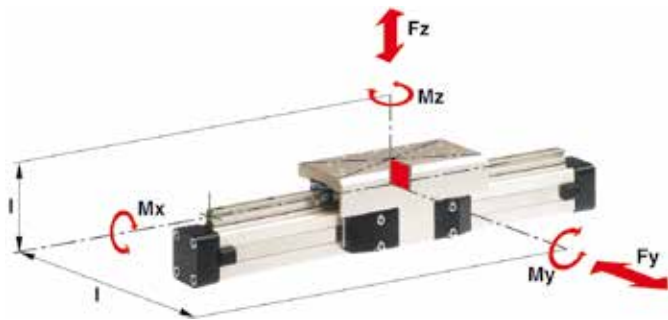
**Features:**

- Polished and hardened steel guide rail
- For very high loads in all directions
- High precision
- Integrated wiper system
- Integrated grease nipples
- Any length of stroke up to 3700 mm
- Anodized aluminium guide carriage – dimensions compatible with OSP guides SLIDELINE and PROLINE
- Installation height (STL16 - 32) compatible with OSP guides SLIDELINE and PROLINE



- Maximum speed  
STL16: v = 3 m/s  
STL25 to 50: v = 5 m/s

**Loads, Forces and Moments**



**Technical Data**

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

$$\frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

The sum of the loads should not exceed >1.

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

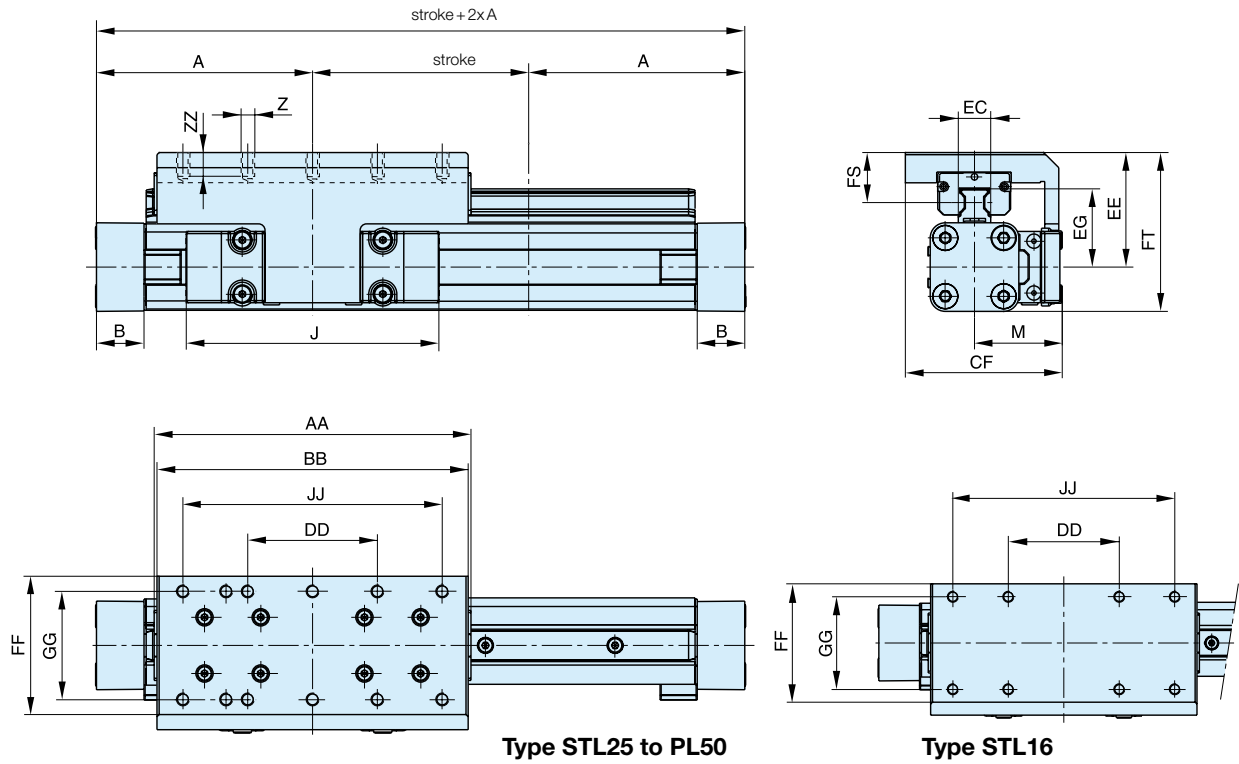
**\* Please note:**

The mass of the carriage has to be added to the total moving mass when using the cushioning diagram

Series	For linear drive	Max. Moment [Nm]			Max. loads [N]		Mass of linear drive with guide [kg]		Mass * guide carriage [kg]	Order-No ** STARLINE Guide without cylinder
		Mx	My	Mz	Fy	Fz	with 0mm stroke	increase per 100 mm stroke		
<b>STL 16</b>	OSP-P16	15	30	30	1000	1000	0.598	0.210	0.268	<b>21111</b>
<b>STL 25</b>	OSP-P25	50	110	110	3100	3100	1.733	0.369	0.835	<b>21112</b>
<b>STL 32</b>	OSP-P32	62	160	160	3100	3100	2.934	0.526	1.181	<b>21113</b>
<b>STL 40</b>	OSP-P40	150	400	400	4000	7500	4.452	0.701	1.901	<b>21114</b>
<b>STL 50</b>	OSP-P50	210	580	580	4000	7500	7.361	0.936	2.880	<b>21115</b>

\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
Example: STARLINE guide D16 mm, stroke 1000 mm: 21111-01000

**Dimensions - Series OSP-P STL16 to STL 50**



**Dimensions [mm] Series OSP-P STL16 to STL50**

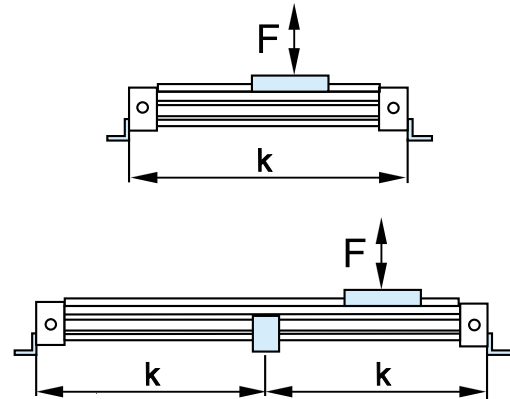
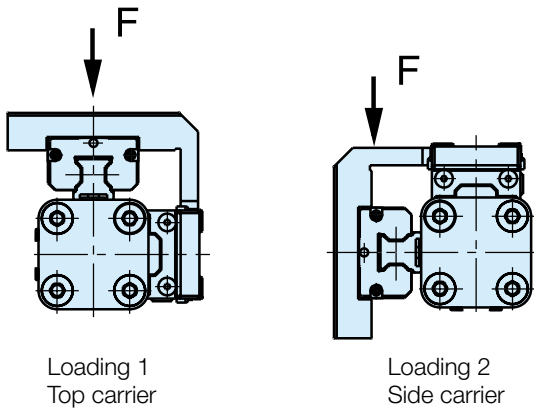
Series	A	B	J	M	Z	AA	BB	CF	DD	EC	EE	EG	FF	FS	FT	GG	JJ	ZZ
<b>STL16</b>	65	14	69	31	M4	93	90	55	30	15	40	24.6	48	18	55	36	70	8
<b>STL25</b>	100	22	117	40.5	M6	146.6	144	72.5	60	15	53	36.2	64	23.2	73.5	50	120	12
<b>STL32</b>	125	25.5	152	49	M6	186.6	184	91	80	15	62	42.2	84	26.2	88	64	160	12
<b>STL40</b>	150	28	152	55	M6	231	226	102	100	20	72	51.6	94	28.5	106.5	78	200	12
<b>STL50</b>	175	33	200	62	M6	270.9	266	117	120	23	85	62.3	110	32.5	128.5	90	240	16

**Mid-Section Support**

Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

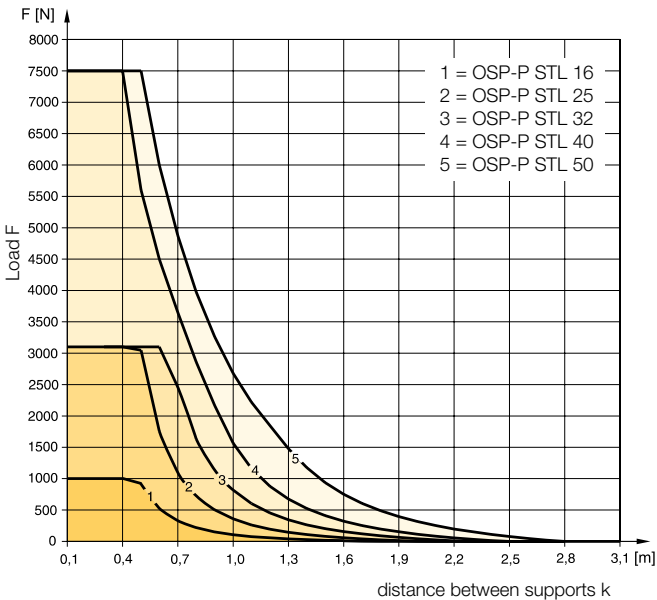
**Note**

For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1m.



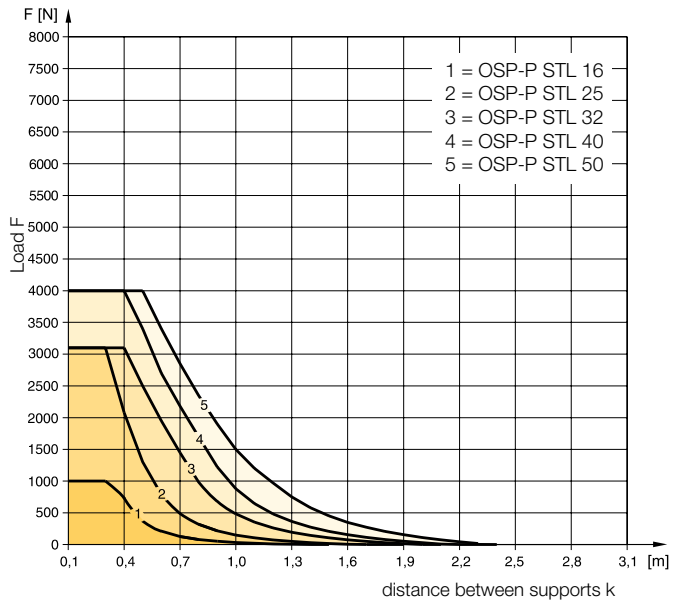
**Permissible Unsupported Length STL16 to STL50**

Loading 1 - Top carrier



**Permissible Unsupported Length STL16 to STL50**

Loading 2 - Side carrier





**Variable Stop**

**Type VS16 to VS50**

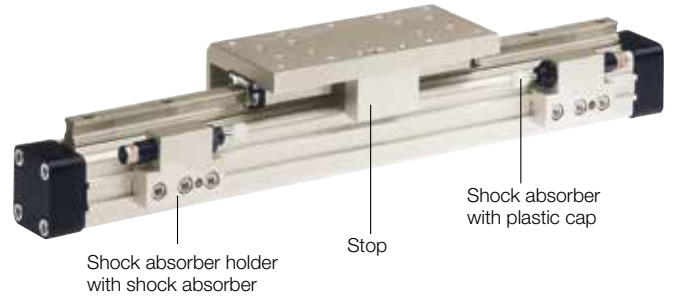
Arrangement with two variable stops

The variable stop Type VS provides simple stroke limitation. It can be retrofitted and positioned anywhere along the stroke length.

For every cylinder diameter two types of shock absorber are available – see „Shock Absorber Selection“.

Mid-section supports and magnetic switches can still be fitted on the same side as the variable stop.

Depending on the application, two variable stops can be fitted if required.

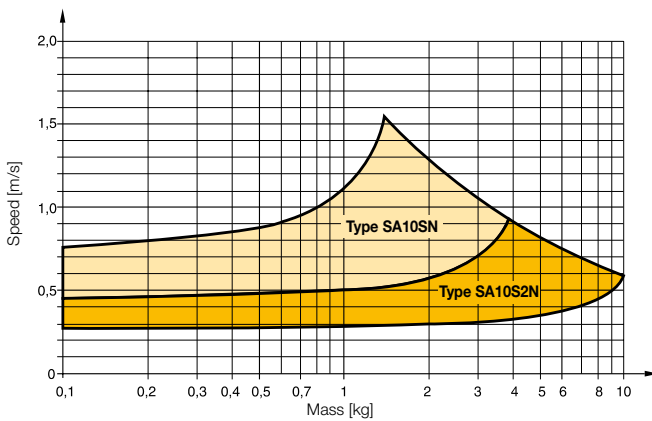


**Shock Absorber Selection**

The shock absorber is selected in dependence on the mass and speed.

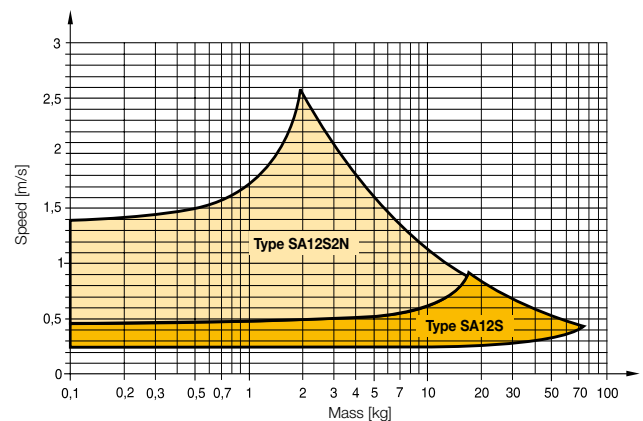
The mass of the carrier itself must be taken into account.

**Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-STL16**



The values relate to an effective driving force of 78 N (6 bar)

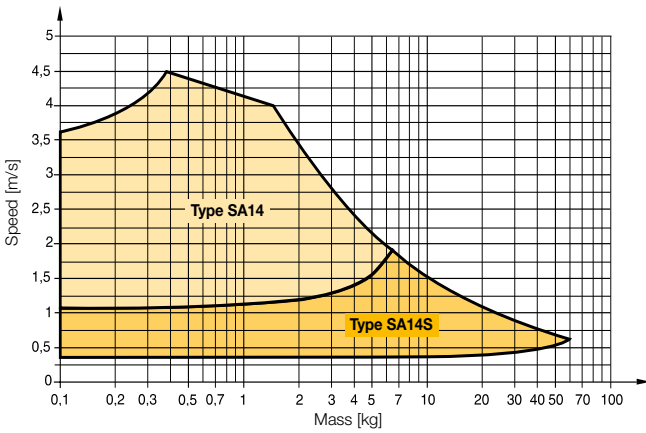
**Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-STL25**



The values relate to an effective driving force of 250 N (6 bar)

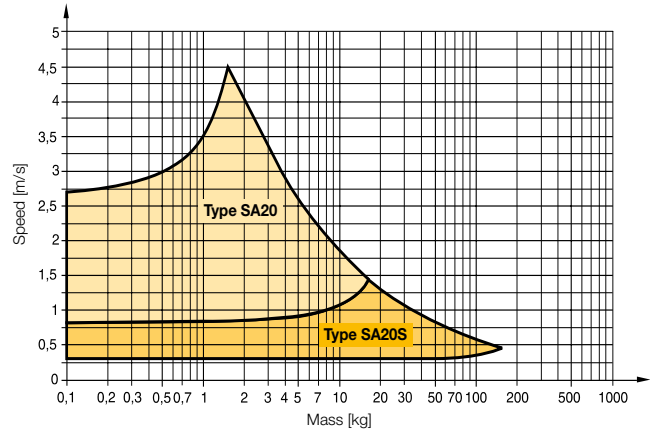
## OSP-P Modular Pneumatic Linear Drive Systems

### Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-STL32



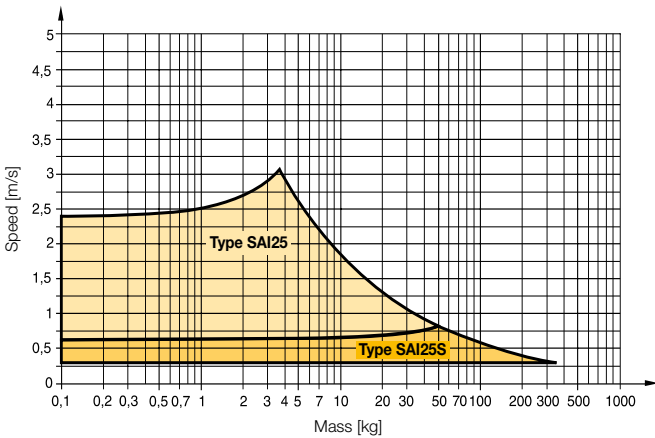
The values relate to an effective driving force of 420 N (6 bar)

### Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-STL40



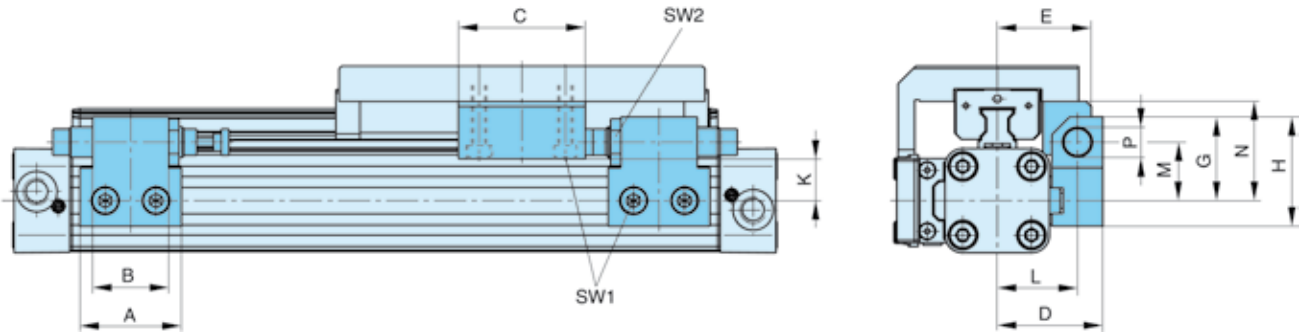
The values relate to an effective driving force of 640 N (6 bar)

### Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-STL50



The values relate to an effective driving force of 1000 N (6 bar)

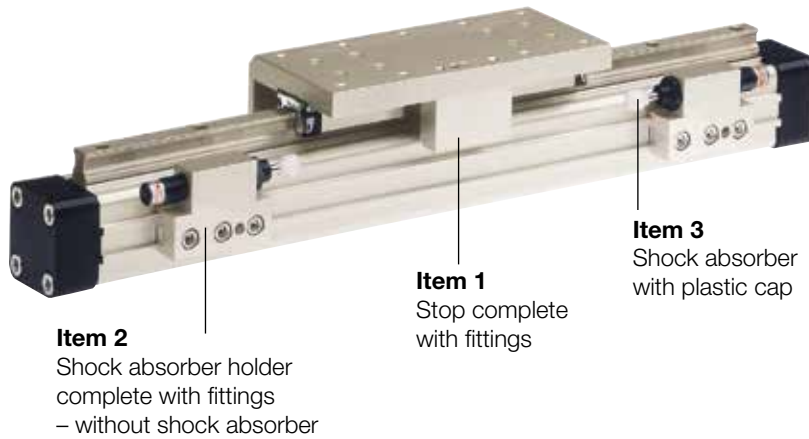
**Dimensions - Variable Stop Type VS16 to VS50**



**Dimension [mm] – Variable Stop Type VS16 to VS50**

Series	Type	A	B	C	D	E	G	H	K	L	M	N	P	SW1	SW2
OSP-STL16	VS16	30	14	25	33	30	28	38	16.2	25.5	20.5	30	M10x1	4	12.5
OSP-STL25	VS25	40	30	50	41.5	37	33	43	18	31.5	23	39	M12x1	5	16
OSP-STL32	VS32	60	40	50	45.5	42	35	45	19	35.5	25	48	M14x1.5	5	17
OSP-STL40	VS40	84	52	60	64	59	48	63	25.6	50	34	58.6	M20x1.5	5	24
OSP-STL50	VS50	84	-	60	75	69	55	70	26.9	57	38	66.9	M25x1.5	5	30

**Order information - Variable Stop Type VS16 to VS50 - without cylinder and without guide**



Item	Description	Size									
		VS16		VS25		VS32		VS40		VS50	
		Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
1	Stop, complete	-	21196FIL	-	21197FIL	-	21198FIL	-	21199FIL	-	21200FIL
2	Shock absorber holder complete	-	21201FIL	-	21202FIL	-	21203FIL	-	21204FIL	-	21205FIL
3*	Shock absorber, soft	SA10SN	7718FIL	SA12S2N	7723FIL	SA14	7708FIL	SA20	7710FIL	SAI25	7712FIL
	Shock absorber, hard	SA10S2N	7721FIL	SA12S	7707FIL	SA14S	7709FIL	SA20S	7711FIL	SAI25S	7713FIL

\* Shock absorber with plastic cap

**Note: Order instructions for VS in combination with the cylinder and guide see page 64, pos.18**

**Order Instructions- STARLINE**

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
OSPP	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

**Piston-Ø**

16
25
32
40
50

**Stroke**

Input in mm (5 digits)

**Piston Mounting**

0	without
---	---------

**Measuring system**

0	without
X	SFI 0.1 mm
Y	SFI 1 mm

**Screws**

0	standard
---	----------

**Cushioning**

0	standard
1	max. length <sup>3)</sup>
2	VS variable stop, soft left for Starline
3	VS variable stop, hard, left for Starline
4	VS variable stop, soft, right for Starline
5	VS variable stop, hard, right for Starline
6	VS variable stop, soft, both sides for Starline
7	VS variable stop, hard, both sides for Starline

**Version / Piston**

0	standard
1	Tandem

**Lubrication**

0	standard
1	Slow speed <sup>2)3)</sup>

**Cover / Cable Channel**

0	standard
1	cable channel
2	cable channel two-sided
X	without Cover rail

**Air Connection**

0	standard
1	on the end face
2	both at one end (not turnable)
3	left standard right end face
4	right standard left end face
A	3/2 way valve VOE 24 V= Ø 25, 32, 40, 50
B	3/2 way valve VOE 230 V~/110 V= Ø 25, 32, 40, 50
C	3/2 way valve VOE 48 V= Ø 25, 32, 40, 50
E	3/2 way valve VOE 110 V~ Ø 25, 32, 40, 50

**Seals**

0	standard (NBR)
1	Viton <sup>® 1)</sup>

**End cap position**

0	l+r0° = in front
1	l+r90° = underneath
2	l+r180° = at the back
3	l+r270° = same side as outerband
4	l90° = underneath; r0° = in front
5	l180° = at the back; r0° = in front
6	l270° = same side as outerband; r0° = in front
7	l0° = in front; r90° = underneath
8	l180° = at the back; r90° = underneath
9	l270° = same side as outerband; r90° = underneath
A	l0° = in front; r180° = at the back
B	l90° = underneath; r180° = at the back
C	l270° = same side as outerband; r180° = at the back
D	l0° = in front; r270° = same side as outerband
E	l90° = underneath; r270° = same side as outerband
F	l180° = at the back; r270° = same side as outerband

**Guides/ Brakes/ Inversion**

0	without
B	Starline STL

**add. Guide Carriage**

0	without
B	Guide Carriage Starline STL

End cap position (air connection)

<sup>1)</sup> Viton with VOE not possible.

<sup>2)</sup> "Slow speed lubrication" in combination with „Viton<sup>®</sup>“ seals on demand.

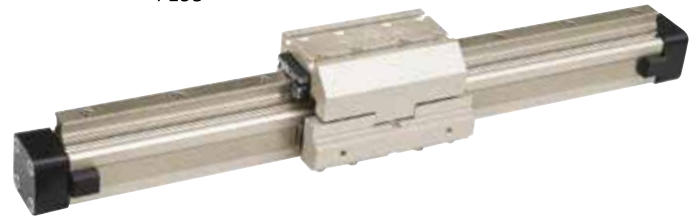
<sup>3)</sup> „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.

# OSP-P Modular Pneumatic Linear Drive Systems

## Recirculating Ball Bearing Guide Series KF16 to KF50 for Linear Drive

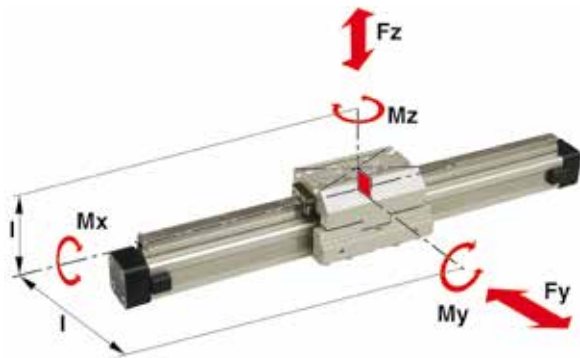
### Features:

- Anodized aluminium guide carriage, the mounting dimensions correspond to FESTO Type: DGPL-KF
- Polished and hardened steel guide rail
- For high loads in all directions
- High precision
- Integrated wiper system
- Integrated grease nipples
- Any length of stroke up to 3700 mm



- Maximum speed  
 KF16, KF40: v = 3 m/s  
 KF25, KF32, KF50: v = 5 m/s

### Loads, Forces and Moments



### Technical Data

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

$$\frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

The sum of the loads should not exceed >1.

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

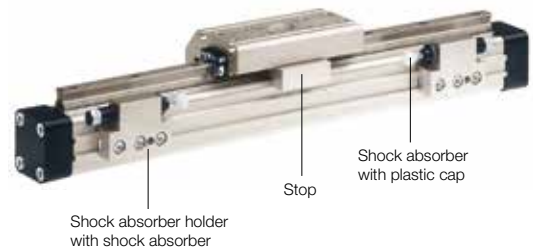
### Variable Stop

The variable stop Type VS provides simple stroke limitation. It can be retrofitted and positioned anywhere along the stroke length. For every cylinder diameter two types of shock absorber are available. Mid-section supports and magnetic switches can still be fitted on the same side as the variable stop.

Depending on the application, two variable stops can be fitted if required.

### Variable Stop Type VS16 to VS50

Arrangement with two variable stops



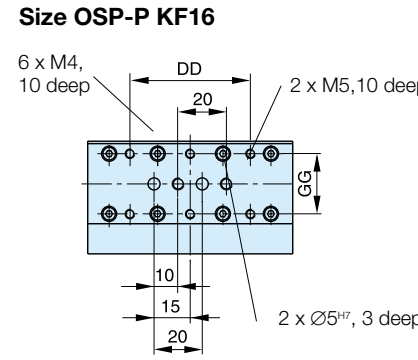
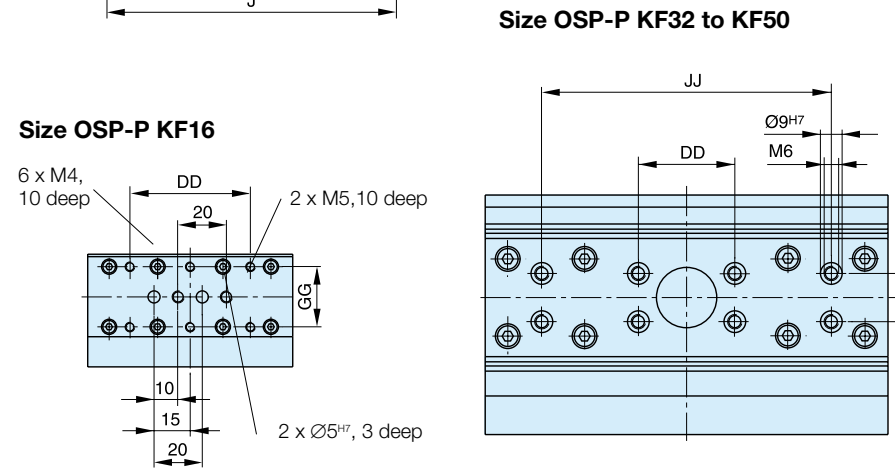
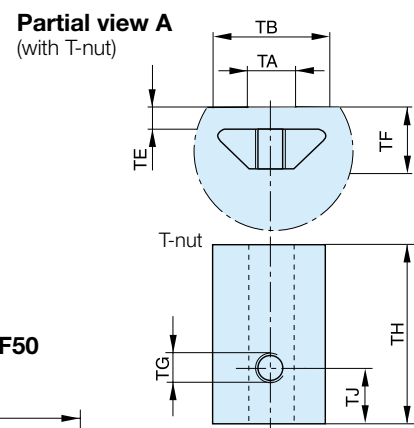
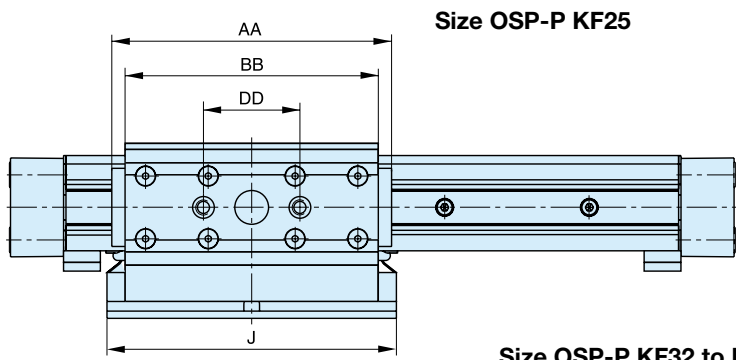
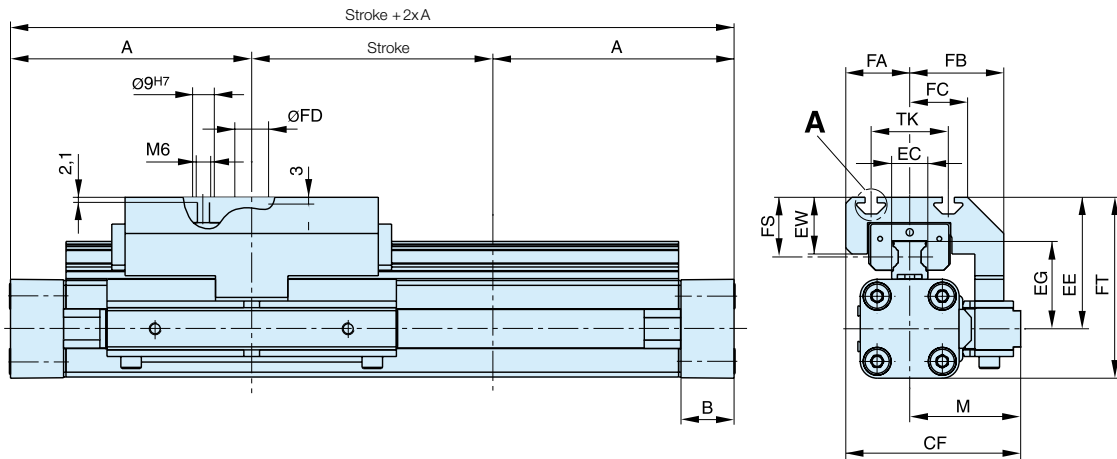
### \* Please note:

The mass of the carriage has to be added to the total moving mass when using the cushioning diagram

Series	For linear drive	Max. moment [Nm]			Max. loads [N]		Mass of linear drive with guide [kg]		Mass* guide carriage [kg]	Groove stone	Order-No.	
		Mx	My	Mz	Fy	Fz	with 0mm stroke	increase per 100mm stroke			Thread size	Groove Stone
<b>KF16</b>	OSP-P16	12	25	25	1000	1000	0.558	0.21	0.228	-	-	<b>21101</b>
<b>KF25</b>	OSP-P25	35	90	90	3100	3100	1.522	0.369	0.607	M5	<b>13508FIL</b>	<b>21102</b>
<b>KF32</b>	OSP-P32	44	133	133	3100	3100	2.673	0.526	0.896	M5	<b>13508FIL</b>	<b>21103</b>
<b>KF40</b>	OSP-P40	119	346	346	4000	7100	4.167	0.701	1.531	M6	<b>13509FIL</b>	<b>21104</b>
<b>KF50</b>	OSP-P50	170	480	480	4000	7500	7.328	0.936	2.760	M8	<b>13510FIL</b>	<b>21105</b>

\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
 Example: KF guide D16 mm, stroke 1000 mm: 21101-01000

**Dimensions - Series OSP-P KF16 to KF50**



**Dimensions [mm] Series OSP-P KF16, KF25, KF32, KF40, KF50**

Series	A	B	J	AA	BB	CF	DD	EC	EE	EG	EW	JJ	GG	M
<b>KF16</b>	65	14	76	93	85	48	50	15	41	24.6	10	-	25	30
<b>KF25</b>	100	22	120	120.2	105	72.5	40	15	54.5	36.2	23.5	-	-	46
<b>KF32</b>	125	25.5	160	146.2	131	93.8	40	15	60.5	42.2	23.5	-	20	59.8
<b>KF40</b>	150	28	150	188.5	167	103.3	40	20	69.5	51.6	26.5	120	20	60.8
<b>KF50</b>	175	33	180	220.2	202	121	40	23	90.5	62.3	32.5	120	40	69

Series	FA	FB	FC	FD	FT	FS	TA	TB	TE	TF	TG	TH	TJ	TK
<b>KF16</b>	17.7	29	16.5	-	56	19	-	-	-	-	-	-	-	-
<b>KF25</b>	26.5	39	24	14 <sup>G7</sup>	75	24.7	5	12.1	2.3	6.9	M5	11.5	4	32
<b>KF32</b>	34	53.8	34	25 <sup>G7</sup>	86.5	24.7	5	12.1	1.8	6.4	M5	11.5	4	47
<b>KF40</b>	42.5	56.8	41	25 <sup>G7</sup>	104	26	6	12.8	1.8	8.4	M6	17	5.5	55
<b>KF50</b>	52	65	50	25 <sup>G7</sup>	134	38	8	21.1	4.5	12.5	M8	23	7.5	72

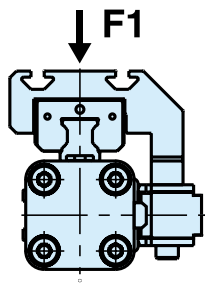
## Mid-Section Support

Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2.

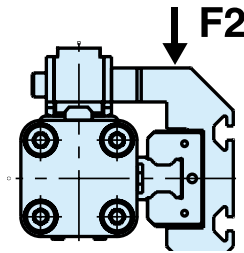
Deflection of 0.5 mm max. between supports is permissible.

### Note

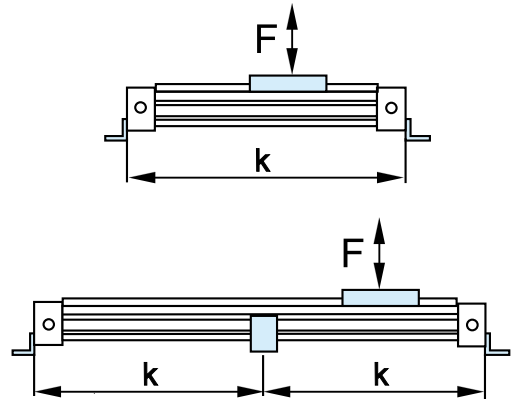
For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1m.



Loading 1  
Top carrier

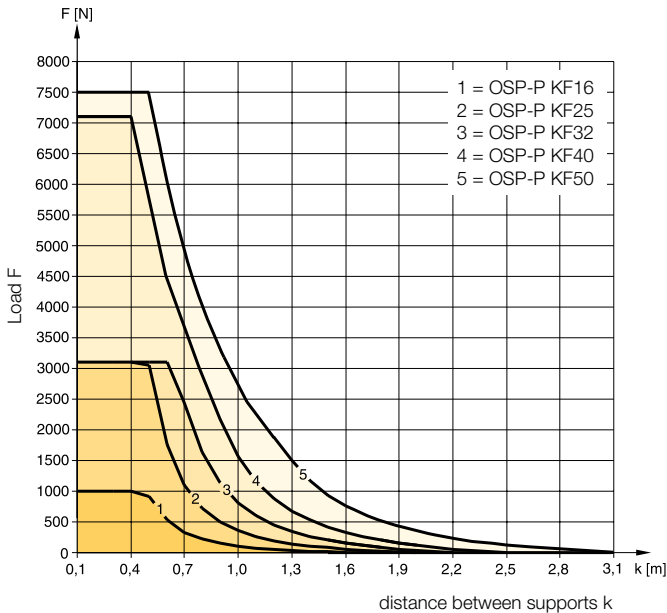


Loading 2  
Side carrier



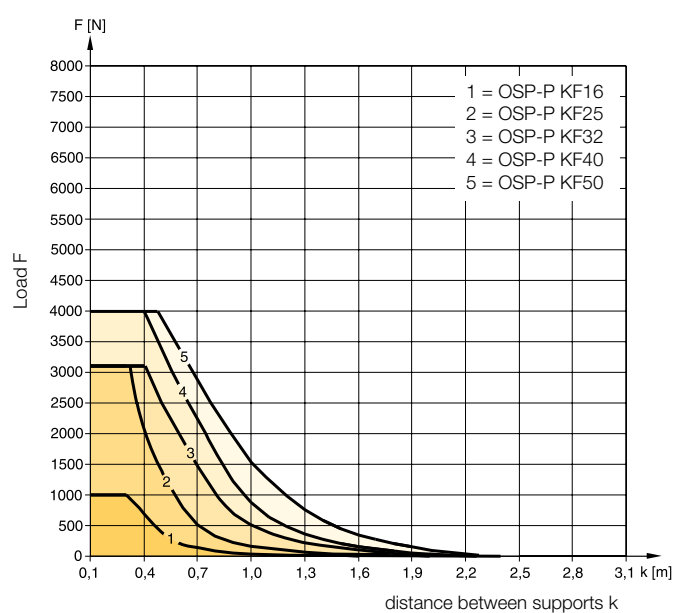
### Permissible Unsupported Length OSP-P KF16 to KF50

Loading 1 - Top carrier



### Permissible Unsupported Length OSP-P KF16 to KF50

Loading 2 - Side carrier





**Variable Stop**

**Type VS16 to VS50**

Arrangement with two variable stops

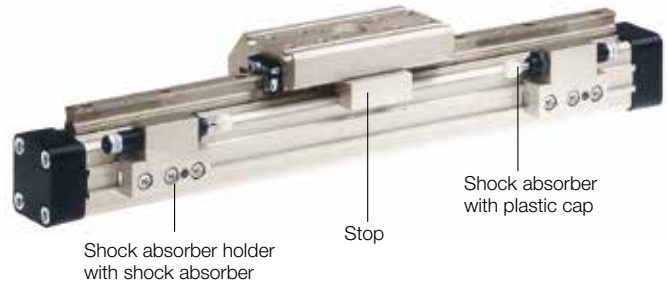
The variable stop Type VS provides simple stroke limitation. It can be retrofitted and positioned anywhere along the stroke length.

For every cylinder diameter two types of shock absorber are available

– see „Shock Absorber Selection“ below.

Mid-section supports and magnetic switches can still be fitted on the same side as the variable stop.

Depending on the application, two variable stops can be fitted if required.

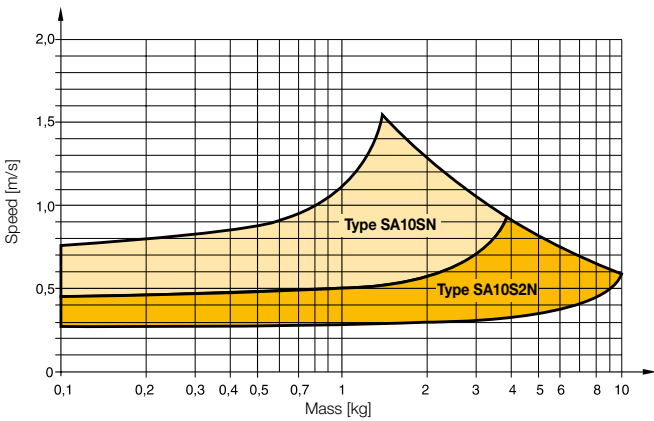


**Shock Absorber Selection**

The shock absorber is selected in dependence on the mass and speed.

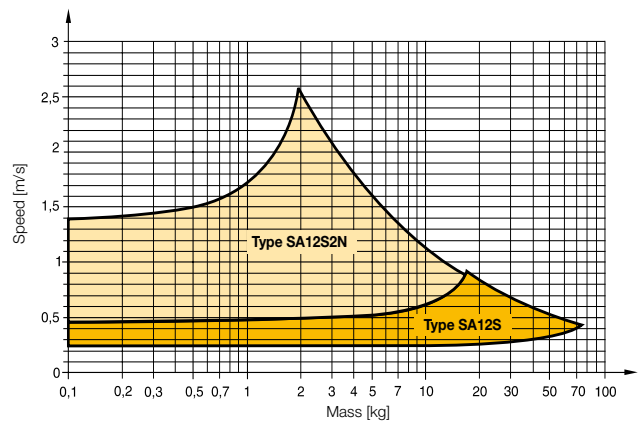
The mass of the carrier itself must be taken into account.

**Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-KF16**



The values relate to an effective driving force of 78 N (6 bar)

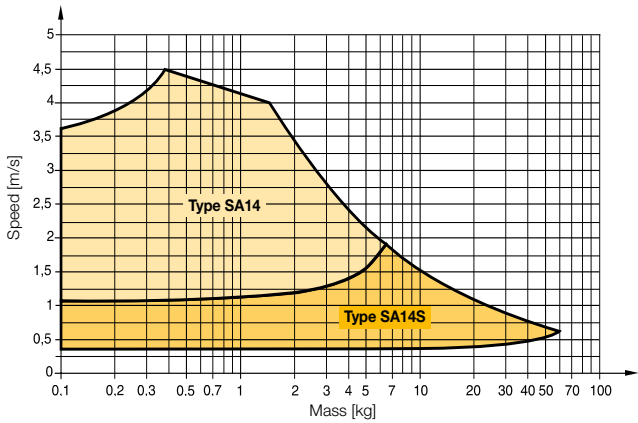
**Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-KF25**



The values relate to an effective force of 250 N (6 bar)

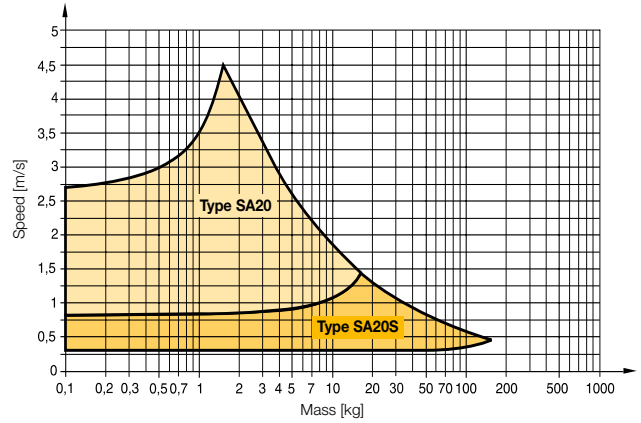
## OSP-P Modular Pneumatic Linear Drive Systems

### Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-KF32



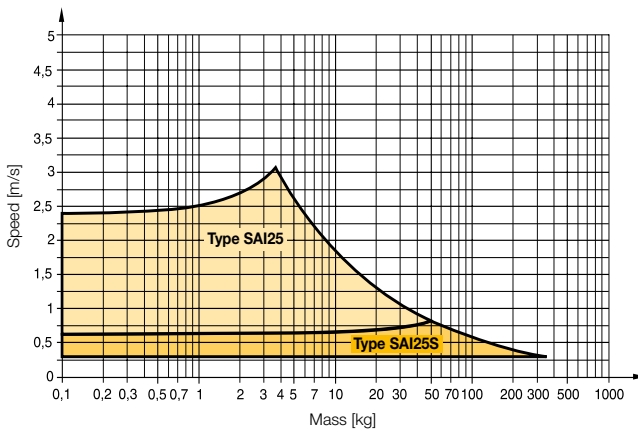
The values relate to an effective driving force of 420 N (6 bar)

### Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-KF40



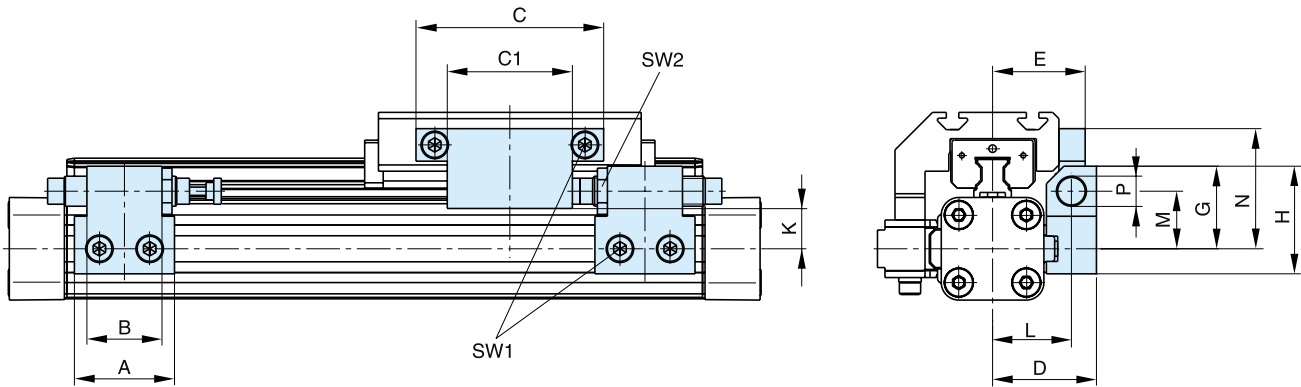
The values relate to an effective driving force of 640 N (6 bar)

### Shock Absorber Selection in Dependence on Mass and Speed for Series OSP-KF50



The values relate to an effective driving force of 1000 N (6 bar)

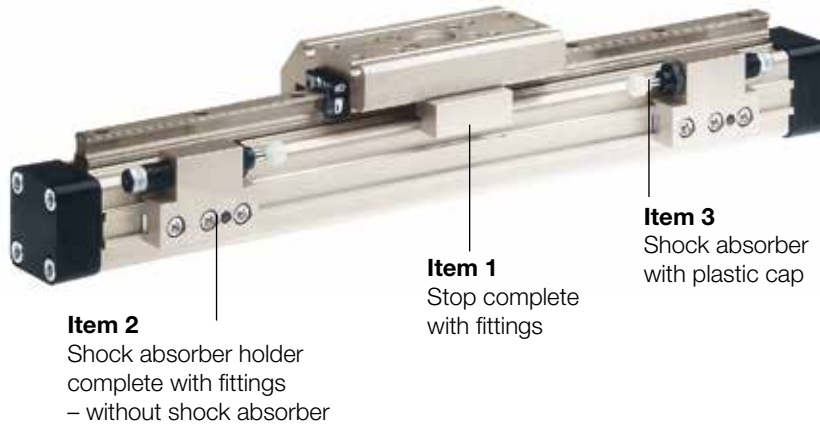
**Dimensions - Variable Stop Type VS16 to VS50**



**Dimension [mm] – Variable Stop Type VS16 to VS50**

Series	Type	A	B	C	C1	D	E	G	H	K	L	M	N	P	SW1	SW2
OSP-KF16	VS16	30	14	50	25	33	29.7	28	38	16.2	25.5	20.5	40.5	M10 x 1	4	12.5
OSP-KF25	VS25	40	30	75	50	41.5	37	33	43	18	31.5	23	48	M12 x 1	5	16
OSP-KF32	VS32	60	40	50	-	45.5	41.5	35	45	19	35.5	25	37	M14 x 1.5	5	17
OSP-KF40	VS40	84	52	60	-	64	59	48	63	25.5	50	34	43	M20 x 1.5	5	24
OSP-KF50	VS50	84	-	60	-	75	69	55	70	26.9	57	38	58	M25 x 1.5	5	30

**Order information - Variable Stop Type VS16 to VS50**



Item Description	Size									
	VS16		VS25		VS32		VS40		VS50	
	Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
1 Stop, complete	-	21186FIL	-	21187FIL	-	21188FIL	-	21189FIL	-	21290FIL
2 Shock absorber holder complete	-	21201FIL	-	21202FIL	-	21203FIL	-	21204FIL	-	21205FIL
3* Shock absorber, soft	SA10SN	7718FIL	SA12S2N	7723FIL	SA14	7708FIL	SA20	7710FIL	SAI25	7712FIL
Shock absorber, hard	SA10S2N	7721FIL	SA12S	7707FIL	SA14S	7709FIL	SA20S	7711FIL	SAI25S	7713FIL

\* Shock absorber with plastic cap

**Note: Order instructions for VS in combination with the cylinder and guide see page 71, pos. 18**

Order Instructions- KF

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
OSPP	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

**Piston-Ø**

16
25
32
40
50

**Stroke**

Input in mm (5 digits)

**Piston Mounting**

0	without
---	---------

**Measuring system**

0	without
X	SFI 0.1 mm
Y	SFI 1 mm

**Screws**

0	standard
---	----------

**Cushioning**

0	standard
1	max. length <sup>3)</sup>
2	VS variable stop, soft left for KF
3	VS variable stop, hard, left for KF
4	VS variable stop, soft, right for KF
5	VS variable stop, hard, right for KF
6	VS variable stop, soft, both sides for KF
7	VS variable stop, hard, both sides for KF

**Version / Piston**

C	Classic
T	Classic Tandem

**Lubrication**

0	standard
1	Slow speed <sup>2)3)</sup>

**Cover / Cable Channel**

0	standard
1	cable channel
2	cable channel two-sided
X	without Cover rail

**Air Connection**

0	standard
1	on the end face
2	both at one end (not turnable)
3	left standard right end face
4	right standard left end face
A	3/2 way valve VOE 24 V = Ø25,32,40, 50
B	3/2 way valve VOE 230 V~/110 V= Ø25, 32, 40, 50
C	3/2 way valve VOE 48 V= Ø25, 32, 40, 50
E	3/2 way valve VOE 110 V~ Ø25, 32, 40, 50

**Seals**

0	standard (NBR)
1	Viton <sup>® 1)</sup>

**End cap position**

0	l+r 0° = in front
1	l+r 90° = underneath
2	l+r 180° = at the back
3	l+r 270° = same side as outerband
4	l 90° = underneath; r 0° = in front
5	l 180° = at the back; r 0° = in front
6	l 270° = same side as outerband; r 0° = in front
7	l 0° = in front; r 90° = underneath
8	l 180° = at the back; r 90° = underneath
9	l 270° = same side as outerband; r 90° = underneath
A	l 0° = in front; r 180° = at the back
B	l 90° = underneath; r 180° = at the back
C	l 270° = same side as outerband; r 180° = at the back
D	l 0° = in front; r 270° = same side as outerband
E	l 90° = underneath; r 270° = same side as outerband
F	l 180° = at the back; r 270° = same side as outerband

**Guides/ Brakes/ Inversion**

0	without
C	KF

**add. Guide Carriage**

0	without
C	Guide Carriage KF

End cap position (air connection)

Cylinder L (left end side)

Cylinder R (right end side)

<sup>1)</sup> Viton with VOE not possible.

<sup>2)</sup> "Slow speed lubrication" in combination with „Viton<sup>®</sup>“ seals on demand.

<sup>3)</sup> „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.

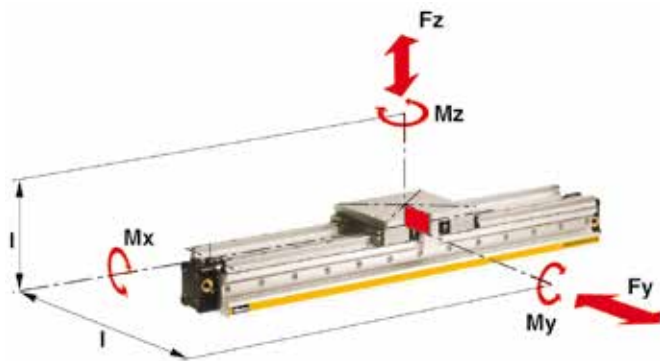
**Heavy Duty Guide  
HD**

**Series HD25 to HD50 for Linear Drive**

**Features:**

- Guide system: 4-row recirculating ball bearing guide
- Polished and hardened steel guide rail
- For highest loads in all directions
- Highest precision
- Integrated wiper system
- Integrated grease nipples
- Any lengths of stroke up to 3700 mm (longer strokes on request)
- Anodized aluminium guide carriage - dimensions compatible with OSP guide GUIDELINE
- Maximum speed  $v = 5 \text{ m/s}$

**Loads, Forces and Moments**



**Technical Data**

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

$$\frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

The sum of the loads should 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	For linear drive	Max. moment [Nm]			Max. loads [N]		Mass of linear drive with guide carriage [kg]		Mass* guide [kg]	Order-No. ** HD Guide without cylinder
		Mx	My	Mz	Fy	Fz	with 0 mm stroke	increase per 100 mm stroke		
<b>HD 25</b>	OSP-P25	260	320	320	6000	6000	3.065	0.924	1.289	<b>21246</b>
<b>HD 32</b>	OSP-P32	285	475	475	6000	6000	4.308	1.112	1.367	<b>21247</b>
<b>HD 40</b>	OSP-P40	800	1100	1100	15000	15000	7.901	1.748	2.712	<b>21248</b>
<b>HD 50</b>	OSP-P50	1100	1400	1400	18000	18000	11.648	2.180	3.551	<b>21249</b>

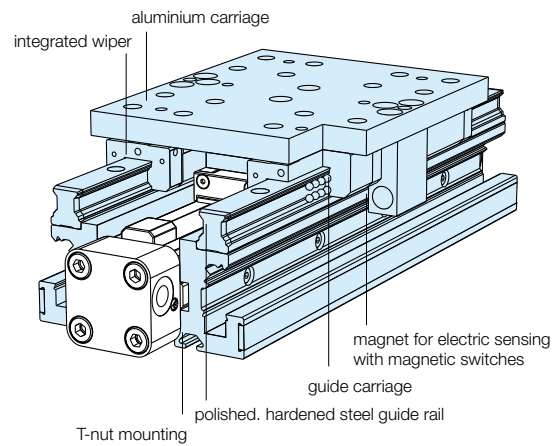
\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
Example: HD Guide D25 mm, stroke 1000 mm: 21246-01000



**Options:**

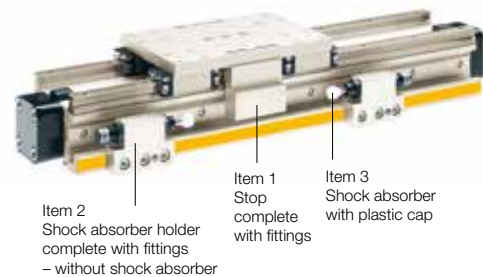
- With variable stop
- With intermediate stop module

**Version with pneumatic linear drive series OSP-P**



**Variable Stop**

**Variable Stop Type VS25 to VS50**



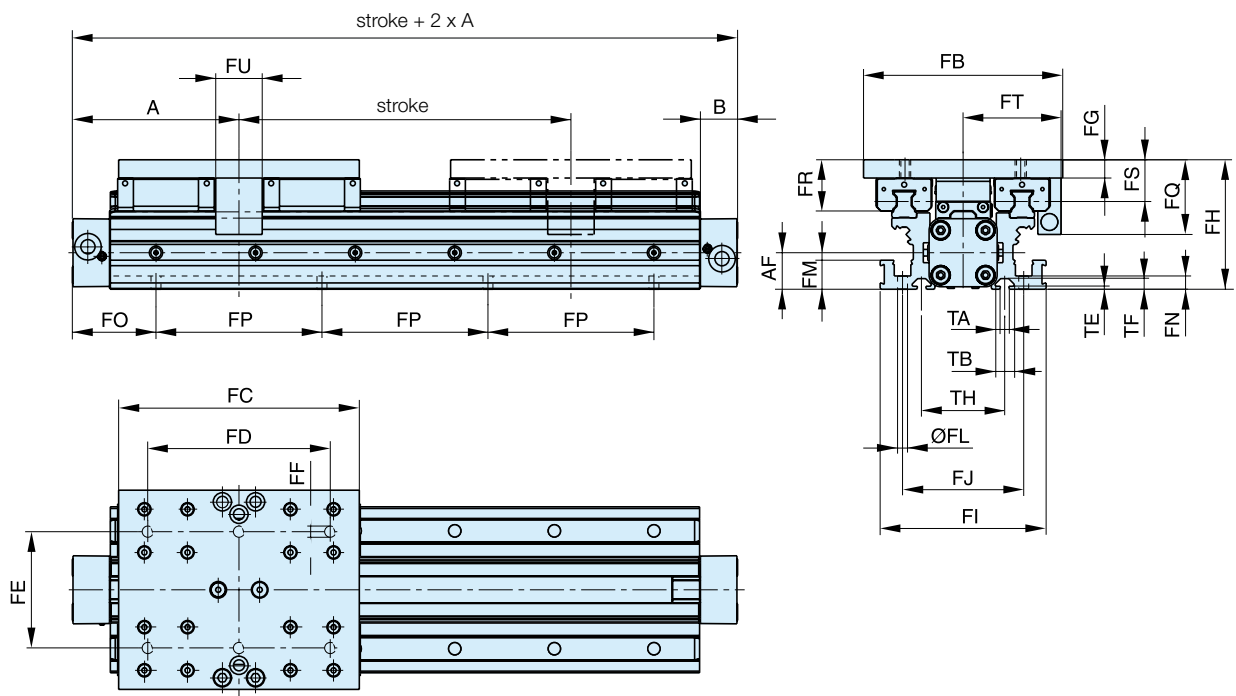
**\* Please note:**

The mass of the carriage has to be added to the total moving mass when using the cushioning diagram

**Note: Order instructions for VS in combination with HD guide see page 78, pos. 18**

# OSP-P Modular Pneumatic Linear Drive Systems

## Dimensions



**Note:**

The HD heavy duty guide must be mounted on a flat surface for its entire length.

If T-grooves or T-bolts are used, the distance between them should not exceed 100 mm.

### Variable Stop Type VS25 to VS50

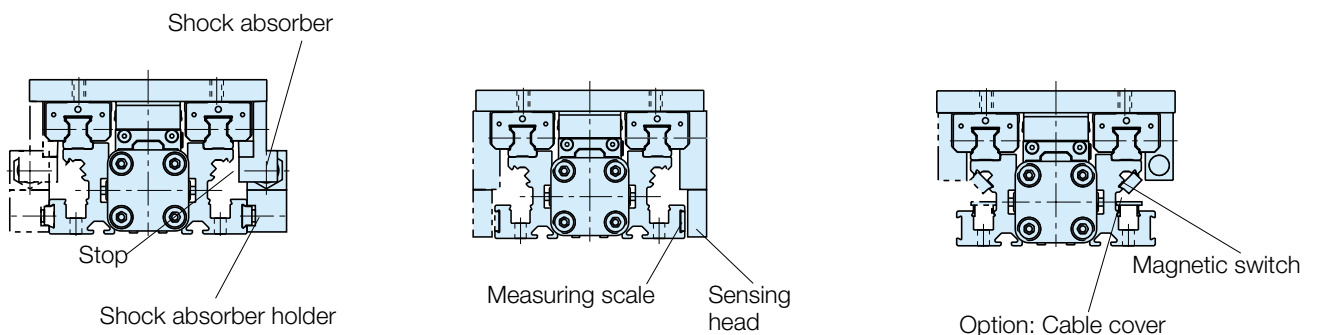
The variable stop provides simple stroke limitation and can be supplied mounted on the right or left, as required.

### Incremental displacement measuring system ORIGA-Sensoflex Series SFI-plus

can be supplied mounted on the right or left, as required.

### Arrangement of magnetic switches:

Magnetic switches can be fitted anywhere on either side.



# OSP-P Modular Pneumatic Linear Drive Systems

## Dimensions [mm]

Series	A	B	AF	FB	FC	FD	FE	FF	FG	FH	FI	FJ	ØFL
<b>HD25</b>	100	22	22	120	145	110	70	M6	11	78	100	73	6
<b>HD32</b>	125	25.5	30	120	170	140	80	M6	11	86	112	85	6
<b>HD40</b>	150	28	38	160	180	140	110	M8	14	108	132	104	7.5
<b>HD50</b>	175	33	48	180	200	160	120	M8	14	118	150	118	7.5

Series	FM	FN	FP	FQ	FR	FS	FT	FU	TA	TB	TE	TF	TH
<b>HD25</b>	17.5	8	100	45	31	25	59	28	5.2	11.5	1.8	6.4	50
<b>HD32</b>	17.5	8	100	45	31	25	63	30	5.2	11.5	1.8	6.4	60
<b>HD40</b>	22	10	100	58	40	31.5	76	30	8.2	20	4.5	12.3	66
<b>HD50</b>	22	10	100	58	44	35.5	89	30	8.2	20	4.5	12.3	76

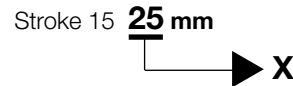
FO		OSP-P			
x	HD25	HD32	HD40	HD50	
00	50.0	75.0	50.0	75.0	
01	50.5	75.5	50.5	75.5	
02	51.0	76.0	51.0	76.0	
03	51.5	76.5	51.5	76.5	
04	52.0	77.0	52.0	77.0	
05	52.5	77.5	52.5	77.5	
06	53.0	78.0	53.0	78.0	
07	53.5	78.5	53.5	78.5	
08	54.0	79.0	54.0	79.0	
09	54.5	79.5	54.5	79.5	
10	55.0	80.0	55.0	80.0	
11	55.5	80.5	55.5	80.5	
12	56.0	81.0	56.0	81.0	
13	56.5	81.5	56.5	81.5	
14	57.0	82.0	57.0	82.0	
15	57.5	82.5	57.5	82.5	
16	58.0	83.0	58.0	83.0	
17	58.5	83.5	58.5	83.5	
18	59.0	84.0	59.0	84.0	
19	59.5	84.5	59.5	84.5	
20	60.0	85.0	60.0	85.0	
21	60.5	85.5	60.5	85.5	
22	61.0	86.0	61.0	86.0	
23	61.5	86.5	61.5	86.5	
24	62.0	87.0	62.0	87.0	
25	62.5	87.5	62.5	87.5	
26	63.0	88.0	63.0	88.0	
27	63.5	88.5	63.5	88.5	
28	64.0	89.0	64.0	89.0	
29	64.5	89.5	64.5	89.5	
30	65.0	90.0	65.0	90.0	
31	65.5	90.5	65.5	90.5	
32	66.0	91.0	66.0	91.0	
33	66.5	91.5	66.5	91.5	
34	67.0	92.0	67.0	92.0	
35	67.5	92.5	67.5	92.5	
36	68.0	93.0	68.0	93.0	
37	68.5	93.5	68.5	93.5	
38	69.0	94.0	69.0	94.0	
39	69.5	94.5	69.5	94.5	
40	70.0	95.0	70.0	95.0	
41	70.5	95.5	70.5	95.5	
42	71.0	96.0	71.0	96.0	
43	71.5	96.5	71.5	96.5	
44	72.0	97.0	72.0	97.0	
45	72.5	97.5	72.5	97.5	
46	73.0	98.0	73.0	98.0	
47	73.5	98.5	73.5	98.5	
48	74.0	99.0	74.0	99.0	
49	74.5	99.5	74.5	99.5	

FO		OSP-P			
x	HD25	HD32	HD40	HD50	
50	75.0	50.0	75.0	50.0	
51	75.5	50.5	75.5	50.5	
52	76.0	51.0	76.0	51.0	
53	76.5	51.5	76.5	51.5	
54	77.0	52.0	77.0	52.0	
55	77.5	52.5	77.5	52.5	
56	78.0	53.0	78.0	53.0	
57	78.5	53.5	78.5	53.5	
58	79.0	54.0	79.0	54.0	
59	79.5	54.5	79.5	54.5	
60	80.0	55.0	80.0	55.0	
61	80.5	55.5	80.5	55.5	
62	81.0	56.0	81.0	56.0	
63	81.5	56.5	81.5	56.5	
64	82.0	57.0	82.0	57.0	
65	82.5	57.5	82.5	57.5	
66	83.0	58.0	83.0	58.0	
67	83.5	58.5	83.5	58.5	
68	84.0	59.0	84.0	59.0	
69	84.5	59.5	84.5	59.5	
70	85.0	60.0	85.0	60.0	
71	85.5	60.5	85.5	60.5	
72	86.0	61.0	86.0	61.0	
73	86.5	61.5	86.5	61.5	
74	87.0	62.0	87.0	62.0	
75	87.5	62.5	87.5	62.5	
76	88.0	63.0	88.0	63.0	
77	88.5	63.5	88.5	63.5	
78	89.0	64.0	89.0	64.0	
79	89.5	64.5	89.5	64.5	
80	90.0	65.0	90.0	65.0	
81	90.5	65.5	90.5	65.5	
82	91.0	66.0	91.0	66.0	
83	91.5	66.5	91.5	66.5	
84	92.0	67.0	92.0	67.0	
85	92.5	67.5	92.5	67.5	
86	93.0	68.0	93.0	68.0	
87	93.5	68.5	93.5	68.5	
88	94.0	69.0	94.0	69.0	
89	94.5	69.5	94.5	69.5	
90	95.0	70.0	95.0	70.0	
91	95.5	70.5	95.5	70.5	
92	96.0	71.0	96.0	71.0	
93	96.5	71.5	96.5	71.5	
94	97.0	72.0	97.0	72.0	
95	97.5	72.5	97.5	72.5	
96	98.0	73.0	98.0	73.0	
97	98.5	73.5	98.5	73.5	
98	99.0	74.0	99.0	74.0	
99	99.5	74.5	99.5	74.5	

**Note:**

the dimension FO is derived from the last two digits of the stroke:

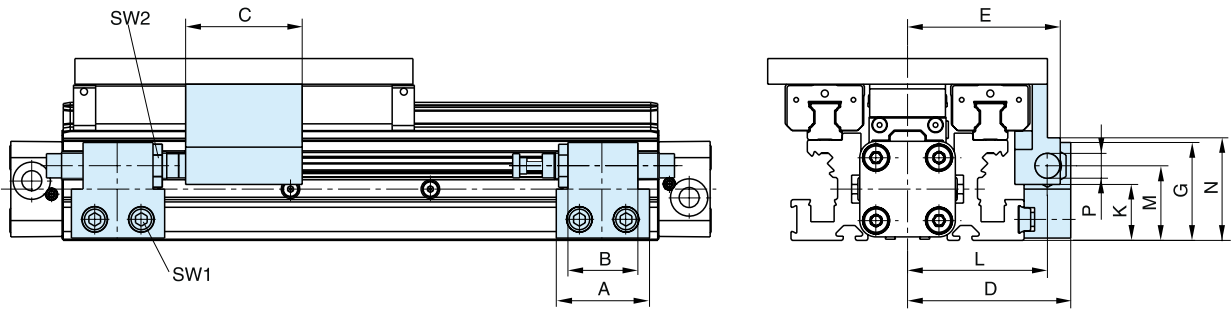
**Example:**



For a cylinder OSP-P25 the adjacent table indicates that for x = 25 mm: FO = 62.5 mm



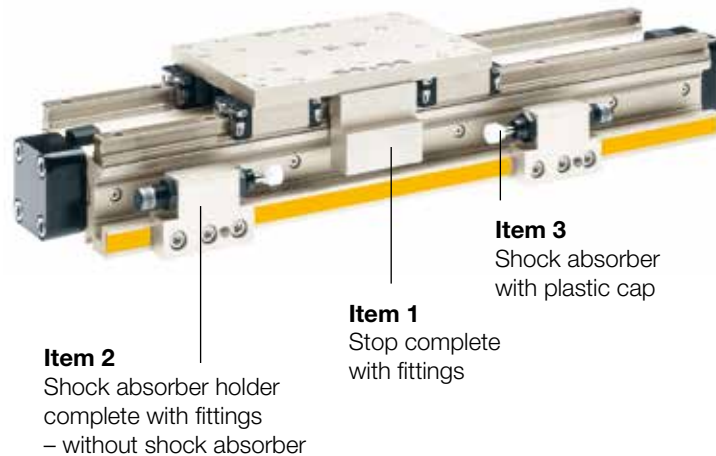
**Dimensions - Variable Stop Type VS25 to VS50**



**Dimension [mm] – Variable Stop Type VS25 to VS50**

Series	Type	A	B	C	D	E	G	K	L	M	N	P	SW1	SW2
<b>OSP-HD25</b>	VS25	40	30	50	70	65.5	42	26	60	32	42	M12 x 1	5	16
<b>OSP-HD32</b>	VS32	60	40	54	73	71	44	28	63	34	53	M14 x 1.5	5	17
<b>OSP-HD40</b>	VS40	84	52	55	96	92	59	35	82	45	61	M20 x 1.5	5	24
<b>OSP-HD50</b>	VS50	84	-	60	107	105	66	37	89	49	66	M25 x 1.5	5	30

**Order information - Variable Stop Type VS25 to VS50 - without cylinder and HD-guide**



Item	Description	Size							
		VS25		VS32		VS40		VS50	
		Type	Order-No.	Type	Order-No.	Type	Order-No.	Type	Order-No.
1	Stop, complete	-	21257FIL	-	21258FIL	-	21259FIL	-	21260FIL
2	Shock absorber holder, complete	-	21202FIL	-	21203FIL	-	21204FIL	-	21205FIL
3*	Shock absorber, soft	SA12S2N	7723FIL	SA14	7708FIL	SA20	7710FIL	SAI25	7712FIL
	Shock absorber, hard	SA12S	7707FIL	SA14S	7709FIL	SA20S	7711FIL	SAI25S	7713FIL

\* Shock absorber with plastic cap

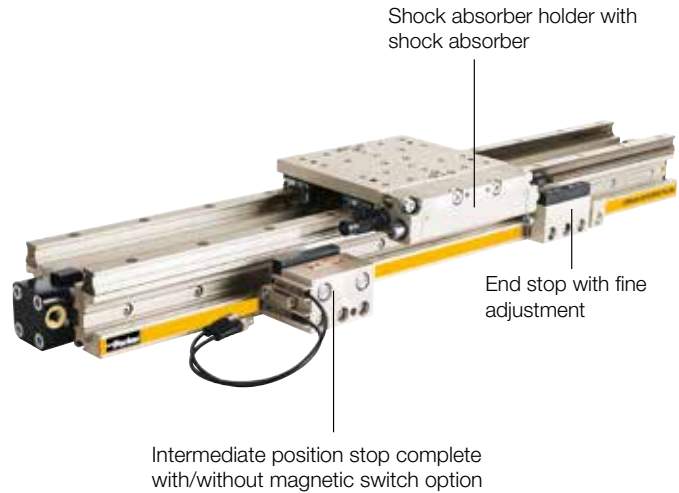
**Note: Order instructions for VS in combination with the cylinder and HD guide see page 78, pos.18**

**Intermediate Stop Module**

**Type ZSM .. HD**

The intermediate stop module ZSM allows the guide carriage to stop at any desired intermediate positions with high accuracy. It can be retrofitted. Depending on the application, i.e. the number of intermediate stops, one or more intermediate position stops can be used. The intermediate position stops can be retracted and extended without the need for the guide carriage to be moved back out of position.

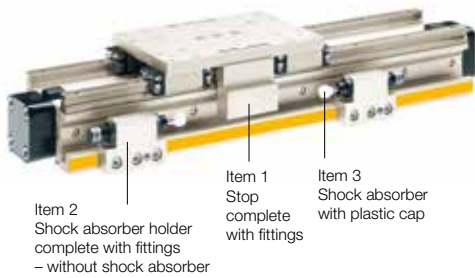
Therefore the guide carriage can be made to stop at the defined intermediate positions in any order.



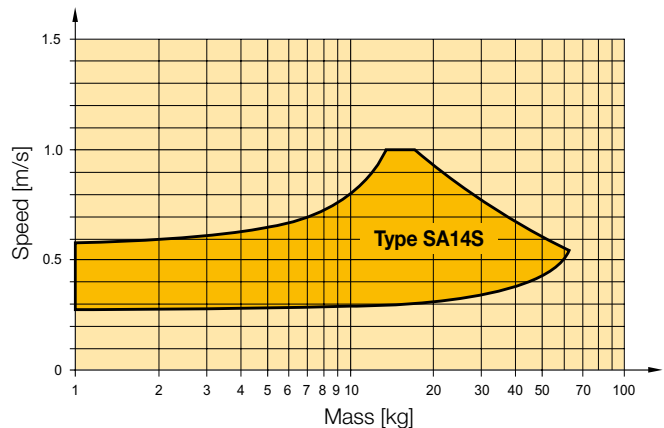
**ORIGA intermediate stop module ZSM:**

- Allows stopping at any intermediate positions
- Intermediate position stops can be located steplessly anywhere along the whole stroke length
- Movement to the next position without reverse stroke
- Compact unit
- Cost-effective positioning module without electrical or electronic components
- Option: end stop with fine adjustment

Operating information	
Operating pressure range:	4 - 8 bar
Temperature range:	-10°C to +70°C
Intermediate position grid	85 mm



**Shock Adsorbers Type SA14S**



The values relate to an effective driving force of 250 N (6 bar)

**Order Instructions - Intermediate Stop Module - Type ZSM..HD**

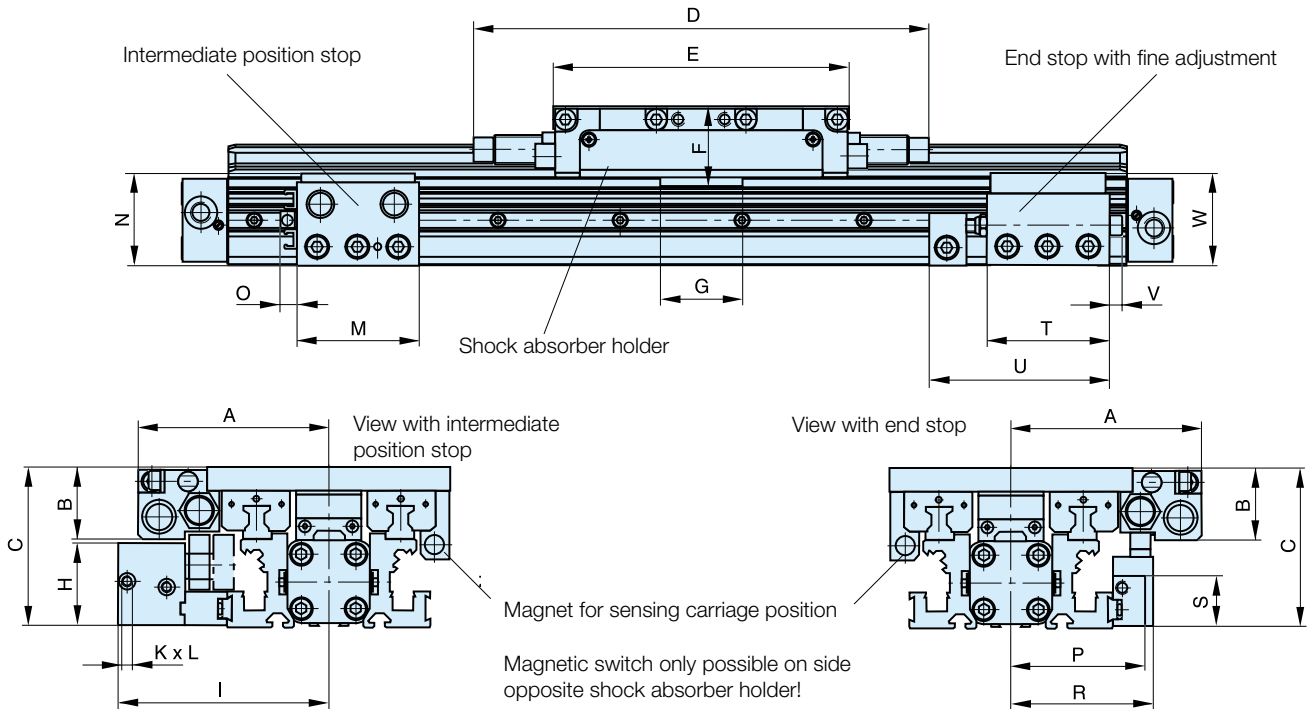
Item	Description	For intermediate stop module	Order-No.
1*	Shock absorber holder with shock absorber SA14S, both sides	<b>ZSM25HD</b>	<b>21342BFIL</b>
2*	Shock absorber holder with shock absorber SA14S, left	<b>ZSM25HD</b>	<b>21342LFIL</b>
3*	Shock absorber holder with shock absorber SA14S, right	<b>ZSM25HD</b>	<b>21342RFIL</b>
4	Intermediate position stop complete, without magnetic switch option	<b>ZSM25HD</b>	<b>21343FIL</b>
5	Intermediate position stop complete, with magnetic switch option	<b>ZSM25HD</b>	<b>21344FIL</b>
6	End stop with fine adjustment	<b>ZSM25HD</b>	<b>21346FIL</b>

\* The shock absorbers are installed in the shock absorber holder and adjusted in our workshop.

**Note:**

For movement onwards from the intermediate position, the intermediate position stop must advance. The intermediate position stop can only advance if both cylinder chambers of the OSP-P cylinder are pressurized.

**Dimensions – intermediate stop module Type ZSM..HD**

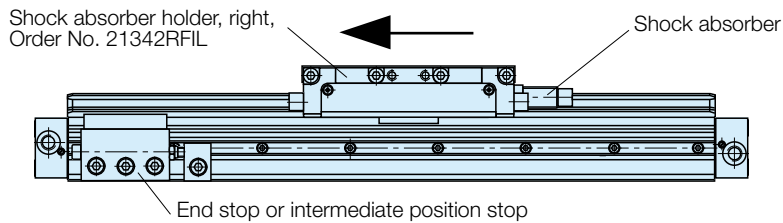


**Dimension [mm] – Intermediate stop module Type ZSM..HD**

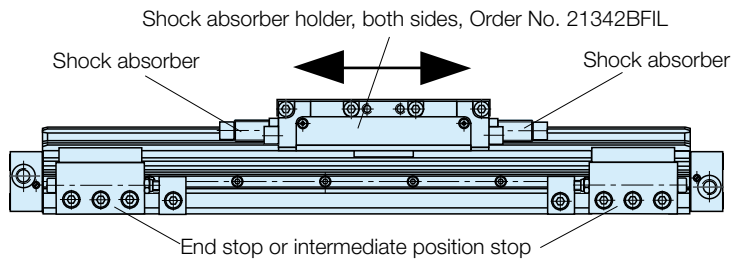
Series	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T	U	V	W
<b>ZSM25</b>	94	35	78	224	145	39	40	41	104	M5	5	60	45	8	66	70	26	60	93	6	46

**Shock absorber arrangement in dependence on direction of movement**

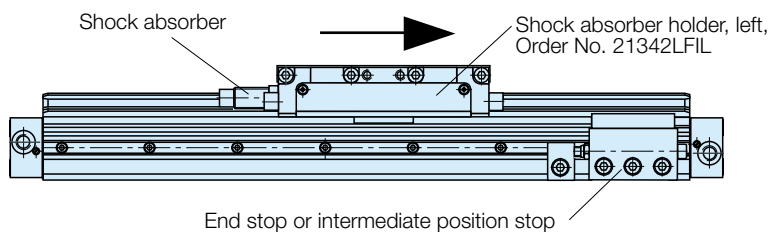
**From right to left**



**In both directions**



**From left to right**



Order Instructions- HEAVY DUTY - HD

1-4	5+6	7	8	9	10	11	12-16	17	18	19	20	21	22	23	24	25
OSPP	25	0	0	0	0	0	01100	0	0	0	0	0	0	0	0	0

**Piston-Ø**  

25
32
40
50

**Stroke**  
 Input in mm  
 (5 digits)

**Piston Mounting**  

0	without
---	---------

**Measuring system**  

0	without
X	SFI 0.1 mm
Y	SFI 1 mm

**Screws**  

0	standard
---	----------

**Cushioning**  

0	standard
1	max. length <sup>3)</sup>
2	VS variable stop, soft left for HD
3	VS variable stop, hard, left for HD
4	VS variable stop, soft, right for HD
5	VS variable stop, hard, right for HD
6	VS variable stop, soft, both sides for HD
7	VS variable stop, hard, both sides for HD

**Version / Piston**  

0	standard
1	Tandem

**Lubrication**  

0	standard
1	Slow speed <sup>2)</sup>

**Cover / Cable Channel**  

0	standard
1	cable channel
2	cable channel two-sided
X	without Cover rail

**Air Connection**  

0	standard
1	on the end face
2	both at one end (not turnable)
3	left standard right end face
4	right standard left end face
A	3/2 way valve VOE 24 V = Ø 25, 32, 40, 50
B	3/2 way valve VOE 230 V~/110 V = Ø 25, 32, 40, 50
C	3/2 way valve VOE 48 V = Ø 25, 32, 40, 50
E	3/2 way valve VOE 110 V~ Ø 25, 32, 40, 50

**Seals**  

0	standard (NBR)
1	Viton <sup>® 1)</sup>

**End cap position**  

0	l+r 0° = in front
1	l+r 90° = underneath
2	l+r 180° = at the back
3	l+r 270° = same side as outerband
4	l 90° = underneath; r 0° = in front
5	l 180° = at the back; r 0° = in front
6	l 270° = same side as outerband; r 0° = in front
7	l 0° = in front; r 90° = underneath
8	l 180° = at the back; r 90° = underneath
9	l 270° = same side as outerband; r 90° = underneath
A	l 0° = in front; r 180° = at the back
B	l 90° = underneath; r 180° = at the back
C	l 270° = same side as outerband; r 180° = at the back
D	l 0° = in front; r 270° = same side as outerband
E	l 90° = underneath; r 270° = same side as outerband
F	l 180° = at the back; r 270° = same side as outerband

**Guides/ Brakes/ Inversion**  

0	without
D	HD

**add. Guide Carriage**  

0	without
D	Guide Carriage HD

End cap position (air connection)

Cylinder L (left end side)

Cylinder R (right end side)

<sup>1)</sup> Viton with VOE not possible.

<sup>2)</sup> "Slow speed lubrication" in combination with „Viton®“ seals on demand.

<sup>3)</sup> „Lubrication slow speed“ in combination with „max. cushioning length“ not possible.



**Active Brakes and Passive Brakes**

**Versions:**

- ACTIVE Brake
- Plain bearing guide with integrated ACTIVE Brake
- Aluminium roller guide with integrated ACTIVE Brake
- Plain bearing guide with PASSIVE Brake
- Aluminium roller guide with PASSIVE Brake

**Active Brake**  
 for pneumatic linear drive  
 Series OSP-P  
 Piston diameters 25 - 80 mm.

**See page 80**



**Slideline with Active Brake**  
 Plain bearing guide SLIDELINE - SL  
 with integrated ACTIVE Brake  
 Piston diameters 25 - 50 mm.

**See page 47**



**Proline with Active Brake**  
 Aluminium roller guide  
 PROLINE - PL with  
 integrated ACTIVE Brake  
 Piston diameters 25 - 50 mm.

**See page 50**



**Multibrake with Slideline**  
 MULTI BRAKE – PASSIVE Brake  
 with plainbearing guide  
 SLIDELINE - SL  
 Piston diameter 25 - 80 mm.

**See page 84**



**Multibrake with Proline**  
 MULTI BRAKE – PASSIVE Brake with  
 aluminium roller guide  
 PROLINE - PL  
 Piston diameters 25 - 50 mm.

**See page 87**



**Active Brake**

**Series AB25 to AB80 for Linear Drive**

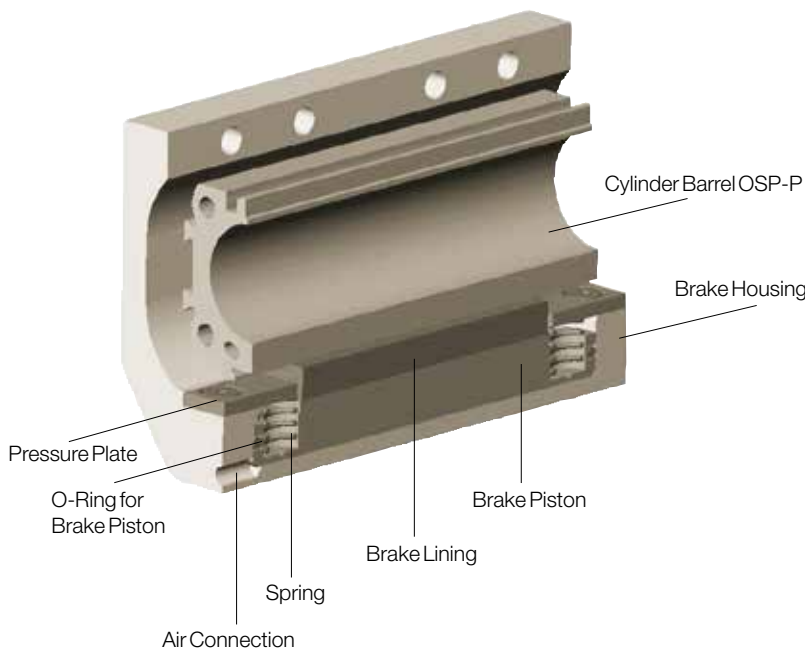


**Features:**

- Actuated by pressurisation
- Released by spring actuation
- Completely stainless version
- Holds position, even under changing load conditions



**Function**



**Forces and Weights**

Series	For linear drive	Max. braking force [N] <sup>(1)</sup>	Brake pad way [mm]	Mass [kg]		
				Linear drive with brake		Brake *
				0 mm stroke	increase per 100 mm stroke	
<b>AB 25</b>	OSP-P25	350	2.5	1.0	0.197	0.35
<b>AB 32</b>	OSP-P32	590	2.5	2.02	0.354	0.58
<b>AB 40</b>	OSP-P40	900	2.5	2.83	0.415	0.88
<b>AB 50</b>	OSP-P50	1400	2.5	5.03	0.566	1.50
<b>AB 63</b>	OSP-P63	2170	3.0	9.45	0.925	3.04
<b>AB 80</b>	OSP-P80	4000	3.0	18.28	1.262	5.82

**Note:**

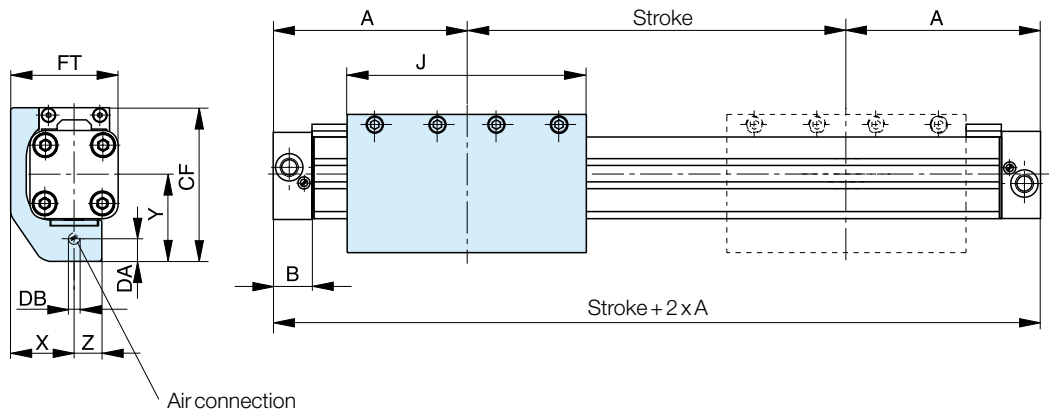
For combinations Active Brake AB + SFI-plus + Magnetic Switch contact our technical department.

**Active brake in combination with Basic Cylinder see page 123, pos.20**

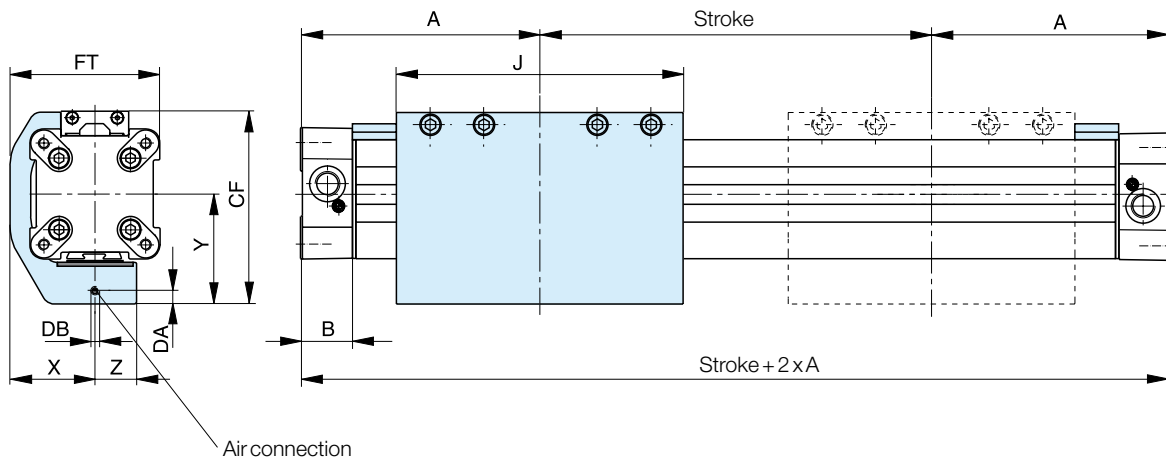
<sup>(1)</sup> –at 6 bar  
 both chambers pressurised with 6 bar  
 Braking surface dry  
 –oil on the braking surface will reduce the braking force

**\* Please Note:**  
 The mass of the brake has to be added to the total moving mass when using the cushioning diagram.

**Series OSP-P25 and P32 with Active Brake AB**



**Series OSP-P40, P50, P63, P80 with Active Brake AB**



**Dimension [mm]**

Series	A	B	J	X	Y	Z	CF	DA	DB	FT
<b>AB 25</b>	100	22	117	29.5	43	13	74	4	M5	50
<b>AB 32</b>	125	25.5	151.4	36	50	15	88	4	M5	62
<b>AB 40</b>	150	28	151.4	45	58	22	102	7	M5	79.5
<b>AB 50</b>	175	33	200	54	69.5	23	118.5	7.5	M5	97.5
<b>AB 63</b>	215	38	256	67	88	28	151	9	G1/8	120
<b>AB 80</b>	260	47	348	83	105	32	185	10	G1/8	149



**End Cap Mountings**

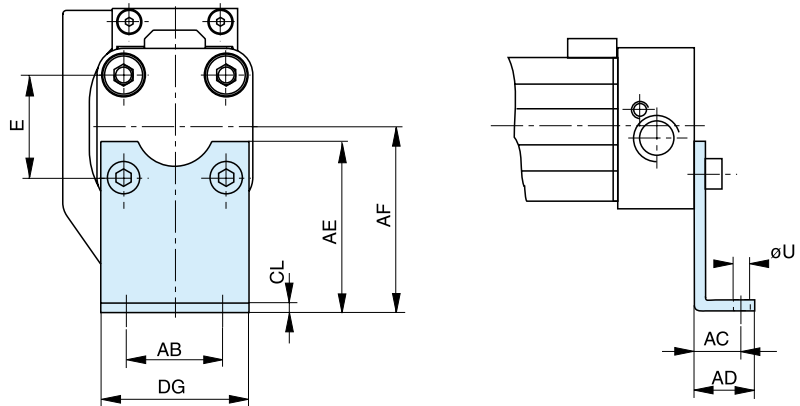


On the end-face of each cylinder end cap there are four threaded holes for mounting the cylinder. The hole layout is square, so that the mounting can be fitted to the bottom, top or either side.

Material: Series OSP-P25, P32:  
Galvanised steel

The mountings are supplied in pairs.

**Series OSP – P25 and P32 with Active Brake AB: Type A3**



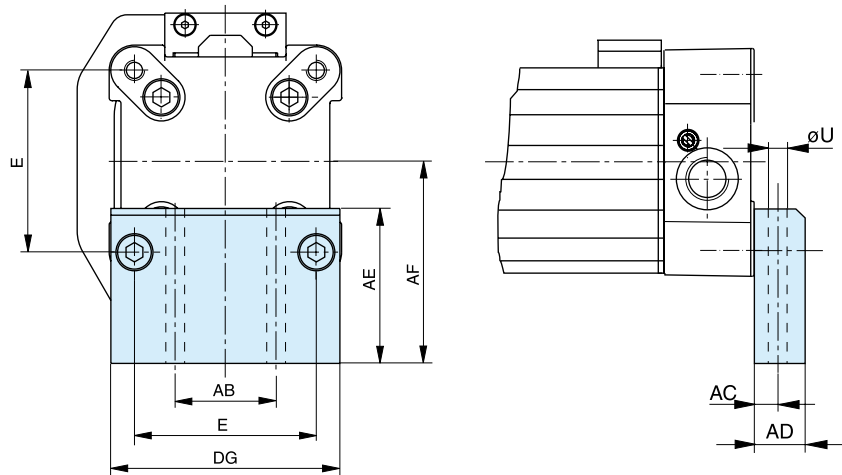
**Series OSP – P40, P50, P63, P80 with Active Brake AB: Type C3**



Material: Series OSP-  
P40, P50, P63, P80:  
Anodised aluminium

The mountings are supplied in pairs.

Stainless steel version on request.



**Dimension [mm]**

Series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order No.	
										Type A3	Type C3
<b>AB 25</b>	27	5.8	27	16	22	45	49	2.5	39	<b>2060FIL</b>	-
<b>AB 32</b>	36	6.6	36	18	26	42	52	3	50	<b>3060FIL</b>	-
<b>AB 40</b>	54	9	30	12.5	24	46	60	-	68	-	<b>20339FIL</b>
<b>AB 50</b>	70	9	40	12.5	24	54	72	-	86	-	<b>20350FIL</b>
<b>AB 63</b>	78	11	48	15	30	76	93	-	104	-	<b>20821FIL</b>
<b>AB 80</b>	96	14	60	17.5	35	88	110	-	130	-	<b>20822FIL</b>

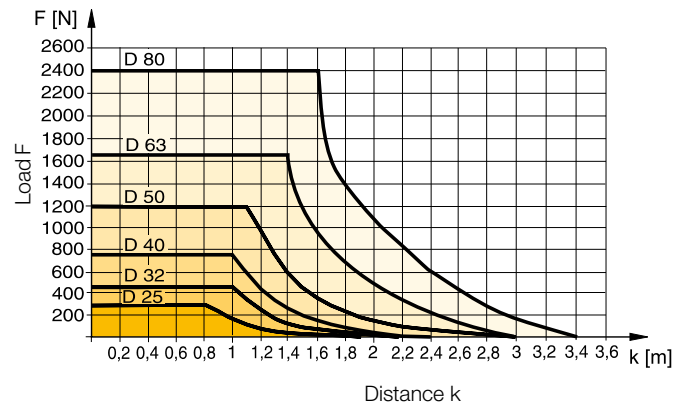
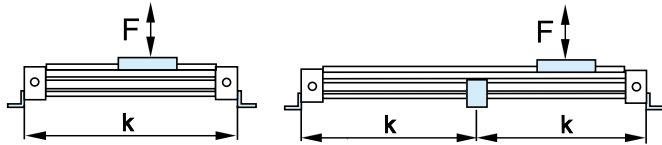
# OSP-P Modular Pneumatic Linear Drive Systems

## Mid-Section Supports

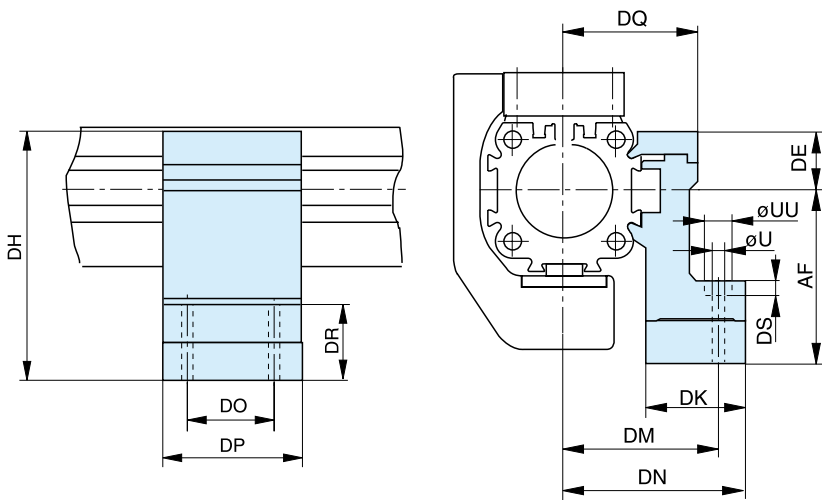
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive.

The diagrams show the maximum permissible unsupported length in relation to loading. Deflection of 0.5 mm max. between supports is permissible.

The mid section supports are attached to the dovetail rails, and can take axial loads.



## Series OSP-P25 to P80 with Active Brake AB: Type E3 - (Mounting from above / below with through-bolt)



### Note to Type E3:

Mid section supports can only be mounted opposite of the brake housing.

Stainless steel version available on request.

Series	U	UU	AF	DE	DH	DK	DM	DN	DO	DP	DQ	DR	DS	Order no. Type E3
AB 25	5.5	10	49	16	65	26	40	47.5	36	50	34.5	35	5.7	20353FIL
AB 32	5.5	10	52	16	68	27	46	54.5	36	50	40.5	32	5.7	20356FIL
AB 40	7	-	60	23	83	34	53	60	45	60	45	32	-	20359FIL
AB 50	7	-	72	23	95	34	59	67	45	60	52	31	-	20362FIL
AB 63	9	-	93	34	127	44	73	83	45	65	63	48	-	20453FIL
AB 80	11	-	110	39.5	149.5	63	97	112	55	80	81	53	-	20819FIL

## Accessories for linear drives with Active Brakes – please order separately

Description	For details information, see:
Clevis mounting	Page 92
Adaptor profile	Page 105
T-groove profile	Page 106
Connection profile	Page 107
Magnetic switch (can <b>only</b> be mounted opposite of the brake housing)	Page 110
Incremental displacement measuring system SFI-plus	Page 118

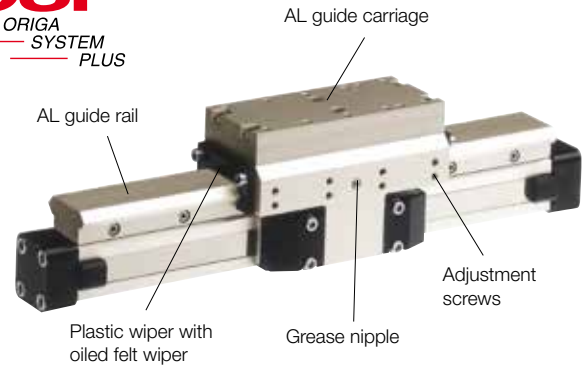
**Multi-Brake**

**Passive Brake**

**with plain bearing guide Slideline SL Series MB-SL 25 to 80 for Linear Drive**

**Features:**

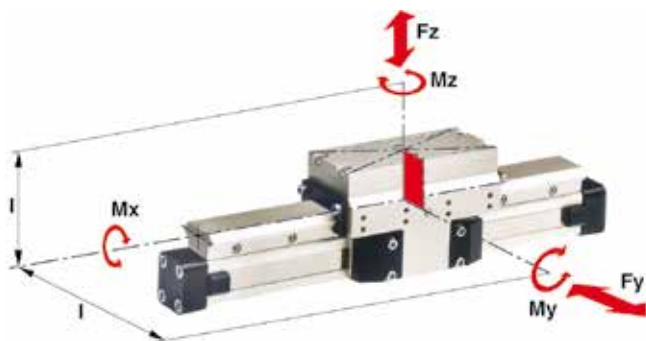
- Brake operated by spring actuation
- Brake release by pressurisation
- Anodised aluminium rail, with prism shaped slide elements
- Adjustable plastic slide elements
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideway
- Replenishable guide lubrication by integrated grease nipples
- Blocking function in case of pressure loss
- Intermediate stops possible



**Function:**

The Multi-Brake is a passive device. When the air pressure is removed the brake is actuated and movement of the cylinder is blocked. The brake is released by pressurisation. The high friction, wear resistant brake linings allow the Multi-Brake to be used as a dynamic brake to stop cylinder movement in the shortest possible time. The powerful springs also allow the Multi-Brake to be used effectively in positioning applications.

**Loads, Forces and Moments**

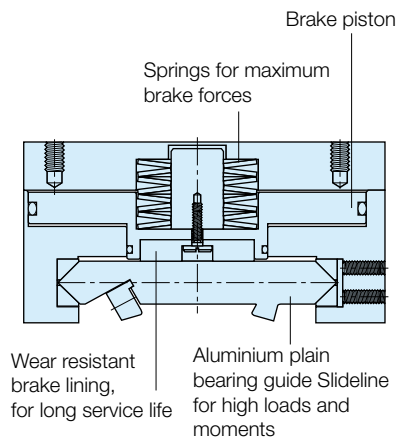


**Technical Data**

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

Load and moment data are based on speeds  $v < 0.2$  m/s.  
 Operating pressure 4.5 - 8 bar  
 A pressure of 4.5 bar is required to release the brake.

**Function**



**\* Please note:**

in the cushioning diagram, the mass of the guide carriage has to be added to the total moving mass.

<sup>1)</sup> Braking surface dry – oil on the braking surface will reduce the braking force

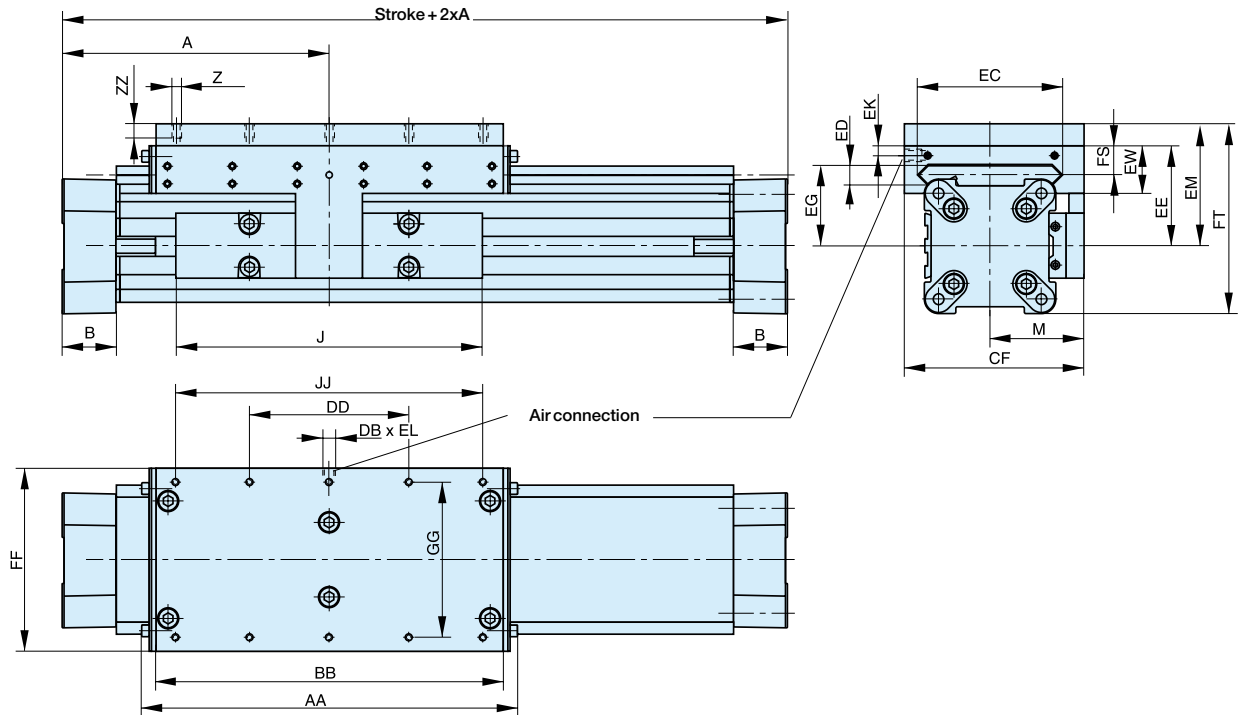
Series	For linear drive	Max. moments [Nm]			Max. loads [N] Fy, Fz	Max. brake force [N] <sup>1)</sup>	Mass of linear drive with guide [kg]		Mass <sup>2)</sup> guide carriage [kg]	Order-No. ** MB-SL Guide with passive brake without cylinder *
		Mx	My	Mz			with 0mm stroke	increase per 100mm stroke		
<b>MB-SL 25</b>	OSP-P25	14	34	34	675	470	2.04	0.39	1.10	<b>20796</b>
<b>MB-SL 32</b>	OSP-P32	29	60	60	925	790	3.82	0.65	1.79	<b>20797</b>
<b>MB-SL 40</b>	OSP-P40	50	110	110	1600	1200	5.16	0.78	2.34	<b>20798</b>
<b>MB-SL 50</b>	OSP-P50	77	180	180	2000	1870	8.29	0.97	3.63	<b>20799</b>
<b>MB-SL 63</b>	OSP-P63	120	260	260	2500	2900	13.31	1.47	4.97	<b>20800</b>
<b>MB-SL 80</b>	OSP-P80	120	260	260	2500	2900	17.36	1.81	4.97	<b>20846</b>

\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
 Example: MB-SL guide with passive brake D 25 mm, stroke 1000 mm: 20796-01000

**MB-SL in combination with cylinder see page 123, pos. 20**



**Series OSP-P with Passive Brake MB-SL**



**Dimension [mm]**

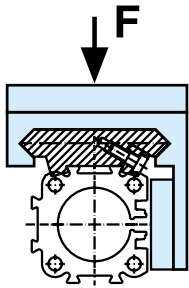
Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	ED	EE	EG	EK	EL	EM	EW	FF	FT	FS	GG	JJ	ZZ
<b>MB-SL25</b>	100	22	117	40,5	M6	162	142	M5	60	72.5	47	12	53	39	9	5	73	30	64	93.5	20	50	120	12
<b>MB-SL32</b>	125	25.5	152	49	M6	205	185	G1/8	80	91	67	14	62	48	7	10	82	33	84	108	21	64	160	12
<b>MB-SL40</b>	150	28	152	55	M6	240	220	G1/8	100	102	77	14	64	50	6.5	10	84	34	94	118.5	21.5	78	200	12
<b>MB-SL50</b>	175	33	200	62	M6	284	264	G1/8	120	117	94	14	75	56	10	12	95	39	110	138.5	26	90	240	12
<b>MB-SL63</b>	215	38	256	79	M8	312	292	G1/8	130	152	116	18	86	66	11	12	106	46	152	159	29	120	260	13
<b>MB-SL80</b>	260	47	348	96	M8	312	292	G1/8	130	169	116	18	99	79	11	12	119	46	152	185	29	120	260	13

**Mid-Section Support**

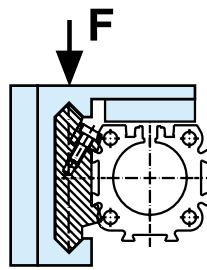
Mid section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

**Note**

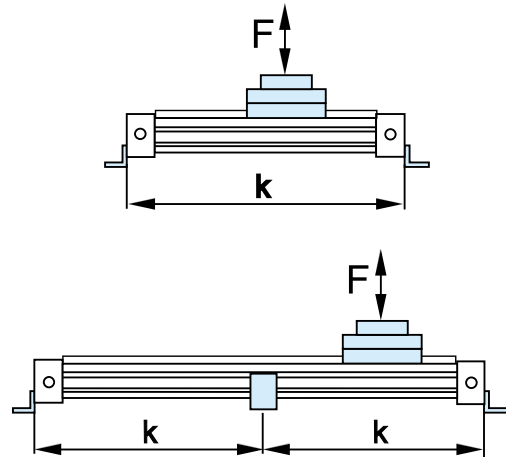
For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1m.



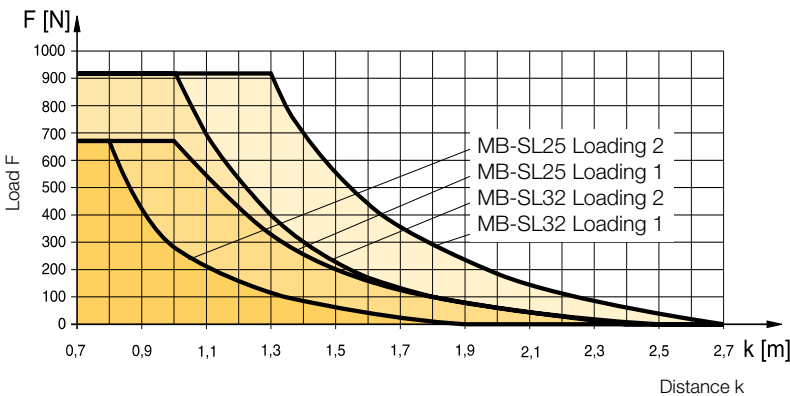
Loading 1



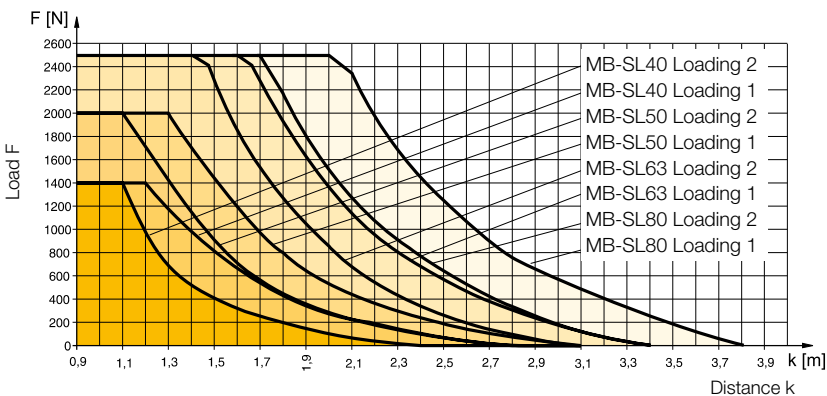
Loading 2



**Permissible Unsupported Length MB-SL25, MB-SL32**



**Permissible Unsupported Length MB-SL40, MB-SL50, MB-SL63 and MB-SL80**



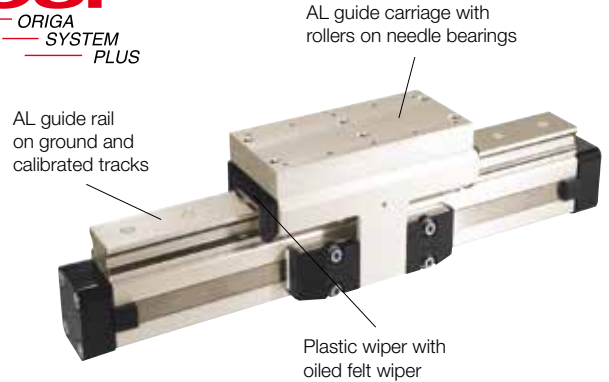
## Multi-Brake

### Passive Brake

#### with Aluminium Roller Guide Proline PL Series MB-PL 25 to 50 for Linear Drive

#### Features:

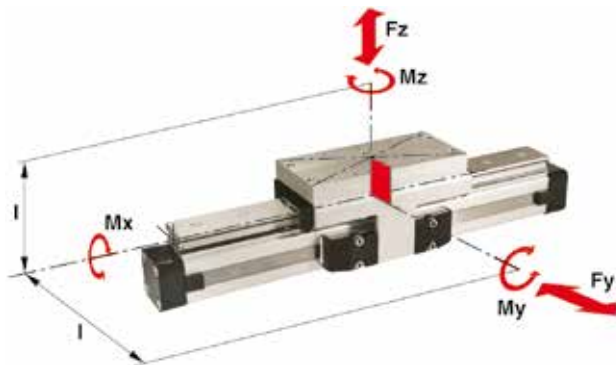
- Brake operated by spring actuation
- Brake release by pressurisation
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideway
- Blocking function in case of pressure loss
- Intermediate stops possible



#### Function:

The Multi-Brake is a passive device. When the air pressure is removed the brake is actuated and movement of the cylinder is blocked. The brake is released by pressurisation. The high friction, wear resistant brake linings allow the Multi-Brake to be used as a dynamic brake to stop cylinder movement in the shortest possible time. The powerful springs also allow the Multi-Brake to be used effectively in positioning applications.

#### Loads, Forces and Moments



#### Technical Data

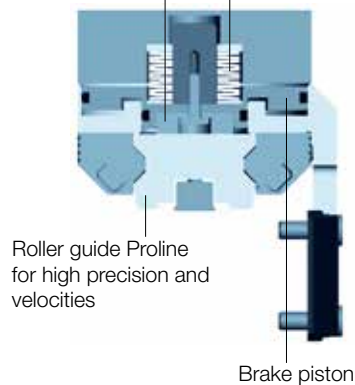
The table shows the maximal permissible loads. If multiple moments and forces act upon the cylinder simultaneously, the following equation applies:

$$\frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} + \frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} \leq 1$$

The sum of the loads should not exceed >1. With a load factor of less than 1, service life is 8000 km

#### Function

Wear resistant brake lining, for long service life  
 Springs for maximum brake forces



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

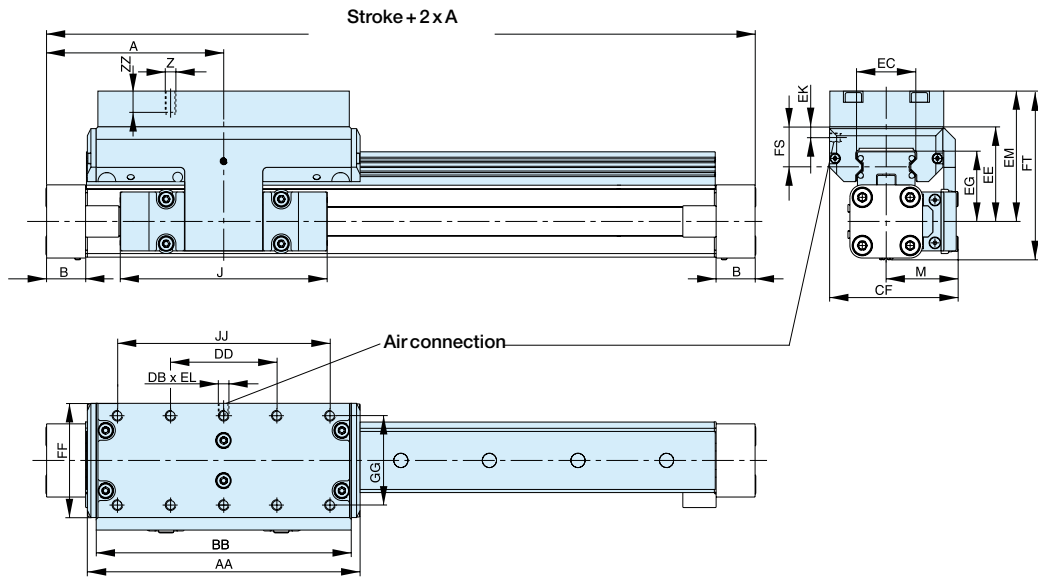
Operating Pressure 4.5 - 8 bar. A pressure of min. 4.5 bar release the brake.

Series	For linear drive	Max. moments [Nm]			Max. loads [N]	Max. brake force [N] <sup>1)</sup>	Mass of linear drive with guide [kg]		Mass <sup>2)</sup> guide carriage [kg]	Order-No.** MB-PL Guide with passive brake without cylinder*
		Mx	My	Mz			Fy, Fz	with 0 mm stroke		
<b>MB-PL25</b>	OSP-P25	16	39	39	857	315	2.14	0.40	1.24	<b>20864</b>
<b>MB-PL32</b>	OSP-P32	29	73	73	1171	490	4.08	0.62	2.02	<b>20865</b>
<b>MB-PL40</b>	OSP-P40	57	158	158	2074	715	5.46	0.70	2.82	<b>20866</b>
<b>MB-PL50</b>	OSP-P50	111	249	249	3111	1100	8.60	0.95	4.07	<b>20867</b>

\*\* Please use this order pattern: Order-No. + „stroke in mm“ (5 digits)  
 Example: MB-PL guide with passive brake, D25 mm, stroke 1000 mm: 20864-01000

**MB-PL in combination with cylinder see page 123, pos. 20**

**Series OSP-P with Passive Brake MB-PL**



**Dimensions [mm] Series OSP-P MB-PL25, MB-PL32, MB-PL40, MB-PL50**

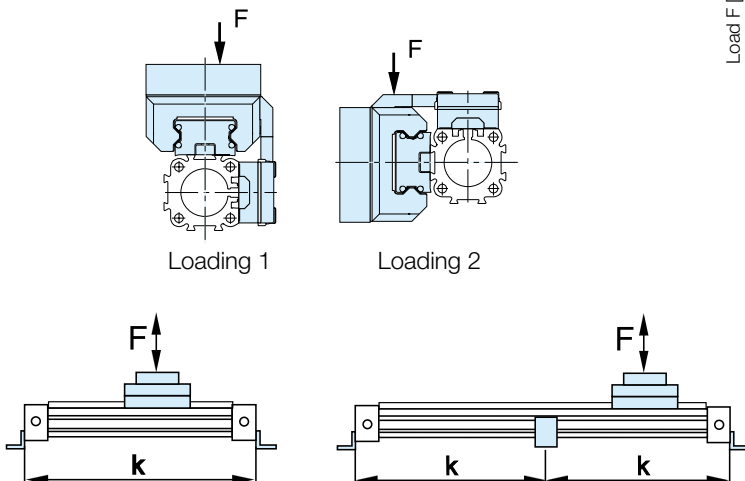
Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EK	EL	EM	FF	FS	FT	GG	JJ	ZZ
<b>MB-PL25</b>	100	22	117	40.5	M6	154	144	M5	60	72.5	32.5	53	39	9	5	73	64	23	93.5	50	120	12
<b>MB-PL32</b>	125	25.5	152	49	M6	197	187	G1/8	80	91	42	62	48	7	10	82	84	25	108	64	160	12
<b>MB-PL40</b>	150	28	152	55	M6	232	222	G1/8	100	102	47	64	50.5	6.5	10	84	94	23.5	118.5	78	200	12
<b>MB-PL50</b>	175	33	200	62	M6	276	266	G1/8	120	117	63	75	57	10	12	95	110	29	138.5	90	240	16

**Mid-Section Support**

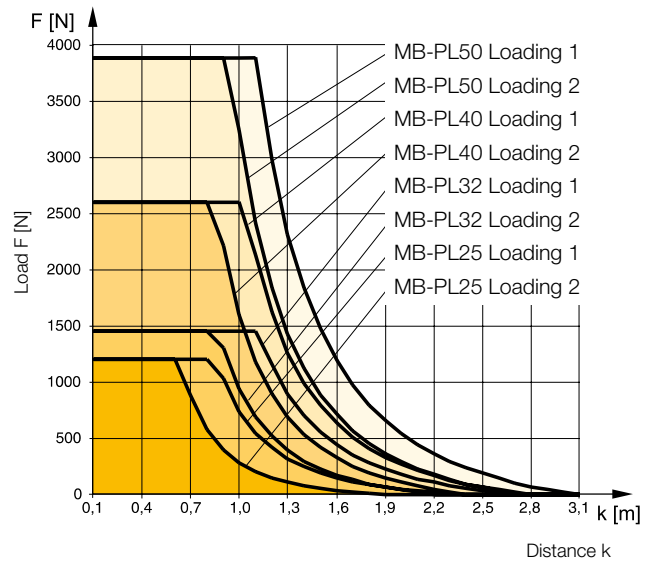
Mid section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

**Note:**

For speeds  $v > 0.5$  m/s the distance between supports should not exceed 1 m.



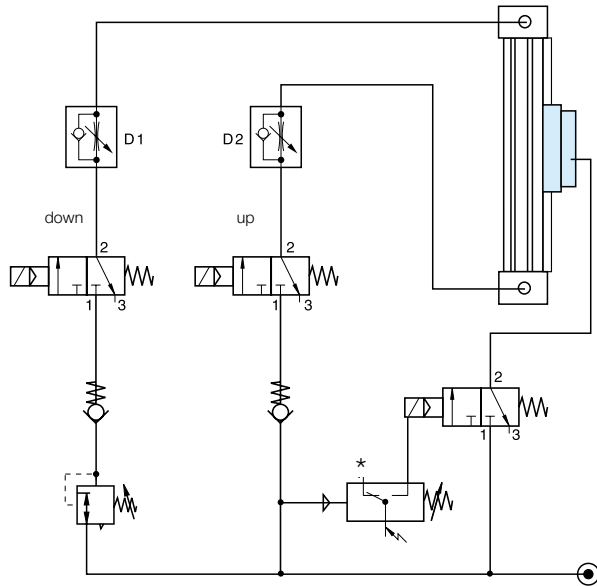
**Permissible Unsupported Length OSP-P MB-PL25, MB-PL32, MB-PL40, MB-PL50**



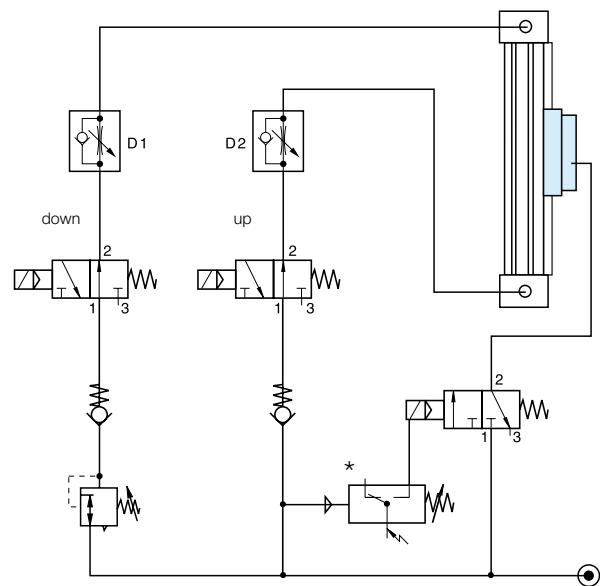


**Application Example - Vertical Application**

Control of a cylinder with 3/2 way valves. Basic position – **exhausted**



Control of a cylinder with 3/2 way valves. Basic position – **pressurised**



**Control Examples**

Under normal operating circumstances the pressure switch is closed and the air flows through the 3/2 way solenoid valves from port 1 to 2, thus lifting the brake from the rail (operating condition). The brake is pressurised by means of a 3/2 way valve in combination with a pressure switch. When there is a pressure loss, the brake is actuated by the pressure switch. When the air pressure is restored to both cylinder chambers, the brake is lifted and the linear drive can be moved again.

The speed regulating valves D1 and D2 control the speed of the linear drive, and have no influence on the brake. The two non-return valves give the system a higher stability. The pressure regulating valve is used to compensate for the downward force in this vertical application.










**Please note:**  
**Before the brake is lifted, make sure that both air chambers of the linear drive are pressurised.**  
**Small diameter tubing, fittings and valves with a nominal diameter, and tubing that is too long all change the reaction time of the brake!**

**\* Tip:**  
 The pressure switch actuates the brake when the pressure drops below the set value.

## Linear Drive Accessories for Series OSP-P

## Description

Clevis Mounting		Page 91 - 92
End Cap Mountings		Page 93
End Cap Mountings (for Linear Drives with guides)		From page 95
Mid-Section Support		Page 94
Mid-Section Support (for Linear Drives with guides)		From page 95
Inversion Mounting		Page 104
Adaptor Profile		Page 105
T-Slot Profile		Page 106
Connection Profile		Page 107
Dulex Connection		Page 108
Multiplex Connection		Page 109
Magnetic Switch for T-Nut mounting P8S-G		Page 110
Magnetic Switch, ATEX-version 		Page 114
Cable cover		Page 117

**Ø 10mm Clevis Mounting**

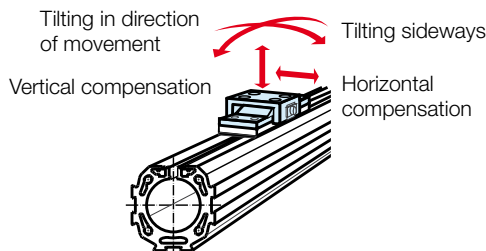
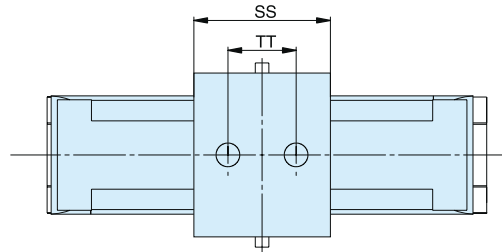
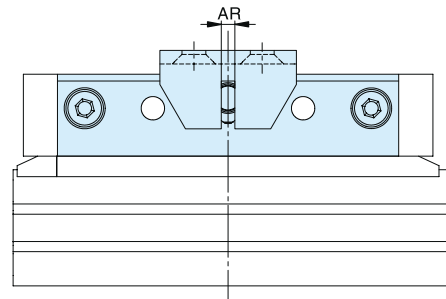
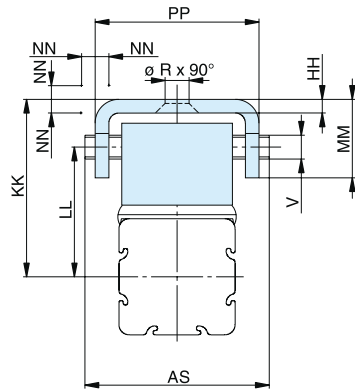
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a clevis mounting.

In the drive direction, the mounting has very little play. Freedom of movement is provided as follows:

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



**Series OSP-P10**



Order instructions in combination with basic cylinder see page 25, pos. 19

**Dimensions [mm]**

For series	ØR	V	AR	AS	HH	KK	LL	MM	NN*	PP	SS	TT	Order No.	
													Standard	Stainless
OSP-P10	3.4	3.5	2	27	2	26	19	11.5	1	24	20	10	20971FIL	-

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

For rodless pneumatic cylinder OSP-P overview see page 5

**Ø 16 - 80 mm Clevis Mounting**

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.

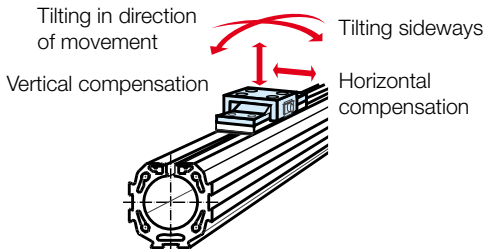
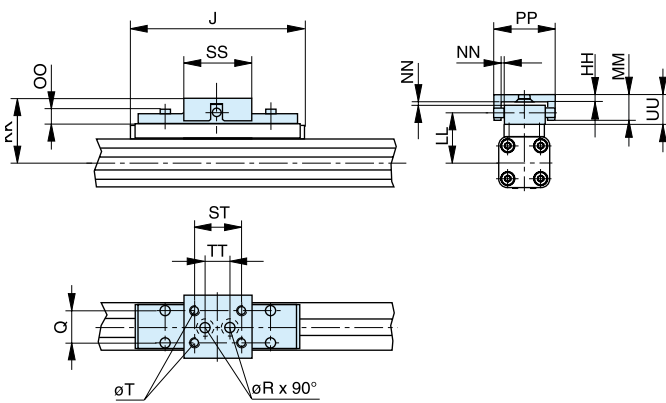
In the drive direction, the mounting has very little play. Freedom of movement is provided as follows:

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

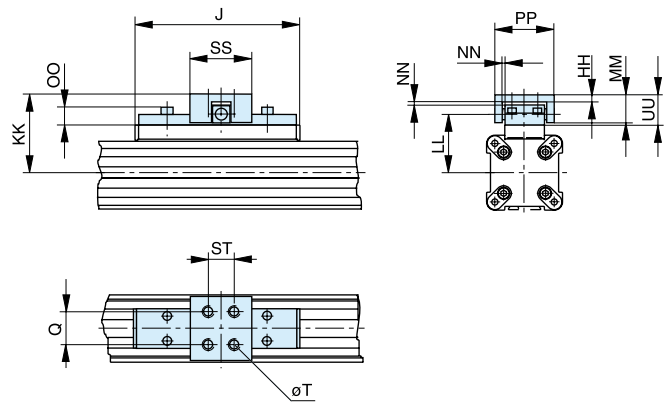
A stainless steel version is also available.



**Series OSP-P16 to 32**



**Series OSP-P40 to 80**



**Please note:**

When using additional inversion mountings, take into account the dimensions on page 104.

Order instructions in combination with basic cylinder see page 25, pos. 19

**Dimensions [mm]**

For series	J	Q	T	ØR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order No. Standard Stainless
<b>OSP-P16</b>	69	10	M4	4.5	3	34	26.6	10	1	8.5	26	28	20	10	11	<b>20462FIL 20463FIL</b>
<b>OSP-P25</b>	117	16	M5	5.5	3.5	52	39	19	2	9	38	40	30	16	21	<b>20005FIL 20092FIL</b>
<b>OSP-P32</b>	152	25	M6	6.6	6	68	50	28	2	13	62	60	46	40	30	<b>20096FIL 20094FIL</b>
<b>OSP-P40</b>	152	25	M6	-	6	74	56	28	2	13	62	60	46	-	30	<b>20024FIL 20093FIL</b>
<b>OSP-P50</b>	200	25	M6	-	6	79	61	28	2	13	62	60	46	-	30	<b>20097FIL 20095FIL</b>
<b>OSP-P63</b>	256	37	M8	-	8	100	76	34	3	17	80	80	65	-	37	<b>20466FIL 20467FIL</b>
<b>OSP-P80</b>	348	38	M10	-	8	122	96	42	3	16	88	90	70	-	42	<b>20477FIL 20478FIL</b>

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

For rodless pneumatic cylinder OSP-P overview see page 5

Ø 10 - 80 mm End Cap Mountings

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, regardless of the position chosen for the air connection.

Material:

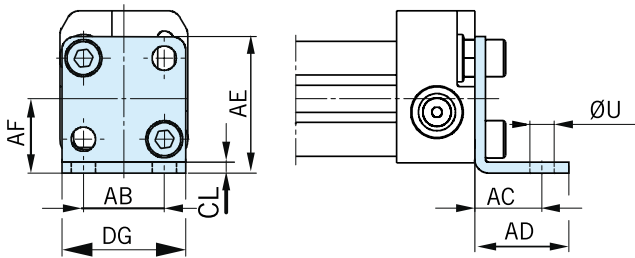
Series OSP-P10 – P32: Galvanised steel.

Series OSP-P40 – P80: Anodized aluminium.

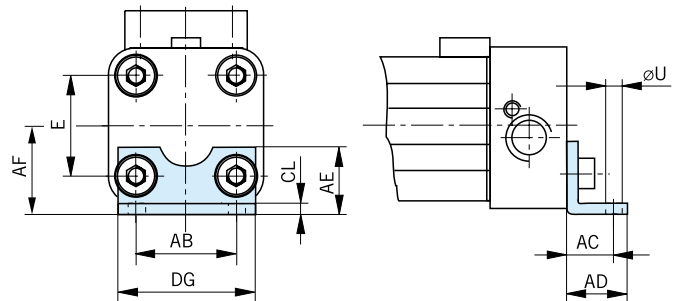
The mountings are supplied in pairs.



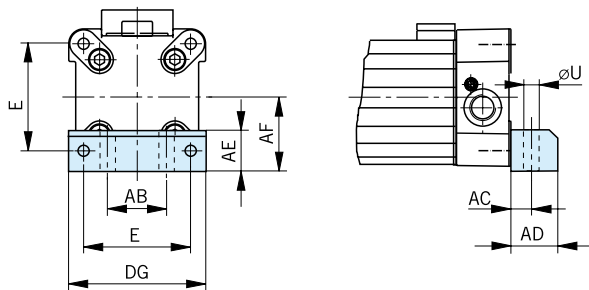
Series OSP-P10: Type A1



Series OSP-P16 to 32: Type A1



Series OSP-P40 to 80: Type C1



Dimensions [mm]

For series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order-No. (*	
										Type A1	Type C1
OSP-P10	-	3.6	12	10	14	20.2	11	1.6	18.4	0240FIL	-
OSP-P16	18	3.6	18	10	14	12.5	15	1.6	26	20408FIL	-
OSP-P25	27	5.8	27	16	22	18	22	2.5	39	2010FIL	-
OSP-P32	36	6.6	36	18	26	20	30	3	50	3010FIL	-
OSP-P40	54	9	30	12.5	24	24	38	-	68	-	4010FIL
OSP-P50	70	9	40	12.5	24	30	48	-	86	-	5010FIL
OSP-P63	78	11	48	15	30	40	57	-	104	-	6010FIL
OSP-P80	96	14	60	17.5	35	50	72	-	130	-	8010FIL

(\* = Pair)

For rodless pneumatic cylinder OSP-P overview see page 5

**Ø 10 - 80 mm Mid Section Support**

Note on Types E1 and D1  
(P16 – P80):

The mid-section support 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.

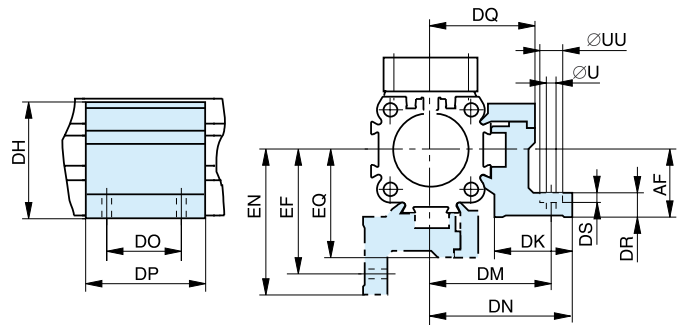
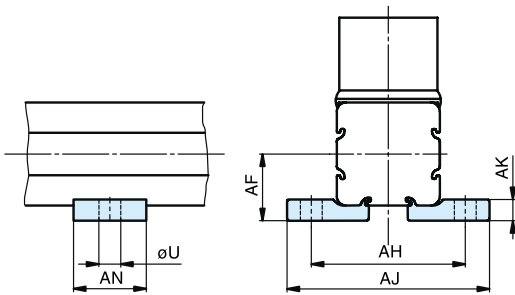


**Series OSP-P10: Type E1**

(Mounting from above / below using a cap screw)

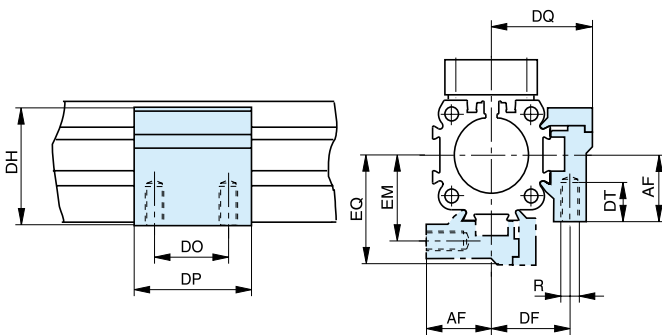
**Series OSP-P16 to 80: Type E1**

(Mounting from above / below using a cap screw)



**Series OSP-P16 to 80: Type D1**

(Mounting from below with 2 screws)



**Dimensions [mm] - Series OSP-P10**

For series	U	AF	AH	AJ	AK	AN	Order No.	
							Type E1	Type D1
<b>OSP-P10</b>	3.6	11	25.4	33.4	3.5	12	<b>0250FIL</b>	-

**Dimensions [mm]**

For series	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ	Order No.	
																				Type E1	Type D1
<b>OSP-P16</b>	M3	3.4	6	15	20	29.2	24	32	36.4	18	30	27	6	3.4	6.5	32	20	36.4	27	<b>20435FIL</b>	<b>20434FIL</b>
<b>OSP-P25</b>	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	<b>20009FIL</b>	<b>20008FIL</b>
<b>OSP-P32</b>	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	<b>20158FIL</b>	<b>20157FIL</b>
<b>OSP-P40</b>	M6	7	-	38	35	61	34	53	60	45	60	45	10	-	11	56	38	63	48	<b>20028FIL</b>	<b>20027FIL</b>
<b>OSP-P50</b>	M6	7	-	48	40	71	34	59	67	45	60	52	10	-	11	64	45	72	57	<b>20163FIL</b>	<b>20162FIL</b>
<b>OSP-P63</b>	M8	9	-	57	47.5	91	44	73	83	45	65	63	12	-	16	79	53.5	89	69	<b>20452FIL</b>	<b>20451FIL</b>
<b>OSP-P80</b>	M10	11	-	72	60	111.5	63	97	112	55	80	81	15	-	25	103	66	118	87	<b>20482FIL</b>	<b>20480FIL</b>




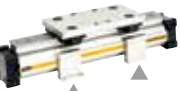
For rodless pneumatic cylinder OSP-P overview see page 5



Mountings for Linear Drives fitted with OSP-Guides



Overview

Mounting Type	Type	Type - OSP Guides																
		SLIDELINE PROLINE MULTIBRAKE								POWERSLIDE								
		16 <sup>1)</sup>	25	32	40	50	63 <sup>1)</sup>	80 <sup>1)</sup>	16/25	25/25	25/35	25/44	32/35	32/44	40/44	40/60	50/60	50/76
<b>End cap mounting</b> 	Type A1	X							X									
	Type A2	O	O	O														
	Type A3									O	O		O					
<b>End cap mounting reinforced</b> 	Type B1		X	X						X	X	X	X	X				
	Type B3								O									
	Type B4											O		O				
	Type B5																	
<b>End cap mounting</b> 	Type C1				X	X	X	X							X	X	X	X
	Type C2				O	O												
	Type C3						O	O							O		O	
	Type C4															O		O
<b>Mid section support, small</b> <b>Mid section support, wide</b> 	Type D1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Type E1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Type E2	O	O	O	O	O												
	Type E3						O	O	O	O	O		O		O		O	
	Type E4											O		O		O		O
	Type E5																	

- X = carriage mounted in top (12 o'clock position)
- O = carriage mounted in lateral (3 or 9 o'clock position)
- = available components
- <sup>1)</sup> = not available for all sizes

**Note:**  
 For mountings and mid-section supports for linear drives with recirculating ball bearing guide STARLINE, for recirculating ball bearing guide KF, see page 98 to 103.



**End Cap Mountings \***

Four internal screw threads are located in the end faces of all OSP actuators for mounting the drive unit. End cap mountings may be secured across any two adjacent screws.

**Material:**

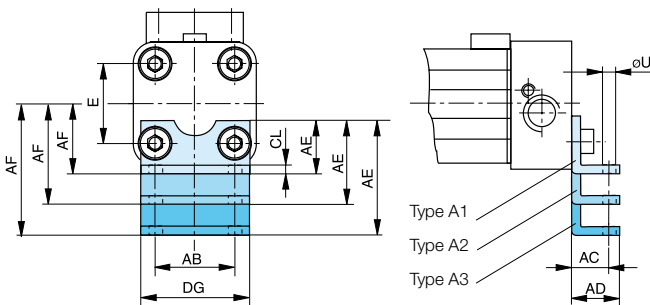
Series OSP-16, 25, 32: Galvanised steel.

Series OSP-40,50, 63, 80: Anodized aluminium.

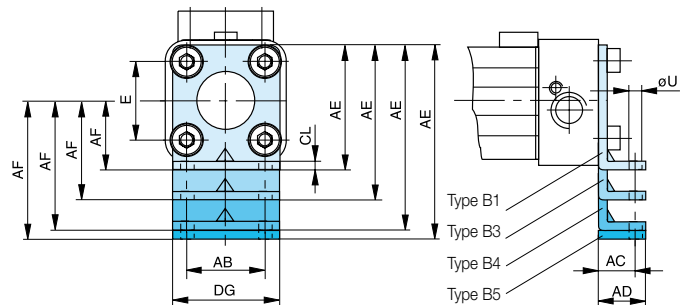
The mountings are supplied in pairs.



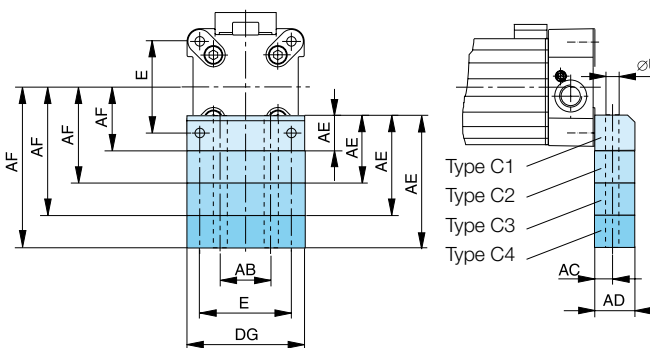
**Series OSP-P16, 25, 32: Type A**



**Series OSP-P16, 25, 32: Type B**



**Series OSP-P40, 50, 63, 80: Type C**



**Dimensions [mm]**

Dimensions AE and AF (Dependant on the mounting type)

Mount. type	Dimensions AE for size							Dimensions AF for size						
	16	25	32	40	50	63	80	16	25	32	40	50	63	80
A1	12.5	18	20	-	-	-	-	15	22	30	-	-	-	-
A2	27.5	33	34	-	-	-	-	30	37	44	-	-	-	-
A3	-	45	42	-	-	-	-	-	49	52	-	-	-	-
B1	-	42	55	-	-	-	-	-	22	30	-	-	-	-
B3	55	-	-	-	-	-	-	42	-	-	-	-	-	-
B4	-	80	85	-	-	-	-	-	60	60	-	-	-	-
B5	-	-	90	-	-	-	-	-	-	65	-	-	-	-
C1	-	-	-	24	30	40	50	-	-	-	38	48	57	72
C2	-	-	-	37	39	-	-	-	-	-	51	57	-	-
C3	-	-	-	46	54	76	88	-	-	-	60	72	93	110
C4	-	-	-	56	77	-	-	-	-	-	70	95	-	-

**Dimensions [mm]**

For series	E	ØU	AB	AC	AD	CL	DG
OSP-P16	18	3.6	18	10	14	1.6	26
OSP-P25	27	5.8	27	16	22	2.5	39
OSP-P32	36	6.6	36	18	26	3	50
OSP-P40	54	9	30	12.5	24	-	68
OSP-P50	70	9	40	12.5	24	-	86
OSP-P63	78	11	48	15	30	-	104
OSP-P80	96	14	60	17.5	35	-	130

\* see mounting instructions on page 95

### Mid Section Support

Information regarding type E1 and D1:

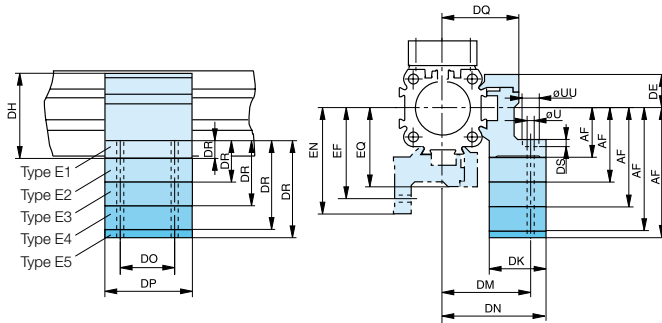
Mounting of the mid section supports is also possible on the lower side of the drive. In this case, please note the new centre line dimensions.

Stainless steel version on request.



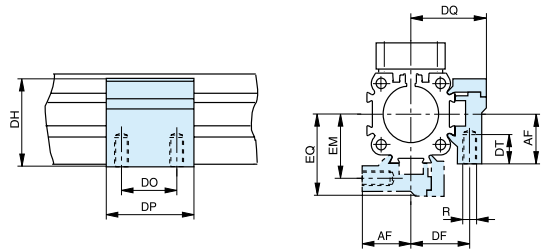
#### Series OSP-P16 to 80: Type E

(Mounting from above / below using a cap screw)



#### Series OSP-P16 to 80: Type D1

(Mounting from below with thread screw)



#### Dimensions [mm]

Dimensions AF and DR (Dependant on the mounting type)

Mount. type	Dimensions DR for size							Dimensions AF for size						
	16	25	32	40	50	63	80	16	25	32	40	50	63	80
D1	-	-	-	-	-	-	-	15	22	30	38	48	57	72
E1	6	8	10	10	10	12	15	15	22	30	38	48	57	72
E2	21	23	24	23	19	-	-	30	37	44	51	57	-	-
E3	33	35	32	32	34	48	53	42	49	52	60	72	93	110
E4	-	46	40	42	57	-	-	-	60	60	70	95	-	-
E5	-	-	45	-	-	-	-	-	-	65	-	-	-	-

#### Dimensions [mm]

For series	R	U	UU	DE	DF	DH	DK	DM	DN	DO	DP	DQ	DS	DT	EF	EM	EN	EQ
OSP-P16	M3	3.4	6	14.2	20	29.2	24	32	36.4	18	30	27	3.4	6.5	32	20	36.4	27
OSP-P25	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-P32	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-P40	M6	7	-	23	35	61	34	53	60	45	60	45	-	11	56	38	63	48
OSP-P50	M6	7	-	23	40	71	34	59	67	45	60	52	-	11	64	45	72	57
OSP-P63	M8	9	-	34	47.5	91	44	73	83	45	65	63	-	16	79	53.5	89	69
OSP-P80	M10	11	-	39.5	60	111.5	63	97	112	55	80	81	-	25	103	66	118	87

#### Ordering information for mountings Type A – Type B – Type C – Type D – Type E

(\* Pair)

Mounting type (versions)	Order No. size						
	16	25	32	40	50	63	80
A1 *)	20408FIL	2010FIL	3010FIL	-	-	-	-
A2 *)	20464FIL	2040FIL	3040FIL	-	-	-	-
A3 *)	-	2060FIL	3060FIL	-	-	-	-
B1 *)	-	20311FIL	20313FIL	-	-	-	-
B3 *)	20465FIL	-	-	-	-	-	-
B4 *)	-	20312FIL	20314FIL	-	-	-	-
B5 *)	-	-	20976FIL	-	-	-	-
C1 *)	-	-	-	4010FIL	5010FIL	6010FIL	8010FIL
C2 *)	-	-	-	20338FIL	20349FIL	-	-
C3 *)	-	-	-	20339FIL	20350FIL	20821FIL	20822FIL
C4 *)	-	-	-	20340FIL	20351FIL	-	-
D1	20434FIL	20008FIL	20157FIL	20027FIL	20162FIL	20451FIL	20480FIL
E1	20435FIL	20009FIL	20158FIL	20028FIL	20163FIL	20452FIL	20482FIL
E2	20436FIL	20352FIL	20355FIL	20358FIL	20361FIL	-	-
E3	20437FIL	20353FIL	20356FIL	20359FIL	20362FIL	20453FIL	20819FIL
E4	-	20354FIL	20357FIL	20360FIL	20363FIL	-	-
E5	-	-	20977FIL	-	-	-	-

## Ø 25 - 50 mm End Cap Mounting

correspond to FESTO dimensions HP25 – 50

### for Linear Drives with Recirculating Ball Bearing Guide

- Series OSP-P KF

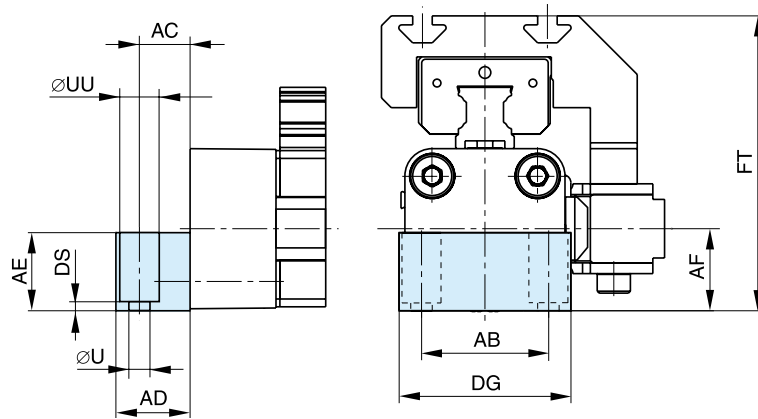
On the end-face of each end cap there are four threaded holes for mounting the actuator.

#### Material:

Series OSP-P KF25 – 50: Anodized aluminium.

The mountings are supplied in pairs.

### Series OSP-P KF25 to KF50: Type HP (Correspond to FESTO dimensions)



#### Note:

Correspond to FESTO DGPL-KF, when the End Cap Mountings HP are mounted on the opposite side to the carriage (see drawing)

### Dimensions [mm]

Series	ØU	AB	AC	AD	AE	AF	DG	DS	FT	ØUU	Order No.
HP25	5.5	32.5	13	19	20	21	44	2	75.5	10	21107FIL
HP32	6.6	38	17	24	24	27	52	3	87.5	11	21108FIL
HP40	6.6	45	17.5	24	24	35	68	2	104.5	11	21109FIL
HP50	9	65	25	35	35	48	86	6	138.5	15	21110FIL

**Ø 25 - 50 mm Mid Section Support**

correspond to FESTO dimensions MUP25-50

for Linear Drives with Recirculating Ball Bearing Guide

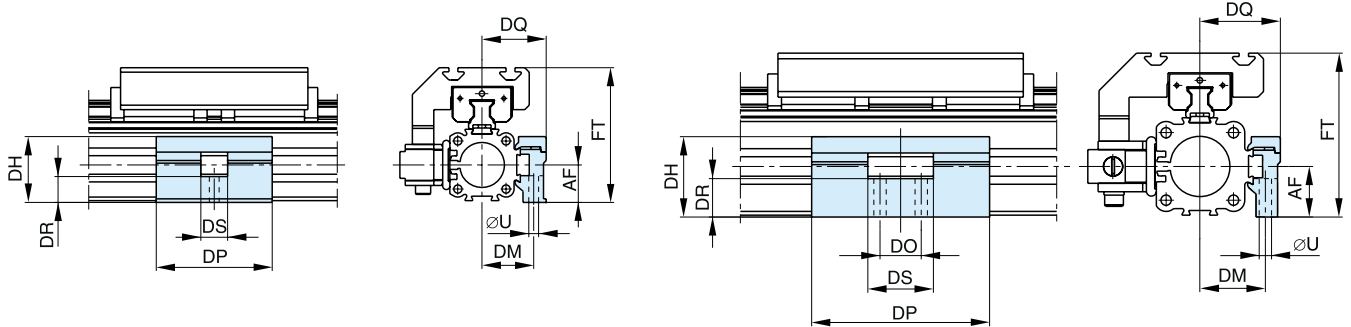
- Series OSP-P KF

**Series OSP-P KF25: Type MUP**

(Mounting over through holes)

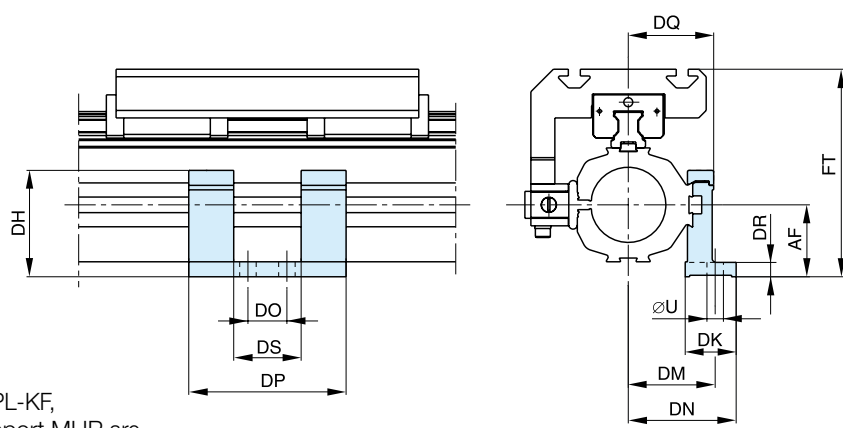
**Series OSP-P KF32 to KF40: Type MUP**

(Mounting over through holes)



**Series OSP-P KF50: Type MUP**

(Mounting over through holes)



**Note:**

Correspond to FESTO DGPL-KF, when the Mid-Section Support MUP are mounted on the 90° side to the carriage (see drawings).

**Dimensions [mm]**

Series	øU	AF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	FT	Order No.
MUP25	5.5	21	36.9	-	29	-	-	65	36	14.5	15	75.5	21119FIL
MUP32	6.6	27	42.9	-	35	-	22	95	43	20.5	35	87.5	21120FIL
MUP40	6.6	35	58	-	40	-	22	95	48	28.5	35	104.5	21121FIL
MUP50	11	48	71	34	58	72	26	105	57	10	45	138.5	21122FIL

Ø 16 - 32 mm End Cap Mounting

Type : B

for Linear Drives with Recirculating Ball Bearing Guide

- Series OSP-P STL
- Series OSP-P KF

Material:

Galvanized steel  
Anodized aluminium.

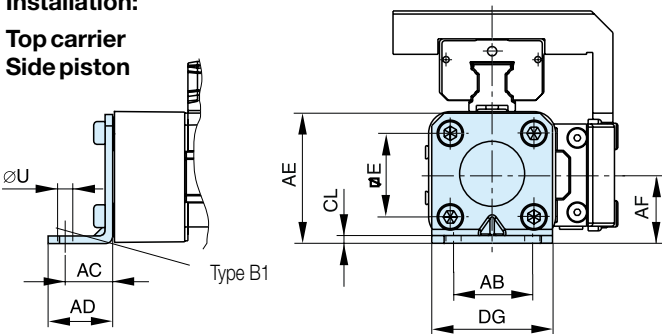
The mountings are supplied in pairs.



Series OSP-P STL16, STL25, STL32 : Type B1  
Series OSP-P KF16, KF25, KF32: Type B1

Installation:

Top carrier  
Side piston

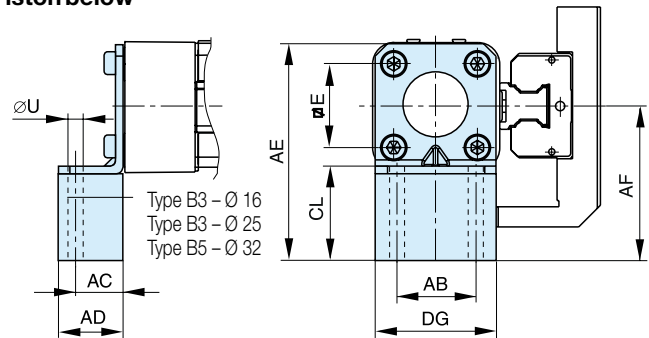


Drawing shows: Mounting with Guide Type STL

Series OSP-P STL16, STL25, STL32: Type B3 (Ø 32:B5)  
Series OSP-P KF16, KF25, KF32: Type B3 (Ø 32:B5)

Installation:

Side carrier  
Piston below

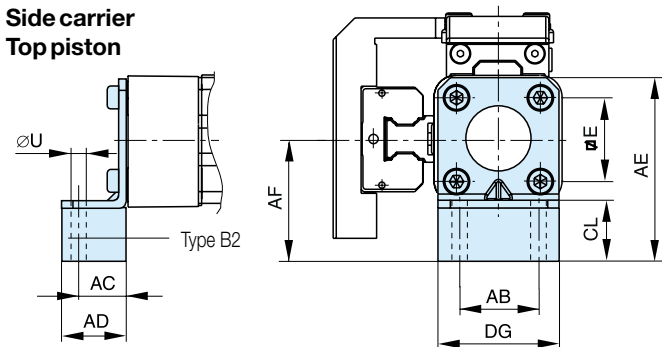


Drawing shows: Mounting with Guide Type STL

Series OSP-P STL16, STL25, STL32: Type B2  
Series OSP-P KF16, KF25, KF32: Type B2

Installation:

Side carrier  
Top piston



Drawing shows: Mounting with Guide Type STL

Dimensions [mm] for End Cap Mounting Type: B1 to B5

For series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order Code (pair)	
OSP-PSTL16	B1	18	3.6	18	10	14	28	15	2	26	21135FIL
OSP-PKF16	B2	18	3.6	18	10	14	43	30	17	26	21136FIL
	B3	18	3.6	18	10	14	55	42	29	26	21137FIL
OSP-PSTL25	B1	27	5.8	27	16	22	42	22	2.5	39	20311FIL
OSP-PKF25	B2	27	5.8	27	16	22	57	37	17.5	39	21138FIL
	B3	27	5.8	27	16	22	69	49	29.5	39	21139FIL
OSP-PSTL32	B1	36	6.6	36	18	26	55	30	3	50	20313FIL
OSP-PKF32	B2	36	6.6	36	18	26	69	44	17	50	21140FIL
	B5	36	6.6	36	18	26	90	65	9	50	21141FIL

Ø 40 - 50 mm End Cap Mounting

Type : C

for Linear Drives with Recirculating Ball Bearing Guide

- Series OSP-P STL
- Series OSP-P KF

Material:

Anodized aluminium.

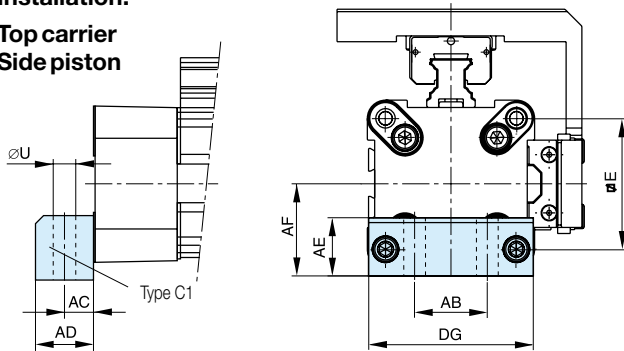
The mountings are supplied in pairs.



Series OSP-P STL40, STL50: Type C1  
Series OSP-P KF40, KF50: Type C1

Installation:

Top carrier  
Side piston

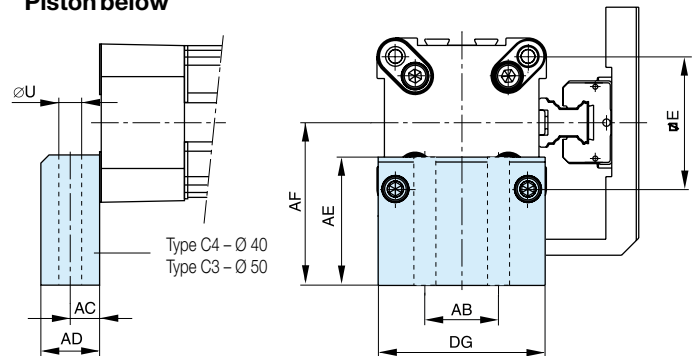


Drawing shows: Mounting with Guide Type STL

Series OSP-P STL40, STL50: Type C4 (Ø 50: C3)  
Series OSP-P KF40, KF50: Type C4 (Ø 50: C3)

Installation:

Side carrier  
Piston below

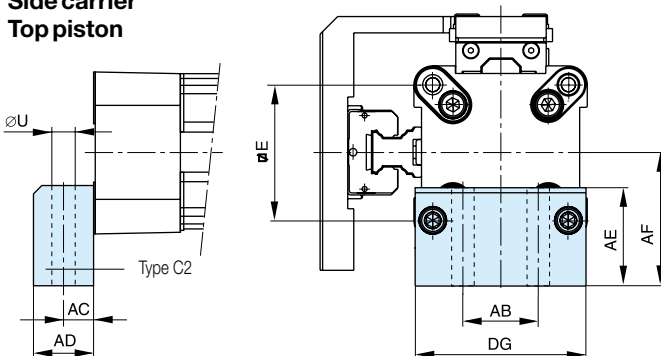


Drawing shows: Mounting with Guide Type STL

Series OSP-P STL40, STL50: Type C2  
Series OSP-P KF40, KF50: Type C2

Installation:

Side carrier  
Top piston



Drawing shows: Mounting with Guide Type STL

Dimensions [mm] for End Cap Mounting Type: C1 to C4

For series		E	ØU	AB	AC	AD	AE	AF	DG	Order code (pair)
OSP-PSTL40	C1	54	9	30	12.5	24	24	38	68	4010FIL
OSP-PKF40	C2	54	9	30	12.5	24	37	51	68	20338FIL
	C4	54	9	30	12.5	24	56	70	68	20340FIL
OSP-PSTL50	C1	70	9	40	12.5	24	30	48	86	5010FIL
OSP-PKF50	C2	70	9	40	12.5	24	39	57	86	20349FIL
	C3	70	9	40	12.5	24	54	72	86	20350FIL

### Ø 16 - 50 mm Mid Section Support

#### Type : D1ST

for Linear Drives with Recirculating Ball Bearing Guide

- Series OSP-P STL
- Series OSP-P KF

#### Note on Types D1ST

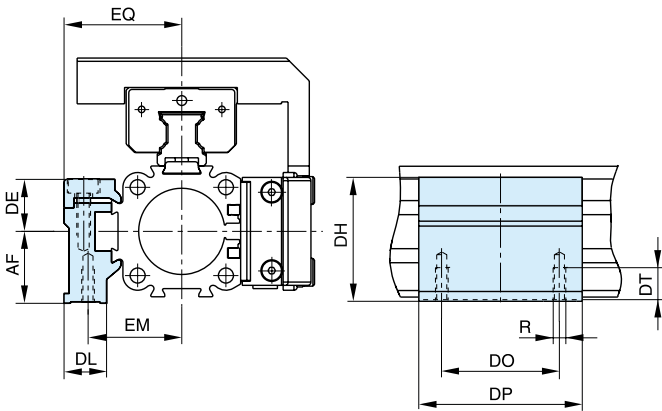
The mid-section support can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different..



#### Series OSP-P STL16 to STL50: Type D1ST

#### Series OSP-P KF16 to KF50: Type D1ST

Mountings from below with 2 screws



Drawing shows: Mounting with Guide Type STL

#### Dimensions [mm]

For series OSP-P ..	Mounting Type	R	AF	DE	DH	DL	DO
STL/KF16	D1ST	M3	15	14.2	29.2	14.6	18
STL/KF25	D1ST	M5	22	16	38	13	36
STL/KF32	D1ST	M5	30	16	46	13	36
STL/KF40	D1ST	M6	38	23	61	19	45
STL/KF50	D1ST	M6	48	23	71	19	45

For series OSP-P ..	Mounting Type	DP	DT	EM	EQ	Order No.
STL/KF16	D1ST	30	6.5	20	27	21125FIL
STL/KF25	D1ST	50	10	28.5	36	21126FIL
STL/KF32	D1ST	60	10	35.5	43	21127FIL
STL/KF40	D1ST	60	11	38	48	21128FIL
STL/KF50	D1ST	60	11	45	57	21129FIL

Order example: Type D1ST16

Order No. 21125FIL

### Ø 16 - 50 mm Mid Section Support

#### Type : E1ST and E5ST

for Linear Drives with Recirculating Ball Bearing Guide

- Series OSP-P STL
- Series OSP-P KF

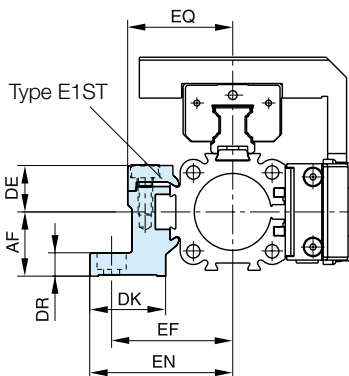
#### Series OSP-P STL16 to STL50: Type E1ST

#### Series OSP-P KF16 to KF50: Type E1ST

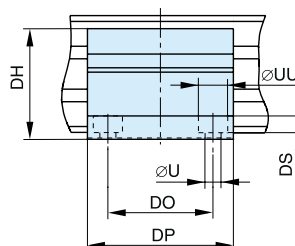


#### Installation:

Top carrier  
Side position



Mounting from above / below using a cap screw



Drawing shows: Mounting with Guide Type STL



**Mid Section Support**

**Type : E1ST to E5ST**

for Linear Drives with Recirculating Ball Bearing Guide

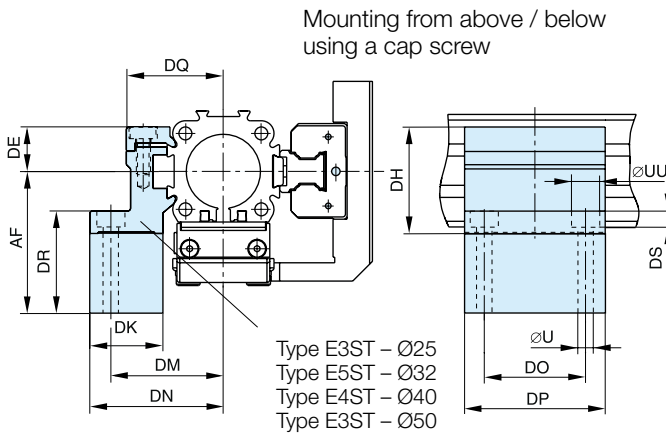
- Series OSP-P STL
- Series OSP-P KF



**Series OSP-P STL25 to STL50: Type E3ST, E4ST, E5ST**  
**Series OSP-P STL25 to STL50: Type E3ST, E4ST, E5ST**

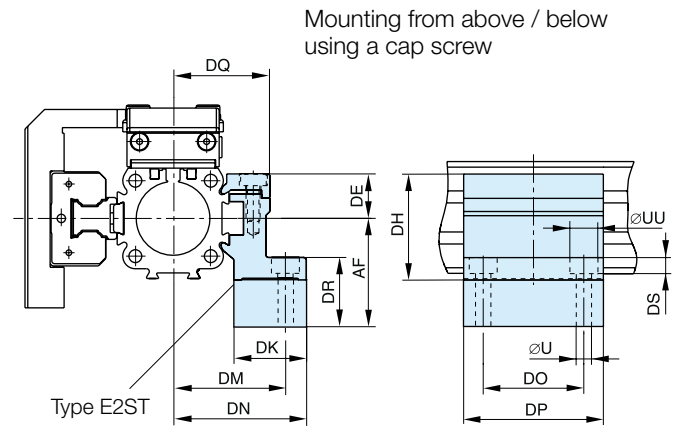
**Series OSP-P STL16 to STL50: Type E2ST**  
**Series OSP-P KF16 to KFL50: Type E2ST**

**Installation:**  
**Side carrier**  
**Piston below**



Drawing shows: Mounting with Guide Type STL

**Installation:**  
**Side carrier**  
**Top piston**



Drawing shows: Mounting with Guide Type STL

**Dimensions [mm] for Mid-Section Support E1ST to E5ST**

For series OSP-P..	Mounting Type	ØU	ØUU	AF	DE	DH	DK	DM	DN	DO	DP	DR	DQ	DS	EF	EN	EQ	Order No.
STL/KF16	E1ST	3.4	6	15	14.2	29.2	24	32	36.4	18	30	6	27	3.4	32	36.4	27	<b>21130FIL</b>
STL/KF16	E2ST	3.4	6	30	14.2	29.2	24	32	36.4	18	30	21	27	3.4	32	36.4	27	<b>21142FIL</b>
STL/KF25	E1ST	5.5	10	22	16	38	26	40	47.5	36	50	8	34.5	5.7	41.5	49	36	<b>21131FIL</b>
STL/KF25	E2ST	5.5	10	37	16	38	26	40	47.5	36	50	23	34.5	5.7	41.5	49	36	<b>21143FIL</b>
STL/KF25	E3ST	5.5	10	49	16	38	26	40	47.5	36	50	35	34.5	5.7	41.5	49	36	<b>21148FIL</b>
STL/KF32	E1ST	5.5	10	30	16	46	27	46	54.5	36	60	10	40.5	5.7	48.5	57	43	<b>21132FIL</b>
STL/KF32	E2ST	5.5	10	44	16	46	27	46	54.5	36	60	24	40.5	5.7	48.5	57	43	<b>21144FIL</b>
STL/KF32	E5ST	5.5	10	65	16	46	27	46	54.5	36	60	45	40.5	5.7	48.5	57	43	<b>21151FIL</b>
STL/KF40	E1ST	7	-	38	23	61	34	53	60	45	60	10	45	-	56	63	48	<b>21133FIL</b>
STL/KF40	E2ST	7	-	51	23	61	34	53	60	45	60	23	45	-	56	63	48	<b>21145FIL</b>
STL/KF40	E4ST	7	-	70	23	61	34	53	60	45	60	42	45	-	56	63	48	<b>21150FIL</b>
STL/KF50	E1ST	7	-	48	23	71	34	59	67	45	60	10	52	-	64	72	57	<b>21134FIL</b>
STL/KF50	E2ST	7	-	57	23	71	34	59	67	45	60	19	52	-	64	72	57	<b>21146FIL</b>
STL/KF50	E3ST	7	-	72	23	71	34	59	67	45	60	34	52	-	64	72	57	<b>21149FIL</b>

Order example: Type E1ST16

Order No. 21130FIL



Ø 16 -80 mm Inversion Mounting

for Linear Drive

- Series OSP-P

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 demand.

**Please note:**

Other components of the OSP system such as mid-section supports, magnetic switches and the external air passage for the P16, can still be mounted on the free side of the cylinder.

**Note:**

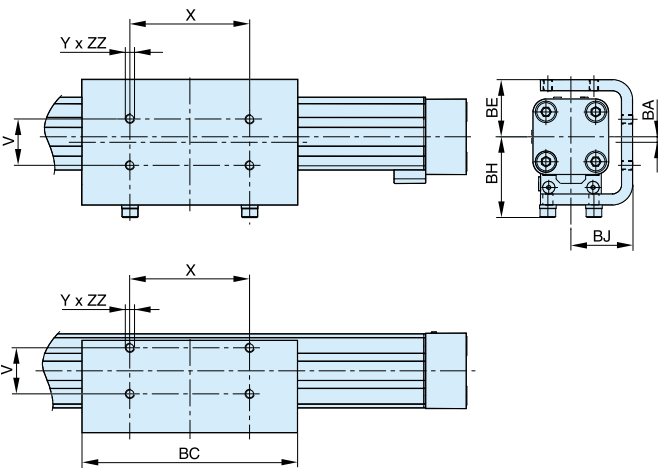
When combining single end porting with inversion mountings, RS magnetic switches can only be mounted directly opposite to the external air-supply profile.

**Important Note:**

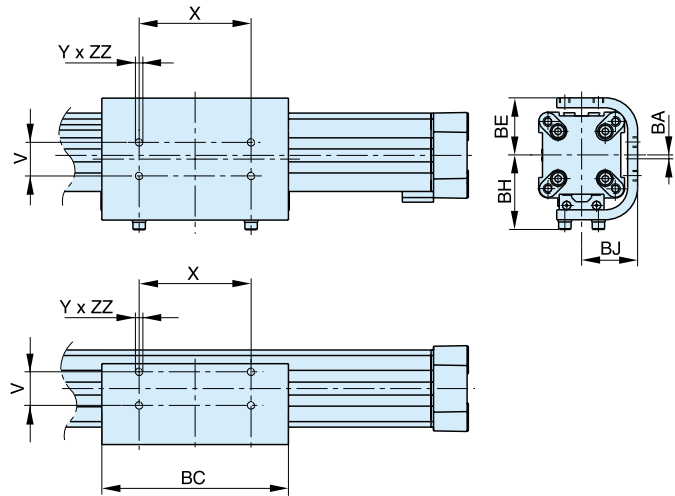
May be used in combination with Clevis Mounting, ref. dimensions on page 92.



Series OSP-P16 to 32



Series OSP-P40 to 80



Dimensions [mm]

For series	V	X	Y	BA	BC	BE	BH	BJ	ZZ	Order No.
OSP-P16	16,5	36	M4	2	69	23	33	25	4	20446FIL
OSP-P25	25	65	M5	3	117	31	44	33,5	6	20037FIL
OSP-P32	27	90	M6	3	150	38	52	39,5	6	20161FIL
OSP-P40	27	90	M6	3	150	46	60	45	8	20039FIL
OSP-P50	27	110	M6	1	200	55	65	52	8	20166FIL
OSP-P63	34	140	M8	2,5	255	68	83,5	64	10	20459FIL
OSP-P80	36	190	M10	3,5	347	88	107,5	82	15	20490FIL

**Note:**

Order instructions in combination with basic cylinder see page 25, pos. 20

For rodless pneumatic cylinder OSP-P overview see page 5

**Ø 16 - 50 mm Adaptor Profile**

for Linear Drive

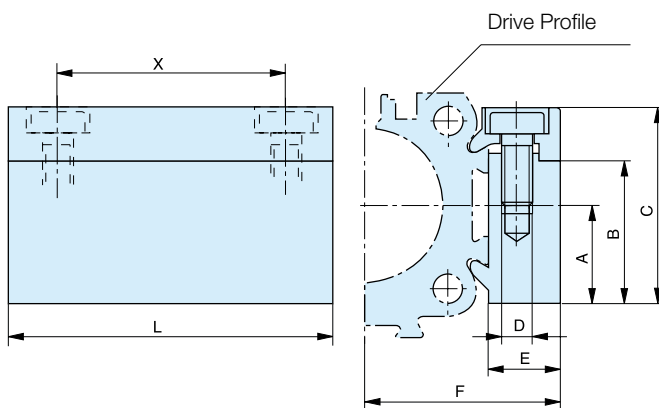
- Series OSP-P

**Adaptor Profile OSP**

- A universal attachment for mounting of valves etc.
- Solid material



**Series OSP-P16 to 50**

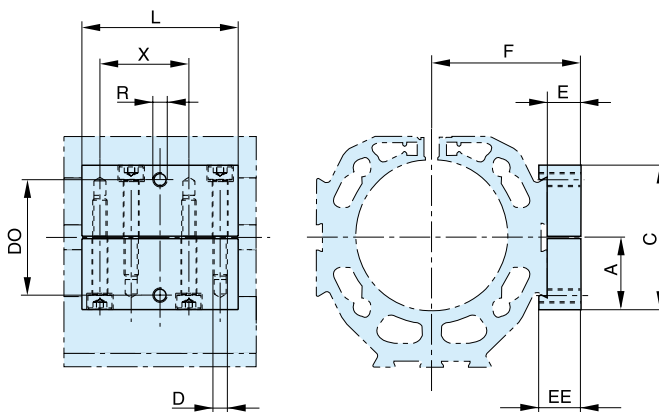


**Dimensions [mm]**

For series	A	B	C	D	E	F
<b>OSP-P16</b>	14	20.5	28	M3	12	27
<b>OSP-P25</b>	16	23	32	M5	10.5	30.5
<b>OSP-P32</b>	16	23	32	M5	10.5	36.5
<b>OSP-P40</b>	20	33	43	M6	14	45
<b>OSP-P50</b>	20	33	43	M6	14	52

For series	L	X	Order No.	
			Standard	Stainless
<b>OSP-P16</b>	50	38	<b>20432FIL</b>	<b>20438FIL</b>
<b>OSP-P25</b>	50	36	<b>20006FIL</b>	<b>20186FIL</b>
<b>OSP-P32</b>	50	36	<b>20006FIL</b>	<b>20186FIL</b>
<b>OSP-P40</b>	80	65	<b>20025FIL</b>	<b>20267FIL</b>
<b>OSP-P50</b>	80	65	<b>20025FIL</b>	<b>20267FIL</b>

**Series OSP-P63 to 80**



**Dimensions [mm]**

For series	A	C	D	E	F	L
<b>OSP-P63</b>	30	60	M6	14	62	65
<b>OSP-P80</b>	30	60	M6	14	75	65

For series	R	X	EE	DO	Order No.*
<b>OSP-P63</b>	M6	37	17,5	48	<b>20792ZFIL</b>
<b>OSP-P80</b>	M6	37	17,5	48	<b>20792ZFIL</b>

\* Stainless version

For **rodless pneumatic cylinder OSP-P** overview see page 5

**Ø 16 - 50 mm T-Slot Profile**

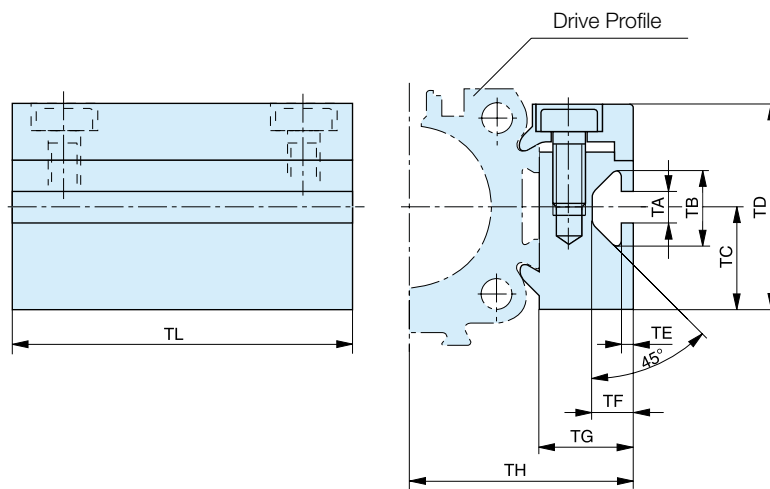
for Linear Drive

- Series OSP-P



**T-Slot Profile OSP**

- A universal attachment for mounting with standard T-Nuts



**Dimensions [mm]**

For series	TA	TB	TC	TD	TE	TF	TG	TH	TL	Order No.	
										Standard	Stainless
<b>OSP-P16</b>	5	11.5	14	28	1.8	6.4	12	27	50	<b>20433FIL</b>	<b>20439FIL</b>
<b>OSP-P25</b>	5	11.5	16	32	1.8	6.4	14.5	34.5	50	<b>20007FIL</b>	<b>20187FIL</b>
<b>OSP-P32</b>	5	11.5	16	32	1.8	6.4	14.5	40.5	50	<b>20007FIL</b>	<b>20187FIL</b>
<b>OSP-P40</b>	8.2	20	20	43	4.5	12.3	20	51	80	<b>20026FIL</b>	<b>20268FIL</b>
<b>OSP-P50</b>	8.2	20	20	43	4.5	12.3	20	58	80	<b>20026FIL</b>	<b>20268FIL</b>

**Following T-nuts from the company ITEM could be used:**

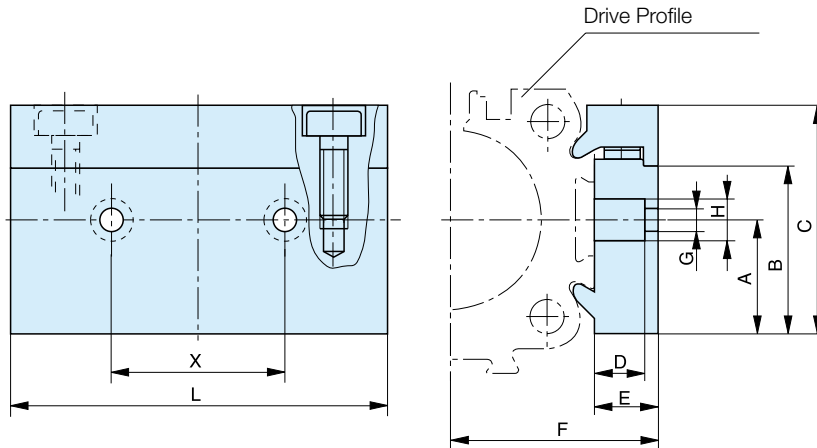
Cyl.-Series	T-nut St5	T-nut St8
<b>OSP-P16-32</b>	✓	
<b>OSP-P40-50</b>		✓

For **rodless pneumatic cylinder OSP-P** overview see page 5

**Ø 16 - 50 mm Connection Profile**

for combining

- Series OSP-P  
with system profiles
- Series OSP-P with Series OSP-P



**Dimensions [mm]**

For series	for mounting on the carrier of	A	B	C	D	E	F	G	H	L	X	Order No.
<b>OSP-P16</b>	OSP25	14	20.5	28	8.5	12	27	5.5	10	50	25	<b>20849FIL</b>
<b>OSP-P25</b>	OSP32-50	16	23	32	8.5	10.5	30.5	6.6	11	60	27	<b>20850FIL</b>
<b>OSP-P32</b>	OSP32-50	16	23	32	8.5	10.5	36.5	6.6	11	60	27	<b>20850FIL</b>
<b>OSP-P40</b>	OSP32-50	20	33	43	8	14	45	6.6	11	60	27	<b>20851FIL</b>
<b>OSP-P50</b>	OSP32-50	20	33	43	8	14	52	6.6	11	60	27	<b>20851FIL</b>

**Possible Combinations**

Combination of Series OSP-P with system profiles



Combination of Series OSP-P with Series OSP-P



For rodless pneumatic cylinder **OSP-P** overview see page 5

**Ø 25 - 50 mm Duplex Connection**

**For connection of cylinders of the Series OSP-P**

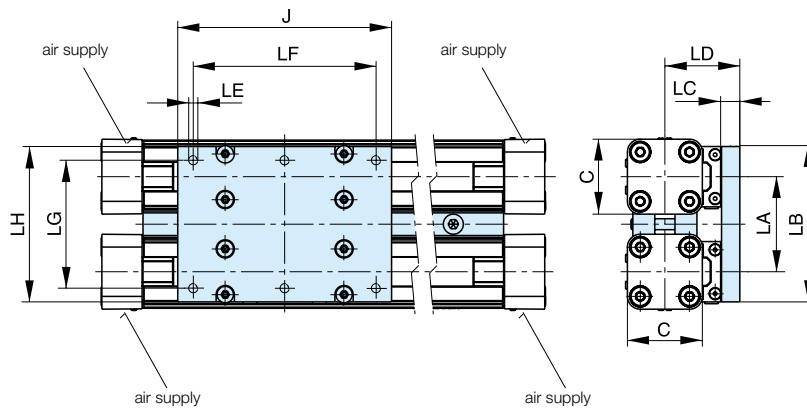
The duplex connection combines two OSP-P cylinders of the same size into a compact unit with high performance.

**Features**

- increased load and torque capacity
- higher driving forces

**Included in delivery:**

- 2 clamping profiles with screws
- 1 mounting plate with fixings



**Dimensions [mm]**

For series	C	J	LA	LB	LC	LD	LE	LF	LG	LH	Order No.	
											Standard	Stainless
<b>OSP-P25</b>	41	117	52	86	10	41	M5	100	70	85	<b>20153FIL</b>	<b>20194FIL</b>
<b>OSP-P32</b>	52	152	64	101	12	50	M6	130	80	100	<b>20290FIL</b>	<b>20291FIL</b>
<b>OSP-P40</b>	69	152	74	111	12	56	M6	130	90	110	<b>20156FIL</b>	<b>20276FIL</b>
<b>OSP-P50</b>	87	200	88	125	12	61	M6	180	100	124	<b>20292FIL</b>	<b>20293FIL</b>

**Note:**  
Order instructions in combination with basic cylinder  
see page 25, pos. 20

For **rodless pneumatic cylinder OSP-P** overview  
see page 5

**Ø 25 - 50 mm Multiplex Connection**

**For connection of cylinders of the Series OSP-P**

The multiplex connection combines two or more OSP-P cylinders of the same size into one unit.

**Features**

- The orientation of the carriers can be freely selected

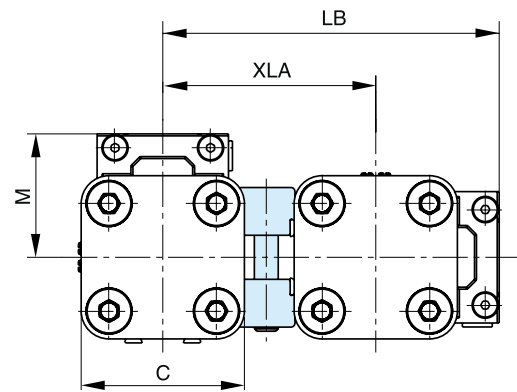
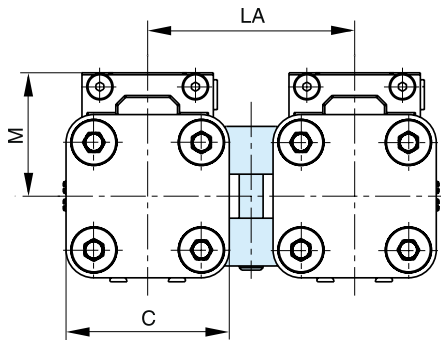
**Included in delivery:**

- 2 clamping profiles with clamping screws



**Installation: Top carrier / Top carrier**

**Installation: Top carrier / Side carrier**



**Dimensions [mm]**

For series	C	M	LA	LB	XLA	Order No.	
						Standard	Stainless
<b>OSP-P25</b>	41	31	52	84.5	53.5	<b>20035FIL</b>	<b>20193FIL</b>
<b>OSP-P32</b>	52	38	64	104.5	66.5	<b>20167FIL</b>	<b>20265FIL</b>
<b>OSP-P40</b>	69	44	74	121.5	77.5	<b>20036FIL</b>	<b>20275FIL</b>
<b>OSP-P50</b>	87	49	88	142.5	93.5	<b>20168FIL</b>	<b>20283FIL</b>

For **rodless pneumatic cylinder OSP-P** overview see page 5



## Ø 10 - 80 mm Magnetic Switches P8S-G

Type **RST**  
**EST**



The next generation of T-slot switches is appealing due to its ease of attachment without the use of special tools. Due to the new electronics, the hysteresis is especially narrow, allowing for a highly accurate switching point.

Magnetic switches are used for electrical sensing of the position of the piston, e.g. at its end positions. They can also be used for sensing of intermediate positions.

Sensing is contactless, based on magnets which are built-in as standard. A yellow LED indicates operating status.

The magnetic switches are attached with an adapter directly in the dovetail groove of the OSP cylinder.

**The possible operating speed of the load carrier or carrier bolt must account for the minimum response time of downstream devices. Accordingly, the switching distance is included in the calculation.**

$$\text{Minimum response time} = \frac{\text{Switching distance}}{\text{Overrun speed}}$$

- for the magnetic switch temperature range, please take into account the surface temperature and the self-heating properties of the linear drive.

Characteristics	Series P8S-GR / P8S-GE	Series P8S-GP
<b>Electrical Characteristics</b>		
Switching output / -function	Reed / NO Reed / NC	PNP / NO
Electrical configuration	2-wire	3-wire
Display LED yellow	yes (not Reed NC)	
Operating voltage $U_b$	10 - 30 V AC/DC	10 - 30 V DC
Ripple of $U_b$	≤ 10 %	≤ 10 %
Voltage drop	≤ 3 V	≤ 2 V
Power consumption @ $U_b = 24$ V switched on, without load	-	≤ 10 mA
Permanent current	≤ 500 mA	≤ 200 mA
Breaking capacity	≤ 6 W	-
Switchable capacity load @ 100 W @ 24 V DC	100 nF	-
Switching frequency	≤ 400 Hz	≤ 1,000 Hz
Time delay before availability (on/off)	1.5 / 0.5 ms	0.5 / 0.5 ms
Repeatability	≤ 0.2 mm	≤ 0.2 mm
Switching distance	approx. 15 mm	approx. 15 mm
Hysteresis	2 mm	2 mm
EMC following EN 60947-5-2	yes	yes
Lifetime	≥ 20 x 10 <sup>6</sup> cycles	unlimited
Short-circuit protection	-	yes
Reverse polarity prot.	-	yes
Power-up pulse suppression	-	yes
Protection for inductive load	-	yes
ATEX - Certification	-	on request
<b>Mechanical Characteristics</b>		
Housing	PA12	
Cable type	PUR / black	
Cable cross section	2 x 0.14 mm <sup>2</sup>	3 x 0.14 mm <sup>2</sup>
Bending radius fixed	≥ 30 mm	
Bending radius moving	≥ 45 mm	
<b>Ambient</b>		
Protection class to EN 60529	IP 68	
Ambient temperature range 1)	- 30 °C to + 80 °C	
Vibration to EN 60068-2-6	G 30, 11 ms, 10 to 55 Hz, 1 mm	
Shock to EN 60068-2-27	G 50, 11 ms	

## Magnetic Switches RST and EST

### Electrical Service Life, Protective Measures

Magnetic switches are sensitive to excessive currents and inductions. With high switching frequencies and inductive loads such as relays, solenoid valves or lifting magnets, service life will be greatly reduced.

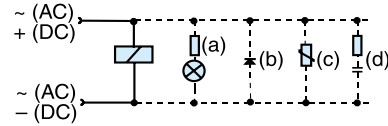
With **resistive and capacitive loads** with high switch-on current, such as light bulbs, a protective resistor should be fitted. This also applies to long cable lengths.

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 EST, external protective circuits are not normally needed.

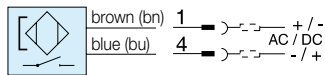
### Type: RST

In the type RST contact is made by a mechanical **reed switch** encapsulated in glass.

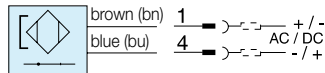
### Electrical Connection: cable type RS-K

Reed 2-wire

Normally open



Normally closed



### Type: EST

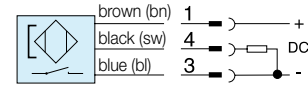
In the type EST contact is made by an **electronic switch** – without bounce or wear and protected from pole reversal. The output is short circuit proof and insensitive to shocks and vibrations.

A cable with connector and open end can be ordered separately.

### Electrical Connection: cable type ES-K

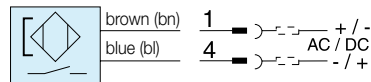
PNP 3-wire

Normally open



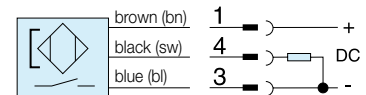
### Electrical Connection: plug type RST-S

Reed 2-wire

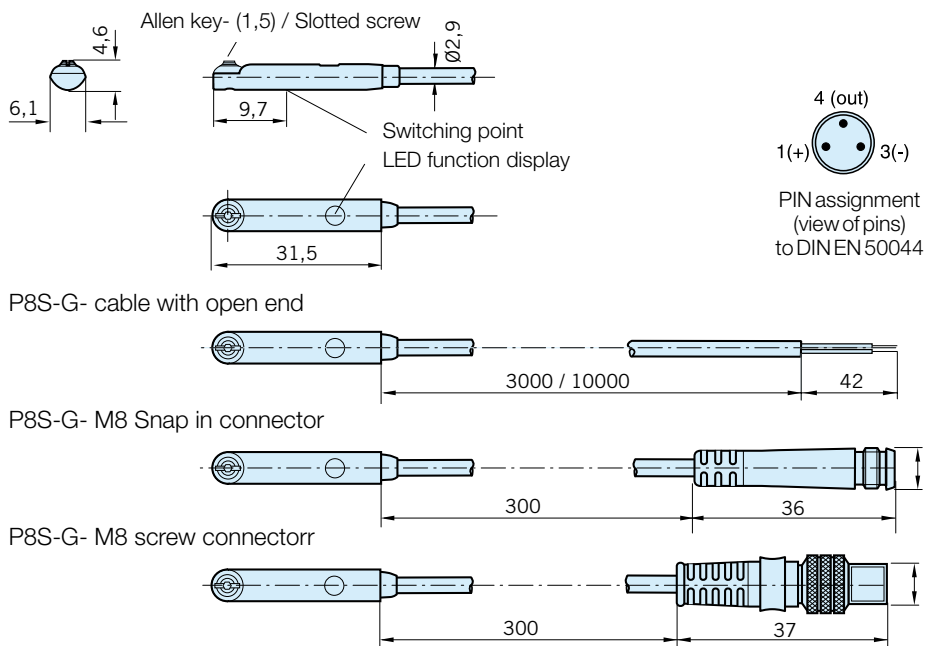


### Electrical Connection: plug type EST-S

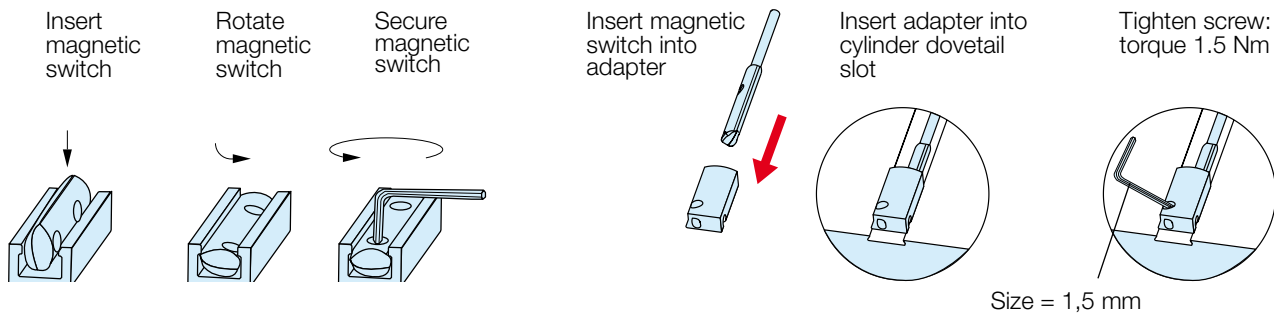
PNP 3-wire



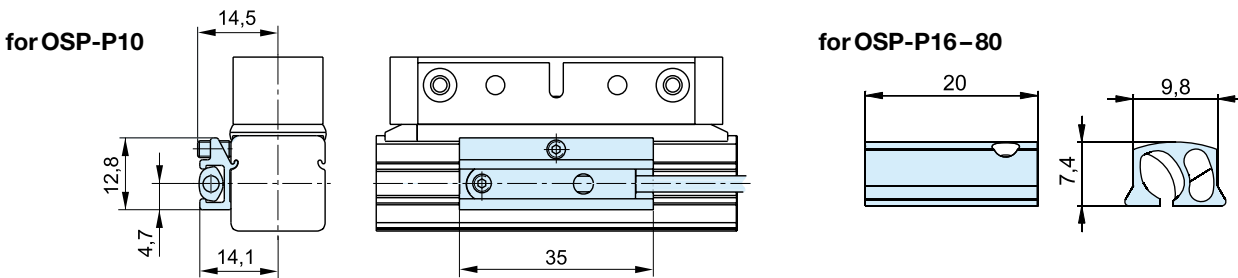
## Dimensions [mm] - Typ RST-K, EST-K - Series P8S-G



Installation instructions for the RST/EST magnetic switches series P8S-G

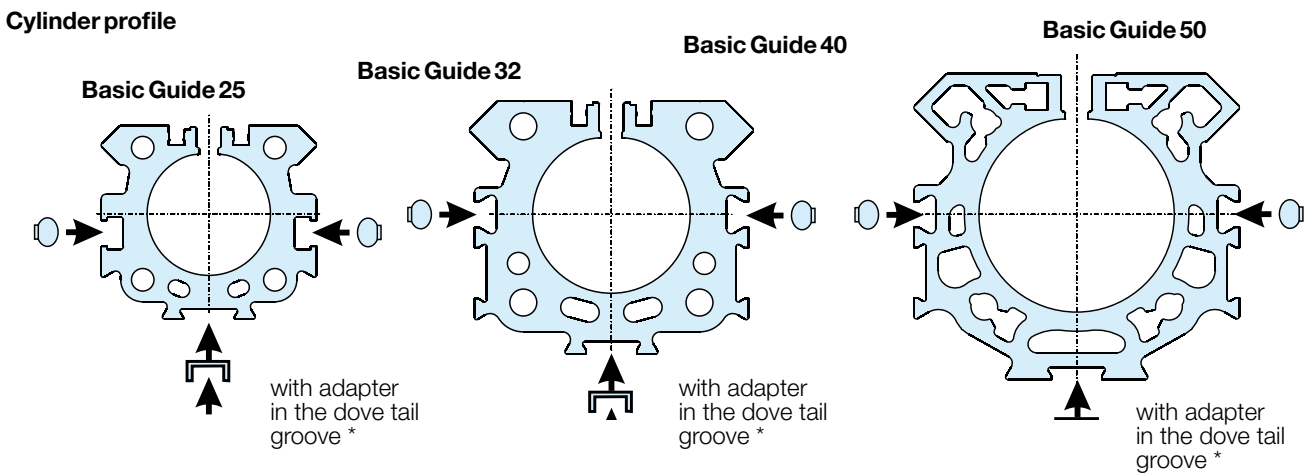


Dimensions adapters for RST/EST magnetic switch series P8S-G



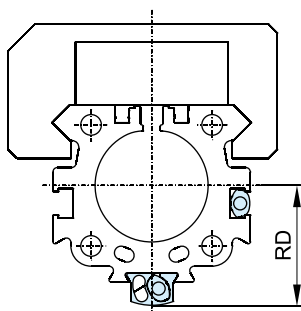
Note for OSP-P10: Switches can not be mounted directly opposite of the carrier !

P8S-G mounting positions in the Basic Guide cylinder profile



\* Adapter is included in the scope of delivery of the P8S-G T-slot switches.

Dimensions for P8S-G T-Slot magnetic switches with adapter in the cylinder profile of the Basic Guide 25-50



Series	Dimension [mm] RD
OSPP-BG25	27
OSPP-BG32	33.5
OSPP-BG40	39
OSPP-BG50	48

## Order Instructions

Version	Voltage	Type	Order No.
Magnetic switch, reed contact, normally open LED indicator, cable 3 m	10-30 V AC / DC	<b>RST-K</b>	<b>P8S-GRFAX</b>
Magnetic switch, reed contact, normally open LED indicator, cable 10 m	10-30 V AC / DC	<b>RST-K</b>	<b>P8S-GRFDX</b>
Magnetic switch, reed contact, normally open, screw connector M8, LED indicator, cable 0.3 m	10-30 V AC / DC	<b>RST-S</b>	<b>P8S-GRCHX</b>
Magnetic switch, reed contact, normally closed, cable 10 m	10-30 V AC / DC	<b>RST-K</b>	<b>P8S-GEFRX</b>
Magnetic switch, electronic, PNP LED indicator, cable 3 m	10-30 V DC	<b>EST-K</b>	<b>P8S-GPFAX</b>
Magnetic switch, electronic, PNP LED indicator, cable 10 m	10-30 V DC	<b>EST-K</b>	<b>P8S-GPFDX</b>
Magnetic switch, electronic, PNP screw connector M8, LED indicator, cable 0.3 m	10-30 V DC	<b>EST-S</b>	<b>P8S-GPCHX</b>

### Included in delivery:

1 magnetic switch, 1 adapter for T-slot magnetic switch for type OSP-P16 up to OSP-P80.

**Note:** When using T-nut magnetic switches with the OSP-P10, please order the adapter Order No. 8872FIL separately.

## Accessories

Description	Type	Order No.
Cable M8, 2.5 m without lock nut	<b>KS 25</b>	<b>KY 3240</b>
Cable M8, 5.0 m without lock nut	<b>KS 50</b>	<b>KY 3241</b>
Cable M8, 10.0 m without lock nut	<b>KS 100</b>	<b>KC 3140</b>
Cable M8, 2.5 m with lock nut	<b>KSG 25</b>	<b>KC 3102</b>
Cable M8, 5.0 m with lock nut	<b>KSG 50</b>	<b>KC 3104</b>
Adapter for RST/EST magnetic switch – for type OSP-P10	<b>HMTP010</b>	<b>8872FIL</b>
Adapter for RST/EST magnetic switch – for type OSP-P16 up to OSP-P80 (pack of 10)		<b>KL 3333</b>

## Ø 10 - 80 mm Magnetic Switches

Series: **RS-K..ATEX**  
**ES-K..ATEX**



For electrical sensing of the carrier position, e.g. at the end positions, magnetic switches may be fitted. Position sensing is contactless and is based on magnets fitted as standard to the carrier. A yellow LED indicates operating status.

The magnetic switches are attached directly in the dovetail groove of the OSP cylinder.



Characteristics	Type RS-K ATEX	Type ES-K ATEX
<b>Elektrical Characteristics</b>		
ATEX Certification	yes	yes
Category Type: RS-K	⊕ II 3GD EEX nC IIC T3 146 °C	
Category Type: ES-K	⊕ II 2GD EEX ib IIC T5 100 °C	
Switching output	Reed	NAMUR
Operating voltage	10-240 V AC/DC	7-10 V DC
Voltage drop	≤ 3V	–
Electrical configuration	Two wire	Two wire
Output function	normally open	normally open
Permanent current	≤ 200 mA	≤ 3 mA
Power consumption	≤ 10/10 W/VA peak	–
Peak current	≤ 500 mA	–
Power consumption without load	–	≤ 1 mA
Function indicator	LED, yellow	
Response time On/Out	≤ 2 ms	≤ 0.5 ms
Sensitivity	2-4 mT	2-4 mT
Reverse polarity prot.	yes	yes
Short-circuit protection	no	yes
Repeatability	≤ 0.2 mm	≤ 0.2 mm
Hysteresis	≤ 1.5 mm	≤ 1.5 mm
EMC	EN 60947-5-2	
Lifetime	≥ 10 Mio. Cycles with PLC load	
<b>Mechanical Characteristics</b>		
Housing	Makrolon, smoke color	
Cable cross section	2x0.14 mm <sup>2</sup>	2x0.14 mm <sup>2</sup>
Cable type	PVC, blau	PVC, blue
Weight	ca. 0.075 kg	
Degree of protection	IP67 to EN 60529	
Ambient temperature range <sup>1)</sup>	-25 °C to +80 °C	-20 °C to +75 °C
Surface temperature	The maximum surface temperature T=146 °C is referred to the max. ambiente temperature of 80 °C	–
<b>Shock resistance</b>		
Vibration and Shock	50 G at 50 Hz and 1 mm	

- for the magnetic switch temperature range, please take into account the surface temperature and the self-heating properties of the linear drive.

For **Linear Drives in ATEX-Version** see page 35

## Magnetic Switches

### Type: RS-K ATEX-Version

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

**ATEX-Category Type: RS-K**

⊕ II 3GD EEX nC IIC T3 146°C

**Electrical Service Life  
Protective Measures**

Magnetic switches are sensitive to excessive currents and inductions. With high switching frequencies and inductive loads such as relays, solenoid valves or lifting magnets, service life will be greatly reduced.

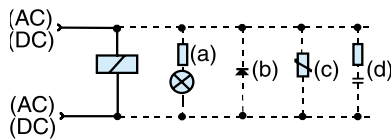
With **resistive and capacitive loads** with high switch-on current, such as light bulbs, a protective resistor should be fitted. This also applies to long cable lengths.

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

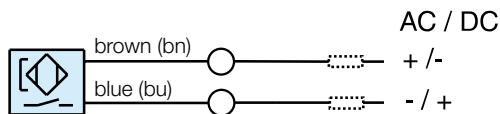
- (a) Protective resistor for light bulb
- (b) Freewheel diode on inductivity
- (c) Varistor on inductivity
- (d) RC element on inductivity



### Electrical Connection: cable type RS-K ATEX

**Normally open (Reed)**

2-wire



### Type: ES-K ATEX-Version

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

**ATEX-Category Type: ES-K**

⊕ II 2GD EEX ib IIC T5 100°C

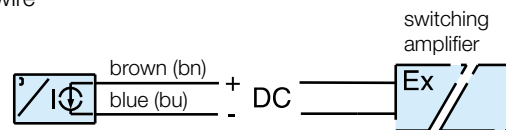
**Note!**

**The connection of the magnetic switch Type ES-K ATEX must be realised by means of an EEX i switching amplifier (see Accessories).**

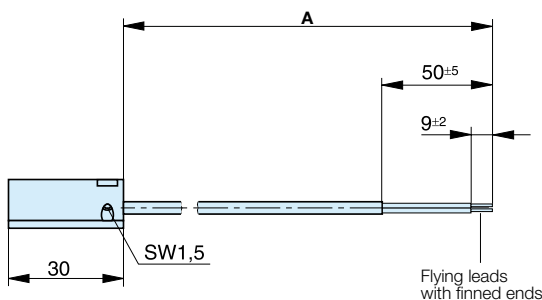
### Electrical Connection: cable type ES-K ATEX

**Normally open (NAMUR)**

2-wire



## Dimensions [mm]



**Dimension [mm]**

Magnetic switch Order No.	Nominal cable length A	Lengths tolerance
KL3240	5000	- 50
KL3241	10000	- 50
KL3250	5000	- 50
KL3251	10000	- 50

## Order Instructions

Version	Voltage	Type	Order No.
Magnetic switch, reed contact, normally open LED indicator, cable 5 m	10-240 V AC/DC	<b>RS-K ATEX</b>	<b>KL3240</b>
Magnetic switch, reed contact, normally open LED indicator, cable 10 m	10-240 V AC/DC	<b>RS-K ATEX</b>	<b>KL3241</b>
Magnetic switch, electronic, NAMUR, normally open LED indicator, cable 5 m	7-10 V DC	<b>ES-K ATEX</b>	<b>KL3250</b>
Magnetic switch, electronic, NAMUR, normally open LED indicator, cable 10 m	7-10 V DC	<b>ES-K ATEX</b>	<b>KL3251</b>

## Accessories

Description	for magnetic switch	Order No.
2 channel switching amplifier 24 V DC	<b>ES-K ATEX</b>	<b>2876FIL</b>
2 channel switching amplifier 220 V AC	<b>ES-K ATEX</b>	<b>1546FIL</b>

**Note: 2 magnetic switches can be connected to each switching amplifier.**



**Linear Drive Accessories**

**Ø16-80 mm Cable Cover**

For clean guidance of magnetic switch cables along the cylinder body.

Contains a maximum of 3 cables with diameter 3 mm.

Material: Plastic

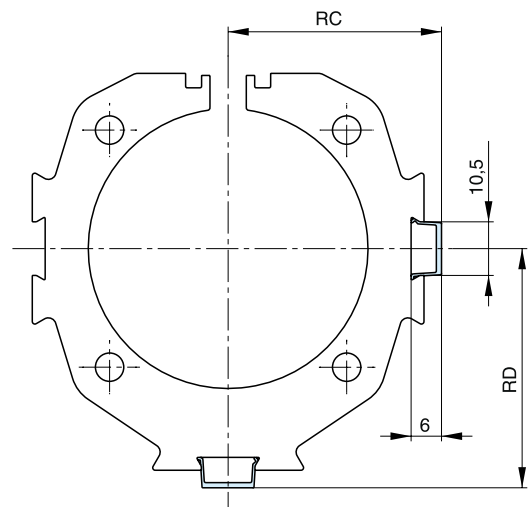
Temperature Range: -10 to +80 °C



**Dimension [mm] and Order Instructions**

Series	Dimensions [mm]		Order No.
	RC	RD	
<b>OSP-P16</b>	18.5	19	<b>13039FIL</b>
<b>OSP-P25</b>	23.5	25.5	
<b>OSP-P32</b>	29.5	32	Minimal length: 1 m Max. profile length: 2 m
<b>OSP-P40</b>	34.5	37.5	
<b>OSP-P50</b>	41.5	46.5	Multiple profiles can be used.
<b>OSP-P63</b>	51.5	57.5	
<b>OSP-P80</b>	64.5	70.5	

**Dimension [mm]**



# ORIGA-SENSOFLEX

## Displacement Measuring System for automated movement

Series SFI-plus  
(Incremental measuring system)



### Characteristics:

- Contactless magnetic displacement measurement system
- Displacement length up to 32 m
- Resolution 0.1 mm (option: 1 mm)
- Displacement speed up to 10m/s
- For linear and non-linear rotary motion
- Suitable for almost any control or display unit with a counter input

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

- **Measuring Scale**

Self-adhesive magnetic measuring scale

- **Sensing Head**

Converts the magnetic poles into electrical signals which are then processed by counter inputs downstream

(e.g. PLC, PC, digital counter)

**Note:** Order instructions in combination with basic cylinder see page 25, pos.25

Characteristics	Description		
	Type	21210FIL	21211FIL
<b>Output Function</b>			
Resolution		0.1mm	1mm
Pole lengths magnetic scale		5mm	
Maximum speed		10m/s	
Repeat accuracy		± 1 Increment	
Distance between sensor and scale		< 2 mm	
Tangential deviation		≤ 3° / ≤ 1°	
Lateral deviation		≤ ± 1.5 mm	
Switching output		push / pull	
<b>Electrical characteristics</b>			
Operating voltage $U_b$		10–30 VDC	
Voltage drop		≤ 2 V	
Continuous current for each output		≤ 40 mA	
Power consumption at $U_b = 24V$ , switched on, without load		≤ 15 mA	
Short-circuit protection		yes	
Reverse polarity protection		yes	
Protection from inductive load		yes	
<b>EMC</b>			
Emission standard for industrial		DIN EN 61000-6-4	
Immunity for industrial environments		DIN EN 61000-6-2	
<b>Mechanical Characteristics</b>			
Housing material		Aluminium	
Cable length		5.0 m – casted, flying lead	
Cable cross section		2 x 0.14 mm <sup>2</sup> + 2 x 0.22 mm <sup>2</sup>	
Cable type		PUR, black	
Bending radius, moving		≥ 50 mm	
Weight (mass)		appr. 0.165 kg	
<b>Environmental Conditions / Shock Resistance</b>			
Degree of protection		IP67 to EN60529	
Ambient temperature range		-25 °C to +85 °C	
Vibration stress to EN 60068-2-6		300 m/s <sup>2</sup> , 55 Hz...2 kHz	
Shock to EN 60068-2-27		300 m/s <sup>2</sup> , 11 ms	

**Sensing Head**

The sensing head provides two pulsating, 90° out of phase counter signals (phase A/B) with a 0.1 mm resolution (option 1 mm).

The counting direction can be determined automatically from the phase variance of the counter signals.

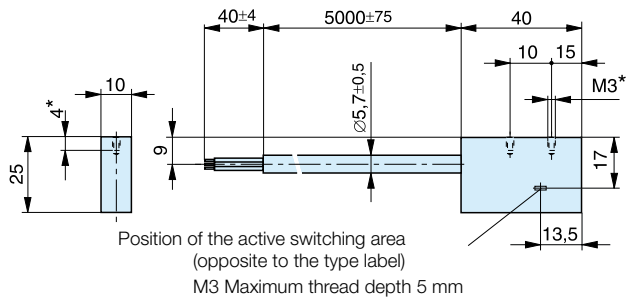
**Electrical Connection**

Colour	Function
red (RD)	10 ... 30VDC
black (BK)	ground
yellow (YE)	signal A
green (GN)	signal B
shield	shielding

**Output Signal- Sensing Head**

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

**Dimensions [mm] - Sensing Head**



**SFI-plus mounted on a rodless cylinder series OSP-P**

The SFI-plus system can be mounted directly on a rodless OSP-P cylinder with the special mounting kit. The position of the sensing head is generally 90° to the carrier.

**Note: Impulse Frequency:**

Pole distance of the magnetic measurement scale is 5 mm.

Impulse generation depends on the SFI-plus type used. The proportional output frequency of the signal impulses increases as the travel speed goes up.

The cycle frequency of the downstream counter input must be set accordingly.

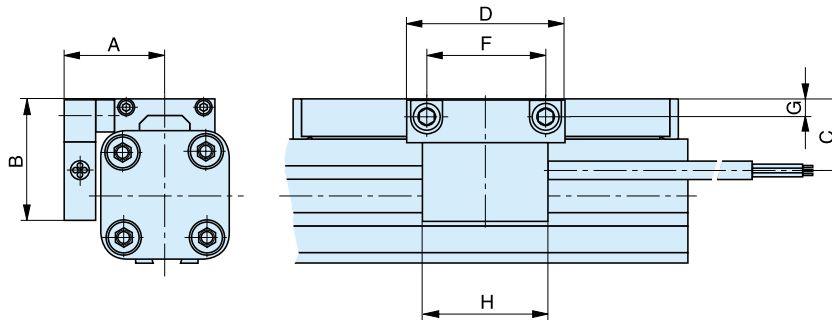
**Combinations consisting of SFI-plus and OSP-P Cylinders with guides are available on request.**



Displacement measuring system	Resolution [mm]	Velocity [m/sec]	Output frequency [kHz]
<b>SFI-plus 21210FIL</b>	0.1	1	10
<b>SFI-plus 21211FIL</b>	1	1	1

# OSP-P Modular Pneumatic Linear Drive Systems

## Dimensions – in combination with OSP-P cylinders



### Dimensions [mm]

Serie	A	B	C	D	F	G	H
OSP-P25	31	43	23	50	38	5.5	40
OSP-P32	37	50	30	50	38	6.5	40
OSP-P40	42	54	34	50	38	6.5	40
OSP-P50	49	59	39	50	38	6.5	40
OSP-P63	59	73	49	50	38	10	40
OSP-P80	72	90	64	50	38	12	40

## Order Instructions

### Description

Sensing head with measuring scale – Resolution 0.1 mm (please order overall length \*)

**21240-measurement scale [mm], 5 digits**

Option: Sensing head with measuring scale – Resolution 1 mm (please order overall length \*)

**21241-measurement scale [mm], 5 digits**

Sensing head – Resolution 0.1 mm (spare part)

**21210FIL**

Option: Sensing head – Resolution 1 mm (spare part)

**21211FIL**

Measuring scale per meter (spare part)

**21235FIL**

Mounting kit for OSP-P25

**21213FIL**

Mounting kit for OSP-P32

**21214FIL**

Mounting kit for OSP-P40

**21215FIL**

Mounting kit for OSP-P50

**21216FIL**

Mounting kit for OSP-P63

**21217FIL**

Mounting kit for OSP-P80

**21218FIL**

\* Overall length of the measuring scale results from stroke length of the cylinder + dead length  
Dead length for linear drives series OSP-P see table.

**Note:** Order instructions in combination with basic cylinder see page 25, pos. 25

Series	Dead length [mm]
OSP-P 25	154
OSP-P 32	196
OSP-P 40	240
OSP-P 50	280
OSP-P 63	350
OSP-P 80	422

### Example:

Cylinder OSP-P, Ø25 mm, stroke length 1000 mm  
 dead length + stroke length = overall length of the measuring scale

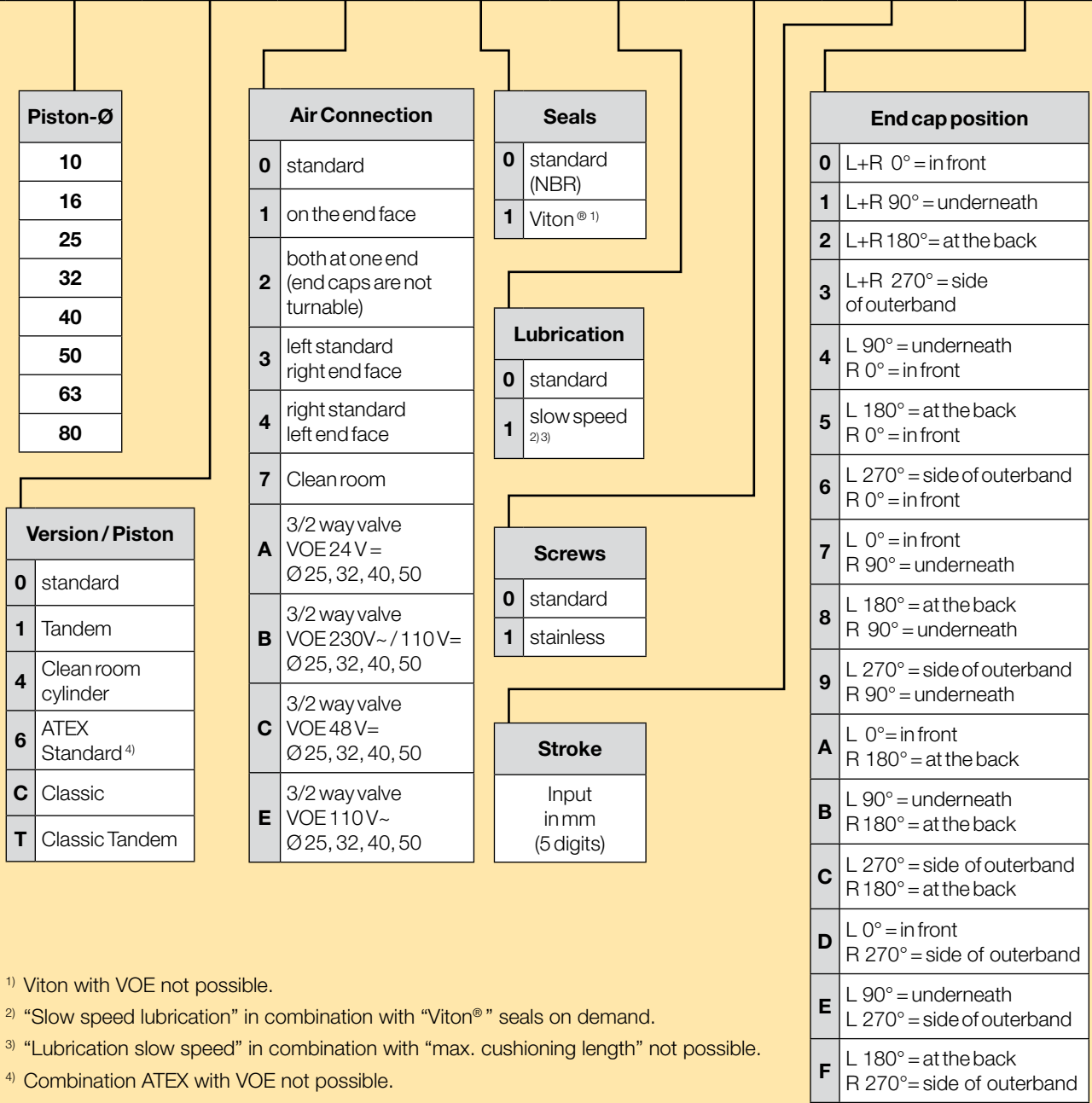
$$154 \text{ mm} + 1000 \text{ mm} = 01154 \text{ mm}$$

Please use this order pattern: 21240-01154

# OSP-P Modular Pneumatic Linear Drive Systems

**Total overview of options (not all of them can be combined !)**

1-4	5+6	7	8	9	10	11	12-16	17	
OSPP	25	0	0	0	0	0	01100	0	



1) Viton with VOE not possible.  
 2) "Slow speed lubrication" in combination with "Viton®" seals on demand.  
 3) "Lubrication slow speed" in combination with "max. cushioning length" not possible.  
 4) Combination ATEX with VOE not possible.

# OSP-P Modular Pneumatic Linear Drive Systems

18		19		20		21		22		23		24		25	
0		0		0		0		0		0		0		0	
<b>Cushioning</b>		<b>Piston Mounting</b>		<b>Guides/ Brakes/ Inversion</b>				<b>add. Guide Carriage</b>				<b>Cover / Cable Channel</b>		<b>Measuring system</b>	
0	standard	0	without	0	without	0	without	0	without	0	standard	0	without	0	without
1	max. length <sup>3)</sup>	1	Clevis mounting	2	Slideline SLXX	2	Slideline with Activebrake SL-ABXX	2	Guide Carriage Slideline SLXX	1	Cable channel	X	SFI 0.1 mm	X	SFI 1 mm
2	variable stop complete VS soft left only for Starline, KF and Heavy Duty guide			3	Slideline with Passivebrake Multibrake SL-MBXX	3	Slideline with Activebrake SL-ABXX	3	Guide Carriage Slideline Activebrake SL-ABXX	2	Cable channel two-sided				
3	variable stop complete VS hard left only for Starline, KF and Heavy Duty guide			4	Proline PLXX	4	Proline with Activebrake PL-ABXX	4	Guide Carriage Slideline with Passivebrake Multibrake SL-MB	X	without Cover rail				
4	variable stop complete VS soft right only for Starline, KF and Heavy Duty guide			6	Proline with Passivebrake Multibrake PL-MBXX	6	Proline with Activebrake PL-ABXX	6	Guide Carriage Proline PLXX						
5	variable stop complete VS hard right only for Starline, KF and Heavy Duty guide			7	Activebrake ABXX	7	Activebrake PL-ABXX	7	Guide Carriage Proline Activebrake PL-ABXX						
6	variable stop complete VS soft both sides only for Starline, KF and Heavy Duty guide			B	Starline STLXX	8	Proline with Passivebrake Multibrake PL-MBXX	8	Guide Carriage Proline with Passivebrake Multibrake PL-MBXX						
7	variable stop complete VS hard both sides only for Starline, KF and Heavy Duty guide			C	KFXX	A	Activebrake ABXX	B	Guide Carriage Starline STLXX						
				D	Heavy Duty HDXX	B	Starline STLXX	C	Guide Carriage Starline STLXX						
				E	PSXX/25 Powerslide	C	KFXX	D	Guide Carriage Starline STLXX						
				F	PSXX/35 Powerslide	D	Heavy Duty HDXX	E	Guide Carriage Heavy Duty HDXX						
				G	PSXX/44 Powerslide	E	PSXX/25 Powerslide	F	Guide Carriage Powerslide PSXX/25						
				H	PSXX/60 Powerslide	F	PSXX/35 Powerslide	G	Guide Carriage Powerslide PSXX/35						
				I	PSXX/76 Powerslide	G	PSXX/44 Powerslide	H	Guide Carriage Powerslide PSXX/44						
				M	Inversion	H	PSXX/60 Powerslide	I	Guide Carriage Powerslide PSXX/60						
				N	Duplex	I	PSXX/76 Powerslide	M	Guide Carriage Powerslide PSXX/76						
						M	Inversion	N	Guide Carriage Powerslide PSXX/76						
						N	Duplex		Guide Carriage Slideline with Passivebrake Multibrake SL-MBXX without brake function						
									Guide Carriage Proline with Passivebrake Multibrake PL-MBXX without brake function						

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