



# ORIGA Pneumatic Linear Drives OSP-L

Very long lifetime and lowest leakage



## 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.

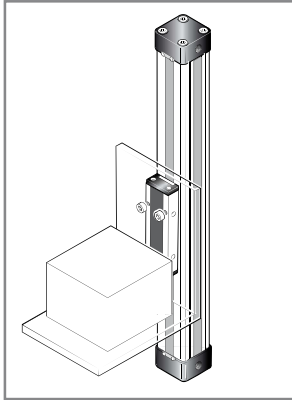
- Completely modular design
- Compatible with the comprehensive ORIGA OSP system component range
- High loads and moments
- Space saving
- For a wide range of loads, speeds and motion profiles

## Introduction – OSP Concept

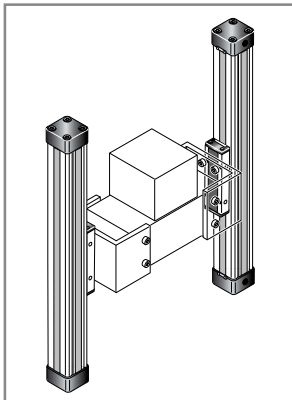
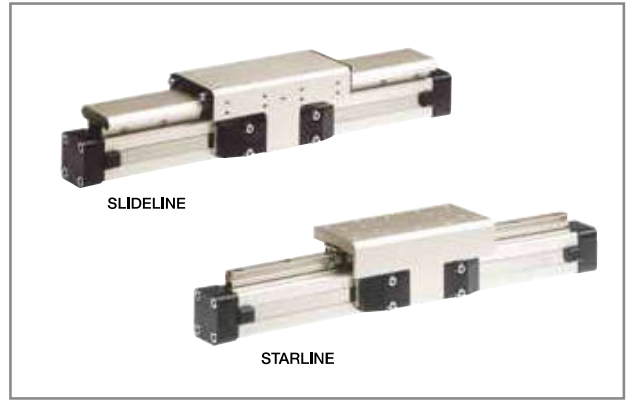
Basic Linear Drive Standard Version • Series OSP-L		Duplex Connection • Series OSP-L	
Air Connection on the End-face or both at One End • Series OSP-L		Multiplex Connection • Series OSP-L	
Integrated 3/2 Way Valves • Series OSP-L		Linear Guides – SLIDELINE • Series OSP-L	
Clevis Mounting • Series OSP-L		Linear Guides – STARLINE • Series OSP-L	
End Cap Mounting • Series OSP-L		Magnetic Switches • Series OSP-L	
Mid-Section Support • Series OSP-L		Variable Stop VS • Series OSP-L with Linear Guide STL	
Inversion Mounting • Series OSP-L			

## OSP-L Application examples

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



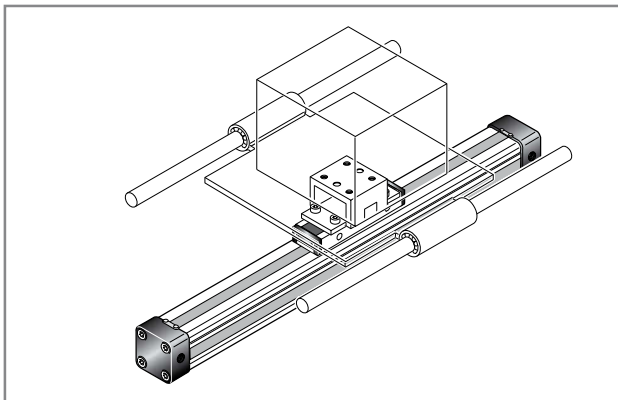
The high load capacity of the piston can cope with high bending moments without additional guides.



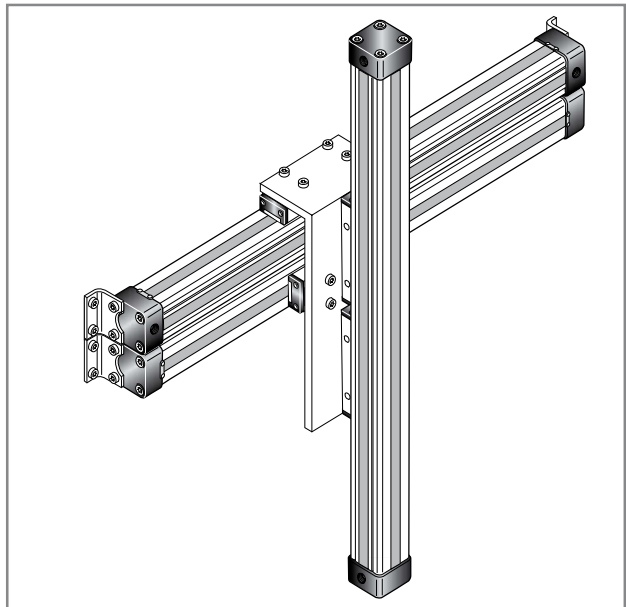
The mechanical design of the OSP-L allows synchronised movement of two cylinders.

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.

# Options and Accessories for system versatility

## Series OSP-L

### STANDARD VERSIONS OSP-L25 to L63

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.



### BASIC CYLINDER OPTIONS

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

### STAINLESS VERSION

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



### END-FACE AIR CONNECTION

To solve special installation problems.



### BOTH AIR CONNECTIONS AT ONE END

For simplified tubing connections and space saving.



### INTEGRATED VOE VALVES

The complete compact solution for optimal cylinder control.



### DUPLEX CONNECTION

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



### MULTIPLY CONNECTION

The multiplex connection combines two or more OSP-L 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.



### MOUNTINGS FOR OSP-L25 TO L63

#### CLEVIS MOUNTING

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



#### END CAP MOUNTING

For end-mounting of the cylinder.



#### MID-SECTION SUPPORT

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



#### INVERSION MOUNTING

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



## Origa System Plus - Innovation from a proven design

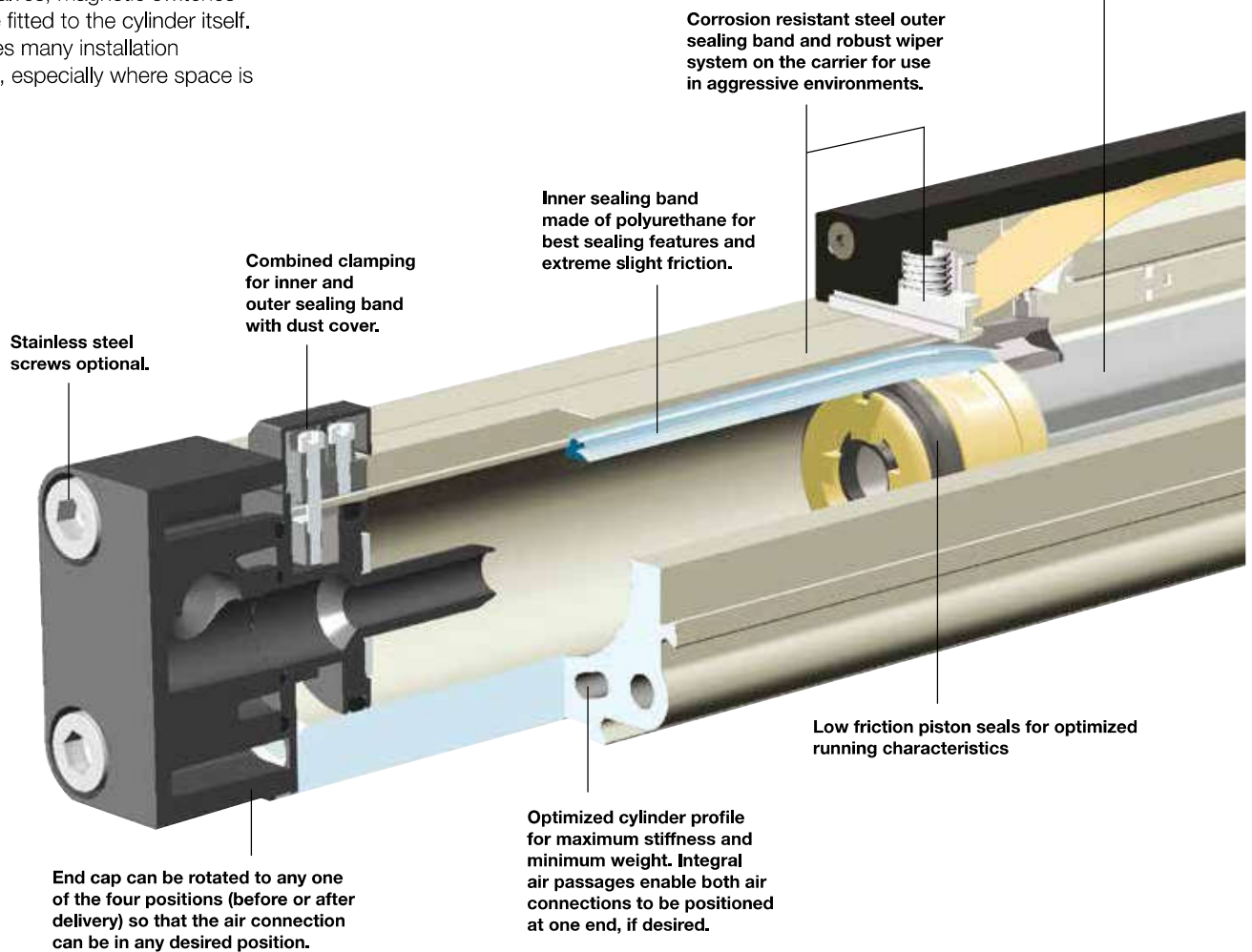
The newly developed product line OSP-L can be simply and neatly integrated into any machine layout.

### 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.

Magnetic piston as standard - for contactless position sensing on three sides of the cylinder.



**SLIDELINE**  
 Cost-effective plain bearing guide for medium loads.



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



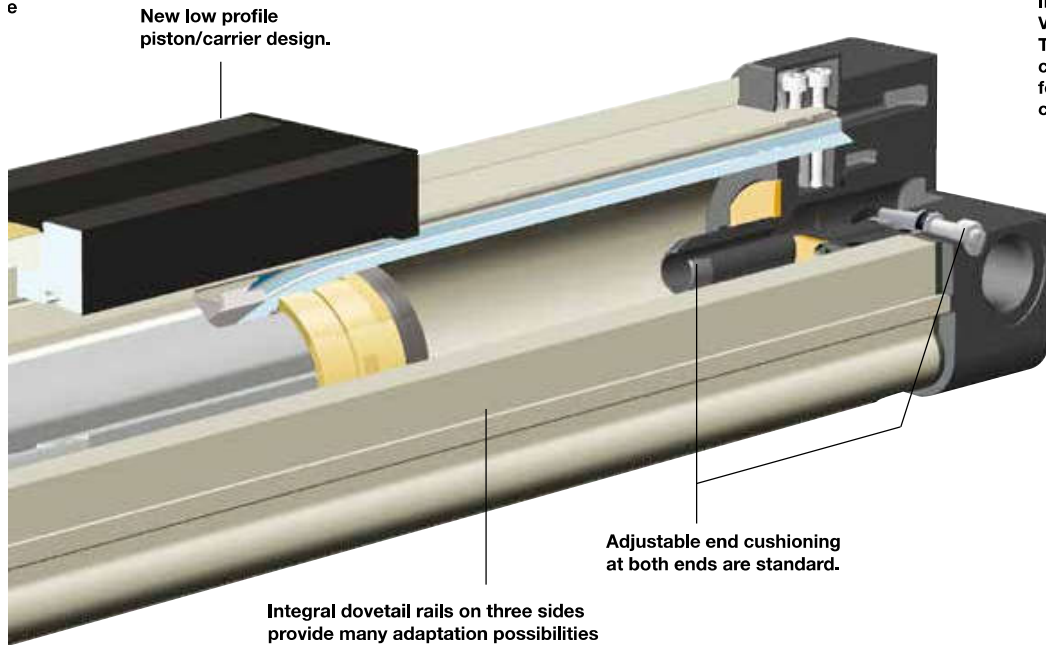
**VARIABLE STOP VS**  
 The variable stop provides simple stroke limitation.



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



ss  
 e

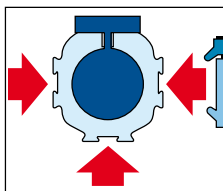


New low profile piston/carrier design.

Adjustable end cushioning at both ends are standard.

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

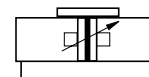
Modular system components are simply clamped on.



## Rodless Pneumatic Cylinder

### Ø 25-63 mm

**OSP**  
ORIGINA  
SYSTEM  
PLUS



#### Standard Versions:

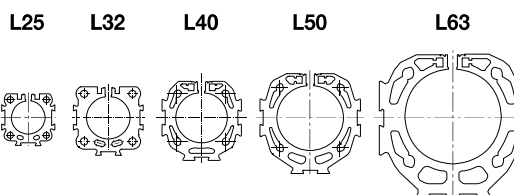
- Double-acting with adjustable end cushioning
- With magnetic piston for position sensing



#### Special Versions:

- Stainless steel screws
- 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

#### Size Comparison



Characteristics	Description
<b>General Features</b>	
Type	Rodless cylinder
Series	OSP-L
System	Double-acting, with cushioning, position sensing capability
Mounting	See drawings
Air Connection	Threaded
Ambient temperature range	-20 °C Other temperature ranges +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)
<b>Material</b>	
Cylinder Profile	Anodized aluminium
Carrier (piston)	Anodized aluminium
End caps	Aluminium, lacquered
Sealing bands	Corrosion resistant steel (outer band) Polyurethane (inner band)
Seals	Polyurethane, NBR
Screws	Galvanized steel Option: stainless steel
Dust covers, wipers	Plastic
Max. operating pressure $p_{max}$	8 bar

## Loads, Forces and Moments

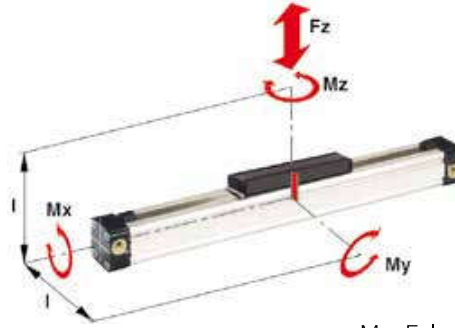
### Choice of cylinder is decided by:

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

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.



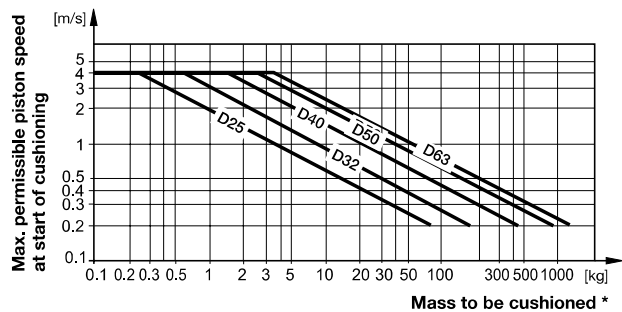
$M = F \cdot l$   
 Bending moments are calculated from the centre of the linear actuator

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-L25</b>	295	250	1.5	15	3	300	17
<b>OSP-L32</b>	483	420	3	30	5	450	20
<b>OSP-L40</b>	754	640	6	60	8	750	27
<b>OSP-L50</b>			in progress				
<b>OSP-L63</b>			in progress				

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



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

### Weight (mass) [kg]

Cylinder series (Basic cylinder)	Weight (Mass) [kg]	
	At 0 mm stroke	per 100 mm stroke
<b>OSP-L25</b>	0.65	0.197
<b>OSP-L32</b>	1.44	0.354
<b>OSP-L40</b>	1.95	0.415
<b>OSP-L50</b>	in progress	
<b>OSP-L63</b>	in progress	

For further technical information see catalogue P-A4P012GB



## Integrated 3/2 Way Valves

### VOE

#### Series OSP-L25, L32, L40 and L50

For optimal control of the OSP-L 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.

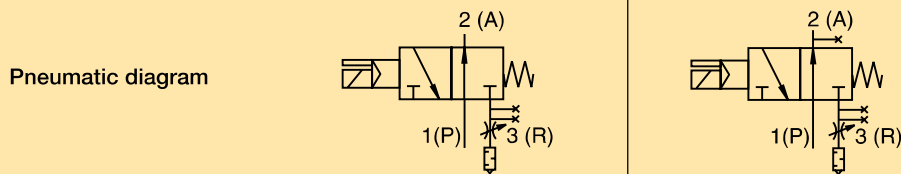


#### Features:

- 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-L 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-A4P012GB

**Order Instructions- Basic Cylinder**

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

<b>Piston-Ø</b>																
25							<b>Stroke</b> in mm (5 digits)		<b>Piston Mounting</b>	<b>add. Guide Carriage</b>	<b>Measuring system</b>					
32									0 without 1 clevis mounting	0 without	0 without					
40																
in progress																
in progress																

<b>Version / Piston</b>	<b>Lubrication</b>	<b>End cap position</b>	<b>Guides/ Brakes/ Inversion</b>	<b>Cover / Cable Channel</b>	<b>Air Connection</b>	<b>Seals</b>	<b>Screws</b>	<b>Cushioning</b>	<b>add. Guide Carriage</b>	<b>Measuring system</b>						
0 standard 1 Tandem	0 standard	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	0 without M Inversion Ø 16-80 N Duplex Ø 25,32,40,50	0 standard 1 Cable channel 2 Cable channel two-sided	0 standard 1 end face 2 both at one end 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	0 standard	0 standard 1 Stainless	0 standard 1 max. length	0 without	0 without						

**End cap position (air connection)**

**Cylinder L (left end side)**

**Cylinder R (right end side)**

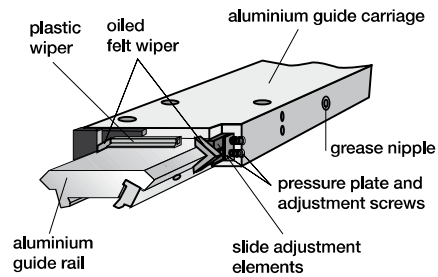
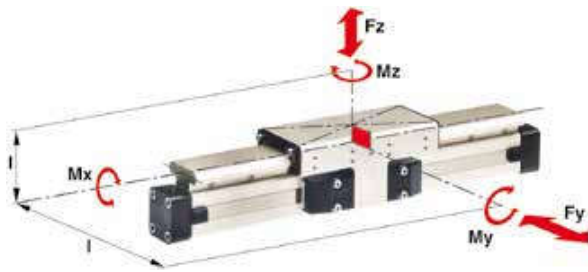
**Plain Bearing Guide**  
**SLIDELINE**  
 Series SL 25 to 63 for Linear Drive



**Features:**

- Anodised aluminium guide rail with prism-shaped slideway arrangement
- Adjustable plastic slide elements
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideways
- Corrosion resistant version available on request
- Any length of stroke up to 5500 mm (longer strokes on request)

**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.

For further technical information see catalogue P-A4P012GB

Series SL	For linear drive	Max. moments [Nm]			Max. loads [N] F <sub>y</sub> , F <sub>z</sub>	Mass of linear drive with guide [kg]		Mass * of guide carriage [kg]	Order No. ** SLIDELINE <sup>1)</sup> Guide without cylinder
		M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>		with 0 mm stroke	increase per 100 mm stroke		
SL25	OSP-L25	14	34	34	675	1,55	0,39	0,61	20342FIL
SL32	OSP-L32	29	60	60	925	2,98	0,65	0,95	20196FIL
SL40	OSP-L40	50	110	110	1600	4,05	0,78	1,22	20343FIL
SL50	OSP-L50	in progress							
SL63	OSP-L63								

\*\* Please use this order pattern: Order-No. + "stroke in mm" (5 digits)  
 Example: SLIDELINE guide D25mm, stroke 1000mm: 20342-01000

<sup>1)</sup> Corrosion resistant fixtures available on request

**Order Instructions SLIDELINE**

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

**Piston-Ø**  
 25  
 32  
 40  
 in progress  
 in progress

**Stroke**  
 in mm  
 (5 digits)

**Piston Mounting**  
 0 without

**Measuring system**  
 0 without

**Screws**  
 0 standard  
 1 Stainless

**Cushioning**  
 0 standard

**Version / Piston**  
 0 standard  
 1 Tandem

**Lubrication**  
 0 standard

**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 25-63

**Cover / Cable Channel**  
 0 standard  
 1 Cable channel  
 2 Cable channel two-sided

**Air Connection**  
 0 standard  
 1 end face  
 2 both at one end  
 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

**add. Guide Carriage**  
 0 without  
 2 Guide Carriage Slideline SL  
 Ø 25-63

**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)**

270° same side as outerband  
 180° at the back  
 end-face  
 0° in front  
 90° underneath

**Cylinder L (left end side)**

270° same side as outerband  
 180° at the back  
 end-face  
 0° in front  
 90° underneath

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

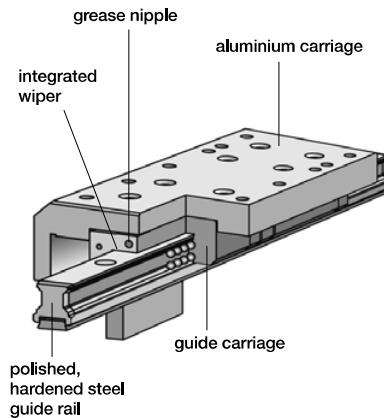
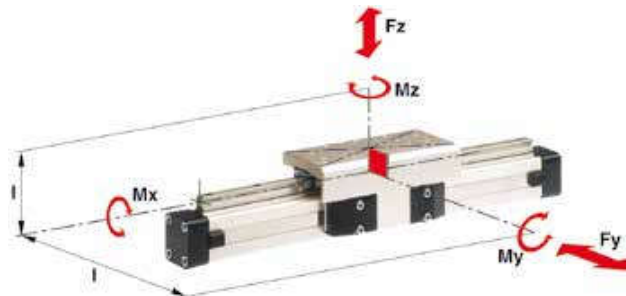


**Features:**

- 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
- Installation height (STL25 - 32) compatible with OSP-L guides SLIDELINE

- Maximum speed  
 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.

For further technical information see catalogue P-A4P012GB

\* **Please note:**  
 The mass of the carriage has to be added to the total moving mass when using the cushioning diagram

Series STL	For linear drive	Max. moments [Nm]			Max. loads [N]		Mass of linear drive with guide [kg]		Mass* of guide carriage [kg]	Order No. ** STARLINE Guide without cylinder
		Mx	My	Mz	Fy	Fz	with 0mm stroke	increase per 100mm stroke		
STL25	OSP-L25	50	110	110	3100	3100	1.733	0.369	0.835	21112
STL32	OSP-L32	62	160	160	3100	3100	2.934	0.526	1.181	21113
STL40	OSP-L40	150	400	400	4000	7500	4.452	0.701	1.901	21114
STL50	OSP-L50	in progress								

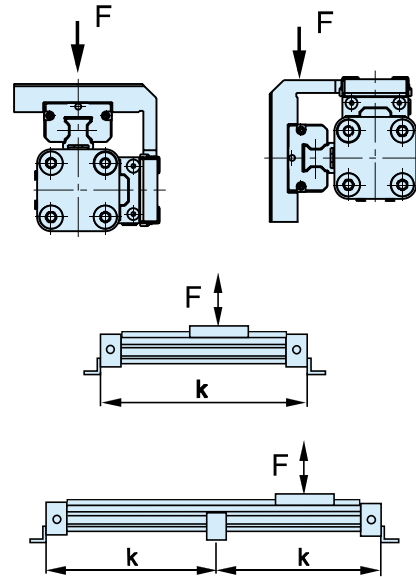
\*\* Please use this order pattern: Order-No. + "stroke in mm" (5 digits)  
 Example: STARLINE guide D25mm, stroke 1000mm: 21112-01000

## 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.

**Loading 1  
 Top carrier**

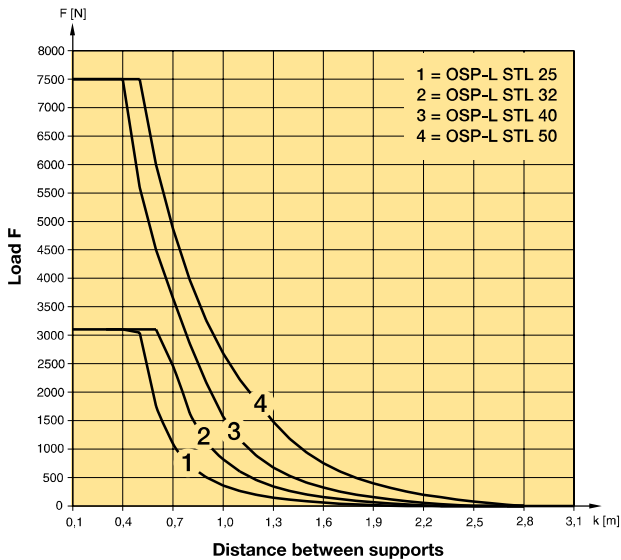
**Loading 2  
 Side carrier**



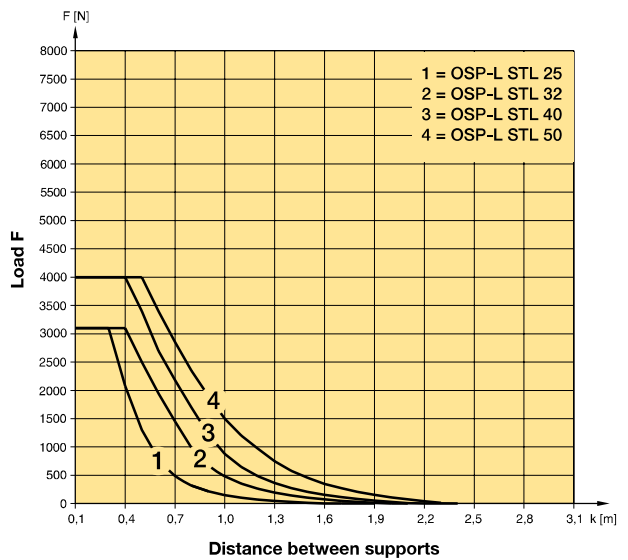
**Permissible Unsupported Length STL25 to STL50**

**Permissible Unsupported Length STL25 to STL50**

**Loading 1 – Top carrier**



**Loading 2 – Side carrier**



**Note:**

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

## Variable Stop

### Type VS25 to VS50

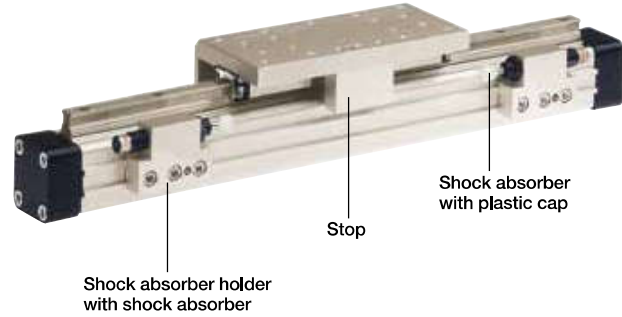
Arrangement with two variable stops

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.

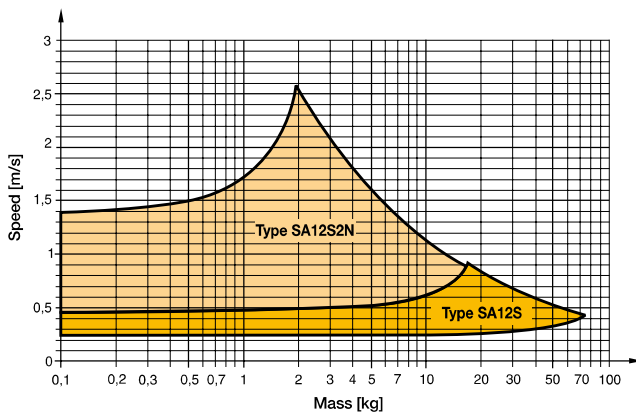


## Shock Absorber Selection

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

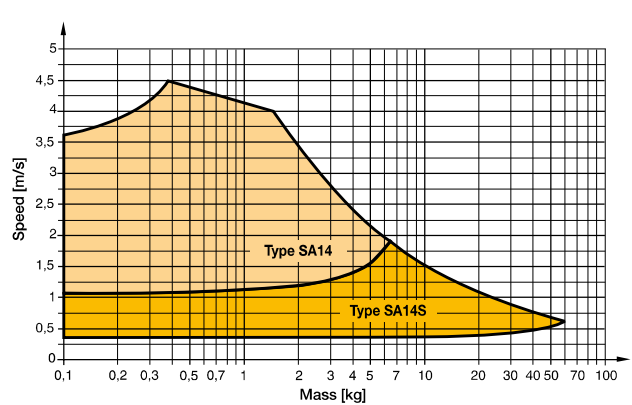
The mass of the carrier itself must be taken into account.

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



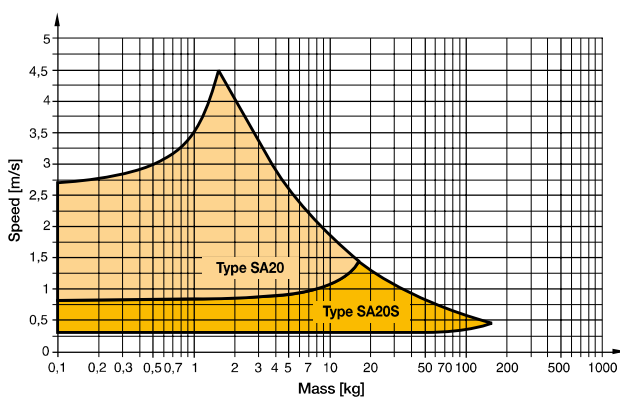
The values relate to an effective driving force of 250 N (6 bar)

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



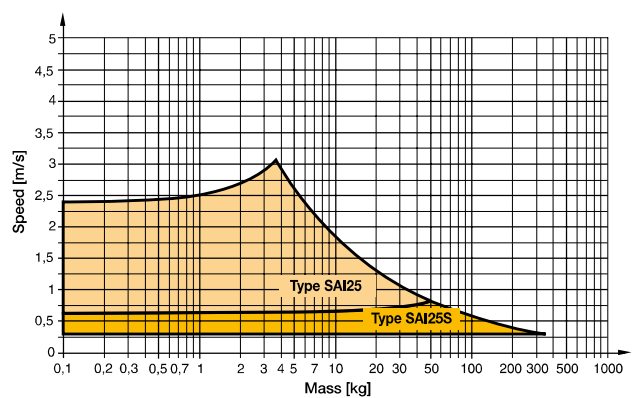
The values relate to an effective driving force of 420 N (6 bar)

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



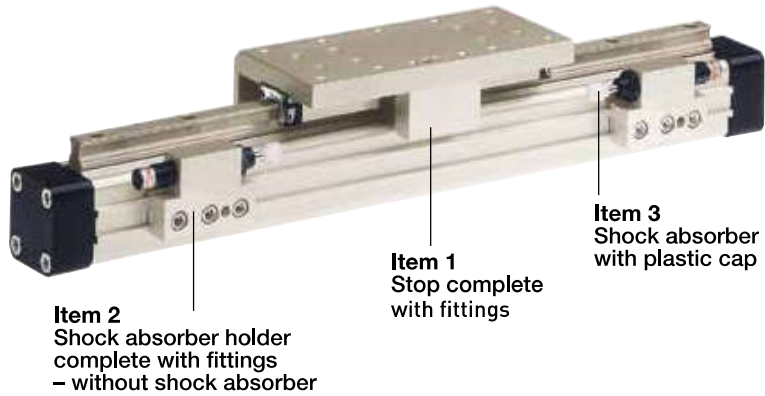
The values relate to an effective driving force of 640 N (6 bar)

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



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

**Variable Stop**  
 Type VS25 to VS50



**Order Instructions – Variable Stop Type VS25 to VS50**

**without cylinder and  
 without guide**

Item	Description	Size							
		VS25		VS32		VS40		VS50	
		Type	Order-No.	Type	Order-No.	Type	Order-No.	Type	Order-No.
1	Stop, complete	-	21197FIL	-	21198FIL	-	21199FIL	in progress	
2	Shock absorber holder complete	-	21202FIL	-	21203FIL	-	21204FIL		
3*	Shock absorber, soft	SA12S2N	7723FIL	SA14	7708FIL	SA20	7710FIL		
	Shock absorber, hard	SA12S	7707FIL	SA14S	7709FIL	SA20S	7711FIL		

\* Shock absorber with plastic cap

**Note: Order instructions for VS in combination with the Starline see page 176 pos.18**

For further technical information see catalogue P-A4P012GB



**Order Instructions - STARLINE**

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

<b>Piston-Ø</b>																
25							<b>Stroke</b>		<b>Piston Mounting</b>							<b>Measuring system</b>
32							in mm (5 digits)		0 without							0 without
40																
in progress																

<b>Version / Piston</b>																
0 standard							<b>Screws</b>		<b>Cushioning</b>							<b>Cover / Cable Channel</b>
1 Tandem							0 standard		0 standard							0 standard
									1 max. length							1 Cable channel
									2 variable stop complete VS soft left for Starline							2 Cable channel two-sided
									3 variable stop complete VS hard left for Starline,							
									4 variable stop complete VS soft right for Starline							
									5 variable stop complete VS hard right for Starline							
									6 variable stop complete VS soft both sides for Starline							
									7 variable stop complete VS hard both sides for Starline							

<b>Air Connection</b>																
0 standard							<b>Seals</b>									
1 end face							0 standard									
2 both at one end																
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																

<b>End cap position</b>																
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																

<b>Guides/ Brakes/ Inversion</b>																
0 without																
B Starline STL																

<b>add. Guide Carriage</b>																
0 without																
B Guide Carriage Starline STL																

**End cap position (air connection)**

**Cylinder L (left end side)**

**Cylinder R (right end side)**