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

<table>
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<th>Basic Linear Drive</th>
<th>Duplex Connection</th>
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<tbody>
<tr>
<td>Standard Version</td>
<td>• Series OSP-L</td>
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<table>
<thead>
<tr>
<th>Air Connection on the End-face or both at One End</th>
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<tr>
<td>• Series OSP-L</td>
<td>• Series OSP-L</td>
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<th>End Cap Mounting</th>
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<tbody>
<tr>
<td>• Series OSP-L</td>
<td>• Series OSP-L</td>
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<tr>
<th>Mid-Section Support</th>
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<tr>
<td>• Series OSP-L</td>
<td>• Series OSP-L</td>
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<table>
<thead>
<tr>
<th>Inversion Mounting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Series OSP-L</td>
<td></td>
</tr>
</tbody>
</table>

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

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.

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

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

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.

MULTIPLEX 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.
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.

Stainless steel screws optional.

End cap can be rotated to any one of the four positions (before or after delivery) so that the air connection can be in any desired position.

Combined clamping for inner and outer sealing band with dust cover.

Optimized cylinder profile for maximum stiffness and minimum weight. Integral air passages enable both air connections to be positioned at one end, if desired.

Low friction piston seals for optimized running characteristics.

Corrosion resistant steel outer sealing band and robust wiper system on the carrier for use in aggressive environments.

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

The modular system concept forms an ideal basis for additional customer-specific functions.
New low profile piston/carrier design.

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

Modular system components are simply clamped on.

Adjustable end cushioning at both ends are standard.

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.
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.

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

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.

For further information and assembly instructions, please contact your local Parker Origa dealer.
Rodless Pneumatic Cylinder
Ø 25-63 mm

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Features</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Rodless cylinder</td>
</tr>
<tr>
<td>Series</td>
<td>OSP-L</td>
</tr>
<tr>
<td>System</td>
<td>Double-acting, with cushioning, position sensing capability</td>
</tr>
<tr>
<td>Mounting</td>
<td>See drawings</td>
</tr>
<tr>
<td>Air Connection</td>
<td>Threaded</td>
</tr>
<tr>
<td>Ambient temperature range $T_{min}$</td>
<td>$-20 °C$ Other temperature ranges</td>
</tr>
<tr>
<td>Temperature range $T_{max}$</td>
<td>$+80 °C$ on request</td>
</tr>
<tr>
<td>Installation</td>
<td>In any position</td>
</tr>
<tr>
<td>Medium</td>
<td>Filtered, un lubricated compressed air (other media on request)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Permanent grease lubrication (additional oil mist lubrication not required)</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td></td>
</tr>
<tr>
<td>Cylinder Profile</td>
<td>Anodized aluminium</td>
</tr>
<tr>
<td>Carrier (piston)</td>
<td>Anodized aluminium</td>
</tr>
<tr>
<td>End caps</td>
<td>Aluminium, lacquered</td>
</tr>
<tr>
<td>Sealing bands</td>
<td>Corrosion resistant steel (outer band) Polyurethane (inner band)</td>
</tr>
<tr>
<td>Seals</td>
<td>Polyurethane, NBR</td>
</tr>
<tr>
<td>Screws</td>
<td>Galvanized steel</td>
</tr>
<tr>
<td>Dust covers, wipers</td>
<td>Plastic</td>
</tr>
<tr>
<td>Max. operating pressure $p_{max}$</td>
<td>8 bar</td>
</tr>
</tbody>
</table>
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 \( v \leq 0.5 \text{ m/s} \).

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

### 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.

### Weight (mass) [kg]

<table>
<thead>
<tr>
<th>Cylinder series (Basic cylinder)</th>
<th>Weight (Mass) [kg] At 0 mm stroke</th>
<th>per 100 mm stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSP-L25</td>
<td>0.65</td>
<td>0.197</td>
</tr>
<tr>
<td>OSP-L32</td>
<td>1.44</td>
<td>0.354</td>
</tr>
<tr>
<td>OSP-L40</td>
<td>1.95</td>
<td>0.415</td>
</tr>
<tr>
<td>OSP-L50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSP-L63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>VOE-25</th>
<th>VOE-32</th>
<th>VOE-40</th>
<th>VOE-50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pneumatic diagram</strong></td>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>VOE-25</td>
<td>VOE-32</td>
<td>VOE-40</td>
<td>VOE-50</td>
</tr>
<tr>
<td>Actuation</td>
<td>electrical</td>
<td>electrical</td>
<td>electrical</td>
<td>electrical</td>
</tr>
<tr>
<td>Basic position</td>
<td>P → A open, R closed</td>
<td>P → A open, R closed</td>
<td>P → A open, R closed</td>
<td>P → A open, R closed</td>
</tr>
<tr>
<td>Type</td>
<td>Poppet valve, non overlapping</td>
<td>Poppet valve, non overlapping</td>
<td>Poppet valve, non overlapping</td>
<td>Poppet valve, non overlapping</td>
</tr>
<tr>
<td>Mounting</td>
<td>integrated in end cap</td>
<td>integrated in end cap</td>
<td>integrated in end cap</td>
<td>integrated in end cap</td>
</tr>
<tr>
<td>Installation</td>
<td>in any position</td>
<td>in any position</td>
<td>in any position</td>
<td>in any position</td>
</tr>
<tr>
<td>Port size</td>
<td>G 1/8</td>
<td>G 1/4</td>
<td>G 3/8</td>
<td>G 3/8</td>
</tr>
<tr>
<td>Temperature</td>
<td>-10°C to +50°C *</td>
<td>-10°C to +50°C *</td>
<td>-10°C to +50°C *</td>
<td>-10°C to +50°C *</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>2-8 bar</td>
<td>2-8 bar</td>
<td>2-8 bar</td>
<td>2-8 bar</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>24 V DC</td>
<td>230 V AC, 50 Hz</td>
<td>230 V AC, 50 Hz</td>
<td>230 V AC, 50 Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>2.5 W</td>
<td>6 VA</td>
<td>6 VA</td>
<td>6 VA</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Electrical Protection</td>
<td>IP 65 DIN 40050</td>
<td>IP 65 DIN 40050</td>
<td>IP 65 DIN 40050</td>
<td>IP 65 DIN 40050</td>
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* other temperature ranges on request

For further technical information see catalogue P-A4P012GB
## Order Instructions - Basic Cylinder

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<th>Lubrication</th>
<th>Seals</th>
<th>Stroke</th>
<th>End cap position</th>
<th>Guides / Brakes / Inversion</th>
<th>Cover / Cable Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 standard</td>
<td>0 standard</td>
<td>0 standard</td>
<td>in mm (5 digits)</td>
<td>0 l+r 0° = in front</td>
<td>0 without</td>
<td>0 standard</td>
</tr>
<tr>
<td>1 Tandem</td>
<td></td>
<td></td>
<td></td>
<td>1 l+r 90° = underneath</td>
<td>1 Inversion</td>
<td>1 Cable channel</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 l+r 180° = at the back</td>
<td>Ø16-80</td>
<td>2 Cable channel two-sided</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 l+r 270° = same side as outerband</td>
<td>Ø25,32,40,50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 190° = underneath; r0° = in front</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 1180° = at the back; r0° = in front</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 1270° = same side as outerband; r0° = in front</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7 10° = in front; r90° = underneath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 1180° = at the back; r90° = underneath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9 1270° = same side as outerband; r90° = underneath</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 3/2 Way valve VOE 24 V = Ø25,32,40,50</td>
<td></td>
<td></td>
<td></td>
<td>10° = in front; r180° = at the back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 3/2 Way valve VOE 230 V ~ / 110 V = Ø25,32,40,50</td>
<td></td>
<td></td>
<td></td>
<td>190° = underneath; r180° = at the back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 3/2 Way valve VOE 48 V = Ø25,32,40,50</td>
<td></td>
<td></td>
<td></td>
<td>1270° = same side as outerband; r180° = at the back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E 3/2 Way valve VOE 110 V = Ø25,32,40,50</td>
<td></td>
<td></td>
<td></td>
<td>10° = in front; r270° = same side as outerband</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### End cap position (air connection)
- **End-face**
- **0° in front**
- **180° at the back**
- **270° same side as outerband**
- **Cylinder L** (left 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

![Diagram of SLIDELINE series]

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 \( v < 0.2 \text{ m/s} \).

* 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

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SL25</td>
<td>OSP-L25</td>
<td>14 34 34</td>
<td>675</td>
<td>1.55</td>
<td>0.39</td>
<td>0.61</td>
<td>20342FIL</td>
</tr>
<tr>
<td>SL32</td>
<td>OSP-L32</td>
<td>29 60 60</td>
<td>925</td>
<td>2.98</td>
<td>0.65</td>
<td>0.95</td>
<td>20196FIL</td>
</tr>
<tr>
<td>SL40</td>
<td>OSP-L40</td>
<td>50 110 110</td>
<td>1600</td>
<td>4.05</td>
<td>0.78</td>
<td>1.22</td>
<td>20343FIL</td>
</tr>
<tr>
<td>SL50</td>
<td>OSP-L50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL63</td>
<td>OSP-L63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

sl) Corrosion resistant fixtures available on request
### Order Instructions SLIDELINE

<table>
<thead>
<tr>
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<th>5-6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12-16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
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<tbody>
<tr>
<td>OSPL</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>01100</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Piston-O
- 25
- 32
- 40

#### Stroke
- in mm (5 digits)

#### Piston Mounting
- 0 without

#### Measuring system
- 0 without

#### Air Connection
- 0 standard
- 1 end face
- 2 both at one end
- 3 left standard right end face
- 4 right standard left end face

#### 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° = 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

#### Guides / Brakes / Inversion
- 0 without
- 1 Slideline SL Ø 25-63
- 2

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

#### Screw
- 0 standard

#### Cushioning
- 0 standard

#### Seals
- 0 standard

#### End cap position (air connection)
- Cylinder L (left end side)
- Cylinder R (right end side)
- 270° same side as outerband
- 180° at the back
- 180° at the back
- 90° underneath
- 0° in front
- end-face
- 270° same side as outerband
- 180° at the back
- 180° at the back
- 90° underneath
- 0° in front
- end-face

#### 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
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- 4 l° = underneath; r 0° = in front
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#### Guides / Brakes / Inversion
- 0 without
- 1 Slideline SL Ø 25-63
- 2

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

#### Screw
- 0 standard

#### Cushioning
- 0 standard

#### Seals
- 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° = 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

#### Guides / Brakes / Inversion
- 0 without
- 1 Slideline SL Ø 25-63
- 2

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

#### Screw
- 0 standard

#### Cushioning
- 0 standard

#### Seals
- 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° = 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

#### Guides / Brakes / Inversion
- 0 without
- 1 Slideline SL Ø 25-63
- 2

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

#### Screw
- 0 standard

#### Cushioning
- 0 standard

#### Seals
- 0 standard
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

Loads, Forces and Moments

For further technical information see catalogue P-A4P012GB

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

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

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.


| 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

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

Permissible Unsupported Length STL25 to STL50

<table>
<thead>
<tr>
<th>Loading 1 – Top carrier</th>
<th>Loading 2 – Side carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = OSP-L STL 25</td>
<td>1 = OSP-L STL 25</td>
</tr>
<tr>
<td>2 = OSP-L STL 32</td>
<td>2 = OSP-L STL 32</td>
</tr>
<tr>
<td>3 = OSP-L STL 40</td>
<td>3 = OSP-L STL 40</td>
</tr>
<tr>
<td>4 = OSP-L STL 50</td>
<td>4 = OSP-L STL 50</td>
</tr>
</tbody>
</table>

Note:
For speeds $v > 0.5 \text{ m/s}$ 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.

<table>
<thead>
<tr>
<th>Speed [m/s]</th>
<th>Mass [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type SA12S2N</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SA12S</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SA14</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SA14S</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SA20</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SA20S</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SAI25</td>
<td>Must be chosen</td>
</tr>
<tr>
<td>Type SAI25S</td>
<td>Must be chosen</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>VS25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type</td>
</tr>
<tr>
<td>1</td>
<td>Stop, complete</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>Shock absorber holder complete</td>
<td>–</td>
</tr>
<tr>
<td>3 *</td>
<td>Shock absorber, soft</td>
<td>SA12S2N</td>
</tr>
<tr>
<td></td>
<td>Shock absorber, hard</td>
<td>SA12S</td>
</tr>
</tbody>
</table>

* Shock absorber with plastic cap

**Note:** Order instructions for VS in combination with the Starline see page 177 pos.18

For further technical information see catalogue P-A4P012GB
Order Instructions - STARLINE

<table>
<thead>
<tr>
<th>Air Connection</th>
<th>Screws</th>
<th>Stroke</th>
<th>Cushioning</th>
<th>Pneumatic Mounting</th>
<th>Measuring system</th>
<th>Cover / Cable Channel</th>
<th>Guides / Brakes / Inversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 standard</td>
<td>0</td>
<td>in mm</td>
<td>0 standard</td>
<td>0 without</td>
<td>0 without</td>
<td>0 standard</td>
<td>0 without</td>
</tr>
<tr>
<td>1 end face</td>
<td>0</td>
<td></td>
<td>1 max. length</td>
<td></td>
<td></td>
<td>1 Cable channel</td>
<td>B Starline STL</td>
</tr>
<tr>
<td>2 both at one end</td>
<td></td>
<td></td>
<td>2 variable stop complete VS soft left for Starline</td>
<td></td>
<td></td>
<td>2 Cable channel two-sided</td>
<td></td>
</tr>
<tr>
<td>3 left standard right end face</td>
<td>0</td>
<td></td>
<td>3 variable stop complete VS hard left for Starline,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 right standard left end face</td>
<td></td>
<td></td>
<td>4 variable stop complete VS soft right for Starline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 3/2 Way valve VD 24 V = Ø 25,32,40,50</td>
<td>0</td>
<td></td>
<td>5 variable stop complete VS hard right for Starline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 3/2 Way valve VD 230 V~/110 V = Ø 25,32,40,50</td>
<td></td>
<td></td>
<td>6 variable stop complete VS soft both sides for Starline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 3/2 Way valve VD 48 V = Ø 25,32,40,50</td>
<td>0</td>
<td></td>
<td>7 variable stop complete VS hard both sides for Starline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E 3/2 Way valve VD 110 V = Ø 25,32,40,50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stroke:
- in mm

Cushioning:
- 0 standard
- 1 max. length
- 2 variable stop complete VS soft left for Starline
- 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

Pneumatic Mounting:
- 0 without

Measuring system:
- 0 without

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

Guides / Brakes / Inversion:
- 0 without
- B Starline STL

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 90° = underneath; r 0° = in front
- 6 l 90° = underneath; r 0° = in front
- 7 l 0° = in front; r 90° = underneath
- 8 l 180° = at the back; r 90° = underneath
- 9 l 0° = in front; r 90° = underneath
- A 10° = in front; r 180° = at the back
- B 180° = at the back
- C 1270° = same side as outerband; r 180° = at the back
- D 10° = in front; r 270° = same side as outerband
- E 180° = at the back; r 270° = same side as outerband
- F 1180° = at the back; r 270° = same side as outerband