

# Modular Pneumatic Linear Drives OSP-L

Operating Instructions

*ORIGA SYSTEM PLUS*

aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
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Chapter	Content	Page
<b>1</b>	<b>Foreword to the Operating Instructions</b>	<b>3</b>
<b>2</b>	<b>Safety</b>	<b>4</b>
<b>3</b>	<b>Warranty</b>	<b>5</b>
<b>4</b>	<b>Transport and Storage</b>	<b>6</b>
4.1	Transport.....	6
4.2	Storage.....	6
<b>5</b>	<b>After sales service</b>	<b>6</b>
<b>6</b>	<b>Technical description of the basic cylinder OSP-L</b>	<b>7</b>
6.1	Technical data.....	7
6.2	Design and function.....	8
<b>7</b>	<b>Installation in machine or plant</b>	<b>9</b>
7.1	Preparations.....	9
7.2	Installation of OSP-L.....	9
7.3	Connection diagram.....	10
7.4	Accessories.....	10
<b>8</b>	<b>Commissioning</b>	<b>10</b>
8.1	Commissioning of an OSP-L cylinder.....	10
8.2	Commissioning of a Complete Plant.....	11
8.3	Re-commissioning after long periods without operation.....	11
<b>9</b>	<b>Removal from plant</b>	<b>11</b>
<b>10</b>	<b>Service / Maintenance OSP-L</b>	<b>12</b>
10.1	Maintenance intervals.....	12
10.2	Cleaning.....	12
10.3	Dismantle, clean, repair and assemble cylinder OSP-L.....	13
<b>11</b>	<b>Disposal</b>	<b>18</b>
<b>12</b>	<b>Trouble shooting</b>	<b>19</b>
<b>13</b>	<b>Declaration of incorporation</b>	<b>20</b>
<b>14</b>	<b>Spare Parts Lists OSP-L</b>	<b>21</b>
<b>15</b>	<b>Assembly Instructions</b>	<b>23</b>
15.1	Slideline.....	23
15.2	Starline.....	25
<b>16</b>	<b>Replacement Parts Guides</b>	<b>28</b>
16.1	Slideline.....	28
16.2	Starline.....	29
<b>17</b>	<b>Assembly Instruction VOE-Valves</b>	<b>30</b>
17.1	Modification and rigging notices.....	30
17.2	Replacement Parts Valves VOE.....	31

This operating manual is the translation of the original German version.  
Responsible: R&D dept.

# 1 Foreword to the Operating Instructions

The purpose of these Operating Instructions is to assist you in familiarising yourself with the OSP-L and to make use of the functions it has been designed for.

The Operating Instructions contain important advice so that you can use the OSP-L safely, reliably and economically. Observance of these Operating Instructions will help you to avoid danger, reduce repair costs and downtime as well as to increase reliability and the service life of the OSP-L.

These Operating Instructions need to be read and applied by all persons working with the OSP-L, including:

- operating the unit, including setup work, trouble shooting during the work sequence, removal of production waste, servicing, handling as well as removing waste of hazardous materials (operating and auxiliary materials);
- maintenance (preventive maintenance, inspection, repairs)

In addition to the Operating Instructions and the mandatory regulations for accident prevention and environmental protection applicable in the user country and at the location of deployment, the standard technical rules and regulations for safe and professional work shall also be observed.

## User's Responsibilities








**The following is assumed to be the operator's/organisation's responsibility:**

- compliance with EN 89/655 and the national applications
- compliance with the applicable national regulations for safety at work
- authorized use of OSP-L
- correct applications of these operating instructions.

**Commissioning of the OSP-L is forbidden until it has been established that the machine/plant in which it is to be installed complies with the requirements of the EC Machines Directives.**

## Explanation of Symbols and Notes

Notes which are highlighted by these symbols help to prevent injury to personnel. Please ensure that all users understand them.

Symbol	Explanation of Symbol	Symbol	Explanation of Symbol
	Attention: This symbol is used if failure to comply carefully with operating instructions, operating sequences, etc. can lead to personal injuries, fatal accidents or damage to the plant.		Note: Wear safety glasses
	Information: Symbol for tips and notes to facilitate use of machine and to help to prevent damage.		Note: Wear safety gloves
	Attention: Falling load		Note: Available accessory
	Attention: Danger of crushing		

## Copyright

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They must not be copied in full or in part, distributed or used in an unauthorized manner for competitive purposes or passed on to others. Contravention may lead to legal action.

## The Type Label

This plate you can find at OSP-L in the clamping rail of cylinder barrel:

Ø 25-40:

Order No.		Customer Order No.		Delivery Date	
62696281 / GS		45684178-C07		29.9.10	
DE / OSPL 25		00000 00600		000000000 / 62682099	
Country of origin	Type	Diameter	Stroke	Production Order No.	
Unit of Measurement [mm]			Variant Code		

## Product monitoring

Our goal is to supply safe, state-of-the-art products. Therefore we monitor our products constantly after delivery. Please inform us immediately of any recurring malfunctions or problems with the OSP-L.

## 2 Safety

### Authorized Use

**The operating safety of the OSP-L is only guaranteed if it is used in authorized applications.**

Authorized applications of the OSP-L are:

- To move loads.
- To exert force.

The OSP-L is driven by compressed air.

The following should also be observed:

- Conditions laid down in the order confirmation.
- The Operating Instructions.
- Catalogue OSP-L.

If the OSP-L is used in any other way, this would constitute an „Unauthorized Use“.

This could result in property damage or personal injury for which we cannot be held responsible.

The risk is borne by the user alone.

When moving the piston in an unpressurised state, a valve in the middle position can be closed e.g. via an intake air connection, or a vacuum can occur and pull the inner sealing band into the cylinder barrel via long supply lines.

This can lead to:

- excessive leakage
- non-permitted accelerations (e.g. if fitted in a vertical position).



### Caution

**When commissioning the cylinder you must ensure that the piston does not come into contact with the completely vented cylinder barrel! See also chapter 8!**

### Personnel

The operator of the complete plant must ensure that work on the OSP-L is carried out only by authorized and qualified personnel. Authorized personnel are trained engineers of the operator, the manufacturer and the service partner.

### Safety-Conscious Working Practices

The contents of these Operating Instructions, particularly the chapter on “Safety Instructions” must be duly observed under all circumstances.

Before commencing work, all personnel assigned to work with the OSP-L must have read and thoroughly understood the Operating Instructions - and the chapter on Safety in particular. Doing so while at work is too late !! This also applies in particular to personnel working occasionally on the OSP-L, e.g., during set-up and maintenance.

At appropriate intervals, check the safety-awareness of the personnel at work with due observance of the Operating Instructions.

**The followings are not permitted:**

- Unauthorized modifications of the OSP-L.
- Working methods which impair the safety of the OSP-L.

**Observe at the OSP-L :**

- All attached safety instructions.
- Markings for compressed air connections.

Maintain these instructions in a fully legible condition.

Observe also the manufacturer's instructions on lubricants, solvents and cleaning agents.

### Conversions and alterations

The linear drives shall not be modified in its construction and safety aspects, without the prior written approval of **Parker Hannifin GmbH**. Any such modifications carried out without approval will rule out all liability on the part of **Parker Hannifin GmbH**.

In principle, no safety and protection devices/equipment shall be dismantled or put out of operation.

When installing special attachments, the assembly regulations of the manufacturer shall be observed as required.

The following regulatory instruments must be observed as a matter of course:

- Relevant rules and regulations for accident prevention.
- Generally recognised safety regulations.
- EU-Directives and
- country-specific provisions.

### Dangers after shutting down the OSP-L or the whole plant

Even after venting the whole plant there can still pressure in the cylinder. This may result in uncontrolled movements of the piston.

### Reversal of Movement in an Emergency

See the operating instructions for the whole plant.

### Spare parts

The use of original spare parts and accessories authorised by the manufacturer is an important aspect for your safety. The use of other parts may change the characteristics of the OSP-L.

We accept no liability for any consequences resulting from the use of such parts.

## 3 Warranty

We reserve the right to make alterations to these Operating Instructions as well as to technical details with reference to data and illustrations as contained in these Operating Instructions.

**Parker Hannifin GmbH** issues no quality and durability guarantees or any guarantees for the suitability for certain purposes unless these are expressly agreed in writing.

Public statements, statements of quality or advertising are not statements of characteristics.

If the user wants to make a claim under the warranty, he needs to notify the fault immediately and describe it precisely in his statement of complaint. Under no circumstances is **Parker Hannifin GmbH** responsible for damage to the product itself or for consequential damage caused by the product, as caused by incorrect and faulty handling of the product. Insofar as **Parker Hannifin GmbH** is responsible for a fault, **Parker Hannifin GmbH** may, at its discretion, either repair/modify the product or replace the item with a new one.

All OSP-L are provided with an identification plate within the framework of ISO 9000, that is attached to an OSP-L. This identification plate shall not be removed or destroyed in any way.

A liability of Messrs **Parker Hannifin GmbH** – irrespective of the legal reason – exists only in the event of intentional or gross negligence, culpable injury to life, body, health, in the event of deficiencies with malicious intent of deception or faults the absence of which has been expressly guaranteed.

Furthermore, the company is liable to the extent stipulated by the product liability law regarding personal injury or material damage on objects used privately. In the event of culpable violation of essential contractual obligations, **Parker Hannifin GmbH** is liable also in the case of minor negligence, however, limited to the damage that could be foreseen under the contract.

Any other claims are ruled out.

No warranty shall apply in the event of non-observance of these Operating Instructions, the relevant legal provisions as well as further instructions of the supplier.

In particular, we are not responsible for stoppages caused by modifications by the customer or other persons. In such cases, we charge the normal repair costs. These are also charged for an inspection of the equipment where no fault can be found on the equipment.

This regulation also applies during the warranty period.

Users have no rights regarding the supply of previous equipment versions or regarding the upgrading of equipment to the current version.

## 4 Transport and Storage

### 4.1 Transport

To avoid damages during transportation and storage the linear drives have to be transported as described below and to be protected against dirt, humidity and violence by means of appropriate protective packing.



#### **Danger caused by falling load**

#### **Incorrect transport and assembly of the OSP-L can:**

- Endanger human life.
- Result in material damage.

#### **Transport of OSP-L:**

#### **Avoid deflection of the OSP-L!**

- If necessary, carry long and thin cylinders with several persons.

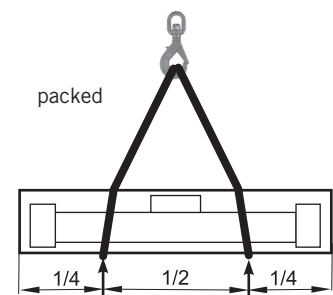
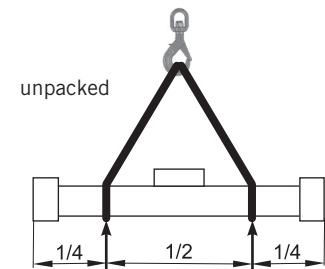
#### **Transport of the packaged OSP-L with a crane or a fork lift** (see illustrations on the right side).

- Apply ropes of appropriate length with a load application ratio as shown or position the fork-lift truck at the appropriate points.
- In the case of very long cylinders always use appropriate harness such as equalizers or fixtures in order to avoid deflection of the cylinders.

#### **Information**



Transport damage and missing parts are to be reported immediately and in writing to the transport company or to Parker Hannifin GmbH or to the delivery company.



### 4.2 Storage

Where storage or interim storage is involved, you must observe the following:

- Dry, dust- and vibration-free storage.
- On a **flat surface**.
- Outdoors under a suitable covering.

**You must avoid deflection (bending) of the OSP-L !**

## 5 After sales service

### **Spare parts and after sales service addresses**

Refer to the last page of these Operating Instructions.

### **Spare parts list**

For the purposes of preventive maintenance for the linear drives, we offer seal kit sets, service packages and spare parts (refer to Chapter 14 from page 21).

## 6 Technical description of the basic cylinder OSP-L

### 6.1 Technical data

For further detailed information on

- dimensions
- space requirements, mounting dimensions
- forces and loads
- speeds and cushioning energy
- weights

and additional data see **catalogue OSP-L** .

Operating pressure range:  $p_{\max} = 8 \text{ bar}$ .

Speed: max. 4 m/s

Compressed air requirements: Free of water and dirt. Additional lubrication with oil mist is not necessary.

Noise level: The sound emission values (sound level) of the OSP-L are below 70 dB(A).

Installation: In any position.

Temperature range: from -20° C to +80° C

**The right to introduce technical modifications is reserved.**



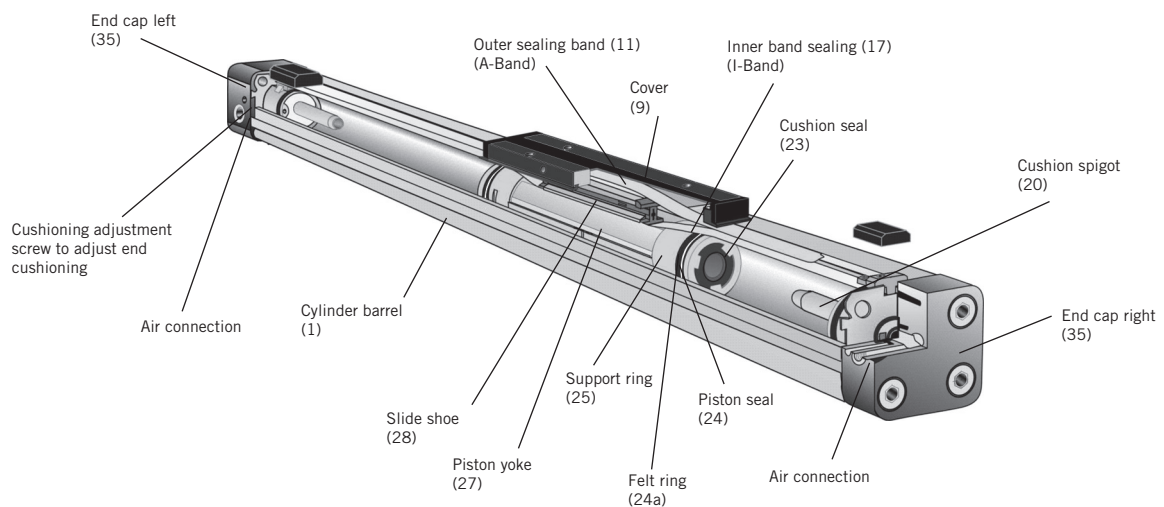
#### Information

With oil mist lubrication, the cylinder must be supplied with oil constantly while in operation.

## 6.2 Design and function

### 6.2.1 General design

- The OSP-L is a pneumatic working cylinder without a piston rod.
- The slot in the cylinder barrel is sealed on the inside with a permanently elastic plastic (PU) band and protected by a corrosion-resistant steel band (cover) on the outside.
- The piston interior consists of a piston yoke, support rings, piston seals, cushion seals, slide shoes and magnets. The outside consists of the cover and wipers.
- The load is mounted on the piston yoke.
- Air is supplied through the cushion spigot (via the air connection) to the cylinder barrel.
- End cushioning is created by a compression space around the cushion spigot between the cushion seal and the cover, at the end of the cylinder barrel. It is fitted with a cushioning adjustment screw at each end of the cylinder and is infinitely adjustable.
- The cylinder is equipped with permanent grease lubrication. Oil lubrication requires a continuous supply of oil.



**Note:**

Numbers in brackets refer to parts list item and exploded view drawing of the spare parts list (from page 21).

### 6.2.2 Functional Principle and Application Cylinder Ø 25 to Ø 40

- The piston is moved by compressed air in the cylinder. In the typical operating mode, both sides of the cylinder are initially charged with compressed air and then the side towards which one wants the cylinder to move is vented. For special applications it is possible to use different types of control if other parameters are also taken into consideration.
- The piston yoke holds the sealing bands in grooves. The force is transmitted directly to the outside.
- The unit is fitted with the help of threads on its front face. Cover mountings can be supplied as accessories.
- For long cylinders, additional mid-section supports should be used (also available as accessories). For further details please refer to the catalogue.



## 7 Installation in machine or plant

**Installation work and commissioning must be carried through by trained personnel!**

### 7.1 Preparations

**Prior to installation:**

- Remove and dispose off all transport devices.

**The assembly itself must be carried out in such a way that**

- the applicable rules and regulations are observed as required (e.g. DIN EN 983),
- the OSP-L is installed without distortion or warping,
- all connections and operating parts are accessible,
- the type plate is legible on the cylinder.

**Any potential hazards that may exist between Parker Origa products and customer's items of equipment must be eliminated by the user as required.**

### 7.2 Installation of OSP-L

#### Notes on the Application of the OSP-L

##### Mechanical

- Prevent the inner sealing band from being pressed or sucked in.  
Damage to the inner sealing band reduces the operating reliability.  
A sudden jerk movement of the pressureless piston can create a low pressure which sucks the inner sealing band into the cylinder chamber.
- In the case of extreme contamination we recommend to install the „piston-down“ installation and, if necessary, the use of deflectors.
- Fasten the working load to the carrier using only the threaded holes in the carrier.
- Position the working load so that the bending moments on the carrier are below the values shown in the OSP-L catalogue.
- For long cylinders, use mid-section supports from our catalogue.
- Avoid forces exerted by loads carried on external linear guides.  
Example **OSP-L**: by using a carrier with clevis mounting from our catalogue.

##### Electrical

- Sensors enable your load to be positioned accurately.
- Fit the sensors so that they are not close to ferritic parts or moving loads.
- Use the most favourable mounting slot on the circumference of the cylinder profile.

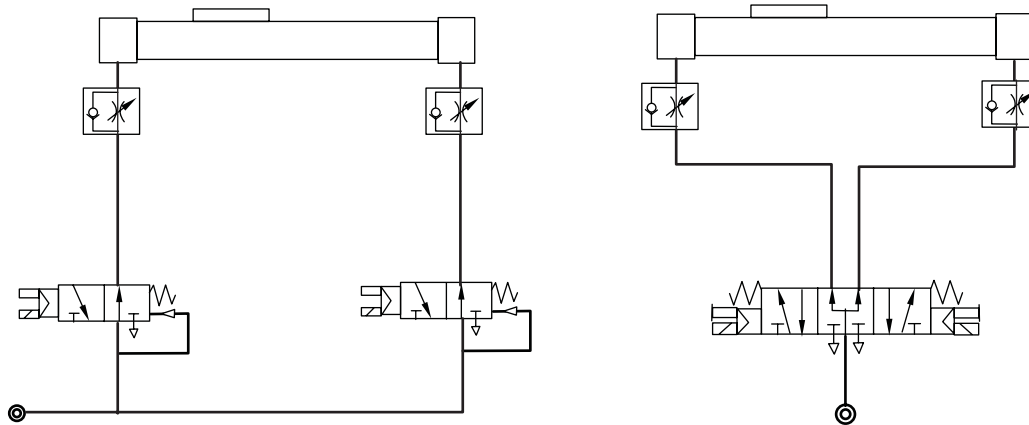
##### Pneumatic

- Actuate the cylinder via two 3/2 way valves or one 5/3 way valve, normally open.
- Avoid uncontrolled movements during start-up or after an unwanted stop
- Use soft start units, pressurised units or similar items from our catalogue.
- Arrange the control system so that the piston does not travel into a completely exhausted cylinder chamber.
- Adjust the piston speed with throttle non-return valves, these can be screwed directly into the cylinder.
- Use compressed air connections of adequate size.



## 7.3 Connection diagram

### OSP-L basic cylinder



## 7.4 Accessories

### Fastenings and magnetic switch

Owing to the broad range of accessories from our catalogue, the linear drives can be fixed regardless of the surrounding conditions.

Magnetic switches, offered in our catalogue, allow contactless position sensing of the linear drives in their intermediate and end positions.

For further information refer to the OSP-L catalogue

## 8 Commissioning



### Installation work and commissioning must be carried through by trained personnel!

The linear drive can produce quick linear movements with high force. Failure to observe the safety regulations can cause bodily injury as a result of trapping, or damage as a result of collision with other plant parts.



### Risk of injury, risk of damage

**When commissioning the cylinder you must ensure that the piston does not come into contact with the completely vented cylinder barrel.**

When moving the piston by hand in an unpressurised state, a valve in the middle position can be closed e.g. via an intake air connection, or a vacuum can occur and pull the sealing band into the cylinder barrel via long supply lines. This can lead to:

- a temporary leak
- non-permitted accelerations (e.g. if fitted in a vertical position).

### CRUSHING HAZARD



#### Check before commissioning:

- that the connection arrangements are correct, and
- that there is nothing in the way of the moving load.

During the first start-up, check the function of the proximity and/or the limit switches. First, the linear drive should be allowed to run through the entire moving zone at low speed in order to detect any possible collision areas. These must be removed immediately.

### 8.1 Commissioning of an OSP-L cylinder

- **Slowly move the piston from left to right and back manually without compressed air.**
- Move piston to the middle position.
- Fully screw in both cushioning adjustment screws for end cushioning.
- Unscrew both cushioning adjustment screws about one half turn.
- Slowly pressurise both cylinder chambers in order to prevent uncontrolled, dangerous movements (soft start valve, accessories in our catalogue),  
 ➡ the piston stops after a short movement.
- Vent one side,  
 ➡ the piston travels to end position.

- Start test running.
- Adjust speed with throttle non-return valve.
- Adjust end cushioning with cushioning adjustment screw.  
The floating end cushion must be adjusted to ensure a shock-free and vibration-free operation.  
Check the permissible weights and speeds in accordance with cushioning diagram in catalogue OSP-L.

## 8.2 Commissioning of a Complete Plant

- Observe instructions for switching on and off the plant, running up of plant, control displays in accordance with the operating instructions.
- Prior to switching on/first start-up of the plant make sure that nobody is within reach of the plant.
- Everybody must be informed that the cylinder (the plant) is about to start.
- Prior to commissioning check all protective devices, limit switches, safety earthings and other protective measures for proper function and completeness. Inspect all parts of the plant for foreign substances.
- Nobody must stay within the danger zone during commissioning.
- Make sure that the correct plant data have been entered for the first start-up.
- **Slowly move the piston from left to right and back manually without compressed air.**
- Move piston to mid position.
- Screw in both cushioning adjustment screws for end cushioning fully.
- Unscrew both cushioning adjustment screws about half a turn.
- Pressurise plant slowly in order to avoid uncontrolled, dangerous movements (soft start valve), according in our catalogue.
- Adjust speed with throttle non-return valve.
- Adjust end cushioning with cushioning adjustment screws.  
Check the permissible weights and speeds in accordance with cushioning diagram in catalogue OSP-L.

## 8.3 Re-commissioning after long periods without operation

- **Slowly move the piston from left to right and back manually without compressed air.**
- Move piston to mid position.
- Continue as for individual OSP-L cylinder (Page 10, Chap. 8.1).

# 9 Removal from plant



### Crushing hazard and danger of eye injuries.

Be extremely careful when removing OSP-L from the plant.  
Observe page 4, chapter 2 „Safety“ and the local safety regulations.



### Possible hazards are:

- **Residual pressure in lines and adjustment elements**
  - Slowly depressurise cylinder/plant to remove the residual pressure in the lines and adjustment elements.
- **Heavy parts that might fall down after unscrewing**
  - Secure heavy parts that might fall down after unscrewing.
  - Make sure that there are no persons within the reach of any parts that might fall down.
- **Sharp edges**
  - Wear protective gloves to avoid injuries by cutting.
- **Moving the piston**
  - To avoid uncontrolled movements of the piston depressurise the cylinder/plant.
  - In vertical arrangement, move the piston to the bottom final position prior to depressurisation.



## 10 Service / Maintenance OSP-L

### Attention!



Maintenance and repair works must be carried out by trained personnel only!

Secure the machine and the working area!

### Danger of crushing



Carry out maintenance work only with the machine switched off and the compressed air system depressurized.

### Preparation and Things Needed

Have the following things ready:

- Seal kit or service kit.
- Screwdrivers of various sizes.
- Allan keys of various sizes.
- Dismantle the required parts in order to be able to freely move the piston. If necessary, completely remove the cylinder.
- Switch off the main switch and secure it against unintentional switching-on.

### 10.1 Maintenance intervals

km operated	Maintenance	Instructions
From 6000 km, or latest after 3 years	Dismantle cylinder completely if necessary, clean parts and replace worn parts.	see chap. 10.3 page 13

### Notice:

The following may result in shorter maintenance intervals:

- dusty and dirty surroundings
- speeds > 2 m/s
- ambient temperatures > 40° C



Observe the operating instructions of the complete plant.

### 10.2 Cleaning

#### General



Only use gentle cleansing agents and lint-free cloth to clean the cylinder.

Do not use high-pressure cleaners!

## 10.3 Dismantle, clean, repair and assemble cylinder OSP-L

### Procedure:

- Depressurise cylinder/plant.
- Remove load.

### 10.3.1 Dismantle of cylinder



**Check the position of the parts as shown on the exploded view drawing on page 21.**

#### Remove end cap

- Remove screws (36) and remove end caps (35) on both sides.

#### Remove sealing bands and piston

- Remove all screws (5) for the cover (9).
- Pull off cover (9) with wipers (8), springs (6) and O-rings (7).
- Pull off two clamp covers (12).
- Remove 2 screws (13) and (15) each for the outer and inner band clamping.
- Remove two clamping pieces (14) for outer sealing band.
- Remove outer sealing band (11).
- Remove two clamping pieces (16) for inner sealing band.
- Pull off the respective cushioning spigots (20) by pushing against the cushioning spigots from the inside using the piston.
- Push piston out of cylinder bore (1).
- Push the sealing band to the inside for the entire length using an object that does not have sharp edges.
- Pull inner sealing band (17) out of piston.

#### Remove piston

- Pull off both support rings (25) and remove the keepers (29) and (41) together with the magnet (30).
- Remove slide shoes (28) and lateral wipers (31).
- Remove piston seals (24), felt ring (24a) and cushioning seal (23).

#### Cleaning and spare part check

- Clean all parts and replace faulty parts.
- Only use original spare parts. We recommend to use the spare parts listed on page 22.
- Re-assembly must be carried out on a clean surface.

### 10.3.2 Cylinder OSP-L Reassembly



**Check the position of the parts on the exploded view drawing on page 21.**

#### Information:

Observe the table "tightening torques for screws" on page 18.

#### Preparation:

- Clean and dry sealing bands and cylinder profile.
- Watch out for damage, especially at the edges of the inner sealing band.

## Inserting the magnet strips (see diagram)

With cylinders from Ø 40, the magnet strips can slip out of the cylinder profile. Insert these into the cylinder profile as follows:

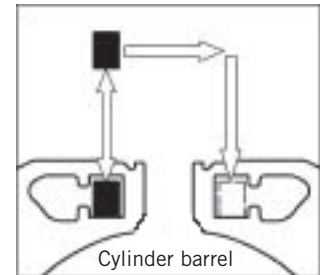
- Push one magnet strip in, leaving 5 cm sticking out (it must lie on its small side) – or, if it had remained in the cylinder profile, pull it out a little.
- Place the second magnet strip on its narrow side above the first magnet strip:

**If the magnets repel each other:**

- Push in the second magnet strip without turning it over (see diagram).

**If the magnets attract each other:**

- Turn the second magnet strip over i.e. 180° (about its longitudinal axis) and then push it in.

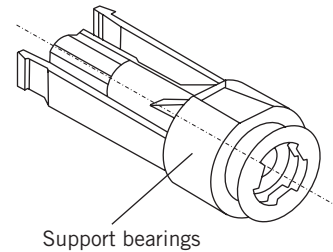


## Prepare piston for installation

- Insert both slide shoes (28) into piston yoke. **Colour same as old parts**, because same dimensions.
- Select the two support rings (25) (colour same as old parts),
- Insert the steel bolt (29) and aluminum bolt (41) separated by the magnet (30) into a support ring. See Section 14 for the positioning of the parts.
- Push the two support rings on to piston (so that flat band guides are on top - see diagram).
- Clip both support rings together, taking care to ensure that the steel bolt, aluminum bolt and magnet remain in the correct position.

## Check that piston moves smoothly, as follows:

- Insert piston into cylinder bore (1) and slide it up and down.
- Replace slide shoe and/or support ring if:
  - piston is too tight, or
  - piston has too much play.
- Take piston out again.
- Insert cushioning seals (23) (so that seal lip shows on outside).



## Greasing cylinder bore

- Grease inside of cylinder bore as far as you can reach, grease inside surface with original grease only (see spare parts **page 22** -lubrication).
- Grease the two support rings and piston behind support rings.
- Slide piston up and down a few times (long cylinders, however, should be greased right through).
- Take piston out again.
- Check that cylinder bore has a complete grease film, as follows:
  - Point cylinder at a light source and look through it, **no dry spot must be left**.
  - Repeat greasing process if required.

## Insert the inner sealing band:

- Insert the inner sealing band (17) into the cylinder (slot pointing upward) with the flat side pointing down (do not press into the slot).
- The inner sealing band (17) should protrude approx. one piston length out of one side of the cylinder barrel.

## Install the piston

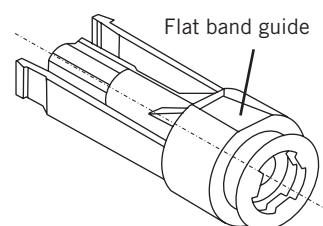
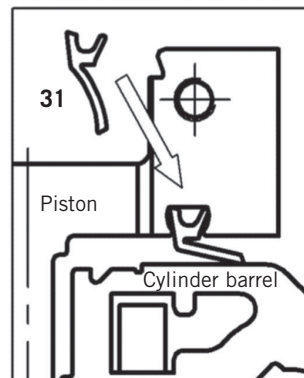
at **Standard-cylinder with one piston** (Tandem see page 17)



### Information

**Piston seals have a sensitive sealing lip which should only be inserted into the cylinder barrel by pulling action. For that reason the fitting sequence must be carried out as follows:**

- Mount the first greased felt ring (24a) onto the support ring (25).
- Push the first piston seal (24) onto the side of the felt ring, ensuring that the lip and groove of the piston seal are pointing outward. Take care to ensure that the fixing on the piston seal locks into the support ring recess and is aligned to the center.
- Insert two side strippers (31), ensuring that the stripper lips are pointing outward, and center (illustration on the right).
- Grease the mounted piston seal and felt ring well and also fill the groove in the piston seal with grease.
- Push the protruding sealing band without bending it through the piston, from the side without mounted piston seal, until the sealing band is approx. 10 mm above the piston seal.
- Lift the two side wipers on the cylinder barrel and insert the piston to about 2/3 of its length. Take care to ensure the symmetrical positioning of the mounted wipers.
- Insert the inner sealing band further until it is flush with the support ring.
- Push the piston, together with the sealing band, into the cylinder barrel until the sealing band is flush with the cylinder barrel.
- Push the piston to the other end position.
- Remove excess grease.
- Push the inner sealing band to the inside along the entire length using an object that does not have sharp edges.
- With a pen, push the sealing band and piston simultaneously around 2/3 of the length of the piston out of the cylinder through the bore of the sealing band.
- Mount the second greased felt ring (24a) on the support ring (25).
- Position the second piston seal on the support ring with the groove pointing outward. Make sure the fixing on the piston seal locks into the support ring recess and is centered.
- Grease the piston seal and fill the groove in the piston seal with grease.
- Insert the inner sealing band further, until the sealing band is flush with the support ring.
- Push the piston, together with the sealing band, into the cylinder barrel until the sealing band is flush with the cylinder barrel.
- Push the piston approx. 100 mm further into the cylinder barrel.



### Insert the first cushion spigot (20)

**Mount on the side where the piston is located!**

- Grease the base of the O-ring slot (21), insert the O-rings and grease them thoroughly.
- Grease the cushion spigots.
- Insert the nuts (26) with the teeth pointing upward in the cushion spigot. Make sure the elevated offset is pointing outward.
- Push the cushion disks (22) onto the cushion spigot (20). Make sure they are mounted in the correct position; the bore on the cushion spigot must not be closed.
- Insert one cushion spigot into the cylinder barrel at a slightly downward slanted angle.
- Using minimal force, push the cushion spigot right to the top and align to the barrel profile.
- Position the nuts (26) under the bore of the inner sealing band.
- Mount the clamp (16) and clamping screws (15) but do not tighten.
- Push the piston up to around 100 mm before the other end position.
- Push the inner sealing band to the inside along the entire length using an object that does not have sharp edges.
- With a pen, pull the inner sealing band as far as possible to the outside through the bore of the sealing band.
- Push the inner sealing band into the slit in the end position range with your index finger.

## Insert the second cushion spigot (20)

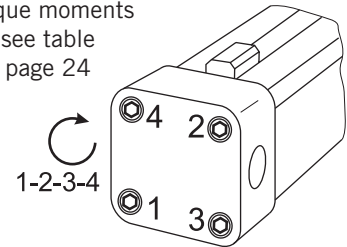


- Grease the base of the O-ring slot (21), insert the O-rings and grease them thoroughly.
- Grease the cushion spigots.
- Insert the nuts (26) with the teeth pointing upward in the cushion spigot.
- Push the cushion disks (22) onto the cushion spigot (20). Make sure they are mounted in the correct position; the bore on the cushion spigot must not be closed.
- Insert one cushion spigot into the cylinder barrel at a slightly downward slanted angle.
- Using minimal force, push the cushion spigot right to the top and align to the barrel profile.
- Position the nuts (26) under the bore of the inner sealing band.
- Mount the clamp (16) and clamping screws (15) but do not tighten.
- Grease the top ends of both cushion spigots and insert the O-rings (18, 19).

## Mount the end cap:

- Position the end cap as needed for the air connection.
- Tighten the opposite screws (36).

Torque moments  
see table  
page 24



## Clamp the inner sealing band

- Push the piston completely to the end position.
- Loosen the sealing band from the slit along the entire length and push inside using a blunt object (for example an Allen key with a spherical head).
- Push the clamping piece (16) on the piston side, along with the sealing band, as far as possible to the cap and tighten the clamping screws (15).
- Push the loose clamping piece (16) on the opposite side to the piston as far as possible to the outside, until either the inner sealing band fits on the tube slit or the inner sealing band abuts the cushioning spigots.
- Tighten the clamping screws (15).
- Slide the piston slowly by hand for one stroke and bring to around the middle position.



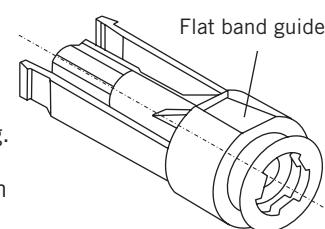
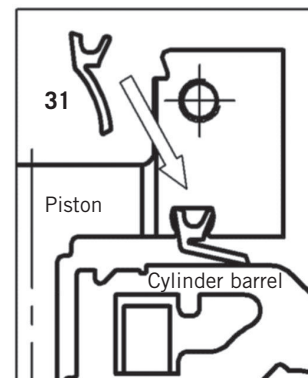
## Install the piston at Tandemversion with 2 pistons

### Information



**Piston seals have a sensitive sealing lip which should only be inserted into the cylinder barrel by pulling action. For that reason the fitting sequence must be carried out as follows:**

- For the tandem version, only mount cushioning seals (23) on the respective outer sides of both pistons.
- Insert cushioning seals (23) (so that seal lip shows on outside).
- Insert two side strippers (31) in the first piston without felt wiper and piston seal, ensuring that the stripper lips are pointing outward, and center (illustration on the right).
- Push the protruding sealing band without bending it through the first piston from the side the cushion seal is inserted, into cylinder barrel. The piston seal is mounted later.
- On second piston fit the first greased felt ring (24a) on support ring (25) (on the side where the cushion seal is).
- Push one piston seal (24) onto the side of the felt ring, ensuring that the lip and groove of the piston seal are pointing outward. Take care to ensure that the fixing on the piston seal locks into the support ring recess and is aligned to the center.
- Insert two side strippers (31) in second piston, ensuring that the stripper lips are pointing outward, and center (illustration on the right).
- Grease the mounted piston seal and felt ring well and also fill the groove in the piston seal with grease.
- Push the protruding sealing band without bending it through the second piston, from the side without mounted piston seal, until the sealing band is approx. 10 mm above the piston seal.
- Place the two side wipers on the cylinder barrel and insert the second piston to about 2/3 of its length. Take care to ensure the symmetrical positioning of the mounted strippers.
- Insert the inner sealing band further until it is flush with the support ring.
- Push both pistons, together with the sealing band, into the cylinder barrel until the sealing band is flush with the cylinder barrel. Do not push the sealing band further than the piston seal.
- Push both pistons to the other end position.
- Remove excess grease.
- Push the inner sealing band to the inside along the entire length using an object that does not have sharp edges.
- With a pen, simultaneously push the sealing band and piston, but not the piston seal, around 2/3 of the length of the piston out of the cylinder through the bore of the sealing band.
- Mount the second greased felt ring (24a) on the support ring (25).
- Set the second piston seal with the groove facing outwards on the support ring. Take care to ensure that the fixing on the piston seal locks into the support ring recess and is aligned to the center.
- Grease the piston seal and fill the groove in the piston seal with grease.
- Insert the inner sealing band further, until the sealing band is flush with the support ring.
- Push the piston, together with the sealing band, into the cylinder barrel until the sealing band is flush with the cylinder barrel.
- Push both pistons approx. 100 mm further into the cylinder barrel.



### Insert the first cushion spigot (20)

**Mount on the side where the piston is located!**

- Grease the base of the O-ring slot (21), insert the O-rings and grease them thoroughly.
- Grease the cushion spigots.
- Insert the nuts (26) with the teeth pointing upward in the cushion spigot. Make sure the elevated offset is pointing outward.
- Push the cushion disks (22) onto the cushion spigot (20). Make sure they are mounted in the correct position; the bore on the cushion spigot must not be closed.
- Insert one cushion spigot into the cylinder barrel at a slightly downward slanted angle.
- Using minimal force, push the cushion spigot right to the top and align to the barrel profile.
- Mount the clamp (16) and clamping screws (15) but do not tighten.
- Push both pistons right in and pull the support ring on the other side out slightly.
- Mount the second greased felt ring (24a) on the support ring (25).
- Position the second piston seal on the support ring with the groove pointing outward. Make sure the fixing on the piston seal locks into the support ring recess and is centered.
- Grease the piston seal and fill the groove in the piston seal with grease.
- Push both pistons approx. 100 mm into the cylinder barrel.

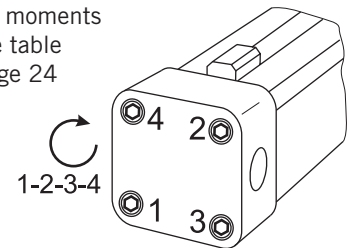
## Insert the second cushion spigot (20)

- Grease the base of the O-ring slot (21), insert the O-rings and grease them thoroughly.
- Grease the cushion spigots.
- Insert the nuts (26) with the teeth pointing upward in the cushion spigot. Make sure the elevated offset is pointing outward.
- Push the cushion disks (22) onto the cushion spigot (20). Make sure they are mounted in the correct position; the bore on the cushion spigot must not be closed.
- Insert one cushion spigot into the cylinder barrel at a slightly downward slanted angle.
- Using minimal force, push the cushion spigot right to the top and align to the barrel profile.
- Mount the clamp (16) and clamping screws (15) but do not tighten.
- Grease the top ends of both cushion spigots and insert the O-rings (18, 19).

## Mount the end cap:

- Position the end cap as needed for the air connection.
- Tighten the opposite screws (36).

Torque moments  
see table  
page 24



## Clamp the inner sealing band

- Push both pistons completely to the end position.
- Loosen the sealing band from the slit along the entire length and push inside using a blunt object (for example an Allen key with a spherical head).
- Push the clamping piece (16) on the piston side, along with the sealing band, as far as possible to the cap and tighten the clamping screws (15).
- Push the loose clamping piece (16) on the opposite side to the piston as far as possible to the outside, until either the inner sealing band fits on the tube slit or the inner sealing band abuts the cushioning spigots.
- Tighten the clamping screws (15).
- Slide the piston slowly by hand for one stroke and bring to move the middle position.

### 10.3.3 Tightening torques for screws

Cylinder OSP	Screw (36) for endcap (35 and 37)		Screw (5) for cover (9)		Screw (15) for inner-Band (17)		Screw (13) for outer-Band (11)	
-L25	M5	6 Nm ± 1	M3	0.4 - 0.5 Nm	M2.5	0.7 Nm ± 0.1	M2.5	0.7 Nm ± 0.1
-L32	M6	10 Nm ± 1.5			M3	1.2 Nm ± 0.2	M3	1.2 Nm ± 0.2
-L40								

## Complete the Cylinder



### Information

See the „Torque Moments“ table above.

- Put the two O-rings (7) on cover (9).
- Put on the two springs (6).
- Clip on wipers (8).
- Lay on outer sealing band (11) and centre it.
- Press cover (9) on to piston yoke and fasten it with screws (5).
- Lay on clamping pieces (14) (so that these lie on clamping pieces (16) of inner sealing band).
- Fasten clamping pieces (14) with screws (13).
- Clip on clamp caps. (12).

## 11 Disposal



Observe the directives and laws on the disposal of ecologically harmful substances.

## 12 Trouble shooting

### List of faults

Fault description	Possible cause	Remedy
Heavy leakage.	Inner sealing band pressed/sucked in.	Clamp the sealing band: <ul style="list-style-type: none"> <li>- Remove the clamp caps (12) on both sides.</li> <li>- Remove clamping screws (13) and (15) on both sides.</li> <li>- Push the piston to an end position.</li> <li>- Lift the outer band (11) on the long side.</li> <li>- Carefully push the inner sealing band on the long side to the inside for the entire length using an object that does not have sharp edges.</li> <li>- On the side where the piston is located, push the clamping piece (16) lightly to the outside and tighten the clamping screws (15).</li> <li>- Push the clamping piece as far as possible to the outside on the opposite side until the sealing band either fits on the cylinder barrel or the clamping piece fits on the cushioning spigots.</li> <li>- Tighten the clamping screw (15).</li> <li>- Mount the outer band (11).</li> <li>- Move the piston by hand for two strokes and bring to around the centre of the stroke.</li> <li>- Arrange the A-Band and tighten the clamping screws (13).</li> <li>- Mount the clamp caps.</li> </ul>
Cylinder leaks at the piston.	Piston seal defective (24).	Replace piston seal.
Cylinder leaks at the end cap.	O-ring (18, 19, 21) defective.	Replace O-rings.
Piston moves slowly or jerking.	Contamination by air or abrasion.	Completely disassemble, clean and grease cylinder. Replace wearing parts (see wearing parts list on page 21).
	Poor lubrication.	
	Piston seal (24) defective.	
	Incorrect adjustment of speed (too slow).	Increase speed.
	Operating pressure below 2 bar.	Check operating pressure.
Piston does not reach the end position.	Cushioning adjustment screw screwed in at the end cap.	Adjust cushioning adjustment screw at the end cap.
Cylinder impacts too hard at one or both end positions.	Incorrect adjustment of end cushioning.	Alter adjustment of cushioning adjustment screw.
	Possibly overload.	Install additional shock-absorbers, see admissible weights and speeds in cushioning diagram of OSP-L catalogue.
	Cushioning seal (23), O-rings at endcap (18, 19), cushion spigot (21), piston seal (24) or inner sealing band (17) defective.	Check parts and replace if necessary.
The magnetic switch is defective.	There are ferritic parts too close to the magnetic switch	Use parts on non-magnetic material.
	Magnetic switch defective.	Replace magnetic switch (see catalogue OSP-L).

## 13 Declaration of incorporation



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### Declaration of incorporation

#### Manufacturer's Declaration

In accordance with EU-Directives Machinery

The design of the OSP-L:

Types:       OSP-L 25  
              OSP-L 32  
              OSP-L 40

is developed, designed and manufactured in compliance with Guidelines 2006/42/EG and is sole responsibility of

**Parker Hannifin Manufacturing Germany GmbH & Co. KG**  
Pneumatic Division Europe - Origa  
Industriestraße 8 · 70794 Filderstadt (Sielmingen)

The following related standards apply:

- DIN EN ISO 12100, Safety of Machines Plant Machinery
- DIN EN 60204.1, Equipment for Industrial Machinery
- DIN EN 983, Requirements of Fluid Powers Plants and Components

Commissioning of the OSP-L is forbidden until it has been established that the machine/plant in which it is to be installed complies with the requirements of the EU Machines Directives.

The above mentioned pneumatic linear drive systems OSP-L 25 to OSP-L 40 are excluded from the area of application of the Pressure Equipment Directive.

Filderstadt, July 2011

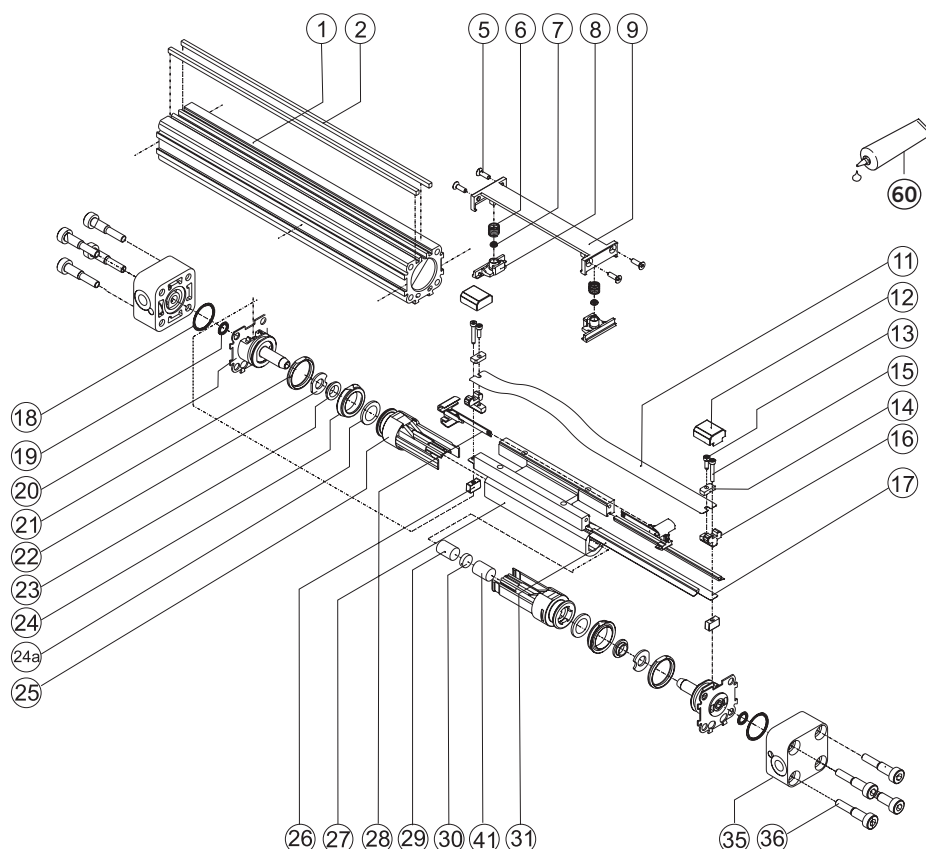
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ppa. Johann Asperger

Handwritten signature of Alexander Keller in black ink.

ppa. Alexander Keller

## 14 Spare Parts Lists OSP-L



### Seal-Kits OSP-L

Item (Pos. No.)	Description	Ident - No. *		
		Ø 25	Ø 32	Ø 40
7,8,18,19,21,22,23, 24,24a, 28,31,60	Seal-Kit <b>Standard</b> with tube of grease.	14339	14340	14341

\* Please use this order pattern: IDENT-NR. + „FIL“, example Seal-Kit Standard Ø 25: 14339FIL

### Service-Kits OSP-L

Item (Pos. No.)	Description	Ident - No.		
		Ø 25	Ø 32	Ø 40
7,8,11,17,18,19, 21,22,23,24,24a, 28,31,60	Service-Kit <b>Standard</b> with inner and outer sealing band, Seal-Kit	Please contact our product support specialists ! ***		

\*\*\* ode.technicalsupport@parker.com, Tel.:+49 (0)7158 1703-0

# Modular Pneumatic Linear Drives OSP-L

## Replacement Parts OSP-L Ø 25 - 40

Item (Pos. No.)	Description	Ident - No. *(**)		
		Ø 25	Ø 32	Ø 40
1,2	Cylinder Barrel with Magnetstrip **	14130	14131	14132
5,6,7,8,9	Cover Kit stainless	21706	21707	21708
11	Outer sealing band cut to Stroke **	Please contact our product support specialists ! ***		
12-16,26	Clamp cap Kit stainless	21702	21702	21703
17	Inner Sealing Band Cut to Stroke **	Please contact our product support specialists ! ***		
20	Cushioning spigot	10028	10265	10086
25	Support ring black	14120-1	14121-1	14122-1
25	Support ring blue	14120-2	14121-2	14122-2
25	Support ring grey	14120-3	14121-3	14122-3
27	Piston yoke	14111	14113	14115
35	End cap standard complete	20534	20542	20550
35	End cap, end air port, complete	20536	20544	20552
35	End cap, air one end left, complete	20538	20546	20554
35	End cap, air one end right complete	20540	20548	20556
36	Screw for end cap (Set 8 pcs.)	21721	21722	21723
36	Screw for end cap stainless (Set 8 pcs.)	21728	21729	21730
60	Grease standard, tube 25gr	14338		

Pos.	Description	Pos.	Description
1, 2	Cylinder Barrel with Magnetstrip	21	O-ring for cushioning spigot
5	Counter sunk screw for cover	22	Cushioning disk
6	Spring for wiper	23	Cushioning seal
7	O-Ring for scraper	24	Piston seal
8	Scraper end faced	24a	Felt ring
9	Wiper cover	25	Support ring
11	Outer sealing band cut to Stroke	26	Inlay nut
12	Clamp cap	27	piston yoke
13	Clamping screw for outer band	28	Slide shoe
14	Clamping piece for outer band	29	Keeper plate for magnet
15	Clamping screw for inner band	30	Magnet
16	Clamping piece for Inner band	31	Wiper (side)
17	Inner Sealing Band Cut to Stroke	35	End cap
18	O-Ring for end cap, outer	36	Screw for end cap
19	O-Ring for end cap, inner	41	Al-Keeper for Magnet
20	Cushioning spigot	60	Grease

\* Please use this order pattern: IDENT-NR. + „FIL“, example piston yoke Ø 25: 14111FIL

\*\* Please use this order pattern: IDENT-NR. + „stroke length in mm“ (5-digits),  
Example: cylinder barrel with magnetstrip Ø 25 (1000 mm stroke length): 14130-01000

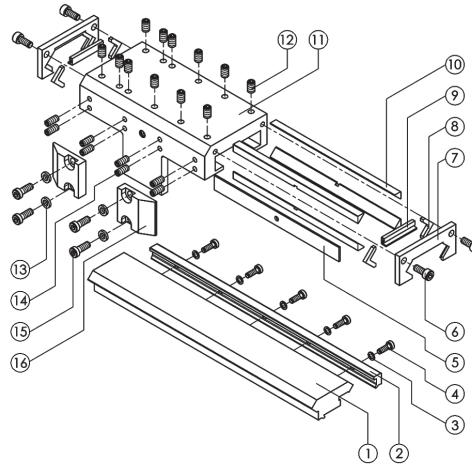
\*\*\* ode.technicalsupport@parker.com, Tel.:+49 (0)7158 1703-0

## 15 Assembly Instructions

### 15.1 Slideline

#### SL25 / SL32 / SL40

For fitting and removal of the guide system the complete cylinder unit should be removed from the machine or plant.



#### Dismantling of the Guide Carriage

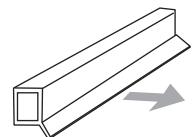
- Depressurise the cylinder and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (11).
- Unscrew one drive block (16) from piston of OSP, so that the guide carriage can be moved.
- For the OSP-L40 only: unscrew one end cap from the cylinder.
- Loosen screws (6) on wiper cover (17).
- Slide the complete guide carriage off the guide rail.
- Unscrew wiper cover (7) from both ends of the guide carriage (11).
- Inspect the parts – replace damaged or worn parts such as: wiper (9), slide profile (10) and felt (8) (service kit).

#### Dismantling and Reassembly of the Guide Rail

- To dismantle the guide rail (1) remove the screws (4) with their washers (3). Remove the guide rail (1) and clamping rail (2) from the cylinder profile.
- Clean all the parts.
- Centre the guide rail on the cylinder profile.
- Fit the clamping rail (2) to the guide rail (1) and screw in the screws (4) with their washers (3) (use the specified torque).

#### Reassembly of the Guide Carriage

- Clean all the parts.
- Grease the felts (8) with guide grease (Order No. 10550FIL).
- Lay the wipers (9) or (21+22) and felts (8) in the wiper covers. The sealing lip of the wiper must be outwards (see drawing).
- Back off the adjusting screws (14) in the guide carriage.
- Lay in the support strip (5) on the same side as the adjusting screws.
- Place 2 slide profiles (10) per side in the guide carriage. The edges of the slide profiles in which grooves are cut (to allow grease from the grease nipples to get to the guide rail) must touch each other.
- Screw on the two wiper covers (7) or (17+18) loosely with the screws (6).



#### Remounting the Reassembled Guide Carriage on the Guide Rail

- Push the complete guide carriage assembly carefully onto the guide rail with the side with the adjusting screws towards the piston.
- If necessary move the felt wiper carefully into its correct position with a screwdriver.

## Adjustment of Play and Final Assembly

- Tighten the self-locking adjusting screws (14), individually from the middle working outwards, with the specified torque. If non-self-locking screws are used (14), use a locking medium (Loctite low-strength is recommended) and tighten the screws from the middle working outwards until the guide carriage can no longer be moved by hand.
- Tap the sides of the guide carriage (11) gently with a rubber hammer until the slide profiles (10) have settled into position and then tighten all the adjusting screws (14) again (see above).
- Loosen all the adjusting screws (14) about 1/4 to 1/2 turn individually from the middle working outwards. When correctly adjusted the guide carriage should be easily movable by hand but with no play.
- Tighten the screws (6) in the wiper cover (7) or (17+18) with the specified torque.
- Position the guide carriage centrally over the cylinder piston and secure the drive blocks (16) with the washers (13) and screws (15).

### Note:

**The drive blocks (16) must be fitted against the guide carriage with no play (11) !!!**

**Note the high torque required !!!**

- Refit the end cap of the OSP if applicable.

## Lubrication

All unused threaded holes in the guide carriage (11) must be plugged with set screws (12) to prevent escape of lubricant. The grease nipples on both sides of the guide carriage (11) should be filled with guide grease (Order No. 10550FIL) until a thin film of grease can be seen on the guide rail when the guide carriage is moved by hand.

## Torques for Screws

Item	SL 25	SL 32	SL 40	
4	3 Nm		10 Nm	
6	5.5 Nm			
14	2.5-3 Nm			(only self-locking screws)
15	9 Nm	14.5 Nm		



## 15.2 Starline

### 15.2.1 Dismantling the complete Guide Carriage

For fitting and removal of the guide system the complete cylinder unit should be removed from the machine or plant.

- **Note the position of the parts on the exploded view drawing**

#### Preparation:

- Depressurise the cylinder air lines. Make sure that the cylinder is completely depressurised.
- Switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage plate.
- Carefully remove the guided cylinder without bending it.

#### Dismantling of the Guide Carriage (9):

- Unscrew one drive block (3) from the piston of the OSP-L.
- Carefully slide the complete guide carriage (9) from the guide rail.
- Check guide carriage (9), carrier (8), guide rail (5) and clamping profile (4) for damages and wear and replace if necessary.

#### Dismantling the Carrier (8)

- Remove screws (10) from the guide carriage.

#### Dismantling the Guide Rail (5)

- Remove screws (6) with sciew self-locking from the guide carriage.
- Remove guide rail (5) from the cylinder barrel.

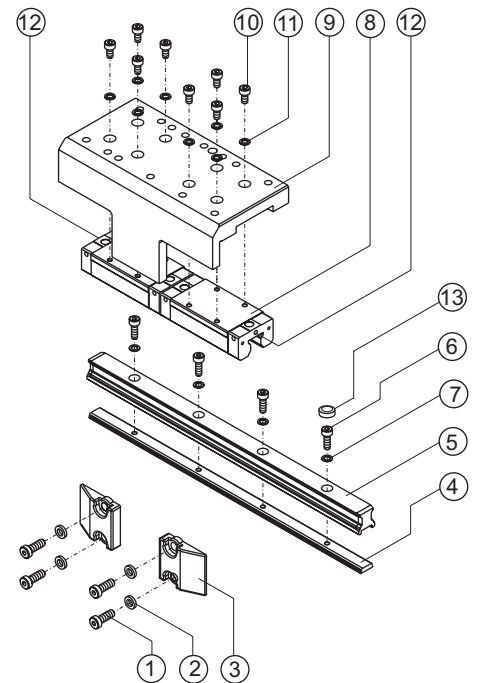
#### Dismantling the Clamping Profile (4)

To dismantle the clamping profile (4) remove one of the endcaps of the OSP-L cylinder.

- Refer to the operating instructions OSP-L, see page 8, part 35.
- Remove residues of screw-selflocking if necessary.
- Slide the clamping profile (4) out of the groove of the cylinder barrel.

#### Loosening:

Due to the screw self-locking of the screws (6) the clamping profile can be trapped. With a hammer, the clamping profile can be removed from the dove tail groove. An easy way to remove the clamping profile is to warm it up with a hot air gun.



### 15.2.2 Mounting the complete Guide Carriage

#### Mounting of the Clamping Profile (4)

To mount the clamping profile (4) remove one of the endcaps of the OSP-L cylinder.

- Refer to the operating instructions page 8, part 35.
- Slide clamping profile (4) into the groove of the cylinder barrel.  
**Mind position at the cylinder barrel!**
- Fix end cap (35) of the OSP cylinder. For procedure see operating instructions page 18.

#### Mounting of the Guide Rail (5)

- Provide guide rail (5) with all screws (6).



## Note:

Guide rail screws(6) must be **secured against incidental loosening**.  
(Medium-tight type liquid screwlocking, e.g. Loctite ® 243, should be used.)

- Loosely fix screws, align.
- **Tighten screws (6) in accordance with the torque table:**

Item	OSP-STL25	OSP-STL32	OSP-STL40
6	4.5 Nm		9 Nm

## Mounting of the carriers (8):

- Carefully slide both carriers (8) onto the guide rail (5).
- For new carriers use enclosed mounting aid and carefully slide onto the guide rail (5).**  
**Refer to the enclosed instructions.**



## Note:

The grinded datum face of the carrier must face the piston yoke.  
(see page 8, part 27)

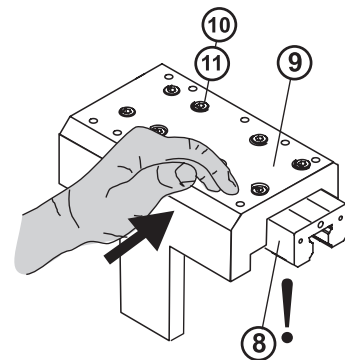
## Mounting of the Guide Carriage (9)

- Position guide carriage (9) onto the carriers (8),  
**mind alignment towards the piston.**
- Loosely fix with the screws (10) and the washers (11) and then:



## Note:

- Press guide carriage (9) against the sanded surface of the carriers (8) and fix with the screws (10).



## Important!

The datum face of the carrier (8) must abut the guide carriage  
Observe the prescribed torques!

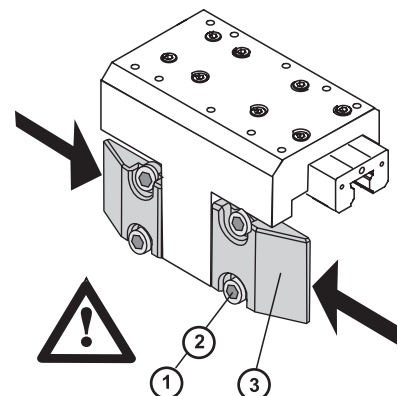
Item	OSP-STL25	OSP-STL32	OSP-STL40
10	3 Nm		5.5 Nm

## Mounting of the drive block (3)

- Fix the drive block (3) with the screws (1) and the washers (2) to the piston yoke while exerting pressure on the surfaces of the carrier.

## Important!

The datum face of the drive blocks must be mounted against the carrier of the guide carriage without any backlash!



Observe the prescribed torque!

Item	OSP-STL25	OSP-STL32	OSP-STL40
1	9 Nm	14.5 Nm	

### Lubrication

There are grease nipples at the front of the carriers (8) for re-lubrication.

The re-lubrication intervals depend on the environmental influences such as dirt, vibrations, impact load etc.

Determine the lubrication intervals in accordance with your individual case of application use ensuring that there is always enough grease in the carriers. Make sure that there is always a grease film on the visible on the running surfaces of the guide rail.

For lubrication „ISOFLEX TOPAS NCA 52“ grease made by Klüber is recommended.

Lubricants with solids contents (such as Grafit or MoS<sub>2</sub>) must not be used.



**In case new carriages for sizes STL25 and STL32 are used, these must be lubricated before commissioning, as they are delivered with a rust-proofing only.**

The initial lubrication is made in accordance with the below table using three times the subset:

1. grease carrier with the first subset in accordance with the table.
2. slide the carrier with 3 up and down strokes by at least three times the carrier length.
3. repeat the procedures following 1. and 2. two times.
4. check whether a grease film is visible on the guide rail.

**Table amount of grease OSP-STL**

Type	Subset for	cm <sup>3</sup>
-STL25	initial lubrication	3 x 0.3
	re-lubrication	1 x 0.3
-STL32	initial lubrication	3 x 0.3
	re-lubrication	1 x 0.3
-STL40	re-lubrication	1 x 0.6



### Note

If guides are mounted in a vertical or lateral position or with the carriage showing downwards, subsequent lubrication must be increased by 50%.

### Maintenance



Dirt may collect on the exposed guide rails.

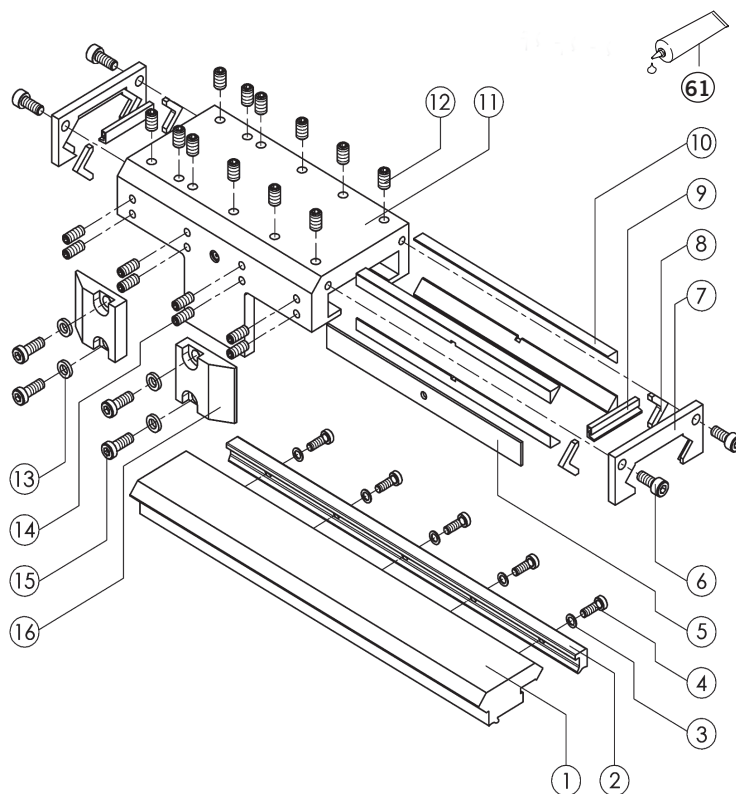
To maintain the function of the sealings in the carriers, remove such dirt deposits at regular intervals.

In the case of deviations from our standards or critical applications please refer to our engineering department.

## 16 Replacement Parts Guides

### 16.1 Slideline

SL25 / SL32 / SL40



#### Delivery package

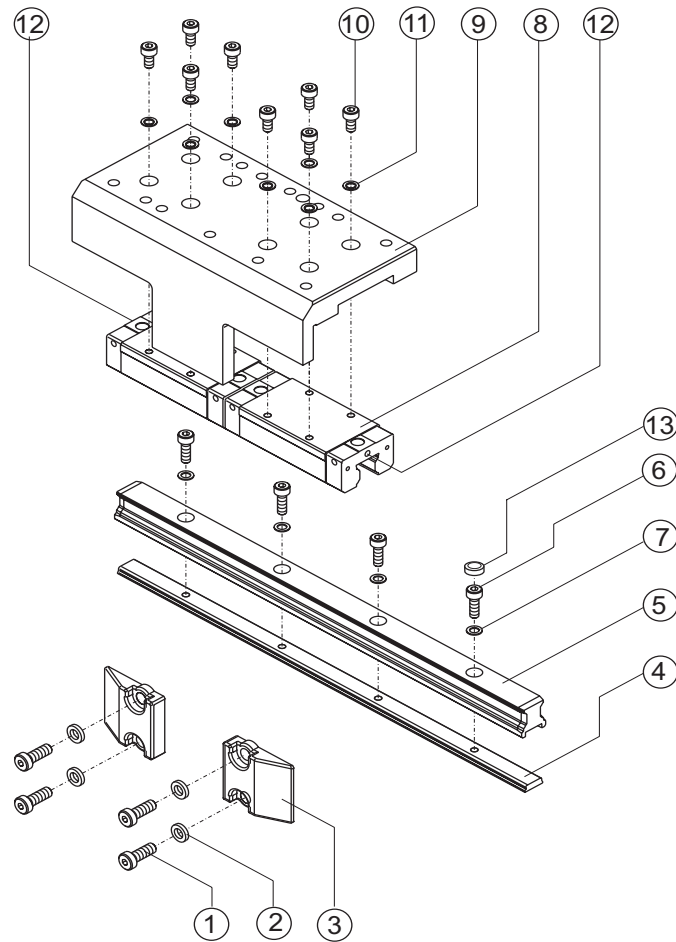
Contents (Pos. No.)	Description	Ident-No. *(**)		
		SL 25	SL 32	SL 40
1-16	Slideline plain bearing guide **	20342	20196	20343
1-16	Slideline plain bearing guide, stainless **	20345	20346	20347
1	Guide rail**	10913	10914	10915
5,6,7,8,9,10,11,12,14,61	Guide carriage complete, stainless	11402	11405	11408
8,9,10,61	Service kit	11067	11068	11069
13,15,16	Drive block Kit stainless	21713	21714	
61	Guide grease tube 8 gr	10550		

\* Please use this order pattern: IDENT-NR. + „FIL“, example service kit SL25: 11067FIL

\*\* Please use this order pattern: IDENT-NR. + „stroke length in mm“ (5 digits), example guide rail SL32 (1000mm stroke length): 10914-01000

## 16.2 Starline

## STL25 / STL32 / STL40



## Delivery package

Contents (Pos. No.)	Description	Ident-No. *(**)		
		STL 25	STL 32	STL 40
1-13	Ball bearing guide STL **	21112	21113	21114
5	Guide rail **	Please contact our product support specialists ! ***		
8	Carriage			
1,2,3	Drive block Kit stainless	21713	21714	

\* Please use this order pattern: IDENT-NR. + „FIL“, example Drive block Kit STL 40 : 21714FIL

\*\* Please use this order pattern: IDENT-NR. + „stroke length in mm“ (5 digits), example ball bearing guide STL25 (1000mm stroke length): 21112-01000

\*\*\* ode.technicalsupport@parker.com, Tel.:+49 (0)7158 1703-0

## 17 Assembly Instruction VOE-Valves

### 17.1 Modification and rigging notices

The design of the integrated 3/2 way VOE valves enables their subsequent modification for installation in a machine or system:

- in respect to the position of the air connection,
- in respect to the pilot valve and magnet alignment.



#### **Compressed air can cause injury and property damage**

All work performed on cylinders under pressure can be dangerous.

#### **Make sure the cylinder is depressurized!**

#### **Rotating the Valve**

The VOE valve can be rotated 4 x 90° to position the air connection as required.

- Remove end cap screws (14).
- Rotate valve housing to desired position.
- Refit end cap screws (14) and tighten to specified torque. Take care that the two O-rings between valve housing and cushioning spigot are not damaged.

#### **Rotating the Pilot Valve and Solenoid**

The pilot valve of the VOE valve can be rotated 180° to position the manual override turn button as required.

- Remove screws (9).
- Rotate pilot valve (5) to desired position.
- Refit screws (9) and tighten to specified torque. Take care that the two O-rings (3) and (4) are not damaged.
- Solenoid (8) can be rotated 4 x 90° to position connector (6) as required: to do this, remove knurled nut (7), turn solenoid (8) to desired position and retighten knurled nut.

#### **Speed Regulation**

- The throttle silencer (12) can be exchanged with either of the screw plugs (1) to improve the accessibility of the adjusting screw. The adjusting screw is used to regulate the speed of the cylinder. The plug screws (1) can if desired be replaced by a second or third throttle silencer (12) to increase exhaust air flow rate and thereby the speed of the piston.
- If the piston speed is changed, the end cushioning must be adjusted accordingly with the valve needle. See „Commissioning“ on page 10.

#### **Air Connection V6**

- Only for OSP-L40:  
The air connection with screw plug (13) provides direct connection to the cylinder chamber, e.g. for an external valve or a pressure sensor..

#### **Troubleshooting**

**(Only when the machine is switched off!)**

##### **Suspected defective valve:**

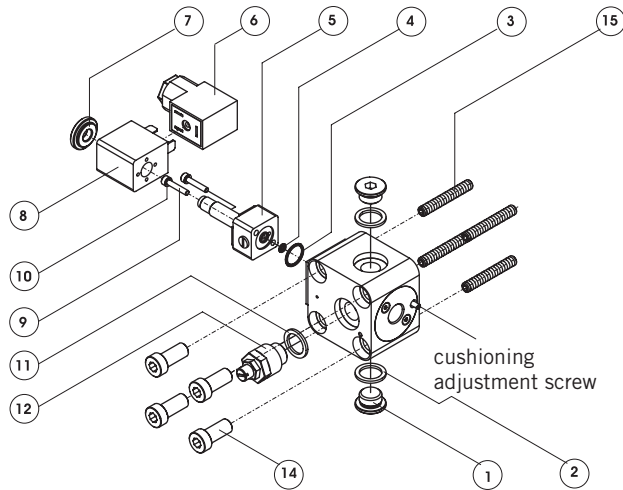
- Check the control signal and/or voltage on the magnet.
- Check the function using the manual override (red rotary knob on the pilot valve). If it is functioning, just replace the magnet coil (8).
- If the cylinder speed declines: Unscrew the throttle silencer (12) and clean or replace.
- Check the ZERO positioning of the pilot valve.

##### **Torques for Screws**

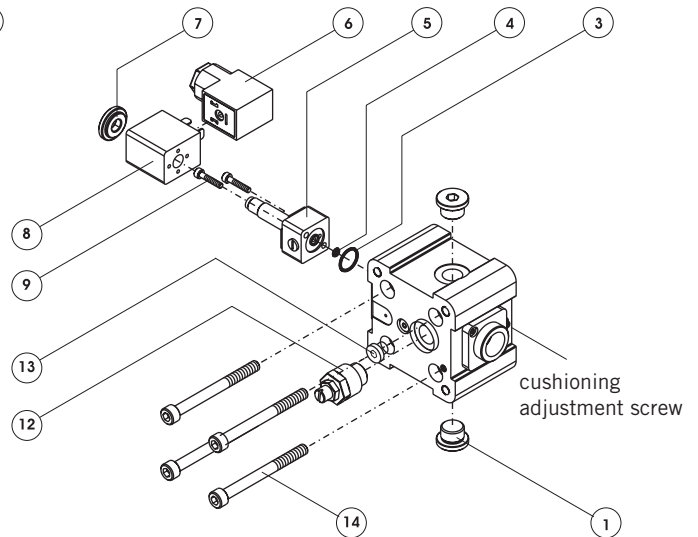
Item	OSP-L25	OSP-L32	OSP-L40
9	1.2 Nm		
14	8 Nm	10 Nm	

## 17.2 Replacement Parts Valves VOE

OSP-L25 / OSP-L32



OSP-L40



### Delivery package

### Integrated 3/2 way valve VOE

Contents (Pos. No.)	Description	Ident-No. *		
		OSPL25	OSPL32	OSPL40
1-15	Integrated 3/2 way valve VOE 24 V complete incl. endcap screws	20914*	20916*	20918*
1-15	Integrated 3/2 way valve VOE 230 V complete incl. endcap screws	20915*	20917*	20919*
without: 6,7,8,14,15	Complete Integrated 3/2 way valve VOE without: plug, knurled nut, magnet and endcap screw	11840*	11866*	11855*
3,4,5,7,9	Pilot valve complete	21734*		
6	Plug 10-50 V	11894*		
6	Plug 70-250 V	11895*		
8	Solenoid coil for 24 V= and 60 V =~/50-60 Hz	KZ3673		
8	Solenoid coil for 110 V= and 230 V =~/50-60 Hz	KZ3672		
60	Grease 25 gr tube	1598*		

\* Please use this order pattern: IDENT-NR. + „FIL“, example 3/2 way valve VOE 24V compl. for OSPL25 : 20914FIL

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