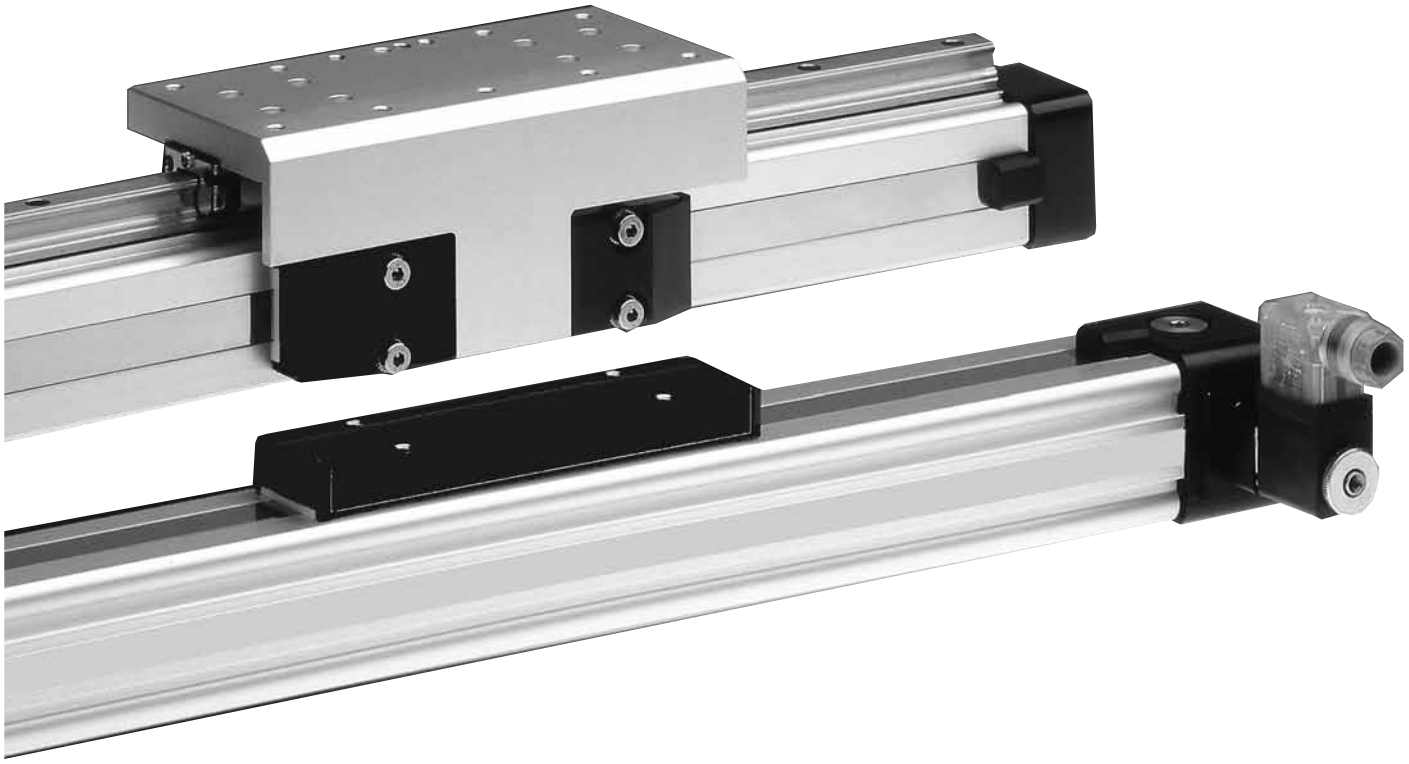


Pneumatic Linear Drives OSP-L

Operating Instructions

ORIGA SYSTEM PLUS

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

Parker

ENGINEERING YOUR SUCCESS.

Content

This operating manual is the translation of the original German version.
Responsible: Dr.Axel Froeschle, 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 beed 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.

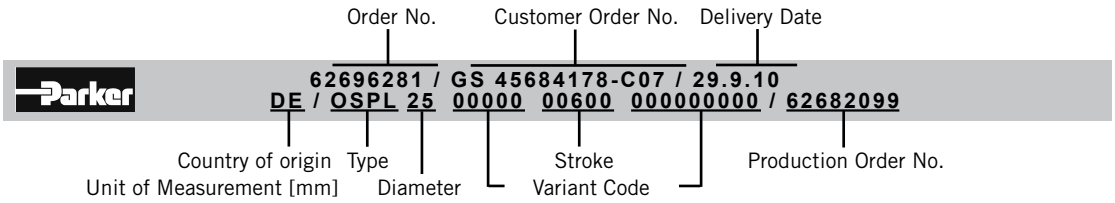
Symbol	Explanation of Symbol	Symbol	Explanation of Symbol
	Attention: This symbol is used if failure to comply carefully with operating instructions, operating sequences, etc. can lead to personal injuries, fatal accidents or damage to the plant.		Attention: Danger of cuts to fingers etc.
	Information: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

Copyright

The Type Lable

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

Ø 25-63:



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.
- Cataloque 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.

The pressureless movement of the piston is only permitted for rectifying faults and at low speed. If the speed is too high, the resulting low pressure can pull the sealing band into the cylinder chamber. This can lead to:

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

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 Assembly

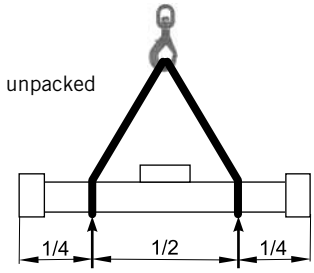
4.1 Transport

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.



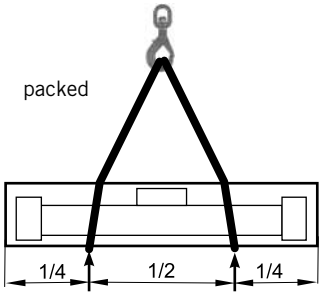
Transport of OSP-L:

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 forked-lift truck.
(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 20).

Please observe our homepage **www.origa-service.com**

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 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.

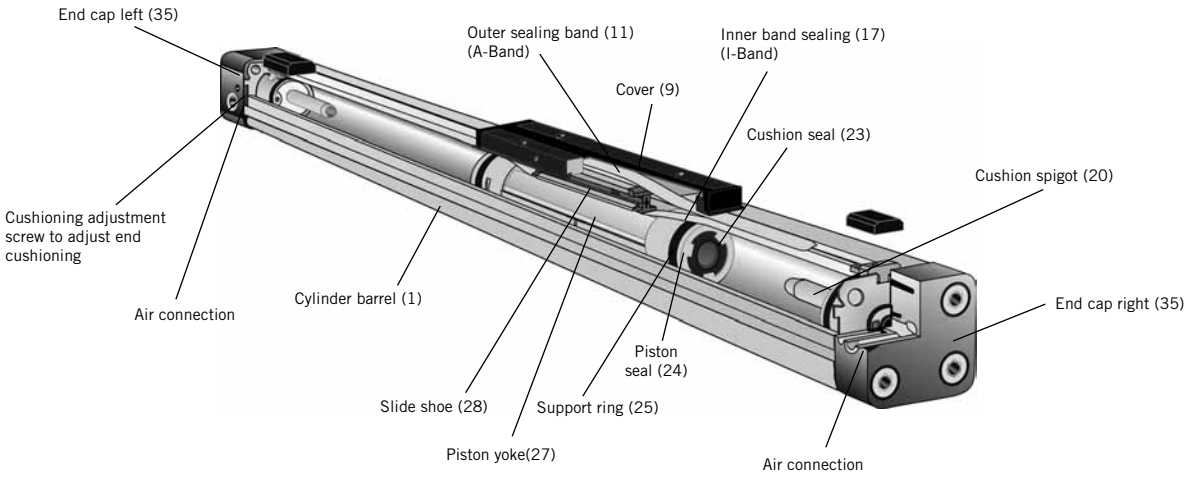
Information

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 20).

6.2.2 Functional Principle and Application Cylinder Ø 25 to Ø 63

- 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 cataloque.
- For long cylinders, use mid-section supports from our cataloque.
- Avoid forces exerted by loads carried on external linear guides.
  Example **OSP-L**: by using a carrier with clevis mounting from our cataloque.

Electrical

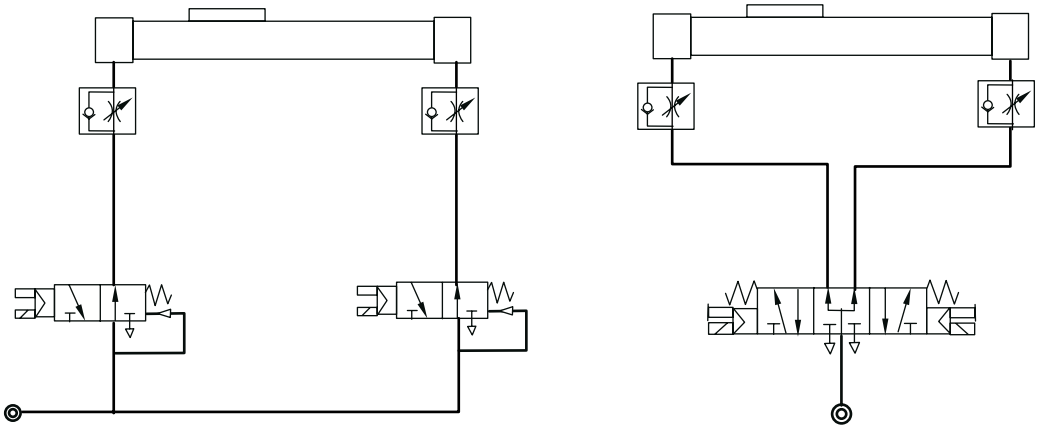
- Sensors enable your load to be positioned accurately.
- Fit the sensors so that they are not close to ferritic parts or moving loads.
- Use the most favourable mounting slot on the circumference of the cylinder profile.

Pneumatic

- Actuate the cylinder via two 3/2 way valves ore one 5/3 way valve, normaly 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.

The pressureless movement of the piston is only permitted for rectifying faults and at low speed.

If the speed is too high, the resulting low pressure can pull the sealing band into the cylinder chamber.

This can lead to:

- excessive leackage
- 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 (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 chapter 2, page 4 „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.

Preperation 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 20.

Remove end cap

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

Remove sealing bands and piston

- Move piston to middle position.
- 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 two cushioning spigots (20) by inserting screwdriver carefully between cushioning spigot (20) and cylinder profile (1).
- Push piston and inner sealing band (17) out of cylinder bore (1).
- 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) 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 21.
- 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 20.

Preparation:

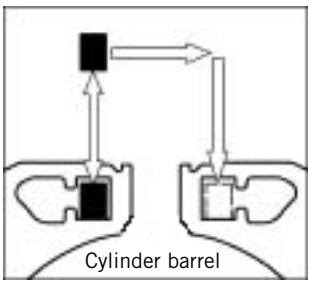
- Clean and dry sealing bands and cylinder profile.
- Watch out for damage, especially at the edges of the inner sealing band.

Inserting the magnet strips (see diagram)

Note:

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 diagramm).

If the magnets attract each other:

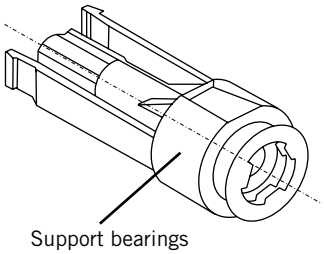
- Turn the second magnet strip over i.e. 180° (about its longitudinal axis) and then push it in.

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 21 -1ubrication).
- 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:

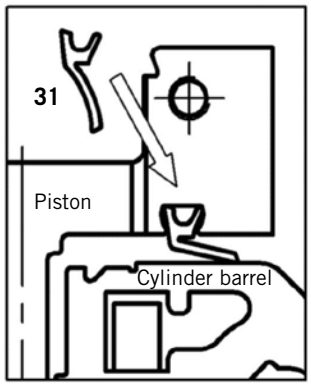
- Insert the inner sealing band (17) into the cylinder (slot pointing upward) with the flat side pointing down (do not press into the slot).
- The inner sealing band (17) should protrude approx. one piston length out of one side of the cylinder barrel.

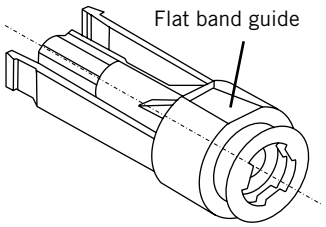
Install the piston
at <u>Standard-cylinder with one piston</u> (Tandem see next page)

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.
- Place 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 strippers.
- 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. Do not push the sealing band further than the piston seal.
- Push the piston approx. 100 mm further into the cylinder barrel. The inner sealing band remains flush with the cylinder barrel.
- Remove excess grease.





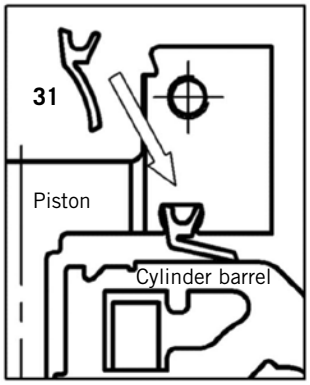
Insert the first cushion spigot (20)

- 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.
- Push the piston 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 the piston approx. 100 mm into the cylinder barrel.
- Remove excess grease from ends of cylinder profile.

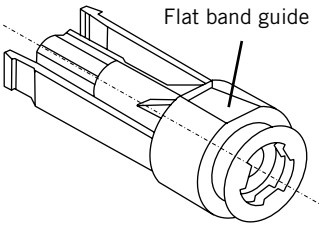
Install the piston
at Tandemversion with 2 pistons

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:



- 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 into cylinder barrel.
- On second piston fit the first greased felt ring (24a) on 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) 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 approx. 100 mm further into the cylinder barrel. The inner sealing band remains flush with the cylinder barrel.
- Remove excess grease.

Insert the first 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.
- 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.
- Remove excess grease from ends of cylinder profile.

Applicable for versions with one or two pistons:

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).
- Tighten the clamping screws (15).

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	0.7 Nm ± 0.1	M2.5	0.7 Nm ± 0.1	M2,5	0.7 Nm ± 0.1
-L32	M6	10 Nm ± 1.5						
-L40	M6	10 Nm ± 1.5	M3	0.7 Nm ± 0.1	M3	1.2 Nm ± 0.2	M3	1.2 Nm ± 0.2
-L50								
-L63	M8	25 Nm ± 3.8	M4	1.75 Nm ± 0.25	M3	1.2 Nm ± 0.2	M3	1.2 Nm ± 0.2

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 Trouble shooting

Fault description	Possible cause	Remedy
Heavy leakage.	Inner sealing band pressed/sucked in.	Avoid low pressure in the cylinder chamber (e.g. move the pressureless piston only slowly).
		Slowly move the piston from left to right and back manually without compressed air.
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).

12 Disposal

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

13 Declaration of incorporation

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SWIFT: COBADEFF480

Declaration of incorporation

In accordance with EU-Directives Machinery

The design of the OSP-L:

Types: OSP-L 25
OSP-L 32
OSP-L 40
OSP-L 50
OSP-L 63

is developped, 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 Applicanes 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 ist o be installed complies with the requirements of the EU Machines Directives.

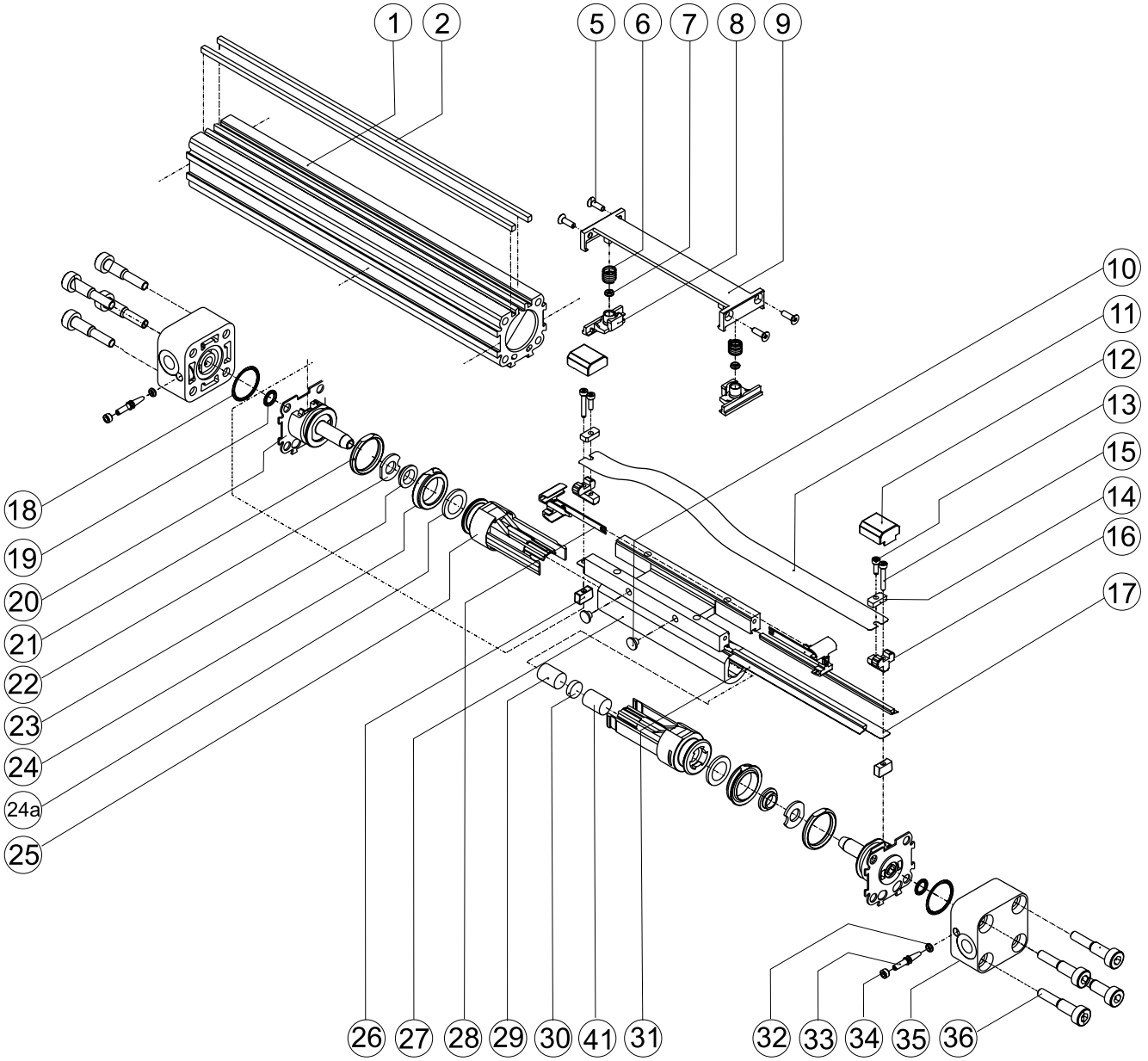
The above mentioned pneumatic linear drive systems OSP-L 25 to OSP-L 63 are excluded from the area of application of the Pressure Equipment Directive.

Filderstadt, July 2011

ppa. Johann Asperger

ppa. Alexander Keller

14 Spare Parts Lists OSP-L



14.1 Replacement Parts

		IDENT-NO. *				
ITEM	**DESCRIPTION**	**Ø 25**	**Ø 32**	**Ø 40**	**Ø 50**	**Ø 63**
7,8,18,19,21 22,23,24,24a, 28,31	SEAL KIT STANDARD (INCL. TUBE GREASE)	14339	14340	14341	14342	14343
7,8,18,19,21 22,23,24,24a, 28,31	SEAL KIT TANDEM VERSION (INCL. TUBE GREASE)	14365	14366	14367	14368	14369

14.2 Service Kits

		IDENT-NO. **				
ITEM	**DESCRIPTION**	**Ø 25**	**Ø 32**	**Ø 40**	**Ø 50**	**Ø 63**
7,8,11,17,18,19, 21,22,23,24,24a 28,31	SERVICE-KIT STANDARD, WITH INNER AND OUTER SEALINGBAND SEAL KIT	14345	14346	14347	14348	14349
7,8,11,17,18,19, 21,22,23,24,24a 28,31	SERVICE-KIT TANDEM VERSION, WITH INNER AND OUTER SEALINGBAND SEAL KIT	14370	14371	14372	14373	14374

14.3 Replacement Parts

		IDENT-NO. *(**)				
ITEM	**DESCRIPTION**	**Ø 25**	**Ø 32**	**Ø 40**	**Ø 50**	**Ø 63**
1,2	CYLINDER BARREL WITH MAGNETSTRIP **	14130	14131	14132	14133	14134
5	COUNTER SUNK SCREW FOR COVER	10724	10724	10724	10724	10384
5	COUNTER SUNK SCREW FOR COVER, STAINLESS	10761	10761	10761	10761	10687
6	SPRING FOR WIPER	10084	10084	10110	10084	10084
6	SPRING FOR WIPER, STAINLESS	10104	10104	10118	10104	10104
7	O-RING FOR SCRAPER	10689	10689	10689	10689	10689
8	SCRAPER END FACED	10026	10026	10026	10026	10026
9	WIPER COVER	10027	10085	10085	10218	10379
11	OUTER SEALING BAND CUT TO STROKE **	14166	14167	14168	14169	14170
12	CLAMP CAP	10035	10035	10091	10091	10091
13	CLAMPING SCREW FOR OUTER BAND	3687	3687	3419	3419	3419
13	CLAMPING SCREW FOR OUTER BAND STAINLESS	10688	10688	4052	4052	4052
14	CLAMPING PIECE FOR OUTER BAND	10052	10052	10109	10109	10109
14	CLAMPING PIECE FOR OUTER BAND, STAINLESS	10058	10058	10109	10109	10109
15	CLAMPING SCREW FOR INNER BAND	11975	11975	13284	13284	13284
16	CLAMPING PIECE FOR INNER BAND	14103	14103	14104	14104	14104
17	INNER SEALING BAND CUT TO STROKE **	14171	14172	14173	14174	14175
18	O-RING FOR END CAP, OUTER	10039	10273	10097	10222	10390

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 10084FIL**

**** BittePlease use this order pattern: IDENT-NO. + stroke length [mm, 5 digits], example (1 m stroke): 14130-01000**

		IDENT-NO. *				
ITEM	**DESCRIPTION**	**Ø 25**	**Ø 32**	**Ø 40**	**Ø 50**	**Ø 63**
19	O-RING FOR END CAP, INNER	10040	627	3614	2526	10388
20	CUSHIONING SPIGOT	10028	10265	10086	10205	10363
21	O-RING FOR CUSHIONING SPIGOT	10697	10292	10097	1245	10392
22	CUSHIONING DISK	10031	10266	10089	10212	10364
23	CUSHIONING SEAL	1054	10267	1277	10213	10383
24	PISTON SEAL	14135	14136	141137	14138	14139
24a	FELT RING	14326	14327	14328	14329	14330
25	SUPPORT RING BLACK	14120-1	14121-1	14122-1	14123-1	14124-1
25	SUPPORT RING BLUE	14120-2	14121-2	14122-2	14123-2	14124-2
25	SUPPORT RING GREY	14120-3	14121-3	14122-3	14123-3	14124-3
26	INLAY NUT	14105	14105	14106	14106	14106
27	PISTON YOKE	14111	14113	14115	14117	14119
28	SLIDE SHOE, WHITE	14125-1	14126-1	14127-1	14128-1	14129-1
28	SLIDE SHOE, RED	14125-2	14126-2	14127-2	14128-2	14129-2
28	SLIDE SHOE, GREEN	14125-3	14126-3	14127-3	14128-3	14129-3
28	SLIDE SHOE, BLUE	14125-4	14126-4	14127-4	14128-4	14129-4
29	KEEPER PLATE FOR MAGNET	10057	10287	10117	10226	10387
30	MAGNET	10056	10286	10116	10225	10386
31	WIPER (SIDE)	10025	10083	10083	10224	10394
35	END CAP STANDARD COMPLETE	20534	20542	20550	20558	20566
35	END CAP, END AIR PORT, COMPLETE	20536	20544	20552	20560	20568
35	END CAP, AIR ONE END LEFT, COMPLETE	20538	20546	20554	20562	20570
35	END CAP, AIR ONE END RIGHT COMPLETE	20540	20548	20556	20564	20572
36	SCREW FOR END CAP	10033	10282	858	1202	10377
36	SCREW FOR END CAP STAINLESS	10046	10283	859	1215	10378
41	AL-KEEPER FOR MAGNET	11922	11923	11924	11925	11926
	PLUG FOR VALVE NEEDLE HOLE	—	—	—	—	3434

14.4 Lubrication

	IDENT-NO. *
TUBE GREASE, 25 G	14338

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 14111FIL**

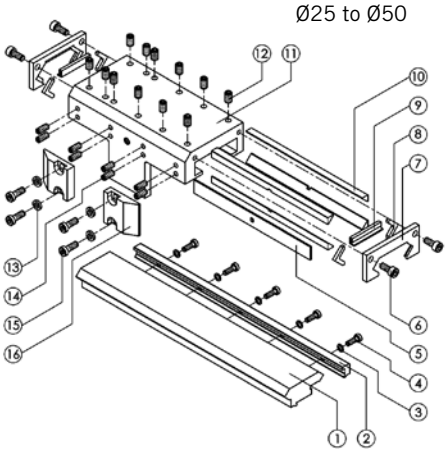
15 Assembly Instructions

15.1 Slideline

(SL25 / SL32 / SL40 / SL50 / SL63)

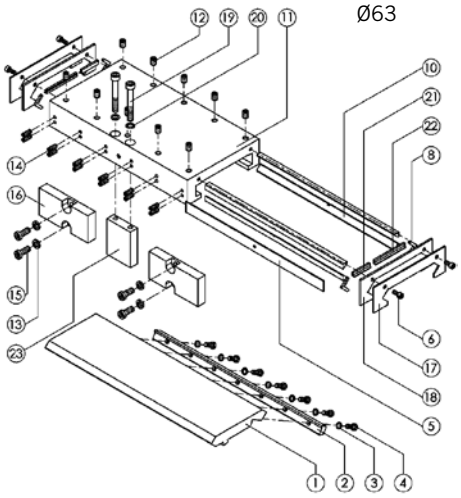
For fitting and removal of the guide system the complete cylinder unit should be removed from the machine or plant.

Ø25 to Ø50



SL25 – SL32 – SL40 – SL50

Ø63



SL63

Dismantling of the Guide Carriage

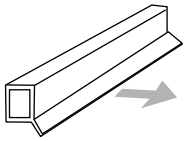
- Depressurise the cylinder and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (11).
- Unscrew one drive block (16) from piston of OSP, so that the guide carriage can be moved.
- For the OSP-L40, OSP-L50 and OSP-L63 only: unscrew one end cap from the cylinder.
- Loosen screws (6) on wiper cover (17).
- Slide the complete guide carriage off the guide rail.
- Unscrew wiper cover (7) (or 17+18 for SL63) 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	SL 50	SL 63	
4	3 Nm	3 Nm	10 Nm	10 Nm	10 Nm	
6	5.5 Nm	5.5 Nm	5.5 Nm	5.5 Nm	5.5 Nm	
14	2.5-3 Nm	2.5-3 Nm	2.5-3 Nm	2.5-3 Nm	2.5-3 Nm	(only self-locking screws)
15	9 Nm	14.5 Nm	14.5 Nm	14.5 Nm	35 Nm	
19	---	---	---	---	20 Nm	

15.2 Starline

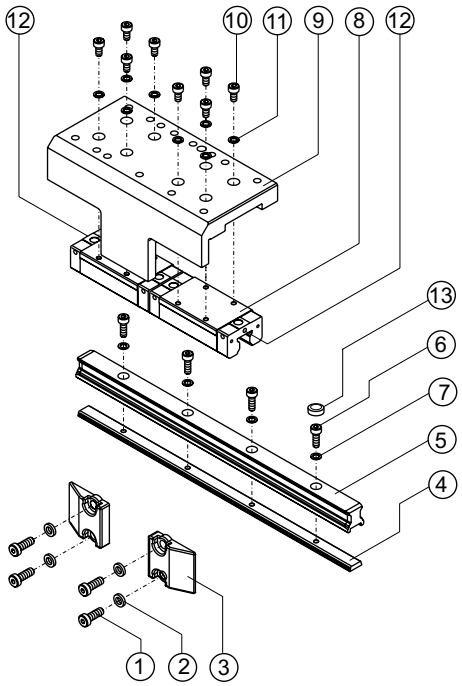
15.2.1 Dismantling the complete Guide Carriage

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 scew 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 OSP-L (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 OSP-L (page 17).

Mounting of the Guide Rail (5)

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

Note:

Different washers due to different screw penetration:

OSP-STL50 with washers (7), other cylinder sizes <u>without</u> washers.

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:**

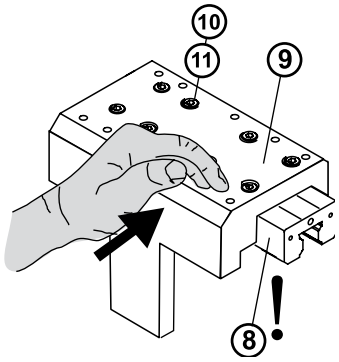
Item	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
6	4.5 Nm	4.5 Nm	9 Nm	14 Nm

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!

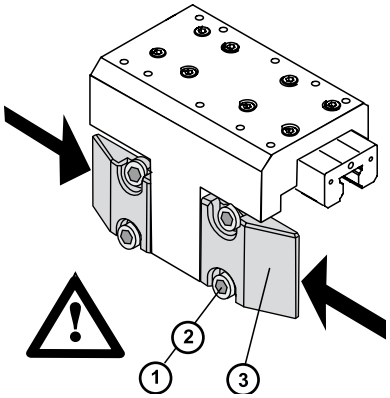
Item	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
10	3 Nm	3 Nm	5.5 Nm	10 Nm

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	OSP-STL50
1	9 Nm	14.5 Nm	14.5 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_2) must not be used.

Incase new carriages for sizes STL25, STL32 and STL50 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^3
-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
-STL50	initial lubrication	3 x 1
	re-lubrication	1 x 1

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.

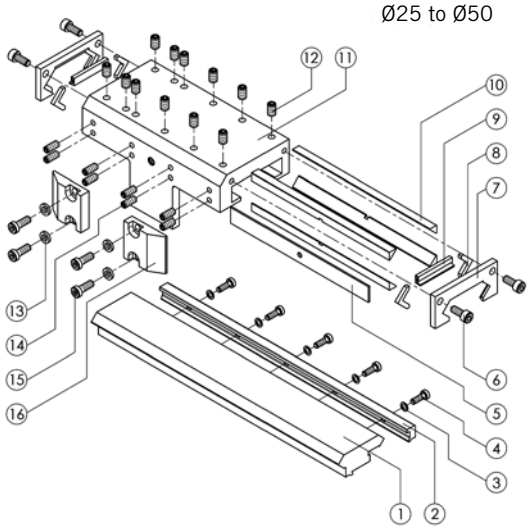
In the case of deviations from our standards or critical applications please refer to our engineering department.

16 Replacement Parts Guides

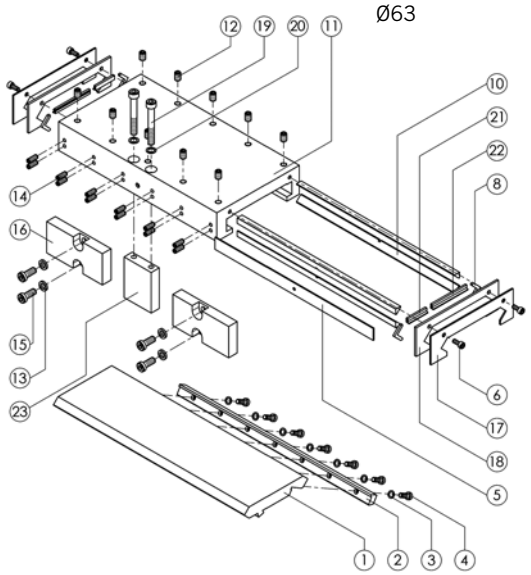
16.1 Slideline

(SL25 / SL32 / SL40 / SL50 / SL63)

Ø25 to Ø50



Ø63



16.1.1 Modules for OSP

		IDENT-NO. **				
ITEM	**DESCRIPTION**	**SL 25**	**SL 32**	**SL 40**	**SL 50**	**SL 63**
	SLIDELINE PLAIN BEARING GUIDE	20342	20196	20343	20195	20853
	SLIDELINE PLAIN BEARING GUIDE, STAINLESSI	20345	20346	20347	20348	20854

16.1.2 Replacement Parts

		IDENT-NO. *(**)				
ITEM	**DESCRIPTION**	**SL 25**	**SL 32**	**SL 40**	**SL 50**	**SL 63**
1	GUIDE RAIL **	10913	10914	10915	10916	10939
2	CLAMPING RAIL **	10918	10919	10920	10921	10940
3	WASHER	3954	3954	3789	3789	3789
3	WASHER, STAINLESS	4395	4395	3792	3792	3792
4	SCREW	10810	10810	10610	10610	10610
4	SCREW, STAINLESS	10811	10811	10683	10683	10683
5	SUPPORT STRIP	10571	10590	10570	10798	11547
6	SCREW	2742	2742	1062	2742	2742
6	SCREW, STAINLESS	3716	3716	1063	3716	3716
7	WIPER COVER	1661	1681	10487	10504	—
8	FELT	1619	1665	10665	10665	11543
9	WIPER	1663	1683	10471	10472	—
10	SLIDE PROFILE	10177	10591	10569	10797	11546
11	GUIDE CARRIAGE	11470	11471	11472	11473	11739
11	GUIDE CARRIAGE, STAINLESS	11478	11479	11480	11481	11739
12	SET SCREW	1116	1116	1116	1116	1117
12	SET SCREW, STAINLESS	1093	1093	1093	1093	1038
13	WASHER	11608	11609	11609	11609	11610
13	WASHER, STAINLESS	11611	11612	11612	11612	11613
14	SET SCREW	10281	10281	2262	11918	11550
14	SET SCREW STAINLESS	10682	10682	2255	11919	11550

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 1661FIL**

**** Please use this order pattern: IDENT-NO. + stroke length [mm, 5 digits], example (1 m stroke): 20342-01000**

		IDENT-NO. *				
ITEM	**DESCRIPTION**	**SL 25**	**SL 32**	**SL 40**	**SL 50**	**SL 63**
15	SCREW	11615	11616	11616	11616	11617
15	SCREW, STAINLESS	11615	11616	11616	11616	11617
16	DRIVE BLOCK	10643	10644	10644	10645	11541
17	WIPER COVER, OUTER	—	—	—	—	11545
18	WIPER COVER, INNER	—	—	—	—	11544
19	SCREW	—	—	—	—	1251
19	SCREW, STAINLESS	—	—	—	—	1229
20	WASHER	—	—	—	—	4374
20	WASHER, STAINLESS	—	—	—	—	4397
21	WIPER	—	—	—	—	1663
22	WIPER	—	—	—	—	10471
23	CARRIER	—	—	—	—	11542

16.1.3 Replacement Assemblies

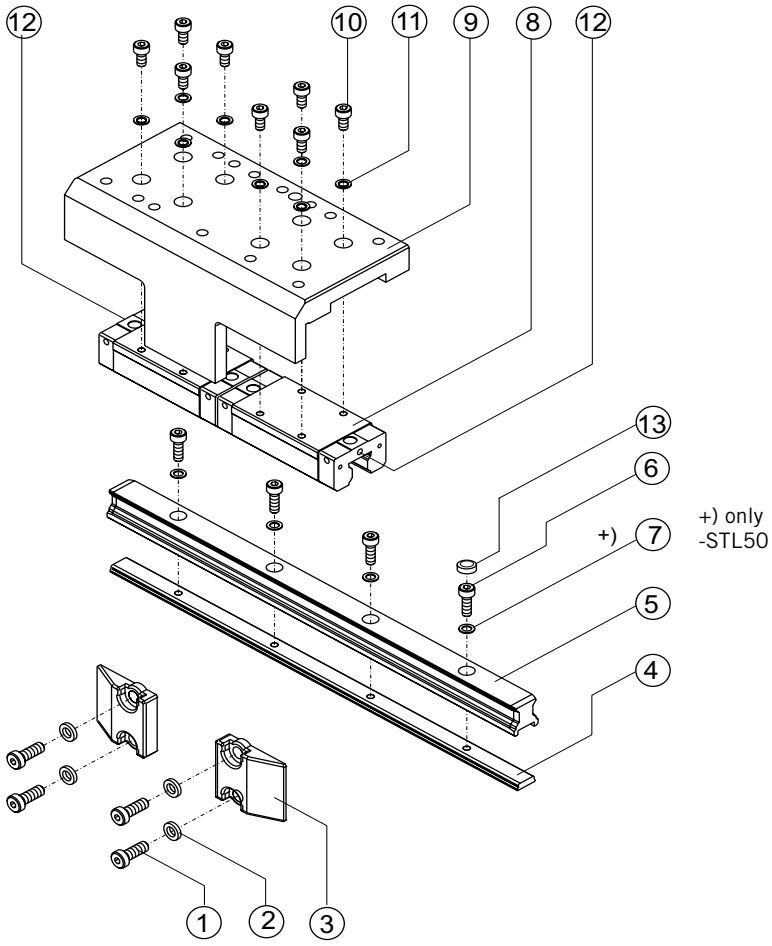
		IDENT-NO. *				
ITEM	**DESCRIPTION**	**SL 25**	**SL 32**	**SL 40**	**SL 50**	**SL 63**
5,6,7,8, 9,10	GUIDE CARRIAGE, COMPLETE	11401	11404	11407	11410	—
11,12,14	GUIDE CARRIAGE, COMPLETE, STAINLESS	11402	11405	11408	11411	—
5,6,8,10, 11,12	GUIDE CARRIAGE, COMPLETE	—	—	—	—	11888
14,17,18, 21,22	GUIDE CARRIAGE, COMPLETE, STAINLESS	—	—	—	—	11889
8,9,10	SERVICE KIT	11067	11068	11069	11070	—
8,10, 21,22	(INC. GUIDE GREASE, 8ML TUBE)	—	—	—	—	11094

16.1.4 Lubrication

		IDENT-NO. *
	GUIDE GREASE, 8 ML TUBE	10550
	GUIDE GREASE 0.5 KG	11606

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 11401FIL**

16.2 Starline



16.2.1 Modules for OSP

		IDENT-NO. **			
ITEM	**DESCRIPTION**	**OSP-STL25**	**OSP-STL32**	**OSP-STL40**	**OSP-STL50**
	GIUDE OSP-STL	21112	21113	21114	21115

16.2.2 Replacement Parts

		IDENT-NO. *(**)			
ITEM	**DESCRIPTION**	**OSP-STL25**	**OSP-STL32**	**OSP-STL40**	**OSP-STL50**
1	SCREW	11615	11616	11616	11616
2	WASHER	11608	11609	11609	11609
3	DRIVE BLOCK	10643	10644	10644	10645
4	CLAMPING PROFILE **	13517	13518	13519	13520
5	GUIDE RAIL **				
6	SCREW FOR GUIDE RAIL				
7	WASHER FOR GUIDE RAIL		Please contact our product support specialists ! ***		
8	CARRIER				
9	GUIDE CARRIAGE				
10	SCREW FOR CARRIAGE				
11	WASHER FOR CARRIAGE	3954	3954	4373	3789
12	GREASE NIPPLE	-	-	-	-
13	SCREW PLUG FOR GUIDE RAIL		Please contact our product support specialists ! ***		

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 10643FIL**

**** Please use this order pattern: IDENT-NO. + stroke length [mm, 5 digits], example (1 m stroke): 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

- For OSP-L40 and OSP-L50:
  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!)

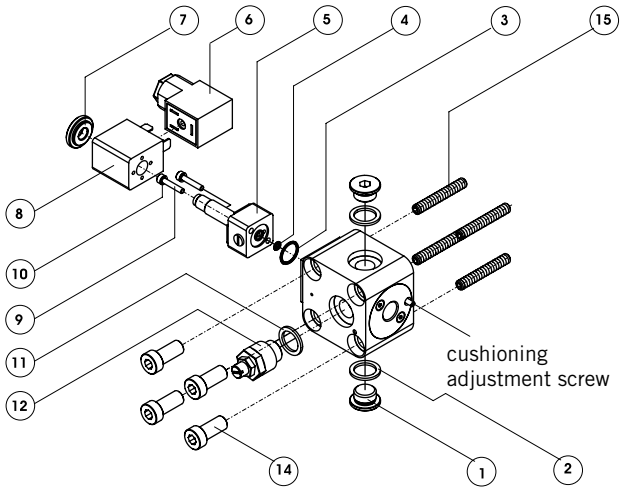
Suspected defective valve:

- 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.

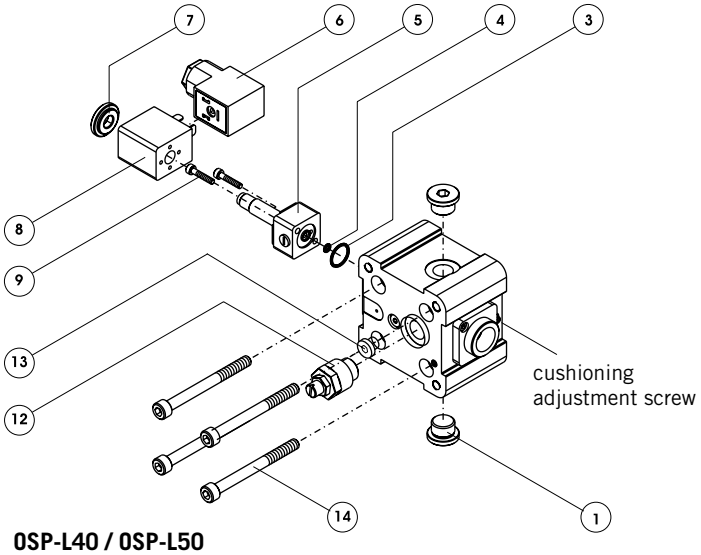
Torques for Screws

Item	OSP-L25	OSP-L32	OSP-L40	OSP-L50
9	1.2 Nm	1.2 Nm	1.2 Nm	1.2 Nm
14	8 Nm	10 Nm	10 Nm	10 Nm

17.2 Replacement Parts Valves VOE



OSP-L25 / OSP-L32



OSP-L40 / OSP-L50

17.2.1 Modules for OSP

		IDENT-NO. *			
ITEM	**DESCRIPTION**	**OSP-L25**	**OSP-L32**	**OSP-L40**	**OSP-L50**
	INTEGRATED 3/2 WAY VALVE VOE 24V, COMPLETE	20914	20916	20918	20920
	IINTEGRATED 3/2 WAY VALVE VOE 230V, COMPLETE	20915	20917	20919	20921

17.2.2 Replacement Parts

		IDENT-NO.			
ITEM	**DESCRIPTION**	**OSP-L25**	**OSP-L32**	**OSP-L40**	**OSP-L50**
1	SCREW PLUG	KW0426	99*	KW0427	KW0427
2	SEAL RING	—	KW0355	—	—
3	O-RING	631*	631*	631*	631*
4	O-RING	628*	628*	628*	628*
5	PILOT VALVE	11890*	11890*	11890*	11890*
6	PLUG 10-50 V	11894*	11894*	11894*	11894*
6	PLUG 70-250 V	11895*	11895*	11895*	11895*
7	KNURLED NUT	651*	651*	651*	651*
	SPRING WASHER	652*	652*	652*	652*
8	SOLENOID COIL FOR 24 V= AND 60 V =~/50-60 HZ	KZ3673	KZ3673	KZ3673	KZ3673
8	SOLENOID COIL FOR 110 V= AND 230 V =~/50-60 HZ	KZ3672	KZ3672	KZ3672	KZ3672
9	SCREW FOR PILOT VALVE	10107*	10107*	10107*	10107*
10	LOCK WASHER SCHNORR	—	3953*	—	—
11	SEAL RING	—	KW0355	—	—
12	SCREW-IN THROTTLE	KY6952	KY6953	KY6953	KY6953
13	SCREW PLUG	—	—	KW0425	KW0425
14	END CAP SCREW	1621*	1006*	1521*	1521*

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 20914FIL**

17.2.3 Replacement Assemblies

		IDENT-NO. *			
ITEM	**DESCRIPTION**	**OSP-L25**	**OSP-L32**	**OSP-L40**	**OSP-L50**
6,7,8 14,15	COMPLETE INTEGRATED 3/2 WAY VALVE VOE BUT WITHOUT: PLUG , KNURLED NUT, SOLENOID AND END CAP SCREWS	11840	11866	11855	11857

17.2.4 Lubrication

		IDENT-NO. *			
ITEM	**DESCRIPTION**	**OSP-L25**	**OSP-L32**	**OSP-L40**	**OSP-L50**
	GREASE, 8 ML TUBE	1598	1598	1598	1598

*** Please use this order pattern: IDENT-NO. + „FIL“, example: 11840FIL**

Notes

Notes

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