

Guides, Brakes and Valves

Operating Instructions

ORIGA SYSTEM PLUS

Appendix to the Operating Instructions OSP-P / OSP-E

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filtration
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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-P with its guides and brakes
- correct applications of these operating instructions.

Commissioning of the OSP-P 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.

1 Foreword to the Operating Instructions

This Appendix to the Operating Instructions is to be used only in conjunction with the Operating Instructions „OSP-P Pneumatic Linear Drive“ and „OSP-E Belt-Driven Linear Actor“

Please observe the Safety Notes carefully.

For the repair of the basic cylinder unit please see also the Operating Instructions „OSP-P Pneumatic Linear Drive or „OSP-E Belt-Driven Linear Actor“

The service life of the OSP cylinder and of its guides and brakes has been optimized by advanced material pairing and design which has been thought through to the smallest detail. However, excessive loads and difficult environmental conditions can reduce service life, therefore occasional careful maintenance work is recommended.

For technical data, permissible loads and calculation of service life of guides and brakes please see the Catalogue:

“ORIGA SYSTEM PLUS - Modular Pneumatic Linear Drive Systems“ or









“ORIGA SYSTEM PLUS - Modular Electric Linear Drive Systems“

All personnel who have anything to do with the OSP fitted with guides, brakes or valves must read and understand this Appendix to the Operating Instructions!

Keep for future use in conjunction with the Operating Instructions of the Linear Drive!

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

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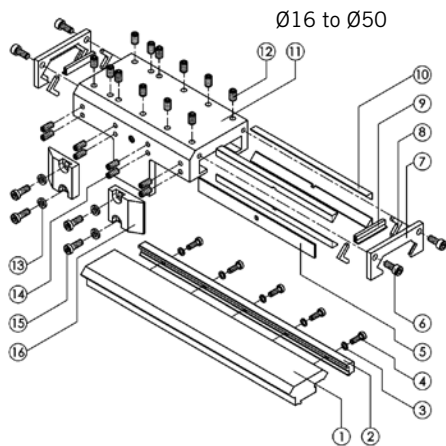
They must not be copied in full or in part, distributed or used in an unauthorized manner for competitive purposes or passed on to others. Contravention may lead to legal action.

2 Assembly Instructions

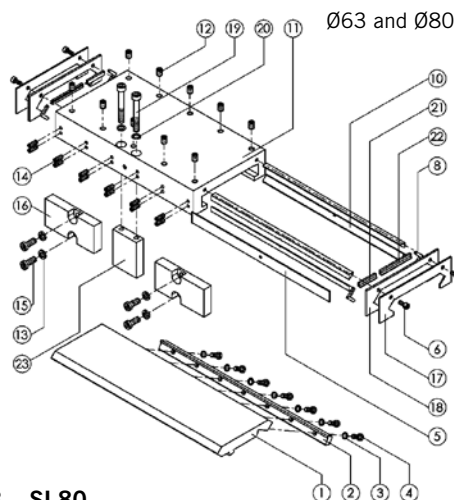
2.1 Slideline

(SL16 / SL25 / SL32 / SL40 / SL50 / SL63 / SL80)

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



SL16 – SL25 – SL32 – SL40 – SL50.....



SL63 – SL80

Dismantling of the Guide Carriage

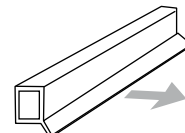
- Depressurise the cylinder and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (11).
- Unscrew one drive block (16) from piston of OSP, so that the guide carriage can be moved.
- For the OSP-P40, OSP-P50, OSP-E50, OSP-P63 and OSP-P80: only: unscrew 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 and SL80) 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. 10550).
- 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. 10550) 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 16	SL 25	SL 32	SL 40	SL 50	SL 63	SL 80	
4	3 Nm	3 Nm	3 Nm	10 Nm	10 Nm	10 Nm	10 Nm	
6	3 Nm	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm	
14	1,2 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	(only self-locking screws)
15	4,5 Nm	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm	35 Nm	40 Nm	
19	---	---	---	---	---	20 Nm	20 Nm	

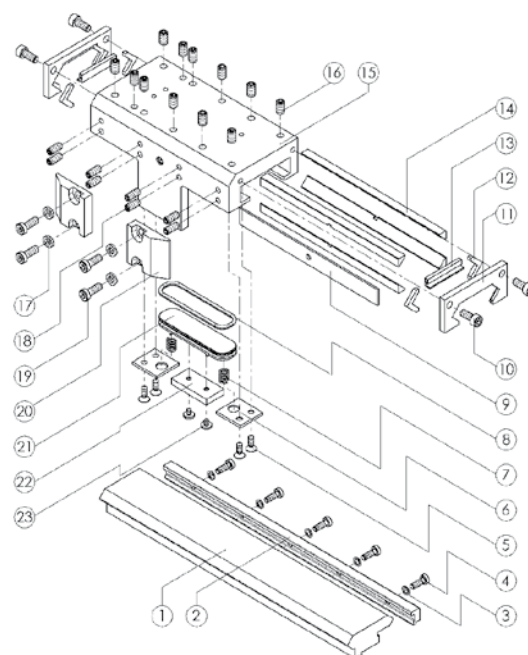
2.2 Slideline with Brake

(SL25 / SL32 / SL40 / SL50)

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 brake lines and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (15).
- Unscrew drive block (20) from piston of OSP-P, so that the guide carriage can be moved.
- For the OSP-P40 and OSP-P50 only: unscrew one end cap of the cylinder.
- Loosen the screws (10) on the wiper cover (11).
- Slide the complete guide carriage off the guide rail.
- Unscrew the wiper cover (11) from both ends of the guide carriage (15).
- Inspect the parts – replace damaged or worn parts such as: wiper (13), slide profile (14) and felt (12) (service kit).



Dismantling of the Brake

- Remove screws (5) and remove the plates (6) and springs (7) from the guide carriage.
- To remove the brake piston (21), apply compressed air to its air connection and blow it out (do not use sharp tools on the piston!).



Danger:

hold the brake piston while blowing it out!

- Remove screws (23) and remove the brake lining (22) from the brake piston (21) and the O-ring (8).
- Inspect the parts – replace damaged or worn parts such as: O-ring (8) and brake lining (22).

Dismantling and Reassembly of the Guide Rail

- 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.
- Secure the guide rail (1) and clamping rail (2) with the screws (4) and their washers (3) (use the specified torque).

Reassembly of the Brake

- Clean all the parts, the inside of the brake piston chamber and the brake air connection.
- Fit the brake lining (22) to the brake piston (21). Apply a locking medium (Loctite low-strength is recommended) to the screws (23) and tighten them.
- Grease the walls of the brake piston chamber and the groove in the brake piston lightly with guide grease (Order No. 10550).



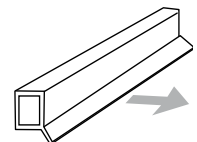
Note:

The brake lining must be grease-free.

- Locate the O-ring (8) in the brake piston (21) and grease the O-ring lightly.
- Fit the brake piston (21) into the guide carriage (15).
- Fit the springs (7) and plates (6). Apply a locking medium to the screws (5) and tighten them.

Reassembly of the Guide Carriage

- Clean all the parts.
- Grease the felts (12) with guide grease (Order No. 10550).
- Lay the wipers (13) and felts (12) in the wiper covers. The sealing lip of the wiper must be outwards (see drawing).
- Back off the adjusting screws (18) in the guide carriage.
- Lay in the support strip (9) on the same side as the adjusting screws.
- Place 2 slide profiles (14) 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 (11) loosely with the screws (10).



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

- Tighten the self-locking adjusting screws (18), individually from the middle working outwards, with the specified torque. If non-self-locking screws are used (18), use a screw locking system (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 (15) gently with a rubber hammer until the slide profiles (14) have settled into position and then tighten all the adjusting screws (18) again (see above).
- Loosen all the adjusting screws (18) 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 (10) in the wiper cover (11) with the prescribed torque.

Lubrication

- All unused threaded holes in the guide carriage (15) must be plugged with set screws (16) to prevent escape of lubricant. The grease nipples on both sides of the guide carriage (15) should be filled with guide grease (Order No. 10550) until a thin film of grease can be seen on the guide rail when the guide carriage is moved by hand.

Final Assembly

- Position the guide carriage centrally over the cylinder piston and secure the drive blocks (20) with the washers (17) and screws (19).

Note:



**The drive blocks (20) must be fitted against the guide carriage with no play (15)
!!! See the table for the correct torque !!!**

- Refit the end cap of the OSP-P, if applicable.

Torques for Screws

Pos.	SL 25	SL 32	SL 40	SL 50
4	3 Nm	3 Nm	10 Nm	10 Nm
5	3 Nm	3 Nm	3 Nm	3 Nm
10	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm
18	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm
	(only self-locking screws)			
19	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm
23	0,8 - 1 Nm	0,8 - 1 Nm	0,8 - 1 Nm	0,8 - 1 Nm

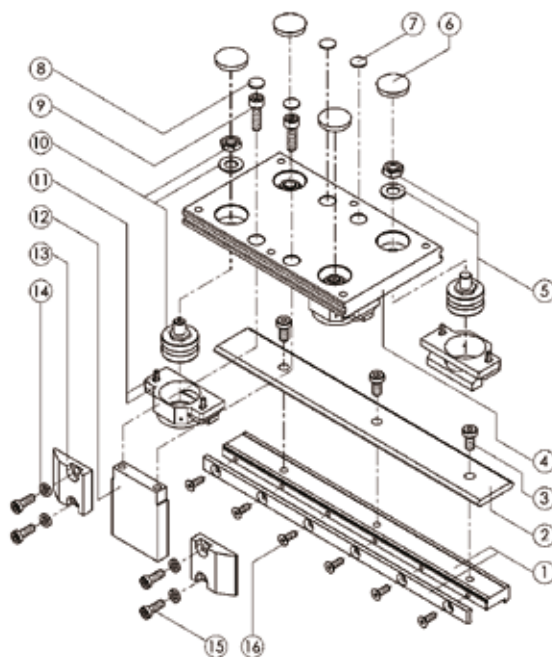
2.3 Powerslide

PS16/25 – PS25/25 – PS25/35 – PS25/44 - PS32/35 – PS32/44 – PS40/44 – PS40/60 – PS50/60 – PS50/76

All the parts of the guide system mounted on the Powerslide are factory-adjusted and checked. Further adjustment is not necessary. If adjustment is required after some operating time, please follow these instructions.

Adjustment of the Guide System

- Depressurise the cylinder air lines and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (4).
- Remove the drive block (13) from the piston of the OSP so that the guide carriage can be moved.
- For the OSP-P50 and OSP-E50 only : unscrew one end cap of the cylinder.
- Slide the complete guide carriage off the guide rail (2).
- Unscrew the cover (11) and slide the guide carriage back onto the guide rail.
- Remove the caps (6).
- Loosen the locknuts of the two eccentric rollers (10) with a box spanner. The eccentric roller (10), unlike the centric roller (5), has a hexagon socket in its axle.
- Turn the two eccentric rollers with an Allen key or spanner until there is no play. Only minimal force should be used. Tighten the nuts, taking care not to turn the eccentric rollers any further.



- Check the play on the guide: when the guide carriage is moved it should still be possible to hold the roller still with the fingers.
- Check the play at several points on the guide over the whole stroke as described above.
- Slide the complete guide carriage off the guide rail.
- Lubricate the cover (11)
- Fit the cover (11) with its screws and washers (do not tighten them yet).
- Slide the guide carriage back onto the guide rail, ensuring that the carrier is on the same side as the cylinder piston.
- Adjust the covers (11) so that there is light contact with the guide rail. This ensures reliable lubrication of the system in operation.



Note:

Too heavy a contact increases friction.

- Position the guide carriage centrally over the piston of the cylinder and fit the drive blocks (13) with the washers (14) and screws (15).
- Fit the caps (6).



Note:

See the table for the correct torques !!!

- The drive blocks (13) must be fitted against the carrier (12) with no play !!!
- Lubricate the cover (11) with a grease gun.



Note:

Too heavy pressure of the rollers on the guide rail should be avoided at all times, as this shortens the service life of the guide.

- Refit the end cap of the OSP, if applicable.

Torques for Screws

Item	PS 16/25	PS 25/25	PS 25/35	PS 25/44	PS 32/35	PS 32/44	PS 40/44	PS 40/60	PS 50/60	PS 50/76
3	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	20 Nm	20 Nm	20 Nm
5	13 Nm	13 Nm	13 Nm	25 Nm	13 Nm	25 Nm	25 Nm	25 Nm	25 Nm	70 Nm
9	3 Nm	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	20 Nm	20 Nm
15	4,5 Nm	9 Nm	9 Nm	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm	14,5 Nm	14,5 Nm	14,5 Nm
16	2,6 Nm	2,6 Nm	3 Nm	3 Nm	3 Nm	3 Nm	5,5 Nm	10 Nm	10 Nm	10 Nm

2.4 Guideline

(GDL25 / GDL32 / GDL40 / GDL50)

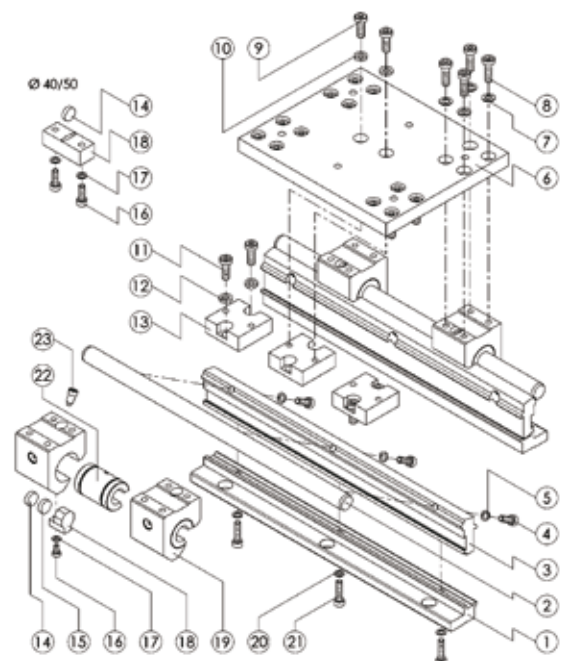
Fitting the Guide

Clean the bearing surfaces for the guide. The accuracy of the guide depends on the accuracy of the bearing surfaces, which should therefore be as flat, parallel and undamaged as possible.

- Place the guide unit on the substructure and secure it lightly with screws to DIN912-8.8.
- If applicable, fit the clamping rail (1) and line it up correctly.
- Tighten the screws with the following torques:

GDL 25 /GDL 32: M5 - 5,5 Nm

GDL 40 /GDL 50: M6 - 10 Nm



Maintenance

If the ball bushings are damaged by overloads or worn out, we recommend replacement of both the ball bushings (22) and the guide shafts (2) at the same time.

Use only genuine Parker Origa replacement parts to ensure that the load values specified in the catalogue can be achieved again.

Dismantling of the Guide Carriage

- Depressurise the cylinder air lines and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage plate (6).
- Loosen and remove the screws (9) with their washers (10).
- For the GDL50 only: Remove one end cap of the OSP.
- Slide the complete guide carriage off the guide shafts.
- Loosen and remove the screws (8) with their washers (7) to separate the guide carriage plate (6) from the ball bushing housings (19).
- Unscrew the set screw (23) from the ball bushing housing (19) and remove the ball bushing (22).

Dismantling of the Guide Rail

- Unscrew the guide rail from the bearing surface.
- Remove the screws (21) and washers (20) and take the clamping rail (1) and mounting rail (3) off the OSP cylinder.
- Unscrew the screws (4) with their washers (5) and remove the guide shaft (2) from the mounting rail (3).

Reassembly of the Guide Rail

- Inspect the guide shafts (2) and replace them if necessary.
- Clean all the parts.
- Secure the guide shaft (2) on the mounting rail (3) with the screws (4) and washers (5). Use only chamfered guide shafts.
- Fit the mounting rail (3) and clamping rail (1) onto the OSP cylinder with the screws (21) and washers (20), centring the rails on the cylinder profile.

Reassembly of the Guide Carriage

- Inspect the ball bushings and replace damaged or worn ones.
- Clean all the parts.
- Install the ball bushing (22) in the ball bushing housing (19) and secure it with the set screw (23), applying a locking medium to the screw (Loctite low-strength is recommended).
- Slide the individual ball bushing housings (19) onto the guide shaft.

Take care not to tilt them!!



Note:

Never slide the completely assembled guide carriage onto the rail, as this could damage the ball bushings!!!

- Position the guide carriage plate (6) on the ball bushing housings (19) and secure it with the screws (8) and washers (7) using the specified torque.
- Centre the guide carriage over the piston of the cylinder and secure the middle drive block (13) with the washers (10) and screws (9).



Note:

See the correct torque in the table !!!

The three drive blocks (13) must be mounted together with no play !!!

- Refit the end cap of the OSP cylinder, if applicable.

Position of the Sensor

- The magnet housing (18) can be mounted on any one of the four ball bushing housings (19).
- The sensor must then be positioned accordingly.

Lubrication



Information

- Use only roller bearing grease for the ball bushings.
- Grease nipples are provided on the four ball bushing housings (19) for easy lubrication.
- Lubricate the ball bushings at regular intervals, depending on your application, so that there is always enough grease in the ball bushings.

Torques for Screws

Item	GDL 25	GDL 32	GDL 40	GDL 50
4	3 Nm	3 Nm	5,5 Nm	5,5 Nm
8	5,5 Nm	5,5 Nm	10 Nm	10 Nm
9	9 Nm	10 Nm	14,5 Nm	10 Nm
11	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm
16	1,2 Nm	1,2 Nm	3 Nm	3 Nm
21	3 Nm	3 Nm	10 Nm	10 Nm

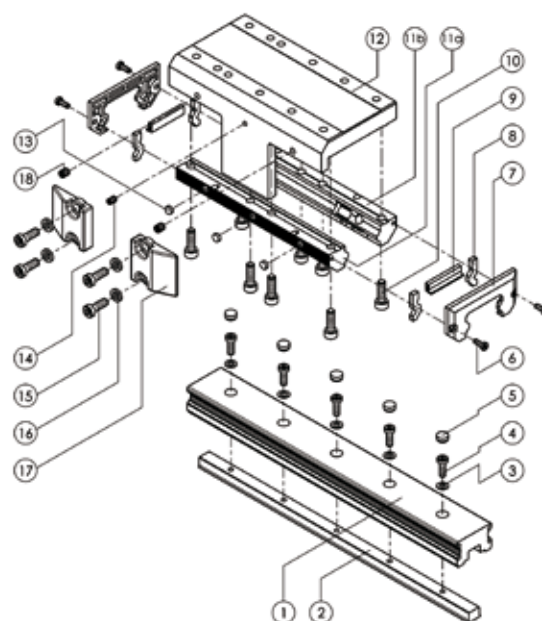
2.5 Proline

(PL16 / PL25 / PL32 / PL40 / PL50)

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 lines and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (12).
- Unscrew drive block (17) from the piston of the OSP, so that the guide carriage can be moved.
- Loosen the screws (6) in the wiper cover (7).
- For the PL40 / PL50 only: remove one end cap from the OSP cylinder.
- Slide the complete guide carriage off the double rail (1).
- Remove the wiper covers (7) with the felts (8) and wipers (9) from both ends of the guide carriage (12).
- Loosen and remove the screws (10) and separate the pair of roller shoes (11) from the guide carriage (12).

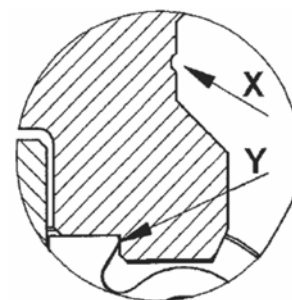


Dismantling of the Double Rail

- Remove the cap plugs (5).
- Remove the screws (4) and washers (3) and take the double rail (1) off the OSP cylinder.
- If necessary: remove the end caps of the OSP cylinder and push the clamping profile out of the slot in the cylinder profile.

Reassembly of the Double Rail

- Inspect the double rail (1) and replace it if necessary.
- Clean all the parts.
- If necessary: remove the end caps of the OSP cylinder and push the clamping profile into the slot in the cylinder profile.
- Fit the double rail (1) and clamping profile (2) to the OSP cylinder with the screws (4) and washers (3) (note the maximum torque), centring the rails on the cylinder profile. The groove (X) on the side of the double rail (1) must be on the piston side. The bearing surface (Y) of the double rail (1), which is on the same side as the groove (X), must be positioned against the dovetail profile of the OSP cylinder profile.
- Insert new cap plugs (5) flush with or slightly below the surface of the double rail (1).



Reassembly of the Guide Carriage

- Inspect the components: the pair of roller shoes (11), wiper (9) and felt (8) and replace any damaged or worn
- Clean all the parts.
- For adjustment of the roller shoes there is a fixed side and an adjustment side. The roller shoe on the fixed side (11b) is secured firmly to the underside of the guide carriage (12) with the screws (10).
- Place the three washer (13) in the roller shoe (11a) on the adjustment side and fit it against the guide carriage (12) with the screws (10). Tighten the screws (10) until the roller shoe lies fully on the guide carriage but can still be moved.
- Slide the complete guide carriage carefully onto the guide rail with the side with the adjusting screw (14) towards the piston of the OSP.
- Adjust the roller shoes (11) with the set screw (14). The roller shoes must be adjusted in the unloaded condition and there should be no play at the loosest point on the double rail (1). At the tightest point on the double rail the resistance to movement must not exceed the maximum value. The correct and maximum resistance to movement are as follows:

Size	PL 16	PL 25	PL 32	PL 40	PL 50
Correct ≤	0,5 N	1 N	1,5 N	2 N	3 N
Maximum ≤	3 N	6 N	9 N	10 N	12 N

- First tighten the screws (10) with the specified torque and afterwards tighten the both set screws(18) with the specified torque.
- Fit the wiper covers (7), felts (8) and wipers (9) with the screws (6).
- Position the guide carriage (12) centrally over the piston of the cylinder and secure the drive blocks (17) with the washers (16) and screws (15).



Note:

The drive blocks (17) must be fitted against the guide carriage (12) with no play !!! See the correct torque in the table !!!

- Refit the end caps of the OSP, if applicable.

Lubrication

The Proline roller guide is lifetime-lubricated.

Torques for Screws

Item	PL 16	PL 25	PL 32	PL 40	PL 50
(OSP-P) 4	3 Nm	3 Nm	10 Nm	10 Nm	10 Nm
(OSP-E) 4	---	1 Nm	7 Nm	---	10 Nm
6	1,2 Nm	1,2 Nm	1,2 Nm	1,2 Nm	1,2 Nm
10	3 Nm	5,5 Nm	10 Nm	10 Nm	20 Nm
15	4,5 Nm	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm
18	0,5 Nm	0,5 Nm	0,5 Nm	0,5 Nm	0,5 Nm

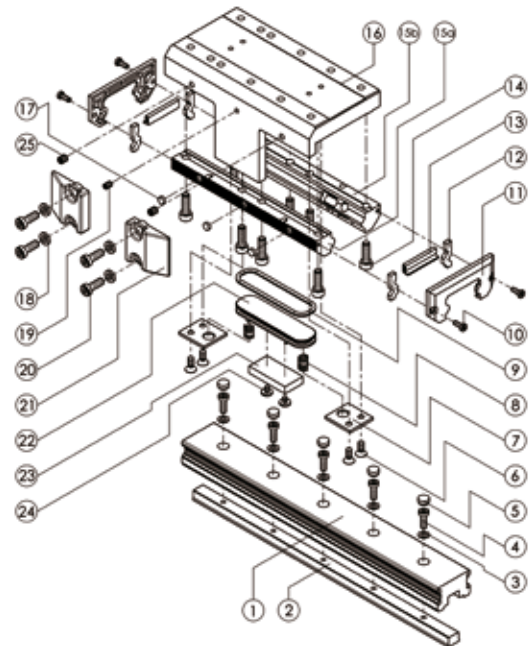
2.6 Proline with Brake

(PL25 / PL32 / PL40 / PL50)

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 lines and switch off all electrical power supply.
- Remove all parts mounted externally on the guide carriage (16).
- Unscrew drive block (20) from piston of OSP-P so that the guide carriage can be moved.
- Loosen screws (10) in wiper cover (11).
- For PL40 / PL50 only: remove one end cap of the OSP.
- Slide the complete guide carriage off the double rail (1).
- Remove the wiper covers (11) with felts (12) and wipers (13) from both ends of the guide carriage (16).
- Loosen and remove the screws (14) and separate the pair of roller shoes (15) from the guide carriage (16).



Dismantling of the Brake

- Remove the screws (6) and remove the plates (7) and springs (8) from the guide carriage.
- To remove the brake piston (22), apply compressed air to its air connection and blow it out (do not use sharp tools on the piston!).



Danger:

hold the brake piston while blowing it out!

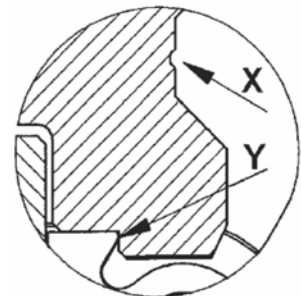
- Remove the screws (24) and remove the brake lining (23) and O-ring (9) from the brake piston (22).
- Inspect the parts – replace any damaged or worn parts, e.g. the O-ring (9) and the brake lining (23).

Dismantling of the Double Rail

- Remove the cap plugs (5).
- Remove the screws (4) and washers (3) and take the double rail (1) off the OSP cylinder.
- If necessary: remove the end caps of the OSP cylinder and take the clamping profile out of the slot in the cylinder profile.

Reassembly of the Double Rail

- Inspect the double rail (1) and replace it if necessary.
- Clean all the parts.
- If necessary: remove the end caps of the OSP cylinder and push the clamping profile into the slot in the cylinder profile.
- Fit the double rail (1) and clamping profile (2) to the OSP cylinder with the screws (4) and washers (3) (note the maximum torque), centring the rails on the cylinder profile.
The groove (X) on the side of the double rail (1) must be on the piston side. The bearing surface (Y) of the double rail (1), which is on the same side as the groove (X), must be positioned against the dovetail profile of the OSP cylinder profile.
- Insert new cap plugs (5) flush with or slightly below the surface of the double rail (1).



Reassembly of the Brake

- Clean all the parts, the inside of the brake piston chamber and the brake air connection.

Note:



The brake lining must be grease-free.

- Locate the O-ring (9) in the brake piston (22) and grease the O-ring lightly.
- Fit the brake piston (22) into the guide carriage (16).
- Fit the springs (8) and plates (7). Apply a locking medium to the screws (6) and tighten them.

Reassembly of the Guide Carriage

- Inspect the components: the pair of roller shoes (15), wiper (13) and felt (12) and replace any damaged or worn parts.
- Clean all the parts.
- For adjustment of the roller shoes there is a fixed side and an adjustment side. The roller shoe on the fixed side (15b) is secured firmly to the underside of the guide carriage (16) with the screws (14).
- Place the three washers (17) in the roller shoe (15a) on the adjustment side and fit it against the guide carriage (16) with the screws (14). Tighten the screws (14) until the roller shoe lies fully on the guide carriage but can still be moved.
- Slide the complete guide carriage carefully onto the guide rail with the side with the adjusting screw (19) towards the piston of the OSP.
- the roller shoes (15) with the set screw (19). The roller shoes must be adjusted in the unloaded condition and there should be no play at the loosest point on the double rail (1). At the tightest point on the double rail the resistance to movement must not exceed the maximum value.

The correct and maximum resistance to movement are as follows:

Size	PL 25	PL 32	PL 40	PL 50
Correct ≤	1 N	1,5 N	2 N	3 N
Maximum ≤	6 N	9 N	10 N	12 N

- First tighten the screws (14) with the specified torque and afterwards tighten the both set screws(25) with the specified torque.
- Fit the wiper covers (11), felts (12) and wipers (13) with the screws (10).
- Position the guide carriage (16) centrally over the piston of the cylinder and secure the drive blocks (21) with the washers (18) and screws (20).



Note:

The drive blocks (21) must be fitted against the guide carriage (16) with no play !!! See the correct torque in the table !!!

- Refit the end caps of the OSP-P, if applicable.

Lubrication

The Proline roller guide is lifetime-lubricated.

Torques for Screws

Item	PL 25	PL 32	PL 40	PL 50
4	3 Nm	10 Nm	10 Nm	10 Nm
6	3 Nm	3 Nm	3 Nm	3 Nm
10	1,2 Nm	1,2 Nm	1,2 Nm	1,2 Nm
14	5,5 Nm	10 Nm	10 Nm	20 Nm
20	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm
24	0,8-1 Nm	0,8-1 Nm	0,8-1 Nm	0,8-1 Nm
25	0,5 Nm	0,5 Nm	0,5 Nm	0,5 Nm

2.7 Guide OSP-KF

2.7.1 Dismantling of the Guide

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

For the disassembly of the cylinder (of the drive itself) please refer to the operating instructions OSP-P.

- **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

- Unscrew one off drive block (3) from the piston OSP-P.

Risk of jamming!

Watch out for balls falling out (may occur due to wear).

- Carefully slide off the guide carriage from the guide rail (5), **avoid jamming!**
- **Clean the components** using customary cleansing agents. Use lint-free cloths only.
- Generally check all parts for wear:
 - guide carriage (9) for damages, thread.
 - carrier „STAR“ (8) balls (heavy operation, check for damage).
 - guide rail „STAR special rail“ (5) for grooves, chatter marks.
 - clamping profile (4) for damages, thread.
- Replace components if necessary.

Dismantling of the Carrier (8)

- To dismantle the carriers (8), loosen the screws (10).

Dismantling of the Guide Rail (5)

In the case of visible wear in the form of grooves and/or chatter marks the guide rail must be replaced. It is not possible regrind to repair the guide rail.

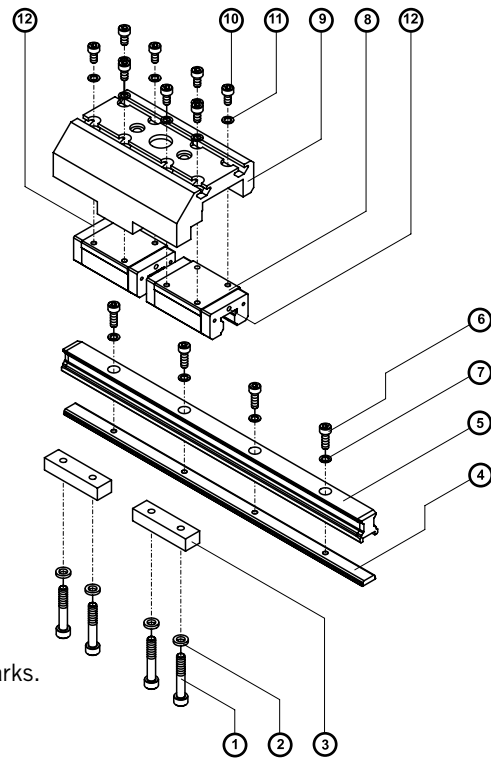
- To disassemble the guide rail (5) loosen screws (6). Remove guide rail from the cylinder barrel.

Dismantling the Clamping Profile (4)

The following steps are normally only necessary if the complete guide is to be dismantled for ever, or if a full cleaning is required.

To dismantle the clamping profile (4), one of the endcap (35, 36) of the OSP cylinder must be removed. Please follow the instructions in the operating instructions OSP-P.

- Loosen the sealing bands, unscrew the endcap screws (4) off and remove endcap.
- Slide the clamping profile off the dovetail groove of the cylinder barrel.



2.7.2 Reassembly of the Guide

Prior to reassembly, the components have to be checked for wear and the required spare parts have to be provided.

Fixing of the Clamping Profile (4)

Only necessary if the guide is completely dismantled or **retrofitted**.

To fit the clamping profile (4) remove one of the endcaps (35, 36).

- Slide clamping profile (4) into the lateral groove of the cylinder barrel.
- Fit endcaps (35, 36) of the OSP cylinder.
For proper procedure refer to operating instructions OSP-P.

Fitting of the Guide Rail (5)

Depending on the size of the cylinder washers (7) must be used when fixing the guide rail: **washers must be used for KSP-KF16 / -KF40 / -KF50!**

- Slightly fix the guide rail (5) including all screws (6) and washers (7) where required. align.
- Tighten all screws using a torque wrench in accordance with table.

Screw Item	OSP KF-16	OSP KF-25	OSP KF-32	OSPKF-40	OSP KF-50
6	1,2 Nm	3 Nm	3 Nm	5,5 Nm	10Nm

Mounting of Carrier (8)



Note:

Risk of damage due to jamming, ball loss and dirt.

The front side of the guide rail must have the required chamfer and must not show any damages, burr etc.

Do not use force. Use enclosed mounting aid for new components as mentioned in the STAR description.

- Grease front side of the guide rail with the anti-friction bearing grease prescribed for the guide.
- Align the carrier **with the grinded datum face pointing towards the piston yoke** of the OSP cylinder. (with OSP-KF 16 both sides are equal).
- Align both carriers using the mounting aid (if available) and carefully slide onto the rail without jamming it.



Important:

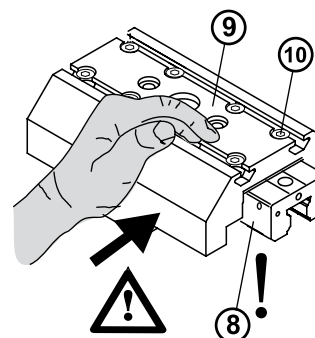
To avoid loosing the balls, the balls are secured with fine, but sensible wires. The balls won't fall out if handled properly.

Mounting the Guide Carriage (9)

Depending on the cylinder washers must be used:
for **OSP-KF16 / -KF32 / -KF40 / -KF50** use **washers (11)**.

The carrier at the guide carriage (9) must be positioned on the side of the piston yoke of the OSP cylinder.

- Loosely fix the guide carriage (9) with all screws (10) and washers (11) on the carriage.
- Press guide carriage (9) **against the grinded side of the carrier (8)**
- and tighten all screws (10) in accordance with the table using a torque wrench.



Note:

The datum faces of the carriers must fit close to the guide carriage!



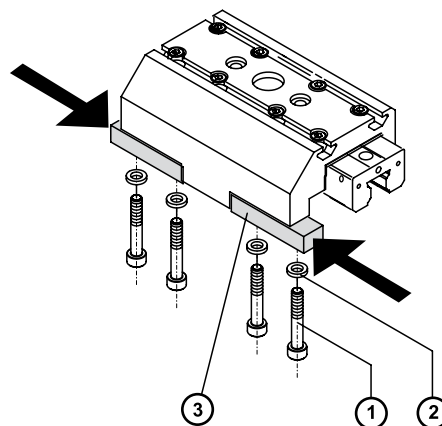
Screw Item	OSP KF-16	OSP KF-25	OSP KF-32	OSP KF-40	OSP KF-50
10	1,2 Nm	3 Nm	3 Nm	5,5 Nm	10 Nm



Important:

The driveblocks (3) must be fixed to the carrier of the guide carriage (9) without any backlash!

- Strongly press the driveblocks (3) to the piston yoke of the OSP cylinder together with the screws (1) and the washers (2) and screw down alternately.



Screw Item	OSP KF-16	OSP KF-25	OSP KF-32	OSP KF-40	OSP KF-50
1	3 Nm	5,5 Nm	10 Nm	10 Nm	10 Nm

See the correct torque in the table !!!



Information:

Assembly of OSP-KF into a machine or plant refers in principle to the OSP-cylinder.
For more informations please refer to the operating instructions OSP-P.

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.

We recommend to use a grease in accordance with DIN 51825 with the consistency class NLGI 2 in accordance with DIN 51818.

Lubricants with solids contents (such as Grafit or MoS₂) must not be used.



New carriers for KF16 and OSP-KF40 must be lubricated prior to commissioning since these components are only preserved.

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-KF

Type	Subset for	cm ³
-KF16	initial lubrication	3 x 0,4
	re-lubrication	1 x 0,4
-KF25	re-lubrication	1 x 0,7
-KF32	re-lubrication	1 x 0,7
-KF40	re-lubrication	1 x 0,7
-KF50	re-lubrication	1 x 1,4

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.

2.8 OSP-Starline

2.8.1 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-P.
- 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.

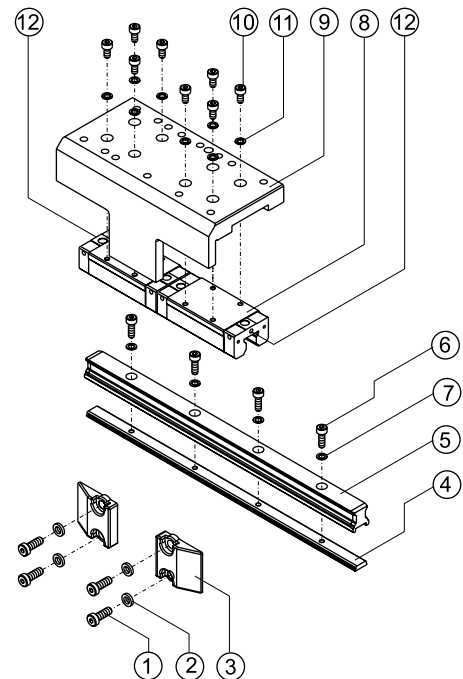
Dismantling the Guide Rail (5)

- Remove screws (6) 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-P cylinder.

- Refer to the operating instructions OSP-P (part 35).
- Slide the clamping profile (4) out of the groove of the cylinder barrel.



2.8.2 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-P cylinder.

- Refer to the operating instructions OSP-P (part 35).
- Slide clamping profile (4) into the groove of the cylinder barrel.
Mind position at the cylinder barrel!
- Fix cover (35) of the OSP cylinder. For procedure see operating instructions OSP-P.

Mounting of the Guide Rail (5)

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

Note:

Different washers due to different screw penetration:

OSP-SLT16, OSP-SLT40 and OSP-SLT50 with washers (7), other cylinder sizes without washers.

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

Item	OSP-STL16	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
6	1,2 Nm	3 Nm	3 Nm	5,5 Nm	10 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:

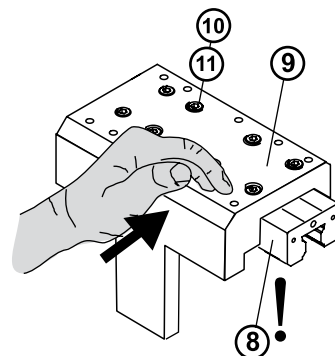
The grinded datum face of the carrier must face the piston yoke.
(see operating instructions OSP-P part 27)

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-STL16	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
10	1,2 Nm	3 Nm	3 Nm	5,5 Nm	10 Nm

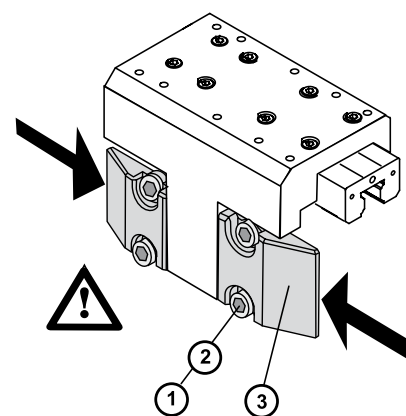
Mounting of the drive block (3)

- 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-STL16	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
1	4,5 Nm	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.

We recommend to use a grease in accordance with DIN 51825 with the consistency class NLGI 2 in accordance with DIN 51818.

Lubricants with solids contents (such as Grafit or MoS₂) must not be used.



New carriers for the size STL16 must be lubricated prior to commissioning since these components are only preserved.

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
-STL16	initial lubrication	3 x 0,4
	re-lubrication	1 x 0,4
-STL25	re-lubrication	1 x 0,7
-STL32	re-lubrication	1 x 0,7
-STL40	re-lubrication	1 x 0,7
-STL50	re-lubrication	1 x 1,4

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.

2.9 Heavy Duty

(HD 25 / HD 32 / HD 40 / HD 50)

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.

2.9.1 Installing the guide mechanism into a system

Clean the contact surfaces for the guide unit. The accuracy of the guide mechanism depends on the quality of the connecting surface. The contact surfaces should be as flat, parallel and without warping as possible.



Information:

The connecting surfaces of the guide unit may not be completely parallel to the level support structure when not fixed – that is permissible and has no effect on the guiding precision when fixed.

- Put the guide unit onto the support structure and fix with fixing screws through the holes or using T-shaped wedge nuts.
- When using **T-shaped wedge nuts**, the distance should not be more than 100 mm.



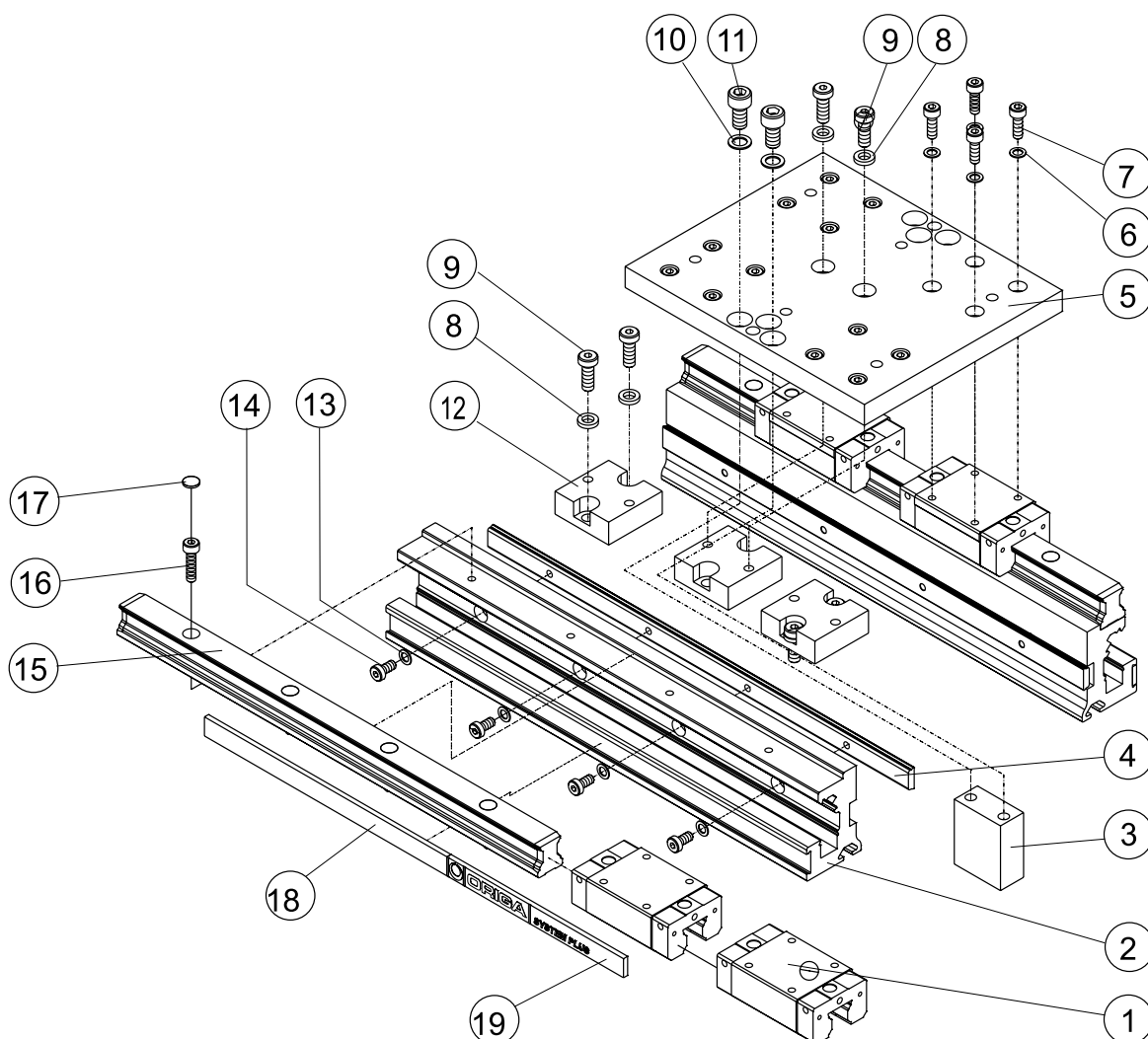
Note:

The fixing screws of the guide unit must be secured by providing self-locking (e.g. liquid screw retention, medium hard)

- Tighten screws in accordance with the torque table:

HD 25 / HD 32: M5: 5,5 Nm

HD 40 / HD 50: M6: 10 Nm



2.9.2 Maintenance

If the carriages (1) are damaged, we recommend to replace the carriages and the guide rails (15) at the same time.

Only use spare parts from Parker Origa to ensure that the permitted load values specified in the catalogue are maintained.

Step 1:

Dismantling the carriage plate (5)

- Release the pressure from the pressure lines to the cylinder and switch off the power.
- Dismantle all external parts mounted on the carriage plate (5).
- Undo and remove the screws (9) with the washers (8).
- Dismantle the magnet holder (3); to do that take out the screws (11) and washers (10).
- Undo and remove the screws (7) and washers (6) in order to separate the carriage plate (5) from the carriages (1).

Dismantling the guide rails (15) and carriages (1)

- To dismantle the guide rails (15) from the contact surfaces of the carrier rails (2) the fixing screws have to be removed.
- Take off the cover caps (17) and remove the fixing screws (16); take off the guide rails with the carriages (1).
- Slide the carriages (1) from the guide rails (5).

Dismantling the carrier rails (2)

- Take off fixing screws (14) and washers (13). Take the carrier rails (2) off the OSP.
- Remove the clamping profiles (4). To do that, dismantle an endcap of the OSP (see operating instructions OSP-P or OSP-E).

Step 2:

Mounting the carrier rails (2)

- Check the clamping profiles (4) and replace if necessary.
- Clean the carrier rails (2).
- Fit the clamping profiles (4). To do that, dismantle an endcap of the OSP (see operating instructions OSP-P or OSP-E).
- Fit the OSP endcap back into place (see operating instructions OSP-P or OSP-E).
- Place the carrier rails (2) onto the OSP.
- Slightly tighten the fixing screws (14) with washers (13).
- Align both carrier rails (2) on a level surface and then tighten the fixing screws with the required torque.

Mounting the guide rails (15) and carriages (1)

- Clean the guide rails (15), check and replace if necessary.
- Check the carriages (1); replace if necessary.
- Carefully slide two carriages (1) each onto the guide rails (15).

Be careful not to jam!

When fitting new carriages, apply the fitting aid supplied and carefully slide onto the guide rails.

Take note of the instructions supplied.

- Push one guide rail (15) against the stop edge of the carrier rail (2) and tighten with the fixing screws and washers (16, 17) to the required torque.
- Place the second guide rail onto the carrier rail and only lightly tighten the fixing screws.



Torques for Screws

POS.	HD 25	HD 32	HD 40	HD 50
7	3 Nm	3 Nm	5,5 Nm	10 Nm
9	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm
11	10 Nm	10 Nm	10 Nm	10 Nm
(OSP-P) 14	3 Nm	3 Nm	10 Nm	10 Nm
(OSP-E) 14	1,6 - 2 Nm *	3 Nm	-	10 Nm
16	3 Nm	3 Nm	5,5 Nm	10 Nm
* use threadlocker Loctite 243				

Mounting the carriage plate (5)

- Clean all parts.



Note

Never slide the fully assembled carriage unit onto the guide rail since this could lead to damage of the carriages!

- Place the carriage plate (5) onto the carriages (1) and fix with the fixing screws (7) and washers (6) to the required torque.
- In order to align the second guide rail in parallel, carry out a double pass with the sledge plate (5) and carriages (1).

Then tighten the fixing screws (16) during a pass movement to the required torque.

- **To avoid tensions:**
- Release the fixing screws of the two carriages again from the two guide rails and run two passes. Then tighten the fixing screws again with the required torque.
- Mount the cover caps.
- Slide the guide carriage centrally over the piston of the cylinder and fix the middle driver (12) with the washers (8) and screws (9).

Observe required torque!

- Tighten the magnet holder (3) with the fixing screws (11) and washers (10) on the desired side and to the required torque.



Note

Take note of the torque according to the table (page 22)!

It is imperative that the three drivers (12) are fitted without any movement to each other!

Arrangement of magnetic switches

The magnetic switches can be fitted on both sides along the whole length.



Lubrication

Information

Only use roller bearing grease for subsequent lubrication of the carriages.

There are grease nipples at the front of the carriers (1) for re-lubrication.

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

Determine the lubrication intervals in accordance with your individual case of application thus 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.

We recommend to use a grease in accordance with DIN 51825 with the consistency class NLGI 2 in accordance with DIN 51818.

Lubricants with solids contents (such as Grafit or MoS₂) must not be used.

Magnetic switch

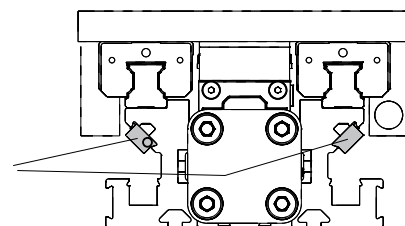


Table amount of grease OSP-HD

Typ	Subset for	cm ³
HD25, 32, 40	re- lubrication	1 x 0,7
HD50	re- lubrication	1 x 1,4

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.

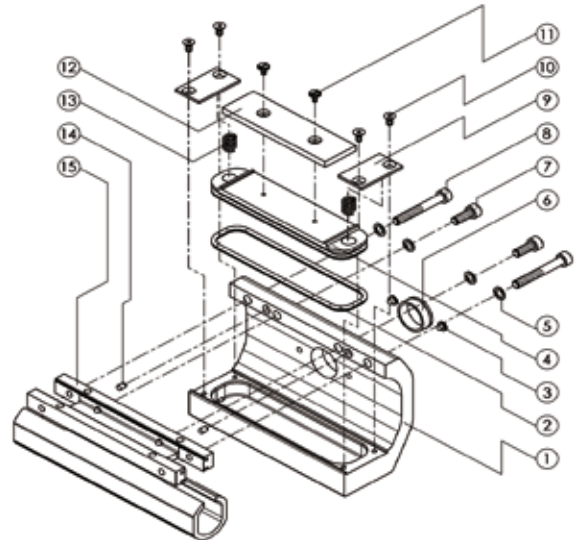
2.10 Active Brake

(AB25 / AB32 / AB40 / AB50 / AB63 / AB80)

Usually it is not necessary to remove the cylinder from the machine or plant.

Dismantling of the Active Brake

- Depressurise the cylinder and brake lines and switch off all electrical power supply.
- Remove the compressed air line from the brake air connection.
- Remove the screws (7 + 8) with their washers (5) and take the brake housing (1) off the cylinder piston (15).
- Unscrew the screws (10) and remove the plates (9) and springs (13) from the brake housing (1).
- To remove the brake piston (4), apply compressed air to its air connection and blow it out (do not use sharp tools on the piston!).



Danger

hold the brake piston while blowing it out!

- **For AB40 / AB50 / AB63 / AB80 only:**
loosen the screws (11) and remove the brake lining (12) from the brake piston (4).
- Remove the O-ring (2) from the brake piston (4).
- Inspect the parts – replace any damaged or worn parts: O-ring (2) and brake lining (12) or brake piston with brake lining (4 + 12) on AB25 and AB32.

Reassembly of the Brake

- Clean all the parts, the inside of the brake piston chamber and the brake air connection.
- **For AB40 / AB50 / AB63 / AB80 only:**
fit the brake lining (12) onto the brake piston (4).
- Apply a locking medium (Loctite low-strength is recommended) to the screws (11).
- Grease the walls of the brake piston chamber and the groove in the brake piston lightly with grease (Order No. 1598).



Note:

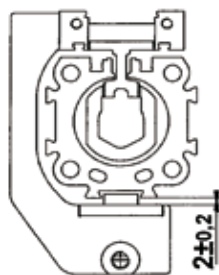
The brake lining must be grease-free.

- Place the O-ring (2) in the brake piston (4) and grease the O-ring lightly.
- Fit the brake piston (4) into the brake housing (1).
- Fit the springs (13) and plates (9). Apply a locking medium to the screws (10) and tighten them.
- Fit the brake housing (1) onto the cylinder piston (15) with the screws (7 + 8) and washers (5). Additionally for the AB40 and AB50 use locating pins(14).

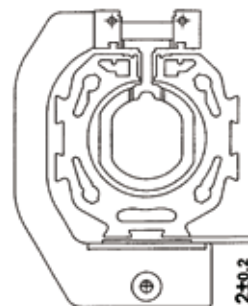


Note

When reinstalling the brake housing, adjust the clearance between the cylinder profile and the plate (9) to $2 \text{ mm} \pm 0.2 \text{ mm}$ with a feeler gauge (see diagram).



AB25 / AB32



AB40 / AB50 / AB63 / AB80

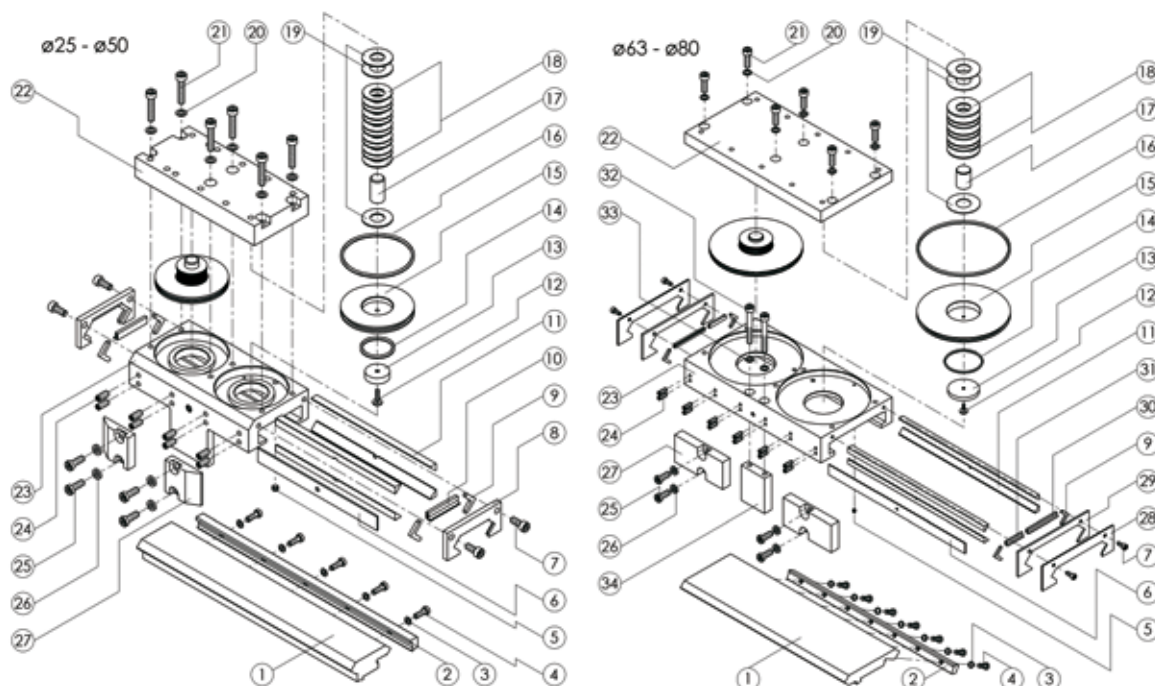
Torques for Screws

Item	AB 25	AB 32	AB 40	AB 50	AB 63	AB 80
7 + 8	5,5 Nm	9,7 Nm	9,7 Nm	9,7 Nm	23 Nm	47 Nm
10	2,9 Nm	2,9 Nm	2,9 Nm	2,9 Nm	5,5 Nm	5,5 Nm
11	---	---	0,8-1 Nm	0,8-1 Nm	0,8-1 Nm	0,8-1 Nm

2.11 Multi-Brake-Slideline

(MB-SL25 / MB-SL32 / MB-SL40 / MB-SL50 / MB-SL63 / MB-SL80)

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



MB-SL25 / MB-SL32 / MB-SL40 / MB-SL50 MB-SL63 / MB-SL80

Dismantling of the Guide Carriage

- Depressurise the cylinder and brake lines and switch off all electrical power supply.
- Remove all parts mounted externally on the plate (22).
- Unscrew the screws (21) with their washers (20), backing off each screw a little at a time, so that the plate (22) does not tip and jam when it is removed from the guide carriage (23).
- Remove the plate (22) from the guide carriage (23).
- Unscrew one drive block (27) from the piston of the OSP-P so that the guide carriage can be moved.
- Loosen the screws (7) in the wiper cover (8 or 28 + 29).
- For the OSP-P40, OSP-P50, OSP-P63 and OSP-P80 only: remove one end cap of the cylinder.
- Slide the complete guide carriage (23) off the guide rail (1).
- Unscrew the wiper covers (8 or 28 + 29) from both ends of the guide carriage (23).
- Inspect the parts – replace damaged or worn parts such as: wiper (10 or 30 + 31), slide profile (11) and felt (9) (service kit).

Dismantling of the Brake

- Remove the saucer springs (18) and pressure plates (19) and press the brake piston (15) out of the guide carriage (23) from the brake lining side.
- Remove the screws (12) and remove the brake lining (13) and guide pin (17) from the brake piston (15), and also the O-rings (14) and (16).
- Inspect the parts – replace damaged or worn parts such as: O-rings (14) and (16) and brake lining (13).

Dismantling and Reassembly of the Guide Rail

- Unscrew 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 (1) on the cylinder profile. Secure the guide rail (1) and clamping rail (2) with the screws (4) and their washers (3) (use the specified torque).

Reassembly of the Brake

- Clean all the parts, the inside of the brake piston chamber and the brake air connection.
- Centre the guide pin (17) on the brake piston with the help of the pressure plate (19) and fit the brake lining (13) on the brake piston (15), applying a locking medium (Loctite low-strength is recommended) to the screw (12) and tightening it.
- Grease the walls of the brake piston chamber and the groove in the brake piston lightly with guide grease (Order No. 10550).



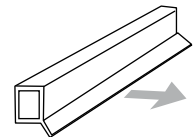
Note

The brake lining must be grease-free.

- Locate the O-rings (14) and (16) in the brake piston (15) and grease the O-rings lightly.
- Fit the brake piston (15) into the guide carriage (23).

Reassembly of the Guide Carriage

- Clean all the parts.
- Grease the felts (9) with guide grease (Order No. 10550).
- Lay the wipers (10 or 30 + 31) and felts (9) in the wiper covers. The sealing lip of the wiper must be outwards (see drawing).
- Back off the adjusting screws (24) in the guide carriage.
- Lay in the support strip (6) on the same side as the adjusting screws.
- Place 2 slide profiles (11) 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 (8 or 28 + 29) loosely with the screws (7).



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

- Tighten the self-locking adjusting screws (24), individually from the middle working outwards, with the specified torque. If non-self-locking screws are used (24), 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 (23) gently with a rubber hammer until the slide profiles (11) have settled into position and then tighten all the adjusting screws (24) again (see above).
- Loosen all the adjusting screws (24) 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 (7) in the wiper cover (8 or 28 + 29) with the prescribed torque.

Lubrication

The grease nipples on both sides of the guide carriage (23) should be filled with guide grease (Order No. 10550) until a thin film of grease can be seen on the guide rail when the guide carriage is moved by hand.

Final assembly

- Position the guide carriage centrally over the cylinder piston and secure the drive blocks (27) with the washers (26) and screws (25).



Note:

The drive blocks (27) must be fitted against the guide carriage (23) or carrier (34) with no play !!!
See the table for the correct torque !!!

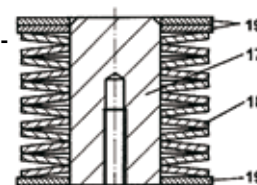
- Push the saucer springs (18) and pressure plates (19) onto the guide pin.



Note:

See the diagram for the correct arrangement of the saucer springs and pressure plates. Depending on the brake type the numbers of saucer springs (18) and pressure plates (19) are different.

- Lay the plate (22) on the pressure plates (19).
- Tighten the screws (21) with their washers (20) gradually and evenly until the plate (22) lies completely flat on the guide carriage (23).
- Refit the end cap of the OSP-P, if applicable.



Torques for screws

Item	MB-SL 25	MB-SL 32	MB-SL 40	MB-SL 50	MB-SL 63	MB-SL 80
4	3 Nm	3 Nm	10 Nm	10 Nm	10 Nm	10 Nm
7	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm	5,5 Nm
12	0,8 - 1 Nm	0,8 - 1 Nm	0,8 - 1 Nm	0,8 - 1 Nm	0,8 - 1 Nm	0,8 - 1 Nm
21	5,5 Nm	10 Nm	10 Nm	10 Nm	20 Nm	20 Nm
24	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm	3,5 - 4 Nm
	(only self-locking screws)					
25	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm	35 Nm	40 Nm
32	---	---	---	---	20 Nm	20 Nm

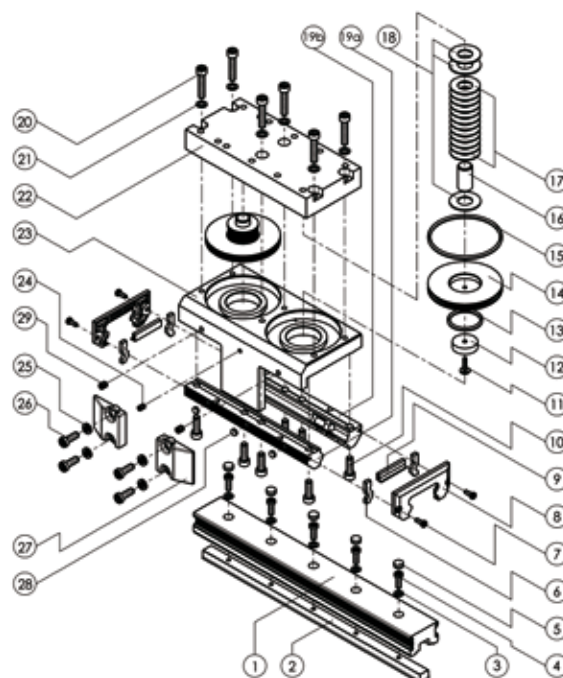
2.12 Multi-Brake - Proline

(MB-PL25 / MB-PL32 / MB-PL40 / MB-PL50)

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 brake lines and switch off all electrical power supply.
- Remove all parts mounted externally on the plate (22).
- Unscrew the screws (20) with their washers (21), backing off each screw a little at a time, so that the plate (22) does not tip and jam when it is removed from the guide carriage (23).
- Remove the plate (22) from the guide carriage (23).
- Unscrew the drive block (27) from the piston of the OSP-P so that the guide carriage can be moved.
- Loosen the screws (7) in the wiper cover (8).
- For the OSP-P40, OSP-P50 only: remove one end cap of the cylinder.
- Slide the complete guide carriage off the double rail (1).
- Remove the wiper covers (8) with the felts (6) and wipers (9) from both ends of the guide carriage (23).
- Loosen and remove the screws (10) and separate the pair of roller shoes (19) from the guide carriage (23).



Dismantling of the Brake

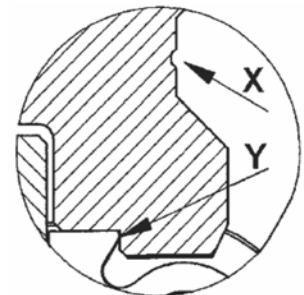
- Remove the saucer springs (17) and pressure plates (18) and press the brake piston (14) out of the guide carriage (23) from the brake lining side.
- Remove the screw (11) and remove the brake lining (12) and guide pin (16) from the brake piston (14), and also the O-rings (13) and (15).
- Inspect the parts – replace any damaged or worn parts such as the O-rings (13) and (15) and brake lining (12).

Dismantling of the Double Rail

- Remove the cap plugs (5).
- Remove the screws (4) and washers (3) and take the double rail (1) off the OSP cylinder.
- If necessary: remove the end caps of the OSP cylinder and push the clamping profile out of the slot in the cylinder profile.

Reassembly of the Double Rail

- Inspect the double rail (1) and replace it if necessary.
- Clean all the parts.
- If necessary: remove the end caps of the OSP cylinder and push the clamping profile into the slot in the cylinder profile.
- Fit the double rail (1) and clamping profile (2) onto the OSP cylinder with the screws (4) and washers (3) (note the maximum torque), centring the rails on the cylinder profile. The groove (X) on the side of the double rail (1) must be on the piston side. The bearing surface (Y) of the double rail (1), which is on the same side as the groove (X), must be positioned against the dovetail profile of the OSP cylinder profile.
- Insert new cap plugs (5) flush with or slightly below the surface of the double rail (1).



Reassembly of the Brake

- Clean all the parts, the inside of the brake piston chamber and the brake air connection.
- Centre the guide pin (16) on the brake piston with the help of the pressure plate (18) and fit the brake lining (12) onto the brake piston (14). Apply a locking medium to the screw (11) (Loctite low-strength is recommended) and tighten it.
- Grease the walls of the brake piston chamber and the groove in the brake piston lightly with guide grease (Order No. 10550).

Note:

The brake lining must be grease-free.

- Locate the O-rings (13) and (15) in the brake piston (14) and grease the O-rings lightly.
- Fit the brake piston (14) into the guide carriage (23).



Reassembly of the Guide Carriage

- Inspect the parts: the pair of roller shoes (19), wiper (9) and felt (6) and replace any damaged or worn parts.
- Clean all the parts.
- For adjustment of the roller shoes there is a fixed side and an adjustment side. The roller shoe on the fixed side (19b) is secured firmly to the underside of the guide carriage (23) with the screws (10).
- Place the three washers (28) in the roller shoe (19a) on the adjustment side and fit it against the guide carriage (23) with the screws (10). Tighten the screws (10) until the roller shoe lies fully on the guide carriage but can still be moved.
- Slide the complete guide carriage carefully onto the guide rail with the side with the adjusting screw (24) towards the piston of the OSP.
- Adjust the roller shoes (19) with the set screw (24). The roller shoes must be adjusted in the unloaded condition and there should be no play at the loosest point on the double rail (1). At the tightest point on the double rail the resistance to movement must not exceed the maximum value. The correct and maximum resistance to movement are as follows:

Size	MB-PL 25	MB-PL 32	MB-PL 40	MB-PL 50
Correct ≤	1 N	1,5 N	2 N	3 N
Maximum ≤	6 N	9 N	10 N	12 N

- First tighten the screws (10) with the specified torque and afterwards tighten the both set screws(29) with the specified torque.
- Fit the wiper covers (8), felts (6) and wipers (9) with the screws (7).

Lubrication

The Proline roller guide is lifetime-lubricated.

Final Assembly

- Position the guide carriage (23) centrally over the piston of the cylinder and secure the drive blocks (27) with the washers (25) and screws (26).



Note

**The drive blocks (27) must be fitted against the guide carriage (23) with no play !!!
See the correct torque in the table !!!**

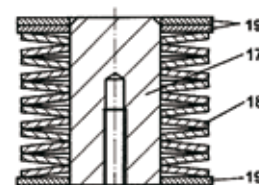
- Push the saucer springs (17) and pressure plates (18) onto the guide pin.



Note

**See the diagram for the correct arrangement of the saucer springs and pressure plates and assemble it.
According to the brake type the numbers of saucer springs (17) and pressure plates (18) are different.**

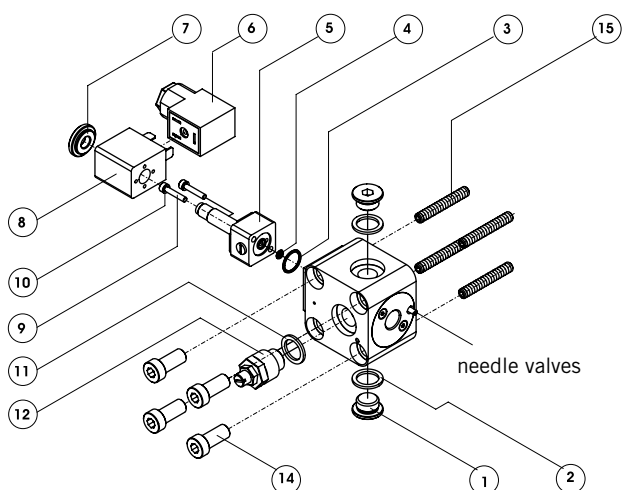
- Lay the plate (22) on the pressure plates (18).
- Tighten the screws (20) with their washers (21) gradually and evenly until the plate (22) lies flat on the guide carriage (23).
- Refit the end caps of the OSP-P, if applicable.



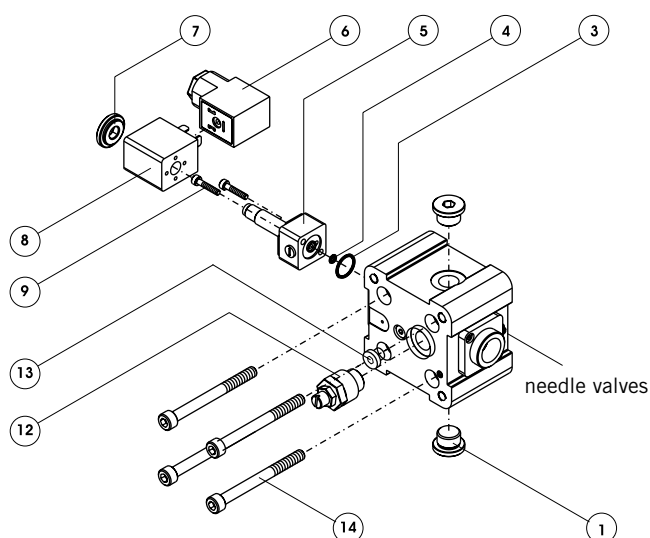
Torques for Screws

Item	MB-PL 25	MB-PL 32	MB-PL 40	MB-PL 50
4	3 Nm	10 Nm	10 Nm	10 Nm
7	1,2 Nm	1,2 Nm	1,2 Nm	1,2 Nm
10	5,5 Nm	10 Nm	10 Nm	20 Nm
11	0,8-1 Nm	0,8-1 Nm	0,8-1 Nm	0,8-1 Nm
20	5,5 Nm	10 Nm	10 Nm	10 Nm
26	9 Nm	14,5 Nm	14,5 Nm	14,5 Nm
29	0,5 Nm	0,5 Nm	0,5 Nm	0,5 Nm

2.13 Integrated 3/2 Way Valves V0E



OSP-P25 / OSP-P32



OSP-P40 / OSP-P50

Fault-Finding

(only with machine switched off)

If faulty valve is suspected:

- Check actuating signal and voltage at solenoid.
- Check functioning with manual override (red turn button on pilot valve). If valve works, only replace solenoid coil (28).
- If cylinder speed is reduced: unscrew throttle silencer (35) and wash it or replace it.
- Override selector should be in the zero position.

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 (14). See „Chapter 5 – Commissioning“ in the OSP-P Operating Instructions.

Air Connection V6

- For OSP-P40 and OSP-P50:
The air connection with screw plug (13) provides direct connection to the cylinder chamber, e.g. for an external valve or a pressure sensor.

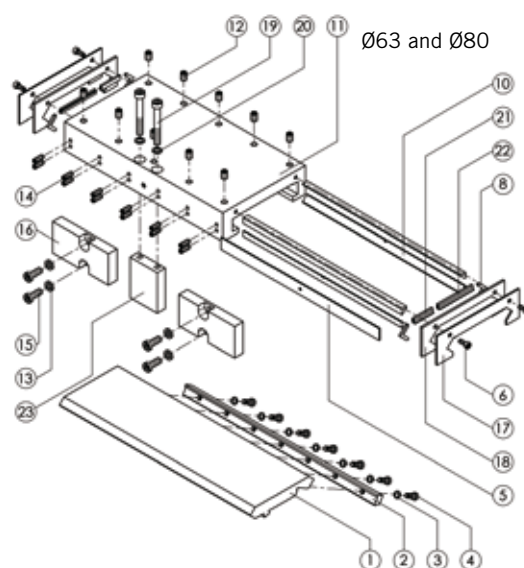
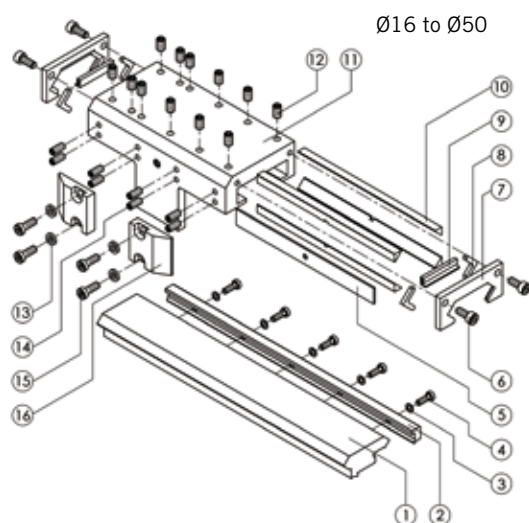
Torques for Screws

Item	OSP-P25	OSP-P32	OSP-P40	OSP-P50
9	1,2 Nm	1,2 Nm	1,2 Nm	1,2 Nm
14	8 Nm	10 Nm	10 Nm	10 Nm

3 Replacement Parts

3.1 Slideline

(SL16 / SL25 / SL32 / SL40 / SL50 / SL63 / SL80)



3.1.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.						
		SL 16	SL 25	SL 32	SL 40	SL 50	SL 63	SL 80
	SLIDELINE PLAIN BEARING GUIDE	20341	20342	20196	20343	20195	20853	21000
	SLIDELINE PLAIN BEARING GUIDE, STAINLESS	20344	20345	20346	20347	20348	20854	21001

3.1.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.						
		SL 16	SL 25	SL 32	SL 40	SL 50	SL 63	SL 80
1	GUIDE RAIL	10912	10913	10914	10915	10916	10939	10941
2	CLAMPING RAIL	10917	10918	10919	10920	10921	10940	10942
3	WASHER	—	3954	3954	3789	3789	3789	3789
3	WASHER, STAINLESS	—	4395	4395	3792	3792	3792	3792
4	SCREW	10680	10810	10810	10610	10610	10610	10610
4	SCREW, STAINLESS	10681	10811	10811	10683	10683	10683	10683
5	SUPPORT STRIP	10552	10571	10590	10570	10798	11547	11547
6	SCREW	3278	2742	2742	1062	2742	2742	2742
6	SCREW, STAINLESS	10167	3716	3716	1063	3716	3716	3716
7	WIPER COVER	10183	1661	1681	10487	10504	—	—
8	FELT	3329	1619	1665	10665	10665	11543	11543
9	WIPER	3327	1663	1683	10471	10472	—	—
10	SLIDE PROFILE	10553	10177	10591	10569	10797	11546	11546
11	GUIDE CARRIAGE	11469	11470	11471	11472	11473	11739	11739
11	GUIDE CARRIAGE, STAINLESS	11469	11478	11479	11480	11481	11739	11739
12	SET SCREW	0429	1116	1116	1116	1116	1117	1117
12	SET SCREW, STAINLESS	0429	1093	1093	1093	1093	1038	1038
13	WASHER	11607	11608	11609	11609	11609	11610	11830
13	WASHER, STAINLESS	11607	11611	11612	11612	11612	11613	11831
14	SET SCREW	11916	10281	10281	2262	11918	11550	11550
14	SET SCREW, STAINLESS	11917	10682	10682	2255	11919	11550	11550

		ORDER NO.						
ITEM	DESCRIPTION	SL 16	SL 25	SL 32	SL 40	SL 50	SL 63	SL 80
15	SCREW	11614	11615	11616	11616	11616	11617	11256
15	SCREW, STAINLESS	11614	11615	11616	11616	11616	11617	11257
16	DRIVE BLOCK	10642	10643	10644	10644	10645	11541	11828
17	WIPER COVER, OUTER	—	—	—	—	—	11545	11545
18	WIPER COVER, INNER	—	—	—	—	—	11544	11544
19	SCREW	—	—	—	—	—	1251	1251
19	SCREW, STAINLESS	—	—	—	—	—	1229	1229
20	SCREW	—	—	—	—	—	4374	4374
20	SCREW, STAINLESS	—	—	—	—	—	4397	4397
21	WIPER	—	—	—	—	—	1663	1663
22	WIPER	—	—	—	—	—	10471	10471
23	CARRIER	—	—	—	—	—	11542	11829

3.1.3 Replacement Assemblies

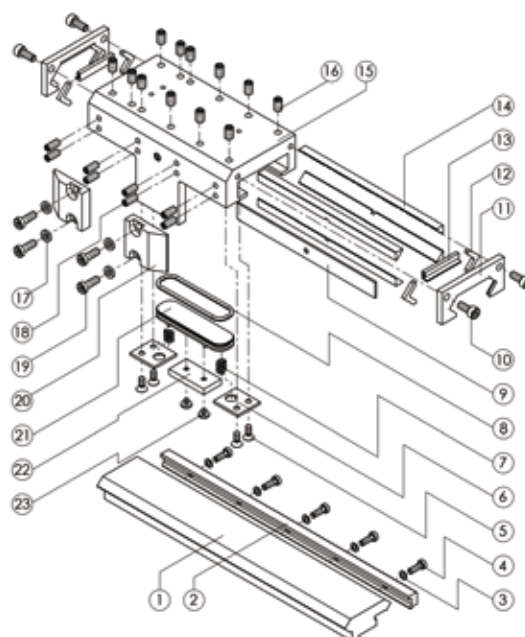
		ORDER NO.						
ITEM	DESCRIPTION	SL 16	SL 25	SL 32	SL 40	SL 50	SL 63	SL 80
5,6,7,8,9,10,	GUIDE CARRIAGE, COMPLETE	11399	11401	11404	11407	11410	—	—
11,12,14	GUIDE CARRIAGE, COMPLETE, STAINLESS	11400	11402	11405	11408	11411	—	—
5,6,8,10,11,12,	GUIDE CARRIAGE, COMPLETE	—	—	—	—	—	11888	11888
14,17,18,21,22	GUIDE CARRIAGE, COMPLETE, STAINLESS	—	—	—	—	—	11889	11889
8,9,10	SERVICE KIT	11066	11067	11068	11069	11070	—	—
8,10,21,22	(INC. GUIDE GREASE, 8ML TUBE)	—	—	—	—	—	11094	11094

3.1.4 Lubrication

		ORDER NO.
GUIDE GREASE, 8 ML TUBE		10550
GUIDE GREASE, 0.5 KG		11606

3.2 Slideline with Brake

(SL25 / SL32 / SL40 / SL50)



3.2.1 Modules for OSP

DESCRIPTION	ORDER NO.			
	SL 25	SL 32	SL 40	SL 50
SLIDELINE PLAIN BEARING GUIDE WITH BRAKE	20409	20410	20411	20412

3.2.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.			
		SL 25	SL 32	SL 40	SL 50
1	GUIDE RAIL	10913	10914	10915	10916
2	CLAMPING RAIL	10918	10919	10920	10921
3	WASHER	3954	3954	3789	3789
4	SCREW	10810	10810	10610	10610
5	SCREW	1549	1549	1549	1549
6	PLATE	11207	11207	11207	11207
7	SPRING	1121	1121	1121	1128
8	O-RING	11218	11219	11220	11221
9	SUPPORT STRIP	10571	10590	10570	10798
10	SCREW	2742	2742	1062	2742
11	WIPER COVER	1661	1681	10487	10504
12	FELT	1619	1665	10665	10665
13	WIPER	1663	1683	10471	10472
14	SLIDE PROFILE	10177	10591	10569	10797
15	GUIDE CARRIAGE	11474	11475	11476	11477
16	SET SCREW	1116	1116	1116	1116
17	WASHER	11608	11609	11609	11609
18	SET SCREW	10281	10281	2262	11918
19	SCREW	11615	11616	11616	11616
20	DRIVE BLOCK	10643	10644	10644	10645
21	BRAKE PISTON	11205	11209	11212	11215
22	BRAKE LINING	11206	11210	11213	11216
23	SCREW	11217	11217	11217	11217

3.2.3 Replacement Assemblies

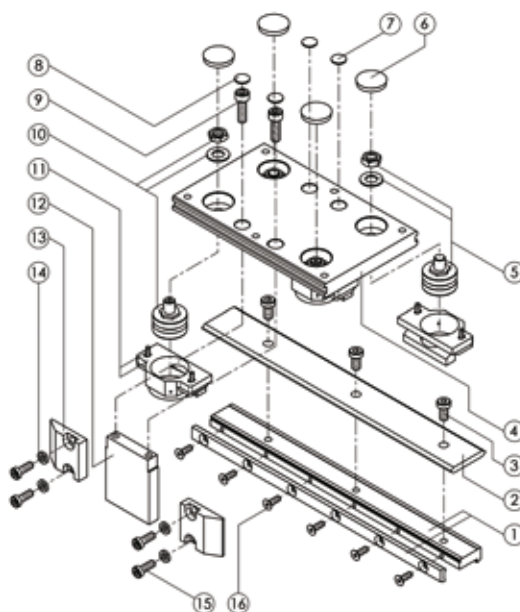
ITEM	DESCRIPTION	ORDER NO.			
		SL 25	SL 32	SL 40	SL 50
5,6,7,8, 9,10,11,12,13,14,15,16,18,21,22,23	GUIDE CARRIAGE, COMPLETE	11403	11406	11409	11412
8,12, 13,14,22	SERVICE KIT (INC. GUIDE GREASE, 8 ML TUBE)	11095	11096	11097	11098

3.2.4 Lubrication

DESCRIPTION	ORDER NO.
GUIDE GREASE, 8 ML TUBE	10550
GUIDE GREASE, 0.5 KG	11606

3.3 Powerslide

PS16/25 – PS25/25 – PS25/35 – PS25/44 - PS32/35 – PS32/44 – PS40/44 –
PS40/60 – PS50/60 – PS50/76



3.3.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.									
		PS 16/25	PS 25/25	PS 25/35	PS 25/44	PS 32/35	PS 32/44	PS 40/44	PS 40/60	PS 50/60	PS 50/76
	POWERSLIDE ROLLER GUIDE FOR OSP-P AND OSP-E-SCREW	20285	20015	20016	20017	20286	20287	20033	20034	20288	20289
	FOR OSP-E-BELT	—	20304	20305	20306	20307	20308	—	—	20309	20310
	POWERSLIDE ROLLER GUIDE STAINLESS	20294	20295	20296	20297	20298	20299	20300	20301	20302	20303

3.3.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.									
		PS 16/25	PS 25/25	PS 25/35	PS 25/44	PS 32/35	PS 32/44	PS 40/44	PS 40/60	PS 50/60	PS 50/76
1	CLAMPING RAIL FOR OSP-P AND OSP-E-SCREW	11001	11002	11003	11004	11005	11006	11007	11008	11009	11010
1	FOR OSP-E-BELT	—	11031	11032	11033	11034	11035	—	—	11036	11037
2	GUIDE RAIL FOR FOR OSP-P AND OSP-E-SCREW	11011	11012	11013	11014	11015	11016	11017	11018	11019	11020
2	FOR OSP-E-BELT	—	11038	11039	11040	11041	11042	—	—	11043	11044
3	SCREW	10610	10610	3275	10610	3275	10610	1879	10684	10684	10719
3	SCREW STAINLESS	10683	10683	3717	10683	3717	10683	10779	10684	10684	10834
4	GUIDE CARRIAGE	10636	10637	10638	10639	10638	10639	10639	10640	10640	10641
5	ROLLER, CENTRIC	10620	10620	10620	10622	10620	10622	10622	10622	10622	10624
6	CAP	10658	10658	10658	10658	10658	10659	10659	10659	10659	10660
7	CAP	—	—	10184	10184	10184	10184	10184	10657	10184	—
8	CAP	10656	10184	10184	10184	10184	10184	10184	10184	10657	10657
9	SCREW	3278	10610	1273	1273	0666	1273	1273	1273	10685	10686
9	SCREW STAINLESS	10167	10683	0394	0394	0667	0394	0394	0394	10685	10686
10	ROLLER, ECCENTRIC	10619	10619	10619	10621	10619	10621	10621	10621	10621	10623
11	COVER FPR ROLLERS	4009	4009	4009	4017	4009	4017	4017	4017	4017	10627
12	CARRIER	10646	10647	10648	10649	10650	10651	10652	10653	10654	10655

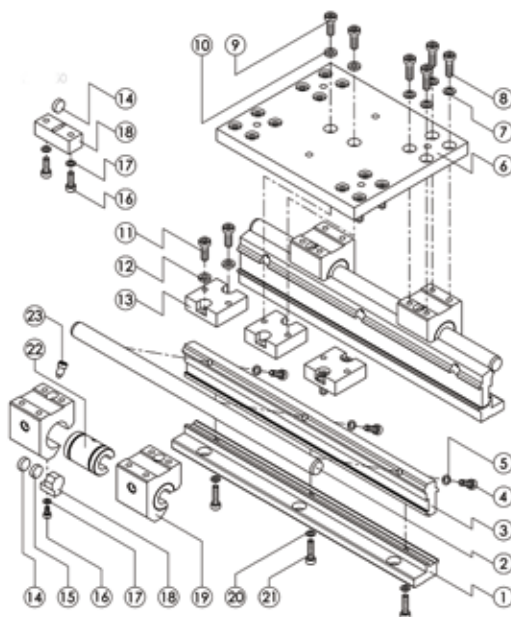
		ORDER NO.									
ITEM	DESCRIPTION	PS 16/25	PS 25/25	PS 25/35	PS 25/44	PS 32/35	PS 32/44	PS 40/44	PS 40/60	PS 50/60	PS 50/76
13	DRIVE BLOCK	10642	10643	10643	10643	10644	10644	10644	10644	10645	10645
14	WASHER	11607	11608	11608	11608	11609	11609	11609	11609	11609	11609
14	WASHER STAINLESS	11607	11611	11611	11611	11612	11612	11612	11612	11612	11612
15	SCREW	11614	11615	11615	11615	11616	11616	11616	11616	11616	11616
15	SCREW STAINLESS	11614	11615	11615	11615	11616	11616	11616	11616	11616	11616
16	SCRREW	2685	2685	10687	10687	10687	10687	10678	3256	3256	3256
16	SCREW STAINLESS	2689	2689	10687	10687	10687	10687	10679	3715	3715	3715

3.3.3 Replacement Assemblies

		ORDER NO.									
ITEM	DESCRIPTION	PS 16/25	PS 25/25	PS 25/35	PS 25/44	PS 32/35	PS 32/44	PS 40/44	PS 40/60	PS 50/60	PS 50/76
2,4,5, 10,11	GUIDE UNIT,, STAINLESS	10700	10701	10702	10703	10704	10705	10706	10707	10708	10709
4,5,6,7, 8,10,11	GUIDE CARRIAGE, COMPLETE	—	—	11415	11416	11415	11416	11416	11417	11417	—
4,5,6,8, 10,11	GUIDE CARRIAGE, COMPLETE	11413	11414	—	—	—	—	—	—	—	11418

3.4 Guideline

(GDL25 / GDL32 / GDL40 / GDL50)



3.4.1 Modules for OSP

		ORDER NO.			
ITEM	DESCRIPTION	GDL 25	GDL 32	GDL 40	GDL 50
	GUIDELINE BALL BUSHING GUIDE FOR OSP-P AND OSP-E-SCREW	20175	20180	20177	20183
	GUIDELINE BALL BUSHING GUIDE, FOR OSP-E-BELT	20315	20182	—	20316
	GUIDELINE BALL BUSHING GUIDE, STAINLESS (BALL BUSHING HOUSING (19) NOT STAINLESS)	20176	20181	20178	20184

3.4.2 Replacement Parts

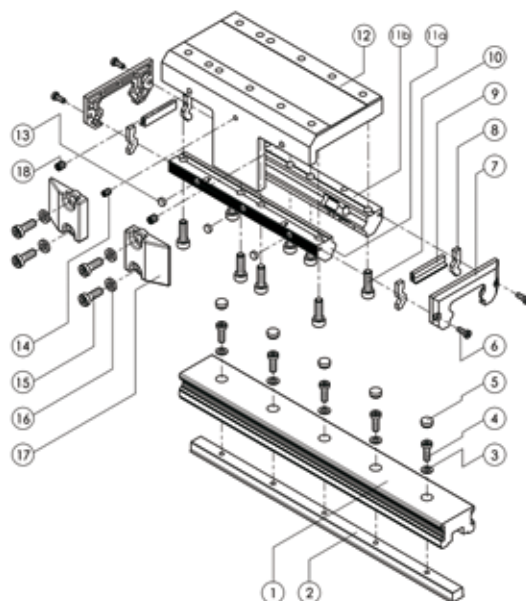
ITEM	DESCRIPTION	ORDER NO.			
		GDL 25	GDL 32	GDL 40	GDL 50
1	CLAMPING RAIL FOR OSP-P AND OSP-E- SCREW	10900	10901	10902	10903
1	CLAMPING RAIL FOR OSP-E- BELT	10850	10851	—	10852
2	GUIDE SHAFT FOR OSP-P AND OSP-E- SCREW	10908	10909	10910	10911
2	GUIDE SHAFT FOR OSP-E- BELT	10856	10857	—	10858
2	GUIDE SHAFT, STAINLESS	10934	10935	10936	10937
3	MOUNTING RAIL FOR OSP-P AND OSP-E- SCREW	10904	10905	10906	10907
3	MOUNTING RAIL FOR OSP-E- BELT	10853	10854	—	10855
4	SCREW	2685	2685	10777	10777
4	SCREW, STAINLESS	2689	2689	10778	10778
5	WASHER	3954	3954	4373	4373
5	WASHER, STAINLESS	4395	4395	4396	4396
6	GUIDE CARRIAGE PLATE	10668	10780	10669	10781
7	WASHER	4373	4373	3789	3789
7	WASHER, STAINLESS	4396	4396	3792	3792
8	SCREW	10774	10774	1879	1879
8	SCHRAUBE, ROSTFREI	10775	10775	10779	10779
9	SCREW	11615	11618	11616	11618
9	SCREW, STAINLESS	11615	11618	11616	11618
10	WASHER	11608	11609	11609	11609
10	WASHER, STAINLESS	11611	11612	11612	11612
11	SCREW	11615	11618	11616	11618
11	SCREW, STAINLESS	11615	11618	11616	11618
12	SCREW	11608	11609	11609	11609
12	WASHER, STAINLESS	11611	11612	11612	11612
13	DRIVE BLOCK	10714	10715	10716	10715
14	MAGNET	10056	10056	10056	10056
15	BOLT	10736	10736	—	—
16	SCREW	0753	0753	2685	2685
16	SCREW, STAINLESS	4029	4029	2689	2689
17	WASHER	3953	3953	3954	3954
17	WASHER, STAINLESS	10776	10776	4395	4395
18	MAGNET HOUSING	10734	10734	10735	10735
19	BALL BUSHING HOUSING, COMPL. (INC. 22 + 23)	10663	10663	10664	10664
20	WASHER	3954	3954	3789	3789
20	WASHER, STAINLESS	4395	4395	3792	3792
21	SCREW	0619	0803	1323	1283
21	SCREW, STAINLESS	10166	10782	3714	2692
22	BALL BUSHING	10808	10808	10809	10809
23	SET SCREW	10796	10796	10796	10796

3.4.3 Replacement Assemblies

ITEM	DESCRIPTION	ORDER NO.			
		GDL 25	GDL 32	GDL 40	GDL 50
6,7,8,19	GUIDE CARRIAGE, COMPLETE	11391	11393	11395	11397
6,7,8,19	GUIDE CARRIAGE, COMPLETE, STAINLESS	11392	11394	11396	11398
(BALL BUSHING HOUSING (19) NOT STAINLESS)					

3.5 Proline

(PL16 / PL25 / PL32 / PL40 / PL50)



3.5.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.				
		PL 16	PL 25	PL 32	PL 40	PL 50
	PROLINE ROLLER GUIDE FOR OSP-P AND OSP-E SCREW	20855	20856	20857	20858	20859
	PROLINE ROLLER GUIDE FOR OSP-E BELT	—	20874	20875	—	20876
	PROLINE ROLLER GUIDE, STAINLESS	20956	20934	20935	20936	20937

3.5.2 Repacement Parts

ITEM	DESCRIPTION	ORDER NO.				
		PL 16	PL 25	PL 32	PL 40	PL 50
1	DOUBLE RAIL FOR OSP-P AND OSP-E SCREW	10951	10943	10944	10945	10946
1	DOUBLE RAIL FOR OSP-E BELT	—	10868	10869	—	10870
1	DOUBLE RAIL, STAINLESS	10952	10953	10954	10955	10956
2	CLAMPING PROFILE	10957	10947	10948	10949	10950
3	WASHER	11884	11884	11885	11885	11885
3	WASHER, STAINLESS	11947	11947	11948	11948	11948
4	SCREW	10810	10810	10610	3275	3275
4	SCREW, STAINLESS	10811	10811	10683	3717	3717
5	COVER	20524	20524	20526	20526	20526
6	SCREW	11886	11886	11886	11886	11886
6	SCREW, STAINLESS	4539	4539	4539	4539	4539
7	WIPER COVER	11930	11841	11842	11843	11844
8	FELT	11931	11875	11876	11877	11878
9	WIPER	11932	11880	11881	11882	11883
10	SCREW	0619	0234	1273	1323	11227
10	SCREW, STAINLESS	10166	0235	0394	3714	10686
11	PAIR OF ROLLER SHOES	11784	11785	11786	11787	11788
11	PAIR OF ROLLER SHOES, STAINLESS	11937	11938	11939	11940	11941
12	GUIDE CARRIAGE	11702	11703	11704	11705	11706
13	WASHER	11929	11929	11929	11929	11929
14	SET SCREW	0429	0429	0429	0429	0429
15	SCREW	11614	11615	11616	11616	11616

ORDER NO.

ITEM	DESCRIPTION	PL 16	PL 25	PL 32	PL 40	PL 50
16	WASHER	11607	11608	11609	11609	11609
16	WASHER, STAINLESS	11607	11611	11612	11612	11612
17	DRIVE BLOCK	10642	10643	10644	10644	10645
18	SET SCREW	2744	2744	2744	2744	2744

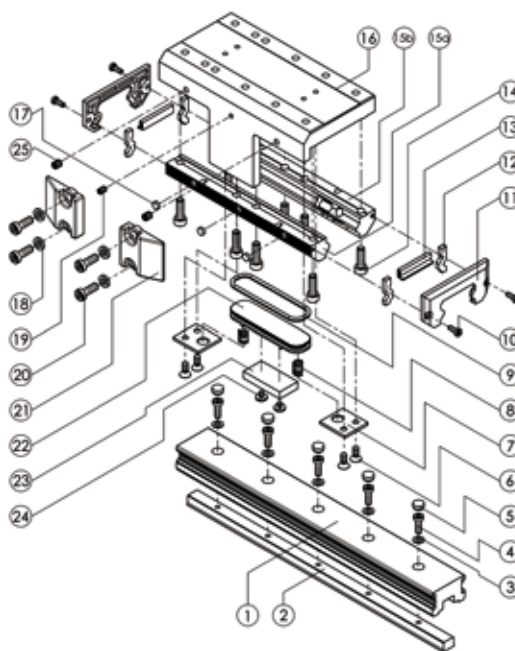
3.5.3 Replacement Assemblies

ORDER NO.

ITEM	DESCRIPTION	PL 16	PL 25	PL 32	PL 40	PL 50
6,7,8,9,10 11,12,13,14	GUIDE CARRIAGE, COMPLETE	11985	11899	11900	11901	11902
6,7,8,9,10 11,12,13,14	GUIDE CARRIAGE, COMPLETE, STAINLESS	11986	11950	11951	11952	11953

3.6 Proline with Brake

(PL25 / PL32 / PL40 / PL50)



3.6.1 Modules for OSP

ORDER NO.

ITEM	DESCRIPTION	PL 25	PL 32	PL 40	PL 50
	PROLINE ROLLER GUIDE WITH BRAKE	20860	20861	20862	20863
	PROLINE ROLLER GUIDE WITH BRAKE, STAINLESS	20938	20939	20940	20941

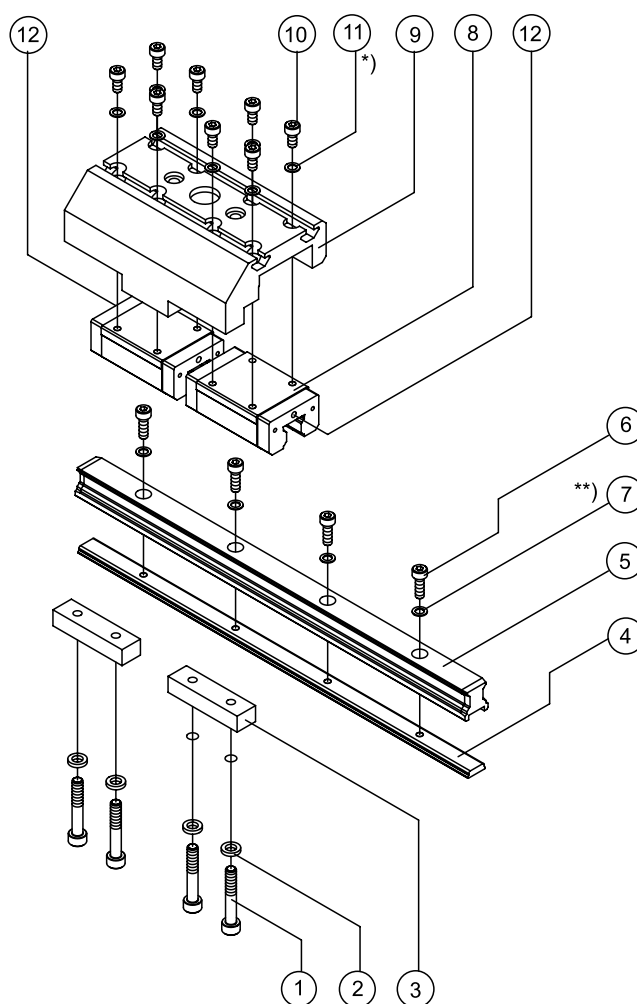
3.6.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.			
		PL 25	PL 32	PL 40	PL 50
1	DOUBLE RAIL FDK	10943	10944	10945	10946
1	DOUBLE RAIL FDK, STAINLESS	10953	10954	10955	10956
2	CLAMPING PROFILE	10947	10948	10949	10950
3	WASHER	11884	11885	11885	11885
3	WASHER, STAINLESS	11947	11948	11948	11948
4	SCREW	10810	10610	3275	3275
4	SCREW, STAINLESS	10811	10683	3717	3717
5	COVER	20524	20526	20526	20526
6	SCREW	1549	1549	1549	1549
6	SCREW, STAINLESS	1549	1549	1549	1549
7	PLATE	11207	11207	11207	11207
8	SPRING	1121	1121	1121	1128
8	SPRING, STAINLESS	4775	4775	4775	11988
9	O-RING	11218	11219	11220	11221
10	SCREW	11886	11886	11886	11886
10	SCREW, STAINLESS	4539	4539	4539	4539
11	WIPER COVER	11841	11842	11843	11844
12	FELT	11875	11876	11877	11878
13	WIPER	11880	11881	11882	11883
14	SCREW	0234	1273	1323	11227
14	SCREW, STAINLESS	0235	0394	3714	10686
15	PAIR OF ROLLER SHOES FEK	11785	11786	11787	11788
15	PAIR OF ROLLER SHOES FEK, STAINLESS	11938	11939	11940	11941
16	GUIDE CARRIAGE	11731	11732	11733	11734
17	WASHER	11929	11929	11929	11929
18	WASHER	11608	11609	11609	11609
18	WASHER, STAINLESS	11611	11612	11612	11612
19	SET SCREW	0439	0439	0439	0439
20	SCREW	11615	11616	11616	11616
21	DRIVE BLOCK	10643	10644	10644	10645
22	BRAKE PISTON	11205	11029	11212	11215
23	BRAKE LINING	11206	11210	11213	11216
24	SCREW	11217	11217	11217	11217
24	SCREW, STAINLESS	11949	11949	11949	11949
25	SET SCREW	2744	2744	2744	2744

3.6.3 Replacement Assemblies

ITEM	DESCRIPTION	ORDER NO.			
		PL 25	PL 32	PL 40	PL 50
6,7,8, 9,10,11,12,13,14,15	GUIDE CARRIAGE, COMPLETE	11903	11904	11905	11906
16,17, 19,23,24,25	GUIDE CARRIAGE, COMPLETE, STAINLESS	11954	11955	11956	11957

3.7 Guide OSP-KF



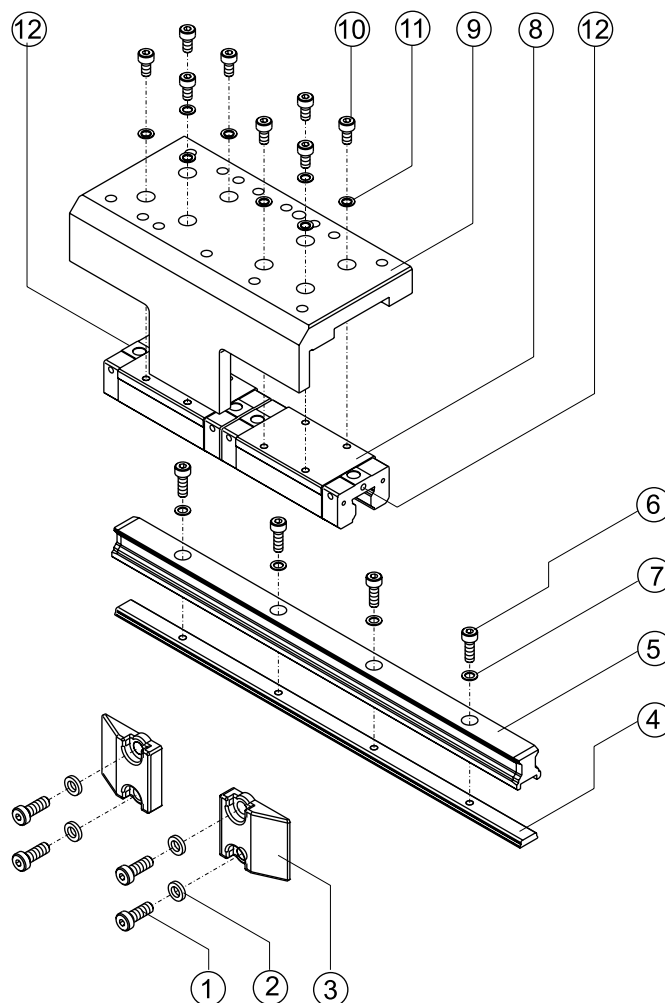
*) only
-KF16
-KF32
-KF40
-KF50

**) only
-KF16
-KF40
-KF50

3.7.1 Replacement Parts OSP-KF

ITEM	DESCRIPTION	ORDER NO.				
		Ø 16	Ø 25	Ø 32	Ø 40	Ø 50
1	SCREW	13558	163	858	858	858
2	WASHER	11607	11608	11609	11609	11609
3	DRIVE BLOCK	13489	13492	13493	13490	13491
4	CLAMPING PROFILE	13506	13517	13518	13519	13520
5	GUIDE RAIL	13511	13512	13513	13514	13515
6	SCREW	10099	2685	2685	234	10746
7	WAHER	3953	-	-	4373	3789
8	CARRIER	13482	13483	13483	13484	13485
9	GUIDE CARRIAGE	13457	13458	13459	13460	13461
10	SCREW	10099	11651	3278	1062	666
11	WASHER	3953	-	3954	4373	3789
12	GREASE NIPPLE -KF16: -KF25, -KF 32: -KF50: -KF40:	FUNNEL-TYPE GREASE NIPPLE SIMILAR TO DIN 3405 FUNNEL-TYPE GREASE NIPPLE, FORM A-M3 X 5, DIN 3405 GREASE NIPPLE M6 X 8, DIN 71412 FUNNEL-TYPE GREASE NIPPLE, FORM B-M3, SIMILAR DIN 3405				

3.8 Starline



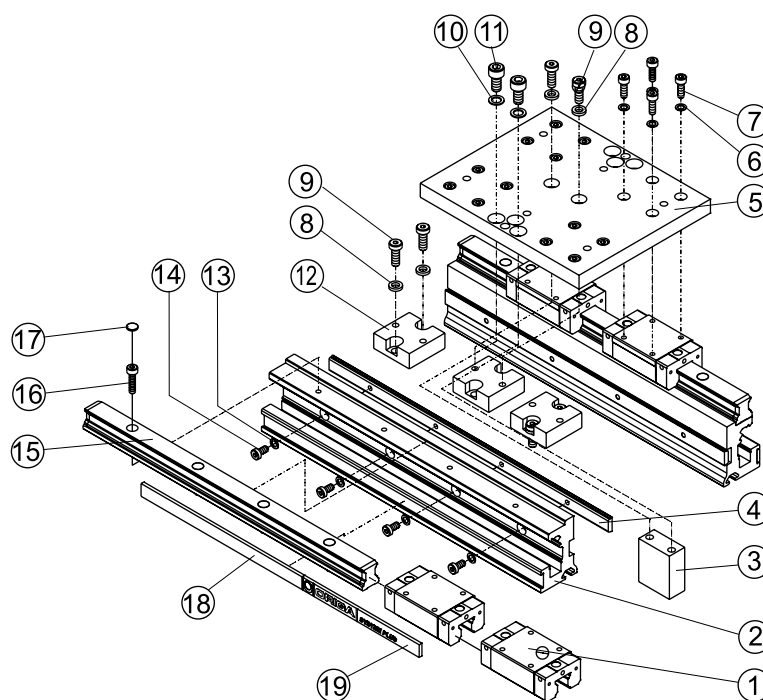
3.8.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.				
		OSP-STL16	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
	GUIDE OSP-STL	21111	21112	21113	21114	21115

3.8.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.				
		OSP-STL16	OSP-STL25	OSP-STL32	OSP-STL40	OSP-STL50
1	SCREW	11614	11615	11616	11616	11616
2	WASHER	11607	11608	11609	11609	11609
3	DRIVE BLOCK	10642	10643	10644	10644	10645
4	CLAMPING RAIL	13506	13517	13518	13519	13520
5	GUIDE RAIL	13511	13512	13513	13514	13515
6	SCREW	10099	2685	2685	234	10746
7	WASHER	3953	-	-	4343	3789
8	CARRIER	13482	13584	13584	13585	13586
9	GUIDE CARRIAGE	13574	13575	13576	13577	13578
10	SCREW	10099	3307	3278	1062	1102
11	SCREW	3953	3954	3954	4373	3789
12	GREASE NIPPLE	-	-	-	-	-

3.9 OSP-Heavy Duty



3.9.1 Modules for OSP

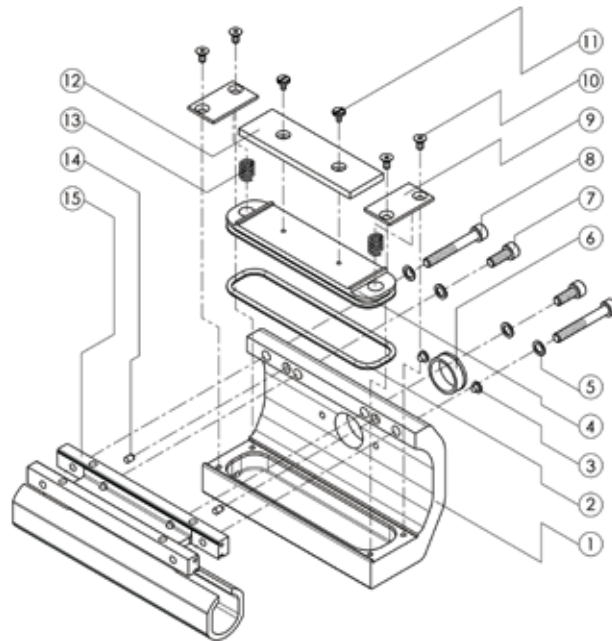
ITEM	DESCRIPTION	ORDER NO.			
		OSP-HD25	OSP-HD32	OSP-HD40	OSP-HD50
	GUIDE OSP-HD	21246	21247	21248	21249

3.9.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.			
		OSP-HD25	OSP-HD32	OSP-HD40	OSP-HD50
1	CARRIER	13763	13763	13764	13765
2	CARRYING RAIL CUT TO STROKE	13715	13716	13717	13718
3	MAGNET HOLDER	13755	13756	13757	13758
4	CLAMPING PROFILE CUT TO STROKE	13795	13796	13797	13798
5	CARRIAGE PLATE	13719	13720	13721	13722
6	LOCK WASHER FOR CARRIER	3954	3954	4373	3789
7	SCREW FOR CARRIER	2685	2685	10774	10610
8	LOCK WASHER FOR CARRIER	11608	11609	11609	11609
9	SCREW FOR CARRIER	11615	11618	11616	11618
10	LOCK WASHER FOR MAGNET HOLDER	3789	3789	3789	3789
11	SCREW FOR MAGNETHOLDERS	1102	1102	666	666
12	CARRIER	10714	10715	10716	10715
13	LOCK WASHER FOR CARRYING RAIL3954	3954	3789	3789	3789
14	SCREW FOR CARRYING RAIL	2702	2702	3275	3275
15	CARRYING RAIL CUT TO STROKE	13769	13770	13771	13772
16	SCREW FOR CARRYING RAIL	619	619	10153	12528
17	COVER CAP FOR CARRYING RAIL	13712	13712	13713	13713
18	COVER RAIL -BY THE METER	10468	10468	10468	10468
19	COVER RAIL FOR TYPE-LABLE	10469	10469	10469	10469

3.10 Active Brake

(AB25 / AB32 / AB40 / AB50 / AB63 / AB80)



3.10.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.					
		AB 25	AB 32	AB 40	AB 50	AB 63	AB 80
	ACTIVE BRAKE	20806	20807	20808	20809	20810	20811

3.10.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.					
		AB 25	AB 32	AB 40	AB 50	AB 63	AB 80
1	BRAKE HOUSING	11462	11485	11464	11487	11583	11584
2	O-RING	11643	11565	11645	11646	11647	11648
3	PLUG	10674	10674	10674	10674	10674	10674
4	BRAKE PISTON	—	—	11466	11632	11633	11634
4 + 12	BRAKE PISTON WITH BRAKE LINING	11649	11650	—	—	—	—
5	WASHER	4396	3792	3792	3792	4397	4398
6	PLUG	11933	11933	11933	11934	11934	11934
7	SCREW	3716	667	667	394	10686	11653
8	SCREW	11640	11641	11641	11642	—	—
9	PRESSURE PLATE	11635	11635	11636	11637	11638	11638
10	SCREW	11651	11651	11651	11651	11652	11652
11	SCREW	—	—	11596	11596	11596	11596
12	BRAKE LINING	—	—	11460	11483	11585	11586
13	SPRING	11728	11728	11728	11729	11730	11730
14	LOCATING PIN	—	—	2242	2242	—	—
15	PISTON YOKE	11625	11626	11627	11628	11629	11630

3.10.3 Service Kits

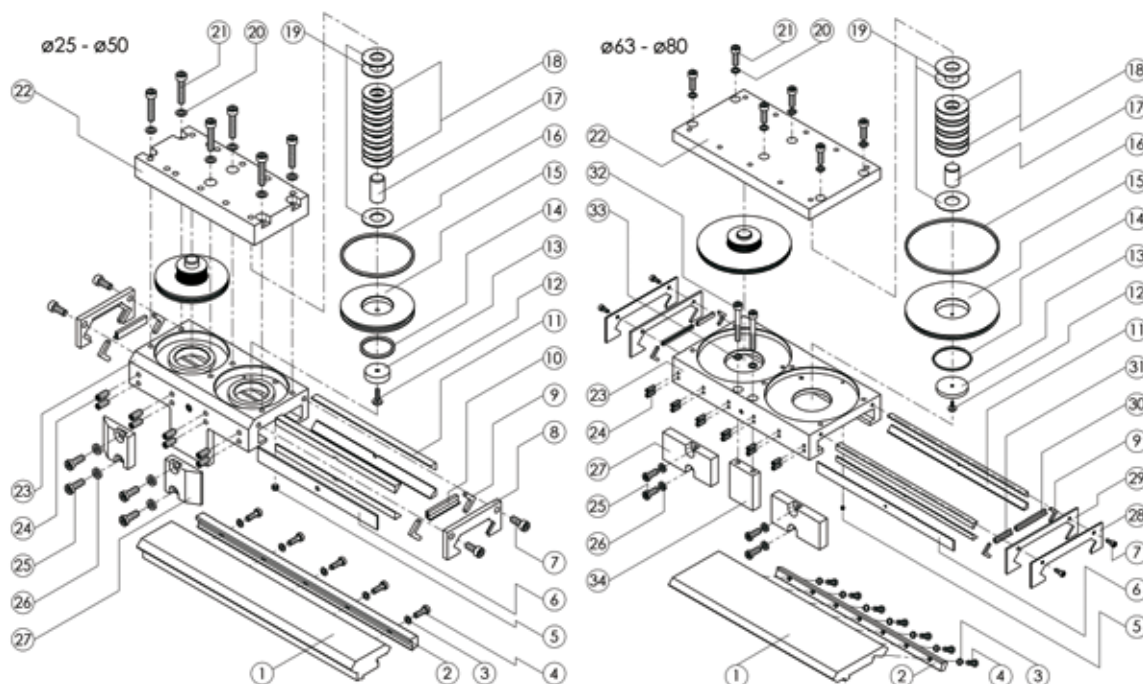
ITEM	DESCRIPTION	ORDER NO.					
		AB 25	AB 32	AB 40	AB 50	AB 63	AB 80
2,4,12	SERVICE KIT (INC.GREASE, 8ML TUBE)	11822	11823	—	—	—	—
2,12	SERVICE KIT (INC.GREASE, 8ML TUBE))	—	—	11824	11825	11826	11827

3.10.4 Lubrication

ITEM	DESCRIPTION	ORDER NO.					
		AB 25	AB 32	AB 40	AB 50	AB 63	AB 80
	GREASE, 8ML TUBE	1598	1598	1598	1598	1598	1598

3.11 Multi-Brake-Slideline

(MB-SL25 / MB-SL32 / MB-SL40 / MB-SL50 / MB-SL63 / MB-SL80)



3.11.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.					
		MB-SL25	MB-SL32	MB-SL40	MB-SL50	MB-SL63	MB-SL80
	MULTI-BRAKE WITH SLIDELINE PLAIN BEARING GUIDE	20796	20797	20798	20799	20800	20846

3.11.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.					
		MB-SL25	MB-SL32	MB-SL40	MB-SL50	MB-SL63	MB-SL80
1	GUIDE RAIL	10913	10914	10915	10916	10939	10941
2	CLAMPING RAIL	10918	10919	10920	10921	10940	10942
3	WASHER	4395	4395	3792	3792	3792	3792
4	SCREW	10811	10811	10683	10683	10683	10683
5	SET SCREW	11301	11301	11301	11301	11301	11301
6	SUPPORT STRIP	10571	10590	10570	10798	11547	11547
7	SCREW	3716	3716	1063	3716	3716	3716
8	WIPER COVER	1661	1681	10487	10504	—	—
9	FELT	1619	1665	10665	10665	11543	11543
10	WIPER	1663	1683	10471	10472	—	—
11	SLIDE PROFILE	10177	10591	10569	10797	11546	11546
12	SCREW	11548	11548	11548	11549	11549	11549
13	BRAKE LINING	11515	11516	11517	11518	11519	11519
14	O-RING	2526	11559	11560	11561	11562	11562
15	BRAKE PISTON	11510	11511	11512	11513	11514	11514
16	O-RING	11563	11564	11565	11566	11567	11567
17	GUIDE PIN	11520	11521	11522	11523	11524	11524

ITEM	DESCRIPTION	ORDER NO.					
		MB-SL25	MB-SL32	MB-SL40	MB-SL50	MB-SL63	MB-SL80
18	SAUCER SPRING	11533	11534	11535	11536	11537	11537
19	PRESSURE PLATE 0,5 MM	11525	11525	11527	11529	11531	11531
19	PRESSURE PLATE 1,0 MM	11526	11526	11528	11530	11532	11532
20	WASHER	4396	3792	3792	3792	4397	4397
21	SCREW	4607	3714	3714	3714	10686	10686
22	PLATE	11505	11506	11507	11508	11509	11509
23	GUIDE CARRIAGE	11500	11501	11502	11503	11504	11504
24	SET SCREW	10682	10682	2255	11919	11550	11550
25	SCREW	11615	11616	11616	11616	11617	11257
26	WASHER	11611	11612	11612	11612	11613	11831
27	DRIVE BLOCK	10643	10644	10644	10645	11541	11828
28	WIPER COVER, OUTER	—	—	—	—	11545	11545
29	WIPER COVER, INNER	—	—	—	—	11544	11544
30	WIPER	—	—	—	—	1663	1663
31	WIPER	—	—	—	—	10471	10471
32	SCREW	—	—	—	—	1229	1229
33	WASHER	—	—	—	—	4397	4397
34	CARRIER	—	—	—	—	11542	11829

3.11.3 Replacement Assemblies

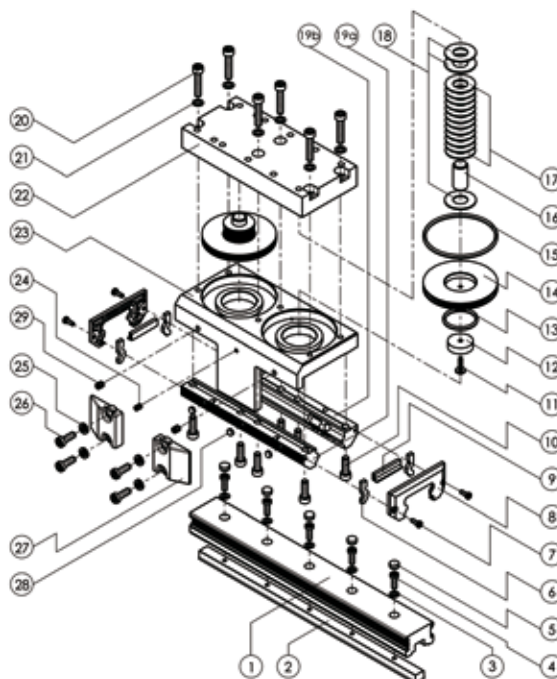
ITEM	DESCRIPTION	ORDER NO.					
		MB-SL25	MB-SL32	MB-SL40	MB-SL50	MB-SL63	MB-SL80
5,6,7,8, 9,10,11,12,13,14,15,16,17,18,19,20,21 22, 23,24	GUIDE CARRIAGE, COMPLETE	11684	11685	11686	11687	—	—
5,6,7,9, 11,12,13,14,15,16,17,18,19,20,21,22.23.24	GUIDE CARRIAGE, COMPLETE	—	—	—	—	11688	11688
9,10,11, 13, 14,16	SERVICE KIT (INC. GUIDE GREASE, 8ML TUBE)	11089	11090	11091	11092	—	—
9,11,13, 14,16,30,31	SERVICE KIT (INC. GUIDE GREASE, 8ML TUBE)	—	—	—	—	11093	11093

3.11.4 Lubrication

ITEM	DESCRIPTION	ORDER NO.					
	GUIDE GREASE, 8 ML TUBE	10550					
	GUIDE GREASE, 0.5 KG	11606					

3.12 Multi-Brake-Proline

(MB-PL25 / MB-PL32 / MB-PL40 / MB-PL50)



3.12.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.			
		MB-PL25	MB-PL32	MB-PL40	MB-PL50
	MULTI-BRAKE WITH PROLINE ROLLER GUIDE	20864	20865	20866	20867
	MULTI-BRAKE WITH PROLINE ROLLER GUIDE, STAINLESS	20942	20943	20944	20945

3.12.2 Replacement Parts

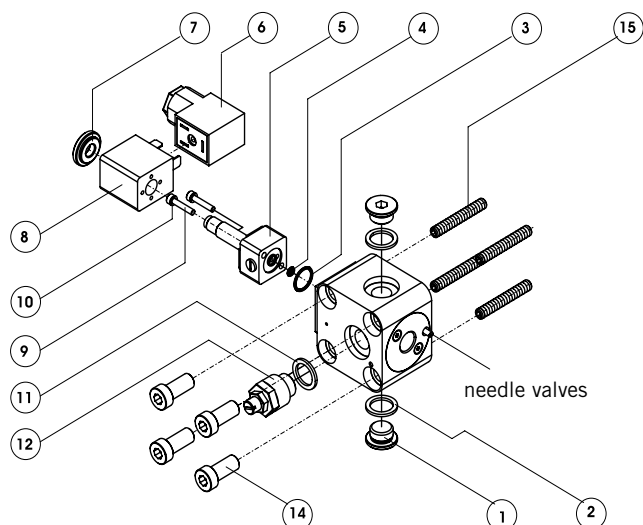
ITEM	DESCRIPTION	ORDER NO.			
		MB-PL25	MB-PL32	MB-PL40	MB-PL50
1	DOUBLE RAIL FDK	10943	10944	10945	10946
1	DOUBLE RAIL FDK, STAINLESS	10953	10954	10955	10956
2	CLAMPING PROFILE	10947	10948	10949	10950
3	WASHER	11884	11885	11885	11885
3	WASHER, STAINLESS	11947	11948	11948	11948
4	SCREW	10810	10610	3275	3275
4	SCREW, STAINLESS	10811	10683	3717	3717
5	COVER	20524	20526	20526	20526
6	FELT	11875	11876	11877	11878
7	SCREW	11886	11886	11886	11886
7	SCREW, STAINLESS	4539	4539	4539	4539
8	WIPER COVER	11841	11842	11843	11844
9	WIPER	11880	11881	11882	11883
10	SCREW	0234	1273	1323	11227
10	SCREW, STAINLESS	0235	0394	3714	10686
11	SCREW	11548	11548	11548	11549
12	BRAKE LINING	11515	11516	11517	11518
13	O-RING	2526	11559	11560	11561

ITEM	DESCRIPTION	ORDER NO.			
		MB- PL25	MB- PL32	MB- PL40	MB- PL50
14	BRAKE PISTON	11510	11511	11779	11780
15	O-RING	11563	11564	11565	11887
16	GUIDE PIN	11520	11521	11522	11523
17	SAUCER SPRING	11533	11534	11535	11536
18	PRESSURE PLATE 0.5 MM	11525	11526	11527	11529
18	PRESSURE PLATE 1,0 MM	11526	11526	11528	11530
19	PAIR OF ROLLER SHOES FEK	11785	11786	11787	11788
19	PAIR OF ROLLER SHOES FEK, STAINLESS	11938	11939	11940	11941
20	SCREW	1848	1323	1323	1323
20	SCREW, STAINLESS	4607	3714	3714	3714
21	WASHER	4373	3789	3789	3789
21	WASHER, STAINLESS	4396	3792	3792	3792
22	PLATE	11505	11506	11507	11508
23	GUIDE CARRIAGE	11912	11913	11914	11915
24	SET SCREW	0429	0429	0429	0429
25	WASHER	11608	11609	11609	11609
25	WASHER, STAINLESS	11611	11612	11612	11612
26	SCREW	11615	11616	11616	11616
27	DRIVE BLOCK	10643	10644	10644	10645
28	WASHER	11929	11929	11929	11929
29	SET SCREW	2744	2744	2744	2744

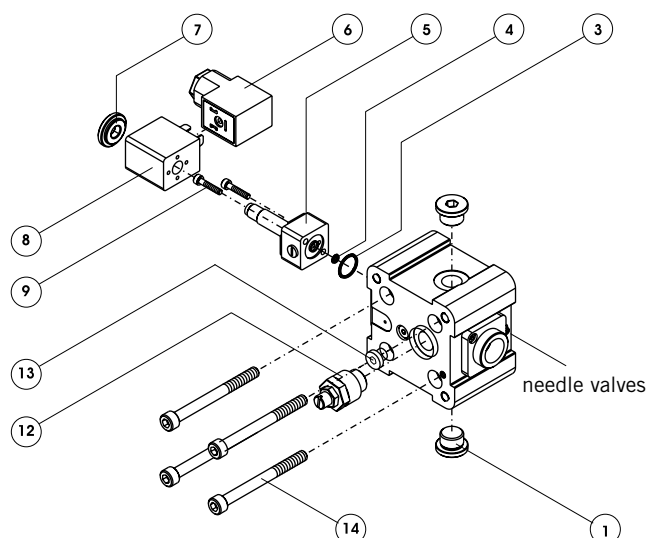
3.12.3 Replacement Assemblies

ITEM	DESCRIPTION	ORDER NO.			
		MB- PL25	MB- PL32	MB- PL40	MB- PL50
6,7,8,9,10,11, 12,13,14,15,16,17,18,19,20,21,22,23,24,28	GUIDE CARRIAGE, COMPLETE	11907	11908	11909	11910
6,7,8,9,10,11, 12,13,14,15,16,17,18,19,20,21,22,23,24,28	GUIDE CARRIAGE, COMPLETE, STAINLESS	11958	11959	11960	11961

3.13 Integrated 3/2 Way Valves VOE



OSP-P25 / OSP-P32



OSP-P40 / OSP-P50

3.13.1 Modules for OSP

ITEM	DESCRIPTION	ORDER NO.			
		OSP-P25	OSP-P32	OSP-P40	OSP-P50
	INTEGRATED 3/2 WAY VALVE VOE 24V, COMPLETE	20914	20916	20918	20920
	INTEGRATED 3/2 WAY VALVE VOE 220V, COMPLETE	20915	20917	20919	20921

3.13.2 Replacement Parts

ITEM	DESCRIPTION	ORDER NO.			
		OSP-P25	OSP-P32	OSP-P40	OSP-P50
1	SCREW PLUG	KW0426	0099	KW0427	KW0427
2	SEAL RING	—	KW0355	—	—
3	O-RING	0631	0631	0631	0631
4	O-RING	0628	0628	0628	0628
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	0651	0651	0651	0651
	SPRING WASHER	0652	0652	0652	0652
8	SOLENOID COIL FOR 24 V= AND 60 V~ / 50-60 HZ	KZ3673	KZ3673	KZ3673	KZ3673
8	SOLENOID COIL FOR 110 V= AND 220 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

3.13.3 Replacement Assemblies

		ORDER NO.			
ITEM	DESCRIPTION	OSP-P25	OSP-P32	OSP-P40	OSP-P50
COMPLETE, BUT WITHOUT 6,7,8,14,15	INTEGRATED 3/2 WAY VALVE VOE (WITHOUT PLUG, KNURLED NUT, SOLENOID AND END CAP SCREWS)	11840	11866	11855	11857

3.13.4 Lubrication

		ORDER NO.			
ITEM	DESCRIPTION	OSP-P25	OSP-P32	OSP-P40	OSP-P50
	GREASE, 8 ML TUBE	1598	1598	1598	1598

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