



Pneumatic Linear Drive OSP-P ATEX

Operating Instructions

ORIGA SYSTEM PLUS

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



ENGINEERING YOUR SUCCESS.

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1 Preface to these operating instructions

To these instructions

These operating instructions

- describe in detail the correct functions, operation and maintenance of the OSP-P.
- provide important information on how to work efficiently and safely with the OSP-P.

Personnel responsibilities

All persons that are assigned to work with the OSP-P are obliged, before starting work, to:

- observe the regulations on explosion protection, work safety and accident prevention carefully.
- read and observe the chapter on safety and the warning notices in these operating instructions.

Operator's responsibilities












The following are assumed to be responsibilities of the operator:

- adherence to regulations governing operational safety
- adherence to applicable national regulations governing work safety and explosion protection
- correct application of the cylinder

The OSP-P may not be put into operation until the machine/system (into which the OSP-P is to be installed) has been checked in accordance with the regulations set out in the EC Machinery Directives.

Explanations to symbols and information

Information, highlighted with one of these symbols, is provided to prevent injury to personnel. Please ensure that all users understand this information.

Symbol	Explanation	Symbol	Explanation
	Caution: passages in these operating instructions that relate to safety are highlighted with this symbol.		Caution: danger of lacerations
	Information: symbol for tips and information to facilitate use of machine and to help to prevent damage.		Note: wear safety glasses
	Caution: falling load		Note: accessory available
	Caution: danger of crushing		Caution: risk of fire
	Caution: explosive atmosphere		Electric earthing, realise equipotential bonding
	Caution: danger of exploding		

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Pneumatic Linear Drive OSP-P ATEX

Type plate

You will find this type plate on the opposite side of piston.

ATEX type plate / base cylinder

Order no. 62696281 / Customer order no. 31753 -19228 / Delivery date 03.12.12

Country of origin DE / Unit of measurement OSPP 25 / Type Diameter 60001 / Stroke Variant Code 00500 / Production order no. 000000000 / 80103939

CE symbol

EX protection authorisation II 2 GD c T4 T135°C -10°C ≤ Ta ≤ +60°C

Equipment group max. 1Hz, max. 3m/s, max. 8bar

Equipment category

Explosive atmospheric gas

Applied protection class

Temperature classes

Ambient temperature range

Parker Hannifin Manufacturing Germany & Co. KG. Industriestraße 8 D-70794 Filderstadt

Max. operating pressure

Max. speed

Max. switching rate

ATEX - Typenschild / guide cylinder SLIDELINE

Order no. 62696281 / Customer order no. 31753 -19228 / Delivery date 03.12.12

Country of origin DE / Unit of measurement OSPP 25 / Type Diameter 60001 / Stroke Variant Code 00500 / Production order no. 00020000 / 80103939

CE symbol

EX protection authorisation II 2 GD c T4 T135°C -10°C ≤ Ta ≤ +60°C

Equipment group max. 0,5Hz, max. 2m/s, max. 8bar

Equipment category

Explosive atmospheric gas

Applied protection class

Temperature classes

Ambient temperature range

Parker Hannifin Manufacturing Germany & Co. KG. Industriestraße 8 D-70794 Filderstadt

Max. operating pressure

Max. speed

Max. switching rate

ATEX - Typenschild / guide cylinder Basic Guide

Order no. 62696281 / Customer order no. 31753 -19228 / Delivery date 03.12.12

Country of origin DE / Unit of measurement OSPBPG 25 / Type Diameter 60000 / Stroke Variant Code 00500 / Production order no. 0000000 / 80103939

CE symbol

EX protection authorisation II 2 GD c T4 T135°C -10°C ≤ Ta ≤ +60°C

Equipment group max. 0,5Hz, max. 2m/s, max. 8bar

Equipment category

Explosive atmospheric gas

Applied protection class

Temperature classes

Ambient temperature range

Parker Hannifin Manufacturing Germany & Co. KG. Industriestraße 8 D-70794 Filderstadt

Max. operating pressure

Max. speed

Max. switching rate

Product monitoring

Our aim is to provide safe products integrated with the latest technologies. This is why we monitor our products constantly after delivery. Please inform us immediately of any recurring faults or problems with the cylinder.

2 Safety



Classification

II 2 GD c T4 T135°C -10°C ≤ Ta ≤ +60°C

For base cylinder : max. 1 Hz, max. 3 m/s, max. 8 bar

For guide cylinder: max. 0,5 Hz, max. 2 m/s, max. 8 bar

These values can only be guaranteed if the condensed technical data provided for these ex products are adhered to exactly.

Intended use

The OSP-P has been designed for use in explosive environments in accordance with the regulations specified by the ATEX Directive 94/9/EC.

Operational safety can only be ensured if the OSP-P is used as intended.

Intended use is only respected if the OSP-P is used in accordance with the condensed technical data:

- to move loads
- to apply force

The OSP-P is driven with compressed air.

If the system is to be used as intended, all work on the OSP-P must be carried out by the manufacturer's servicing personnel.

If the OSP-P is used in a manner other than is stipulated, this classifies as "inappropriate valve use" and could result in either injuries to persons or damage to property. The manufacturer is not liable for such injuries or damages. The user alone assumes full risk.

Operating personnel

The system operator is obliged to ensure that the OSP-P is installed by authorised and qualified technicians. Authorised, qualified personnel are engineers who have been specially trained by the operator, the manufacturer and the service partner and who work in accordance with the explosion protection regulations.

Safety-conscious work environment

The following are not permitted:

- unauthorised modifications to the OSP-P
- operations which interfere with OSP-P safety.

Please observe:

- all safety instructions and symbols on the OSP-P referring to compressed air connections. Please ensure that they are easy to see and read
- manufacturer's instructions for lubricants, solvents and cleaning substances.



Dangers following OSP-P or machine/system shutdown

Risk of crushing

Even after venting the machine/system, there could still be pressure in the OSP-P.

This could cause the OSP-P to move unexpectedly.

Prevent the complete ventilation of the cylinder when being switched off in terms of the control system thus preventing the piston from bumping against a completely ventilated cylinder room.



In explosive areas

Please observe the detailed operating instructions of OSP-P and the total machine/system operating instructions.

Alterations and changes

Any structural or safety-relevant changes to the linear drives must first be approved in writing by **Parker Hannifin GmbH**. **Parker Hannifin GmbH** may thus exclude liability if any unauthorised modifications are made.

No safety or protective equipment may be removed or taken out of operation.

Please observe the manufacturer's assembly instructions when using any special attachment parts!

The following also apply:

- relevant accident prevention regulations
- standard recognised safety rules
- EC guidelines and
- national directives

Accessories

Accessories authorised by the manufacturer ensure your safety. The use of other parts could change the OSP-P properties. We do not assume any responsibility for any damages caused by the use of unintended parts.

3 Warranty

These operating instructions as well as the technical details in the data and illustrations are subject to change.

Parker Hannifin GmbH does not issue any legal or service life warranties or any warranties guaranteeing the suitability for certain purposes. These must be agreed in writing.

Public statements, prices or advertisements are not legally binding.

The operator's warranty rights assume that the operator reports the fault/defect immediately and gives a precise description of his/her complaint. **Parker Hannifin GmbH** is in no way responsible for product damages or consequential damages resulting from the product that have been caused by improper use. As far as **Parker Hannifin GmbH** is to assume responsibility for the defect/fault, the decision to either repair the product or provide a replacement shall remain the right of **Parker Hannifin GmbH**.

In compliance with ISO 9000, all OSP-P come supplied with a type plate and cautionary advice and information. These are attached to the OSP-P and may under no circumstances be removed or disposed of.

The company **Parker Hannifin GmbH** can, regardless of the governing legal grounds, only be made liable in cases of intentional or severe negligence, culpable injuries to life, body or health, or where defects are deliberately concealed or when the absence of such defects has been explicitly guaranteed in writing.

Other matters will be deemed liable insofar as stipulated by the product liability laws for injuries to persons and damages to property for products in private use. **Parker Hannifin GmbH** is also liable in the event of a culpable breach of integral contractual agreements and for cases of slight negligence, however liability is then restricted to predictable damages representative for the type of contract.

Other claims are disregarded.

The warranty shall become invalid if these operating instructions, respective legal regulations as well as other information provided by the supplier are not observed.

We are, in particular, not responsible for breakdowns caused by modifications made by the customer or other persons. In such cases, the normal costs for repair will be invoiced. The customer or other persons will be also invoiced for a system check in the event that no faults could be found in the machine.

This regulation also applies during the warranty period.

The company accepts no claims for the delivery of older system versions and is not obliged to update old systems in accordance with the latest series.

4 Technical Data

Max. compressed air temperature and ambient temperature:	- 10 °C bis + 60 °C	
Maximum switching rate:	1 Hz (1double stroke/s) with base cylinder 0.5 Hz (1stroke/s) with guide cylinder	
Maximum operating pressure:	pmax = 8 bar.	
Max. speed:	Base cylinder	3 m/s
	Guide cylinder	2 m/s
Compressed air requirements:	Not oiled and without water and dirt in accordance with ISO 8573-1	
	Solids:	class 7 particle size $\leq 40 \mu\text{m}$ for gas
	Water content:	pressure dew point +3°C, class 4 at least 5°C below min. operating temperature
Noise emissions:	70 dB(A).	
Material information:	Aluminium materials:	see material data sheet
	Lubrication:	see "Grease for guide cylinders" safety data sheet
	Steel bands:	stainless

You will find other details, e.g. dimensions, weight, permissible loads, cushioning diagram and accessories in our OSP-P catalogue.

Design and function

Design features (see OSP-P catalogue)

The OSP-P is a pneumatic cylinder without piston rod.

The load is mounted onto a carrier.

The cylinder is installed using threads located on the ends or with end cap mountings.

For long cylinders, additional mid-section supports should be used.

The end cushioning has stepless adjustment (see cushioning diagram in the OSP-P catalogue).

The cylinder has permanent grease lubrication.

Function

The piston is moved by compressed air in the OSP-P. The piston is connected to the carrier. The load to be moved is mounted on the carrier. The longitudinal slot in the cylinder is sealed and protected by stainless steel bands.

5 Transport

5.1 Handling



Danger from falling load

Falling loads could result in death.

When transporting the OSP-P, it should be suspended as shown. Never walk beneath a suspended load.

Incorrect transport and installation of the OSP-P can lead to:

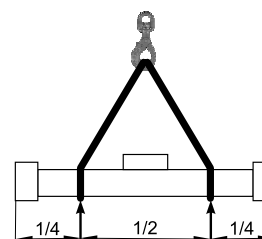
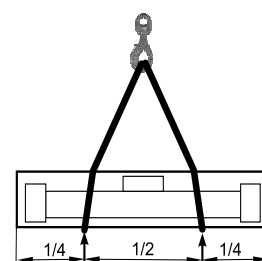
- personal injury
- damage to property

Use a crane or fork lift truck to transport the packaged OSP-P.

- attach the cables or position the forks as shown.

Transporting the OSP-P by crane

- attach the cables as shown.



Information

Transport damage and missing parts should be reported in writing to the shipping company, Parker Hannifin GmbH or the supplier immediately.

5.2 Interim storage

Ensure the following when finding a suitable interim storage:

- dry place free of dust and vibrations.
- storage on a flat surface.



Avoid bending the OSP-P!

6 Assembly

6.1 General informations at assembly



Installation work and commissioning must be carried through by specialonly!

Install the OSP-P in accordance with the EN 983 Standard and the 94/9/EC Explosion Protection Directive. Please note the instructions in the OSP-P catalogue.

Before assembly:

- remove and dispose of all packaging.
- make two strokes of the piston by hand without air pressure.

Always ensure the following when assembling:

- the OSP-P is installed without bending
- that any added electrical devices (including limit switches) have the required approval
- all connections and operating parts are accessible.
- the ATEX type plate and the yellow strip with the “Attention” note is legible
- compressed air is not discharged and/or sucked in from the hazardous area.

6.1.1 Explosion hazard EX



Wrong use or operation of the OSP-P can lead to an explosion hazard at the unit and in the vicinity!

Always ensure the following when assembling:

- that the electric earthing is connected to the local equipotential bonding of the machine or plant
- that no equalising current is flowing through the cylinder.
- the maintenance rules have to be complied with.

Your control system must ensure that:

- the technical data are complied with (see section 4, page 6)
- the OSP-P remains ventilated when the plant is switched off so that no atmosphere capable of explosion can enter the cylinder space
- the cylinder spaces are always fully ventilated when there are high fluctuations in temperature and when the OSP-P is cooling down
- the piston never moves against a fully ventilated cylinder space.

6.1.2 Danger from overheating



When fitted near areas where heat is generated there is a risk of overheating due to heat build-up.

Please observe the following during installation:

- there must be sufficient cool air circulating the OSP-P.
- safety screens must be mounted near heat sources on the machine to prevent against overheating.
- The maximum ambient temperature of +60°C must not be exceeded.

The operator is responsible for removing potential dangers posed by Parker-Origa products when used together with customer equipment.



Risk of crushing, risk of lacerations and eye injuries

Do not carry out any electrical welding work on the machine or system once the OSP-P has been installed. This could otherwise damage the seals and could result in the cylinder moving unexpectedly or cause discharge noises. Dismount the OSP-P or provide adequate electrical isolation before carrying out any welding work on the electrics.

6.2 Details at assembly



Mechanical assembly always take care on:

- Fasten the working load to the carrier using only the 4 threaded holes in the carrier.
- Position the working load so that the bending moments on the carrier are below the values shown in the OSP-P catalogue.
- For long OSP-P, use mid-section supports (see support distances in the OSP-P catalogue).
- Avoid forces exerted by loads carried on external linear guides
- Use a moving carrier (see OSP-P catalogue).
- **The maintenance rules have to be complied with.**



Electrical assembly

Always ensure the following when assembling:

that the electric earthing is connected to the local equipotential bonding of the machine or plant and no equalising current is flowing through the cylinder.

Sensors enable your load to be positioned accurately.

- Only approved ATEX sensors may be used.
- Fit the sensors so that they are not close to ferritic parts or moving loads.
- Use the most favourable mounting slot on the circumference of the cylinder profile.

Your control system must ensure that:

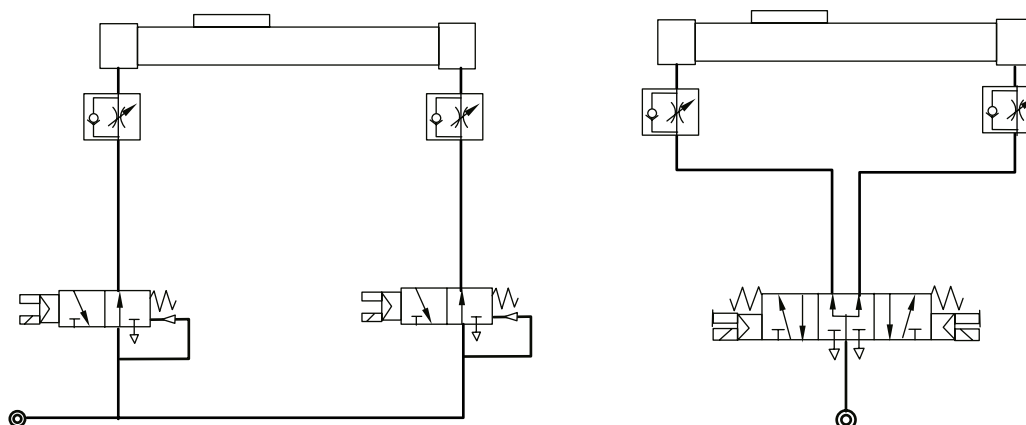
- the cylinder spaces are always fully ventilated when there are high fluctuations in temperature and when the OSP-P is cooling down
- the piston never moves against a fully ventilated cylinder space.

Pneumatic



- Actuate the cylinder via two 3/2-way valves or one 5/3-way valve, normally open .
- Avoid uncontrolled movements during start up or after an unwanted stop.
- Use pressurising units, soft start valves or something similar.
- Arrange the control system in such a way to avoid the cylinder chamber from being exhausted completely when the OSP-P cools down and so that the piston does not travel into a completely exhausted cylinder chamber.
- Adjust the piston speed with throttle non-return valves screwed directly into the OSP-P .
- Use compressed air connections of adequate size.
- Compressed air must not discharged and/or sucked in from the hazardous EX-area (restricted exhaust)

Samples of circuit diagrams:



7 Start up and commissioning



Installation work and commissioning must be carried through by specialonly!

The OSP-P pneumatic linear drive can produce fast linear movements at a high force. If the safety regulations are however not adhered to, this can result in the crushing of extremities or damages caused by collisions with other system parts.



Risk of crushing

Check the following before starting up the machine:

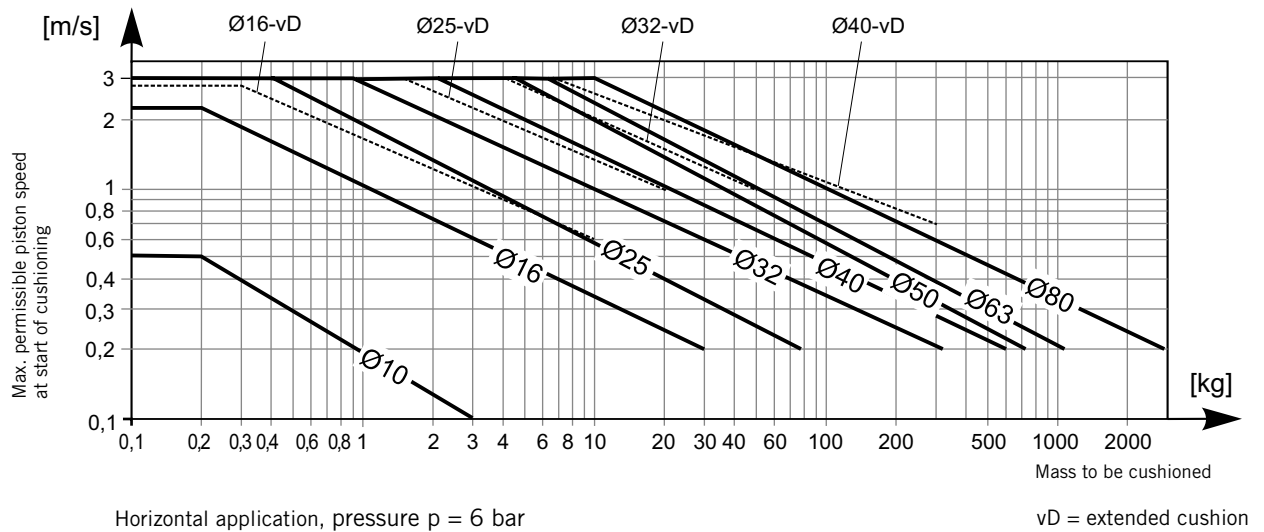
- all connections are fitted correctly
- there are no obstructions in the way of the moving load
- the OSP-P is assembled correctly and fitted securely.

Commissioning a complete system

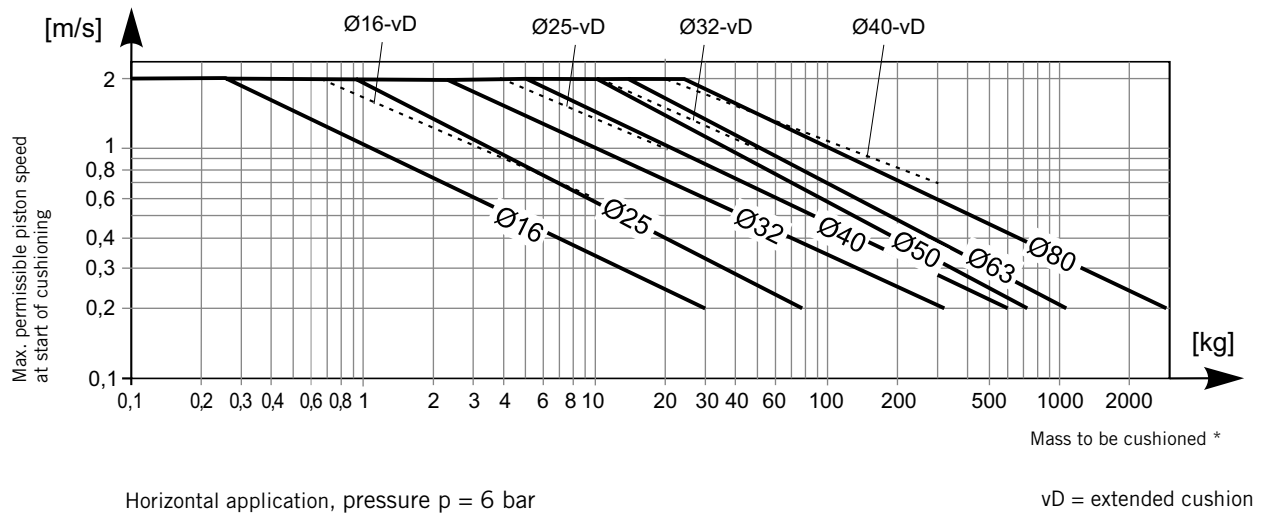
- Check on/off switches, system start up, control LEDs in accordance with the operating instructions!
- Before switching on/starting up the system, ensure that nobody can be endangered when the system starts running.
- All persons must be aware of the system's movements before starting up.
- Before the system is put into operation, check that all protective equipment, end switches, protective grounding and other safety features function correctly and are complete. It may be necessary to check all system parts for possible foreign matters.
- When the system is running, there should be no personnel or objects in the danger zone
- When you start up the system for the first time, check that the correct system data has been entered.
- Make two strokes of the piston by hand without air pressure.
- Move piston to the middle position.
- Screw in both cushion needle valves.
- Unscrew both cushion needles approx. a full turn.
- Pressurise system slowly in order to avoid uncontrolled, dangerous movements. (pressurising unit, soft start valve).

Cushioning diagrams

Base cylinder



Guide cylinder SLIDELINE and Basic Guide



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

Commissioning an individual device

- Make two strokes of the piston by hand without air pressure.
- Move piston to the middle position.
- Screw in both cushion needle valves.
- Unscrew both cushion needles approx. a full turn.
- Pressurise both sides equally. The piston stops after slight movement.
- Vent one side. The piston travels to end position.
- Start test run.
- Adjust speed with throttle non-return valve .
- Adjust end cushioning with valve needle. When adjusting the end cushioning ensure that the system operates without any jolts or vibrations. The technical data in the cushioning diagram (on page 11) must be complied with to ensure a smooth operation.

Re-commissioning after long periods without operation

- Make two strokes of the piston by hand without air pressure.
- Move piston to the middle position.
- Continue as for individual device.

8 Operation

When operating



Danger of explosion from explosive atmosphere

The cylinder is only suited for a minimum ignition energy of dust exceeding 3mJ.

There is a risk of explosion if the OSP-P overheats.



Danger from explosive atmosphere

- There should be no build up of flammable material on the exterior surfaces in explosive environments. Ensure that it is cleaned regularly: how often you clean depends on the ambient conditions.
- Avoid increased friction caused by lack of lubrication.



There is a risk of explosion if the OSP-P overheats.

If you encounter any problems with the OSP-P, switch off the machine/system immediately.

Contact the manufacturer's service personnel as soon as possible.

Do not attempt to disassemble and repair the OSP-P.

Arrange the control system

- in such a way to avoid the cylinder chamber from being exhausted completely when the OSP-P cools down
- so that the piston does not travel into a completely exhausted cylinder chamber.

Troubleshooting:

Fault	Possible cause	Remedy
Air leakage of the OSP-P at any point of the internal sealing tape.	Internal sealing tape dirty	Call service personnel
Air leakage at the piston of the OSP-P	Piston sealing defective	Call service personnel
Air leakage at the cover of the OSP-P	O-ring defective/internal sealing tape dirty	Call service personnel
The OSP-P runs slowly or jerkily	1) Speed setting too low 2) Operating pressure below 2 bar 3) Soiling due to air or abrasion 4) Lack of lubrication 5) Defective piston packing 6) No jogging grease in the OSP-P for speeds under 0.2 m/s	re 1) Adjust speed with one-way restrictor re 2) Increase operating pressure re 3) to 6) Call service personnel
Piston does not move to end position	Valve needle fully screwed home	Adjust valve needle
Piston drives too hard into the end position – on one or both ends	1) End position damper needs adjusting 2) Possible overload 3) Damper seal, O-ring on the cover/ damper pin, piston sealing ring or inner sealing tape defective	re 1) Correct setting of valve needle re 2) See damping diagram in the catalogue re 3) Call service personnel
The transducer does not work properly	1) Ferritic parts are positioned too close to the transducer 2) Transducer defective	Call service personnel

9 Maintenance and service



Risk of crushing

Only carry out maintenance work when the machine/system has been switched off and the compressed air system has been vented. Always consult the machine/system operating instructions when carrying out maintenance on the OSP-P.



Danger of explosion from explosive atmosphere

Only carry out the following maintenance work listed below.

If other OSP-P work is needed, dismantle the OSP-P and send it to Parker Hannifin GmbH.

You may carry out the following maintenance tasks:

- check the connections, general state/appearance.
- cleaning exterior surfaces:
Clean the exterior of the OSP-P with a dry, anti-static cloth. There should be no build up of flammable material on the exterior surfaces in explosive environments. Ensure that it is cleaned regularly: how often you clean depends on the ambient conditions.



Information

The manufacturer or a person authorised by the manufacturer should check the OSP-P after 4,000 km of operation and if necessary carry out necessary maintenance and servicing work.

Additional maintenance

You may carry out the following maintenance tasks on the guide cylinder Slideline SL and Basic Guide BG.

Adjusting the guide clearance:

The guide rails should be free from backlash and be easy to move by hand.

- Align the adjusting bolts individually, starting from the middle and working outwards.

Relubricating guides:

How often you lubricate the guides depends on the load, speed and the amount of exterior dust and dirt.

There must be a visible film of grease on the guide rail.

- Close all fastening threads on the guide rails using set screws or screws so that no grease can leak out.
- Fill the grease nipples (on both sides of the guide rail) with grease for the guides until there is a thin film of grease visible on the slide profile the guide rail is moved backwards and forwards.



Information

Observe the “Grease for guide cylinders” safety data sheet.

ID no. 10 550 packaging 8 ml tube

ID no. 3184 packaging 1 kg tin

10 Disassembly and disposal



The local regulations and laws governing the disposal of environmental hazardous waste must be adhered to.

Notes

11 Declaration of conformity



Parker Hannifin Manufacturing Germany GmbH & Co. KG - Pneumatic Division Europe
Industriestrasse 8 - 70794 Filderstadt (Sielmingen), Germany

Parker Hannifin Manufacturing Germany GmbH & Co. KG
Pneumatic Division Europe – Origa
Industriestrasse 8
70794 Filderstadt (Sielmingen)
Deutschland

Tel +49 (0)7158 1703-xx
info-origa-de@parker.com

www.parker-origa.com
www.parker.com

Ust.-Id.-Nr.: DE 277325745
Steuer-Nr. 349/5747/2105

Commerzbank AG
BLZ: 480 400 35
Konto: 7610371
IBAN: DE14 4804 0035 0761 0371 00
SWIFT: COBADEFF480

Declaration of Conformity


In accordance with EC Directive 94/9/EC (ATEX)

We hereby declare that the

Products: Rodless cylinder
Series: OSP-P
Types: Classic

comply with the regulations of Directive 94/9/EC (ATEX) for equipment or protection systems intended for use in potentially explosive atmospheres.

Product group, category, zones:

 II 2GD c T4 T135°C -10°C ≤ TAs ≤ +60°C

The conformity assessment procedure was carried out according to Directive 94/9/EC (ATEX). The corresponding documentation is deposited at the following notified body 0123:

TÜV Product Service GmbH
Gottlieb-Daimler-Str. 7
D-70794 Filderstadt

The following harmonized standards are applicable:

DIN EN 1127-1: 2011	Explosive atmospheres - Explosion prevention and protection – Part 1: Basic concepts and methodology
DIN EN 13463 -1: 2009	Non-electrical equipment for potentially explosive atmospheres – Part 1: Basic methods and requirements
DIN EN 13463 -5: 2011	Non-electrical equipment for potentially explosive atmospheres – Part 5: Protection by constructional safety "c"
ISO 8573-1: 2010	Compressed air – Part 1: Contaminants and purity classes

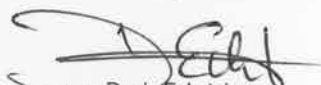
Further applicable regulations: EC Machines Directive (2006/42/EG)

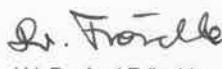
The accompanying operating instructions contain important safety notes and instructions for the commissioning of the above-named mechanical products in compliance with Directive 94/9/EC (ATEX).

Modifications of the above-named products are not permissible, except with the express written agreement of the manufacturer.

If the above-named products are installed in a higher-ranking machine, the new risks arising from their installation must be assessed by the manufacturer of the new machine.

Filderstadt, April 2015


ppa. Denis Eckstein
Operations Manager


i.V. Dr. Axel Frösche
Engineering Manager

Parker Hannifin Manufacturing Germany GmbH & Co. KG - Sitz: Bielefeld - Amtsgericht Bielefeld: HRA 15699
persönlich haftende Gesellschafterin: Parker Hannifin GmbH - Sitz: Bielefeld - Amtsgericht: Bielefeld HRB 35489
Geschäftsführung der Parker Hannifin GmbH: Dr.-Ing. Hans-Jürgen Haas, Ellen Raahede Secher, Günter Schrank, Kees Veraart
Vorsitzender des Aufsichtsrates: Hansgeorg Greuner

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates,
Dubai

Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt

Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener
Neustadt

Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku

Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles

Tel: +32 (0)67 280 900
parker.belgium@parker.com

BY – Belarus, Minsk

Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy

Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany

Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst

Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup

Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid

Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa

Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve

Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens

Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budapest

Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin

Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)

Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty

Tel: +7 7272 505 800
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal

Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker

Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira

Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest

Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow

Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga

Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica

Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto

Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul

Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev

Tel +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick

Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park

Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario

Tel: +1 905 693 3000

US – USA, Cleveland

Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill

Tel: +61 (0)2-9634 7777

CN – China, Shanghai

Tel: +86 21 2899 5000

HK – Hong Kong

Tel: +852 2428 8008

IN – India, Mumbai

Tel: +91 22 6513 7081-85

JP – Japan, Tokyo

Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul

Tel: +82 2 559 0400

MY – Malaysia, Shah Alam

Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington

Tel: +64 9 574 1744

SG – Singapore

Tel: +65 6887 6300

TH – Thailand, Bangkok

Tel: +662 186 7000-99

TW – Taiwan, Taipei

Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires

Tel: +54 3327 44 4129

BR – Brazil, Sao Jose dos Campos

Tel: +55 800 727 5374

CL – Chile, Santiago

Tel: +56 2 623 1216

MX – Mexico, Apodaca

Tel: +52 81 8156 6000

