

Piston Rod Cylinder

AZ, DZ, NZK, R, SZ

Operating Instructions - ENGLISH

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
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1 Preface to 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 cylinder may not be put into operation until the machine/system (into which the cylinder is to be installed) has been checked in accordance with the regulations set out in the EC Machinery Directives.

To these instructions

These operating instructions

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













Personnel responsibilities

All persons that are assigned to work with the cylinder 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.

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: wear safety gloves.
	Caution: danger of crushing.		Note: accessory available.
	Caution: explosive atmosphere.		Caution: risk of fire.
	Danger from electric shock		Hazard by overheating

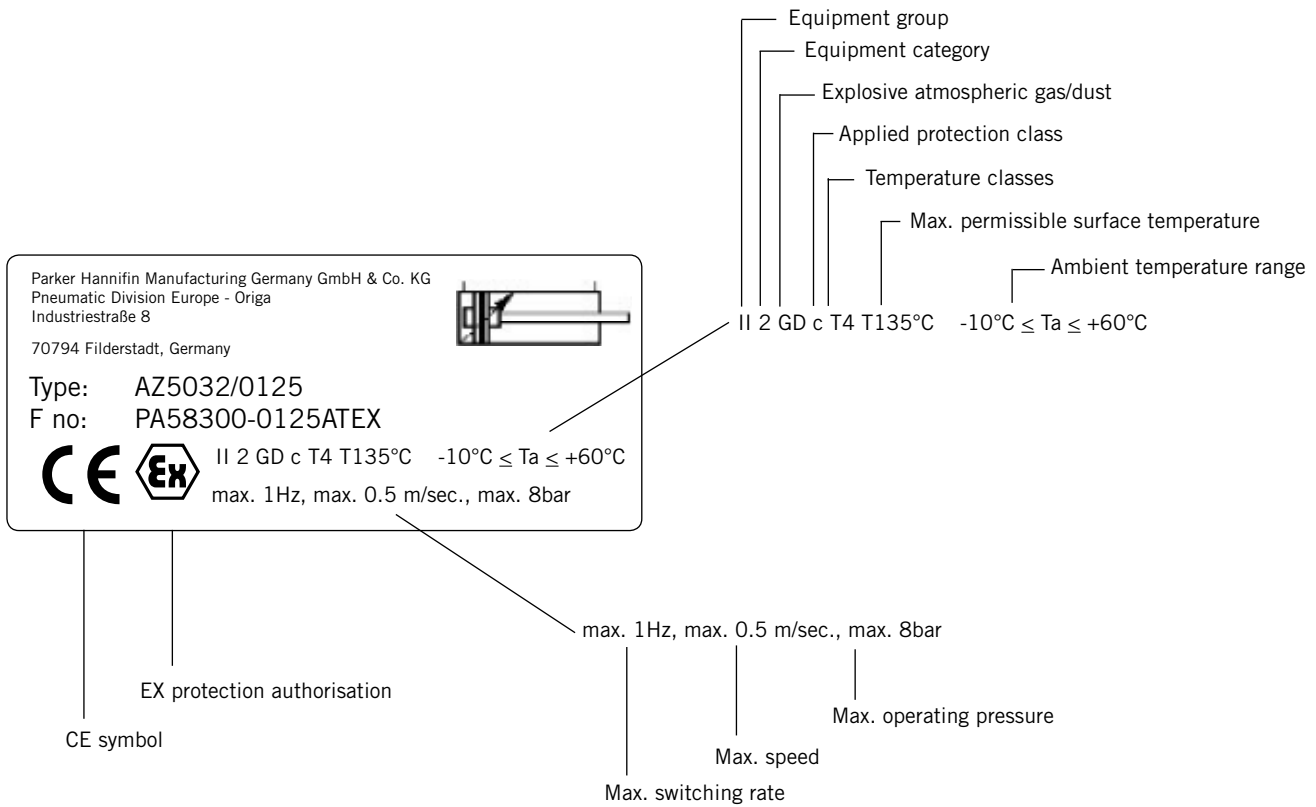
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These operating instructions may not be copied in their entirety or in part, distributed or used in an unauthorised manner for competitive purposes without permission or given to others. Violation of these regulations could lead to criminal prosecution.

Piston Rod Cylinder

Type plate



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 GDc T4 T135°C -10°C < Ta < +60°C

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

Intended use

The cylinder 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 cylinder is used as intended.

Intended use is only respected if the cylinder is used in accordance with the condensed technical data and these operating instructions:

- to move loads
- to apply force in the direction of the piston rod axle.

The cylinder is driven with compressed air.

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

If the cylinder is used in a manner other than is stipulated, this classifies as "inappropriate cylinder 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 cylinder 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 cylinder.
- operations which interfere with cylinder safety.

Please observe:

- all safety instructions and symbols on the cylinder 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 cylinder or machine/system shutdown

Even after venting the machine/system, there could still be pressure in the cylinder.

This could cause the cylinder to move unexpectedly.

Please observe the machine/system operating instructions.

Alterations and changes

Any structural or safety-relevant changes to the cylinders must first be approved in writing by **Parker Hannifin Manufacturing Germany GmbH & Co. KG. Parker Hannifin Manufacturing Germany GmbH & Co. KG** 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 cylinder's 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 Manufacturing Germany GmbH & Co. KG 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 Manufacturing Germany GmbH & Co. KG** 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 Manufacturing Germany GmbH & Co. KG** 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 Manufacturing Germany GmbH & Co. KG**.

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

The company **Parker Hannifin Manufacturing Germany GmbH & Co. KG** 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 Manufacturing Germany GmbH & Co. KG** 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 Transport/assembly

4.1 Transport



Danger from falling load

Improper transport and assembly could result in either injury to persons or damage to property. The cylinder may only be transported by qualified and trained personnel.



Information

Transport damages and missing parts should be reported in writing to the shipping company, Parker Hannifin Manufacturing Germany GmbH & Co. KG or the supplier immediately.

4.2 Intermediate storage

Store the cylinder in a flat, dry room that is free from dust and vibrations.



Avoid bending the cylinder!

4.3 Assembly



Danger of explosion caused by the intake of explosive media

Explosive media could enter into the cylinder interior if the cylinder is not mounted correctly. The exhaust air must always be restricted.

Mount the cylinder in accordance with the EN 983 Standard and the 94/9/EC Explosion Protection Directive. Please observe the instructions in both catalogues.

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 cylinder is installed without bending.
- electrical grounding of the machine or system.
- all connections and operating parts are accessible.
- the ATEX type plate can be read clearly.
- compressed air is not discharged and/or sucked in from the hazardous area (restricted exhaust).



Danger from overheating

If the cylinder is assembled incorrectly, this could cause a fire as the cylinder could overheat.

Please observe the following during installation:

- there must be sufficient cool air circulating the cylinder.
- safety screens must be mounted near heat sources on the machine to prevent against overheating.

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

5 Start up and commissioning



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 cylinder is also assembled correctly and fitted securely.

6 Technical data

Ambient temperature range:	- 10 °C to + 60 °C
Maximum switching rate:	1 Hz
Maximum operating pressure:	$p_{\max} = 8$ bar.
Max. speed:	0.5 m/sec.
Compressed air requirements:	Not oiled and without water and dirt in accordance with ISO 8573-1
Solids:	Class 6, particle size < 5 µm for dust. Class 7, particle size < 40 µm for gas.
Water content:	Class 4, pressure dew point +3°C, at least 5°C below min. operating temperature
Noise emissions:	70 dB(A)
maximum radial force:	1% of piston pressure at 6 bar
Please consult our catalogue to find the rest of the cylinder data.	



Information

Please consult the “Lubricating grease” safety data sheet:

ID no. KL 8220 packaging 5g tube

7 Operation



Danger of explosion from explosive atmosphere

There is a risk of explosion if the cylinder overheats.

If you encounter any problems with the cylinder, switch off the machine/system immediately.

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

Do not attempt to disassemble and repair the cylinder.

Cleaning during operation:

Only use a dry, anti-static cloth or other material protective substances for cleaning (see also Section 8 Maintenance and service).

8 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 cylinder.



Danger of explosion from explosive atmosphere

Only carry out the following maintenance work listed below.

If other cylinder work is needed, dismantle the cylinder and send it to Parker Hannifin Manufacturing Germany GmbH & Co. KG.

You may carry out the following maintenance tasks:

- check the connections, the machine for running dry and the general state/appearance and clean the exterior.
- visual inspection of piston rod. replace cylinder if there are signs of wear
- lubricate the cylinder after every 100,000 operating cycles or after every 500 km (see technical data for information on greases and lubricants)
- clean exterior surfaces.

Clean the exterior of the cylinder with a dry, anti-static cloth. There should be no build up of flammable material on the cylinder surface in explosive environments. Ensure that it is cleaned regularly: how often you clean depends on the ambient conditions

9 Disassembly and disposal



Risk of crushing, risk of eye injuries, risk of lacerations

Always wear a pair of safety goggles when dismantling. Be extremely careful when removing the cylinder. Observe the "Safety" chapter and the local safety regulations. Please also observe the system operating instructions.



Dangers include:

- **residual pressure in the tubes and actuators**

Slowly release the pressure from the cylinder/system to ensure there is no residual pressure in the tubes and other actuators.



- **heavy parts that could fall once unfastened**

Ensure that these heavy parts are protected to prevent them from falling once unfastened.



- **sharp edges**

Prevent anyone from walking below falling loads

- **sharp edges**

Always wear protective gloves to avoid cutting yourself on sharp edges.

- **uncontrolled movement of the piston**

To prevent the piston from moving unexpectedly, vent the cylinder/system slowly. The vertical piston must be travelled into the lower end position before venting the compressed air

Only disassemble the cylinder when:

- the machine has been switched off.
- the compressed air supply has been blocked.
- the compressed air system has been vented.

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

10 Manufacturer's declaration



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Manufacturer's Declaration

in compliance with the EC Machinery Directive EC

Cylinder design:

Make: AZ, DZ, NZK, R, SZ

are designed, constructed and manufactured in compliance with 2006/42/EG
the sole responsibility lying with

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

The following harmonised standards are applied:

- DIN EN 292, Safety of Machinery.
- DIN EN 60204.1, Electrical Equipment of Industrial Machines.
- DIN EN 983, Safety Requirements for Fluid Power Systems and their components.

Technical documentation is available in full.

The cylinder may not be put into operation before it has been checked that the machine/system (into which the cylinders is to be installed) meets the regulations set out in the EC Machinery Directive. The piston rod cylinders are excluded from the requirements of the 97/23/EC Pressure Equipment Directive.

Filderstadt, July 2011

A handwritten signature in black ink, appearing to read "J. Asperger".

ppa. Johann Asperger

A handwritten signature in black ink, appearing to read "A. Keller".

ppa. Alexander Keller

11 Conformity declaration



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Declaration of Conformity

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

We hereby declare that the

Products: Piston rod cylinder
Series: AZ, DZ, NZK, R, SZ

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 ≤ TA ≤ +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:

EN 983	Safety of machinery. Safety requirements for fluid power systems and their component, pneumatics	Dt. 1996
EN 1127-1	Explosive atmospheres. Explosion prevention and protection. Part 1: Basic concepts and methodology	Dt. 1997
EN13463-1	Non-electrical equipment for potentially explosive atmospheres. Part 1: Basic methods and requirements	Dt. 2001
EN 13463-5	Part 5: Protection by constructional safety	Dt. 2000
ISO 8573-1	Compressed air for general use. Contaminants and purity classes	Gb. 2001

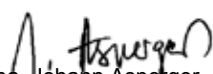
Further applicable regulations: EC Machines Directive (89/392/EWG)

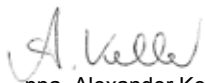
The accompanying operating instructions contain important safety notes and instructions for the commissioning of the above-named mechanical products in compliance with Directive 94/9/EC (ATEX).

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.

Parker Hannifin Manufacturing GmbH & Co. KG, July 2011


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ppa. Alexander Keller

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