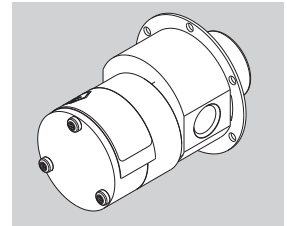


INSTRUCTION MANUAL

ATEX **MG, MK and MS gear pumps**



GENERAL

This manual contains important and useful information on protection against the risks in potentially explosive atmospheres in accordance with EC directive 2014/34/EU. All relevant instructions about installation, operation and maintenance of the pump are available in the separate pump's instruction manual.

For protection against the risks in potentially explosive atmospheres it is imperative that the pump must be protected from all unauthorized operation and unnecessary wear. Explosive gas mixtures or concentrations of dust, in conjunction with hot and moving parts on pump and on the driving unit, can lead to severe or fatal personal injuries. Installation, connection, start-up and maintenance must only be performed by qualified technicians taking into account the instructions reported in this manual together with all other instructions for the installed equipment and system. Specific regulations and requirements for the complete system must be considered (current valid national and regional regulations).

Since the maximum surface temperature depends mainly on the operating conditions given by the heated fluid in the pump, a single temperature class or maximum surface temperature cannot be determined by the manufacturer.

The temperature class with the maximum allowed fluid temperature (fluids up to 120°C) is T3 (< 200°C), the temperature class can be lowered to T4 (< 135°C) but in this case the fluid temperature must not exceed 70°C.

Maximum fluid temperature	Temperature class
120°C	T3 (< 200°C)
70°C	T4 (< 135°C)

Ambient temperature range: -20/+40°C.



In order to use the pump in ATEX Zone 1, it is needed to implement an ignition protection system “b” monitoring the temperature class required T3 (< 200°C) or T4 (< 135°C) depending on the maximum fluid temperature selected (120°C or 70°C, respectively).

Specified temperature limits might be exceeded in case the pump is operated outside the specified operating range (temperature and pressure) and in unauthorized modes.

In addition to the temperature monitoring device, a pressure monitoring device is mandatory if the limits cannot be observed under all possible operating conditions.

A minimum sufficient flow through the pump must be assured in order to remove the heat generated by the pump operation.

Verify that heated air from other units close to the pump does not affect the ambient temperature around the pump (maximum ambient temperature is 40°C).

Pump must not run in dry conditions, internals must be filled completely with, and lubricated by the liquid that will be used during operation (including start-up, priming and shut-off). Equip the fluid tank with a sensor level and be sure that hydraulic connections are made at state of the art.

Pump must always run with fluids in liquid phase.

Fluid-o-Tech reserves the right to alter the specifications indicated in this catalogue at any time and without prior notice.

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The intended use of the equipment is:

- in an atmospheric pressure environment;
- in a fixed installation (it is not considered as handheld equipment or equipment carried on the person).

Do not use abrasive fluids with the pump.

Only equipment with certification of conformity for the intended ATEX zone must be used.

All the components must be metallic and conductive (adapter included). Proper earthing on the whole equipment is required.

Pump operation involves the risk of producing an electrostatic charge in flowing liquids. The user should take measures according to IEC TS 60079-32-1. Only liquids with a high conductivity (> 1000 pS/m) can be used.

In order to prevent temperature increase, avoid working with:

- closed outlet port;
- direct return of liquid from outlet to inlet side of the pump.

INSTALLATION AND MAINTENANCE

Please refer to the instruction manual and follow the instructions available for the installation (paragraph "Assembling the magnet onto the motor shaft") using the tool AT-152_....

During the operation of assembling the magnet onto the motor shaft, verify that noises and/or vibrations are not present when the motor shaft rotates.

A dedicated tool is available: AT- 628_...., please refer to the table below for the various configuration.

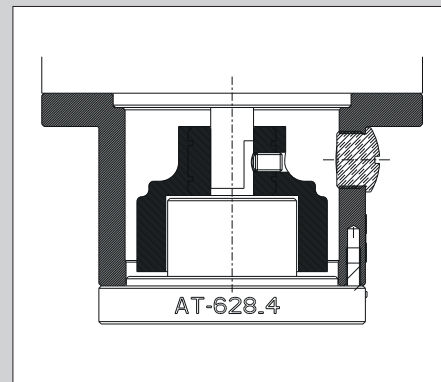
Remove the AT-628_... tool and assemble the pump, verify again that noises and/or vibrations are not present when the motor shaft rotates. Perform a periodical check of the alignment of the pump and the external magnet.

Tool AT-628_... options (depending on pump series and magnet type)

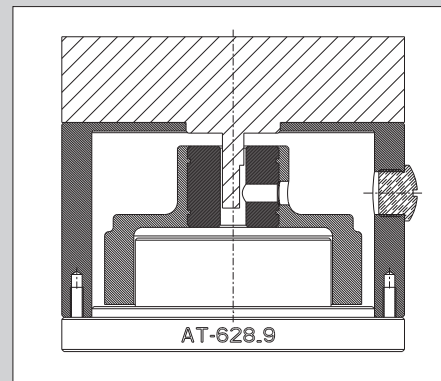
Pump series	MG/MS		MK	
Magnet type	MGAF	MGAS	MKAF	MKAS
Tool type	AT-628_4		AT-628_9	

Perform a periodical check of the pump performance (every 1000 h of operation), if the decrease in performances is higher than 20% it is needed to replace the pump. Proper earthing of the whole equipment (motor + adapter + pump) is required. Earthing terminals should be provided on the motor, if not possible, apply earthing connection on another component of the group. Verify periodically the proper earthing of the whole group.

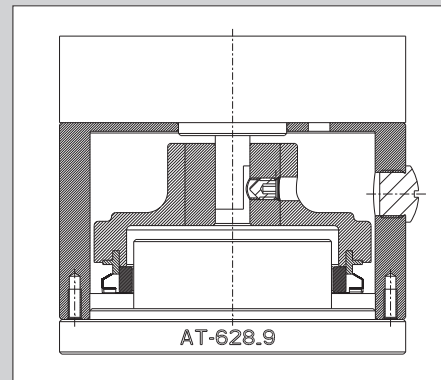
The adapter covers rotating parts such as external



MGAF / MGAS



MKAF



MKAS

magnet and motor shaft, all the open holes in the adapter must be plugged.

Verify the chemical and thermal compatibility of the fluid with the pump materials. Periodically check that no leakages are present.

Periodically clean the equipment, also the internal part of the adapter/coupling, the pump should then be accessible for maintenance and inspection. Generally, avoid significant dust or other materials deposits. The equipment to be installed must be undamaged and must have been properly stored before installation, in case of doubt, please consult Fluid-o-Tech.

In case of overpressure in the system, equip the system with an adequate safety valve (dimensions, performance, standards, ...) with the certification of conformity for the intended ATEX zone.

The bypass valve integrated in certain pump configurations is NOT to be intended as a safety valve, but as a simple relief valve for accidental overpressure. In case the pressure or the temperature (ambient and/or fluid) exceeded the limit, please consult Fluid-o-Tech to repair the pump with the replacement of damaged components and general functioning check.

Inlet and outlet lines should be designed properly for the required performance conditions and should be executed accordingly, please refer to the instruction manual. Issues like cavitation, vapor lock and similar working conditions must be avoided since they could cause severe problems and lead to excessive

vibrations and premature pump failure. Lines must be internally cleaned and free of any foreign particles.

For protection against potentially explosive atmospheres, it is important that the area around the pump and the pump itself are clean.

During installation and maintenance use non-sparking tools when working on the pump unit in a potentially explosive atmosphere.

IGNITION HAZARD ASSESSMENT IMPLEMENTED BY THE USER

Risks evaluation on the system should be implemented by the user, according to specific usage and working conditions, considering:

- analysis of the ignition hazards and their causes;
- frequency and duration of the ignition hazards;
- characteristics of the system, processes and their interactions;
- entity of consequences.

Through ignition hazard assessment, the user defines the areas and divides them into zones, with the proper signals on the access points.

DISCLAIMER

Considerable effort has been made to avoid inaccuracies and omissions in this manual, if you should find an error or omission, please contact Fluid-o-Tech. Fluid-o-Tech reserves the right to update the design and the specifications of the products at any time and without prior notice.