

Explanations to ATEX Directive 2014/34/EU

In connection with our offers concerning operation in explosion proof areas we will point out following:

- a) Running dry of the GATHER pump has to be avoided!
- b) Supervision of the temperature of the magnet cup is not necessary!
- c) The temperature class depends on the temperature class of the motor and the maximum media temperature in the pump.

Please pay attention to the extracts of our operating manual concerning the operation of magnetic drive GATHER pumps in explosion proof area 1 and 2 or explosion proof area 22:

Extract from GATHER operating manual

2.8 Use in Hazardous Areas



Using the pump in hazardous areas is prohibited unless:

1. The pump-related specification expressly allows its use within hazardous areas and exactly narrows down the general explosion protection classification Ex II 2G Ex h IIC T1...T6 Gb with respect to temperature class

and



2. the data provided on the rating plate of the motor expressly permits its operation. Also observe the operating instructions of the motor which drives the pump.



The explosion-proof motors furnished by GATHER Industrie GmbH meet the requirements of ATEX Directive 2014/34/EU (refer to EU prototype test certificate of the motors). Appropriately ground motor and connected pipework to prevent the pump unit from being subjected to electrostatic charging.



To avoid heat accumulation/hot spots, do not additionally insulate connecting elements (adapter flange and pump carrier) arranged between pump head and motor!

The magnetic drive GATHER pump does NOT consist of non-sparking casing materials.



Electrostatic charging may exclusively occur at the thermal isolator („GFK ring“) of the motor connecting elements if this ring is charged by externally applied (not pump induced) friction.

2.8.1 Use in Zones 1 and 2



The magnetic drive GATHER pump is assigned to **Equipment Group II** and **Equipment Category 2G** (environment of pump). The internals of the pump are subject to requirements of Equipment Category 2G (Ex II 2G Ex h IIC T1...T6 Gb). The applicable temperature class must be clearly defined for the specific application based on fluid temperature and rheology of the fluid and will be stated in the pump-related specification. No EU prototype test certificate is needed for the mechanical portion of the pump.



In the event of a **sudden failure** of the fluid inflow to the pump (e.g. if the intake pipe is empty or clogged up) **switch the pump off without delay**. In this way, the pump cannot overheat and mechanical wear is avoided.

As regards the temperature arising in the pump head, a one-minute operation is only to be viewed non-critical with the fluid still remaining in the pump head.

2.8.2 Ignition sources of the GATHER magnetic drive pump

a) Dry running



The pump must never run dry!

If there is a risk that the pump may run dry, take protective measures, for instance by means of a flowmeter, a pressure sensor or level meter (approved by ATEX Directive 2014/34/EU).

The Plant Owner must ensure that the pump cannot run dry.

b) Friction inside the pump



As a rule, heat generation inside the pump due to friction is very low. The bearings are purged and cooled through the aqueous fluids pumped. In exceptional cases, the interaction between motor speed, differential pressure, temperature and rheological properties of the fluid may cause higher friction or shear within the pump. In such cases, the fluid temperature and the temperature of the pump surface may rise. Prior to commissioning and outside the hazardous area the Plant Owner must check whether such a temperature rise is still within specified limits. In the event of a critical temperature rise, the pump must be cooled in such a manner that the ignition temperature cannot be reached. **Should this turn out to be impossible, the pump must NOT be used within a hazardous area!**





c) Magnetic coupling

The GATHER magnetic drive pump is cooled through the fluid conveyed. Please note: As long as the fluid temperature is below the ignition temperature the pump head surface temperature will also be lower than the ignition temperature. The magnetic forces arising in the magnetic couplings of pump series 1 and 2 are so low that a heat generation through eddy-current losses is insignificant when the pump has been filled with fluid.

In series 3 (Wankel pump) the combination of magnet diameter, magnet pot material and magnet cap thickness ensures that the eddy-current losses are insignificant.

For that reason, a temperature monitoring of the magnet cap may generally be dispensed with in all pump series!

Due to the magnetic coupling, the pump is deemed as per regulation TRBS 2152, Part 2, Section 2.4.3.2 to be „a permanently technically-tight plant component“.

It is the Plant Owner's responsibility to make sure the product connections are permissible and permanently technically-tight pipework connections.

Chemical reactions



No chemical reactions whatsoever must occur in the pump head.

Note: Since cooling measures (e.g. in case of acid reactions) may even intensify the reaction producing a higher heat input, and switching the pump off will have no effect on the reaction, reactions inside the pump must NOT take place.

2.8.3 Use in Hazardous Areas of Zone 22



In this case the notes pertinent to the operation of the pump in hazardous areas coincide with what has been said in Chapter 2.8.2. However, **Chapter 2.8.1 is not applicable here**, and substituted by the following:



No dust clouds must form in the environment of the pump!

Stipulations as per EN 50281-1 to EN 50281-3 shall apply.



The magnetic drive GATHER pump is assigned to **Equipment Group II** and **Equipment Category 3G** (environment of pump). The internals of the pump are subject to requirements of Equipment Category 2G (Ex II 2G Ex h IIC T1...T6 Gb). The applicable temperature class must be clearly defined for the specific application based on fluid temperature and rheology of the fluid and will be stated in the pump-related specification. No EU prototype test certificate is needed for the mechanical portion of the pump.



In the event of a **sudden failure** of the fluid inflow to the pump (e.g. if the intake pipe is empty or clogged up) **switch the pump off without delay**. In this way, the pump cannot overheat and mechanical wear is avoided.

As regards the temperature arising in the pump head, a one-minute operation is only to be viewed non-critical with the fluid still remaining in the pump head.

Notes Regarding Operation in Zone 22:



The **smoldering temperature** of the dust must at least be 100 K higher than the operating temperature of the fluid conveyed. In this case, the deposit layer must not be thicker than 5.0 mm (acc. to EN 50281-3, Rule B.1). In the event of thicker deposit layers the difference between fluid operating temperature and dust smoldering temperature must be higher – see diagram included in EN 50281-3 (Rule B.2). The pump must not become immersed in dust.



For operation in hazardous areas of Zone 22 the magnetic drive GATHER pump will always have a magnet space seal to prevent dust ingressing the area where the motor shaft-mounted driving magnet is located.

When separating the pump head from the drive unit for replacement or repair purposes (see Chapter 6 et seq.), make sure dust cannot enter the magnet space when dismantling and mounting the components. During assembly of the unit, seal the magnet space again to make sure it is dust-tight.