

Addendum to the "Assembly and Instruction manual"  
for Beinlich Pump Systems gear pumps and sub-systems

## For use in hazardous areas

### **Design ZPA – ZPD – ZPB - ZPBD - ZPI external / internal gear pumps**

The basis for this instruction manual is the general "Assembly and Instruction manual" for **Beinlich Pump Systems** gear pumps and sub-systems.

It is also based on the user manual of the manufacturer of the shaft sealing system, of the coupling and motor. The components used must conform to ATEX directive 95 EG Ex II 2G c T4.

On assembly of the individual components, no further ignition source is expected.

The gear pumps and sub-systems are developed and certified for use in hazardous areas in protection category: **intrinsically safe to EN500014**. The certificate of origin and the specified regulations and rules for use must be observed!

When using a mechanical contact seal the fluid temperature at the inlet port may not be higher than 55°C / 131 °F. This must be guaranteed by the operator by taking appropriate steps.

When using a mag-drive the operator must make sure that any slipping and thereby a rise in temperature is prevented completely! To this end the user must install pressure control.

The gear dosing pumps to ATEX directive 95 EU may be used in division II, category 2G, gas group II B and II C and temperature class T4.

The permitted ambient- and fluid temperatures will be found in the technical data sheet.

Ex II 2G c IIB T 4

Ex II 2G c IIC T 4

## Valuation of ignition source at EN13463-1, chapter 5.2.8/ gear pumps ZPA - ZPD - ZPB - ZPDB - ZPI

| potential ignition source |                                                                            | procedure to avoid action potential ignition source                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | category (ATEX Eex symbol)                                    |
|---------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| normal use                | expectant failure                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                               |
| open hot surfaces         | working without medium<br>==> overheat the bearings                        | A test was made running the pump at full load under standard conditions. The temperature was measured at an ambient temperature of 20°C / 68°F. The result is available on request. By this result the assigned temperature class is T4.<br>The possibility that an explosive mixture can be created inside the pump is acceptable because the safety measures ensure this condition can be avoided.<br>The pump must work with positive pressure of the fluid at the suction port to fill the pump at all times.<br>Dry running should be avoided. The operator of the pump must take appropriate action against dry running. | EN13463-1<br>chapter 6.1                                      |
| electrostatic discharge   | -                                                                          | No electrostatic risk because of not using plastic parts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EN 13463-1<br>chapter 7.4                                     |
| mechanical strength       | breakdown of the shaft sealing system                                      | The pump is made with:<br>a) lip seal ring with block chamber<br>b) mechanical contact sealing with block chamber<br>c) mag-drive with canister                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EN13463-1,<br>design safety "C",<br>user manual               |
|                           | operation without medium (dry running)                                     | It must be guaranteed that at the suction port there is enough fluid to fill the pump at all time; e.g. by using a pressure control system or a level control.<br>Please see also DIN EN 13463-8 (protection with fluid casing)                                                                                                                                                                                                                                                                                                                                                                                                | user manual                                                   |
|                           | too little inlet pressure p1 with a high viscosity fluid                   | It must be guaranteed that at the suction port there is enough fluid to fill the pump at all times; e.g. by using a pressure control system or a level control.<br>Please see also DIN EN 13463-8 (protection with fluid casing)                                                                                                                                                                                                                                                                                                                                                                                               | user manual;<br>order confirmation                            |
|                           | too much outlet pressure                                                   | The pump may only operate under the agreed operating conditions and with the agreed fluid. To protect the pump there should be a pressure relief valve in the pressure line.                                                                                                                                                                                                                                                                                                                                                                                                                                                   | user manual;<br>order confirmation;<br>design safety "2C"     |
|                           | hard material contaminating the pump; breakage of the gear or another part | To protect the pump from blockage filtration of the fluid is required; also it must be ensured that no hard material can enter the pump inlet port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | user manual                                                   |
|                           | breakdown of the bearings                                                  | Continuous maintenance of the pump. Measurements of the motor power or of the torque                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EN13463-1<br>design safety "C"<br>user manual                 |
|                           | pump runs at high speed                                                    | The pump must be used under the conditions for which it is made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | user manual;<br>order confirmation                            |
|                           | swelling of sealant by using certain solvents                              | The pump must used with fluid for which it is made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | user manual;<br>order confirmation                            |
|                           | heating up the mag-drive by eddy currents                                  | Monitor temperature of mag-flange and/or mag-drive. Other options include controlling the pressure drop.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | EN13463-1<br>design safety "C"<br>user manual (also from DST) |



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