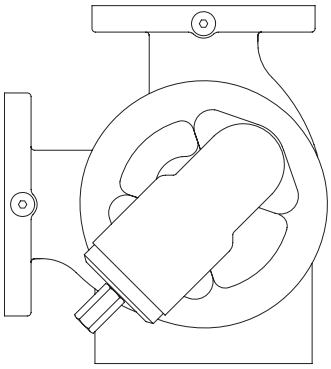
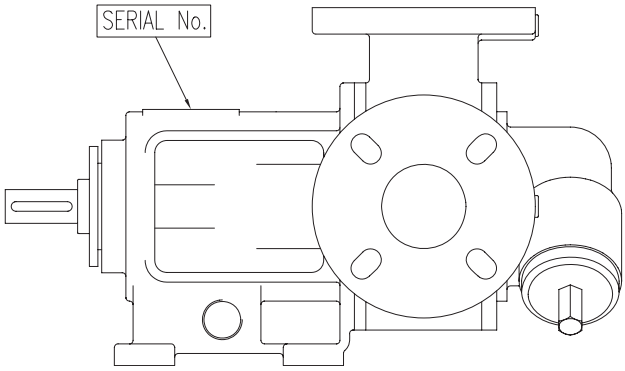
OPERATING INSTRUCTIONS FOR ATEX





R – Internal gear pumps

CONTENTS

OPERATING INSTRUCTIONS FOR ATEX

A. ATEX-INFORMATION

1. MARKING

1.1. The **R** internal gear pumps are marked:

With pump code +2A = Ex II 2G EEx c T4

With pump code +3A = Ex II 3G EEx c T4

Group
II = non mining

Category
2G = high security on vapour
3G = normal security on vapour

Protection
EEx c =mechanical design

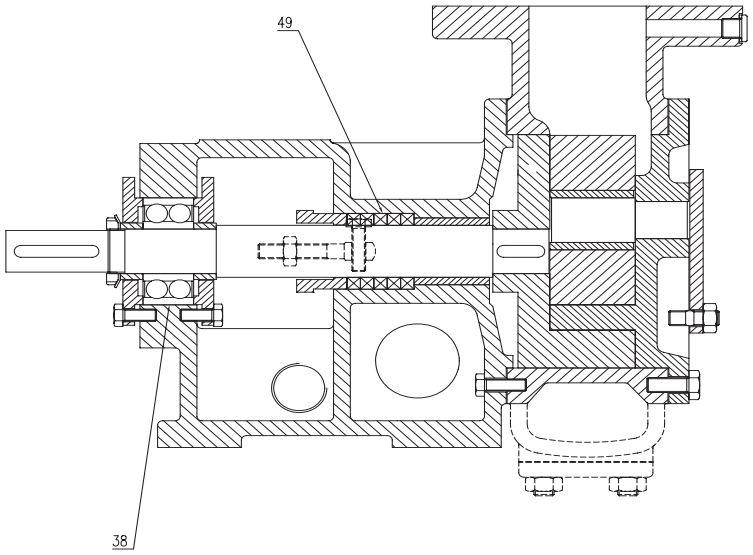
Temperature class
T1 = up to 450°C
T2 = up to 300°C
T3 = up to 200°C
T4 = up to 135°C

2. CHECKLIST

2.1. After start-up the pump will need to be checked at the following intervals to make sure it is pumping properly and with regard to pump noise: 10 min. / 1 hour / 10 hours / 1 day / 1 week / 1 month. Inspection may take place thereafter at monthly intervals provided the conditions of use do not change.

2.2. Pumps with mechanical seal: The mechanical seal can leak. If the pumped liquid is inflammable in the outside of the pump you have to declare a zone 1 (Category 2).

2.3. Pumps with packing: The packing (no. 49) needs to be adjusted at the first start-up and thereafter as necessary. *See operating instructions section entitled "packing".*



OPERATING INSTRUCTIONS FOR ATEX

2.4. The ball bearing (no. 38) must be checked for noise (wear) on a monthly basis and replaced punctually as otherwise a risk of explosion could arise due to an excessively high bearing temperature.

2.5. The pump has to be earthed. To connect the pump to earth use one of the 4 screws on the pedestal that fixes the base plate. To allow metal contact, take in the contact point the paint from the surface away.

2.6. There is a danger of electrostatic charging if the paint on the unit has a coating thickness of more than 0.2 mm.

2.7. With solids in the liquid the pump can block. It is therefore necessary to mount for the electric motor an automatic switch (PTC if used with inverter).

2.8. Use the pump only in the authorized performances levels indicated in performance curve, technical datasheet and instructions! The liquid should never be pumped on the limit of vaporisation, crystallisation, polymerisation or solidification. If the pump has to be used in a different duty not indicated in the ATEX schedule or in the technical datasheet of the pump, please check the use and ask for authorisation of use from the manufacturer.

2.9. The pump-materials have to be compatible with the liquid. This responsibility can not be taken by the manufacturer.

2.10. The operating temperature of the pump must not exceed the values given below. If a pumped medium is capable of reaching this temperature, it is not permitted to put the pump into service. A temperature sensor can be used for checking. On request other values can be permitted by the manufacture. This will be indicated specifically in the technical data sheet.

Temperature class acc. to DIN EN 13463-1	Maximum operating temperature* for pump with	
	Packing °C	Mechanical seal °C
T1	200(300)	150
T2	200(240)	150
T3	140	150
T4	75	95

* Above 140°C the pump has to be painted with high temperature paint.

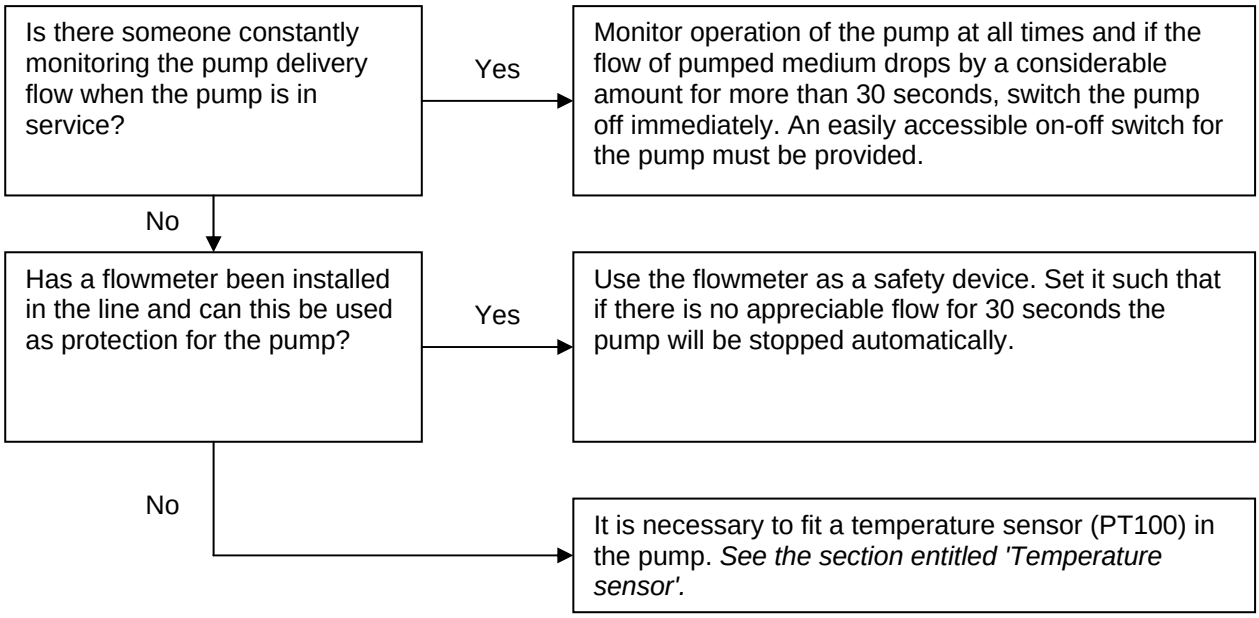
( ) H. version of the pump

2.11. The R internal gear pump is a volumetric pump. It is not allowed to regulate the flow by closing the suction or discharge side. Flow regulation can be achieved only through speed changing or an external by pass line.

2.12. It is not permitted to start the pump with closed suction and/or discharge line. The user should take efforts to avoid this situation. To secure the pump against a closed discharged line you can use the internal safety relief valve (+Y). Never use the internal safety relief valve as a standard by-pass line. As an alternative you can use an external by pass line. This by pass line has to be large enough, always able to work and preferably returning to the suction tank.

2.13. Measures such as are listed below should be taken against dry running (next page):

OPERATING INSTRUCTIONS FOR ATEX



OPERATING INSTRUCTIONS FOR ATEX

B. PACKING

1. INTRODUCTION

1.1. The packing (no. 49) is required in order to seal off the shaft. Alternatively the pump can be sealed with a mechanical seal or a magnetic coupling. To find out whether the pump has a packing, check the technical documentation or ask your dealer.

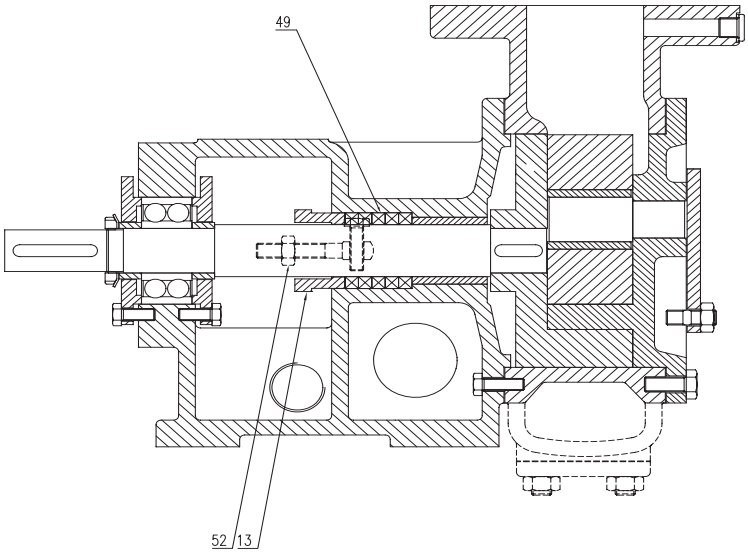
1.2. If it does have a packing, this will need to be adjusted at first start-up and thereafter as necessary.

DANGER! It is not allowed to use the R internal gear pump equipped with packing with flammable fluids.

2. PACKING, FIRST START-UP

2.1. Tighten up the packing gland (no. 13) lightly using the screws (no. 52) (up to a maximum torque of 10 N)

DANGER! Never tighten up the packing gland so that it is skewed. This would create the risk of the shaft coming into contact with the packing gland and sparking occurring during pump operation.



2.2. Loosen off the packing gland again with the screws (no. 52) slightly.

2.3. Start the pump as specified in the general *R pumps operating instructions* but with a relatively high starting leakage.

2.4. During the running-in phase (approx. 20 min), watch the leakage and minimize it by doing up the screws gradually and evenly. The leakage rate will fall faster or more slowly, depending on the pressure, viscosity, tolerances, temperature and speed. Leakage may be cut back until it is some drops per minute.

DANGER! The pump must never be operated with no leakage at all as this could result in a temperature which is dangerous for operation in hazardous conditions.

OPERATING INSTRUCTIONS FOR ATEX

3. MAINTENANCE OF THE PACKING

3.1. Wear in the packing rings (no. 49) may cause the leakage rate to increase with time. If this happens, the packing can be tightened up with the screws (no. 52). If the packing gland (no. 13) has reached the end of its adjustment range or if the leakage rate does not fall despite adjustment of the packing, the packing rings (no. 49) will need to be replaced.

DANGER! The pump must never be operated with no leakage at all as this could result in a temperature which is dangerous for operation in hazardous conditions.

DANGER! Never tighten up the stuffing box gland so that it is skewed. This would create the risk of the shaft coming into contact with the stuffing box gland and sparking occurring during pump operation.

4. REPLACEMENT OF THE PACKING RINGS

4.1. Undo the screws (no. 52) and push the packing gland (no. 13) to the rear.

4.2. Remove the old packing rings (no. 49) and clean the packing space.

4.3. Check the surface of the shaft for wear and replace the shaft if necessary.

4.4. Insert new packing rings one by one, and preseal with the cut ends offset by 180°.

DANGER! Only use original Victor Pumps packing rings as incorrect materials may result in higher temperatures in the packing.

4.5. Slide in the packing gland (no. 13) and do up the screws (no. 52) by hand.

4.6. Follow the instructions in the section *packing at first start-up* to run in the new packing correctly.

OPERATING INSTRUCTIONS FOR ATEX

C. TEMPERATURE SENSOR

1. INTRODUCTION

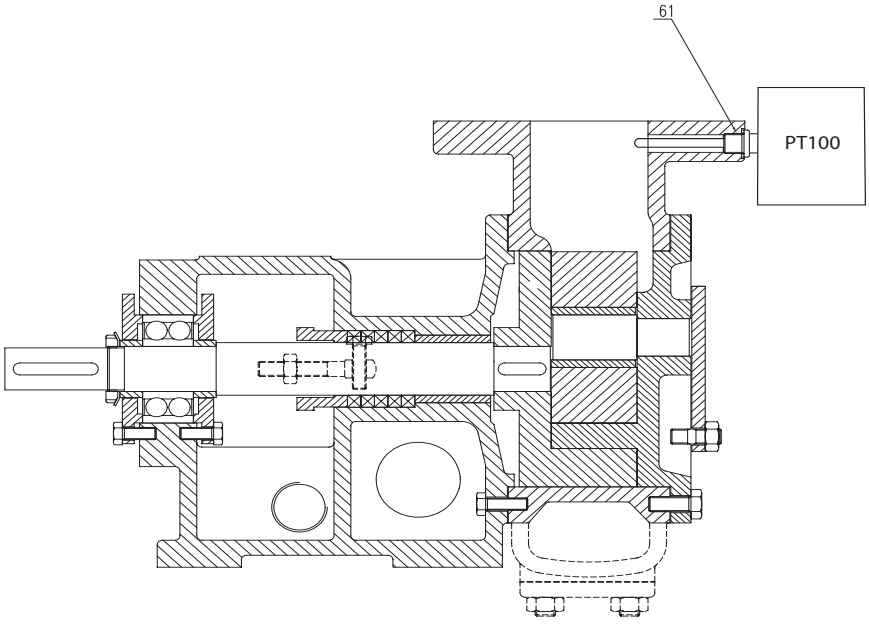
1.1. All pumps have been provided with a hole in the pump flange for the installation of a pressure gauge or temperature sensor of type PT100.

1.2. The sensor monitors temperature changes in the pumped medium. This means that a closed pressure line or abnormal wear in the pump can be monitored by means of a temperature increase. When the limit temperature is exceeded, the sensor trips to shut off power to the pump drive and the pump stops.

1.3. This shut off device and associated wiring are not included in the scope of supply of the pump. The pump owner is required to have this installed himself by a suitably qualified technician.

2. INSTALLATION OF THE SENSOR INTO THE PUMP

2.1. The holes for the temperature sensor are located on the side of the flange (no. 61). You should use the hole at the discharge end of the pump (discharge flange).



2.2. Push the PT100 temperature sensor provided for this purpose in as far as the stop of the threaded connection and do up tight.

2.3. Victor Pumps delivers the temperature sensor with integrated transmitter. The transmitter is regulated as follows:

Temperature range	OUT-Signal	Current
0-150 °C	4 - 20 mA, linear	8 - 30 VDC

2.4. Connect up the transmitter to an reading unit on the control pannel (not included) with an ATEX 2-Whire cable. The sensor's tripping value must be set 10°C above the pumping temperature but not be over the value indicated in the section *"Cecklist 2.10"*. On request other values can be permitted by the manufacture. This will be indicated specifically in the technical data sheet.

OPERATING INSTRUCTIONS FOR ATEX

D. MANUFACTURER'S DECLARATION

Pumps **without a drive unit**

We hereby declare that the internal gear pumps of the **R** series comply with the following relevant requirements:

- EC Machinery Directive 98/37/EC, Appendix I, no. 1
- EC Explosion Protection Directive 94/9/EC

Pump with code +2A	Ex II 2G Eex c T4
Pump with code +3A	Ex II 3G Eex c T4

and are intended to be installed in or connected to other machines. It is forbidden to start up the machine in which the pump is installed if the machine has not been declared as conforming with the above-named EC Directives.

The following standards have been found helpful and have been used in their entirety or in part:

- EN 809 :1998
- EN 292-1 :1991
- EN 292-2 :1991+A1:1995
- EN 13463-1 :2001
- prEN 13463-5 :2000

The technical documents has been stored by TÜV NORD CERT (No.0032) with order No. 8000317582.

Date 12.02.2004

Victor Pumps srl

Vittorio Varisco
CEO

OPERATING INSTRUCTIONS FOR ATEX

E. DECLARATION OF CONFORMITY

Pumps **with a drive unit**

We hereby declare that the internal gear pumps of the **R** series comply with the following relevant requirements:

- EC Machinery Directive 98/37/EC, Appendix I, no. 1
- EC Explosion Protection Directive 94/9/EC

Pump with code +2A	Ex II 2G Eex c T4
Pump with code +3A	Ex II 3G Eex c T4

The following standards have been found helpful and have been used in their entirety or in part:

- EN 809 :1998
- EN 292-1 :1991
- EN 292-2 :1991+A1:1995
- EN 13463-1 :2001
- prEN 13463-5 :2000

If any modification is made to the unit and / or it is not used for the purpose intended this will render null and void the validity of this declaration of conformity.

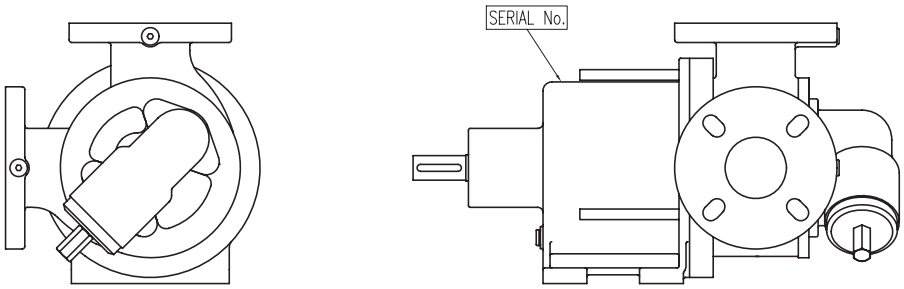
The technical documents has been stored by TÜV NORD CERT (No.0032) with order No. 8000317582.

Date 12.02.2004

Victor Pumps srl

Vittorio Varisco
CEO

OPERATING INSTRUCTIONS FOR ATEX



R – Magnetic internal gear pumps

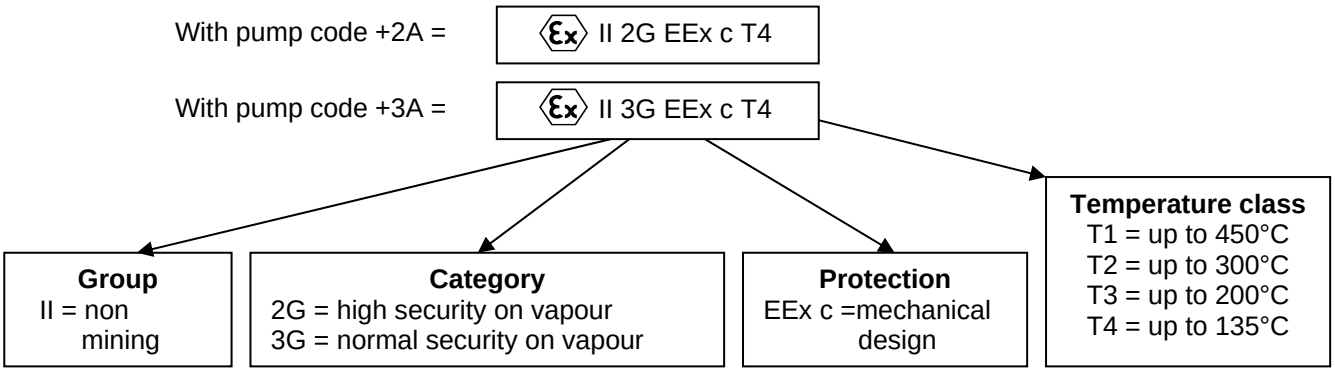
CONTENTS

OPERATING INSTRUCTIONS FOR ATEX

A. ATEX-INFORMATION

1. MARKING

1.1. The **R** Magnetic internal gear pumps are marked:



2. CHECKLIST

2.1. After start-up the pump will need to be checked at the following intervals to make sure it is pumping properly and with regard to pump noise: 10 min. / 1 hour / 10 hours / 1 day / 1 week / 1 month. Inspection may take place thereafter at monthly intervals provided the conditions of use do not change.

2.2. The ball bearings must be checked for noise (wear) on a monthly basis and replaced punctually as otherwise a risk of explosion could arise due to an excessively high bearing temperature.

2.3. The pump has to be earthed. To connect the pump to earth use one of the 4 screws on the pedestal that fixes the base plate. To allow metal contact, take in the contact point the paint from the surface away.

2.4. There is a danger of electrostatic charging if the paint on the unit has a coating thickness of more than 0.2 mm with IIC operation or 2 mm with IIB operation.

2.5. With solids in the liquid the pump can block. It is therefore necessary to mount for the electric motor an automatic switch (PTC if used with inverter).

2.6. Use the pump only in the authorized performances levels indicated in performance curve, technical datasheet and instructions! The liquid should never be pumped on the limit of vaporisation, crystallisation, polymerisation or solidification. If the pump has to be used in a different duty not indicated in the ATEX schedule or in the technical datasheet of the pump, please check the use and ask for authorisation of use from the manufacturer.

2.7. The pump-materials have to be compatible with the liquid. This responsibility can not be taken by the manufacturer.

OPERATING INSTRUCTIONS FOR ATEX

2.8. The operating temperature of the pump must not exceed the values given below. If a pumped medium is capable of reaching this temperature, it is not permitted to put the pump into service. A temperature sensor can be used for checking. On request other values can be permitted by the manufacture. This will be indicated specifically in the technical data sheet.

Temperature class acc. to DIN EN 13463-1	Maximum operating temperature* °C
T1	200
T2	200
T3	160
T4	105

* Above 140°C the pump has to be painted with high temperature paint.

2.9. The R Magnetic internal gear pump is a volumetric pump. It is not allowed to regulate the flow by closing the suction or discharge side. Flow regulation can be achieved only through speed changing or an external by pass line.

2.10. With R magnetic driven internal gear pumps the port position and the flow direction can not be changed afterwards.

2.11. It is necessary to check the magnetic coupling with an temperature sensor (Type PT100).

2.12. If the starting torque of the pump is near or exceeds the torque limit of the magnetic coupling it is necessary to use a soft-start device or a frequency converter.

2.13. It is not permitted to start the pump with closed suction and/or discharge line. The user should take efforts to avoid this situation. To secure the pump against a closed discharged line you can use the internal safety relief valve (+Y). Never use the internal safety relief valve as a standard by-pass line. As an alternative you can use an external by pass line. This by pass line has to be large enough, always able to work and preferably returning to the suction tank.

OPERATING INSTRUCTIONS FOR ATEX

B. TEMPERATURE SENSOR

1. INTRODUCTION

1.1. All pumps have been provided with a hole for the installation of a temperature sensor of type PT100.

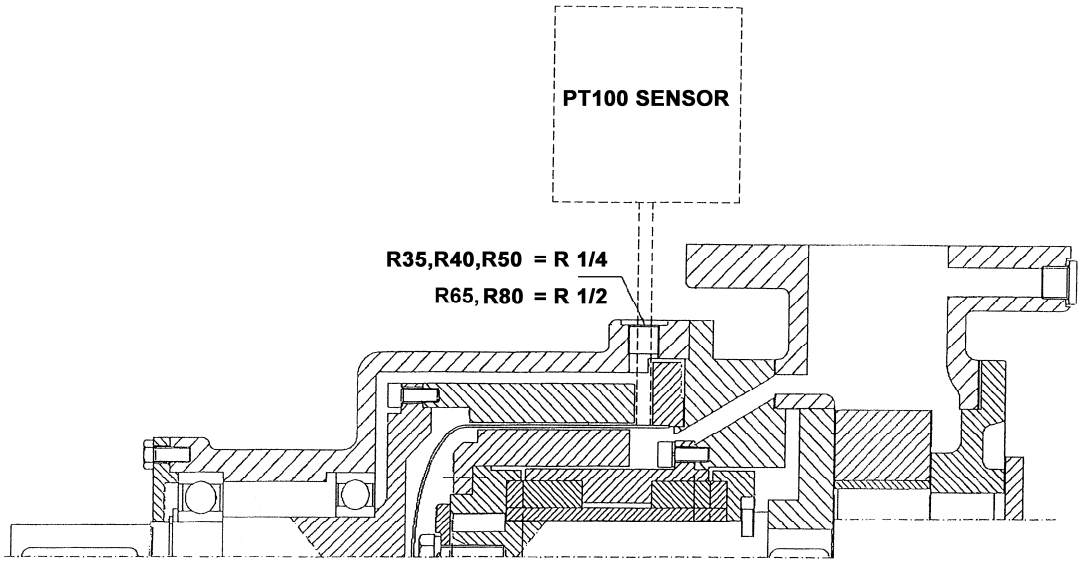
1.2. The sensor monitors temperature changes in the pumped medium. This means that a closed pressure line or abnormal wear in the pump can be monitored by means of a temperature increase. When the limit temperature is exceeded, the sensor trips to shut off power to the pump drive and the pump stops.

1.3. This shut off device and associated wiring are not included in the scope of supply of the pump. The pump owner is required to have this installed himself by a suitably qualified technician.

2. INSTALLATION OF THE SENSOR INTO THE PUMP

2.1. The delivered temperature sensor for Magnetic pumps has 3 parts: The sensor with head, the plug and in some versions the gasket.

2.2. The holes for the temperature sensor are located on the side of the pedestal. You should use the hole that is more comfortable for the installation.



2.3. Screw the plug with the gasket (if provided) in the selected hole up to half of the total length of the treads.

2.4. Insert the temperature Sensor into the plug as far as the head touches the can.

2.5. Do up tight the smaller threaded connection of the plug in order to fix the sensor to the plug.

2.6. Do up tight the plug with sensor. By doing this a spring inside the plug will be pressed in order to increase the contact between head and can.

2.7. Victor Pumps delivers the temperature sensor with integrated transmitter. The transmitter is regulated as follows:

Temperature range	OUT-Signal	Current
0-150 °C	4 - 20 mA, linear	8 - 30 VDC

OPERATING INSTRUCTIONS FOR ATEX

2.8. Connect up the transmitter to an reading unit on the control panel (not included) with an ATEX 2-Whire cable. The sensor's tripping value must be set 10°C above the pumping temperature but not be over the value indicated in the section *"Cecklist 2.8"*. On request other values can be permitted by the manufacture. This will be indicated specifically in the technical data sheet.

OPERATING INSTRUCTIONS FOR ATEX

C. DECLARATION OF CONFORMITY (ATEX CERTIFICATE)

We hereby declare that the internal gear pumps of the **R** series comply with the following relevant requirements:

- EC Machinery Directive 98/37/EC, Appendix I, no. 1
- EC Explosion Protection Directive 94/9/EC

Pump with code +2A ⟨Ex⟩ II 2G Eex c T4

Pump with code +3A ⟨Ex⟩ II 3G Eex c T4

The following standards have been found helpful and have been used in their entirety or in part:

- EN 809 :1998
- EN 292-1 :1991
- EN 292-2 :1991+A1:1995
- EN 13463-1 :2001
- prEN 13463-5 :2000

Pumps **without a drive unit**: The pumps are intended to be installed in or connected to other machines. It is forbidden to start up the machine in which the pump is installed if the machine has not been declared as conforming with the above-named EC Directives.

Pumps **with a drive unit**: If any modification is made to the unit and / or it is not used for the purpose intended this will render null and void the validity of this declaration of conformity.

The technical documents has been stored by TÜV NORD CERT (No.0032) with order No. 8000317582.

Date 30.03.2007

Victor Pumps srl

Vittorio Varisco
CEO