



**ViscoTec – Newsletter 06 / 2010**  
**FAQ regarding ViscoTec-systems**



For a better understanding of ViscoTec systems and to be prepared for the questions of the customers it is good to know the frequently asked questions of the customers. These questions are the most asked questions by the customers. It could be helpful to know this questions and the correct answers.

Frequently asked questions regarding ViscoTec-systems and technology:

a) Surrounding conditions:

- **How does the temperature of the surrounding area influence the dosing system / dosing result?**  
The temperature has a strong impact on the viscosity and flow behavior of fluids. But due to the volumetric principle of ViscoTec dispenser, this influence does not affect the dosing results in any way.
- **Which influence does the humidity / temperature / viscosity have on the dosing result?**  
The dosing system is a completely tight and sealed system. As the rotor / stator is tight and also the product supply unit is sealed towards the dispenser, there is no influence of humidity on the dosing results. As mentioned before, the volumetric principle guarantees a dosing independent from temperature or viscosity.
- **Are there any dangerous or harmful gas emissions or smells for the operators while using ViscoTec units?**  
The use of ViscoTec systems itself is not hazardous to health. So it is more important to consider the warnings and remarks of the dosed fluids and liquids. If the rules in the ViscoTec manuals are followed (especially for harming at moving parts) there is no danger regarding ViscoTec products.
- **Is the installation of an exhaustion system necessary in order to avoid any interference in the health? And**
- **Do the operators have to use protective equipment (cloves, safety glasses, ear protection)?**  
For the use of ViscoTec units it is not necessary to use such special systems. So please check the safety data sheet of the fluid for special safety requirements. In general it is always good to use cloves and safety glasses.

## b) Features and conditions of ViscoTec-products / dosing process:

- **To which distance could the dosing-nozzle be placed at the part for dosing?**  
There is a simple rule for the dimensions: for line / bead dosing the diameter of the nozzle should be 0.8 of the bead diameter. Then the distance from the nozzle end to the dosing point should be 0.8 of the nozzle diameter.
- **How accurate and repeatable could the dosing nozzle be placed (exact position of the nozzle)?**  
The position of the nozzle is depending only on the xyz- / or robot system. So a fine adjustment for the nozzle is recommended (different nozzle types could be used , e.g. plastic, metal, etc.)
- **What is the accuracy and repeatability of the ViscoTec-dosing-systems in general?**  
In general the accuracy and repeatability is +/- 1%
- **What is the accuracy and repeatability of the ViscoTec-dosing systems depending on the temperature?**  
As mentioned before, ViscoTec systems are independent of temperature. So there is no influence on the accuracy and repeatability.
- **Is it necessary to heat the dispenser or hoses and does it has any influence to the dosing results?**  
For the dosing process it is not necessary to heat the system, because the heating only reduces the viscosity. But ViscoTec products could be used especially for high viscosity materials (up to 7 Mio. mPas).
- **How accurate is the position of the dosing bead / dot?**  
The position is mainly depending on the xyz- / robot system, but as ViscoTec dispenser are directly located at the dosing position, it is much more easier to do the dosing compared to time-pressure-systems where it takes a long time until the fluid reaches the nozzle.
- **Is it necessary to do a “cleaning” shot and if yes how often (for 2-component-systems)?**  
In general it is not necessary to do cleaning shots for 1-component fluids. At 2-component-dosing systems cleaning shots (time control and quantity) could be controlled easily with the 2-component-control ViscoDos-2K.
- **How is it recognizable that the stator is worn out?**  
Due to normal wear and tear, the tightness is reduced. It could be recognized by reduced dosing quantities compared to the original version. No tightness means that product is pressed through the stator / rotor by the inlet pressure. The suck back function is also not working is the stator is worn out.

## b) Features and conditions of ViscoTec-products / dosing process:

- **What is the life-time of the stator?**  
It is nearly impossible to give an exact value here, because the life-time of the stator is depending on many process parameters (e.g. dispensing speed, pressure, abrasive materials, shift number, etc.)
- **What are the spare-parts of the dispenser and what are the average costs?**  
The main spare part is the stator. This part has to be changed regularly. It is also recommended to do some overhauling of the dispenser. ViscoTec offers to do this repair and replace all important parts (sealing, stator, etc.). So the customer gets back a nearly new dispenser with full guarantee.
- **What is the life-time of the rotor?**  
This is also depending on many items like speed, pressure, abrasive particles, etc. In general the rotor has a three times longer lifetime than the stator.
- **What is the allowed speed range of the dispenser?**  
Approx. 1 rpm until approx. 40-120 rpm, but also depending on a lot of parameters like viscosity, pressure, etc.
- **How is the minimum and maximum inlet pressure?**  
The minimum pressure is depending on the viscosity and speed. A 100 % filling of the chambers is needed. The maximum inlet pressure is approx. 12 – 40 bar. In this pressure range the stator and the sealing area are tight. In general the inlet pressure should be as low as possible, but as high as needed (for getting 100 % filling of the chambers). A too high inlet pressure increases the wear and tear of the sealing area.
- **What is the maximum outlet pressure and temperature?**  
The maximum outlet pressure is also depending on a lot of parameters (e.g. viscosity), but approx. 12 until 60 bar are possible. Regarding temperature, a range from -20 °C until 100°C is possible (temperature of the fluid).
- **What are the viscosity limits?**  
Theoretically fluids with viscosities from 1 mPas (cps) until 7,000,000 mPas are possible to be dosed with ViscoTec units. But of course it is depending on dosing speed, pressure situation, etc.
- **How could the swelling of the stator be recognized?**  
Due to chemical incompatibility the stator is swelling and the pump is blocked. There is noise or heating or the dosing volume is decreasing. It is very hard to disassemble the rotor / stator.

## c) Process-control:

- **How could the process be controlled in order to guarantee the process-safety?**  
The process could easily be controlled by pressure sensors. Also level sensors guarantees a proper product supply of the dosing pumps. In general the output of the pump is proportional to the speed of the motor, so a defined quantity per turn is dosed (no flow control needed).
- **Are there any gas-bubbles in the fluid and how could they be detected or avoided?**  
In general it is the aim to avoid bubbles in advance. This means that for example the fluid is being degassed before the dosing process is done with the help of the Inline-degassing unit ViscoTreat-Inline. But detecting bubbles is of course a topic which is of interest for the future.
- **How could the dosing quantity be controlled? (flow control unit)**  
If all process parameters are o.k. (level of product supply, inlet pressure, motor speed, correct nozzle size, etc.) the dosing quantity is exactly defined by the turns of the pump.

## d) General questions:

- **What are the dimensions and weight of the system?**  
The one component-system ViscoPro is a very small unit which could easily be integrated in automated processes (e.g. robot). The weight starts at approx. 1.5 kg. The dimensions are depending on which dispenser size is needed. If detailed drawings are needed ViscoTec could send these drawings without any problem.
- **Could the system be controlled by an external PLC?**  
The integration in external PLC is very easy. A 24V-signal could control the external start / stop of the motor / pump unit. Of course at every project a detailed interface diagram is provided for the customer.
- **What external connections are needed (air pressure / electrical power / etc.)**  
The electrical power supply of 230 V / 50 Hz is needed. For starting the dosing a 24V-signal is necessary (from PLC). If a variable dosing quantity is wished, a 0 to 10 V-analogue signal is needed. In combination with emptying-systems (e.g. cartridge or barrel emptying systems) a air pressure line is obligatory ( approx. 6 bar max.).

## d) General questions:

- **How long are the service-periods?**

The service intervals are depending on a lot of parameters. The situation could be compared with a tyre for cars. So the change of a tyre is depending on the drive behavior (how fast, how long, etc.). It is the same with the pump: if the dosing time or speed is very high the change of the stator would be necessary very soon. An average value for stator exchange period is 6- 12 months (value without any guarantee!)

- **What is included in the set-up?**

Of course set – up assistance could be provided by ViscoTec. So free – of charge service (via phone or e-mail) could be given to the customer as well as set-up assistance at the customer side by a ViscoTec service engineer. The costs for the on site assistance is of course depending on traveling costs, time, etc.

- **What does dry-running mean?**

Dry- run of the pump has to be avoided in any case, because dry- run would destroy the pump within minutes / seconds. Dry run means that the pump is turning, but there is no fluid inside the dispenser. The reason could be, that there is no product moved through rotor / stator (=> no fluid supply), or if the output pressure is too high (=> e.g. nozzle blocked => heating up stator => major damage of the stator)

- **What does suck back mean and what is the allowed suck back speed?**

Suck back is one of the most important advantages of the ViscoTec systems. Suck-back means, that after the dosing is finished there is a small movement of the motor / pump in the other direction, so that after dripping is avoided to have a perfectly clean process. Through the suck back often the fluid is not at the top end of the nozzle, so there is the possibility to re-fill the nozzle after the suck back process that the next process could be started with the same flow-rate / dosing quantity (see picture below). The speed of the suck back should be adjusted for every process and fluid and should be kept to a minimum because of air being sucked into the dispenser and the high pressure situation because of reverse pumping.

