

Mixing and Dosing Gear Pump

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Gear pumps for the chemical industry are primarily used in pressurizing and dosing applications. The special designed mixing gear pump marks one of WITTE's latest developments and opens a great variety of new applications. This pump is originally designed for dosing and mixing of very small amounts of low viscous inhibitor (approx. 1 mPas) in a high viscous polymer solution (10.000 mPas) in the ratio of 1:70. Furthermore a pressure drop of 150 bar (2.175 psi) has to be built up. But of course it can be used for a wide variety of mixing applications. To achieve best results regarding quantity and quality of the product, a very homogeneous mixture is within a very short time requested. First attempts with static mixers failed and caused bad polymer quality as well as production loss.

The inhibitor for this chemical reaction is injected on the inlet side of the pump. The direction of flow is opposite to the main product flow. This leads to turbulences and better mixing results.

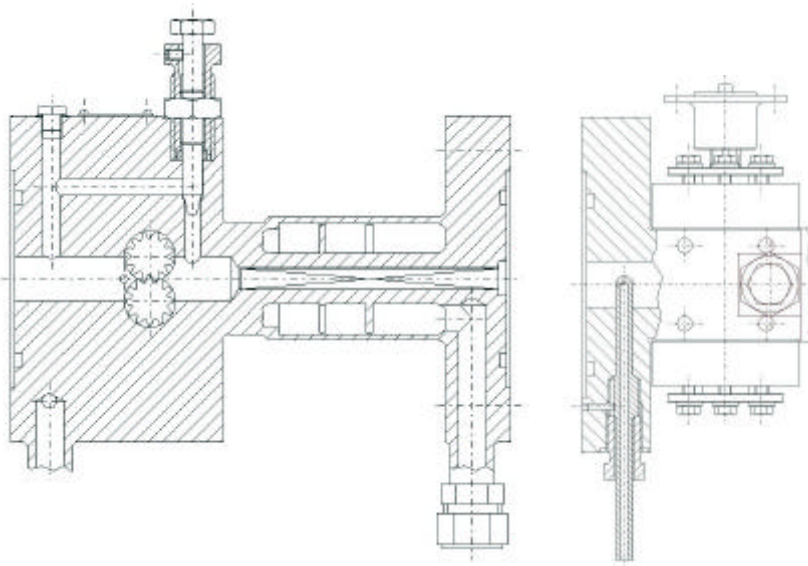
Even more turbulences are caused by WITTE's specially designed teeth of the gear shafts. Small bores in each tooth allow the polymer mixture to flow back to the suction side. Due to this special application, the reduced efficiency has no negative impact on the overall performance of the pump.

A small portion of the pumped product is guided back to the suction side, its mass flow can be easily adjusted by means of a throttle valve.

An addition static mixer is located right at the discharge / pressure side of the gear pump.

To ensure constant and homogeneous heating at operating temperatures of 250°C (420°F), the pump housing, product flanges and static mixers are heated by thermo oil.

The compact overall dimensions and the flange connections guarantee an easy mounting of the pump. Of course the product flanges are available according to all major standards.



Pic. 1: Cross sectional drawing of the mixing gear pump (top and side view)