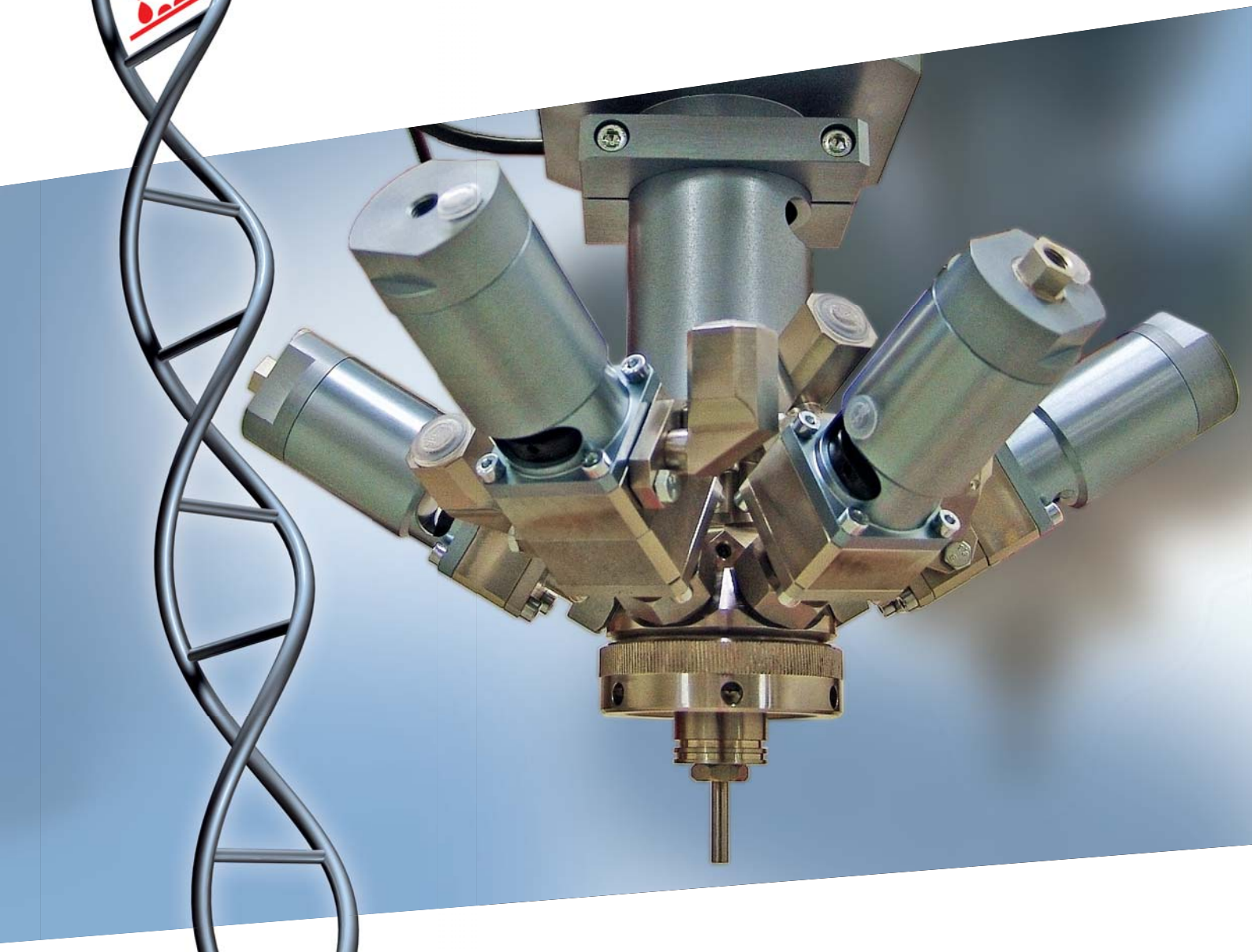
Metering Technology



dynamjx

Dynamic mixer

Hilger u. Kern / Dopag Group

Dynamic, economical...

General

The development of this new dynamic mixer by the Hilger u. Kern / Dopag Group has produced a product, which based on its performance data and constructional features offers the optimum in economic efficiency, process security and maintenance friendliness.

Dynamic mixers are generally used to process multi component materials if

- there is a significant difference between the volumes of the different components to be mixed, as an example, a mixing ratio of 100:5
- the viscosities of the components to be mixed are very different
- the mixed material has a very short pot life
- very low flow rates are required

Technical data

Flow rate	20 - 900 cm^3 / min.
Mixing ratio	100:100 - 100:5
Viscosity ratio A to B	100:2, min. < 20 mPa s
Volume mixing chamber	2, 4, 6, 8 or 16 cm^3
Internal diameter, valves	1, 2, 4 or 6 mm
Drive	Pneumatic motor up to 4.000 -1 Servo motor up to 3.000 -1
Dimensions	approx. 174 x 300 x 367 mm
Weight	approx. 11 - 15 kg, depending on configuration
Air pressure	6 bar

Mixing process

Successful mixing results are directly linked to the speed of the rotor. Experience shows that high viscosity materials require higher shear energy which can be achieved through a faster rotor speed. As a consequence, this action may warm up the processed material. In addition, the ambient temperature and the possibility of heat caused by the chemical reaction whilst mixing may also influence the temperature of the material.

A rise in material temperature automatically leads to a shorter pot life. This is why the temperature within the mixing chamber needs to be monitored if a dynamic mixing system is used. Increasing the throughput rate would help to avoid this occurrence as well as any other adequate release of the heat or cooling of the mixing chamber.

In cases of excessive heat generation, the use of a liquid-cooled mixing chamber should be considered.

Flushing

Dynamic mixing systems are normally flushed alternately with a cleaning agent and compressed air. To achieve optimal cleaning results, this is carried out with the mixing elements rotating.

Alternatively, flushing with one of the components is possible.

...maintenance friendly

Construction

The Hilger u. Kern / Dopag Group dynamic mixer is compact in construction and is available with 5 different mixing chamber volumes.

The rotor situated in the mixing chamber can easily be disassembled. The valve connections can be swivelled so that the optimal hose direction can be chosen.

The inlet valve of the A component has been positioned such that it is impossible for mixed material to come into contact with the rotor seals. This configuration not only increases the protection of the rotor seals but also increases the functional security of the dynamic mixer.

Mixing chamber

The volume and characteristics of the mixing chamber depend on the flow rate and miscibility of the material.

The material inlet valves are mounted onto the mixing chamber at a specific angle so as to be flush with the inner surface.

This arrangement helps to avoid dead space where air bubbles or the remainders of mixed, undelivered material could accumulate.

It is important to ensure that the mixing chamber is completely exhausted during the metering process to prevent material from dripping after metering has finished.

Valves

Depending on the application conditions and flow rates the dynamic mixer can be fitted with different sizes of inlet valves. They are all made of stainless steel. If required this mixing system can be fitted with recirculation valves.

With this configuration, the material can be kept in motion by means of a bypass, which minimises the risk of failure since the mixing ratio remains controlled and pressure drops are reduced.

In addition, the bypass has the advantage that any possible sedimentation of fillers can be avoided.

Optionally, the working position of each of the inlet valves can be monitored by use of a sensor.

Drive

Either pneumatic or compact servo motors (200 - 230 V or 400 - 480 V) can be used to drive this mixing system.

...maintenance friendly

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The Hilger u. Kern / Dopag Group, with more than 300 employees, 8 subsidiaries and 24 distributors, is one of the leading manufacturers of metering and mixing systems in the world for plural component polymers and single component media such as greases, oils and pastes. For more than 30 years the group has developed systems and components to suit your individual needs.