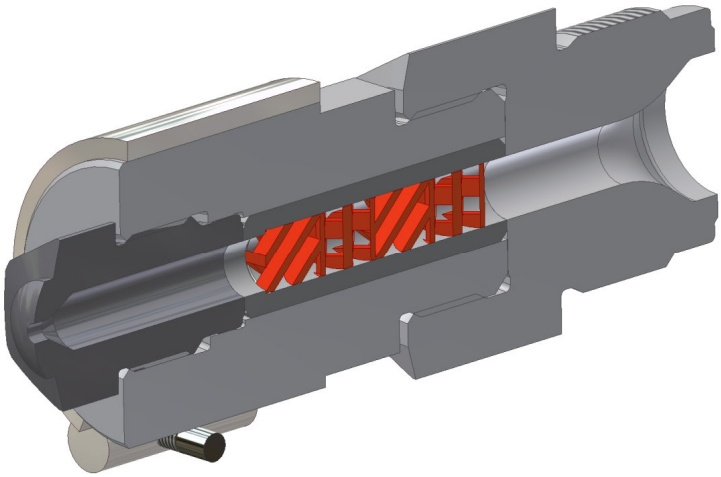
Machine nozzle with static X-mixer type M



Applications:
Thermoplastics

Variants:
Machine shut-off nozzle

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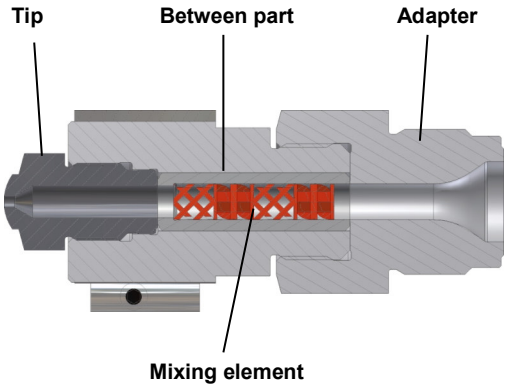
Open machine nozzle, type M



Technical description

Static mixers are being increasingly employed for processing thermoplastics. Perfect melt homogeneity (temperature, coloring) is one of the most important conditions for the production of faultless injection molded articles. The mixer homogenizes the melt by exponential layer formation, by rotation and eddy formation and by velocity differences between the partial flows.

For the injection molding process a machine nozzle was developed, which is characterized by high mixing capacity with low pressure loss. The durable mixing elements are corrosion resistant and can be used also for abrasive media (until approx. 30% glass fiber portion).

Mixing nozzle design
The mixing nozzle was designed and calculated by FEM programming which captivates the following advantages:
The construction is implemented using the building block system.
The mixing nozzle can be installed while in a cold state and does not require readjustment or tightening after warming up. At the correct operating temperature the nozzle tensions overlay and stress optimally due to calculated thermal expansion.

Criteria for this nozzle type

- Reduced dyestuff costs
- Homogeneous melt flow
- Avoidance of flecks and cloudiness
- Reduction in the reject rate
- Improved dimensional accuracy
- Shortened cycle times
- Extension of the range of employment, also applies to older injection molding machines

Reduction in dyestuff costs
The mixing nozzle provides the homogeneity of the polymer and leads to increased color saturation in the molded parts. The dyestuff proportion can be reduced by 30%. The resulting reduction in operational costs can be determined as follows:
Cost = Color price (Euro/kg) x molded part weight (kg) x no. of molded parts x color proportion (%)

Example
Master batch prices are in the range from 2 to 40 Euro/kg. A price of 7 Euro/kg during the processing of a polymer with a molded part weight of 450gr. and a number of 20,000 is assumed. The injection molder requires 3% color master batch against the part weight. Using the mixing nozzle for processing, a saving of 30% of the master batch cost can be achieved (new consumption 2.1%).

Cost analysis
Color costs without mixing nozzle =
7 EURO/kg x 0.45 kg x 20’000 x 0.03 = 1’720 EURO

Color cost with mixing nozzle =
7 EURO/kg x 0.45 kg x 20’000 x 0.021 = 1'210 EURO

Operational cost reduction =
1'720 EURO = 1’210 EURO = 520 EURO

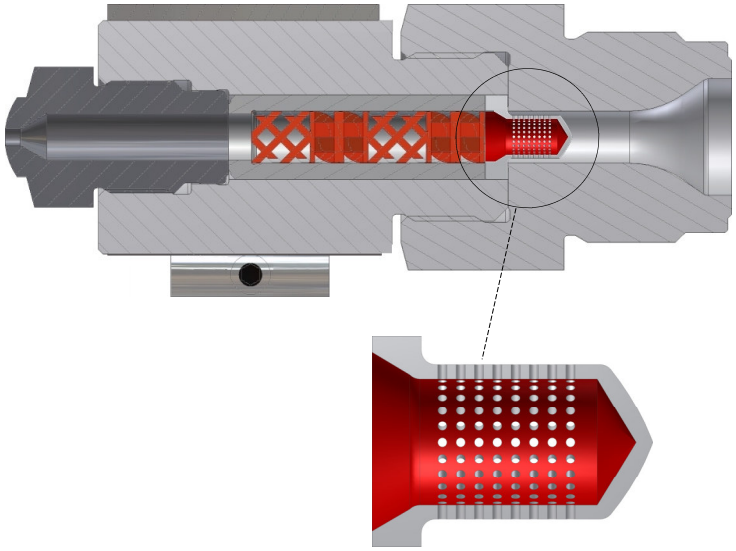
What speaks for Herzog

- Nozzle activity is the core business
- Many years market presence
- Design and assemblies matching today‘s requirements
- Development of special applications
- Fast delivery
- Service performance

Mixer in combination with melt filter

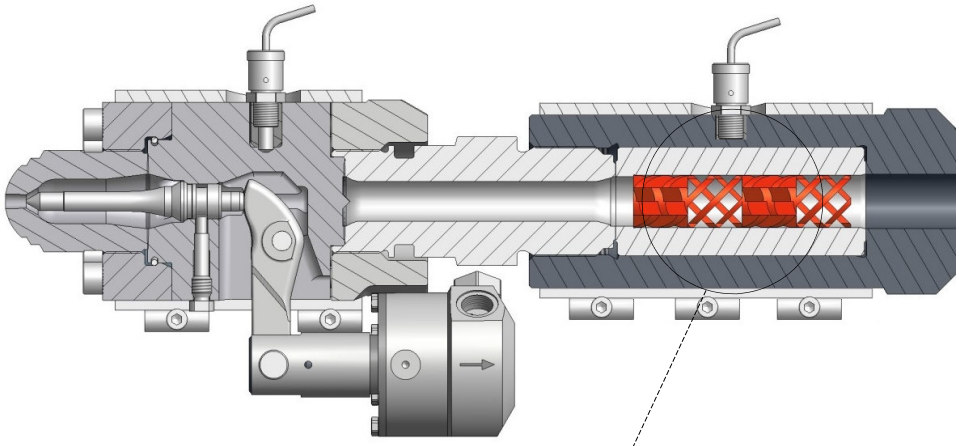
A melt filter holds solid parts and nicht fully melted granulate back.
Protects mixer, hot-channel systems and molds from blockages.
The filter installation occurs in front of the mixer. The nozzle must be dismantled to clean the filter.

Some pressure loss and material wear is possible.

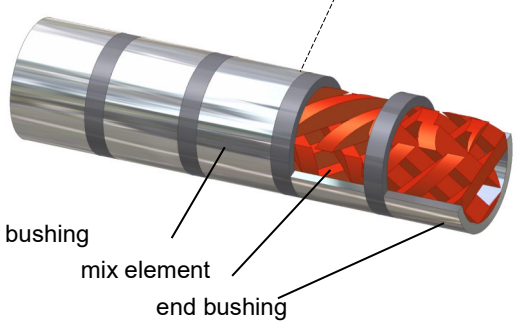


Mixer in combination with machine shutt-off nozzle

The mixer installation occurs in front of the shut-off nozzle.
An additional heated area with regulation is required.



Mixing tip SMK-R

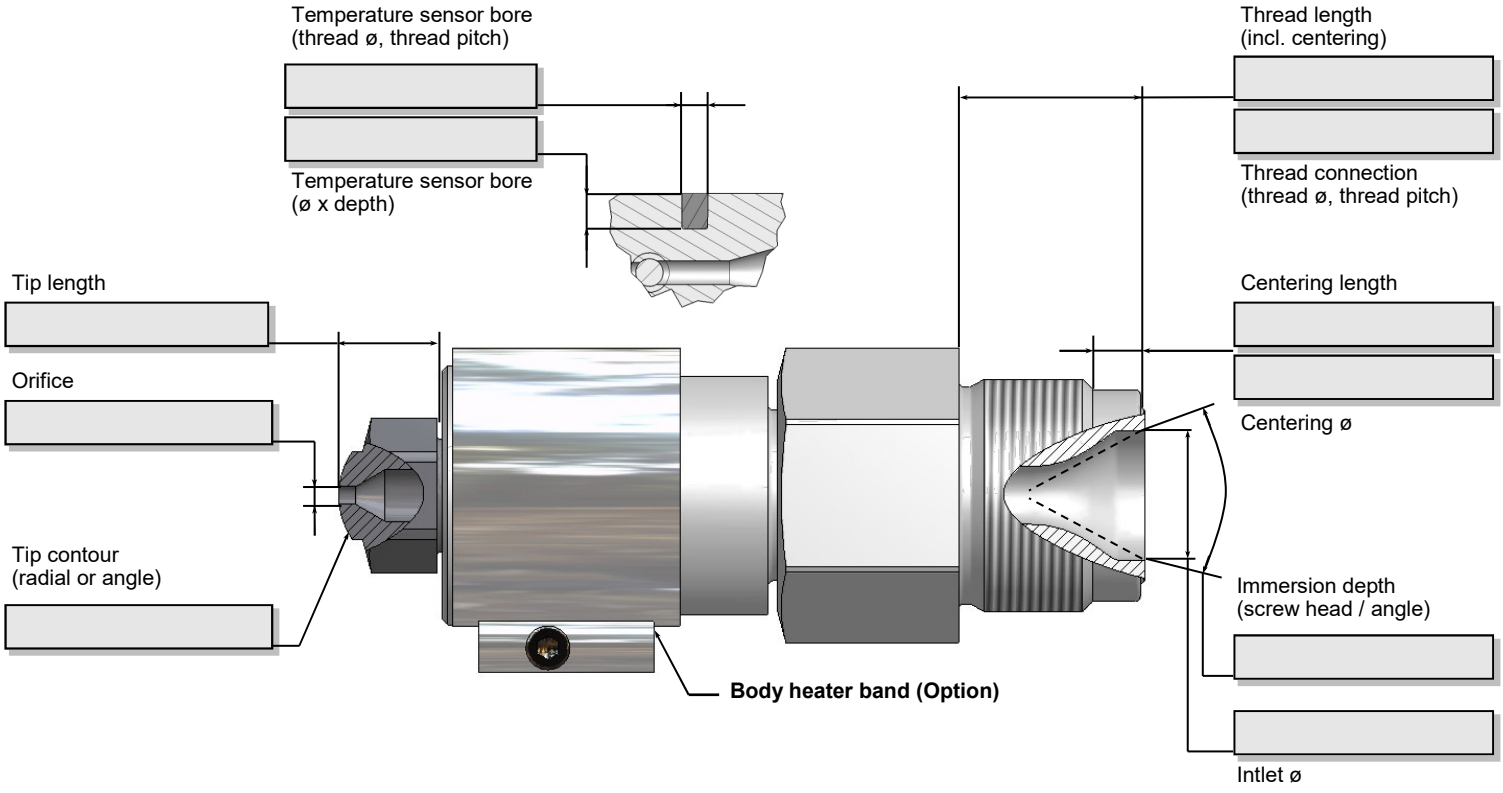


Open machine nozzle, type M

Dimension sheet for enquiries		**or orders**		Machine mixing nozzle, type M

Company:	Contact person:
Street:	Tel.:
City/Zip:	Fax:
Country:	E-Mail:

Measurements in mm.



Important: The mixing element may contain 4 or 6 mixing elements depending on the processed material and color. This could influence the nozzle length.

Process data	
Product / Part	
Shot weight (g)	
Injection time (s)	
Melt temperature (°C)	
Injection pressure	
Max. injection rate (cm^3 /sec.)	
Machine type	
Screw ø	
Closing force kN	

Polymer Information	
Material / Manufacturer	
Color	
MFI **(g/10Min)** / Temp. **(°C)** / kp	
Viscosity (flow curve)	

Note: Technical modifications reserved. We need additional information for requirements, which vary from our standard range e.g. drawing sample. Our customer services will be pleased to help you.