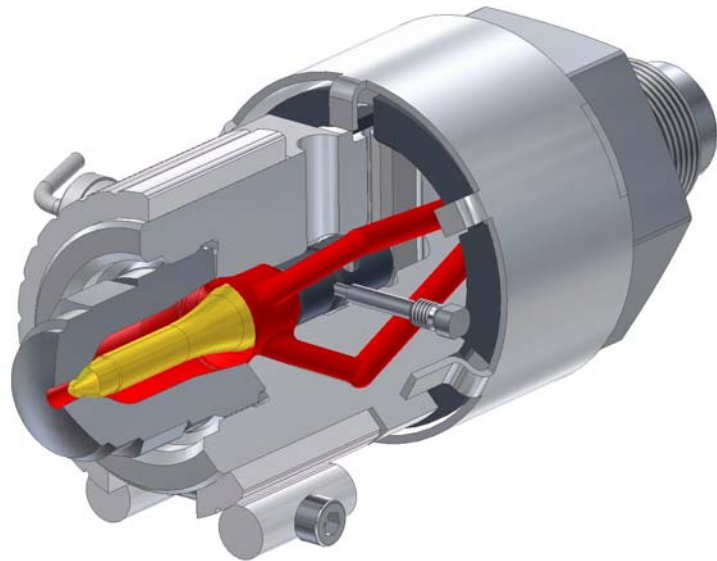


Machine needle shut-off nozzle Type SHP (high performance) spring operated



Applications:

thermoplastics (not applicable for PVC)

Shot-off mechanism:

Operated with one high performance spring

Index of contents

Chapter	Page
Technical Description.....	2
Arguments / For & Against.....	2
Risk of collision by diving into the mold	3
Tip types	3
Modules / Extras.....	4
Dimension sheet for orders or enquiries	5

Technical Description

The spring actuated machine needle shut-off nozzles type SHP are used in processing of thermoplastics, principally with low viscosity materials such as: PA, PPS, PE, POM, PP.

Finds application in:

Packaging, automobile and leisure industries, medicinal and electronic equipment.

Operation:

The nozzle is opened directly from the injection pressure and closed again with spring power. A needle which moves axially in the needle shut-off nozzle is held in the closed position by the force of the spring. The nozzle orifice is normally closed.

With the increasing melt pressure exerted against the spring through a ring of exposed surface area on the needle, the nozzle opens at **200 bar**. If the melt pressure drops ($\leq 45\text{bar}$), the nozzle closes.

- If the standard opening pressure is not appropriate, the needle must be modified to the requirements (modification of the spring is not possible).
- The nozzle size required depends on the injection rate per second (cm³/s).

Note:

Values and measurements in this documentation refer to standard applications.

Criteria for needle shut-off type SHP

For & Against

For:

- Melt flow separation at nozzle orifice
- Operating pressure: 3000bar at 400°C
- Easy to install
- Economic solution
- Compact, space saving design

Against:

- Melt dependant opening and closing
- spring shut-off, less constant closing
- Requires sporadic cleaning

Alternative from our product range:

- HP-nozzle (pneumatic or hydraulic actuation)

Prevents:

- Filamentation
- Material leakage when dosing with a withdrawn injection unit
- Material leakage while vertically injecting

Productivity factors:

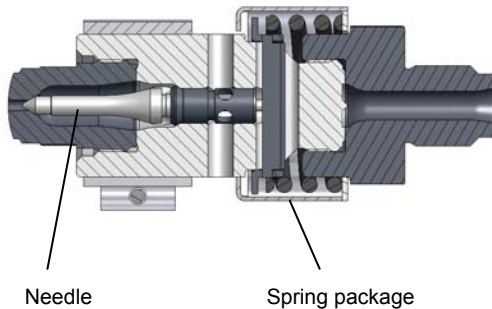
- Controlled, clean shut-off of the melt stream
- Shorter cycle times - increase in productivity
- Increased process reliability and repeatability
- Usability with increased back pressure - improved homogenization
- Quick installation
- Add-on capability (on tool side)

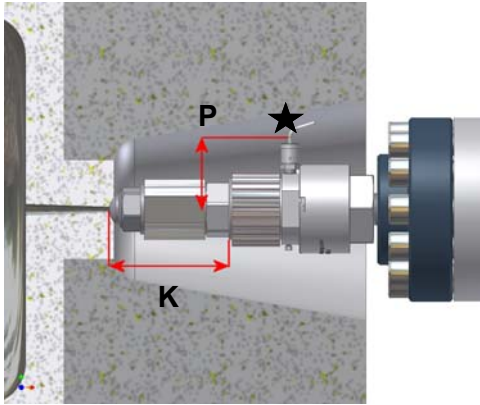
Options:

- Filter module
- Mixer

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





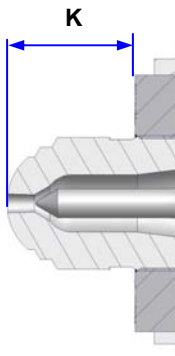
Risk of collision by diving into the mold

- ★ The star in the graphic represents an exposed area of the nozzle. This requires space in the machine plate and should be checked according to the selected nozzle size.

	SHP 0 (mm)
P	70
K	Tip length variable to immersion depth (see Tip types below)

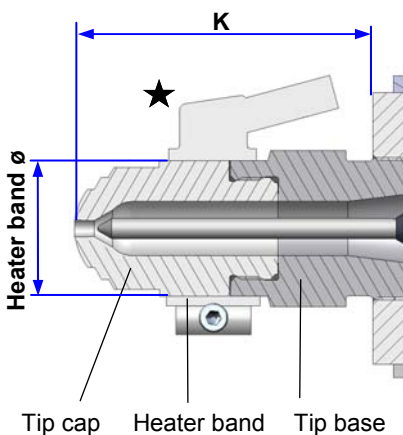
Tip types

In certain circumstances a longer tip can ensure collision avoidance. The tip dimension **K** would be adjusted to suit.



One-piece tip: two lengths	SHP 0	
K dimension in mm	24 *	40
Heater band (ø x width in mm)	—	Ø26 x 16

* **Standard tip** (included in the basic model).



Two-piece tip	SHP 0
K dimension in mm	60, 80, 100, 130, 160
Heater band	Ø35 x K-40mm

Option: Individual lengths manufactured to customer's specifications.

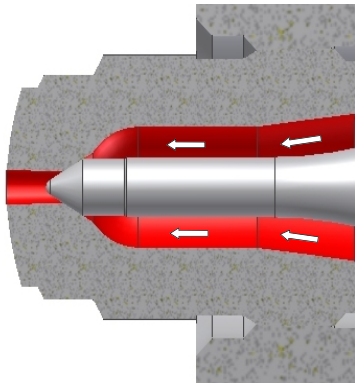
Extensions require separate heating control.

- ★ The star in the graphic represents an exposed area.

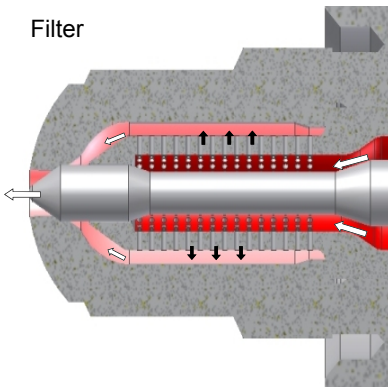
Different heating possibilities can be used for confined or restricted spaces. (see **Alternative tip heating**)

Modules / Extras

Standard System



Filter

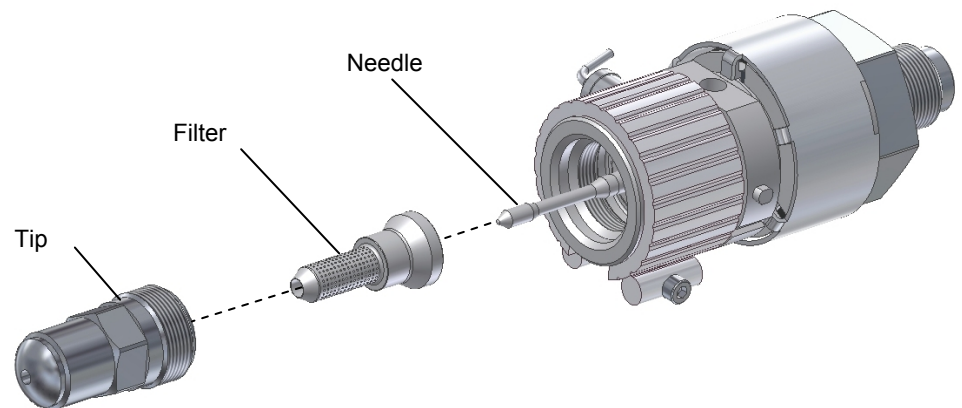
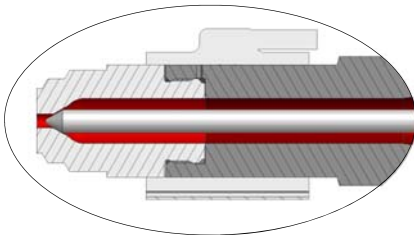

Filter → preventive strategy

Keeping free feed openings in the hot runner or filtering of the polymer mass in reclaimed material processing requires the use of a filter. We deploy the screen filter.

The following openings (bore) are on stock:

Nozzle type	SHP0
Bore diameter	0.7

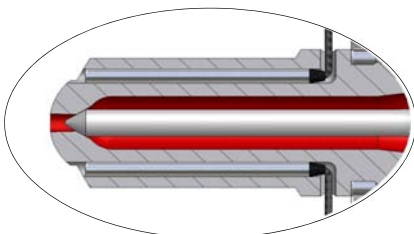
Other bore diameters on request.


Alternative tip heating → Note: requires adjustable control


- **Space-saving external heating**

A standard heater band requires space in the nozzle immersion area (Machine plate - tool)
Possibility for constricted areas:
Heater band with flat cap connection and wire netting or heat cartridges.

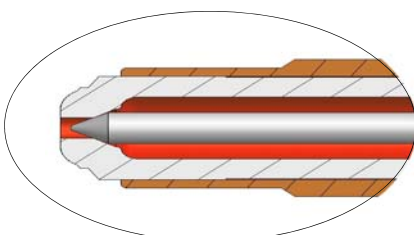
(see **Extras, Heating Systems**)



- **Integrated tip heating**

Heater bands mounted on the tip may be exposed.
When injecting the problem of overmolding can occur resulting in time consuming cleaning and a risk of damage.
An alternative to this is a tip with integrated heat cartridges.

(see **Extras, Heating Systems**)



- **Tip with heat conducting cladding**

In situations where space in the tool is at a minimum, this option with heat conduction until the tip opening can be deployed.

(see **Open nozzles, Heat conducting nozzle**)

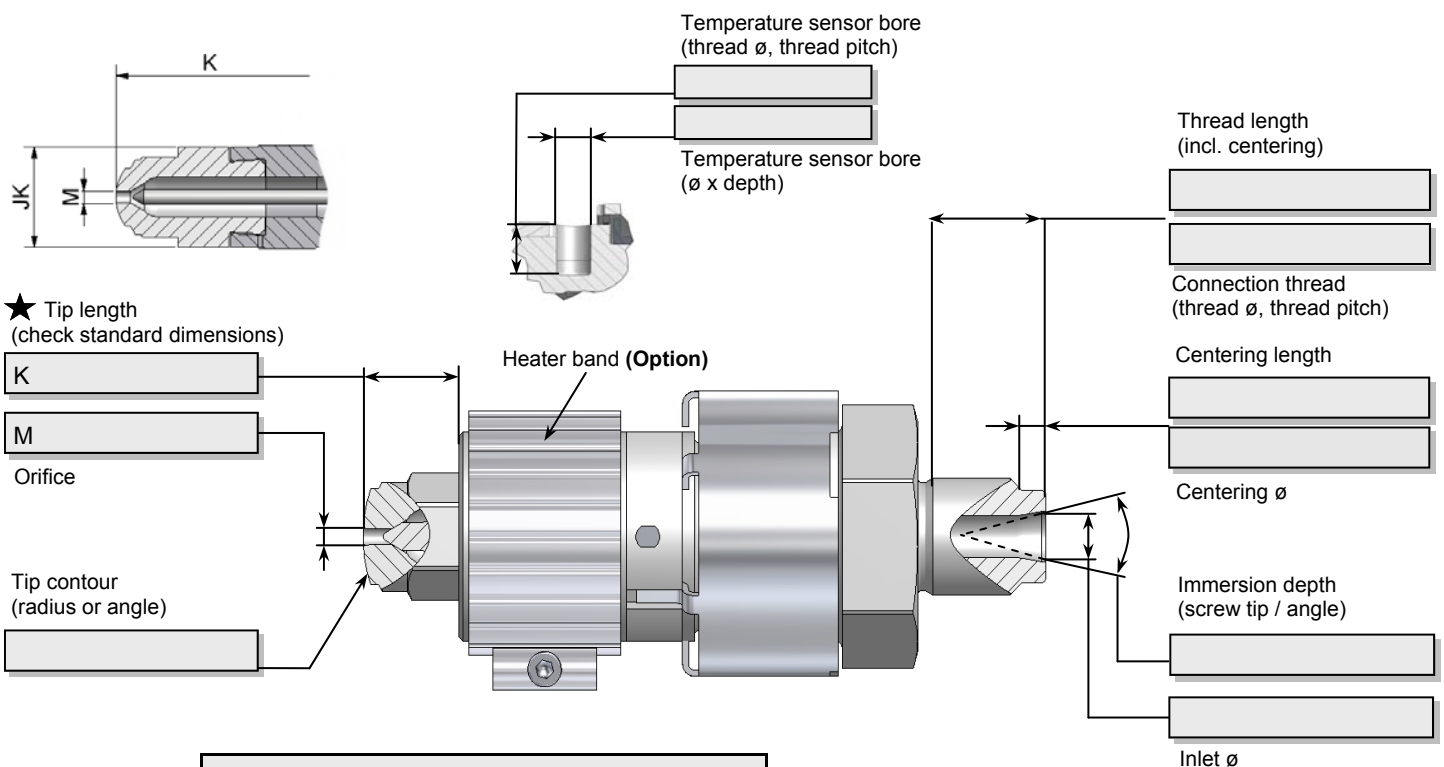
Dimension Sheet for enquiry	or order	Machine shut-off nozzle type SHP, spring operated
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Company:
Street:
City / Zip:
Land:

Contact person:
Tel.:
Fax:
E-Mail:

Operating data and standard dimensions (mm)

max. injection rate cm ³ / s based on Polystyrol (PS)	Flow channel (cm ³)	500	20
approx. screw diameter	up to approx.. 50		
max. contact force (kN)	max. 70		
max. back pressure	200 bar		
max. injection pressure / temperature	3000 bar at 400°C		
M max. orifice (larger openings on request)	5 mm		
K tip length one-piece tip length two-piece	24*, 40** (60, 80, 100, 130, 160)**		
*Standard tip included in base model. **Optional tip dimensions. Other tip dimensions custom manufactured.			
JK tip heater band cable 2m	tip one-piece	Ø26 x 16	
	tip two-piece	Ø35 x K-40	
body length (without thread and tip length)		115 mm	
body heater band dimensions		Ø50 x 40 350W / 230V	



Machine type:

Options

Temperature sensor- Type J (FeCuNi), Cable length 2m	Yes <input type="checkbox"/>	Screen filter (Gap = 0.7 mm)	Yes <input type="checkbox"/>
Body heater band, Cable length 2m	Yes <input type="checkbox"/>	Tip with abrasion protection (above 30% fillers)	Yes <input type="checkbox"/>

Note: 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.