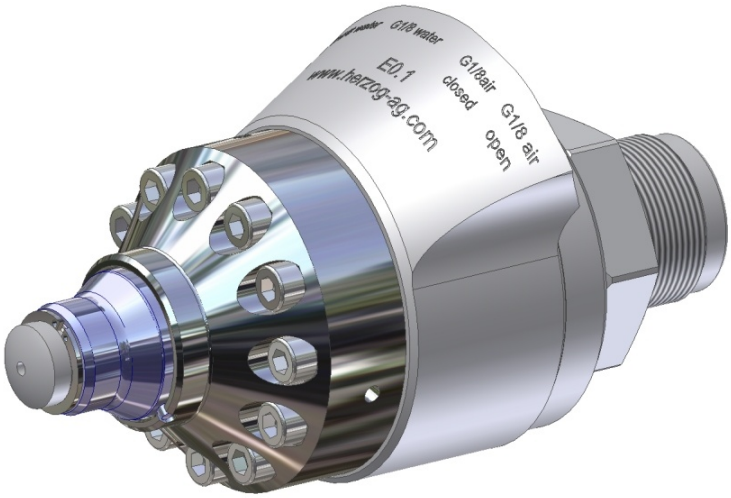
Machine shut-off nozzle for Elastomeric plastics; Type E

Integrated pneumatic actuator and tempering system



Application:
Elastomeric plastics (including **L.S.R.** - **L**iquid **S**ilicone **R**ubber)

Shut-off technique:
Needle shut-off with Integrated two way pneumatic actuator

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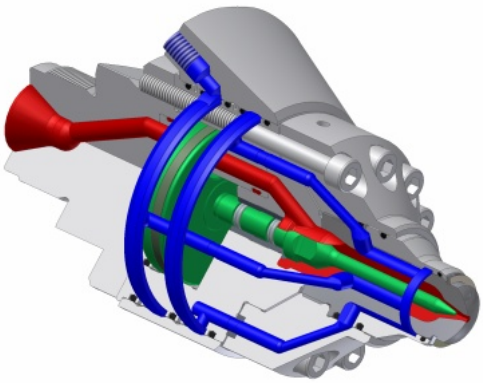


Legend

- Melt stream
- Shut-off system
- Tempered circulation

Technical description

The field of application for the E-Nozzle is primarily LSR (Liquid Silicon Rubber).

In this nozzle‘s favour are:
- Targeted cooling or heating over the whole nozzle, i.e. tempering until the interface of nozzle – mold
- Compact concept
- Flexible connecting parts (tip, adapter)

There are multiple fields of LSR applications and is rising in importance. LSR molded parts are frequently observed in the automobile industry, home and sport components, pharmaceuticals, medicine and electronic industries.

Operation:
The herzog® E-Nozzle shows a very compact design. A 2-way pneumatic cylinder controls the shut-off mechanism- while the integrated cooling system, which goes up to the nozzle tip, ensures functional and reliable processing. The materials chosen in the production of the E-Nozzle are highly corrosion resistant.

Note:
Values and measurements in this documentation refer to standard applications.

Arguments for this nozzle type

Prevents:
- Silicone vulcanisation in the nozzle
- Material leakage when dosing with a withdrawn injection unit
- Material leakage while vertically injecting

Supported process control:
- Actuator piston position sensors (indicates if nozzle is “open” or “closed”).

Productivity factors:
- Controlled, clean shut-off of the melt stream
- No vulcanisation in the nozzle
- Increased process reliability and repeatability
- Add-on capability (on tool side)

Options:
- Process monitoring with piston position sensors on the actuator

For & Against

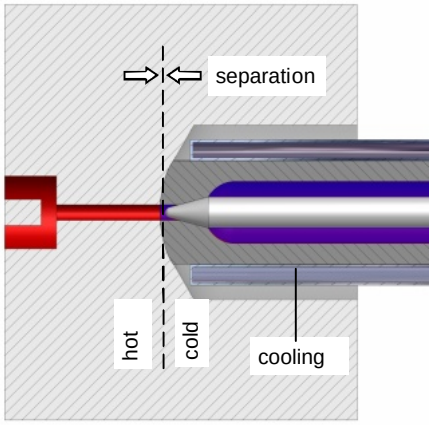
For:
- No vulcanisation in the nozzle
- Controlled, clean shut-off of the melt stream, also with extended tips
- Applicaable for applications with contact to hot mold plate and also cold channel systems
- Operating pressure 2500bar
- Compact modular design

Against:
- If the nozzle must be taken apart, the reassemly process requires specialist knowledge.

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

Tip types

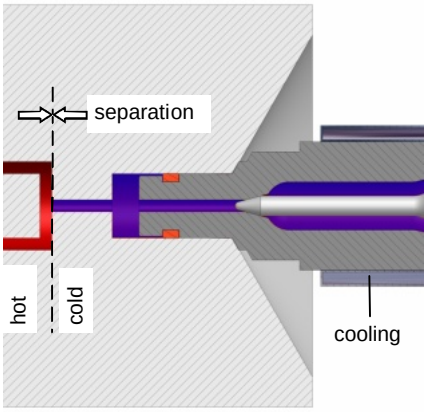


Tip with radius or angle → nozzle arrangement with hot mold

For mold plates with thermal separation between sprue bushing and nozzle.
The nozzle should close as close as possible to the cavity. Cooling through the entire immersion length is required.

Tip contour and orifice are manufactured to customer specifiations.

The nozzle tip lies against the hot mold and is tempered (cooled). Premature vulcanisation is therefore eliminated. The thermal separation occurs between the hold mold and the cooled nozzle.

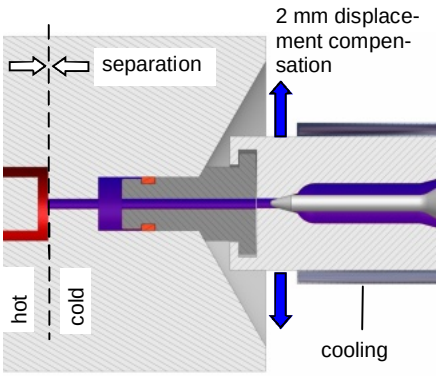


Conical tip for cold channel → nozzle arrangement with cold channel

For mold plates with thermal separation between the injected part and the sprue bushing.
The tip‘s conical contour is mostly ø15x23 120° or ø20x23 120°.

The nozzle tip lies against the cold channel. The thermal separation occurs between the cold mold and the hot cavity.
Our E-nozzle with cold channel tip is not designed for application with hot molds. The silicone would in this case vulcanise in the nozzle tip and block the orifice.

The conical tip is via a seal impermeable. When withdrawing the injection unit the cold channel in the mold is released and decompressed.
A 120° conical seals close the contact force of the injection aggregate against the injection pressure.



Conical tip for cold channel with radial adjustment element → compensates displacment of up to 2 mm

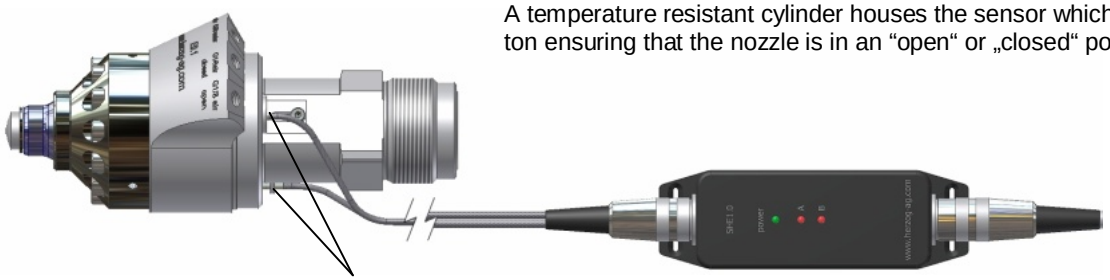
The function of the cold channel tip with radial displacement compensation is similar to the cold channel tip. The conical tip can additionally move laterally and/or equalize displacement.

Mulit component processing with lateral injecting:
The lateral molding point is sensitive to the movements of the machine plate.
The tip equalization can compensate for this movement which in turn protects the nozzle from damage.

Optional Extras

Position sensor for actuator → process control

A temperature resistant cylinder houses the sensor which detects the position of the piston ensuring that the nozzle is in an “open“ or „closed“ position.

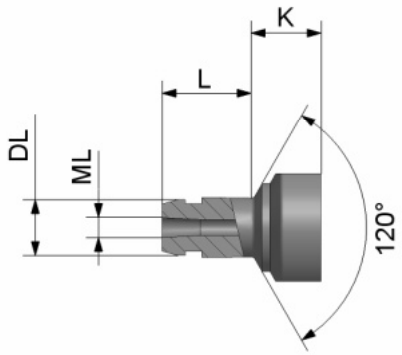


Sensors **Signal amplifier with display**

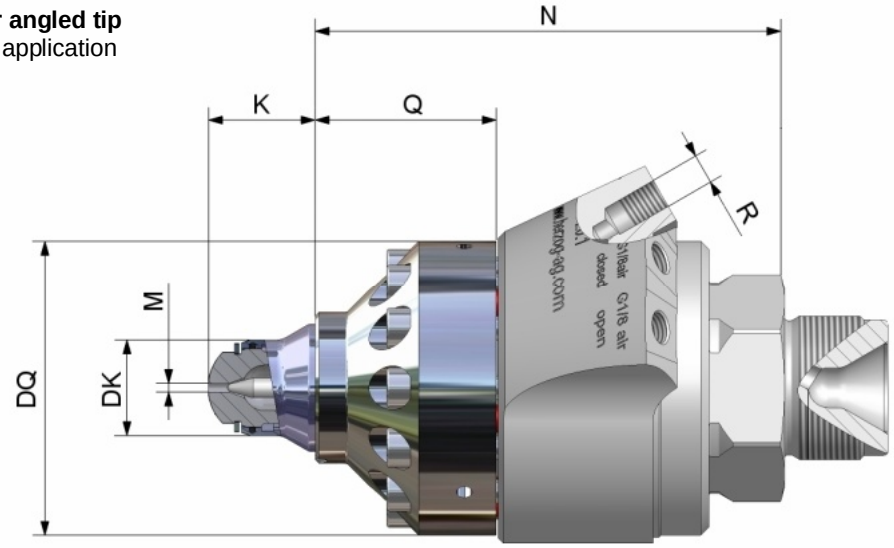
Data sheet - machine shut-off nozzle, type E pneumatically controlled

Operating data	E0	E1
max. injection rate cm^3 / s	350	1500
flow channel cm^3	7	30
max. contact force (kN)	70	120
smallest nozzle orifice (mm) **M** at max. injection rate	Ø 2	Ø 4
max. back pressure (closed nozzle)	330 bar at 4 bar actuation pressure	720 bar at 4 bar actuation pressure
max. injeciton pressure	2500 bar	2500 bar
temperature range	-20°C to 110°C	

Conical tip
Cold channel application



Radial or angled tip
Hot mold application



Actuation

pneumatic	4 - 10 bar
functionality	2 - way

Connections

R	pneumatic connection	2 x G1/8	
	connection for tempering liquid	2 x G1/8	2 x G1/4

Standard dimensions in mm

Key	Description	E0	E1
K	tip length	**27**, other dimensions on request	**35**, other dimensions on request
DK	tip ø	ø 24	ø 36
M	max. orifice	ø 4	ø 6
Q	flange length	46.5	53
DQ	flange ø	ø 74	ø 100
N	body length	118	144
L	length until separation point	23	23
DL	conical ø	ø15, 20	ø15, 20
ML	conical orifice	ø 5	ø 8

Technical modifications reserved. For orders or enquiries please fill out the **Dimension sheet**.

Dimension Sheet for enquiry		**or order**		Machine shut-off nozzle type E, pneumatically controlled

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

Nozzle size

- **E0** (to 350 cm³/s)
- **E1** (to 1500 cm³/s)

Machine type (when known)

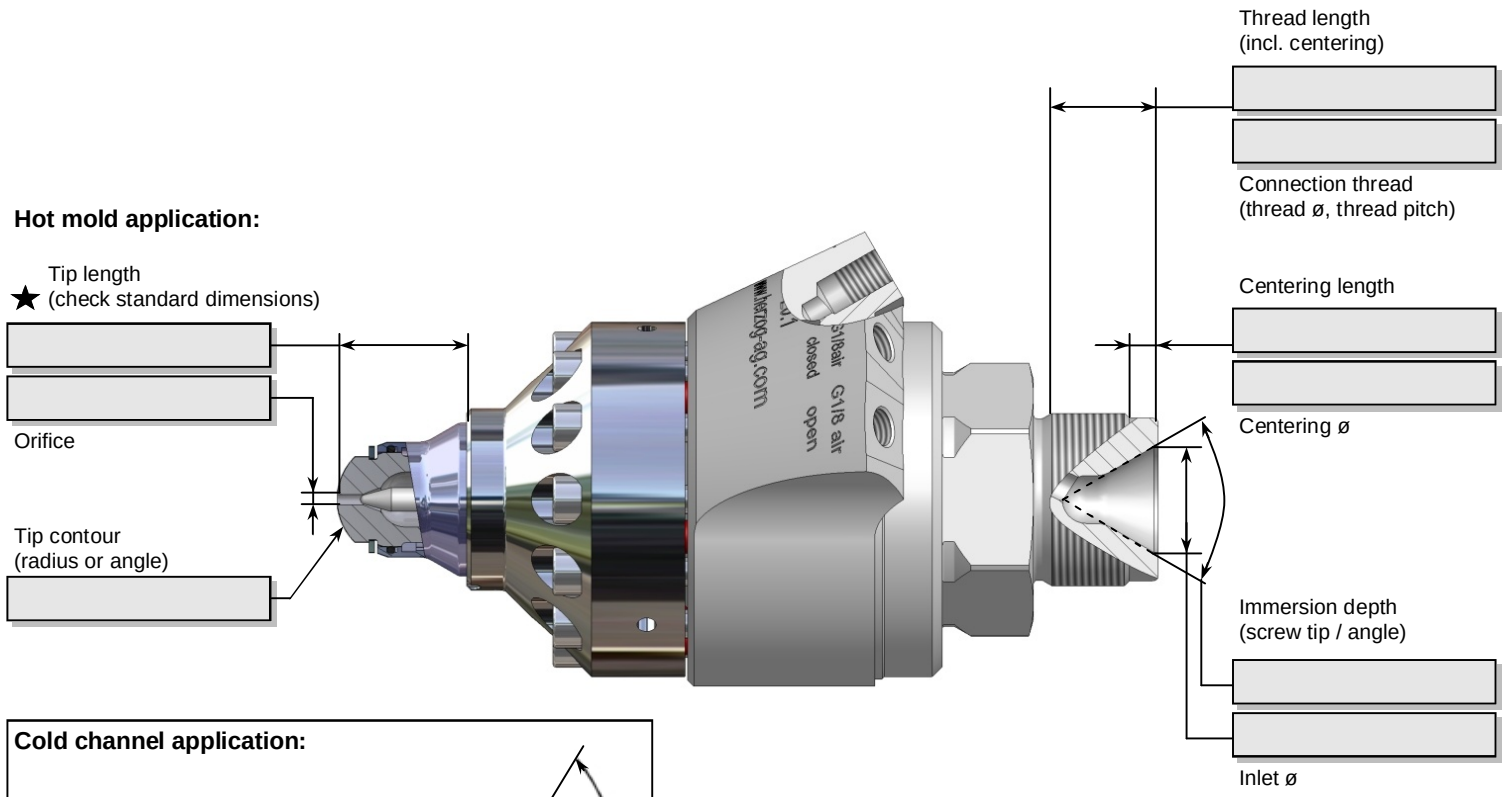
Optional Extras

Position sensor for actuator	**Yes**

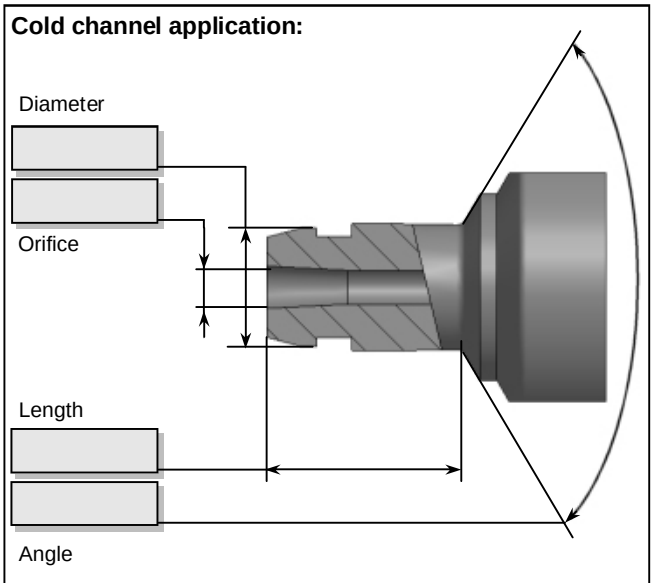
If optional extras are required or when processing with the above special applications, please enter here:

★ Standard dimensions, see **Data Sheet.**
Measurements in mm

Hot mold application:



Cold channel application:



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.