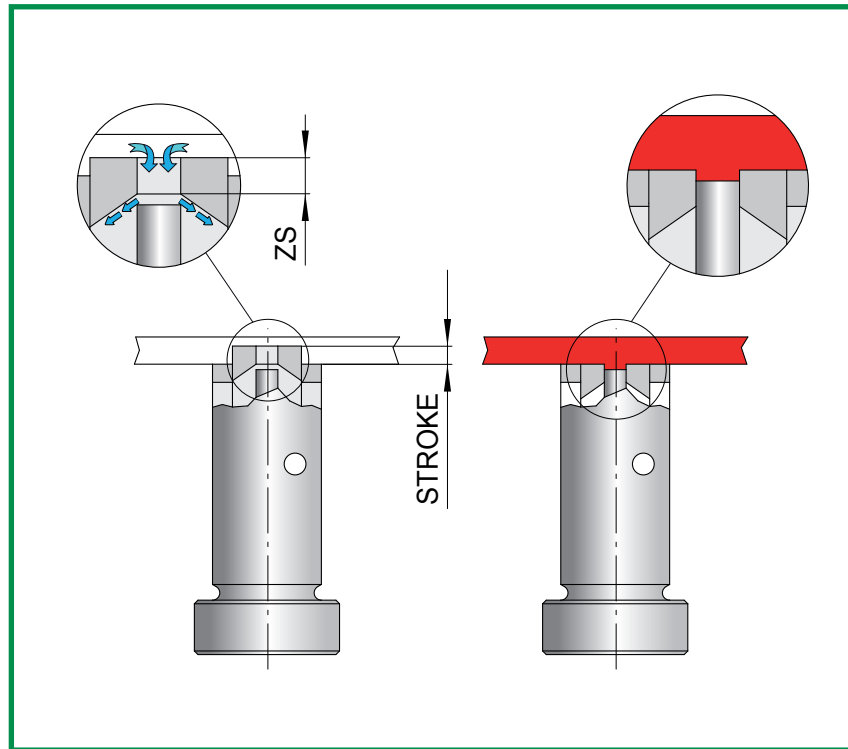


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DYNAMIC GAS VENTING VALVES

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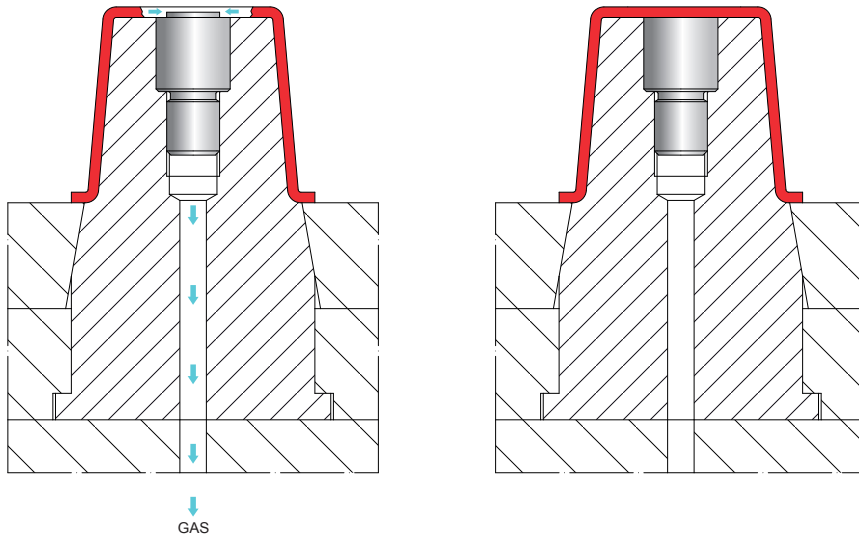


During the injection process the spring keeps the sliding insert in “open position” allowing the gases to pour out through the hole on the top of the valve. When the flow front reaches SGD the sliding insert moves back under plastic pressure to “close position” and closes the gas venting hole.

The SGD valves work properly if the plastic pressure applied on the sliding insert is able to compress the spring and to push the sliding insert back before the melted material fills the valve.

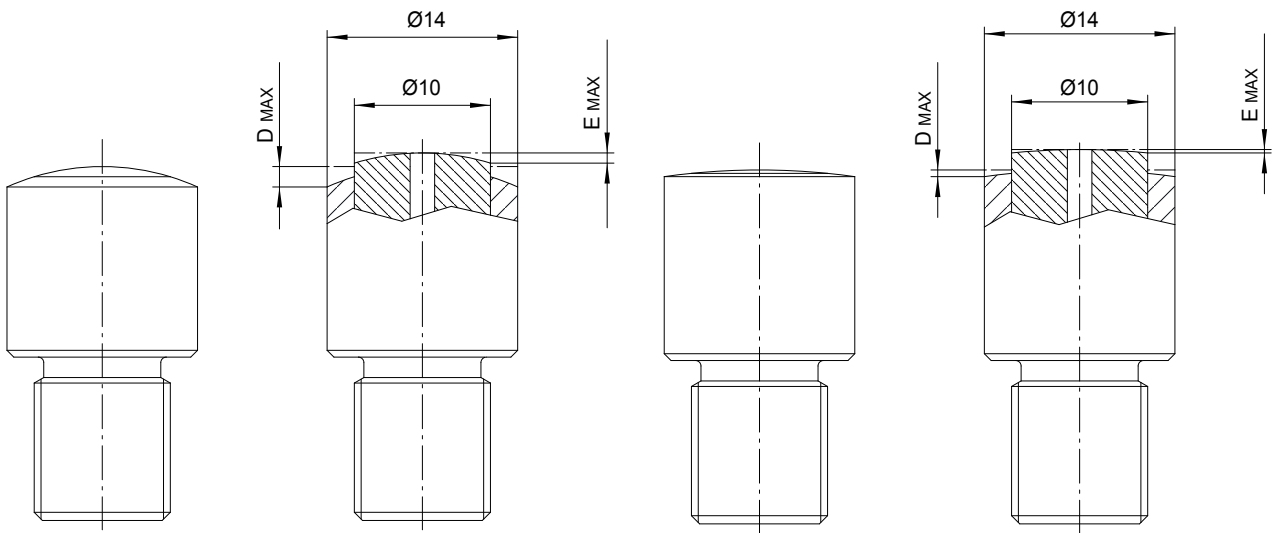
We call safety zone “ZS” the length of the gas venting hose that can be filled by plastic without compromising the functioning of the device. “ZS” and spring force have been set to guarantee a correct working with low viscosity materials.

WORKING SYSTEM



During the injection process the spring keeps the sliding insert in "open position" allowing the gases to pour out through the hole on the top of the valve. When the flow front reaches SGD the sliding insert moves back under plastic pressure to "close position" and closes the gas venting hole.

SHAPING MACHINING



MODEL: SGD-1410

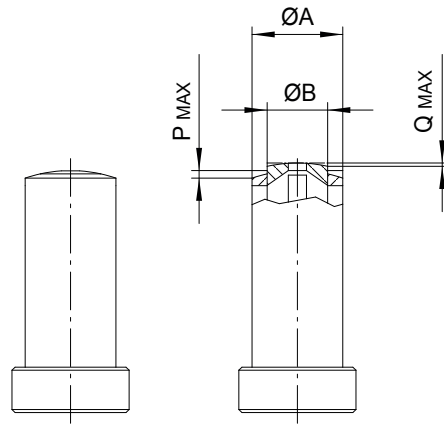
MODEL: SGD-1415

CODE	D	E
SGD-1410	1,5	0,75
SGD-1415	0,5	0,25

The SGD valve can be shaped within the maximum limit shown in the above picture.

SHAPING MACHINING

The SGD-6.. valve can be shaped within the maximum limit shown in the above picture.



CODE	A	B	P	Q
SGD-605	6	4	0,5	0,25
SGD-608	6	4	0,5	0,25

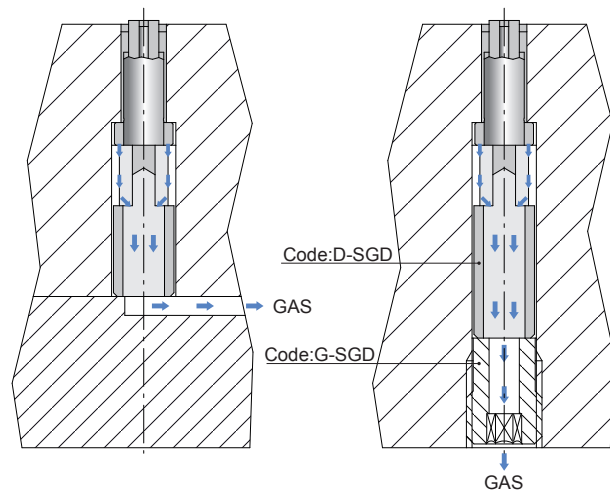
APPLICATION EXAMPLE

The valve type SGD-MINI has to be fixed into the mold insert from the back side. The spacer code D-SGD and the dowel code G-SGD can make this application easier.

The spacer is specially designed to collect the gases from the valve toward a central hole that communicates with the open atmosphere. It is possible to machine the spacer in order to reach the desired length.

The positioning of the spacer with respect to the valve is guaranteed by the means of pins. The positioning of the spacer with respect to the mold will have to be carried out by the tool maker.

The dowel allows to fix the spacer and the valve and collects the gases into the central hole.

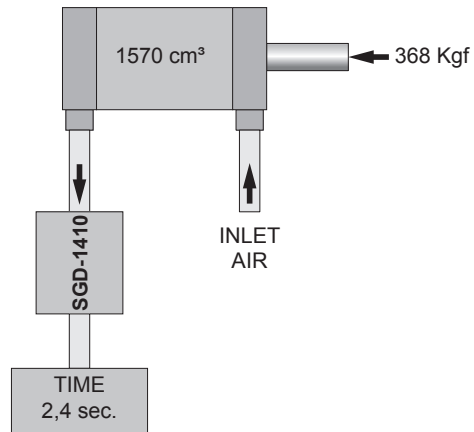


GAS VENTING CAPACITY TEST

- BORE SIZE: 100mm
- STROKE: 200mm
- ROD SIZE: 25mm
- AIR VOLUME: 1570 cm³
- INLET AIR PRESSURE: 5 BAR
- PRESSURE WORKING SURFACE: 7363 mm²
- FORCE: 368Kgf

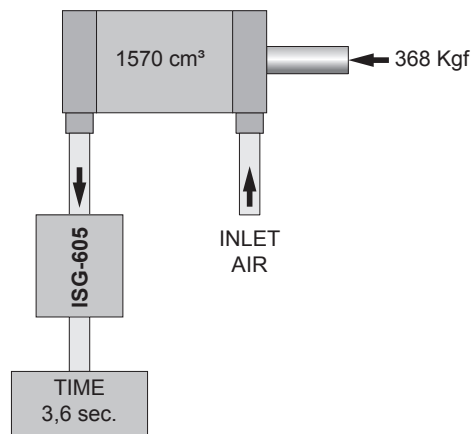
SGD

- VENTING SURFACE: 1,76 mm²
- VENTING TIME: 2,4 sec



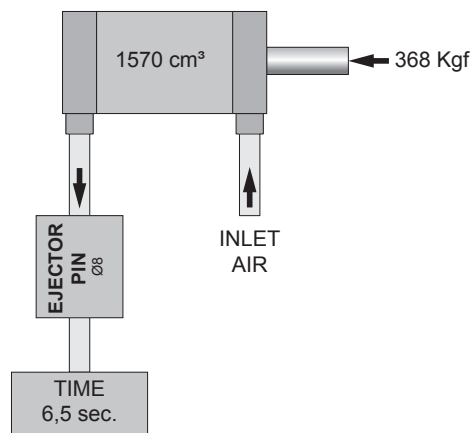
SGD-MINI

- VENTING SURFACE: 1,13 mm²
- VENTING TIME: 4,5 sec

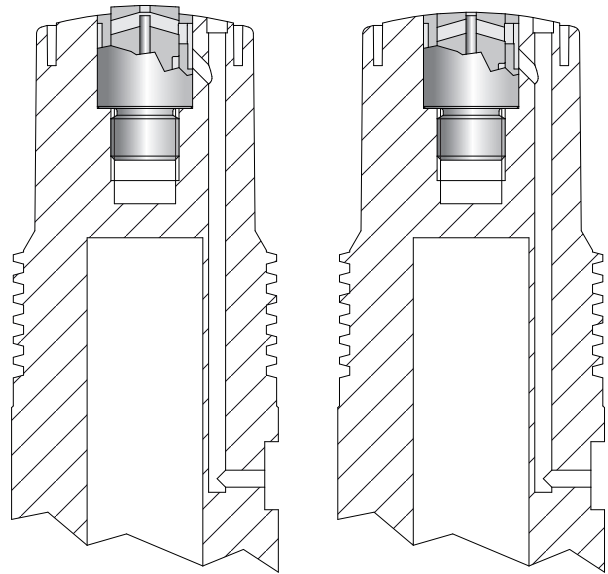


EJECTOR PIN

- DIAMETER: 8mm
- VENTING GAP: 0,03mm
- VENTING SURFACE: 0,75mm²
- VENTING TIME: 6,5 sec



Due to aesthetic requirements it has been necessary to inject the radiator knob, object of this case study, from the side. Due to the filling pattern the air get trapped into the cavity, under plastic injection pressure burn marks occur. With the application of a specially designed SGD valve it has been possible to optimize the venting of the cavity and reach a constant high quality production.



INJECTION PARAMETERS

WITHOUT VALVE

Injection parameters from 0 to 90% of filling:

Speed 9%

Pressure 50%

Injection parameters from 90 to 100%

Speed 10%

Pressure 100%

Holding pressure: 100%

Filling time from 12 to 15 seconds

Issues: burning marks on the top of the part – short shot
– visible welding lines

Non compliant parts

WITH VALVE

Injection parameters:

Speed 60% (no burning marks even with 80%)

Pressure 60%

Holding pressure: 80%

Filling time: 1,6 – 1,9 seconds

Compliant parts





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