Shut-off Nozzle

External Spring

558

External spring activates shut-off pin. During injection, material flow caused by injecting force overcomes spring tension, thereby pushing shut-off pin away from seat. During screw recovery and idle, the spring tension forces the pin forward, restricting material flow.

Shut-Off Pin

Externally activated shut-off pin permits unrestricted material flow during injection. Completely seals off flow at point of removable tip seat during screw recovery and idle. Eliminates drool and stringing.

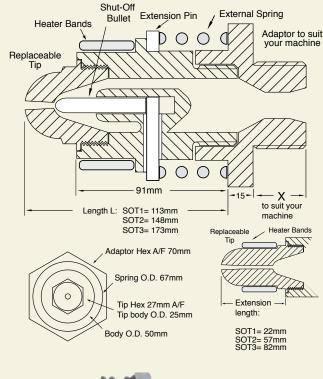
Replaceable Tip

Special hardened tool steel tip can be changed in seconds. Reverse taper nylon design. Available with choice of radius and orifice 3, 4, 5 and 6mm. Be sure to specify when ordering.

Shut-off body uses 50 X 25mm heater (e.g. NB2010)

- Completely mechanical, automatic operation.
- No internal springs.
- Eliminates cold slugs.
- Controllable back flow during injection.
- · Reduces flashing.
- Precise pressure control during cure.
- Positive shut-off prevents drooling.
- Increase production up to 34%

Dimensions:





to reach recessed sprues















WARNING

This Shut-Off Nozzle uses wear-resistant Particle Metallurgy materials in the critical wear areas of the pin and insert and will provide long life when moulding regular polyamides, acrylics and similar relatively normal non-abrasive materials. For moulding extremely abrasive materials such as glass filled Ryton, we recommend a Shut-Off Nozzle of similar design made of exclusively of wear resistant CPM9V. Contact factory for price and delivery.

Shut-off Nozzle



AUTOMATIC OPERATION

Operation is fully automatic and mechanical, with activating force derived from natural machine action. During injection, the material flow and pressure force shut-off pin backwards, thereby overcoming spring tension through pin extension. Material flows unrestricted into mould. As soon as injection pressure is released, the tension of spring forces pin extension and thereby also shut-off pin forward, restricting material flow. Tip is of reverse taper design; hence, residue material is ejected with the finished article, eliminating the possibility of cold slugs and strings.

CRACKING PRESSURE: 1800 psi (Max. screw back pressure)

Pressure to fully open

• • •	
Orifice	PSI
3mm	1900
4mm	2000
5mm	2100
6mm	2200

NOTE: Pressures are in lbs. per sq. inch of plastic melt. In most cases the hydraulic pressure of the machine will be one tenth of the above values. It should be noted however, that the hydraulic oil to plastic ratio is not always one-to-ten.

HOW TO ORDER

- 1. Specify make and model of machine.
- 2. Specify length or style (A, B, C or D).
- 3. Specify radius and orifice of tip.
- 4. Please identify and advise thread and rear opening of your machine

Complete Assembly

Item Description	Part No
COMPLETE ASSEMBLY:	
Style A (Length L= 113mm)	SONZ1
Style B (Length L= 148mm)	SONZ2
Style C (Length L= 173mm)	SONZ3

Assembly includes complete unit: Body, tip, external spring, CPM9V shut-off pin and CPM9V pin insert, pin extension and adaptor to suit your machine.

Heaters

Heater For:	Heater Size dia x width	
Main Body	50 x 25	
SOT1	N/A	
SOT2	25 x 25	
SOT3	25 x 50	

Now available with larger orifice sizes up to 9.5mm, using oversize Shut-off. Call for details.

REPLACEMENT PARTS

Item Description	Part No
EXTERNAL SPRING	SPG2A
PIN EXTENSION	OPEXT
CPM9V Shut Off Pin for SOT1	OPSOPN
CPM9V Shut Off Pin for SOT2	OPSOPN2
CPM9V Shut Off Pin for SOT3	OPSOPN3
CPM9V INSERT	OPSOI
ADAPTOR TO SUIT YOUR MACHINE	SOAD
NOZZLE TIPS:	
STYLE A (22mm extension)	SOT1
STYLE B (57mm extension)	SOT2
STYLE C (82mm extension)	SOT3

Assembly includes complete assembly: Body, tip, external spring, CPM9V shut-off pin and CPM9V pin insert, pin extension and adaptor to suit your machine.











Type L:

- Hydraulic or Pneumatic Operation
- Machine based or Integrated Actuator (see diagrams below)



Type S:

• Internal Spring Operation

Advantages of the shut-off nozzle NSO

- Single hole technology
- The melt is led centrally by the nozzle needle
- Minimal pressure drop
- Optimised heat transport
- No shearing of melt

Advanced construction

Substantial advantages in handling

- Easy assembly
- Quick and easy cleaning
- Trouble free production

Shut-off in the nozzle tip

- No sprue, no drooling
- · Controlled, clean shut-off of the melt stream
- Reduced cycle times

Compact design less space

Modular system

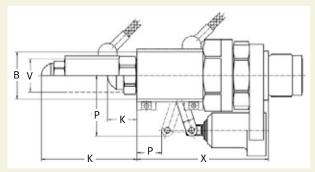
Specific adapter designed for your application

- Standard nozzle available from stock.
- Quick change of nozzle
- Shortest delivery time
- Most economic solution

Flexible system

For a fast changeover to various tools and machines

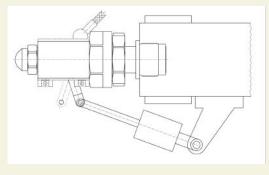
- Different tip lengths from stock
- Different nozzle tip length



Integrated actuator

The integrated actuator is located directly at the lever. This compact design is suitable for all types of injection units. The power source can be either hydraulic or pneumatic. The operating pressure of 6 to 10 bar pneumatic or 50 to 70 bar hydraulic must not be exceeded. When using compressed air, make sure that the air is clean and dry.

Following dimensions describe the space required by the nozzle. The correct length of the nozzle tip ensures that the nozzle fits within the opening in the stationary mold platen. Extended tip lengths may require additional tip heater bands.



Machine-based actuator

If a machine-based actuation is to be utilized, attention has to be paid fitting the linkage or cable (stroke, force and alignment) to the nozzle. The cable or linkage should be installed according to instructions provided in order to achieve proper operation and avoid damage to the nozzle.







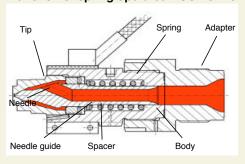
Technical description

NSO nozzles SYSTEM ENG [®] are available in two types: spring operated type S, and power operated type L

Type S:

• Internal Spring Operation

Function of spring operated NSO nozzle





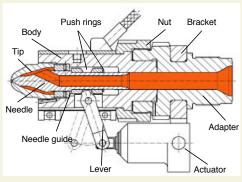
The needle moves axially in the nozzle and is held in the closed position by the force of the spring. The melt pressure from the injection unit pushes back the needle and opens the hole for injection at 180 bar. After the injection process and pressure decrease, the nozzle is closed again, due to spring pressure.

The spring is made from heat resistant steel. Good to 500°C

Type L:

- Hydraulic or Pneumatic Operation
- Machine based or Integrated Actuator (see diagrams below)

Function of power operated NSO nozzle 1





The injection orifice of the power operated nozzle can be opened without pressure loss. The nozzle is controlled by hydraulic or pneumatic actuation. The reliable shut-off system separates the melt flow at a predefined point determined by the process. The control of opening and closing is integrated into the unit and is very compact.

The position of the lever can be set at any position. If the melt pressure exceeds 600 bar, the nozzle opens automaticaly. (Safety device) The nozzle can be controlled also by actuation rod or cable.

The NSO nozzle type L utilizes the options of the machine controller and uses either the hydraulic or pneumatic system. Two options are available for the installation of the nozzle:

- · Integrated compact actuator
- · Machine based actuator









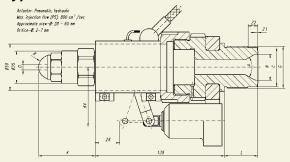
Type L External Actuator Operation



Integrated or machinemounted actuators available

Type L20

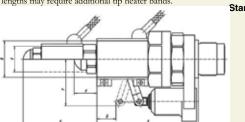
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Integrated actuator

The integrated actuator is located directly at the lever. This compact design is suitable for all types of injection units. The power source can be either hydraulic or pneumatic. The operating pressure of 6 to 10 bar pneumatic or 50 to 70 bar hydraulic must not be exceeded. When using compressed air, make sure that the air is clean and dry.

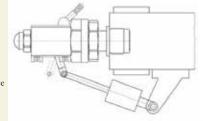
Following dimensions describe the space required by the nozzle. The correct length of the nozzle tip ensures that the nozzle fits within the opening in the stationary mold platen. Extended tip lengths may require additional tip heater bands.



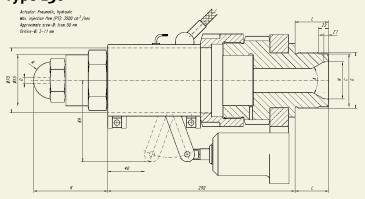
indard dimensions in n				
		L20	L30	
	В	Ø 50	Ø 70	
	Р	64	88	
	Q	26	40	
	٧	Ø 35	Ø 55	
	Х	139	202	

Machine-based actuator

If a machine-based actuation is to be utilized, attention has to be paid fitting the linkage or cable (stroke, force and alignment) to the nozzle. The cable or linkage should be installed according to instructions provided in order to achieve proper operation and avoid damage to the nozzle.



Type L30



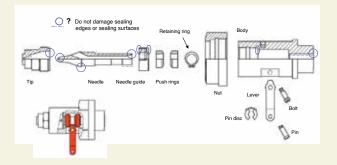
Operating conditions

The following conditions must be met in order to ensure correct operation of the NSO nozzle:

- Maximum force at the lever: L20=350N L30=700N
- Minimum actuator stroke: L20=26 mm L30=38mm
- Check that the lever does not touch the body
- in the nozzle open position.

 Check also that the nozzle reaches fully open





Technical data	S20 Spring operated	L20 Power operated	S30 Spring operated	L30 Power operated
Max. injection flow based on PS	1000 cm ³ /sec		3500 cm ³ /sec	
Approximate screw-Ø	20 - 60 mm		from 50 mm	
Max. operating temperature		400	°C	
Max. injection pressure	2500 bar			
Max. back pressure	ca. 200 bar	600 bar	ca. 200 bar	600 bar
Operating type	Spring	pneum atic, hydraulic	Spring	pneumatic, hydraulic
Orifice-Ø range of tip	2 - max. 7 mm		3 - max. 11 mm	
Body heater band	Ø45 x 38 mm	Ø50 x 70 mm specific	Ø70 x 60 mm	Ø70 x 100 mm specific
Tip heater band	TL= 6omm Ø35 x 16 mm		TL= 80 mm Ø55 x 24 mm	
Tip heater band	TL =100 mm Ø35 x 55 mm		TL =120 mm Ø55 x 60 mm	
Thermocouple	J -Type, Thread M8x1			

subject to technical change

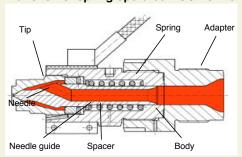






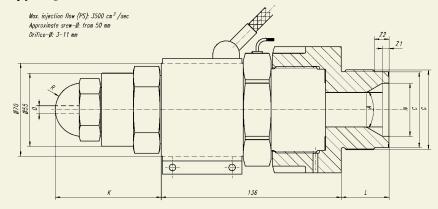
Type S Internal Spring Operation

Function of spring operated NSO nozzle

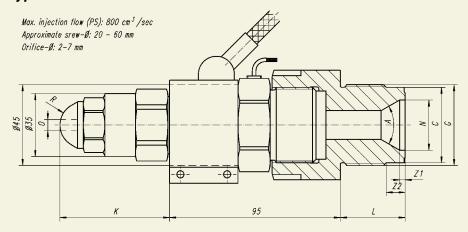


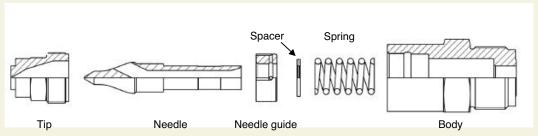


Type S30



Type S20













Plunger Shut-off Nozzle



Positive Shut-off operation actuated by machine travel

How it works:

564

At the start of the injection cycle, the nozzle tip moves forward and, when making contact with the tool, forces the tip (A) back against the body (B) and, in doing so, allows the material to flow through the plunger (C) to fill the mould.

At the end of the injection cycle, the nozzle retracts and the pressure of the material within the barrel forces the tip into the forward position, thereby shutting off the flow. This nozzle comes complete with a special adaptor to allow you to purge through without the need to offer the nozzle up to the face of the tool.

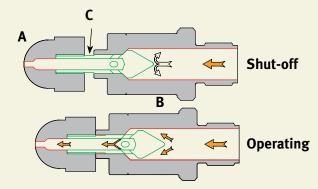
Plunger type Nozzle

Item Description	Part No
Complete assembly including shut off unit and tip (please specify radius and orifice). Adaptor thread up to 70 mm diameter	PLSON
Spare plunger for above unit	PLUNG
Spare tip (steel)	PLSTIP
Spare tip (copper/nickel)	PLCTIP
Heater band	R5025175C

- For all makes and models of injection moulding machines
- Nozzle supplied with adaptor for purging
- The complete assembly includes shut-off unit, tip, purging cap and threaded adaptor to suit your machine

This low cost shut-off nozzle was introduced to provide an economical alternative to the Fuchslocher, and has soon found a niche amongst many satisfied Injection Moulders.

The only stipulation for using this type of shut-off nozzle is that the machine must be operated with sprue break for the nozzle to work, ie the carriage must retract by at least 25 mm on completion of the injection cycle.

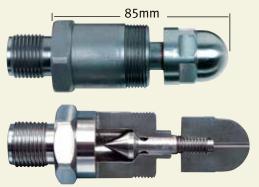


NB: Requires optional heater band BN2010

NB The machine must be operated with sprue break for the nozzle to operate correctly ie. the carriage must retract by at least 6mm on completion of the injection cycle.

Plunger Shut-off Tip

Fits all existing Standard Removable Tip Nozzle Bodies.



NB: Requires optional heater band BN1210

Plunger type Tip

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Item Description	Part No	
Complete assembly including 7/8"-14 shut off tip (please specify radius and orifice)	RSOT1	
Spare plunger for above unit	PLUNGS	
Spare tip (steel)	RSOTIP	
Spare tip (copper/nickel)	PLCTIP	

- Change a Standard Nozzle into a Shut Off Nozzle in less than 2 minutes
- Combine a Shut Off Mechanism with a Mixing or Filter Nozzle.
- Significantly reduce material wastage and Heater Band failures caused by nozzle.
- Economical alternative to other types of Shut Off Nozzles
- Retain standardisation of Nozzle Body Diameters and Heater Bands

The shut off tip is supplied complete with a special adaptor to allow you to safely purge through the tip without having to offer the nozzle up to the face of the tool.

