2007-08 CE ISO 9001

SMBM series Blow Mold

With the many years of experience in developing and selling stretch blow molding systems, Smargon supplies a wide variety of stretch blow molds to ensure the customer to produce high-quality PET Bottle. Our professional staffs are some of the most experienced in the industry with many years of PET container design experience, and have the knowledge needed to ensure that the bottles are designed to perform as required by our customers.

The bottle is the product – the mold is the way

Smargon can provide the customer with product development and take advantage of services like:

- Develop the bottle design with your ideas and sketches
- Provide with a variety of our "stock" container designs
- Turn your CAD-files or drawings into molds
- To product design and implementation
- Additional services

SMARGON Series

Preform, Closure & Blow Mold

Smargon Plastic Machinery Co., Ltd.
www.smargon.com

smargon

We Offer

A Full Range of Mold as Follows:

SMPM series: Valve-gate type Hot-runner Preform Injection Mold up to 48-cavity.
SMTC series: Pin-point type Hot-runner Closure Injection Mold up to 32-cavity.
SMBM series: Blow Mold for various Smargon stretch-blow molding machine.

High Mold Availability

Manufactured to very high standards with corrosion-resistant steel plates and optimized for preform, closure and container production, Smargon molds have a long service life before refurbishing becomes necessary.

The mold design guarantees fast and easy servicing and maintenance.

Smargon series molds are very operator-friendly. Regular maintenance work can be carried out directly at the machine with minimum time inputs.

Hardened mold parts with deeply engaging tapers support the lifetime of the mold and minimize maintenance.

Developing the Mold

Smargon's engineering base ensures a quality in mold design and production with its state-of-the-art. Since excellent mold design is critical in the production of a PET preform and container or closure, Smargon has invested heavily in its tooling department, and produces all the molds in-house. The high level expertise and know-how of its engineers also adds to the superior quality of the finished product.

Following design optimization of the preform, container and closure, the Smargon tooling department produces the preform injection molds, the closure injection molds and the bottle blowing molds. Total control and optimization of the process provide the customer with a tested and proven system.

Quality Control

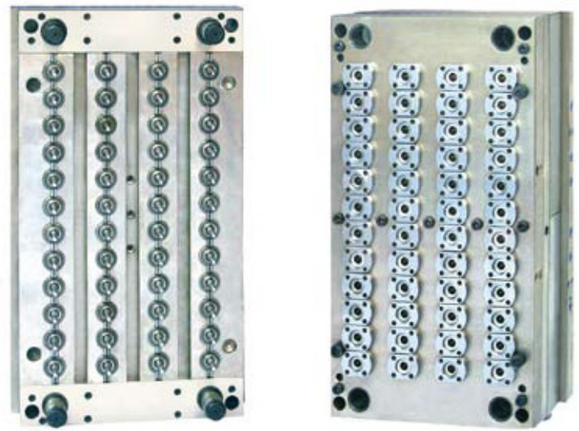
Quality has always played a major role in the production of a Smargon series mold and is further assured by ISO 9001 certification, which was awarded to Smargon for its quality management systems with respect to design, manufacturing, installation and servicing of machinery for the production of PET preform/container and closure. This assurance means that certain of the quality control steps previously carried out by the customer can be eliminated with a resultant saving in time and costs.

Customer Support

Smargon's customer support is an important part of the total service that is offered to its customers. Our mold group provides an experienced team ready to support you in implementing your mold concepts. Our service starts with individual assistance in the pre-sales stage and does not end with supplying the mold but instead continues through to the end of the molds lifetime.

Smargon runs training programs for operators, technicians and engineers both at its own locations and those of the customer, ensuring that the newly-installed system gets off to a good start.

32-cavity Closure Injection Mold



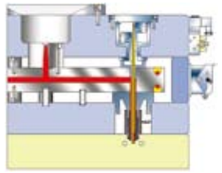
48-cavity PET Preform Injection Mold

SMPM Series
PET Preform Injection Mold

The Preform Design

As a turnkey solution provider in the PET field, Smargon has an in-depth understanding of the parameters involved in the good design for both preforms/container. Using this know-how, Smargon can assists its customers with the demands of preform design, ensuring a perfect bottle.

Smargon combines its extensive experience and know-how in engineering design and application development to offer a comprehensive design support service to its customers. Keeping in mind the ultimate criteria of weight, rigidity, barrier properties and cost, and using sophisticated CAD systems, Smargon assists customers with both preform and container design from concept to prototyping, according to the functional and aesthetic demands of the container. For Smargon, design support is an integral part of the total solution offered to its customers, wherever they are located.



Valve-Gate System

SMPM series preform injection mold have been equipped with an advanced valve-gate system, which is used to control the PET material input mouth's open & close on each cavity. Reliable sealing function, smooth moving, low thermal expansion rate, never block and long using life are such system's main features.

Manifold System

Special designed manifold system has been adopted on SMPM series preform injection mold to ensure the mold to achieve ideal and prompt heating effect for preform production. At the same time, because of the large flowing channels of such manifold system, it ensures the mold to produce preform with lower injection pressure, which can reduce mold's each part's wear & tear and maintenance cost, and also save electric energy.

Standards We Set for Preform Molds

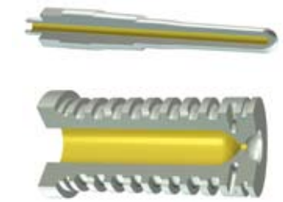
- ☐ Precision machined
- ☐ Well-balanced and durable
- ☐ Perfectly balanced hot-runner system
- ☐ High mold availability
- ☐ Low-crystallinity gate cooling
- ☐ No crystallinity
- ☐ No scratches
- ☐ High surface quality
- ☐ Low acetaldehyde (AA) levels
- ☐ Minimum eccentricity
- ☐ Strong dimensional stability
- ☐ Consistent weight
- ☐ Flashless split-lines

Self-lock System

Long bi-awls fixed orientation advanced techniques has been adopted on SMPM series preform injection mold to reduce the preform eccentricity problem caused by outside reasons.

Eccentricity Rectifying System

Unique rectifying device has been equipped on SMPM series preform injection mold to remove the possible preform eccentricity happened during preform production. After rectified, the preform wall's eccentricity can be adjusted below 0.08mm again.



Cooling System

On SMPM series preform injection mold's each inner part, including core, cavity and valve gate system, there is all special designed cooling system with perfect cooling effect and abundant strength. Well-balanced cooling channel layout and turbulent water flow ensure very consistent cooling and efficient heat transfer away from the preforms.

Mold Inserts

Core: stainless steel with highly polished surface finish
Core frame: with patent design eccentricity rectifying function
Neck rings: stainless steel
Cavities: stainless steel with highly polished surface finish
Pneumatically actuated gates
Long-life O-ring packages for valve pistons
Nozzle-tip with individual control

Low Crystallinity

Hot runners with valve gates developed for PET processing expedite the effective heat transfer to the nozzle tips and offer a wide processing window with consistently high product quality. This results in short start-up times and minimizes crystallinity in this area.

Perfectly Balanced Hot Runner

Perfectly balanced hot runners ensure uniform melt flow and pressure in all cavities. The design of the melt channels minimizes shear and pressure loss, and provides a uniform flow to all cavities. Optimized heat distribution results in consistent AA levels across all cavities.

Precision Machined

State-of-the-art engineering machines and finishing techniques are a guarantee of high quality molds and short lead times.

Specification

Cavity Number	22g Preform Length: 94mm		32g Preform Length: 120mm		42g Preform Length: 130mm	
	Dimension (mm)	Weight (Kg)	Dimension (mm)	Weight (Kg)	Dimension (mm)	Weight (Kg)
4 (1x4)	500x290x410	490	500x290x435	500	500x290x445	525
6 (2x3)	480x380x410	640	500x380x435	655	500x380x445	690
8 (2x4)	500x380x410	640	500x380x435	655	500x380x445	690
12 (2x6)	640x380x410	625	640x380x435	735	640x380x445	750
16 (2x8)	800x380x430	820	800x380x435	850	800x380x465	985
24 (3x8)	770x460x450	1295	770x460x475	1480	770x460x485	1530
32 (4x8)	810x590x485	1740	810x590x505	1945	810x590x515	2010
48 (4x12)	1015x600x490	2520	1015x600x510	2870	1015x600x520	2960

Note: Above specifications are subject to change without prior notice. Dimension means Height x Width x Thickness.

SMTC Series
Closure Injection Mold

The Closure & Mold Design

The advanced 2D & 3D software are running on the latest platforms at Smargon. These systems are used for closure design, as well as for the complex surface generation required to create molds for today's closure shapes. With many years experience and advanced software, Smargon staff can turn your closure-required idea into reality and ensure the final closure to meet your requirement well.

Mold design is also very important foundation for mold's quality. On SMTC series closure injection mold, modular design sliding block group are adopted and each one has included four cavities with tetragonal arrangement, which makes the sliding block only two cavities' length to avoid deformation and ensure balance movement.

Balanced Manifold System

SMTC series closure injection mold adopt tetragonal type cavity arrangement to get the manifold system's balance flow to ensure ideal balance result, and ensure both final closure's quality and mold's long using life. What's more, the distance from machine's nozzle to mold's each cavity can be ensured exact the same, and the mold's each part will bear even injection pressure and the closure produced from different cavity can get uniform quality.

Heating System

Uniform flexural mode heating rod with a silver copper alloy was put on the operating surface of the manifold of SMTC series closure injection mold, which will be manufactured as manifold's outline completely to ensure mold manifold's ideal and average heating result and also for power saving. What's more, such process enables SMTC series closure injection mold to optimize the temperature of the gate area, to within +1% of the set temperture, and can save 20% heating power at least to get the same manifold heating condition.

Standard We Set for Closure Mold

- ☐ Hot-runner with pin-point gate
- ☐ Balance manifold with sheath heater
- ☐ Modular design sliding block group
- ☐ High-quality mold steel from professional manufacturer, including ASSAB, BOHLER, etc.
- ☐ High-precision CNC machining
- ☐ All insert tapers are grinded for high precision
- ☐ Mold inserts are interchangeable
- ☐ Molds range up to 32-cavity
- ☐ Plates can be moved within the machine for easy maintenance and repair
- ☐ Fast injection speed up to 11 shots per minute

Heat Treatment Process

On behalf of the adoption of high quality mold steel from world famous manufacturer like ASSAB and BOHLER, Smargon can also enjoy these companies excellent and mature heat-treatment service. Under the professional and correct heat-treatment process, SMTC series closure injection mold parts have gotten uniform and even hardness level from surface to inside, and its inner stress and size deformation have been reduced to minimum. After heat-treatment, the hardness for core and cavity will be around HRC50~52, for sliding block will be around HRC45~48, and for core cover will be around HRC58~60.

High Quality Mold Steel

Core: S136 from ASSAB
Cavity: S136 from ASSAB
Core Cover: DC11 from BOHLER
Center Ejection Bar: Beryllium copper from USA
Sliding Block: W302 from BOHLER
Sliding Block Frame: 2510 from ASSAB
Manifold: H13
Nozzle Tip: Beryllium copper from USA
Mold Base: P20

HASCO (Germany) professional mold ejector is available to replace the spring ejection system. By doing so, not only no need worry about the spring problem anymore, but also can get fast cycle with just one-time ejection.

Specification

Neck of Finish	Cavity No.	Mold Dimensions (mm)	Weight (kg)
28 PCO	8	350 x 300 x 335	280
	12	400 x 360 x 360	360
	16	400 x 400 x 360	400
	24	350 x 450 x 400	700
	32	700 x 445 x 400	890
30/25	8	350 x 300 x 335	280
	12	400 x 360 x 360	360
	16	400 x 400 x 360	400
	24	350 x 450 x 400	700
	32	700 x 445 x 400	890
38/33	8	410 x 420 x 460	400
	12	530 x 440 x 460	530
	16	680 x 460 x 460	700
48/41	4	450 x 310 x 450	500
	6	600 x 350 x 450	580
	8	420 x 440 x 450	610
	12	600 x 500 x 495	720

Note: Above specifications are subject to change without prior notice.
Dimension means Height x Width x Thickness.

Cooling System

Unique designed cooling system are made for core, cavity and hot-runner system's base plate of SMTC series closure injection mold and it diverts cooling water evenly and efficiently to every cavity.

What's more, the high quality beryllium copper with perfect heat conduction performance are made as the ejection bar for each cavity, to ensure fast cooling and short ejection speed.

Short Cycle Time

Unique manifold design, short hot runner distance, complete cooling inside the molds' part, SMTC series closure injection mold can attain the fast cycle time up to 11shots per minute.

Precision Machined

High quality and vary kinds of CNC machines have been widely adopted on SMTC series closure injection mold's manufacture, from which mold's each part can get very high precision level up to 0.01~0.001mm grade according to different technology requirement, which can ensure mold's long using life, and also ensure spare part's free exchangeable.