



# XFORM GEN3

Preform System

*Feel free to imagine. We make it happen.*

**SIPA**



## Designed to Adapt. Built to Last.

Setting a new standard in PET preform manufacturing.

**XFORM GEN3** is the PET preform production system from SIPA, conceived to give you the freedom to handle any mold requirement you can imagine: it accepts all molds from all the world's leading preform mold manufacturers. And it's built to last: the machine has been engineered to deliver the highest platform robustness along with an unprecedented running efficiency. The **XFORM GEN3** system is capable of handling molds with up to 144 cavities. **XFORM GEN3's** total cost of ownership (TCO) is the lowest of any machine in its class. Initial investment costs are especially low for processors with an existing park of preform molds. **XFORM GEN3** can sit alongside existing lines without a major investment in new tooling.

The high-cavitations preform system delivers:

- Outstanding reliability
- The highest flexibility
- The lowest maintenance requirements
- Excellent preform quality
- The lowest overall energy cost
- The lowest transformation cost

The **XFORM GEN3** is available in two sizes: **350 and 500 tons**



Want to reach more performance,  
preform quality at lower energy consumption?

Choose the **XFORM GEN3 XP**

The XP version delivers:

- ✓ Higher injection rate for the production of thin wall preforms
- ✓ Lower lock to lock which leads to faster cycle time
- ✓ Revolutionary FLEXcool™ PMC system for more efficient cooling with full process flexibility
- ✓ Same well-known flexibility to install legacy tooling





# XFORM GEN3 350 and 500 XP and standard version.

Extremely robust clamp design: record-low maintenance costs for machine and tooling

XFORM platforms uses a state-of-the-art double-toggle clamp unit designed to guarantee virtually no vibrations even at ultra-fast cycle times. This will dramatically reduce your costs for machine maintenance to a level never experienced before. The platens are designed to guarantee a very even force distribution and an excellent parallelism, this leading to a significantly longer mold life and a dramatic reduction in refurbishment costs.

Fast, flexible and energy efficient

The XFORM range is now available also in the new XP version, which delivers record-fast cycle time, new tailored-to-the-application post-mold cooling technology and superior part quality.

The XFORM platform can accept legacy tooling of any generation with no need for expensive compatibility kits.

Finally, the new XFlow™ screw design allows for an even higher energy efficiency, while achieving record-low IV drop at an even higher throughput.

Easy mold change

Mold change is not a headache anymore. The special post-mold coling design allows for a very wide access area during mold-change, leading to significant reduction of downtime and increase operator safety



**XFORM 350**

Cavitation	Max preform thread	Z diameter	Rows x Columns	Pitch V x H
128	30 mm	34	16 x 8	50 x 120
96	30 mm	34	16 x 6	50 x 155
	30 mm	34	16 x 6	50 x 140
72	38 mm	43	12 x 8	60 x 140
	43 mm	48	12 x 6	63,5 x 160
48	48 mm	53	12 x 4	75 x 170
32	63 mm	65	8 x 4	85 x 180
24	70 mm	72	6 x 4	95 x 190
16	75 mm	80	8 x 2	110 x 360
12	110 mm	110	4 x 3	140 x 240
8	75 mm	80	4 x 2	110 x 360

**XFORM 500**

Cavitation	Max preform thread	Z diameter	Rows x Columns	Pitch V x H
180	30 mm	34 mm	18 x 10	50 x 110
144	30 mm	34 mm	18 x 8	50 x 140
128	30 mm	34 mm	16 x 8	50 x 140
96	38 mm	43 mm	12 x 8	60 x 140
	30 mm	34 mm	16 x 6	50 x 140
72	30 mm	34 mm	12 x 6	50 x 140
	38 mm	43 mm	12 x 6	60 x 140
	48 mm	53 mm	12 x 6	75 x 170
48	48 mm	53 mm	12 x 4	75 x 170
16	75 mm	80 mm	8 x 2	110 x 360





# Major energy savings and low TCO.

Behind every XFORM is SIPA's strong technical competence in preform design. And SIPA experts are always available to provide solutions for complex applications.

As with every SIPA product, XFORM GEN3's robust, versatile system was designed with producers' top investment priorities in mind:

The lowest total cost of ownership (TCO) in its class

No major investment in new tooling required for installation with existing lines.  
 Low maintenance, high efficiency and lowest water consumption in the industry minimize running costs.  
 Strong competence in preform extreme lightweighting and complex applications.

High efficiency

Mold change-over: in 3.5 hours.  
 Run up to 50% PET recycled flakes with the same screw.  
 Better accessibility for mold inspection and mold component cleaning.

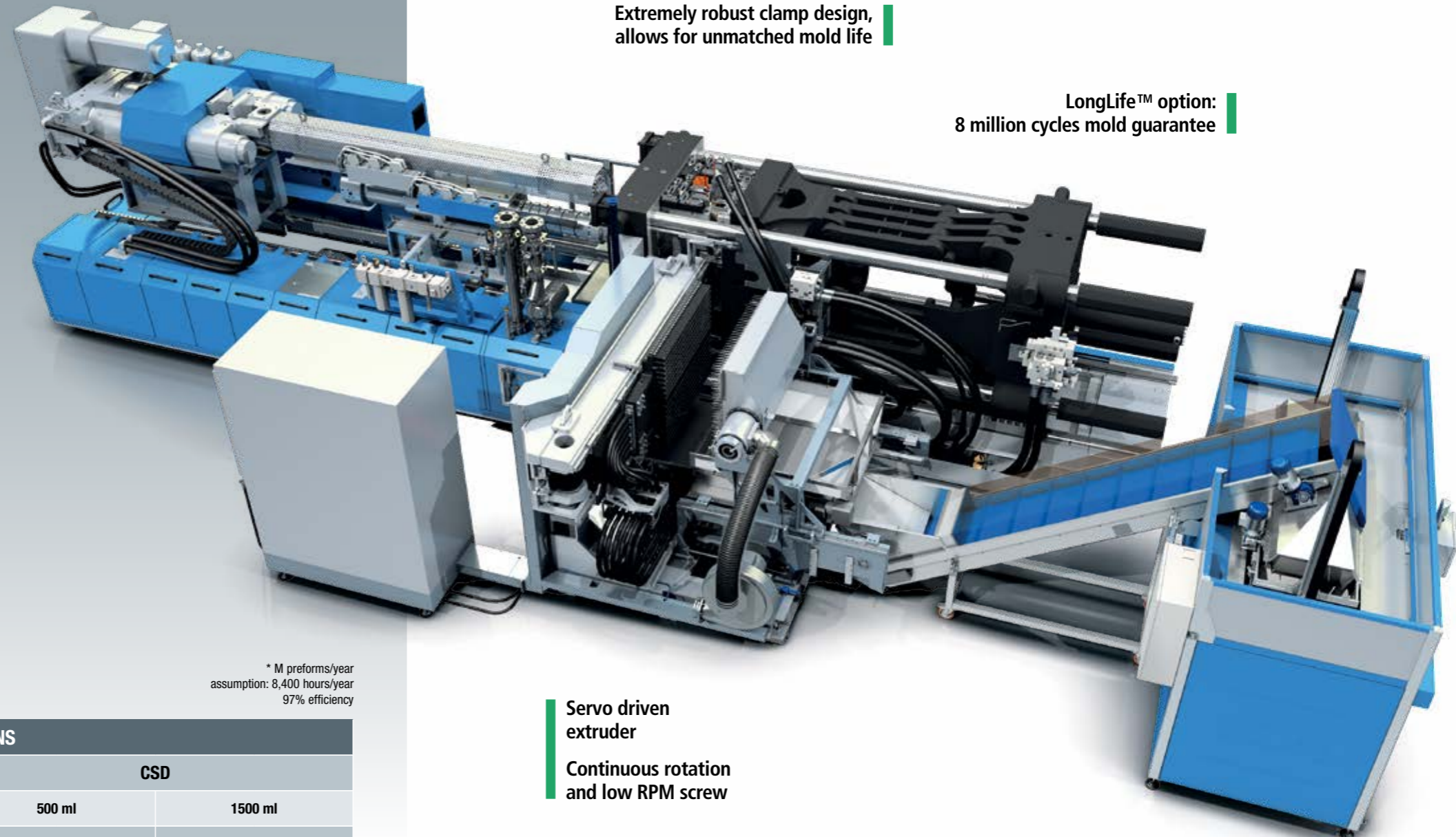
Long-lasting performance

Very limited mold wear due to very smooth closing profile, gentle injection and the lowest platen deflection in the industry.  
 Mold refurbishment: over 8 million cycles (when selecting the LongLife™ option)  
 Reduced material stress and IV drop with extremely low screw rotation speed.

**With 180 cavities mold it is possible to reach an output of 130,000 p/h for small and lightweight preforms.**

Extremely robust clamp design, allows for unmatched mold life

LongLife™ option: 8 million cycles mold guarantee



Servo driven extruder

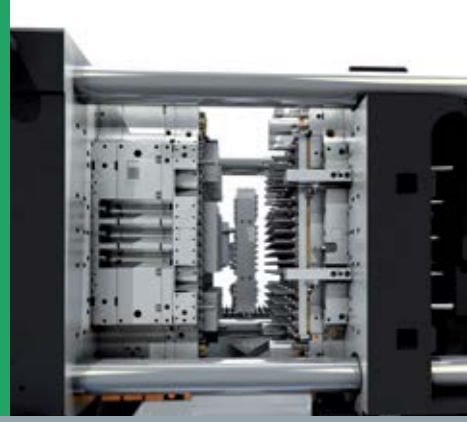
Continuous rotation and low RPM screw

3 or 4 position EOAT, accepts legacy EOAT

\* M preforms/year  
 assumption: 8,400 hours/year  
 97% efficiency

		APPLICATIONS							
		Mineral Water				CSD			
Cavitation	Size	500 ml		1500 ml		500 ml		1500 ml	
	Neck finish	26 Hexalite		29/25 Hexalite		PCO 1881		PCO 1881	
	Weight range	7 - 9 g		25 - 30 g		18 - 22 g		42 - 46 g	
		GEN3	GEN3 XP	GEN3	GEN3 XP	GEN3	GEN3 XP	GEN3	GEN3 XP
180		918*	1056*			471*	517*		
144		735*	845*	410*	454*	377*	414*	256*	276*
128		670*	766*	379*	427*	341*	375*	230*	250*
96		512*	587*	296*	331*	258*	287*	184*	201*
72		384*	440*	225*	251*	196*	218*	139*	152*





## Clamp unit: strong and reliable.

XFORM GEN3 uses a double-toggle clamping unit designed to handle molds with up to 180 cavities. The two platens are designed for extremely low deformation. Minimal mold wear is assured, thanks to even clamp force distribution. XFORM comes equipped with the most advanced mold protection system available on the market.

### Features & Benefits of the toggle system

#### Clamp designed with higher Safety Factor (SF):

- High platen thickness
- 3 oversized carriages for mobile platen
- Consistent platen parallelism over time
- Larger rail surface, less wear
- Rails & bearings designed for lifetime operation

#### Very smooth closing profile:

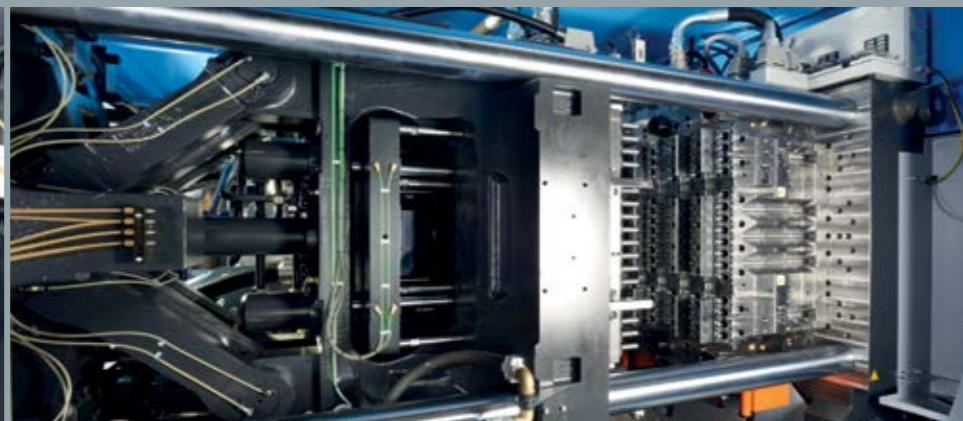
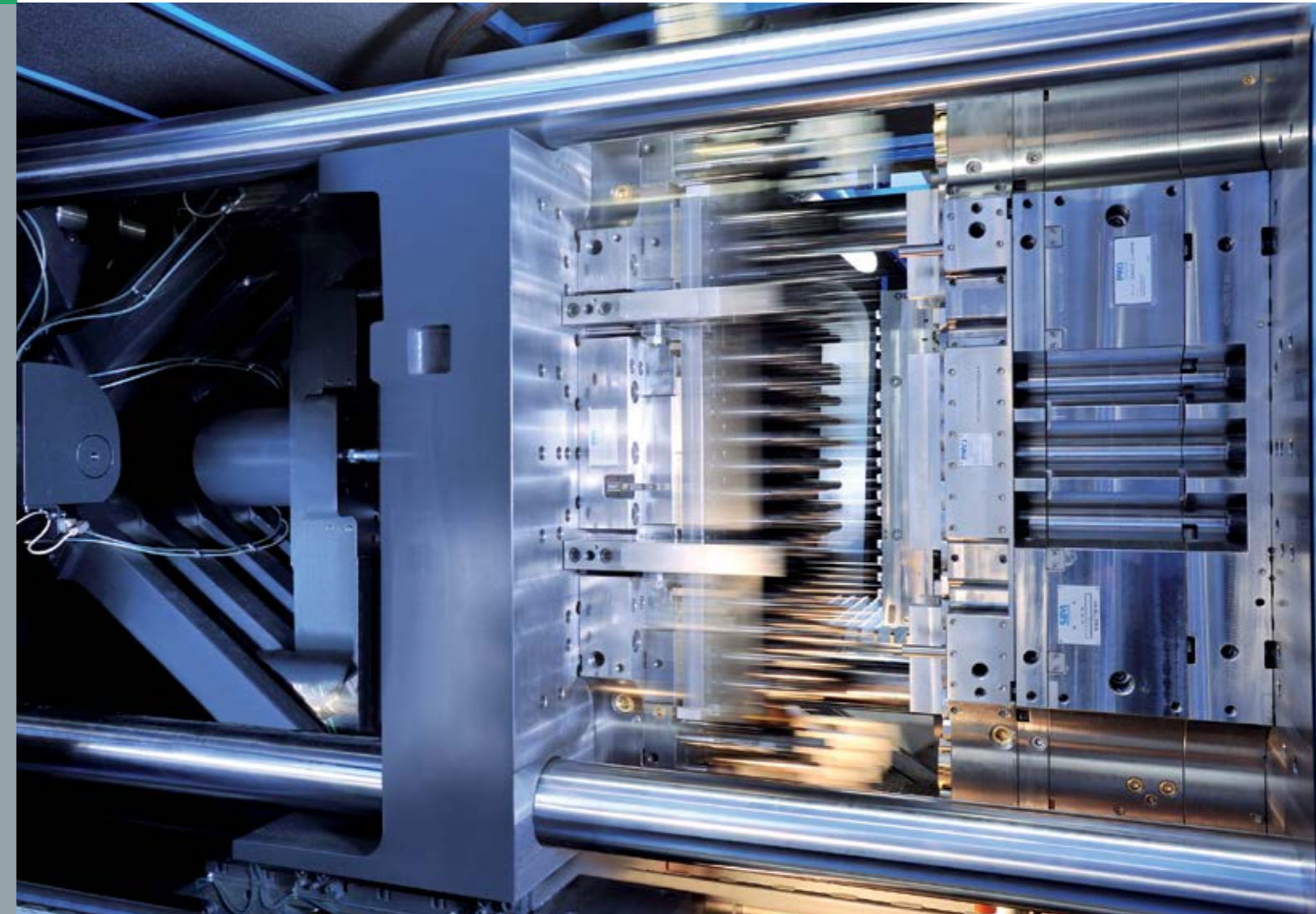
- Less stress to the components in the mold closing phase
- Less vibrations, affecting overall system reliability in the long term

#### Toggle pins and rail bearings designed for lifetime operation:

- Lower maintenance costs
- No downtime for worn parts replacement

#### Simple system (same system for clamp locking and clamp tonnage):

- No high-pressure hydraulic cylinder to rebuild periodically
- Simpler hydraulic circuit, less oil, lower cost for oil replacement
- Significantly lower downtime for periodical checks
- Virtually maintenance free
- XFORM 350 GEN3 has servo driven toggle



Significantly lower service costs compared to hydro-mechanic systems.

### Safe closing with high-sensitivity mold protection system

SIPA's automatic mold protection system is very sensitive and also very fast in stopping the clamp' closing. During mold closing, the controller measures the closing force (or clamp speed) and compares it with values stored during a "teach in" phase. If there is a deviation outside a preset tolerance, the system stops the machine. Measurements are performed every single cycle, so increased mold life is assured.





## Plastification system: low material stress.

XFORM GEN3 uses the classical configuration of a continuously-running extruder feeding a shooting pot. The extruder uses electric motor drives. The optimized plasticating screw helps keep acetaldehyde levels low.

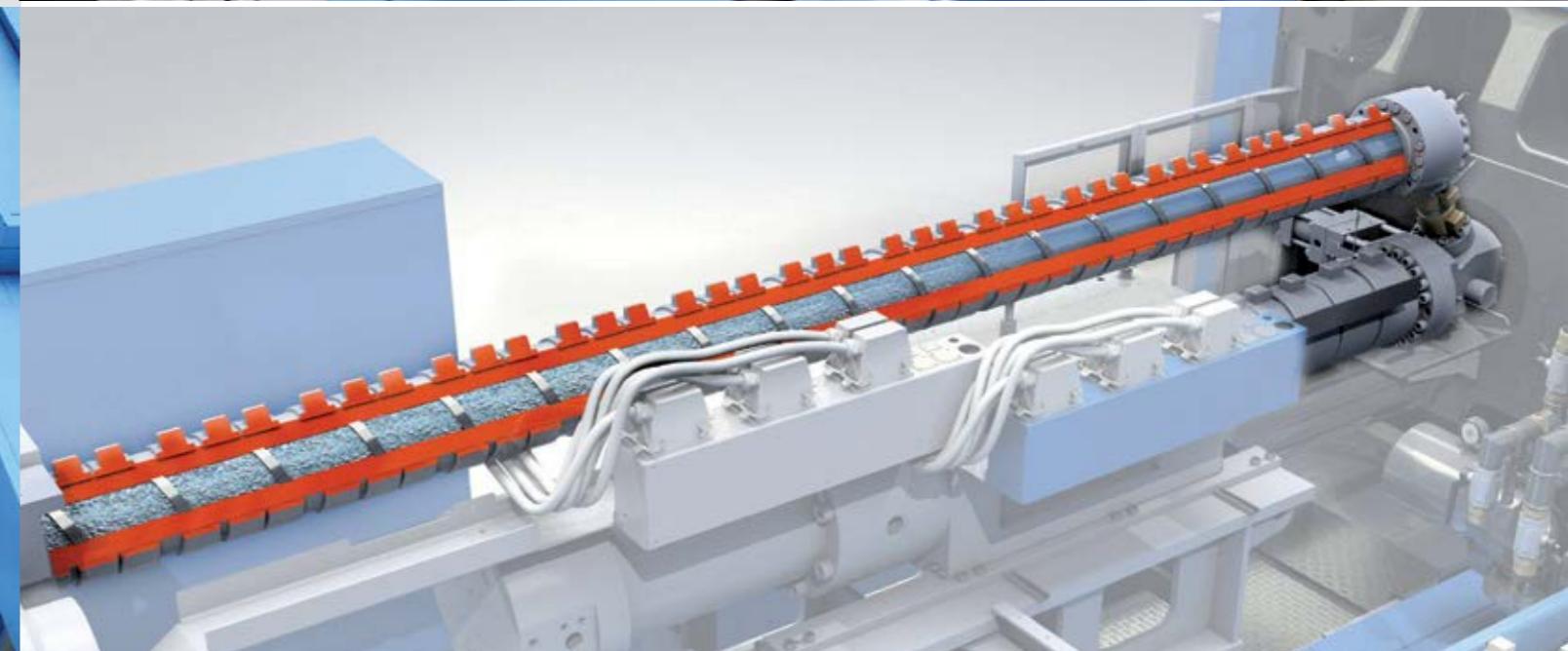
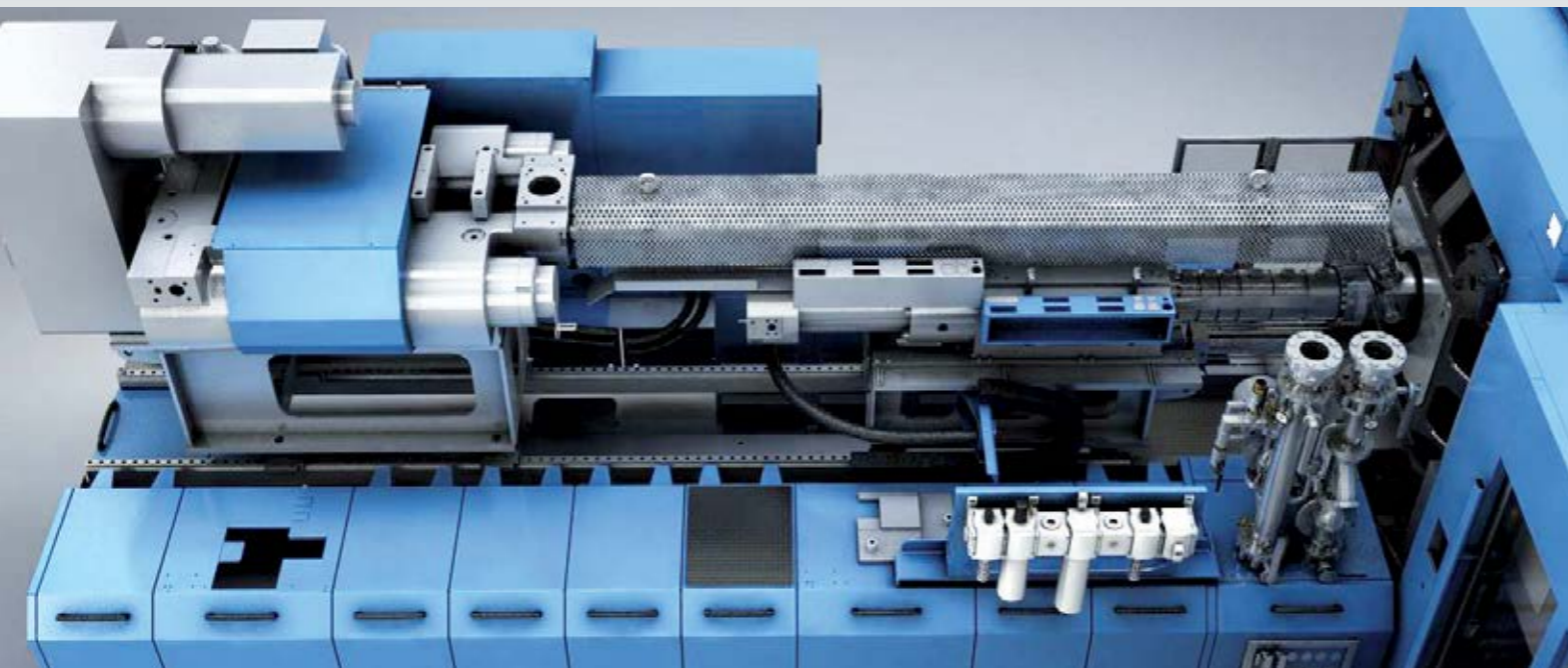
Two sizes of extruder are available for XFORM

- New XFlow™ screw design for increased throughput and wide process window

**Up to 50% PET recycled flakes can be used, without any modifications to the standard plastification group.**

Features & Benefits of the injection system

- Servo-driven
  - Continuous low-speed screw rotation:
    - No power peaks for screw restart, lower energy consumption
    - Lower stress on the material
    - Lower AA generated by the extruder
  - Possibility to use colour up to 4% with NO throughput drop
  - 3 shooting pot designs
- 2 screw designs:
    - 120 mm
    - 140 mm
  - Best-in-class injection system for PCR (flakes) applications:
    - the lowest throughput drop @ 50% PCR







## Post-mold cooling system: fast and compatible.

Excellent accessibility  
to non-operator  
side for mold changeover

For its XFORM GEN3 range, SIPA has developed a new post-mold cooling system which delivers unprecedented cooling efficiency and unique flexibility. The EOAT features 3 or 4 cooling stages for 30mm-neck preforms; legacy EOAT can also be installed on the GEN3 PMC systems.

The new **GEN3** range post-mold cooling system features internal preform cooling through vacuum, thus generating an airflow through the neck first and then through the body: this eliminates the air temperature increase typical of competitor' system, which blows air directly into the hottest part of the preform, the gate area. The vacuum box is independent from the clamp movement, allowing for better reliability and greater flexibility in setting different process times.

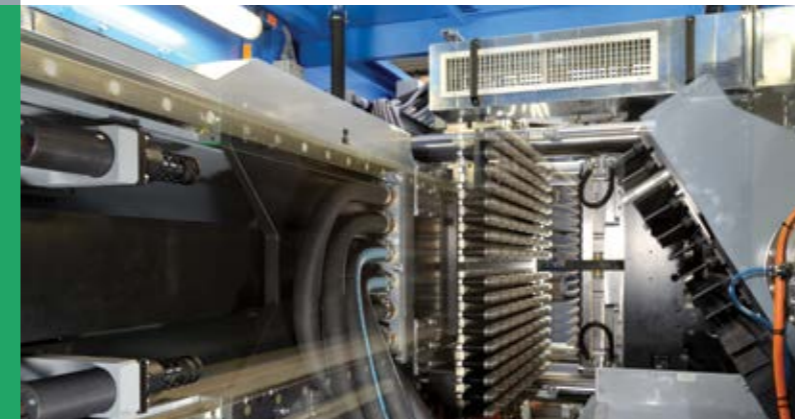
### Features & Benefits of the PMC

#### GEN3 Post Mold Cooling system:

- Very efficient neck finish and preform body cooling
- 3 or 4 cooling stages
- Lock-to-Lock: approx. 2.8s
- Can accept legacy EOAT
- Independent form clamp movement
- No need of dedicated air dryer
- Better accessibility of the non-operator side

### FLEXCOOL™

The XP version comes with the new FLEXCOOL™ which allows flexible cooling profile according to specific application







## Preform molds: Long Life solutions.

**SIPA, the world's second-largest preform tooling supplier, produces in-house 100% of hot runner manifolds, heaters, plates and stacks with complete inspection of all the components. As a result, customers gain full benefit from numerous technological features the company has developed.**

We design preform molds with the following features:

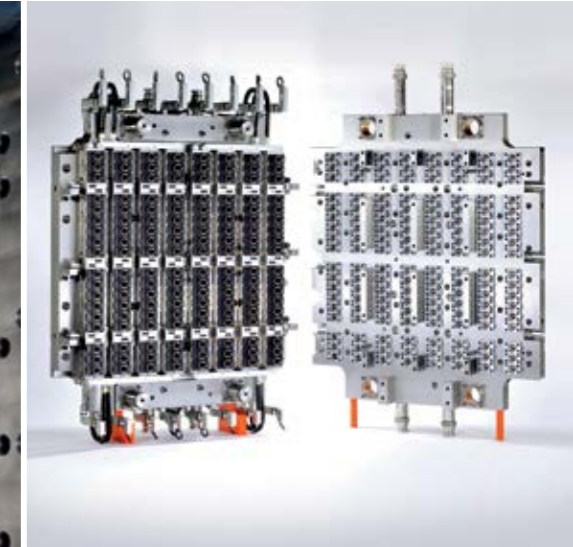
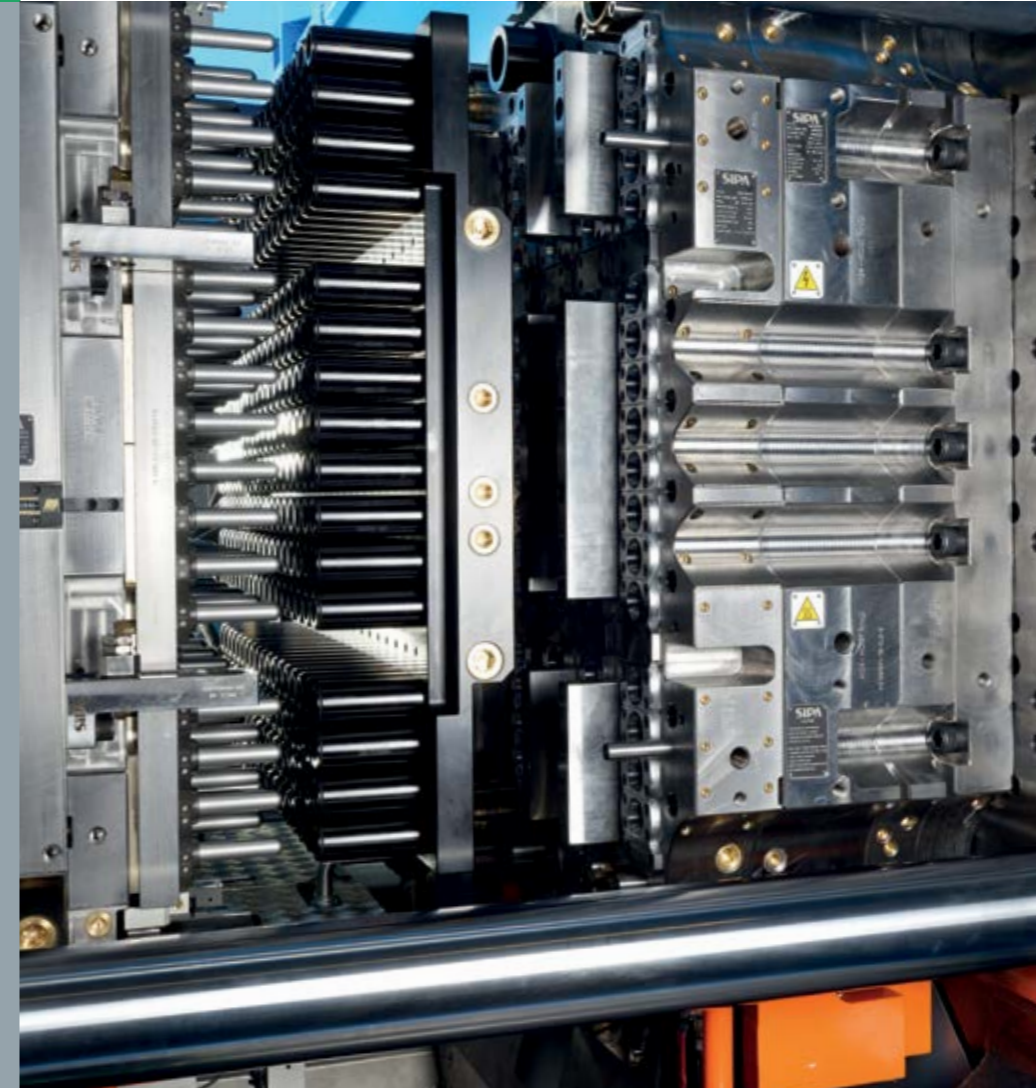
- Largest operating window
- High preform quality
- Easy to use
- Competitive maintenance costs
- Wear-resistant coating to grant a longer mold life
- Optimized cooling layout to support fast cycle times and save energy costs
- Patented hot runner technology to minimize hot runner downtime
- Proprietary XMould™ technology
- Proprietary LongLife™ technology

SIPA GEN3 hot runner systems deliver:

- Up to 5 million cycles without maintenance (low powder formation)
- Best in class balancing and low pressure drop
- Increased injection speed, shorter cycle time
- Optimal preform weight distribution
- Extremely low PET degradation and dead spots (low AA levels)
- Easy maintenance

SIPA GEN3 cold half systems deliver:

- 8 million maintenance-free life cycles guaranteed (flash < 0.2 mm) without need of components refurbishing thanks to the LongLife™ treatment
- Significantly reduced refurbishment costs
- Optimal cooling to maximize productivity with high quality preform
- Stronger mold structure with less deformation, better precision and higher reliability



## XMOULD

**XMOULD is an innovation from Sipa which allows reducing the friction between the molten PET and the molding surface of the injection stacks during the injection phase. It is the only technology in the market capable of injecting preform walls as thin as 1.5mm for 500ml flat and 2.0 mm for 1.5 l flat products. XMOULD is making new preform design opportunities available so you can lightweight your preforms even more and/or further improve the bottle performance without compromising performance, strength or appearance of the final container.**





# XFORM GEN3

## Preform System

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