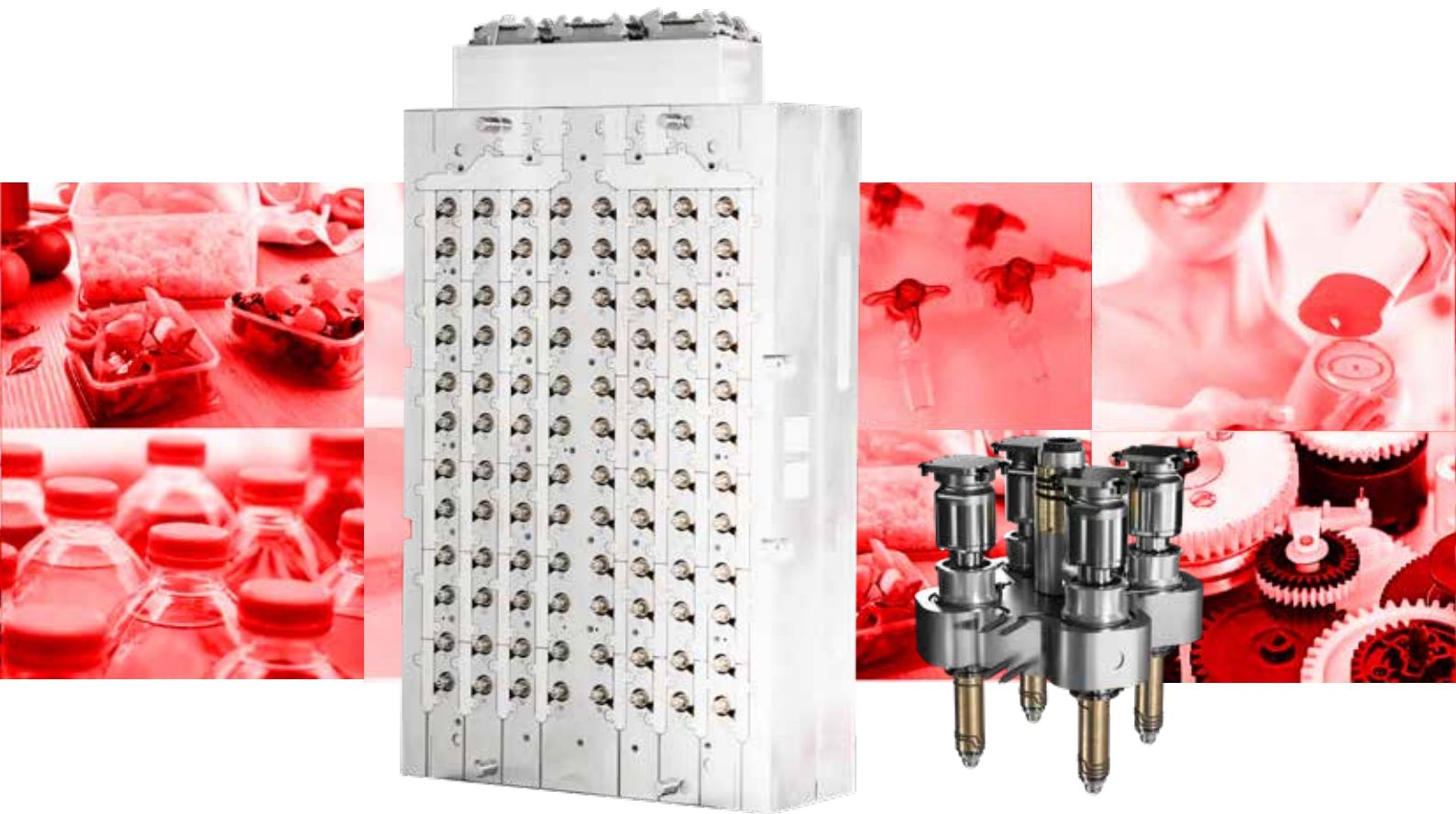


# MULTIflow HRS

## Hot runner systems for low shot weights

Maximum precision combined with fast cycle times



# Your reliable partner for the most challenging applications

## THIN WALL PACKAGING

sustainable solutions for low thicknesses

Our hot runner systems for thin wall packaging are designed to withstand high injection pressures and improve the aesthetic finish of the part. Moreover, we ensure an easy maintenance and corrosion-resistant nozzle components.

The accurate thermal control of the injection gate allows a fast cycle time and an optimal injection quality also with IML- decorated products.

### Main benefits

- Fast cycle time
- Improved wear resistance
- High production volumes
- Developed for heavy duty applications
- Engineered for PCR and Bio Resins

## THE RIGHT “BLEND” FOR **SUSTAINABLE SOLUTIONS**

We provide dedicated hot runner solutions for the challenging market of single serving capsules requiring:

- Short cycle time
- Excellent gate appearance
- Part-to-part weight consistency
- High production volume
- Fast color change





# BEVERAGE & HOME

fast cycle time, excellent repeatability



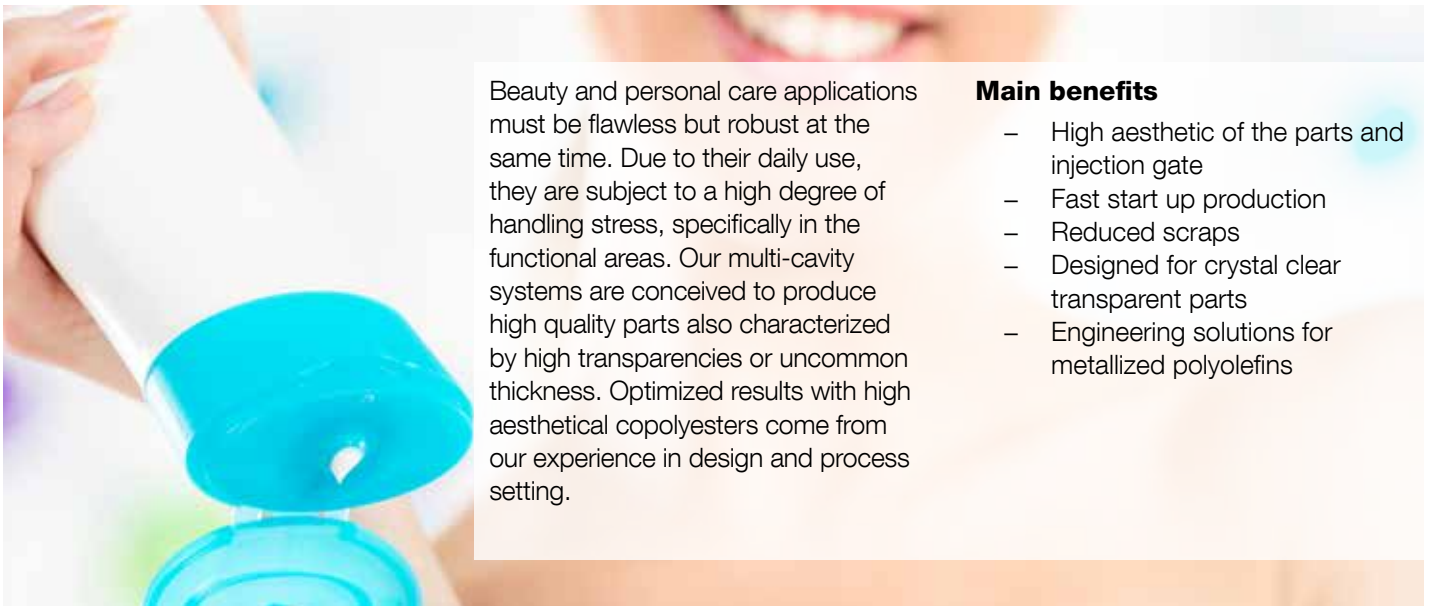
Beverage & Home industry requires fast cycle time, excellent product repeatability, and reduced scraps. Our multi-cavity systems have been optimized to allow maximum quality productivity at low energy consumption. Fast color change is optimized thanks to the design of the manifold channels, which drastically reduces the stagnation area.

## Main benefits

- Reduced cycle times
- Excellently balanced parts
- Fast color change
- High cavitations layout
- Excellent vestige quality
- Reduced scraps

# BEAUTY AND PERSONAL CARE

impeccable functionality



Beauty and personal care applications must be flawless but robust at the same time. Due to their daily use, they are subject to a high degree of handling stress, specifically in the functional areas. Our multi-cavity systems are conceived to produce high quality parts also characterized by high transparencies or uncommon thickness. Optimized results with high aesthetical copolyesters come from our experience in design and process setting.

## Main benefits

- High aesthetic of the parts and injection gate
- Fast start up production
- Reduced scraps
- Designed for crystal clear transparent parts
- Engineering solutions for metallized polyolefins

# MEDICAL

consistent parts shot-after-shot



We design advanced multi-cavity systems equipped with dedicated solutions to meet the most challenging needs of the medical device world: complex geometries as well as excellent quality of the part surface, high sanitary standards, maximum product safety.

## Among our dedicated solutions we offer:

- MVP – Multivalve plate to ensure a perfectly synchronized control of the injection gate through all cavities for a high part-to-part weight consistency.
- Specific solutions to process a wide range of polymers including PVC

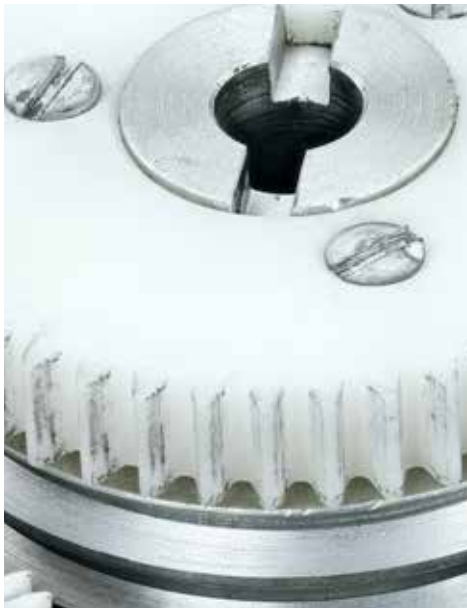
- Dedicated technology for manifold conformal channels to enhance systems balance and reduce stagnation areas

## Main benefits

- Stable and reliable process
- Exceptional accuracy on vestige
- Part to part consistency
- Excellent quality parts
- Experience with complex polymers

# TECHNICAL APPLICATIONS

for high performance industries



The main challenges of technical applications are represented by advanced techno-polymers, with mechanically or chemically abrasive fillers, tight process window and high molding temperatures. Our hot runner solutions are ideal to manufacture quality parts with structural performance and dimensional stability, keeping under control warpage and part deformation.

## Main benefits

- Easy start up
- Wear and tear and high corrosion resistance
- Consistent process window over time
- Suitable for high abrasive and corrosive polymers
- Easy and fast maintenance

# High performance systems for small precision parts

Our multi-cavity line for small applications is designed for low shot weights ranging from 0.20 to 120 gr according to the polymer used. Our MULTIflow HRS line accommodates a wide range of layouts, featuring various nozzle sizes that allow for a minimum pitch down to 15 mm with a 12 mm cut-out.

Our hot half is a fast plug and play solution for the injection molding machine. The internal system geometry is suitably profiled to guarantee excellent resistance to bending and torsion, even with high cavitation numbers. Our dedicated system design significantly increases the wear and tear resistance of the components.

## OUR COMMITMENT TO A STRONG SUSTAINABLE FUTURE FOR OUR PLANET








Biopolymers and PCR resins have dedicated technical solutions, as they are often characterized by narrow process windows due to thermal or shear sensitivities.



# Nozzle series overview

face-to-face & screwed-in

	NOZZLE SERIES OVERVIEW				
APPLICATIONS	Multicavities	Multicavities	Technical applications low cavitations	Multicavities	Multicavities
SERIES	Up	Sp	Sa**	Tp	Vp
NOZZLES					
NOZZLE LENGTH / POCKET	L 45 - 185 / Ø12	L 45 - 205 / Ø16	L 50 - 160 / Ø20	L 55 - 205 / Ø24	L 55 - 205 / Ø28
SHOT WEIGHT	0.2 – 8 g	0.5 – 15 g	0.5 – 15 g	0.5 – 20 g	2 – 60 g
INTERNAL BORE	Ø3 – Ø4	Ø4 – Ø6	Ø4 – Ø6	Ø5 – Ø7	Ø7 – Ø9
MIN PITCH TG/VG	15 TG 40 (15*) VG	22 TG 40 (25*) VG	22 TG 37 (25*) VG	29 TG 40 (29*) VG	39 TG 56 (39*) VG
ACTUATOR	ON plate with adjustable needle position. (*) Precise needle available	ON plate with adjustable needle position	ON plate ON manifold	ON plate with adjustable needle position	ON plate with adjustable needle position

## UP NOZZLE SERIES

The Up Nozzle Series is designed for tight-space applications with low shot weights. With its 12 mm nozzle cut-out, it delivers outstanding performance even in hard-to-reach gate areas, making it ideal for industries such as beauty & personal care, packaging, beverage & home, and technical applications. Its compact 15 mm gate-to-gate pitch enables high-cavitation layouts, maximizing productivity. Successfully used in electronic parts, the Up Nozzle Series eliminates the need for a cold runner when processing technical polymers like PA and PBT in most applications. It is also compatible with a wide range of materials, including polyolefins, ABS, TPE, and TPV.




(\*) With Multivalve Plate

(\*\*) Screwed-in Version



# Dedicated nozzle solutions for specific sectors

face-to-face

NOZZLE SERIES OVERVIEW			
APPLICATIONS	Fast cycle Caps & Closures	Thin Wall Packaging	Thin Wall Packaging
SERIES	Vf	Xp	Xd – Stack / Central
NOZZLES			
NOZZLE LENGTH / POCKET	L 78 – 98 / Ø28	L 55 – 305 / Ø32	L 30 – 330
SHOT WEIGHT	0.5 – 8 g	5 – 120 g	5 – 120 g
INTERNAL BORE	Ø7 – Ø8	Ø8 – Ø10	Ø8 - Ø10
MIN PITCH TG/VG	39 TG	56 VG Single Face	63
ACTUATOR	ON plate with adjustable needle position	ON plate (Single Face)	Between manifold and nozzle

## VF NOZZLE SERIES

Designed for the market of Caps & Closures, the Vf nozzle series is engineered to efficiently inject PP and HDPE caps within a weight range of 0.5 to 8 gr, for a cycle time up to 2 seconds. The optimized tip design provides broad access for cooling lines ensuring rapid gate cooling. The fine thermal control of the gate facilitates a seamless startup process, making it user-friendly even for operators with limited experience. Additionally, the robust nozzle design simplifies in-maintenance procedures, contributing to the system's durability. Finally, the inclusion of six holes and a precisely designed channel manifold allows for swift color changes.

## XP AND XD NOZZLE SERIES

Engineered for thin-wall packaging applications, the X series of valve gate nozzle is designed to withstand high filling pressures. It enables fast injection and cycle times in a stable process with high part-to-part weight consistency.

Xp line is the single face option.

A patent-pending solution for stack systems, equipped with the Xd line, has been developed. This hot runner system fits a maximum plate thickness of 220 mm.

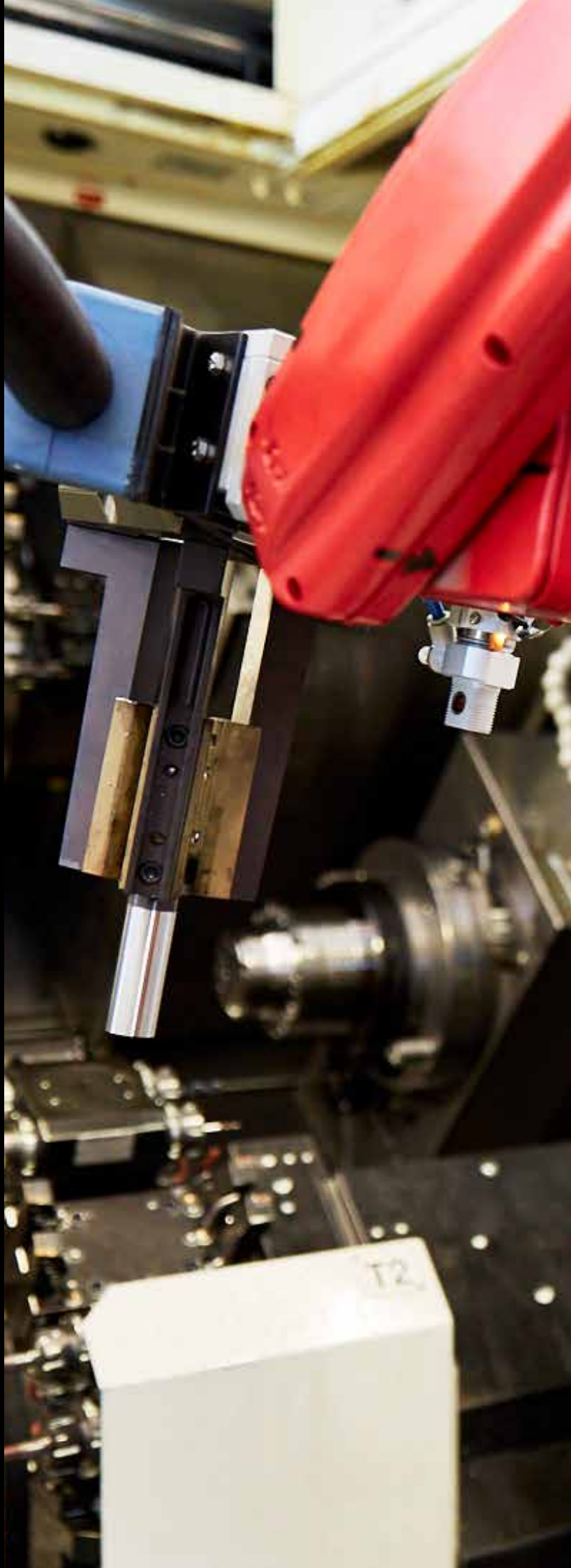
# Our Services

## Rheological analysis to duly supply the most accurate results

Simulation consulting service helps you optimize system performance, process parameters and part design. An advanced rheological analysis allows to reduce trial time and time to market, preventing any issues due to the molding process reliability

## Full solution provider in plastics processing

Thanks to the combined experience with our sister brand **Oerlikon Balzers**, we can offer innovative surface coating protection for all molding surfaces. This solution helps customers reach the perfect quality results despite high production volumes.





## SLM Technology Selective Laser Melting

We can offer conformal cooling circuits, conceived and built by in-house SLM Technology in case of challenging applications whatever the market segment destination.

Optimising mold cooling results in reduced cycle times, unblemished part surfaces thanks to the uniform thermoregulation, lower residual stress and, consequently, any potential warpage of the finished part.

## Driven by a high automation level and a lean approach

Our strong points are digital workflow, machines available 24/7, standardization of management and manufacturing processes. Our production area - characterized by a high automation level and a lean approach - is equipped with cutting-edge machinery for the production of high precision hot runner components where very tight tolerance is our must.



**Case study of SLM Technology** to produce an ophthalmic cap. Precision and dimensional accuracy are guaranteed.



## Internal Test Laboratory available for customer trials

Our team provides you with **complete support**, from the rheological analysis and design phase to try-out and maintenance. For special applications, we can define the optimal system configuration and predict part quality through advanced hot runner systems available in our **Test Lab**.

Plastic samples according to the weight, thickness and geometry of your application can be delivered for a preliminary analysis.

### TEST – LAB EQUIPMENT AT YOUR DISPOSAL

- Prototype tools available to try your most challenging polymers
- Full range of nozzles and flow types based on your specific application
- Injection Molding Machines from 50 to 300 tons

## Quickly at your side 24/7

Our team of technical experts is always available to support you, 24/7. We can ensure system installation and maintenance, process tuning and optimization through try-out with skilled technicians, and standard spare parts shipment within 24 hours. Moreover, we can offer customized technical training.



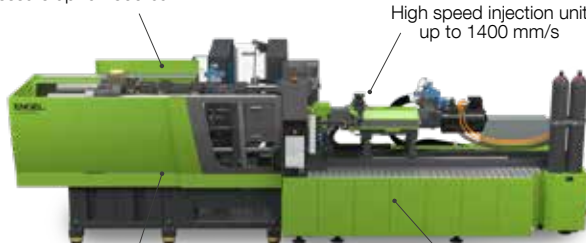
The R&D test lab has been equipped with a **hybrid ENGEL e-Speed 280** to practice our **expertise in thin-wall packaging**. It's particularly suitable for processing the next generation polymers, in compliance with the new EU Packaging and Packaging Waste Regulation (PPWR).

High injection pressure up to 2600 bar

High speed injection unit up to 1400 mm/s

Specific screw to manage R-PET, bio-based and compostable polymers

Intelligent compensation of process variations iQ weight control







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