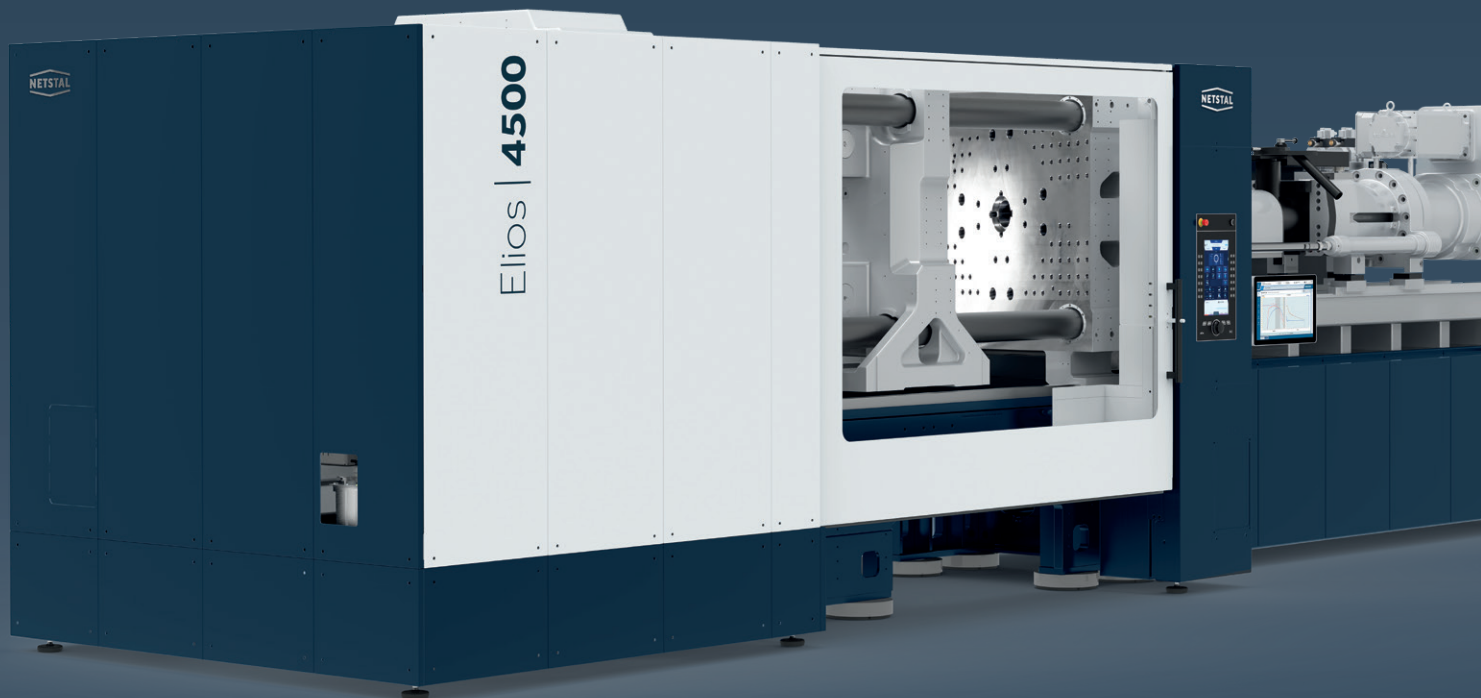




Machines of the Elios Series

The high-precision, high-speed and high-performance injection molding machine.



Packaging



Closures

Your best choice

[Netstal.com](https://www.netstal.com)

Areas of application of the Elios Series



IML packaging
with lid



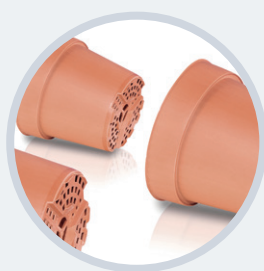
Bucket and lid



IML cup



Injection Compression
Molding (ICM)



Flower Pots



Multi-chamber
containers



Cartridges and tubes



Drinks bottle caps

Variant overview

	Injection units	N 1000	N 2000	N 2900	N 4200	N 6000
	Shot weight (PS)	456 g	916 g	1350 g	1953 g	2712 g
Elios 4500	(820 x 820)					
Elios 5500	(920 x 920)					
Elios 6500	(1120 x 1120)					
Elios 7500	(1120 x 1120)					
Elios 8800	(1330 x 1330)					
Elios 10000	(1330 x 1330)					

Technical data and foundation plans can be found at www.Netstal.com in the Download Center (My Netstal).

The high-performance machines from our Elios series let you produce thin-walled packaging and lightweight beverage closures at the lowest unit costs. The fastest cycle times, dynamic injection and maximum process stability are the keys to your success.



The highlights of the Elios series at a glance:

- Clamping force range 4500-10000 kN
- Shortest dry cycle times between 1.5 and 2.2 seconds (according to Euromap)
- Generous mold installation dimensions
- Solid design for many years of reliable production
- High-performance injection units
- Top precision and repeatability
- Flexible equipment options based on your needs



Resource-preserving technology that increases your competitiveness:

- Excellent energy efficiency thanks to energy recovery (recuperation)
- Leading process stability significantly reduces rejects
- The higher overall performance enables substantial material savings.

Your benefits in a nutshell

- Competitive advantages thanks to increased effectiveness in the global overall system comparison
- Low energy consumption due to hybrid technology with energy recuperation
- Cost optimization as a result of fast cycle times and substantial material savings
- Operational reliability through consistently high precision and reproducibility
- Extremely flexible as equipment options can be adapted to your applications
- Very easy to use because it is simple, safe and intuitive to operate
- Value protection thanks to robust design and tried-and-tested technologies

Designed for Maximum Availability The Elios at a Glance



Floor-mounted safety cover

For maintenance work, remove the protective covers in just a few steps.

Your benefits in a nutshell

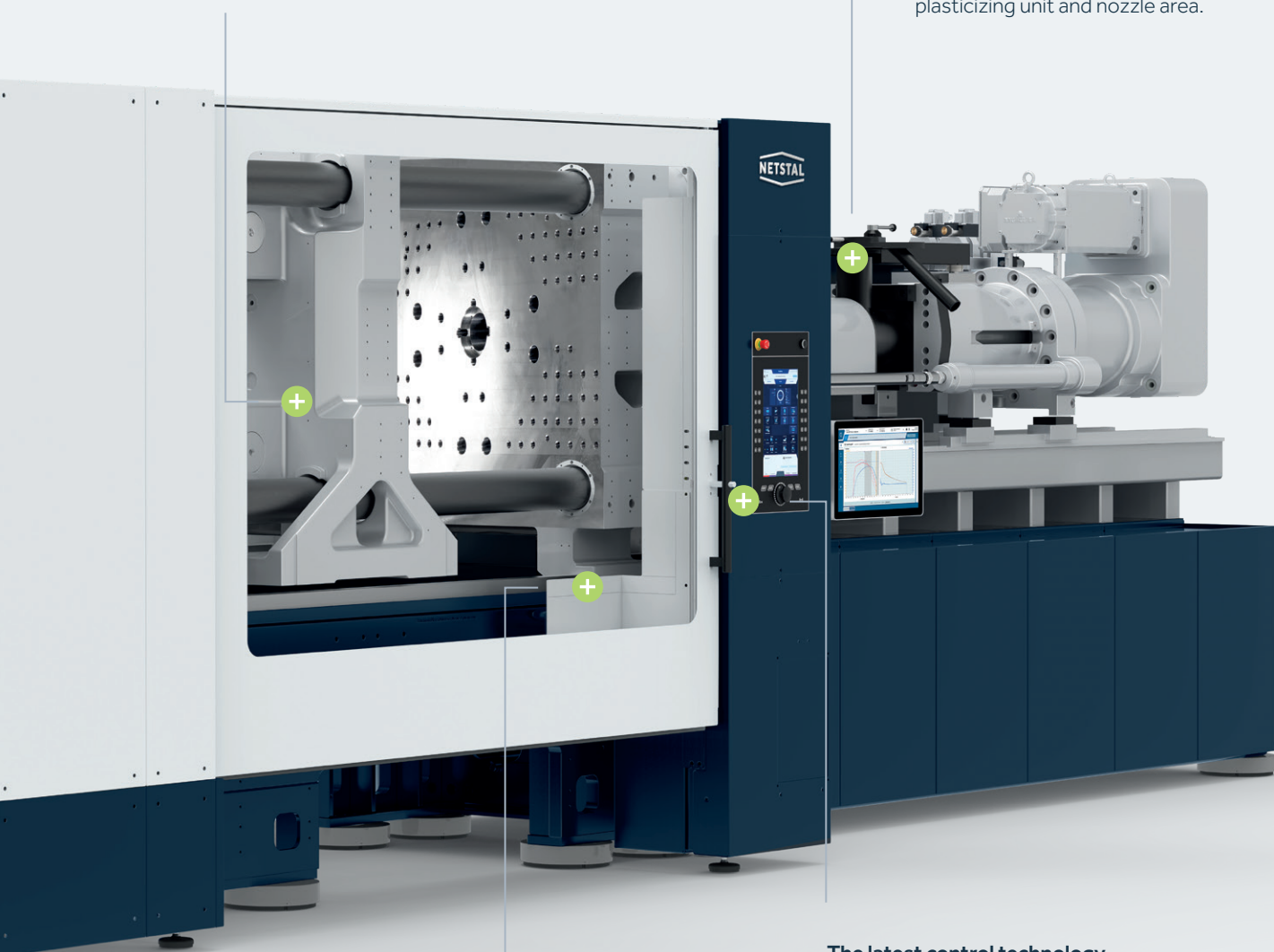
- Very good accessibility for maintenance operations
- Quick mold changes
- Optimal ergonomics for the operating personnel
- Fast, safe and guided machine operation
- High reliability because of the robust and resilient design

Generously dimensioned mold installation space

You can easily install your stack molds and molds with a high number of cavities in the Elios.

Easily accessible injection unit

Optimum access is guaranteed to all the operating elements of the injection unit, such as material feeder, plasticizing unit and nozzle area.



The latest control technology

The latest generation of innovative and user-friendly Axos controllers can provide you with the best possible support in developing applications and production operations.

Optimum ease of operation

We have designed all operating elements for optimal ergonomics and user-friendliness so that you can concentrate on your core functions.

06 High Clamping Force Tremendous Speed

For the drive of the sturdy 5-point dual toggle lever of the Elios, we have developed an innovative and energy-efficient concept. The combination of the dynamic electric drive with the powerful hydro-mechanical assistance allows very high speeds with high clamping force. The best thing: The Elios is just as precise and reliable as any other Netstal machine.

Patented dual drive concept with energy recovery (from 5500 kN)

The travel movements of the 5-point dual toggle lever are performed electrically. Two parallel-acting synchronization cylinders are thereby moved pressure-free and support the electric drive with the necessary power during the build-up of the clamping force. This innovative concept also enables a recuperation of the kinetic energy, resulting in a very low electrical energy consumption. We have used an all-electric clamping unit to equip the Elios with a clamping force of 4500 kN since 2022.

Encapsulated circulatory lubrication system

The closed lubricating system supplies oil to the sealed bearings of the toggle lever system. The lubricating oil is permanently cleaned.

Centrally positioned toggle lever

The 5-point dual toggle lever ensures optimum transmission of the force into the center of the mold installation space, and uniform distribution of the clamping force. The sturdy and strength-optimized design prevents any deformation of the mold plates.

Flexible ejector

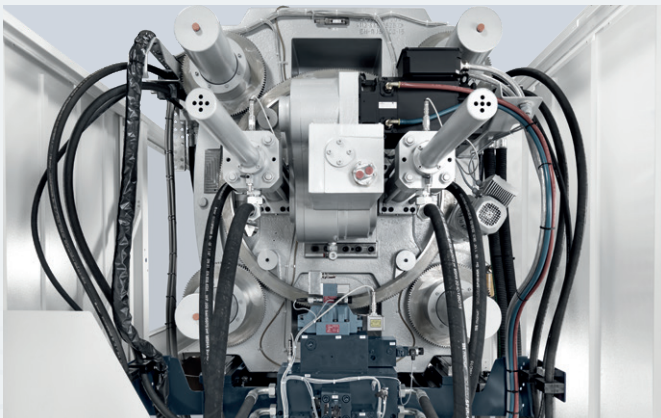
The versatile ejector allows trouble-free demolding of the produced parts. Two cylinders are controlled by highly dynamic proportional valves. These are available in three different versions, depending on the desired ejector force. The generously dimensioned ejector plate covers all Euromap standard positions, offering great flexibility.

Increased column spacing

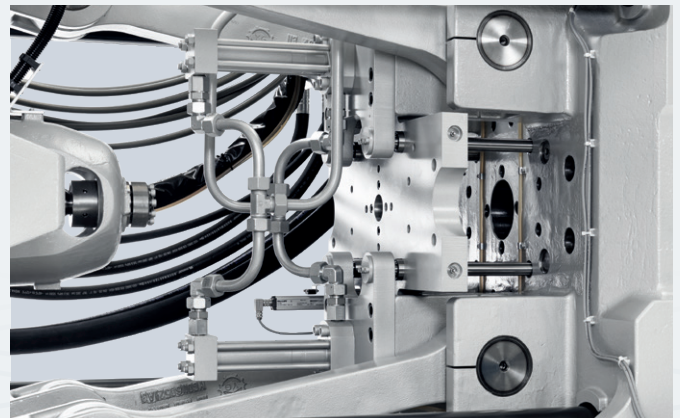
The large distance between the columns and the large opening stroke simplify the installation of stack molds and molds with large numbers of cavities. Furthermore, the mold area is optimally prepared for horizontal part removal using handling devices.

Engineered for low wear

High durability due to high-precision gearboxes with beltless and spindleless drives.

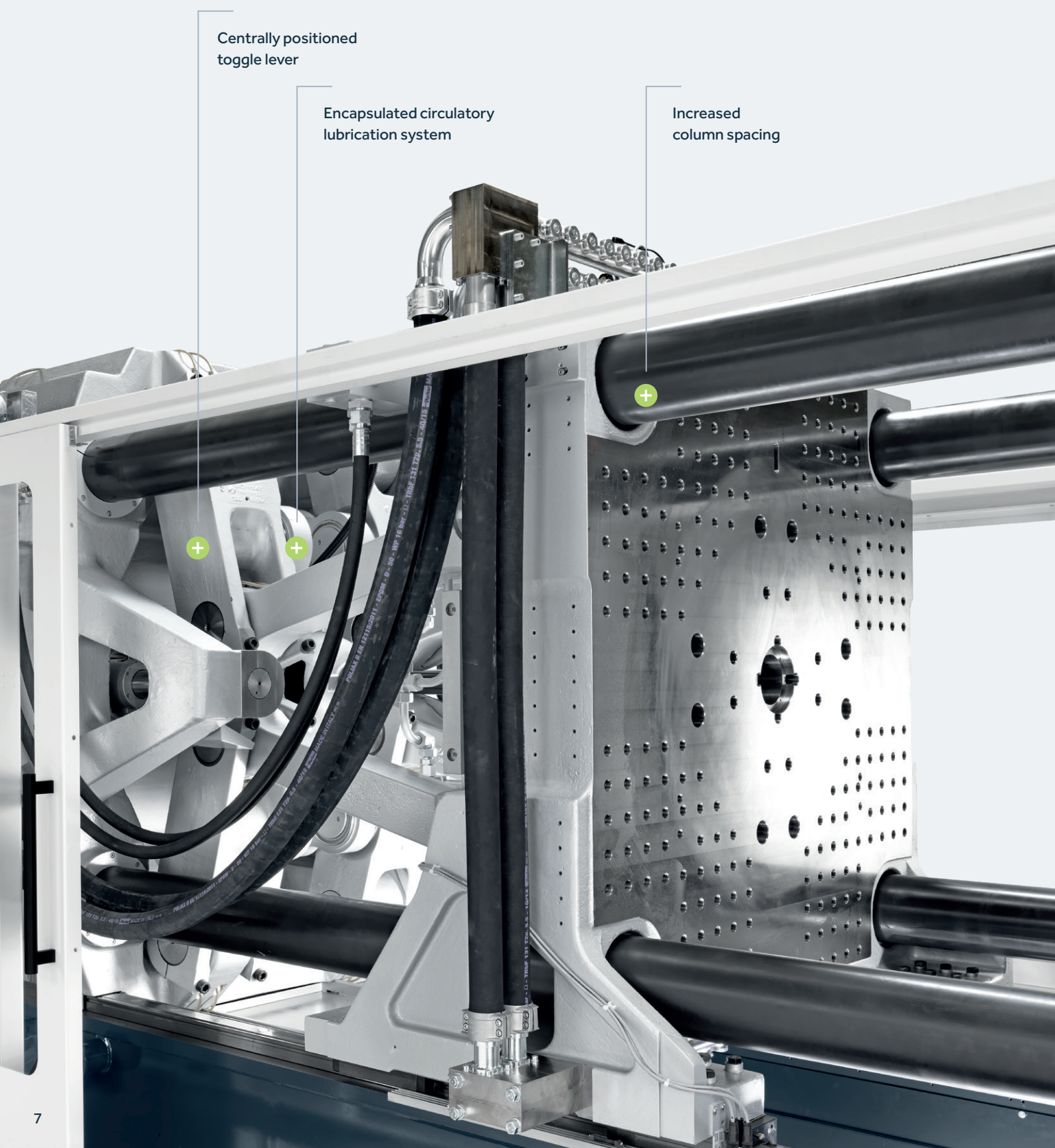


Patented electric drive with hydro-mechanical assistance for the build-up of the clamping force (from 5500 kN)



Versatile and flexible ejector

The robust clamping unit of the Elios is designed for millions of cycles annually and many years of reliable continuous operation.



Lightning-Quick Injection Low Power Consumption

The Elios offers you high flexibility: The injection side can be optimally tailored to the demands of your application with a variety of injection unit and plasticizing unit sizes. The hydraulic injection cylinder in combination with the two-valve technology ensures exceptional injection performance, while the servo-electric drive of the metering axis contributes to low electrical energy consumption.

Actively controlled shut-off nozzle actuation

Thanks to its active pneumatic actuation, the shut-off nozzle opens before the start of injection and thus permits a dynamic injection process.

Simplified plasticizing unit changes

The plasticizing unit is equipped with a special clamping system. Thanks to the good accessibility from above, the plasticizing unit can be easily replaced. Furthermore, all the necessary connections have couplers.

Powerful injection axis

The injection axis is driven hydraulically by means of two valves connected in parallel that guarantee very high acceleration values, high injection capacities and precision control characteristics during the injection and hold pressure process. The concept also permits high precision and reproducibility of the metering stroke. For an optimum choice of screw for the respective application, up to three different screw diameters are available for each injection unit size.

Dynamic two-valve technology

Two highly dynamic servo valves, each with a flow rate of 550 l/min and a response time of max. 11 ms, allow impressive injection speeds of up to 2,200 mm/s. With an acceleration of up to max. 20 g, the Elios also sets standards with respect to dynamics, but without neglecting the high positioning accuracy.

Servo-electric screw drive

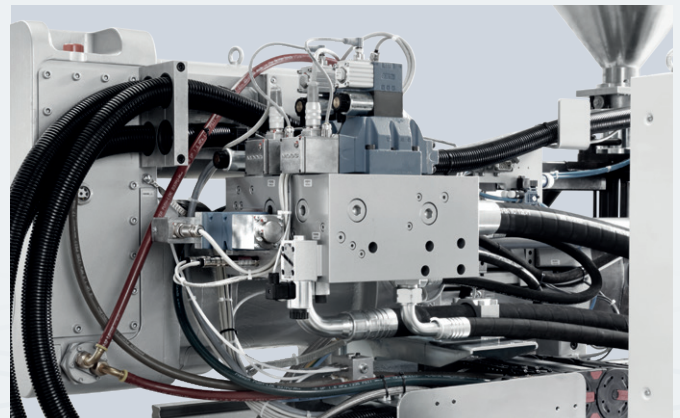
The metering axis is available in two different performance classes: Speed and Master. The drive comes from a servo motor and spur gear. The "Master" option offers increased torque compared with the already high performance of the standard version.

Integrated stroke measuring system

The contact pressuring axis meets the highest demands for dynamics and positioning accuracy. The stroke measuring system is integrated into the pressure cylinder.



Actively controlled shut-off nozzle actuation



Two valves for dynamic injection

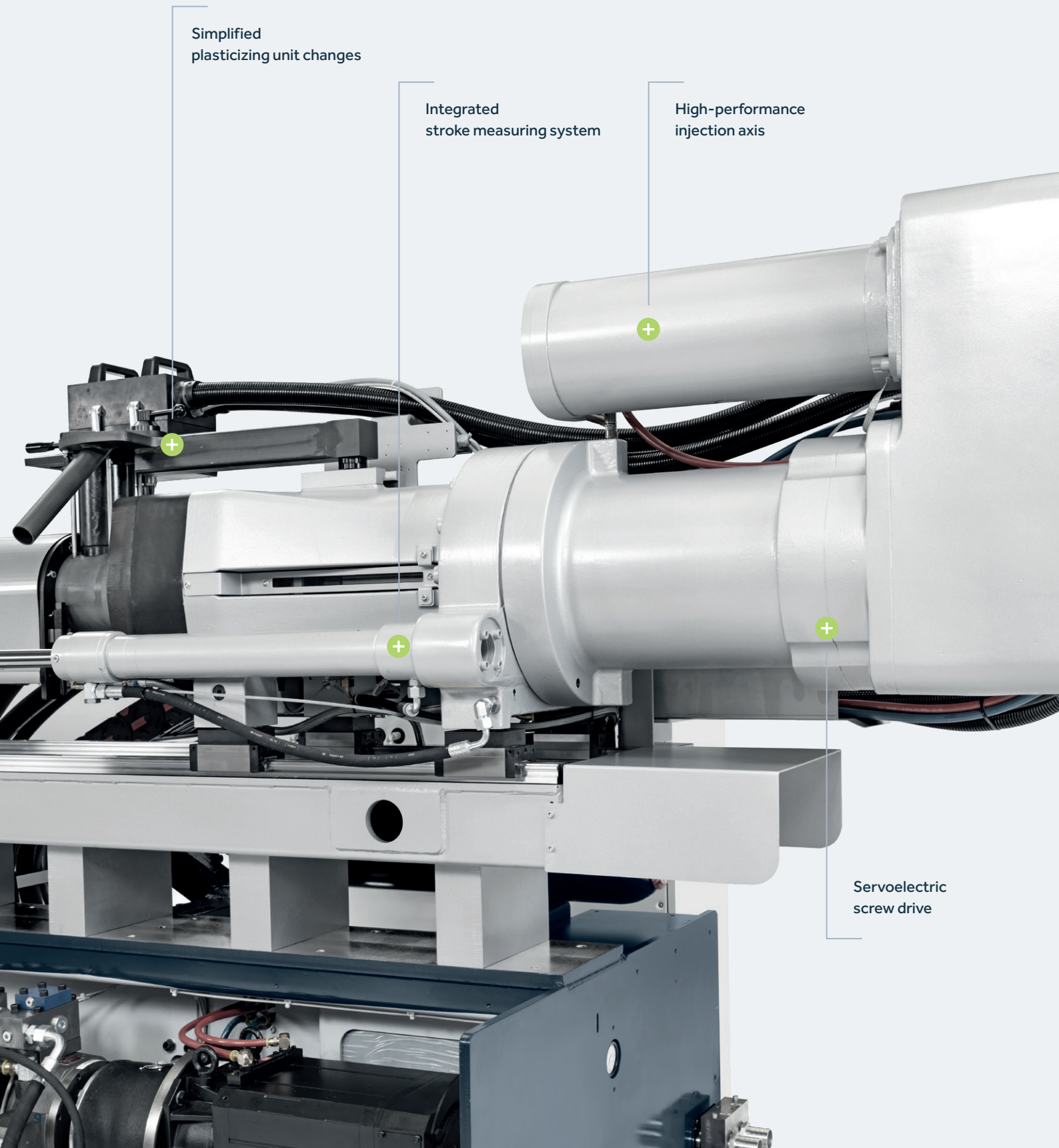
Dynamic, powerful and precise. The hybrid injection units provide the extra performance that is needed.

Simplified
plasticizing unit changes

Integrated
stroke measuring system

High-performance
injection axis

Servoelectric
screw drive



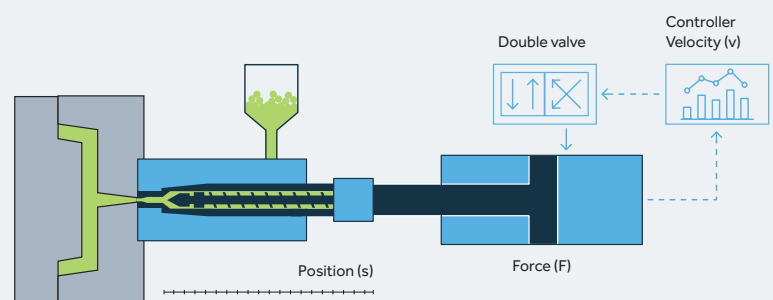
Responsive Filling Control Maximum Precision under all Conditions

Netstal has always stood for high-speed, maximum precision applications with superior repeatability within a very narrow tolerance range. Thanks to the Netstal-specific RFC injection control system, users benefit from the best overall equipment efficiency on the market.

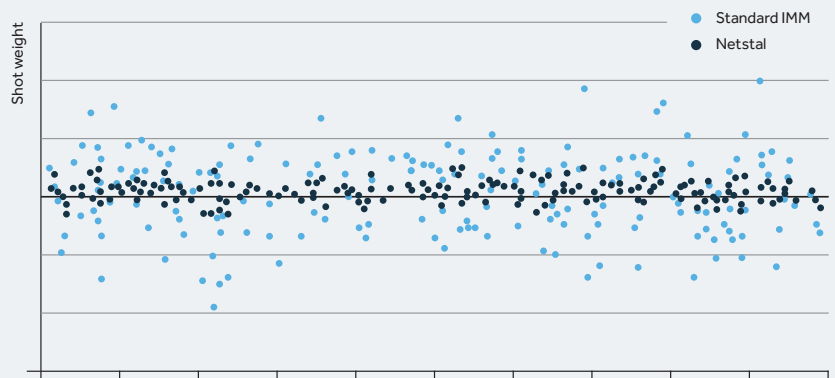
The hybrid injection units of the Elios series are equipped with highly precise sensors for distances, forces and pressures that were developed exclusively for Netstal and break all processes down to the thousandths of each unit of measurement. The RFC injection control system (based on the Sycap technology) achieves maximum control through the dynamic resolution of rules in millisecond cycles.

Because all sensors we use measure with great precision, continuously and in a coordinated manner, the machine can optimally control the entire injection process at any time. This is where our lightning-fast power control system comes into effect. Force-dependent pressure switching is the most reliable method for overcoming material variations – and not just during very fast cycle times.

Responsive Filling Control ensures top injection dynamics and, at the same time, a particularly precise process control. The entire system features a very robust design and operates with particularly little friction. There is a reason why Netstal machines have been considered the most precise and reliable machines on the market for decades.



Responsive Filling Control (RFC) is based on highly precise and dynamic sensor technology that was developed and manufactured exclusively for Netstal. The integrated force control provides ideal prerequisites for a very precise process control.

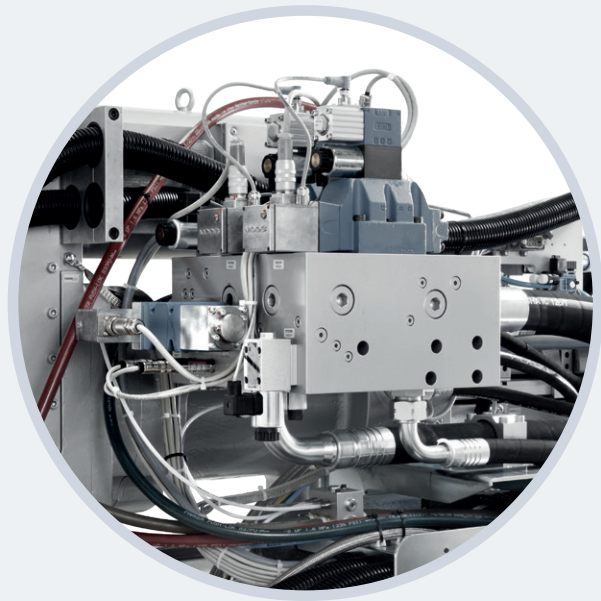


The force-dependent pressure switching occurs independently of material properties and, as a result, allows consistent part weights within very narrow tolerances.

Your benefits

- Highest shot-to-shot repeatability
- Faster cycle times
- Fewer rejects
- Greater availability
- Top overall equipment efficiency

The RFC injection control of a Netstal machine is individually set up for each injection unit size.



Modular Design

Clamping Unit and Injection Unit Combinations

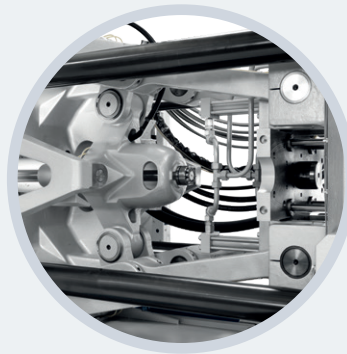
We are guided by your needs and configure a tailored Elios to achieve the highest profitability of your production. Depending on your application, the clamping unit, injection unit, drive and screw diameter can be optimally combined.

Modular flexibility

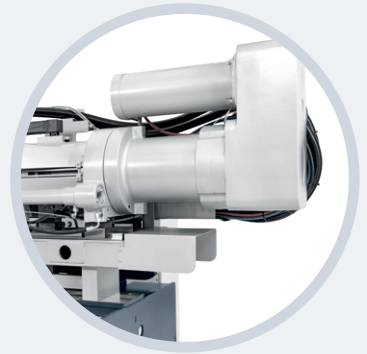
We can meet your individual needs with the modular system of the Elios series. Depending on which injection unit, screw, clamping unit or drive you need, we can meet your requirements exactly thanks to our modular machine concept.

Across the entire series, more than 40 combinations of clamping forces, injection units and screws are available. Depending on the model, four or five drive modules with an output between 31 and 83 kW are available.

The consistently modular design allows the implementation of basically any application. You will produce with outstanding quality and benefit from the efficiency of an optimally adapted Netstal machine.



Clamping unit



Injection unit



Drive



Screws

Your benefits

- Design of all machine components based on your requirements
- Top overall equipment efficiency
- Future security
- Optimal maintenance friendliness

Simply Clever Maximum Flexibility of the Media

We have designed the Elios to be so flexible that you can react to new demands at any time. Thanks to the high flexibility of the media and the optimal accessibility of the connections, the Elios can be adapted to the respective application with a minimum of effort.

Pneumatic valves

The pneumatic valves are installed near the consumer to ensure shorter reaction times.

Hydraulic controls

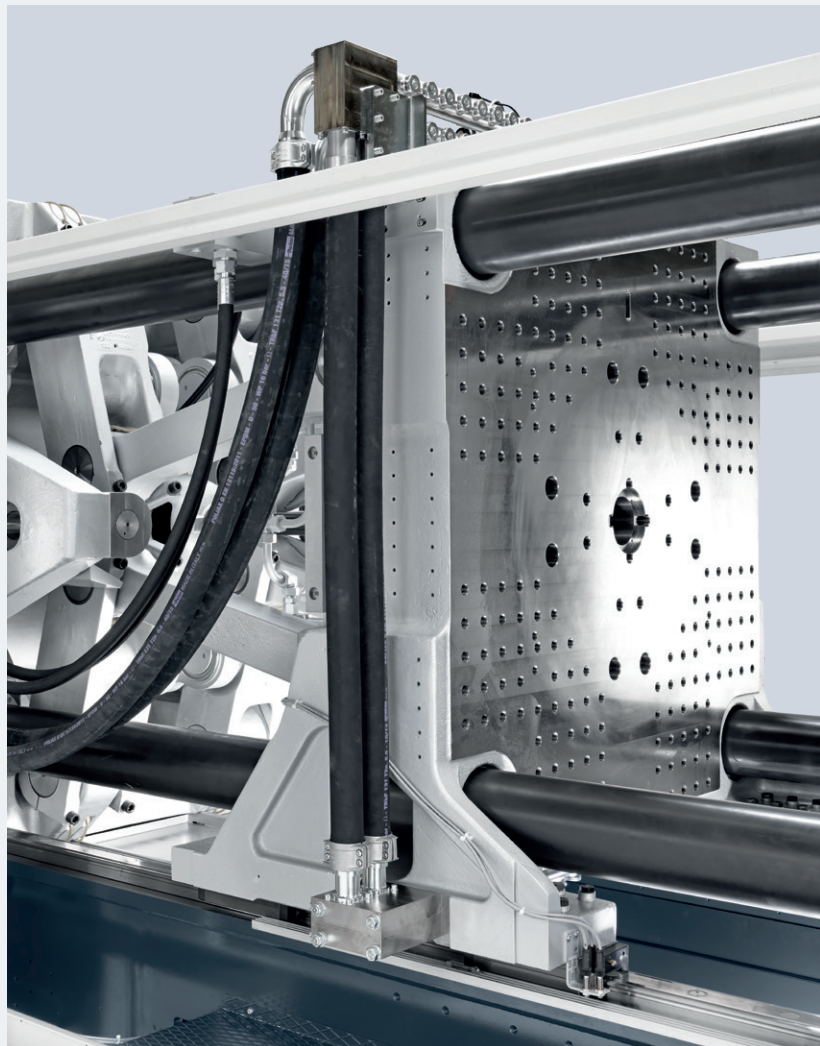
The connections for hydraulic mold auxiliary controls can be mounted on either the operating or the non-operating side.

Cooling water distributor

Depending on the mold, cooling water distributors are available for all mold plates. The distributors are corrosion-protected. The use of ball valves ensures optimum flow rates.

Socket outlet boxes

Socket outlet boxes with integrated circuit breakers can be placed at various positions on the machine for the connection of peripheral devices.



All media connections are right where you need them.

Your benefits

- Optimal accessibility
- Simple operation
- Especially easy to maintain
- Optimal efficiency

Axos 9

Innovative and User-Friendly

The newly developed Axos controller allows you to get the most out of your Netstal machine. We developed the controller to meet the increasingly complex requirements of contemporary and future applications. Numerous innovative functions support straightforward, fast and fault-free operation within the production environment.

The needs-based operation of the new Axos controller provides an optimal and setting-specific user experience for operators within the product environment as well as in application programming.

Latest technology for your added value

With state-of-the-art hardware components and a newly developed temperature control system, you can achieve the highest quality in terms of production parts as well as a reduction in energy consumption of the injection molding machine.

Smart control increases availability

The integrated four-button Smart Operation control panel enables simple and safe machine control within the production environment. Operating errors are reliably avoided. Smart Operation lastingly increases the overall equipment efficiency of your injection molding production.



The innovative Axos controller supports intuitive operation and allows the machine to perform at its best.



Less Energy, Optimal Efficiency Produce More Sustainably



When developing the Elios, we gave intensive consideration to the subject of energy efficiency. Objective and result at the same time: In terms of performance and energy efficiency, the Elios sets a new benchmark in global overall system comparison.

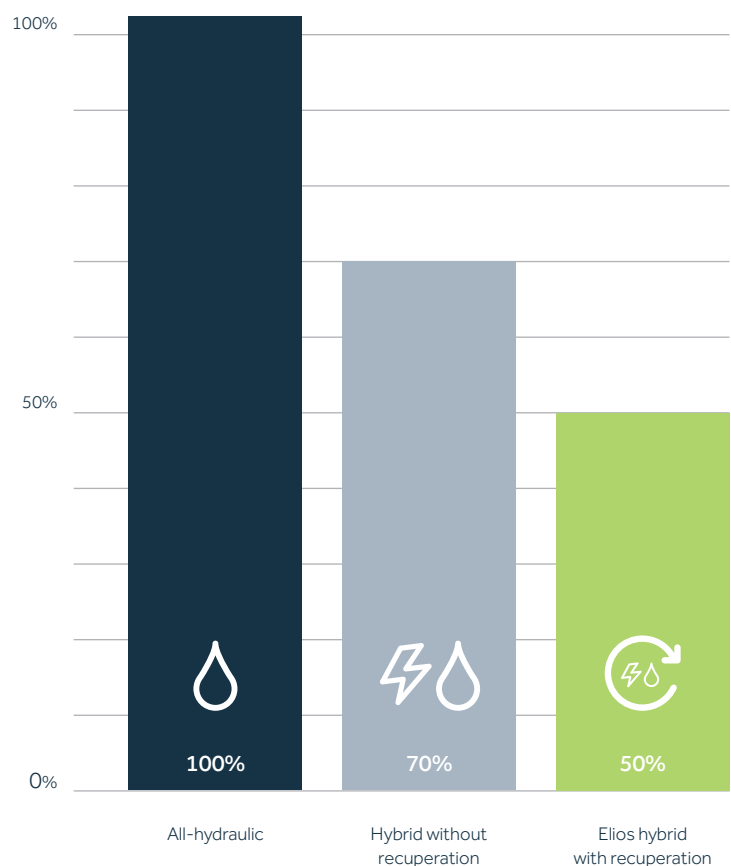
Key features:

- Recuperation of kinetic energy
- Adaptive drive control
- Interconnected power converters
- Optimal operating point at maximum efficiency
- Adaptive system pressure reduction enables additional energy saving (optional)

Elios hybrid technology with recuperation

The kinetic energy generated during braking processes flows into the electric motor of the main drive where it is converted into hydraulic energy and stored. Because we use the energy recuperated in this way directly in the overall system again, you save up to 50% electricity compared with an all-hydraulic machine, even under full load.

Energy consumption comparison



Your benefits

- Up to 50% less energy consumption
- Outstanding efficiency in high-performance applications
- Competitive advantages
- Additional savings can be made with the adaptive system pressure reduction

The low-friction guided, moving mold plate makes a major contribution to the high degree of efficiency of the clamping unit.



Digital Solutions



Netstal eService

Maintain peak production efficiency with our free eService. All machine-specific documentation is provided here. Quickly identify and order the required spare parts with the 3D spare parts catalog. Use the ticketing system to directly request our support if required.



Netstal Remote Control

Access your machine controls at any time with Netstal Remote Control (NRC). Even complex application process settings can be adjusted remotely. Machine checks at change of shift can be carried out from the office to save the walk through the machine park. Use the collaborative potentials to make internal technical assistance available on-call 24/7 and across all locations to support other plants.



Standardized data exchange

The Euromap 77 standard specifies the interface between injection molding machines and the overriding production control system. Systems (MES, ERP, QM, etc.). The basis for Euromap 77 and other Euromap interfaces for integrating periphery systems, such as Euromap 82.1 for temperature control devices and Euromap 82.2 for hot runner control devices, is OPC UA, one of the most widely used Industry 4.0 protocols. OPC UA enables standardized, manufacturer-independent and efficient data exchange between machines, devices and other systems within the industrial environment.

Maintain Values, Create Value

Netstal stands for world's leading injection molding technology. The Netstal brand goes back to the name of the place where the company was founded in the Swiss canton of Glarus.

We employ a staff of more than 500 at our head office and production plant in Näfels and in our branch offices.

We provide manufacturing companies from the packaging sector, beverage industry and medical technology with high-performance machines that are extremely efficient and deliver absolute precision with exceptional reliability. We are constantly developing our technology. Because we feel that we are jointly responsible for ensuring that you can produce successfully, efficiently and sustainably.

Worldwide presence

Our subsidiaries and agencies across the globe ensure a top-rate service. This means that we are able to address your individual needs as quickly as possible and provide you with comprehensive and customer-oriented service.

Individual service

While our customer service supports you with a range of solution-oriented services and products, it also excels as a provider of "classic" services thanks to its high reliability and quality standards. Be it commissioning, troubleshooting or customer training – make the most of our first-class services.

Machines of the Elios Series

The high-precision, high-speed and
high-performance injection molding machine.

Your best choice

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