



Performance, newly driven Machines of the ELIOS Series

Engineering Excellence



Machines of the ELIOS Series

ELIOS stands for dynamic and cost-effective high-performance injection molding and, thanks to the innovative drive technology with recuperation of kinetic energy, for optimum energy consumption. The modular system allows clamping unit, plasticizing unit and drive to be selected and configured to meet specifically tailored application requirements. Many intelligent detailed solutions and an array of useful options additionally underline the high flexibility of the ELIOS Series.

The highlights of the ELIOS Series at a glance:

- Powerful
- Fast
- Precise
- Energy-efficient
- User-oriented
- Modular







Application Areas of the ELIOS Series

Your requirement is our incentive. During the development of the ELIOS Series, we were guided by the high performance demands of our customers. The ELIOS allows demanding and complex applications to be successfully mastered.



Thin-walled packaging



Flip-top closures



Medical parts



Technical components

Thin-walled packaging with in-mold labelling

As a result of increasing market demands, IML packaging is more sought after than ever. Our specially developed machine concepts allow you to make optimum use of a wide range of IML options. With machines from the ELIOS Series, a world of possibilities is open to you in the field of thin-walled packaging.

Flip-top closures

The integrated flip mechanism seen in flip-top closures, in particular, represents a real challenge for many injection molding machines. Thanks to its high performance and precision, the ELIOS is ideal for the production of complex closures. The installation space offers generously dimensioned clamping surfaces for stack molds and molds with large numbers of cavities.

Medical consumables

The ELIOS is ideally suited to the production of petri dishes, microtiter plates or racks for pipette tips. Thanks to the encapsulated lubrication system and fully enclosed drive unit, the ELIOS is also outstandingly suitable for operation under clean-room conditions.

High-precision technical parts

With the versatility and flexibility of the ELIOS, we offer a universal platform for the production of technical parts and thin-walled components for constructive lightweight design. The ELIOS enables even highly complex applications to be resolved efficiently.

Your benefits

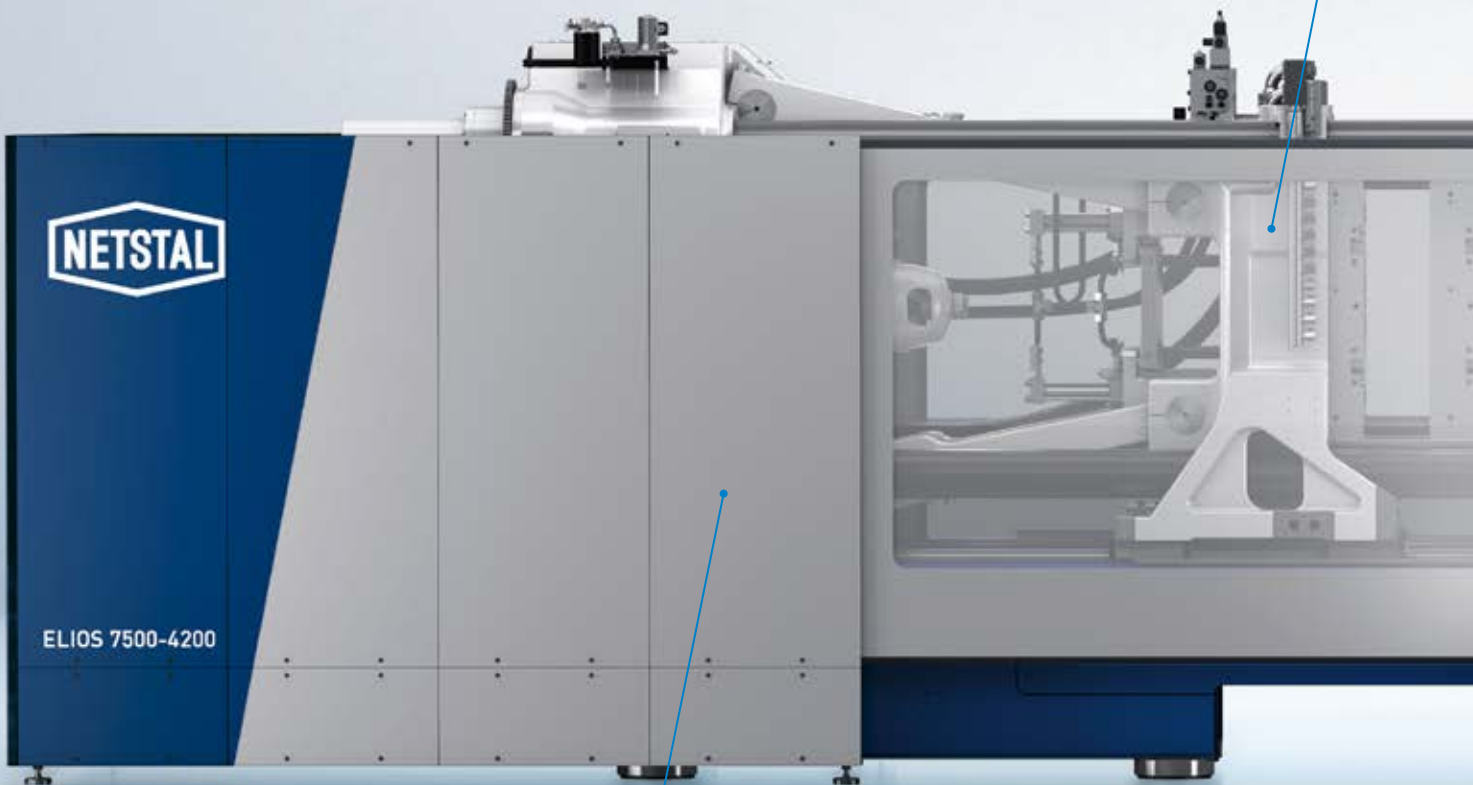
- Sophisticated solutions for every industry
 - Outstanding quality
 - Low reject rate
 - Competitive benefits
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Performance, newly driven

A fascinating tour of the ELIOS

Generously dimensioned mold installation space

Easy installation of large
stack molds and molds
with large numbers of cavities.



Floor-mounted safety cover

All safety covers on the ELIOS can be
easily removed for maintenance work.

Optimum ease of operation

All operating elements are designed for
optimum ergonomics and the highest
operator convenience.

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.

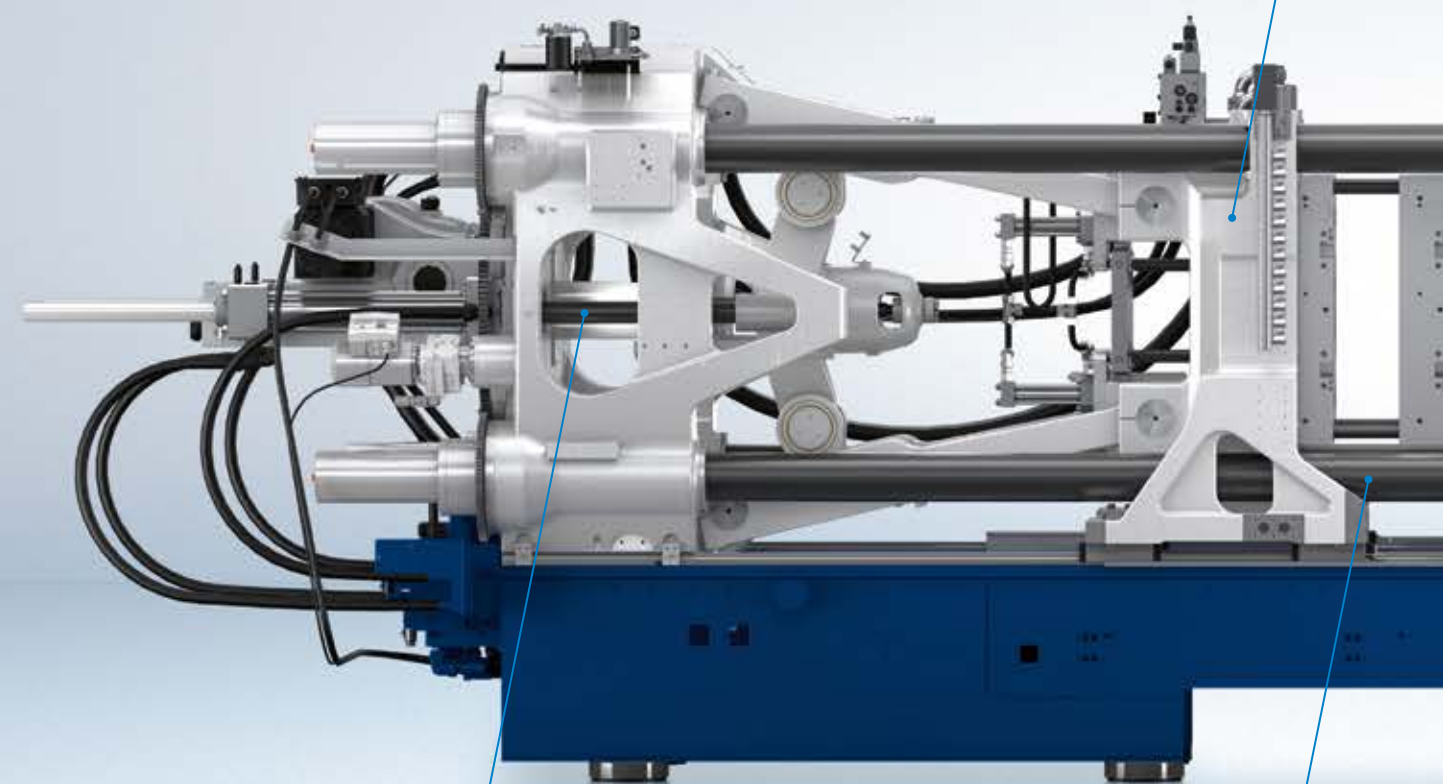


The latest control technology

Innovative and user-friendly aXos controller.

The inner value of the ELIOS Absolutely convincing

Most of the innovations and proven features of the ELIOS are hidden inside the machine. In combination, these create a complete package that sets new standards for performance and efficiency.



Flexible media fittings

A wide variety of possibilities for adapting the machine to your needs.

5-point twin toggle with patented drive technology

High-speed electric clamping unit with hydro-mechanical assistance for the build-up of the clamping force.

Clean mold installation space

Absolutely oil-free clamping unit thanks to encapsulated lubrication system and supporting of the moving mold plate on sturdy linear guides.

Powerful injection unit

Hydraulic injection axis with extremely high injection performance and high-precision control characteristics.

Servo-electric screw drive

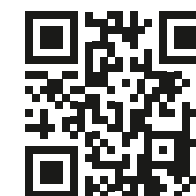
The dosing axis is available in two different performance classes: Speed and Master. The drive comes from a servo motor and spur gear.

Your benefits

- High clamping force up to 7,500 kN
- Very short cycle times
- Maximum precision and reliability
- Outstanding energy efficiency
- Optimum user orientation

Hybrid drive technology with recuperation

Highly efficient main drive with adaptive drive control and energy recuperation from the clamping unit.



Much more information and a fascinating 3-D animation video can be found at www.netstal.com/elios or scan the QR code directly and immerse yourself in the world of the new ELIOS.

High clamping force Enormous speed

For the drive of the sturdy 5-point twin toggle of the ELIOS, we have developed a particularly innovative and energy-efficient concept. The intelligent combination of the dynamic electric drive with the powerful hydro-mechanical assistance allows very high speeds with high clamping force. And best of all: The ELIOS is just as precise and reliable as any other Netstal machine.

Patented dual drive concept with energy recuperation

The travel movements of the 5-point twin toggle are performed fully electrically. Two parallel-acting 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.

Encapsulated circulatory lubrication system

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

Centrally positioned toggle

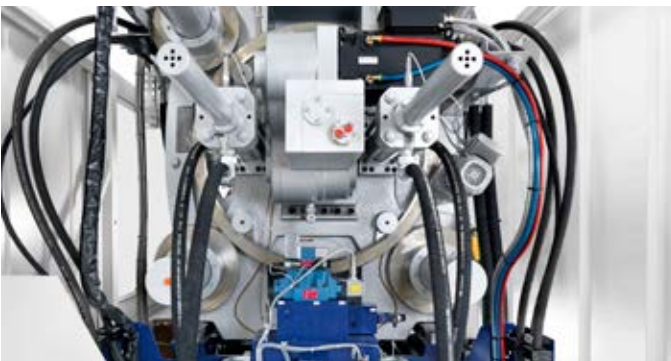
The 5-point twin toggle ensures an optimum transmission of the force into the center of the mold installation space, and hence uniform distribution of the clamping force. The extremely sturdy and strength-optimized design effectively prevents any deformation of the mold plates.

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

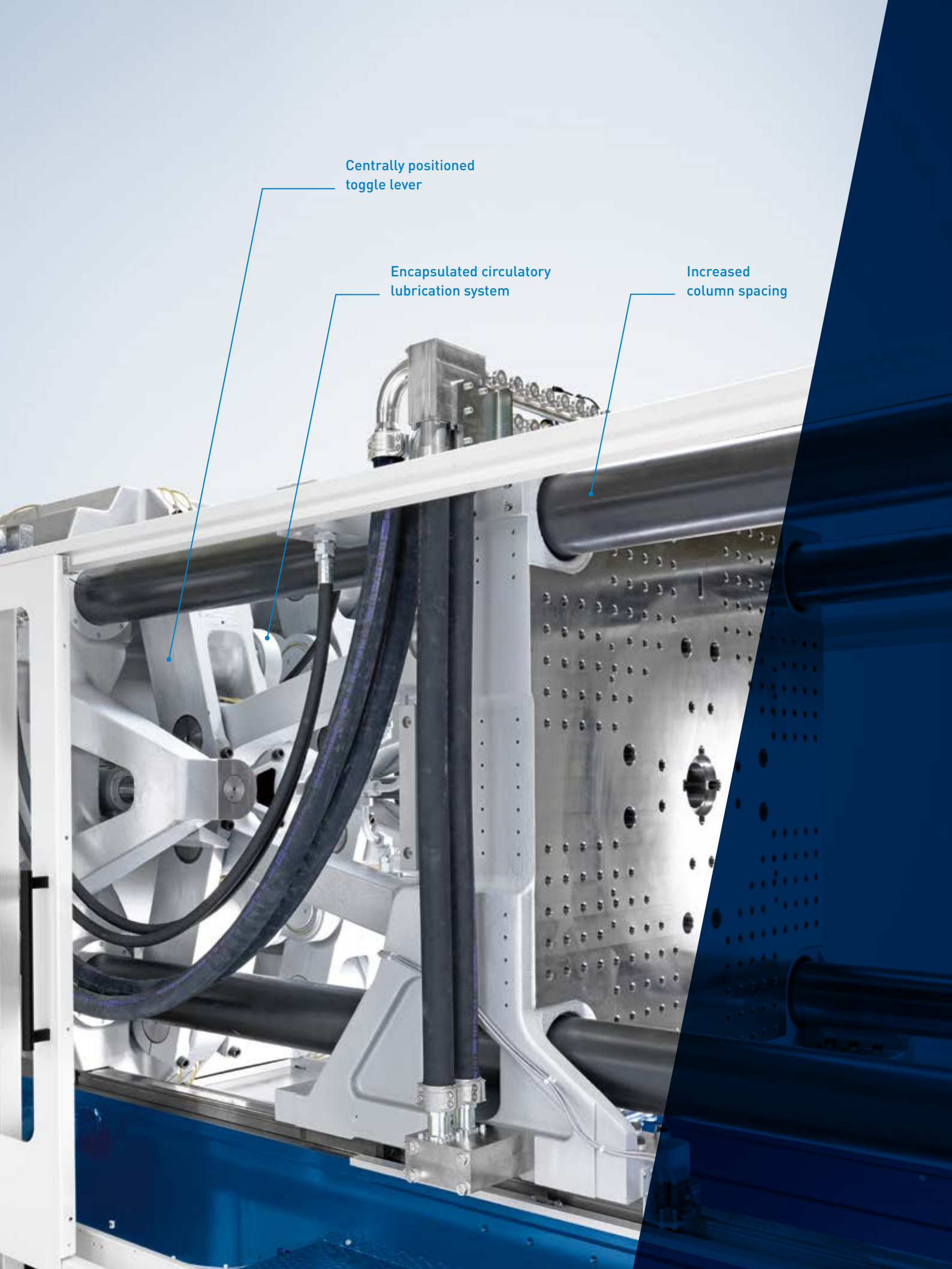
The large distance between the columns and the large opening stroke simplify the installation of stack molds and molds with large numbers of cavities. Furthermore, the mold area is optimally prepared for horizontal part removal using handling devices.



Patented electric drive with hydro-mechanical assistance for the build-up of the clamping force



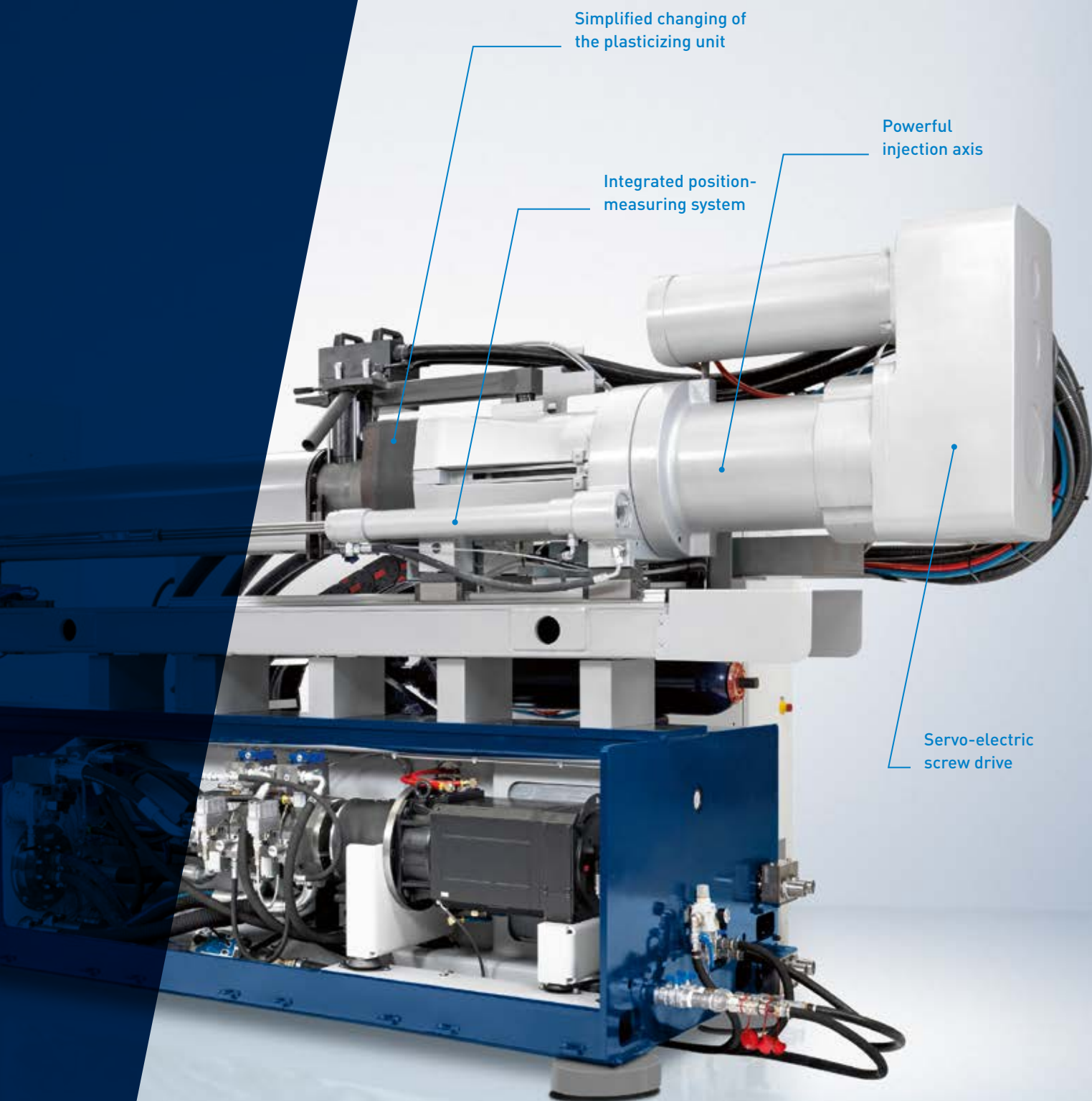
Versatile and flexible ejector



Centrally positioned
toggle lever

Encapsulated circulatory
lubrication system

Increased
column spacing



Fast and precise injection

Low energy 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 an exceptional injection performance, while the servo-electric drive of the dosing axis contributes to a 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 an extremely dynamic injection process.

Simplified changing of the plasticizing unit

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 twin-valve technology

Two highly dynamic servo valves each with a flow rate of 550 l/min and a reaction time of max. 11 ms allow impressive injection rates 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

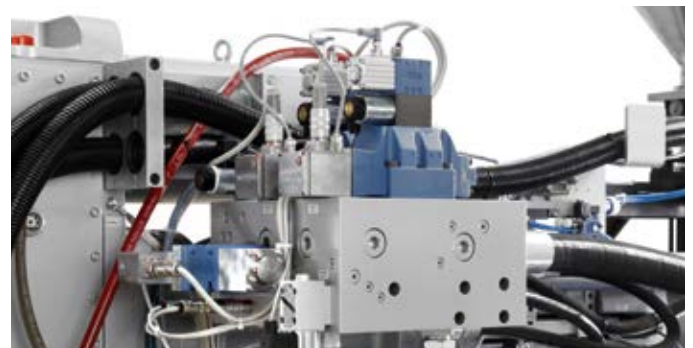
The dosing axis is available in two different performance classes: Speed and Master. The drive comes from a servo motor and spur gear. The "Master" option offers increased torque compared with the already high performance of the standard version.

Integrated position-measuring system

The hunt axis meets the highest demands for dynamics and positioning accuracy. The path-measuring system is integrated into the hunt cylinder.



Actively controlled shut-off nozzle actuation



Two valves for dynamic injection

Modular design

Clamping unit and injection unit combinations

We are guided by your needs and configure a tailored ELIOS for the optimum profitability of your production. Depending on the application or use of the machines, clamping unit, injection unit, drive and screw diameter can be optimally combined.

Injection unit	1000			2000			2900		4200		6000	
Screw diameter	45	50	55	55	62	70	70	80	80	90	90	100
Clamping unit												
4,500 kN*												
5,500 kN*												
6,500 kN												
7,500 kN												

* Available during the course of 2017

Your benefits

- Consistent modular design
- 33 variants configurable to meet your needs
- Flexible expansion possibilities for future applications



aXos Controller

Innovative and user-friendly

The focus is on the user with the aXos. The control keyboard offers the user numerous simplifications, such as the direct access keys allowing him to jump straight to the required system processes, or the 17" TFT flatscreen monitor that serves as display medium for the whole process programming.

User-friendly sequence editor

The sequence editor allows even complex processes to be easily and graphically programmed and displayed. The unique context menu (Corona) provides efficient assistance here.

Efficient component manager

The term "component" stands for all the actuation axes (main and ancillary axes) of an injection molding machine. The clearly arranged component manager acts as a control center for the efficient parameterization of the components.

Ergonomic control keyboard

The control keyboard provides simple and efficient navigation elements for quick access to the required system processes. The keyboard is ergonomically designed and can be folded away during maintenance.

17" TFT flatscreen monitor

The flatscreen monitor serves as display medium for the complete programming of the process. The monitor is slightly inclined for optimum legibility. Navigation on the TFT flatscreen is by cursor keys or with the centrally located trackball.

Clever control panel

The control panel offers a whole range of functions to support the user in operating the machine during day-to-day work. The combination of monitor and membrane keyboard is a development that has been patented by Netstal.

Well-organized dashboard

The individually configurable overview page provides all the important information at a glance. The operator recognizes immediately whether the process is running stably and within the tolerances.



Flexible and highly efficient aXos controller



Individually configurable dashboard

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 optimum accessibility of the connections, the ELIOS can be adapted to new applications with a minimum of effort.

Pneumatic valves

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

Hydraulic controls

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

Cooling water distributors

Depending on the mold, cooling water distributors are available around the mold plates. The distributors are corrosion-protected. The use of ball valves guarantees 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.

Your benefits

- Optimum accessibility
 - Simple operation
 - Extremely maintenance-friendly
 - Optimum cost-effectiveness
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All pneumatic valves can be adjusted with the safety cover closed

Less energy, optimum cost-effectiveness Hybrid technology with energy recuperation

A low energy consumption allows enormous savings to be achieved in the operation of your injection molding machine. That is why we at Netstal have given intensive consideration to the subject of energy efficiency. The goal was to combine the energy-saving advantages of electric drives with the high power density of hydro-mechanical drive concepts. The result: When it comes to electricity consumption, the machines of the ELIOS Series are among the most thrifty injection molding machines with hybrid drive technology.

Main features of the Netstal drive technology:

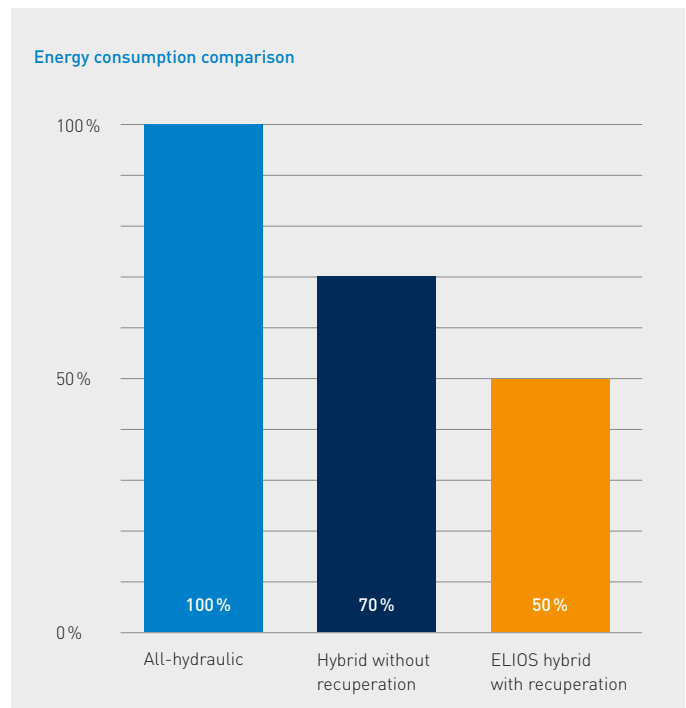
- Recuperation of kinetic energy
- Adaptive drive control
- Interconnected power converters
- Optimum operating point with maximum efficiency

ELIOS hybrid technology with recuperation

The kinetic energy generated during the braking operations flows into the electric motor of the main drive where it is converted into hydraulic energy and stored. Because the energy thus recuperated is used in the overall system again, an energy saving of up to 50 percent can be achieved even under full load compared with an all-hydraulic machine.

Your benefits

- Up to 50 percent less energy consumption
- Outstanding cost-effectiveness in high-performance applications
- Competitive benefits



With the powerful, sturdy and high-precision machines of the ELIOS Series, you get the key to outstanding quality, higher productivity and optimum cost-effectiveness. Convince yourself of the benefits of the ELIOS Series.

Your benefits:

- High precision and process accuracy
- Perfect part quality
- High machine availability
- High productivity
- Low reject rate
- Very good energy efficiency
- High flexibility
- Optimum cost-effectiveness





Worldwide competence to your benefit

Service & solutions



Netstal's customer service provides you with optimum support throughout the entire lifecycle of your machine. Our solution-oriented services and products such as commissioning support, troubleshooting, spare parts supply and customer training optimize your production efficiency and secure your investment to create a lifelong partnership that works to your advantage.

Start-up

- Installation
- Commissioning
- Training
- Teleservice

Use

- Spare parts packages
- Troubleshooting
- Hotline
- Preventive maintenance

Optimization

- Application consulting
- Retrofitting
- Energy consultation
- Process consultation

End phase

- General overhaul
- Modernization
- Machine relocation
- Second-hand machines

Netstal

A strong brand in a globally unique group

Premium high-performance and high-precision injection molding and system solutions

Netstal is an international provider of premium high-performance and high-precision injection molding technology and system solutions. We impress our customers with constant innovations and services, as well as with highly efficient and performance-driven technological approaches, in particular for the beverage, packaging and medical technology industries. Our production systems are all characterized by the same attributes: Speed, precision, reliability, user friendliness and operational efficiency. We are

constantly refining our technological standard of excellence and, thanks to our innovative technologies, we are able to offer high-performance production systems to our customers.

Worldwide presence

With eight subsidiaries and around 30 distributors, our global presence guarantees optimum customer proximity. 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.

Further information on Netstal can be found at: www.netstal.com

KraussMaffei Group

Comprehensive know-how

USP technology³

With its KraussMaffei, KraussMaffei Berstorff and Netstal brands, the KraussMaffei Group is the world's only supplier of the machine technologies integral to plastic and rubber processing: Injection molding technology, automation, reaction technology and extrusion technology. With over 30 subsidiaries, more than ten production facilities as well as around 570 sales and service partners, the Group is well represented internationally. That is why we are the only professional partner you need. Take advantage of our extensive and unique know-how in the industry.

Further information can be found at: www.kraussmaffei.com



The KraussMaffei Group operates globally. Countries with subsidiaries are marked in light blue. The Group is represented by over 570 sales and service partners in the white-colored regions

**Powerful.
Fast.
Precise.**
Machines of the ELIOS Series

Powerful, fast, precise, energy-efficient and user-oriented: With its innovative drive technology, the ELIOS Series sets new standards in high-performance injection molding.

The result is more than fascinating: A clamping force of 750 tons, a dry cycle of 1.9 seconds (measured according to Euromap) and an energy efficiency that has never been achieved before.

Add to that Netstal's proven precision, reliability and user friendliness and you get a highly productive premium system as a successful solution to demanding applications.

Performance, newly driven