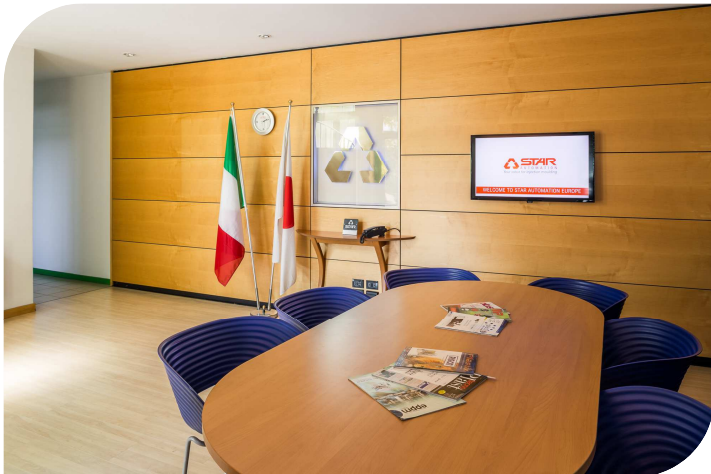


COMPANYPROFILE



STAR AUTOMATION EUROPE: 30 YEARS OF EXPERTISE

Star Automation Europe was born in 1989 as the branch of Star Seiki Co. Ltd. for the distribution of automation systems for the injection moulding sector in Europe. Star Seiki Group was founded by the Shiotani family in 1964 in Nagoya (Japan) and currently counts more than 1000 employees worldwide and branches in all continents. More than 200.000 robots installed all over the world witness the high reliability and quality of our products. These are just two of the main reasons of the loyalty that our valued customers have shown during all these years.



In fact, Star Automation Europe has met the requirements of its customers by designing highly reliable standardised solutions. This is possible thanks to the significant number of standard products and to the experience of its highly-motivated personnel, always aiming at customer satisfaction.



STAR'S GLOBAL NETWORK

STAR SEIKI CO., LTD.
STAR AUTOMATION INC.
STAR AUTOMATION EUROPE S.P.A.
STAR SEIKI BRASIL LTDA.
STAR SEIKI MEXICO S.A. DE C.V.
STAR SEIKI KOREA CO., LTD.

STAR SEIKI (SHANGHAI) CO., LTD.
STAR SEIKI (XIANG YANG) CO., LTD.
STAR AUTOMATION (SHENZHEN) CO., LTD.
STAR SEIKI (HONG KONG) CO., LTD.
STAR SEIKI SINGAPORE PTE. LTD.
PT. STAR SEIKI INDONESIA

STAR SEIKI TAIWAN, INC.
STAR SEIKI (THAILAND) CO., LTD.
STAR SEIKI PHILIPPINES INC.
STAR SEIKI (VIETNAM) CO., LTD.
STAR SEIKI INDIA PVT LTD
RADIUS TECHNOLOGY PTY. LTD.

Star network is present all over the world with more than 15 subsidiaries in Europe, North and South America, Asia and Oceania; each branch has its own distributors and sales agencies to cover all countries.





The main head office is located in Japan; the other four manufacturing plants' vast knowledge and great technical experience allow Star to offer full support from project management to installation, training and after-sales support.

Manufacturing plants in **Japan**:

Star Seiki Co., Ltd (Nagoya)

Star Seiki Co., Ltd Izumo Plant (Izumo)

Manufacturing plants in the **world**:

Star Automation Europe S.p.A. (Italy)

Star Automation Inc., Wisconsin Headquarters (U.S.A.)

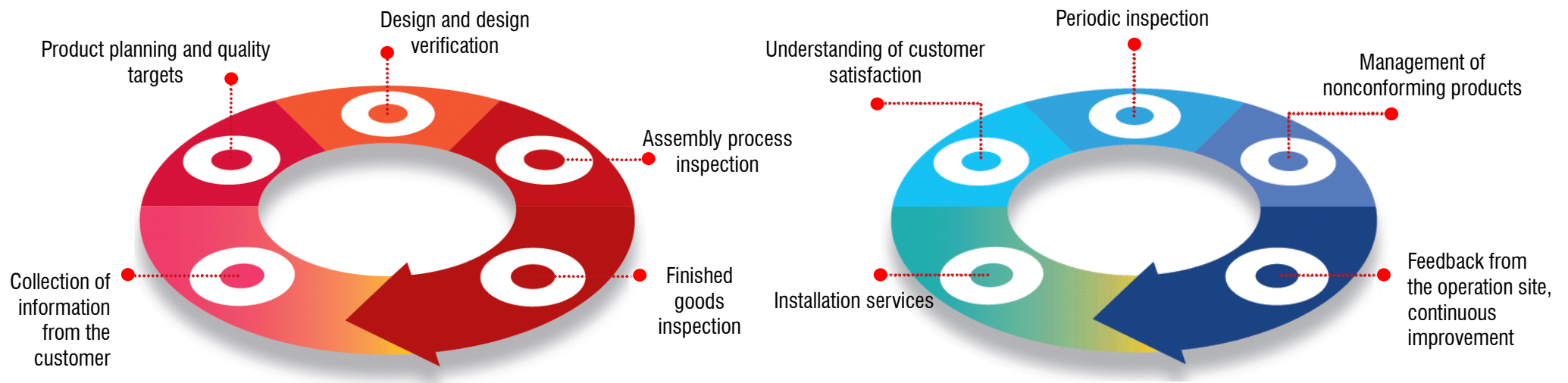
Star Seiki (Shanghai) Co., Ltd. Shenzhen Branch (P.R.C.)

Star Seiki (Xiangyang) Co., Ltd. (P.R.C.)

STAR

Quality First

Not only is Star Automation Europe a robot manufacturer but also a competent supplier for **turnkey dedicated systems up to total factory automation**. By using high-performing components and Star Group's 50-year experience in manufacturing, we are able to offer our customers products of excellent quality, which is our group's motto: **品質第一, Quality First**.



OUR ROBOTS LINE-UP





Vertical telescopic arm for reduction of total height and increase in speed



Electro-welded steel structure for high rigidity and reduction of vibrations

Double prismatic bearing guides with special bearings for reduced maintenance and smooth operation

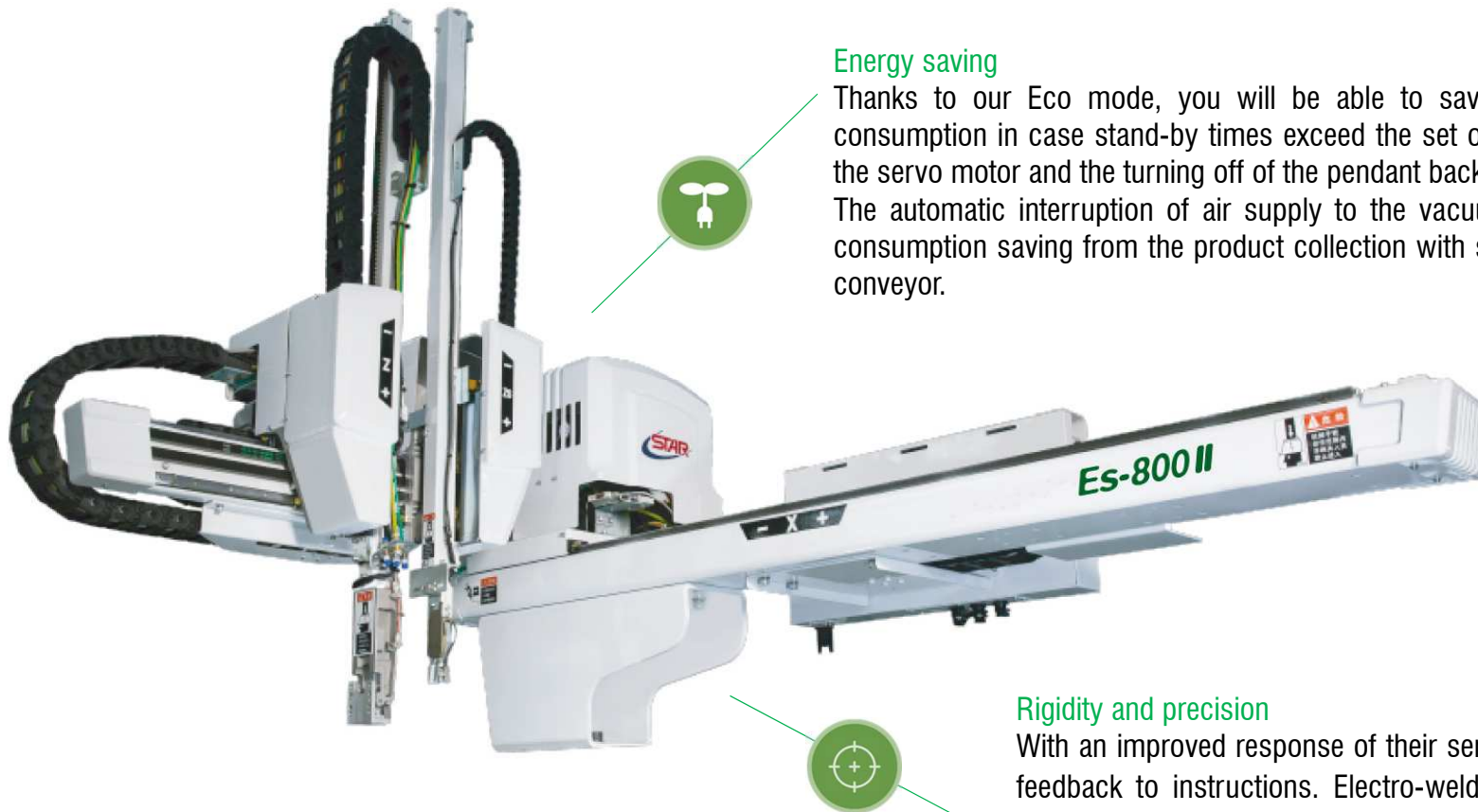


Servo drivers inside the carriage for overall dimension reduction

Specially designed EOATs to meet each customer's special needs



Es-II CARTESIAN ROBOTS



Energy saving

Thanks to our Eco mode, you will be able to save up to the 25% of electricity consumption in case stand-by times exceed the set ones, with the temporary stop of the servo motor and the turning off of the pendant background light. The automatic interruption of air supply to the vacuum generator allows a huge air consumption saving from the product collection with suction cup to its deposit on the conveyor.

Rigidity and precision

With an improved response of their servo motor, Es-II Series robots guarantee a quick feedback to instructions. Electro-welded steel structure of the three cartesian axes ensures a high rigidity which facilitates precision both during extraction and release, with the maximum reduction of vibrations. Due to the extension of the traverse support, traverse bending is also reduced to its minimum.



IMM RANGE: 40 – 1600 ton

XW-VI CARTESIAN ROBOTS

Extreme versatility

XW-VI Series is suitable for automations such as metal insert loading operations, IML applications and interfacing with special automations beside the IMM. The overall robot dimension has been reduced by installing the servo drivers inside the carriage and the controller box on the back of the traverse beam.

Moreover, the vertical arm composed with a telescopic system allows to reduce the total height of the robot thus increasing movement speed.

Safety above all

The collision detector of XW-VI Series STEC520 controller detects forthcoming collisions with other objects and immediately stops the robot. Up to 5 levels of detecting and sensitivity can be selected.

Moreover, the vibration control system controls vibrations on the vertical axis for the optimal operation of the unloader, thus permitting an increase of smooth movements at high speeds and an increased stability at extraction time.

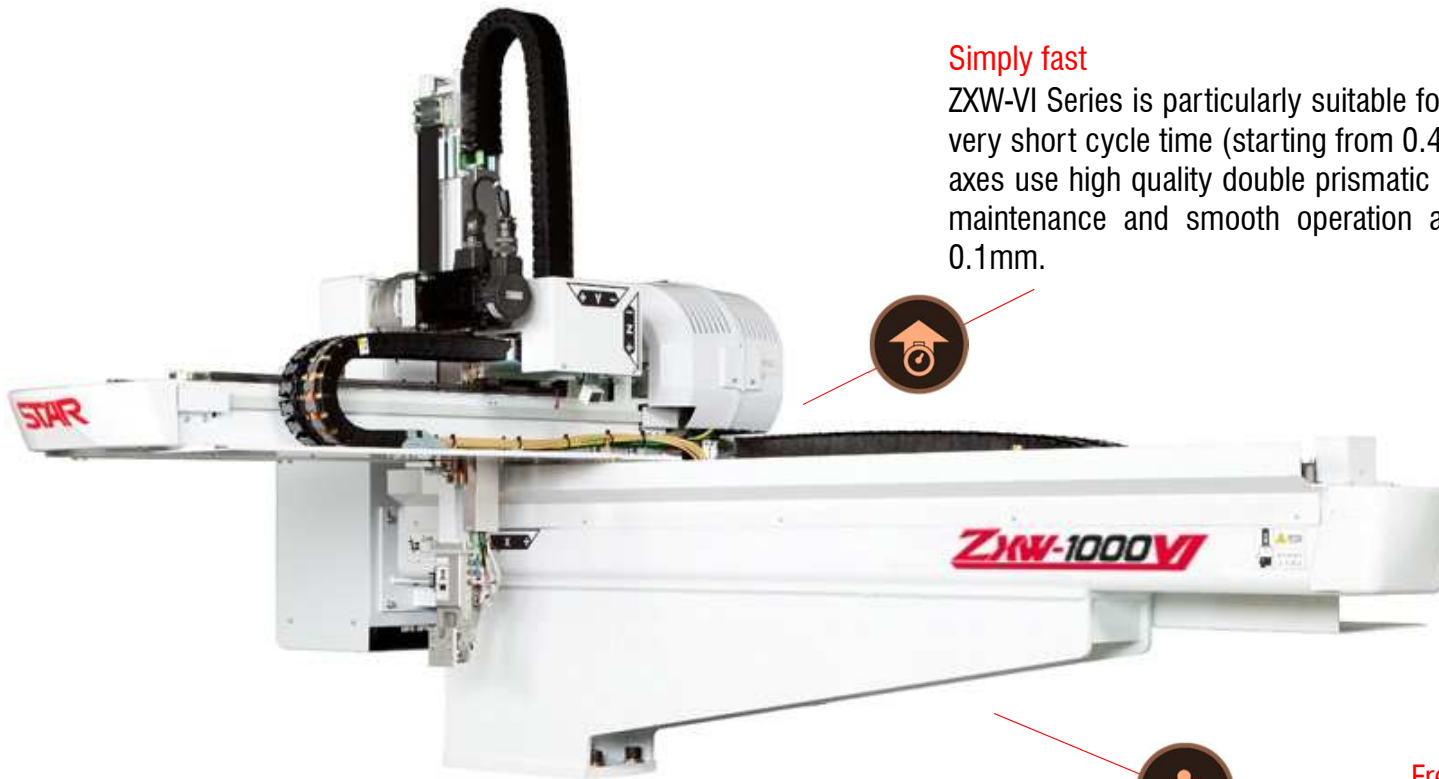


IMM RANGE: 40 – 1600 ton

ZXW-VI HIGH-SPEED ROBOTS

Simply fast

ZXW-VI Series is particularly suitable for food packaging systems, IML and whenever a very short cycle time (starting from 0.48 seconds) and precise handling is required. All axes use high quality double prismatic bearing guide with special bearings for reduced maintenance and smooth operation all helping to achieve precision positioning to 0.1mm.



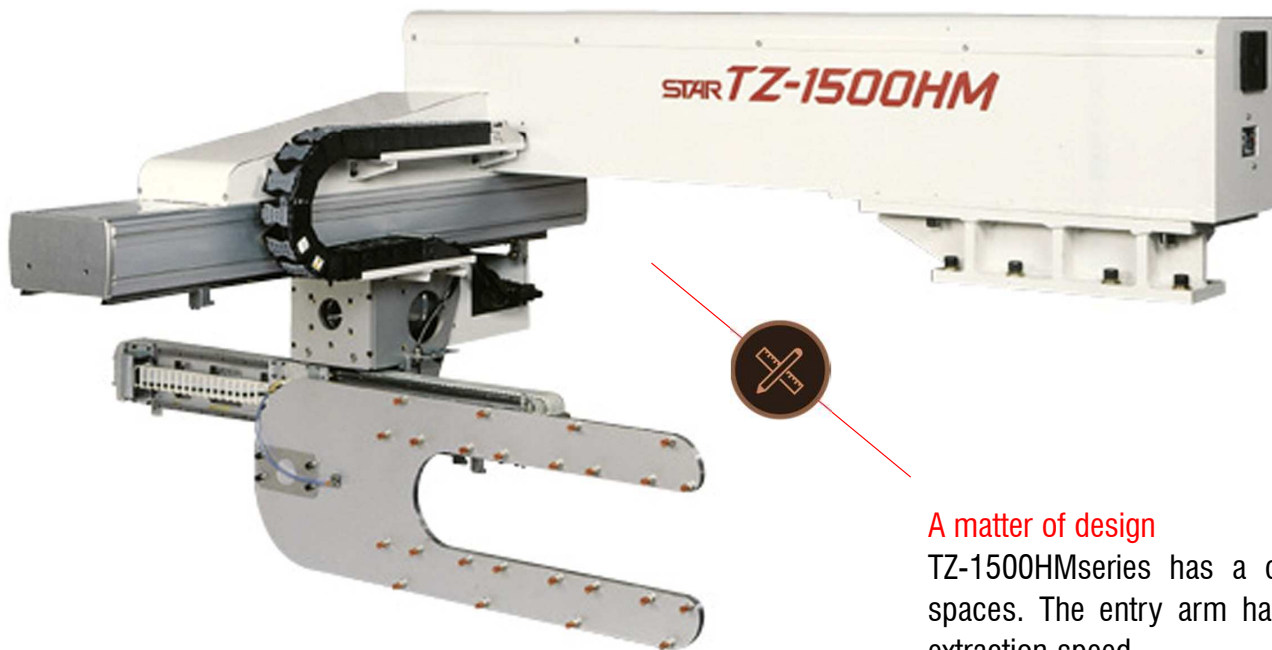
Free programming

We can operate in two different ways, based on the customer's needs: operational modes programming (preinstalled operations), and free programming, thus guaranteeing our customers the widest grade of freedom.



IMM RANGE: 150 – 850 ton

TZ-1500HM SIDE-ENTRY ROBOT



A matter of design

TZ-1500HMseries has a compact design, that allows installation even in narrow spaces. The entry arm has a telescopic structure that allows it to have very high extraction speed.

Moreover, this robot is often used in cleanrooms because of its special chain features that guarantee minimum dust production and a low level of noise.

Both side entry and de-moulding axes are made of reinforced aluminum and for this reason the robot is very resistant to wear, therefore required maintenance is also very low.



IMM RANGE: 100 – 350 ton

SERVO SLEEP FUNCTION

When the robot is not being used or is working in auto mode, the servo sleep function shorts the power to the servo motors.

We measured the power consumption and compared the values with the servo sleep function OFF and ON respectively at a set time of 1.0 seconds. These are the results:

Auto Mode

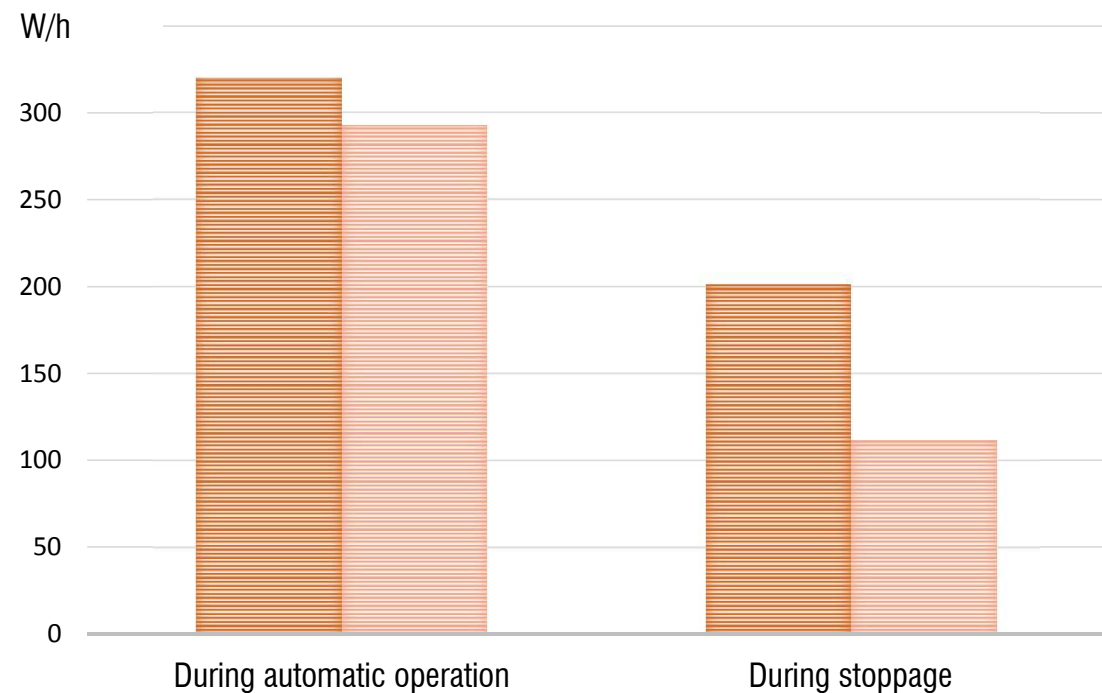
Servo sleep function OFF:
power consumption W/h: **320,22**

Servo sleep function ON:
power consumption W/h: **292,92**

In manual or during stoppage

Servo sleep function OFF:
power consumption W/h: **201,18**

Servo sleep function ON:
power consumption W/h: **112,02**



OUR SPRUE-PICKERS



Sp-F IV SPRUE PICKERS

Sp-F IV Series pneumatic sprue pickers represent the first approach to the automation of an IMM. As the extraction of the sprue is guaranteed in every cycle, the separation between part and sprue will always be certain, with no need of visual checks. Fast during extraction time (lower than 0.8 sec on average), the Sp-IV F range can be equipped with a vacuum generator which makes extraction easier and ensures the separation between right and left parts. A low-cost investment for the ultimate solution to a common problem in injection moulding.



IMM RANGE: 30 – 250 ton



Simplicity and efficiency

The possibility to regulate the arm's rotation angle (swing $50^{\circ} \div 90^{\circ}$) allows to easily cross over the IMM safety protections until the height required in order to extract sprues according to their maximum width. Moreover, the sprue presence sensor on the sprue gripper guarantees the correct collection on every cycle and monitors both the sprue absence and anomalies on the gripper.



OUR CONTROLLERS LINE-UP





STEC-S1 for Sp-F IV Sprue Pickers

Operative modes which determine the manipulator's work sequence can be abled and disabled with simple instructions on the controller: you can therefore set specific work cycles for the current mould and its production characteristics, both through the selection of operative modes and the right setting of the timers. According to each mould necessities it is also possible to memorize up to 15 mould programs.



STEC-NC2 for Es-II Cartesian Robots

Es-II Series robots can be operated safely through the 7.5" touch screen LCD display of STEC NC2 controller. It can operate in two different ways, based on the customer's needs: operational modes programming (preinstalled operations), and free programming, thus guaranteeing our customers the widest grade of freedom. Standard actions are operated on a step by step system which guides the operator during the setting of the cycle, thus reducing mistakes to their minimum.

The three-position enable switch installed on the pendant is a further way to raise safety levels as European regulations require.





STEC-510 for TZ-1500HM

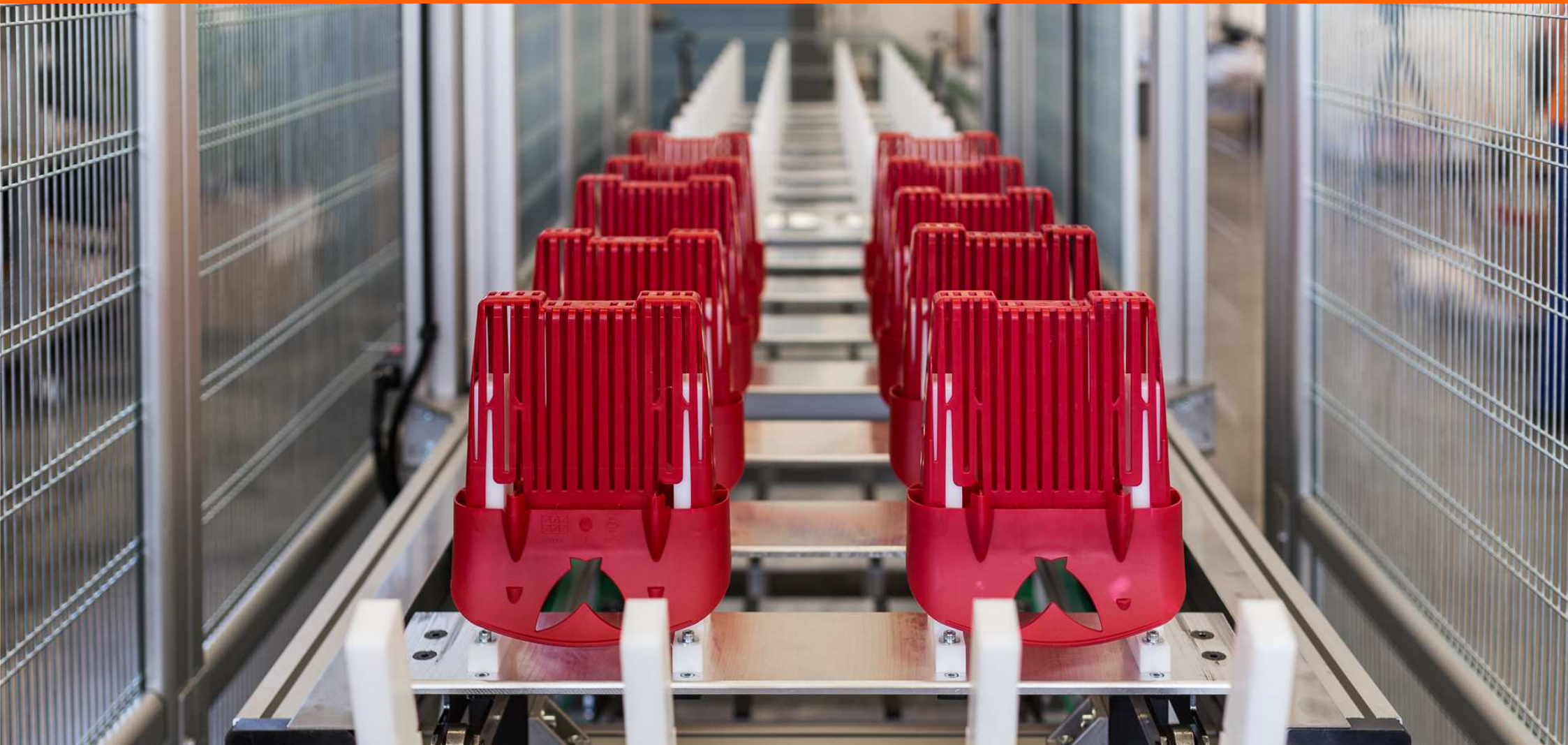
Our STEC 510 can operate in two different ways, based on the customer's needs: operational modes programming (preinstalled operations), and free programming, thus guaranteeing our customers the widest grade of freedom. The collision detector detects forthcoming collision with other objects and immediately stops the robot, while the vibration control system controls vibrations on the vertical axis for the optimal operation of the unloader, thus permitting an increase of smooth movements at high speeds and an increased stability at extraction time.

STEC-520A for XW-VI and ZXW-VI Cartesian Robots

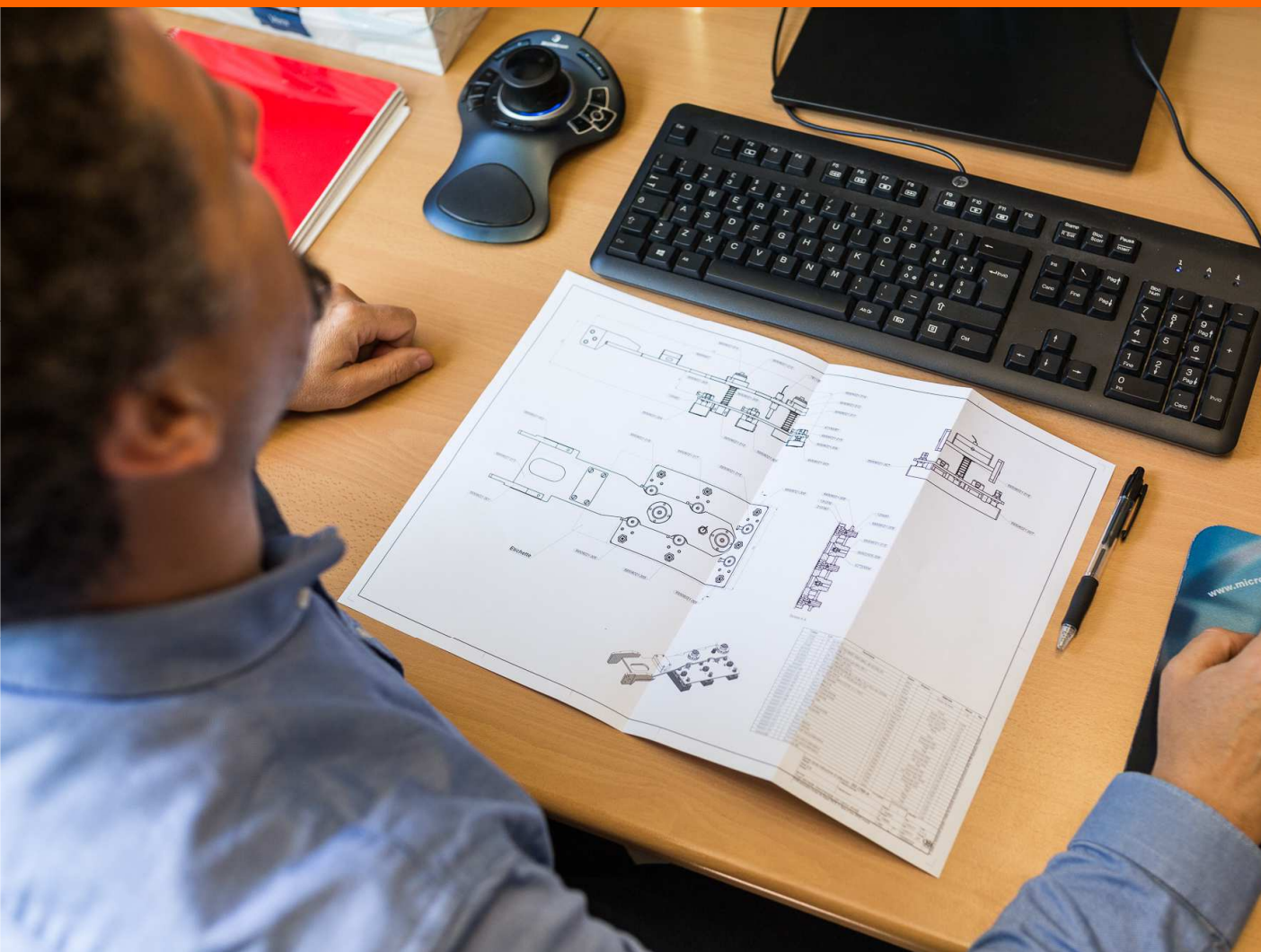
As the newest and most performing member of our controllers' family, STEC 520A can operate in two different ways, based on the customer's needs: operational modes programming (preinstalled operations), and free programming, with the possibility to save up to 999 different mould programs.



OUR AUTOMATION SYSTEMS



OUR MISSION: CUSTOMER SATISFACTION



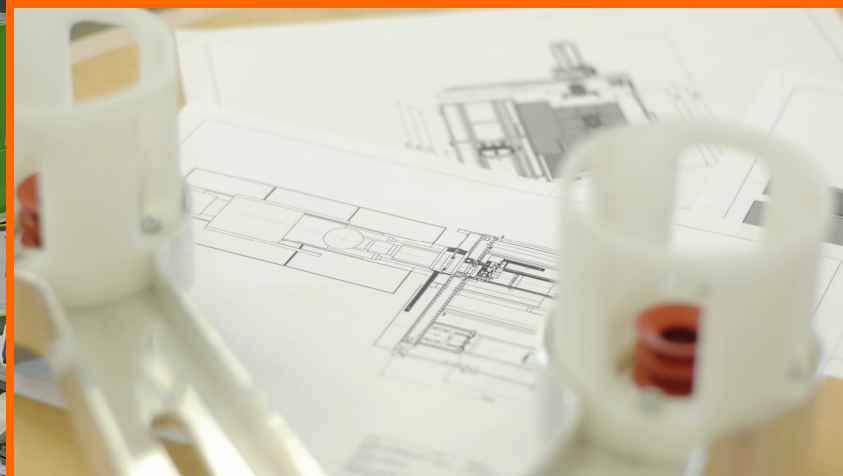
Our experience in designing and producing special automations for the handling of moulded thermoplastic parts allows us to understand our customers' needs and to propose the best fitting solutions. We produce **cartesian robots in all sizes** (for IMM from 30 to 5000 tons) by adapting Japanese technology to the demands of European market.



OUR MISSION: CUSTOMER SATISFACTION



Star philosophy is to create automated systems with **highly accurate positioning**, designed to reach the fastest cycle time using our standard robots. We use components adopted on our Group's large-scale production: standard robots, only one controller capable to manage the whole automation, EOAT components, everything made by Star.



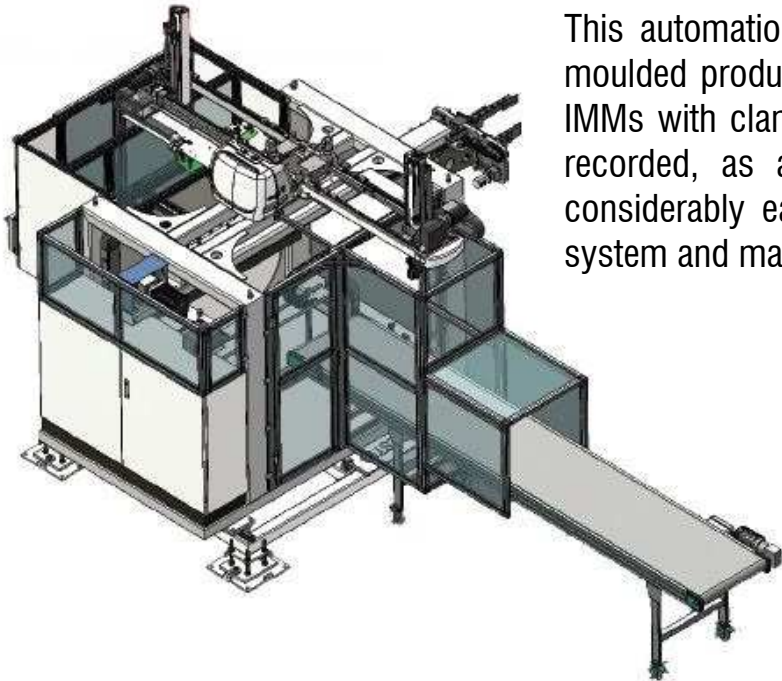
IML AUTOMATIONS

Star automation Europe has been manufacturing IML automation systems since 1995. The long experience in this important field has driven Star to develop more and more flexible and high-performing solutions. IML applications, which are mainly used on food containers produced by 2, 4, 8 and 16 cavity moulds, are normally performed by two models of side entry robots, namely the **TZ-1500HM** and **S7 Flex**. Star has also reached important results in other sectors where IML is required: paint pails or food containers are just some examples that show how a side entry robot can be used in place of a vertical entry robot, like the XW-VI or ZXW-VI model, depending on specific cycle requirements.

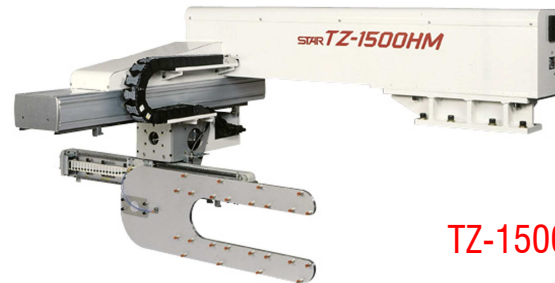


IML AUTOMATIONS with SIDE-ENTRY ROBOTS

S7 Flex IML System



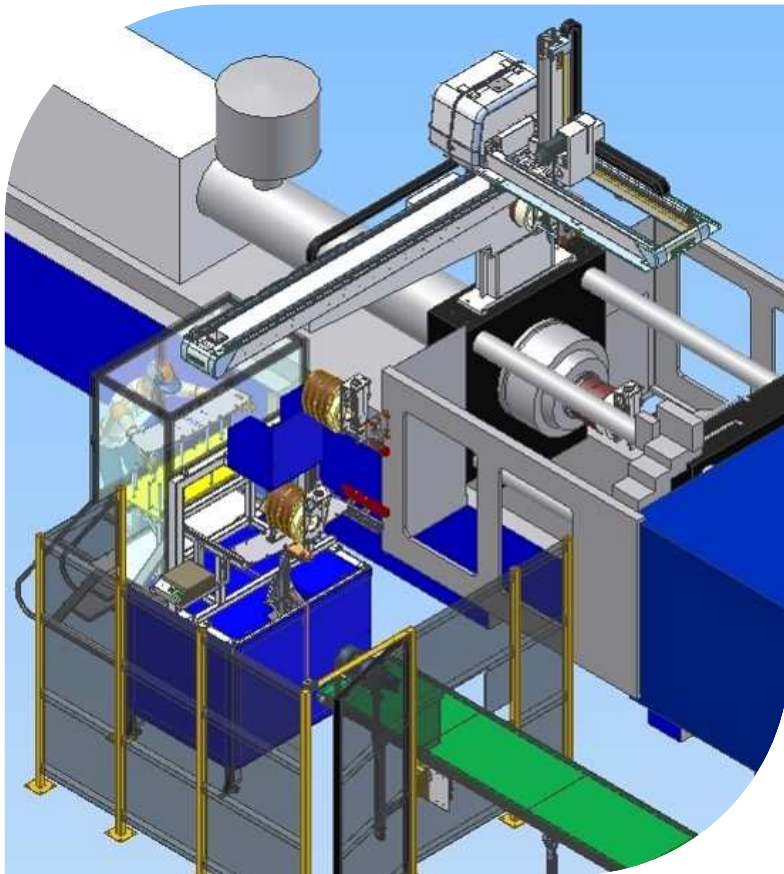
This automation system features 7 servo driven axes for the whole management and handling of moulded products and labels. Thanks to its wide strokes these applications can be installed beside IMMs with clamping force between 200 and 750 tons. All dimensions, times and programs can be recorded, as all movements are carried out by servomotors; this makes production changes considerably easier and ensures higher quality and accuracy. A series of options completes this system and makes it ideal for cleanroom use.



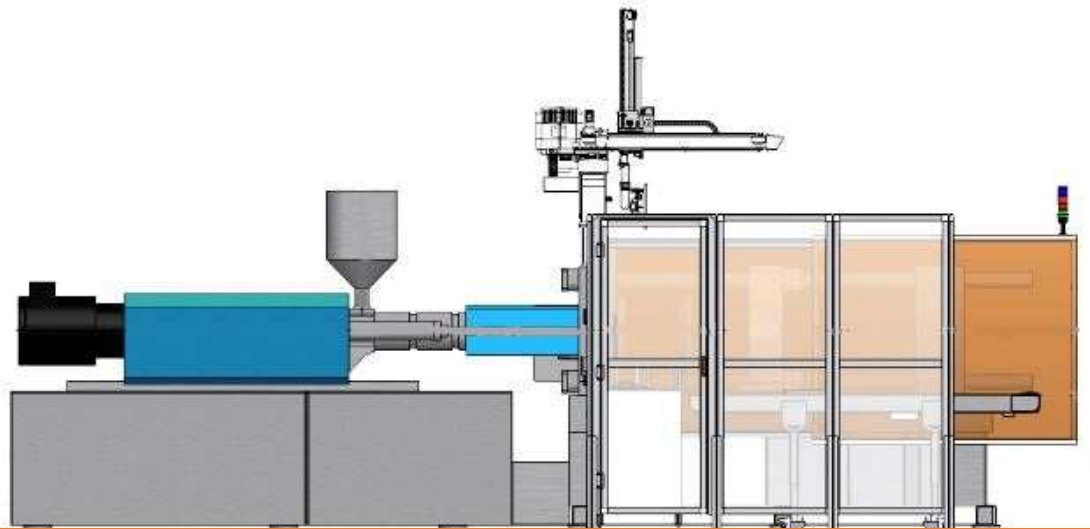
TZ-1500HM

A compact side-entry robot is the most suitable solution for simple application and moulds with a low number of cavities and products with small dimensions.

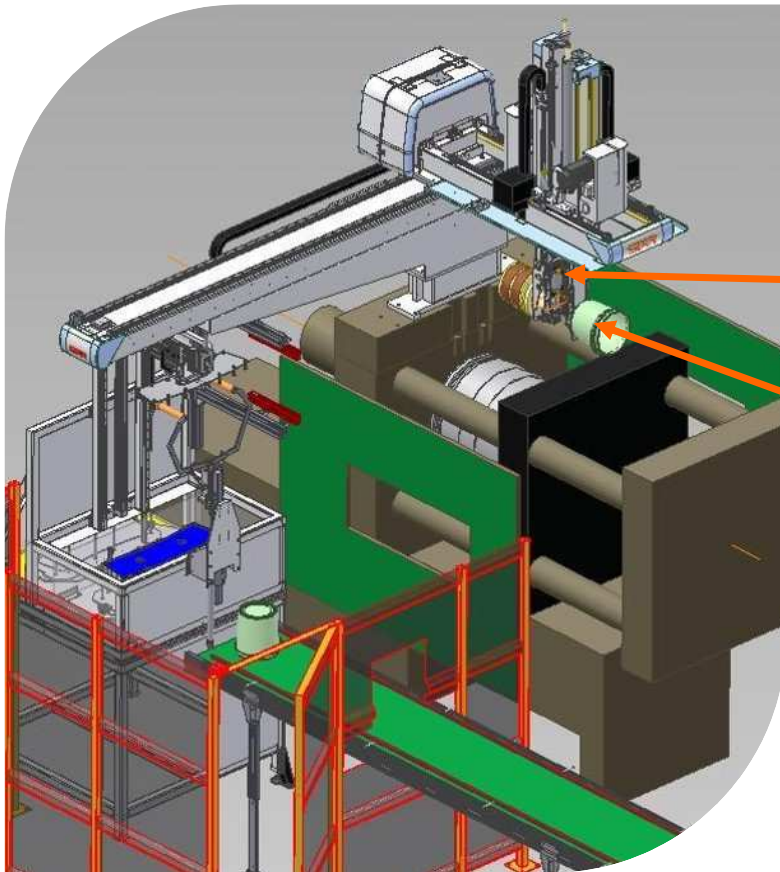
IML AUTOMATIONS with TOP-ENTRY ROBOTS



This is a really flexible solution for applications with cycle time >8 sec, used **mainly for large size products**. The open mould daylight is very little and standardised components are used as much as possible. The set-up time for production change is very short, so that the quantities of production is optimised.



IML AUTOMATIONS with TOP-ENTRY ROBOTS : 2V SOLUTION



In IML automations with top-entry robots **two vertical arms option (2V)** is also available. This way open mould time is even more reduced thus optimizing production times.

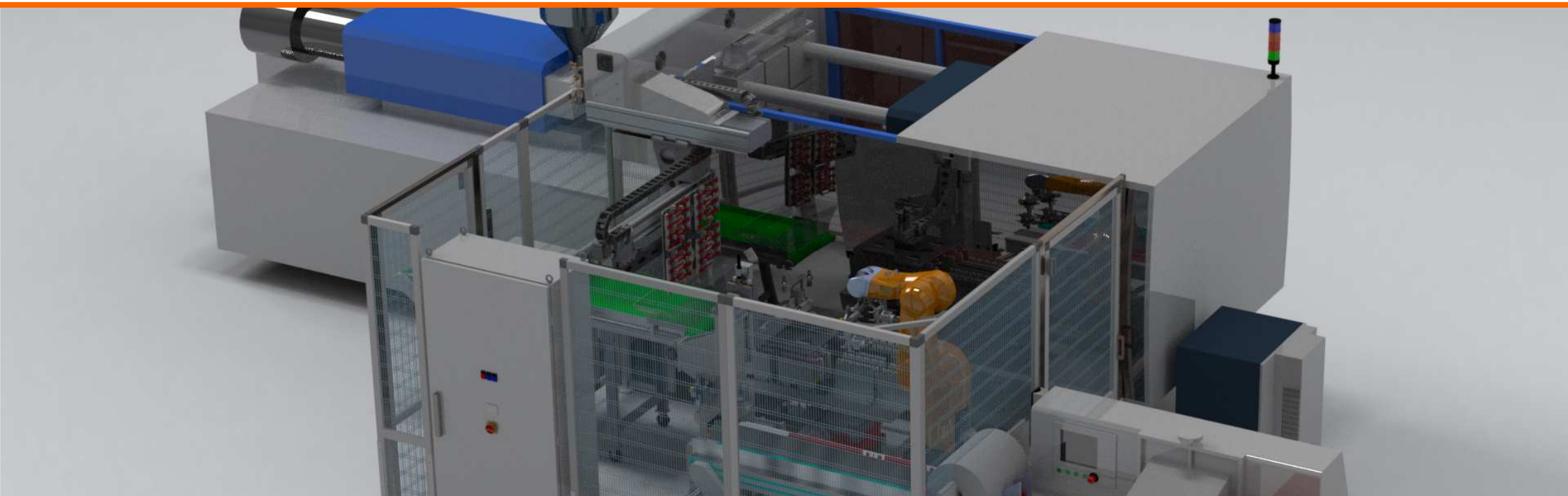
Z1 - The axis holding the label
EOAT positions it inside the mould

Z2 - The axis holding the product
EOAT one extracts it at the same
time

By avoiding the encumbrance of holding both the EOATs on the same arm, one can also save a remarkable space in open mould daylight.

DISPOSABLE CUTLERY AUTOMATIONS

The necessary attention that needs to be put into the **non-contamination** of products, their traceability and the need to reduce space during transport made Star develop turnkey automation systems specifically designed for the cutlery market and that guarantee high efficiency and reliability. Several systems designed in the last years provided Star Automation with the necessary experience to develop three standard solutions for moulds from 8 to 96 cavities. Automation systems for disposable cutlery offer the user the possibility to have a **finished packet** with the cutlery wrapped in transparent PP film and with a number of sets varying from 20 to 100 pieces.





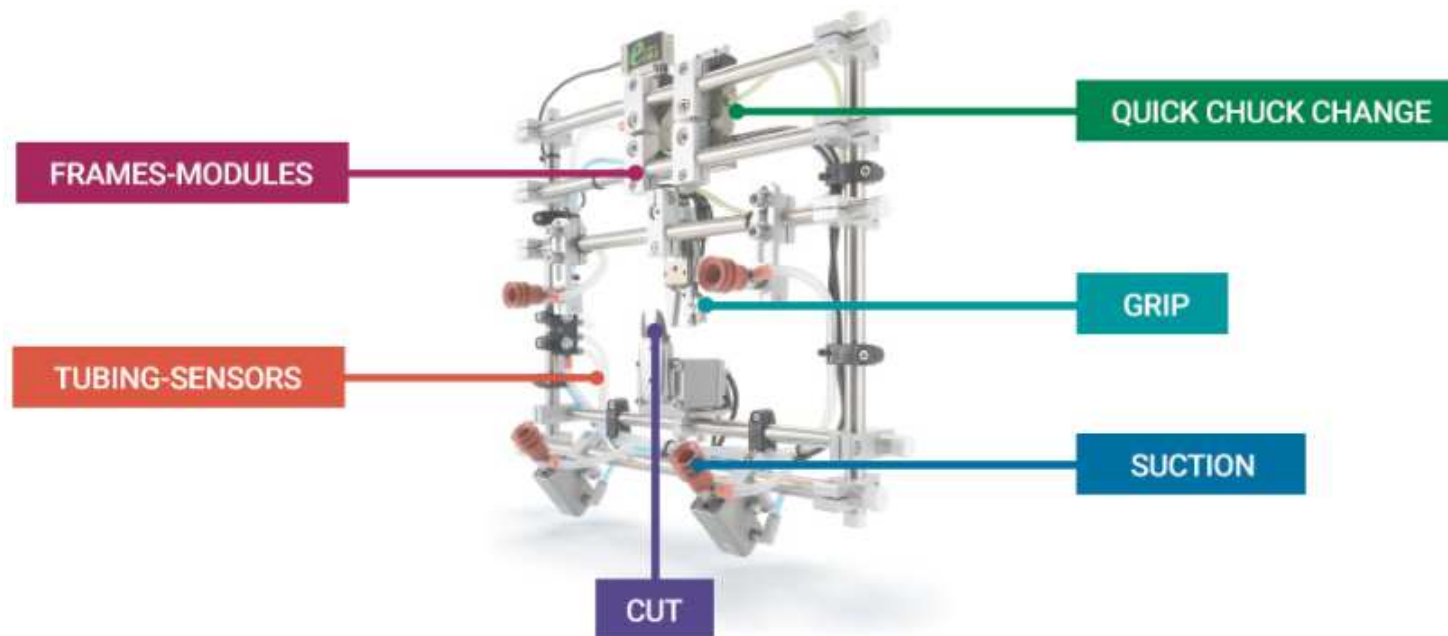
ROBOT CHUCKING PARTS





ROBOT CHUCKING PARTS

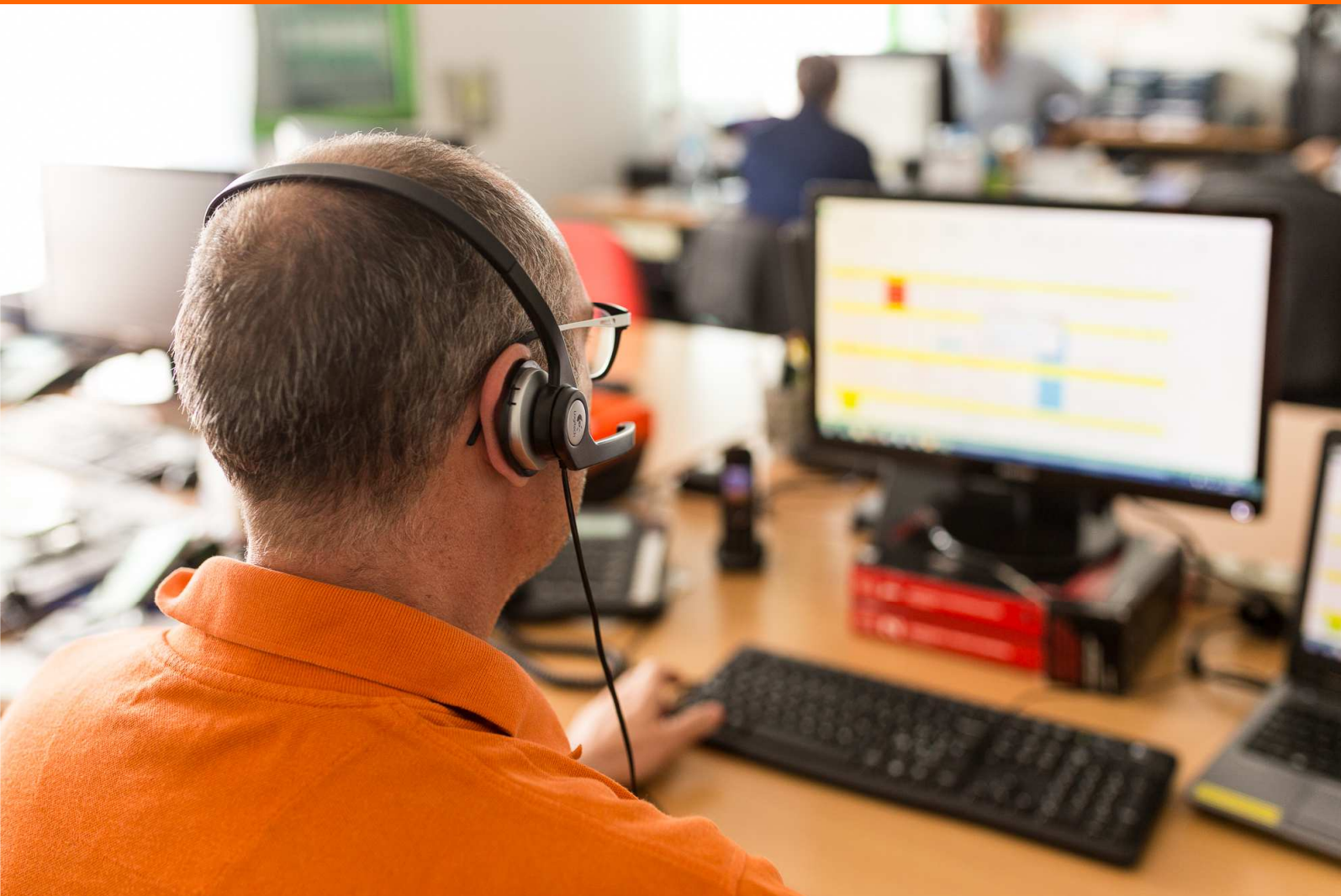
We are specialised in both designing and manufacturing chucks (EOAT) and commercialising their components in order to meet the most different requirements, providing our know-how and adequate technical support. Our components are the result of a 50-year experience in the field of plastic injection moulding. All components are specifically studied to obtain the best performances in compactness, lightness and reliability; for this reason, they are particularly indicated for multi-cavity chucking attachment. The wide range allows you to make the chuck assembly by yourself, with very low costs. Most important is also the possibility to fix our Eins components on any EOAT, despite its manufacturer.



STAR SERVICE



SAT – TECHNICAL ASSISTANCE SERVICE



Our telephone assistance team analyses customers' inquiries and guides them into the solution of the problem in the quickest way, while in case of need one of our technical personnel will visit them **within 48 hours** from the request. If you wish for more, we can also offer a **preventive maintenance** service tailored on the customer's specific needs: a strategy that assures our robots a longer, efficient life and high reliability.

SPARE PARTS

Our spare parts department is at your disposal to assist you in finding the right solution, be it the substitution of the component or its reparation. We guarantee the availability of spare parts for more than **ten years**, and an offer within 24 hours from your request.

Original parts are also **available in all Europe** thanks to our distribution network.





Your robot for injection moulding

star-europe.com

