Plastics Industry: Quick Mould Change and Process Automation
Stäubli, unique expertise in the plastics industry

All over the world, Stäubli offers manufacturers a range of connections for all types of energy and fluid. From quick-release couplings to multi-coupling plates, from robotic tool changers to Quick Mould Change system, every one of our solutions is designed to ensure equipment profitability and improve productivity.

Every customer is unique. From the simplest applications to complete solutions for Industry 4.0, Stäubli products offer meets the specific needs of each individual. Stäubli has been working in partnership with plastics processing companies for over 60 years, developing in-depth knowledge of the specific requirements of the sector and the challenges it faces.

Every day, its experience, ability to innovate and market-focused solutions help to give manufacturers a competitive edge. Mould transfer and loading, clamping, energy connections, production automation - Stäubli uses its expertise to design and produce all of its solutions to the highest standard.

“Performance, confidence, local presence, service... Put Stäubli’s expertise to work for all your applications.”

www.quick-mold-change.com
Increased flexibility and productivity

Stäubli's dedicated plastics processing solutions enhance the key workstations in the industrial process and thus drastically reduce changeover times. Our specialists can identify the optimum solution for a specific application and also provide support for more general measures to reduce down time. Stäubli's expertise and selection of extensive ranges mean that it can provide high-performance solutions for both existing installations and new equipment. This flexibility lets you upgrade your equipment at your own pace, without necessarily retrofitting every mould.

Choose reliability and safety

The plastics processing industry demands stringent quality, safety and performance standards. The reliability of Stäubli solutions is confirmed by international certifications. This ensures that your industrial plant is productive on a day-to-day basis, while optimising its service life in the long term. Often imitated, never equalled, the Stäubli brand is a guarantee of quality. Choose Stäubli originals for your entire industrial process and enjoy the benefits of our high-performance, safe solutions.
Manage the connection of all types of energies

Temperature control, core pulling, sequential injection, thermocouples...

The energy circuits associated with presses are many and varied. Stäubli offers a wide range of plastics industry-specific quick-release couplings and centralised connections for managing mould temperature, hydraulic applications and electrical circuits.

Reliable and easy to use, they are a major asset for reducing tool change times and optimising productivity.

Safety and efficiency

All of our solutions are designed to be integrated into your processes, improve production output and ensure operator safety.

The benefits are numerous:
- optimum flow and a smaller footprint provide maximum efficiency,
- ergonomic design makes for quick, easy operation,
- coloured rings and interlock systems prevent incorrectly connected circuits,
- recessed couplings protect installations during handling, etc.

You have complete control over your fluid and electrical energy connections, making production changeovers safer and faster.

Innovation

Stäubli always keeps pace with technological changes in the plastics sector and has a policy of continuous innovation and development.

Our new very high temperature couplings and latest solutions for centralised electrical circuit connection are greatly appreciated by manufacturers.

Quality and performance

System reliability and consistent component quality are central to Stäubli’s priorities.

We pay particular attention to material selection and lock security, performing unit testing to ensure optimum reliability. Systematically connecting only Stäubli sockets and plugs guarantees operator safety and equipment performance.
Mould temperature management

Whether it’s for heat transfer fluids or glycol water, Stäubli has the right connection solution for every mould temperature control process. Designed to last, our connectors provide a durable response to the demands of your applications and excellent resistance to extreme operating conditions.

Choice and performance
With the wide choice of connectors in the Stäubli range, you can design your temperature control solution from hundreds of part numbers and ranges with a variety of features:
- diameters from 06 to 50 mm,
- numerous seal materials,
- full-flow couplings and single or double shutoff versions,
- clean-break connections with non-spill flat-face technology,
- solutions for high temperatures up to 300°C,
- standard or automated manual multi-connection plates,
- rail-mounted modules and distribution manifolds,
- a wide range of options: coloured rings, rubber protectors, bridges, extensions, caps, etc.

Whatever the specifications of your application, Stäubli can provide an optimised, high-performance, cost-effective solution.
Hydraulic applications

Improving the safety and performance of core pull cylinders and sequential injection nozzle supply applications is an essential consideration for hydraulic connections.

Unfailing reliability
Specifically designed for high pressure and high temperature applications, Stäubli hydraulic connections guarantee excellent efficiency and unfailing reliability. Depending on the application characteristics and your specific requirements, our solutions can be optimised with dedicated functions:

- plug pre-centring for blind connections,
- panel mounting for two-way circuits,
- coloured rings and panels for fast circuit identification,
- protective caps, etc.

Safety and time savings
Incorporating centralised connections into your processes automates operations and increases safety. An ideal solution that lets you:

- connect all hydraulic circuits in a single action,
- avoid incorrect connections,
- reduce hydraulic control circuit response times, particularly for controlling sequential injection nozzle opening and closing needles,
- rationalise your circuits.
Electrical circuit connection

Stäubli's modular electrical power, control and thermocouple connections can be adapted to all types of application to provide efficient, reliable solutions for your circuits.

With their ergonomic design, they can be used to connect control, power and thermocouple circuits in a single movement with no risk of incorrect connection. Our connectors are designed to withstand difficult working environments, ensuring high levels of conductivity, permanent contact in vibrating conditions and reduced temperature increases.

Whatever the operating conditions, you can be sure of an efficient and highly reliable connection.

Automated connection of fluids and electricity

For fully automated applications, Stäubli develops custom solutions for connecting all of your fluid and electrical circuits using standard Stäubli components.

This solution is particularly safe and efficient for energy supply to moulds on the press and on preheating stations.
Mould Clamping

Boost productivity with a Stäubli clamping solution

Mechanical, hydraulic, magnetic

For both new and existing machines, choosing the right clamping solution is a major factor in optimising mould change operations. That’s why Stäubli offers three clamping technologies with proven reliability and efficiency.

Increase efficiency and safety levels

Clamping and unclamping operations result in down time that reduces machine productivity. They are also potentially hazardous for both people and installations. Stäubli is all too aware of these issues and continuously undertakes and invests in R&D studies and tests in order to guarantee fast, high-performance, safe solutions that are also cost-effective. As a result, Stäubli clamping systems ensure operator safety and plant integrity while making operations as quick as possible.

Backed by sound expertise, our Stäubli specialists will provide support to help you design the optimum solution, taking the following factors into account:
- mould loading direction (horizontal, vertical, vertical with rotation),
- press type and size,
- type of production (injection, composites, wax, Zamak, etc.),
- mould and tool change frequency,
- workshop automation level,
- financial constraints,

...
Mechanical manual clamping

Fast and simple - our manual bayonet system lets you clamp your moulds with a single action using a removable lever

Without interfacing, this type of mechanical clamping system can be used in a wide range of configurations:
- any small- or medium-sized machines (up to 200 tonnes),
- all temperatures (up to 200°C),
- any mould, including those with complex shapes.
Installation does not require prior training or an hydraulic or electrical connection.

Hydraulic clamping

Compact and robust, our hydraulic clamping systems are suitable for a wide range of moulding machines

This system is designed to meet all of your mould change needs, even in harsh conditions, for a wide range of injection moulding machines, at a maximum service temperature of 80°C standard (higher temperature options available). Proximity switches monitor the “clamped” and “unclamped” positions during operation.
The hydraulic system is activated either by the machines hydraulic system or by a separate hydraulic unit supplied by Stäubli.
The latest-generation IMAG interface increases productivity and safety. It takes us a step closer to the smart factory.
Operator and workplace safety
Designed to meet the most stringent safety standards and directives, Stäubli magnetic clamping makes the entire production process safer. The IMAG interactive interface guides operators through the clamping/unclamping process and provides safety alerts to prevent incidents:
- real-time display of the clamping force of the two mould halves and comparison with machine forces,
- temperature display for each mould half,
- high-precision mould movement detection for unrivalled safety,
- procedure validation.

QMC 122: a 100% Stäubli solution
For guaranteed reliability and optimum connection quality, Stäubli designs and produces every component of the QMC 122 system. The patented manufacturing process enables the system to take highly accurate measurements, meaning that it can detect even the slightest change in flow. From the electronic controller through the magnetic plate to the IMAG interface, you can be sure of a 100% Stäubli solution.

“Choosing a 100% Stäubli solution is your guarantee of safety, accuracy and reliability.”
Save time for your productivity with Stäubli mould loading systems

Stäubli plastics experts work with you side-by-side to determine the mould loading method best suited to your moulds and machines:
- mobile loading or dedicated to a single machine,
- manual or automatic loading.

These solutions apply to existing installations and tooling as well as completely new automated production systems.

Stäubli solutions for mould handling and loading significantly reduce changeover times - a decisive advantage when you have frequent production changes.

**Work safety**
Ease of mould handling, even with very large or extremely heavy moulds, ensures that your operators work safely. During loading operations, your equipment and tooling are protected from damage.

**Streamline your production environment**
Stäubli systems allow you to optimise your productivity even in the most confined spaces - with efficient mould storage, automated workflow, shortest paths, ideal tool positioning and reduced machine downtime.

Whatever the set up of your mould transfer, vertical or horizontal, Stäubli has the system that best suits your requirements:
- manual or fully automated,
- stationary or mobile.
Stationary loading tables for one or more moulds

A reliable and economical solution
Loading tables serving single or multiple machines are flexible enough to be configured to suit your requirements:
- single table dedicated to one machine,
- two-way table operating between two machines,
- pass-through system with a table on each side of the machine (one for loading and one for unloading).

For continuous production, we recommend multiple-workstation tables. The next mould can be connected to a preheating station so production keeps moving.
Mobility for your automated production area with rail-based and freely movable loading vehicles

**Mobility with complete freedom for mould transfer**
Adjustable height – the shuttle cart adjusts to each machine in any position within the production cell. During transport, cart movement and mould locking are controlled automatically.

**One step closer to automation**
With mobile handling solutions, you can reduce setup times and increase productivity even further. Rail-guided cart systems optimise mould transport between the storage area, preheating station and the machines.

**Safety every step of the way:**
- during transport - moulds are locked onto the handling system,
- during loading – the system is clamped to the machine.

For fully automated production lines, a multiple-workstation rail-guided cart is the ideal solution for an entire line of machines. It facilitates mould flow, which can be especially crucial with larger moulds.
Loading systems designed for easy mould movement

All Stäubli tables and carts are fitted with a loading system according to your specific requirements:

- **manual push** - Simple and affordable - the perfect solution for lighter moulds,
- **mechanical push/pull system** - An economical solution, with no need to install a motor on the injection moulding machine,
- **fully automated system** - Power-driven rollers are installed on both sides (machine and table or cart). They provide fast, automated mould changes.

From the simplest case to the most complex situation, Stäubli’s Research and Development team will work with you to define your requirements and design a custom solution.

“Secure and optimize your production with our custom made mould loading solutions.”
Optimize production workflow and be resolutely oriented to Industry 4.0

Stäubli’s products meet all of your automation needs:
- Tool changers for robots and handling devices
- Industrial robots and software solutions
- Maintenance stations

Robotics and energy connection: dual Stäubli expertise at your service
Wherever speed, accuracy and reliability are required, the Stäubli tool changers, robots and software solutions for automation demonstrate efficiency under any conditions.

Solutions for the automation of mould maintenance
Maximize productivity, it also takes into account the operations made out of production. With its experience in the plastics industry including for moulds loading, Stäubli offers automated and secured solutions for maintenance of large moulds.
Automatic tool changing systems for robots

Our tool changing systems for robots deliver maximum flexibility for your production

Fast and safe gripper change
Interfacing between the robot and the gripper, the Stäubli MPS multifunctional tool-change system for robots permits automated and efficient tool changes. Designed to meet your gripper and application requirements, they perform a dual function:
- locking the tool onto the robot,
- simultaneous transfer of compressed air, cooling water, electrical signals, power transmission and control data.

Time saving
Stäubli tool changers are designed for fast, repetitive tasks, delivering several benefits:
- less operator intervention,
- optimal cycle times,
- minimal downtime during mould loading,
- better multitasking...

Safety
Internal safety interlock prevents accidental disconnection, while energy can only be transmitted when the MPS robot and tool are fully engaged.

Adaptable and compact
Stäubli tool changers can handle loads in the 20 - 1,530 kg range. The satellite tool changer design allows flexible component positioning, in line with your requirements and space constraints.
Tool maintenance stations from Stäubli: the safe and efficient way to service your tools

Stäubli tool maintenance stations optimise safe working conditions, structure the maintenance process, tap into productivity reserves and thus increase your capacity to deliver.

High process reliability
Stäubli tool maintenance stations significantly increase process reliability for tool maintenance. Fast and safe maintenance procedures minimise uncertainties in the production process and guarantee your productivity.

More flexibility
The faster and more efficiently your tools are serviced, the greater the degree of flexibility with which you can respond to the needs of your customers.
Tool maintenance stations from Stäubli help manufacturers to successfully meet the increasing demands made by Industry 4.0.

Efficient solution for all test functions
Stäubli tool maintenance stations allow the performance of all requisite functional tests that are relevant to the production process:
- core pulls,
- ejectors,
- temperature control and cooling circuits,
- media/hydraulic circuits,
- hot runner system,
- electrical power and control connections.
The risk of an unserviceable tool on a machine bringing your production process to a halt is thus avoided.
The precise positioning of the tools and tool halves has a major impact on the result of the maintenance work.
**Maximum work safety**

The use of a tool maintenance station not only increases the speed and handling precision of moulds but also affords maximum protection against your team being involved in an industrial accident while they are carrying out the various stages of the work.

**Additional solutions**

Depending on your needs and the evolution of your equipment, Stäubli is able to offer additional solutions such as automatic ejector couplings hydraulically or pneumatically driven or mould locking devices.

**Individual components and complete systems**

Our expertise in plastics gives Stäubli the capability to develop solutions for other sectors and applications such as wax injection, composites manufacturing, aluminium, Zamak and magnesium die casting, metal forming and much more besides.

We invite you to call our team of specialists to discuss creating systems for your current and future projects.