

Making strong connections

Because of enhanced ergonomics, lightweight and affordable designs, newer plastic quick connect tube fittings are finding their way into an increasing number of mission-critical laboratory and industrial applications, replacing traditional metal quick connects.

To meet the stringent requirements for use in medical devices, today's plastic tube connectors must be lightweight, cost-efficient and reliable. Because of their proven use in medical applications, they are now increasingly being integrated into laboratory instrumentation and industrial equipment, where the need for reliable, critical connections is paramount, and ease of servicing vital to maintain production uptime and throughput.

In many industrial and manufacturing processes, and with laboratory and in-plant test and calibration instrumentation, plastic tube connectors are used to convey substances that can flow liquids and gases, slurries, powders and masses of small solids. Manufacturing, packaging and material handling functions in many diverse industries including food and beverage, pharmaceutical, oil and gas, alternative fuels, printing and semiconductor manufacturing have embraced plastic tubing connectors as a viable option to supply

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Plastic quick connects provide quick and easy connections and disconnections of tubing for servicing equipment, changing consumables and equipment portability.

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mission-critical functions such as liquid filling equipment, fuel supplies, and low-pressure pneumatic and hydraulic systems.

Plastic connectors are well suited for industrial and laboratory equipment because they are lightweight; offer strong chemical resistance and non-corrosive properties; feature flexible composites and configurations; and easily make connections with lower costs compared to traditional metal connectors. Nowhere is this more evident than with plastic quick connect fittings, recognized for their ability to provide quick and easy connections and disconnections of tubing for servicing equipment, changing consumables and equipment portability.

The advantages of plastic quick connects

Typically only a small percentage of a fluid handling system in a laboratory or industrial system is subjected to user interface. These

The latest plastic quick connect designs can be equipped with intuitively simplistic thumb latch and side latch mechanisms to make for easy handling in laboratory and industrial fluid management applications.

parts, however, should be well designed to reduce or even eliminate the potential for user fault. The choice of connection type depends on a variety of factors, including the expected frequency of connection/disconnection, servicing and safety needs, as well as user expertise. With so many factors to take into consideration, choosing the right connector can present significant challenges.

When frequent maintenance and servicing is required on a system, quick connects are preferred over general threaded fittings for fluid control, and can provide an advantage

to OEMs desiring to improve user interface performance. They incorporate design features that prevent spillage and minimize the potential of accidental misconnections or leakage during maintenance and servicing.

Equipment maintenance and repair contribute to overall process downtime. Quick connects help minimize service-related downtime by providing quick and easy access to fluid lines that may need to be disconnected during repair and maintenance processes.

Key features include built-in shut-off valves that automatically close the line to



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stop the fluid flow and prevent leakage while the line is disconnected. Conversely, quick connects can be equipped with open-flow valves that will allow a desired consistent flow, with little flow path impedance, to minimize disturbance to media and allow maximum flow rates—both critical considerations in a number of applications.

Many metal and plastic quick connects, however, are limited by their lack of ergonomics and ease of use, making it difficult for users to understand how to operate and manipulate them. For example, determining how to execute the basic disconnection can sometimes present a significant challenge, creating safety risks and unnecessary inefficiencies while fumbling with connections. These drawbacks have inhibited quick connect usage by OEM designers, and reduced their effectiveness by frustrating end users and increasing the incidence of spillage and misconnects.



The MQC Series quick connect from Value Plastics provides large, ergonomic buttons that make an audible click on connection, and grips for easy handling, even with gloves.

Streamlined human interface simplifies use

The latest advances in plastic quick connects deliver an improved level of human engineering, ease of use and operator intuitiveness. These new quick connectors are equipped

with intuitively simplistic thumb latch and side latch mechanisms, for one hand connection and disconnection, which make for easy handling.



The latest advances in plastic quick connects deliver an improved level of human engineering, ease of use and operator intuitiveness.

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Dual Latch Quick Connect Interface – One of the newest and most versatile plastic quick connect solutions available for laboratory

and industrial applications incorporates an intuitive dual latch push-to-connect design, using large, ergonomic buttons that provide an

audible click on connection, and grips for easy handling, even with gloves.

One new version of this efficient dual latch design is the MQC Series made by Value Plastics, a Nordson Co. These male and female connectors are made from nylon and buna-N materials, which are autoclavable, ethylene oxide (EtO) compatible and gamma radiation stable, and capable of a working pressure up to 30 psi. They also provide strong chemical resistance and are great for higher temperature applications.

The new dual latch design of quick connect maximizes ease of handling and prevents misconnections.

Thumb Latch Quick Connect Interface –

The latest plastic quick connect thumb latch designs feature ergonomic grips and automatic shut-off valves for better connecting and disconnecting ease and optimum fluid control. Maximizing convenience and versatility, one such new design from Value Plastics universally interchanges with other thumb latch plastic connectors, and may be used with PVC, polyurethane, silicone and other types of flexible tubing.

These new thumb latch quick connectors– produced in acetal and polypropylene for a variety of application uses—are designed with single barbs capable of increased pull-off resistance when compared to multi-barb styles. Proven to provide a more secure seal and superior tubing retention, this design feature minimizes the prospect of leaks and accidental disconnection.

These new features in plastic quick connects enhance operator ease of use, and expand the range of available options for the design of laboratory and industrial equipment by OEM designers.

Side Latch Quick Connect Interface –

Significantly improving on the intuitive use aspect of quick connects, new plastic side latch designs achieve an almost instinctive ease of use. One Value Plastics design, which is available in nylon and for use in small-bore applications in many fluid delivery areas, is particularly intuitive. Users automatically know how to operate the quick connect the minute they pick it up.

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These plastic side latch quick connectors are proving to be easy to use, safe, secure and reliable. Audible clicks on connection, ergonomic shape and design simplicity—all aspects of these connectors were engineered to cut down on the likelihood of human error.

Quarter Turn Lug Style Interface – A popular connector in instrumentation applications, this connector employs a rotating lug style latch mechanism with an audible click, and a visible indication when the pair is fully connected. The interlocking teeth provide an inherently rugged connection, and the rotating collar allows for independent rotation to prevent tube twisting and kinking.

The new BPL Series version of the connector line by Value Plastics is significantly easier to use than current commercially available lug style connectors. Its ergonomic ten-point grip on both halves of the connector

and additional gripping area allow for easier opening and closing of the connector, while two wings have been added to the male side to further facilitate connector operation. This connector offers a feature-rich quick connect.

An attractive option for OEMs

Although plastic quick connects may not be applicable for all plant and laboratory uses—high pressure pneumatics and hydraulics where metal is generally required, for example—their light weight, design flexibility and ergonomics make them suitable candidates for many applications, such as liquid transfer and filling processes, operating and integrating portable instrumentation, and where fluid connections between flexible equipment are required. Additionally, because of cost considerations using metal quick connects is sometimes prohibitive. Plastic quick connects present a price point significantly less than

metal connectors, enabling OEM designers to more liberally specify their use, incorporating more features and better ergonomics with less cost. 

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