

# Ensuring trouble-free fluid connectors

Every device maker needs to know and follow these guidelines.

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The key to choosing the right tubing connector is found in the details – tubing size, flow rate, pressures the tubing and connector must withstand as well as viscosity and corrosiveness of the fluid that the device will be handling.

If it is important that your device be assembled quickly, and if the fluid lines will not need to be disconnected again, then a hose barb fitting or an instant fitting offers a viable, low-cost solution. There are multiple styles of barb designs available and you should look to a supplier who offers expertise in specifying different barb designs and styles for specific application needs.

Similar to a fitting, luers allow for disconnections, especially in disposable applications. A luer connector consists of a 6° tapered “male” fitting that slips into a similarly tapered “female” fitting. Slip luers are typically held together by a simple pressure and twist fit. A luer lock connector has a threaded collar added to the “male” fitting and a threaded flange on the “female” fitting that screw together to provide a more secure lock. If the application doesn't need a valve to prevent spills, doesn't require higher flow, and if the connector needs to be disconnected only occasionally, a luer may be a good choice.



**Advanced hybrid and multi-tube connectors make medical devices and equipment safer and easier for clinicians and technicians to use.**

Couplings are designed for repeated connection and disconnection cycles. Standard couplings – with or without valves – allow tubing to be reliably connected and disconnected without the use of tools. If the user of your device will connect and disconnect a tubing interface repeatedly, a coupling makes that job much easier, cleaner, and much more reliable.



**Quick disconnect couplings, fittings and small bore tubing connectors are used to make trouble-free connections on medical devices and equipment.**

## Cutting-edge connectors

Hybrid quick connectors allow a device to have one single connection point to make all fluid, electronic, and other connections between a tool or handpiece and its controller. This brings multiple lines into a single, simple connector that allows an intuitive way to connect multiple lines on highly complicated medical devices. Hybrid connectors provide a simple user interface, which can speed connection as well as reduce operator error and manufacturer liability.

Highly specialized connectors can also incorporate an embedded RFID tag which can be pre-programmed with data relating to usage, date code, or whatever data that manufacturer deems necessary. For example, upon connection of a surgical instrument to the control device, the device will read the data stored on the tag located in the disposable portion of the connector to determine if this disposable component



**Leak-free tubing connectors ensure faster, safer connections in busy healthcare environments**



**Quick disconnect couplings are available in multiple material types to ensure compatibility with a wide variety of medical applications**

is approved for use. The device can then use this information to automatically configure the device for the procedure, check to confirm a disposable tool has not been reprocessed and reused, or even use the data for inventory control. The power of an RFID enabled connector can not only make a trouble-free connector, but a trouble-free device, as well.

One issue becoming critical in medical tubing applications is accidental misconnections, particularly with luers. If your device will be used in environments where it could accidentally be connected to a different, incompatible device, a non-luer connector can not only be trouble-free, but it can also be a life saver. Specialized connectors with RFID are one option, but so are small-bore connectors designed not to mate with standard luer fittings, color-coded connectors, or even connectors with mechanical keys to prevent misconnections. †

## Talking points

A connector is only trouble-free if it remains leak free and meets end-user expectations. Device makers need to look beyond the technical aspects of the connection and the device. Put yourself in the end user's shoes and discuss the following with your connector supplier:

- How and where your device is going to be used, and who will be using it.
- Tools needed for disconnecting.
- Degree of difficulty, particularly when there are multiple connectors on a device.
- Level of simplicity when it comes to recognizing where the connection is made.

When all these factors are properly addressed early in the product-development process, trouble-free connections are virtually guaranteed.



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