

Connectivity options: DIN and Deutsch connectors

Choosing pre-wired connector solutions for hydraulic valves eliminates time-consuming terminations of hundreds of wires for easy installations.

Paul Badowski | OEM Account Manager | Cross Co.

Many benefits can be seen from using pre-wired DIN-style cables on mobile machinery, particularly for use on solenoid valves, pressure switches, and other devices. DIN connectors have been used in the industrial and mobile market in these devices for decades. They can be ordered from a variety of sources, as pre-wired, molded, and tested. Users can select the length of the cable, type of wire, and even add circuit protective diodes, resistors, timers, or indicator lights. Their use and design are simple and intuitive.



Taking this a step further, adding a secondary connector on the opposite end allows you to plug the connector directly into a remote output block that is hooked into the machine network. This removes the need for complicated termination of hundreds of wires and only requires the network connection. Each connector is factory tested and plug-and-play. Wiring labor costs are dramatically reduced.

Introduction of Deutsch connectors

Over the last few years, mobile machine products have seen rapid growth in the use of Deutsch-style connectors. The smaller size, improved environmental sealing, and push-to-lock connection are an improvement over the DIN-style plug. Many wiring harnesses use the multi-pin Deutsch configuration and then break out into the smaller two-pin Deutsch for direct connection into the device. However, the 12- and 24-V mobile systems don't have the third or fourth wire requirement that is available in the DIN style connector.

Selecting between DIN and Deutsch

Canfield Connector has been supplying pre-wired DIN connector solutions since the early 1980s. Reviewing two of its available options will help determine which connector is best suited for the changing industry.

The first Canfield product is simple — a pre-wired Deutsch two-pin connector

***Hydraulic valve manifold** often use pre-wired DIN and Deutsch connectors for simple and intuitive design.* | *Courtesy of Cross Co.*

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with indicator. Canfield's GatorMate GT connector allows smaller OEMs to use Deutsch connectors without having to purchase special crimping tools and supplies required to use the Deutsch style connectors. Many Deutsch connectors require multiple steps and tools for installation.

According to Pat Byce, Marketing Coordinator for Canfield, its series GT male plug is available in both 2 and 3 pin versions both with or without LED indicators. A receptacle option is available for the 2 pin version and provides a complete molded solution for both connector ends.

The GatorMate GT series molded receptacle and plug mobile connectors have all the positive attributes of the basic Deutsch style but enhance the wired section of the connectors accommodating a molded-jacketed cable with added features of indicator lights. These rugged connectors feature an IP67 rating and are shock, vibration, moisture and dust resistant. The compact and robust design gives the user the ability to see power applied and holds transient voltage/current within the connector.

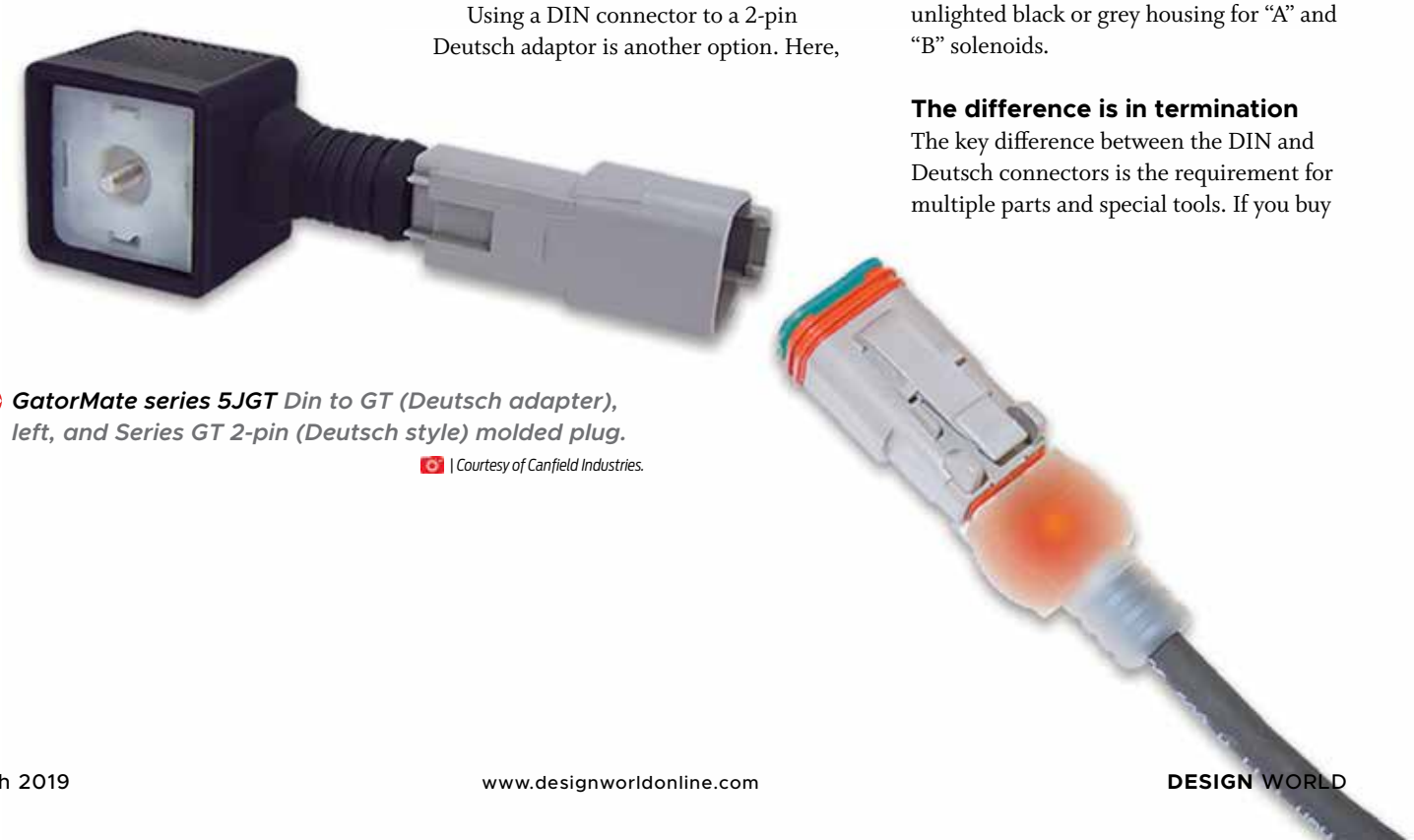
Using a DIN connector to a 2-pin Deutsch adaptor is another option. Here, this pre-wired design allows you to use the Deutsch technology on applications that already have the DIN style in place or where there is not an option to change the product to Deutsch connectors directly at the source. Simply plug in the adapter and you've now changed the connector style to Deutsch.

"The Series 5JGT allows anyone to use a series GT Connector or 'Deutsch' style connector with their existing solenoid valve din coils," Byce said. "Users like the idea of using the Deutsch style because of how simple it is to connect and disconnect, plus it takes up a smaller space. The 5JGT makes it simple so that nothing else but the connector would need to be changed."

The rugged 5JGT connector marries Canfield's popular fully molded 5J connector to the Deutsch style GT 2 pin receptacle connector, exceeding expectation. The over-molded 5JGT mobile hydraulic DIN Style "A" EN175301-803 (Formerly DIN 43650) to GT DT04-2P Adapter/connector solution is designed for use with hydraulic valves to facilitate connection to the DT06 mating connector. The connector is available with indicator lights and surge suppression and unlighted black or grey housing for "A" and "B" solenoids.

The difference is in termination

The key difference between the DIN and Deutsch connectors is the requirement for multiple parts and special tools. If you buy



***GatorMate series 5JGT** Din to GT (Deutsch adapter), left, and Series GT 2-pin (Deutsch style) molded plug.*

| Courtesy of Canfield Industries.



***Valve manifold** using GatorMate 5JGT Din to GT (Deutsch) adapters.*

| *Courtesy of Canfield Industries*

an un-wired DIN connector, it comes with all of the parts necessary to wire the connector yourself. You simply need to disassemble the connector, insert the wire, strip back the individual wires, and install into the terminals. The only required tool is a small electrician screwdriver to loosen and tighten the terminals.

With the Deutsch connector, users must specify several parts. Depending on the wire size and connection type (male or female), you'll need to order socket or pin type, solder or crimp type. The connector body, a wedge, and the connector cover and seal are also required. The parts are relatively inexpensive and many options are available. If you choose the crimp style, you will also need a specialty crimper to ensure a positive and secure connection.

Once the wires are attached to the connections, the connections are pushed into slots until positively seated and then the wedge, connector cover, and seal are installed. Although the process is somewhat complicated, after several times it becomes intuitive. But in the end, the electrician can spend their time doing much more meaningful tasks, so using pre-wired designs should be chosen to save time and cost.

Conclusion

When selecting hydraulic valve connectors, consider the cables that come with them. Pre-wired two-pin Deutsch connectors come standard with a 6 or 15-ft long cable and would cover most requirements. Specialty lengths are also available. Use is simple — plug in the cable and terminate the two wires. In quantity, you can order these with an additional cable installed on the opposite end for a complete plug and play system.

These cables are available unlit or with choice of an indicator light, solenoid valve, and pressure switch. With the solenoid style indicator, the indicator glows when there is power to the solenoid. With the pressure switch style indicator, the indicator glows when the switch contacts are made. A variety of ac/dc or combination voltages are available with a 10 A rating. DW

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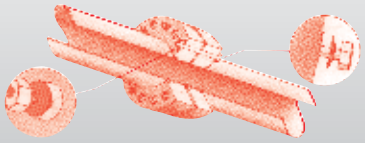
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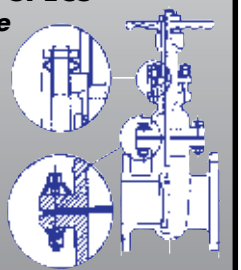
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