

## Case Study

# A Lesson in Welding Safety with Switch-Rated Plugs and Receptacles

## ODESSA, TX

Teaching basic welding skills is only part of the welding curriculum offered by Odessa College. Since welding has the potential for many kinds of safety hazards, the welding students at Odessa College are schooled in workplace safety from the very beginning of their practical training. Reducing the risk of electric shock and arc flash is an important element of lab safety. So, when Jim Mosman, Odessa Dept. Chair and Associate Professor of Welding Technology, was considering different types of power connectors for the Welding Lab's machines, he chose MELTRIC Switch-Rated plugs and receptacles. "My reason for choosing the MELTRIC products was primarily the safety factor of the plug's integral switching mechanism," said Mosman.

### Training the Welders of Tomorrow

Established in 1946, Odessa College is a public two-year junior college based in Odessa, Texas. It serves about 5,000 students annually in its college and occupational/technical courses. Odessa's welding technology program is one of the most successful training programs of the college. It's seen an immense amount of growth in enrollment because of the high job demand for welders in the oil industry.

After obtaining funding from a community bond, Odessa College allocated \$1 million to remodel the school's Welding Training Center: a 12,350 square foot area that includes an 8,630 square foot lab space with four lab areas and 75 booths for welding students. "As part of the remodeling, we wanted to replace the power connectors and outlets that were of varying types to provide consistency for the students," said Mosman. "Since some of them were clumsy units that had been installed over the last 40 years, we looked for something that was safe, easy to use, compact, and looked good. MELTRIC met all of our requirements, so we purchased 55 plugs for 60 machines, and are very satisfied with their performance."

### Safety is the Top Priority

"At Odessa, safety is the top priority," said Mosman, "and MELTRIC plugs make life easier, save time, and maximize lab safety." Mosman has been a welding instructor for 27 years, and has seen many different kinds of power connectors. "When I was shopping around for welding machine plugs, and saw MELTRIC connectors in a welding industry trade journal, I was immediately interested. I was looking for something that was safe,



Exclusive safety features make MELTRIC Switch-Rated plugs and receptacles ideal for connecting power to welding machines at Odessa College.



Changing out welding equipment in Odessa College's welding booths is easier with MELTRIC Switch-Rated plugs and receptacles. They feature an integral switching mechanism that allows safe make and break, even under full load.

but also was easy to operate and aesthetically pleasing. When I got some samples, and tested them, I was immediately sold on MELTRIC plugs.”

MELTRIC Switch-Rated plugs and receptacles have been used for decades in the welding industry because of their switch-rating, making them uniquely designed for safety in a training environment. MELTRIC Switch-Rated plugs and receptacles combine the safety and functionality of a disconnect switch with the convenience of a plug and receptacle in one device. They are ideally suited for safely making and breaking electrical connections on portable welding equipment.

To eliminate the risk of arc flash and electric shock, the plug seals all the live parts in an enclosed arc chamber shrouded by a safety shutter. Because users can't access live parts, the plug offers the highest level of safety in the welding industry. As a result, students who operate MELTRIC devices are never exposed to arcing because the plug is always deenergized before it can be removed from the receptacle. The separation of the plug and receptacle provides verification of deenergization, so voltage testing is not required. The receptacle's safety shutter prevents exposure to live parts, which simplifies NFPA 70E compliance and eliminates the need for cumbersome PPE to operate the plug and receptacle.

## Simplifying Welding Machine Changeouts

Simplifying welding machine changeouts with MELTRIC devices is a quick and easy operation since an integral spring-loaded switching mechanism does the work to disconnect the plug, instead of the operator's physical motion. To disconnect a MELTRIC Switch-Rated device, an operator depresses the pawl, which releases the energy of the spring-loaded operating mechanism to instantaneously break the circuit and eject the plug to the 'OFF' position. The quick-break mechanism is automatically reloaded when the plug is re-inserted.

MELTRIC Switch-Rated plugs are built with end-to-end contact mating instead of sliding contacts to provide a solid connection; spring-loading produces optimal contact pressure, ensuring the integrity of the electrical connection over thousands of operations. MELTRIC Switch-Rated plugs are UL/CSA rated up to 200A and 100 hp for motor and branch circuit disconnect switching. They meet NEC 'line of sight' requirements as a disconnect switch, and can safely make and break connections under full load. When used on an extension cord, they function as an inline switch.

Mossman concludes, “We previously had connectors that were difficult to use, which made it challenging to change out welding machines from booth to booth. The changeouts have been simplified with MELTRIC plugs. They are a safe, efficient switch that's quickly connected and disconnected.”



*MELTRIC Switch-Rated plugs and receptacles meet NEC requirements as a 'line of sight' disconnect switch. Depressing the pawl on the receptacle (red dot) breaks the connection and ensures safe removal of the plug from the receptacle.*



*Welding equipment changeouts at Odessa College are simple and safe because the MELTRIC Switch-Rated plugs and receptacles protect operators from live parts and eliminate arc flash at disconnection.*