



**Milwaukee Valve Company**  
**Engineering Department**

16550 West Stratton Drive  
New Berlin, WI 53151  
Phone (262) 432-2800 Fax (262) 432-2801  
www.milwaukeevalve.com

**TECHNICAL BULLETIN**  
Installation of Socket Weld  
Valves and Related  
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This technical bulletin addresses issues related to welding soft seated socket weld (SW) ball valves in line. It is generic in nature, and meant to highlight the considerations in play relative to heat generated by welding, specifically seat and seal damage caused by heat, and ways to prevent or mitigate such damage.

Milwaukee Valve offers valves that can be welded in line without damage to the valve internals, provided proper weld procedures are used. These valves are our 41 series (with extended ends integral to the castings), and our 30 or 35 series with extended ends (these valves have pipe or tube welded into the SW fittings at the factory). Milwaukee Valve recommends extended end valves be used whenever in line welding without disassembly is needed.

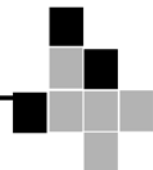
Even with extended ends, it is important to follow certain steps to prevent overheating and seat damage. We recommend putting heat sinks around the piping **AWAY** from the valve, allowing the welds to cool between passes by alternating ends of the valve, and otherwise keeping heat input as low as possible within the applicable weld procedure specification (WPS). Milwaukee Valve publishes specific guidelines on various product IOM's to further detail these techniques.

For 3-piece valves without extended ends (30 and 35 series), Milwaukee Valve strongly recommends disassembling the valves prior to welding the pipe to the ends. This is to prevent overheating and consequent damage or destruction of the seats. If the body seals are PTFE, they should also be removed from the ends before welding to prevent heat induced damage. If the seals are graphoil and otherwise intact, they may be left in place during welding.

It may be theoretically possible in special cases to apply the techniques given for the extended end valves and weld a non-extended end valve into the line without disassembly. In spite of the fact that it might be possible, we still do not recommend this practice, as it involves risk that is easily mitigated otherwise, and furthermore, even if the valve appears to work acceptably after the welding in line, it is still possible that significant damage has occurred that might result in a premature failure of the seats during a critical operating period for the system.

Once the valve or ends are welded in line and the valve reassembled, the system should be pressurized and the integrity of the body seals, packing, and seats verified. Such testing should be in compliance with industry accepted standards such as ASME B16.34 and API 598. In no case should the seats be subjected to pressure in excess of the maximum operating pressure marked on the valve. If the system is to be tested at shell pressure, the ball in the valve should be brought to the 45 deg. position prior to the test. If any leakage is seen, first tighten body bolting or gland packing as applicable and

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This bulletin is intended to provide our customers with the latest information regarding our valve products and services. The information is based on our experience as a supplier, and on the best data available at the time of publication. All users of this information are reminded that ultimate responsibility for the final selection of valve configuration, materials, and options remains the end user's. Milwaukee Valve Company does not warranty valves for specific applications. In all cases, our standard warranty applies. This information is subject to change without notice; for updated information and/or additional support, contact Milwaukee Valve Co. engineering at 414-744- 5240, or via email at [engineer@milwaukeevalve.com](mailto:engineer@milwaukeevalve.com).



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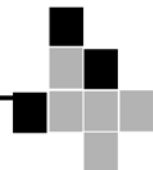
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retest. If leakage persists, investigate the welding approach against the points of this bulletin. If the recommended practices were not followed, call Milwaukee Valve for replacement soft goods kits to try in the item – frequently the seats and/or seals may have been heat damaged and fresh replacements take care of the problem.

Milwaukee Valve Company reminds our customers and end users that we manufacture valve products to industry specifications; all decisions regarding valve installation are job specific and the responsibility of the end user or his engineering designee to resolve.

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