

## NELSON STUD WELDING

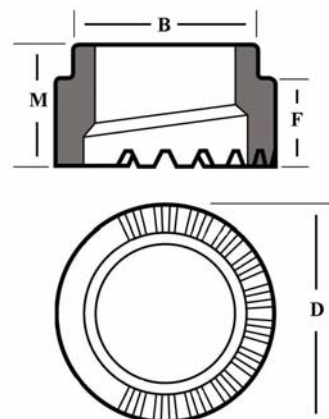
### FERRULE SPECIFICATIONS: Special Ferrules for Welding to Vertical Surfaces

When welding to a vertical surface, gravity causes molten metal to flow to the bottom side of the ferrule. There is an increased tendency toward metal loss through the ferrule vents, and it is more difficult to displace the metal to the top of the weld. This is important for the development of a full flash is formed and no undercut produced.

On small diameters, vertical welding presents no real problem. The weld time is short, and there is not much molten metal produced.

However, because longer welding times are required to weld larger diameter studs, more molten metal is produced in the process. With more molten metal, welding to a vertical surface proves to be more difficult with a larger diameter stud. The use of standard ceramic ferrules resulted in poor weld flash formation on the “top side” of the weld fillet, and excessive metal loss out of the vents at the bottom of the ferrule.

Ferrules specifically designed for vertical plate stud welding have blocked vents at the bottom of the ferrule cavity and other features to prevent weld metal loss, and deposit more of the fillet metal at the top of the weld.



Stud Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
0.500 and under	No Special Ferrule is Needed				
0.562	0.785	0.905	0.277	0.433	100101234
5/8	1.030	1.150	0.339	0.526	100101224
0.680	1.030	1.150	0.339	0.526	100101214
3/4	1.015	1.215	0.486	0.676	100101226
7/8	1.210	1.410	0.545	0.836	100101235

The neck diameters of the ferrules are shown to assist in the selection of ferrule tube, ferrule holders, and foot plates.

7/8” ferrule, #100101235, is not recommended since it may not always produce a full weld flash that will pass the AWS D1.1 360° Visual Inspection Test. If 7/8” studs are welded to vertical surfaces, the contractor should be prepared to repair the tops of the weld flash on studs that do not have the full 360° weld flash.

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