

NELSON STUD WELDING

FERRULE SPECIFICATION

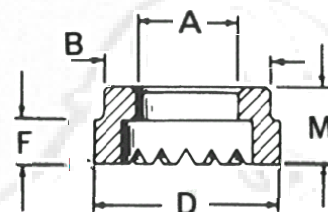
Ceramic ferrules are an essential part of the standard drawn arc stud welding process. They are designed to encircle the weld stud to protect the weld arc and limit it to a specific area of the base material. They also contain the molten weld metal and act as a mold to give a uniform shape to this metal, also called the weld flash. The term, weld flash, is used to distinguish the weld metal at the base of a stud from the weld metal deposited by other arc welding processes, which is called weld fillet.

Standard Ferrules

These studs are intended for welding round studs perpendicular to flat surfaces.

*Full Base – These standard ferrules are standard ferrules supplied with full weld base **NBL, TBL, H4L, S3L, and D2L** studs.*

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
#6	0.138	0.281	0.375	0.234	0.390	100101001
#8	0.164	0.291	0.375	0.234	0.390	100101002
#10	0.187	0.305	0.390	0.234	0.390	100101003
1/4	0.250	0.505	0.640	0.286	0.437	100101067
5/16	0.312	0.445	0.578	0.234	0.390	100101007
3/8	0.375	0.650	0.795	0.228	0.390	100101099
7/16	0.437	0.585	0.703	0.234	0.422	100101009
1/2	0.500	0.785	0.875	0.228	0.390	100101114
9/16	0.562	0.785	1.030	0.328	0.515	100101011
5/8	0.625	1.030	1.150	0.339	0.526	100101187
3/4	0.750	1.030	1.215	0.469	0.656	100101152
13/16	0.813	1.210	1.735	0.260	0.464	100101178
7/8	0.875	1.210	1.413	0.545	0.732	100101140
1	1.000	1.406	1.610	0.633	0.820	100101045
1-1/8	1.125	1.541	1.765	0.503	0.815	100101143
1-1/4	1.250	2.015	2.015	1.030	1.030	100101146



To determine the ferrule grips, ferrule holders, or ferrule tubes that can be used with specific ferrule types, look at the neck diameter (inside diameter) of the ferrule, then look in the accessories catalog for ferrule grips, holders, or tubes to match that inside diameter.

Full Base – Thin Wall – These special order ferrules are available for full base studs to accommodate special situations or fixturing.

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
1/4	0.250	0.380	0.455	0.265	0.390	100101006
3/8	0.375	0.505	0.640	0.234	0.390	100101008
1/2	0.500	0.650	0.795	0.250	0.438	100101010
5/8	0.625	0.785	1.030	0.328	0.515	100101012

*Full Base – Low Profile, F-139 – These ferrules are available for **short studs***

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
#10	0.187	0.305	0.390	0.125	0.250	100101063
1/4	0.250	0.370	0.455	0.125	0.250	100101077
5/16	0.312	0.505	0.596	0.125	0.250	100101030
3/8	0.375	0.585	0.675	0.125	0.250	100101031
7/16	0.437	0.650	0.740	0.125	0.281	100101032
1/2	0.500	0.785	0.875	0.174	0.330	100101033
1/2	0.500	0.921	1.030	0.125	0.312	100101119
5/8	0.625	0.921	1.030	0.187	0.375	100101126
3/4	0.750	1.210	1.413	0.203	0.390	100101133
3/8	0.375	0.785	0.875	0.160	0.281	100101101
1/2	0.500	1.062	1.187	0.125	0.281	100101122

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Threaded Pitch Diameter, F-239 – These studs are used with **CPL** type studs.

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
1/4-20	0.215	0.380	0.455	0.125	0.250	100101034
5/16-18	0.275	0.445	0.535	0.125	0.250	100101035
3/8-16	0.330	0.505	0.595	0.139	0.264	100101036
7/16-14	0.388	0.585	0.675	0.173	0.329	100101037
1/2-13	0.448	0.650	0.740	0.206	0.362	100101038
5/8-11	0.562	0.785	0.905	0.277	0.433	100101039
3/4-10	0.680	1.030	1.150	0.339	0.526	100101040
7/8-9	0.797	1.210	1.330	0.406	0.593	100101041
1-8	0.915	1.406	1.526	1.474	0.661	100101042

Full Threaded, F-107 - These studs are used with **CFL** type studs.

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
5/16-18	0.312	0.445	0.578	0.281	0.437	100101024
3/8-16	0.375	0.505	0.640	0.281	0.437	100101025
7/16-14	0.437	0.585	0.703	0.281	0.469	100101026
1/2-13	0.500	0.650	0.795	0.281	0.469	100101027
5/8-11	0.625	0.785	1.030	0.390	0.579	100101028
3/4-10	0.750	1.030	1.180	0.390	0.595	100101029

Collar Studs, F-172 - These studs are used with **CKL** type studs.

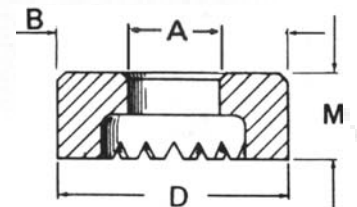
Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
#10-24, 32	0.187	0.650	0.740	0.090	0.195	100101060
1/4-20	0.215	0.785	0.875	0.095	0.235	100101066
5/16-18	0.275	0.785	0.875	0.095	0.235	100101073
3/8-16	0.330	0.785	0.875	0.095	0.250	100101083
1/2-13	0.448	0.921	1.030	0.125	0.250	100101118

Reduced Base, F-106 - These studs are used with **CJL** and **NJL** type studs.

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
#10	0.187	0.305	0.305	0.234	0.390	100101015
1/4	0.250	0.380	0.455	0.175	0.390	100101016
5/16	0.312	0.445	0.578	0.281	0.437	100101017
3/8	0.375	0.505	0.640	0.281	0.437	100101018
1/2	0.500	0.650	0.795	0.327	0.515	100101020
5/8	0.625	0.785	1.030	0.391	0.579	100101021
3/4	0.750	0.921	1.100	0.391	0.595	100101022

Aluminum Studs, F-250 - These studs are used with **HBA**, **CKA**, **TBA** and **NBA** type studs.

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height Overall M	Ferrule Part Number
3/16	0.187	0.750	0.750	0.250	100101046
1/4	0.250	0.750	0.750	0.250	100101047
5/16	0.312	0.750	0.750	0.250	100101048
3/8	0.375	1.000	1.000	0.385	100101049
7/16	0.437	1.000	1.000	0.385	100101050
1/2	0.500	1.000	1.000	0.385	100101051



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Special Ferrules ****Internal Use Only****

These studs are intended for welding round studs to flat surfaces.

Low Profile

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
1/2	0.500	0.785	0.875	0.125	0.281	100101115

Special Collar

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
1/2-13	0.448	1.062	1.187	0.125	0.281	100101122
1/2-13	0.448	1.030	1.187	0.125	0.281	100101239
3/4-10	0.680	1.030	1.150	0.296	0.483	100101135

Special Short CFL, Full Threaded

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
3/8-16	0.375	0.505	0.615	0.132	0.250	100101083

Non-Skid, Heavy Duty

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
5/16	0.312	0.650	0.795	0.228	0.390	100101184
1/2-13	0.448	0.785	0.905	0.114	0.362	100101202

Short, Heavy Duty

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
3/8	0.375	0.650	0.795	0.125	0.250	100101225

3/4 Special, Small Vent

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
3/4	0.750	1.030	1.215	0.469	0.656	100101232

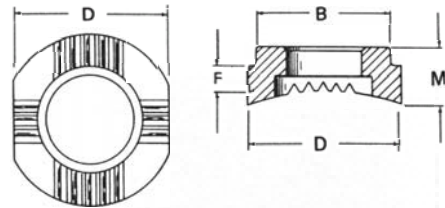
Special

Nominal Stud Size	Inside Diameter A	Neck Diameter B	Major Diameter D	Height to Neck F	Height Overall M	Ferrule Part Number
10 ga.	0.134	0.260	0.260	0.385	0.385	100101233

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Special Concave Ferrules for Welding to Curved Surfaces

For many applications, studs must be welded to the outside of curved surfaces of cylinders, tubes, pipes, or formed metal parts. In order to achieve good weld results when stud welding to a convex surface, the ferrule must fit both the stud diameter and the curve of the base material.



Below is a partial listing of ferrules that Nelson can provide for welding to curved surfaces.

Standard Concave Ferrules

Nominal Stud Size	Inside Diameter A	Weld Surface Curve Diameter	Effective Height F	Grip Neck Diameter B	Major Diameter D	Ferrule Part Number
1/4	0.250	3/8	0.380	0.380	0.555	100102005
5/16	0.312	3/8	0.250	0.505	0.595	100102054
0.330	0.330	1/2	0.303	0.585	0.703	100102051
3/8	0.375	3/4	0.235	0.785	0.875	100102093
3/8	0.375	7/8	0.312	0.505	0.585	100102012
3/8	0.375	7/8	0.437	0.505	0.640	100102046
3/8	0.375	1-3/4	0.343	0.505	0.640	100102091
3/8	0.375	3	0.343	0.505	0.640	100102092
1/2	0.500	1-1/4	0.312	0.785	0.875	100102025
1/2	0.500	1-5/8	0.437	0.650	0.806	100102023
1/2	0.500	3	0.437	0.650	0.806	100102019
1/2	0.500	3	0.437	0.785	0.875	100102021
1/2	0.500	3	0.680	0.650	0.796	100102081
1/2	0.500	3-1/2	0.250	1.615	1.615	100102090
0.590	0.590	1-7/8	0.493	0.785	1.030	100102082
5/8	0.625	3/4	0.495	0.785	1.030	100102095
5/8	0.625	1	0.515	0.785	1.030	100102029
5/8	0.625	2	0.495	0.785	1.030	100102030
5/8	0.625	4	0.320	1.615	1.615	100102096
5/8	0.625	4	0.515	0.785	1.030	100102032
5/8	0.625	3-3/4	0.340	1.615	1.615	100102084
0.680	0.680	1	0.437	1.030	1.140	100105007
3/4	0.750	2-9/16	0.532	1.030	1.187	100102038
7/8	0.875	3-3/4	0.465	1.615	1.615	100102086
1	1.000	3	0.813	1.406	1.615	100102087

*Concave Ferrules for Reduced Base Studs**

Nominal Stud Size	Inside Diameter A	Reduced Base Diameter	Weld Surface Curve Diameter	Effective Height F	Grip Neck Diameter B	Outer Diameter D	Ferrule Part Number
11/16	0.688	7/16	1-1/8	0.990	0.875	0.406	100102039
11/16	0.688	7/16	2	0.990	0.875	0.426	100102050
13/16	0.813	9/16	2	0.562	1.062	1.180	100102066
13/16	0.813	9/16	2-3/4	0.562	1.062	1.180	100102072

* Reduced weld base diameters are often needed on pipe and port fittings.

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