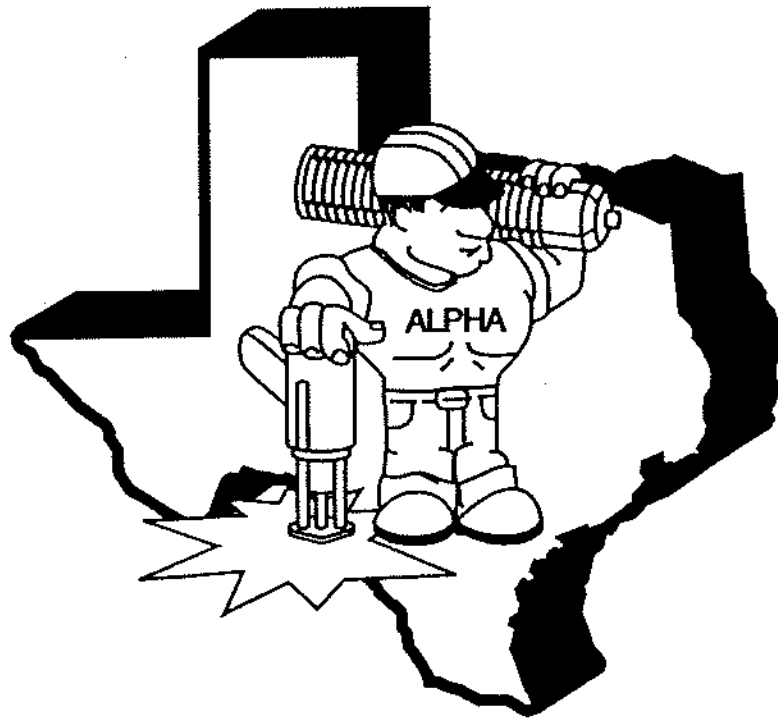


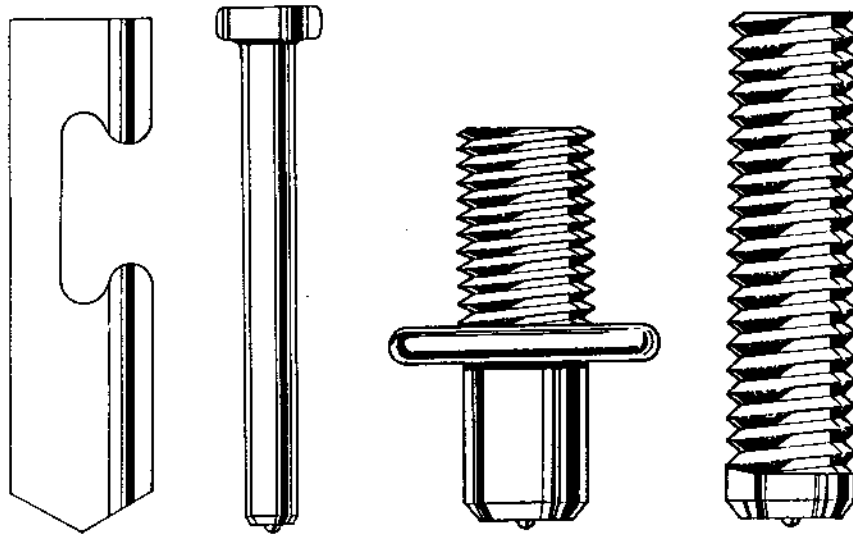
ALPHA STUD WELD



5121 STEADMONT
HOUSTON, TX. 77040

(713)460-5118 FAX: (713)460-8786
NATIONAL WATS (800)468-5118

ALPHA STUD WELD



Stud Specifications

WEIGHT CHART

ESTIMATED WEIGHTS OF THREADED STUDS IN POUNDS PER 1000 PIECES								
LENGTH	¼ dia.	⅜ dia.	½ dia.	⅝ dia.	¾ dia.	⅞ dia.	1 dia.	1 ¼ dia.
¾	8.3	12.8	18.8	25.5	34.5			
1	11.0	17.0	25.0	34.0	46.0	70.0		
1 ¼	13.8	21.3	31.3	42.5	57.5	87.5	133.8	
1 ½	16.5	25.5	37.5	51.0	69.0	105.0	160.5	243.8
1 ¾	19.3	29.8	43.8	59.5	80.5	122.5	187.3	284.4
2	22.0	34.0	50.0	68.0	92.0	140.0	214.0	325.0
2 ¼	24.8	38.3	56.3	76.5	103.5	157.5	240.8	365.6
2 ½	27.5	42.5	62.5	85.0	115.0	175.0	267.5	406.3
2 ¾	30.3	46.8	68.8	93.5	126.5	192.5	294.3	446.9
3	33.0	51.0	75.0	102.0	138.0	210.0	321.0	487.5
3 ¼	35.8	55.3	81.3	110.5	149.5	227.5	347.8	528.1
3 ½	38.5	59.5	87.5	119.0	161.0	245.0	374.5	568.8
3 ¾	41.3	63.8	93.8	127.5	172.5	262.5	401.3	609.4
4	44.0	68.0	100.0	136.0	184.0	280.0	428.0	650.0
4 ¼	46.8	72.3	106.3	144.5	195.5	297.5	454.8	690.6
4 ½	49.5	76.5	112.5	153.0	207.0	315.0	481.5	731.3
4 ¾	52.3	80.8	118.8	161.5	218.5	332.5	508.3	771.9
5	55.0	85.0	125.0	170.0	230.0	350.0	535.0	812.5
EACH ADD'L. INCH	11.0	17.0	25.0	34.0	46.0	70.0	107.0	162.5
FERRULE	2.0	2.5	3.0	3.5	4.0	5.0	10.0	12.0

ESTIMATED WEIGHTS OF NO-THREAD STUDS IN POUNDS PER 1000 PIECES									
LENGTH	⅜ dia.	½ dia.	⅝ dia.	¾ dia.	⅞ dia.	1 dia.	1 ¼ dia.	1 ½ dia.	1 ¾ dia.
¾	6.0	10.5	16.4	23.5	31.9	41.7			
1	8.0	14.0	21.8	31.3	42.5	55.6	86.6		
1 ¼	10.0	17.5	27.3	39.1	53.1	69.5	108.3	156.0	
1 ½	12.0	21.0	32.7	47.0	63.8	83.4	129.9	187.2	225.0
1 ¾	14.0	24.5	38.2	54.8	74.4	97.3	151.6	218.4	297.5
2	16.0	28.0	43.6	62.6	85.0	111.2	173.2	249.6	340.0
2 ¼	18.0	31.5	49.1	70.4	95.6	125.1	194.9	280.8	382.5
2 ½	20.0	35.0	54.5	78.3	106.3	139.0	216.5	312.0	425.0
2 ¾	22.0	38.5	60.0	86.1	116.9	152.9	238.2	343.2	467.5
3	24.0	42.0	65.4	93.9	127.5	166.8	259.8	374.4	510.0
3 ¼	26.0	45.5	70.9	101.7	138.1	180.7	281.5	405.6	552.5
3 ½	28.0	49.0	76.3	117.4	148.8	194.6	303.1	436.8	595.0
3 ¾	30.0	52.5	81.8	125.2	159.4	208.5	324.8	468.0	637.5
4	32.0	56.0	87.2	125.2	170.0	222.4	346.4	499.2	680.0
4 ¼	34.0	59.5	92.7	133.0	180.6	236.3	368.1	530.4	722.5
4 ½	36.0	63.0	98.1	140.9	191.3	250.2	389.7	561.6	765.0
4 ¾	38.0	66.5	103.6	148.7	201.9	264.1	411.4	592.8	807.5
5	40.0	70.0	109.0	156.5	212.5	278.0	433.0	624.0	850.0
EACH ADD'L. INCH	8.0	14.0	21.8	31.3	42.5	55.6	86.6	124.8	170.0
FERRULE	3.0	3.5	4.0	5.0	6.0	7.5	9.0	27.0	37.0

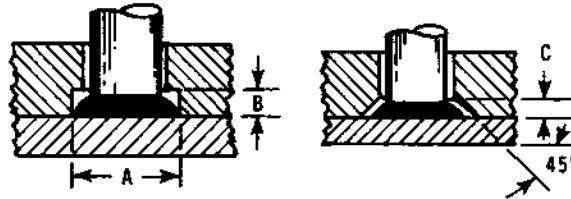
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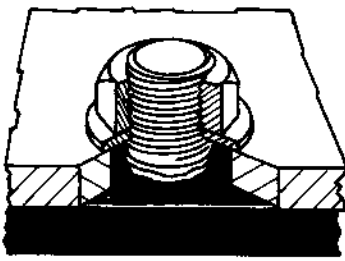
ACCOMMODATING THE FILLET

When a stud is end-welded, a fillet forms around its base with the fillet dimensions being closely controlled by the design of the ferrule used. Since the diameter of the fillet is generally larger than the diameter of the stud, some consideration is required in the design of mating parts. Counter bore and counter sink methods are commonly used. Dimensions will vary with studs and ferrules. Additional methods of accommodating fillet include over sized clearance holes, use of a gasket material around the fillet or use of a dog type construction.

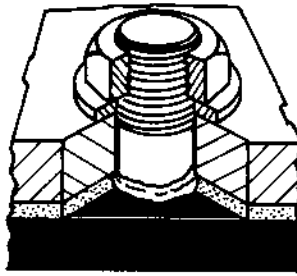
FILLET CLEARANCE FOR ELECTRIC-ARC WELDED FULL BASE STUDS



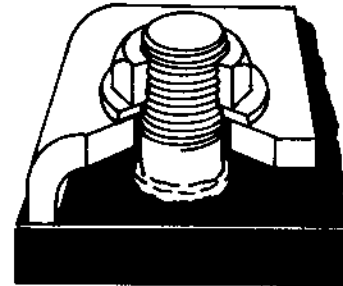
STUD SIZE (in.)	COUNTERBORE (in.)		90° COUNTERSINK (in.)
	A	B	C
1/4	0.437	0.125	0.125
5/16	0.500	0.125	0.125
3/8	0.593	0.125	0.125
7/16	0.656	0.187	0.125
1/2	0.750	0.187	0.187
5/8	0.875	0.218	0.187
3/4	1.125	0.312	0.187



(a) Oversize clearance hole

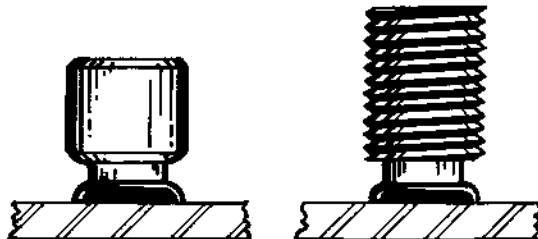


(b) Gasket material



(c) Dog clamp

Welded studs designed with reduced weld bases so that weld fillet does not exceed maximum diameter of fastener. This design is not recommended if fastener strength is important.

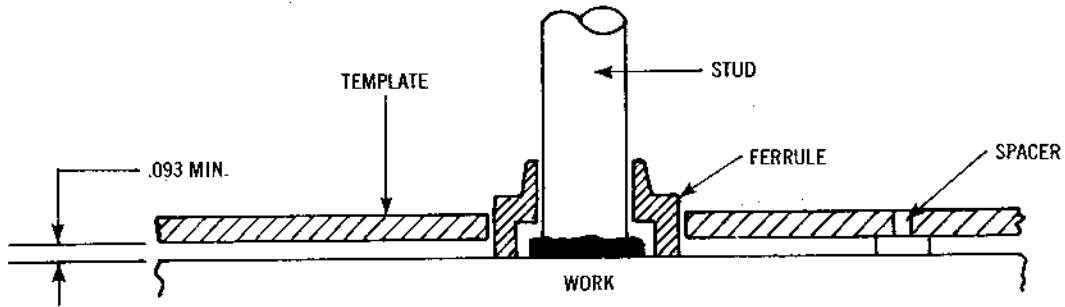


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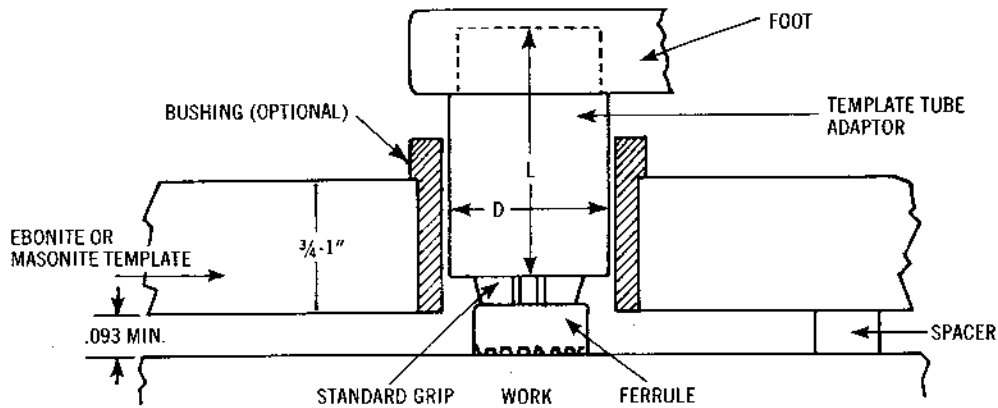


TEMPLATE DESIGN FOR STUD LOCATING



This method of templating is recommended for use with ZFF ferrules. The template is usually a steel plate $\frac{3}{32}$ " to $\frac{3}{16}$ " thick. Spacers are required to allow the gases to escape during the welding cycle. The ferrule can be held by a standard ferrule grip or where clearance is

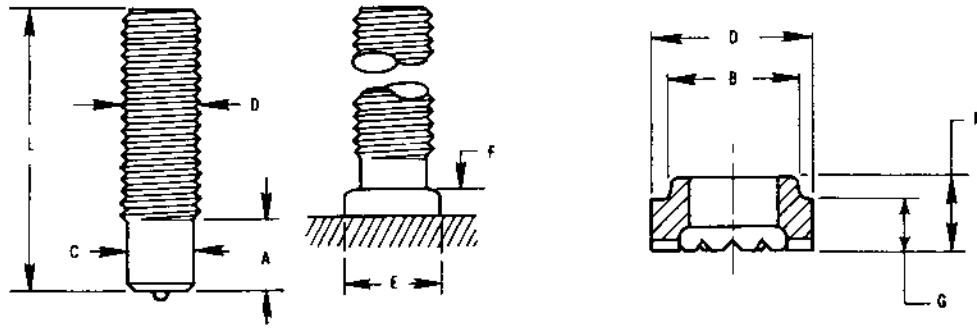
prohibitive a tube type set-up can be used. The recommended hole sizes on the template to locate the ferrules should equal the maximum outside diameter of the ferrule plus $\frac{1}{32}$ ". Holes may be drilled or bored at required locations. See stud specification sheets for ferrule detail.



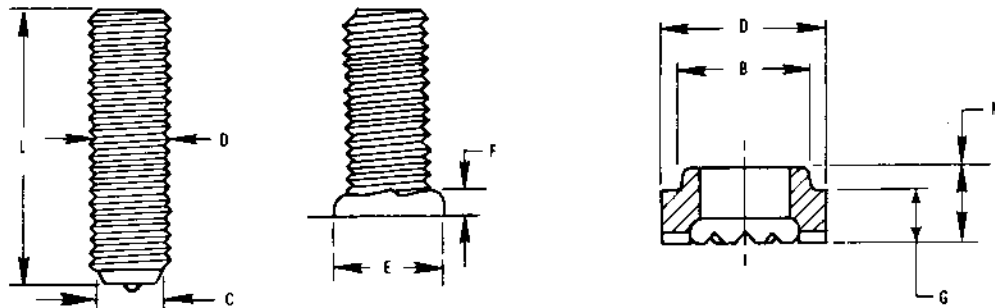
Stud Size	D	L
$\frac{1}{2}$ " and under	1.250	2.000
$\frac{5}{8}$ " and $\frac{3}{4}$ "	1.562	2.500
$\frac{7}{8}$ " and larger	2.125	2.500

This method of templating is recommended for use with all stud styles. The design makes it possible to accurately hold angular alignment of the studs as well as stud location. The template should be made of ebonite or masonite of a thickness sufficient to afford good alignment. Bushings may be used to insure greater accuracy and extend the life of the template. Standard copper ferrule grips are used with the tube

adaptor. This permits standardization of templates since it is only necessary to change the copper ferrule grip to weld studs of different diameters. The hole diameter of the bushing or template should be approximately .010 larger than the maximum outside diameter of the template tube adaptor.

PD**Pitch Diameter Base Studs**

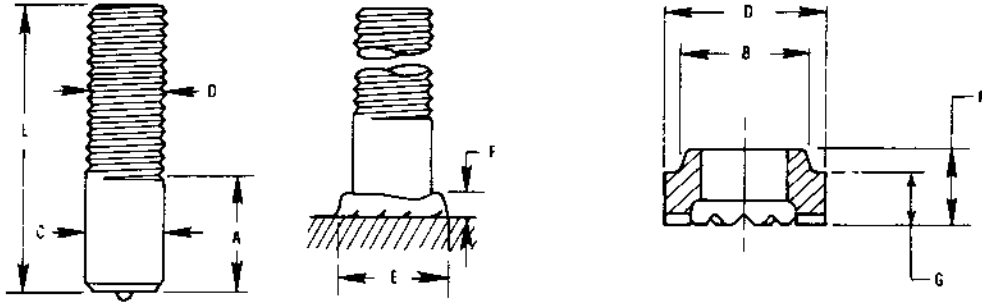
STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Min. L	C	A	Fillet Dimension		No.	D	B	G	M
				E	F					
1/4-20	5/8	.215	3/8	5/16	3/32	FP-025	.455	.385	.125	.250
5/16-18	49/64	.275	3/8	13/32	3/64	FP-031	.535	.445	.125	.250
3/8-16	27/32	.330	3/8	15/32	3/64	FP-037	.590	.505	.139	.264
7/16-14	13/16	.387	7/16	17/32	1/8	FP-043	.675	.585	.173	.329
1/2-13	1 1/32	.448	1/2	19/32	5/32	FP-050	.740	.650	.206	.362
5/8-11	1 13/64	.562	5/8	3/4	3/16	FP-062	.910	.785	.277	.433
3/4-10	1 7/16	.680	51/64	59/64	1/4	FP-075	1.150	1.030	.339	.526
7/8-9	1 39/64	.798	55/64	13/64	5/16	FP-087	1.330	1.210	.406	.593
1-8	1 51/64	.915	59/64	13/16	11/32	FP-100	1.526	1.406	.474	.661

FT**Full Threaded Studs**

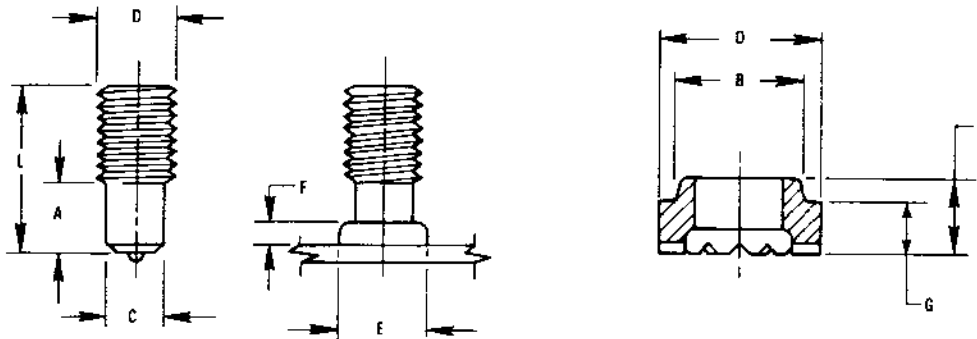
STUD SPECIFICATIONS					FERRULE SPECIFICATIONS				
D	Min. L	C	Fillet Dimension		No.	D	B	G	M
			E	F					
10-24	25/32	.187	9/32	3/32	FF-019	.390	.305	.234	.390
1/4-20	25/32	.187	23/64	7/64	FF-025	.454	.380	.234	.390
5/16-18	25/32	.187	7/16	3/64	FF-031	.578	.445	.234	.390
3/8-16	25/32	.187	1/2	1/8	FF-037	.640	.505	.234	.390
7/16-14	25/32	.187	37/64	9/64	FF-043	.703	.585	.234	.422
1/2-13	13/16	.187	11/16	5/32	FF-050	.795	.650	.250	.438
5/8-11	31/32	.187	51/64	3/16	FF-062	1.030	.785	.328	.516
3/4-10	1 13/64	.187	15/16	1/4	FF-075	1.215	1.030	.469	.656
7/8-9	1 1/2	.375	13/32	5/16	FF-087	1.408	1.210	.545	.732
1-8	1 7/32	.375	115/64	3/8	FF-100	1.615	1.406	.633	.820

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FB**Full Base Threaded Studs**

STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Min. L.	C	A	Fillet Dimension		No.	D	B	G	M
				E	F					
10-24	$\frac{25}{32}$	$\frac{3}{16}$	.187	$\frac{9}{32}$	$\frac{3}{32}$	FF-019	.390	.305	.234	.390
$\frac{1}{4}$ -20	$\frac{25}{32}$	$\frac{1}{4}$	.187	$\frac{23}{64}$	$\frac{7}{64}$	FF-025	.455	.380	.234	.390
$\frac{5}{16}$ -18	$\frac{25}{32}$	$\frac{5}{16}$	.250	$\frac{7}{16}$	$\frac{7}{64}$	FF-031	.578	.445	.234	.390
$\frac{3}{8}$ -16	$\frac{25}{32}$	$\frac{3}{8}$	.265	$\frac{1}{2}$	$\frac{1}{8}$	FF-037	.640	.505	.234	.390
$\frac{7}{16}$ -14	$\frac{25}{32}$	$\frac{7}{16}$	.281	$\frac{19}{32}$	$\frac{9}{64}$	FF-043	.703	.585	.234	.422
$\frac{1}{2}$ -13	$\frac{13}{16}$	$\frac{1}{2}$	.296	$\frac{11}{16}$	$\frac{5}{32}$	FF-050	.795	.650	.250	.438
$\frac{5}{8}$ -11	$\frac{31}{32}$	$\frac{5}{8}$	.359	$\frac{7}{8}$	$\frac{3}{16}$	FF-062	1.030	.785	.328	.516
$\frac{3}{4}$ -10	$1\frac{1}{4}$	$\frac{3}{4}$	.500	$1\frac{1}{16}$	$\frac{1}{4}$	FF-075	1.215	1.030	.469	.656
$\frac{7}{8}$ -9	$1\frac{1}{2}$	$\frac{7}{8}$	.625	$1\frac{1}{8}$	$\frac{5}{16}$	FF-087	1.408	1.210	.545	.732
1-8	$1\frac{1}{4}$	1	.750	$1\frac{3}{8}$	$\frac{3}{8}$	FF-100	1.610	1.406	.633	.820

RBT**Reduced Base Stud**

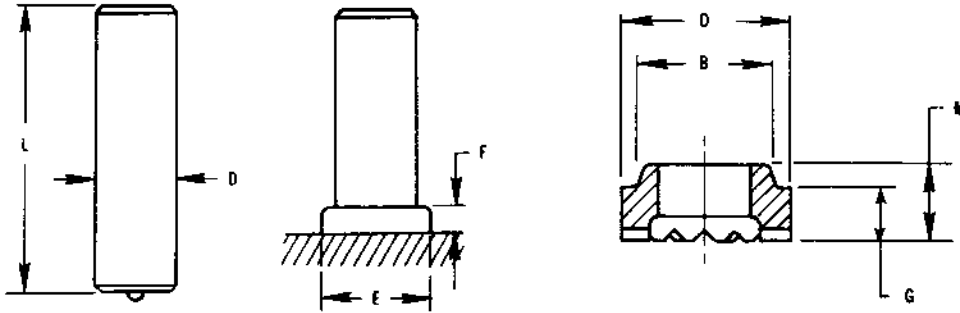
STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Min. L.	C	A	Fillet Dimension		No.	D	B	G	M
				E	F					
$\frac{1}{4}$ -20	$\frac{3}{4}$	.187	.187	$\frac{17}{64}$	$\frac{1}{8}$	FM-025	.455	.380	.265	.390
$\frac{5}{16}$ -18	$\frac{3}{4}$	.272	.187	$\frac{3}{8}$	$\frac{1}{8}$	FF-031-X	.578	.445	.281	.437
$\frac{3}{8}$ -16	$\frac{3}{4}$	.312	.375	$\frac{27}{64}$	$\frac{1}{8}$	FM-037	.590	.505	.125	.250
$\frac{1}{2}$ -13	1	.437	.437	$\frac{1}{16}$	$\frac{5}{32}$	FM-050	.740	.650	.125	.281
$\frac{5}{8}$ -11	$1\frac{1}{4}$	.500	.547	$\frac{39}{64}$	$\frac{11}{64}$	FM-062	.875	.785	.174	.328
$\frac{3}{4}$ -10	$1\frac{1}{2}$	.620	.797	$\frac{49}{64}$	$\frac{3}{32}$	FF-062	1.030	.785	.328	.516
$\frac{7}{8}$ -9	$1\frac{1}{2}$.745	.922	$\frac{29}{32}$	$\frac{21}{64}$	FF-075	1.215	1.030	.469	.656
1-8	$1\frac{3}{4}$.875	1.078	$1\frac{1}{16}$	$\frac{11}{32}$	FF-087	1.408	1.210	.545	.732

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NT

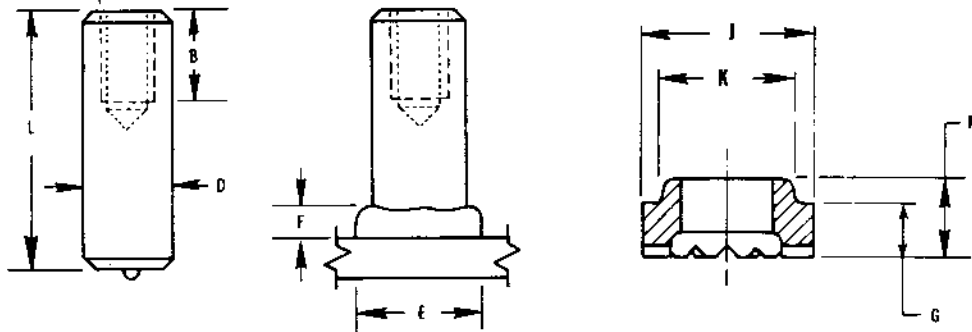
No Thread Studs



STUD SPECIFICATIONS				FERRULE SPECIFICATIONS				
D	Min. L	Fillet Dimension		No.	D	B	G	M
		E	F					
$\frac{3}{16}$	$\frac{25}{32}$	$\frac{9}{32}$	$\frac{3}{32}$	FF-019	.390	.305	.234	.390
$\frac{1}{4}$	$\frac{25}{32}$	$\frac{23}{64}$	$\frac{7}{64}$	FF-025	.455	.380	.234	.390
$\frac{5}{16}$	$\frac{25}{32}$	$\frac{7}{16}$	$\frac{7}{64}$	FF-031	.578	.445	.234	.390
$\frac{3}{8}$	$\frac{25}{32}$	$\frac{1}{2}$	$\frac{1}{8}$	FF-037	.640	.505	.234	.390
$\frac{7}{16}$	$\frac{25}{32}$	$\frac{19}{32}$	$\frac{9}{64}$	FF-043	.703	.585	.234	.422
$\frac{1}{2}$	$\frac{13}{16}$	$\frac{11}{16}$	$\frac{5}{32}$	FF-050	.795	.650	.250	.438
$\frac{5}{8}$	$\frac{31}{32}$	$\frac{7}{8}$	$\frac{3}{16}$	FF-062	1.030	.785	.328	.516
$\frac{3}{4}$	$1\frac{15}{64}$	$1\frac{1}{16}$	$\frac{1}{4}$	FF-075	1.215	1.030	.469	.656
$\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{1}{8}$	$\frac{5}{16}$	FF-087	1.408	1.210	.545	.732
1	$1\frac{41}{64}$	$1\frac{3}{8}$	$\frac{3}{8}$	FF-100	1.610	1.406	.633	.820

TF

Tapped Studs

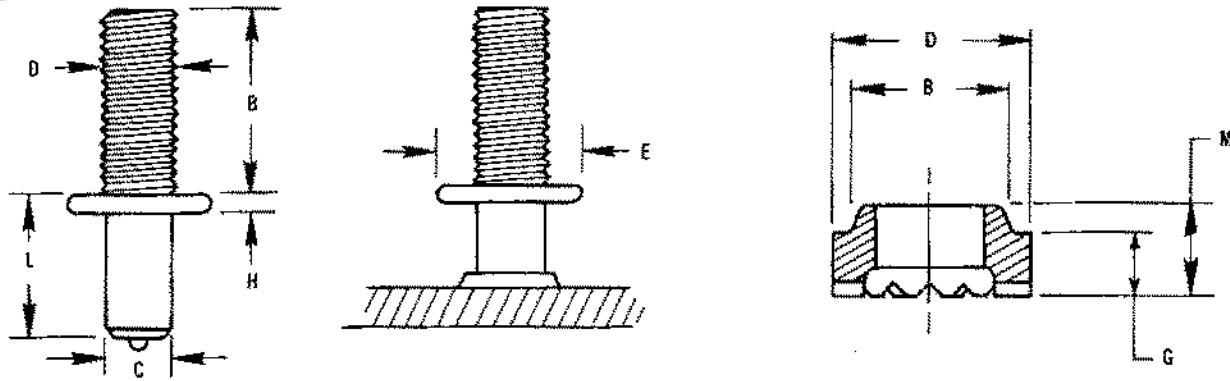


STUD SPECIFICATIONS							FERRULE SPECIFICATIONS					
TAP		MINIMUM LENGTH			Fillet Dimension		STUD DIA. D	No.	J	K	G	M
C	B	D = $\frac{1}{2}$ Max.	D = $\frac{5}{8}$ to $\frac{3}{4}$	D = $\frac{7}{8}$ Over	E	F						
8-32	$\frac{1}{4}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{23}{64}$	$\frac{7}{64}$	$\frac{1}{4}$	FF-025	.455	.380	.234	.390
10-24	$\frac{3}{32}$	$\frac{21}{32}$	$\frac{23}{32}$	$\frac{25}{32}$	$\frac{7}{16}$	$\frac{7}{64}$	$\frac{5}{16}$	FF-031	.578	.445	.234	.390
$\frac{1}{4}$ -20	$\frac{3}{8}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{3}{8}$	FF-037	.640	.505	.234	.390
$\frac{5}{16}$ -18	$\frac{15}{32}$	$\frac{29}{32}$	$\frac{31}{32}$	$1\frac{1}{32}$	$\frac{19}{32}$	$\frac{9}{64}$	$\frac{7}{16}$	FF-043	.703	.585	.234	.422
$\frac{3}{8}$ -16	$\frac{9}{16}$	$1\frac{1}{32}$	$1\frac{1}{64}$	$1\frac{3}{32}$	$\frac{11}{16}$	$\frac{3}{32}$	$\frac{1}{2}$	FF-050	.795	.650	.250	.438
$\frac{7}{16}$ -14	$\frac{21}{32}$		$1\frac{1}{32}$	$1\frac{11}{32}$	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{5}{8}$	FF-062	1.030	.785	.328	.516
$\frac{1}{2}$ -13	$\frac{3}{4}$		$1\frac{3}{8}$	$1\frac{1}{16}$	$1\frac{1}{16}$	$\frac{1}{4}$	$\frac{3}{4}$	FF-075	1.215	1.030	.469	.656
$\frac{5}{8}$ -11	$\frac{13}{16}$		$1\frac{5}{8}$	$1\frac{11}{16}$	$1\frac{1}{8}$	$\frac{5}{16}$	$\frac{7}{8}$	FF-087	1.408	1.210	.545	.732
$\frac{3}{4}$ -10	1.125			2	$1\frac{3}{8}$	$\frac{3}{8}$	1	FF-100	1.610	1.406	.633	.820

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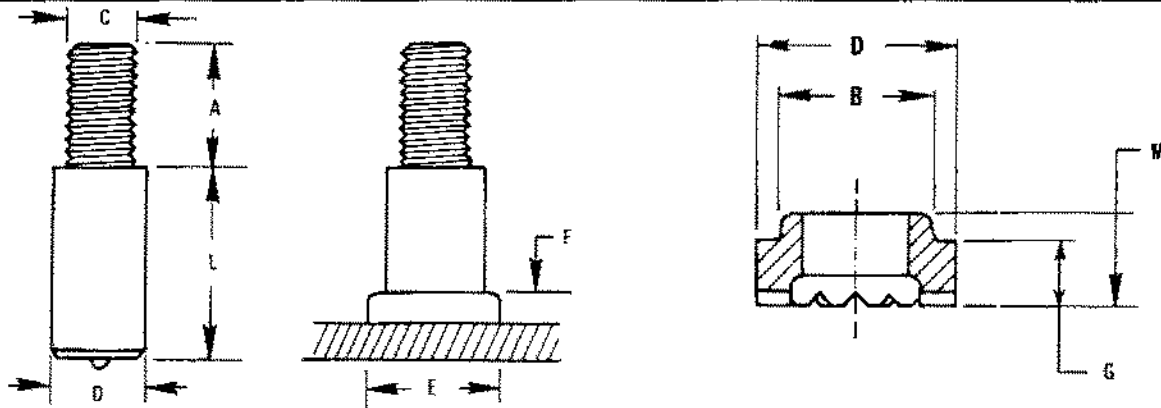
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CK Collar Studs



STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Std. B	Min. L	C	E	H	No.	D	B	G	M
1/4-20	5/8	3/8	.214	1/2	3/32	FK-025	.875	.785	.110	.235
5/16-18	5/8	3/8	.273	5/8	3/32	FK-031	.875	.785	.095	.235
3/8-16	5/8	3/8	.331	5/8	3/32	FK-037	.875	.785	.095	.235
1/2-13	3/4	1/2	.446	3/4	3/32	FK-050	1.030	.921	.125	.250

SB Shoulder Studs



STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Min. L	C	A	Fillet Dimension		No.	D	B	G	M
				E	F					
1/4	5/16	8.32	13/32	23/64	7/64	FF-025	.455	.380	.234	.390
5/16	11/32	10.24	15/32	3/16	7/64	FF-031	.578	.445	.234	.390
3/8	3/8	1/4-20	5/8	1/2	1/8	FF-037	.640	.505	.234	.390
5/16	3/16	3/16-18	25/32	19/32	9/64	FF-043	.703	.585	.234	.422
1/2	1/2	3/8-16	15/16	11/16	3/32	FF-050	.795	.650	.250	.438
5/8	5/8	1/2-13	1 1/4	7/8	3/16	FF-062	1.030	.785	.328	.516
3/4	3/8	5/8-11	1 3/8	1 1/8	1/4	FF-075	1.215	1.030	.469	.656
7/8	3/4	3/4-10	1 7/8	1 1/8	3/16	FF-087	1.408	1.210	.545	.732

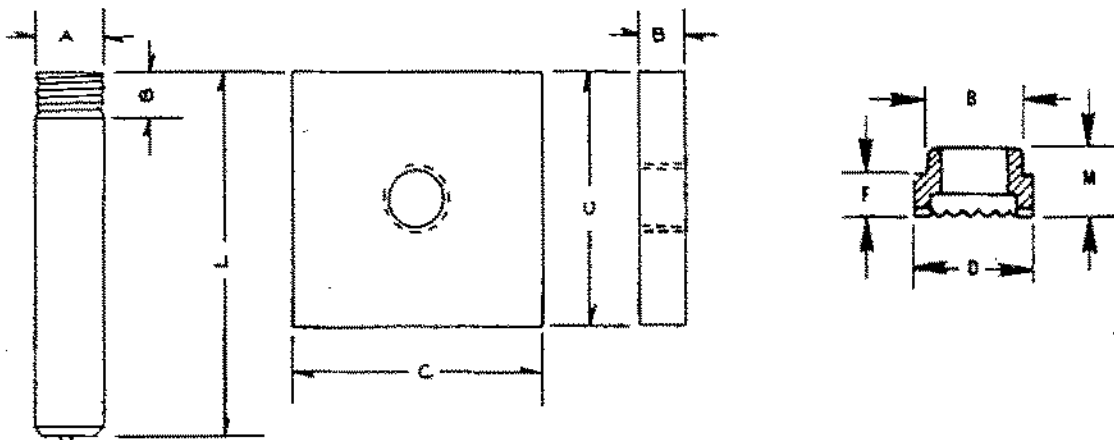
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FBW

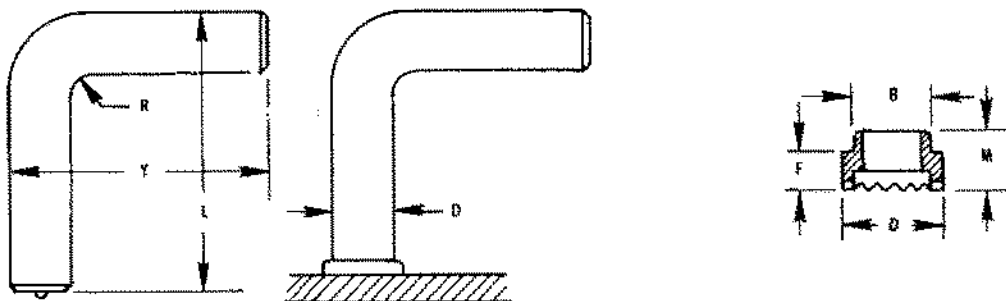
Full Base Threaded Stud With Washer



STUD SPECIFICATIONS				FERRULE SPECIFICATIONS				
A	B	C	L	No.	B	D	M	F
3/8	3/4	2	As Required	F-375	.505	.640	.390	.234
1/2	3/4	2	As Required	F-500	.650	.795	.438	.250

BN

Bent Stud



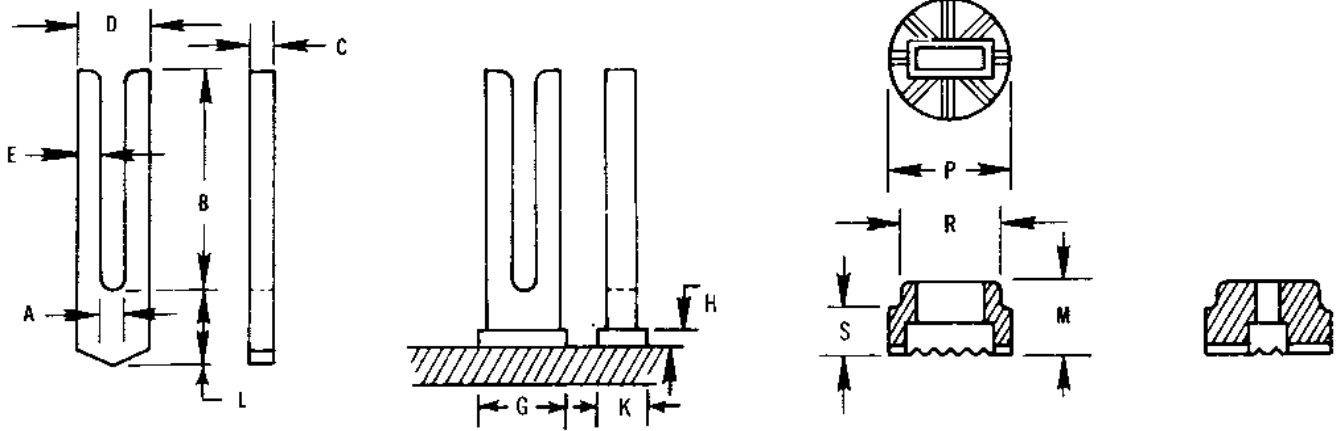
STUD SPECIFICATIONS				FERRULE SPECIFICATIONS				
D	Min. L	Min. Y	Min. R	No.	B	D	M	F
1/4	1 1/8	1 3/8	.125	FF-025	.380	.455	.390	.234
3/8	1 1/4	1 1/2	.218	FF-031	.445	.578	.390	.234
3/8	1 1/2	1 1/22	.218	FF-037	.505	.640	.390	.234
3/4	1 3/8	1 5/8	.250	FF-043	.585	.703	.422	.234
1/2	1 3/4	1 1/16	.250	FF-050	.650	.795	.438	.250
3/8	1 7/8	2	.312	FF-062	.785	1.030	.516	.328
3/4	2 3/4	2 1/16	.500	FF-075	1.030	1.215	.656	.469

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R2T

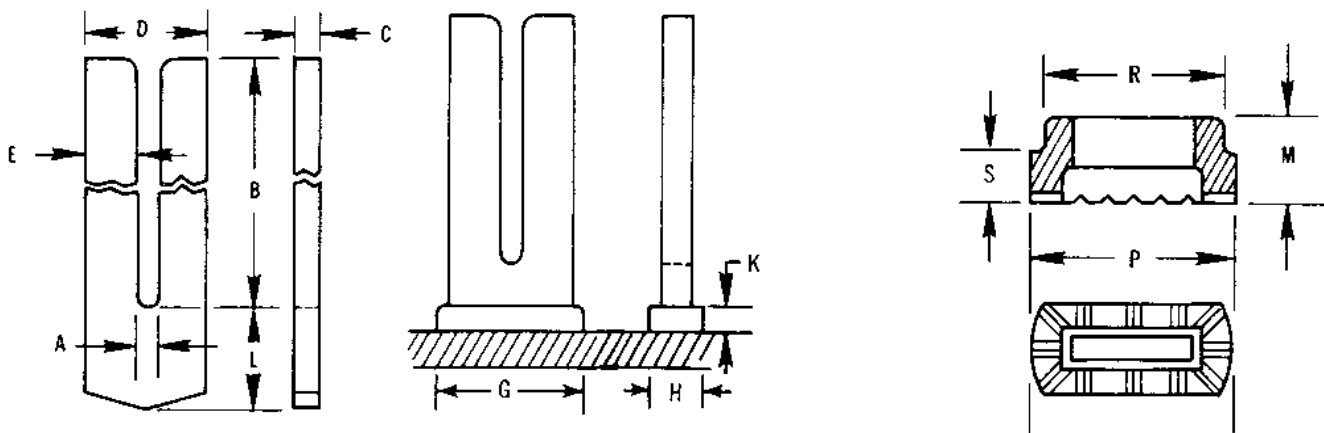
Rectangular Split Studs $\frac{1}{8} \times \frac{3}{8}$



STUD SPECIFICATIONS						FERRULE SPECIFICATIONS							
D	Min. L	C	A	B	E	Fillet Dimension			No.	P	S	M	R
						G	H	K					
$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	$1\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{3}{32}$	$\frac{1}{32}$	FR-CB	.640	.234	.390	.505

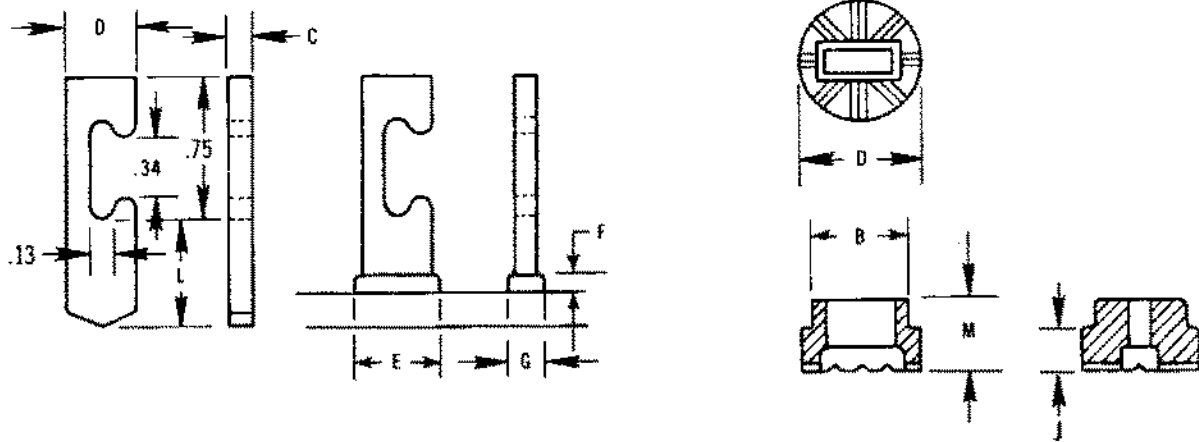
R2T

Rectangular Split Studs $\frac{1}{8} \times \frac{5}{8}$



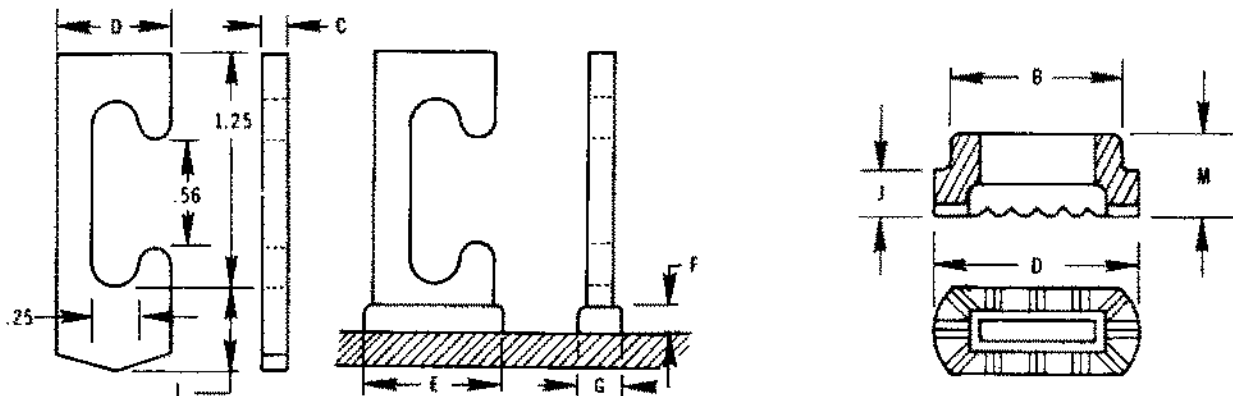
STUD SPECIFICATIONS						FERRULE SPECIFICATIONS							
D	Min. L	C	A	B	E	Fillet Dimension			No.	P	R	S	M
						G	H	K					
$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	2	$\frac{1}{4}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{5}{32}$	FR-CC	1.093	.916	.234	.436

R6 Rectangular Studs $\frac{1}{8}$ x $\frac{3}{8}$



STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Min. L	C	Fillet Dimension			No.	B	D	J	M
			E	F	G					
$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{3}{32}$	$\frac{3}{32}$	FR-CB	.505	.640	.234	.390

R6 Rectangular Studs $\frac{1}{8}$ x $\frac{5}{8}$



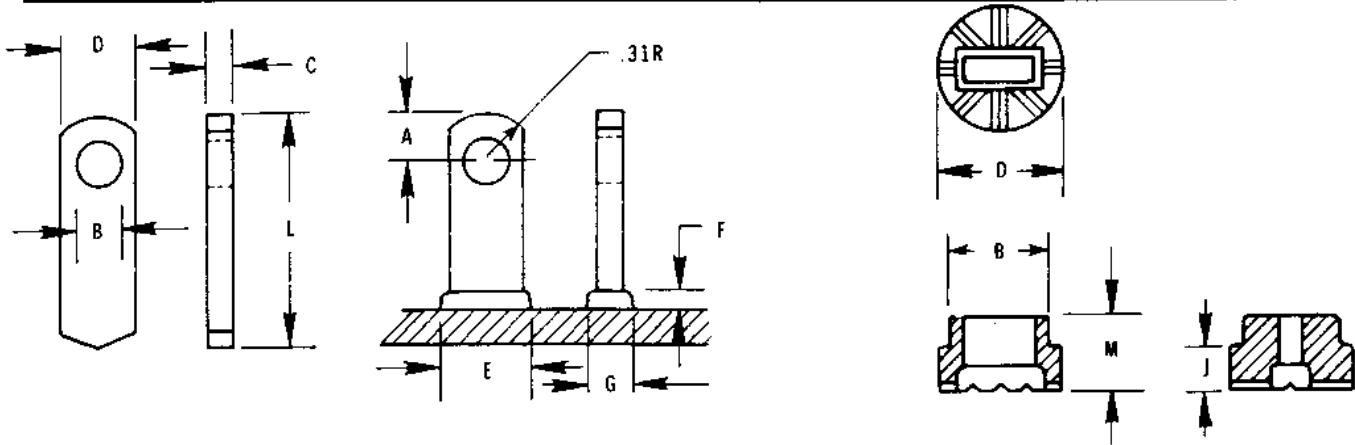
STUD SPECIFICATIONS						FERRULE SPECIFICATIONS				
D	Min. L	C	Fillet Dimension			No.	B	D	J	M
			E	F	G					
$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{3}{32}$	$\frac{3}{32}$	FR-CC	.916	1.093	.234	.436

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R7

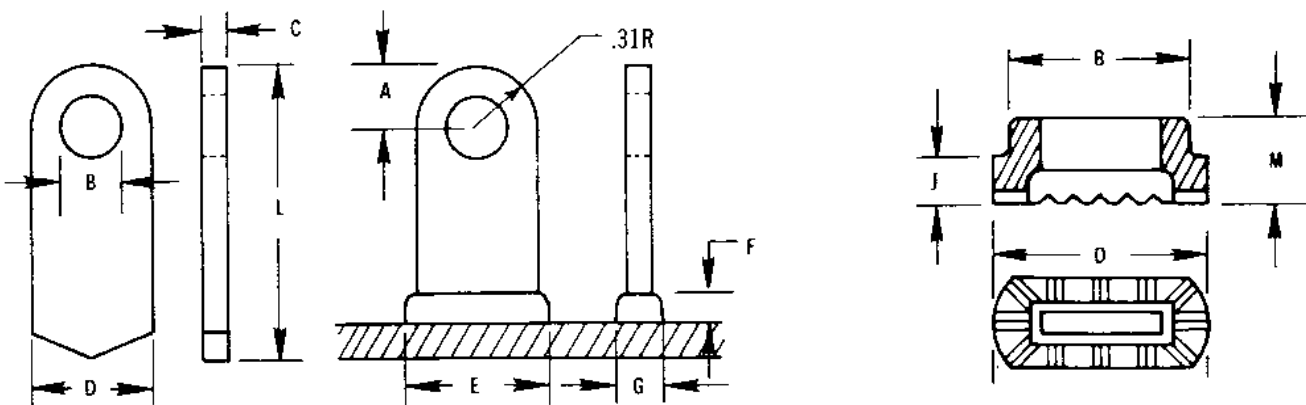
Rectangular Studs $\frac{1}{8} \times \frac{3}{8}$



STUD SPECIFICATIONS								FERRULE SPECIFICATIONS				
D	Min. L	C	B	A	Fillet Dimension			No.	B	D	J	M
					E	F	G					
$\frac{3}{8}$	$\frac{57}{64}$	$\frac{1}{8}$	$\frac{13}{64}$	$\frac{5}{16}$	$\frac{7}{16}$	$\frac{3}{32}$	$\frac{7}{32}$	FR-CB	.515	.640	.125	.390

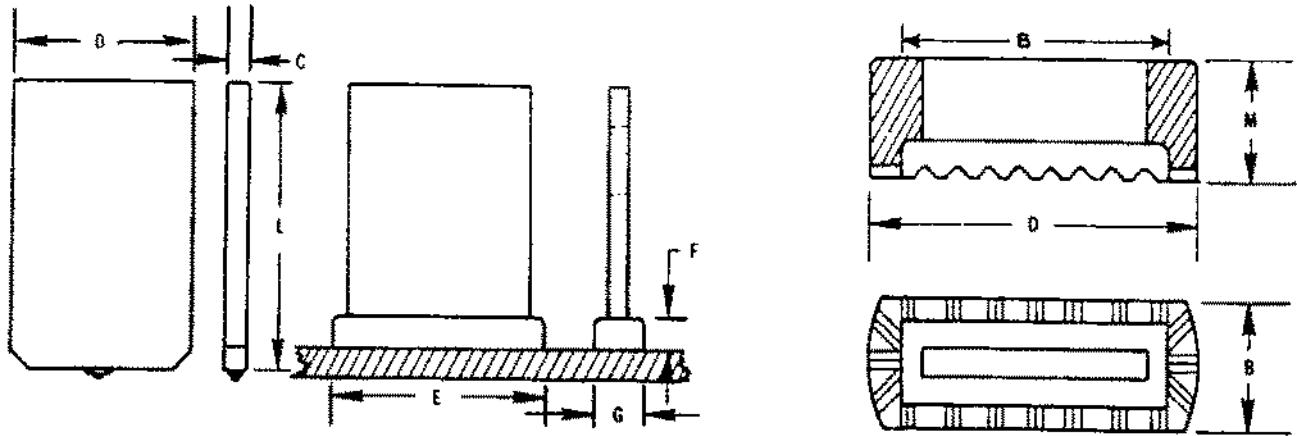
R7

Rectangular Studs $\frac{1}{8} \times \frac{5}{8}$



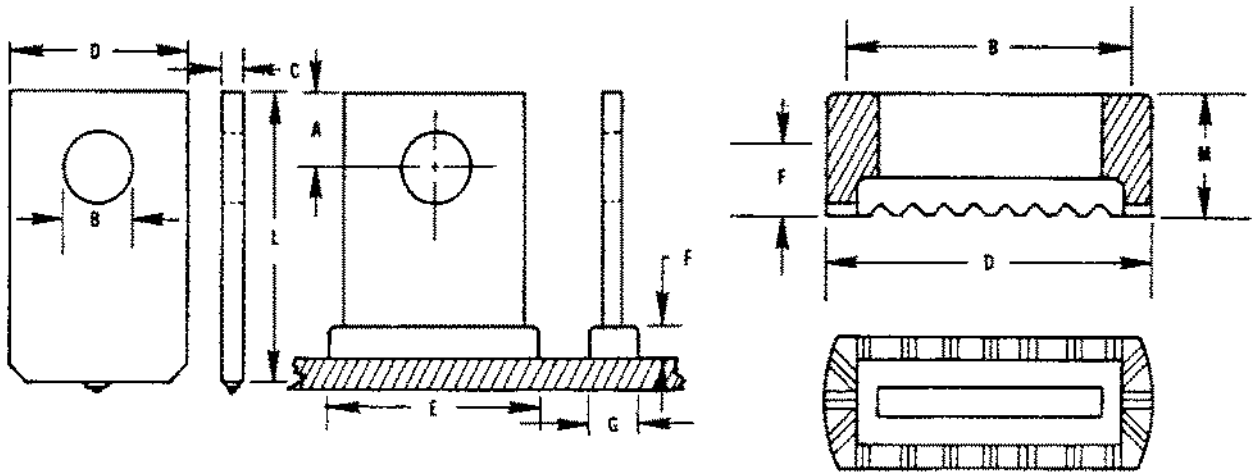
STUD SPECIFICATIONS								FERRULE SPECIFICATIONS				
D	Min. L	C	B	A	Fillet Dimension			No.	B	D	J	M
					E	F	G					
$\frac{5}{8}$	1	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{1}{4}$	$\frac{5}{32}$	$\frac{7}{32}$	FR-CC	.916	1.093	.234	.436

R1 Rectangular Stud



STUD SPECIFICATIONS						FERRULE SPECIFICATIONS			
C	D	Min. L	Fillet Dim.			No.	B	D	M
			E	F	G				
1/4	1 1/4	1 1/4	1 15/32	7/32	15/32	R-17	1.562	1.812	.672

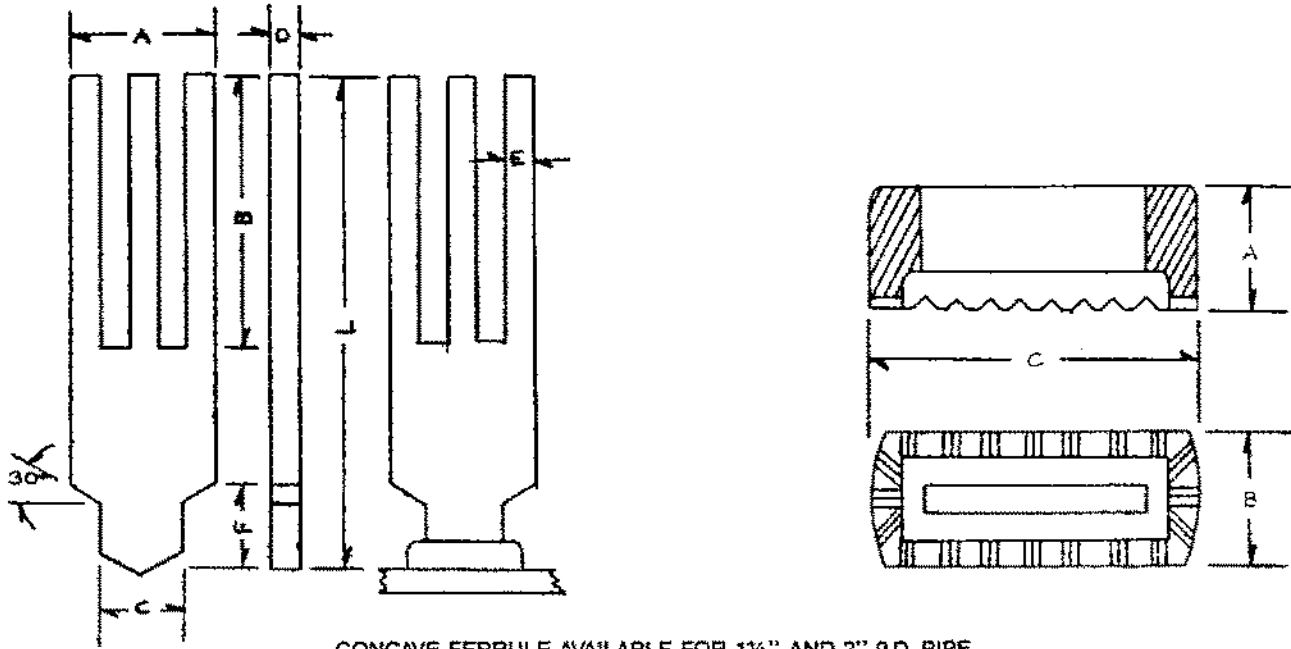
R7 Rectangular Studs 1/4 x 1 1/4



STUD SPECIFICATIONS								FERRULE SPECIFICATIONS				
D	Min. L	C	B	Fillet Dim.				No.	B	D	M	F
				A	E	F	G					
1/4	1 3/8	1/4	9/16 Or 1 1/8	1/2	1 15/32	7/32	15/32	R-17	1.562	1.812	.672	.422

R3T

Rectangular Three Tine Stud

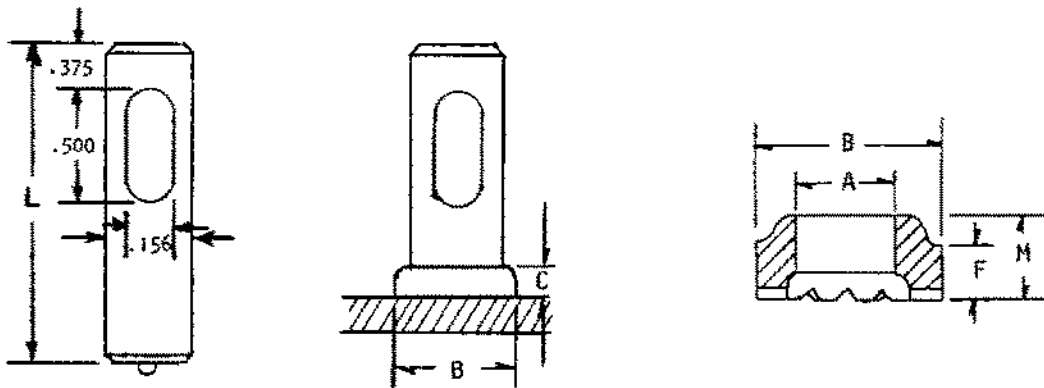


CONCAVE FERRULE AVAILABLE FOR 1 1/4" AND 2" O.D. PIPE

STUD SPECIFICATIONS										FERRULE SPECIFICATIONS				
A	B		C	D	E	F	Body L		L		No.	A	B	C
	Min.	Max.					BW	AW	BW	AW				
1.250	1 1/8	3	5/8	1/8 Or 1/16	1/4	1 1/16	1	7/8	2 1/8	2	R-3	.450	.565	1.240

L2

Lagging Stud With Hole

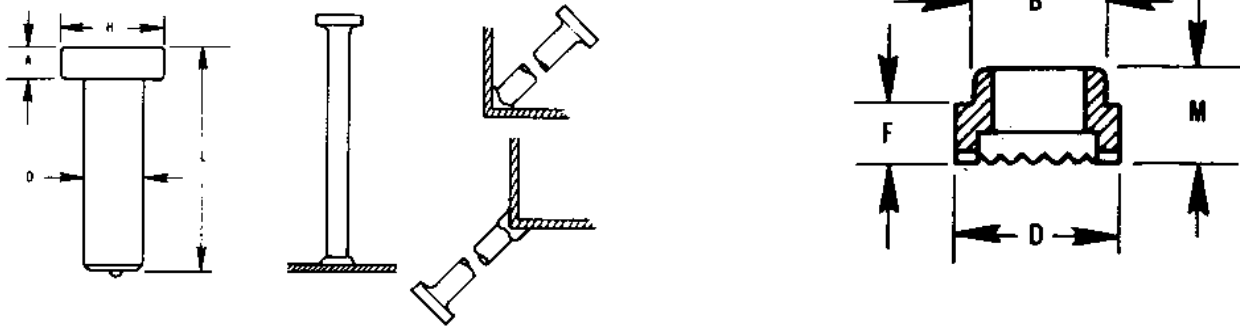


STUD SPECIFICATIONS				FERRULE SPECIFICATIONS				
A	L	B	C	No.	A	B	F	M
3/8	As Required	1/2	1/8	F-375	.385	.640	.141	.390

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3/4" DIAMETER SHEAR CONNECTORS									7/8" DIAMETER SHEAR CONNECTORS								
Stud Specifications			Ferrule Specifications						Stud Specifications			Ferrule Specifications					
D	H	A	Type	No.	D	B	F	M	D	H	A	Type	No.	D	B	F	M
3/4	1 1/4	3/8	Flat Surface	FF-075	1.215	1.030	.469	.656	7/8	1 3/8	3/8	Flat Surface	FF-087	1.408	1.210	.545	.732
			Weld Through Deck	FW-075													
Standard Length	WEIGHTS AND PACKAGING*			Standard Length	WEIGHTS AND PACKAGING*												
	Pounds	Pieces	Pounds		Pounds	Pieces	Pounds										
	M Pieces	Box	Box		M Pieces	Box	Box										
3 3/16	486	200	98	3 11/16	726	125	91										
3 7/8	509	200	102	4 3/16	811	100	81										
3 7/8	572	150	86	5 3/16	981	100	98										
4 3/16	611	150	93	6 3/16	1153	75	86										
4 3/8	634	125	81	7 3/16	1322	60	81										
4 7/8	707	125	87	8 3/16	1473	60	90										
5 3/16	736	125	94														
5 3/8	759	125	96														
5 7/8	832	100	83														
6 3/16	861	100	87														
7 3/16	987	100	100														
8 3/16	1112	100	112														

SHEAR CONNECTOR STUDS are designed to effectively tie the concrete to the steel beams and to resist shear loadings between the concrete slab and steel beam in composite construction. All orders for studs include required ferrules.

LENGTH: Length is before weld. Studs will be approximately 3/16" shorter after welding. Lengths for shear connector studs are generally set by governing specifications.

MATERIAL: Low carbon steel.

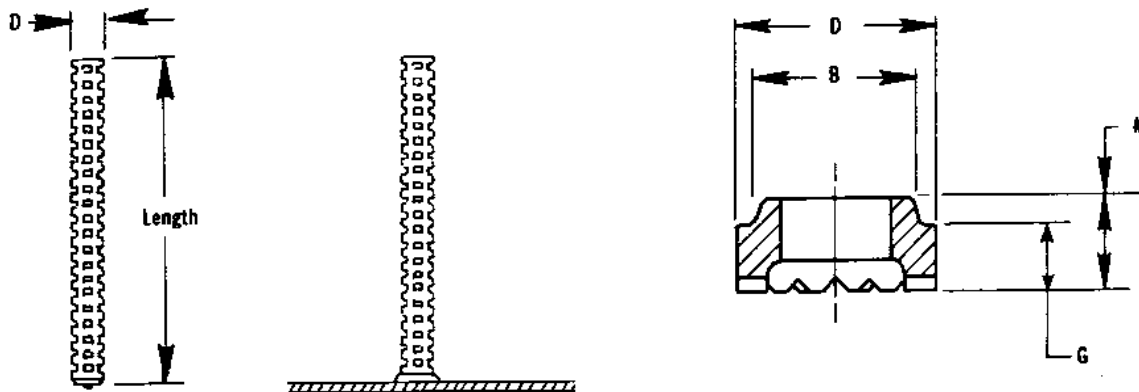
Mechanical Properties (as cold drawn)

Tensile 60,000 psi min.
Reduction in Area 50% min.

All A.S.W. shear connector studs meet AWS specifications. Test reports available on request.

STAINLESS STEELS: SC studs are also available in stainless steel, Type 304. Other grades of stainless steel (except Type 303) available when required.

DA Deformed Anchor



STUD SPECIFICATIONS				FERRULE SPECIFICATIONS				
Description	Weight Per 1000	Pieces Per Standard Box	D	No.	B	D	G	M
1/4 x 6 1/8	88	1000	1/4	FF-025	.380	.455	.234	.390
1/4 x 12 1/8	175	1000						
3/8 x 10 1/8	288	1000	3/8	FF-037	.505	.640	.234	.390
3/8 x 12 1/8	344	1000						
3/8 x 18 1/8	515	700						
3/8 x 24 1/8	685	700						
1/2 x 12 1/8	680	700	1/2	FF-050	.650	.795	.250	.438
1/2 x 18 1/8	972	350						
1/2 x 24 1/8	1292	350						
1/2 x 30 1/8	1675	350						
1/2 x 36 1/8	2009	350						
5/8 x 18 3/16	1633	250	5/8	FF-062	.785	1.030	.328	.516
5/8 x 24 3/16	2136	250						
5/8 x 30 3/16	2666	250						
5/8 x 36 3/16	3196	250						
3/4 x 12 3/16	1525	250	3/4	FF-075	1.030	1.215	.469	.656
3/4 x 18 3/16	2276	125						
3/4 x 24 3/16	3027	125						
3/4 x 30 3/16	3778	125						
3/4 x 36 3/16	4529	125						

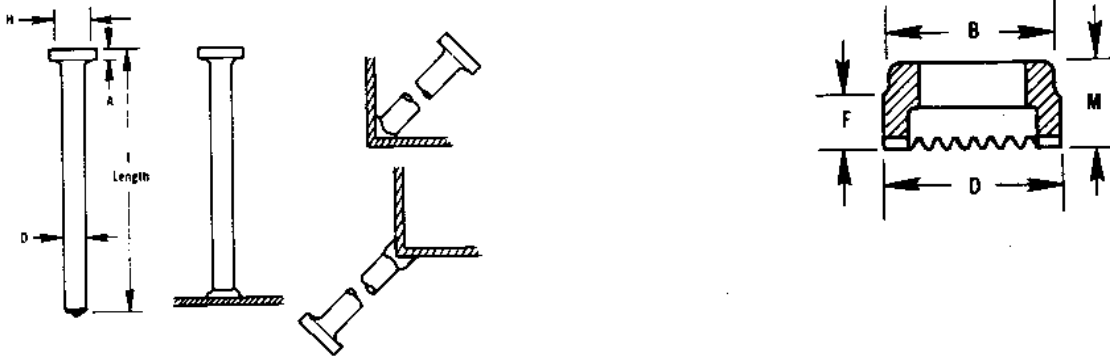
MATERIAL: Low Carbon Steel ASTM: A-496.

LENGTH: Length is before weld. Stud diameters (D) 1/2" and below will be approximately 1/8" shorter after welding. 5/8" will be approximately 3/16" shorter after welding.

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HA Headed Anchor



STUD SPECIFICATIONS			FERRULE SPECIFICATIONS				
D	A	H	No.	D	B	F	M
1/4	.187	.500	FF-025	.454	.380	.234	.390
3/8	.281	.750	FF-037	.640	.505	.234	.390
1/2	.281	1.000	FF-050	.795	.650	.250	.438
5/8	.312	1.250	FF-062	1.030	.785	.328	.516

WEIGHTS AND PACKAGING FOR STANDARD LENGTHS							
Description	Pounds	Pieces	Pounds	Description	Pounds	Pieces	Pounds
	M Pieces	Box	Box		M Pieces	Box	Box
1/4 x 1 1/8	24	2000	47	1/2 x 1 5/8	132	500	68
1/4 x 2 11/16	43	1000	44	1/2 x 2 1/8	170	500	83
1/4 x 4 1/8	65	1000	65	1/2 x 2 5/8	197	500	96
1/4 x 6 1/8	90	500	46	1/2 x 3 1/8	226	250	55
3/8 x 1 3/8	25	1000	69	1/2 x 4 1/8	292	250	69
3/8 x 2 1/8	93	1000	93	1/2 x 5 5/16	341	200	68
3/8 x 2 5/8	108	500	55	1/2 x 6 1/8	393	150	58
3/8 x 3 1/8	126	500	62	1/2 x 8 1/8	504	100	50
3/8 x 4 1/8	155	500	77	5/8 x 2 5/8	294	250	77
3/8 x 6 1/8	218	250	57	5/8 x 2 11/16	315	250	80
				5/8 x 4 1/8	450	200	90
				5/8 x 6 3/16	652	100	67
				5/8 x 8 3/16	793	100	81

HEADED ANCHOR STUDS are designed for welding to flat surfaces or welding in the fillet or to the heel of angles. **When ordering specify if studs are to be welded to flat surfaces or in fillet or to heel of angle.** All orders for studs include required ferrules.

LENGTH: Length is before weld. Stud diameters (D) 1/2" and below will be approximately 1/8" shorter after welding. 5/8" will be approximately 3/16" shorter after welding. Maximum length available for cold headed product is 8 3/16". Prices on hot formed studs over 8 3/16" available upon request.

MATERIAL: Low carbon steel.

Mechanical Properties (as cold drawn)

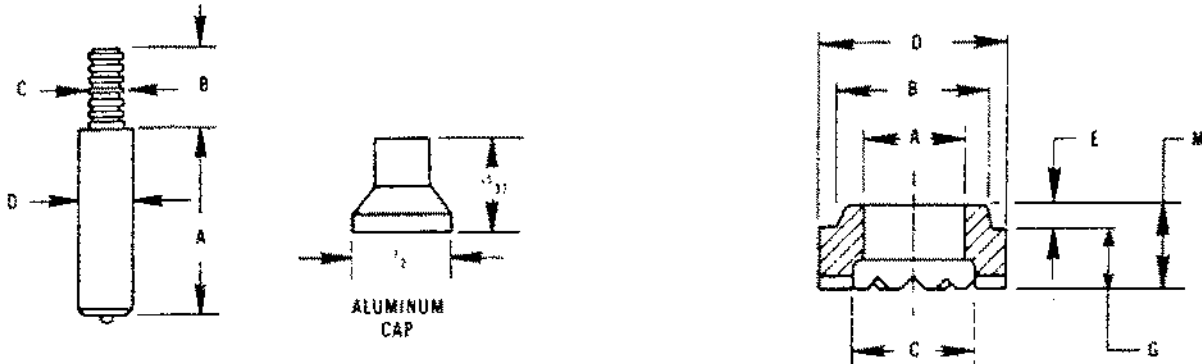
Tensile 60,000 psi min.
Reduction in Area 50% min.

All A.S.W. headed anchors meet AWS specifications. Test reports available on request.

STAINLESS STEELS: HA studs are also available in stainless steel. Type 304. Other grades of stainless steel (except Type 303) available when required.

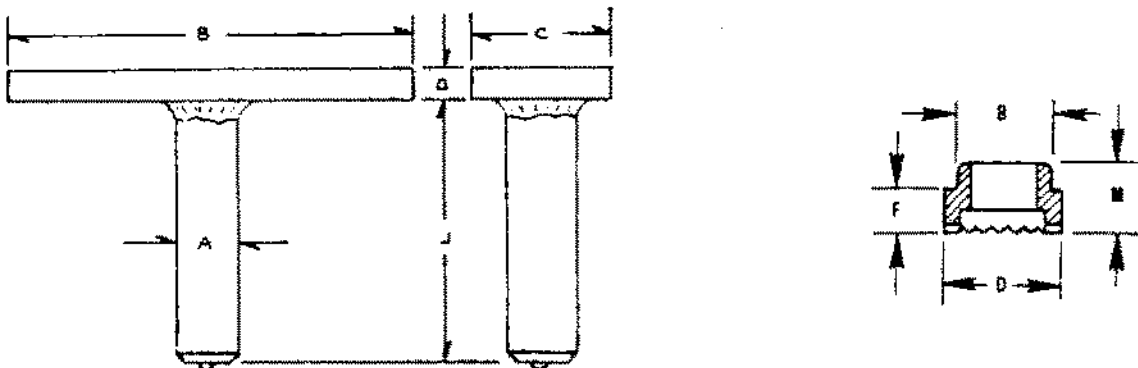
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STUD SPECIFICATIONS				FERRULE SPECIFICATIONS							
D	A	C	B	No.	A	E	C	D	F	G	M
5/16	As Required	3/16	3/8	F-312	.322	.445	.406	.578	.156	.125	.390
5/16	As Required	3/16	3/8	F-312	.322	.445	.406	.578	.156	.125	.390

TS "T" Stud



STUD SPECIFICATIONS					FERRULE SPECIFICATIONS				
A	B	C	D	L	No.	B	D	M	F
3/8	2 1/2 or 3	7/8 or 1	1/4	As Required	F-375	.505	.640	.390	.234
1/2	2 1/2 or 3	7/8 or 1	1/4	As Required	F-500	.650	.795	.438	.250

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