

COMPLETE STUD WELDING

Products • Service • Knowledge • Integrity

SECTION 3

ARC WELD STUDS

CONCRETE ANCHORS • NO THREAD STUDS (UNTHREADED)
RECTANGULAR STUDS • REFRACTORY ANCHORS • THREADED STUDS
INTERNALLY THREADED • TUFFSTUDS – WEAR PROTECTION

FOR INQUIRIES, TO PLACE ORDERS,
SERVICE AND TECHNICAL SUPPORT CONTACT
ANY OF THE FOLLOWING:

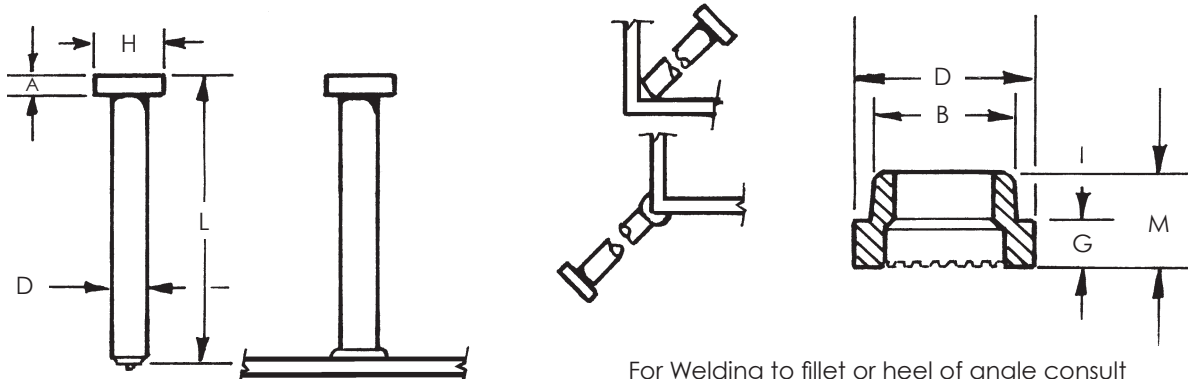
OFFICE: 216.904.4008

EMAIL: SALES@COMPLETESTUDWELD.COM

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Concrete Anchors

HCA - HEADED CONCRETE ANCHOR - TECHNICAL DETAILS



For Welding to fillet or heel of angle consult your **Complete Stud Welding** representative for assistance.

Stud Specifications			Ferrule Specifications				
D	H	A	No.	D	B	G	M
1/4	.500	.187	F025-F	.455	.380	.234	.390
3/8	.750	.281	F037-F	.640	.505	.234	.390
1/2	1.000	.281	F050-F	.795	.650	.250	.438
5/8	1.250	.312	F062-F	1.030	.785	.328	.516

Headed Concrete Anchors are used in all types of concrete connections. They can be welded to a flat surface, inside of an angle or outside of an angle.

Specifications – HCA's meet AWS Specifications D1.1, D1.5 and or D1.6. International Specifications BS5950, BS5400, DIN/ISO are available.

Material – Low carbon steel, ASTM A108 / A29, Grade C1010 to C1020. In Stainless Steel, grades 302, 304, 310 and 316 are stocked in some sizes.

Ferrules – Customer to specify ferrule type at time of order.

Length – Lengths are listed before welding. For Stud Diameters (D) 1/2" and smaller the length reduction is roughly 1/8" and for (D) 5/8" the reduction is roughly 3/16". HCA's can be made in any length above the standard minimum.

Accessories – For a complete list of accessories required with each ferrule type, please see next page.

Mechanical Property Requirements

	Type A	Type B
Tensile Strength	61,000 psi min.	65,000 psi min.
Yield Strength	49,000 psi min.	51,000 psi min.
Elongation (% in 2 in.)	17% min.	20% min.
Elongation (% in 5x dia.)	14% min.	15% min.
Reduction of Area	50% min.	50% min.
Type A Studs are general purpose studs.		
Type B Studs are headed, bent, or of other configuration that are used as an essential component in composite beam design and construction.		

COMPLETE
STUD WELDING
 Products • Service • Knowledge • Integrity

ARC Weld Studs - Concrete Anchors

HCA – HEADED CONCRETE ANCHOR – ACCESSORY DETAILS

Stud Diameter	Chuck P/N	Ferrule Type	Ferrule P/N	Foot P/N	Grip P/N	Ferrule Foot Plate P/N (Dual Leg)
1/4"	CN-050	Flat	F025-F	B-1C	GC-025	QN-025
		Low Profile	F025-LP	B-1C	GC-025	QN-025
		Heavy Duty	F025-HD	B-1C	GC-037	QN-037
		Inside Angle	F025-IA	B-1C	GD-025	N/A
		Outside Angle	F025-OA	B-1C	GC-025	QN-025
3/8"	CH-037	Flat	F037-F	B-1C	GC-037	QN-037
		Low Profile	F037-LP	B-1C	GC-037	QN-037
		Heavy Duty	F037-HD	B-1C	GC-050	QN-050
		Inside Angle	F037-IA	B-1C	GD-037	N/A
		Outside Angle	F037-OA	B-1C	GC-037	QN-037
		Weld Thru Deck	FO37-TD	B-0021	B-0060-3	N/A
1/2"	CH-050	Flat	F050-F	B-1C	GC-050	QN-050
		Low Profile	F050-LP	B-1C	GC-050	QN-050
		Vertical	F050-V	B-1C	GC-050	QN-050
		Heavy Duty	F050-HD	B-2C	GC-062	QN-062
		Inside Angle	F050-IA25	B-1C	GD-050	N/A
		Inside Angle	F050-IA37	B-1C	GD-050	N/A
		Outside Angle	F050-OA	B-1C	GC-050	QN-050
		Weld Thru Deck	F050-TD	B-0021	B-0060-2	N/A
5/8"	CH-075	Flat	F062-F	B-2C	GC-062	QN-062
		Low Profile	F062-LP	B-2C	GC-062	QN-062
		Vertical	F062-V	B-2C	GC-062	QN-062
		Heavy Duty	F062-HD	B-2C	GC-075	QN-075
		Inside Angle	F062-IA25	B-2C	GD-062	N/A
		Inside Angle	F062-IA37	B-2C	GD-062	N/A
		Outside Angle	F062-OA	B-2C	GN-062	QN-062
		Weld Thru Deck	F062-TD	B-0021	B-0060-2	N/A

ARC Weld Studs - Concrete Anchors

HCA – HEADED CONCRETE ANCHOR – STANDARD SIZES

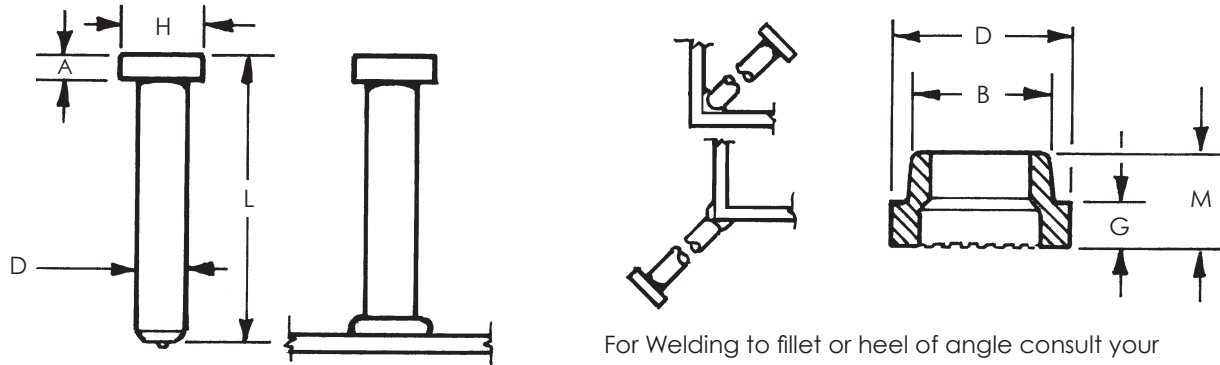
Specifications			Packaging Detail			Weights - in pounds		
Diameter	Length	CSW Part Number (mild steel)	Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet	Box Weight	Pallet Weight	1,000 Pcs. Weight
D	L							
1/4	1 - 1/8	HCAM0250112	2,000	27	54,000	48	1,296	24
	2 - 11/16	HCAM0250268	1,000	27	27,000	45	1,215	45
	3 - 1/8	HCAM0250312	1,000	27	27,000	51	1,377	51
	4 - 1/8	HCAM0250412	600	27	16,200	39	1,053	65
3/8	1 - 1/8	HCAM0370112	1,000	27	27,000	70	1,890	70
	1 - 5/8	HCAM0370162	1,000	27	27,000	79	2,133	79
	2 - 1/8	HCAM0370212	700	27	18,900	67	1,809	96
	2 - 5/8	HCAM0370262	600	27	16,200	66	1,782	110
	3 - 1/8	HCAM0370312	500	27	13,500	62	1,674	124
	4 - 1/8	HCAM0370412	350	27	9,450	55	1,485	157
	5 - 1/8	HCAM0370512	300	27	8,100	56	1,512	187
	6 - 1/8	HCAM0370612	200	27	5,400	44	1,188	220
1/2	8 - 1/8	HCAM0370812	250	27	6,750	69	1,863	276
	1 - 1/8	HCAM0500112	600	27	16,200	68	1,836	113
	1 - 1/2	HCAM0500150	500	27	13,500	68	1,836	136
	1 - 5/8	HCAM0500162	450	27	12,150	64	1,728	142
	2 - 1/8	HCAM0500212	400	27	10,800	67	1,809	168
	2 - 5/8	HCAM0500262	350	27	9,450	71	1,917	203
	3 - 1/8	HCAM0500312	300	27	8,100	68	1,836	227
	4 - 1/8	HCAM0500412	200	27	5,400	56	1,512	280
	5 - 5/16	HCAM0500531	150	27	4,050	52	1,404	347
	6 - 1/8	HCAM0500612	125	27	3,375	49	1,323	392
	8 - 1/8	HCAM0500812	100	27	2,700	50	1,350	500
	10 - 1/8	HCAM0501012	75	27	2,025	51	1,377	680
5/8	12 - 1/8	HCAM0501212	1500	1	1500	1095	1120	1095
	1 - 7/16	HCAM0620143	400	27	10,800	85	2,295	213
	1 - 11/16	HCAM0620168	325	27	8,775	77	2,079	237
	1 - 15/16	HCAM0620193	300	27	8,100	78	2,106	260
	2 - 1/8	HCAM0620212	250	27	6,750	68	1,836	272
	2 - 3/16	HCAM0620218	250	27	6,750	71	1,917	284
	2 - 11/16	HCAM0620268	250	27	6,750	81	2,187	324
	3 - 3/16	HCAM0620318	200	27	5,400	75	2,025	375
	3 - 11/16	HCAM0620368	150	27	4,050	75	1,674	413
	4 - 3/16	HCAM0620418	150	27	4,050	62	1,863	460
	4 - 11/16	HCAM0620468	125	27	3,375	69	1,701	504
	5 - 3/16	HCAM0620518	100	27	2,700	55	1,485	550
	6 - 9/16	HCAM0620656	90	27	2,430	55	1,485	611
	8 - 3/16	HCAM0620818	80	27	2,160	52	1,404	650
	9 - 3/16	HCAM0620918	150	9	1,350	117	1,053	780
	10 - 3/16	HCAM0621018	100	9	900	98	882	980

For non standard sizes contact your Complete Stud Welding Representative.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Concrete Anchors

HSC – HEADED SHEAR CONNECTORS – TECHNICAL DETAILS



Stud Specifications			Ferrule Specifications				
D	H	A	No.	D	B	G	M
3/4	1-1/4	3/8	F075-F	1.218	1.030	.469	.656
3/4 *	1-1/4	3/8	F075-TD	1.335	1.210	.406	.600
7/8	1-3/8	3/8	F087-F	1.406	1.210	.545	.732
1	1-5/8	1/2	F100-F	1.610	1.406	.632	.820
* For 3/4" weld thru-deck only							

Headed Shear Connectors are designed for composite construction to secure the concrete to the steel beams and to resist shear loadings between the concrete slab and steel beam.

Specifications – HSC's meet AWS Specifications D1.1, D1.5 and or D1.6. International Specifications BS5950, BS5400, DIN/ISO are available.

Material – Low carbon steel, ASTM A108 / A29, Grade C1010 to C1020. In Stainless Steel, grades 302, 304, 316 and 316 are stocked in some sizes.

Ferrules – Customer to specify ferrule type at time of order.

Length – Lengths are listed before welding. For Stud Diameters (D) 3/4" and 7/8" the length reduction is roughly 3/16" and for (D) 1" the reduction is roughly 1/4". For Weld Thru-deck the length reduction is roughly 3/8". HSC's can be made in any length above the standard minimum. The standard stock lengths are usually the most cost effective option.

Accessories – For a complete list of accessories required with each ferrule type, please see next page.

Mechanical Property Requirements		
	Type A	Type B
Tensile Strength	61,000 psi min.	65,000 psi min.
Yield Strength	49,000 psi min.	51,000 psi min.
Elongation (% in 2 in.)	17% min.	20% min.
Elongation (% in 5x dia.)	14% min.	15% min.
Reduction of Area	50% min.	50% min.
Type A Studs are general purpose studs.		
Type B Studs are headed, bent, or of other configuration that are used as an essential component in composite beam design and construction.		

COMPLETE
STUD WELDING
 Products • Service • Knowledge • Integrity

ARC Weld Studs - Concrete Anchors

HSC – HEADED SHEAR CONNECTORS – ACCESSORY DETAILS

Stud Diameter	Chuck P/N	Ferrule Type	Ferrule P/N	Foot P/N	Grip P/N	Ferrule Foot Plate P/N (Dual Leg)
3/4	CH-075	Flat	F075-F	B-2C	GC-075	QN-075
		Low Profile	F075-LP	B-2C	GC-075	QN-075
		Vertical	F075-V	B-2C	GC-075	QN-075
		Inside Angle	F075-IA37	B-2C	GD-075	N/A
		Inside Angle	F075-IA50	B-2C	GD-075	N/A
		Outside Angle	F075-OA	B-2C	GC-075	QN-075
		Weld Thru Deck (WTD)	F075-TD	B-002I	B-0060-I	N/A
7/8	CH-087	Flat	F087-F	B-3C	GC-087	QN-087
		Vertical	F087-V	B-3C	GC-087	QN-087
		Outside Angle	F-087-OA	B-3C	GC-087	QN-087
		Weld Thru Deck (WTD)	F087-TD	B-002I	B-0060-4	N/A
1 inch	CH-100	Flat	F100-F	B-3C	GC-100	QN-100
		Flat	F100-F	B-002I	B-0060-4	QN-100

ARC Weld Studs - Concrete Anchors

HSC – HEADED SHEAR CONNECTORS – 3/4" STANDARD SIZES

Specifications			Packaging Detail			Weights - in pounds		
Diameter	Length	CSW Part Number (mild steel)	Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet	Box Weight	Pallet Weight	1,000 Pcs. Weight
D	L							

TYPICAL BARE BEAM SIZES

3/4	3 - 3/16	HSCM0750318	125	48	6,000	60	2,880	480
	3 - 11/16	HSCM0750368	100	48	4,800	55	2,640	550
	4 - 3/16	HSCM0750418	100	48	4,800	63	3,024	630
	4 - 11/16	HSCM0750468	75	27	2,025	51	1,377	680
	5 - 3/16	HSCM0750518	60	48	2,880	43	2,064	717
	5 - 11/16	HSCM0750568	60	48	2,880	47	2,256	783
	6 - 3/16	HSCM0750618	60	48	2,880	51	2,448	850
	6 - 11/16	HSCM0750668	80	27	2,160	75	2,025	938
	7 - 3/16	HSCM0750718	60	27	1,620	59	1,593	983
	8 - 3/16	HSCM0750818	50	27	1,350	56	1,512	1,120
	9 - 3/16	HSCM0750918	100	9	900	123	1,107	1,230
	10 - 3/16	HSCM0751018	100	9	900	137	1,233	1,370
	12 - 3/16	HSCM0751218	1,100	1	1,100	1,760	1,760	1,600
	16 - 3/16	HSCM0751618	1,000	1	1,000	2,000	2,000	2,000

For non standard sizes, please contact your **Complete Stud Welding** representative.

TYPICAL WELD THRU-DECK SIZES

3/4	3 - 3/8	HSCM0750337	125	48	6,000	62	2,976	496
	3 - 7/8	HSCM0750387	100	48	4,800	58	2,784	580
	4 - 3/8	HSCM0750437	100	48	4,800	62	2,976	620
	4 - 7/8	HSCM0750487	75	48	3,600	51	2,448	680
	5 - 3/8	HSCM0750537	60	48	2,880	45	2,160	750
	5 - 7/8	HSCM0750587	60	48	2,880	49	2,352	817
	6 - 3/8	HSCM0750637	60	48	2,880	53	2,544	883

For non standard sizes, please contact your **Complete Stud Welding** representative.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

website www.completestudweld.com e-mail sales@completestudweld.com
32035 Creekside Drive, Cleveland, Ohio 44124 fax 216.378.0349 telephone 216.904.4008

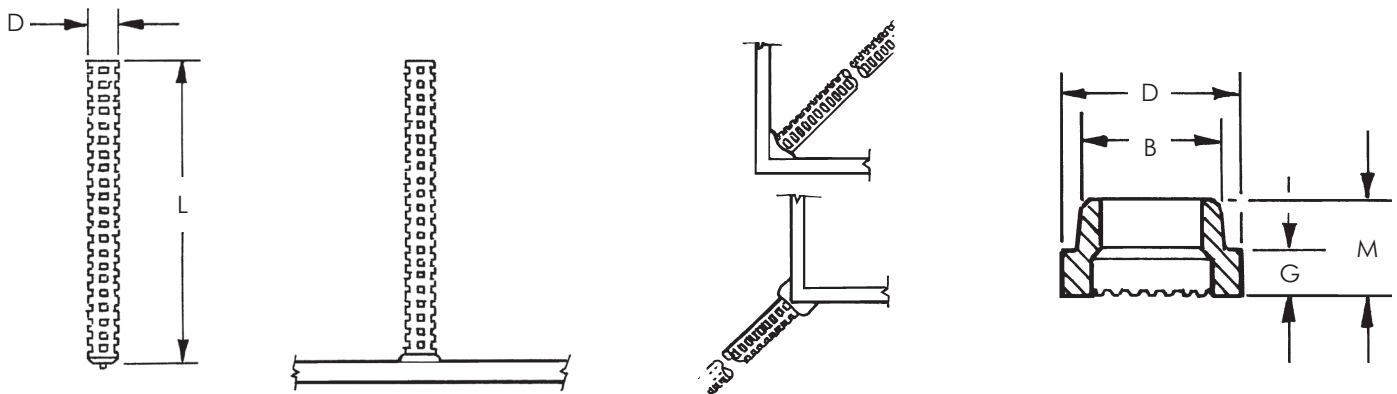
ARC Weld Studs - Concrete Anchors

HSC – HEADED SHEAR CONNECTORS – 7/8” AND 1” STANDARD SIZES

Specifications			Packaging Detail			Weights - in pounds		
Diameter	Length	CSW Part Number (mild steel)	Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet	Box Weight	Pallet Weight	1,000 Pcs. Weight
D	L							
7/8	3 - 3/16	HSCM0870318	100	27	2,700	66	1,782	660
	3 - 1 1/16	HSCM0870368	100	27	2,700	74	1,998	740
	4 - 3/16	HSCM0870418	100	27	2,700	80	2,160	800
	5 - 3/16	HSCM0870518	75	27	2,025	73	1,971	973
	6 - 3/16	HSCM0870618	50	27	1,350	57	1,539	1,140
	7 - 3/16	HSCM0870718	45	27	1,215	59	1,593	1,311
	8 - 3/16	HSCM0870818	40	27	1,080	59	1,593	1,475
	9 - 3/16	HSCM0870918	75	9	675	125	1,125	1,667
	10 - 3/16	HSCM0871018	75	9	675	135	1,215	1,800
	12- 3/16	HSCM0871218	825	1	825	1,793	1,793	2,173
1 inch	3 - 1/4	HSCM1000325	100	27	2,700	74	1,998	740
	4 - 1/4	HSCM1000425	100	27	2,700	80	2,160	800
	5 - 1/4	HSCM1000525	75	27	2,025	73	1,971	973
	6 - 1/4	HSCM1000625	50	27	1,350	57	1,539	1,140
	7 - 1/4	HSCM1000725	45	27	1,215	59	1,593	1,311
	8 - 1/4	HSCM1000825	40	27	1,080	59	1,593	1,475
	9 - 1/4	HSCM1000925	75	9	675	125	1,125	1,667
	10 - 1/4	HSCM1001025	50	9	950	125	1,125	2,500
	12- 1/4	HSCM1001225	600	1	6000	1760	1,760	2,934
For non standard sizes contact you Complete Stud Welding Representative.								

ARC Weld Studs - Concrete Anchors

DBA - DEFORMED BAR ANCHOR - TECHNICAL DETAILS



Stud Specifications		Ferrule Specifications				
D	L	No.	D	B	G	M
3/8	See subsequent page for standard lengths by DBA diameter.	F037-F	.640	.505	.234	.390
1/2		F050-F	.795	.650	.250	.438
5/8		F062-F	1.030	.785	.328	.516
3/4		F075-F	1.218	1.030	.469	.656

Deformed Bar Anchors are designed for weld and bearing plates in concrete connections.

Specifications – DBA's meet AWS Specifications D1.1.

Material – Low carbon steel, ASTM A496

Ferrules – Flat ferrules are provided.

For welding to the inside angle and outside angle refer to the next page for ferrule options.

Length – Lengths are listed before welding. For Stud Diameters (D) 1/2" and smaller the length reduction is roughly 1/8" and for (D) 5/8" and 3/4" the reduction is roughly 3/16".

DBA's can be made in any length above the standard minimum.

Accessories – For a complete list of accessories required with each ferrule type, please see next page.

Mechanical Property Requirements

	Type C
Tensile Strength	80,000 psi min. (552 MPa)
Yield Strength (0.5% offset)	70,000 psi min. (485 MPa)
Type C Studs are cold-worked deformed steel bars manufactured in accordance with specification ASTM A496 having a nominal diameter equivalent to the diameter of a plain wire; having the same weight per foot as the deformed wire. ASTM A496 specifies a maximum diameter of 0.628 in. (16mm). Any bar supplied above that diameter must have the same physical characteristics regarding deformations as required by ASTM A496.	

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Concrete Anchors

DBA – DEFORMED BAR ANCHOR – ACCESSORY DETAILS

Deformed Bar Anchor - Accessory Detail						
Stud Diameter	Chuck P/N	Ferrule Type	Ferrule P/N	Foot P/N	Grip P/N	Ferrule Foot Plate P/N (Dual Leg)
1/4	CN-025	Flat	F025-F	B-1C	GC-025	QN-025
		Low Profile	F025-LP	B-1C	GC-025	QN-025
		Heavy Duty	F025-HD	B-1C	GC-037	QN-037
		Inside Angle	F025-IA	B-1C	GD-025	N/A
		Outside Angle	F025-OA	B-1C	GC-025	QN-025
3/8	CN-037	Flat	F037-F	B-1C	GC-037	QN-037
		Low Profile	F037-LP	B-1C	GC-037	QN-037
		Heavy Duty	F037-HD	B-1C	GC-050	QN-050
		Inside Angle	F037-IA	B-1C	GD-037	N/A
		Outside Angle	F037-OA	B-1C	GC-037	QN-037
1/2	CN-050	Flat	F050-F	B-1C	GC-050	QN-050
		Low Profile	F050-LP	B-1C	GC-050	QN-050
		Vertical	F050-V	B-1C	GC-050	QN-050
		Heavy Duty	F050-HD	B-2C	GC-062	QN-062
		Inside Angle	F050-IA25	B-1C	GD-050	N/A
		Inside Angle	F050-IA37	B-1C	GD-050	N/A
		Outside Angle	F050-OA	B-1C	GC-050	QN-050
5/8	CN-062	Flat	F062-F	B-2C	GC-062	QN-062
		Low Profile	F062-LP	B-2C	GC-062	QN-062
		Vertical	F062-V	B-2C	GC-062	QN-062
		Heavy Duty	F062-HD	B-2C	GC-075	QN-075
		Inside Angle	F062-IA25	B-2C	GD-062	N/A
		Inside Angle	F062-IA37	B-2C	GD-062	N/A
		Outside Angle	F062-OA	B-2C	GC-062	QN-062
3/4	CN-075	Flat	F075-F	B-2C	GC-075	QN-075
		Low Profile	F075-LP	B-2C	GC-075	QN-075
		Vertical	F075-V	B-2C	GC-075	QN-075
		Inside Angle	F075-IA37	B-2C	GD-075	N/A
		Inside Angle	F075-IA50	B-2C	GD-075	N/A
		Outside Angle	F075-OA	B-2C	GC-075	QN-075

ARC Weld Studs - Concrete Anchors

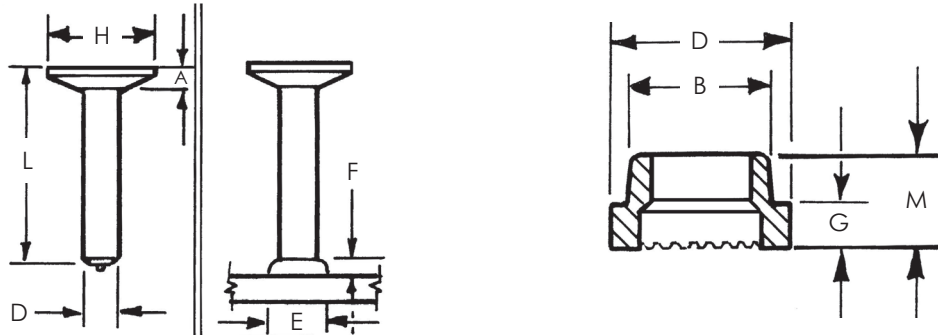
DBA – DEFORMED BAR ANCHOR – STANDARD SIZES

Specifications			Packaging Detail			Weights - in pounds		
Diameter	Length	CSW Part Number (mild steel)	Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet	Box Weight	Pallet Weight	1,000 Pcs. Weight
D	L							
3/8	10 - 1/8	DBA0371012	150	18	2,700	46	828	307
	12 - 1/8	DBA0371212	150	18	2,700	55	990	367
	18 - 1/8	DBA0371812	150	12	1,800	80	960	533
	24 - 1/8	DBA0372412	150	8	1,200	108	864	720
	30 - 1/8	DBA0373012	150	7	1,050	130	910	867
	36 - 1/8	DBA0373612	150	6	900	156	936	1,040
	48 - 1/8	DBA0374812	150	6	900	208	1,248	1,387
1/2	8 - 1/8	DBA0500812	100	18	1,800	44	792	440
	10 - 1/8	DBA0501012	100	18	1,800	54	972	540
	12 - 1/8	DBA0501212	100	18	1,800	67	1,206	670
	18 - 1/8	DBA0501812	100	12	1,200	98	1,176	980
	24 - 1/8	DBA0502412	100	8	800	128	1,024	1,280
	30 - 1/8	DBA0503012	100	7	700	160	1,120	1,600
	36 - 1/8	DBA0503612	100	6	600	192	1,152	1,920
	42 - 1/8	DBA0504212	100	6	600	222	1,332	2,220
	48 - 1/8	DBA0504812	100	6	600	256	1,536	2,560
	60 - 1/8	DBA0506012	100	1	100	314	314	3,140
5/8	12 - 3/16	DBA0621218	50	18	900	51	918	1,020
	18 - 3/16	DBA0621818	50	12	600	76	912	1,520
	24 - 3/16	DBA0622418	50	8	400	102	816	2,040
	30 - 3/16	DBA0623018	50	7	350	126	882	2,520
	36 - 3/16	DBA0623618	50	6	300	151	906	3,020
	42 - 3/16	DBA0624218	50	8	400	176	1,408	3,520
	48 - 3/16	DBA0624818	50	6	300	197	1,182	3,940
3/4	12 - 3/16	DBA0751218	40	18	720	60	1,080	1,500
	18 - 3/16	DBA0751818	40	12	480	87	1,044	2,175
	24 - 3/16	DBA0752418	40	8	320	115	920	2,875
	30 - 3/16	DBA0753018	40	6	240	142	852	3,550
	36 - 3/16	DBA0753618	40	6	240	175	1,050	4,375
	42 - 3/16	DBA0754218	40	6	240	205	1,230	5,125
	48 - 3/16	DBA0754818	40	6	240	226	1,356	5,650

For non standard sizes contact your Complete Stud Welding Representative.

ARC Weld Studs - Concrete Anchors

PSR – PUNCHING SHEAR RESISTOR – TECHNICAL DETAILS



Stud Specifications					Ferrule Specifications			
Diameter	Length Min.	CSW Part Number (mild steel)	Head Diameter	Head Thickness	Ferrule	Major O.D.	Minor O.D.	Height
D	L	P/N	H	A	P/N	D	B	M
3/8	3 - 7/16	PSRM0370343	1.19	.260	F037-F	0.640	0.505	0.390
1/2	2 - 5/8	PSRM0500262	1.58	.330	F050-F	0.795	0.650	0.438
5/8	3 - 3/4	PSRM0620375	1.98	.400	F062-F	1.030	0.785	0.516
3/4	4 - 3/8	PSRM0750437	2.37	.470	F075-F	1.215	1.030	0.656

PSR studs are large-headed shear connectors that are welded to flat steel bars (creating stud rails) and used for shear reinforcement in flat concrete slabs to replace stirrups and column capitals to resist the punching shear stress in the slabs.

Using these PSR stud rails, increases the punching shear capacity at the base of the concrete columns, resulting in a significant reduction in slab thickness. This creates a substantial savings in labor and material costs.

PSR Studs have heat codes stamped on the head that allow traceability to the specific Mill Certification of the stud.

PSR studs are available in any length over the standard minimum.

The ferrule part number provided is for the standard flat down hand position.

The next page details the accessories needed for the Flat type Ferrules indicated above.

Mechanical Property Requirements

Criteria	Type B
Tensile Strength	65,000 PSI min.
Yield Strength	51,000 PSI min.
Elongation (% in 2 in.)	20% min.
Elongation (% in 5 x D)	15% min.
Reduction of Area	50% min.

ARC Weld Studs - Concrete Anchors

PSR PUNCHING SHEAR RESISTOR – ACCESSORY DETAILS

Side Load Chucks			
	Chuck Only	Short Bracket	Long Bracket
Stud Size	Part #	Part #	Part #
3/8	CSLB-037	CSL-037S	CSL-037L
1/2	CSLB-050	CSL-050S	CSL-050L
5/8	CSLB-0562	CSL-062S	CSL-062L
3/4	CSLB-075	CSL-075S	CSL-075L

Side Load Chuck Components	
Component	Part #
Hold Down Finger 3/8, 1/2 & 5/8 Chucks	CSLF
Hold Down Finger 3/4 Chuck	CSLF750
Chuck Isolator	CSLN
Chuck Spring	CSLS
Long Bracket	CSLA-1
Short Bracket	CSLA-2

PSR Twin Leg Ferrule Foot Plate	
Stud Size	Part #
3/8	QNW-037
1/2	QNW-050
5/8	QNW-062
3/4	QNW-075

Other Needed Accessories			
Component	Part #		
Leg Widener	CLSX		
3/8 X 9" Legs (2 pcs.) Gun to Leg Widener L-03709	L-03709		
Legs (2 pcs.) Leg Widener To Foot Plate			
Length to be determined based on stud length. See Arc Stud Welding Legs for stock lengths.			

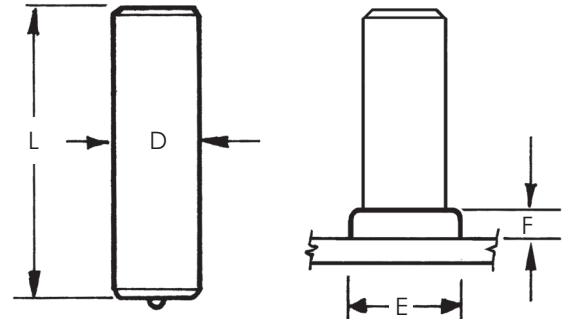
Arc Weld Studs - No Thread Studs

NT – NO THREAD WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding NT weld studs are available in mild steel and stainless steel materials.

NT studs are used as locating pins, spacers, stops, rotational points and tong holds.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications					Standard Accessories		
Base Diameter	Min. Stud Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
D	L	E	F	P/N	P/N	P/N	P/N
0.250	0.781	0.359	0.109	F025-F	B-1N	GN-025	CN-025
0.312	0.781	0.438	0.109	F031-F	B-1N	GN-031	CN-031
0.375	0.781	0.500	0.125	F037-F	B-1N	GN-037	CN-037
0.437	0.781	0.578	0.141	F043-F	B-1N	GN-043	CN-043
0.500	0.813	0.688	0.156	F050-F	B-1N	GN-050	CN-050
0.625	0.969	0.780	0.188	F062-F	B-2N	GN-062	CN-062
0.680	1.000	0.938	0.250	F075-P	B-2N	GN-075	CN-068
0.750	1.250	1.016	0.250	F075-F	B-2N	GN-075	CN-075
0.875	1.500	1.125	0.313	F087-F	B-3N	GN-087	CN-087
1.000	1.641	1.375	0.375	F100-F	B-3N	GN-100	CN-100

To order or specify give: Stud Code, Diameter, Length

Example: NT, 5/8 x 1.75, (BW), Stainless Steel, 2500 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

Arc Weld Studs - No Thread Studs

NBT - BOILER TUBE WELD STUDS - TECHNICAL DETAILS

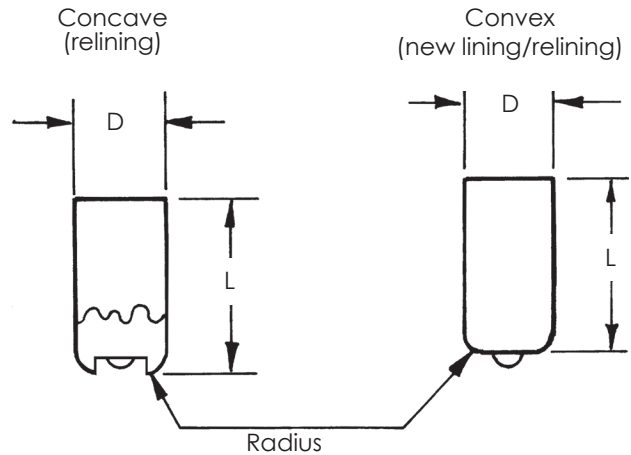
Complete Stud Welding NBT weld studs are available in mild steel and stainless steel materials.

NBT studs are used to secure refractory material and to provide heat dissipation in coal burning boilers. BT studs are commonly made in 430 stainless steel. This stainless typically provides longer stud life than mild steel and is more cost effective than stainless grades 302 and 304.

NBT studs are available in Auto Feed (AF) quality. Please indicate if AF quality is needed.

The "F" ferrules are preferred for welding to flat surfaces. The "C" ferrules are preferred for welding to boiler tubes (i.e. round surfaces).

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications				Standard Accessories			
Base Diameter	Min. Stud Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
D	L	E	F	P/N	P/N	P/N	P/N
0.375	0.750	0.500	0.125	F037-C	B-IN	GN-037	CN-037
				F037-F	B-IN	GN-037	CN-037
0.500	0.813	0.688	0.156	F050-C	B-IN	GN-050	CN-050
				F050-F	B-IN	GN-050	CN-050

To order or specify give: Stud Code, Diameter, Length, Material, Quantity, Concave or Convex, and Ferrule.

Example: NBT, 3/8 x 1.00, (BW), 430 Stainless Steel, 20000 pcs., Convex, F037-C

Specify (L) Length, on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

Arc Weld Studs - No Thread Studs

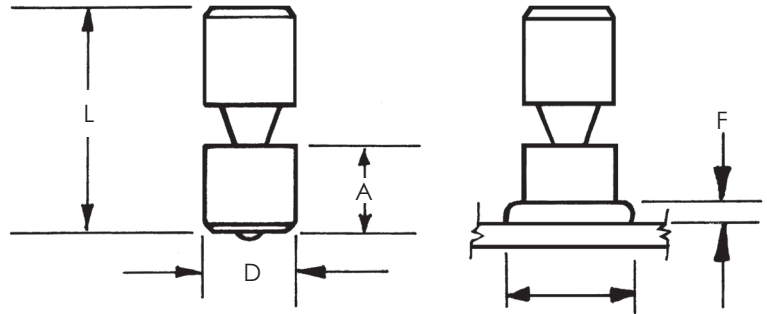
NTK – NO THREAD KNOCK OFF WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding NTK weld studs are available in mild steel and stainless steel materials.

After NTK studs are welded in place the top portion of the stud is knocked off. The welded stud remaining has a shorter height than what is possible to weld with standard No Thread (NT) weld studs.

In addition to being used as locating pins, spacers, stops and rotational points, NTK studs are installed on bridge decking and bridge expansion joints to reduce vehicular skidding. Sometimes called “Anti-Skid” studs.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications					Standard Accessories		
Base Diameter	Minimum Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
D	L	E	F	P/N	P/N	P/N	P/N
0.250	0.875	0.359	0.109	F025-F	B-1N	GN-025	CN-025
0.312	0.875	0.438	0.109	F031-F	B-1N	GN-031	CN-031
0.375	1.000	0.500	0.125	F037-F	B-1N	GN-037	CN-037
0.437	1.250	0.578	0.141	F043-F	B-1N	GN-043	CN-043
0.500	1.250	0.688	0.156	F050-F	B-1N	GN-050	CN-050
0.625	1.500	0.797	0.188	F062-F	B-2N	GN-062	CN-062
0.750	1.500	0.938	0.250	F075-F	B-2N	GN-075	CN-075
0.875	1.500	1.094	0.313	F087-F	B-3N	GN-087	CN-087
1.000	1.625	1.234	0.375	F100-F	B-3N	GN-100	CN-100

To order or specify give: Stud Code, Diameter, Length (L), Base Length (A), Material and Quantity

Example: NTK, 5/16 x 1.00, KO to .375, (BW), mild steel, 2000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating “BW”
or on an After Weld basis by indicating “AW.”**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

Arc Weld Studs - No Thread Studs

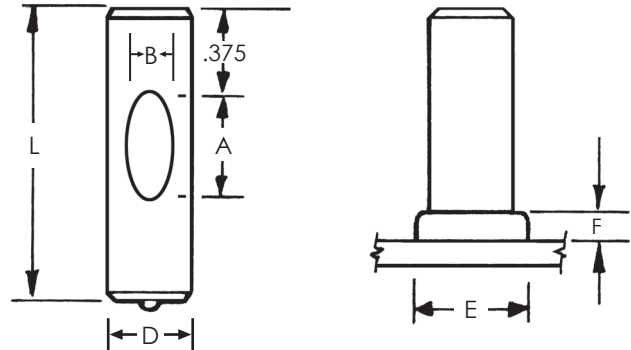
NTH – NO THREAD W/ HOLE WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding NTH weld studs are available in mild steel and stainless steel materials.

NTS studs are commonly used to secure blanket insulation to furnaces, duct work and tanks. Wire is inserted through the stud hole to retain the blanket insulation.

As requested, various diameter NTH studs are supplied with drilled cross holes.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Base Diameter	Overall Length (min.)	Hole Width	Hole Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
D	L	B	A	E	F	P/N	P/N	P/N	P/N
0.375	1.125	0.156	0.500	0.500	0.125	F037-F	B-1N	GN-037	CN-037
0.500	1.125	0.188	0.500	0.688	0.156	F050-F	B-1N	GN-050	CN-050

To order or specify give: Diameter, Length, Material and Quantity

Example: NTH, 3/8 x 1.50, (BW), mild steel, 1000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

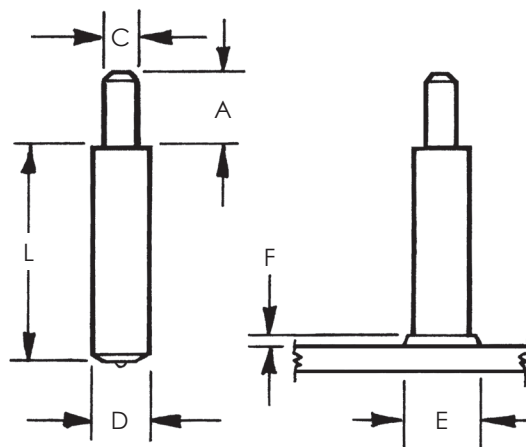
Arc Weld Studs - No Thread Studs

NTS – NO THREAD SHOULDER WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding NTS weld studs are available in mild steel and stainless steel materials.

NTS studs are used for locating pins, spacers, stops, stand offs and rotational points.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Base Diameter	No Thread Diameter	Min. No Thread Length	Min. Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck*
D	C	A	L	E	F	P/N	P/N	P/N	P/N
0.250	Customer to specify this dimension.	0.250	0.312	0.359	0.109	F025-F	B-1N	GN-025	CN-025
0.312		0.250	0.312	0.438	0.109	F031-F	B-1N	GN-031	CN-031
0.375		0.250	0.312	0.500	0.125	F037-F	B-1N	GN-037	CN-037
0.438		0.250	0.350	0.578	0.141	F043-F	B-1N	GN-043	CN-043
0.500		0.250	0.375	0.688	0.156	F050-F	B-1N	GN-050	CN-050
0.625		0.250	0.500	0.797	0.188	F062-F	B-2N	GN-062	CN-062
0.750		0.250	0.625	0.938	0.250	F075-F	B-2N	GN-075	CN-075
0.875		0.250	0.625	1.094	0.313	F087-F	B-3N	GN-087	CN-087
1.000		0.250	0.720	1.250	0.375	F100-F	B-3N	GN-100	CN-100

* Chuck part number shown is for the Base Diameter "D" shown.

To order or specify give: Stud Code, Diameter, Length, C dia., A Dimension, Material and Quantity

Example: NTS, 5/16 x 1.00, (BW), with .188 x .375, mild steel, 2000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

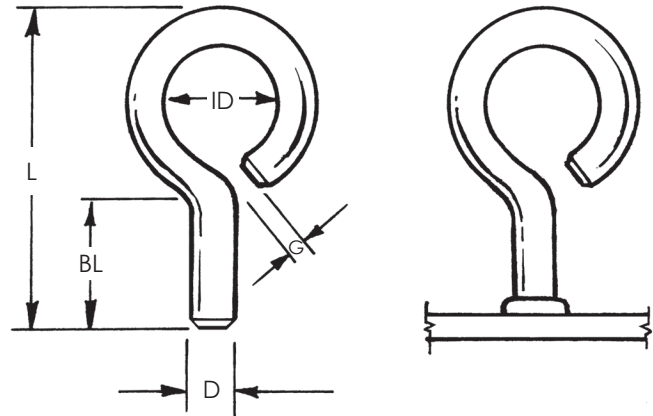
Arc Weld Studs - No Thread Studs

NTE - NO THREAD EYE BOLT WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding NTE weld studs are available in mild steel and stainless steel materials. NTE studs are commonly used for lifting parts and for assembly attachment.

To stud weld NTE studs, special chucks are required and the dual leg ferrule foot plate is preferred.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories		
Base Diameter	Minimum Length	Minimum Base Length	Minimum Inside Diameter	Minimum Opening	Ferrule	Foot	Grip	Chuck
D	L	BL	ID	G	P/N	P/N	P/N	P/N
0.188	1.875	0.750	0.500	0.188	F019-F	QN-018	n/a	EB-018
0.250	1.750	0.750	0.750	0.250	F025-F	QN-025	n/a	EB-025
0.312	1.875	0.750	0.750	0.313	F031-F	QN-031	n/a	EB-031
0.375	2.625	1.000	0.875	0.375	F037-F	QN-037	n/a	EB-037
0.438	3.000	1.125	1.000	0.438	F043-F	QN-043	n/a	EB-043
0.500	2.625	1.375	1.250	0.500	F050-F	QN-050	n/a	EB-050

To order or specify give: Stud Code, D x L; BL; ID; G

Example: NTE, 3/8 x 2.75, 1.125, (BW), 0.875, 0.375, mild steel, 2000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

Arc Weld Studs - No Thread Studs

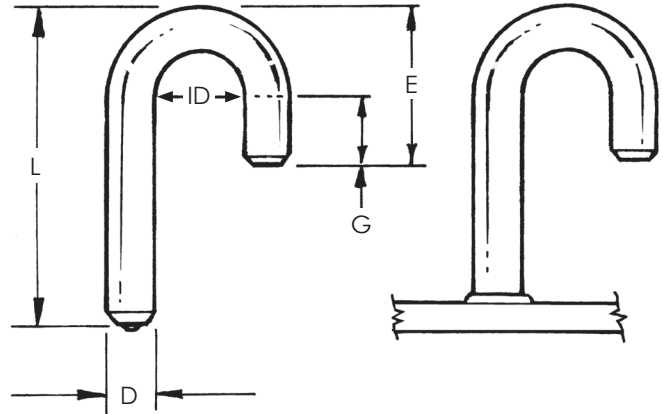
NTJ – NO THREAD “J” BOLT WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding NTJ weld studs are available in mild steel and stainless steel materials.

NTJ studs are commonly used for lifting parts and for assembly attachment.

To stud weld NTJ studs, special chucks are required and the dual leg ferrule foot plate is preferred.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories		
Base Diameter	Minimum Length	Minimum Bend Length	Minimum Inside Diameter	Minimum End Length	Ferrule	Foot	Grip	Chuck
D	L	E	ID	G	P/N	P/N	P/N	P/N
0.188	1.125	1.000	0.500	0.500	F019-F	QN-018	n/a	JB-018
0.250	1.250	1.125	0.625	0.500	F025-F	QN-025	n/a	JB-025
0.312	1.500	1.250	0.750	0.500	F031-F	QN-031	n/a	JB-031
0.375	1.625	1.375	0.875	0.500	F037-F	QN-037	n/a	JB-037
0.438	1.750	1.500	1.000	0.500	F043-F	QN-043	n/a	JB-043
0.500	2.000	1.500	1.000	0.500	F050-F	QN-050	n/a	JB-050
0.625	2.500	1.875	1.500	0.500	F050-F	QN-050	n/a	JB-062

To order or specify give: Stud Code, D x L; E; ID, Material and Quantity

Example: NTJ, 1/2 x 3, (BW), with 2 x 1.25, 304SS, 1000 pcs.

Specify (L) Length, on a Before Weld basis by indicating “BW”

or on an After Weld basis by indicating “AW.”

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Rectangular Studs

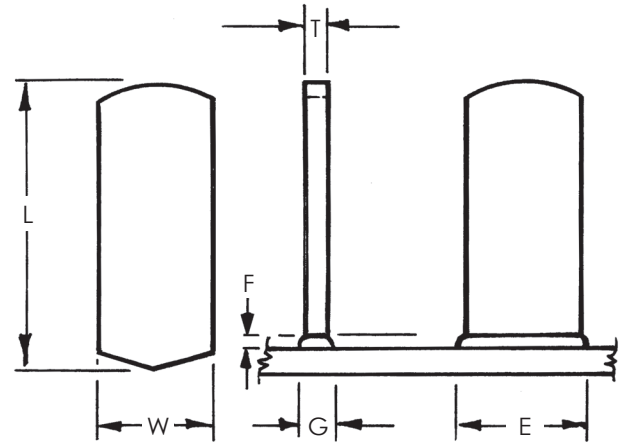
RP – RECTANGULAR PLAIN WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding RP weld studs are available in mild steel and stainless steel materials.

RP studs are commonly used for locating parts in assemblies and for heat dissipation on furnaces and molds.

To stud weld RP studs, rectangular chucks, standard foot pieces and standard ferrule grips are typically used.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Thickness*	Width*	Length (Min.)	Flash Dimensions			Ferrule	Foot	Grip	Chuck
T	W	L	E	F	G	P/N	P/N	P/N	P/N
0.125	0.250	0.875	0.300	0.109	0.218	F025-R1	B-1N	GN-037	CR-CA
0.125	0.375	1.000	0.437	0.109	0.218	F037-R1	B-1N	GN-037	CR-CB
0.125	0.625	1.000	0.687	0.109	0.218	F062-R1	B-2N	GN-075	CR-CC
0.125	0.875	1.000	0.937	0.156	0.218	F087-R1	B-3N	GN-087	CR-CH
0.125	1	1.000	1.062	0.156	0.218	F100-R1	B-3N	GN-100	CR-CE
0.250	0.75	1.250	0.840	0.188	0.350	F075-R2	B-2N	GN-075	CR-CF

* Other sizes are available upon request.

To order or specify give: Stud Code, T x W x L, Material and Quantity

Example: RP, 1/8 x 0.625 x 1.25, (BW), mild steel, 1000 pcs.

Specify (L) Length, on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Rectangular Studs

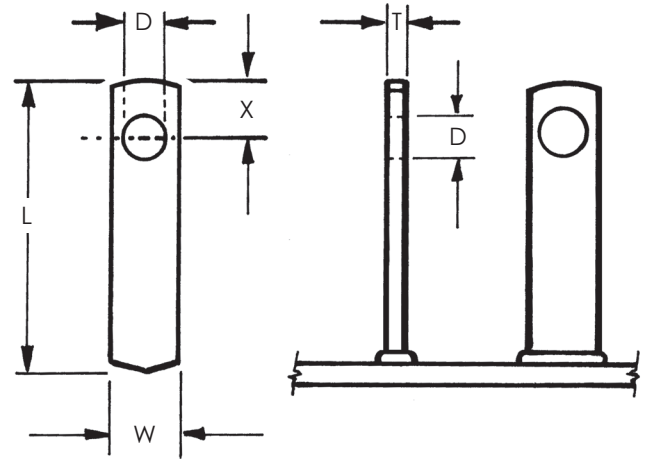
RH - RECTANGULAR W/HOLE WELD STUD - TECHNICAL DETAILS

Complete Stud Welding RH weld studs are available in mild steel and stainless steel materials.

RH studs are commonly used for fastening and attachment purposes. Bolts or wires are installed in the hole to make the connection.

To stud weld RH studs, rectangular chucks, standard foot pieces and standard ferrule grips are typically used.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications					Standard Accessories			
Thickness*	Width*	Length (Min.)	Hole Information		Ferrule	Foot	Grip	Chuck
T	W	L	D	X	P/N	P/N	P/N	P/N
0.125	0.375	1.000	0.203	0.313	F037-R1	B-1N	GN-037	CR-CB
0.125	0.625	1.000	0.313	0.313	F062-R1	B-2N	GN-075	CR-CC

* Other sizes are available upon request.

To order or specify give: Stud Code, T x W x L, w/ D & X, Material and Quantity

Example: RH, 1/8 x 0.625 x 1.50, (BW), with .313 x .313, mild steel, 1000 pcs.

Specify (L) Length, on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Rectangular Studs

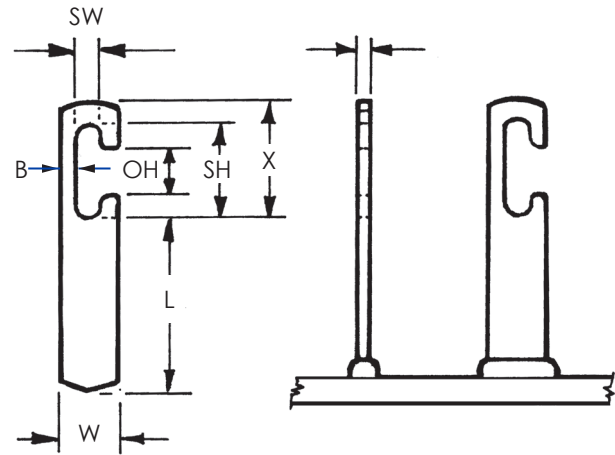
RT - RECTANGULAR "T" SLOT WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding RT weld studs are available in mild steel and stainless steel materials.

RT studs are commonly used for securing wire mesh to furnaces. After installation, the mesh is filled with refractory material.

To stud weld RT studs, rectangular chucks, standard foot pieces and standard ferrule grips are typically used.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications								
Thickness	Width	Length (Min.)	"T" Slot Details					Ferrule
T	W	L	OH	SH	X	B	SW	P/N
0.125	0.375	0.500	0.322	0.531	0.765	0.122	0.130	F037-R1
0.125	0.625	0.500	0.500	1.000	1.250	0.185	0.255	F062-R1

To order or specify give: Stud Code, T x W x L, Material and Quantity

Example: RT, 1/8 x 0.625 x .75, (BW), mild steel, 1000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **Threaded and No-Thread Weld Studs – Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

ARC Weld Studs - Rectangular Studs

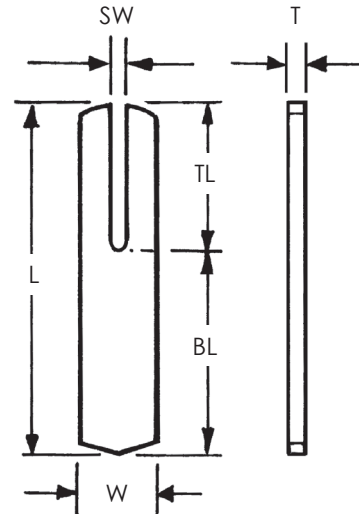
R2 – RECTANGULAR – 2 TINE WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding R2 weld studs are available in mild steel and stainless steel materials.

R2 studs are used to secure refractory materials (blanket, block, cast, gunned and troweled) inside various types of furnaces and chimneys.

To stud weld R2 studs, rectangular chucks, standard foot pieces and standard ferrule grips are typically used.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Thickness	Width	Length (Min.)	Length (Min.)	Length (Min.)	Slot Width	Ferrule	Foot	Grip	Chuck
T	W	L	BL	TL	SW	P/N	P/N	P/N	P/N
0.125	0.375	1.250	0.250	1.000	0.125	F037-R-I	B-1N	GN-037	CR-CB
0.125	0.625	1.250	0.625	0.625	0.156	F062-R-I	B-2N	GN-075	CR-CC

To order or specify give: Stud Code, T x W x BL x TL, Material and Quantity

Example: R2, 1/8 x 0.625 x 2 x 1, (BW), 304SS, 1000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See RP Weld Stud specifications for the flash dimensions of R2 type studs.

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

ARC Weld Studs - Rectangular Studs

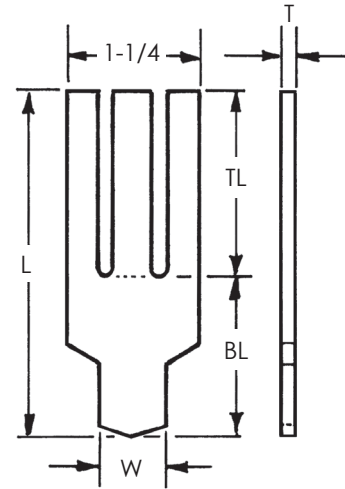
R3 – RECTANGULAR – 3 TINE WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding R3 weld studs are available in mild steel and stainless steel materials.

R3 studs are used to secure refractory materials (blanket, block, cast, gunned and troweled) inside various types of furnaces and chimneys.

To stud weld R3 studs, rectangular chucks, standard foot pieces and standard ferrule grips are typically used.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative



Stud Specifications							Standard Accessories		
Thickness	Width*	Length (Min.)	Length (Min.)	Length (Min.)	Slot Width	Ferrule	Foot	Grip	Chuck
T	W	L	BL	TL	SW	P/N	P/N	P/N	P/N
0.125	0.625	2.250	1.250	1.000	0.156	F062-R1	B-2N	GN-075	CR-CB

*Width represents weld base width.

To order or specify give: Stud Type, T x W x BL x TL, Material and Quantity

Example: R3, 1/8 x 0.625 x 1.50 x 2.5, (BW), Mild Steel, 1000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See RP Weld Stud specifications for the flash dimensions of R2 type studs.

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Rectangular Studs

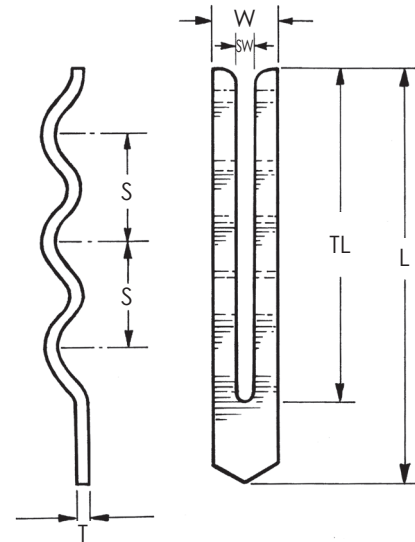
R2W – RECTANGULAR – 2 TINE WIGGLE WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding R2W weld studs are available in mild steel and stainless steel materials.

Like the R2W studs, RW studs are used to secure refractory materials. The bends in the R2W stud help to preclude slippage of the refractory material when in service.

To stud weld RW studs, rectangular chucks, standard foot pieces and standard ferrule grips are typically used.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Thickness	Width	Length Range*	Tine Length**	Wiggle Length	Slot Width	Ferrule	Foot	Grip	Chuck
T	W	L	TL	S	SW	P/N	P/N	P/N	P/N
0.125	0.625	2.125 - 3.0	1.625	1.031	0.156	F062-R1	B-2N	GC-075	CR-CC
0.125	0.625	3.125 - 4.0	2.625	1.031	0.156	F062-R1	B-2C	GC-075	CR-CC
0.125	0.625	4.13 - 7.13	3.250	1.031	0.156	F062-R1	B-2C	GC-075	CR-CC
0.125	0.625	5.50 - 8.50	4.625	1.031	0.156	F062-R1	B-2C	GC-075	CR-CC
0.125	0.625	6.88 - 9.88	6.000	1.031	0.156	F062-R1	B-2C	GC-075	CR-CC

* For lengths over 3", the split foot and split grip accessories are depicted.

** Tine Length determines whether 1, 2 or 3 wiggles will be provided.

To order or specify give: Stud Code, T x W x L, Material and Quantity

Example: R2W, 0.125 x 0.625 x 6, (BW), mild steel, 3000 pcs.

Specify (L) Length, on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See RP Weld Stud specifications for the flash dimensions of RW type studs.

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
 Products • Service • Knowledge • Integrity

ARC Weld Studs - Rectangular Studs

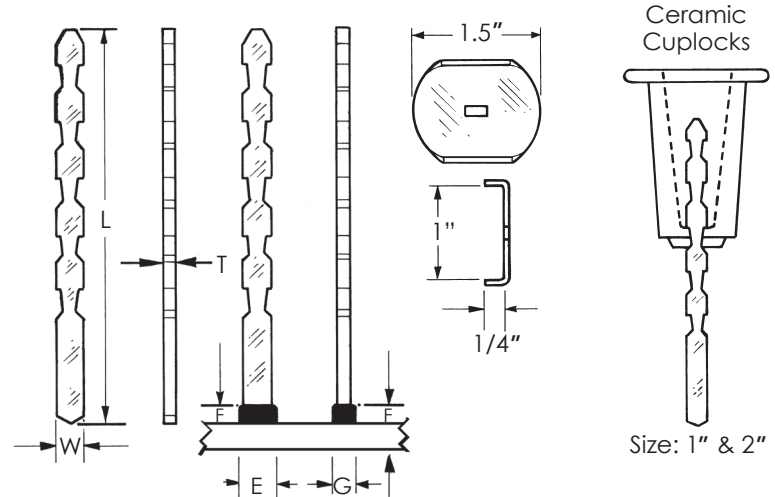
RF – RECTANGULAR FIBER WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding RF weld studs are available in mild steel and stainless steel materials. Material options and temperature limits are as follows:
 304 SS - Temperature up to 1500 degrees F
 310 SS - Temperature up to 1850 degrees F
 330 SS - Temperature up to 2000 degrees F
 601 Inconel - Temperature up to 2150 degrees F

RF studs are used to secure blanket insulation to furnaces. After the insulation is impaled over the RF studs, metal washers and or the ceramic cuplocks are installed and lock on the RF Stud to retain the insulation. The ceramic cuplock can be filled with refractory material or a ceramic plug.

Washers, ceramic cuplocks and cuplock plugs are sold separately. The RF stud and washer must be the same alloy.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Thickness	Width	Length (Min.)	Flash Dimensions			Ferrule	Foot	Grip	Chuck
T	W	L	E	F	G	P/N	P/N	P/N	P/N
0.125	0.250	1.500	0.300	0.109	0.218	F025-RI	B-IC	GC-037	CR-CA

To order or specify give: Stud Code, T x W x L Material and Quantity

Example: RF 0.125 x 0.25 x 5.25, (BW), 601 Inconel, 3000 pcs.

**Specify (L) Length, on a Before Weld basis by indicating "BW"
 or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
 Products • Service • Knowledge • Integrity

ARC Weld Studs - Refractory Anchors

REFRACTORY ANCHORS

This information is under construction.

Please contact your **Complete Stud Welding** representative for assistance.

under construction

FOR INQUIRIES, TO PLACE ORDERS,
SERVICE AND TECHNICAL SUPPORT CONTACT
ANY OF THE FOLLOWING:

OFFICE: 216.904.4008

EMAIL: SALES@COMPLETESTUDWELD.COM

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Externally Threaded

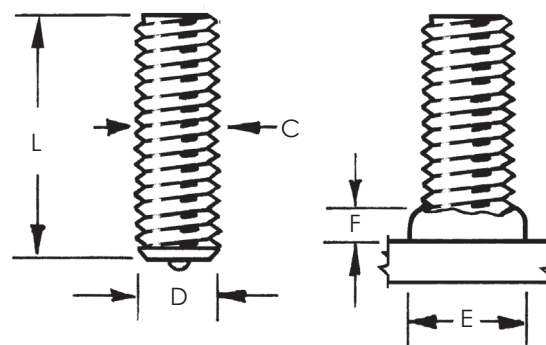
TF – THREADED FULLY WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TF weld studs are available in mild steel and stainless steel materials.

Coarse and fine threads are available in both imperial (UNC-2A and UNF-2A) and ISO Metric (Class 6g) sizes. The imperial coarse threads are depicted below (UNC-2A) and are standard.

TF studs permit close run down of a nut to the base metal.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories		
Thread Size	Minimum Length	Base Diameter	Flash Dimensions		Ferrule	Foot	Grip	Chuck
C	L	D	E	F	P/N	P/N	P/N	P/N
10-24	0.750	0.159	0.281	0.094	F019-F	B-1N	GN-019	CN-018
10-32	0.750	0.167	0.281	0.094	F019-F	B-1N	GN-019	CN-018
1/4-20	0.750	0.215	0.359	0.109	F025-F	B-1N	GN-025	CN-025
5/16-18	0.750	0.275	0.438	0.109	F031-F	B-1N	GN-031	CN-031
3/8-16	0.750	0.330	0.500	0.125	F037-F	B-1N	GN-037	CN-037
7/16-14	0.875	0.387	0.578	0.141	F043-F	B-1N	GN-043	CN-043
1/2-13	0.875	0.444	0.688	0.156	F050-F	B-1N	GN-050	CN-050
5/8-11	1.000	0.562	0.797	0.188	F062-F	B-2N	GN-062	CN-062
3/4-10	1.250	0.680	0.938	0.250	F075-F	B-2N	GN-075	CN-075
7/8-9	1.375	0.798	1.094	0.313	F087-F	B-3N	GN-087	CN-087
1-8	1.500	0.915	1.234	0.375	F100-F	B-3N	GN-100	CN-100

To order or specify give: Stud Code, C x L Material and Quantity

Example: TF 5/8-11 x 1.75, (BW), Stainless Steel, 2500 pcs.

Specify (L) Length, on a Before Weld basis by indicating "BW" or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Externally Threaded

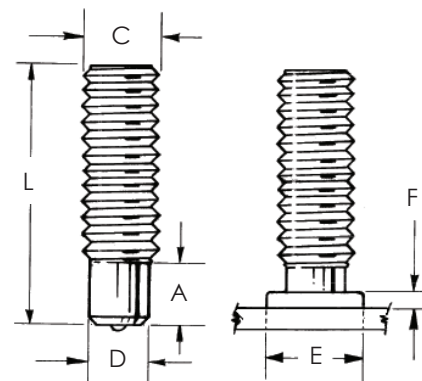
TP – THREADED PARTIALLY WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TP weld studs are available in mild steel and stainless steel materials.

Coarse and fine threads are available in both imperial (UNC-2A and UNF-2A) and ISO Metric (Class 6g) sizes. The imperial coarse threads are depicted below (UNC-2A) and are standard.

TP studs are used in a wide range of general industrial applications.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Thread Size	Minimum Length	Base Diameter	Base Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
C	L	D	A	E	F	P/N	P/N	P/N	P/N
1/4-20	0.750	0.215	0.375	0.313	0.094	F025-P	B-1N	GN-025	CN-025
5/16-18	0.750	0.275	0.375	0.406	0.109	F031-P	B-1N	GN-031	CN-031
3/8-16	0.750	0.330	0.375	0.469	0.109	F037-P	B-1N	GN-037	CN-037
7/16-14	0.750	0.387	0.437	0.531	0.125	F043-P	B-1N	GN-043	CN-043
1/2-13	0.875	0.444	0.500	0.594	0.156	F050-P	B-1N	GN-050	CN-050
5/8-11	1.00	0.562	0.625	0.750	0.188	F062-P	B-2N	GN-062	CN-062
3/4-10	1.375	0.680	0.796	0.922	0.250	F075-P	B-2N	GN-075	CN-075
7/8-9	1.375	0.798	0.859	1.047	0.313	F087-P	B-3N	GN-087	CN-087
1-8	1.500	0.915	0.921	1.188	0.344	F100-P	B-3N	GN-100	CN-100

To order or specify give: Stud Code, Diameter, Length, Material and Quantity

Example: TP, 3/8-16 x 1.125, (BW), Mild Steel, 1000 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW" or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Externally Threaded

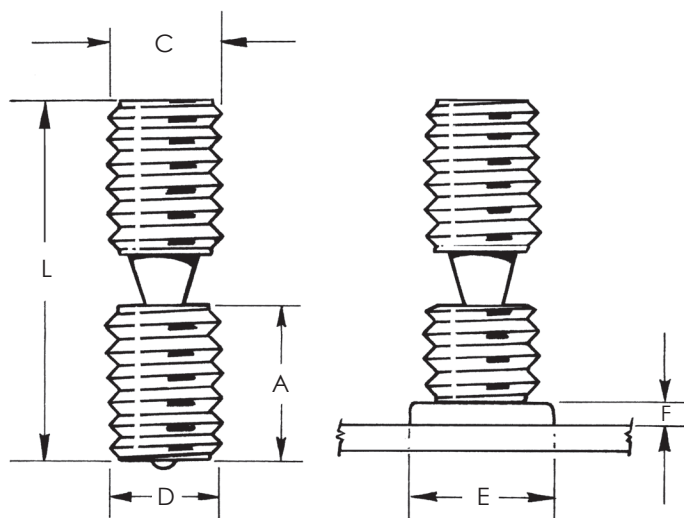
TKO - THREADED KNOCK OFF WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding TKO weld studs are available in mild steel and stainless steel materials. TKO studs are most often made to each customer's order.

Coarse and fine threads are available in both imperial (UNC-2A and UNF-2A) and ISO Metric (Class 6g) sizes. The imperial coarse threads are depicted below (UNC-2A) and are standard.

After TKO studs are welded in place and the top portion of the stud is Knocked off. The welded threaded stud remaining has a shorter threaded length than what is possible with TP and TF type studs.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Thread Size	Minimum Length	Base Diameter	Base Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
C	L	D	A	E	F	P/N	P/N	P/N	P/N
1/4-20	0.875	0.215	0.375	0.359	0.109	F025-F	B-1N	GN-025	CN-025
5/16-18	0.875	0.275	0.375	0.438	0.109	F031-F	B-1N	GN-031	CN-031
3/8-16	1.000	0.330	0.375	0.500	0.125	F037-F	B-1N	GN-037	CN-037
7/16-14	1.250	0.387	0.375	0.578	0.141	F043-F	B-1N	GN-043	CN-043
1/2-13	1.250	0.444	0.500	0.688	0.156	F050-F	B-1N	GN-050	CN-050
5/8-11	1.500	0.562	0.680	0.797	0.188	F062-F	B-2N	GN-062	CN-062
3/4-10	1.500	0.680	0.750	0.938	0.250	F075-F	B-2N	GN-075	CN-075
7/8-9	1.500	0.798	0.750	1.094	0.313	F087-F	B-3N	GN-087	CN-087

To order or specify give: Stud Code, Dimensions C x L x A, Material and Quantity

Example: TKO, 3/8-16 x 1, (BW), KO to .375, 18-8SS, 2200 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW" or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

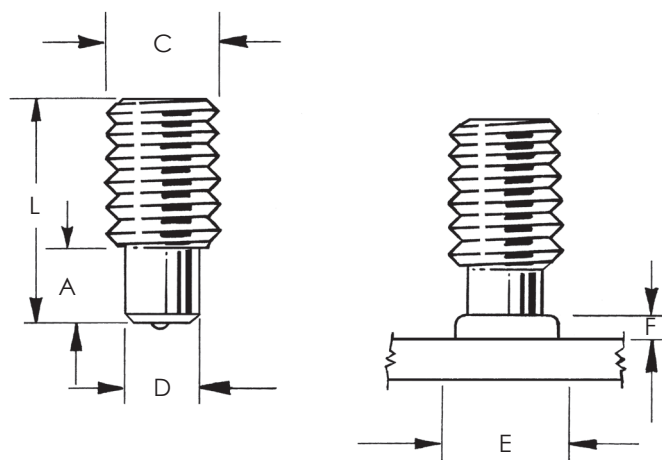
ARC Weld Studs - Externally Threaded

TRB – THREADED REDUCED BASE WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TRB weld studs are available in mild steel and stainless steel materials. TRB studs are most often made to each customer's order.

TRB studs have a smaller weld base diameter than TP, TF and TFB studs and thus produce a smaller flash diameter. TRB studs permit smaller clearance holes in your design. The load strengths for TRB studs are determined by the weld base diameter.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Thread Size	Minimum Length	Base Diameter	Base Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
C	L	D	A	E	F	P/N	P/N	P/N	P/N
1/4 - 20	0.750	0.187	0.187	0.266	0.125	F025-TB	B-1N	GN-025	CN-025
5/16 - 18	0.750	0.246	0.187	0.313	0.125	F031-TB	B-1N	GN-031	CN-031
3/8 - 16	0.750	0.312	0.375	0.422	0.125	F037-R	B-1N	GN-037	CN-037
7/16 - 14	0.875	0.375	0.375	0.500	0.125	F043-R	B-1N	GN-043	CN-043
1/2 - 13	1.000	0.437	0.437	0.563	0.156	F050-R	B-1N	GN-050	CN-050
5/8 - 11	1.250	0.500	0.547	0.609	0.172	F062-R	B-2N	GN-062	CN-062
3/4 - 10	1.500	0.625	0.797	0.766	0.281	F075-R	B-2N	GN-075	CN-075
7/8 - 9	1.500	0.750	0.922	0.938	0.328	FO75-F	B-3N	GN-075	CN-087
1 - 8	1.750	0.875	1.078	1.063	0.344	F087-F	B-3N	GN-087	CN-100

To order or specify give: Stud Code, Thread size, Length, Unthreaded length, Material and Quantity

Example: TRB, 1/2-13 x 1.50, .437, (BW), Mild Steel, 2500 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW" or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

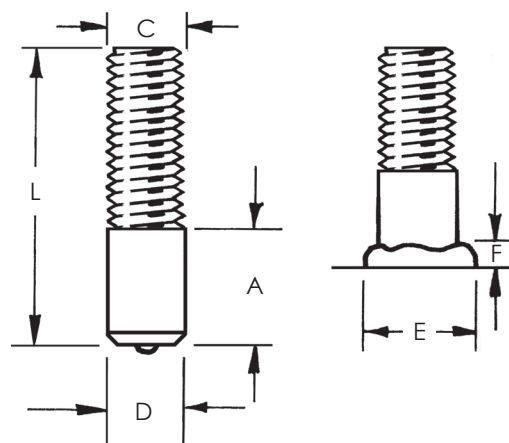
COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Externally Threaded

TFB – THREADED FULL BASE WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TFB weld studs are available in mild steel and stainless steel materials. TFB studs are most often made to each customer's order.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Thread Size	Minimum Length	Base Diameter	Base Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck
C	L	D	A	E	F	P/N	P/N	P/N	P/N
1/4-20	0.780	0.250	0.187	0.359	0.109	F025-F	B-1N	GN-025	CN-025
5/16-18	0.780	0.312	0.250	0.438	0.109	F031-F	B-1N	GN-031	CN-031
3/8-16	0.780	0.375	0.265	0.500	0.125	F037-F	B-1N	GN-037	CN-037
7/16-14	0.780	0.437	0.281	0.578	0.141	F043-F	B-1N	GN-043	CN-043
1/2-13	1.000	0.500	0.296	0.688	0.156	F050-F	B-1N	GN-050	CN-050
5/8-11	1.234	0.625	0.359	0.797	0.188	F062-F	B-2N	GN-062	CN-062
3/4-10	1.234	0.750	0.500	0.938	0.250	F075-F	B-2N	GN-075	CN-075
7/8-9	1.500	0.875	0.625	1.094	0.313	F087-F	B-3N	GN-087	CN-087
1-8	1.650	1.000	0.750	1.234	0.375	F100-F	B-3N	GN-100	CN-100

To order or specify give: Stud Code, Thread size, Length, Unthreaded length, Material and Quantity

Example: TFB, 3/4-10 x 2, (BW), .75, Mild Steel, 2500 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

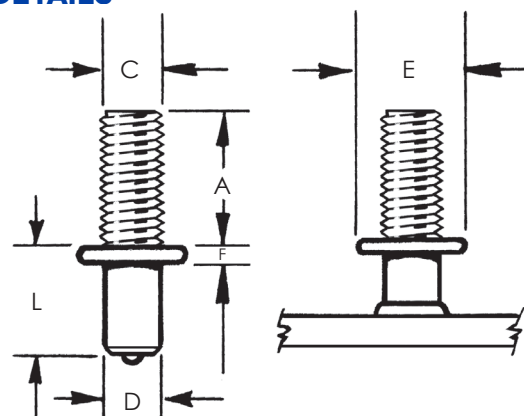
ARC Weld Studs - Externally Threaded

TC – THREADED COLLAR WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TC weld studs are available in mild steel and stainless steel materials.

TC studs are used to provide a spacer between the base metal and the attached part.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Base Diameter	Min. Length	Max. Thread Diameter	Std. Thread Length	Collar Diameter	Collar Thickness				
D	L	C	A	E	F	Ferrule	Foot	Grip	Chuck
0.215	0.375	1/4 - 20	0.250	0.500	0.125	F025-TC	B-2N	GN-062	CN-025
0.275	0.375	5/16 - 18	0.312	0.578	0.141	F031-TC	B-2N	GN-062	CN-031
0.330	0.375	3/8 - 16	0.375	0.688	0.156	F037-TC	B-2N	GN-062	CN-037
0.446	0.500	1/2 - 13	0.500	0.797	0.188	F050-TC	B-2N	GN-075	CN-050

To order or specify give: Stud Code, Dimensions D x L; C x A, Material and Quantity

Example: TC, .330 x 1 with 3/8-16 x 5/8, (BW), Stainless, 2200 pcs.

**Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

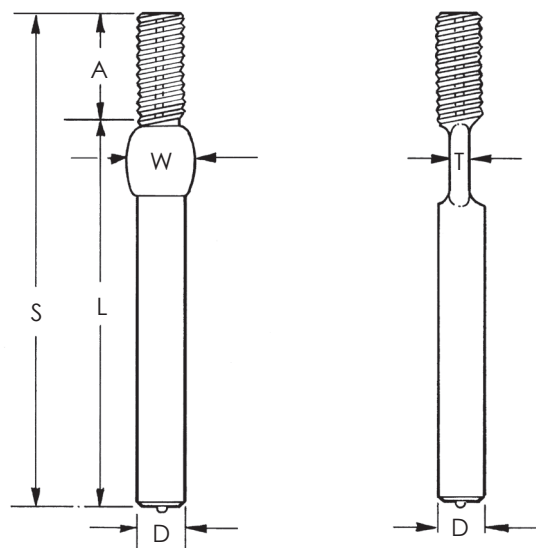
ARC Weld Studs - Externally Threaded

TCC - THREADED COLLAR CRIMPED WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding TCC weld studs are available in mild steel and stainless steel materials.

TCC studs are commonly used in refractory applications for heat recovery power generation systems. After the TCC studs are welded in place and the refractory material installed, the sheet metal skin is placed over the studs and hex nuts installed. The crimped area of the stud supports the sheet metal skin and precludes the skin from compressing the insulation below. See TCW - Threaded Collar Washer and TC - Threaded Collar studs for similar function studs.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Base Diameter	Min. Length	Thread Size	Min. Thread Length	Crimp Width	Crimp Thickness	Ferrule	Foot	Grip	Chuck
D	L	C	A	W	T	P/N	P/N	P/N	P/N
0.375	2.000	3/8-16	0.500	0.500	0.218	F037-F	B-1C	GC-037	CN-037
0.500	2.000	1/2-13	0.500	0.625	0.218	F050-F	B-1C	GC-050	CN-050

To order or specify give: Stud Code, D x L x C x A, Material and Quantity

Example: TCC, .50 x 5.0 with 1/2-13 x 1.0, (BW), 18-8 SS, 3800 pcs.

**Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

TCC stud Flash Dimensions are the same as .375 and .500 Diameter NT studs.

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Externally Threaded

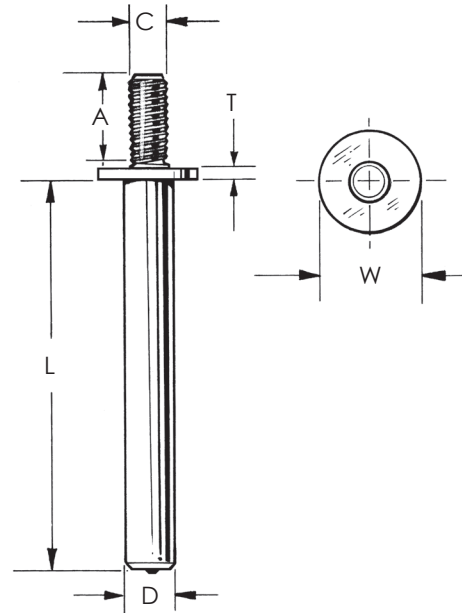
TCW – THREADED COLLAR WASHER WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TCW weld studs are available in mild steel and stainless steel materials.

TCW studs are commonly used in refractory applications for heat recovery power generation systems. See TCC - Threaded Collar Crimped and TC - Threaded Collar studs for similar function studs.

The washer is installed prior to thread rolling process in order to lock the washer on stud. Washer can not be removed after threads are rolled.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Base Diameter	Min. Length	Thread Size	Min. Thread Length	Min. Washer Diameter	Washer Thickness	Ferrule	Foot	Grip	Chuck
D	L	C	A	W	T	P/N	P/N	P/N	P/N
0.500	2.000	3/8-16	0.500	1.000	0.120	F050-F	B-1C	GC-050	CN-037
0.625	2.000	1/2-13	0.500	1.250	0.120	F062-F	B-2C	GC-062	CN-050

To order or specify give: Stud Code, Diameter, Length, C x A, Material and Quantity

Example: TCW, .50 x 5.0 with 1/2-13 x 3/4, (BW), 304 SS, 5000 pcs.

**Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

TCW stud Flash Dimensions are the same as .500 and .625 Diameter NT studs.

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

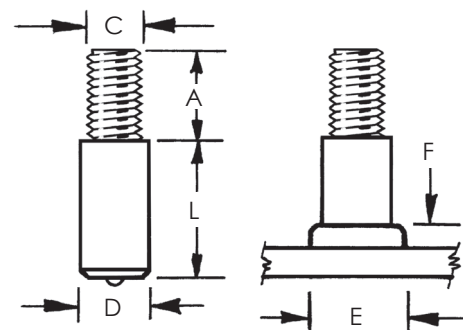
ARC Weld Studs - Externally Threaded

TS – THREADED SHOULDER WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TS studs are available in mild steel and stainless steel materials. As most TS studs are made to each customer's order, the customer can specify all dimensions when ordering.

TS studs are used to provide a spacer between the base metal and the attached part.

For application and dimensional assistance, contact **Complete Stud Welding** Representative.



Stud Specifications						Standard Accessories			
Base Diameter	Max. Thread Diameter	Min. Thread Length	Min. Base Length	Flash Dimensions		Ferrule	Foot	Grip	Chuck*
D	C	A	L	E	F	P/N	P/N	P/N	P/N
0.250	#8	0.250	0.312	0.359	0.109	F025-F	B-1N	GN-025	CN-015
0.312	#10	0.250	0.312	0.438	0.109	F031-F	B-1N	GN-031	CN-018
0.375	1/4 - 20	0.250	0.312	0.500	0.125	F037-F	B-1N	GN-037	CN-025
0.438	5/16 - 18	0.312	0.350	0.578	0.141	F043-F	B-1N	GN-043	CN-031
0.500	3/8 - 16	0.375	0.375	0.688	0.156	F050-F	B-1N	GN-050	CN-037
0.625	1/2 - 13	0.500	0.500	0.797	0.188	F062-F	B-2N	GN-062	CN-050
0.750	5/8 - 11	0.562	0.625	0.938	0.250	F075-F	B-2N	GN-075	CN-062
0.875	3/4 - 10	0.625	0.625	1.094	0.313	F087-F	B-3N	GN-087	CN-075
1.000	7-8 - 9	0.750	0.720	1.250	0.375	F100-F	B-3N	GN-100	CN-087

* Chuck part number provided is for the Threaded Diameter (C) shown.

To order or specify give: Stud Code, Base diameter, Length, Thread Size, Thread Length, Material and Quantity

Example: TS, .500 x 1.00, 3/8-16 x 5/8, (BW), 304 SS, 2200 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW" or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

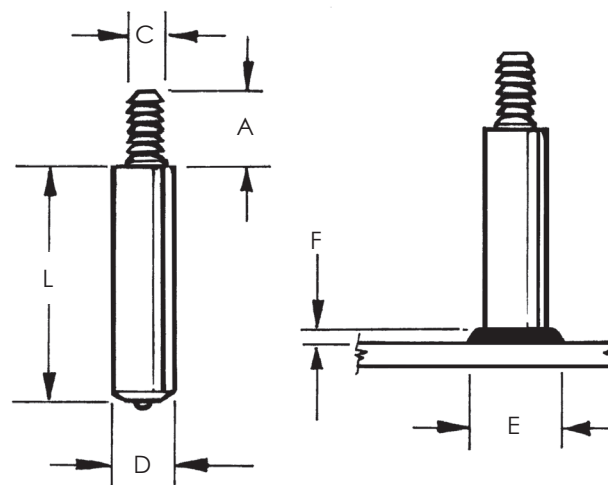
ARC Weld Studs - Externally Threaded

TAG - SHOULDER ANNULAR GROOVE WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding TAG weld studs are available in mild steel and stainless steel materials.

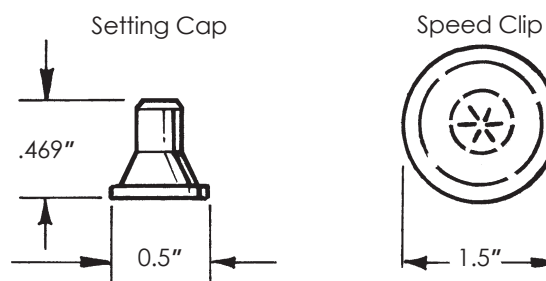
TAG studs are used to make roof or wall systems and to cover and insulate tanks. The speed clip is commonly used to secure insulation material impaled over the stud prior to capping. After the sheet metal skin is impaled over the annular grooves, the cap-setting tool and a hammer are used to install the setting caps onto the TAG studs.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Base Diameter	Groove Diameter	Groove Length	Min. Length	Flash Dimensions					
D	C	A	L	E	F	Ferrule	Foot	Grip	Chuck
0.312	0.188	0.375	0.625	0.438	0.109	F031-F	B-IN	GN-03I	CN-018
0.312	0.188	0.438	0.625	0.438	0.109	F031-F	B-IN	GN-03I	CN-018

Recommended Hardware:	Part Number
Speed Clip - Mild Steel	SAG-001
Speed Clip - Stainless Steel	SAG-002
Speed Clip - Aluminum	SAG-003
Setting Caps - Aluminum	SAG-004
Setting Tool	SAG-005



To order or specify give: Stud Code, Dimensions D x L: A, Material and Quantity

Example: TAG .312 x 7/8, .437, (BW), Mild Steel, 4000 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW"

or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

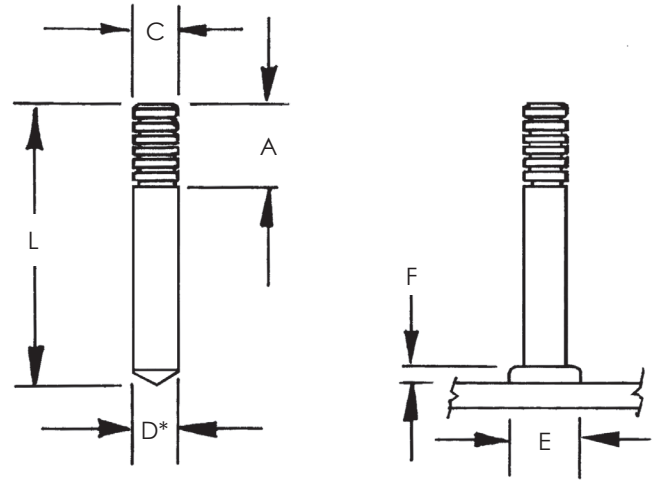
ARC Weld Studs - Externally Threaded

TAR – ANNULAR RING (NAVY) WELD STUDS – TECHNICAL DETAILS

Complete Stud Welding TAR weld studs are available in mild steel and stainless steel materials.

TAR studs are used to install insulation materials. After the stud is welded in place, the insulation is impaled over the stud and then the mushroom navy cap is installed onto the stud with a hammer. The cap is now locked onto the stud.

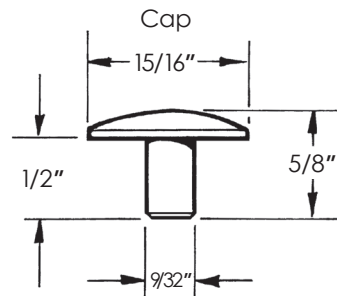
For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



*TAR Studs are fluxed as requested.

Stud Specifications						Standard Accessories			
Base Diameter	Groove Diameter	Groove Length	Min. Length	Flash Dimensions					
D	C	A	L	E	F	Ferrule	Foot	Grip	Chuck
0.188	0.175	0.312	0.750	0.281	0.094	F019-F	B-IN	GN-019	CN-018

Recommended Hardware	Part Number
Mushroom Navy Cap - Aluminum	TAR-001



To order or specify give: Stud Code, Dimensions C x L, A, Material and Quantity

Example: TAR, .188 x 7/8, (BW), Stainless, 5000 pcs.

**Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

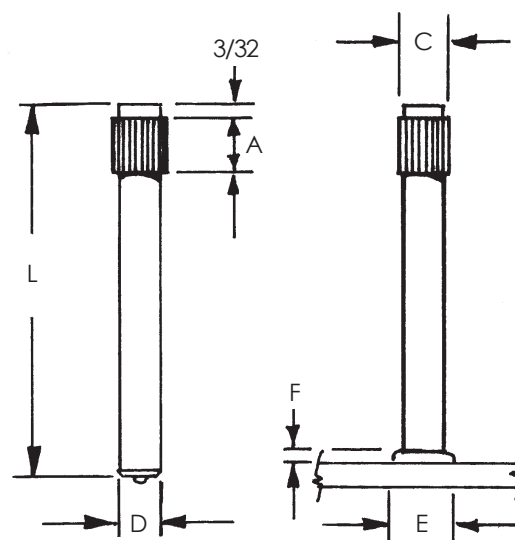
ARC Weld Studs - Externally Threaded

TKN - KNURLED WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding TKN weld studs are available in mild steel and stainless steel materials.

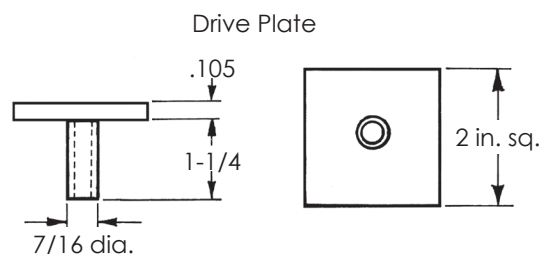
TKN studs are used to install insulation materials. After the stud is welded in place, the insulation is impaled over the stud and then the drive plate is installed onto the stud with a hammer. The drive plate is now locked onto the stud.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Base Diameter	Knurled Diameter	Groove Length	Min. Length	Flash Dimensions					
D	C	A	L	E	F	Ferrule	Foot	Grip	Chuck
0.312	0.327	0.375	0.875	0.438	0.109	F031-F	B-IN	GN-03I	CN-03I

Recommended Hardware	Part Number
Drive Plate - Mild Steel	TKN-001
Drive Plate - Stainless Steel	TKN-002



To order or specify give: Stud Code, Dimensions D x L, Material and Quantity

Example: TKN, .312 x 1, (BW), Stainless, 5000 pcs.

**Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

ARC Weld Studs - Internally Threaded

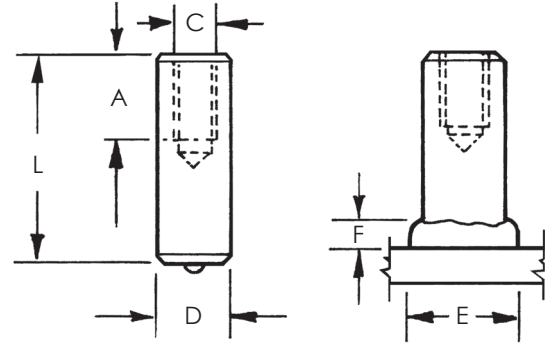
TI - THREADED INTERNALLY WELD STUDS -TECHNICAL DETAILS

Complete Stud Welding TI weld studs are available in mild steel and stainless steel materials. As the majority of TI studs are made to each customer's order, the customer can specify all dimensions.

Coarse and fine threads are available in both imperial (UNC-2B and UNF-2B) and ISO metric (Class 6g) sizes. The imperial coarse threads are depicted below (UNC-2B).

TI studs are used to secure components to larger structures and or as a standoff.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications						Standard Accessories			
Base Diameter	Max. Thread Tap	Max Std. Thread Depth	Minimum Length*	Flash Dimensions		Ferrule	Foot	Grip	Chuck
D	C	A	L	E	F	P/N	P/N	P/N	P/N
0.250	#8	0.250	0.500	0.359	0.109	F025-F	B-1N	GN-025	CN-025
0.312	#10	0.281	0.577	0.438	0.109	F031-F	B-1N	GN-031	CN-031
0.375	1/4 - 20	0.375	0.718	0.500	0.125	F037-F	B-1N	GN-037	CN-037
0.438	5/16 - 18	0.468	0.858	0.578	0.141	F043-F	B-1N	GN-043	CN-043
0.500	3/8 - 16	0.562	0.983	0.688	0.156	F050-F	B-1N	GN-050	CN-050
0.625	1/2 - 13	0.750	1.287	0.797	0.188	F062-F	B-2N	GN-062	CN-062
0.750	5/8 - 11	0.937	1.593	0.938	0.250	F075-F	B-2N	GN-075	CN-075
0.875	3/4 - 10	1.125	1.859	1.094	0.313	F087-F	B-3N	GN-087	CN-087
1.000	7/8-9	1.312	2.125	1.250	0.375	F100-F	B-3N	GN-100	CN-100

Note, the minimum length (L) is reduced when smaller thread sizes are used compared to what is shown.

To order or specify give: Stud Code, Dimensions D x L, C x A, Material and Quantity

Example: TI, .50 x 1, with 3/8-16 x .562, (BW), Mild Steel, 1000 pcs.

Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **TARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

Arc Weld Studs - Internally Threaded

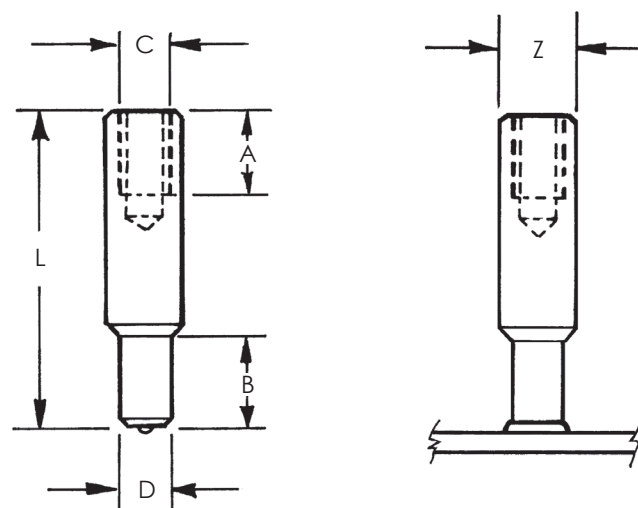
TIR - THREADED INTERNALLY REDUCED BASE WELD STUDS - TECHNICAL DETAILS

Complete Stud Welding TIR weld studs are available in mild steel and stainless steel materials. As the majority of TIR studs are made to each customer's order, the customer can specify all dimensions.

Coarse and fine threads are available in both imperial (UNC-2B and UNF-2B) and ISO metric (Class 6g) sizes. The imperial coarse threads are depicted below (UNC-2B).

TIR studs are used to secure components to larger structures and or as a standoff. The reduced weld base diameter may satisfy application needs and or equipment limitations.

For application, dimensional and in stock assistance, please contact your **Complete Stud Welding** representative.



Stud Specifications							Standard Accessories		
Major Diameter	Max. Thread Tap	Min. Thread Depth	Minimum Length*	Base Diameter	Base Length	Ferrule	Foot	Grip	Chuck
Z	C	A	L	D	B	P/N	P/N	P/N	P/N
0.375	1/4 - 20	0.250	0.828	0.250	0.375	F025-LP	B-1N	GN-025	CN-037
0.500	3/8 - 16	0.375	1.015	0.375	0.375	F037-LP	B-1N	GN-037	CN-050
0.625	1/2-13	0.375	1.250	0.500	0.547	F050-LP	B-1N	GN-050	CN-062
0.750	1/2-13	0.375	1.250	0.500	0.547	F050-LP	B-1N	GN-050	CN-075
0.875	5/8-11	0.500	1.703	0.625	0.797	F062-LP	B-2N	GN-062	CN-087
1.000	3/4-10	0.500	1.875	0.750	0.922	F075-LP	B-2N	GN-075	CN-100

Note, the minimum length (L) is reduced when smaller thread sizes are used compared to what is shown.

To order or specify give: Stud Code, Dimensions Z x L, C x A, D x B, Material and Quantity

Example: TIR, .50 x 1.25 with 3/8-16 x .562, RB .375 x .375, (BW), Mild Steel, 1200 pcs.

**Specify (L) Length on a Before Weld basis by indicating "BW"
or on an After Weld basis by indicating "AW."**

See **Accessories** for accessory detail and **Ferrule Specifications** for ferrule options.

See **ARC Stud Welding – General Information** and **Technical Details** for industry specifications, thread options, Before Weld (BW) length, flux, raw material details, plating options, annealing, load strengths and shipping weights.

COMPLETE
STUD WELDING
Products • Service • Knowledge • Integrity

Arc Weld Studs - TUFFSTUDDS

TUFFSTUDD WEAR PROTECTION SYSTEM – PRODUCT INFORMATION

Tuffstudd Wear Protection System is a proven product in protecting equipment exposed to high wear and abrasion. The Tuffstudd System has had excellent results protecting mining, construction and aggregate equipment over other methods of wear protection.

Some other methods of wear protection are hard facing, AR plate, Hardox plate, weld buttons and shrouds. The Tuffstudd System has been used in conjunction with and as an alternative to these other methods.

PRODUCT FEATURES:

Dead Bed Effect - Tuffstudds are applied in a staggered pattern that captures material between the studs resulting in material wearing on material versus material wearing on the equipment. Tuffstudds have a height profile ranging from 3/8" to 5/8".

Equipment Life - The split second time to weld a Tuffstudd minimizes the heat input to the base metal (i.e. Your equipment) thereby reducing stress, distortion and warping.

Tuffstudds have a hardness of 50 to 60 Rc. Tuffstudds increase service life up to 3 times longer than non-studded surfaces, reducing equipment downtime and component replacement costs.

Fast Installation - An achievable welding rate of 200 Tuffstudds per hour correlates to coverage area of 1.43 to 2.86 square feet per hour and the deposition of 7.4 to 18 pounds per hour.

Replacement - Repair and re-stud previously studded surfaces.

Safety - Compared to other welding processes, stud welding is virtually smokeless and the arc flash is much shorter and partially covered.

REALIZABLE BENEFITS:

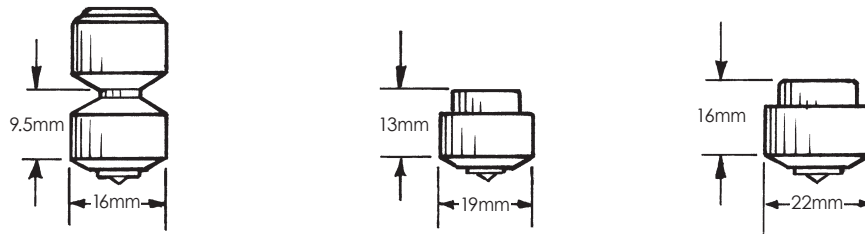
Increased life of material handling and processing equipment.
Reduced wear protection installation costs.
Reduced equipment maintenance costs.
Reduced equipment downtime.

SOME PROVEN TUFFSTUDD APPLICATIONS INCLUDE:

Dragline buckets & Dippers
Shovel and Loader Buckets
Dozer Blades
Gyratory Crushers
Roll Crushers
Discharge Chutes
Augers

Arc Weld Studs - TUFFSTUDDS

TS – TUFFSTUDDS WEAR PROTECTION WELD STUDS – TECHNICAL DETAILS



Product Detail	Series 58*	Series 68	Series 78
Alloy Selection:	* Low profile knock-off design		
A-Series Alloy	Medium-high carbon chromium carbide in iron-molybdenum alloy matrix		
Part number	TSA-58	TSA-68	TSA-78
Hardness (Rc)	48 - 52		
Recommended use	Very good abrasion and excellent impact resistance.		
I-Series Alloy	Medium-high carbon chromium carbide in iron-molybdenum alloy matrix		
Part number	TSI-58	TSI-68	TSI-78
Hardness (Rc)	55 - 60		
Recommended use	Excellent abrasion resistance and good impact resistance		
Stud Dimensions:			
Diameter	5/8"	3/4"	7/8"
Length before weld	1/2"	5/8"	3/4"
Length after weld	3/8"	1/2"	5/8"
Packaging & Coverage:			
Studs Per box	500	250	250
Studs Per square foot	140	100	70
Square feet per box	3.5	2.5	3.5
Installation rates:			
Studs per hour	200	200	200
Square feet per hour	1.4	2.0	2.9
Pounds per hour	7.4	12.4	18.0
Pounds per square foot	5.2	6.2	6.3
Best Use:	Leading edges & overhead position	Behind leading edge rows & in large areas	
Welding Detail:			
Amperage	800 - 1000	1000 - 1100	1200 - 1400
Weld Time (seconds)	0.60 - 0.70	0.70 - 0.85	0.85 - 1.00
Weld Position	Down hand, Side hand & Overhead	Down hand & Side Hand	Down hand
Preheat	Not required. Minimal to remove condensation during cold weather.		
Chuck	CN-062	CN-050	CN-062
Ferrule Grip	GDN-062	GN-075	GN-087
Foot	B-2N	B-2N	B-3N