

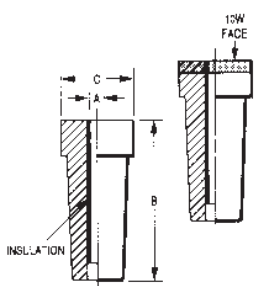
This style holder found at bottom of page 28

This style holder found at top of page 30

The various types and sizes of TUFFALOY stud-and-nut welding electrodes and holders are described below. For excessive wear applications any of these electrodes may be ordered with refractory metal facings, such as TUFFALOY 10W.

**STUD ELECTRODES**

A	B	C	Description	Part No.	With 10W Face Refractory - Item Number
.150	2-1/4	1	400	175-4001	175-4001-10W
.164			401	175-4011	175-4011-10W
.190			402	175-4021	175-4021-10W
.216			403	175-4031	175-4031-10W
1/4			404	175-4041	175-4041-10W
5/16 & 8mm			405	175-4051	175-4051-10W
3/8			406	175-4061	175-4061-10W
6mm			506	175-5061	175-5061-10W
7mm			507	175-5071	175-5071-10W
9mm			509	175-5091	175-5091-10W
10mm	510	175-5101	175-5101-10W		
3/8	2-3/4	1-1/2	436	175-4361	175-4361-10W
7/16			437	175-4371	175-4371-10W
1/2			438	175-4381	175-4381-10W
9/16			439	175-4391	175-4391-10W
5/8			440	175-4401	175-4401-10W
11/16			441	175-4411	175-4411-10W
3/4			442	175-4421	175-4421-10W
10mm			510-2	175-5102	175-5102-10W
12mm			512-2	175-5122	175-5122-10W



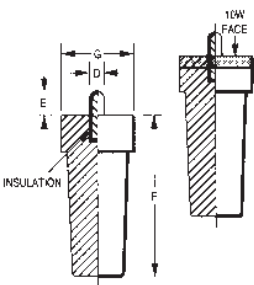
**ELECTRODES**

**Stud Electrodes**

Tuffaloy stud electrode tips are for projection-welding screws, bolts or pins, whether they pass through the sheet or are to be attached directly to its face.

**Nut Electrodes**

Tuffaloy projection weld nut electrodes are designed for either self-piloted or non-piloted nuts. The pilots of the non-piloted-nut electrodes are spring-loaded so they can't interfere with the contacting of nut and sheet under welding pressure.

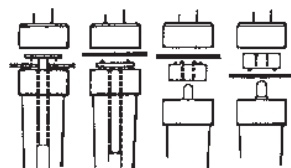
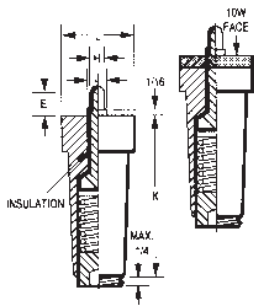


**SELF-PILOTED-NUT ELECTRODES**

For Nut Size	E Pin Length	F Electrode Length	G Electrode Diameter	Description	Part No.	With 10W Face Refractory - Item Number
.164	3/16	2-1/4	1	411	175-4111	175-4111-10W
.190	3/16			412	175-4121	175-4121-10W
.216	1/4			413	175-4131	175-4131-10W
1/4	5/16			414	175-4141	175-4141-10W
5/16 & 8mm	5/16			415	175-4151	175-4151-10W
3/8	3/8			416	175-4161	175-4161-10W
6mm	1/4			606	175-6061	175-6061-10W
7mm	5/16			607	175-6071	175-6071-10W
9mm	3/8			609	175-6091	175-6091-10W
10mm	3/8			610	175-6101	175-6101-10W
3/8	3/8	2-3/4	1-1/2	456	175-4561	175-4561-10W
7/16	3/8			457	175-4571	175-4571-10W
1/2	7/16			458	175-4581	175-4581-10W
9/16	7/16			459	175-4591	175-4591-10W
5/8	1/2			460	175-4601	175-4601-10W
11/16	1/2			461	175-4611	175-4611-10W
3/4	5/8			462	175-4621	175-4621-10W
10mm	3/8			610-2	175-6102	175-6102-10W
12mm	7/16			612-2	175-6122	175-6122-10W

**NON-PILOTED-NUT ELECTRODES**

For Nut Size	J Pin Diameter	K Electrode Length	L Electrode Diameter	Description	Part No.	With 10W Face Refractory - Item Number
.164	0.18	2-1/4	1	421	175-4211	175-4211-10W
.190	0.215			422	175-4221	175-4221-10W
.216	0.24			423	175-4231	175-4231-10W
1/4	0.275			424	175-4241	175-4241-10W
5/16 & 8mm	0.345			425	175-4251	175-4251-10W
3/8	0.405			426	175-4261	175-4261-10W
6mm	0.261			706	175-7061	175-7061-10W
7mm	0.3			707	175-7071	175-7071-10W
9mm	0.385			709	175-7091	175-7091-10W
10mm	0.425			710	175-7101	175-7101-10W
3/8	0.437	2-3/4	1-1/2	476	175-4761	175-4761-10W
7/16	0.562			477	175-4771	175-4771-10W
1/2	0.625			478	175-4781	175-4781-10W
9/16	0.687			479	175-4791	175-4791-10W
5/8	0.75			480	175-4801	175-4801-10W
10mm	0.453			710-2	175-7102	175-7102-10W
12mm	0.595			712-2	175-7122	175-7122-10W



Welding a stud through a hole in sheet metal.

Welding a stud directly to face of sheet metal.

Self-piloted nut aligns itself with the hole in sheet.

Non-piloted-nut is guided by specially designed electrode.



# TUFFALOY NUT AND STUD WELDING

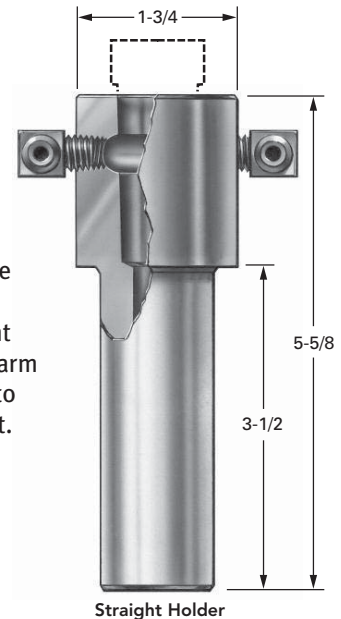
## ELECTRODE HOLDERS

U.S. Pat. No. 3,504,159 Canada Pat. No. 858,060

Several standard electrode holders are manufactured by Tuffaloy to accommodate all the Tuffaloy stud-and nut electrode tips.

Straight Holders Barrel Diameter	A Dia.	B Length	For 1" Dia. Electrodes		For 1-1/2" Dia. Electrodes	
			Description	Part No.	Description	Part No.
1	1-3/4	5-5/8	4530	350-4530		
1-1/4	1-3/4	5-5/8	4531	350-4531		
1-1/2	1-3/4	5-5/8	4532	350-4532		
1	2	5-3/4			4535	350-4535
1-1/4	2	5-3/4			4536	350-4536
1-1/2	2	5-3/4			4537	350-4537

**Straight Holders** - Tuffaloy straight nut-and-stud-electrode holders are of the same high quality as the standard straight holders made for spot welder arm mounting. Coolant is brought to the tip and circulated around it. Holders are available in three barrel diameters.



## ARCTIC HOLDERS

### ARCTIC STUD ELECTRODES

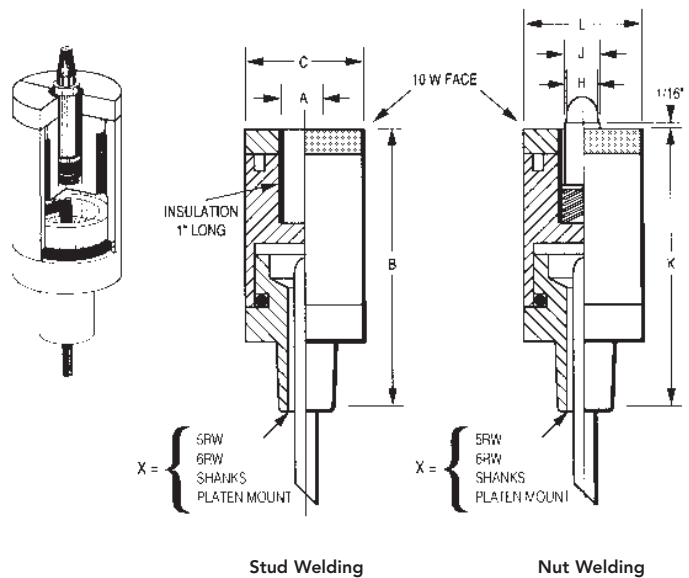
A For Stud Diameter	B Electrode Length	C Electrode Diameter	Description	Part Number Shank Size
0.150	3	1-1/4	115	175-1151-X
0.164			116	175-1161-X
0.190			119	175-1191-X
0.216			122	175-1221-X
1/4			125	175-1252-X
5/16 & 8mm			131	175-1312-X
3/8			138	175-1382-X
7/16			144	175-1442-X
6mm			106	175-1061-X
7mm			107	175-1072-X
9mm			109	175-1092-X
10mm	110	175-1102-X		
1/2	3	1-1/2	150	175-1503-X
9/16			156	175-1563-X
5/8			163	175-1633-X
11/16			169	175-1693-X
12mm			112	175-1123-X

**Arctic Electrodes** - The Arctic system is a compact stud-and-nut electrode with internal water cooling. Also available with optional air expulsion and platen mounts.

Patent Pending

### ARCTIC NON-PILOTED-NUT ELECTRODES

H For Nut Diameter	J Pilot Diameter	K Electrode Length	L Electrode Diameter	Description	Part Number Shank Size
0.164	0.180	4	1-1/4	216	175-2162-X
0.190	0.215			219	175-2192-X
0.216	0.240			222	175-2222-X
1/4	0.275			225	175-2252-X
5/16 & 8mm	0.345			231	175-2312-X
3/8	0.405			238	175-2382-X
6mm	0.261			206	175-2062-X
7mm	0.300			207	175-2072-X
9mm	0.385			209	175-2092-X
10mm	0.425			210	175-2102-X
7/16	0.562	4	1-1/2	244	175-2443-X
1/2	0.625			250	175-2503-X
9/16	0.687			256	175-2563-X
12mm	0.595			212	175-2123-X



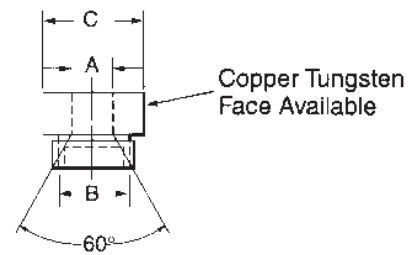
**METRIC NUT ELECTRODES**

TUFFALOY now stocks the head/pin style welding system components that adds to your selection for stud and nut welding needs. From our standard style to our Arctic, that produces higher quality welds and longer life, you can select the product that best meets your needs.

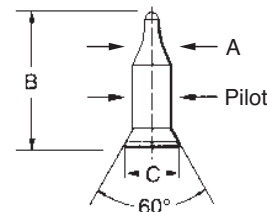
**Heads** are made from RWMA class 2 material that are an optimal cost consumable. Class 3 and 10W are available for longer life. With a concave seat the pin locates in the center of assembly when air is applied to the system. This gives you a repeatable location for automated nut feeders to introduce the nut to the environment.

**Pins** have a nonconductive surface on a steel matrix that gives longer life in a repetitive motion environment. With the threaded head securing the pin in place it makes it easy to replace the pin to meet your requirements. TUFFALOY can design pins for special applications.

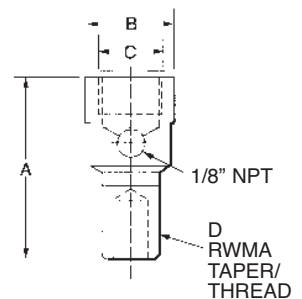
HEADS					
Part Number	Hole Dia.	A Pin Size	B Thread	C Dia.	Copper-Tungsten Faced Heads
175-8004	.197	4mm	M18	1.0	175-8004-10W
175-8005	.236	5mm			175-8005-10W
175-8006	.276	6mm			175-8006-10W
175-8007	.315	7mm			175-8007-10W
175-8008	.354	8mm			175-8008-10W
175-8009	.394	9mm			175-8009-10W
175-8010	.432	10mm	M22	1.125"	175-8010-10W
175-8011	.472	11mm			175-8011-10W
175-8012	.512	12mm			175-8012-10W
175-8013	.551	13mm			175-8013-10W
175-8014	.588	14mm	M26	1.250"	175-8014-10W



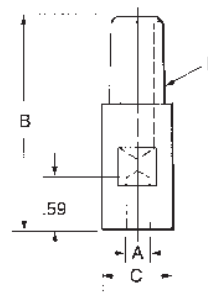
PINS				
Part Number	A Nut	B OAL	C Base	Pilot Dia.
195-3004	4mm	1.12"	12mm	.185
195-3005	5mm	1.17"		.224
195-3006	6mm	1.23"		.264
195-3007	7mm	1.24"		.303
195-3008	8mm	1.25"		.340
195-3009	9mm	1.19"		.380
195-3010	10mm	1.37"	16mm	.422
195-3011	11mm	1.38"		.458
195-3012	12mm	1.40"		.500
195-3013	13mm	1.37"		.539
195-3014	14mm	1.50"	.815	.580
195-3015	15mm	1.52"	.815	.620



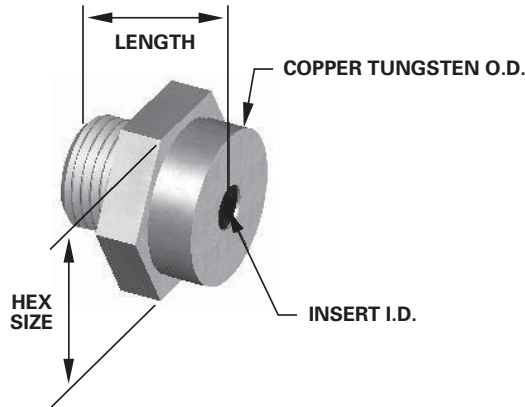
BODIES					
Description	Part Number	A OAL	B Dia.	C Thread	D Taper/Thread
TDH-25A	301-0004	1.77"	1"	18mm	#4
TDH-25C	301-0005	1.97"	1"	18mm	#5
TDH-25C-THD	301-0006	2.13"	1"	18mm	5/8-11
TDH-30A	301-0015	1.97"	1.125"	22mm	#5
TDH-35A	301-0020	1.97"	1.125"	26mm	#5



UPPER ELECTRODE					
Description	Part Number	A ID	B OAL	C Dia.	D Taper
TNFD 16-M5-16-3	186-0101	5mm	2.36"	.625"	5RW
TNFD 20-M6-16-3	186-0102	6mm		.75"	
TNFD 20-M8-16-3	186-0103	7.5mm		.75"	
TNFD 20-M10-16-3	186-0104	10mm		.75"	
TNFD 20-M12-16-3	186-0105	12mm		.75"	



**GH SERIES NUT WELDING HEADS**

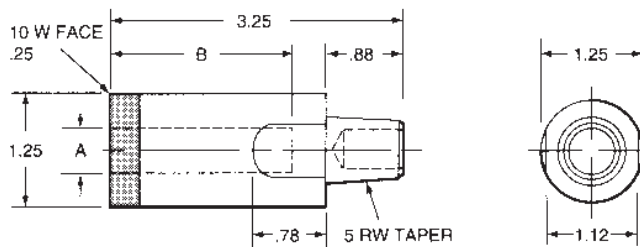
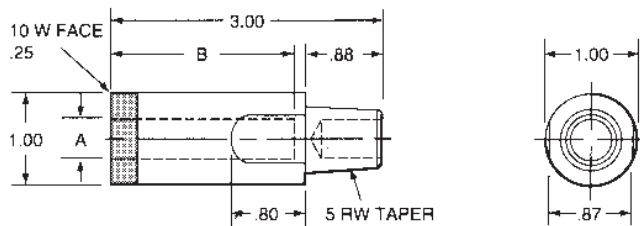


	175-GH-2 Series	175-GH-3 Series	175-GH-4 Series	Insert I.D.	175-GH-2 Series	175-GH-3 Series	175-GH-4 Series	Insert I.D.
Length	0.875	1.000	1.125		0.875	1.000	1.125	
Tungsten OD	0.875	1.250	1.500		0.875	1.250	1.500	
Hex Size	1.000	1.375	1.500		1.000	1.375	1.500	
Thread Size	5/8-18	7/8-14	1 1/8-12		5/8-18	7/8-14	1 1/8-12	
	175-GH-2-188	175-GH-3-188		0.188	175-GH-2-368			0.368
	175-GH-2-193	175-GH-3-193		0.193	175-GH-2-372	175-GH-3-372		0.372
	175-GH-2-197			0.197		175-GH-3-392		0.392
		175-GH-3-200		0.200		175-GH-3-397		(10mm) 0.397
	175-GH-2-212			0.212		175-GH-3-412		0.412
	175-GH-2-218			0.218		175-GH-3-417		0.417
	175-GH-2-239			0.239		175-GH-3-423		0.423
	175-GH-2-240			0.240		175-GH-3-425		0.425
	175-GH-2-242	175-GH-3-242		(6mm) 0.242		175-GH-3-427		0.427
	175-GH-2-245	175-GH-3-245		0.245		175-GH-3-430		0.430
		175-GH-3-247		0.247		175-GH-3-432		0.432
	175-GH-2-250			0.250		175-GH-3-437		0.437
		175-GH-3-251		0.251		175-GH-3-445		0.445
	175-GH-2-252			0.252		175-GH-3-447		0.447
		175-GH-3-254		0.254		175-GH-3-452		0.452
	175-GH-2-258			0.258		175-GH-3-465		0.465
		175-GH-3-262		0.262		175-GH-3-467		0.467
	175-GH-2-263			0.263		175-GH-3-470		0.470
		175-GH-3-264		0.264		175-GH-3-472		0.472
	175-GH-2-272	175-GH-3-272		0.272		175-GH-3-480		(12mm) 0.480
	175-GH-2-273	175-GH-3-273		0.273		175-GH-3-504		0.504
	175-GH-2-275			0.275		175-GH-3-507		0.507
	175-GH-2-277			0.277		175-GH-3-508		0.508
	175-GH-2-280			0.280			175-GH-4-509	0.509
	175-GH-2-282			0.282		175-GH-3-512		0.512
	175-GH-2-287			0.287		175-GH-3-517		0.517
	175-GH-2-312	175-GH-3-312		0.312		175-GH-3-522		0.522
		175-GH-3-317		(8mm) 0.317			175-GH-4-532	0.532
	175-GH-2-322	175-GH-3-322		0.322		175-GH-3-538		0.538
	175-GH-2-325		175-GH-4-325	0.325		175-GH-3-542		0.542
		175-GH-3-326		0.326		175-GH-3-547		0.547
	175-GH-2-332	175-GH-3-332		0.332		175-GH-3-548		0.548
		175-GH-3-337		0.337		175-GH-3-552		0.552
	175-GH-2-342			0.342		175-GH-3-557		0.557
	175-GH-2-347	175-GH-3-347		0.347		175-GH-3-587		0.587
		175-GH-3-351	175-GH-4-351	0.351		175-GH-3-592		0.592
	175-GH-2-352	175-GH-3-352		0.352		175-GH-3-632		0.632
	175-GH-2-354			0.354		175-GH-3-656		0.656
	175-GH-2-357	175-GH-3-357		0.357			175-GH-4-667	0.667
	175-GH-2-359			0.359			175-GH-4-677	0.677

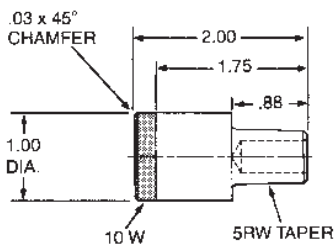
# 5 RW STUD ELECTRODES **TUFFALOY**

These series of Stud electrodes are made from RWMA Class 2 material with TUFFALOYS' 10W (copper tungsten) on the weld face and wrench flats for easy removal from holders. The Insulator is made to withstand the constant friction that is applied as the stud is inserted and removed.

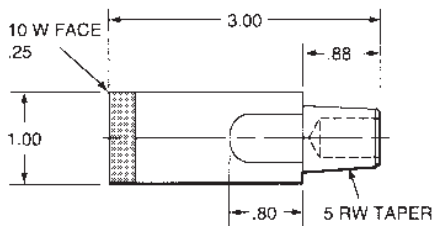
Screw Thread Size	INSULATOR		Part Number
	ID. A	Length B	
6mm 0.250 0.312, 8mm 0.375 10mm	.218	1"	175-0316-4032-10W
	.243		175-0316-40062-10W
	.256		175-0316-4042-10W
	.319		175-0316-4052-10W
	.381		175-0316-4062-10W
	.400		175-0316-40102-10W
6mm 0.250 0.312, 8mm 0.375 10mm	.218	2"	175-0316-4031-10W
	.243		175-0316-4006-10W
	.256		175-0316-4041-10W
	.319		175-0316-4051-10W
	.381		175-0316-4061-10W
	.400		175-0316-4010-10W
0.437 12mm 0.500 0.625	.444	1"	175-1313-4372-10W
	.479		175-1313-40122-10W
	.506		175-1313-4382-10W
	.569		175-1313-4392-10W
	.652		175-1313-4402-10W
	.694		175-1313-4412-10W
.777	175-1313-4422-10W		
0.437 12mm 0.500 0.625	.444	2"	175-1313-4371-10W
	.479		175-1313-4012-10W
	.506		175-1313-4381-10W
	.569		175-1313-4391-10W
	.652		175-1313-4401-10W
	.694		175-1313-4411-10W
.777	175-1313-4421-10W		



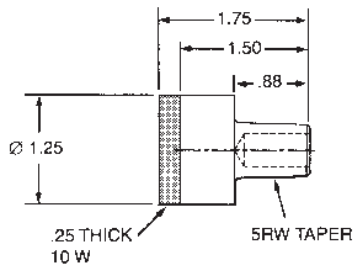
## BACKUP ELECTRODES FOR UPPERS



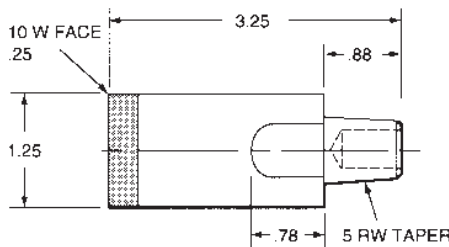
186-0311-10W



186-0316-10W



186-0313-10W



186-1313-10W

