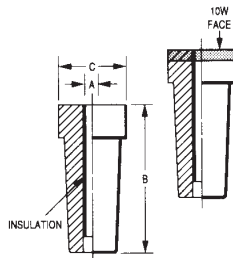


This style holder found at top of page 30

This style holder found at bottom of page 28



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

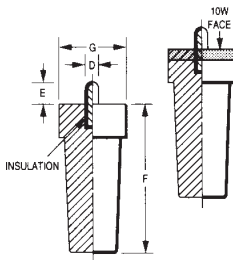
## ELECTRODES

### 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.

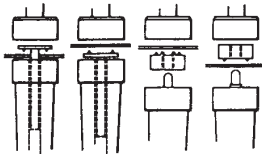


## SELF-PILOTED-NUT ELECTRODES

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

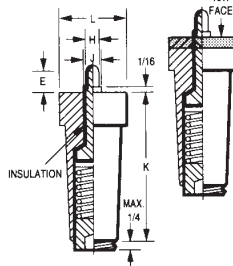


Welding a stud through a hole in sheet metal.

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

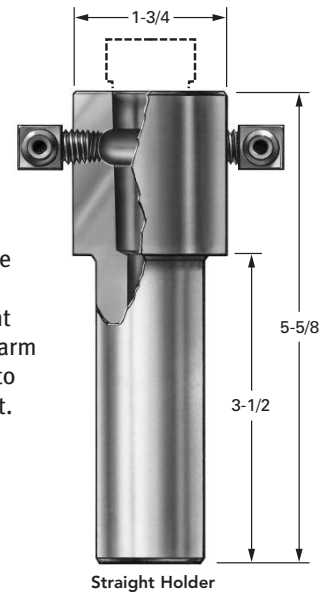
## ELECTRODE HOLDERS

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.



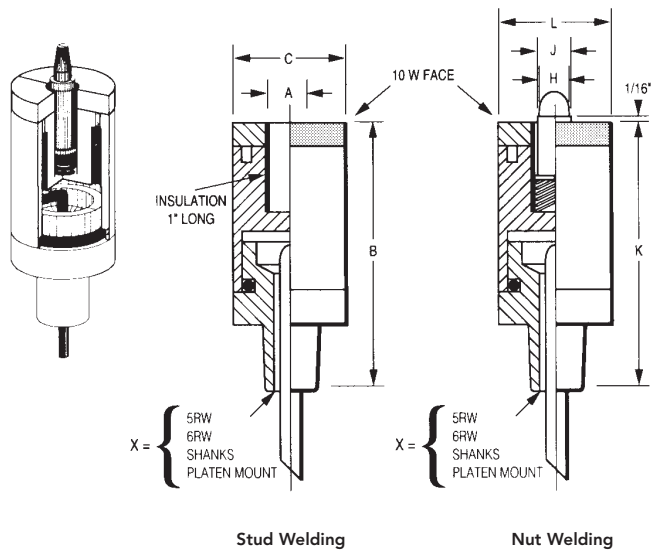
## ARCTIC HOLDERS

### 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

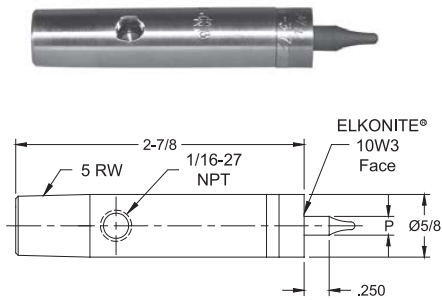
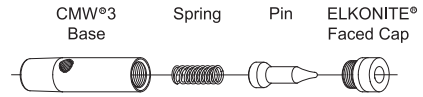




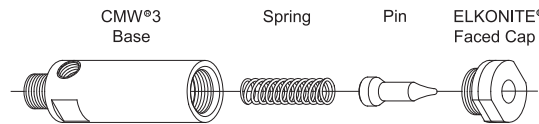
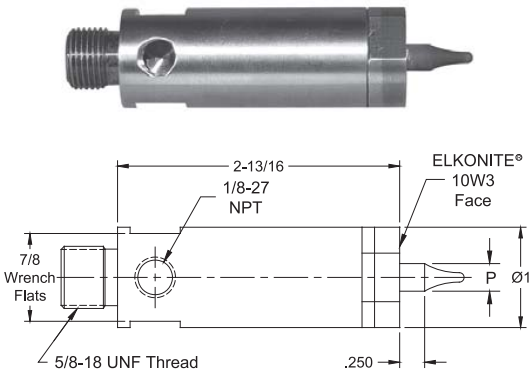
# SPOTWELD, INC.

## Excellence in Resistance Welding

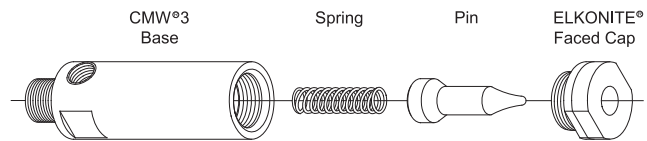
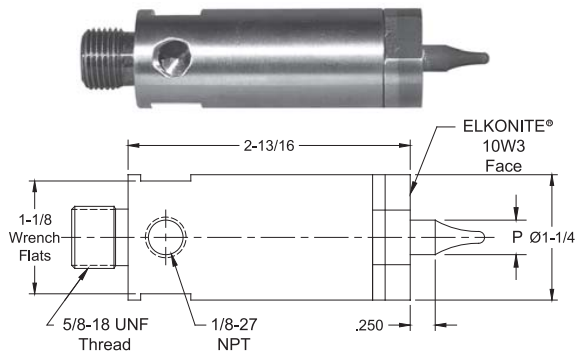
### CHAMELEON/MAX-LIFE™ NUT WELDING ELECTRODES



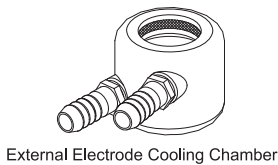
Nut Welding Assemblies	Nut Thread Size	Pin Dia. P	CMW®3 Base	Spring	Ceramic Coated Stainless Steel Pin	ELKONITE® Faced Cap
16-37725-04	#4	.142	16-37325	16-950078-01	16-950064-04	16-37725-C04
16-37725-05	#5	.158	16-37325	16-950078-01	16-950064-05	16-37725-C05
16-37725-06	#6	.173	16-37325	16-950078-01	16-950064-06	16-37725-C06
16-37725-M4	4MM	.187	16-37325	16-950078-01	16-950064-M4S	16-37725-CM4
16-37725-08	#8	.198	16-37325	16-950078-01	16-950064-08	16-37725-C08
16-37725-10	#10	.220	16-37325	16-950078-01	16-950064-10	16-37725-C10
16-37725-M5	5MM	.226	16-37325	16-950078-01	16-950064-M5S	16-37725-CM5
16-37725-12	#12	.250	16-37325	16-950078-01	16-950064-12	16-37725-C12
16-37725-M6	6MM	.266	16-37325	16-950078-01	16-950064-M6S	16-37725-CM6
16-37725-25	.250	.283	16-37325	16-950078-01	16-950064-25	16-37725-C25



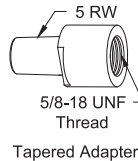
Nut Welding Assemblies	Nut Thread Size	Pin Dia. P	CMW®3 Base	Spring	Ceramic Coated Stainless Steel Pin	ELKONITE® Faced Cap
16-37825-M4	4MM	.187	16-37825	16-950065-01	16-950064-M4	16-37825-CM4
16-37825-M5	5MM	.226	16-37825	16-950065-01	16-950064-M5	16-37825-CM5
16-37825-M6	6MM	.266	16-37825	16-950065-01	16-950064-M6	16-37825-CM6
16-37825-M7	7MM	.305	16-37825	16-950065-01	16-950064-M7	16-37825-CM7
16-37825-M8	8MM	.344	16-37825	16-950065-01	16-950064-M8	16-37825-CM8
16-37825-M9	9MM	.384	16-37825	16-950065-01	16-950064-M9	16-37825-CM9



Nut Welding Assemblies	Nut Thread Size	Pin Dia. P	CMW®3 Base	Spring	Ceramic Coated Stainless Steel Pin	ELKONITE® Faced Cap
16-37826-M10	10MM	.423	16-37826	16-950065-01	16-950064-M10	16-37826-CM10
16-37826-M11	11MM	.463	16-37826	16-950065-01	16-950064-M11	16-37826-CM11
16-37826-M12	12MM	.502	16-37826	16-950065-01	16-950064-M12	16-37826-CM12
16-37826-M14	14MM	.581	16-37826	16-950065-01	16-950064-M14	16-37826-CM14



Electrode Dia.	Cooling Chamber Part No.	Tapered Adapter Part No.
5/8	18-1340	--
1	18-1342	18-7741
1-1/4	18-1343	18-7742



All dimensions are in inches unless otherwise noted

- Electrode Assemblies 16-37825-XX and 16-37826-XXX may be used with 5/8-18 threaded holders 18-169, 18-170, 18-171, shown on page 32

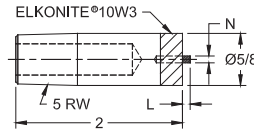
- Electrode Assemblies 16-37825-XX and 16-37826-XXX may be used with Platen Mounted holders (page 61) by using adapter 18-7743 shown on page 31



**SELF-PILOTING NUT WELDING ELECTRODES**



PART No.	Taper Size	Pin Dia. N	For Nut Thread Size	Pin Length L
16-3764-04	5 RW	.082	#4	.093
16-3764-05		.093	#5	
16-3764-06		.100	#6	
16-3764-M3.5		.107	3.5 MM	
16-3764-M4	5 RW	.123	4.0 MM	.156
16-3764-08		.129	#8	
16-3764-10		.143	#10	
16-3764-M5		.156	5.0 MM	

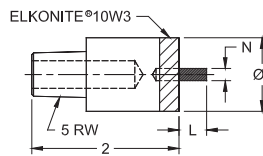


**FEATURES AND SPECIFICATIONS**

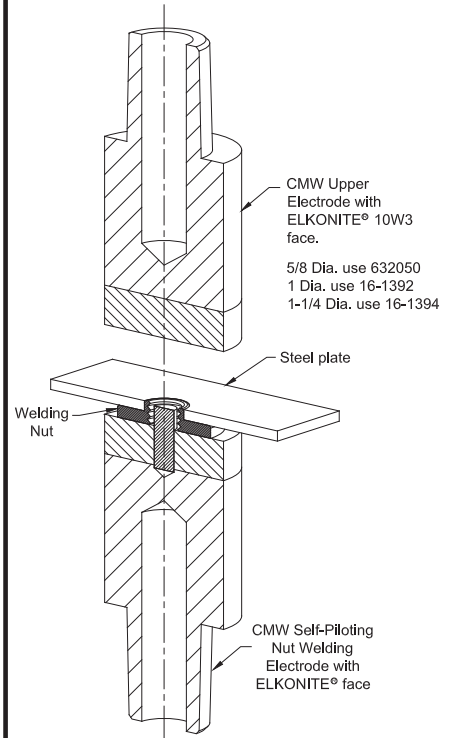
- ELKONITE®10W3 faced CMW® 3 material
- Insulated pin made of anodized aluminum
- Pins are treated to 55 HRC for wear resistance
- Use with tapered electrode holders
- Use with flat faced electrodes



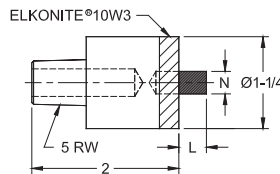
PART No.	Taper Size	Pin Dia. N	For Nut Thread Size	Pin Length L
16-3765-12	5 RW	.166	#12	.375
16-3765-M6		.189	6.0 MM	
16-3765-25		.192	1/4	
16-3765-M7	5 RW	.223	7.0 MM	.375
16-3765-M8		.252	8.0 MM	
16-3765-31		.257	5/16	
16-3765-M9	5 RW	.291	9.0 MM	



**TYPICAL SET-UP FOR SELF PILOTING NUTS**



PART No.	Taper Size	Pin Dia. N	For Nut Thread Size	Pin Length L
16-3766-38	5 RW	.306	3/8	.375
16-3766-M10		.320	10 MM	
16-3766-M11		.359	11 MM	
16-3766-44	5 RW	.361	7/16	.375
16-3766-M12		.388	12 MM	
16-3766-50		.415	1/2	
16-3766-M14	5 RW	.455	14 MM	



- See page 6 for Metric conversions
- See page 7 for Taper dimensions

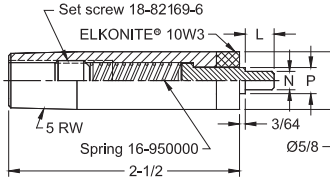




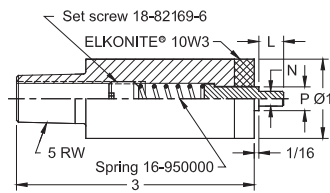
**NON-PILOTING NUT WELDING ELECTRODES**



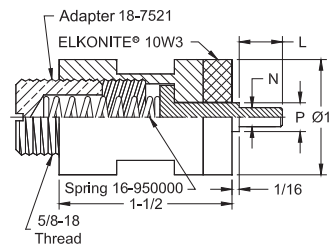
PART No.	Taper or Thd. Size	Pin Dia. N	Pilot Length L	Pilot Dia. P	For Nut Thd. Size N	Pin Part No.
16-3774-04		.082	.312	.142	#4	16-950001-04
16-3774-05		.093		.158	#5	16-950001-05
16-3774-06		.100		.173	#6	16-950001-06
16-3774-08	5RW	.129	.312	.198	#8	16-950001-08
16-3774-10		.143		.220	#10	16-950001-10
16-3774-M6		.186		.250	6MM	16-950001-M6



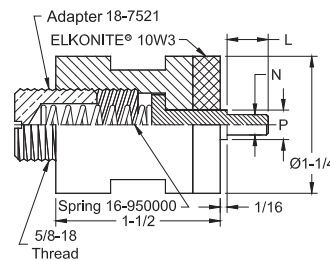
PART No.	Taper or Thd. Size	Pin Dia. N	Pilot Length L	Pilot Dia. P	For Nut Thd. Size N	Pin Part No.
16-3775-12		.166	.312	.250	#12	16-950001-12
16-3775-M6		.186		.250	6MM	16-950001-M6
16-3775-25		.192		.283	1/4	16-950001-25
16-3775-M8	5RW	.252	.312	.283	8MM	16-950001-M8
16-3775-31		.257		.345	5/16	16-950001-31
16-3775-M10		.322		.347	10MM	16-950001-M10



PART No.	Taper or Thd. Size	Pin Dia. N	Pilot Length L	Pilot Dia. P	For Nut Thd. Size N	Pin Part No.
16-3785-12	5/8-18	.166	.375	.250	#12	16-950002-12
16-3785-M6		.186		.269	6MM	16-950002-M6
16-3785-25		.192		.283	1/4	16-950002-25
16-3785-M8		.252		.348	8MM	16-950002-M8
16-3785-31		.257	.375	.345	5/16	16-950002-31
16-3785-M10		.320		.427	10MM	16-950002-M10
16-3785-M11		.359		.466	11MM	16-950002-M11
16-3785-M12		.388		.470	12MM	16-950002-M12



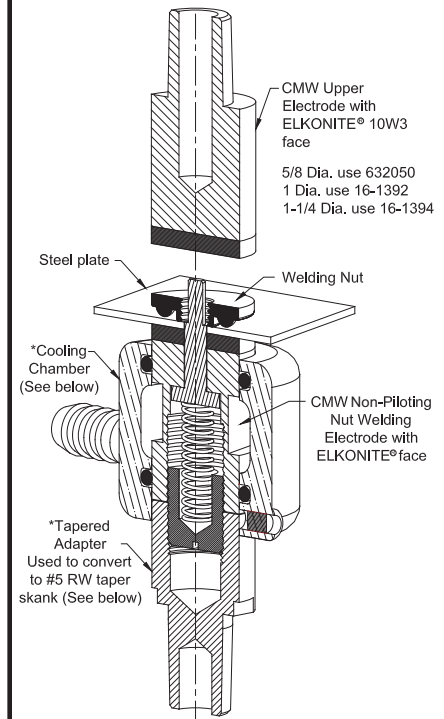
PART No.	Taper or Thd. Size	Pin Dia. N	Pilot Length L	Pilot Dia. P	For Nut Thd. Size N	Pin Part No.
16-3786-12	5/8-18	.166	.375	.250	#12	16-950002-12
16-3786-M6		.186		.269	6MM	16-950002-M6
16-3786-25		.192		.283	1/4	16-950002-25
16-3786-M8		.252		.348	8MM	16-950002-M8
16-3786-31		.257	.375	.345	5/16	16-950002-31
16-3786-38		.306		.408	3/8	16-950002-38
16-3786-M10		.320		.427	10MM	16-950002-M10
16-3786-M11		.359		.466	11MM	16-950002-M11
16-3786-44		.361	.470	7/16	16-950002-44	
16-3786-M12		.388	.470	12MM	16-950002-M12	
16-3786-50		.415	.533	1/2	16-950002-50	



**FEATURES AND SPECIFICATIONS**

- ELKONITE® 10W3 faced CMW®3 material
- Insulated pin made of anodized aluminum
- Insulated pins are treated to 55 HRC for wear resistance
- Use with tapered electrode holders
- Use with flat faced electrodes
- Accepts external cooling chambers

**TYPICAL SET-UP FOR NON PILOTING NUTS**



\*For additional information on cooling chamber and tapered adapter see page 27

Electrode assemblies 18-3785-XX and 18-3786-XX may be used with 5/8-18 threaded holders 18-169, 18-170, 18-171



**FEATURES AND SPECIFICATIONS**

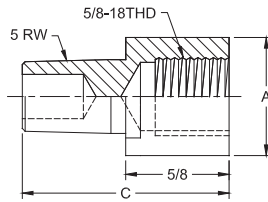
- Cooling Chamber recommended for additional cooling capacity on internally cooled applications
- Cooling Chamber is designed to provide supplementary cooling in special, hard to cool applications

- Securely sealed and locked in position with allen head set screw
- Tapered Adapter converts 5/8-18 thread to 5 RW tapers
- Use with Stud/Nut welding applications

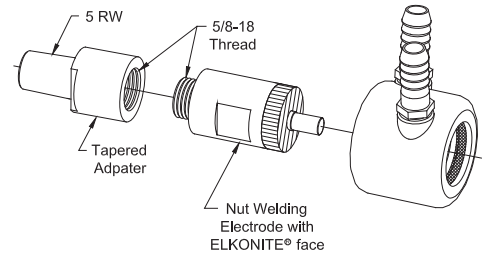
**WELDING ELECTRODE ACCESSORIES**



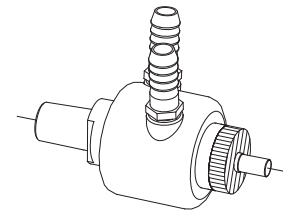
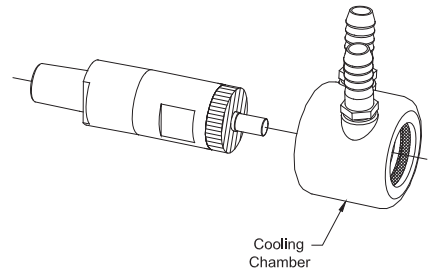
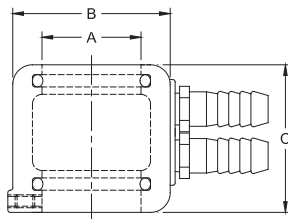
TAPERED ADAPTER			
Part No.	To Fit Dia. Electrode A	Taper	Overall Length C
18-7741	1	5 RW	1-3/4
18-7742	1-1/4	5 RW	1-3/4



**TAPERED ADAPTER CONVERSION FROM 5/8-18 THREAD TO 5 RW TAPER**



COOLING CHAMBER			
Part No.	To Fit Dia. Electrode A	O.D. B	Overall Length C
18-1340	5/8	1-1/4	1-1/2
18-1341	7/8	1-1/2	1-1/2
18-1342	1	1-3/4	1-1/2
18-1343	1-1/4	2	1-7/8



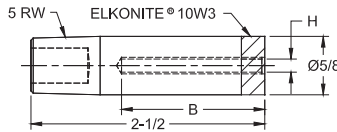
ASSEMBLED CONVERSION



**STUD WELDING ELECTRODES**



Assembled Electrode Part Number			Insulation I.D. H	Screw Thread Size
Depth B				
.375	.750	1.125		
16-3724-1161	16-3724-1162	16-3724-1163	.116	#4
16-3724-1321	16-3724-1322	16-3724-1323	.132	#5
.500	1.000	1.500		
16-3724-1401	16-3724-1402	16-3724-1403	.140	#6
16-3724-1501	16-3724-1502	16-3724-1503	.150	--
16-3724-1571	16-3724-1572	16-3724-1573	.157	--
16-3724-1691	16-3724-1692	16-3724-1693	.169	#8
.750	1.500	--		
16-3724-1911	16-3724-1912		.191	#10
16-3724-2201	16-3724-2202		.220	#12
16-3724-2541	16-3724-2542		.254	.250

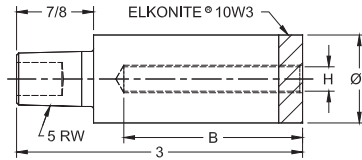


**FEATURES AND SPECIFICATIONS**

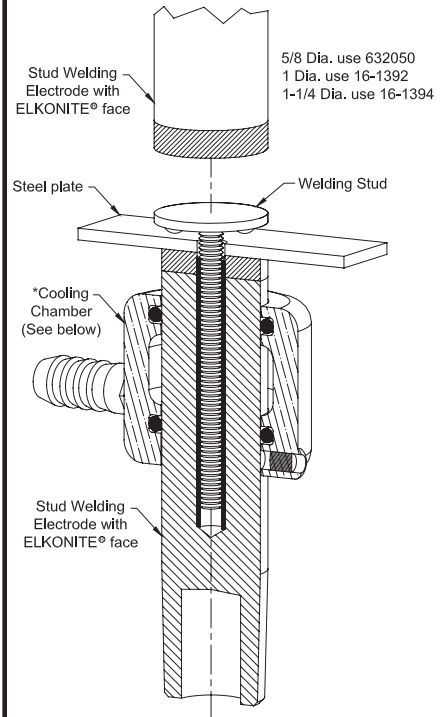
- ELKONITE® 10W3 faced CMW®3 material
- Insulated sleeve made of anodized aluminum
- Insulated sleeve are treated to 55 HRC both I.D. & O.D. for wear resistance
- Use with tapered electrode holders
- Use with flat faced electrodes
- Accepts external Cooling Chambers



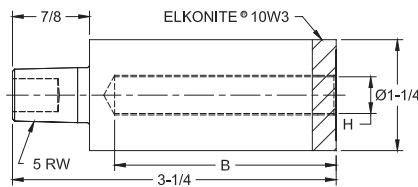
Assembled Electrode Part Number		Insulation I.D. H	Screw Thread Size
Depth B			
.750	1.500		
16-3725-2541	16-3725-2542	.254	.250
1.000	2.000		
16-3725-2771	16-3725-2772	.277	--
16-3725-3171	16-3725-3172	.317 (8MM)	.312
16-3725-3391	16-3725-3392	.339	--
16-3725-3651	16-3725-3652	.365	--
16-3725-3801	16-3725-3802	.380	.375



**TYPICAL SET-UP FOR STUD WELDING**



Assembled Electrode Part Number		Insulation I.D. H	Screw Thread Size
Depth B			
1.000	2.000		
16-3726-4011	16-3726-4012	.401	--
16-3726-4271	16-3726-4272	.427	--
16-3726-4441	16-3726-4442	.444	.437
16-3726-5021	16-3726-5022	.502	.500
1.000	2.000		
16-3726-5521	16-3726-5522	.552	--
16-3726-6301	16-3726-6302	.630	.625
16-3726-6761	16-3726-6762	.676	--
16-3726-8011	16-3726-8012	.801	--



\*For additional information on cooling chamber see page 27

Electrode Dia.	Cooling Chamber
5/8	18-1340
1	18-1342
1-1/4	18-1343