TECHNICAL NOTE

Central Plastics Electrofusion
Fusion and Cooling Time Chart

FAMILY:	Electrofusion
PRODUCT:	All Through 12"
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Tapping Tees are listed by saddle size. Times will apply to all outlet sizes.	Connection Pin Size	Fusion Time (Seconds)	Cooling Time in Clamped Position (minutes)	Total Cooling Time Before Pressure/Tap (minutes)	Total Cooling Time Before Rough Handling (minutes)	Minimum KVA*	Generator Breaker Minimum	Extension Cord Size 25ft	Extension Cord Size 50ft
Tapping Tees:									
1-1/4" IPS	4.7 R	45	10	20	30	1.5	10	#10/3	#8/3
1-1/4" IPS	4.7 S	**TC	10	20	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 40 - Nom: 44 - Max: 52							
1-1/2" IPS	4.7 R	50	10	20	30	1.5	10	#10/3	#8/3
2" IPS	4.7 R	90	10	20	30	1.5	10	#10/3	#8/3
2" IPS	4.7 S	**TC	10	20	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 72 - Nom: 90 - Max: 98							
2" CTS	4.7 R	60	10	20	30	1.5	10	#10/3	#8/3
3" IPS	4.7 R	90	10	20	30	1.5	10	#10/3	#8/3
4" IPS / DIPS	4.7 R	90	10	20	30	1.5	10	#10/3	#8/3
6" IPS / DIPS	4.7 R	90	10	20	30	1.5	10	#10/3	#8/3
8" - 10" IPS / DIPS	4.7 R	60	10	20	30	1.5	10	#10/3	#8/3
		**TC: These fittings require temperature compensation.							
Reducers:									
3/4" x 1/2" CTS	4.7 R	20	5	15	30	1.5	10	#10/3	#8/3
1" x 1/2" CTS	4.7 R	25	5	15	30	1.5	10	#10/3	#8/3
1" x 1/2"	4.7 R	30	5	15	30	1.5	10	#10/3	#8/3
1" x 3/4"	4.7 R	30	5	15	30	1.5	10	#10/3	#8/3
1"x 1" CTS	4.7 R	30	5	15	30	1.5	10	#10/3	#8/3
1"x 1-1/4" CTS	4.7 R	30	5	15	30	1.5	10	#10/3	#8/3
1"x1-1/4"	4.7 R	45	10	20	30	1.5	10	#10/3	#8/3
1 1/4"x3/4" IPS	4.7 R	30	5	15	30	1.5	10	#10/3	#8/3
2" x 1 1/4 IPS	4.7 R	45	10	20	30	2.5	10	#10/3	#8/3
Couplings:				*TC: Temperature compensation when using barcode mode.					
1/2 CTS	4.7 R	20	5	15	30	1.5	10	#10/3	#8/3
1/2 CTS	4.7 R	*TC	5	15	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 19 - Nom: 20 - Max: 26							
1/2 IPS	4.7 R	20	5	15	30	1.5	10	#10/3	#8/3
3/4 CTS	4.7 R	25	5	15	30	1.5	10	#10/3	#8/3
3/4 IPS	4.7 R	35	5	15	30	1.5	10	#10/3	#8/3
3/4 IPS	4.7 R	*TC	5	15	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 27 - Nom: 35 - Max: 43							
1 CTS	4.7 R	40	5	15	30	1.5	10	#10/3	#8/3
1 CTS	4.7 R	*TC	5	15	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 31 - Nom: 40 - Max: 56							
1 IPS	4.7 R	45	10	15	30	1.5	10	#10/3	#8/3
1 IPS	4.7 R	*TC	10	15	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 35 - Nom:45 - Max: 61							
1 1/4 CTS	4.7 R	50	10	20	30	2	10	#10/3	#8/3
1 1/4 IPS	4.7 R	75	10	20	30	2	10	#10/3	#8/3
1 1/4 IPS	4.7 R	*TC	10	20	30	2	10	#10/3	#8/3
		TC in secs: Min: 69 - Nom:75 - Max: 91							
1 1/2 IPS	4.7 R	60	10	20	30	1.5	10	#10/3	#8/3
1 1/2 IPS	4.7 R	*TC	10	20	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 48 - Nom: 60 - Max: 76							
2 CTS	4.7 S	40	5	20	30	2.5	20	#10/3	#8/3
2 IPS	4.7 R	60	10	20	30	2.5	20	#10/3	#8/3
2 IPS	4.7 R	*TC	10	20	30	2.5	20	#10/3	#8/3
		TC in secs: Min: 44 - Nom: 60 - Max:70							
3 IPS	4.7 R	180	15	30	35	2.5	20	#10/3	#8/3
4 IPS	4.7 R	200	15	30	35	3.5	30	#10/3	#8/3
4 DIPS	4.7 S	200	15	30	35	3.5	30	#10/3	#8/3
6 IPS SDR 11	4.7 R	500	20	40	45	3.5	30	#10/3	#8/3
6 IPS SDR 21	4.7 R	360	20	40	45	3.5	30	#10/3	#8/3
6 DIPS	4.7 S	500	20	40	45	3.5	30	#10/3	#8/3
8 IPS	4.7 R	500	20	40	45	3.5	30	#10/3	#8/3
8 DIPS	4.7 S	500	20	40	45	3.5	30	#10/3	#8/3

10 IPS FM 200	4.7 R	750	30	60	60	3.5	30	#10/3	#8/3

10 IPS FM 250	4.7 S	**TC	45	60	60	3.5	30	#10/3	#8/3
		TC in secs: Min: 577 - Nom: 750 - Max:1010							
10 DIPS	4.7 S	**TC	30	60	60	3.5	30	#10/3	#8/3
		TC in secs: Min: 577 - Nom: 750 - Max:978							
12 IPS FM 200	4.7 R	900	30	60	60	3.5	30	#10/3	#8/3
12 IPS FM 250	4.7 S	**TC	45	60	60	3.5	30	#10/3	#8/3
		TC in secs: Min: 754 - Nom: 800 - Max:1112							
12 DIPS	4.7 S	**TC	45	60	60	3.5	30	#10/3	#8/3
		TC in secs: Min: 577 - Nom: 750 - Max: 978							

**TC: These fittings require temperature compensation.

*TC: Temperature compensation when using barcode mode.

HV Tapping Tees, Branch Saddles with 2" and 1 1/4 Outlets and Transition Saddles with Threaded Outlets	Connection	Fusion Time (Seconds)	Cooling Time in Clamped Position (minutes)	Total Cooling Time Before Pressure Test / Tap (minutes)	Total Cooling Time Before Rough Handling (minutes)	Minimum KVA*	Generator Breaker Minimum	Extension Cord Size 25ft	Extension Cord Size 50ft
2"	4.7 S	**TC	10	25	30	1.5	10	#10/3	#8/3
		TC in secs: Min: 72- Nom: 90 - Max: 98							
3"	4.7 R	60	10	25	30	1.5	10	#10/3	#8/3
4"	4.7 R	60	10	25	30	1.5	10	#10/3	#8/3
6"	4.7 R	60	10	25	30	1.5	10	#10/3	#8/3
8" IPS PE 2708	4.7 R	80	10	25	30	1.5	10	#10/3	#8/3
8" IPS PE 4710	4.7 R	240	20	30	40	1.5	10	#10/3	#8/3
8" IPS/DIPS	4.7 S	240	20	30	40	1.5	10	#10/3	#8/3
10" IPS/DIPS	4.7 S	240	20	30	40	1.5	10	#10/3	#8/3
12" IPS/DIPS	4.7 S	240	20	30	40	1.5	10	#10/3	#8/3
Branch Saddle IPS									
4" x 4"	4.7 R	50	10	20	30	2.5	20	#10/3	#8/3
6" x 4" PE 2708	4.7 R	150	15	30	45	2.5	20	#10/3	#8/3
6" x 4" PE 4710	4.7 R	200	15	30	45	2.5	20	#10/3	#8/3
8" IPS x 4" IPS	4.7S	TC**	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 311 - Nom: 420 - Max: 584							
8" IPS x 6" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 471 - Nom: 500 - Max: 695							
10" IPS x 4" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 311 - Nom: 420 - Max: 584							
10" IPS x 6" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 254- Nom: 330 - Max: 444							
10" IPS x 8" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 254 - Nom: 330 - Max: 398							
12" IPS x 4" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 311 - Nom: 420 - Max: 398							
12" IPS x 6" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 254 - Nom: 330 - Max: 459							
12" IPS x 8" IPS	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 237 - Nom: 320 - Max: 445							

** TC: These fittings require temperature compensation.

EF Tee									
3/4 IPS	4.7R	30	5	20	30	1.5	10	#10/3	#8/3
1 IPS	4.7R	30	10	20	30	1.5	10	#10/3	#8/3
2 IPS (EF Adapted)	4.7S	45 (20v)	5	20	30	1.5	10	#10/3	#8/3
EF Elbow									
2 IPS (EF Adapted)	4.7S	45 (20v)	5	20	30	1.5	10	#10/3	#8/3

Branch Saddle DIPS

8 x 4	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 291 - Nom: 340 - Max: 399							
8 x 6	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 369 - Nom: 480 - Max: 667							
10 x 6	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 222 - Nom: 300 - Max: 417							
12 x 4	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 291 - Nom: 340 - Max: 399							
12 x 6	4.7S	**TC	20	40	60	2.5	20	#10/3	#8/3
		TC in secs: Min: 200 - Nom: 270 - Max: 375							

**TC: These fittings require temperature compensation.

	Clamped Time	Testing / Tapping	Rough Handling
Example 4" IPS coupling fusion cycle ends at 12:04	+15 = 12:19	+30 = 12:34	+35 = 12:39

Clamped cooling time: The minimum time the fitting must remain clamped after the fusion cycle is complete.

Time before pressure test & Tapping: The minimum time before the joint can be pressurized to 150% of MOAP and the main can be tapped.

Time before rough handling: The minimum time before the joint can be subjected to forces such as pulling, or back filling.

CAUTIONS/WARNINGS:

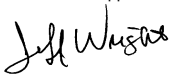
The installation temperature range for GF Central Plastics Electrofusion fittings is -10°F minimum to 120°F maximum. Let the control box acclimate to the jobsite weather conditions for a minimum period of 15 minutes to ensure that it accurately measures the ambient temperature before beginning the fusion process.

Verify fusion time on control box display matches fusion time on fitting label (exept when using temperature compensated fittings).

Fusions should not be performed by any persons who have not been trained and qualified by an authorized electrofusion instructor. The installer should demonstrate their ability to make electrofusion joints through destructive testing. In addition to this Technical Note, the installer should have a full understanding of and available access to the Central Plastics Electrofusin Installation Procedure Manual. To obtain a copy of the Electrofusion Installation Procedure Manual, please contact Central Plastics Company at 1-800-654-3872.

Note: This document supercedes all previous Technical Notes and is subject to change without notice. Check for the current revision at www.gfcp.com

Approved By:



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