

## Frialen® Safety Electrofusion Couplings



IPEX Friatec Products is a world leader in electrofusion technology. The fittings are made of polyethylene with heating coils located at the surface. This design allows direct heating of the interface between the pipe and the fitting. This feature works with the flexibility of the universal bar code fusion unit, Friamat® to provide unique advantages.

The Frialen® design offers excellent heat transfer to the pipe, gap closing capabilities, shorter cooling times and the fastest, most secure connections.

Couplings work with HDPE Pipe in DRs 9.33 to 17 at full pressure rating up to 20" pipe. Pipe larger than 20" may have reduced pressure rating, see each coupling chart for DR equivalent rating.

The unique features of Frialen® couplers:

- Economical
- Suitable for tough building site conditions
- No alignment or clamping tools necessary
- Generous pipe guidance
- Bar code labeled for automatic fusion
- Can be re-fused up to three times in case of electrical power interruption
- Pop-up melt indicator provides visual fusion verification

IPEX Friatec Products offers in-house, hands-on training seminars, on-site training and technical support to meet your training needs.

Contact ISCO to schedule your Friatec training.



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1-800-345-ISCO

[www.isco-pipe.com](http://www.isco-pipe.com)

## FRIALEN® IPS Electrofusion Couplings

Small Sizes

Nominal Pipe OD & DR	ID Min.	ID Max.	OD	B	L	t	z	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min. * / ** / ❖
1/2" CTS DR 11	0.622	0.634	1.102	1.732	2.283	1.142	0.079	0.591	0.23	27	05/08/10
3/4" IPS DR 11	1.047	1.059	1.575	2.165	2.598	1.260	0.079	0.728	.027	28	05/08/10
1" CTS DR 11	1.122	1.134	1.654	2.244	3.071	1.535	0.079	0.787	0.31	28	05/08/10
1" IPS DR 11	1.311	1.323	1.850	2.460	3.071	1.496	0.079	0.787	0.31	28	05/08/10
1-1/4" IPS DR 11	1.654	1.679	2.244	2.835	3.346	1.634	0.079	0.945	0.39	34	10/15/25
1-1/2" IPS DR 11	1.902	1.917	2.480	3.130	3.858	1.870	0.079	1.060	0.46	34	10/15/25
2" IPS DR 11	2.374	2.390	3.142	3.657	4.449	2.205	0.079	1.205	0.51	54	10/15/25
3" IPS DR 11	3.496	3.516	4.606	4.980	5.472	2.717	0.079	1.417	0.59	100	10/30/40
4" IPS DR 11	4.492	4.516	5.827	6.173	6.260	3.110	0.079	1.689	0.67	151	10/30/40
6" IPS DR 11	6.610	6.634	8.543	8.740	7.992	3.976	0.079	2.295	0.79	440	20/60/75

Standard Sizes

Nominal Pipe OD & DR	ID Min.	ID Max.	OD	L	t	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min. * / ** / ❖
8" IPS DR 11	8.626	8.665	11.029	9.448	4.724	2.953	1.063	540	20/60/75
10" IPS DR 11	10.748	10.787	13.975	11.811	5.275	3.149	1.063	500 ea. side	30/75/100
12" IPS DR 11	12.748	12.787	15.746	11.219	5.610	2.679	1.142	550 ea. side	30/75/100
14" IPS DR 11	13.976	14.016	17.716	11.811	5.905	3.500	1.260	580 ea. side	30/75/100

Large IPS - Special Training Required

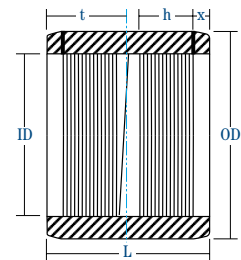
Nominal Pipe OD & DR	ID Min.	ID Max.	OD	L	t	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min. * / ** / ❖
**16" IPS DR 11	15.969	16.008	19.685	12.598	6.299	3.748	1.260	870/730 ea. side	45/95/120
**18" IPS DR 11	17.969	18.008	22.047	13.386	6.693	3.346	1.260	870/870 ea. side	45/95/120
**20" IPS DR 11	19.961	20.016	24.803	14.173	7.086	3.622	1.260	870/720 ea. side	45/95/120
**22" IPS DR 17	21.961	22.016	24.803	14.566	7.283	3.291	1.260	870/720 ea. side	45/95/120
**24" IPS DR 13.5	24.000	24.039	27.952	15.748	7.874	4.095	1.420	870/850 ea. side	45/95/120
**28" IPS DR 17	27.992	28.031	31.496	15.748	7.874	6.062	1.614	850/850 ea. side	99/120/160

**\*\*16" - 28" IPS Couplings have pre-warm cycle and require special training.**

FRIALEN® Safety fittings can be fused to all PE pipes within Melt Index Groups 003-050 and Pipe DR ranges 9.33 through 17.6. For Pipe DR 21 and up, contact the ISCO Fusion Hotline at 1-800-345-ISCO ext. 4790 for reduced fusion times. PE Pipes of different Melt Index Groups can be joined.

**Legend:**

- \* Pipe can be moved after indicated cooling time (handling).
- \*\* Pipe can be pressurized after indicated cooling time (pressure < 90 PSI).
- ❖ Pipe can be pressurized after indicated cooling time (pressure > 90 PSI).

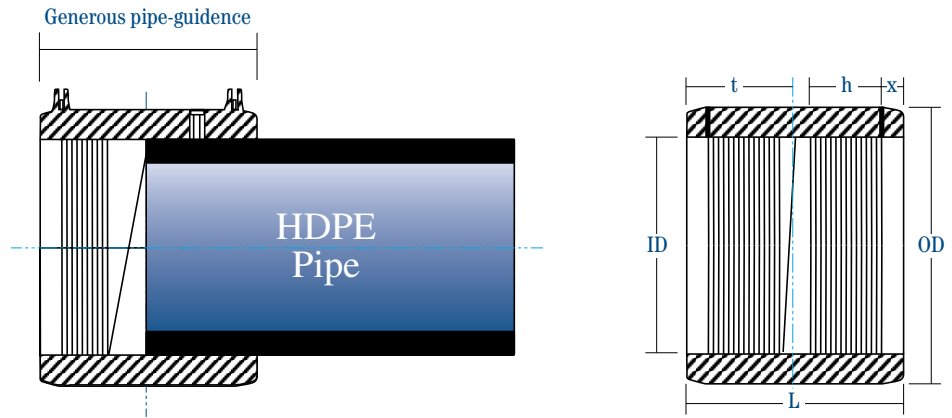


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## FRIALEN® DIPS Electrofusion Couplings



Nominal Pipe OD & DR	ID Min.	ID Max.	OD	L	t	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min. * / ** / ***
4" DIPS DR 11	4.799	4.819	5.669	6.354	3.177	1.765	0.827	100	15/20/30
6" DIPS DR 11	6.889	6.929	8.825	8.268	4.134	2.535	0.827	486	20/60/75
8" DIPS DR 11	9.039	9.078	11.022	9.448	4.724	2.953	0.827	540	30/75/100
10" DIPS DR 11	11.082	11.122	13.976	11.023	5.511	3.291	0.827	550 each side	30/75/100
12" DIPS DR 11	13.182	13.224	15.746	11.023	5.511	2.582	0.827	550 each side	30/75/100
14" DIPS DR 11	15.272	15.311	18.000	11.417	5.708	3.500	0.827	730 each side	40/95/120
16" DIPS DR 11	17.385	17.444	22.047	11.417	5.708	3.392	0.827	870/720 each side	40/95/120
18" DIPS DR 13.5	19.472	19.531	22.047	11.417	5.708	3.3925	0.827	870/720 each side	40/95/120
20" DIPS DR 13.5	21.582	21.641	24.803	11.417	5.708	2.406	0.827	870/720 each side	40/95/120

FRIALEN® SafeFRIALEN® Safety fittings can be fused to all PE pipes within Melt Index Groups 003-050 and pipe DR ranges 9.33 through 17.6 For pipe DR 21 and up, contact the ISCO Fusion Hotline at 1-800-345-ISCO ext. 4790 for reduced fusion times. PE pipes of different melt index groups can be joined.

**Legend:**

- \* Pipe can be moved after indicated cooling time (handling).
  - \*\* Pipe can be pressurized after indicated cooling time (pressure < 90 PSI).
  - \*\*\* Pipe can be pressurized after indicated cooling time (pressure > 90 PSI)
- Please note 18" and 20" DIPS are rated DR13.5 and can be pressurized up to 150 psi.



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## Factory Mutual and NSF Rated Electrofusion Couplings

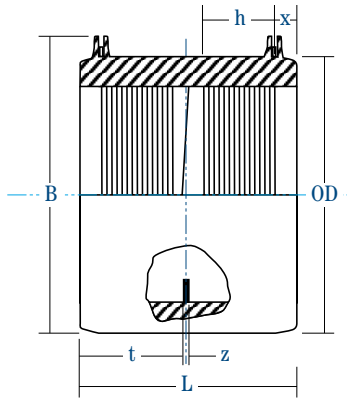


Figure 1

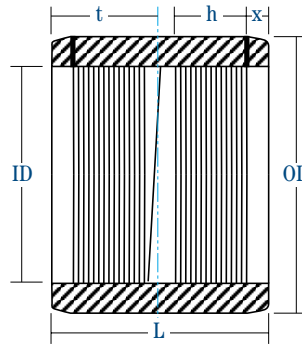


Figure 2

Nominal Pipe OD	ID Min.	ID Max.	OD	B	L	t	z	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min. * / ** / **
4" IPS	4.492	4.516	5.827	6.173	6.620	3.110	0.079	1.689	0.67	151	10/30/40
6" IPS	6.610	6.634	8.543	8.740	7.992	3.976	0.079	2.295	0.79	440	20/60/75
8" IPS	8.62	8.665	11.022	--	9.448	4.724	--	2.953	1.063	540	20/60/75
10" IPS	10.748	10.787	13.975	--	11.811	5.275	--	3.149	1.063	500 each side	37/75/100
12" IPS	12.748	12.787	15.746	--	11.219	5.610	--	2.679	1.142	550 each side	37/75/100
14" IPS	13.976	14.016	17.716	--	11.811	5.905	--	3.500	1.26	580 each side	37/75/100
*16" IPS	15.969	16.008	19.685	--	12.598	6.299	--	3.758	1.26	730 each side	45/95/120
*18" IPS	17.969	18.008	22.047	--	13.386	6.693	--	3.346	1.26	870 each side	45/95/120
*20" IPS	19.961	20.016	24.803	--	14.173	7.086	--	3.622	1.26	870/720 each side	45/95/120

**\*\*16" - 20" IPS Couplings have pre-warm cycle and require special training.**

FRIALEN® Safety fittings can be fused to all PE pipes within Melt Index Groups 003-050 and can fuse Class 150 & Class 200 Pipe and Fittings. PE Pipes of different Melt Index Groups can be joined.

**Legend:**

- \* Pipe can be moved after indicated cooling time (handling).
- \*\* Pipe can be pressurized after indicated cooling time (pressure < 90 PSI).
- \*\* Pipe can be pressurized after indicated cooling time (pressure > 90 PSI).



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## FRIALEN® Electrofusion Thinwall Couplings

### Things worth knowing about the FriaFit® Thinwall Safety Coupling

#### Quality Certification

FriaFit® - Thinwall Safety Coupling are subject to constant quality checks under stringent inspection regulations, which are part of our comprehensive Quality Management System which is certified to DIN EN ISO 9002.

The FriaFit® - Thinwall Safety Coupling and the operation of the FriaFit® - fusion unit are matched to each other. All modifications and additions occurring in the course of continuing technical development are taken into account. Our continuous monitoring of production as part of the FriaFit® - Quality Assurance system includes the FriaFit® - Thinwall Safety Coupling, the FriaFit® - fusion unit and the quality of the fused joint as a result of the combination of these two components. The expansion of the scope of FriaFit® products is not only due to new developments, but also due to the reworking of components in our product range. The operation and functional safety of fusion units from other manufacturers are not subject to our specifications and checks. When installing fittings please proceed in accordance with our assembly instructions from the manufacturer for the equipment in question.

The FriaFit® - Thinwall coupling can be fused to pipes of SDR stages 11 to 32 in accordance with ASTM F1055.

Pipes made of raw material types PE2406 and PE3408, PE63, PE80, and P100 in melt index groups 005 to 050 can be fused.

It is possible to work with the FriaFit® - Thinwall Safety Couplings at ambient temperatures of between -14° and 113°F. **It is always necessary to use an adapter ADFIT for the fusion.**

The FriaFit® - Thinwall Safety Couplings (AM) is made of PE3408 can be pressurized up to a maximum of 80-psi if the pipe is of suitable design.

#### Static

The static calculation for the PE sewer pipe must in each individual case be carried out by the relevant pipe manufacturer or engineering office depending on the ambient conditions which prevail.

The annual rigidity of the pipe joint fused with FriaFit® - Thinwall Safety Coupling will in all cases be higher than the annular rigidity of the pipe used.

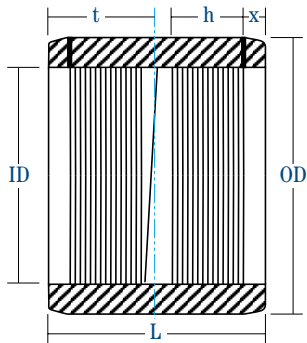
#### Cooling Times

FriaFit® - Thinwall Safety Couplings

The cooling times given in the bar codes and identified by additional letters (C.T.) are the times during which the fused joint should not be moved.

You can get further details from our assembly instructions through IPEX Friatec Products.

With exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material for use without a holding device.



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Nominal Pipe OD & DR	ID Minimum	ID Maximum	OD	L	t	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min. * / *
8" IPS FRIAFIT® DR 21	8.626	8.665	10.75	7.874	3.937	2.100	0.827	370	30/60
10" IPS FRIAFIT® DR 21	10.748	10.787	12.75	8.268	4.134	2.500	0.827	350	30/75
12" IPS FRIAFIT® DR 21	12.748	12.787	14.00	8.661	4.330	2.500	0.827	450	30/75
16" IPS FRIAFIT® DR 21	15.977	16.016	18.00	8.661	4.330	2.500	0.827	580	40/95

FRIALEN® Safety fittings can be fused to all PE pipes within Melt Index Groups 003-050 and Pipe DR ranges 9.33 through 32.5 W/O fusion time reduction. PE Pipes of different Melt Index Groups can be joined. Special FRIAFIT® adapters (ADFIT) for fusion lead ends are needed for installation.

#### Legend:

\* Pipe can be moved after indicated cooling time (handling).

\* Pipe can be pressurized after indicated cooling time (pressure < or = 80 PSI).

