

Raychem MI HEATING CABLE

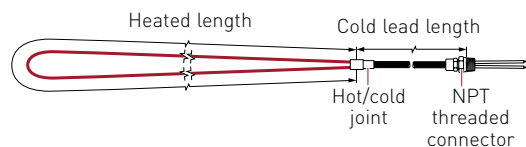
HDPE JACKETED, COPPER AND ALLOY 825 SHEATHED MI CABLE



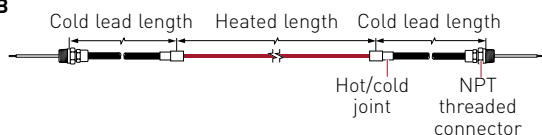
For freezer frost heave prevention applications

MI Heating Cable Configuration

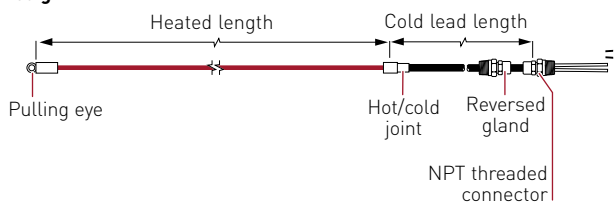
Type SUA Design A



Type SUB and FFHP Design B



Type FFHPC Design D



PRODUCT OVERVIEW

Types SUA, SUB, and FFHP heating cables have a copper sheath that is extruded with high-density polyethylene (HDPE) jacket and are suitable for applications where the cable is directly embedded in the subfloor.

Type FFHPC heating cables are suitable for applications where the cable is installed in conduit. These heating cables are supplied with a copper sheathed cold lead and a heated length made with either Alloy 825 or a copper sheath with an extruded HDPE jacket.

MI heating cables for frost heave prevention applications are supplied as complete factory fabricated assemblies ready to fasten into a junction box. The copper or Alloy 825 sheath allows for a rugged yet flexible heating cable which is easy to install.

For additional information, contact your Pentair Thermal Management representative or call (800) 545-6258.

CABLE CONSTRUCTION

Type SUA, SUB and FFHP heating cable

Sheath	Seamless copper
Jacket	HDPE
Insulation	Magnesium oxide
Conductor type	Alloy or copper
Number of conductors	1
Insulation voltage rating	600 V
Cable diameter (with jacket)	0.20 to 0.303 in (5.1 to 7.7 mm)

Type FFHPC heating cable

Sheath	Alloy 825 or seamless copper
Jacket (for copper sheath cables)	HDPE
Insulation	Magnesium oxide
Conductor type	Alloy
Number of conductors	2
Insulation voltage rating	300 V
Cable diameter	
Alloy 825 sheath	0.130 to 0.174 in (3.3 to 4.4 mm)
Copper sheath (with jacket)	0.245 to 0.270 in (6.2 to 6.9 mm)

MI HEATING CABLE FOR FREEZER FROST HEAVE PREVENTION

CABLE CONSTRUCTION

Cold lead

Sheath	Seamless copper
Jacket (Type SUA/SUB/FFHP cables)	HDPE
Insulation	Magnesium oxide
Conductor type	Copper
Number of conductors	1 or 2
Insulation voltage rating	600 V
Cable diameter	
With jacket	0.310 to 0.420 in (7.9 to 10.7 mm)
Without jacket (Type FFHPC)	0.371 in (9.4 mm)
Gland size (NPT)	1/2 in
Tail length	12 in (30 cm)
Reversed gland size (Type FFHPC)	3/4 in NPT

MINIMUM INSTALLATION TEMPERATURE

-4°F (-20°C)

MINIMUM BENDING RADIUS

6 times cable diameter

SUA/SUB HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heated length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resist- ance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
120 Volts and 208 Volts, 3-phase Wye													
SUA3	A	61HD3200	140	42.7	500	120	7	2.1	H22A	Y	0.248	6.3	28.0
SUA4	A	61HD3390	68	20.7	550	120	7	2.1	H22A	Y	0.212	5.4	27.0
SUA7	A	61HD3200	95	29.0	750	120	7	2.1	H22A	Y	0.248	6.3	18.8
SUA8	A	61HE3105	177	53.9	800	120	7	2.1	H22A	Y	0.254	6.5	18.0
SUB1	B	61HE3105	132	40.2	1000	120	15	4.6	H25A	Y	0.254	6.5	14.0
SUB2	B	61HE4600	240	73.1	1000	120	15	4.6	H25A	Y	0.274	7.0	14.5
SUB3	B	61HE4400	280	85.3	1300	120	15	4.6	H30A	Y	0.265	6.7	11.2
SUB4	B	61HE4300	320	97.5	1500	120	15	4.6	H30A	Y	0.272	6.9	9.6
SUB5	B	61HE4300	260	79.2	1800	120	15	4.6	H40A	Y	0.272	6.9	7.9
SUB6	B	61HE4200	375	114.3	1900	120	15	4.6	H40A	Y	0.285	7.2	7.5
SUB7	B	61HE4200	310	94.5	2300	120	15	4.6	H40A	Y	0.285	7.2	6.2
SUB8	B	61HC4100	550	167.6	2300	120	15	4.6	H60A	Y	0.278	7.1	6.4
SUB9	B	61HC5651	630	192.0	3000	120	15	4.6	H60A	Y	0.274	7.0	4.7
SUB10	B	61HC5409	717	218.5	4300	120	15	4.6	H80A	Y	0.303	7.7	3.4
208 Volts													
SUA1	A	61HD3610	108	32.9	650	208	7	2.1	H22A	Y	0.200	5.1	65.9
SUA6	A	61HE3105	264	80.5	1560	208	7	2.1	H22A	Y	0.254	6.5	27.7
SUB19	B	61HD3200	245	74.7	885	208	15	4.6	H25A	Y	0.248	6.3	49.0
SUB20	B	61HE3105	340	103.6	1210	208	15	4.6	H25A	Y	0.254	6.5	35.7
SUB21	B	61HE4600	440	134.1	1640	208	15	4.6	H25A	Y	0.274	7.0	26.5
SUB22	B	61HE4400	525	160.0	2060	208	15	4.6	H25A	Y	0.265	6.7	20.9

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.

² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

MI HEATING CABLE FOR FREEZER FROST HEAVE PREVENTION

SUA/SUB HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heated length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resist- ance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
240 Volts													
SUB19	B	61HD3200	245	74.7	1175	240	15	4.6	H25A	Y	0.248	6.3	49.0
SUB20	B	61HE3105	340	103.6	1615	240	15	4.6	H25A	Y	0.254	6.5	35.7
SUB21	B	61HE4600	440	134.1	2180	240	15	4.6	H25A	Y	0.274	7.0	26.5
SUB22	B	61HE4400	525	160.0	2745	240	15	4.6	H25A	Y	0.265	6.7	20.9
277 Volts and 480 Volts, 3-phase Wye													
SUB19	B	61HD3200	245	74.7	1565	277	15	4.6	H25A	Y	0.248	6.3	49.0
SUB20	B	61HE3105	340	103.6	2150	277	15	4.6	H25A	Y	0.254	6.5	35.7
SUB21	B	61HE4600	440	134.1	2900	277	15	4.6	H25A	Y	0.274	7.0	26.5
SUB22	B	61HE4400	525	160.0	3650	277	15	4.6	H25A	Y	0.265	6.7	20.9
347 Volts and 600 Volts, 3-phase Wye													
SUB11	B	61HD3390	225	68.6	1400	347	15	4.6	H25A	Y	0.212	5.4	87.8
SUB12	B	61HD3200	310	94.5	1950	347	15	4.6	H25A	Y	0.248	6.3	62.1
SUB13	B	61HE3105	428	130.5	2700	347	15	4.6	H25A	Y	0.254	6.5	45.0
SUB14	B	61HE4600	548	167.0	3700	347	15	4.6	H25A	Y	0.274	7.0	32.7

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.

² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

FFHP HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heated length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resistance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
120 Volts and 208 Volts, 3-phase Wye													
FFHP1	B	61HD3610	58	17.7	405	120	15	4.6	H25A	Y	0.200	5.1	35.6
FFHP2	B	61HD3390	72	22.0	510	120	15	4.6	H25A	Y	0.212	5.4	28.2
FFHP3	B	61HD3300	83	25.3	580	120	15	4.6	H25A	Y	0.240	6.1	24.8
FFHP4	B	61HD3200	102	31.1	705	120	15	4.6	H25A	Y	0.248	6.3	20.4
FFHP5	B	61HE3150	117	35.7	820	120	15	4.6	H25A	Y	0.228	5.8	17.6
FFHP6	B	61HE3105	140	42.7	980	120	15	4.6	H25A	Y	0.254	6.5	14.7
FFHP7	B	61HE4800	160	48.8	1125	120	15	4.6	H25A	Y	0.262	6.7	12.8
FFHP8	B	61HE4600	185	56.4	1300	120	15	4.6	H25A	Y	0.274	7.0	11.1
FFHP9	B	61HE4400	226	68.9	1590	120	15	4.6	H25A	Y	0.265	6.7	9.1
FFHP10	B	61HE4300	262	79.9	1830	120	15	4.6	H25A	Y	0.272	6.9	7.9
FFHP11	B	61HE4200	320	97.6	2250	120	15	4.6	H25A	Y	0.285	7.2	6.4
FFHP12	B	61HC4100	426	129.9	2965	120	15	4.6	H30A	Y	0.278	7.1	4.9
FFHP13	B	61HC5651	528	161.0	3675	120	15	4.6	H40A	Y	0.274	7.0	3.9
FFHP14	B	61HC5409	664	202.4	4650	120	15	4.6	H40A	Y	0.303	7.7	3.1

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.

² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

MI HEATING CABLE FOR FREEZER FROST HEAVE PREVENTION

FFHP HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heated length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resist- ance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
208 Volts													
FFHP15	B	61HD3610	101	30.8	700	208	15	4.6	H25A	Y	0.200	5.1	61.8
FFHP16	B	61HD3390	126	38.4	880	208	15	4.6	H25A	Y	0.212	5.4	49.2
FFHP17	B	61HD3300	144	43.9	1000	208	15	4.6	H25A	Y	0.240	6.1	43.3
FFHP18	B	61HD3200	176	53.7	1230	208	15	4.6	H25A	Y	0.248	6.3	35.2
FFHP19	B	61HE3150	203	61.9	1420	208	15	4.6	H25A	Y	0.228	5.8	30.5
FFHP20	B	61HE3105	243	74.1	1700	208	15	4.6	H25A	Y	0.254	6.5	25.4
FFHP21	B	61HE4800	278	84.8	1945	208	15	4.6	H25A	Y	0.262	6.7	22.2
FFHP22	B	61HE4600	320	97.6	2250	208	15	4.6	H25A	Y	0.274	7.0	19.2
FFHP23	B	61HE4400	394	120.1	2745	208	15	4.6	H25A	Y	0.265	6.7	15.8
FFHP24	B	61HE4300	455	138.7	3170	208	15	4.6	H25A	Y	0.272	6.9	13.7
FFHP25	B	61HE4200	557	169.8	3885	208	15	4.6	H25A	Y	0.285	7.2	11.1
240 Volts													
FFHP26	B	61HD3610	116	35.4	815	240	15	4.6	H25A	Y	0.200	5.1	70.7
FFHP27	B	61HD3390	145	44.2	1020	240	15	4.6	H25A	Y	0.212	5.4	56.5
FFHP28	B	61HD3300	166	50.6	1160	240	15	4.6	H25A	Y	0.240	6.1	49.7
FFHP29	B	61HD3200	203	61.9	1420	240	15	4.6	H25A	Y	0.248	6.3	40.6
FFHP30	B	61HE3150	234	71.3	1640	240	15	4.6	H25A	Y	0.228	5.8	35.1
FFHP31	B	61HE3105	279	85.1	1965	240	15	4.6	H25A	Y	0.254	6.5	29.3
FFHP32	B	61HE4800	320	97.6	2250	240	15	4.6	H25A	Y	0.262	6.7	25.6
FFHP33	B	61HE4600	370	112.8	2600	240	15	4.6	H25A	Y	0.274	7.0	22.2
FFHP34	B	61HE4400	452	137.8	3185	240	15	4.6	H25A	Y	0.265	6.7	18.1
FFHP35	B	61HE4300	522	159.1	3680	240	15	4.6	H25A	Y	0.272	6.9	15.7
FFHP36	B	61HE4200	640	195.1	4500	240	15	4.6	H25A	Y	0.285	7.2	12.8
277 Volts and 480 Volts, 3-phase Wye													
FFHP37	B	61HD3610	134	40.9	940	277	15	4.6	H25A	Y	0.200	5.1	81.6
FFHP38	B	61HD3390	168	51.2	1170	277	15	4.6	H25A	Y	0.212	5.4	65.6
FFHP39	B	61HD3300	191	58.2	1340	277	15	4.6	H25A	Y	0.240	6.1	57.3
FFHP40	B	61HD3200	234	71.3	1640	277	15	4.6	H25A	Y	0.248	6.3	46.8
FFHP41	B	61HE3150	270	82.3	1895	277	15	4.6	H25A	Y	0.228	5.8	40.5
FFHP42	B	61HE3105	322	98.2	2270	277	15	4.6	H25A	Y	0.254	6.5	33.8
FFHP43	B	61HE4800	370	112.8	2590	277	15	4.6	H25A	Y	0.262	6.7	29.6
FFHP44	B	61HE4600	426	129.9	3000	277	15	4.6	H25A	Y	0.274	7.0	25.6
FFHP45	B	61HE4400	525	160.1	3655	277	15	4.6	H25A	Y	0.265	6.7	21.0
FFHP46	B	61HE4300	603	183.8	4240	277	15	4.6	H25A	Y	0.272	6.9	18.1
FFHP47	B	61HE4200	740	225.6	5185	277	15	4.6	H25A	Y	0.285	7.2	14.8

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.

² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

FFHP HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heated length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resist-ance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
347 Volts and 600 Volts, 3-phase Wye													
FFHP48	B	61HD3610	168	51.2	1175	347	15	4.6	H25A	Y	0.200	5.1	102.5
FFHP49	B	61HD3390	210	64.0	1470	347	15	4.6	H25A	Y	0.212	5.4	81.9
FFHP50	B	61HD3300	239	72.9	1680	347	15	4.6	H25A	Y	0.240	6.1	71.7
FFHP51	B	61HD3200	294	89.6	2050	347	15	4.6	H25A	Y	0.248	6.3	58.7
FFHP52	B	61HE3150	338	103.0	2375	347	15	4.6	H25A	Y	0.228	5.8	50.7
FFHP53	B	61HE3105	405	123.5	2830	347	15	4.6	H25A	Y	0.254	6.5	42.5
FFHP54	B	61HE4800	465	141.8	3240	347	15	4.6	H25A	Y	0.262	6.7	37.2
FFHP55	B	61HE4600	535	163.1	3750	347	15	4.6	H25A	Y	0.274	7.0	32.1
FFHP56	B	61HE4400	655	199.7	4600	347	15	4.6	H25A	Y	0.265	6.7	26.2
FFHP57	B	61HE4300	755	230.2	5315	347	15	4.6	H25A	Y	0.272	6.9	22.7

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

FFHPC HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heating length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resistance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
120 Volts													
FFHPC1	D	32SF2900	15	4.6	105	120	7	2.1	C22A	X	0.140	3.6	137.1
FFHPC2	D	32SA2600	20	6.1	120	120	7	2.1	C22A	X	0.135	3.4	120.0
FFHPC3	D	32SA2400	25	7.6	145	120	7	2.1	C22A	X	0.146	3.7	99.3
FFHPC4	D	32SA2275	30	9.1	175	120	7	2.1	C22A	X	0.153	3.9	82.3
FFHPC5	D	32SA2170	35	10.7	240	120	7	2.1	C22A	X	0.167	4.2	60.0
FFHPC6	D	32SB2114	40	12.2	315	120	7	2.1	C22A	X	0.174	4.4	45.7
FFHPC7	D	32SB2114	45	13.7	280	120	7	2.1	C22A	X	0.174	4.4	51.4
FFHPC8	D	32HD3800	50	15.2	360	120	7	2.1	C22A	Y	0.245	6.2	40.0
FFHPC9	D	32HD3800	55	16.8	330	120	7	2.1	C22A	Y	0.245	6.2	43.6
FFHPC10	D	32HD3600	60	18.3	400	120	7	2.1	C22A	Y	0.255	6.5	36.0
FFHPC11	D	32HD3600	65	19.8	370	120	7	2.1	C22A	Y	0.255	6.5	38.9
FFHPC12	D	32HD3400	70	21.3	515	120	7	2.1	C22A	Y	0.263	6.7	28.0
FFHPC13	D	32HD3400	75	22.9	480	120	7	2.1	C22A	Y	0.263	6.7	30.0
FFHPC14	D	32HD3400	80	24.4	450	120	7	2.1	C22A	Y	0.263	6.7	32.0
FFHPC15	D	32HD3300	85	25.9	565	120	7	2.1	C22A	Y	0.270	6.9	25.5
FFHPC16	D	32HD3300	90	27.4	535	120	7	2.1	C22A	Y	0.270	6.9	26.9
FFHPC17	D	32HE3200	95	29.0	750	120	7	2.1	C22A	Y	0.270	6.9	19.2
FFHPC18	D	32HE3200	100	30.5	720	120	7	2.1	C22A	Y	0.265	6.7	20.0

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

Type FFHPC cables supplied with a 3/4 in NPT reversed gland connector and pulling eye.

MI HEATING CABLE FOR FREEZER FROST HEAVE PREVENTION

FFHPC HEATING CABLE SPECIFICATIONS

Catalog number	Design	Heating cable reference	Heating length		Nominal power (watts)	Cable voltage (volts)	Cold lead length ¹		Cold lead code	Joint type	Nominal heating cable diameter		Resist- ance ² (ohms)
			(ft)	(m)			(ft)	(m)			(in)	(mm)	
208 Volts													
FFHPC19	D	32SF1110	25	7.6	155	208	7	2.1	C22A	X	0.130	3.3	279.1
FFHPC20	D	32SF2750	30	9.1	190	208	7	2.1	C22A	X	0.157	4.0	227.7
FFHPC21	D	32SA2600	35	10.7	205	208	7	2.1	C22A	X	0.135	3.4	211.0
FFHPC22	D	32SA2400	40	12.2	270	208	7	2.1	C22A	X	0.146	3.7	160.2
FFHPC23	D	32SA2275	45	13.7	350	208	7	2.1	C22A	X	0.153	3.9	123.8
FFHPC24	D	32SA2275	50	15.2	315	208	7	2.1	C22A	X	0.153	3.9	137.5
FFHPC25	D	32SA2200	55	16.8	390	208	7	2.1	C22A	X	0.169	4.3	110.9
FFHPC26	D	32SA2170	60	18.3	425	208	7	2.1	C22A	X	0.167	4.2	101.8
FFHPC27	D	32SA2170	65	19.8	390	208	7	2.1	C22A	X	0.167	4.2	110.9
FFHPC28	D	32SB2114	70	21.3	540	208	7	2.1	C22A	X	0.174	4.4	80.1
FFHPC29	D	32SB2114	75	22.9	505	208	7	2.1	C22A	X	0.174	4.4	85.7
FFHPC30	D	32SB2114	80	24.4	475	208	7	2.1	C22A	X	0.174	4.4	91.1
FFHPC31	D	32HD3800	85	25.9	635	208	7	2.1	C22A	Y	0.245	6.2	68.1
FFHPC32	D	32HD3800	90	27.4	600	208	7	2.1	C22A	Y	0.245	6.2	72.1
FFHPC33	D	32HD3800	95	29.0	570	208	7	2.1	C22A	Y	0.245	6.2	75.9
FFHPC34	D	32HD3600	100	30.5	720	208	7	2.1	C22A	Y	0.255	6.5	60.1
277 Volts													
FFHPC35	D	32SF1110	30	9.1	230	277	7	2.1	C22A	X	0.130	3.3	333.6
FFHPC36	D	32SF2900	35	10.7	240	277	7	2.1	C22A	X	0.140	3.6	319.7
FFHPC37	D	32SF2750	40	12.2	255	277	7	2.1	C22A	X	0.157	4.0	300.9
FFHPC38	D	32SA2600	45	13.7	285	277	7	2.1	C22A	X	0.135	3.4	269.2
FFHPC39	D	32SA2400	50	15.2	380	277	7	2.1	C22A	X	0.146	3.7	201.9
FFHPC40	D	32SA2400	55	16.8	350	277	7	2.1	C22A	X	0.146	3.7	219.2
FFHPC41	D	32SA2275	60	18.3	465	277	7	2.1	C22A	X	0.153	3.9	165.0
FFHPC42	D	32SA2275	65	19.8	430	277	7	2.1	C22A	X	0.153	3.9	178.4
FFHPC43	D	32SA2275	70	21.3	400	277	7	2.1	C22A	X	0.153	3.9	191.8
FFHPC44	D	32SA2200	75	22.9	500	277	7	2.1	C22A	X	0.169	4.3	153.5
FFHPC45	D	32SA2200	80	24.4	480	277	7	2.1	C22A	X	0.169	4.3	159.9
FFHPC46	D	32SA2170	85	25.9	530	277	7	2.1	C22A	X	0.167	4.2	144.8
FFHPC47	D	32SA2170	90	27.4	500	277	7	2.1	C22A	X	0.167	4.2	153.5
FFHPC48	D	32SB2114	95	29.0	700	277	7	2.1	C22A	X	0.174	4.4	109.6
FFHPC49	D	32SB2114	100	30.5	670	277	7	2.1	C22A	X	0.174	4.4	114.5

¹ To modify cold lead length, contact your Pentair Thermal Management sales representative.

² Resistance tolerance: +/- 10%

Tolerance on heating cable length: -0% to +3%

Type FFHPC cables supplied with a 3/4 in NPT reversed gland connector and pulling eye.

APPROVALS



GROUND-FAULT PROTECTION

To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Pentair Thermal Management, agency certifications, and national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection. Many Raychem control and monitoring systems meet the ground-fault protection requirement.



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