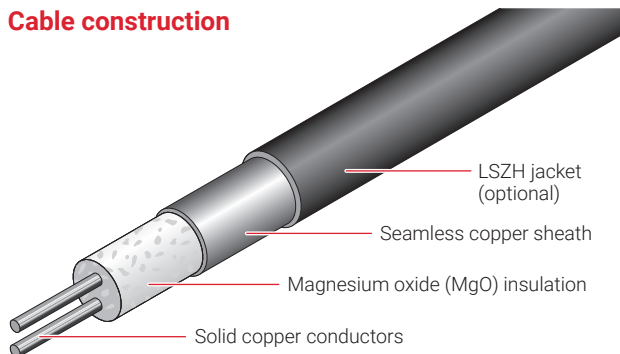


COPPER SHEATHED, MINERAL INSULATED, FIRE-RATED WIRING CABLE

Cable construction



PRODUCT OVERVIEW

nVent PYROTENAX System 1850 fire-rated mineral insulated (MI) wiring cables provide protection of critical processes and systems in non-hydrocarbon environments in both nonhazardous and hazardous locations. In addition, System 1850 wiring cables are also used as an alternative to traditional conduit and wire methods when a gas path block is required.

System 1850 wiring cable is constructed with a copper sheath and solid copper conductors which allows continuous exposure temperatures to 482°F (250°C) and temperature excursions to 1850°F (1010°C). An optional Low-Smoke, Zero-Halogen (LSZH) jacket provides additional protection where corrosives may be present.

Bare copper MI cable is made of inorganic materials and provides zero smoke generation, zero fuel contribution, and zero flame spread. Highly compacted MgO insulation prevents the flow and transmission of explosive gases through the wiring cables.

System 1850 MI cable may be used for power, control, and communication wiring in the following environments:

- Petrochemical and mining – in hazardous areas to provide a gas path block
- Manufacturing – to provide a gas path block for fuel pumps, paint shops, etc.; in areas of extreme heat in the vicinity of furnaces, etc.
- Tunnels and confined spaces – MI cables do not burn; no smoke generated
- Nuclear and fossil fuel power generation plants – for wiring to equipment where heat or radiation may be of concern
- Pulp and paper – where corrosives are present

System 1850 wiring cable is typically supplied as a factory assembled Duoterm unit complete with terminations at each end, allowing for immediate installation in the field. In hazardous areas, the simplified installation of MI cable means that conduit systems and explosion proof seals are not required; simply connect the cable directly to the equipment or junction box.

System 1850 MI cable is a UL Classified / ULC Listed 2-hour fire-resistive cable tested to the UL 2196 / ULC-S139 fire test standards. For more information on factory-assembled Duoterm units, or for additional information on bulk cable and field-installed terminations, contact your nVent representative or call (800) 545-6258.

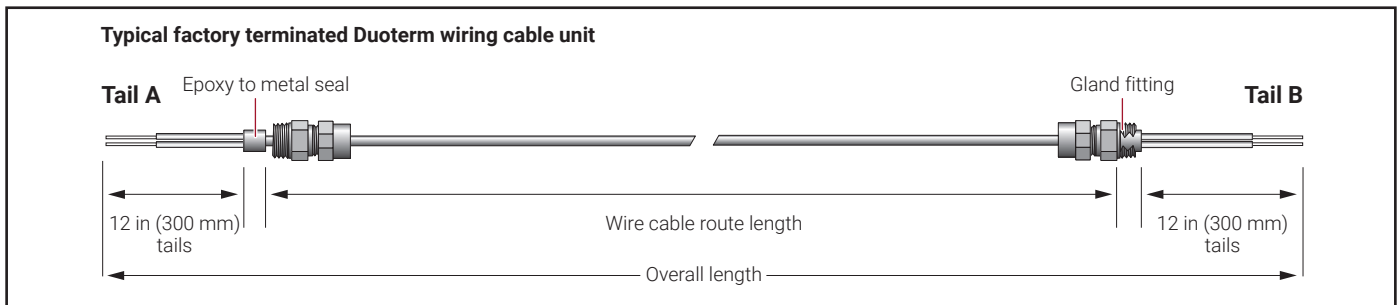
CABLE CONSTRUCTION

Sheath	Seamless copper (LSZH jacket optional)
Insulation	Magnesium oxide (MgO)
Conductor type	Copper
Insulation voltage rating	600 V
Conductor size	16 AWG – 500 kcmil
Number of conductors	1, 2, 3, 4, or 7 standard (Contact nVent for custom configurations)

CABLE TEMPERATURE RATING

	Copper sheath	LSZH jacket
Continuous exposure temperature	482°F (250°C)	194°F (90°C)
Maximum exposure temperature	1850°F (1010°C)	1850°F (1010°C)*

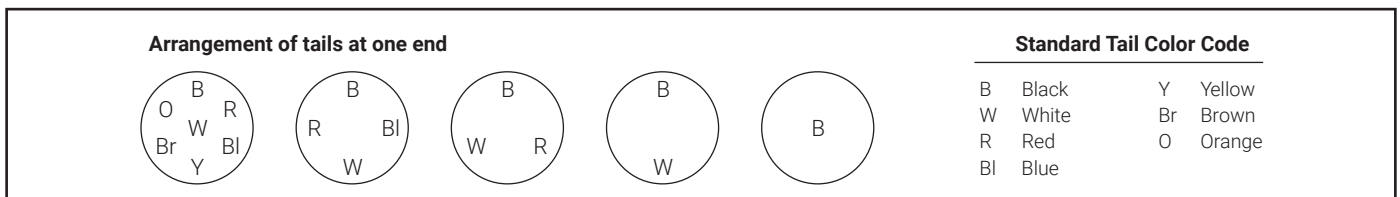
* LSZH jacket is sacrificed under fire conditions.



TERMINATION CONSTRUCTION

Gland fitting	Brass	
Potting material	Epoxy resin	
Tails		
Standard tail length	12 in (300 mm) (Please specify if longer tail lengths are required)	
Maximum exposure temperature ¹	Nonhazardous	Hazardous
High temperature insulated stranded wire	248°F (120°C); 392°F (200°C) optional	248°F (120°C); 302°F (150°C) optional
PVC sleeving	220°F (105°C)	220°F (105°C)
Size	16 AWG – 500 kcmil	

¹For factory assembled Duoterm units, high temperature insulated stranded wire tails are standard unless otherwise noted in table below. For field installed terminations, solid wire tails with PVC sleeving is standard.



600 V WIRING CABLE SPECIFICATIONS

Cable reference number	Conductor size (AWG)	Allowable ampacity NEC 75°C / 90°C (A)	Allowable ampacity CEC, 75°C / 90°C (A)	Nominal coil length ² [ft / (m)]	Nominal weight [lb/1000 ft / (kg / km)]	NPT gland size (in)
Single conductor						
1/10-277	10 ⁶	50 / 55	50 / 55	1884 / (574)	154 / (229)	1/2
1/8-298	8	70 / 80	70 / 80	1522 / (464)	185 / (276)	1/2
1/6-340	6	95 / 105	95 / 105	1178 / (359)	236 / (351)	1/2
1/4-402	4 ³	125 / 140	125 / 140	818 / (249)	332 / (494)	1/2
1/3-449	3 ³	145 / 165	145 / 165	667 / (203)	409 / (609)	3/4
1/2-449	2 ³	170 / 190	170 / 190	667 / (203)	444 / (661)	3/4
1/1-496	1 ³	195 / 220	195 / 220	546 / (166)	492 / (732)	3/4
1/1/0-512	1/0 ⁴	230 / 260	230 / 260	496 / (151)	601 / (896)	3/4
1/2/0-580	2/0 ⁴	265 / 300	265 / 300	387 / (118)	771 / (1150)	3/4
1/3/0-621	3/0 ⁴	310 / 350	310 / 350	553 / (168)	939 / (1400)	3/4
1/4/0-684	4/0 ⁴	360 / 405	360 / 405	455 / (139)	1128 / (1682)	1
1/250-746	250 kcmil ⁴	405 / 455	405 / 455	383 / (117)	1341 / (2000)	1-1/4
1/350-834	350 kcmil ⁴	505 / 570	505 / 570	288 / (88)	1675 / (2498)	1-1/4
1/500-1000	500 kcmil ⁴	620 / 700	620 / 700	197 / (60)	2403 / (3584)	1-1/4
Two conductor						
2/16-340	16	- / 18	- / -	1095 / (334)	189 / (281)	1/2
2/14-371	14 ⁶	20 / 25	20 / 25	957 / (292)	236 / (351)	1/2
2/12-402	12 ⁶	25 / 30	25 / 30	788 / (240)	275 / (409)	1/2
2/10-449	10 ⁶	35 / 40	35 / 40	635 / (194)	353 / (525)	3/4
2/8-512	8	50 / 55	50 / 55	468 / (143)	473 / (704)	3/4
2/6-590	6	65 / 75	65 / 75	355 / (108)	626 / (933)	3/4
2/4-684	4 ³	85 / 95	85 / 95	404 / (123)	877 / (1305)	1
2/3-768	3 ³	100 / 110	100 / 115	230 / (70)	1067 / (1587)	1-1/4
2/2-865	2 ³	115 / 130	115 / 130	263 / (80)	1353 / (2013)	1-1/4
2/1-975	1 ³	130 / 150	130 / 145	199 / (61)	1717 / (2555)	1-1/4
Three conductor						
3/16-355	16	- / 18	- / -	1009 / (307)	210 / (312)	1/2
3/14-387	14 ⁶	20 / 25	20 / 25	852 / (260)	257 / (382)	1/2
3/12-480	12 ⁶	25 / 30	25 / 30	554 / (169)	395 / (588)	3/4
3/10-480	10 ⁶	35 / 40	35 / 40	560 / (171)	419 / (623)	3/4
3/8-590	8	50 / 55	50 / 55	371 / (113)	637 / (948)	3/4
3/6-621	6	65 / 75	65 / 75	325 / (99)	738 / (1098)	3/4
3/4-746	4 ³	85 / 95	85 / 95	225 / (69)	1079 / (1606)	1-1/4
3/3-834	3 ³	100 / 110	100 / 115	180 / (55)	1339 / (1993)	1-1/4
Four conductor						
4/16-387	16	- / 18 ⁵	- / -	851 / (259)	254 / (378)	1/2
4/14-465	14 ⁶	20 ⁵ / 25 ⁵	20 ⁵ / 25 ⁵	589 / (180)	366 / (545)	3/4
4/12-465	12 ⁶	25 ⁵ / 30 ⁵	25 ⁵ / 30 ⁵	568 / (173)	376 / (559)	3/4
4/10-590	10 ⁶	35 ⁵ / 40 ⁵	35 ⁵ / 40 ⁵	353 / (108)	606 / (902)	3/4
4/8-590	8	50 ⁵ / 55 ⁵	50 ⁵ / 55 ⁵	358 / (109)	658 / (979)	3/4
4/6-730	6	65 ⁵ / 75 ⁵	65 ⁵ / 75 ⁵	243 / (74)	1008 / (1500)	1-1/4

600 V WIRING CABLE SPECIFICATIONS (CONTINUE)

Cable reference number	Conductor size (AWG)	Allowable ampacity NEC 75°C / 90°C (A)	Allowable ampacity CEC, 75°C / 90°C (A)	Nominal coil length ² [ft / (m)]	Nominal weight [lb/1000 ft / (kg / km)]	NPT gland size (in)
Seven conductor						
7/16-449	16	- / 18 ⁵	- / -	605 / (184)	338 / (503)	3/4
7/14-496	14 ⁶	20 ⁵ / 25 ⁵	20 ⁵ / 25 ⁵	499 / (152)	428 / (637)	3/4
7/12-543	12 ⁶	25 ⁵ / 30 ⁵	25 ⁵ / 30 ⁵	419 / (128)	528 / (786)	3/4
7/10-621	10 ⁶	35 ⁵ / 40 ⁵	35 ⁵ / 40 ⁵	335 / (102)	716 / (1065)	1
7/8-710	8	50 ⁵ / 55 ⁵	50 ⁵ / 55 ⁵	257 / (78)	982 / (1461)	1-1/4

² For longer lengths, please contact nVent.

³ For factory assembled Duoterm units, tail is stranded wire with PVC sleeving.

⁴ For factory assembled Duoterm units, tail is solid wire with PVC sleeving.

⁵ Based on 3 conductors supplying current to the load; other conductor(s) used as neutral or for control signal. Derating factors apply if 4 or more conductors are used as current-carrying conductors.

⁶ For 14 AWG, 12 AWG and 10 AWG, refer to appropriate sections of NEC and CEC governing conductor overcurrent protection limitations.

Note: To obtain cable diameter: use last three digits in the cable reference number and move decimal point three places to the left; result is cable diameter in inches. Example: cable reference 4/12-465 is 0.465" diameter.

APPROVALS

BULK CABLE



Nonhazardous Locations

Hazardous Locations

Class I, Div. 1 and 2, Groups A, B, C, D

Class II, Div. 1 and 2, Groups E, F, G

Class III



Nonhazardous Locations



UL Classified, 2-hour fire-resistive cable, tested to UL 2196 with hose stream



ULC Listed, 2-hour fire-resistant cable, tested to ULC-S139 with hose stream

TERMINATED CABLE

QUICKTERM KIT



Nonhazardous Locations

PYROPAK KIT (MASTIC COMPOUND SEAL)



Nonhazardous Locations

Hazardous Locations

Class I, Div. 1 and 2, Groups A, B, C, D

Class II, Div. 1 and 2, Groups E, F, G

Class III

PYROPAK KIT (EPOXY RESIN SEAL)



Nonhazardous Locations

Hazardous Locations

Class I, Div. 1 and 2, Groups A, B, C, D

Class II, Div. 1 and 2, Groups E, F, G

Class III

Note: Overall approval of the terminated cable depends on the termination kit used.

Additional Performance Information for MI Cable

• Passes IEC 60331 flame test – modified to 1100°C (2000°F) for 4 hours (normally 750°C or 830°C) with mechanical shock every 30 seconds.

Note: Caution should be exercised when comparing open flame tests with enclosed furnace tests as the heat flux conditions are very different.

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