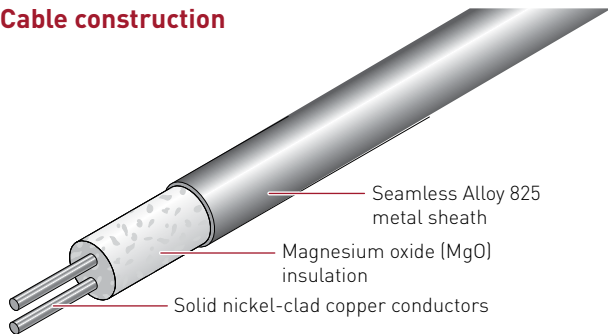


PYROTENAX SYSTEM 2000

ALLOY 825 SHEATHED, MINERAL INSULATED, FIRE-RATED WIRING CABLE

Cable construction



PRODUCT OVERVIEW

Pyrotenax fire-rated mineral insulated (MI) wiring cables facilitate the controlled shutdown of critical processes and systems in the event of a hydrocarbon flash fire in both nonhazardous and hazardous locations.

Using the electrical test procedure described in UL2196, System 2000 MI cable maintains electrical circuit integrity for 30 minutes during exposure to the UL 1709 fire test. The UL 1709 test, referenced in API 2218, replicates an intense hydrocarbon fire, reaching 2000°F (1093°C) in 5 minutes when subjected to a heat flux of 65,000 BTU/ft² hr (200 kW/m²) in an enclosed furnace.

System 2000 wiring cable is constructed with an Alloy 825 sheath and nickel-clad copper conductors that allow continuous exposure temperatures to 1238°F (670°C) and withstand rapid-rise temperature excursions to 2000°F (1093°C). In addition, the sheath provides durability in areas where corrosives may be present and the nickel-clad copper conductors permit higher current ratings compared with nickel conductors.

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 2000 MI cable may be used for power, control, and communication wiring in the following environments:

- Petrochemical – to protect critical systems in the event of a hydrocarbon flash fire
- Petrochemical and mining – in hazardous areas to provide a gas path block
- Manufacturing – in areas of extreme heat, around 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 2000

System 2000 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.

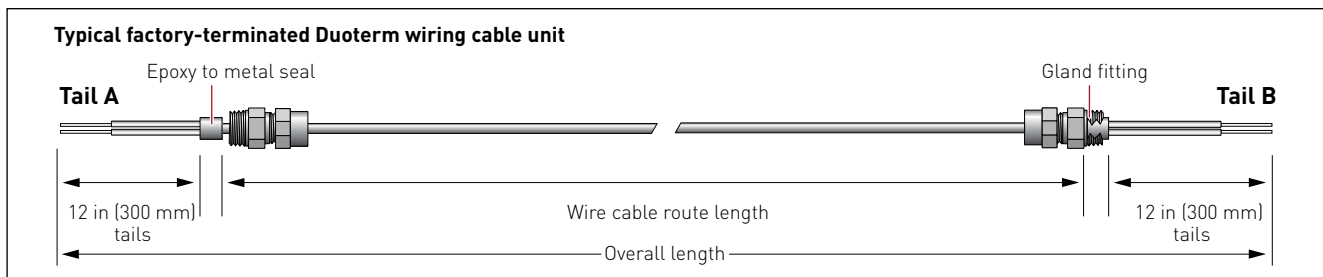
Pyrotenax System 2000 meets the requirements of national electrical codes. For additional information on factory-assembled Duoterm units or bulk cable and field installed terminations, contact your Pentair Industrial Heat Tracing Solutions representative or call (800) 545-6258.

CABLE CONSTRUCTION

Sheath	Alloy 825
Insulation	Magnesium oxide (MgO)
Conductor type	Nickel-clad copper
Insulation voltage rating	600 V
Conductor size	16 AWG – 2 AWG (Physical conductor size is larger due to nickel cladding; see Table below)
Number of conductors	1, 2, 3, 4, or 7 standard (Contact Pentair Industrial Heat Tracing Solutions for custom configurations)

CABLE TEMPERATURE RATING

Continuous exposure temperature	1238°F (670°C)
Maximum exposure temperature	2000°F (1093°C)

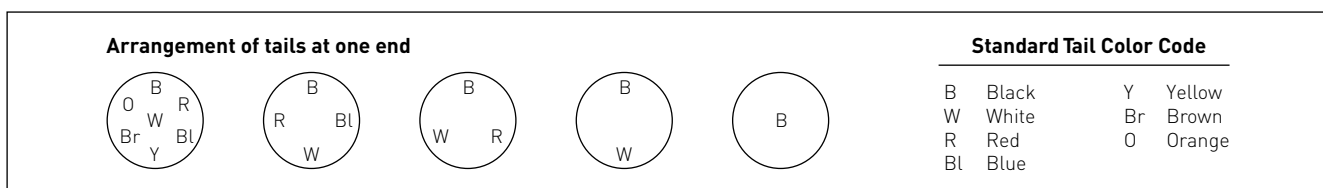


TERMINATION CONSTRUCTION

Gland fitting	Stainless steel	
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 ²	16 AWG - 1 AWG	

¹ For 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.

² For field installed terminations, tail size is the same size as the physical conductor size (see Table below).



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 ³ [ft / (m)]	Nominal weight [lb/1000 ft / (kg/km)]	NPT gland size (in)	Physical conductor size (AWG)
Single conductor							
253-14 / 1NC825	14 ⁷	30 / 35	30 / 35	1967 / (600)	111 / (165)	1/2	13
286-12 / 1NC825	12 ⁷	35 / 40	35 / 40	1547 / (471)	146 / (217)	1/2	11
319-10 / 1NC825	10 ⁷	50 / 55	50 / 55	1253 / (382)	189 / (281)	1/2	9
355-8 / 1NC825	8	70 / 80	70 / 80	1018 / (310)	241 / (359)	1/2	7
387-6 / 1NC825	6	95 / 105	95 / 105	868 / (265)	306 / (455)	1/2	5
434-4 / 1NC825	4 ⁴	125 / 140	125 / 140	700 / (213)	409 / (609)	3/4	3
480-3 / 1NC825	3 ⁵	145 / 165	145 / 165	574 / (175)	505 / (751)	3/4	2
527-2 / 1NC825	2 ⁵	170 / 190	170 / 190	477 / (146)	615 / (915)	3/4	1
Two conductor							
418-14 / 2NC825	14 ⁷	20 / 25	20 / 25	718 / (219)	297 / (442)	3/4	13
465-12 / 2NC825	12 ⁷	25 / 30	25 / 30	582 / (177)	376 / (559)	3/4	11
527-10 / 2NC825	10 ⁷	35 / 40	35 / 40	455 / (139)	493 / (733)	3/4	9
590-8 / 2NC825	8	50 / 55	50 / 55	364 / (111)	631 / (939)	1	7
Three conductor							
418-16 / 3NC825	16	- / 18	- / -	718 / (219)	296 / (440)	3/4	15
465-14 / 3NC825	14 ⁷	20 / 25	20 / 25	581 / (177)	374 / (556)	3/4	13
496-12 / 3NC825	12 ⁷	25 / 30	25 / 30	515 / (157)	441 / (656)	3/4	11
543-10 / 3NC825	10 ⁷	35 / 40	35 / 40	431 / (132)	543 / (808)	3/4	9
637-8 / 3NC825	8	50 / 55	50 / 55	316 / (96)	768 / (1145)	1	7
Four conductor							
496-14 / 4NC825	14 ⁷	20 ⁶ / 25 ⁶	20 ⁶ / 25 ⁶	512 / (156)	432 / (643)	3/4	13
527-12 / 4NC825	12 ⁷	25 ⁶ / 30 ⁶	25 ⁶ / 30 ⁶	457 / (139)	505 / (751)	3/4	11
590-10 / 4NC825	10 ⁷	35 ⁶ / 40 ⁶	35 ⁶ / 40 ⁶	367 / (112)	651 / (969)	1	9
684-8 / 4NC825	8	50 ⁶ / 55 ⁶	50 ⁶ / 55 ⁶	274 / (84)	901 / (1341)	1	7
Seven conductor							
590-14 / 7NC825	14 ⁷	20 ⁶ / 25 ⁶	20 ⁶ / 25 ⁶	364 / (111)	629 / (936)	1	13
637-12 / 7NC825	12 ⁷	25 ⁶ / 30 ⁶	25 ⁶ / 30 ⁶	315 / (96)	760 / (1131)	1	11

³ For longer lengths, please contact Pentair Industrial Heat Tracing Solutions.

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

⁵ For factory assembled Duoterm units, tail is solid wire with PVC sleeving and is same size as Physical conductor size.

⁶ 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.

⁷ 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 first 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 637-12/7NC825 is 0.637" diameter.

APPROVALS

Bulk Cable



Ordinary 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, Div. 1 and 2



Ordinary Locations



American Bureau of Shipping Type Approved

Factory-Assembled Duoterm Units and Field Installed Termination Kits



Ordinary 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, Div. 1 and 2



American Bureau of Shipping Type Approved

Additional Performance Information for MI Cable

Passes IEC 60331 flame test – modified to 1100°C (2000°F) for 3 hours (normally 750°C or 830°C) with mechanical shock every 5 minutes.

Passes customer specified rapid rise open flame test for 45 minutes at 1100°C (2000°F).

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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