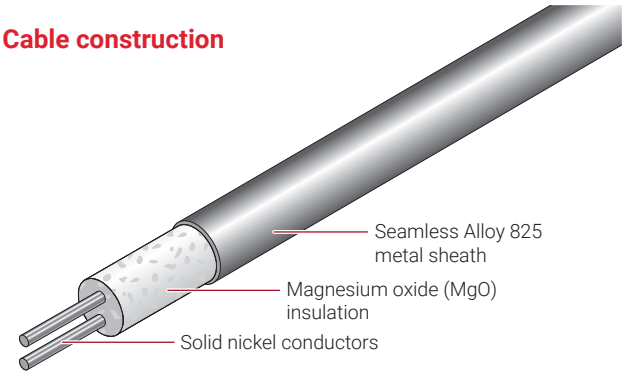
SYSTEM 2000 (METRIC)

nVent RAYCHEM Pyrotenax

ALLOY 825 SHEATHED MINERAL INSULATED FIRE-RATED WIRING CABLE

Cable construction



PRODUCT OVERVIEW

nVent RAYCHEM 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, RAYCHEM 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/ft^2 hr (200 kW/m^2) in an enclosed furnace.

System 2000 wiring cable is constructed with an Alloy 825 sheath and nickel-clad copper conductors which allows continuous exposure temperatures to 670°C and withstands rapid-rise temperature excursions to 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 magnesium oxide (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 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 standards. For additional information on factory assembled Duoterm units, or bulk cable and field installed terminations, please visit our web site, nVent.com.

CABLE CONSTRUCTION

Sheath	Seamless Alloy 825
Insulation	Magnesium oxide (MgO)
Conductor type	Nickel-clad copper
Insulation voltage rating	600 V
Copper conductor cross sectional area	1.0 – 35.0 mm^2 [Physical conductor cross-sectional area is larger due to nickel cladding (see Table below)]
Number of conductors	1, 2 , 3 , 4 or 7 standard (Contact nVent for custom configurations)

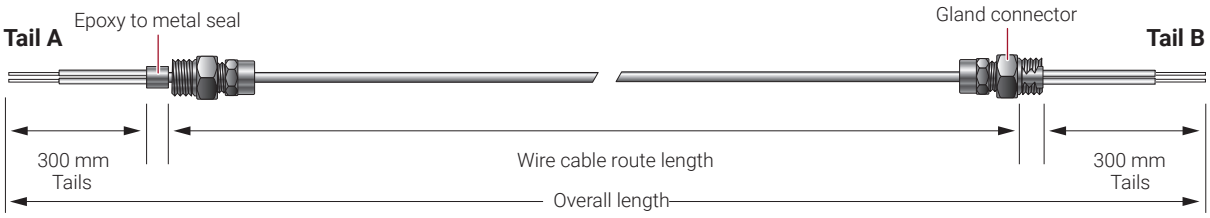
BENDING RADIUS

Minimum bending radius	6 times cable diameter

CABLE TEMPERATURE RATING

Continuous exposure temperature	670°C
Maximum exposure temperature	1093°C

Typical factory terminated Duoterm wiring cable unit

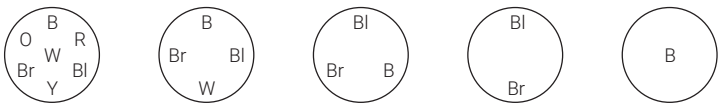


TERMINATION CONSTRUCTION

Gland connector	Stainless steel	
Potting material	Epoxy resin	
Tails		
Standard tail length	300 mm (Please specify if longer tail lengths are required)	
Maximum exposure temperature[1]	Nonhazardous	Hazardous
High temperature insulated stranded wire	120°C; 200°C optional	120°C; 150°C optional
PVC sleeving	105°C	105°C

[1] Factory terminated Duoterm units from 1.0 mm^2 to 10.0 mm^2 are supplied with high temperature insulated stranded wire tails; units from 16.0 mm^2 to 35.0 mm^2 are supplied with PVC insulated solid wire tails. For field installed terminations, solid wire tails with PVC sleeving is standard and the tail size is the same as the physical conductor cross sectional area (see Table).

Arrangement of tails at one end



Standard Tail Colour Code

B	Black	Y	Yellow
W	White	Br	Brown
R	Red	O	Orange
Bl	Blue		

600 V WIRING CABLE SPECIFICATIONS

Cable size reference	Nominal copper conductor cross sectional area (mm^2)	Nominal conductor resistance at 20°C (Ω/km)	Current ratings (70°C sheath temperature) (amps)	Cable diameter (mm)	Nominal coil length[b] (m)	Nominal weight (kg/km)	Physical conductor cross sectional area[c] (mm^2)	Gland connector size (mm)
Single conductor								
215/1NC1.0/825	1	16.5	22	5.5	826	116	1.4	20
240/1NC1.5/825	1.5	9.7	27	6.1	665	147	2.3	20
253/1NC2.5/825	2.5	6.5	36	6.4	603	170	3.4	20
286/1NC4.0/825	4	3.9	47	7.3	475	225	5.7	20
340/1NC6.0/825	6	2.6	59	8.6	336	320	8.6	20
387/1NC10.0/825	10	1.6	81	9.8	261	433	14.3	20
434/1NC16.0/825	16	1.0	107	11.0	211	571	22.9	25
480/1NC25.0/825	25	0.6	139	12.2	175	752	37.0	25
527/1NC35.0/825	35	0.5	168	13.4	145	915	46.2	25
Two conductor								
371/2NC1.0/825	1	14.3	17	9.4	277	340	1.6	20
402/2NC1.5/825	1.5	9.4	23	10.2	236	405	2.4	25
434/2NC2.5/825	2.5	6.8	32	11.0	203	479	3.3	25
496/2NC4.0/825	4	4.2	42	12.6	156	636	5.3	25
543/2NC6.0/825	6	2.8	54	13.8	131	783	8.1	25
684/2NC10.0/825	10	1.5	74	17.4	83	1262	14.6	32
Three conductor								
402/3NC1.0/825	1	15.7	15	10.2	236	403	1.4	25
465/3NC1.5/825	1.5	10.0	20	11.8	177	545	2.2	25
480/3NC2.5/825	2.5	6.5	27	12.2	167	598	3.4	25
527/3NC4.0/825	4	4.2	36	13.4	139	741	5.3	25
590/3NC6.0/825	6	2.8	46	15.0	111	954	8.1	32
714/3NC10.0/825	10	1.6	62	18.1	76	1435	14.1	40
Four conductor								
402/4NC1.0/825	1	16.3	15[d]	10.2	236	409	1.4	25
449/4NC1.5/825	1.5	10.8	20[d]	11.4	190	519	2.1	25
527/4NC2.5/825	2.5	6.7	27[d]	13.4	139	726	3.3	25
590/4NC4.0/825	4	4.0	36[d]	15.0	111	942	5.6	32
637/4NC6.0/825	6	2.7	46[d]	16.2	96	1139	8.2	32
714/4NC10.0/825	10	1.7	62[d]	18.1	77	1500	13.4	40
Seven conductor								
496/7NC1.0/825	1	15.2	15[d]	12.6	156	635	1.5	25
543/7NC1.5/825	1.5	9.7	20[d]	13.8	131	783	2.1	32
637/7NC2.5/825	2.5	6.4	27[d]	16.2	96	1091	3.5	32
714/7NC4.0/825	4	3.9	36[d]	18.1	76	1421	5.7	40
750/7NC6.0/825	6	2.7	46[d]	19.1	70	1646	8.2	40

[b] For longer lengths, please contact nVent.
[c] Physical conductor cross sectional area is larger than nominal copper conductor cross sectional area due to nickel cladding
[d] 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.

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

MI Cable Seal Asembly

II 2G EEx e II
Baseefa02ATEX019
4U

Cable Glands

II 2GD
Ex d IIC Ex tD A21 IP66 (-60°C ≤ ta ≤ +250°C)
Baseefa08ATEX0327X

IECEx BAS 08.0107X
Ex d, Ex td

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 2000°F (1100°C) 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 2000°F (1100°C).

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

North America
Tel +1.800.545.6258
Fax +1.800.527.5703
thermal.info@nvent.com

Europe, Middle East, Africa
Tel +32.16.213.511
Fax +32.16.213.603
thermal.info@nvent.com

Asia Pacific
Tel +86.21.2412.1688
Fax +86.21.5426.3167
cn.thermal.info@nvent.com

Latin America
Tel +1.713.868.4800
Fax +1.713.868.2333
thermal.info@nvent.com