Contents

Twisted Pair, Model 600103 & 600104

Main Characteristics

- Twisted pair shielded cable
- Rund cable
- -55°C to 200 °C (-67°F to 392°F)
- Selection of halogen free & flame retardant cable
- Selection of Stainless steel (AISI 316) overbraid

Description

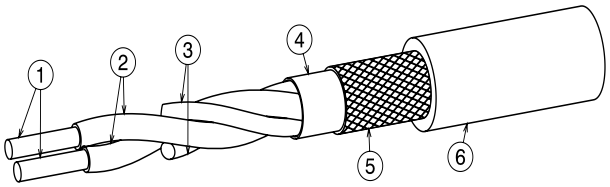


Fig 1 : without overbraid (PNR 600103.XX)

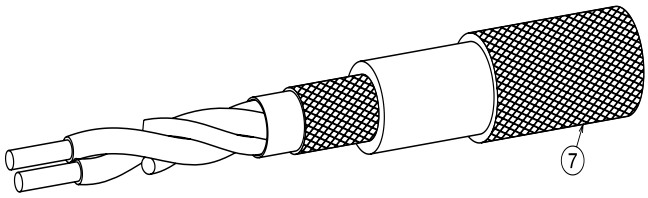


Fig 2 : with overbraid (PNR 600104.XX)

- These cables are specifically manufacture for our applications. they all have fillers for a perfectly rund cable.
- All cables are available with a stainless steel overbraid for harsh environment.

Typical application

- They are used for 2-pole sensors that exhibit a low impedance output :
- ®ICP, piezoresistive, capacitive accelerometer
- velocimeter
- piezoelectric accelerometer with integrated electronic

Ordering information

To order specify the part number with the following options :

600103.XX - AAA or 600104.XX - AAA (for overbraid version)

AAA : Length in meters

Ordering example :

600103.21-010 Twisted pair cable, PU, 10 metres

Overview

600103.21	 Polyurethane / -55 to 90 °C / dia 4.9 mm (0.193 inch) Low cost / good oil resistance / limited chemical resistance
600103.31	 Teflon FEP / -100 to 200 °C / dia 4.7 mm (0.185 inch) expensive / excellent oil resistance / excellent chemical resistance
600103.51	 Radox / -55 to 125 °C / dia 4.3 mm (0.169 inch) expensive / Halogen free and flame retardant
600103.61	Silicone / -50 to 180 °C / dia 6.5 mm (0.255 inch) / Halogen free and flame retardant
600104.21	 600103.21 with AISI 316L (V4A) stainless steel overbraid.
600104.31	 600103.31 with AISI 316L (V4A) stainless steel overbraid.
600104.51	 600103.51 with AISI 316L (V4A) stainless steel overbraid.

Specifications

Construction

(1) Conductors

Material ..... TPC (1)

Gauge (mm)

600103.21, 600103.31 ..... 19x0.203mm / AWG20 / 0.6 mm^2

600103.51 ..... 19x0.18mm / AWG20 / 0.5 mm^2

600103.61 ..... 16x0.2mm / AWG20 / 0.5 mm^2

Diameter (mm)

600103.21, 600103.31 ..... 1 mm

600103.51, 600103.61 ..... 0.9 mm

Lay (twist) ..... 30 mm min

(2) Dielectric

Material , diameter (mm)

600103.21 ..... TPE-E (polyester - ester), 1.33 mm

600103.31 ..... Teflon (FEP), 1.53 mm

600103.51 ..... Radox (see note 3), 1.30 mm

600103.61 ..... Silicone, 2.10 mm

Color conductor 1, conductor 2

600103.21, 600103.31, 600103.61 ..... White, Red

600103.51 ..... White + id 1, White + id 2

(3) Fillers / Rund cable

Filers material

600103.21 ..... Polyamide
600103.31 ..... Teflon (FEP)
600103.51, 600103.61 ..... N/A

(4) Foil

600103.21, 600103.31, 600103.61 ..... Polyester
600103.51 ..... None

(5) Screen

Material, Coverage ..... Braided TPC (note 1), 85% min
Diameter
600103.21 ..... 3.67
600103.31 ..... 3.27
600103.51 ..... 3.1
600103.61 ..... 4.2

(6) Outer sheat

Material / Color / Diameter mm (inch)
600103.21 ..... TPE-U (polyurethane) / Black / 4.9 ±0.2 (0.193 inch)
600103.31 ..... Teflon (FEP) / White / 4.7 ±0.2 (0.185 inch)
600103.51 ..... Radox (see note 3) / Black / 4.3 ±0.2 (0.169 inch)
600103.61 ..... Silicone / Red / 6.4 ±0.2 (0.255 inch)

(7) Overbraid PNR / Material / wire dia / Diameter / coverage

600103.21 ..... 600104.21 / AISI 316 Ti / 0.2 mm / 5.7 mm / 80% Min
600103.31 ..... 600104.31 / AISI 316 Ti / 0.2 mm / 5.5 mm / 80% Min
600103.51 ..... 600104.51 / AISI 316 Ti / 0.2 mm / 5.1 mm / 80% Min
600106.61 ..... N/A

Electrical

Impedance Ω ..... 50 Ω

Capacitance

Cond to Cond (pF/m) / Cond to shield (pF/m)
600103.21 ..... TBD, TBD
600103.31 ..... 96, TBD
600103.51 ..... 110, 190
600103.61 ..... TBD

Physical

Temperature Continuous °C (°F)
600103.21 ..... -50 to 90°C (-58 to 194°F)
600103.31 ..... -100 to 200°C (-148 to 392°F)
600103.51 ..... -40 to 120°C (-40 to 248°F)
600103.61 ..... -50 to 180°C (-58 to 382°F)
Dielectric strength (kV) 2
Voltage ratng Vrms
600103.21 250
600103.31, 600103.51, 600103.61 600
Resistance Conductor (Ω / km) / Shield (Ω / km)
600103.21, 600103.31 ..... 32.4 / TBD
600103.51 ..... TBD / 31.1
600103.61 ..... TBD / TBD
Weight (g/m)
600103.21 ..... TBD
600103.31 30
600103.51 34
600103.61 ..... 45.5
600106.21 ..... TBD
600106.31 ..... TBD
600106.51 ..... TBD
Bending Radius static / Dynamic
600103.21, 600103.31 ..... TBD / TBD
600103.51, 600103.61 ..... 3 x diameter / 5 x diameter

Fire

Flame retardant / Halogen free / Corrrosive gas

600103.21 ..... No / Yes / No
600103.31 ..... Yes / No / Yes
600103.51 ..... Yes / Yes / No
600103.61 ..... Yes / Yes / No

Limited oxygen index / Smoke

600103.21 ..... TBD / Medium
600103.31 ..... TBD / Slight
600103.51 ..... 38% / Low
600103.61 ..... TBD / Low

Standards

600103.21, 600103.31 ..... none
600103.51 ..... DIN 5510
..... NF F16-101
..... BS 6853
..... DIN EN 50265, 50267, 50268 NF C82-070, X10-702
IEC 60332-1 IEC 60754-1 IEC 61034-2
600103.61 .....
NF C 32-070 class C1 // IEC 79-14 // IEC 60332-1 // IEC 60331-21 // IEC 60754-2

Radiation resistant

600103.21, 600103.51 ..... Yes
600103.31 ..... No
600103.61 ..... TBD

Chemical .....see the tutorial polymer section in the appendix

Note :

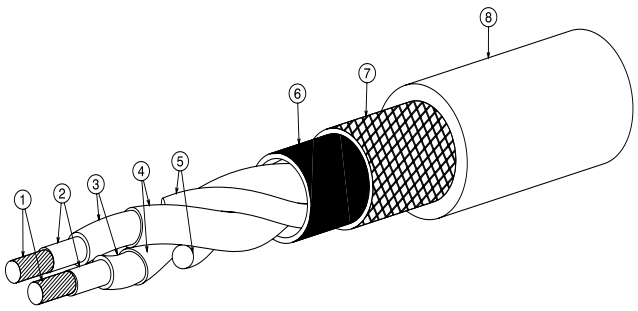
(1) TPC : Tin Plated Copper
(2) ®Radox is a trademark of Huber&Suhner. Radox is a radiation cross link copolymer.
TBD : To be determined

Twisted Pair, Low Noise
Model 600050.XX, 600052.XX

Main Characteristics

- Twisted pair shielded cable
- 2 Low noise treatments
- Teflon (PTFE) jacketed
- Rund cable
- -70°C to 260 °C (-94°F to 500°F)
- Stainless steel overbraid is optional

Description



When subjected to flexure and vibration, these cables must not generate noise (triboelectric noise) in excess of the below specifications.
To improve the sealing with stuffing gland, the cables use glass fiber fillers for a perfectly rund cable.
To improve the mechanical protection, a stainless steel overbraid is available.

Typical application

They are used to transmit low voltage signal from high impedance sensors to signal conditioner at audio frequencies. Twisted pair cables are mainly used by 2-pole differential sensors that have pico Coulomb output:

- Piezoelectric accelerometer or pressure sensor with Pico Coulomb charge output

A length not more than 30 metres is recommended between the sensor and his charge amplifier

Ordering information

To order specify the part number with the following options :
600050.01 - AAA
600052.XX - AAA
AAA : total length in meter
Please indicate minimum continuous length.

Overview

600050.01	 Teflon PTFE / -55 to 260 °C (-67 to 500 °F) dia 4.2 mm (0.165 inch)
600052.01	 Teflon PTFE / AISI 316 Overbraid / -55 to 260 °C (-67 to 500 °F) dia 5.8 mm (0.228 inch)

Competitors cross reference

Endevco 6960	600050.01	Endevco cable is not rund.
Vibro-Meter K 205A MTLN 205A	600050.01	Same specification

Specifications

Construction

(1) Conductors
Material ..... SPC (1)
Gauge (mm) ..... 19x0.16mm / AWG22 / 0.45 mm^2
Diameter (mm) ..... 0.76 mm
Lay (twist) ..... 30 mm min

(2) Primary low noise treatment ..... N/A

(3) Dielectric
Material, diameter (mm) ..... Teflon (PTFE) extruded, 1.40 mm
color conductor 1, color conductor 2 ..... Blue, White

(4) Secondary low noise treatment semiconductor black carbon tape

(5) Fillers / Rund cable ..... glass fibre

(6) Tertiary low noise treatment ... semiconductor black carbon tape

(7) Screen : Material, coverage, diameter (mm) Braided SPC (note 1), AWG38, 80% min, 3.45

(8) Outer sheat
Material 1 / Material 2 ....Polyimide Kapton F tape / PTFE double wrapped tape fused
Diameter mm (inch) / Color ..... 4.25 nominal / White

(9) Overbraid
PNR / Material / Dia / Coverage.....600052.01 / AISI 316 Ti / 6 mm / 80% Min
Protection / wire dia / Dia / carrierGlass fiber / 0.2 mm / 24 carriers, 4 wires/carrier
Identification ...**600050.01-DMF:MM-YYYY where YYYY = year, MM=Month**

Electrical

Capacitance
Cond to Cond pF/m / Cond to shield pF/m.....100 / 200

Physical
Temperature Continuous °C (°F) .....-55 to 200°C (-67 to 392°F)
Temperature intermittent °C (°F) .....-70 to 250°C (-90 to 482°F)
Dielectric strength (kV) 3
Voltage ratng Vrms..... 600
Dielectric Res. Ohm / m..... 10^{12}
Resistance Conductor (Ω / km) / Shield (Ω / km)..... 100 / 15
Weight (g/m)
600050.01..... 43
600052.01..... TBD
Bending Radius static / Dynamic
600050.01, 600052.01..... 5 x diameter / 10 x diameter

Fire

Flame retardant / Halogen free / Corrrosive gas ..Yes / No / Yes

Limited oxygen index / Smoke.....TBD / Slight

Radiation resistant.....No

Chemical .....see the tutorial polymer section in the appendix

Triboelectric noise
2mm displacement (10-70 Hz)..... <10 pC, 2Hz 40mm pk-pk
5 mm displacement (5-50 Hz).....<1 pC, 5 to 50Hz 5mm pk-pk
40 mm displacement (2 Hz)..... <0.15 pC, 10 to 70Hz 2mm pk-pk

(1) SPC : Silver Plated Copper
TBD : To be determined
N/A : Not applicable

Twisted Triples, Model 600106 & 600107

Main Characteristics

- Twisted triples shielded cable
- Rund cable
- -55°C to 200 °C (-67°F to 392°F)
- Selection of halogen free & flame retardant cable
- Selection of Stainless steel (AISI 316L) overbraid

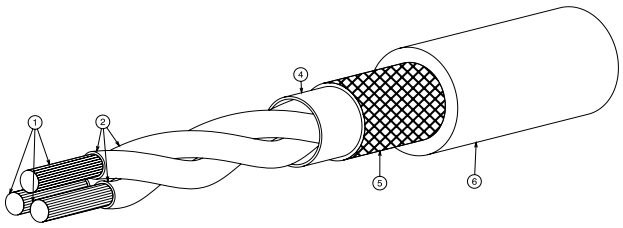


Fig 1 : without overbraid (PNR 600106.XX)

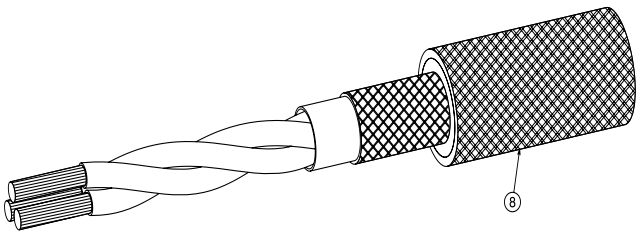


Fig 2 : with overbraid (PNR 600107.XX)

Description

These cables are specifically manufacture for our applications.
All cables are available with a stainless steel overbraid for harsh environment.

Typical application

They are used for 3-pole sensors that exhibit a low impedance output :
®ICP accelerometers with temperature output
Dual output sensor with dual acceleration & velocity

Ordering information

To order specify the part number with the following options :
600106.XX - AAA
600107.XX - AAA
AAA : Length in meters
Ordering example :
600106.31-010 Twisted triples cable, FEP, 10 metres

Overview

600106.31	 **T**eflon FEP / -100 to 200 °C / dia 4.7 mm (0.185 inch) expensive / excellent oil resistance / excellent chemical resistance
600106.51	 Radox / -55 to 125 °C / dia 4.3 mm (0.169 inch) expensive / Halogen free and flame retardant

600107.31	 600106.31 with AISI 316L (V4A) stainless steel overbraid.
600107.51	 600106.51 with AISI 316L (V4A) stainless steel overbraid.

SPECIFICATIONS

CONSTRUCTION

(1) Conductors

Material ..... TPC (1)
Gauge (mm)
600106.31 ..... 19x0.203mm / AWG20 / 0.6 mm^2
600106.51 ..... 19x0.18mm / AWG20 / 0.5 mm^2
Diameter (mm)
600106.31 ..... 1 mm
600106.51 ..... 0.9 mm
Lay (twist) ..... 30 mm min

(2) Dielectric

Material, diameter (mm)
600106.31 ..... Teflon (FEP), 1.53 mm
600106.51 ..... Radox (see note 3), 1.30 mm
Color conductor 1, conductor 2, conductor 3
600106.31 ..... White, Red, Black
600106.51 ..... White + id 1, White + id 2, White +id 3

(3) Fillers / Rund cable

Filers material
600106.31, 600103.51 ..... N/A

(4) Foil

600106.31 ..... Polyester
600106.51 ..... None

(5) Screen

Material, coverage, diameter (mm)
600106.31 ..... Braided TPC (note 1), 85% min, 3.92 mm
600106.51 ..... Braided TPC (note 1), 85% min, 3.3 mm

(6) Outer sheat

Material / Color / Diameter mm (inch)
600106.31 ..... Teflon (FEP) / White / 4.7 ±0.2 (0.185 inch)
600106.51 ..... Radox (see note 3) / Black / 4.5 ±0.2 (0.177 inch)

(7) Overbraid : PNR / Material / wire dia / Diameter / coverage

600106.31 ..... 600107.31 / AISI 316 Ti / 0.2 mm / 5.5 mm / 80% Min
600106.51 ..... 600107.51 / AISI 316 Ti / 0.2 mm / 5.1 mm / 80% Min

ELECTRICAL

Impedance Ω

600106.31 ..... 50 Ω
600106.51 ..... TBD

Capacitance : Cond to Cond pF/m / Cond to shield pF/m

600106.31 ..... 96 / TBD
600106.51 ..... 110 / 190

PHYSICAL

Temperature Continuous °C (°F)
600106.31 ..... -100 to 200°C (-148 to 392°F)
600106.51 ..... -40 to 120°C (-40 to 248°F)
Dielectric strength (kV)
600106.31 ..... 3.4
600106.51 ..... TBD
Voltage ratng Vrms
600106.31, 600106.51 600
Resistance Conductor (Ω / km) / Shield (Ω / km)
600106.31 ..... 32.4 / TBD
600106.51 ..... TBD / 31.1
Weight (g/m)
600106.31 49
600106.51 ..... TBD
600107.31 75
600107.51 ..... TBD

Bending Radius static / Dynamic

600106.31 ..... TBD / TBD

600106.51 ..... 3 x diameter / 5 x diameter

Fire

Flame retardant / Halogen free / Corrrosive gas

600106.31 ..... Yes / No / Yes

600106.51 ..... Yes / Yes / No

Limited oxygen index / Smoke

600106.31 ..... TBD / Slight

600106.51 ..... 38% / Low

Standards

600106.31 ..... none

600106.51 ..... DIN 5510

..... NF F16-101

..... BS 6853

..... DIN EN 50265, 50267, 50268 NF C82-070, X10-702

..... IEC 60332-1 IEC 60754-1 IEC 61034-2

Radiation resistant

600106.31 ..... No

600106.51 ..... Yes

Chemical ..... see the tutorial polymer section in the appendix