Industrial Ethernet Cables

SF/UTP Cat 5e – 4 Pair Cables

A range of shielded copper cables for use in industrial Ethernet networks, designed to withstand the entire spectrum of environmental and mechanical hazards, from temperature extremes and sunlight, to solvents, oils, chemicals and moisture.

Ordering Information

Belden European Item Numbers

Jacket Material	Performance	Number of Pairs	Stationary Application	Flexible Application	Highly Flexible Application
PVC	Cat 5e	4 Pairs	74001E	74002E	
Premium FRNC	Cat 5e	4 Pairs	74001NH	74002NH	
PUR (Halogen Free)	Cat 5e	4 Pairs	74001PU	74002PU	74003PU

Applications

- Industrial environments where IP67 may be required
- Transmission of data in industrial applications via the ethernet protocol
- Stationary applications, where there is no movement after installation
- Flexible applications, subject to occasional movement or vibration after installation
- Highly flexible, trailing applications, for instance ‘C Track’

Features & Benefits

- Choice of PVC, Premium FRNC or PUR cable jacket for specific application requirements in the harsh industrial environment
- High shield coverage to maintain signal integrity in the industrial ‘noisy’ environment
- Oil resistant
- Chemical & solvent resistant
- Temperature resistant
- Abrasion resistant
- Excellent mechanical resistance
- Weld-splatter resistant PUR cable jacket available on request
- IP67 rated
- UV resistant
- Black cable jacket

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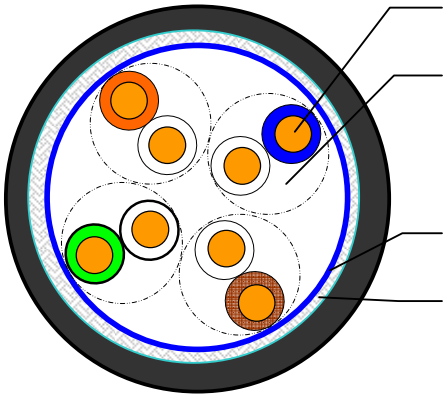
Construction & Dimensions

Mechanical Data – Stationary Application



Conductor (24AWG/1 - Solid Bare Copper)

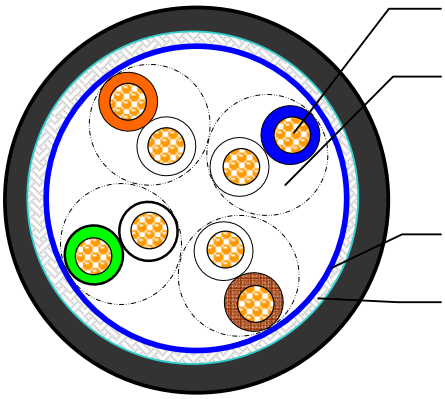
2 Twisted, Polypropylene Insulated Conductors
- Pair 1 = White / Blue
- Pair 2 = White / Orange
- Pair 3 = White / Green
- Pair 4 = White / Brown

Foil Shield – Laminated Aluminium / Polyester

Braid Shield – Tinned Copper

Part Number	Conductor	Insulation (Nom. Dia.)	Braid Coverage	Sheath Material	Sheath (Nom. Dia.)	Sheath Colour
74001E	24AWG/1	1.10mm	>80%	PVC	7.00mm	Black
74001NH	24AWG/1	1.10mm	>80%	FRNC	7.00mm	Black
74001PU	24AWG/1	1.10mm	>80%	PUR	6.60mm	Black

Mechanical Data – Flexible Application



Conductor (26AWG/7 – 7x0.16mm Stranded Tinned Copper)

2 Twisted, Polypropylene Insulated Conductors
- Pair 1 = White / Blue
- Pair 2 = White / Orange
- Pair 3 = White / Green
- Pair 4 = White / Brown

Foil Shield – Laminated Aluminium / Polyester

Braid Shield – Tinned Copper

Part Number	Conductor	Insulation (Nom. Dia.)	Braid Coverage	Sheath Material	Sheath (Nom. Dia.)	Sheath Colour
74002E	26AWG/7	0.98mm	>80%	PVC	6.50mm	Black
74002NH	26AWG/7	0.98mm	>80%	FRNC	6.50mm	Black
74002PU	26AWG/7	0.98mm	>80%	PUR	6.50mm	Black

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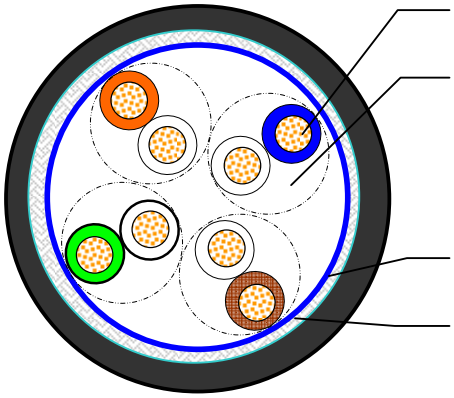
Mechanical Data – Highly Flexible Application



Conductor (26AWG/19 – 19x0.1mm Stranded Tinned Cu)

2 Twisted, Polypropylene Insulated Conductors

- Pair 1 = White / Blue
- Pair 2 = White / Orange
- Pair 3 = White / Green
- Pair 4 = White / Brown

Foil Shield – Laminated Aluminium / Polyester

Braid Shield – Tinned Copper

Part Number	Conductor	Insulation (Nom. Dia.)	Braid Coverage	Sheath Material	Sheath (Nom. Dia.)	Sheath Colour
74003PU	26AWG/19	1.00mm	>80%	PUR	6.65mm	Black

Standards

- ISO/IEC 11801 2nd Edition
- ISO/IEC 24702
- EN 50173-1
- TIA/EIA-568-B.2

Electrical Properties

Max Operating Voltage UL	450V A.C. / 300V D.C.
Velocity of Propagation @ 4 – 100 MHz	68%
Delay	< 5.34 ns / m
Impedance @ 1 – 100 MHz	100 +/- 15 Ohm

74001E / 74001NH / 74001PU (AWG24)

Frequency (MHz)	Insertion Loss (Max) (dB/100m)	NEXT (dB)	ELFEXT (dB/100m)	RETURN LOSS (dB)
1	2.0	65.3	63.8	20.0
4	4.1	56.3	51.7	23.0
10	6.5	50.3	43.8	25.0
16	8.2	47.2	39.7	25.0
20	9.3	45.8	37.7	25.0
25	10.4	44.3	35.8	24.3
31.25	11.7	42.9	33.9	23.6
62.5	17.0	38.3	27.8	21.5
100	22.0	35.3	23.8	20.1

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74002E / 74002NH / 74002PU / 74003PU (AWG26)

Frequency (MHz)	Insertion Loss (Max) (dB/100m)	NEXT (dB)	ELFEXT (dB/100m)	RETURN LOSS (dB)
1	3.2	65.3	63.8	20.0
4	6.0	56.3	51.7	23.0
10	9.5	50.3	43.8	25.0
16	12.1	47.2	39.7	25.0
20	13.6	45.8	37.7	25.0
25	15.3	44.3	35.8	24.3
31.25	17.1	42.9	33.9	23.6
62.5	24.8	38.3	27.8	21.5
100	32	35.3	23.8	20.1

Mechanical, Physical and/or Environmental Characteristics

Flame Resistance	IEC 60332-1
Oil Resistance	IEC 60811-2-1
Bending Radius / Setting Radius	10 x Diameter / 5 x Diameter
Halogen Free	IEC 60754-1 / IEC 60754-2 (FRNC and PUR Cable)
Maximum Pulling Tension	80N
Temperature Range - Installation	-5.0°C to +50.0°C
Temperature Range - Operating	-40.0°C to +80.0°C

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