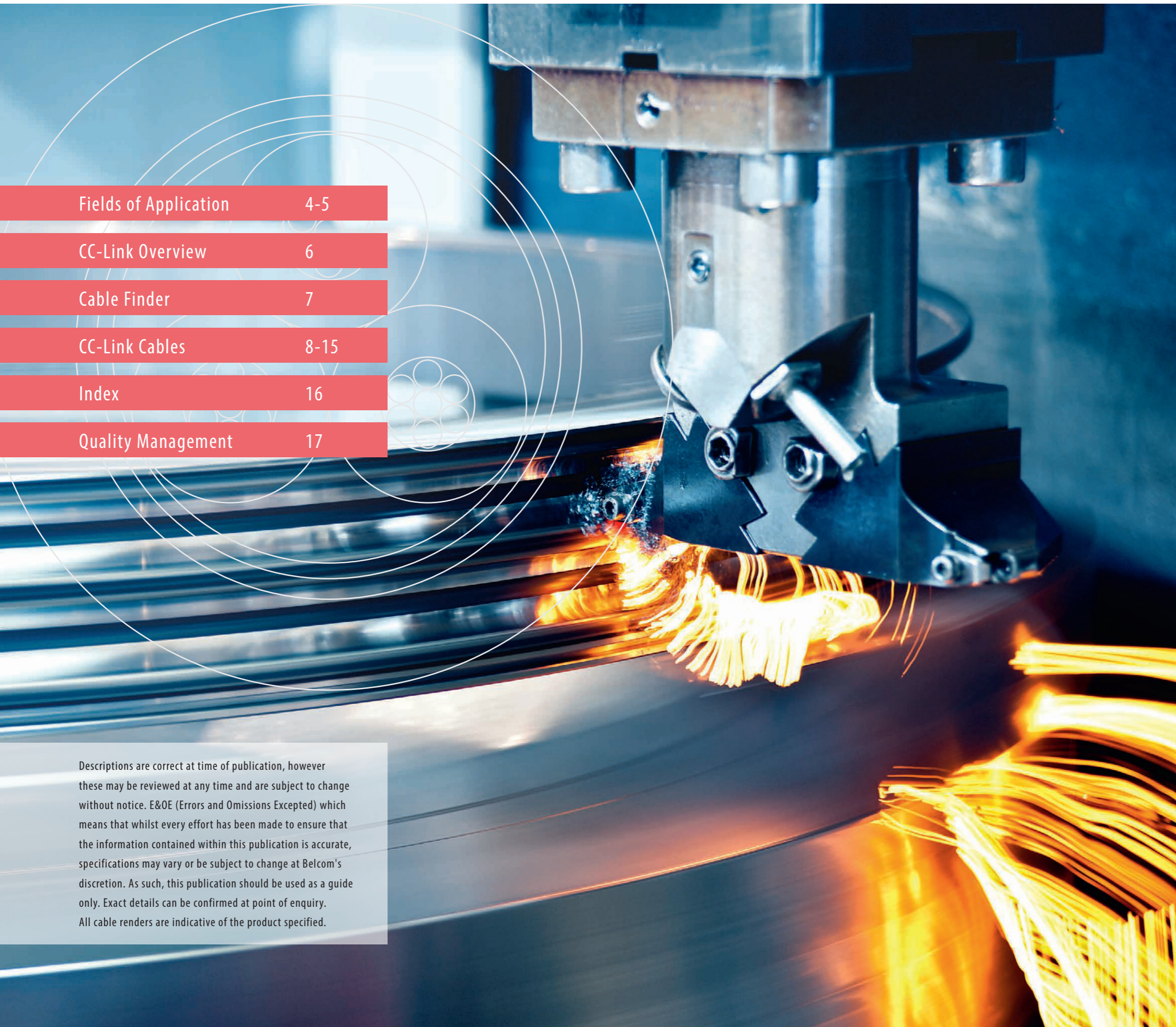




Cable excellence engineered through quality

CC-Link Cables for Industrial Automation





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Descriptions are correct at time of publication, however these may be reviewed at any time and are subject to change without notice. E&OE (Errors and Omissions Excepted) which means that whilst every effort has been made to ensure that the information contained within this publication is accurate, specifications may vary or be subject to change at Belcom's discretion. As such, this publication should be used as a guide only. Exact details can be confirmed at point of enquiry. All cable renders are indicative of the product specified.

There are two major differences that separate Belcom from any other source of Fieldbus cables.

The first is stock, available cut to length and with a next day delivery across the UK or standard 2 day delivery to EIRE. The second is an unwavering commitment to providing the best quality Fieldbus cables available, this has been achieved by joining forces with Leoni special cables GmbH whose modern manufacturing plant in Northern Germany bristles with the latest in cable manufacturing technology. 'In process' continual testing cumulating in one of the best final test facilities we have seen, ensure strict adherence to performance standards critical to the performance of today's high speed data transfer requirements in the industrial network.

Many high tech intelligent process projects are functioning faultlessly over Leoni Fieldlink cables across the world, chemical, pharmaceutical, oil and gas, packaging, water treatment, food and beverage, automotive, you can name a process and there is already a strong presence or developing requirement for Fieldlink Fieldbus cables.

Cable is often an afterthought in the development of new technology process development, which often belies the time, research and testing that goes into producing specific cables for specific applications. With Belcom's range of Leoni Fieldlink cables you have the assurance and confidence that the best cable will be maintaining the integrity of your industrial network.

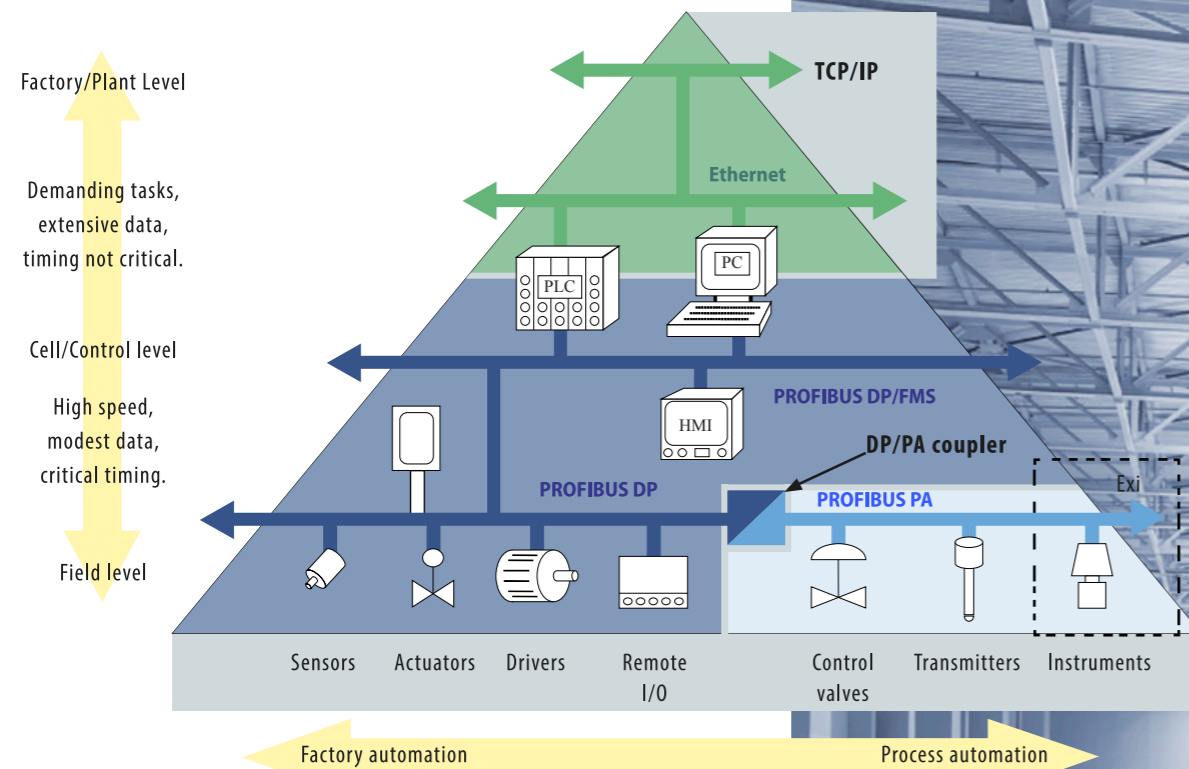


CC-Link is a registered trademark of Mitsubishi Electric Corporation.

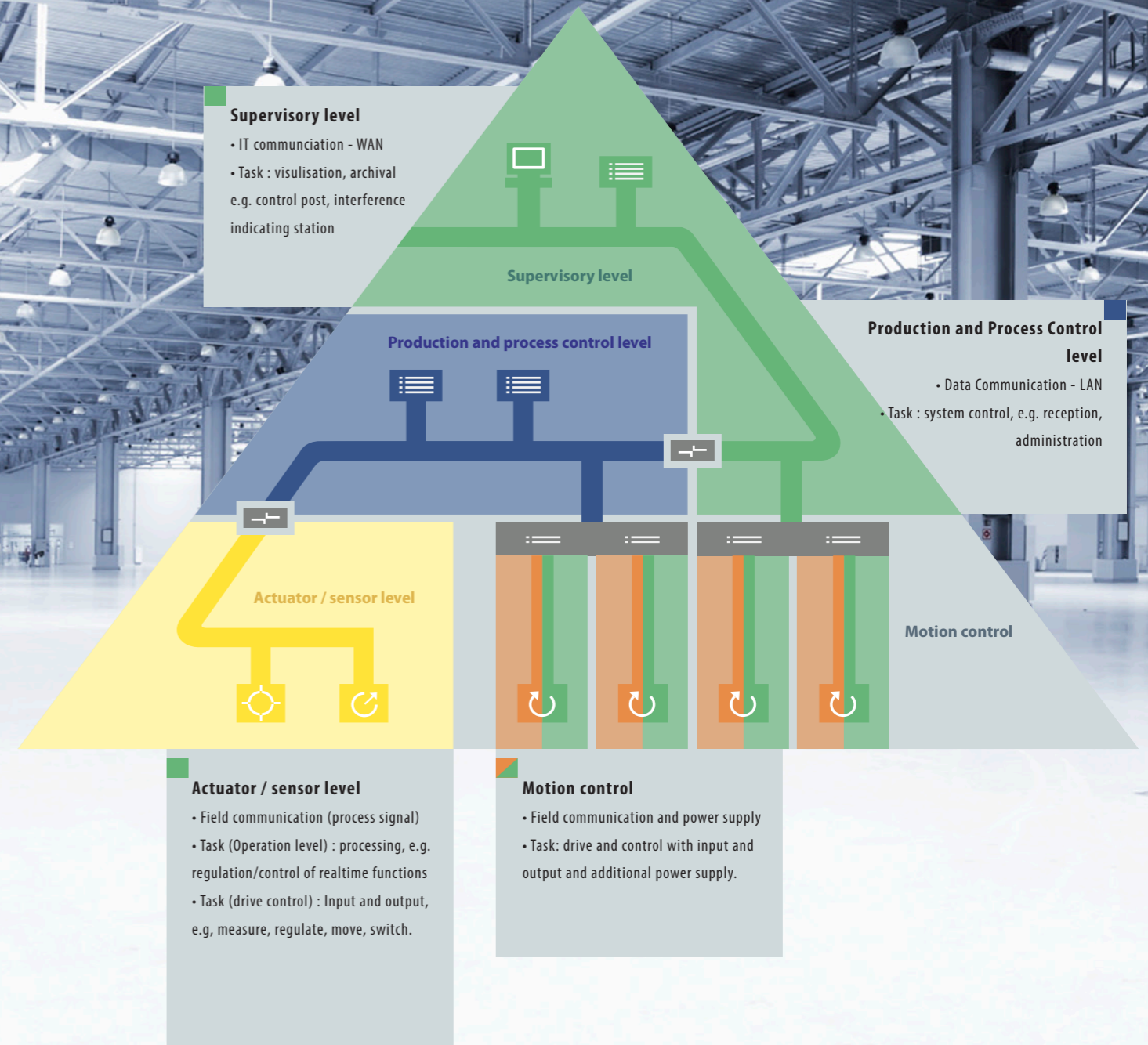
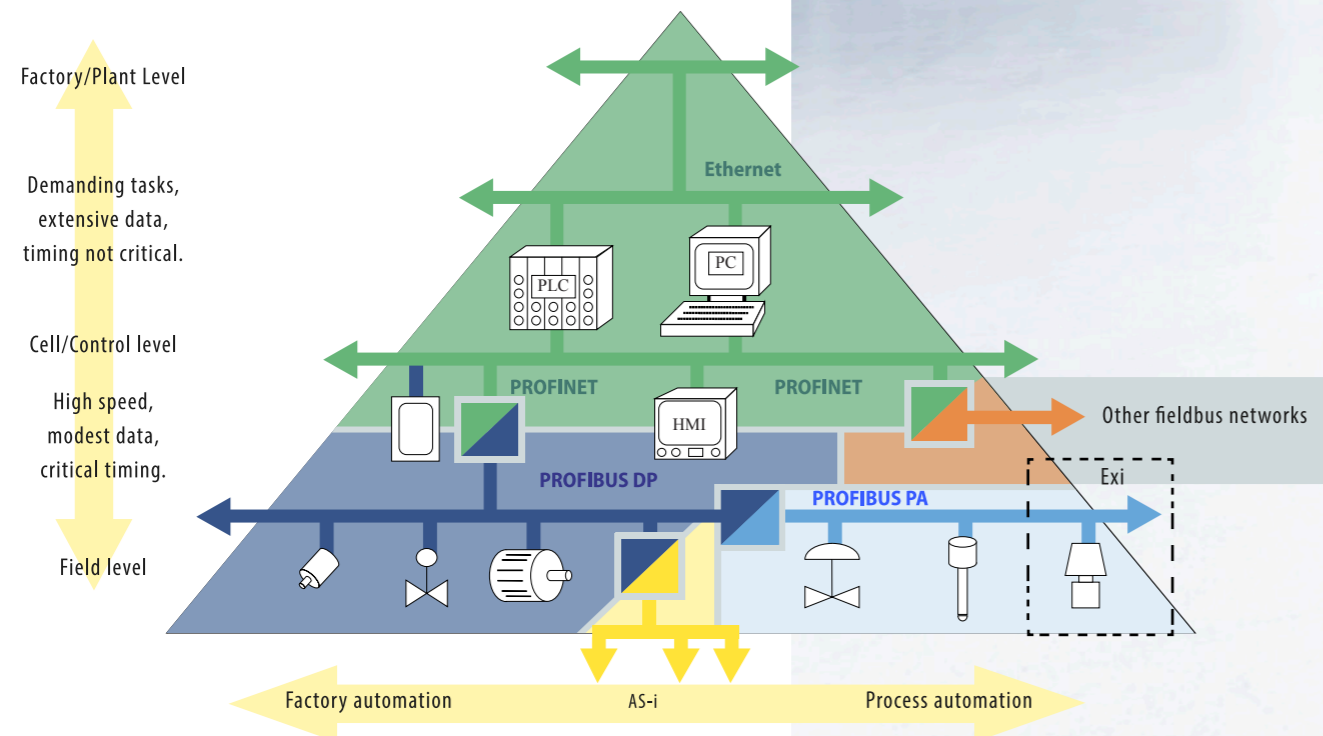
www.cc-link.org



Fields of Application



The Control system hierarchy and use of PROFIBUS and Ethernet technology





CC-Link™

Cable Finder

Click on the cable cross section to view the product specification

The CC-Link field networking system delivers high speed communication between field devices such as actuators, sensors and control units, acting at the control and field level.

It is the leading field bus system in Japan and has gained strong support throughout Asia with major support from Mitsubishi. There are over 300 devices available from various manufacturers operating within the CC-Link Partnership Association (CLPA) which ensures compatibility of each component within the entire network, Leoni Special Cables are members of the CLPA and Belcom Cables hold stock in the UK the CC-Link V.1.10 communication cable both in the standard form and in DataGuard® (SWA) armoured form for onerous environments.

- Flame retardant
- Flexible installation
- Permanent installation
- Silicon free
- Sunlight resistant
- Cold resistant
- RoHS compliant
- Trailing cable with up to 3 million bending cycles



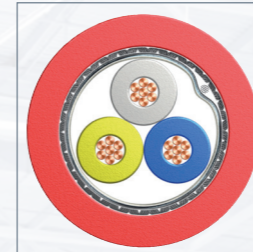
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www.cc-link.org



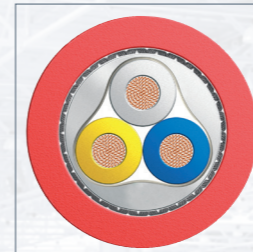
CC-Link

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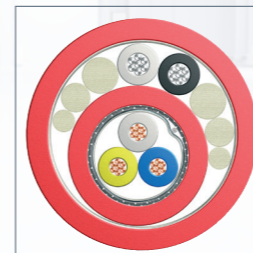
CC-Link Cable for flexible installation

10-11



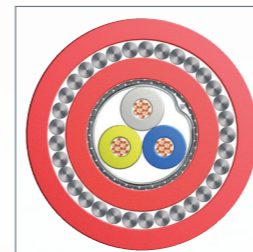
CC-Link ES Cable for Trailing Applications

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CC-Link Power Limited Tray Cable for Flexible Installation

14-15



CC-Link Cable for flexible installation DataGuard® (SWA)



Cable for flexible installation

Cable Design

Wire

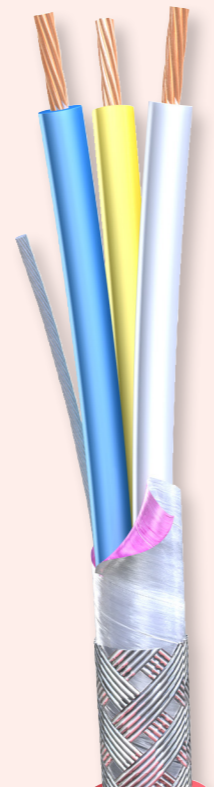
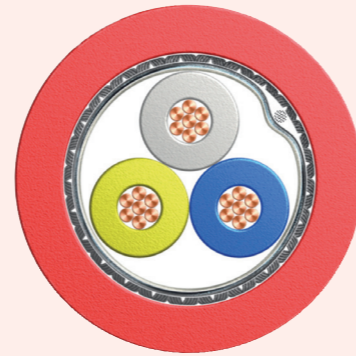
Conductor	Solid bare copper wire 7/0,32 (20awg)	Ø 0,96 mm
Insulation	Foamed Polyethylene (PE) with skin	Ø 2,20 mm

Core

1 st Layer	3 wires twisted (WH-BU-YE)	
Tape	Plastic tape overlapped	
Screen	Alulaminare foil overlapped	
Drain Wire	Stranded tinned copper drain wire 0,38mm ²	
Braid	Tinned copper wire braid, 80% coverage	Ø 5,50 mm

Outer Jacket

Material	Polyvinylchloride (PVC), Red	Ø 7,70 ± 0,30 mm
Wall thickness	1,1 mm	



Specification

Part Number	Type
L45467-Y19-C15	CC-Link cable for flexible installation, compliant with CC-Link specification 1.10, capable of 10 Mbps operation, 3x20AWG7, UL listed: CM and PLTC

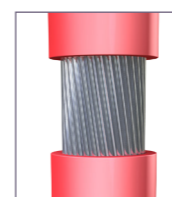
Electrical Data @ 20°C

Conductor resistance	≤	37,8	Ohm/km
Insulation resistance	≥	10	GOhm*km
Capacitance (1 kHz)	≤	60	nF/km
Characteristic Impedance	1	MHz	100±15 Ohm
Characteristic Impedance	5	MHz	110±6 Ohm
Attenuation	1	MHz	≤ 16 dB/km
Attenuation	5	MHz	≤ 35 dB/km
Operating voltage (peak)	≤	300	V
Test Voltage (wire/wire/screen rms 50Hz min.)	=	2000	V

Mechanical & Thermal Characteristics

Permissible temperature range		-40 ~ +70	°C
Min. Bending radius allowed	repeated	7,5	x Ø
Min. Bending radius allowed	single	5	x Ø
Weight (approx.)		76	kg/km

Also available with DataGuard® armoured protection :



DataGuard® SWA
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ES Cable for Trailing Applications

Cable Design

Wire

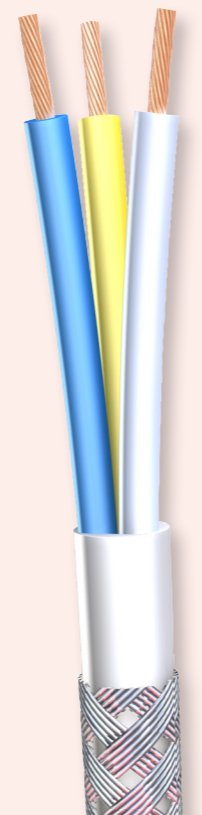
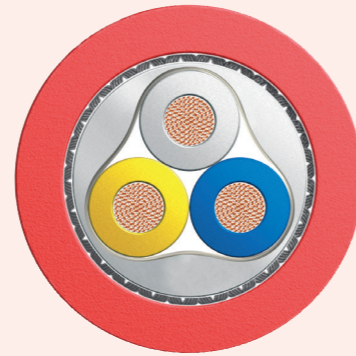
Conductor	Solid bare copper wire 71/0,10 (20awg)	Ø 1,00 mm
Insulation	Foamed Polyethylene (PE) with skin	Ø 2,20 mm

Core

1° Layer	3 wires twisted (WH-BU-YE)	
Easystrip Jacket	Soft Thermoplastic copolymer	Ø 5,40 mm
Braid	Tinned copper wire braid, 90% coverage	Ø 5,90 mm

Outer Jacket

	Thermoplastic Polyurethane (TPU), Red	Ø 8,50 ± 0,30 mm
Wall thickness	1,3 mm	



Characteristics

- UL-Style 20233 (80 °C/300 V),
- Halogen free acc. to IEC 60754

Specification

Part Number	Type
L45467-Y20-C28	CC-Link ES trailing cable (easy to strip), 3x20AWG71, UL recognised: AWM

Electrical Data @ 20°C

Conductor resistance	≤	37,8	Ohm/km			
Insulation resistance	≥	10	GOhm*km			
Capacitance (1 kHz)	≤	60	nF/km			
Characteristic Impedance		1	MHz	100±15	Ohm	
Attenuation		1	MHz	≤	18	dB/km
Attenuation		5	MHz	≤	40	dB/km
Operating voltage	≤	300	V			
Test Voltage (wire/wire/screen rms 50Hz min.)	=	2000	V			

Mechanical & Thermal Characteristics

Permissible temperature range		-40 ~ +80	°C
Min. Bending radius allowed	repeated	8	x Ø
Min. Bending radius allowed	single	4	x Ø
Weight (approx.)		83	kg/km
Trailing cable for following requirements		1.5 million bending cycles	
		bending radius 10 x Ø	
		at a speed of 4 m/s	
		acceleration 4 m/s²	
		maximum length horizontal of cable - 10m	



Power Limited Tray Cable for Flexible Installation

Cable Design

Power Core

Conductor	Stranded tinned copper wire (7/0,4mm)	Ø 1,21 mm
Insulation	Polyvinylchloride (PVC)	Ø 2,40 mm

Triple Core cable

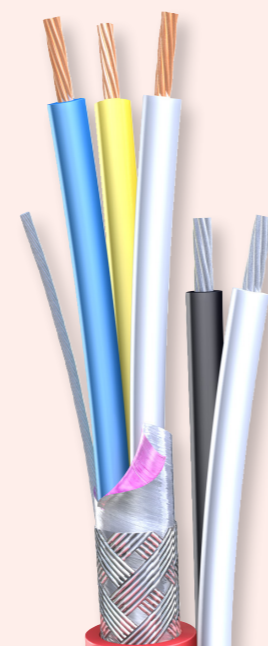
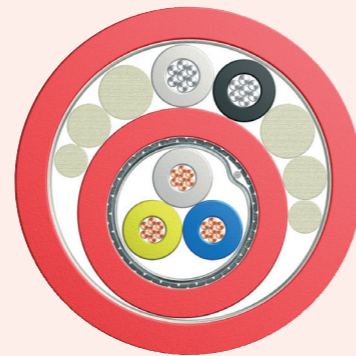
Conductor	Solid bare copper wire 7/0,32 (20awg)	Ø 0,96 mm
Insulation	Foamed Polyethylene (PE) with skin	Ø 2,20 mm
1° Layer	3 wires twisted (WH-BU-YE)	
Tape	Plastic tape overlapped	
Screen	Alulaminare foil overlapped	
Drain Wire	Stranded tinned copper drain wire 0,38mm ²	
Braid	Tinned copper wire braid, 80% coverage	Ø 5,50 mm
Jacket	Polyvinylchloride (PVC), Red	Ø 7,70 ± 0,30 mm

Core

Assembly	1 x Triple core cable + 2 x power cores (WH/BK)	
Fillers	Fillers in interstices	
Tape	Plastic tape overlapped	Ø 10,10 mm

Outer Jacket

Polyvinylchloride (PVC), Red	Ø 12,80 ± 0,30 mm
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Specification

Part Number	Type
L45467-Y19-W5	CC-Link power limited tray cable for flexible installation, compliant with CC-Link specification 1.10, capable of 10 Mbps operation, 3x20AWG7 + 2x18AWG7

Electrical Data @ 20°C

Conductor resistance	≤	24	Ohm/km
Insulation resistance	≥	20	MOhm*km
Operating Voltage (peak)	≤	300	V
Test Voltage (wire/wire/screen rms 50Hz min.)	=	2000	V

Electrical Data @ 20°C Triple core cable

Conductor resistance	≤	37,8	Ohm/km
Insulation resistance	≥	10	GOhm*km
Capacitance (1 kHz)	≤	60	nF/km
Characteristic Impedance	1	MHz	100±15 Ohm
Characteristic Impedance	5	MHz	110±6 Ohm
Attenuation	1	MHz	≤ 16 dB/km
Attenuation	5	MHz	≤ 35 dB/km
Operating voltage (peak)	≤	300	V
Test Voltage (wire/wire/screen rms 50Hz min.)	=	2000	V

Mechanical & Thermal Characteristics

Permissible temperature range		-5 ~ +70	°C
Min. Bending radius allowed	repeated	7,5	x Ø
Min. Bending radius allowed	single	5	x Ø
Weight (approx.)		191	kg/km



Cable for flexible installation DataGuard® (SWA)

Cable Design

Wire

Conductor	Solid bare copper wire 7/0,32 (20awg)	Ø 0,96 mm
Insulation	Foamed Polyethylene (PE) with skin	Ø 2,20 mm

Core

1 st Layer	3 wires twisted (WH-BU-YE)	
Tape	Plastic tape overlapped	
Screen	Alulaminare foil overlapped	
Drain Wire	Stranded tinned copper drain wire 0,38mm ²	
Braid	Tinned copper wire braid, 80% coverage	Ø 5,50 mm

Inner Jacket

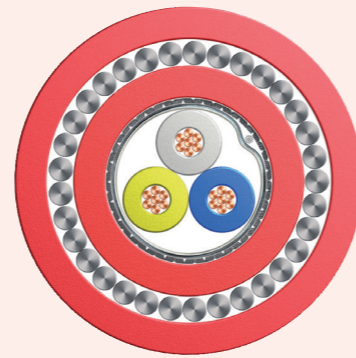
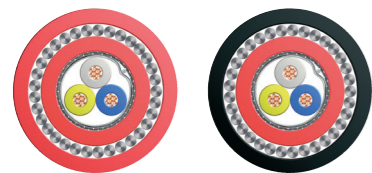
Polyvinylchloride (PVC), Red	Ø 7,70 ± 0,30 mm
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Armour

DataGuard® Steel Wire Armourt (DSWA)

Outer Jacket

Polyvinylchloride (PVC), Red or Black UV-Stable and colourfast	Ø 11,50 ± 0,30 mm
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Specification

Part Number	Type
11L45467-Y19-C15	CC-Link cable for flexible installation, compliant with CC-Link specification 1.10, capable of 10 Mbps operation, 3x20AWG7, UL listed: CM and PLTC / DataGuard® (SWA) / PVC

Electrical Data @ 20°C

Conductor resistance	≤	37,8	Ohm/km
Insulation resistance	≥	10	GOhm*km
Capacitance (1 kHz)	≤	60	nF/km
Characteristic Impedance	1	MHz	100±15 Ohm
Characteristic Impedance	5	MHz	110±6 Ohm
Attenuation	1	MHz	≤ 16 dB/km
Attenuation	5	MHz	≤ 35 dB/km
Operating voltage (peak)	≤	300	V
Test Voltage (wire/wire/screen rms 50Hz min.)	=	2000	V

Mechanical & Thermal Characteristics

Permissible temperature range	-40 ~ +70	°C
Min. Bending radius allowed	10	x Ø (see Ø tolerance)
Weight (approx.)	366	kg/km



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Quality Management

Belcom recognise the importance of quality control and constantly monitor our quality performance to ensure compliance with relevant standards whether they are self imposed, satutory or regulatory.

Our management system is approved by DNV to BS-EN-ISO 9001:2008 standard and is an imperative part of our organisation.

Environmental documentation is available at www.belcom.co.uk/qa-environmental





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