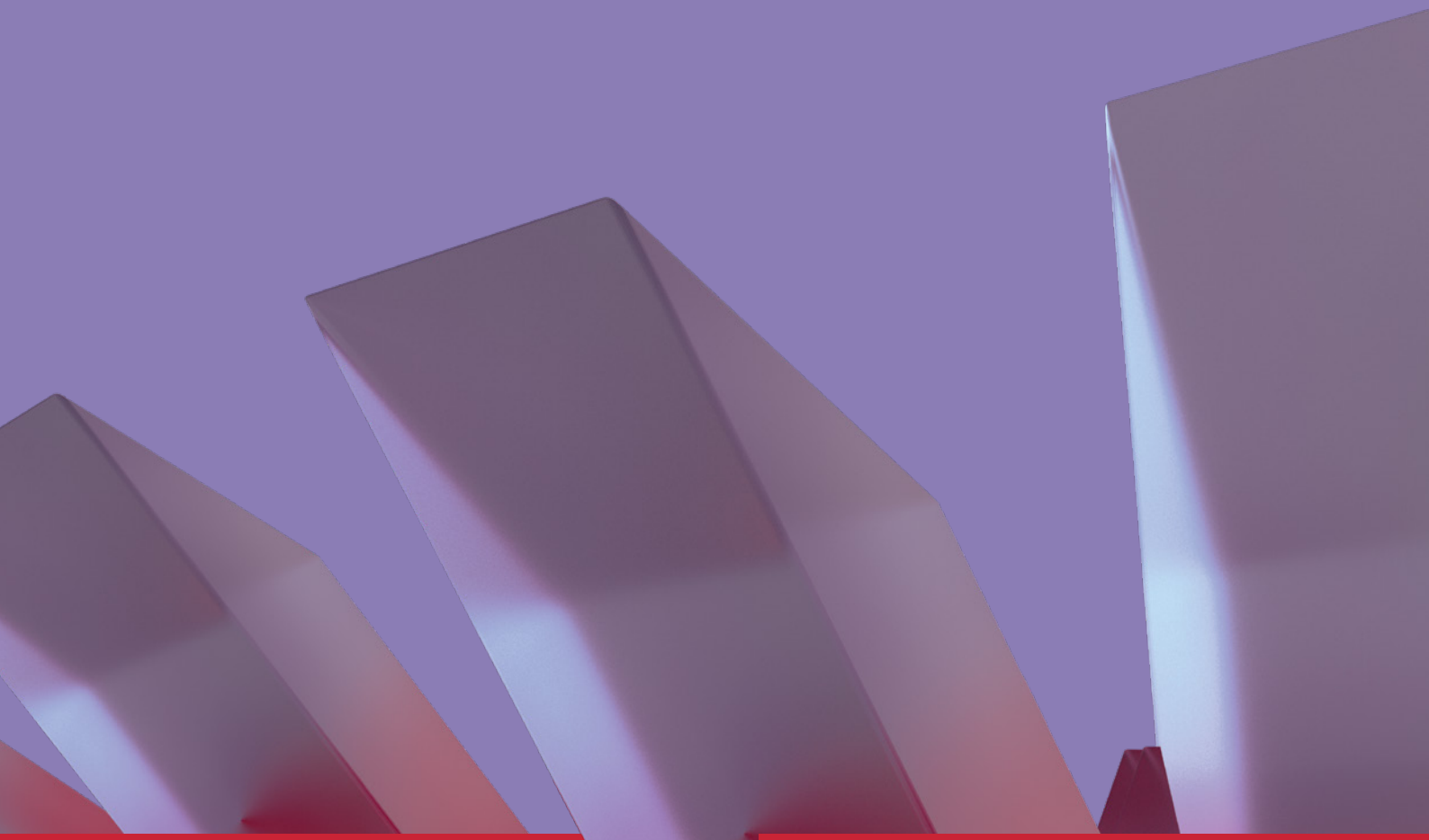
TECO CABLES



Catalogue
2025

TECO
you design, we connect

tecoit.com

TECO
you design,
we connect

Welcome to TECO's Cable Catalogue

Special Cables. Tailored Solutions. Trusted Partner.

For over 40 years, TECO has been a reference point in industrial automation, designing and delivering high-performance cable solutions with a strong technical foundation and a clear customer focus.

Based in Emilia-Romagna, the heart of Italy's automation industry, we combine **engineering expertise**, **Made in Italy quality**, and **strategic partnerships** with top international components brands to meet the most specific and demanding application needs.

This catalogue presents our full range of special cables—all developed in-house according to TECO's proprietary specifications, thoroughly tested by our Technical Department, and certified to meet **international standards**, **including UL and CSA** for global markets.

What makes TECO different?

- **Technical mastery at your service**
  Our Product Managers work side by side with our Technical Department to deliver **expert advice** and **tailored solutions**, even for complex or customized needs.
- **Reliable availability**
  Thanks to significant investments in stock and logistics, all cables in this catalogue are **ready for delivery**.
- **Customer-first service**
  A dedicated Inside Sales Team ensures **quick, precise and personalized support** - because for us, partnership means being there when you need us most.

TECO is your trusted technical partner, focused on delivering solutions that perform, last, and evolve with your business.

That's the TECO difference.

Choose your cable here!

TECO
Technical Department

Expertise, specialization, precision, and innovation are the ingredients that make our Technical Department the heart of our excellence. Our team of specialists defines the technical specifications that guide the production of our TECO-branded cables, working closely with suppliers to ensure cables reliability, durability, and optimal performance over time.

In a constantly evolving sector, always being focused on the product is the only way to face the challenges of the future. This is as true for us as it is for our customers, to whom we offer technical update training sessions, videos, interviews with experts and bite-size sessions on how to use and install cables and components. These continuous training tools are primarily aimed at our employees but are also used by our customers and partners.

TECO
Automated Warehouse

Our warehouse is fully digitalized and managed through an advanced Warehouse Management System (WMS), representing an example of operational efficiency: we have over 1,500 special *Made in Italy* cables and 5,000 components in stock, ready for immediate delivery.

To meet the growing needs of our customers, we have enhanced our capabilities by investing in a second cutting machine. This way, we will continue to provide efficient custom cable cutting services and process orders even faster.

This combination of technology and service allows us to be proactive and efficient.

OUR CUSTOMERS
From multiple industries

- AIR CONDITIONING
- BUILDINGS
- CERAMIC
- ELECTRONIC & ELECTROMECHANICS
- EOLIC ENERGY
- FOOD & BEVERAGE
- LOGISTICS
- MACHINE TOOLS
- MECHANICAL ENGINEER
- PACKAGING
- STEEL PRODUCTION PLANTS AND ROLLING MILLS
- WOOD

QUALITY CERTIFIED,
internationally guaranteed

UL LISTED E471678

Cutting-edge products need top-level certification. Most of our special cables are certified by Underwriters Laboratories (UL) and the Canadian Standards Association (CSA).

We subject ourselves to the strictest checks, testing the efficiency of our organization, processes and solutions. We are proud to have achieved ISO 9001:2015 certification. The best guarantee for our customers is our standing attention to quality.

We can cut cables to size, without affecting their certification.
Our certified cables are cut and traceable according to the *UL Processed Wire Respooled standard*, meaning that they will never lose UL certification.

CABLE FAMILIES

POWER&CONTROL SINGLE CORE

Single-core cables are a fundamental component in many electrical systems. They are highly appreciated for their versatility in a wide range of applications, such as power distribution and control systems, particularly for connections between control panels, distribution boards, and electrical devices. They are also ideal for applications where space is limited, and the minimum bending radius is particularly demanding.
TECO offers a wide range of single-core cables for use in static installations or dynamic applications, with UL or European market certifications.

POWER&CONTROL MULTICORE

These cables are designed to transmit both electrical power and control signals, making them suitable for a wide range of industrial applications, such as industrial machinery, automation systems, building management systems, or renewable energy installations. All insulated conductors are enclosed in a common outer sheath, providing additional protection against mechanical stress, environmental factors, and exposure to chemicals. TECO offers a broad selection of multicore power and control cables for static installations or dynamic applications, with UL or European market certifications.

SERVO

These cables are used to connect and control servomotors, which are precise and highly responsive motors used in automation, robotics, CNC machines, and other applications requiring accurate control of position, speed, and torque.
They integrate power and signal lines into a single cable, allowing the simultaneous transmission of both. This integration simplifies wiring and reduces installation space. TECO offers a broad selection of servo motor cables for static or dynamic applications, compliant with major global standards.

INVERTER

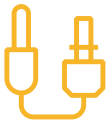
Cables designed to power low-voltage three-phase electric motors controlled by inverters. They offer high shielding against the propagation of electromagnetic interference and resistance to high temperatures, enhancing the efficiency and lifespan of motors. TECO provides solutions ranging from small to large cross-sections, meeting various nominal current requirements.

ENCODER

Encoder cables play a crucial role in modern industrial automation, ensuring precise measurement and control of mechanical motion. Widely used in robotics, CNC machining, and transport systems, these cables offer optimal performance and maintain the highest standards of precision. TECO offers a complete selection of encoder cables for both static and dynamic applications, designed to meet the most important global standards.

SIGNAL

These multicore cables are used to transmit low-voltage and low-current signals, typically for communication and control purposes between devices, components, or systems. They are designed to minimize signal loss and interference, ensuring clear and reliable transmission. All insulated conductors are enclosed in a common outer sheath, providing extra protection against mechanical stress, environmental factors, and chemical exposure. TECO offers a wide range of multicore signal cables suitable for static installations or dynamic applications, with UL or European market certifications.



SENSOR

These cables are specifically designed to connect sensors to monitoring or control systems. They transmit signals from sensors that detect various physical inputs, such as motion or proximity, to processing units or controllers. TECO provides
UL-certified items suitable for dynamic or static applications.

DATA

BUS cables are widely used to transfer data in industrial networks, ensuring fast and smooth communication between systems and devices.
TECO offers a broad range of products meeting the demand for industrial automation, adhering to the most common and widely used Ethernet standards. The range of applications for our selection includes both static and dynamic installations.

QUICK SELECTION

DYNAMIC APPLICATION

TYPE	SHEATH	SHIELD	REFERENCES STANDARD	MIN. BENDING RADIUS dynamic/static	TECO PRODUCT LINE	TECO PRODUCT FAMILY	PAGE
POWER&CONTROL SINGLE CORE	PVC black			4/7,5	FRX®	FRX® PLUS	04
	PVC black	YES		4/7,5		FRX® PLUS (SH)	06
	PUR black			5/7	PMXX®	PMXX® PLUS	34
	PUR black	YES		5/7		PMXX® PLUS (SH)	36
POWER&CONTROL MULTICORE	PVC grey			4/7,5	FRX®	FRX® PLUS	08
	PVC grey	YES		4/7,5		FRX® PLUS (SH)	11
	PUR grey			4/6	PMXX®	PMXX® PLUS	38
	PUR grey	YES		4/6		PMXX® PLUS (SH)	41
SERVO	PVC orange	YES		4/7,5	FRX®	FRX® PLUS SERVO	14
	PUR orange	YES		3/6	PMXX®	PMXX® PLUS SERVO	43
ENCODER	PVC green	YES		6/7,5	FRX®	FRX® PLUS	19
	PUR green	YES		5/7	PMXX®	PMXX® PLUS	50
SIGNAL	PVC grey			6/7,5	FRX®	FRX® PLUS	27
	PVC grey	YES		6/7,5		FRX® PLUS (SH)	29
	PUR grey			4/6	PMXX®	PMXX® PLUS	65
	PUR grey	YES		4/6		PMXX® PLUS (SH)	69
SENSOR	PVC black			4/7,5	FRX®	FRX® Sensor&ATTUATORE	31
	PUR black			4/7,5	PMXX®	PMXX® Sensor&ATTUATORE	73
DATA	PUR green	YES		7,5/10	PMXX®	Industrial Ethernet Cat.5/5e	144
	PUR green	YES		7,5/10		Industrial Ethernet Cat.6/6a	162
	PUR green	YES		6/10		Industrial Ethernet Cat.7	166
CANopen DeviceNet	PUR violet	YES		6/10	PMXX® / FRX®	PROFIBUS	172
EtherCAT EtherNet/IP	PUR violet	YES		6/10	PMXX®	CANOPEN	180
INTERBUS Modbus	PUR violet	YES		6/10		DEVICENET	194
PROFIBUS PROFINET	PUR violet	YES		6/10		INTERBUS	198

STATIC APPLICATION

TYPE	SHEATH	SHIELD	INSULATION	REFERENCES STANDARD	NOMINAL VOLTAGE	TECO PRODUCT LINE	TECO PRODUCT FAMILY	PAGE
HOOK-UP WIRE	/		PVC		300	TECWIRE®	STYLE 1007/1569	86
	/		PVC		600 ( ); 1000 ( )		MULTIRATED MTW-TEW-HAR	82
POWER&CONTROL MULTICORE	PVC grey		PVC	CPR 305/11 Eca	450/750		TFX	90
	PVC grey	YES	PVC	CPR 305/11 Eca	450/750		TFX (SH)	95
	PVC black		PVC		1000		TFX BK UL 2570	97
	PVC black	YES	PVC		1000		TFX BK UL 2570 (SH)	99
	PVC		PVC	CPR 305/11 Eca	450/750		TFX AR	101
	PVC grey		PVC		1000	TECNIFLEX®	STYLE 21179	103
	PVC grey	YES	PVC		1000		STYLE 21179 (SH)	106
	PVC grey		PVC		600 ( ); 1000 ( )		TC-ER	108
	PVC grey	YES	PVC		600 ( ); 1000 ( )		TC-ER (SH)	111
	PVC black		PVC/ NYLON		600 ( ); 1000 ( )		TC-ER NYLON	114
	PVC black	YES	PVC/ NYLON		600 ( ); 1000 ( )		TC-ER NYLON (SH)	116
SERVO	PVC orange	YES	PP		1000	SERVOLINK®	FE PLUS SERVO	120
INVERTER	PVC black	YES	XLPE		1000	VFDRIVE®	2XSLCYK-JB	126
SIGNAL	PVC grey		PVC			TECSIGNAL®	LiYY	130
	PVC grey	YES	PVC				LiYCY-LiYCY (TP)	132
	PVC grey		PVC		600		STYLE 2516	136
	PVC grey	YES	PVC		300		MULTI PAIRS UL	138
DATA	PVC green	YES	PE				Industrial Ethernet Cat.5/5e	152
	PVC green	YES	PE				Industrial Ethernet Cat.6/6a	164
	PVC green	YES	PE				Industrial Ethernet Cat.7	168
CANopen DeviceNet	PVC violet	YES	PE				PROFIBUS	176
EtherCAT EtherNet/IP	PVC violet	YES	PE				CANOPEN	187
INTERBUS Modbus	PVC violet	YES	PE				DEVICENET	196
PROFIBUS PROFINET	PVC green	YES	PE				INTERBUS	200

Code Index

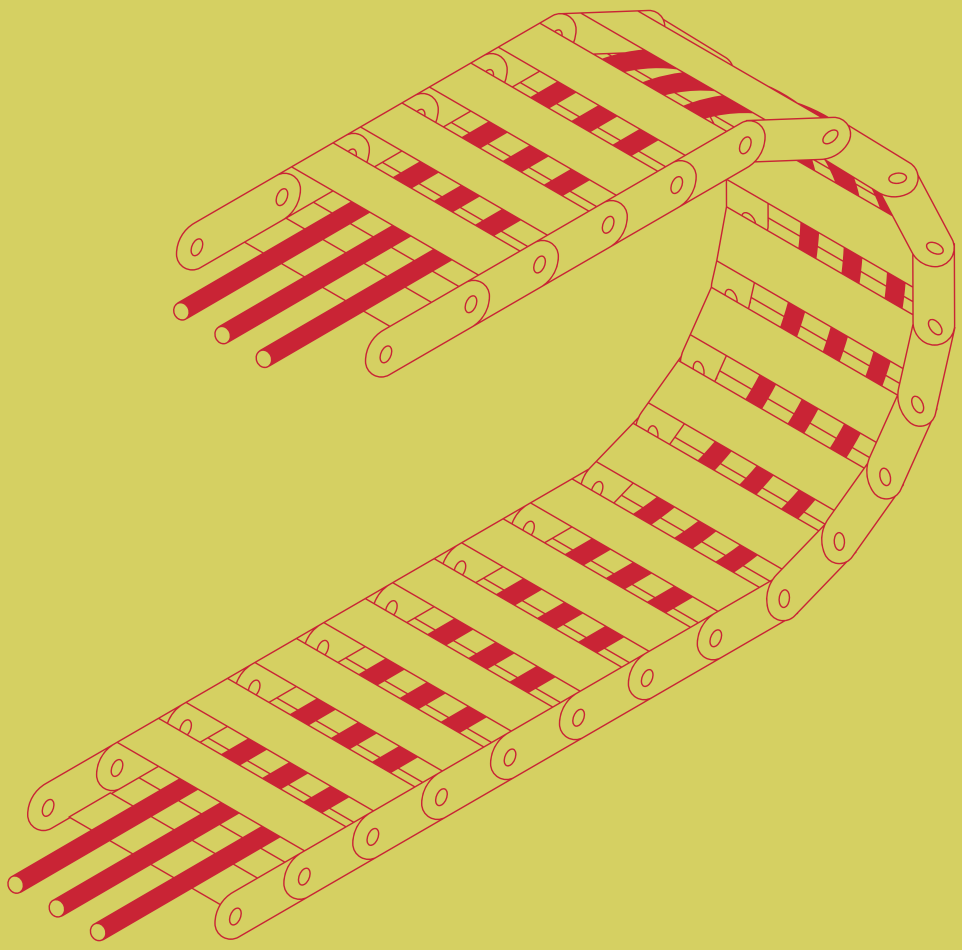
Code Index

INDEX

POWER&CONTROL

DATA

DYNAMIC APPLICATION



FRX®

- **FLAME RETARDANT**
- **OIL RESISTANT**
- **LOW TEMPERATURE**
- **DRAG CHAINS**
- **AUTOMATIC MACHINERY**
- **MACHINE TOOLS**

UL/CSA certified flexible cables designed for use in dynamic drag chains and automatic machinery applications, allowing for free movement without tensile stress or forced movements, in dry or moist environments.

The PVC jacket provides excellent flexibility, while the insulation material has low capacitive buildup, ensuring high electrical performance with reduced dimensions.

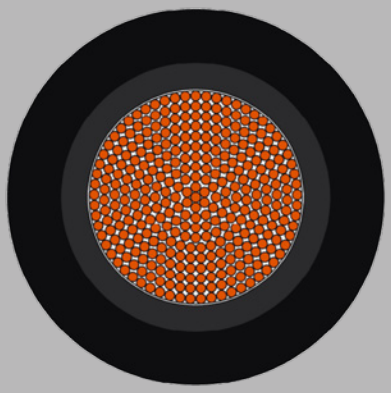
This makes them an ideal choice when space is limited or a minimal bending radius is required. Moreover, the “PLUS” improvements in materials and in construction design technology allow the use of the cable at temperatures up to 90°C.

They also offer good resistance to industrial cleaners and chemical agents, along with excellent workability.

These features make this product line the ideal starting point for a range of TECO families designed for demanding mobile applications, particularly in the packaging sector.

DYNAMIC APPLICATION

FRX® PLUS
SINGLE CORE



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
4.00	16.00	7.5xø	4.0xø
25.00	240.00	10.0xø	6.0xø

DESCRIPTION

UL/CSA certified flexible single-core power and control cables, designed for dynamic drag chains and automatic machinery applications with free movement without tensile stress or forced movements in dry or moist environments. Suitable for indoor and outdoor use. This type of cable can be a smart alternative to multicore power cables in case space or minimum bending radius requirements are challenging.

APPROVALS

AWM STYLE 10678 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK RAL 9005 OR GREEN-YELLOW
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
OVERALL STRANDING	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 6033-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
ACCORDING TO CEI EN 50289-4-17
ISO 4892-2
ASTM-D-2565-16

WATER PERFORMANCE
UL 1581
IEC 60811

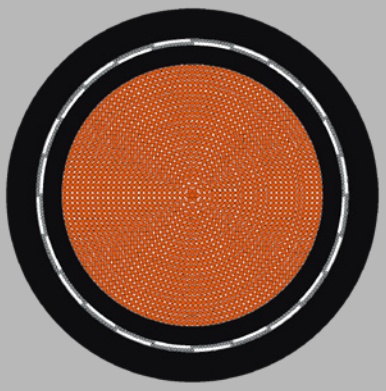
HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46441	**1G4,00** 1GAWG12	✓	100	500	5.7	70
46450	**1X6,00** 1XAWG10	✗	100	500	6.6	98
46442	**1G6,00** 1GAWG10	✗	100	500	6.6	98
46451	**1X10,00** 1XAWG08	✓		500	7.9	170
46443	**1G10,00** 1GAWG08	✓		500	7.9	170
46452	**1X16,00** 1XAWG6	✓		500	9.2	240
46444	**1G16,00** 1GAWG06	✓	100	500	9.2	240
46453	**1X25,00** 1XAWG04	✓		500	11	300
46445	**1G25,00** 1GAWG04	✓			11	300
46454	**1X35,00** 1XAWG02	✓			13	410
46446	**1G35,00** 1GAWG02	✓			13	410
46455	**1X50,00** 1XAWG01	✓			15	620
46447	**1G50,00** 1GAWG01	✓			15	620
46456	**1X70,00** 1XAWG2/0	✓			17	790
46448	**1G70,00** 1GAWG2/0	✓			17	790
46457	**1X95,00** 1XAWG3/0	✓			19.2	1150
46458	**1X120,00** 1XAWG4/0	✓			21.2	1495

DYNAMIC APPLICATION

FRX® PLUS

SINGLE CORE SHIELDED (SH)



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
4.00	16.00	7.5xø	4.0xø
25.00	240.00	10.0xø	6.0xø

DESCRIPTION

UL/CSA certified flexible single core power and control cables, designed for dynamic drag chains and automatic machinery applications with free movement without tensile stress or forced movements in dry or moist environment. Suitable for indoor and outdoor use. This type of cables can be a smart alternative to multicore power cables in case space or minimum bending radius requirements are challenging. Screening from electromagnetic interferences thanks to the dense braid shield.

APPROVALS

AWM STYLE 10678 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK RAL 9005 OR GREEN-YELLOW
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
OVERALL STRANDING	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 6033-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
ACCORDING TO CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

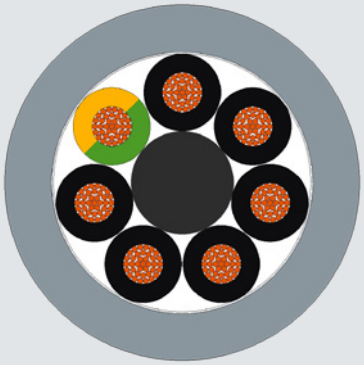
WATER PERFORMANCE
UL 1581
IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46459	**(1X6,00)ST** (1XAWG10)ST	✓	100	500	7.2	120
46462	**(1X25,00)ST** (1XAWG25)ST	✓			11.4	350
46463	**(1X35,00)ST** (1XAWG02)ST	✓			13.3	475
46464	**(1X50,00)ST** (1XAWG01)ST	✓			15.6	700
46465	**(1X70,00)ST** (1XAWG2/0)ST	✓			17.6	870
46466	**(1X95,00)ST** (1XAWG3/0)ST	✓			20	1240
46467	**(1X120,00)ST** (1XAWG4/0)ST	✓			22.6	1450
46468	**(1X150,00)ST** (1X250KCMIL)ST	✓			24.4	1690
46469	**(1X185,00)ST** (1X350KCMIL)ST	✓			26.8	2340

DYNAMIC APPLICATION

FRX® PLUS
MULTICORE



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

20,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	7.5xø	4.0xø
25.00	50.00	10.0xø	5.0xø

DESCRIPTION

UL/CSA certified flexible multicore cables designed for dynamic application in drag chains, also suitable for permanently flexible applications that allow free movement without tensile stress and without motion control in dry, damp, and wet environments. This family satisfies the requirements of the most commonly used cables in tool power supply and in generic industrial wiring harnesses. Reduced diameter and optimized minimum bending radius thanks to the low-capacity material. Suitable for indoor and outdoor use as well.

APPROVALS

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C
OCCASIONAL FLEXING
-20°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
>1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 6033-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581, IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46439	2X0,50 2XAWG21	✗	100	500	5.2	40	
46378	2X1,00 2XAWG18	✗	100	500	6	55	
46346	3G0,50 3GAWG21	✓	100	500	5.5	58	
46373	3G0,75 3GAWG19	✓	100	500	6.2	60	
46440	3G1,00 3GAWG18	✗	100		6.3	65	
46391	3G1,50 3GAWG16	✓	100	500	7.2	85	
46399	3G2,50 3GAWG14	✓	100	500	8.4	140	
46405	3G4,00 3GAWG12	✓		500	10.2	220	
46347	4G0,50 4GAWG21	✓	100	500	6.2	60	
46372	4X0,50 4XAWG21	✗	100	500	6.2	60	BLACK CORE WITH WHITE PRINTED NUMBERS.
46382	4G1,00 4GAWG18	✓	100	500	6.8	85	
46398	4G1,50 4GAWG16	✓	100	500	7.8	110	
46400	4G2,50 4GAWG14	✓		500	9.2	180	
46406	4G4,00 4GAWG12	✓		500	11.2	250	
46407	4G6,00 4GAWG10	✓			13.4	360	
46409	4G10,00 4GAWG08	✓			17	610	
46411	4G16,00 4GAWG06	✓			22	980	
46374	5G0,75 5GAWG19	✓	100	500	7.3	85	
46383	5G1,00 5GAWG18	✓	100	500	7.7	95	
46392	5G1,50 5GAWG16	✓	100		8.6	140	
46401	5G2,50 5GAWG14	✓		500	10.6	220	
46408	5G6,00 5GAWG10	✓			15	450	
46410	5G10,00 5GAWG08	✓			19	870	
46348	7G0,50 7GAWG21	✓	100	500	7.6	85	
46375	7G0,75 7GAWG19	✓	100	500	8.6	125	
46384	7G1,00 7GAWG18	✓	100	500	9.2	150	
46393	7G1,50 7GAWG16	✓		500	10	215	
46402	7G2,50 7GAWG14	✓		500	12.4	290	

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46349	**12G0,50** 12GAWG21	✓		500	9.6	130	
46376	**12G0,75** 12GAWG19	✓		500	10.2	180	
46385	**12G1,00** 12GAWG18	✓		500	10.8	200	
46386	**12X1,00** 12XAWG18	✓		500	10.8	200	BLACK CORE WITH WHITE PRINTED NUMBERS.
46394	**12G1,50** 12GAWG16	✓		500	12.4	290	
46403	**12G2,50** 12GAWG14	✓			15	450	
46350	**18G0,50** 18GAWG21	✓		500	10.8	190	
46377	**18G0,75** 18GAWG19	✓		500	11.9	245	
46387	**18G1,00** 18GAWG18	✓		500/100	12.9	260	
46395	**18G1,50** 18GAWG16	✓			15.4	415	
46351	**25G0,50** 25GAWG21	✓		500/100	13.2	280	
46388	**25G1,00** 25XAWG18	✓		500	15.2	460	
46396	**25G1,50** 25GAWG16	✓			19	590	
46404	**25G2,50** 25GAWG14	✓			22	900	
46352	**33G0,50** 33GAWG21	✓			14.2	320	
46389	**34G1,00** 34GAWG18	✓			17.5	540	
46390	**50G1,00** 50GAWG18	✓			21.2	880	

DYNAMIC APPLICATION

FRX® PLUS
MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

20,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	7.5xø	4.0xø
25.00	50.00	10.0xø	5.0xø

DESCRIPTION

UL/CSA certified flexible multicore cables designed for dynamic application in drag chains, also suitable for permanently flexible applications that allow free movement without tensile stress and without motion control in dry, damp, and wet environments. This family satisfies the requirements of the most commonly used cables in tool power supply and in generic industrial wiring harnesses. Reduced diameter and optimized minimum bending radius thanks to the low-capacity material. Suitable for indoor and outdoor use as well. Screening from electromagnetic interferences thanks to the dense braid shield.

APPROVALS

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C
OCCASIONAL FLEXING
-20°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW**
	SEPARATION LAYER	**INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**PVC COMPOUND.**
	SHEATH COLOUR	**GRAY, RAL: 7001, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 6033-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
ACCORDING TO CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581, IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46414	**(2X0,75)ST** (2XAWG19)ST	✗	100	500	6.2	60	
46420	**(2X1,00)ST** (2XAWG18)ST	✓	100/200	500	6.4	65	
46421	**(3G1,00)ST** (3XAWG18)ST	✓	100	500	6.8	78	
46412	**(4G0,50)ST** (4XAWG21)ST	✗	100	500	6.4	65	
46422	**(4G1,00)ST** (4XAWG18)ST	✓	100	500	7.5	95	
46430	**(4G1,50)ST** (4XAWG16)ST	✓	100	500	8.5	130	
46435	**(4G2,50)ST** (4GAWG14)ST	✓		500	10.3	180	
46416	**(5G0,75)ST** (5XAWG19)ST	✓	100	500	7.7	95	
46424	**(5G1,00)ST** (5GAWG18)ST	✓	100	500	8.4	110	
46431	**(5G1,50)ST** (5GAWG16)ST	✓	100	500	9	160	
46417	**(7G0,75)ST** (7XAWG19)ST	✓	100	500	9.2	115	
46425	**(7G1,00)ST** (7XAWG18)ST	✓		500	9.4	140	
46432	**(7G1,50)ST** (7GAWG16)ST	✓		500	11	230	
46437	**(7G2,50)ST** (7XAWG14)ST	✓			13.5	395	
46426	**(10G1,00)ST** (10XAWG18)ST	✓		500	11.3	250	
46413	**(12X0,50)ST** (12XAWG21)ST	✓	100	500	9.8	135	BLACK CORE WITH WHITE PRINTED NUMBERS.
46418	**(12G0,75)ST** (18XAWG19)ST	✓		500	11	175	
46427	**(12G1,00)ST** (12XAWG18)ST	✓		500	11.8	270	
46433	**(12G1,50)ST** (12XAWG16)ST	✓			12.9	340	
46438	**(12G2,50)ST** (12XAWG14)ST	✓			16	500	
46419	**(18G0,75)ST** (18XAWG19)ST	✓		500	12.8	235	
46428	**(18G1,00)ST** (18XAWG18)ST	✓			13.5	330	
46434	**(18G1,50)ST** (18XAWG16)ST	✓			16.2	475	
46429	**(25G1,00)ST** (25XAWG18)ST	✓			16	470	

DYNAMIC APPLICATION

FRX® PLUS
SERVO

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

20,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.0	7.5xø	4.0xø
25.0	95.0	10.0xø	5.0xø

DESCRIPTION

UL/CSA certified flexible servomotor cables designed for dynamic application in drag chains, between the motor and frequency converter. Suitable for indoor and outdoor use. Screening from electromagnetic interference is achieved thanks to the dense braid shield. Compliant with the most commonly used drive system standards.

APPROVALS

E244280 **AWM STYLE 21179 90°C 1000V**

AWM I/II A/B 90°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C
OCCASIONAL FLEXING
-20°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.**
	SEPARATION LAYER	**INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE**
OVERALL STRANDING SERVO	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**PVC COMPOUND.**
	SHEATH COLOUR	**ORANGE, RAL: 2003, DESINA: YES**

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 6033-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581
IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46314		**(3G1,50)ST** (3GAWG16)ST	✓	100		7.8	95	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
46316	SIEMENS 6FX5008-1BB11	**(4G1,50)ST** (4GAWG16)ST	✓	100	500	8.8	135	
46317	SIEMENS 6FX5008-1BB21	**(4G2,50)ST** (4GAWG14)ST	✓		500	10.3	180	
46318	SIEMENS 6FX5008-1BB31	**(4G4,00)ST** (4GAWG12)ST	✓		500	12.2	255	
46319	SIEMENS 6FX5008-1BB41	**(4G6,00)ST** (4GAWG10)ST	✓			14	370	
46320	SIEMENS 6FX5008-1BB51	**(4G10,00)ST** (4GAWG08)ST	✓			18	650	
46321	SIEMENS 6FX5008-1BB61	**(4G16,00)ST** (4GAWG06)ST	✓			22	1100	
46322	SIEMENS 6FX5008-1BB25	**(4G25,00)ST** (4GAWG04)ST	✓			26	1550	
46323	SIEMENS 6FX5008-1BB35	**(4G35,00)ST** (4GAWG02)ST	✓			30.6	2000	
46324	SIEMENS 6FX5008-1BB50	**(4G50,00)ST** (4GAWG1)ST	✓			35.2	3200	
46325	SIEMENS 6FX5008-1BB70	**(4G70,00)ST** (4GAWG2/0)ST	✓			41	3800	
46326	SIEMENS 6FX5008-1BB95	**(4G95,00)ST** (4GAWG3/0)ST	✓			46	5100	

DYNAMIC APPLICATION

FRX® PLUS

SERVO WITH PAIR

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

20,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	7.5xø	4.0xø
25.00	95.00	10.0xø	5.0xø

DESCRIPTION

UL/CSA certified flexible servomotor cables designed for dynamic application in drag chains, between the motor and frequency converter. Suitable for indoor and outdoor use. Screening from electromagnetic interference is achieved thanks to the dense braid shield. Cables are available with one or two control pairs and are compliant with the most commonly used drive system standards.

APPROVALS

E244280 **AWM STYLE 21179 90°C 1000V**

AWM I/II A/B 90°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C
OCCASIONAL FLEXING
-20°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
CONTROL PAIR SCREENED (ONE PAIR)	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE AND WHITE CORE.
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
CONTROL PAIR SCREENED (TWO PAIRS)	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBERS.
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
OVERALL STRANDING (ONE PAIR)	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	ORANGE, RAL: 2003, DESINA: YES
OVERALL STRANDING (TWO PAIRS)	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	ORANGE, RAL: 2003, DESINA: YES

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 6033-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

REFERENCE DRAW	TECO CODE	OEM REF.	Nº CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
	**46327**		**[4G0,75+(2X0,50)ST]ST** [4GAWG19+(2XAWG21)ST]ST	✓	100	500	9.2	140
	46328		**[4G1,50+(2X1,00)ST]ST** [4GAWG16+(2XAWG18)ST]ST	✓		500	10.8	200
	46329	SIEMENS 6FX5008-1BA11	**[4G1,50+(2X1,50)ST]ST** [4GAWG16+(2XAWG16)ST]ST	✓		500	11.4	240
	46330		**[4G2,50+(2X1,00)ST]ST** [4GAWG14+(2XAWG18)ST]ST	✓		500	12.4	290
	46331	SIEMENS 6FX5008-1BA21	**[4G2,50+(2X1,50)ST]ST** [4GAWG14+(2XAWG16)ST]ST	✓			13.2	310
	46332		**[4G4,00+(2X1,00)ST]ST** [4GAWG12+(2XAWG18)ST]ST	✓			13.8	380
	46333	SIEMENS 6FX5008-1BA31	**[4G4,00+(2X1,50)ST]ST** [4GAWG12+(2XAWG16)ST]ST	✓			14.6	410
	46334	SIEMENS 6FX5008-1BA41	**[4G6,00+(2X1,50)ST]ST** [4GAWG08+(2XAWG16)ST]ST	✓			16.6	510
	46335	SIEMENS 6FX5008-1BA51	**[4G10,00+(2X1,50)ST]ST** [4GAWG08+(2XAWG16)ST]ST	✓			20.8	770
	46336	SIEMENS 6FX5008-1BA61	**[4G16,00+(2X1,50)ST]ST** [4GAWG06+(2XAWG16)ST]ST	✓			23.4	1150
	46337	SIEMENS 6FX5008-1BA25	**[4G25,00+(2X1,50)ST]ST** [4GAWG04+(2XAWG16)ST]ST	✓			27	1600
	46338	SIEMENS 6FX5008-1BA35	**[4G35,00+(2X1,50)ST]ST** [4GAWG02+(2XAWG16)ST]ST	✓			31.2	1950
	**46341**	INDRAMAT INK 650	**[4G1,50+2X(2X0,75)ST]ST** [4GAWG16+2X(2XAWG19)ST]ST	✓		500	12	235
	46342	INDRAMAT INK 602	**[4G2,50+2X(2X1,00)ST]ST** [4GAWG14+2X(2XAWG18)ST]ST	✓			14.5	320
	46343	INDRAMAT INK 603	**[4G4,00+(2X1,00)ST+(2X1,50)ST]ST** [4XAWG12+(2XAWG18)ST+ (2XAWG16)ST]ST	✓			16.2	430
	46344	INDRAMAT INK 604	**[4G6,00+(2X1,00)ST+(2X1,50)ST]ST** [4XAWG10+(2XAWG18)ST+ (2XAWG16)ST]ST	✓			18.2	570
	46345	INDRAMAT INK 605	**[4G10,00+(2X1,00)ST+(2X1,50)ST]ST** [4GAWG08+(2XAWG18)ST+ (2XAWG16)ST]ST	✓			22.4	889

DYNAMIC APPLICATION

FRX® PLUS
ENCODER

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

20,0M CABLE LENGTH

180,00M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	7.5xø	6.0xø

APPROVALS

AWM STYLE 20042 90°C 300V

AWM I/II A/B 90°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V (UL/CSA)

TEST VOLTAGE
C/C 2000VRMS,1MIN
C/S 2000VRMS,1MIN

INSULATION RESISTANCE
≥1 GOHM/KM

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2
DIN EN 60332-1-2
IEC 60332-1-2
UL CABLE FLAME
UL VW-1
CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

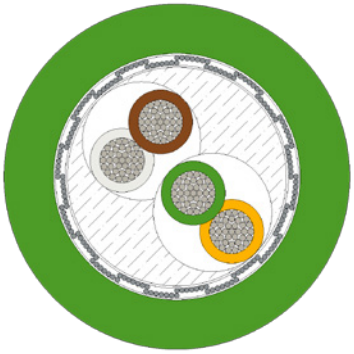
WATER PERFORMANCE
UL 1581, IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

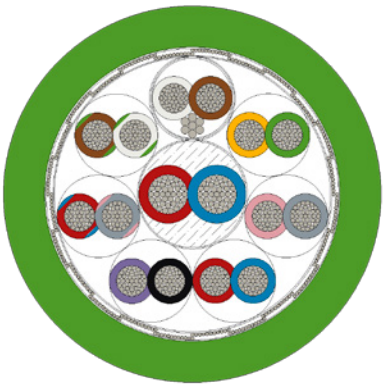
TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46626		**(2X2X0,34)ST** (2X2XAWG22)ST	✓	100	500	7	66
46627		**[(2X0,34)CCSN+6X2X0,34+2X1,00]ST** [(2XAWG22)CCSN+6X2XAWG22+2XAWG18]ST	✓			11	180
46628		**(3X2X0,14+2X0,34)SNCC/ST** (3X2XAWG26+2XAWG22)SNCC/ST	✓		500	7	60
46629	HEIDENHAIN	**[3X(2X0,14)CCSF-RPE+2X(0,5)SF-RPE]ST** [3X(2XAWG26)CCSF/RPE+2X(AWG21)SF/RPE]ST	✓	100	500	8.9	110
46630	SIEMENS 6FX5008-1BD51	**[3X(2X0,14)CCSF-R+4X0,14+4X0,25+2X0,50]ST** [3X(2XAWG26)CC/SF+4XAWG26+4XAWG24+2XAWG21]ST	✓		500	9.8	142
46631		**(3X2X0,34+2X0,50)CCST** (3X2XAWG22+2XAWG21)CCST	✓	100	500	8.6	99
46632		**(4X2X0,25)CC/ST** (4X2XAWG24)CC/ST	✓	100	500	7.5	85
46633		**[4X(2X0,25)ST]ST** [4X(2XAWG24)ST]ST	✓		500	9.2	111
46634	INDRAMAT	**(4X2X0,25+2X0,50)CC/ST** (4X2XAWG24+2XAWG21)CC/ST	✓	100	500	8.5	107
46635	SIEMENS 6FX5008-1BD21	**(4X2X0,34+4X0,50)ST** (4X2XAWG22+4XAWG21)ST	✓		500	8.9	130

TECO CODE 46626 *CONSTRUCTION FEATURES*

GROUP 1	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**WRAPPING NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**OVERALL STRANDING NON-WOVEN TAPE**
	SHEATH	**PVC COMPOUND.**
	SHEATH COLOUR	**GREEN, RAL: 6018, DESINA: YES**
EXCEPTIONS	INS. COLOUR EXC	**GROUP 1 2X2X0,34 : WH-BN, GN-YE**

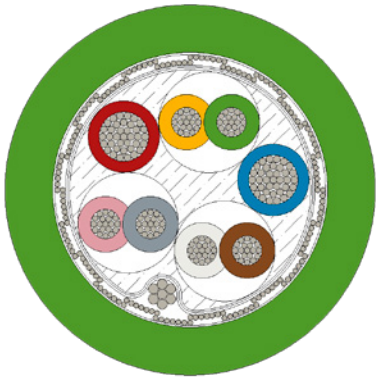


TECO CODE 46627 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SEPARATION LAYER	TAPE SCREEN ALLUMINIUM INSIDE/POLYESTER OUTSIDE
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 3	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 2X0,34 : WH-BN GROUP 2 6X2X0,34 : GN-YE, GY-PK, BU-RD, BK-VT, GY/PK*-RD/BU*, WH/GN*-BN/GN* GROUP 3 2X1,00 : RD-BU *RING BICOLOUR

TECO CODE 46628 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SEPARATION LAYER	TAPE SCREEN ALLUMINIUM INSIDE/POLYESTER OUTSIDE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X2X0,14 : WH-BN, GN-YE, GY-PK GROUP 2 2X0,34 : BU-RD



TECO CODE 46629 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X(2X0,14) : YE-GN, RD-BU, GY-PK GROUP 2 2X(0,50) : WH, BN

TECO CODE 46630 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 3	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 4	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X(2X0,14) : YE-GN, RD-OR, BK-BN GROUP 2 4X0,14 : GY, BU, WH/YE*, WH/BK* GROUP 2 4X0,25 : BN/YE*, BN/GY*, GN/BK*, GN/RD* GROUP 2 2X0,50 : BN/RD*, BN/BU* *RING BICOLOUR

TECO CODE 46631 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X2X0,34 : WH-BN, GY-PK, GN-YE GROUP 2 2X0,50 : RD-BU

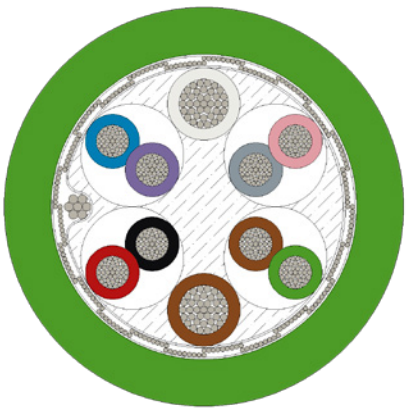
TECO CODE 46632 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X2X0,25 : WH-BN, GN-YE, GY-PK, BU+RD

TECO CODE 46633 CONSTRUCTION FEATURES

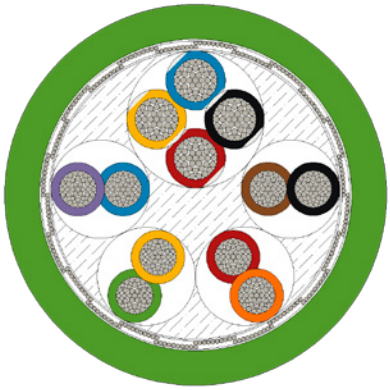
GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	PAIRS SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X(2X0,25) : WH-YE, WH-BU, WH-RD, WH-GN

TECO CODE 46634 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X2X0,25 : BN-GN, GY-PK, BU-VT, RD-BK GROUP 2 2X0,50 : WH-BN

TECO CODE 46635 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X2X0,34 : BN-BK, RD-OG, YE-GN, BU-VT GROUP 2 4X0,50 : BU/WH*, BK/WH*, RD/WH*, YE/WH*



DYNAMIC APPLICATION

FRX® PLUS
SIGNAL

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

10,0M CABLE LENGTH

180 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	7.5xø	6.0xø

DESCRIPTION

UL/CSA certified flexible signal transmission cables, designed for low-frequency transmission of analog and digital signals in dynamic drag chains and automatic machinery applications. High workability, oil-resistant PVC outer sheath, with low-capacity special insulation. Suitable for indoor and outdoor use.

APPROVALS

AWM STYLE 20042 90°C 300V

AWM I/II A/B 90°C 300V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2,0KV

INSULATION RESISTANCE
>100MOHM/KM (90°C)

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	FILLER	FILLER POLYPROPYLENE
OVERALL STRANDING	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-4-1, 1581 (UL)

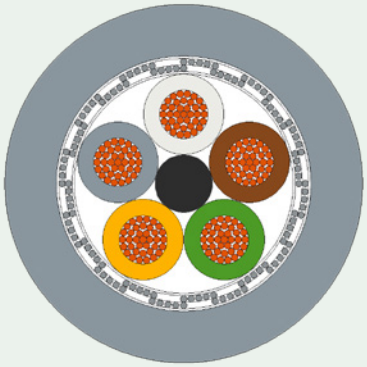
UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46636	**25X0,25** 25XAWG24	✓		500	9.3	115

DYNAMIC APPLICATION



FRX® PLUS
SIGNAL SHIELDED (SH)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

10,0M CABLE LENGTH

180 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	7.5xø	6.0xø

DESCRIPTION

UL/CSA certified flexible signal transmission cables, designed for low-frequency transmission of analog and digital signals in dynamic drag chains and automatic machinery applications. High workability, oil-resistant PVC outer sheath, low-capacity special insulation, and shield protection from electromagnetic interferences. Suitable for indoor and outdoor use.

APPROVALS

E244280 **AWM STYLE 20042 90°C 300V**

AWM I/II A/B 90°C 300V

2014/35/CEE

EMC **2014/30/EU**

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2,0 KV

INSULATION RESISTANCE
>100MOHM/KM (90°C)

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	FILLER	FILLER POLYPROPYLENE
OVERALL STRANDING	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404 IEC 60811-404 (EU)
CEI EN 50363-4-1 1581 (UL)

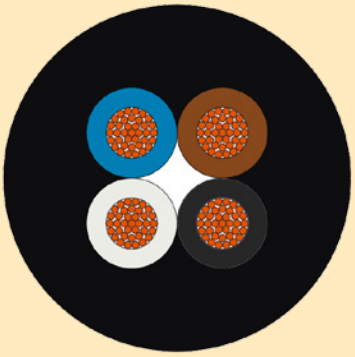
UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811

HYDROCARBONS PERFORMANCE
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46637	**(2X0,34)ST** (2XAWG22)ST	✗	100	500	4.8	32
46656	**(2X0,50)ST** (2XAWG21)ST	✓	100	500	5.3	45
46638	**(3X0,34)ST** (3XAWG22)ST	✓	100	500	5	35
46639	**(4X0,34)ST** (4XAWG22)ST	✗	100	500	5.4	54
46640	**(5X0,34)ST** (5XAWG22)ST	✓	100	500	5.7	56
46641	**(6X0,34)ST** (6XAWG22)ST	✗	100	500	6.2	70
46643	**(8X0,34)ST** (8XAWG22)ST	✓	100	500	7.2	85
46644	**(12X0,34)ST** (12XAWG22)ST	✓	100	500	7.9	108
46645	**(18X0,34)ST** (18XAWG22)ST	✓	100	500	9.2	125
46646	**(25X0,34)ST** (25XAWG22)ST	✓		500	11.2	150

DYNAMIC APPLICATION



FRX®
SENSOR&ACTUATOR

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

10,0 M CABLE LENGTH

180,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.25	0.34	7.5xø	6.0xø

DESCRIPTION

UL/CSA certified flexible multicore cables used in decentralized control technology as connector systems for sensors, actuators, controls, drives, and photocells. Suitable for wiring with ordinary, PNP, NPN, or equivalent type Lumberg sensor cables with medium mechanical stress applications. In combination with injected circular connectors and installed actuator-sensor boxes, they constitute an important connecting element between the periphery and the PLC in production systems. These cables are designed for dynamic application in drag chains, working in dry conditions with high resistance to industrial oils. Reduced external diameter for low-space applications.

APPROVALS

AWM STYLE 2464 80°C 300V

AWM I/II A/B 80°C 300V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DYNAMIC
0°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
1500V

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
VW-1, FT1.

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
ISO 4892-2 - HD605 PART. 2.4.20

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46741	**3X0,34** 3XAWG22	✕	100	500	4.8	29	BLUE, BROWN, BLACK
27207	**4X0,25** 4XAWG24	✕	100	500/1000	4.4	23	BLUE, BROWN, BLACK, WHITE
27208	**4X0,34** 4XAWG22	✕	100	500	5	35	BLUE, BROWN, BLACK, WHITE

PMXX®

- FLAME RETARDANT
- OIL RESISTANT
- LOW TEMPERATURE
- HALOGEN FREE
- DRAG CHAINS
- AUTOMATIC MACHINERY
- MACHINE TOOLS
- FLEX TORSIONAL APPLICATIONS

UL/CSA certified flexible cables designed for use in high-performance dynamic drag chains and automatic machinery applications, allowing for free movement without tensile stress or forced movements, in both dry and moist environments.

The polyurethane jacket provides excellent resistance to mechanical and chemical stress, making these cables suitable for automation sectors with harsh environments, such as the ceramics and wood industries, where abrasive dust and chips are present, or the food industry, where temperatures can be particularly low.

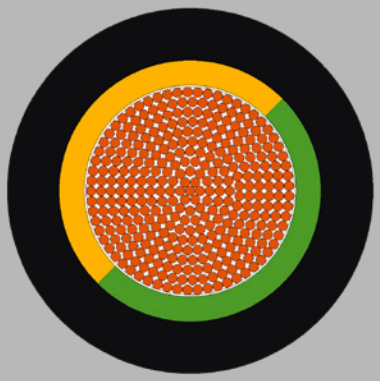
The insulation material has low capacitive buildup, ensuring high electrical performance with reduced dimensions.

Moreover, the “PLUS” improvements in materials and construction design technology allow the use of the cables at temperatures up to 90°C.

These features make this product line the ideal starting point for a range of TECO families designed for demanding, high-performance mobile applications.

DYNAMIC APPLICATION

PMXX® PLUS
SINGLE CORE



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

50,0 M/S² ACCELERATION

15,0M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
4.00	16.00	7xØ	5xØ
16.00	240.00	10xØ	5xØ

DESCRIPTION

High performances UL/CSA certified flexible single core cables for high speed drag chain or moving machine parts. Suitable for internal or external use in wet, dry or moist environment. The polyurethane outer jacket gives excellent resistance properties from mechanical stress and chemical agents making this cables suitable for indoor or outdoor use, even with very low temperature. This type of cables can be a smart alternative to multicore power cables in case space or minimum bending radius requirements are challenging. Also suitable for long traverse paths.

APPROVALS

AWM STYLE 11773 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +90°C
DYNAMIC
-30°C +90 °C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK RAL 9005 OR GREEN-YELLOW
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
OVERALL STRANDING	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
1581 (UL)
.

UV PERFORMANCE
ISO 4892-2, ASTM-D-2565-16, EN 50289-4-17.

WATER PERFORMANCE
UL 1581, IEC 60811-1-3

COLD PERFORMANCE
EN 60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

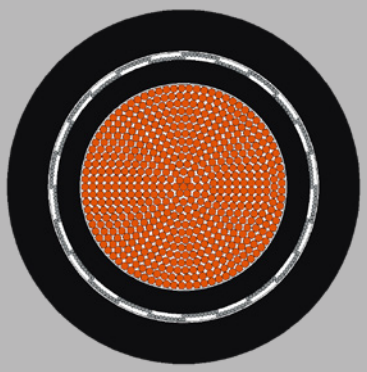
HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46283	**1G4,00** 1GAWG12	✗	100	500	5.8	68
46293	**1X6,00** 1XAWG10	✓	100	500	6.6	95
46284	**1G6,00** 1GAWG10	✓	100	500	6.6	95
46294	**1X10,00** 1XAWG08	✓		500	8	150
46285	**1G10,0** 1GAWG08	✓	100	500	8	150
46295	**1X16,00** 1XAWG06	✓		500	9.3	240
46286	**1G16,00** 1GAWG06	✓	100		9.3	195
46296	**1X25,00** 1XAWG04	✓		500	11	325
46287	**1G25,00** 1GAWG04	✓			11	325
46297	**1X35,00** 1XAWG02	✓			12.6	410
46288	**1G35,00** 1GAWG02	✓			12.6	410
46298	**1X50,00** 1XAWG01	✓			14.7	685
46289	**1G50,00** 1GAWG01	✓			14.7	685
46299	**1X70,00** 1XAWG2/0	✓			16.8	790
46300	**1X95,00** 1XAWG3/0	✓			19	1100
46301	**1X120,00** 1XAWG4/0	✓			21.2	1350

DYNAMIC APPLICATION

PMXX® PLUS

SINGLE CORE SHIELDED (SH)



APPLICATIVE FEATURES

- **UP TO 5 MILLION GUARANTEED CYCLES**
- **UP TO 50 M/S² ACCELERATION**
- **UP TO 15,0 M CABLE LENGTH**
- **UP TO 300 M/MIN TRAVEL SPEED**

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
4.00	16.00	7xØ	5xØ
16.00	240.00	10xØ	5xØ

DESCRIPTION

High-performance UL/CSA certified flexible single-core cables for high-speed drag chain or moving machine parts. Suitable for internal or external use in wet, dry, or moist environments. The polyurethane outer jacket provides excellent resistance properties against mechanical stress and chemical agents, making these cables suitable for indoor or outdoor use, even in very low temperatures. This type of cable can be a smart alternative to multicore power cables in case space or minimum bending radius requirements are challenging. Also suitable for long traverse paths. Screening from electromagnetic interference is achieved thanks to the dense braid shield.

APPROVALS

- **AWM STYLE 11773 90°C 1000V**
- **AWM I/II A/B 90°C 1000V**
- **2014/35/CEE**
- **2014/30/EU**
- **2011/65/UE**
- **1907/2006**
- **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

STORAGE
-50°C +90°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK RAL 9005 OR GREEN-YELLOW**
	SEPARATION LAYER	**INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE**
OVERALL STRANDING	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**MATTE BLACK, RAL: 9005, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
EI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
ISO 4892-2, EN 50289-4-17 OR ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN 60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

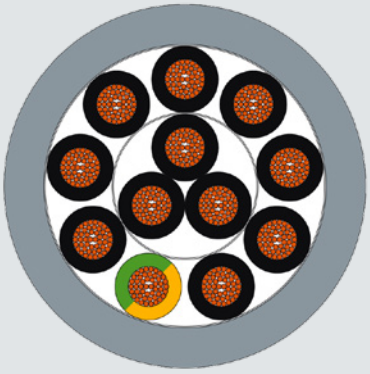
MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46303	**(1X6,00)ST** (1XAWG10)ST	✓	100	500	7.3	99
46304	**(1X10,00)ST** (1XAWG8)ST	✓		500	8.8	180
46305	**(1X16,00)ST** (1XAWG06)ST	✓		500	10	275
46306	**(1X25,00)ST** (1XAWG04)ST	✓			11.5	380
46307	**(1X35,00)ST** (1XAWG2)ST	✓			13.2	480
46308	**(1X50,00)ST** (1XAWG01)ST	✓			15.6	590
46309	**(1X70,00)ST** (1XAWG2/0)ST	✓			17.5	820
46310	**(1X95,00)ST** (1XAWG3/0)ST	✓			20	1200
46311	**(1X120,00)ST** (1XAWG4/0)ST	✓			22.5	1400
46312	**(1X150,00)ST** (1X250KCMIL)ST	✓			24.6	1700

DYNAMIC APPLICATION

PMXX® PLUS
MULTICORE



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

50,0 M/S² ACCELERATION

20,0 M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	6.0xø	4.0xø
25.00	95.00	10.0xø	4.0xø

DESCRIPTION

High-performance UL/CSA certified flexible multicore cables designed for dynamic application in high-speed drag chains, also suitable for permanently flexible applications that allow free movement without tensile stress and without motion control in dry, damp, and wet environments. Reduced diameter and optimized minimum bending radius thanks to the low-capacity material. The polyurethane outer jacket provides excellent resistance properties against mechanical stress and chemical agents, making these cables suitable for indoor or outdoor use, even in very low temperatures. Widely used for high-performance applications such as pumping stations, compressors, generators, and power systems.

APPROVALS

AWM STYLE 21209 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +80°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404 IEC 60811-404 (EU)
CEI EN 50363-10-2 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN50396 ART.8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46195	2X0,50 2XAWG21	✗	100	500	5.4	38	
46198	2X0,75 2XAWG19	✓	100	500	6	49	
46199	2X1,00 2XAWG18	✓	100/200	500/2000	6.3	55	
46237	2X1,50 2XAWG16	✓	100	500	7.2	75	
46238	2X2,50 2XAWG14	✓	100	500	8.4	110	
46202	3X0,50 3XAWG21	✓	100	500	5.8	42	
46204	3G0,75 3GAWG19	✓	100/200	500	6.4	55	
46206	3G1,00 3GAWG18	✓	100	500	6.5	60	
46207	3X1,00 3XAWG18	✓		500	6.5	60	BLACK CORE WITH WHITE PRINTED NUMBERS.
46239	3G1,50 3GAWG16	✓		500	7.5	92	
46242	3G2,50 3GAWG14	✓	100	500	9.2	140	
46248	3G4,00 3GAWG12	✓		500	10.4	190	
46209	4X0,50 4XAWG21	✓	100/200	500	6.4	56	BLACK CORE WITH WHITE PRINTED NUMBERS.
46211	4G0,50 4GAWG21	✓	100/200	500	6.4	56	
46212	4G0,75 4GAWG19	✓	100	500	6.8	63	
46214	4X1,00 4XAWG18	✓	100	500	7.3	80	BLACK CORE WITH WHITE PRINTED NUMBERS.
46215	4G1,00 4GAWG18	✓	100	500	7.3	80	
46245	4G1,50 4GAWG16	✓	100	500	8.4	110	

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
46246	**4G2,50** 4GAWG14	✓		500	10	180	
46249	**4G4,00** 4GAWG12	✓			11.5	240	
46250	**4G6,00** 4GAWG10	✓			13.8	370	
46251	**4G10,00** 4GAWG08	✓			17.2	580	
46252	**4G16,00** 4GAWG06	✓			20.7	800	
46216	**5G0,50** 5GAWG21	✓	100	500	7	65	
46217	**5G0,75** 5GAWG19	✓	100	500	7.5	75	
46218	**5G1,00** 5GAWG18	✓	100	500	7.9	95	
46256	**5G1,50** 5GAWG16	✓	100	500	9	130	
46257	**5G2,50** 5GAWG14	✓		500	11	220	
46220	**7G0,50** 7GAWG21	✓	100	500	8	80	
46222	**7G0,75** 7GAWG19	✓	100	500	8.8	105	
46223	**7G1,00** 7GAWG18	✓	100	500	9.2	125	
46258	**7G1,50** 7GAWG16	✓		500	11	190	
46259	**7G2,50** 7GAWG14	✓			13	300	
46224	**8G1,00** 8GAWG18	✓	100	500	10	150	
46225	**12G0,50** 12GAWG21	✓		500/2000	9.5	120	
46227	**12G0,75** 12GAWG19	✓		500	10.4	165	
46228	**12G1,00** 12GAWG18	✓		500	11.4	190	
46260	**12G1,50** 12GAWG16	✓			13.2	300	
46261	**12G2,50** 12GAWG14	✓			16	450	
46229	**18G0,50** 18GAWG21	✓		500	11	180	
46230	**18G0,75** 18GAWG19	✓		500	12.2	230	
46231	**18G1,00** 18GAWG18	✓		500/100	13	270	
46262	**18G1,50** 18GAWG16	✓			15.6	400	
46232	**25G0,50** 25GAWG21	✓		500/100	13	250	
46233	**25G0,75** 25GAWG19	✓			14.5	335	
46234	**25G1,00** 25GAWG18	✓			15.6	405	
46263	**25G1,50** 25GAWG16	✓			18.4	580	
46235	**34G0,50** 34GAWG21	✓			15	320	
46236	**34G0,75** 34GAWG19	✓			16.6	430	

DYNAMIC APPLICATION

PMXX® PLUS
MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

UP TO 50,0 M/S² ACCELERATION

UP TO 20,0 M CABLE LENGTH

UP TO 300 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	6.0xø	4.0xø
25.00	95.00	10.0xø	4.0xø

DESCRIPTION

High-performance UL/CSA certified flexible multicore cables designed for dynamic application in high-speed drag chains, also suitable for permanently flexible applications that allow free movement without tensile stress and without motion control in dry, damp, and wet environments. Reduced diameter and optimized minimum bending radius thanks to the low-capacity material. The polyurethane outer jacket provides excellent resistance properties against mechanical stress and chemical agents, making these cables suitable for indoor or outdoor use, even in very low temperatures. Widely used for high-performance applications such as pumping stations, compressors, generators, and power systems. Screening from electromagnetic interference is achieved thanks to the dense braid shield.

APPROVALS

E244280 **AWM STYLE 21209 90°C 1000V**

AWM I/II A/B 90°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

STORAGE
-50°C +80°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
EI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
RESISTANT TO UV RADIATION ACCORDING TO ISO 4892-2, EN 50289-4-17 OR ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN 60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46282	**(2X0,75)ST** (2XAWG19)ST	✗	100	500	6.3	58
46281	**(4G0,50)ST** (4GAWG21)ST	✓		500	6.7	70
46734	**(4G0,75)ST** (4GAWG19)ST	✓	100	500	7.2	80
46266	**(5G0,75)ST** (5GAWG19)ST	✓	100	500	7.8	100
46267	**(5G1,00)ST** (5GAWG18)ST	✓	100	500	8.3	120
46268	**(5G1,50)ST** (5GAWG16)ST	✓		500	9.8	165
46269	**(5G2,50)ST** (5GAWG14)ST	✓		500	11.2	235
46270	**(7G0,75)ST** (7GAWG19)ST	✓		500	9.2	130
46271	**(7G1,00)ST** (7GAWG18)ST	✓		500	9.8	160
46272	**(7G1,50)ST** (7GAWG16)ST	✓		500	11.5	230
46273	**(7G2,50)ST** (7GAWG14)ST	✓			13.5	340
46274	**(12G1,00)ST** (12GAWG18)ST	✓		500	11.8	230
46275	**(12G1,50)ST** (12GAWG16)ST	✓			13.8	320
46276	**(12G2,50)ST** (12GAWG14)ST	✓			16	495
46277	**(18G1,00)ST** (18GAWG18)ST	✓			13.4	315
46278	**(18G1,50)ST** (18GAWG16)ST	✓			16.3	480
46279	**(25G1,00)ST** (25GAWG18)ST	✓			16	460

DYNAMIC APPLICATION

PMXX® PLUS
SERVO

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

50,0 M/S² ACCELERATION

25,0 M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	6xø	3xø
25.00	95.00	10xø	5xø

DESCRIPTION

High-performance UL/CSA certified flexible servomotor cables designed for dynamic application in high-speed drag chains, between the motor and frequency converter. The polyurethane outer jacket provides excellent resistance properties against mechanical stress and chemical agents, making these cables suitable for indoor or outdoor use, even in very low temperatures. Screening from electromagnetic interference is achieved thanks to the dense braid shield.

APPROVALS

AWM STYLE 21209 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +80°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.**
	SEPARATION LAYER	**INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE**
OVERALL STRANDING SERVO	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**ORANGE, RAL: 2003, DESINA: YES**

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46158		**(3G1,50)ST** (3GAWG16)ST	✓	100	500	8.2	110
46159		**(3G2,50)ST** (3GAWG14)ST	✓		500	9.6	170
46160		**(4G1,00)ST** (4GAWG18)ST	✓	100	500	8.2	100
46161	SIEMENS 6FX8008-1BB11	**(4G1,50)ST** (4GAWG16)ST	✓	100	500	9	140
46162	SIEMENS 6FX8008-1BB21	**(4G2,50)ST** (4GAWG14)ST	✓		500	10.6	198
46163	SIEMENS 6FX8008-1BB31	**(4G4,00)ST** (4GAWG12)ST	✓		500/100	12.3	265
46164	SIEMENS 6FX8008-1BB41	**(4G6,00)ST** (4GAWG10)ST	✓		100	14.5	400
46165	SIEMENS 6FX8008-1BB51	**(4G10,00)ST** (4GAWG08)ST	✓			17.5	590
46166	SIEMENS 6FX8008-1BB61	**(4G16,00)ST** (4GAWG06)ST	✓			21.6	1010
46167	SIEMENS 6FX8008-1BB25	**(4G25,00)ST** (4GAWG04)ST	✓			25	1480
46168	SIEMENS 6FX8008-1BB35	**(4G35,00)ST** (4GAWG02)ST	✓			29.4	1950
46169	SIEMENS 6FX8008-1BB50	**(4G50,00)ST** (4GAWG01)ST	✓			34	2850
46170	SIEMENS 6FX5008-1BB70	**(4G70,00)ST** (4GAWG2/0)ST	✓			39.9	3965
46171	SIEMENS 6FX8008-1BB95	**(4G95,00)ST** (4GAWG3/0)ST	✓			47.5	5200

DYNAMIC APPLICATION

PMXX® PLUS
SERVO WITH PAIR

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

50,0 M/S² ACCELERATION

25,0 M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	6xø	3xø
25.00	95.00	10xø	5xø

DESCRIPTION

High-performance UL/CSA certified flexible servomotor cables designed for dynamic application in high-speed drag chains, between the motor and frequency converter. The polyurethane outer jacket provides excellent resistance properties against mechanical stress and chemical agents, making these cables suitable for indoor or outdoor use, even in very low temperatures. Screening from electromagnetic interference is achieved thanks to the dense braid shield. Cables are available with one or two control pairs and are compliant with the most commonly used drive system standards.

APPROVALS

AWM STYLE 21209 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +80°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
CONTROL PAIR SCREENED (ONE PAIR)	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE AND WHITE CORE.
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
CONTROL PAIR SCREENED (TWO PAIRS)	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBERS.
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
OVERALL STRANDING (ONE PAIR)	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	ORANGE, RAL: 2003, DESINA: YES
OVERALL STRANDING (TWO PAIRS)	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	ORANGE, RAL: 2003, DESINA: YES

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

REFERENCE DRAW	TECO CODE	OEM REF.	Nº CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
	46185	INDRAMAT INK 657	**[4G0,75+(2X0,50)ST]ST** [4GAWG19+(2XAWG21)ST]ST	✓		500	10	150
	46172		**[4G1,50+(2X1,00)ST]ST** [4GAWG16+(2XAWG18)ST]ST	✓		500	11.5	200
	46173	SIEMENS 6FX5008-1BA11	**[4G1,50+(2X1,50)ST]ST** [4GAWG16+(2XAWG16)ST]ST	✓		500	11.7	225
	46174		**[4G2,50+(2X1,00)ST]ST** [4GAWG14+(2XAWG18)ST]ST	✓		500	12.5	275
	46175	SIEMENS 6FX8008-1BA21	**[4G2,50+(2X1,50)ST]ST** [4GAWG14+(2XAWG16)ST]ST	✓			13.5	310
	46176		**[4G4,00+(2X1,00)ST]ST** [4GAWG12+(2XAWG18)ST]ST	✓			14	345
	**46177**	SIEMENS 6FX8008-1BA31	**[4G4,00+(2X1,50)ST]ST** [4GAWG12+(2XAWG16)ST]ST	✓			14.8	380
	46178	SIEMENS 6FX8008-1BA41	**[4G6,00+(2X1,50)ST]ST** [4GAWG10+(2XAWG16)ST]ST	✓			16.8	500
	46179	SIEMENS 6FX8008-1BA51	**[4G10,00+(2X1,50)ST]ST** [4GAWG8+(2XAWG16)ST]ST	✓			19.5	720
	46180	SIEMENS 6FX8008-1BA61	**[4G16,00+(2X1,50)ST]ST** [4GAWG6+(2XAWG16)ST]ST	✓			23.2	1050
	46181	SIEMENS 6FX8008-1BA25	**[4G25,00+(2X1,50)ST]ST** [4GAWG04+(2XAWG16)ST]ST	✓			26.6	1580
	46182	SIEMENS 6FX8008-1BA35	**[4G35,00+(2X1,50)ST]ST** [4GAWG02+(2XAWG16)ST]ST	✓			30.9	2100
	46183	SIEMENS 6FX8008-1BA50	**[4G50,00+(2X1,50)ST]ST** [4GAWG01+(2XAWG16)ST]ST	✓			34	3000
	46186	INDRAMAT INK 653	**[4G1,00+2X(2X0,75)ST]ST** [4GAWG18+2X(2XAWG19)ST]ST	✓			11.5	240
	46187	INDRAMAT INK 650	**[4G1,50+2X(2X0,75)ST]ST** [4GAWG16+2X(2XAWG19)ST]ST	✓		500	12	260
	46188	INDRAMAT INK 602	**[4G2,50+2X(2X1,00)ST]ST** [4GAWG14+2X(2XAWG18)ST]ST	✓		500	14	340
	46189	INDRAMAT INK 603	**[4G4,00+(2X1,00)ST+(2X1,50)ST]ST** [4GAWG12+(2XAWG18)+ (2XAWG16)ST]ST	✓			16	480
	**46190**	INDRAMAT INK 604	**[4G6,00+(2X1,00)ST+(2X1,50)ST]ST** [4GAWG10+(2XAWG18)+ (2XAWG16)ST]ST	✓			17.8	600
	46191	INDRAMAT INK 605	**[4G10,00+(2X1,00)ST+(2X1,50)ST]ST** [4GAWG08+(2XAWG18)+ (2XAWG16)ST]ST	✓			22.6	840
	46192	INDRAMAT INK 606	**[4G16,00+2X(2X1,50)ST]ST** [4GAWG06+2X(2XAWG16)ST]ST	✓			25.5	1220
	46193	INDRAMAT INK 607	**[4G25,00+2X(2X1,50)ST]ST** [4GAWG04+2X(2XAWG16)ST]ST	✓			29.8	1600
	46194	INDRAMAT INK 667	**[4G35,00+2X(2X1,50)ST]ST** [4GAWG02+2X(2XAWG16)ST]ST	✓			30.5	2100
	43315	INDRAMAT INK 668	**[4G50,00+2X(2X2,5)ST]ST** [4GAWG01+2X(2XAWG14)ST]ST	✓			37.6	3300

DYNAMIC APPLICATION

PMXX® PLUS
SERVO WITH TRIPLET

APPLICATIVE FEATURES

UP TO 5 MILLION CYCLE
GUARANTEED CYCLES

50,0 M/S²
ACCELERATION

15,0 M
CABLE LENGTH

300,0 M/MIN
TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	7xø	4xø

DESCRIPTION

High-performance UL/CSA certified flexible servomotor cables designed for dynamic application in high-speed drag chains, between the motor and frequency converter. The polyurethane outer jacket provides excellent resistance properties against mechanical stress and chemical agents, making these cables suitable for indoor or outdoor use, even in very low temperatures. Screening from electromagnetic interference is achieved thanks to the dense braid shield. These cables have a control triplet of conductors and are compliant with the most commonly used drive system standards.

APPROVALS

AWM STYLE 21209
90°C 1000V

AWM I/II A/B 90°C
1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1 EN
50267-1

TECHNICAL DATA

STORAGE
-50°C +80°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4,0KV
TEST VOLTAGE REFERENCE
EN 50395 PART.6-7
UL 1581

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.**
	SEPARATION LAYER	**INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE**
CONTROL TRIPLET SCREENED	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTED NUMBERS.**
	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**INTERMEDIATE TAPE POLYESTER TRANSPARENT.**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**INTERMEDIATE TAPE POLYESTER TRANSPARENT.**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**ORANGE, RAL: 2003, DESINA: YES**

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
43309	SEW	**[4G1,50+(3X1,00)ST]ST** [4GAWG16+(3XAWG18)ST]ST	✓		500	11.8	220
43310	SEW	**[4G2,50+(3X1,00)ST]ST** [4GAWG14+(3XAWG18)ST]ST	✓		500	13.4	280
43311	SEW	**[4G4,00+(3X1,00)ST]ST** [4GAWG12+(3XAWG18)ST]ST	✓			14.8	350
43312	SEW	**[4G6,00+(3X1,50)ST]ST** [4GAWG10+(3XAWG16)ST]ST	✓			17	530
43313	SEW	**[4G10,00+(3X1,50)ST]ST** [4GAWG08+(3XAWG16)ST]ST	✓			19.8	800

DYNAMIC APPLICATION

PMXX® PLUS
ENCODER

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

UP TO 50 M/S² ACCELERATION

UP TO 25,0 M CABLE LENGTH

UP TO 300 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	7.0xø	5.0xø

APPROVALS

E244280 **AWM STYLE 21209 90°C 300V**

AWM I/II A/B 90°C 300V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

STORAGE
-50°C +90°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V (UL/CSA)

TEST VOLTAGE
C/C 2000VRMS,1MIN
C/S 2000VRMS,1MIN

INSULATION RESISTANCE
≥1GOHM/KM

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
ISO 4892-2, ASTM-D-2565-16, EN 50289-4-17

WATER PERFORMANCE
UL 1581, IEC 60811-1-3

COLD PERFORMANCE
EN 60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46684	HEIDENHAIN	**[3X(2X0,14)CCSF/RPE+2X(0,50)SF/RPE]ST** [3X(2XAWG26)CCSF/RPE+2X(AWG21)SF/RPE]ST	✓			8.8	110
43322		**[4X2X0,14+(4X0,14)SF+4X0.50]ST** [4X2XAWG26+(4XAWG26)SF+4XAWG21]ST	✓	100	500	8.3	100
46683		**(3X2X0,14+2X0,34)SNCC/ST** (3X2XAWG26+2XAWG22)SNCC/ST	✓	100		7	70
46688		**(3X2X0,25+2X0,50)CCST** (3X2XAWG24+2XAWG21)CCST	✓	100	500	7.8	90
46689		**(3X2X0,34+2X0,50)CCST** (3X2XAWG22+2XAWG21)CCST	✓	100	500	8.6	110
46691		**(4X2X0,25)CCST** (4X2XAWG24)CCST	✓	100	500/1000	7.6	90
46698	INDRAMAT	**(6X2X0,25)RPE/ST** (6X2XAWG24)RPE/ST	✓		500	9.7	110
46692		**[4X(2X0,25)ST/RPE]ST** [4X(2XAWG24)ST/RPE]ST	✓	100	500	9.6	130
46694		**[4X(2X0,34)ST/RPE]ST** [4X(2XAWG22)ST/RPE]ST	✓			11.2	155
46696		**[5X(2X0,34)ST/RPE]ST** [5X(2XAWG22)ST/RPE]ST	✓		500	11.6	185
46700		**[8X(2X0,25)ST/RPE]ST** [8X(2XAWG24)ST/RPE]ST	✓		500	14	215
46693	INDRAMAT	**(4X2X0,25+2X0,50)CCST** (4X2XAWG24+2XAWG21)CCST	✓	100	500	8.5	110
46690	HEIDENHAIN	**(4X2X0,14+4X0,50)ST** (4X2XAWG26+4XAWG21)ST	✓	100	500	8.4	110
46695	SIEMENS	**(4X2X0,34+4X0,50)ST** (4X2XAWG22+4XAWG21)ST	✓	100	500	9	125
46699		**(6X2X0,34)ST** (6X2XAWG22)ST	✓	100		9.4	120
46704		**(8X2X0,18)ST** (8X2XAWG25)ST	✓	100	500	8.2	95
46702	INDRAMAT	**(9X0,50)CCST** (9XAWG21)CCST	✓	100	500	8.8	115
46703		**[(2X0,34)CCSN+6X2X0,34+2X1,00]ST** [(2XAWG22)CCSN+6X2XAWG22+2XAWG18]ST	✓		500	11	198
46682		**(2X2X0,34)ST** (2X2XAWG22)ST	✓	100	500	7	70
46687		**(3X2X0,34)ST** (3X2XAWG22)ST	✓	100	500	7.5	80
46701		**(8X2X0,22)ST** (8X2XAWG24)ST	✓		500	9.5	125
46685	SIEMENS	**[3X(2X0,14)CCSF/RPE+4X0,14+2X0,50]ST** [3X(2XAWG26)CCSF/RPE+4XAWG26+2XAWG21]ST	✓		500	9	120
46686	SIEMENS	**[3X(2X0,14)CCSF/RPE+4X0,14+4X0,25+2X0,50]ST** [3X(2XAWG26)CCSF/RPE+4XAWG26+4XAWG24+2XAWG21]ST	✓		500	9.8	135

TECO CODE 46684 CONSTRUCTION FEATURES

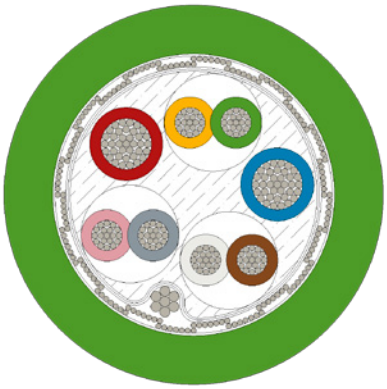
GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X(2X0,14) : YE-GN, RD-BU, GY-PK GROUP 2 2X(0,50) : WH, BN

TECO CODE 43322 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 3	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING 	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X0,14 : GN/BK*,RD/BK*,YE/BK*,BU/BK* GROUP 2 4X2X0,14 : RD-BK, GN-BN, VT-YE, GY-PK GROUP 3 4X0,50 WH, BU, WH/GN*, BN/GN* *RING BICOLOUR

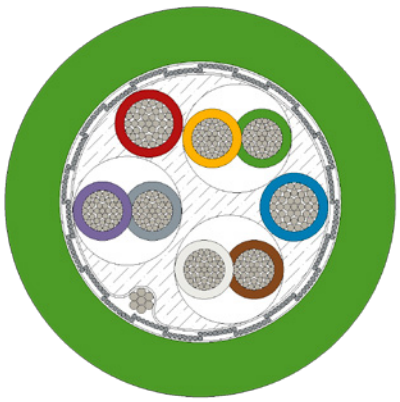
TECO CODE 46683 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING (MXNXY+NXY) SNCC/ST	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SEPARATION LAYER	SHIELDED TAPE MYLAR/ALLUMINIUM
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X2X0,14 : WH-BN, GN-YE, GY-PK GROUP 2 2X0,34 : BU, RD

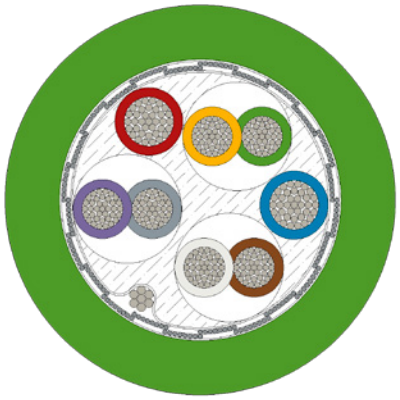


TECO CODE 46688 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING (MXNXY+NXY) CCST	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X2X0,25 : WH-BN, GN-YE, GY-PK GROUP 2 2X0,50 : BU, RD



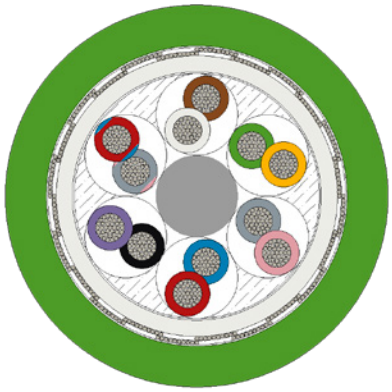
TECO CODE 46689 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING (MXNXY+NXY) CCST	FILLER	FILLER POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X2X0,34 : WH-BN, GN-YE, GY-PK GROUP 2 2X0,50 : BU, RD

TECO CODE 46691 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING (MXNXY) CCST	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH-BN, GN-YE, GY-PK, BU-RD

TECO CODE 46698 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING (MXNXY) RPE/ST	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH-BN, GN-YE, GY-PK, BU-RD, BK-VT, GY/PK*-RD/BU* *RING BICOLOUR

TECO CODE 46692 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	PAIRS SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH-YE, WH+BU, WH+RD, WH+GN

TECO CODE 46694 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	PAIRS SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH-YE, WH+BU, WH+RD, WH+GN

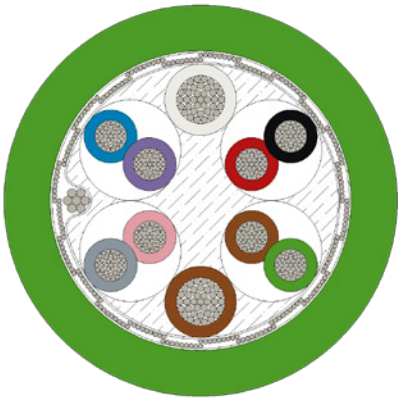
TECO CODE 46696 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	PAIRS SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH-YE, WH-BU, WH+RD, WH+GN, WH+BK

TECO CODE 46700 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	PAIRS SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH-RD, WH-RD, WH-RD, WH-RD, WH-RD, WH-RD, WH-RD, WH-RD

TECO CODE 46693 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X2X0,25 : BN-GN,GY-PK, BU-VT, RD-BK GROUP 2 2X0,50 : WH, BN

TECO CODE 46690 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X2X0,14 : RD-BK, BN-GN, YE-VT, GY-PK GROUP 2 4X0,50 : WH, BU, WH/GN*, BN/GN* *RING BICOLOUR

TECO CODE 46695 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 4X2X0,34 : BN-BK, RD-OG, YE-GN, BU-VT GROUP 2 4X0,50 : BU/WH*, BK/WH*, RD/WH*, YE/WH* *RING BICOLOUR

TECO CODE 46699 CONSTRUCTION FEATURES

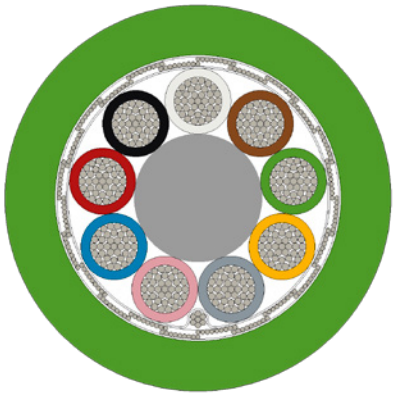
GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	YE-BU, RD/WH*-BK/WH*, RD-BK, WH-BU, RD-WH, RD/WH*-WH *RING BICOLOUR

TECO CODE 46704 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	WH/YE*-WH/GN*, WH/RD*-WH/OG*, WH/BK*-WH/BN*, GY-WH, BU-VT, YE-GN, RD-OG, BK+BN *RING BICOLOUR

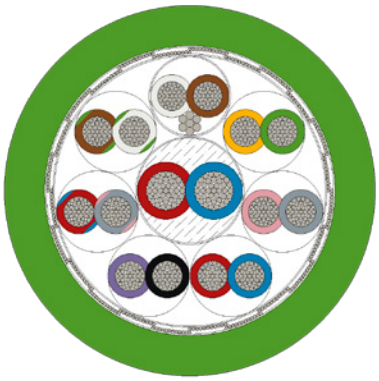
TECO CODE 46702 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES

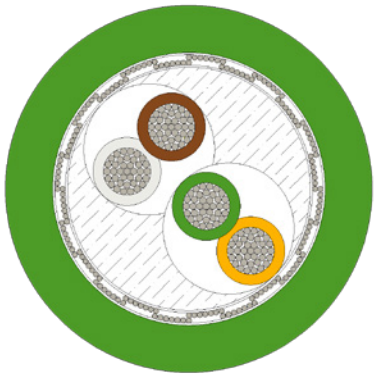


TECO CODE 46703 CONSTRUCTION FEATURES

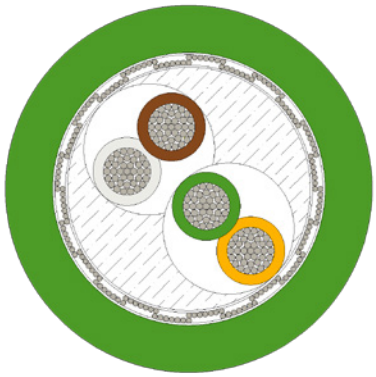
GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SEPARATION LAYER	TAPE SCREEN ALLUMINIUM INSIDE/POLYESTER OUTSIDE
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
GROUP 3	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
OVERALL STRANDING	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 2X0,34 : WH-BN GROUP 2 6X2X0,34 : GN-YE, GY-PK, BU-RD, BK-VT, GY/PK*-RD/BU*, WH/GN*-BN/GN* GROUP 3 2X1,00 : RD-BU *RING BICOLOUR



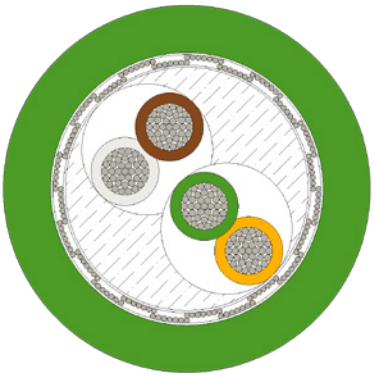
TECO CODE 46682 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYOLEFIN COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 2X2X0,34 : WH-BN, GN-YE

TECO CODE 46687 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYOLEFIN COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X2X0,34 : WH-BN, PK+GY, GN-YE

TECO CODE 46701 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYOLEFIN COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 8X2X0,22 : WH-BN, GN-YE, GY-PK, BU+RD, BK-VT, GY/PK*-RD/BU*, WH/GN*-BN/GN*, WH/YE*-YE/BN* *RING BICOLOUR

TECO CODE 46685 CONSTRUCTION FEATURES

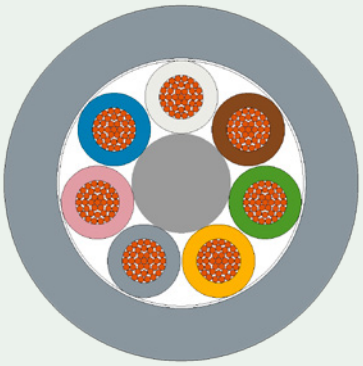
GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE
	INSULATION COLOR	VARIOUS COLOURS
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X(2X0,14) : YE-GN, RD-OR, BK-BN GROUP 2 4X0,14 : GY, BU, WH/YE*, WH/BK* GROUP 2 2X0,50 : BN/RD*, BN/BU* *RING BICOLOUR

TECO CODE 46686 CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE
	INSULATION COLOR	VARIOUS COLOURS
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SCREEN TINNED COPPER 90 % ± 5 %
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SHEATH	INNER JACKET POLYOLEFIN COMPOUND.
GROUP 2	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	WRAPPING NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	OVERALL STRANDING NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: YES
EXCEPTIONS	INS. COLOUR EXC	GROUP 1 3X(2X0,14) : YE-GN, RD-OR, BK-BN GROUP 2 4X0,14 : GY, BU, WH/YE*, WH/BK* GROUP 2 4X0,25 : BN/YE*, BN/GY*, GN/BK*, GN/RD* GROUP 2 2X0,50 : BN/RD*, BN/BU* *RING BICOLOUR

DYNAMIC APPLICATION

PMXX® PLUS
SIGNAL



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0 M/S² ACCELERATION

15,0 M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM²)	CROSS SECTION MAX (MM²)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	6xø	4xø

DESCRIPTION

Low-frequency UL/CSA certified flexible signal cables with a polyurethane outer jacket, designed for the transmission of analog and digital signals for high dynamic drag-chain applications. Suitable for frequent quick lifting and bending stresses in machine engineering and construction, in robot technology, and on permanently moving machine parts.

APPROVALS

AWM STYLE 21209 90°C 300V

AWM I/II A/B 90°C 300V

2014/35/CEE

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +90°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V (UL/CSA)
300V (VDE)

TEST VOLTAGE
2,0KV

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404 IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46680	**7X0,34** 7XAWG22	✓	100/200	500	6.4	55

DYNAMIC APPLICATION

PMXX®
SIGNAL

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0 M/S² ACCELERATION

15,0 M CABLE LENGTH

240,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	6.0xø	4.0xø

DESCRIPTION

Low-frequency UL/CSA certified flexible signal cables with a polyurethane outer jacket, designed for the transmission of analog and digital signals for high dynamic drag-chain applications. Suitable for frequent quick lifting and bending stresses in machine engineering and construction, in robot technology, and on permanently moving machine parts.

APPROVALS

E244280 **AWM STYLE 20233 80°C 300V**

AWM I/II A/B 80°C 300V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

HF HALOGEN FREE **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

DYNAMIC
-30°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V (UL/CSA)
300V (VDE)

TEST VOLTAGE
2,0KV

INSULATION RESISTANCE
>100MOHM/KM

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. TINNED COPPER
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404 IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, HD605 PART. 2.4.20

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
23877	**12X0,25** 12XAWG24	✓	100	500	6.6	65
23878	**18X0,25** 18XAWG24	✓		500	7.9	97
23879	**24X0,25** 24XAWG24	✓	100	500	9.5	127
23880	**37X0,25** 37XAWG24	✓		500	11.2	211

DYNAMIC APPLICATION

PMXX® PLUS
SIGNAL SHIELDED (SH)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0 M/S² ACCELERATION

15,0 M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM²)	CROSS SECTION MAX (MM²)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.00	6xø	4xø

DESCRIPTION

Low-frequency UL/CSA certified flexible signal cables with a polyurethane outer jacket, designed for the transmission of analog and digital signals for high dynamic drag-chain applications. Suitable for frequent quick lifting and bending stresses in machine engineering and construction, in robot technology, and on permanently moving machine parts. The dense screening assures interference-free transmission of all signals and impulses.

APPROVALS

AWM STYLE 21209 90°C 300V

AWM I/II A/B 90°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +90°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V (UL/CSA)
300V (VDE)

TEST VOLTAGE
2,0KV

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GRAY, RAL: 7001, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404 IEC 60811-404 (EU)
CEI EN 50363-10-2 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

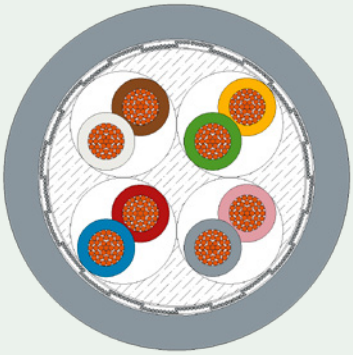
HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46661	**(2X0,34)ST** (2XAWG22)ST	✗	100	500	4.9	35
46674	**(2X0,50)ST** (2XAWG21)ST	✓	100	500	5.3	45
46662	**(3X0,34)ST** (3XAWG22)ST	✓	100	500	5.2	40
46678	**(4X0,25)ST** (4XAWG24)ST	✗	100	500	5.2	42
46663	**(4X0,34)ST** (4XAWG22)ST	✗	100	500	5.4	45
46664	**(5X0,34)ST** (5XAWG22)ST	✓	100	500	6	55
46676	**(5X0,50)ST** (5XAWG21)ST	✓	100	500	6.6	63
46665	**(6X0,34)ST** (6XAWG22)ST	✗	100	500	6.4	65
46667	**(8X0,34)ST** (8XAWG22)ST	✓	100	500	7.2	78
46677	**(8X0,50)ST** (8XAWG21)ST	✓	100	500	8.2	105
46679	**(12X0,25)ST** (12XAWG24)ST	✓	100	500	7.3	80
46668	**(12X0,34)ST** (12XAWG22)ST	✓	100	500	9	110
46669	**(14X0,34)ST** (14XAWG22)ST	✓	100	500	8.7	120
46670	**(18X0,34)ST** (18XAWG22)ST	✓	100	500	9.5	140
46671	**(20X0,34)ST** (20XAWG22)ST	✓		500	10	160
46672	**(25X0,34)ST** (25XAWG22)ST	✓		500/100	11.4	205
46673	**(36X0,34)ST** (36XAWG22)ST	✓		500	12	250

DYNAMIC APPLICATION

PMXX® PLUS

SIGNAL WITH PAIR SHIELDED (SH)



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0 M/S² ACCELERATION

15,0 M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.25	6.5xø	4xø
0.34	1.00	10xø	5xø

DESCRIPTION

Low-frequency UL/CSA certified flexible signal cables with a polyurethane outer jacket, designed for high dynamic drag chain applications with permanently flexible stresses in machine tool building, robot technology, and on constantly moving machine parts. Favorable crosstalk attenuation values are achieved thanks to the pairs' twisted stranding. Even interference through parallel running cables is suppressed due to the dense braided screen.

APPROVALS

E244280 **AWM STYLE 21209 90°C 300V**

AWM I/II A/B 90°C 300V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

STORAGE
-50°C +90°C
DYNAMIC
-30°C +90°C
STATIC
-40°C +90°C

NOMINAL VOLTAGE
300V (UL/CSA)
300V (VDE)

TEST VOLTAGE
2,0KV

INSULATION RESISTANCE
≥1GOHM/KM

CONSTRUCTION FEATURES

TWISTED PAIR	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GRAY, RAL: 7001, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404 IEC 60811-404 (EU)
CEI EN 50363-10-2 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

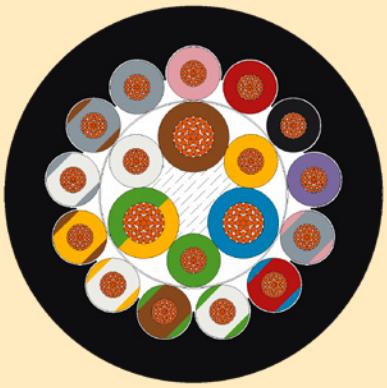
MUD PERFORMANCE
NEK 606

MICROBE PERFORMANCE
VDE 0282/10

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46657	**(2X2X0,75)ST** (2X2XAWG19)ST	✓	100	500	8.4	95
46735	**(3X2X0,25)ST** (3X2XAWG24)ST	✓	100/200	500	6.3	60
46658	**(4X2X0,75)ST** (4X2XAWG19)ST	✓		500	9.7	140

DYNAMIC APPLICATION



PMXX®
SENSOR&ACTUATOR BOX 1000V

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0 M/S² ACCELERATION

15,0M CABLE LENGTH

200,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.75	7.5xø	4.0xø

DESCRIPTION

Multi-core UL/CSA certified sensor-actuator box cables, designed for continuous flexing use in drag chains or free movement in automation technology, machine tool manufacturing, or transport and conveyor technology, also suitable for the automotive industry or for plant and mechanical engineering. The polyurethane outer jacket and the low-capacity insulation provide excellent performance even in extremely harsh operating conditions, with the presence of aggressive coolants and lubricants.

APPROVALS

AWM STYLE 20234 80°C 1000V

AWM I/II A/B 80°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

DYNAMIC
-20°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
1000V

TEST VOLTAGE
3000V

INSULATION RESISTANCE
>100MOHM/KM (20°C)

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**UNEL TABLE COLOUR**
SIGNAL CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**VARIOUS COLOURS**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**MATTE BLACK, RAL: 9005, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
ISO 4892-2 - HD605 PART. 2.4.20

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

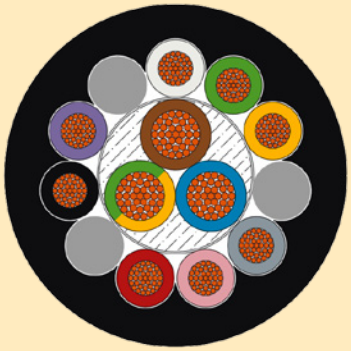
COLD PERFORMANCE
EN 60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
28906	**3G0,75+16X0,34** 3GAWG19+16XAWG22	✓		500/1000	11.1	150	SIGNAL CONDUCTORS: WHITE, GREEN, YELLOW, GRAY, PINK, RED, BLACK, VIOLET, GRAY/PINK*, RED/BLUE*, WHITE/GREEN*, BROWN/GREEN*, WHITE/YELLOW*, YELLOW/BROWN*, WHITE/GRAY*, GRAY/BROWN*. *RING BICOLOUR.

DYNAMIC APPLICATION



PMXX®
SENSOR&ACTUATOR BOX 300V

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0 M/S² ACCELERATION

15,0M CABLE LENGTH

200,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.75	7.5xø	4.0xø

DESCRIPTION

Multi-core UL/CSA certified sensor-actuator box cables, designed for continuous flexing use in drag chains or free movement in automation technology, machine tool manufacturing, or transport and conveyor technology, also suitable for the automotive industry or for plant and mechanical engineering. The polyurethane outer jacket and the low-capacity insulation provide excellent performance even in extremely harsh operating conditions, with the presence of aggressive coolants and lubricants.

APPROVALS

AWM STYLE 20233 80°C 300V

AWM I/II A/B 80°C 300V

2014/35/CEE

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

DYNAMIC
-20°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
1500V

INSULATION RESISTANCE
>100MOHM/KM (20°C)

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**UNEL TABLE COLOUR**
SIGNAL CONDUCTORS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**VARIOUS COLOURS**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**MATTE BLACK, RAL: 9005, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
1581 (UL)

UV PERFORMANCE
ISO 4892-2 - HD605 PART. 2.4.20

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN 60811-1-4

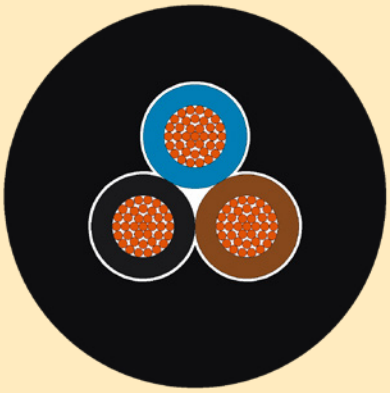
ABRASION PERFORMANCE
ASTM D 4060

HOZONE PERFORMANCE
EN 50396 ART. 8.1.3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
23410	**3G0,75+8X0,34** 3GAWG19+8XAWG22	✓	100		8.5	110	SIGNAL CONDUCTORS: WHITE, GREEN, YELLOW, GRAY, PINK, RED, BLACK, VIOLET
26792	**3G0,75+16X0,34** 3GAWG19+16XAWG22	✓		500	10	144	SIGNAL CONDUCTORS: WHITE, GREEN, YELLOW, GRAY, PINK, RED, BLACK, VIOLET, GRAY/PINK*, RED/BLUE*, WHITE/GREEN*, BROWN/GREEN*, WHITE/YELLOW*, YELLOW/BROWN*, WHITE/GRAY*, GRAY/BROWN*. *RING BICOLOUR.

DYNAMIC APPLICATION

PMXX®
SENSOR&ACTUATOR



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

30,0M/S² ACCELERATION

15,0M CABLE LENGTH

240,00M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.50	6.0xø	4.0xø

DESCRIPTION

UL/CSA certified flexible multicore cables used in decentralized control technology as connector systems for sensors, actuators, controls, drives, and photocells. Suitable for wiring with ordinary, PNP, NPN, or equivalent type Lumberg sensor cables with medium mechanical stress applications. In combination with injected circular connectors and installed actuator-sensor boxes, they constitute an important connecting element between the periphery and the PLC in production systems. These cables are designed for high dynamic applications in drag chains, working in dry conditions with high resistance to industrial oils and chemical agents. Reduced external diameter for low-space applications.

APPROVALS

AWM STYLE 20233 80°C 300V

AWM I/II A/B 80°C 300V

2014/35/CEE

2011/65/UE

1907/2006

IEC 60754-1 EN 50267-1

TECHNICAL DATA

STORAGE
-50°C +80°C
DYNAMIC
-20°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
1500V

INSULATION RESISTANCE
>100MOHM/KM (20°C)

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL6 EXTRA-FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
VW-1, FT1.

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
ISO 4892-2 - HD605 PART. 2.4.20

WATER PERFORMANCE
UL 1581 - IEC 60811-1-3

COLD PERFORMANCE
EN60811-1-4

ABRASION PERFORMANCE
ASTM D 4060

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
27720	**3X0,34** 3XAWG22	✗	100	500	4.6	26	BLUE, BROWN, BLACK
19356	**4X0,34** 4XAWG22	✗	100	500	4.9	32	BLUE, BROWN, BLACK, WHITE
27263	**5G0,50** 5GAWG21	✓	100/200	500	6.1	56	BLUE, BROWN, BLACK, WHITE, GREEN/YELLOW

STATIC
APPLICATION

TECWIRE®

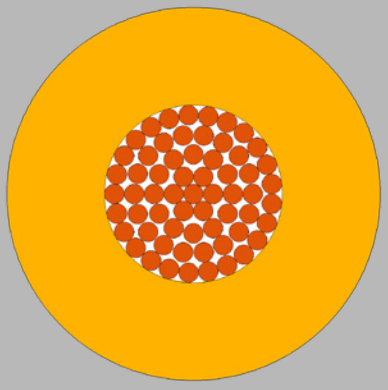
- **FLAME RETARDANT**
- **OIL RESISTANT**
- **AUTOMATIC MACHINERY**
- **MACHINE TOOLS**
- **ELECTRIC PANELS**

These multi-rated single core cables are UL, CSA, and HAR approved (where applicable for sections and colors), primarily designed for control cabinet wiring or installation in protective tubes.

They can also be used indoors for fixed installations on bare walls, pipes, ducts, switchgears, or signal and control panels, within the specifications of UL-CSA or European standards.

HOOK-UP WIRE p. 82

STATIC APPLICATION



TECWIRE®

MULTIRATED UL-CSA-H05V2-K

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.25	1.00		6.0xø

DESCRIPTION

These multi-rated flexible single core cables are UL, CSA and HAR approved, mainly designed for control cabinet wiring or installation in protective tubes. They can also be applicated indoor as fixed lay on bare walls, pipes, ducts, switchgears or signal and control panels, within the UL-CSA or European standard specifications.

APPROVALS

MTW 90°C 600V

AWM STYLE 1015
105°C 600V

AWM STYLE 10269
105°C 1000V

CSA TEW 105°C 600V

H05V2-K 300/500V

2014/35/CEE

2011/65/UE

1907/2006

BS TYPE CK (90°C)

TECHNICAL DATA

DURING INSTALLATION
+5°C +70°C
STATIC
-40°C +105°C (AWM, CSA TEW)
+90°C (MTW,EU)
OCCASIONAL FLEXING
+5°C +105°C (AWM, CSA TEW)
+90°C (MTW,EU)

NOMINAL VOLTAGE
600V (UL/CSA, TEW)
1000V (RU)
300/500V (EU)

TEST VOLTAGE
3000V (UL)
2KV (EU)
*

TEST VOLTAGE REFERENCE
*ACC. TO EN 50525-1, EN 50525-2-31

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	VARIOUS COLOURS

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

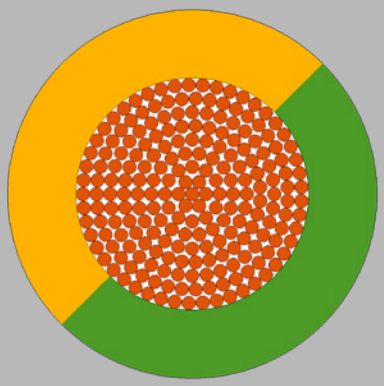
OIL PERFORMANCE
OIL RESISTANT I 60 °C RATING (UL 1063)
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)

CROSS SECTION MM² (AWG)	0.34 (AWG22)	0.50 (AWG20)	0.75 (AWG19)	1.00 (AWG18)
BLACK RAL 9005	39835	38702	38714	37466
BLUE RAL 5010	39836	38703	38715	37467
RED RAL 3000	39837	38704	38716	37468
WHITE RAL 9010	39838	38705	38717	37469
BROWN RAL 8003	39839	38706	38718	37470
YELLOW RAL 1021	39840	38707	38719	37471
GRAY RAL 7001	39841	38708	38720	37472
GREEN RAL 6018	39842	38709	38721	37473
ORANGE RAL 2003	39843	38710	38722	37474
PINK RAL 3015	39844			
YELLOW RAL 1021 - GREEN RAL 6018		38701	38731	37465
WHITE RAL 9010 - BLUE RAL 5015		38712	38723	37475
PALE BLUE RAL 5015		39257	39258	39259
VIOLET RAL 4005		39300		39302

CROSS SECTION MM² (AWG)	0.34 (AWG22)	0.50 (AWG20)	0.75 (AWG19)	1.00 (AWG18)
CUT	✕	✕	✕	✕
ROLLS (M)		100	100	100
DRUMS (M)	1220		915	
DIAMETER (MM)	2.4	2.6	2.8	2.9
CABLE WEIGHT (KG/KM)	10	12	15	18

NON-HARMONISED: Nominal cross-section: 0.34 mm² and colours green, yellow and two-colour (excluding G/V)

STATIC APPLICATION



TECWIRE®

MULTIRATED UL-CSA-H07V2-K

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
1.50	300.00		6.0xø

DESCRIPTION

These multi-rated flexible single core cables are UL, CSA and HAR approved, mainly designed for control cabinet wiring or installation in protective tubes. They can also be applicated indoor as fixed lay on bare walls, pipes, ducts, switchgears or signal and control panels, within the UL-CSA or European standard specifications.

APPROVALS

- **MTW 90°C 600V**
- **AWM STYLE 1015 105°C 600V**
- **AWM STYLE 10269 105°C 1000V**
- **AWM I A/B 105°C 1000V (>120MMQ)**
- **CSA TEW 105°C 600V**
- **H07V2-K 450/750V**
- **2014/35/CEE**
- **2011/65/UE**
- **1907/2006**
- **BS TYPE CK (90°C)**

TECHNICAL DATA

DURING INSTALLATION
+5°C +70°C
STATIC
-40°C +105°C (AWM, CSA TEW, CSA AWM)
+90°C (MTW, EU)
OCCASIONAL FLEXING
+5°C +105°C (AWM, CSA TEW, CSA AWM)
+90°C (MTW, EU)

NOMINAL VOLTAGE
600V (UL/CSA, TEW)
1000V (RU/CSA, AWM)
450/750V (EU)

TEST VOLTAGE
3000V (UL)
2,5KV (EU)
*

TEST VOLTAGE REFERENCE
*ACC. TO EN 50525-1, EN 50525-2-31

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	VARIOUS COLOURS

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

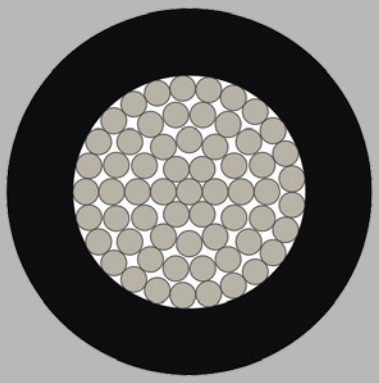
OIL PERFORMANCE
OIL RESISTANT I 60 °C RATING (UL 1063)
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)

CROSS SECTION MM² (AWG)	1.50 (AWG16)	2.50 (AWG14)	4.00 (AWG12)	6.00 (AWG10)	10.00 (AWG08)	16.00 (AWG06)	25.00 (AWG04)	35.00 (AWG02)	50.00 (AWG01)	52.00 (AWG1/0)	70.00 (AWG2/0)	95.00 (AWG3/0)	120.00 (AWG4/0)	150.00 (250KCMIL)	185.00 (350KCMIL)	240.00 (450KCMIL)	300.00 (550KCMIL)
YELLOW RAL 1021	37482	38067	38080	38093	38106	38118	38126										
GREEN RAL 6018	37484	38069	38082	38095	38108	38120			38140	38726	38146	38151	38155				
WHITE RAL 9010 - RED RAL 3000	37486	38071	38084	38099													
WHITE RAL 9010 - BLUE RAL 5015	37487	38072	38085	38097	38111	39299	38127										
WHITE RAL 9010 - ORANGE RAL 2003	38693	38073	38694	38728	38729												
WHITE RAL 9010 - YELLOW RAL 1021	38697		38086	38098													
YELLOW RAL 1021 - GREEN RAL 6018	37476	38061	38074	38087	38100	38112	38122	38128	38134	38724	38142	38149		38698			
BLACK RAL 9005	37477	38062	38075	38088	38101	38113	38123	38129	38135	38725	38143	38150	38154	38156	38157	38158	38159
BLUE RAL 5010	37478	38063	38076	38089	38102	38114	38124										
RED RAL 3000	37479	38064	38077	38090	38103	38115	38125										
WHITE RAL 9010	37480	38065	38078	38091	38104	38116	38121										
BROWN RAL 8003	37481	38066	38079	38092	38105												
GRAY RAL 7001	37483	38068	38081	38094	38107	38119											
ORANGE RAL 2003	37485	38070	38083	38096	38109	39297	39298	38133		38727	38147						
PALE BLUE RAL 5015	39260	39261	39262	39263	39264	39854	39855										
VIOLET RAL 4005	39303	39304															

CROSS SECTION MM² (AWG)	1.50 (AWG16)	2.50 (AWG14)	4.00 (AWG12)	6.00 (AWG10)	10.00 (AWG08)	16.00 (AWG06)	25.00 (AWG04)	35.00 (AWG02)	50.00 (AWG01)	52.00 (AWG1/0)	70.00 (AWG2/0)	95.00 (AWG3/0)	120.00 (AWG4/0)	150.00 (250KCMIL)	185.00 (350KCMIL)	240.00 (450KCMIL)	300.00 (550KCMIL)
CUT	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ROLLS (M)	100	100	100	100													
DRUMS (M)	915		305	305	100	100	100	100									
DIAMETER (MM)	3.2	3.6	4.1	4.7	6.3	8	9.2	10.9	12.9	13.9	15	16.2	17.9	20.2	22.4	24.3	27.1
CABLE WEIGHT (KG/KM)	23	34	48	67	119	187	291	406	580	615	780	1055	1175	1425	1735	2310	2950

NON-HARMONISED: Nominal cross-section: 50 mm²; 70 mm²; 95 mm²; 120 mm²; 150 mm²; 185 mm²; 240 mm² 300 mm² and colours green, yellow and two-tone (excluding G/V)

STATIC APPLICATION



TECWIRE®
STYLE 1007-1569

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.50	10.0xø (occ. flexing)	5.0xø

DESCRIPTION

UL/CSA certified power and control single-core cables, designed for Static applications in protective tubes, cabinet wiring, electrical panels, junction box wiring, and industrial machines, according to NFPA 79. The single-core UL/CSA style 1007/1569 cables are highly resistant to industrial oils at room temperature. They possess self-extinguishing and flame-retardant properties and are manufactured without the use of silicone and lacquer-damaging substances.

APPROVALS

E244280
AWM STYLE 1007 80°C 300V AWM STYLE 1569 105°C 300V

AWM I A/B 105°C 300V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +105°C
OCCASIONAL FLEXING
-5°C +105°C

TEST VOLTAGE
2000V
TEST VOLTAGE REFERENCE
UL 1581

NOMINAL VOLTAGE
300V

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	VARIOUS COLOURS

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL 1581, UL VW-1, CSA FT1.

OIL PERFORMANCE
60 °C RATING (UL)
IEC 60811-404 (EU)

CROSS SECTION MM² (AWG)	0.14 (AWG26)	0.25 (AWG24)	0.34 (AWG22)	0.50 (AWG21)	1.00 (AWG18)	1.50 (AWG16)
YELLOW RAL 1021	16791	374	1443	466	2543	28076
BLACK RAL 9017	4555	9651	927	468	461	2646
RED RAL 3000	4556	451	929	469	463	7974
PALE BLUE RAL 5015		1869				
BROWN RAL 8003		362	928	473	460	
GREEN RAL 6018		363	934	470		
GRAY RAL 7001		369	930	467	459	
VIOLET RAL 4005		370	8035	474	458	
PINK RAL 3015		375				
WHITE RAL 9010		685	933	465	1691	
BLUE RAL 5010		686	931	471	462	10089
ORANGE RAL 2003		861	932	464	457	
YELLOW RAL 1021 - GREEN RAL 6018					1716	

CROSS SECTION MM² (AWG)	0.14 (AWG26)	0.25 (AWG24)	0.34 (AWG22)	0.50 (AWG21)	1.00 (AWG18)	1.50 (AWG16)
CUT	✕	✕	✕	✕	✕	✕
ROLLS (M)						
DRUMS (M)	1000	2135	2135	2135	1220	1220
DIAMETER (MM)	1.35	1.4	1.7	1.9	2.1	2.4
CABLE WEIGHT (KG/KM)	2.8	4.2	6	8	11	16

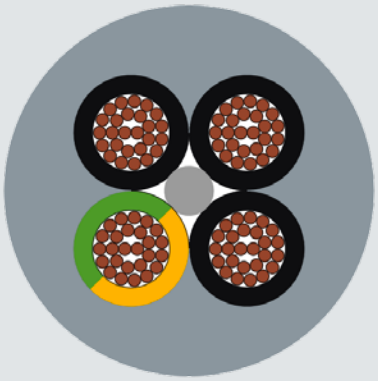
TECNIFLEX®

- **FLAME RETARDANT**
- **OIL RESISTANT**
- **RESISTENTE ALL'ACQUA**
- **AUTOMATIC MACHINERY**
- **MACHINE TOOLS**
- **BUILDINGS**

Power and control cables suitable for occasional flexing or static installation, with medium resistance to mechanical stress even in the presence of industrial oil residues. They are suitable for dry, damp, or wet environments and are largely resistant to alkaline substances and certain industrial oils.

These cables are designed for machine connections between control, regulation, or measurement systems, computers, and assembly lines.

STATIC APPLICATION



TECNIFLEX®
TFX MULTICORE

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	120.00	15.0xø (occ. flexing)	4.0xø

DESCRIPTION

Power and control cables for occasional flexing or static installation use, with medium mechanical stress resistance even in the presence of industrial oil residues. Suitable for dry, damp, or wet environments. When temperature range application and UV protection are guaranteed (specifically the black sheath version), they are also suitable for outdoor use. Designed for machine connections between control, regulation or measurement systems, computers, and assembly lines, with static or free movement applications without tensile load or forced motion.

APPROVALS

2014/35/CEE

CPR ECA

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +80°C
OCCASIONAL FLEXING
-5°C +70°C

NOMINAL VOLTAGE
450/750V

TEST VOLTAGE
4.0KV

INSULATION RESISTANCE
> 20GOHM/CM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
IEC EN 60332-1-2
DIN VDE 0482-332-1-2

OIL PERFORMANCE
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)
VDE 0819 PARTE 102.

UV PERFORMANCE
ONLY FOR BLACK RAL 9005 SHEAT: EN ISO 4892-3-2006 OR EN ISO 4892-2-2013, METHOD A (COLOUR CHANGING ALLOWED)
ACC. TO EN 50525-1 RISP. VDE 0285-525-1 BLACK SHEATH CABLES ARE SUITABLE FOR OUTDOOR PERMANENT USAGE. NF C 32-321 AND RELATIVE ANNEX A **UV TEST REFERENCE:** ISO 4892-2-2013 ISO 4892-3-2006 DIN EN ISO 4892-2

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
16787	2X0,50	✗	100	500	4.8	35
5418	2X0,75	✗	100	500	5.4	42
8429	2X1,00	✗	100	500/1000	5.8	55
2088	2X1,50	✓	100/200	500/2000	6.3	68
20433	2X2,50	✓	100	500	7.6	109
16788	3G0,50	✗	100	500	5.1	42
18501	3X0,50	✗	100	500	5.1	42
2433	3G0,75	✗	100	500	5.7	55
11087	3X1,00	✗	100	500	6	68
7571	3G1,00	✗	100	500	6	68
13285	3X1,50	✓	100	500	6.8	85
7564	3G1,50	✓	100	500/1000	6.8	85
7570	3G2,50	✓	100	500	8.1	135
27572	3G4,00	✓		500	9.9	200
15297	4X0,50	✗	100	500/1000	5.7	54
9310	4G0,50	✗	100	500	5.7	54
10486	4X0,75	✗	100	500	6.2	66.6
10365	4X1,00	✓	100	500	6.5	84
9409	4G1,00	✓	100	500/1000	6.5	84
15761	4X1,50	✓	100		7.4	108
7565	4G1,50	✓	100	500	7.4	108
8475	4G2,50	✓	100	500	8.9	165
8496	4G4,00	✓		100	10.8	250
6971	4G6,00	✓		100	13	370
6972	4G10,00	✓			15.8	595
9311	5G0,50	✗	100	1000	6.2	63
8580	5G0,75	✓	100	500	6.8	79
7153	5X1,00	✓	100	500	7.2	94
8548	5G1,00	✓	100	500/1000	7.2	94
7566	5G1,50	✓	100	500	8.1	135
7844	5G2,50	✓	100	500	9.5	210
10664	5G4,00	✓		100	12.1	310
10674	5G6,00	✓		100	13.5	450
10690	5G10,00	✓			18.1	750
15758	5G16,00	✓			21.2	1200
39285	6X0,50	✓	100	500	6.7	75
13300	7G0,50	✓	100	500	6.7	81
30464	7X0,50	✓	100	500	6.7	81
18359	7X1,00	✓	100	500	8	129
7444	7G1,00	✓	100	500	8	129
7450	7G1,50	✓	100	500/1000	8.9	170
7568	7G2,50	✓		500/100	11.1	275
6970	7G4,00	✓			13.4	410
9312	8G0,50	✓	100	500	8	100
20151	8X0,75	✓	100	500	8.7	134
914	8G1,00	✓	100	500	9.5	150
10338	9G1,00	✓		500	10	164
26774	9G1,50	✓			11.8	225
15274	10X0,50	✓	100	500	8.6	106

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
6650	10G2,50	✓		100	14	402
7797	12G0,50	✓	100	500	8.9	130
16346	12G0,75	✓	100		9.9	173
5084	12X0,75	✓		500	9.9	173
7445	12G1,00	✓		500/1000/100	10.5	205
7527	12G1,50	✓			12	295
8934	12G2,50	✓			14.8	465
10651	14G0,50	✓	100	500	9.5	153
15814	14G1,00	✓		500/100	11.3	238
5413	14G1,50	✓			12.7	341
647	16X0,50	✓		500	10	170
20313	16G0,75	✓		500	11	220
15284	16G1,00	✓		500	12	280
7567	16G1,50	✓		500	13.4	370
16978	18G0,50	✓	100	500	10.6	188
4955	18G0,75	✓		500	11.8	244
7446	18G1,00	✓		500/100	12.7	315
7569	18G1,50	✓		500	14.4	441
9313	19G0,50	✓	100	500	10.6	195
11836	19G1,00	✓		100	12.7	320
8513	19G1,50	✓			14.4	453
10319	19G2,50	✓			18.1	720
17203	20G1,00	✓			13.5	335
13660	22G0,50	✓		500	12	223
39287	24X0,50	✓		500	12.4	266
8125	25G0,50	✓		500/100	12.4	261
16347	25G0,75	✓			13.9	337
7447	25G1,00	✓		500/1000/100	15.1	420
7596	25G1,50	✓		100	17	595
36863	25G2,50	✓			20.8	935
35468	26G0,75	✗		500/1000/2000	14.1	350
28988	31G0,50	✓			13.8	305
6140	34G1,00	✓			17.2	565
2883	34G1,50	✓			19.5	781
7448	36G1,00	✓			17.4	595
8126	37G0,50	✓			14.2	380
14556	41G0,50	✓			15.8	410
6016	41G0,75	✓			17.6	538
7572	41G1,00	✓			18.8	660
34899	42G0,75	✓			17.8	580
7573	50G1	✓			20.9	797
12169	50G1,50	✓			23.6	1160
11335	61G1,00	✓			22.3	970
1469	65G0,75	✓			21.8	840

INSULATION COLOR: UNEL TABLE COLOUR

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
7689	2X0,50	✗	100	500	4.8	35
7440	2X1,00	✗	100	500	5.8	55
8310	2X1,50	✓	100/200	500	6.3	68
1970	3X0,50	✗	100	500	5.1	42
9309	3G0,50	✓	100	500	5.1	42
1968	3G0,75	✗	100	500/200	5.7	55
7441	3G1,00	✗	100	500	6	68
8089	3G1,50	✓	100	500/2000	6.8	85
8063	3G2,50	✓	100	500	8.1	135
15750	3G4,00	✓		500	9.9	200
6264	4X1,00	✓	100	500/1000	6.5	84
18012	4G1,50	✓	100	500/1000	7.4	108
18271	4G2,50	✓	100	500	8.9	165
18272	4G4,00	✓			10.8	250
18273	4G6,00	✓			13	370
18274	4G10,00	✓			15.8	595
18275	4G16,00	✓			19	935
18276	4G25,00	✓			23.6	1465
18277	4G35,00	✓			28.5	1980
11677	4G50,00	✓			34.4	2890
7443	5G1,00	✓		500	7.2	94
35860	5G2,50	✓		500	9.5	210

SHEATH COLOUR: MATTE BLACK

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
35854	2X0,50	✗		500	4.8	35
7152	2X1,00	✗	100		5.8	55
22982	2X1,50	✓	100/200	500	6.3	68
19442	3G1,50	✓	100	500	6.8	85
20710	3G2,50	✓	100	500	8.1	135
39874	4G0,75	✗		500	6.2	66.6
16630	4G1,50	✓	100		7.4	108
16631	4G2,50	✓	100	500	8.9	165
16632	4G4,00	✓		500	10.8	250
26233	5G6,00	✓			13.5	450
16633	7G1,50	✓	100	500	8.9	170
16634	7G2,50	✓		500	11.1	275
38189	10G1,00	✓		500	10.5	180
7563	25G2,50	✓			20.8	935

SHEATH COLOUR: MATTE BLACK
INSULATION COLOR: BLACK CORE WITH WHITE PRINTED NUMBERS.

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
19350	3X4,00	✓		500	9.9	200
15705	4X1,00	✓	100	500	6.5	84
6265	12X2,50	✓			14.8	465

SHEATH COLOUR: MATTE BLACK
INSULATION COLOR: UNEL TABLE COLOUR

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
26447	5G1,50	✓	100		8.1	135
5825	5G2,50	✓		500	9.5	210
10182	5G4,00	✓			12.1	310

SHEATH COLOUR: ORANGE
INSULATION COLOR: ORANGE NUMBERED RAL 2003

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
5079	3G1,50	✓	100	500	6.8	85
34056	3G2,50	✓	100	500	8.1	135

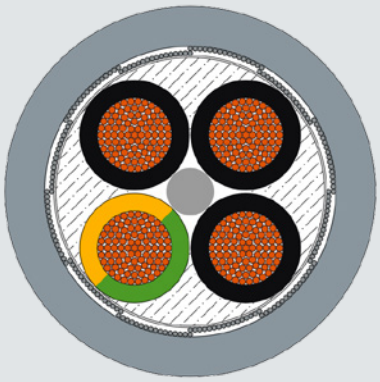
INSULATION COLOR: BLACK AND RED

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
21804	2X1,00	✗	100	500/1000	5.8	55

SHEATH COLOUR: ORANGE
INSULATION COLOR: UNEL TABLE COLOUR

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
16337	3G1,50	✓		500	6.8	85

STATIC APPLICATION



TECNIFLEX®

TFX MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	120.00	20.0xø (occ. flexing)	6.0xø

DESCRIPTION

Shielded power and control cables for occasional flexing or static installation use, with medium mechanical stress resistance, even in the presence of industrial oil residues. Suitable for dry, damp, or wet environments. Designed for machine connections between control, regulation or measurement systems, computers, and assembly lines, with static or free movement applications without traction load or compulsory runners.

APPROVALS

2014/35/CEE

2014/30/EU

CPR ECA

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +80°C
OCCASIONAL FLEXING
-5°C +70°C

NOMINAL VOLTAGE
450/750V

TEST VOLTAGE
4.0KV (C/C)
2.0KV (C/S)

INSULATION RESISTANCE
> 20GOHM/CM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

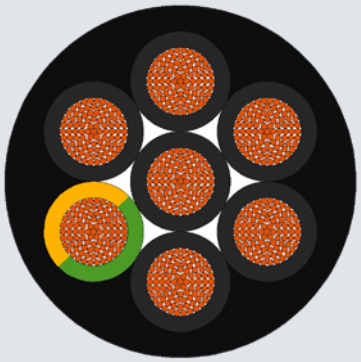
PRODUCTS FEATURES

FIRE PERFORMANCE
IEC EN 60332-1-2
DIN VDE 0482-332-1-2

OIL PERFORMANCE
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4
H / 70°C, OIL IRM 902)
VDE 0819 PART 102

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
11451	(2X0,50)ST	✗	100	500	5.6	51	
1178	(2X1,00)ST	✓	100	500	6.5	72	
11778	(3G1,00)ST	✓	100		6.8	86	UNEL TABLE COLOUR
25582	(3X1,00)ST	✓	100	500/1000	6.8	86	BLACK CORE WITH WHITE PRINTED NUMBERS.
11678	(3G1,50)ST	✓	100	500	7.5	107	UNEL TABLE COLOUR
1829	(3G1,50)ST	✓	100	500	7.5	107	
1863	(4G0,50)ST	✓	100/200	500	6.3	57	
39291	(4X0,50)ST	✓	100/200	500	6.3	57	BLACK CORE WITH WHITE PRINTED NUMBERS.
10665	(4G1,00)ST	✓	100	500	7.4	100	
15128	(4X1,00)ST	✓	100		7.4	100	BLACK CORE WITH WHITE PRINTED NUMBERS.
18278	(4G1,50)ST	✓	100	500	8.2	128	UNEL TABLE COLOUR
8144	(4G1,50)ST	✓	100	500/1000	8.2	128	
11309	(4G2,50)ST	✓	100	500	9.9	195	
18279	(4G2,50)ST	✓	100	500/1000	9.9	195	UNEL TABLE COLOUR
18280	(4G4,00)ST	✓		500/100	11.7	350	UNEL TABLE COLOUR
6137	(4G4,00)ST	✓			11.7	350	
11310	(4G6,00)ST	✓			14.1	410	
18281	(4G6,00)ST	✓			14.1	410	UNEL TABLE COLOUR
18282	(4G10,00)ST	✓			17.6	660	UNEL TABLE COLOUR
6716	(4G10,00)ST	✓			17.6	660	
18283	(4G16,00)ST	✓			20.4	978	UNEL TABLE COLOUR
18284	(4G25,00)ST	✓			25.5	1510	UNEL TABLE COLOUR
18285	(4G35,00)ST	✓			28.4	1980	UNEL TABLE COLOUR
18286	(4G50,00)ST	✓			34.5	2840	UNEL TABLE COLOUR
21805	(5G0,50)ST	✓	100	500	7	84	
11654	(5G1,00)ST	✓	100	500	8	121	
10673	(5G1,50)ST	✓		500	9	154	
528	(7G0,50)ST	✓	100	500	7.6	105	
10278	(7G1,00)ST	✓	100	500	8.8	152	
11658	(7G1,50)ST	✓	100	500	9.9	192	
11659	(7G2,50)ST	✓		500	11.9	310	
10279	(12G1,00)ST	✓		500/100	11.6	270	
2131	(12G1,50)ST	✓			13	330	
886	(18G0,75)ST	✓		500	12.7	312	
10318	(18G1,00)ST	✓			13.6	395	
1580	(18G1,50)ST	✓			15.5	480	
10317	(25G1,00)ST	✓			15.9	495	
1877	(25G1,50)ST	✓			18	630	

STATIC APPLICATION



TECNIFLEX®

TFX BK UL 2570 MULTICORE

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	95.00	10.0xø (occ. flexing)	4.0xø

DESCRIPTION

UL/CSA certified flexible power and control multi-core cables suitable for static installations or occasional flexing applications with medium mechanical stresses and free movement, in dry, damp, or wet environments, even in the presence of industrial oil residues. Both indoor and outdoor use are permitted thanks to the UV resistance conferred by the outer sheath material. They have an operating voltage of up to 1000 V and a self-extinguishing feature. These cables can be used as wiring for measuring and control purposes in tool machinery, conveyor belts, production lines, plant installations, air conditioning, and in steel production plants and rolling mills. They are designed for ductile and easy workability.

APPROVALS

AWM STYLE 2570
80°C 1000V

AWM I/II A/B 80°C
1000V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +70°C (IEC 60811-504)
-40°C +80°C (UL/CSA)
OCCASIONAL FLEXING
-5°C +70°C (IEC 60811-504)
-5°C +80°C (UL/CSA)

NOMINAL VOLTAGE
1000V (UL)
U_O/U 0,6/1KV (EU)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART 6 - 7 - UL 1581

INSULATION RESISTANCE
>200MOHM/KM (20°C)

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

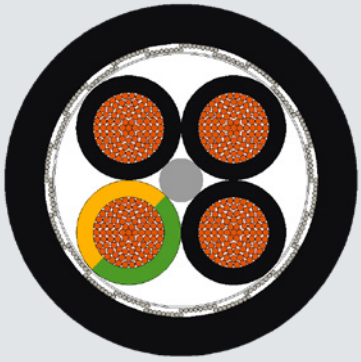
FIRE PERFORMANCE
DIN VDE 0482-332-1-2
DIN EN 60332-1-2
IEC 60332-1-2
VW-1 (UL)
FT1 (CSA)

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)

UV PERFORMANCE
ISO 4892-3
EN50289-4-17

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
52752	**2X1,00** 2XAWG18	✓	100/200	500	5.8	56	
52753	**2X1,50** 2XAWG16	✓	100/200	500	6.5	73	
52754	**2X2,50** 2XAWG14	✓	100	500	7.6	110	
54138	**3G0,75** 3GAWG19	✓	100/200	500	5.7	55	
52755	**3G1,00** 3GAWG18	✓	100/200	500	6.1	68	
52758	**3X1,00** 3XAWG18	✓	100/200	500	6.1	68	BLACK CORE WITH WHITE PRINTED NUMBERS.
52759	**3X1,50** 3XAWG16	✓	100	500	6.8	90	BLACK CORE WITH WHITE PRINTED NUMBERS.
52756	**3G1,50** 3GAWG16	✓	100	500	6.8	90	
52757	**3G2,50** 3GAWG14	✓	100	500	8.1	137	
52790	**4X1,00** 4XAWG18	✓	100/200	500	6.8	80	BLACK CORE WITH WHITE PRINTED NUMBERS.
52760	**4G1,00** 4GAWG18	✓	100/200	500	6.8	80	
52761	**4G1,50** 4GAWG16	✓	100	500	7.4	110	
52764	**4G2,50** 4GAWG14	✓		500	8.8	170	
52788	**4G4,00** 4GAWG12	✓		500	10.7	250	
52789	**4G6,00** 4GAWG10	✓		500	12.6	360	
52762	**4G10,00** 4GAWG08	✓			16.6	600	
52763	**4G16,00** 4GAWG06	✓			19	920	
52786	**4G25,00** 4GAWG04	✓			24	1420	
52787	**4G35,00** 4GAWG02	✓			27	1940	
52791	**5G1,00** 5GAWG18	✓	100	500	7.4	100	
52792	**5G1,50** 5GAWG16	✓	100	500	8.2	136	
52793	**5G2,50** 5GAWG14	✓		500	9.9	210	
52796	**7G1,00** 7GAWG18	✓	100	500	8	125	
52797	**7G1,50** 7GAWG16	✓		500	8.8	170	
52798	**7G2,50** 7GAWG14	✓		500	10.8	270	
52741	**12G1,00** 12GAWG18	✓		500	10.5	210	
52744	**12G1,50** 12GAWG16	✓			11.8	280	
52749	**18G1,00** 18GAWG18	✓		500	12.5	305	
52799	**18G1,50** 18GAWG16	✓		500	14	415	
52750	**25G1,00** 25GAWG18	✓		500	14.6	400	
52751	**25G1,50** 25GAWG16	✓			16.4	560	

STATIC APPLICATION



TECNIFLEX®

TFX BK UL 2570 MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	95.00	10.0xø (occ. flexing)	4.0xø

DESCRIPTION

UL/CSA certified flexible power and control multi-core cables suitable for static installations or occasional flexing applications with medium mechanical stresses and free movement, in dry, damp, or wet environments, even in the presence of industrial oil residues. Both indoor and outdoor use are permitted thanks to the UV resistance conferred by the outer sheath material. They have an operating voltage of up to 1000 V and a self-extinguishing feature. The high degree of shielding guarantees interference-free transmission of signals and impulses. These cables can be used as wiring for measuring and control purposes in tool machinery, conveyor belts, production lines, plant installations, air conditioning, and in steel production plants and rolling mills. They are designed for ductile and easy workability.

APPROVALS

AWM STYLE 2570 80°C 1000V

AWM I/II A/B 80°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +70°C (IEC 60811-504)
-40°C +80°C (UL/CSA)
OCCASIONAL FLEXING
-5°C +70°C (IEC 60811-504)
-5°C +80°C (UL/CSA)

NOMINAL VOLTAGE
1000V (UL)
U_O/U 0,6/1KV (EU)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART 6 - 7 - UL 1581

INSULATION RESISTANCE
>200MOHM/KM (20°C)

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	SHIELDED BRAID TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

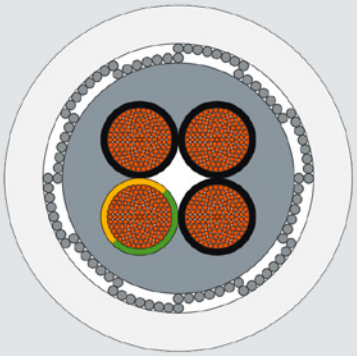
FIRE PERFORMANCE
DIN VDE 0482-332-1-2
DIN EN 60332-1-2
IEC 60332-1-2
VW-1 (UL)
FT1 (CSA)

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)

UV PERFORMANCE
ISO 4892-3
EN50289-4-17

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
54024	**(2X1,00)ST** (2XAWG18)ST	✓	100/200	500	6.4	65	
54026	**(2X1,50)ST** (2XAWG16)ST	✓	100/200	500	7.2	88	
54025	**(3G1,00)ST** (3GAWG18)ST	✓	100/200	500	6.9	80	
54033	**(3X1,00)ST** (3XAWG18)ST	✓	100/200	500	6.9	80	BLACK CORE WITH WHITE PRINTED NUMBERS.
54035	**(3X1,50)ST** (3XAWG16)ST	✓	100	500	7.4	100	BLACK CORE WITH WHITE PRINTED NUMBERS.
54037	**(3G1,50)ST** (3GAWG16)ST	✓	100	500	7.4	100	
54069	**(4X1,00)ST** (4XAWG18)ST	✓	100	500	7.4	97	BLACK CORE WITH WHITE PRINTED NUMBERS.
54034	**(4G1,00)ST** (4GAWG18)ST	✓	100	500	7.4	97	
54038	**(4G1,50)ST** (4GAWG16)ST	✓	100	500	8.2	120	
54074	**(4G2,50)ST** (4GAWG14)ST	✓		500	9.5	180	
54075	**(4G4,00)ST** (4GAWG12)ST	✓		500	11.1	260	
54076	**(4G6,00)ST** (4GAWG10)ST	✓		500	13	384	
54077	**(4G10,00)ST** (4GAWG08)ST	✓			17.3	680	
54070	**(5G1,00)ST** (5GAWG18)ST	✓	100	500	8.1	118	
54073	**(5G1,50)ST** (5GAWG16)ST	✓	100	500	9.1	155	
54071	**(7G1,00)ST** (7GAWG18)ST	✓		500	8.7	155	
54072	**(7G1,50)ST** (7GAWG16)ST	✓		500	9.5	190	
54027	**(12G1,50)ST** (12GAWG16)ST	✓		500	12.5	300	
54028	**(18G1,50)ST** (18GAWG16)ST	✓		500	15	450	

STATIC APPLICATION



TECNIFLEX®

TFX AR MULTICORE ARMOURED

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	25.50	20.0xø (occ. flexing)	6.0xø

DESCRIPTION

Power and control cables for static installation use, with high physical/mechanical stress resistance due to the galvanized steel armor and an additional inner jacket. Suitable for hostile environments inside cable ducts.

APPROVALS

2014/35/CEE

CPR ECA

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +80°C
OCCASIONAL FLEXING
-5°C +70°C

TEST VOLTAGE
4.0KV

NOMINAL VOLTAGE
U_O/U 450/750V

CONSTRUCTION FEATURES

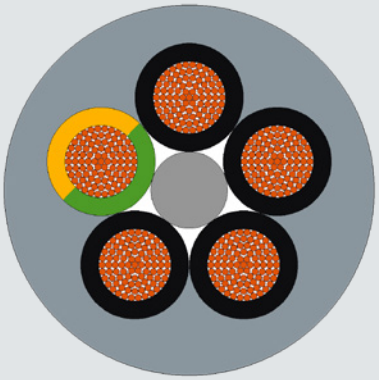
POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	TALC	TALC POWDER
	SHEATH	INNER SHEATH PVC COMPOUND.
	SCREEN	ARMOR ZINC PLATED STEEL 70 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	TRANSPARENT, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
IEC 60332-1-2 (EU)
DIN VDE 0482-332-1-2
CPR ECA

TECO CODE	Nº CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
497	(2X0,50)R/AR	✓	100	500	7.4	80	
24192	(2X1,50)R/AR	✓	100	500	9.2	129	
9975	(3G0,50)R/AR	✓	100	500	7.7	90	
11516	(3G1,00)R/AR	✓	100	500/1000	8.8	120	
2092	(3G1,50)R/AR	✓		500	9.6	145	UNEL TABLE COLOUR
7054	(4G1,50)R/AR	✓	100	500	10.2	170	
8418	(4G2,50)R/AR	✓		500	12.2	260	
35877	(4G4,00)R/AR	✓			14	295	
28507	(4G6)R/AR	✓			16.3	500	
35878	(4G10,00)R/AR	✓			19.6	800	
1206	(5G0,50)R/AR	✓		500	9.1	123	
5664	(5G1,00)R/AR	✓		500	10.2	155	UNEL TABLE COLOUR
8092	(5G1,50)R/AR	✓		500	11.1	200	
10642	(7G1,00)R/AR	✓		500	11	185	
9960	(7G1,50)R/AR	✓		500	11.7	230	
35876	(7G2,50)R/AR	✓			14.5	396	
24183	(7G4,00)R/AR	✓			16.6	540	
2605	(8G1,00)R/AR	✓		500	12.7	260	
39853	(10G0,50)R/AR	✓		500	11.5	195	
5114	(12G1,00)R/AR	✓			13.9	310	
7053	(18G0,50)R/AR	✓			13.7	290	
7507	(18G1,00)R/AR	✓			16	435	
9926	(25G1,00)R/AR	✓			18.3	585	
6015	(34G1,00)R/AR	✓			21.3	770	

STATIC APPLICATION



TECNIFLEX®
STYLE 21179 MULTICORE

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	95.00	10.0xø (occ. flexing)	4.0xø

DESCRIPTION

UL/CSA certified flexible power and control multi-core cables. They have an operating voltage of up to 1000V and are also suitable for environments where there may be contact with generic industrial oil residues. Mainly used on-board machinery.

APPROVALS

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +70°C (IEC 60811-504)
-40°C +90°C (UL/CSA)
OCCASIONAL FLEXING
-5°C +70°C (IEC 60811-504)
-5°C +90°C (UL/CSA)

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART 6-7
UL/1581

INSULATION RESISTANCE
>200MOHM/KM (20°C)

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2
DIN EN 60332-1-2
VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

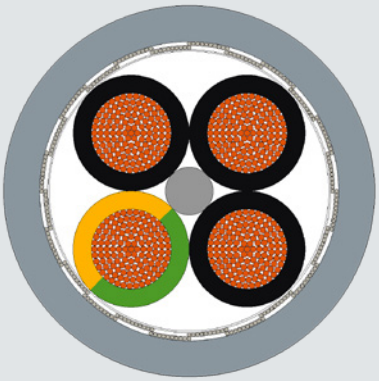
OIL PERFORMANCE
VDE 0473-811-404 (EU)
IEC 60811-404 (EU)
EN 50290-2-22 TM54 (EU) (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)

UV PERFORMANCE
ISO 4892-3 / EN 50289-4-17 (EU)

TECO CODE	Nº CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
34273	2X0,50 2XAWG21	✗	100	500	5.2	41	
34241	2X1,00 2XAWG18	✗	100	500	5.8	53	
39856	2X1,50 2XAWG16	✓	100	500	6.5	73	
39857	2X2,50 2XAWG14	✓	100	500	7.6	110	
39879	2X4,00 2XAWG12	✓	100	500	8.8	155	
38160	3G0,50 3GAWG21	✗	100	500	5.4	48	
39276	3X0,50 3XAWG21	✗		500	5.4	48	BLACK CORE WITH WHITE PRINTED NUMBERS.
34242	3G1,00 3GAWG18	✓	100/200	500/1000	6.1	65	
34251	3G1,50 3GAWG16	✓	100	500	6.8	90	
34258	3G2,50 3GAWG14	✓	100	500/1000	8.1	137	
34266	3G4,00 3GAWG12	✓		500	9.4	200	
34269	3G6,00 3GAWG10	✓		500	11.3	290	
38161	4G0,50 4GAWG21	✗	100	500	5.9	55	
34243	4G1,00 4GAWG18	✓	100	500	6.8	80	
34252	4G1,50 4GAWG16	✓	100	500	7.4	110	
34259	4G2,50 4GAWG14	✓	100	500/1000	8.8	170	
34267	4G4,00 4GAWG12	✓		500/100	10.7	250	
34270	4G6,00 4GAWG10	✓		100	12.6	360	
34271	4G10,00 4GAWG08	✓			17	600	
34272	4G16,00 4GAWG06	✓			19.4	920	
37438	4G25,00 4GAWG04	✓			24	1420	
34274	5G0,50 5GAWG21	✓	100	500	6.5	65	
34244	5G1,00 5GAWG18	✓	100	500/1000	7.4	100	
34253	5G1,50 5GAWG16	✓	100	500	8.2	136	
34260	5G2,50 5GAWG14	✓		500	9.9	210	
34268	5G4,00 5GAWG12	✓		500	11.7	320	
34939	5G6,00 5GAWG10	✓			14	460	
39858	5G16,00 5GAWG06	✓			21.7	1099	
39859	5G25,00 5GAWG04	✓			26.5	1694	
38162	7G0,50 7GAWG21	✓	100	500	6.9	78	
34245	7G1,00 7GAWG18	✓	100	500	8	125	
37453	7X1,00 7XAWG18	✓	100	500	8	125	BLACK CORE WITH WHITE PRINTED NUMBERS.
34254	7G1,50 7GAWG16	✓			8.8	170	
34261	7G2,50 7GAWG14	✓		100	10.8	270	
38163	12G0,50 12GAWG21	✓	100	500	8.9	130	

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
34246	**12G1,00** 12GAWG18	✓	100	500	10.5	210	
34255	**12G1,50** 12GAWG16	✓		500	11.8	280	
34262	**12G2,50** 12GAWG14	✓			14.5	450	
34263	**14G2,50** 14GAWG14	✓			15.7	530	
38164	**18G0,50** 18GAWG21	✓		500	10.6	188	
34247	**18G1,00** 18GAWG18	✓		500/100	12.5	305	
34256	**18G1,50** 18GAWG16	✓			14	415	
34264	**18G2,50** 18GAWG14	✓			17.4	660	
38165	**25G0,50** 25GAWG21	✓		500	12.3	260	
34248	**25G1,00** 25GAWG18	✓		100	14.6	400	
34257	**25G1,50** 25GAWG16	✓			16.4	560	
34265	**25G2,50** 25GAWG14	✓			20.4	890	
37455	**25G4,00** 25GAWG12	✗			25.2	1428	
34249	**34G1** 34GAWG18	✓			17.1	560	
34250	**41G1,00** 41GAWG18	✓			18.4	670	

STATIC APPLICATION



TECNIFLEX®

STYLE 21179 MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	95.00	10.0xø (occ. flexing)	4.0xø

DESCRIPTION

UL/CSA certified flexible power and control multi-core cables. They are shielded with operating voltage up to 1000V; also suitable for environments where there may be contact with generic industrial oil residuals. Mainly used on on-board machinery.

APPROVALS

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
0°C +70°C
STATIC
-40°C +70°C (IEC 60811-504)
-40°C +90°C (UL/CSA)
OCCASIONAL FLEXING
-5°C +70°C (IEC 60811-504)
-5°C +90°C (UL/CSA)

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 PART 6-7
UL/1581

INSULATION RESISTANCE
>200MOHM/KM (20°C)

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

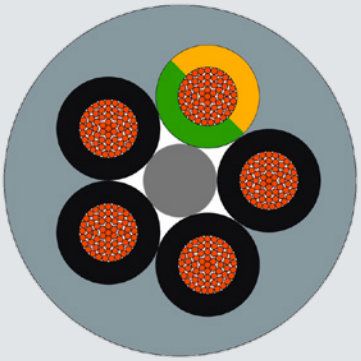
FIRE PERFORMANCE
SELF-EXTINGUISHING AND FLAME RETARDANT ACC. TO DIN VDE 0482-332-1-2
DIN EN 60332-1-2
VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
VDE 0473-811-404 (EU)
IEC 60811-404 (EU)
EN 50290-2-22 TM54 (EU) (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)

UV PERFORMANCE
ISO 4892-3 / EN 50289-4-17 (EU)

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
37451	**(2X0.50)ST** (2XAWG21)ST	✓	100/200	500	5.6	47	
34163	**(2X1,00)ST** (2XAWG18)ST	✓	100/200		6.4	65	
34164	**(3X1,00)ST** (3XAWG18)ST	✓	100/200		6.9	80	BLACK CORE WITH WHITE PRINTED NUMBERS.
39277	**(3G1,00)ST** (3GAWG18)ST	✓	100	500	6.9	80	
34170	**(3G1,50)ST** (3GAWG16)ST	✓	100	500	7.5	100	
34829	**(3G2,50)ST** (3GAWG14)ST	✓	100	500	9.1	155	
39278	**(4X0,50)ST** (4XAWG21)ST	✓	100/200	500	6.4	67	
34165	**(4G1,00)ST** (4GAWG18)ST	✓	100	500	7.4	97	
34171	**(4G1,50)ST** (4GAWG16)ST	✓	100	500	8.2	120	
34176	**(4G2,50)ST** (4GAWG14)ST	✓	100	500	9.6	180	
34177	**(4G4,00)ST** (4GAWG12)ST	✓		500	11.3	260	
34178	**(4G6,00)ST** (4GAWG10)ST	✓		500	13.4	384	
34179	**(4G10,00)ST** (4GAWG08)ST	✓			17.1	680	
34180	**(4G16,00)ST** (4GAWG06)ST	✓			19.7	890	
34181	**(4G25,00)ST** (4GAWG04)ST	✓			25	1500	
34182	**(4G35,00)ST** (4GAWG02)ST	✓			28.8	2041	
34162	**(5G0,50)ST** (5GAWG21)ST	✓	100	500	7	80	
55064	**(5G1,50)ST** (5GAWG16)ST	✓	100/200	500	8.9	155	
34828	**(5G6,00)ST** (5GAWG10)ST	✓		500	15	470	
39860	**(6G1,00)ST** (6GAWG18)ST	✓	100	500	8.7	140	
37452	**(7G1,00)ST** (7GAWG18)ST	✓	100	500	8.7	155	
34172	**(7G1,50)ST** (7GAWG16)ST	✓		500	9.5	190	
34833	**(7G2,50)ST** (7GAWG14)ST	✓		500	11.9	280	
34166	**(12G1,00)ST** (12GAWG18)ST	✓		500	11.2	230	
34173	**(12G1,50)ST** (12GAWG16)ST	✓		500	12.5	300	
34909	**(12G2,5)ST** (12GAWG14)ST	✓			15.4	475	
34167	**(18G1,00)ST** (18GAWG18)ST	✓		500	13.1	320	
34174	**(18G1,50)ST** (18GAWG16)ST	✓		500	15	450	
34910	**(18G2,50)ST** (18GAWG14)ST	✓			18.1	690	
34168	**(25G1,00)ST** (25GAWG18)ST	✓			15.3	440	
34175	**(25G1,50)ST** (25GAWG16)ST	✓			17.7	595	

STATIC APPLICATION



TECNIFLEX®
TC-ER MULTICORE

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
1.00	95.00	15.0xø (occ. flexing)	6.0xø

DESCRIPTION

UL/CSA multi-rated flexible power and control cables, compliant with USA NFPA 79 and NFPA 70 standards. The UL certifications make them suitable for running inside cable trays and between two cable trays without anchoring. Also suitable for underground use, even in dry, damp, or humid environments, and for open, unprotected installation from cable racks to machines and industrial electrical plants.

APPROVALS

TC-ER 90°C 600V

MTW 90°C 600V

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

CSA CIC-TC-ER 90°C 600V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +90°C
OCCASIONAL FLEXING
-5°C +90°C

NOMINAL VOLTAGE
1000V (UL AWM)
600V (UL MTW)
1000V (CSA)
600V (CSA CIC/TC)
0,6/1KV (IEC/VDE)

TEST VOLTAGE
2000V*
4000V**
TEST VOLTAGE REFERENCE
*ACC. TO UL 1277 TAB. 14.1
**ACC. TO UL 758 TAB. 29.1

INSULATION RESISTANCE
≥200MOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
UL 1581 SECTION 1160 (UL VERTICAL-TRAY FLAME TEST)
CSA FT4, FT1, FT2 UL 1581 VW-1 / CABLE FLAME TEST UL 1685 – FT4/IEEE 1202 VERTICAL FLAME TEST IEC 60332-1-2

OIL PERFORMANCE
OIL RES I
UL 1277, UL 1063
VDE 0473-811-404, IEC 60811-404, UL 1581

UV PERFORMANCE
SUN RESISTANT UL 1277 TAB.20

WATER PERFORMANCE
UL 90° DRY UL WET APPROVAL 75°C

MUD PERFORMANCE
UL 1277 - DIR BUR (DIRECT BURIAL)
ACC. TO NFPA 70 UL TYPE TC (TRAY CABLE)
- ER (EXPOSED RUN)
ACC. TO UL 1277

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
27383	**2X1,00** 2XAWG18	✓	100	500	8	88
43303	**2X1,50** 2XAWG16	✓	100	500	8.6	110
27100	**3G1,00** 3GAWG18	✓	100	500	8.4	100
27384	**3G1,50** 3GAWG16	✓		500	9.3	135
27385	**3G2,50** 3GAWG14	✓		500	10	170
34287	**3G4,00** 3GAWG12	✓		500	11.5	230
38734	**3G6,00** 3GAWG10	✓			12.5	310
27386	**4G1,00** 4GAWG18	✓	100	500	9.2	125
27387	**4G1,50** 4GAWG16	✓			9.8	160
27388	**4G2,50** 4GAWG14	✓		500	11	220
27389	**4G4,00** 4GAWG12	✓		500	12.5	290
27390	**4G6,00** 4GAWG10	✓			14.5	415
27391	**4G10,00** 4GAWG08	✓			18.8	683
27392	**4G16,00** 4GAWG06	✓			23.9	1115
36440	**4G25,00** 4GAWG04	✓			27.6	1610
28075	**4G35,00** 4GAWG02	✓			30.6	2048
39288	**4G50,00** 4GAWG01	✓			38	3070
36443	**4G70,00** 4GAWG2/0	✓			42	4245
43302	**4G95,00** 4GAWG3/0	✓			47	5200
34935	**5G1,00** 5GAWG18	✓			10	150
27544	**5G1,50** 5GAWG16	✓		500	10.9	190
28982	**5G2,50** 5GAWG14	✓		500	12.1	255
34936	**5G4,00** 5GAWG12	✓			14.5	382
38735	**5G6,00** 5GAWG10	✓			16	505
43304	**5G10,00** 5GAWG08	✓			20.8	860
43306	**5G25,00** 5GAWG04	✓			30.4	2000
27099	**7G1,00** 7GAWG18	✓		500	11	185
27545	**7G1,50** 7GAWG16	✓		500	12	240
27546	**7G2,50** 7GAWG14	✓			13.2	320
36441	**7G4,00** 7GAWG12	✓			15.8	485
28983	**10G1,00** 10GAWG18	✓			14	270
27098	**12G1,00** 12AWG18	✓		500	15	335
27547	**12G1,50** 12GAWG16	✓			16.2	420
27548	**12G2,50** 12GAWG14	✓			17.5	580
39266	**16G1,00** 16GAWG18	✓			16.4	413

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
28984	**18G1,00** 18GAWG18	✓			17.4	465
27549	**18G1,50** 18GAWG16	✓			19	590
36436	**18G2,50** 18GAWG14	✓			21.1	820
28985	**25G1,00** 25GAWG18	✓			20.2	615
27550	**25G1,50** 25GAWG16	✓			22.8	785
39265	**25G2,50** 25GAWG14	✓			25.2	1170
39267	**34G1,00** 34GAWG18	✓			24.3	890
39268	**41G1,00** 41GAWG18	✓			25.8	1040

STATIC APPLICATION

TECNIFLEX®

TC-ER MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
1.00	120.00	15.0xø (occ. flexing)	6.0xø

DESCRIPTION

UL/CSA multi-rated flexible power and control cables, compliant with USA NFPA 79 and NFPA 70 standards. The UL certifications make them suitable for running inside cable trays and between two cable trays without anchoring. They are also suitable for underground use, even in dry, damp, or humid environments, and for open, unprotected installation from cable racks to machines and industrial electrical plants. Screening from electromagnetic interferences is provided thanks to the dense braid shield.

APPROVALS

TC-ER 90°C 600V

MTW 90°C 600V

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

CSA CIC-TC-ER 90°C 600V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +90°C
OCCASIONAL FLEXING
-5°C +90°C

NOMINAL VOLTAGE
1000V (UL AWM)
600V (UL MTW)
1000V (CSA)
600V (CSA CIC/TC)
0,6/1KV (IEC/VDE)

TEST VOLTAGE
2000V*
4000V**
TEST VOLTAGE REFERENCE
*ACC. TO UL 1277 TAB. 14.1
**ACC. TO UL 758 TAB. 29.1

INSULATION RESISTANCE
≥200MOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
UL 1581 SECTION 1160 (UL VERTICAL-TRAY FLAME TEST)
CSA FT4, FT1, FT2 UL 1581 VW-1 / CABLE FLAME TEST UL 1685 – FT4/IEEE 1202 VERTICAL FLAME TEST IEC 60332-1-2

OIL PERFORMANCE
OIL RES I
UL 1277, UL 1063
VDE 0473-811-404, IEC 60811-404, UL 1581

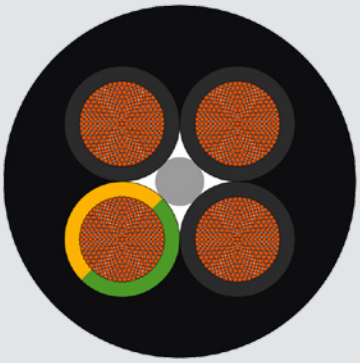
UV PERFORMANCE
SUN RESISTANT UL 1277 TAB.20

WATER PERFORMANCE
UL 90° DRY UL WET APPROVAL 75°C

MUD PERFORMANCE
UL 1277 - DIR BUR (DIRECT BURIAL)
ACC. TO NFPA 70 UL TYPE TC (TRAY CABLE)
- ER (EXPOSED RUN)
ACC. TO UL 1277

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
36437	**(2X1,00)ST** (2XAWG18)ST	✓	100	500	8.6	95
27551	**(3G1,00)ST** (3GAWG18)ST	✓	100	500	9	120
27552	**(3G1,50)ST** (3GAWG16)ST	✓		500	9.2	130
34337	**(3G2,50)ST** (3GAWG14)ST	✓		500	10.6	188
27553	**(4G1,00)ST** (4GAWG18)ST	✓		500	9.9	140
27554	**(4G1,50)ST** (4GAWG16)ST	✓		500	10.8	180
27555	**(4G2,50)ST** (4GAWG14)ST	✓		500/1000	11.7	240
27556	**(4G4,00)ST** (4GAWG12)ST	✓			13.3	330
27557	**(4G6,00)ST** (4GAWG10)ST	✓			15.3	475
27558	**(4G10,00)ST** (4GAWG08)ST	✓			19.8	766
27559	**(4G16,00)ST** (4GAWG06)ST	✓			25	1201
27560	**(4G25,00)ST** (4GAWG04)ST	✓			28.7	1694
36865	**(4G35,00)ST** (4GAWG02)ST	✓			31.5	2203
39292	**(4G50,00)ST** (4GAWG01)ST	✓			39	3100
43307	**(4G70,00)ST** (4GAWG2/0)ST	✓			44	4160
43308	**(4G95,00)ST** (4GAWG3/0)ST	✓			48.6	3960
27561	**(5G1,00)ST** (5GAWG18)ST	✓		500	10.6	170
30480	**(5G1,50)ST** (5GAWG16)ST	✓		500	11.7	240
28986	**(7G1,00)ST** (7GAWG18)ST	✓		500	11.7	211
27562	**(7G1,50)ST** (7GAWG16)ST	✓		500	12.7	270
27563	**(7G2,50)ST** (7GAWG14)ST	✓			14.5	390
39270	**(7G4,00)ST** (7GAWG12)ST	✓			16.2	545
34937	**(12G1,00)ST** (12GAWG18)ST	✓			15.7	350
27564	**(12G1,50)ST** (12GAWG16)ST	✓			17.2	445
27565	**(12G2,50)ST** (12GAWG14)ST	✓			18.6	606
39271	**(12G4,00)ST** (12GAWG12)ST	✓			21.4	815
39272	**(18G1,00)ST** (18GAWG18)ST	✓			18.2	485
39273	**(18G1,50)ST** (18GAWG16)ST	✓			20	625
39274	**(18G2,50)ST** (18GAWG14)ST	✓			23	848
39275	**(18G4,00)ST** (18GAWG12)ST	✓			26	1210
36438	**(25G1,00)ST** (25GAWG18)ST	✓			21	605
36439	**(25G1,50)ST** (25GAWG16)ST	✓			23.7	767

STATIC APPLICATION



TECNIFLEX®

TC-ER NYLON MULTICORE

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
1.00	70.00	15.0xø (occ. flexing)	6.0xø

DESCRIPTION

UL/CSA multi-rated flexible power and control cables, compliant with USA NFPA 79 and NFPA 70 standards and suitable for various applications, including power supply for tools and plant construction machinery. These cables are suitable for open, unprotected installation, linking cable trays to machines, industrial plants, or for static wiring in wind turbines. They are suitable for a variety of installations, including dry, damp, and wet environments, as well as outdoor, underground, and pipe usage.

APPROVALS

TC-ER 90°C 600V

MTW 90°C 600V

WTTC 90°C 1000V

AWM STYLE 20886 90°C 1000V

CSA CIC-TC-ER 90°C 600V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +90°C
OCCASIONAL FLEXING
-5°C +90°C

NOMINAL VOLTAGE
1000V (UL AWM)
600V (UL MTW)
1000V (UL WTTC)
0,6/1KV (IEC/VDE)

TEST VOLTAGE
2000V*
3000V**
TEST VOLTAGE REFERENCE
*ACC. TO 1277 TAB. 14.1
**ACC. TO UL 758 TAB 29.1

INSULATION RESISTANCE
≥200MOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC WITH NYLON JACKET
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW
	FILLER	FILLER POLYPROPYLENE
OVERALL STRANDING	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
UL 1581 SECTION 1160 (UL VERTICAL-TRAY FLAME TEST)

CSA FT4, FT1, FT2
UL 1581 VW-1 / CABLE FLAME TEST
UL 1685 – FT4/IEEE 1202 VERTICAL FLAME TEST
IEC 60332-1-2

OIL PERFORMANCE
OIL RESISTANCE I

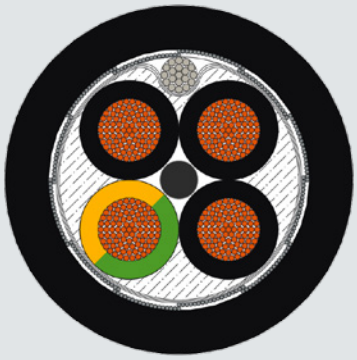
UV PERFORMANCE
SUN RESISTANT (UL)

WATER PERFORMANCE
UL 90° DRY UL 75°C WET (FOR SECTION >1.5MM^2)

MUD PERFORMANCE
DIRECT BURIAL (FOR SECTION > 1.5MM^2)
EXPOSED RUN ACC. TO UL1277

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46708	**2X1,00** 2XAWG18	✓	100	500	6.9	82
46709	**3G1,00** 3GAWG18	✓	100	500	7.3	86
46714	**3G1,50** 3GAWG16	✓	100	500	7.9	105
46718	**3G2,50** 3GAWG14	✓	100	500	8.8	150
46710	**4G1,00** 4GAWG18	✓	100	500	7.9	100
46715	**4G1,50** 4GAWG16	✓	100	500	8.6	125
46719	**4G2,50** 4GAWG14	✓	100/200	500	9.5	175
46721	**4G4,00** 4GAWG12	✓	100/200	500	11	250
46711	**5G1,00** 5GAWG18	✓	100	500	8.5	120
46716	**5G1,50** 5GAWG16	✓	100	500	9.4	153
46720	**5G2,50** 5GAWG14	✓		500	10.5	215
46712	**7G1,00** 7GAWG18	✓	100	500	9.2	150
46717	**7G1,50** 7GAWG16	✓	100/200	500	10.2	190
46713	**12G1,00** 12GAWG18	✓		500	12	240

STATIC APPLICATION



TECNIFLEX®

TC-ER NYLON MULTICORE SHIELDED (SH)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
1.00	95.00	20.0xø (occ. flexing)	6.0xø

DESCRIPTION

UL/CSA multi-rated flexible power and control cables, compliant with USA NFPA 79 and NFPA 70 standards, suitable for various applications such as power supply for tools and construction machinery in plant construction. These cables are suitable for open, unprotected installation, linking cable trays to machines, industrial plants, or in static wiring for wind turbines. They can be used in dry, damp, and wet environments, as well as outdoor, underground, and pipe installations. Screening from electromagnetic interferences is provided thanks to the dense braid shield.

APPROVALS

- **TC-ER 90°C 600V** (UL LISTED E471679)
- **MTW 90°C 600V** (UL LISTED E471678)
- **WTTC 90°C 1000V** (UL LISTED E471678)
- **AWM STYLE 20886 90°C 1000V** (E244280)
- **CSA CIC-TC-ER 90°C 600V**
- **2014/35/CEE**
- **2014/30/EU**
- **2011/65/UE**
- **1907/2006**

TECHNICAL DATA

STATIC
-40°C +90°C
OCCASIONAL FLEXING
-5°C +90°C

NOMINAL VOLTAGE
1000V (UL AWM)
600V (UL MTW)
1000V (UL WTTC)
0,6/1KV (IEC/VDE)

TEST VOLTAGE
2000V*
3000V**
TEST VOLTAGE REFERENCE
*ACC. TO 1277 TAB. 14.1
**ACC. TO UL 758 TAB 29.1

INSULATION RESISTANCE
≥200MOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL5 FLEXIBLE. BARE COPPER.**
	INSULATION	**PVC WITH NYLON JACKET**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTED NUMBER + GREEN YELLOW**
	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE POLYESTER TRANSPARENT.**
	SEPARATION LAYER	**SHIELDED TAPE POLYESTER/ALLUMINIUM**
	DRAIN WIRE	**DRAIN WIRE TINNED COPPER**
OVERALL STRANDING	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SHEATH	**PVC COMPOUND.**
	SHEATH COLOUR	**MATTE BLACK, RAL: 9005, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
UL 1581 SECTION 1160 (UL VERTICAL-TRAY FLAME TEST)

CSA FT4, FT1, FT2
UL 1581 VW-1 / CABLE FLAME TEST
UL 1685 – FT4/IEEE 1202 VERTICAL FLAME TEST
IEC 60332-1-2

OIL PERFORMANCE
OIL RESISTANCE I

UV PERFORMANCE
SUN RESISTANT (UL)

WATER PERFORMANCE
UL 90°C DRY UL 75°C WET (FOR SECTION >1.5MM^2)

MUD PERFORMANCE
DIRECT BURIAL (FOR SECTION > 1.5MM^2)
EXPOSED RUN ACC. TO UL1277

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46722	**(3G1,00)ST** (3GAWG18)ST	✓	100	500	8.1	93
46725	**(4G1.50)ST** (4GAWG16)ST	✓	100	500	9.2	154
46726	**(4G2,50)ST** (4GAWG14)ST	✓		500	10.5	210
46727	**(4G4,00)ST** (4GAWG12)ST	✓		500	11.65	280
46728	**(4G6,00)ST** (4GAWG10)ST	✓		500	14.9	445
46723	**(5G1,00)ST** (5GAWG18)ST	✓	100	500	9.3	135
46724	**(7G1,00)ST** (7GAWG18)ST	✓		500	10.1	165

SERVOLINK®

- **FLAME RETARDANT**
- **OIL RESISTANT**
- **AUTOMATIC MACHINERY**
- **MACHINE TOOLS**
- **SERVOMOTOR**

UL/CSA certified flexible multicore cables mainly designed for static applications. They feature low-capacity insulation materials.

Moreover, the “PLUS” improvements in materials and in construction design technology allow the use of the cable at temperatures up to 90°C.

Dynamic applications are allowed in accordance with the technical specifications of each product family.

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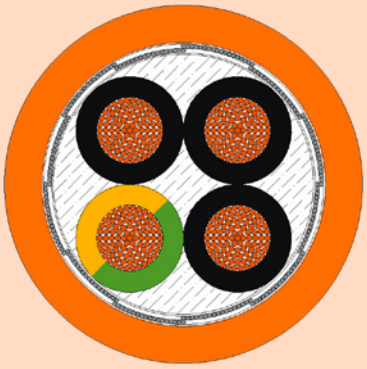
STATIC APPLICATION

SERVOLINK®

FE PLUS SERVO



APPLICATIVE FEATURES

UP TO 200.000
GUARANTEED CYCLES

2,0 M/S²
ACCELERATION

10,0 M
CABLE LENGTH

100,0 M/MIN
TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	10.0xø	5.0xø
25.00	35.00	12.0xø	5.0xø

DESCRIPTION

UL/CSA certified flexible servomotor cables designed for static and dynamic applications between the motor and frequency converter, involving medium mechanical stress in dry, damp, and wet environments. Suitable for indoor and outdoor use. Oil-resistant PVC outer sheath, low-capacity insulation, and shield protection from electromagnetic interference.

APPROVALS

E244280 **AWM STYLE 21179**
90°C 1000V

AWM I/II A/B 90°C
1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DYNAMIC
0°C +90°C
STATIC
-40°C +90°C
OCCASIONAL FLEXING
-20°C +90°C ACC. TO IEC 60811-504

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 (PART 6-7)
- UL 1581

INSULATION RESISTANCE
>=1 GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	**CL5 FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.**
	SEPARATION LAYER	**INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**PVC COMPOUND.**
	SHEATH COLOUR	**ORANGE, RAL: 2003, DESINA: YES**

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811

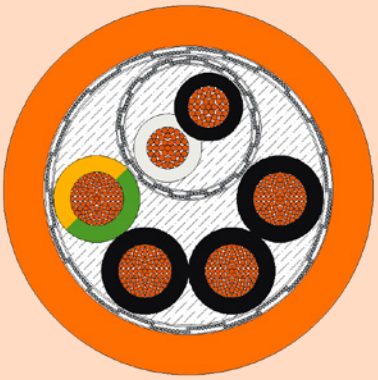
HYDROCARBONS PERFORMANCE
UL1581

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
46353	SIEMENS 6FX5008-1BB11	**(4G1,50)ST** (4GAWG16)ST	✓	100	500	8.5	115
46354	SIEMENS 6FX5008-1BB21	**(4G2,50)ST** (4GAWG14)ST	✓		500	10.3	180
46355	SIEMENS 6FX5008-1BB31	**(4G4,00)ST** (4GAWG12)ST	✓		500	12	255
46356	SIEMENS 6FX5008-1BB41	**(4G6,00)ST** (4GAWG10)ST	✓			13.7	370
46357		**(4G10,00)ST** (4GAWG08)ST	✓			18.5	650
46358		**(4G16,00)ST** (4GAWG06)ST	✓			22.2	1100
46359		**(4G25,00)ST** (4GAWG04)ST	✓			26	1550

STATIC APPLICATION

SERVOLINK®

FE PLUS SERVO WITH PAIR



APPLICATIVE FEATURES

UP TO 200.000 GUARANTEED CYCLES

2,0 M/S² ACCELERATION

10,0 M CABLE LENGTH

100,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.50	16.00	10.0xø	5.0xø
25.00	35.00	12.0xø	5.0xø

DESCRIPTION

UL/CSA certified flexible servomotor cables designed for static and dynamic applications between the motor and frequency converter, involving medium mechanical stress in dry, damp, and wet environments. Suitable for indoor and outdoor use. Oil-resistant PVC outer sheath, low-capacity insulation, and shield protection from electromagnetic interference. Cables available with one or two control pairs, compliant with the most commonly used drive system standards.

APPROVALS

E244280 **AWM STYLE 21179 90°C 1000V**

AWM I/II A/B 90°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DYNAMIC
0°C +90°C
STATIC
-40°C +90°C
OCCASIONAL FLEXING
-20°C +90°C ACC. TO IEC 60811-504

NOMINAL VOLTAGE
1000V (UL/CSA)
U_O/U 0,6/1KV (VDE)

TEST VOLTAGE
4.0KV
TEST VOLTAGE REFERENCE
EN 50395 (PART 6-7)
- UL 1581

INSULATION RESISTANCE
>=1 GOHM/KM

CONSTRUCTION FEATURES

POWER CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTING (U/L1/C/L+, V/L2, W/L3/D/L-) + GREEN-YELLOW.
	SEPARATION LAYER	INNER TAPE POLYESTER TRANSPARENT OR NON-WOVEN TAPE
CONTROL PAIR SCREENED (ONE PAIR)	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE AND WHITE CORE.
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
CONTROL PAIRS SCREENED (TWO PAIRS)	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	POLYPROPYLENE COMPOUND (PP)
	INSULATION COLOR	BLACK CORE WITH WHITE PRINTED NUMBERS.
	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	INTERMEDIATE TAPE POLYESTER TRANSPARENT.
OVERALL STRANDING (ONE PAIR)	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	ORANGE, RAL: 2003, DESINA: YES
OVERALL STRANDING (TWO PAIRS)	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	ORANGE, RAL: 2003, DESINA: YES

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL CABLE FLAME
UL VW-1, CSA FT1

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
1581 (UL)

UV PERFORMANCE
CEI EN 50289-4-17, ISO 4892-2, ASTM-D-2565-16

WATER PERFORMANCE
UL 1581 - IEC 60811

HYDROCARBONS PERFORMANCE
UL1581

REFERENCE DRAW	TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
	**46361**		**[4G1,50+(2X1,00)ST]ST** [4GAWG16+(2XAWG18)H2]H2	✓		500	11	200
	46362	SIEMENS 6FX5008-1BA11	**[4G1,50+(2X1,50)ST]ST** [4GAWG16+(2XAWG16)H2]H2	✓		500	11.5	240
	46363		**[4G2,50+(2X1,00)ST]ST** [4GAWG14+(2XAWG18)H2]H2	✓		500	12.5	290
	46364	SIEMENS 6FX5008-1BA21	**[4G2,50+(2X1,50)ST]ST** [4GAWG14+(2XAWG16)H2]H2	✓			13	310
	**46370**		**[4G35,00+2X(2X1,50)ST]ST** [4GAWG02+2X(2XAWG16)ST]ST	✓			32	1950

VFDRIVE®

FLAME RETARDANT

OIL RESISTANT

MACHINE TOOLS

SERVOMOTOR

This line of cables is designed to power three-phase electric motors, providing excellent current capacity while minimizing cable encumbrance.

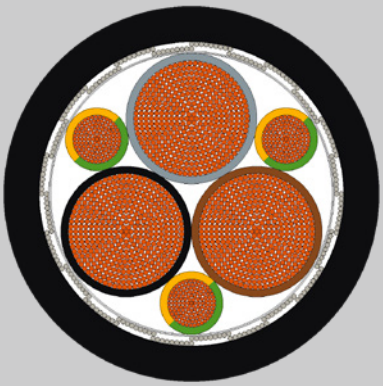
This is achieved through the use of advanced materials and by dividing the earth conductor into three parts, which are inserted into the gaps between each phase conductor.

This geometric construction significantly reduces the overall diameter.

Additionally, the double shielding prevents electromagnetic interference, which is common in high-frequency motors, allowing other cables to be laid parallel nearby.

INVERTER p. 126

STATIC APPLICATION



VFDRIVE®

2XSLCYK-JB

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
1.50	4.00	15.0xø (occ. flexing)	4.0xø
6.00	240.00	20.0xø (occ. flexing)	4.0xø

DESCRIPTION

UL/CSA certified cables for connection between the motor and frequency converter for applications involving static or occasional free movement, with medium mechanical stress in dry, damp, and wet environments, both indoor and outdoor. The symmetrical configuration with a reduced diameter, achieved by splitting the earth protection conductor into three, is designed to allow corrected and balanced control of the motor by the inverter, significantly reducing electromagnetic disturbances thanks to the double shielding. These cables are particularly suitable for the paper industry, metal processing, heavy industry, and installations with presses.

APPROVALS

AWM STYLE 21179 90°C 1000V

AWM I/II A/B 90°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +90°C
OCCASIONAL FLEXING
-5°C +90°C

NOMINAL VOLTAGE
1000V

TEST VOLTAGE
4000V

INSULATION RESISTANCE
AT 20°C > 1 GΩ KM

CURRENT CAPACITY
IEC 60364-5-52
INSTALLATION FREE AIR AWAY FROM WALL/CELING OR ON A TRAVERSE.

CONSTRUCTION FEATURES

GROUP PHASE CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	XLPE (UL 1581)
	INSULATION COLOR	UNEL TABLE COLOUR
GROUP GROUNDING CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	XLPE (UL 1581)
	INSULATION COLOR	GREEN/YELLOW
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SEPARATION LAYER	SHIELDED TAPE MYLAR/ALLUMINIUM
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	MATTE BLACK, RAL: 9005, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
VW-1 (UL)
FT1 (CSA)
CABLE FLAME (UL)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
IEC 60811-404 (EU)
DIN EN 50290-2-22 VDE 0819-102
TM54

UV PERFORMANCE
ISO 4892-3

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	CURRENT CARRYING CAPACITIES @30°C (A).
41960	**(3X1,50+3G0,25)ST** (3XAWG16+3GAWG24)ST	✓	100	500	8.3	120	23
41961	**(3X2,50+3G0,50)ST** (3XAWG14+3GAWG21)ST	✓		500	10	196	32
41962	**(3X4,00+3G0,75)ST** (3XAWG12+3GAWG19)ST	✓		500	12	255	42
41963	**(3X6,00+3G1,00)ST** (3XAWG10+3GAWG18)ST	✓			13	350	54
41964	**(3X10,00+3G1,50)ST** (3XAWG08+3GAWG16)ST	✓			16	550	75
41965	**(3X16,00+3G2,50)ST** (3XAWG06+3GAWG14)ST	✓			18	810	100
41966	**(3X25,00+3G4,00)ST** (3XAWG04+3GAWG12)ST	✓			21	1220	27
41967	**(3X35,00+3G6,00)ST** (3XAWG02+3GAWG10)ST	✓			24	1710	158
41968	**(3X50,00+3G10,00)ST** (3XAWG1/0+3GAWG08)ST	✓			29.5	2405	192
41969	**(3X70,00+3G10,00)ST** (3XAWG2/0+3XAWG08)ST	✓			33	3180	246
41970	**(3X95,00+3G16,00)ST** (3XAWG3/0+3GAWG06)ST	✓			37	3920	298
41971	**(3X120,00+3G16,00)ST** (3XAWG4/0+3GAWG06)ST	✓			41	5900	346
41972	**(3X150,00+3G25,00)ST** (3X250KCMIL+3GAWG04)ST	✓			45.5	6460	399
41973	**(3X185,00+3G35,00)ST** (3X350KCMIL+3GAWG02)ST	✓			52	8350	456

TECSIGNAL®

- **FLAME RETARDANT**
- **OIL RESISTANT**
- **AUTOMATIC MACHINERY**
- **MACHINE TOOLS**
- **DATA PROCESSING**
- **SIGNAL TRANSMISSION**
- **ELECTRICAL PANELS**

This line of products is designed for static installations or flexible applications with free movement, without tensile stress or forced motion.

They serve as control and signal cables in the milliampere range for computer systems, measurement and control devices, and scales, especially where protection from electromagnetic interference is required.

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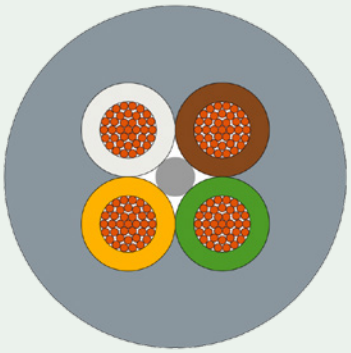
STATIC APPLICATION



TECSIGNAL®

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APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.50	7,5xø (occ. flexing)	4.0xø

DESCRIPTION

Suitable for static or flexible applications with free movement, without tensile stress and forced motion control in dry, damp, and wet indoor environments. Designed to be used in applications that require the smallest control and signal cables, with a reduced outer sheath diameter. Some of the most common uses include the connection of machinery, tools, plant construction, computer systems, scales, measurement and control technology, as well as electronic engineering.

APPROVALS

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +80°C
OCCASIONAL FLEXING
-5°C +80°C

MAX OPERATING VOLTAGE
0,14MM² = 350V
≥0,25MM² = 500V (NOT FOR POWER APPLICATIONS)

TEST VOLTAGE
0,14-0,25MM² = 1200V
0,34-1,50MM² = 2000V

INSULATION RESISTANCE
>20GOHM/CM

NOMINAL IMPEDANCE
78OHM (APPROX.)
INDUCTANCE = 0,65MH/KM
MUTUAL CAPACITANCE AT 800HZ (C/C)
: 0,14-0,25MM² = 100PF/M (APPROX.)
0,34-1,50MM² = 150PF/M (APPROX.)

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

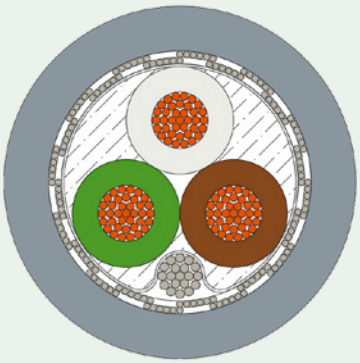
PRODUCTS FEATURES

FIRE PERFORMANCE
IEC EN 60332-1-2
DIN VDE 0482-332-1-2

OIL PERFORMANCE
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4 H / 70°C, OIL IRM 902)
VDE 0819 PARTE 102.

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
9054	2X0,25	✗	100	500/1000	3.8	18
7352	2X0,34	✗	100	500	4.2	22
11225	2X0,50	✗	100	500	4.8	40
8242	3X0,25	✗	100	500	4	22
5419	3X0,34	✗		1000	4.4	30
8639	3X0,50	✓	100	500	5.1	43
9272	4X0,25	✗	100	500	4.4	26
20291	4X0,34	✗	100	500	4.8	43
9131	4X0,50	✗	100	500	5.5	55
8123	5X0,34	✗	100	500	5.3	54
6768	6X0,25	✗	100	500	5.3	36
11852	6X0,50	✗	100		6.7	73
7088	7X0,25	✓	100	500	5.3	42
8122	7X0,34	✓	100		5.6	61
16401	8X0,25	✗	100	500	6.3	49
9132	8X0,50	✗	100		8	97
10340	10X0,25	✓	100	500	6.8	57
11464	10X0,50	✗	100		8.6	116
5741	12X0,25	✓	100	500	7	66
8062	12X0,50	✓	100	500	8.9	135
20436	16X0,14	✓	100	500	6.3	59
5742	16X0,25	✓	100	500	7.9	84
5743	25X0,25	✓	100	500	9.8	132
8193	25X0,50	✓		500	12.4	241
15410	26X0,25	✓		500	10	140
5744	37X0,25	✓		500	11.3	190
1969	44X0,25	✓		500	12.8	200

STATIC APPLICATION



TECSIGNAL®

LiYCY

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.50	occ. flexing 10 x ø	6.0xø

DESCRIPTION

Suitable for static or flexible applications with free movement, without tensile stress and forced motion control in dry, damp, and wet environments; however, not suitable for outdoor use. Used as control and signal cables in the milliampere range for computer systems, control devices, and scales. Due to its extremely small outer diameter, it is especially suitable for sub-miniature plugs and electronic devices. These cables are designed with shielding and a drain wire to minimize electromagnetic interference.

APPROVALS

2014/35/CEE

EMC 2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +80°C
OCCASIONAL FLEXING
-5°C +80°C

MAX OPERATING VOLTAGE
0,14MM² = 350V
≥0,25 MM² = 500 V (NOT FOR POWER APPLICATIONS)

TEST VOLTAGE
(C/C)
0,14-0,25MM² = 1200V 0,34-1,50MM² = 2000V (C/S)
0,14-0,25MM² = 800V 0,34-1,50MM² = 1200V

INSULATION RESISTANCE
>20GOHM/CM

NOMINAL IMPEDANCE
78OHM (APPROX.)
INDUCTANCE = 0,65MH/KM.
MUTUAL CAPACITANCE AT 800 HZ (C/C)
: 0,14-0,25MM² = 100PF/M (APPROX.)
0,34-1,50MM² = 150PF/M (APPROX.)
MUTUAL CAPACITANCE AT 800HZ (C/S)
: 0,14-0,25MM² = 200PF/M (APPROX.)
0,34-1,50MM² = 270PF/M (APPROX.)

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SHIELD TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
IEC EN 60332-1-2
DIN VDE 0482-332-1-2

OIL PERFORMANCE
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4
H / 70°C, OIL IRM 902)
VDE 0819 PARTE 102.

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
21803	(1X0,50)ST	✗	100	500	3.5	40
8581	(2X0,14)ST	✗	100	500	3.8	20
5797	(2X0,25)ST	✗	100	500	4.4	29.5
20716	(2X0,34)ST	✗	100	500	4.7	38
5745	(2X0,50)ST	✗	100	500	5.4	45
7048	(2X1,00)ST	✓	100		6.2	65
11979	(3X0,14)ST	✗	100	500	4	27
5746	(3X0,25)ST	✗	100	500	4.6	34.5
11163	(3X0,34)ST	✓	100	500	5.2	44
7348	(3X0,50)ST	✗	100	500	5.7	55
5747	(4X0,25)ST	✗	100	500	5.2	43
11164	(4X0,34)ST	✓	100	500	5.4	51
5748	(4X0,50)ST	✗	100		6.2	61
10341	(4X0,75)ST	✗	100		6.9	77
5749	(5X0,14)ST	✗	100	500	4.5	37
6717	(5X0,25)ST	✓	100	500	5.5	54.5
5750	(6X0,25)ST	✗	100	500	5.9	60
11165	(6X0,34)ST	✓	100		6.2	61
7006	(6X0,5)ST	✗	100	300	7.3	89
5752	(8X0,25)ST	✗	100		6.9	86
13479	(8X0,34)ST	✓	100	500	7.3	80
11980	(10X0,14)ST	✗	100	500	6.1	65
7439	(10X0,25)ST	✗	100		7.4	92
7047	(10X0,50)ST	✓	100	500	9.2	130
5753	(12X0,25)ST	✗	100		7.6	102
5754	(14X0,14)ST	✓	100	500	6.6	79
5755	(14X0,25)ST	✓	100	500	8	114
11981	(16X0,14)ST	✓	100		6.9	89
5756	(16X0,25)ST	✗	100		8.5	127
5757	(18X0,50)ST	✓		500	11.1	215
6526	(20X0,25)ST	✓	100	500	9.3	155
5758	(25X0,25)ST	✓		500	10.4	170
5759	(27X0,14)ST	✗	100		8.5	145
5760	(37X0,25)ST	✓		500	11.9	230

STATIC APPLICATION

TECSIGNAL®
LiYCY(TP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.50	occ. flexing 10 x ø	6.0xø

DESCRIPTION

Suitable for static or flexible applications with free movement, without tensile stress and forced motion control in dry, damp, and wet environments, however, not suitable for outdoor use. Favourable crosstalk attenuation values are achieved because of the pairs' twisted stranding. Even interference through parallel running cables is suppressed due to the dense braided screen assisted by the drain wire, making these cables optimal when used in systems with a risk of interference radiation.

APPROVALS

2014/35/CEE

EMC 2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +80°C
OCCASIONAL FLEXING
-5°C +80°C

MAX OPERATING VOLTAGE
350V (NOT FOR POWER APPLICATIONS)

TEST VOLTAGE
(C/C)
1200V (C/S)
800V

INSULATION RESISTANCE
>20GOHM/CM

NOMINAL IMPEDANCE
78OHM (APPROX.)
INDUCTANCE = 0,65MH/KM
MUTUAL CAPACITANCE AT 800HZ (C/C)
: 0,14MM² <
100PF/M 0,25MM² <
150PF/M MUTUAL CAPACITANCE AT 800HZ (C/S)
: 0,14MM² <
240PF/M 0,25MM² <
270PF/M BREAKDOWN VOLTAGE = 2400V

CONSTRUCTION FEATURES

PAIRS	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SCREEN	SHIELD TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

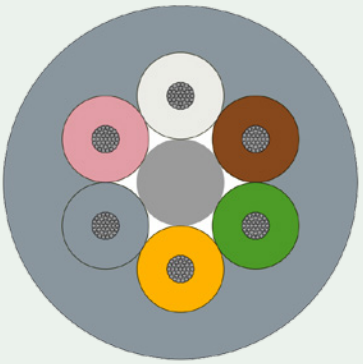
PRODUCTS FEATURES

FIRE PERFORMANCE
IEC EN 60332-1-2
DIN VDE 0482-332-1-2

OIL PERFORMANCE
EN 50290-2-22 TM54 (CEI 20-34/0-1; 4
H / 70°C, OIL IRM 902)
VDE 0819 PARTE 102.

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
21234	**(1X2X0,25)ST**	✗		500	4.2	45
21235	**(2X2X0,25)ST**	✗	100	500	5.8	53
20713	**(3X2X0,50)ST**	✓	100	500	8.2	100
21236	**(4X2X0,25)ST**	✗	100		6.9	80
23673	**(6X2X0,50)ST**	✓		500	11	205

STATIC APPLICATION



TECSIGNAL®
STYLE 2516

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34	10.0xø (occ. flexing)	4.0xø

DESCRIPTION

UL/CSA certified flexible data cables for use as a signal and measuring cable in machine tools, assembly lines, conveyor belts, plant construction, air conditioning devices, metallurgical plants and steel mills. Excellent rating temperature covered.

APPROVALS

E244280 **AWM STYLE 2516 105°C 600V**

AWM I/II A/B 105°C 600V

2014/35/CEE

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-40°C +105°C
OCCASIONAL FLEXING
-5°C +105°C

NOMINAL VOLTAGE
600V

TEST VOLTAGE
2000V
TEST VOLTAGE REFERENCE
EN 50395 P.6-7 - UL1581

CONSTRUCTION FEATURES

SIGNAL CONDUCTORS	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	TALC	TALC POWDER
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2
DIN EN 60332-1-2
VW-1
FT1
IEC 60332-1-2

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404
UL 1581

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
13455	**2X0,34** 2XAWG22	✗	100	500	7.2	65
13456	**3X0,34** 3XAWG22	✗	100	500	7.8	78
13457	**4X0,34** 4XAWG22	✓	100		8.3	90
13458	**6X0,34** 6XAWG22	✓	100	500	9.8	110

STATIC APPLICATION

TECSIGNAL®
MULTI PAIRS UL

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.34	15.0xø (occ. flexing)	7.5xø

DESCRIPTION

These data cables are UL/CSA certified for use as a signal and measuring cable in machine tools, assembly lines, conveyor belts, plant construction, air conditioning devices, metallurgical plants and steel mills. The twisted pairs construction combined with the braid shield provide an optimal screen against the elettromagnetic interferences.

APPROVALS

AWM STYLE 2464 80°C 300V

AWM I/II A/B 80°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

STATIC
-40°C +80°C
OCCASIONAL FLEXING
-10°C +80°C

MAX OPERATING VOLTAGE
300V (NOT FOR POWER APPLICATIONS)

TEST VOLTAGE
1500V

NOMINAL IMPEDANCE
70±15% OHM

CONSTRUCTION FEATURES

TWISTED PAIR	CONDUCTOR	FINE WIRE CONDUCTOR TINNED COPPER
	INSULATION	PVC COMPOUND.
	INSULATION COLOR	VARIOUS COLOURS
OVERALL STRANDING	FILLER	FILLER NOT HYGROSCOPIC
	SEPARATION LAYER	TAPE POLYESTER TRANSPARENT.
	SCREEN	SHIELD TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

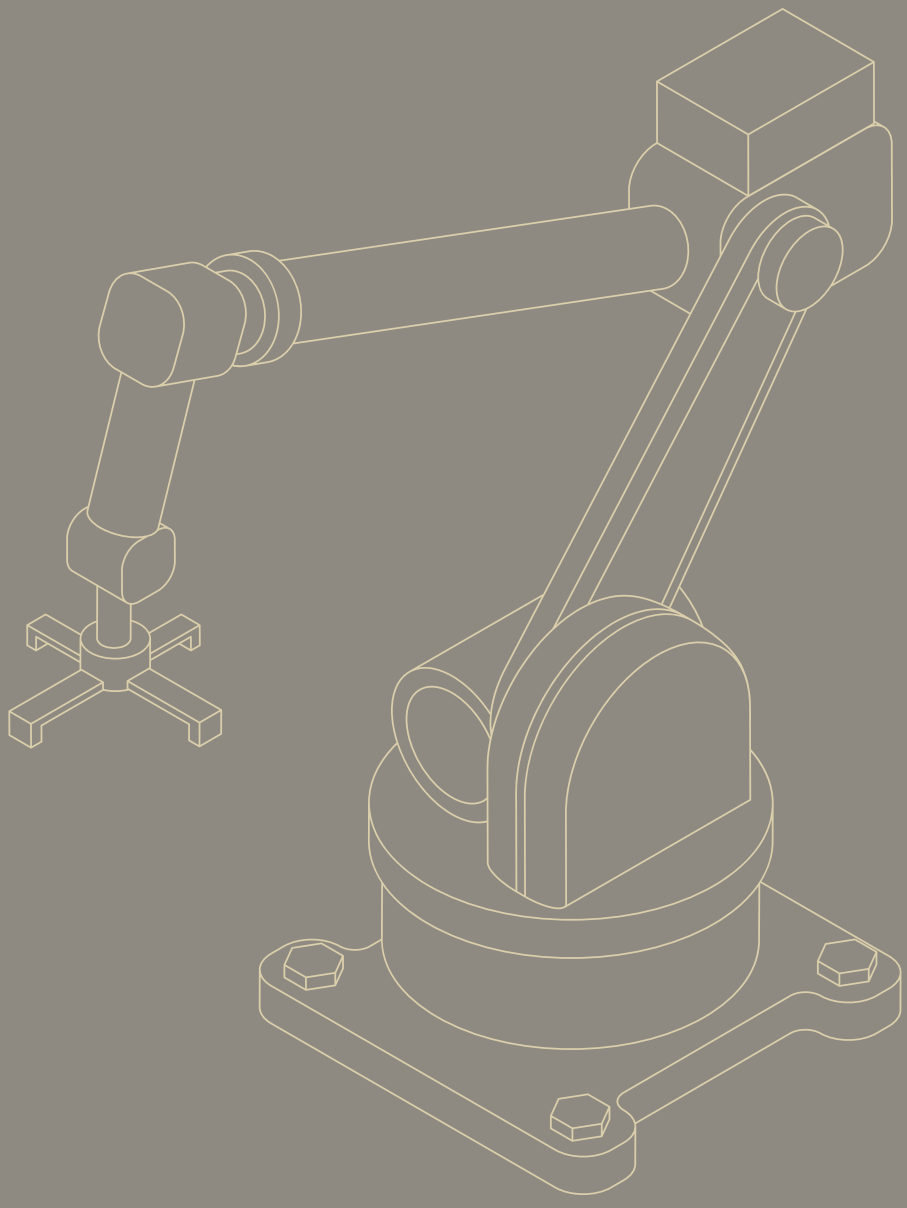
PRODUCTS FEATURES

FIRE PERFORMANCE
DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2, UL 1581, UL VW-1, CSA FT1.

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404, UL 1581.

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
376	**(2X2X0,25)ST** (2X2XAWG24)ST	✗	100	500	6	59	BLACK-WHITE, RED-GREEN
504	**(3X2X0,25)ST** (3X2XAWG24)ST	✓	100	500	6.4	68	BLACK-WHITE, RED-GREEN, BROWN-BLUE.
508	**(4X2X0,25)ST** (4X2XAWG24)ST	✓	100		6.8	80	BLACK-WHITE, RED-GREEN, BROWN-BLUE, ORANGE-YELLOW
505	**(5X2X0,25)ST** (5X2XAWG24)ST	✓	100	500	7.5	100	BLACK-WHITE, RED-GREEN, BROWN-BLUE, ORANGE-YELLOW, GRAY-VIOLET.
507	**(6X2X0,25)ST** (6X2XAWG24)ST	✓	100	500	7.5	108	BLACK-WHITE, RED-GREEN, BROWN-BLUE, ORANGE-YELLOW, GRAY-VIOLET, WHITE/BLUE*-BLUE/WHITE*. *RING BICOLOUR
510	**(8X2X0,25)ST** (8X2XAWG24)ST	✓	100	500	9.2	120	BLACK-WHITE, RED-GREEN, BROWN-BLUE, ORANGE-YELLOW, GRAY-VIOLET, WHITE/BLUE*-BLUE/WHITE*, WHITE/ORANGE*-BLUE/ORANGE*, WHITE/GREEN*-BLUE/GREEN*. *RING BICOLOUR

DATA CABLES



INDUSTRIAL ETHERNET

Profinet, Ethercat, Ethernet/IP, Modbus/TCP, Powerlink

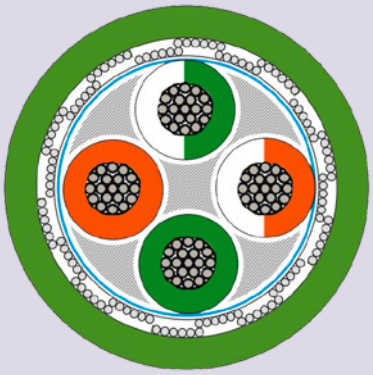
- **FLAME RETARDANT**
- **OIL RESISTANT**
- **DRAG CHAINS**
- **AUTOMATIC MACHINERY**
- **MACHINE TOOLS**
- **ELECTRIC PANELS**
- **FLEX TORSIONAL APPLICATIONS**

This product line is designed for both static and dynamic installations and includes UL/CSA certified cables for industrial data transmission devices based on Ethernet.

The cables comply with major industrial data communication protocols.

They feature high-quality shielding to protect data transmission from electromagnetic interference and are suitable for 10/100 Mbit/s, 1 Gbit/s, and up to 10 Gbit/s networks. The cables can also be used in Power over Ethernet (PoE) applications.

DYNAMIC APPLICATION



PMXX®
ETHERNET cat.5e (SF/UTP)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15,0M CABLE LENGTH

200,0M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	0.22	10.0xø	7.5xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

AWM STYLE 20549 80°C 300V

AWM I/II A/B 80°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1

TECHNICAL DATA

DYNAMIC
-20°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
>1GOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

TWISTED PAIRS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE POLYPHENYL ETHYLENE COMPOUND (PPE)**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SCREEN	**SHIELD TAPE POLYESTER INSIDE / ALLUMINIUM OUTSIDE 100 % ± 5 %**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6016, DESINA: NO**

PRODUCTS FEATURES

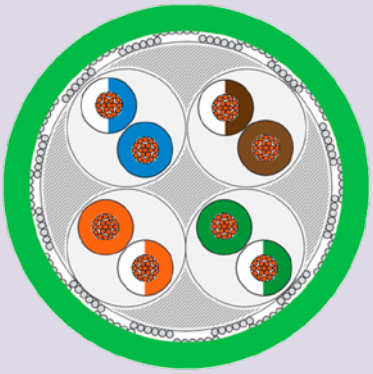
FIRE PERFORMANCE
UL 1581 SEC.1061 HORIZONTAL FLAME
CSA FT2

OIL PERFORMANCE
VDE 0207-363-10-2, IEC 60811-404 (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16, EN 50618

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
24188	**(2X2XAWG24)ST-SN**	50	X	100	500	5.8	41	ORANGE-WHITE/ORANGE*, GREEN-WHITE/GREEN* *RING BICOLOUR.

DYNAMIC APPLICATION



PMXX®
ETHERNET cat.5e (SF/UTP)

APPLICATIVE FEATURES

UP TO 3 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15M CABLE LENGTH

200 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.14	10.0xø	7.0xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 21223 80°C 1000V**

AWM I/II A/B 80°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
1000V (UL)
MAX OPERATING VOLTAGE
100V (EN 50288-2-1, EN 50288-2-2)

TEST VOLTAGE
3000V (UL)
1000V (EU)
TEST VOLTAGE REFERENCE
IEC 61156-5, EN 50288-2-1, EN 50288- 2-2

INSULATION RESISTANCE
≥1GOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**ORANGE-WHITE/ORANGE* GREEN-WHITE/GREEN* BLUE-WHITE/BLUE* BROWN-WHITE/BROWN*. *RING BICOLOUR.**
STRANDING	FILLER	**FILLER NOT HYGROSCOPIC**
	SEPARATION LAYER	**TAPE POLYETHYLENE COMPOUND (PE)**
	SCREEN	**SHIELDED BRAID TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**SCHERMATURA CON FOGLIO DI ALLUMINIO**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6016, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

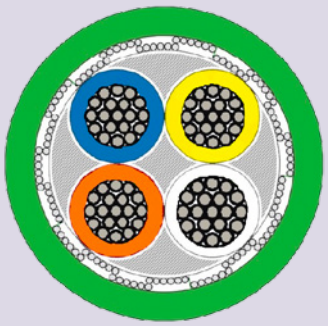
OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404, (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

HYDROCARBONS PERFORMANCE
UL 1581
EN 50267-2-1

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
37446	**(4X2XAWG26)ST/SN**	0.06	✓	100	500/1000	6.8	53

DYNAMIC APPLICATION



PMXX®

PROFINET Type C cat.5e (SF/UTP)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15,0M CABLE LENGTH

200,0M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34	10.0xø	6.0xø

PROFINET EtherCAT EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 21223 80°C 1000V**

AWM I/II A/B 80°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
1000V (UL)
MAX OPERATING VOLTAGE
100V EN 50288-2-1, EN 50288-2-2

TEST VOLTAGE
1000V (EU)
3000V (UL)
TEST VOLTAGE REFERENCE
IEC 61156-5, EN 50288-2-1, EN 50288-2-2

INSULATION RESISTANCE
≥500MOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**CLOCKWISE SEQUENCE: WHITE YELLOW BLUE ORANGE PAIRS IN STAR QUAD POSITION.**
OVERALL STRANDING	SEPARATION LAYER	**TAPE POLYPROPYLENE TRANSPARENT PP**
	SHEATH	**INTERMEDIATE SHEATH TPE**
	SEPARATION LAYER	**SHIELDED TAPE MYLAR/ALLUMINIUM**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE TNT NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6018, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

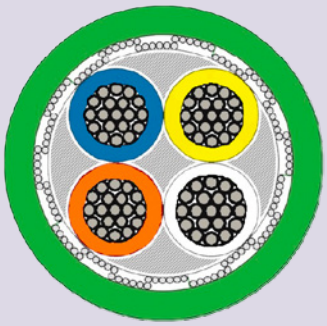
OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404, (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

HYDROCARBONS PERFORMANCE
UL 1581
EN 50267-2-1

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
36855	SIEMENS 6XV1870-2D	**(1X4XAWG22/19)Q-M-SN-ST**	0.06	✓	100	500	6.7	63

DYNAMIC APPLICATION



PMMXX®

PROFINET Type R cat.5e (SF/UTP)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

7,0 M/S² ACCELERATION

180,0M/MIN TRAVEL SPEED

+/-180°/M TORSION

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34	15.0xø	10.0xø

PROFINET · EtherCAT · EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for dynamic applications in drag chains and flex torsional applications. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

AWM STYLE 20233 80°C 300V (E244280)

AWM I/II A/B 80°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1

TECHNICAL DATA

DYNAMIC
-20°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V (UL)

TEST VOLTAGE
1500V

TEST VOLTAGE REFERENCE
EN 50289-1-3

INSULATION RESISTANCE
≥1000MOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**CLOCKWISE SEQUENCE: WHITE YELLOW BLUE ORANGE PAIRS IN STAR QUAD POSITION.**
OVERALL STRANDING	SEPARATION LAYER	**TAPE POLYPROPYLENE TRANSPARENT PP**
	SHEATH	**INTERMEDIATE SHEATH TPE**
	SEPARATION LAYER	**SHIELDED TAPE MYLAR/ALLUMINIUM**
	SCREEN	**SHIELD BRAID TINNED COPPER 90% ±5%**
	SEPARATION LAYER	**TAPE TNT NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6018, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
CEI EN 50363-10-2

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
56510	SIEMENS 6XV1840-2R	**(1X4XAWG22/19)**	0.05	✓	100	500	6.5	63

STATIC APPLICATION

FE

ETHERNET PUR cat.5e (SF/UTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.22		8.0xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. The polyurethane outer jacket provides good resistance properties against mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 20549 80°C 300V**

AWM I/II A/B 80°C 300V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
>1GOHM/KM

NOMINAL IMPEDANCE
100±15%OHM

CONSTRUCTION FEATURES

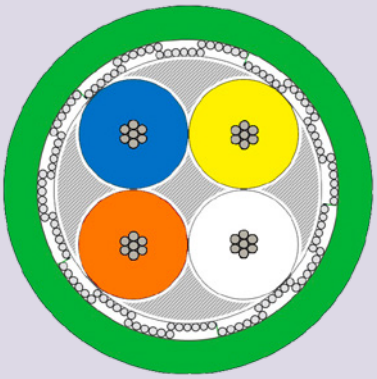
TWISTED PAIRS	CONDUCTOR	**CL5 FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**ORANGE-WHITE/ORANGE* GREEN-WHITE/GREEN* *RING BICOLOUR**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE TRANSPARENT POLYETHYLENE (PE)**
	SCREEN	**SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6016, DESINA: NO**

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
IRM 902

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
15010	**(2X2XAWG24/7)SN/ST/PUR**	50	×	100	500/1000	5.8	40



STATIC APPLICATION

FE

PROFINET Type B cat.5E (SF/UTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	0.34		6.0xø

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the PROFINET®-ETHERCAT® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the PROFINET®-ETHERCAT® CAT. 5e standard.

APPROVALS

AWM STYLE 2570 80°C 1000V

AWM I/II A/B 80°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
1000V (UL)
MAX OPERATING VOLTAGE
100V EN 50288-2-1, EN 50288-2-2

TEST VOLTAGE
1000V (EU)
3000V (UL)
TEST VOLTAGE REFERENCE
IEC 61156-5, EN 50288-2-1, EN 50288-2-2

INSULATION RESISTANCE
≥500MOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	CL2 FLEXIBLE. TINNED COPPER
	INSULATION	POLYETHYLENE COMPOUND (PE)
	INSULATION COLOR	CLOCKWISE SEQUENCE: WHITE YELLOW BLUE ORANGE PAIRS IN STAR QUAD POSITION.
OVERALL STRANDING	SEPARATION LAYER	TAPE PET - POLYESTER.
	SHEATH	SHEATH INTERMEDIATE TPE
	SEPARATION LAYER	SHIELDED TAPE MYLAR/ALLUMINIUM
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: NO

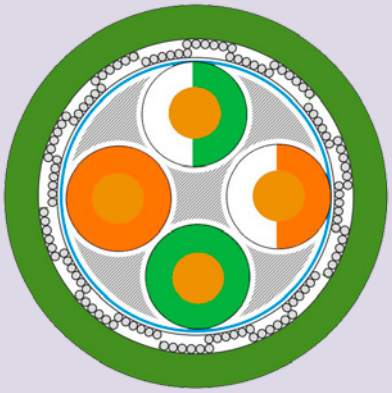
PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-10-2
1581 (UL)

UV PERFORMANCE
ISO 4892-2
EN 50289-4-17
ASTM-D-2565-16

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
37488	SIEMENS 6XV1870-2BU10	**(1X4XAWG22/7)Q-R-SN-ST**	0.05	✓	100	500	6.5	63



STATIC APPLICATION

UE

ETHERNET PVC cat.5e (SF/UTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	0.22		8xØ

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified cables for industrial ETHERNET data transmission devices, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. Each conductor is made up of a single solid bare copper wire.

APPROVALS

AWM STYLE 2571
80°C

AWM I/II A/B 80°C
300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
>1 GOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

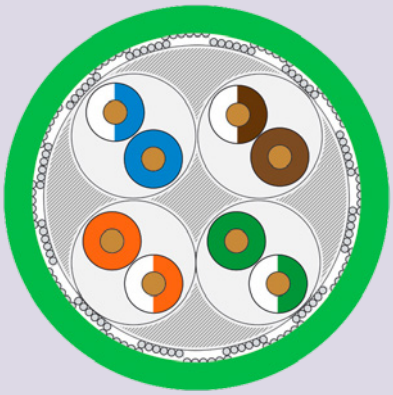
GROUP 1	CONDUCTOR	SOLID BARE COPPER.
	INSULATION	EXTRUDED FOAMED POLYOLEFINE (PO)
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET - POLYESTER.
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6016, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
UL 1581 SEC.1061 CABLE FLAME
FT1 (CSA)
IEC 60332-1-2 (EU)
.

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
EN 50363-4-1 (EU)
VDE 0207-363-4-1 (EU)
.

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
14970	**(2X2XAWG24-1)SN-ST**	50	×	100	500/1500	5.8	42	ORANGE-WHITE/ORANGE*, GREEN-WHITE/GREEN* *RING BICOLOUR



STATIC APPLICATION

UE

ETHERNET PVC cat.5e (SF/UTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	24		8.0xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified cables for industrial ETHERNET data transmission devices, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 5e ETHERNET standard. Each conductor is made up of a single solid bare copper wire.

APPROVALS

E244280 — **AWM STYLE 2571 80°C 300V**

AWM I-II A-B 80°C 30V

CE — **2014/35/CEE**

EMC — **2014/30/EU**

RoHS — **2011/65/UE**

REACH — **1907/2006**

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

INSULATION RESISTANCE
>1GOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	SOLID BARE COPPER.
	INSULATION	EXPANDED POLYETHYLENE (PEE)
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET - POLYESTER.
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6016, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
IRM 902

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
10137	**(4X2XAWG24-1)SN-ST**	50	✓	100/200	500/1000	6.3	54	ORANGE-WHITE/ORANGE*, GREEN-WHITE/GREEN*, BLUE-WHITE/BLUE*, BROWN-WHITE/BROWN*. *RING BICOLOUR.

STATIC APPLICATION

UE

PROFINET Type A cat.5e (SF/UTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34		10.0xØ

DESCRIPTION

UL/CSA certified cables for industrial devices that work with the PROFINET®-ETHERCAT® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the PROFINET®-ETHERCAT® CAT. 5e standard. Each conductor is made up of a single solid bare copper wire.

APPROVALS

E244280 **AWM STYLE 2570 80°C 1000V**

AWM I/II A/B 80°C 1000V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-20°C +80°C

NOMINAL VOLTAGE
1000V (UL)
MAX OPERATING VOLTAGE
100V EN 50288

TEST VOLTAGE
1000V (EU)
3000V (UL)
TEST VOLTAGE REFERENCE
ACC.TO IEC 61156-5, EN 50288-2-1

INSULATION RESISTANCE
≥500 MOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	SOLID BARE COPPER.
	INSULATION	POLYETHYLENE COMPOUND (PE)
	INSULATION COLOR	CLOCKWISE SEQUENCE: WHITE YELLOW BLUE ORANGE PAIRS IN STAR QUAD POSITION.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET - POLYESTER.
	SHEATH	INTERMEDIATE SHEATH LSZH-FLAME RETARDANT AND NOT CORROSIVE.
	SEPARATION LAYER	SHIELD TAPE ALLUMINIUM INSIDE AND OUTSIDE
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: NO

PRODUCTS FEATURES

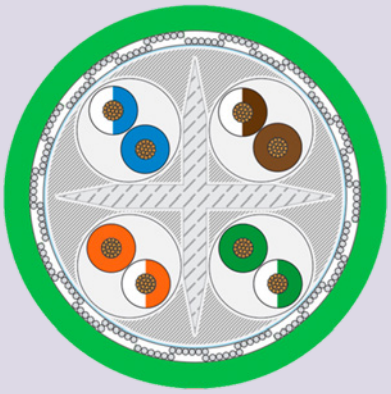
FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404 (EU)
CEI EN 50363-10-2
UL 1581

UV PERFORMANCE
ACCORDING TO ISO 4892-2
EN 50289-4-17
ASTM-D-2565-16

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
37464	SIEMENS 6XV1840-2AT10/20/50	**(1X4XAWG22/1)Q-R/SN/ST**	0.06	✓	100	500	6.5	63

DYNAMIC APPLICATION



PMXX®
ETHERNET cat.6 (SF/UTP)

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15 M CABLE LENGTH

200 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.14	10.0xø	7.5xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 6 CMX ETHERNET standard. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

TYPE CMX 75°C 300V

AWM STYLE 21576 80°C 1000V

AWM I/II A/B 80°C 1000V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1

TECHNICAL DATA

DYNAMIC
-30°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
1000V (RU)
300V (UL)
MAX OPERATING VOLTAGE
100V EN 50288-5-1 / 5-2

TEST VOLTAGE
1000V (EU)
3000V (UL)
TEST VOLTAGE REFERENCE
ACC.TO IEC 61156-5, EN 50288-5-1 / 5-2 (EU)

INSULATION RESISTANCE
>1 GOHM/KM

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**EXPANDED POLYETHYLENE (PEE)**
	INSULATION COLOR	**ORANGE-WHITE/ORANGE* GREEN-WHITE/GREEN* BLUE-WHITE/BLUE* BROWN-WHITE/BROWN*. *RING BICOLOUR.**
	SOLID SEPARATION	**POLYETHYLENE COMPOUND (PE)**
OVERALL STRANDING	SEPARATION LAYER	**SHIELDED TAPE MYLAR/ALLUMINIUM**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6016, DESINA: NO**

PRODUCTS FEATURES

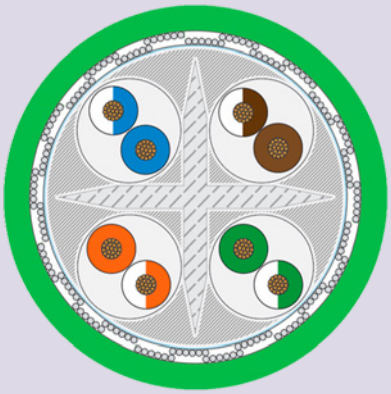
FIRE PERFORMANCE
VW-1 (UL)
FT2 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
VDE 0473-811-404, IEC 60811-404, (EU)
CEI EN 50363-10-2, 1581 (UL)

UV PERFORMANCE
ACCORDING TO ISO 4892-2, EN 50289-4-17, ASTM-D-2565-16

HYDROCARBONS PERFORMANCE
EN 50267-2-1

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
38736	SIEMENS 6XV1878-2C/B	**(4X2XAWG26)SN/ST**	0.06	✓	100	500/1000	7.2	64



STATIC APPLICATION

FE

ETHERNET PUR cat.6 (SF/UTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.22		6.0xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 6 CMX ETHERNET standard. The polyurethane outer jacket provides good resistance properties against mechanical stress and chemical agents.

APPROVALS

- **TYPE CMX 75°C 300V**
- **AWM STYLE 20233 80°C 300V**
- **AWM I/II A/B 80°C 300V**
- **2014/35/CEE**
- **2014/30/EU**
- **2011/65/UE**
- **1907/2006**
- **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

- **DURING INSTALLATION** -5°C +80°C
  STATIC -40°C +80°C
- **NOMINAL VOLTAGE** 300V
- **TEST VOLTAGE** 2000V
- **INSULATION RESISTANCE** >1GOHM/KM
- **NOMINAL IMPEDANCE** 100±15%OHM

CONSTRUCTION FEATURES

PAIRS	CONDUCTOR	**CL2 FLEXIBLE. BARE COPPER.**
	INSULATION	**EXPANDED POLYETHYLENE (PEE)**
	INSULATION COLOR	**BLUE-WHITE/BLUE* ORANGE-WHITE/ORANGE* GREEN-WHITE/GREEN* BROWN-WHITE/BROWN*. *RING BICOLOUR**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SCREEN	**SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %**
	SCREEN	**SCREEN BRAID TINNED COPPER 90 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6016, DESINA: NO**

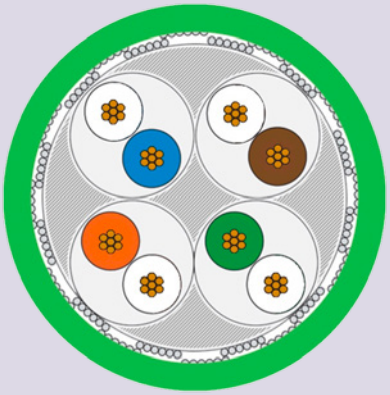
PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
IRM 90

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
36843	**(4X2XAWG26/7)SN/ST/PUR**	50	✓	100	500	6.6	52

DYNAMIC APPLICATION



PMXX®
ETHERNET cat.7 (S/FTP)

APPLICATIVE FEATURES

UP TO 5 MILIONS GUARANTEED CYCLES

5,0 M/S² ACCELERATION

15,0M CABLE LENGTH

300,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM²)	CROSS SECTION MAX (MM²)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.34	10.0xø	6.0xø

EtherCAT

EtherNet/IP

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 7 ETHERNET standard. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 20236 80°C 30V**

AWM I-II A-B 80°C 30V

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-30°C +70°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
C/C 1500V/1MIN
C/S 1500V/1MIN

INSULATION RESISTANCE
>5GOHM/KM

NOMINAL IMPEDANCE
100OHM±20%

CONSTRUCTION FEATURES

PAIRS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYPROPYLENE COMPOUND (PP)**
	INSULATION COLOR	**WHITE-ORANGE WHITE-GREEN WHITE-BLUE WHITE-BROWN.**
	SEPARATION LAYER	**TAPE DOUBLE NON-WOVEN TAPE**
	SCREEN	**SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**GREEN, RAL: 6018, DESINA: YES**

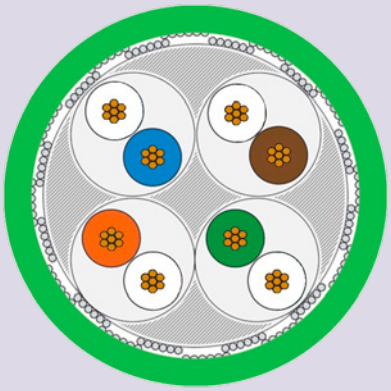
PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
39832	**[4X(2XAWG26-19)SN-ST]ST**	48	✓	100	500	9	112



STATIC APPLICATION

FE

ETHERNET PVC cat.7 (S/FTP)

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	1.66		8.0xø

EtherCAT · EtherNet/IP · PROFINET

DESCRIPTION

UL/CSA certified flexible cables for industrial ETHERNET data transmission devices, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference, matching the CATEGORY 7 CMX ETHERNET standard.

APPROVALS

- **TYPE CMX 75°C 300V**
- **AWM STYLE 20886 80°C 1000V**
- **AWM I/II A/B 80°C 1000V**
- **2014/35/CEE**
- **2014/30/EU**
- **2011/65/UE**
- **1907/2006**

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
1000V (RU)
300V (UL)
MAX OPERATING VOLTAGE
100V EN 50288-4-1, EN 50288-4-2

TEST VOLTAGE
1000V (EU)
3000V (UL)
TEST VOLTAGE REFERENCE
IEC 61156-5, EN 50288-4-1, EN 50288-4-2

INSULATION RESISTANCE
≥500 MOHM/KM (100V÷500V)

NOMINAL IMPEDANCE
100±15% OHM AT 100MHZ

CONSTRUCTION FEATURES

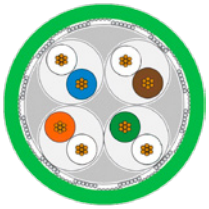
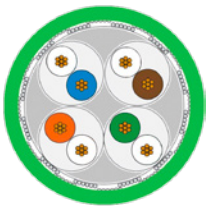
GROUP 1	CONDUCTOR	CL2 FLEXIBLE. BARE COPPER.
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	INSULATION COLOR	WHITE-ORANGE WHITE-GREEN WHITE-BLUE WHITE-BROWN.
	SEPARATION LAYER	SHIELDED TAPE MYLAR/ALLUMINIUM
OVERALL STRANDING 38733	SCREEN	SHIELD BRAID TINNED COPPER 65 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6016, DESINA: NO
OVERALL STRANDING 39873	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6018, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
VW-1 (UL)
FT2 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
VDE 0473-811-404
IEC 60811-404
CEI EN 50363-10-2
UL 1581

UV PERFORMANCE
ISO 4892-2
EN 50289-4-17
ASTM-D-2565-16

REFERENCE DRAW	TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
	**38733**	SIEMENS 6XV1878-2E	**[4X(2XAWG26/7)SN]ST**	45	✓	100/200	500	6.3	48
	**39873**		**[4X(2XAWG23/7)SN]ST**	55	✓	100	500	8.7	83

BUS

FLAME RETARDANT

OIL RESISTANT

DRAG CHAINS

AUTOMATIC MACHINERY

MACHINE TOOLS

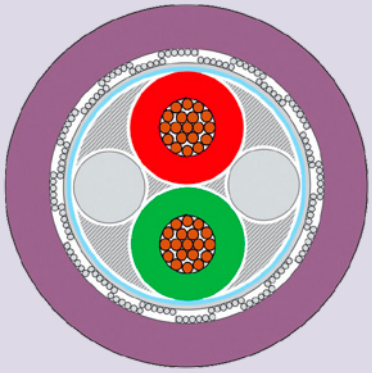
ELECTRIC PANELS

This product line is designed for both static and dynamic installations and includes UL/CSA certified cables for industrial data transmission devices based on serial communication.

The cables comply with major industrial data communication protocols. They feature high-quality shielding to protect data transmission from electromagnetic interference.

DYNAMIC APPLICATION

FRX®
PROFIBUS



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

4,0 M/S² ACCELERATION

10,0 M CABLE LENGTH

120,0 M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.14	0.34	12.0xø	10.0xø

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the PROFIBUS® data transmission standard, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. They are mainly used to connect the central controlling unit and the input/output peripheral devices.

APPROVALS

E244280 **AWM STYLE 2571 80°C 300V**

AWM I/II A/B 80°C 300V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

1907/2006

TECHNICAL DATA

DYNAMIC
-5°C +80°C
STATIC
-40°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
5GOHM/KM

NOMINAL IMPEDANCE
150OHM ± 10%

CONSTRUCTION FEATURES

PAIR	CONDUCTOR	**CL5 FLEXIBLE. BARE COPPER.**
	INSULATION	**EXPANDED POLYETHYLENE (PEE)**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**INTERMEDIATE TAPE NON-WOVEN TAPE**
	SCREEN	**SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 20 %**
	SCREEN	**SCREEN TINNED COPPER 60 % ± 5 %**
	SEPARATION LAYER	**OVERALL TAPE NON-WOVEN TAPE**
	SHEATH	**PVC COMPOUND.**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**

PRODUCTS FEATURES

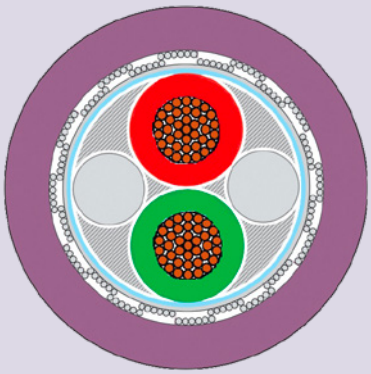
FIRE PERFORMANCE
VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
ICEA S-82-552
IRM 902

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
11604	**(1X2XAWG22-19)SN-ST**	30	✓	100	500	8	65	GREEN, RED

DYNAMIC APPLICATION

PMXX®
PROFIBUS



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15,0M CABLE LENGTH

200,0M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34	7.5xØ	6.0xØ

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the PROFIBUS® data transmission standard, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. The polyurethane outer jacket provides good resistance properties against mechanical stress and chemical agents.

APPROVALS

AWM STYLE 20236 80°C 30V

AWM I-II A-B 80°C 30V

2014/30/EU

2011/65/UE

1907/2006

IEC 60754-1

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

INSULATION RESISTANCE
≥1GOHM/KM

NOMINAL IMPEDANCE
150±10% OHM

CONSTRUCTION FEATURES

PAIR	CONDUCTOR	**BARE COPPER.**
	INSULATION	**EXPANDED POLYETHYLENE (PEE)**
	INSULATION COLOR	**GREEN RED**
OVERALL STRANDING	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE PET - POLYESTER.**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SCREEN	**SHIELD TAPE ALLUMINIUM INSIDE/NON-WOVEN OUTSIDE 100 % ± 5 %**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**

PRODUCTS FEATURES

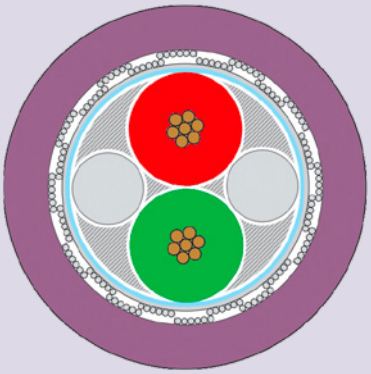
FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
12746	**(1X2XAWG22/44)ST/SN**	30	✓	100	500	8	85

STATIC APPLICATION



FE

PROFIBUS

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34		10.0xø

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the PROFIBUS® data transmission standard, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. The polyurethane outer jacket provides good resistance properties against mechanical stress and chemical agents.

APPROVALS

- **AWM STYLE 2571 80°C 300V** (E244280)
- **AWM I/II A/B 80°C 300V**
- **2014/35/CEE**
- **2014/30/EU**
- **2011/65/UE**
- **1907/2006**

TECHNICAL DATA

- **DURING INSTALLATION** -5°C +80°C
  STATIC -30°C +80°C
- **NOMINAL VOLTAGE** 300V
- **TEST VOLTAGE** 2000V
- **INSULATION RESISTANCE** 5GOHM/KM
- **NOMINAL IMPEDANCE** 150±10% OHM

CONSTRUCTION FEATURES

TWISTED PAIR	CONDUCTOR	CL2 FLEXIBLE. BARE COPPER.
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	INSULATION COLOR	GREEN RED
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET POLYESTER COMPOUND
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
	SCREEN	SHIELD TINNED COPPER 65 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: YES

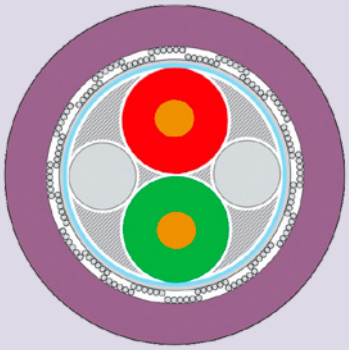
PRODUCTS FEATURES

FIRE PERFORMANCE
VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
ICEA S-82-552
IRM902

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
15050	SIEMENS 6XV1830-0EH10	**(1X2XAWG22/7)SN/ST**	30	✓	100	500	8	65

STATIC APPLICATION



UE

PROFIBUS

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34		10.0xØ

DESCRIPTION

UL/CSA certified cables for industrial devices that work with the PROFIBUS® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. Each conductor is made up of a single solid bare copper wire.

APPROVALS

E244280 **AWM STYLE 2571 80°C 300V**

AWM I/II A/B 80°C 300V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
5GOHM/KM

NOMINAL IMPEDANCE
150±10% OHM

CONSTRUCTION FEATURES

GROUP 1	CONDUCTOR	SOLID BARE COPPER.
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	INSULATION COLOR	GREEN RED
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE POLYESTER PET - POLYESTER.
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
	SCREEN	SHIELD BRAID TINNED COPPER 65 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: YES

PRODUCTS FEATURES

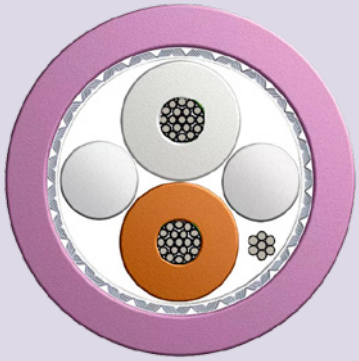
FIRE PERFORMANCE
VW-1 (UL)
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-4-1 (EU)
ICEA S-82-552
IRM902

TECO CODE	OEM REF.	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
11337	SIEMENS 6XV1830-0EH10	**(1X2XAWG22/1)SN/ST**	30	✓		500	8	65

DYNAMIC APPLICATION

PMXX®
CANOPEN



APPLICATIVE FEATURES

5 MILLION
GUARANTEED CYCLES

10,0 M/S²
ACCELERATION

15,0M
CABLE LENGTH

200,0M/MIN
TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34	10.0xø	6.0xø

CANopen

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the CANOPEN® data transmission standard, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 20236 80°C 30V**

AWM I-II A-B 80°C 30V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1 EN 50267-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

NOMINAL IMPEDANCE
120±10% OHM

CONSTRUCTION FEATURES

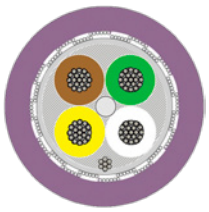
TWO TWISTED PAIRS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**WHITE-BROWN GREEN-YELLOW**
SINGLE TWISTED PAIR	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**WHITE-BROWN**
SINGLE WIRE	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**GREEN**
OVERALL STRANDING COD. 19195	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE POLYESTER PET - POLYESTER.**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**
OVERALL STRANDING COD. 17585	FILLER	**FILLER POLYPROPYLENE**
	SEPARATION LAYER	**TAPE POLYESTER PET - POLYESTER.**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**
OVERALL STRANDING COD. 17584	SEPARATION LAYER	**TAPE POLYETHYLENE TRANSPARENT (PE)**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

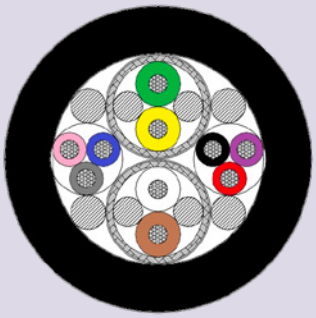
OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

REFERENCE DRAW	TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
	**17584**	**(1X2X0,34+1X0,34)CCST** (1X2XAWG22+1XAWG22)CCST	50	✓	100	500	7	64
	**19195**	**(1X2X0,34)CCST** (1X2XAWG22)CCST	50	✗	100	500/1000	6.1	51
	**17585**	**(2X2X0,34)CCST** (2X2XAWG22)CCST	50	✓	100	500	7.4	67

DYNAMIC APPLICATION

PMXX®
CANOPEN 20162



APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15M CABLE LENGTH

200M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.25	0.25	10.0xø	6.0xø

CANopen

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the CANOPEN® data transmission standard, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 20236 80°C 30V**

AWM I-II A-B 80°C 30V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

INSULATION RESISTANCE
20MOHM/KM

NOMINAL IMPEDANCE
120±10% OHM

CONSTRUCTION FEATURES

PAIRS	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**WHITE-BROWN GREEN-YELLOW**
	SEPARATION LAYER	**TAPE PE TRANSPARENT POLYETHYLENE COMPOUND (PE)**
	SCREEN	**TINNED COPPER 90 % ± 5 %**
	SEPARATION LAYER	**PET TAPE PET - POLYESTER.**
POWER&CONTROL	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**PET POLYESTER COMPOUND**
OVERALL STRANDING	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**MATTE BLACK, RAL: 9005, DESINA: NO**

PRODUCTS FEATURES

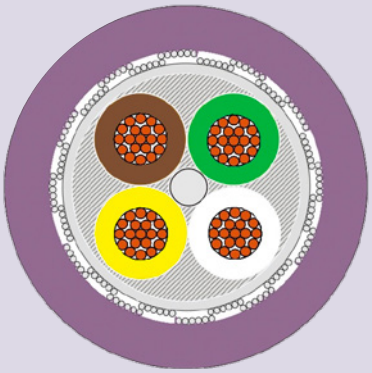
FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
20162	**2X(2X0,25)ST/N+6X0,25** 2X(2XAWG24)ST/N+6XAWG24	50	✓		500	10.7	140	POWER&CONTROL GROUP: GRAY, PINK, BLUE, RED, BLACK, VIOLET

DYNAMIC APPLICATION



PMXX®
CANOPEN 25595

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15M CABLE LENGTH

200M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.34	10.0xø	6.0xø

CANopen

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the CANOPEN® data transmission standard, designed for dynamic applications in drag chains but also suitable for static laying. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication. The polyurethane outer jacket provides good resistance to mechanical stress and chemical agents.

APPROVALS

E244280 **AWM STYLE 20236 80°C 30V**

AWM I-II A-B 80°C 30V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

NOMINAL IMPEDANCE
120±10% OHM

CONSTRUCTION FEATURES

PAIRS	CONDUCTOR	**BARE COPPER.**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
	INSULATION COLOR	**WHITE-BROWN GREEN-YELLOW**
OVERALL STRANDING	SEPARATION LAYER	**TAPE PE TRANSPARENT TRANSPARENT POLYETHYLENE (PE)**
	SCREEN	**SCREEN TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**

PRODUCTS FEATURES

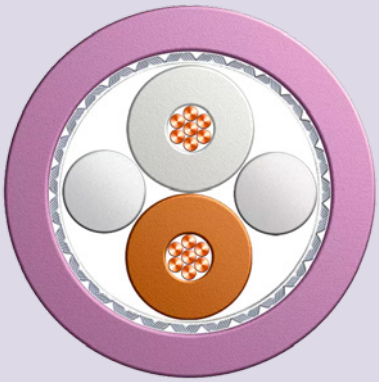
FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
25595	**(1X4X0,34)Q/ST** (1X4XAWG22)Q/ST	50	✓	100	500	6.8	64

STATIC APPLICATION



FE

CANOPEN 300V

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	0.22		6.0xø

CANopen

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the CANOPEN® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

AWM I/II A/B 80°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

AWM STYLE 2571 80°C

E244280

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
1500V (A.C. 50 HZ)

NOMINAL IMPEDANCE
120±15% OHM

CONSTRUCTION FEATURES

TWISTED PAIR	CONDUCTOR	CL2 FLEXIBLE. BARE COPPER.
	INSULATION	POLYETHYLENE COMPOUND (PE)
	INSULATION COLOR	COLOURS SEQUENCE REFERS TO DIN 47100 STANDARD.
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET POLYESTER COMPOUND
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: NO

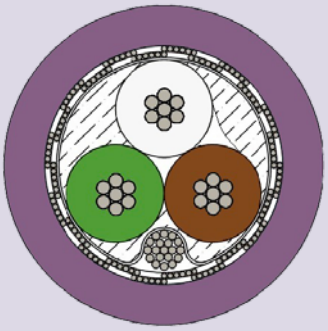
PRODUCTS FEATURES

FIRE PERFORMANCE
UL 1581 SEC.1061 CABLE FLAME
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
EN 50363-4-1 (EU)
VDE 0207-363-4-1 (EU)

TECO CODE	N° CORES X CROSS-SECTION	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
27372	**(1X2X0,22)ST** (1X2XAWG24)ST	×	100	500	5.9	44

STATIC APPLICATION



FE

CANOPEN 30V

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.34	0.50		6xØ

CANopen

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the CANOPEN® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

E244280 **AWM STYLE 2502 80°C 30V**

AWM I-II A-B 80°C 30V

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

INSULATION RESISTANCE
500MOHM/KM (COD.17570
10MOHM/KM)

NOMINAL IMPEDANCE
120±15%OHM

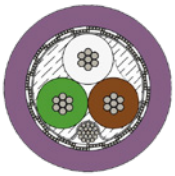
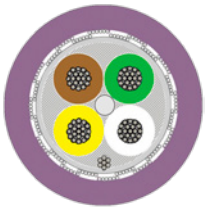
CONSTRUCTION FEATURES

TWISTED PAIRS PE	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	POLYETHYLENE COMPOUND (PE)
	INSULATION COLOR	WHITE-BROWN GREEN-YELLOW
TWISTED PAIRS PEE	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	INSULATION COLOR	WHITE-BROWN
GROUND CONDUCTOR	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	POLYETHYLENE COMPOUND (PE)
	INSULATION COLOR	GREEN
OVERALL STRANDING COD.17570	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET PET - POLYESTER.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: YES
OVERALL STRANDING COD.17970	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PET PET - POLYESTER.
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: YES
OVERALL STRANDING COD.17571	SEPARATION LAYER	TAPE PET PET - POLYESTER.
	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: YES

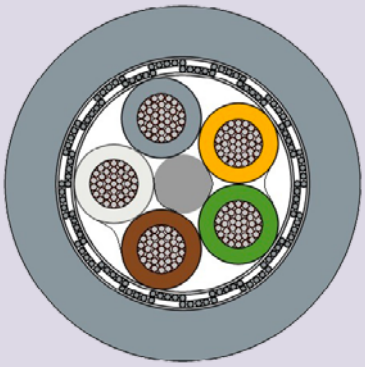
PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
IRM 902

REFERENCE DRAW	TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
	**17570**	**(1X2X0,34+1X0,34)CCST** (1X2XAWG22+1XAWG22)CCST	50	✓	100	500	6.9	70
	**17970**	**(1X2X0,50)SN/CCST** (1X2XAWG21)SN/CCST	50	✓	100	500	6.7	65
	**17571**	**(2X2X0,34)CCST** (2X2XAWG22)CCST	50	✓	100	500/2000	7	71

STATIC APPLICATION



FE

RS485

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	0.22		6.0xø

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the RS485 data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

AWM STYLE 20236 80°C 30V

AWM I-II A-B 80°C 30V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

INSULATION RESISTANCE
5GOHM/KM

NOMINAL IMPEDANCE
120±15% OHM

CONSTRUCTION FEATURES

RS485 SERIAL	CONDUCTOR	CL2 FLEXIBLE. TINNED COPPER
	INSULATION	EXPANDED POLYETHYLENE (PEE)
GND	CONDUCTOR	CL2 FLEXIBLE. TINNED COPPER
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	INSULATION COLOR	GRAY RAL 7001
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE PE TRANSPARENT POLYETHYLENE (PE)
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	POLYURETHANE COMPOUND (TMPU)
	SHEATH COLOUR	GRAY, RAL: 7001, DESINA: NO

PRODUCTS FEATURES

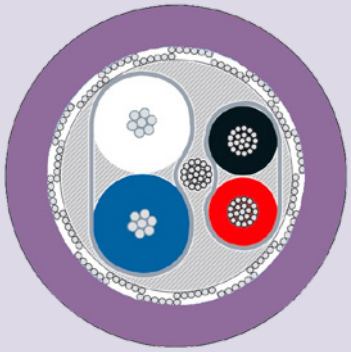
FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
15166	**(2X2X0,22+1X0,22)ST** (2X2XAWG24+1XAWG24)ST	45	X	100	500/1000	5.8	42	WHITE-BROWN, GREEN-YELLOW

DYNAMIC APPLICATION

PMXX®
DEVICE NET



APPLICATIVE FEATURES

5 MILLION
GUARANTEED CYCLES

10,0 M/S²
ACCELERATION

15,0M
CABLE LENGTH

200,0M/MIN
TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.20	1.65	10.0xø	6.0xø

DeviceNet

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the DEVICE NET® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

E244280 — **AWM STYLE 20233 80°C 300V**

AWM I/II A/B 80°C 300V

2014/35/CEE

EMC — **2014/30/EU**

RoHS — **2011/65/UE**

REACH — **1907/2006**

HF HALOGEN FREE — **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
<5GOHM/KM

NOMINAL IMPEDANCE
120±10%

CONSTRUCTION FEATURES

DATA PAIR	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**EXPANDED POLYETHYLENE (PEE)**
	INSULATION COLOR	**BLUE CORE AND WHITE CORE.**
	SCREEN	**TAPE SHIELD POLYESTER INSIDE / ALLUMINIUM OUTSIDE 100 % ± 5 %**
SUPPLY PAIR	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. TINNED COPPER**
	INSULATION	**EXPANDED POLYETHYLENE (PEE)**
	INSULATION COLOR	**BLACK AND RED**
	SCREEN	**TAPE SHIELD POLYESTER INSIDE / ALLUMINIUM OUTSIDE 100 % ± 5 %**
OVERALL STRANDING	DRAIN WIRE	**DRAIN WIRE TINNED COPPER**
	SCREEN	**SHIELD TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**

PRODUCTS FEATURES

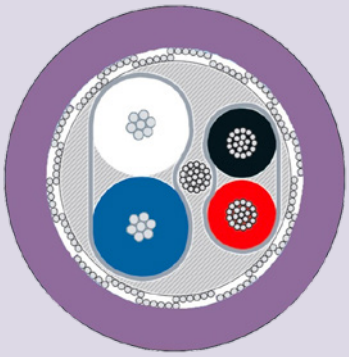
FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
14391	**[(2XAWG24)SN+ (2XAWG22)SN]CCST**	40	✓	100		7	65
14423	**[(2XAWG18)SN+ (2XAWG15)SN]CCST**	46	✓	100	500	11.6	175

STATIC APPLICATION



FE

DEVICE NET

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	1.66		6.0xø

DeviceNet

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the DEVICE NET® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

AWM STYLE 2464 80°C 300V

E244280

AWM I/II A/B 80°C 300V

2014/35/CEE

2014/30/EU

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
300V

TEST VOLTAGE
2000V

INSULATION RESISTANCE
≥5GOHM/KM

NOMINAL IMPEDANCE
120±10%OHM

CONSTRUCTION FEATURES

DATA PAIR	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	INSULATION COLOR	BLUE CORE AND WHITE CORE.
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
SUPPLY PAIR	CONDUCTOR	CL5 FLEXIBLE. TINNED COPPER
	INSULATION	EXPANDED POLYETHYLENE (PEE)
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
OVERALL STRANDING	SCREEN	SCREEN TINNED COPPER 85 % ± 5 %
	DRAIN WIRE	DRAIN WIRE TINNED COPPER
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	VIOLET, RAL: 4001, DESINA: YES

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
IRM 902

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)
13339	[(2XAWG24)SN+ (2XAWG22)SN]CCST	40	✓	100	500	7	67
13338	[(2XAWG18)SN+ (2XAWG15)SN]CCST	46	✓		500	11.6	175

DYNAMIC APPLICATION

PMXX®
INTERBUS

APPLICATIVE FEATURES

UP TO 5 MILLION GUARANTEED CYCLES

10,0 M/S² ACCELERATION

15,0M CABLE LENGTH

200,0M/MIN TRAVEL SPEED

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.25	1.00	10.0xø	6.0xø

INTERBUS

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the INTERBUS® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

E244280 **AWM STYLE 20236 80°C 30V**

AWM I-II A-B 80°C 30V

2014/35/CEE

EMC **2014/30/EU**

RoHS **2011/65/UE**

REACH **1907/2006**

HF HALOGEN FREE **IEC 60754-1**

TECHNICAL DATA

DYNAMIC
-40°C +80°C
STATIC
-50°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

NOMINAL IMPEDANCE
120±10% OHM

CONSTRUCTION FEATURES

DATA TRANSMISSION	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
POWER SUPPLY	CONDUCTOR	**CL6 EXTRA-FLEXIBLE. BARE COPPER.**
	INSULATION	**POLYETHYLENE COMPOUND (PE)**
OVERALL STRANDING	FILLER	**FILLER CENTRAL POLYPROPYLENE**
	SEPARATION LAYER	**TAPE POLYESTER TRANSPARENT TAPE OR NON-WOVEN TAPE**
	SCREEN	**SHIELD BRAID TINNED COPPER 85 % ± 5 %**
	SEPARATION LAYER	**TAPE NON-WOVEN TAPE**
	SHEATH	**POLYURETHANE COMPOUND (TMPU)**
	SHEATH COLOUR	**VIOLET, RAL: 4001, DESINA: YES**

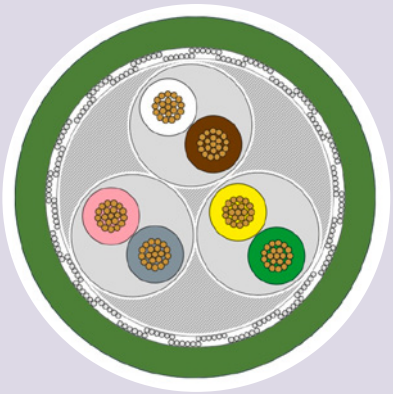
PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
CEI EN 50363-10-2 (EU)
IRM 902

UV PERFORMANCE
UV RESISTANT

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
22569	**(3X2X0,25+3G1,00)ST** (3X2XAWG24+3GAWG18)ST	60	✓	100	500	8.4	110	GREEN-YELLOW, WHITE-BROWN, PINK-GRAY.



STATIC APPLICATION

FE

INTERBUS

APPLICATIVE FEATURES

MINIMUM BENDING RADIUS

CROSS SECTION MIN (MM^2)	CROSS SECTION MAX (MM^2)	DYNAMIC INSTALLATION	STATIC INSTALLATION
0.22	0.22		6.0xØ

DESCRIPTION

UL/CSA certified flexible cables for industrial devices that work with the INTERBUS® data transmission standard, designed for Static application between the central controlling unit and the input/output peripheral components. The construction of these cables is designed to limit electromagnetic interference for optimal and clean communication.

APPROVALS

E244280 **AWM STYLE 2502 80°C 30V**

AWM I-II A-B 80°C 30V

2014/35/CEE

EMC **2014/30/EU**

2011/65/UE

1907/2006

TECHNICAL DATA

DURING INSTALLATION
-5°C +80°C
STATIC
-30°C +80°C

NOMINAL VOLTAGE
30V

TEST VOLTAGE
500V

NOMINAL IMPEDANCE
100±15% OHM

CONSTRUCTION FEATURES

TWISTED PAIR	CONDUCTOR	CL5 FLEXIBLE. BARE COPPER.
	INSULATION	POLYETHYLENE COMPOUND (PE)
OVERALL STRANDING	FILLER	FILLER POLYPROPYLENE
	SEPARATION LAYER	TAPE POLYESTER PET - POLYESTER.
	SCREEN	SHIELDED TAPE MYLAR/ALLUMINIUM 100 % ± 5 %
	SCREEN	SHIELD BRAID TINNED COPPER 85 % ± 5 %
	SEPARATION LAYER	TAPE NON-WOVEN TAPE
	SHEATH	PVC COMPOUND.
	SHEATH COLOUR	GREEN, RAL: 6017, DESINA: NO

PRODUCTS FEATURES

FIRE PERFORMANCE
FT1 (CSA)
IEC 60332-1-2 (EU)

OIL PERFORMANCE
1581 (UL)
IEC 60811-404 (EU)
IRM 902

TECO CODE	N° CORES X CROSS-SECTION	CAPACITANCE (NF/KM)	CUT	ROLLS (M)	DRUMS (M)	EXT Ø (MM)	WEIGHT (KG/KM)	INS. COLOUR EXC
13194	**(3X2X0,22)SN-ST** (3X2XAWG24)SN/ST	60	✓	100	500	7	65	GREEN-YELLOW, WHITE-BROWN, PINK-GRAY.

TECHNICAL INFORMATION

GUIDELINES FOR THE CORRECT CABLE CHOICE

CABLE SELECTION GUIDE

The use of cables in the industrial sector presents complex and varied challenges. The materials currently used allow for dynamic applications in various conditions. To avoid improper cable installation that could compromise its reliability, it is essential to select the most suitable product considering:

- Continuous flexing
- Continuous torsion
- Combined flexing and torsion
- Lubricating oils, greases, etc.
- Cutting coolant oils
- High/low temperatures
- External electrical interference
- Heavy mechanical stresses

In addition to compliance with major safety standards, the choice of cable must consider additional factors such as:

ENVIRONMENT

Minimum/maximum operating temperature
Presence of chemicals
Storage temperature

INSTALLATION

Fixed
Mobile – in cable chains
Festooned or on cable drums
Torsion

LOAD TYPE

Cable Chain
Minimum bending radius
Translation speed
Acceleration
Chain length

Cable Chain
Drum diameter
Tensile force

ELECTRICAL CHARACTERISTICS

Number of conductors
Cross-section
Pair formation
Optional shielding
Operating voltage

IMPACT OF INCORRECT DIMENSIONING

Some cable application compatibility issues may arise only after the automation system is operational.

EFFECTS ON PRODUCTION

- Machine downtime, resulting in production loss.
- Difficulty locating the fault, often preceded by intermittent contact.
- High maintenance costs, especially for remote support.
- Loss of company reputation.
- Risk of electric shock and fire.

EFFECTS ON THE CABLE	CAUSES	POSSIBLE SOLUTIONS
Stiffening of the sheath, leading to breakage.	- Incompatibility with oils or greases present in the work environment	- Appropriate sheaths guaranteed for prevailing agents
The cable takes on a “spring” or snake shape during flexing	- Inadequate bending radius - Improper fastening to the cable chain - Excessive cable chain length - Lack of dividers	- Cables guaranteed for the specified bending radius - Proper fastening of the cable to the cable chain - Declare cable chain lengths greater than 7-8 meters
Cable elongation inside the cable chain	- Excessive acceleration	- Insert appropriate sealing member - Make the cable inextensible
Sheath wear leading to breakage	- Abrasion between cables, cable and chain, or other components	- Use low-friction sheath materials - Insert separators between cables to prevent abrasion

INSULATION'S AND SHEATH'S MATERIAL CHARACTERISTICS

	MATERIAL		ELECTRICAL				THERMIC				
	VDE Abb.	Material	Density	Breakdown Voltage	Volume Resistivity	Dielectric Constant	Working Temperature			Flame Resistance	Oxygen Index
			g/m2	kV/mm	y/cm	50 Hz	Permissible °C (-/+)		short circuit °C		(% O2)
THERMOPLASTICS	Y PVC	PVC	1,35 - 1,5	25	10^{13} - 10^{15}	3,6 - 6	- 30	+ 70	+100	self extinguish	23 - 42
	Yw PVC	PVC 90°C	1,35 - 1,5	25		4 - 6,5	- 20	+ 90	+ 120		
	Yw PVC	PVC 105°C	1,35 - 1,5	25		4,5 - 6,5	- 20	+ 105	+ 120		24 - 42
	Yk PVC	PVC cold resistant	1,2 - 1,4	25		4,5 - 6,5	- 40	+ 70	+ 100		
	2Y LDPE	Low Density Polyethylene	0,92 - 0,94	70	10^{17}	2,3	- 50	+ 70	+ 100	flammable	≤ 22
	2Y HDPE	High Density Polyethylene	0,94 - 0,98	85	10^{17}	2,3	- 50	+ 100	+ 120		
	2X VPE	Cross-Linked Polyethylene	0,92	50	10^{12} - 10^{16}	4 - 6	- 35	+ 90	+ 100		
	02Y	Foamed Polyethylene	~0,65	30	10^{17}	~1,55	- 40	+ 70			18 - 30
	3Y PS	Polystirole	1,05	30	10^{16}	2,5	- 50	+ 80			≤ 22
	4Y PA	Polyamyde	1,02 - 1,1	30	10^{15}	4	- 60	+ 105	+ 125		
	9Y PP	Polypropylene	0,91	75	10^{16}	2,3 - 2,4	- 10	+ 90	+ 140		
	11Y PUR	Polyurethane	1,15 - 1,2	20	10^{10} - 10^{12}	4 - 7	- 55	+ 80	+ 100		20 - 26
	12YT TPE-E	Polyester-Elastomer	1,2 - 1,4	40	> 10^{10}	3,7 - 5,1	- 50	+ 100	+ 140		≤ 29
	TPE-O	Polyolefin-Elastomer	0,89 - 1,0	30	> 10^{14}	2,7 - 3,6			+ 130		≤ 25
ELASTOMERS	G NR SBR	Natural Rubber	1.5 - 1,7	20	10^{12} - 10^{15}	3 - 5	- 65	+ 60	+ 120	flammable	≤ 22
	2G SIR	Silicone Rubber	1,2 - 1,3	20	10^{15}	3 - 4	- 60	+ 180	+ 260	high flash-point	25 - 35
	3G EPR	Ethylene-Propylen Rubber	1,3 - 1,55	20	10^{14}	3 - 3,8	- 30	+ 90	+ 160	flammable	≤ 22
	4G EVA	Ethylen-Vynylacetat Rubber	1,3 - 1,5	30	10^{12}	5 - 6,5	- 30	+ 125	+ 200		
	5G CR	Polychloroprene Compound	1,4 - 1,65	20	10^{10}	6 - 8,5	- 40	+ 100	+ 140	self extinguish	30 - 35
	6G CSM	Chlorsulfonated Polyethylene cmp	1,3 - 1,6	25	10^{12}	6 - 9	- 30	+ 80	+ 140		
FLUOROPOLYMERS	10Y EPR	Polyvinyldilene Fluoride Dyflor	1,7 - 1,9	25	10^{14}	9 - 7	- 40	+ 135	+ 160	self extinguish	40 - 45
	7Y ETFE	Ethylene-Tetrafluorethylene	1,6 - 1,8	36	10^{16} - 10^{18}	2,6	- 100	+ 150	+ 180		30 - 35
	6Y FEP	Fluorine Ethylene Propylene	2,0 - 2,3	25	10^{18}	2,1	- 100	+ 205	+ 230		> 95
	5YX PFA	Perfluoraloxypolymeric	2,0 - 2,3	25	10^{18}	2,1	- 190	+ 260	+ 280		
	5Y PTFE	Polytetrafluorethylene	2,0 - 2,3	20	10^{18}	2,1	- 190	+ 260	+ 300		
H.F.	H nXlink	Halogen Free Not Cross link	1,4 - 1,6	25	10^{12} - 10^{14}	3,4 - 5	- 30	+ 70	+ 100	self extinguish	≤ 40
	HX Xlink	Halogen Free Cross Linked	1,4 - 1,6	25	10^{13} - 10^{14}	3,4 - 5	- 30	+ 90	+ 150		

	MATERIAL	MECHANICAL			WEATHER		CHEMICAL RESISTANCE				
	VDE Abb.	Tensile Strength	Elongation at break	Shore Hardness	Weather Resistance	Cold Resistance	Water	Oil and Greases	Solvents	Alcohol	Acids
		N/mm2	%								
THERMOPLASTICS	Y PVC	10-25	130 - 350	70-95 (A)	medium (black outer sheath)	moder-ate-good	* * *	* * *	*	* *	* *
	Yw PVC					very good					
	Yw PVC										
	Yk PVC										
	2Y LDPE	10 - 20	400 - 600	43 - 50 (D)		good	* * * *	* * *	* * *	* * * *	* * *
	2Y HDPE	20 - 30	500 - 1000	60 - 63 (D)							
	2X VPE	12,5 - 20	300 - 400	40 - 45 (D)	good						
	02Y	8 - 12	350 - 450	-							
	3Y PS	55 - 65	300 - 400	35 - 50 (D)	medium - good	moder-ate-good	* * *	* * *	* * *	* *	* *
	4Y PA	50 - 60	50 - 170	-	good	good	*	* * *	* * * *	*	* *
	9Y PP	20 - 35	300	55 - 60 (A)	moderate		* * * *	* * * *	* *	* * *	* * *
	11Y PUR	30 - 45	500 - 700	70 - 100 (A)			* * * *	* * * *	* *	* *	* *
	12YT TPE-E	30	> 300	85 (A) - 70 (D)	very good	very good	*	* * * *	* *	*	* *
	TPE-O	20		55 (A) - 70 (D)			* * * *	* *	* *	* *	* *
ELASTOMERS	G NR SBR	5 - 10	300 - 600	60 - 70 (A)	moderate	very good	* * *	* * * *	* * *	* *	* *
	2G SIR			40 - 80 (A)	good						
	3G EPR		200 - 400	65 - 85 (A)	very good	good					
	4G EVA	8 - 12	250 - 350	70 - 80 (A)	good						
	5G CR	10 - 20	400 - 700	55 - 70 (A)	very good	moderate-good					
	6G CSM		350 - 600	60 - 70 (A)		moderate					
FLUOROPOLYMERS	10Y EPR	50 - 80	150	75 - 80 (D)	very good	very good	* * * *	* * * *	* * * *	* * * *	* * * *
	7Y ETFE		40 - 50								
	6Y FEP	15 - 25	250	55 - 60 (D)							
	5YX PFA	25 - 30									
	5Y PTFE	80	50								
H.F.	H nXlink	8 - 13	150 - 250	65 - 95 (A)	medium (good with black outer sheath)	average	*	*	-	-	-
	HX Xlink						* * *	* * *	*	*	*

LEGENDA: * no resistance ** minimun resistance *** moderate resistance **** good resistance

Please remember that this information is accurate to the best of our knowledge and experience, it must be treated as a non-binding guideline only. In many cases, specific tests must be carried out under working conditions to reach a definitive conclusion.

ELECTRICAL RESISTANCE

IEC 60228 CLASS 1/2

Nominal Cross Section mm²	Minimum number of wires in the conductor				Shaped conductor		Maximum conductor res. at 20°C Copper conductor	
	Circular (non compact) conductor		Circular compact conductor					
	Cu	Al	Cu	Al	Cu	Al	Plain Wires (Ω/km)	Metal-coated Wires (Ω/km)
0,5	7	-	-	-	-	-	36,7	36,0
0,75	7	-	-	-	-	-	24,8	24,5
1	7	-	-	-	-	-	18,2	18,1
1,5	7	-	6	-	-	-	12,1	12,2
2,5	7	7	6	-	-	-	7,41	7,56
4	7	7	6	-	-	-	4,70	4,61
6	7	7	6	-	-	-	3,11	3,08
10	7	7	6	-	-	-	1,84	1,83
16	7	7	6	6	-	-	1,16	1,15
25	7	7	6	6	6	6	0,734	0,727
35	7	7	6	6	6	6	0,529	0,524
50	19	19	6	6	6	6	0,391	0,387
70	19	19	12	12	12	12	0,270	0,268
95	19	19	15	15	15	15	0,195	0,193
120	37	37	18	15	18	15	0,154	0,153
150	37	37	18	15	18	15	0,126	0,124
185	37	37	30	30	30	30	0,100	0,0991
240	61	61	34	30	34	30	0,0762	0,0754
300	61	61	34	30	34	30	0,0607	0,0601
400	61	61	53	53	53	53	0,0475	0,0470
500	61	61	53	53	53	53	0,0369	0,0366
630	91	91	53	53	53	53	0,0286	0,0283
800	91	91	53	53	-	-	0,0224	0,0221
1000	91	91	53	53	-	-	0,0177	0,0176

IEC 60228 DIN VDE 0295 CLASS 5/6

Nominal Cross Section mm²	Maximum diameter of wires in the conductor (mm)		Maximum conductor resistance at 20°C (Ω/km)	
	Class 5	Class 6	Plain Wires	Metal-coated Wires
0,08	-	0,10	243,0	250,0
0,14	-	0,10	138,0	142,0
0,25	-	0,10	79,0	82,0
0,34	-	0,16	57,0	59,0
0,38	-	0,16	48,5	52,8
0,5	0,21	0,16	39,0	40,1
0,75	0,21	0,16	26,0	26,7
1	0,21	0,16	19,5	20,0
1,5	0,26	0,16	13,3	13,7
2,5	0,26	0,16	7,98	8,21
4	0,31	0,16	4,95	5,09
6	0,31	0,21	3,30	3,39
10	0,41	0,21	1,91	1,95
16	0,41	0,21	1,21	1,24
24	0,41	0,21	0,780	0,795
35	0,41	0,21	0,554	0,565
50	0,41	0,31	0,386	0,393
70	0,51	0,31	0,272	0,277
95	0,51	0,31	0,206	0,210
120	0,51	0,31	0,161	0,164
150	0,51	0,31	0,129	0,132
185	0,51	0,41	0,106	0,108
240	0,51	0,41	0,0801	0,0817
300	0,51	0,41	0,0641	0,0654
400	0,51	-	0,0486	0,0495
500	0,61	-	0,0384	0,0391
630	0,61	-	0,0287	0,0292

AWG, KMILS VS METRIC

CONDUCTORS DIMENSION (extract from UL 758 Table 5.1)

Conductor size	Cross-sectional area of stranded conductor			
	Nominal		Minimum	
AWG	Cmils	mm²	Cmils	mm²
50	0.980	0,000497	0.960	0,000486
49	1.23	0,000624	1.21	0,000613
48	1.54	0,000768	1.51	0,000765
47	1.96	0,000993	1.92	0,000973
46	2.46	0,00125	2.41	0,00122
45	3.10	0,00157	3.04	0,00154
44	4.00	0,00203	3.92	0,00198
43	4.84	0,00245	4.74	0,0024
42	6.25	0,00317	6.13	0,003115
41	7.84	0,00397	7.68	0,00389
40	9.61	0,00487	9.42	0,00477
39	12.2	0,00621	11.9	0,00603
38	16.0	0,00811	15.7	0,00796
37	20.2	0,0103	19.8	0,01
36	25.0	0,0127	24.5	0,0124
35	31.4	0,0159	30.8	0,0156
34	39.7	0,02	39.9	0,0197
33	50.4	0,0255	49.4	0,025
32	64.0	0,0324	62.7	0,0318
31	79.2	0,0401	77.6	0,0393
30	100	0,0507	98	0,0497
29	128	0,0647	125	0,0633
28	159	0,0804	156	0,079
27	202	0,102	198	0,1
26	253	0,128	248	0,126
25	320	0,162	314	0,159
24	404	0,205	396	0,201
23	511	0,259	501	0,254
22	640	0,324	627	0,318
21	812	0,412	796	0,404
20	1020	0,519	1000	0,509
19	1290	0,653	1264	0,641
18	1620	0,823	1588	0,807
17	2050	1,04	2009	1,02
16	2580	1,31	2528	1,28
15	3260	1,65	3195	1,62
14	4110	2,08	4028	2,04
13	5180	2,63	6076	2,58
12	6530	3,31	6399	3,24
11	8230	4,17	8065	4,09
10	10380	5,261	10172	5,16

ELECTRICAL RESISTANCE OF THE STRANDED CONDUCTOR (extract from UL 1581 Table 30.3) and mm² nominal section

Stranded conductor resistance Bare copper	Closest mm² nominal section
Ω/km (20°C)	mm²
354	0,05
277	
223	0,08-0,09
175	
140	0,14
111	
87,6	0,22-0,25
69,2	
55,4	0,34
43,6	0,5
34,6	0,5
27,4	0,75
21,8	1
17,3	
13,7	1,5
10,9	
8,62	2,5
6,82	
5,43	4
4,3	
3,409	6

Conductor size	Cross-sectional area of stranded conductor				Stranded conductor resistance Bare copper	Closest mm² nominal section
	Nominal		Minimum			
AWG	Cmils	mm²	Cmils	mm²	Ω/km (20°C)	mm²
9	13090	6,631	12828	6,5	2,705	
8	16510	8,367	16180	8,2	2,144	10
7	20820	10,55	20404	10,34	1,7	
6	26240	13,3	25715	13,03	1,348	16
5	33090	16,77	32428	16,43	1,07	
4	41740	21,15	40905	20,73	0,8481	25
3	52620	26,67	51568	26,14	0,6727	
2	66360	33,62	65033	32,95	0,5335	35
1	83690	42,41	82016	41,56	0,423	50
1/0	105600	53,49	103488	52,42	0,3354	50
2/0	133100	67,43	130438	66,08	0,266	70
3/0	167800	85,01	164444	83,31	0,211	95
4/0	211600	107,2	207368	105,1	0,1673	120
(Kcmil)	(Kcmil)	-	(Kcmil)	-		
250	250	127	245	124,1	0,1416	150
300	300	152	294	149	0,118	
350	350	177	343	173,8	0,1011	185
400	400	203	392	198,6	0,8851	
450	450	228	441	223,5	0,07867	240
500	500	253	490	248,3	0,0708	
550	550	279	539	273,1	0,06436	300
600	600	304	588	297,9	0,059	
650	650	329	637	322,8	0,05447	
700	700	355	686	347,6	0,05057	400
750	750	380	735	372,4	0,04721	
800	800	405	784	397,2	0,04425	
900	900	456	882	446,9	0,03933	500
1000	1000	507	980	496,6	0,01804	
1100	1100	557	1078	546,2	0,03218	
1200	1200	608	1176	595,9	0,0295	630
1250	1250	633	1225	620,7	0,02833	
1300	1300	659	1274	645,5	0,02723	
1400	1400	709	1372	695,2	0,02529	
1500	1500	760	1470	744,9	0,0236	
1600	1600	811	1568	794,5	0,02212	
1700	1700	861	1666	844,2	0,02083	
1750	1750	887	1715	869	0,02023	
1800	1800	912	1764	893,8	0,01967	
1900	1900	963	1862	943,5	0,01864	
2000	2000	1010	1960	993,1	0,0177	

CONDUCTORS AND CABLES

9.3 CROSS-SECTION OF CONDUCTORS

The cross-section of conductors shall be adequate for the hightest possible steady current under normal working conditions, taking into consideration the ambient conditions (for example cooling, nearby heat generating components and devices). The maximum permissible conductor temperature may be limited by be its effects on nearby components and devices.

The cross-section of insulated cables used for the wiring:

- in control cabinets
- between several control cabinets belonging to the same machine
- between such control cabinets and the machine
- on and in the machine itself, shall satisfy the requirements of all three Subclauses 9.3.1 to 9.3.3 (see also Note 2 of Sub-clause 5.2.3)

Note: the wiring of electronic circuits with steady currents below 2A located within enclosures of electronic equipment, need not comply with Sub-clauses 9.3.1 and 9.3.3.

9.3.1 CURRENT-CARRYING CAPACITY

The cross-section of the conductors shall be determined according to Appendix B. Clause BI, columns 2 and 3 of Table BII, dependent on the highest possible steady current under normal working conditions in the circuit considered.

The reduced current loading of cable according to columns 4 and 5 of Table BII in Appendix B shall be used. However if the structure of a building is involved for d-supporting the cables, the cross-section of these conductors shall be determined according to Chapter C2 of IEC Publication 364. For intermittent duty, the thermally equivalent current, i.e. therms value of the intermittent current, may be used for de- termining the cross-sections if the period of the duty cycle is much shorter than the time constant fo heating up the cable.

9.3.3 MINIMUM CROSS-SECTIONS OF COPPER CONDUCTORS

For mechanical reasons the cross-section used shall be not less than shown in Table VI. However, due to design considerations, conductors with smaller cross-section than shown in Table A1 may be used in the equipment where necessary, provided its proper functioning is not impaired.

TABLE A1 - MINIMUM CROSS-SECTION OF CABLES

Location and description	Single core cables				Multicore cables two cores				Three and more cores	
	Stranded		Solid		Shielded		Not Shielded			
	mm² (AWG)		mm² (AWG)		mm² (AWG)		mm² (AWG)		mm² (AWG)	
①	②		③		④		⑤		⑥	
Outside enclosures	1	(17)	1,5	(16)	0,75	(18)	0,75	(18)	0,75	(18)
Connections of machine parts subjected to frequent movement: only flexible cables[1]	1	(17)			1	(17)	1	(17)	1	(17)
Connections of very low-current circuits[2]	1	(17)	1.5	(16)	0.3[3]	(22)	0.5	(20)	0.3[3]	(22)
Inside enclosures	0,75	(18)	0,75	(18)	0,75	(18)	0,75	(18)	0,75	(18)
Connections of very low-current circuits[2]	0.2[4]	(24)	0.2[4]	(24)	0.2[4]	(24)	0.2[4]	(24)	0.2[4]	(24)

[1] See Sub-clauses 9.1, 10.1.3 and 10.4.2
[2] Such as electronic logic and similar low-level (signal) circuits
[3] Corresponding to 0.6 mm diameter
[4] Corresponding to 0.5 mm diameter
Note: for comparison of conductor areas in square millimeters with the American (AWG) and British wire gauge, circular-mils and square inches see Appendix C

B1.2 - TEMPERATURES AND AMBIENT AIR TEMPERATURE

TABLE B1

Ambient air temperature (°C)	De-rating factors
30	1
35	0,93
40	0,87
45	0,79
50	0,71
55	0,61
60	0,50

Note: these are the same factors as indicated for PVC in Table VI (or TECO tab. A1) of IEC Publication 448 "Current-carrying Capacities of Conductors for Electrical Installation of Buildings".

B1.3 CURRENT-CARRYING CAPACITIES OF FULLY-LOADED CABLES

B1.3.1 - TABLE C1 - CABLES HAVING COPPER CONDUCTORS

Maximum permissible currents under normal working conditions of the machine for single or multicore cables without a metallic sheath, having PVC – insulated copper conductors, with a permissible working temperature of 70° C, for a nominal ambient air temperature of 30° C (see also Sub-clause B1.2). The values of this table apply where any number of cables are laid together. For multicore cables with shaped conductors (of large cross-section) the values of this table must be reduced by 6A.

TABLE C1 - CABLES HAVING COPPER CONDUCTORS

Nominal cross-section of cables	Current-carrying capacities of cables for machines			
	In normal use		Used in large series production processes, see Sub-clauses 1.3 and 9.3.1	
	In ducts	In free air	In ducts	In free air
①	②	③	④	⑤
mm²	A	A	A	A
0,1961	2,5	2,7	2	2,2
0,2832	3,5	3,8	3	3,3
0,5	6	6,6	5	5,5
0,75	9	10	7,5	8,5
1	12	13,5	10	11,5
1,5	15,5	17,5	13	15
2,5	21	24	18	20
4	28	32	24	27
6	36	41	31	34
10	50	57	43	48
16	68	76	58	65
25	89	101	76	86
35	111	125	94	106
50	134	151	114	128
70	171	192	145	163
95	207	232	176	197
120	239	269	203	228
150	275	309	234	262
185	314	353	367	300
240	369	415	314	353

Note. The current values, given in Table C1 have been calculated for cross-section above 1mm using the following formula:

$I = a \times S^{0,625}$

I = current in amperes

S = cross-section in square millimetres

a = current values tabulted for 1 mm²

The values given for cross-section 1 mm² to 120 mm² in column ② are the same as those given for current carrying capacity of copper conductors in Table 1 of IEC Publication 448, and the values given for cross-section mm² to 240 mm² in column ③ are the same as those given for three loaded copper conductors in Table III of the same publication. Taking into account that generally on most machines not all the cables of different circuits will be fully loaded in continuous duty (this for various reasons, such as: intermittent duty, drives that are not fully loaded, cables available on with discrete cross-section, etc.) the values given in Table B II may be applied to many numbers of cables, even where they are laid together and follow the same course. In certain critical cases, however, it would be wise to check that the cable temperature stays within permissible limits.

B1.3.2

If cables having aluminium conductors are used instead of copper conductors, a de-rating factor by 0.78 shall be applied to the values of Table B II. Aluminium is permitted only for fixed connections: in particular, it is prohibited for connections to moving elements.

EXCERPT FROM IEC 60204-1 STANDARD FOR CABLE SELECTION IN ELECTRICAL MACHINERY INSTALLATIONS

Cables must be selected to ensure that the insulation function remains effective throughout the cable's lifetime. Therefore, the cable must be selected based on:

- The operating environment
- Voltage (value and waveform)
- The electrical current of the circuit in which the cable is used, and therefore the operating temperature of the insulation

The standard used for cable selection is "IEC 60364-5-52 - Low-voltage electrical installations - Part 5-52: Selection and erection of electrical equipment - Wiring systems."

To correctly choose the cable cross-section, the following must be considered:

- Type of conductor material
- Insulation material
- Installation method
- Presence or absence of other cables
- Maximum ambient temperature at which the cable operates

IEC 60204-1 allows sizing of cable cross-sections for conduits typically used in industrial environments. The method is applicable for PVC cables.

Method Explanation:

1. Define the ampacity (*Iz*) of the cable based on its cross-section and installation method → Table 1
2. If the ambient temperature (maximum temperature around the cable) differs from 40°C, apply the correction factor K_t → Table 2
3. If the cable is installed together with other cables, apply the correction factor K_g → Table 3
   or if the cable is multicore with a cross-section not exceeding 10 mm² → Table 4
4. The effective ampacity of the cable Iz_k is equal to:
   $Iz_k = Iz \times K_g \times K_t$
5. The effective ampacity of the cable must satisfy the following condition: $Ib \leq In \leq Iz_k$ Where:
   Ib = Nominal current of the load powered by the cable
   In = Nominal current of the protection device
   If the condition is not met, repeat the procedure by selecting a larger cross-section

EXCERPT FROM IEC 60204-1 STANDARD REGARDING THE SELECTION OF CABLES IN ELECTRICAL INSTALLATIONS FOR MACHINERY

PVC CABLE CAPACITY CHART AT 40°C

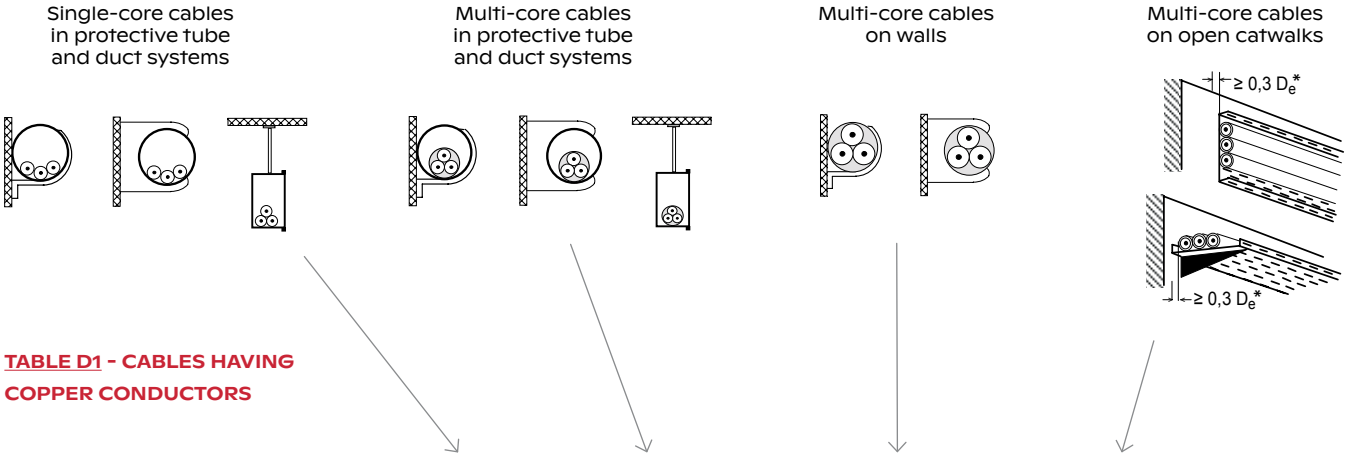


TABLE D1 - CABLES HAVING COPPER CONDUCTORS

Cross-sectional area mm²	Installation method (See D.2.2)			
	B1	B2	C	E
	Current-carrying capacity Iz for three phase circuits A			
0.75	8.6	8.5	9.8	10.4
1.0	10.3	10.1	11.7	12.4
1.5	13.5	13.1	15.2	16.1
2.5	18.3	17.4	21	22
4	24	23	28	30
6	31	30	36	37
10	44	40	50	52
16	59	54	66	70
25	77	70	84	88
35	96	86	104	110
50	117	103	125	133
70	149	130	160	171
95	180	156	194	207
120	208	179	225	240
Control circuit pairs				
0.20	4.5	4.3	4.4	4.4
0.5	7.9	7.5	7.5	7.8
0.75	9.5	9.0	9.5	10

NOTE 1
The values of the current-carrying capacity of Table D1 are based on:
- one symmetrical three-phase circuit for cross-sectional areas 0.75 mm² and greater;
- one control circuit pair for cross-sectional areas between 0.2 mm² and 0.75 mm²
Where more loaded cables/pairs are installed, derating factors for the values of table 6 can be found in table D.2 or D.3.

NOTE 2
For ambient temperatures other than 40° C, correction factors for current-carrying capacities are provided in table D.1.

NOTE 3
These values are not applicable to flexible cables wound on drums (see 12.6.3).

NOTE 4
Current-carrying capacities of other cables are provided in IEC 60364-5-52.
* De = larger cable outer diameter

TABLE E1

Ambient air temperature (°C)	Correction factor
40	1,00
45	0,91
50	0,82
55	0,71
60	0,58

NOTE
The correction factors are derived from IEC 60364-5-52.
The maximum temperature under normal conditions for PVC 70°C.

TABLE E2

Methods of installation (see D.1) (see Note 3)	Number of loaded circuits			
	2	4	6	9
B1 (conductors or single core cables) and B2 (multicore cables)	0,80	0,65	0,57	0,50
C single layer with no gap between cables	0,85	0,75	0,72	0,70
E single layer on one perforated tray without gap between cables	0,88	0,77	0,73	0,72
E as before but with 2 or 3 trays, with a vertical spacing between each tray of 300 mm (see Note 4)	0,86	0,76	0,71	0,66
Control circuit pairs ≤ 0,5 mm² independent of methods of installation	0,76	0,57	0,48	0,40

NOTE 1
These factors are applicable to:
- cables, all equally loaded, the circuit itself symmetrically loaded
- groups of circuits of insulated conductors or cables having the same allowable maximum operating temperature

NOTE 2
The same factors are applied to:
- groups of two or three single-core cables
- multicore cables

NOTE 3
Factors derived from IEC 60364-5-52: 2009.

NOTE 4
A perforated cable tray is a tray where the holes occupy more than 30% of the area of the base.
(Derived from IEC 60364-5-52: 2009).

TABLE E3 - TABLE FOR DOWNGRADING CABLES UP TO 10 MM²

Number of loaded conductors or pairs	Conductors (≥ 1 mm²) (see Note 3)	Pairs (0,25 mm² to 0,75 mm²)
1	-	1,0
3	1,0	0,5
5	0,75	0,39
7	0,65	0,34
10	0,55	0,29
24	0,40	0,21

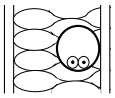
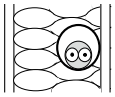
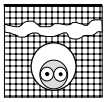
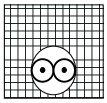
NOTE 1
Applicable to multicore cables with equally loaded conductors/pairs.

NOTE 2
For grouping of multicore cables, see derating factors of table D.2.

NOTE 3
Factors derived from IEC 60364-5-52:2009.

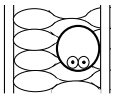
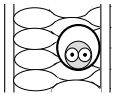
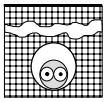
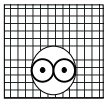
EXCERPT FROM IEC 60364-5-52 STANDARD FOR THE INSTALLATION OF ELECTRICAL CABLES IN LOW VOLTAGE SYSTEMS

TABLE B.52.2 - Current-carrying capacities in amperes for methods of installation in Table B.52.1 PVC INSULATION/TWO LOADED CONDUCTORS/COPPER OR ALUMINIUM - CONDUCTOR TEMPERATURE: 70°C, AMBIENT TEMPERATURE: 30°C IN AIR, 20°C IN GROUND

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	14,5	14	17,5	16,5	19,5	22	22
2,5	19,5	18,5	24	23	27	29	28
4	26	25	32	30	36	37	38
6	34	32	41	38	46	46	48
10	46	43	57	52	63	60	64
16	61	57	76	69	85	78	83
25	80	75	101	90	112	99	110
35	99	92	125	111	138	119	132
50	119	110	151	133	168	140	156
70	151	139	192	168	213	173	192
95	182	167	232	201	258	204	230
120	210	192	269	232	299	231	261
150	240	219	300	258	344	261	293
185	273	248	341	294	392	292	331
240	321	291	400	344	461	336	382
300	367	334	458	394	530	379	427
Aluminium							
2,5	15	14,5	18,5	17,5	21	22	
4	20	19,5	25	24	28	29	
6	26	25	32	30	36	36	
10	36	33	44	41	49	47	
16	48	44	60	54	66	61	63
25	63	58	79	71	83	77	82
35	77	71	97	86	103	93	98
50	93	86	118	104	125	109	117
70	118	108	150	131	160	135	145
95	142	130	181	157	195	159	173
120	164	150	210	181	226	180	200
150	189	172	234	201	261	204	224
185	215	195	266	230	298	228	255
240	252	229	312	269	352	262	298
300	289	263	358	308	406	296	336

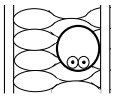
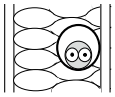
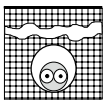
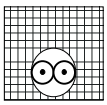
NOTE
In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

TABLE B.52.3 - Current-carrying capacities in amperes for methods of installation in Table B.52.1 XLPE OR EPR INSULATION, TWO LOADED CONDUCTORS/COPPER OR ALUMINIUM - CONDUCTOR TEMPERATURE: 90°C, AMBIENT TEMPERATURE: 30°C IN AIR, 20°C IN GROUND

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	19	18,5	23	22	24	25	27
2,5	26	25	31	30	33	33	35
4	35	33	42	40	45	43	46
6	45	42	54	51	58	53	58
10	61	57	75	69	80	71	77
16	81	76	100	91	107	91	100
25	106	99	133	119	138	116	129
35	131	121	164	146	171	139	155
50	158	145	198	175	209	164	183
70	200	183	253	221	269	203	225
95	241	220	306	265	328	239	270
120	278	253	354	305	382	271	306
150	318	290	393	334	441	306	343
185	362	329	449	384	506	343	387
240	424	386	528	459	599	395	448
300	486	442	603	532	693	446	502
Aluminium							
2,5	20	19,5	25	23	26	26	
4	27	26	33	31	35	33	
6	35	33	43	40	45	42	
10	48	45	59	54	62	56	
16	64	60	79	72	84	71	76
25	84	78	105	94	101	90	98
35	103	96	130	115	126	108	117
50	125	115	157	138	154	128	139
70	158	145	200	175	198	158	170
95	191	175	242	210	241	186	204
120	220	201	281	242	280	211	233
150	253	230	307	261	324	238	261
185	288	262	351	300	371	267	296
240	338	307	412	358	439	307	343
300	387	352	471	415	508	346	386

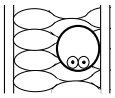
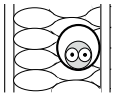
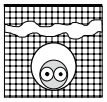
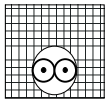
NOTE
In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

TABLE B.52.4 - Current-carrying capacities in amperes for methods of installation in Table B.52.1 PVC INSULATION/THREE LOADED CONDUCTORS/COPPER OR ALUMINIUM - CONDUCTOR TEMPERATURE: 70°C, AMBIENT TEMPERATURE: 30°C IN AIR, 20°C IN GROUND

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1 	A2 	B1 	B2 	C 	D1 	D2 
1	2	3	4	5	6	7	8
Copper							
1,5	13,5	13	15,5	15	17,5	18	19
2,5	18	17,5	21	20	24	24	24
4	24	23	28	27	32	30	33
6	31	29	36	34	41	38	41
10	42	39	50	46	57	50	54
16	56	52	68	62	76	64	70
25	73	68	89	80	96	82	92
35	89	83	110	99	119	98	110
50	108	99	134	118	144	116	130
70	136	125	171	149	184	143	162
95	164	150	207	179	223	169	193
120	188	172	239	206	259	192	220
150	216	196	262	225	299	217	246
185	245	223	296	255	341	243	278
240	286	261	346	297	403	280	320
300	328	298	394	339	464	316	359
Aluminium							
2,5	14	13,5	16,5	15,5	18,5	18,5	
4	18,5	17,5	22	21	25	24	
6	24	23	28	27	32	30	
10	32	31	39	36	44	39	
16	43	41	53	48	59	50	53
25	57	53	70	62	73	64	69
35	70	65	86	77	90	77	83
50	84	78	104	92	110	91	99
70	107	98	133	116	140	112	122
95	129	118	161	139	170	132	148
120	149	135	186	160	197	150	169
150	170	155	204	176	227	169	189
185	194	176	230	199	259	190	214
240	227	207	269	232	305	218	250
300	261	237	306	265	351	247	282

NOTE
In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

Table B.52.5 - Current-carrying capacities in amperes for installation methods in Table B.52.1 XLPE OR EPR INSULATION, THREE LOADED CONDUCTORS/COPPER OR ALUMINIUM - CONDUCTOR TEMPERATURE: 90°C, AMBIENT TEMPERATURE: 30°C IN AIR, 20°C IN GROUND

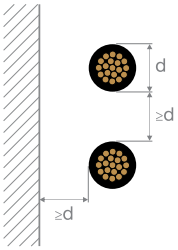
Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	17	16,5	20	19,5	22	21	23
2,5	23	22	28	25	30	28	30
4	31	30	37	35	40	36	39
6	40	38	48	44	52	44	49
10	54	51	66	60	71	58	65
16	73	68	88	80	96	75	84
25	95	89	117	105	119	96	107
35	117	109	144	128	147	115	129
50	141	130	175	154	179	135	153
70	179	164	222	194	229	167	188
95	216	197	269	233	278	197	226
120	249	227	312	268	322	223	257
150	285	259	342	300	371	251	287
185	324	295	384	340	424	281	324
240	380	346	450	398	500	324	375
300	435	396	514	455	576	365	419
Aluminium							
2,5	19	18	22	21	24	22	
4	25	24	29	28	32	28	
6	32	31	38	35	41	35	
10	44	41	52	48	57	46	
16	58	55	71	64	76	59	64
25	76	71	93	84	90	75	82
35	94	87	116	103	112	90	98
50	113	104	140	124	136	106	117
70	142	131	179	156	174	130	144
95	171	157	217	188	211	154	172
120	197	180	251	216	245	174	197
150	226	206	267	240	283	197	220
185	256	233	300	272	323	220	250
240	300	273	351	318	382	253	290
300	344	313	402	364	440	286	326

NOTE
In columns 3, 5, 6, 7, and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes refer to shaped conductors and can safely be applied to circular conductors.

AMPACITIES OF CONDUCTORS ACCORDING TO VDE 0298-4

The tables show the ampacities of the conductors published in the standard to which reference must always be made.

TABLE F1 - AMPACITIES OF CONDUCTORS WITH RATED VOLTAGE UP TO 1000V ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 11

Conductor's size [mm2]	Cable's type and method of installation				
	Single-core cables insulated with rubber, PVC, or TPE, heat resistant[3], laid in free air 	Multicore cables (rubber, PVC, TPE insulated) for home and portable devices, laid on surfaces 		Multicore cables (rubber, PVC, TPE insulated; heat resistant[3]) excluded for home and portable apparatus, laid on surfaces 	
	Number of current-carrying conductors				
	1	2	3	2	3
	Allowable ampacity [A]				
0,08[1]	1,5	-	-	1	1
0,14[1]	3	-	-	2	2
0,25[1]	5	-	-	4	4
0,34[1]	8	-	-	6	6
0,5	12[2]	3	3	9[2]	9[2]
0,75	15	6	6	12	12
1	19	10	10	15	15
1,5	24	16	16	18	18
2,5	32	25	20	26	26
4	42	32	25	34	34
6	54	40	-	44	44
10	73	63	-	61	61
16	98	-	-	82	82
25	129	-	-	108	108
35	158	-	-	135	135
50	198	-	-	168	168
70	245	-	-	207	207
95	292	-	-	250	250
120	344	-	-	292	292
150	391	-	-	335	335
185	448	-	-	382	382
240	528	-	-	453	453
300	608	-	-	523	523
400	726	-	-	-	-
500	830	-	-	-	-
Factor	**Reference table for the correction factors for the ampacities indicated above**				
Ambient temperature	F2	F2	F2	F2	F2
Circuits of single-core cables	F3	-	-	-	-
Circuits of multi-cores cables	-	F4	F4	F4	F4
Cables winded in spool, reel, drum or helix-type coiled	F5	F5	F5	F5	F5
Installation on surfaces, in raceways or conduits	F6	F6	F6	F6	F6
Installation in cable trays	F7	F8	F8	F8	F8

NOTE 1 According to VDE 0891-1, values not included in VDE 0298-4.
NOTE 2 According to VDE 0100-523, values not included in VDE 0298-4.
NOTE 3 Heat resistant cables are typically with at least 90°C insulation temperature (see VDE 0298-4 for more details).

TABLE F2 - CORRECTION FACTORS FOR THE AMPACITIES INDICATED IN THE TABLE L1 FOR DIFFERENT AMBIENT TEMPERATURES AND DIFFERENT INSULATION TEMPERATURES OF CABLES ACCORDING TO VDE 0298-4 ED. 2013 - TABLE 17-18

Ambient temperature Ta	Insulation temperature						
	60°C	70°C	80°C	90°C [1]	110°C [1]	135°C [1]	180°C [1]
	Correction factor						
30	1,00	1,00	1,00	1,00	1,00	1,00	1,00
35	0,91	0,94	0,95	1,00	1,00	1,00	1,00
40	0,82	0,87	0,89	1,00	1,00	1,00	1,00
45	0,71	0,79	0,84	1,00	1,00	1,00	1,00
50	0,58	0,71	0,77	1,00	1,00	1,00	1,00
55	0,41	0,61	0,71	0,94	1,00	1,00	1,00
60	-	0,50	0,63	0,87	1,00	1,00	1,00
65	-	0,35	0,55	0,79	1,00	1,00	1,00
70	-	-	0,45	0,71	1,00	1,00	1,00
75	-	-	0,32	0,61	1,00	1,00	1,00
80	-	-	-	0,50	1,00	1,00	1,00
85	-	-	-	0,35	0,91	1,00	1,00
90	-	-	-	-	0,82	1,00	1,00
95	-	-	-	-	0,71	1,00	1,00
100	-	-	-	-	0,58	0,94	1,00
105	-	-	-	-	0,41	0,87	1,00
110	-	-	-	-	-	0,79	1,00
115	-	-	-	-	-	0,71	1,00
120	-	-	-	-	-	0,61	1,00
125	-	-	-	-	-	0,50	1,00
130	-	-	-	-	-	0,35	1,00
135	-	-	-	-	-	-	1,00
140	-	-	-	-	-	-	1,00
145	-	-	-	-	-	-	1,00
150	-	-	-	-	-	-	1,00
155	-	-	-	-	-	-	0,91
160	-	-	-	-	-	-	0,82
165	-	-	-	-	-	-	0,71
170	-	-	-	-	-	-	0,58
175	-	-	-	-	-	-	0,41

NOTE 1 Heat resistant cables (see VDE 0298-4 for more details).

TABLE F3 - CORRECTION FACTORS FOR SINGLE-CORE CABLES' CIRCUITS ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 10 – NOTE A

Ambient temperature Ta	Type of installation for single core cables	
	Clusters of single core cables in touch to each other or bundled installed on surfaces	Clusters of single core cables in touch to each other or bundled installed free in air or in cable trays
	Correction factor	
A.C. single-phase circuits or D.C. circuits	0,76	0,80
A.C. three-phase circuits	0,67	0,70

Attention: for single core cables installed in conduits or in ducts please see rule of Table 10 of VDE 0298-4 standard.

TABLE F4 - CORRECTION FACTORS FOR MULTI CORE CABLES' CIRCTUITS UP TO 10 MM2 SIZE ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 26

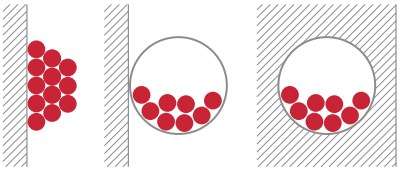
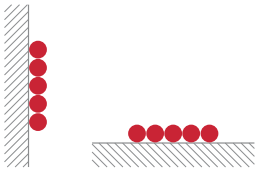
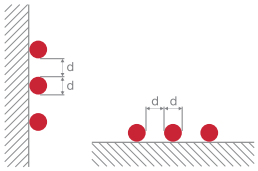
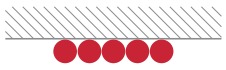
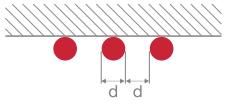
Number of current carrying conductors	Correction factor for cables in free air	Correction factor for cables in earth (burial)
5	0,75	0,70
7	0,65	0,60
10	0,55	0,50
14	0,50	0,45
19	0,45	0,40
24	0,40	0,35
40	0,35	0,30
61	0,30	0,25

TABLE F5 - CORRECTION FACTORS FOR CABLES WINDED IN SPOOL, REEL, DRUM OR HELIX-TYPE COILED ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 27

Number of layers on spool, reel or drum	1	2	3	4	5
Correction factor	0,80 [1]	0,61	0,49	0,42	0,38

NOTE 1 Use this correction factor for spiral cables (in one layer).

TABLE F6 - CORRECTION FACTORS FOR SINGLE-CORE AND MULTICORE CABLES' CIRCUITS ON SURFACES, WALLS, CEILING OR IN CONDUITS ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 21

Installation method	Number of multi-core cables or number of A.C. or three-phase circuits of single-core cables (2 or 3 current-carrying conductors)														
	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Bunched directly and in touch between each other on floors, on walls, in conduits or in wireways or in the wall 	1,00	0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,48	0,45	0,43	0,41	0,39	0,38
In one layer in touch between each other on floors or attached to walls 	1,00	0,85	0,79	0,75	0,73	0,72	0,72	0,71	0,70	0,70	0,70	0,70	0,70	0,70	0,70
In one layer with a clearance equal to the external diameter "d" on floors or attached to walls 	1,00	0,94	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90
In one layer in touch between each other under the ceiling 	0,95	0,81	0,72	0,68	0,66	0,64	0,63	0,62	0,61	0,61	0,61	0,61	0,61	0,61	0,61
In one layer with a clearance equal to the external diameter "d" under the ceiling 	0,95	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85

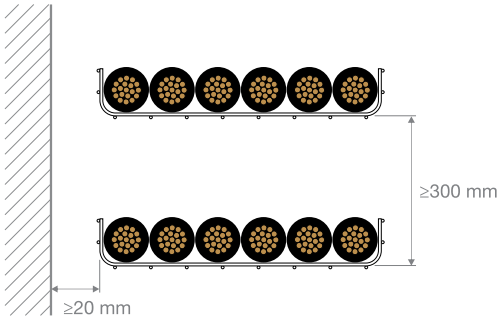
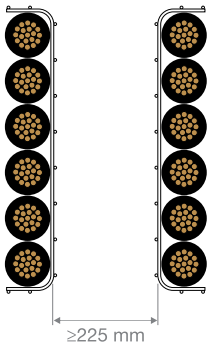
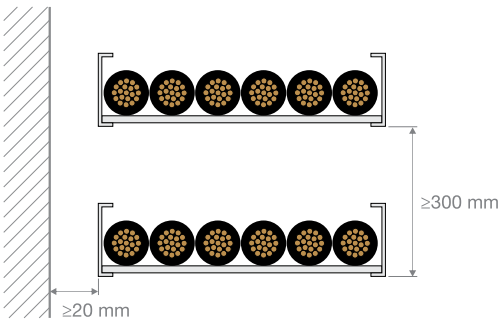
NOTE 1 Correction factors can be applied only to similarly loaded cables with a similar type of installation, where nominal cross sections differ by only one step.

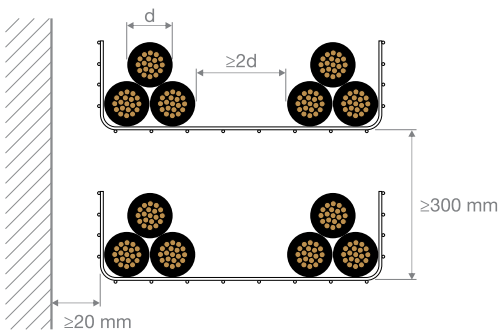
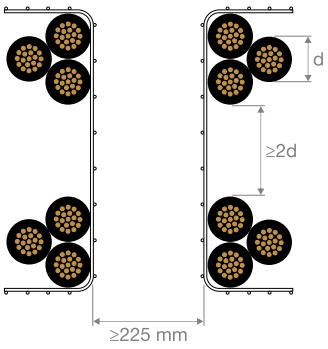
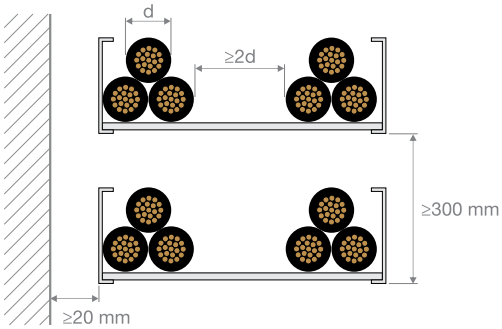
NOTE 2 If the actual horizontal space between adjacent cables is more than double the outer diameter, no correction factor is needed.

NOTE 3 For a system consisting of multicore cables, the number of circuits must be considered. The correction factor should be applied to the ampacity of the two or three current-carrying conductors in the cables.

NOTE 4 If the grouping of single-core cables consists of n loaded single-core cables, the correction factor must be determined for n/2 or n/3 circuits depending on the number of current-carrying conductors.

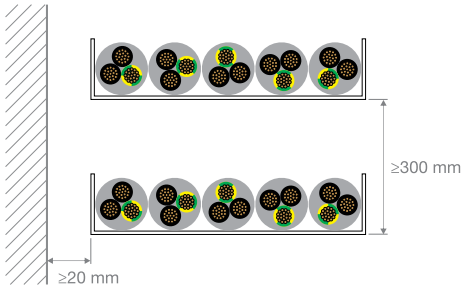
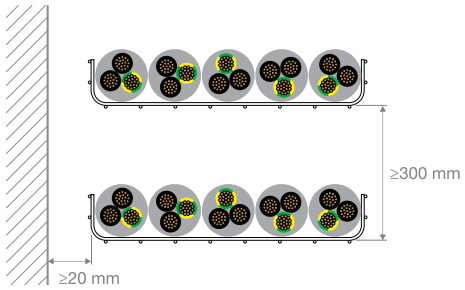
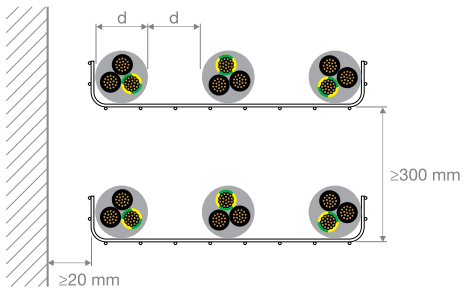
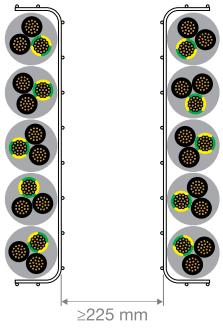
TABLE F7 - CORRECTION FACTORS FOR SINGLE-CORE CABLES' CIRCUITS INSTALLED IN CABLE TRAYS ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 23

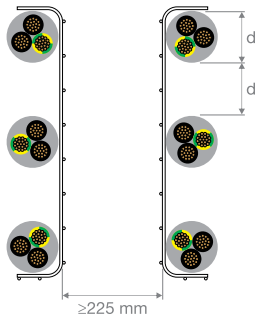
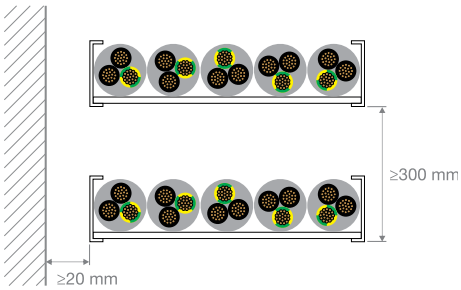
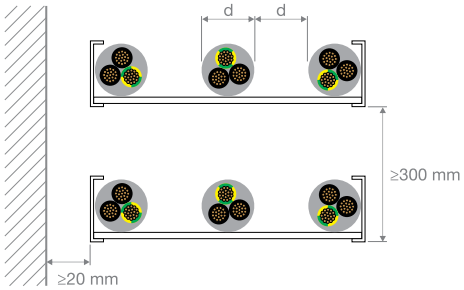
Installation method	Number of cable trays	Number of three-phase circuits of single-core cables		
		1	2	3
		Correction factor		
Single layer in touch between each other in **ventilated cable trays** in a horizontal plane arrangement 	1	0,98	0,91	0,87
	2	0,96	0,87	0,81
	3	0,95	0,85	0,78
Single layer between each other in **ventilated cable trays** in a vertical plane arrangement 	1	0,96	0,86	-
	2	0,95	0,84	-
Single layer between each other in **cable ladders** in a horizontal plane arrangement 	1	1	0,97	0,96
	2	0,98	0,93	0,89
	3	0,97	0,9	0,86

Installation method	Number of cable trays	Number of three-phase circuits of single-core cables		
		1	2	3
		Correction factor		
Delta configuration in **ventilated cable trays** in a horizontal plane arrangement 	1	1	0,98	0,96
	2	0,97	0,93	0,89
	3	0,96	0,92	0,86
Delta configuration in **ventilated cable trays** in a vertical plane arrangement 	1	1	0,91	0,89
	2	1	0,9	0,86
Delta configuration in **cable ladders** in a horizontal plane arrangement 	1	1	1	1
	2	0,97	0,95	0,93
	3	0,96	0,94	0,9

NOTE 1 If the cables are lying on top of each other or if the minimum required distance is not guaranteed, extra correction factors must be applied

TABLE F8 - CORRECTION FACTORS FOR MULTICORE CABLES INSTALLED IN CABLE TRAYS ACCORDING TO VDE 0298-4 – ED. 2013 - TABLE 22

Installation method	Number of cable trays	Number of multicore cables					
		1	2	3	4	5	9
		Correction factor					
Single layer in touch between each other in **non ventilated cable trays** in a horizontal plane arrangement 	1	0,97	0,84	0,78	0,75	0,71	0,68
	2	0,97	0,83	0,76	0,72	0,68	0,63
	3	0,97	0,82	0,75	0,71	0,66	0,61
	6	0,97	0,81	0,73	0,69	0,63	0,58
Single layer in touch between each other in **ventilated cable trays** in a horizontal plane arrangement 	1	1,00	0,88	0,82	0,79	0,76	0,73
	2	1,00	0,87	0,80	0,77	0,73	0,68
	3	1,00	0,86	0,79	0,76	0,71	0,66
	6	1,00	0,84	0,77	0,73	0,68	0,64
Single layer with a clearance equal to the external diameter "d" in **ventilated cable trays** in a horizontal plane arrangement. 	1	1,00	1,00	0,98	0,95	0,91	-
	2	1,00	0,99	0,96	0,92	0,87	-
	3	1,00	0,98	0,95	0,91	0,85	-
Single layer between each other in **ventilated cable trays** in a vertical plane arrangement. 	1	1,00	0,88	0,82	0,78	0,73	0,72
	2	1,00	0,88	0,81	0,76	0,71	0,70

Installation method	Number of cable trays	Number of multicore cables					
		1	2	3	4	5	9
		Correction factor					
Single layer with a clearance equal to the external diameter "d" in **ventilated cable trays** in a vertical plane arrangement 	1	1,00	0,91	0,89	0,88	0,87	-
	2	1,00	0,91	0,88	0,87	0,85	-
Single layer between each other in **cable ladders** in a horizontal plane arrangement. 	1	1,00	0,87	0,82	0,80	0,79	0,78
	2	1,00	0,86	0,81	0,78	0,76	0,73
	3	1,00	0,85	0,79	0,76	0,73	0,70
	6	1,00	0,83	0,76	0,73	0,69	0,66
Single layer with a clearance equal to the external diameter "d" in **cable ladders** in a horizontal plane arrangement 	1	1,00	1,00	1,00	1,00	1,00	-
	2	1,00	0,99	0,98	0,97	0,96	-
	3	1,00	0,98	0,97	0,96	0,93	-
	6	0,96	0,94				0,9

NOTE 1 If the cables are lying on top of each other or if the minimum required distance is not guaranteed, extra correction factors must be applied

UL508A - AMPACITY TABLE FOR INSULATED CABLES BASED ON THEIR CROSS-SECTIONAL AREA AND INSTALLATION METHOD

TABLE G1 - AMPACITIES OF INSULATED CONDUCTORS

Wire size		60°C (140°F)		75°C (167°F)	
AWG	mm²	Copper	Aluminium	Copper	Aluminium
14	(2.1)	15	-	15	-
12	(3.3)	20	15	20	15
10	(5.3)	30	25	30	25
8	(8.4)	40	30	50	40
6	(13.3)	55	40	65	50
4	(21.2)	70	55	85	65
3	(26.7)	85	65	100	75
2	(33.6)	95	75	115	90
1	(42.4)	110	85	130	100
1/0	(53.5)	-	-	150	120
2/0	(67.4)	-	-	175	135
3/0	(85.0)	-	-	200	155
4/0	(107.2)	-	-	230	180
250 kcmil	(127)	-	-	255	205
300	(152)	-	-	285	230
350	(177)	-	-	310	250
400	(203)	-	-	335	270
500	(253)	-	-	380	310
600	(304)	-	-	420	340
700	(355)	-	-	460	375
750	(380)	-	-	475	385
800	(405)	-	-	490	395
900	(456)	-	-	520	425
1000	(506)	-	-	545	445
1250	(633)	-	-	590	485
1500	(760)	-	-	625	520
1750	(887)	-	-	650	545
2000	(1013)	-	-	665	560

NOTE 1
For multiple conductors of equal size (1/0 AWG or larger) connected to a single terminal (parallel conductors), the ampacity is equal to the table value multiplied by the number of conductors that the terminal can accommodate.

NOTE 2
The ampacity values apply only when no more than three conductors are installed in the conduit. If there are four or more conductors (neutral is not considered if present), the ampacity of each conductor is:

- 80% of these values if 4-6 conductors are involved
- 70% of these values if 7-24 conductors are involved
- 60% of these values if 25-42 conductors are involved
- 50% if 43 or more conductors are involved

NFPA 79

NFPA 79 adotta un metodo analogo a quello di IEC 60204-1, seguono le tabelle. L'unica differenza è che la portata non dipende direttamente dal tipo di isolante ma dalla temperatura nominale stampigliata sul cavo (temperature rating).

TABLE H1 - CONDUCTOR AMPACITY BASED ON COPPER CONDUCTORS WITH 60°C (140°F), 75°C (167°F) AND 90°C (194°F). INSULATION IN AN AMBIENT TEMPERATURE OF 30°C (86°F)

Conductor size	Ampacity		
AWG	60°C (140°F)	75°C (167°F)	90°C (194°F)
30	-	0,5	0,5
28	-	0,8	0,8
26	-	1	1
24	2	2	2
22	3	3	3
20	5	5	5
18	7	7	14
16	10	10	18
14	15	20	25
12	20	25	30
10	30	35	40
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	115
2	95	115	130
1	110	130	145
1/0	125	150	170
2/0	145	175	195
3/0	165	200	225
4/0	195	230	260
250	215	255	290
300	240	285	320
350	260	310	350
400	280	335	380
500	320	380	430
600	355	420	475
700	385	460	520
750	400	475	535
800	410	490	555
900	435	520	585
1000	455	545	615

NOTE 1 Conductor types listed 12.3.1 shall be permitted to be used in the ampacities listed in this table.
NOTE 2 The source for the ampacities in this table is Table 310.15 (B) (16) of NFPA 70.

TABLE H2 - AMBIENT TEMPERATURE CORRECTION FACTORS

For ambient temperatures other than 30°C (86° F), multiply the allowable ampacity by the appropriate factor shown below			
Ambient temperature (°C)	Correction factor 60°C	Correction factor 75°C	Correction factor 90°C
21-25	1,08	1,05	1,04
26-30	1,00	1,00	1,00
31-35	0,91	0,94	0,96
36-40	0,82	0,88	0,91
41-45	0,71	0,82	0,87
46-50	0,58	0,75	0,82
51-55	0,41	0,67	0,76
56-60	-	0,58	0,71
61-70	-	0,33	0,58
71-80	-	-	0,41

TABLE H3 - ADJUSTMENT FACTORS FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A RACEWAY OR CABLE

Number of current-carrying conductors	Percent of values in table as adjusted for ambient temperature if necessary
4-6	80
7-9	70
10-20	50
21-30	45
31-40	40
41 and above	35

AMPACITY OF CONDUCTORS ACCORDING TO CSA C22.2 NO. 286

The tables show the ampacities of the conductors published in the standard to which reference must always be made.

TABLE I1 - ALLOWABLE AMPACITIES OF INSULATED COPPER CONDUCTORS INSIDE INDUSTRIAL CONTROL EQUIPMENT ENCLOSURES (AMBIENT TEMPERATURE 40°C) ACCORDING TO CSA C22.2 NO.286 – ED. 2015-2017 (CLAUSE 4.6.2, TABLE 7)

Wire Size [AWG/kcmil]	Copper conductor's ampacity with 90 °C insulation [A]		Copper conductor's ampacity with 105 °C insulation [A]	
	Non-ventilated enclosure	Open or in ventilated enclosure	Non-ventilated enclosure	Open or in ventilated enclosure
24 AWG	1	2	1	2
22	2	3	2	3
20	3	4	3	4
18	4	6	4	6
16	6	9	6	9
14	9	13	10	15
12	12	17	15	22
10	18	27	22	35
8	31	47	35	55
6	45	67	52	80
4	61	91	71	108
3	70	104	80	121
2	80	120	90	140
1	94	141	107	164
1/0	110	164	133	190
2/0	128	191	148	221
3/0	148	221	171	257
4/0	173	258	200	300
250 kcmil	194	285	221	340
300	214	322	250	384
350	242	355	276	420
400	262	385	299	449
500	298	442	343	515

TABLE I2 - AMPACITY ADJUSTMENT FACTORS BASED ON THE NUMBER OF CONDUCTORS ACCORDING TO CSA C22.2 NO.286 – ED. 2015-2017 (CLAUSE 4.6.2, TABLE 8)

Number of conductors	Correction factor
1÷3	1,00
4÷6	0,80
7÷24	0,70
25÷42	0,60
>42	0,50

AMPACITY OF CONDUCTORS ACCORDING TO CSA C22.1 (CE CODE)

The tables show the ampacities of conductors published in the standard, which must always be followed.

TABLE L1 - AMPACITIES OF CONDUCTORS IN FREE AIR WITH 60°C INSULATION TEMPERATURE ACCORDING TO CSA C22.1 (CE CODE) – ED. 2015-2024 (TABLE 1)

Conductor's size [AWG/kcmil]	Allowable ampacities of insulated copper conductors [A], rated not more than 5000V, in free air Insulation temperature 60°C										
	Ambient temperature Ta										
	30°C	31÷35°C	36÷40°C	41÷45°C	46÷50°C	51÷55°C	56÷60°C	61÷65°C	66÷70°C	71÷75°C	76÷80°C
14 AWG	25,0	22,7	20,5	17,7	14,5	10,2	-	-	-	-	-
12	30,0	27,3	24,6	21,3	17,4	12,3	-	-	-	-	-
10	40,0	36,4	32,8	28,4	23,2	16,4	-	-	-	-	-
8	60,0	54,6	49,2	42,6	34,8	24,6	-	-	-	-	-
6	80,0	72,8	65,6	56,8	46,4	32,8	-	-	-	-	-
4	105,0	95,5	86,1	74,5	60,9	43,0	-	-	-	-	-
3	120,0	109,2	98,4	85,2	69,6	49,2	-	-	-	-	-
2	140,0	127,4	114,8	99,4	81,2	57,4	-	-	-	-	-
1	165,0	150,1	135,3	117,1	95,7	67,6	-	-	-	-	-
1/0	195,0	177,4	159,9	138,4	113,1	79,9	-	-	-	-	-
2/0	220,0	200,2	180,4	156,2	127,6	90,2	-	-	-	-	-
3/0	260,0	236,6	213,2	184,6	150,8	106,6	-	-	-	-	-
4/0	300,0	273,0	246,0	213,0	174,0	123,0	-	-	-	-	-
250 kcmil	340,0	309,4	278,8	241,4	197,2	139,4	-	-	-	-	-
300	370,0	336,7	303,4	262,7	214,6	151,7	-	-	-	-	-
350	425,0	386,7	348,5	301,7	246,5	174,2	-	-	-	-	-
400	455,0	414,0	373,1	323,0	263,9	186,5	-	-	-	-	-
500	520,0	473,2	426,4	369,2	301,6	213,2	-	-	-	-	-
600	580,0	527,8	475,6	411,8	336,4	237,8	-	-	-	-	-
700	630,0	573,3	516,6	447,3	365,4	258,3	-	-	-	-	-
750	655,0	596,0	537,1	465,0	379,9	268,5	-	-	-	-	-
800	680,0	618,8	557,6	482,8	394,4	278,8	-	-	-	-	-
900	730,0	664,3	598,6	518,3	423,4	299,3	-	-	-	-	-
1000	785,0	714,3	643,7	557,3	455,3	321,8	-	-	-	-	-
1250	890,0	809,9	729,8	631,9	516,2	364,9	-	-	-	-	-
1500	985,0	896,3	807,7	699,3	571,3	403,8	-	-	-	-	-
1750	1070,0	973,7	877,4	759,7	620,6	438,7	-	-	-	-	-
2000	1160,0	1055,6	951,2	823,6	672,8	475,6	-	-	-	-	-

TABLE L2 - AMPACITIES OF CONDUCTORS IN FREE AIR WITH 75°C INSULATION TEMPERATURE ACCORDING TO CSA C22.1 (CE CODE) – ED. 2015-2024 (TABLE 1)

Conductor's size [AWG/kcmil]	Allowable ampacities of insulated copper conductors [A], rated not more than 5000V, in free air Insulation temperature 75°C										
	Ambient temperature Ta										
	30°C	31÷35°C	36÷40°C	41÷45°C	46÷50°C	51÷55°C	56÷60°C	61÷65°C	66÷70°C	71÷75°C	76÷80°C
14 AWG	30,0	28,2	26,4	24,6	22,5	20,1	17,4	14,1	9,9	-	-
12	35,0	32,9	30,8	28,7	26,2	23,4	20,3	16,4	11,5	-	-
10	50,0	47,0	44,0	41,0	37,5	33,5	29,0	23,5	16,5	-	-
8	70,0	65,8	61,6	57,4	52,5	46,9	40,6	32,9	23,1	-	-
6	95,0	89,3	83,6	77,9	71,2	63,6	55,1	44,6	31,3	-	-
4	125,0	117,5	110,0	102,5	93,7	83,7	72,5	58,7	41,2	-	-
3	145,0	136,3	127,6	118,9	108,7	97,1	84,1	68,1	47,8	-	-
2	170,0	159,8	149,6	139,4	127,5	113,9	98,6	79,9	56,1	-	-
1	195,0	183,3	171,6	159,9	146,2	130,6	113,1	91,6	64,3	-	-
1/0	230,0	216,2	202,4	188,6	172,5	154,1	133,4	108,1	75,9	-	-
2/0	265,0	249,1	233,2	217,3	198,7	177,5	153,7	124,5	87,4	-	-
3/0	310,0	291,4	272,8	254,2	232,5	207,7	179,8	145,7	102,3	-	-
4/0	360,0	338,4	316,8	295,2	270,0	241,2	208,8	169,2	118,8	-	-
250 kcmil	405,0	380,7	356,4	332,1	303,7	271,3	234,9	190,3	133,6	-	-
300	445,0	418,3	391,6	364,9	333,7	298,1	258,1	209,1	146,8	-	-
350	505,0	474,7	444,4	414,1	378,7	338,3	292,9	237,3	166,6	-	-
400	545,0	512,3	479,6	446,9	408,7	365,1	316,1	256,1	179,8	-	-
500	620,0	582,8	545,6	508,4	465,0	415,4	359,6	291,4	204,6	-	-
600	690,0	648,6	607,2	565,8	517,5	462,3	400,2	324,3	227,7	-	-
700	755,0	709,7	664,4	619,1	566,2	505,8	437,9	354,8	249,1	-	-
750	785,0	737,9	690,8	643,7	588,7	525,9	455,3	368,9	259,0	-	-
800	815,0	766,1	717,2	668,3	611,2	546,0	472,7	383,0	268,9	-	-
900	870,0	817,8	765,6	713,4	652,5	582,9	504,6	408,9	287,1	-	-
1000	935,0	878,9	822,8	766,7	701,2	626,4	542,3	439,4	308,5	-	-
1250	1065,0	1001,1	937,2	873,3	798,7	713,5	617,7	500,5	351,4	-	-
1500	1175,0	1104,5	1034,0	963,5	881,2	787,2	681,5	552,2	387,7	-	-
1750	1280,0	1203,2	1126,4	1049,6	960,0	857,6	742,4	601,6	422,4	-	-
2000	1385,0	1301,9	1218,8	1135,7	1038,7	927,9	803,3	650,9	457,0	-	-

TABLE L3 - AMPACITIES OF CONDUCTORS IN FREE AIR WITH 90°C INSULATION TEMPERATURE ACCORDING TO CSA C22.1 (CE CODE) – ED. 2015-2024 (TABLE 1)

Conductor's size [AWG/kcmil]	Allowable ampacities of insulated copper conductors [A], rated not more than 5000V, in free air Insulation temperature 90°C										
	Ambient temperature Ta										
	30°C	31÷35°C	36÷40°C	41÷45°C	46÷50°C	51÷55°C	56÷60°C	61÷65°C	66÷70°C	71÷75°C	76÷80°C
14 AWG	35,0	33,6	31,8	30,4	28,7	26,6	24,8	22,7	20,3	17,5	14,3
12	40,0	38,4	36,4	34,8	32,8	30,4	28,4	26,0	23,2	20,0	16,4
10	55,0	52,8	50,0	47,8	45,1	41,8	39,0	35,7	31,9	27,5	22,5
8	80,0	76,8	72,8	69,6	65,6	60,8	56,8	52,0	46,4	40,0	32,8
6	105,0	100,8	95,5	91,3	86,1	79,8	74,5	68,2	60,9	52,5	43,0
4	140,0	134,4	127,4	121,8	114,8	106,4	99,4	91,0	81,2	70,0	57,4
3	165,0	158,4	150,1	143,5	135,3	125,4	117,1	107,2	95,7	82,5	67,6
2	190,0	182,4	172,9	165,3	155,8	144,4	134,9	123,5	110,2	95,0	77,9
1	220,0	211,2	200,2	191,4	180,4	167,2	156,2	143,0	127,6	110,0	90,2
1/0	260,0	249,6	236,6	226,2	213,2	197,6	184,6	169,0	150,8	130,0	106,6
2/0	300,0	288,0	273,0	261,0	246,0	228,0	213,0	195,0	174,0	150,0	123,0
3/0	350,0	336,0	318,5	304,5	287,0	266,0	248,5	227,5	203,0	175,0	143,5
4/0	405,0	388,8	368,5	352,3	332,1	307,8	287,5	263,2	234,9	202,5	166,0
250 kcmil	455,0	436,8	414,0	395,8	373,1	345,8	323,0	295,7	263,9	227,5	186,5
300	500,0	480,0	455,0	435,0	410,0	380,0	355,0	325,0	290,0	250,0	205,0
350	570,0	547,2	518,7	495,9	467,4	433,2	404,7	370,5	330,6	285,0	233,7
400	615,0	590,4	559,6	535,0	504,3	467,4	436,6	399,7	356,7	307,5	252,1
500	700,0	672,0	637,0	609,0	574,0	532,0	497,0	455,0	406,0	350,0	287,0
600	780,0	748,8	709,8	678,6	639,6	592,8	553,8	507,0	452,4	390,0	319,8
700	850,0	816,0	773,5	739,5	697,0	646,0	603,5	552,5	493,0	425,0	348,5
750	885,0	849,6	805,3	769,9	725,7	672,6	628,3	575,2	513,3	442,5	362,8
800	920,0	883,2	837,2	800,4	754,4	699,2	653,2	598,0	533,6	460,0	377,2
900	980,0	940,8	891,8	852,6	803,6	744,8	695,8	637,0	568,4	490,0	401,8
1000	1055,0	1012,8	960,0	917,8	865,1	801,8	749,0	685,7	611,9	527,5	432,5
1250	1200,0	1152,0	1092,0	1044,0	984,0	912,0	852,0	780,0	696,0	600,0	492,0
1500	1325,0	1272,0	1205,7	1152,7	1086,5	1007,0	940,7	861,2	768,5	662,5	543,2
1750	1445,0	1387,2	1314,9	1257,1	1184,9	1098,2	1025,9	939,2	838,1	722,5	592,4
2000	1560,0	1497,6	1419,6	1357,2	1279,2	1185,6	1107,6	1014,0	904,8	780,0	639,6

TABLE L4 - ADJUSTMENT FACTORS FOR THE AMPACITIES INDICATED IN THE PREVIOUS TABLES AND BASED ON THE NUMBER OF CONDUCTORS. It applies when the space between cables is less than 25% of the largest cable diameter. Values according to CSA C22.1 (CE Code) – Ed. 2015-2024 (Table 5B)

Number of conductors	Correction factor
2	0,90
3	0,85
4	0,80

NOTE Where more than four conductors are in contact, the ratings for conductors in raceways shall be used.

FLAME TESTS FOR ELECTRICAL CABLES

TABLE M1 - Flame tests for electrical cables according IEC norms

Description	IEC 60332-1-2 corresponds to VDE 0482-332-1-2 Tests for vertical flame propagation for a single insulated wire or cable - procedure for 1-kW pre-mixed flame	IEC 60332-2-2 corresponds to VDE 0482-332-2-2 Tests for vertical flame propagation for a single small insulated wire or cable - procedure for diffusion flame
Length of specimen	600 mm	600 mm
Burner	acc. to IEC 60332-1-1	acc. to IEC 60332-1-1
Test temperature	1 kW flame	defined by the stipulated setting of the flame length
Position of specimen	vertical	vertical
Position of flame	45° to vertical specimen	45° to vertical specimen
Duration of flame	see table L1.1	20 seconds
Conditions	Cable must be self-extinguishing. The damage or carbonization may only reach max. 50 mm under the upper fixing clamp. Additionally in order to pass the test the distance from the upper beginning of carbonisation above the point of flaming to the bottom start of carbonisation (below the point of flaming) shall not exceed 425 mm. If the carbonisation expands more than 540 mm from the lower end of the upper fixing downwards, an additional fault has to be recorded.	Cable must be self-extinguishing. The damage or carbonization may only reach max. 50 mm under the upper fixing clamp. If the carbonisation expands more than 540 mm from the lower end of the upper fixing downwards, an additional fault has to be recorded.

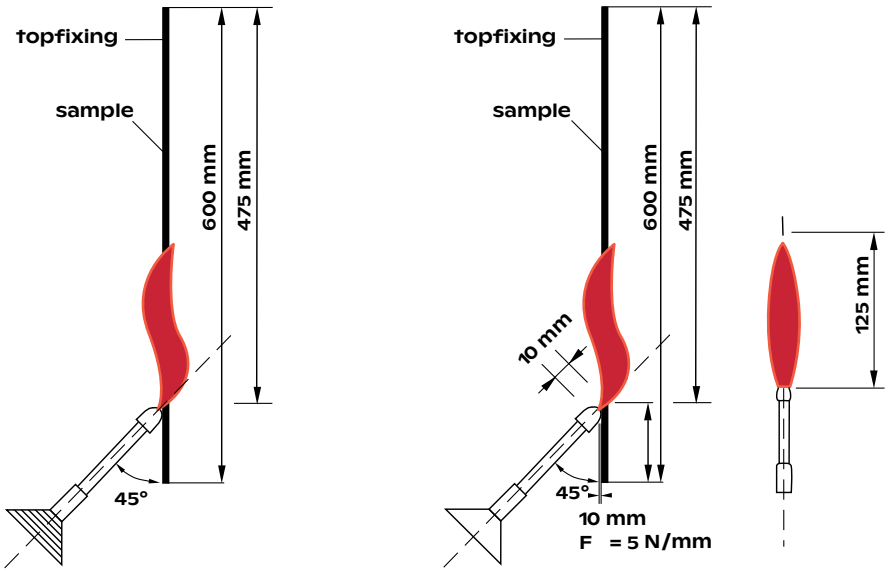


TABLE M1.1

outer diameter of specimen in mm	duration of flaming in seconds
D ≤ 25	60
25 < D ≤ 50	120
50 < D ≤ 75	240
D > 7D > 75	480

TABLE M2 - Flame tests for electric cables IEC 60332-3-..., EN 60332-3-...

<table>
<tr><th>Description</th><th colspan="3">IEC 60332-3-..., EN 60332-3-...</th></tr>
<tr><td>Length of specimen</td><td colspan="3">3500 mm</td></tr>
<tr><td>Burner</td><td colspan="3">Flat burner (Ribbon gas burner of American Gas Furnace Co.)</td></tr>
<tr><td>Test temperature</td><td colspan="3">defined by stipulated flow of gas and air</td></tr>
<tr><td>Position of specimen</td><td colspan="3">vertical</td></tr>
<tr><td>Position of flame</td><td colspan="3">horizontal</td></tr>
<tr><td>Duration of flame</td><td colspan="3">Category A, B: 40 minutes Category C, D: 20 minutes</td></tr>
<tr><td>Conditions</td><td colspan="3">The burned portion of the sample must not be longer than 2.5 m measured from the bottom edge of the burner, as far as not otherwise specified in the relevant standards.
<table>
<tr><th></th><th>EN 60332-</th><th>IEC 60332-</th></tr>
<tr><td>Category A – 7,0 l/m</td><td>3 - 22</td><td>3 - 22</td></tr>
<tr><td>Category B – 3,5 l/m</td><td>3 - 23</td><td>3 - 23</td></tr>
<tr><td>Category C – 1,5 l/m</td><td>3 - 24</td><td>3 - 24</td></tr>
<tr><td>Category D – 0,5 l/m ≤ 12 mm cable-ø</td><td>3 - 25</td><td>3 - 25</td></tr>
<tr><td colspan="3">Volume percent of non metallic material per meter.</td></tr>
</table></td></tr>
</table>

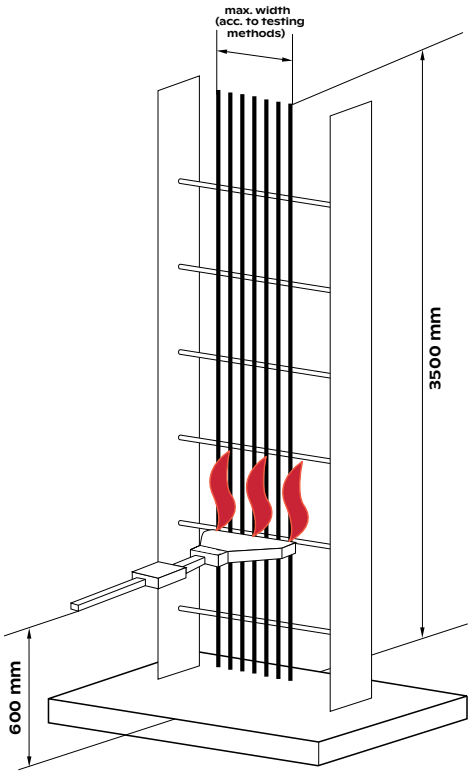


TABLE M3 - Flame tests for electric cables UL 1581 section 1080 (FV-2 / VW-1 Flame Test)

Description	UL 1581 section 1080 - reference to standard UL 2556, section 9.4 (FV-2 / VW-1 Flame Test)
Length of specimen	610 mm
Burner	Bunsen burner with additional air supply (Tirril gas burner) Ø 9.5 mm
Test temperature	500 W flame
Position of specimen	vertical
Position of flame	20° to vertical specimen
Duration of flame	5 × 15 seconds with at least 15 seconds flaming break
Conditions	Paper max. 25% carbonized. The specimen may keep on burning for max. 1 minute after any application. Material dropping must not ignite the cotton (B) lying under the specimen.

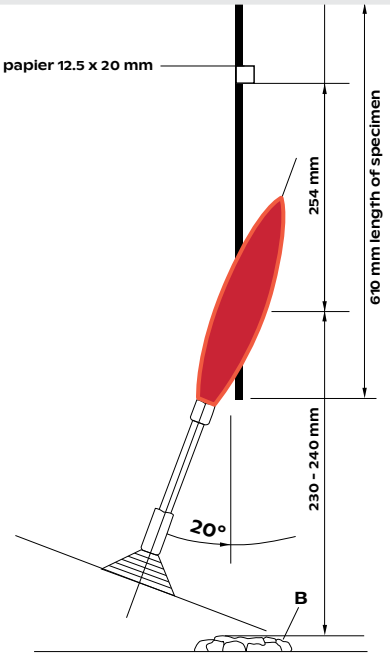


TABLE M4 - Flame tests for electric cables UL 1581 section 1061 (Cable Flame Test)

Description	UL 1581, § 1061 (Cable Flame Test)
Length of specimen	610 mm
Burner	Bunsen burner with additional air supply (Tirril gas burner) Ø 9.5 mm
Test temperature	500 W flame
Position of specimen	vertical
Position of flame	20° to vertical specimen
Duration of flame	3 × 60 seconds with 30 seconds between each flaming
Conditions	Paper max. 25% carbonized. The specimen may keep on burning for max. 1 minute after the last application. Material dropping must not ignite the cotton (B) lying under the specimen.

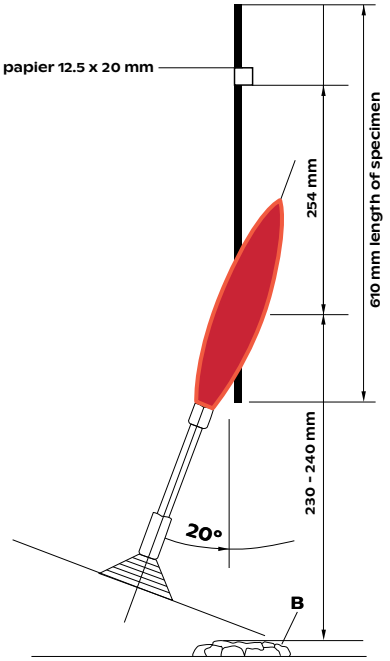


TABLE M5 - Flame tests for electric cables UL 1581 section 1060 (FV-1 / Vertical Flame and FT1 Test)

Description	UL 1581, § 1060 (FV-1 / Vertical Flame and FT1 Test)
Length of specimen	457 - 610 mm
Burner	Bunsen burner with additional air supply (Tirril gas burner) Ø 9.5 mm
Test temperature	500 W flame
Position of specimen	vertical
Position of flame	20° to vertical specimen
Duration of flame	5 × 15 seconds with at least 15 seconds flaming break
Conditions	Paper max. 25% carbonized. The specimen may keep on burning for max. 1 minute after the last application. Cotton shall not ignite itself (not valid for FT1 test)

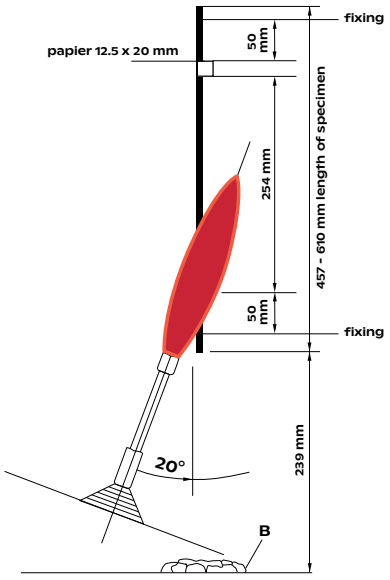


TABLE M6 - Flame tests for electrical cables UL 1581 section 1100 (FT2 / FH / Horizontal Flame)

Description	UL 1581, section 1100 - reference to standard UL 2556, section 9.1 (FT2 / FH / Horizontal Flame)
Length of specimen	250 - 300 mm
Burner	Bunsen burner with additional air supply (Tirril gas burner) Ø 9.5 mm
Test temperature	500 W flame
Position of specimen	horizontal
Position of flame	20° to vertical specimen
Duration of flame	30 seconds
Conditions	Sample shal not be damaged for more than 100 mm. Material dropping must not ignite the cotton (B) lying under the specimen.

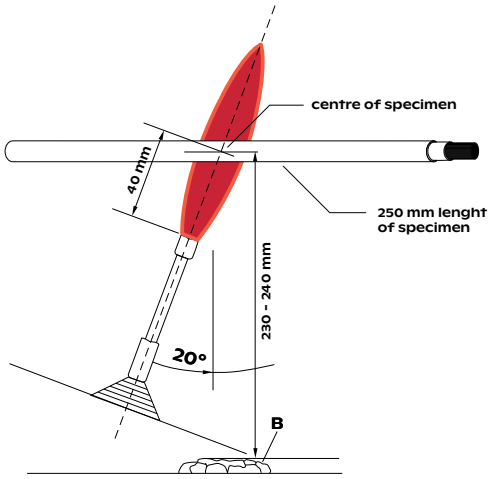
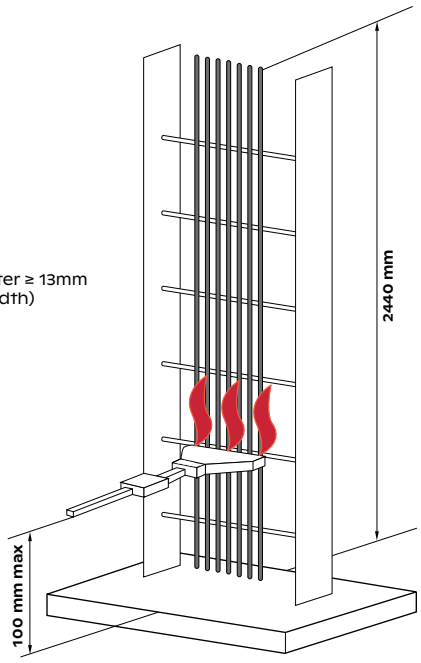
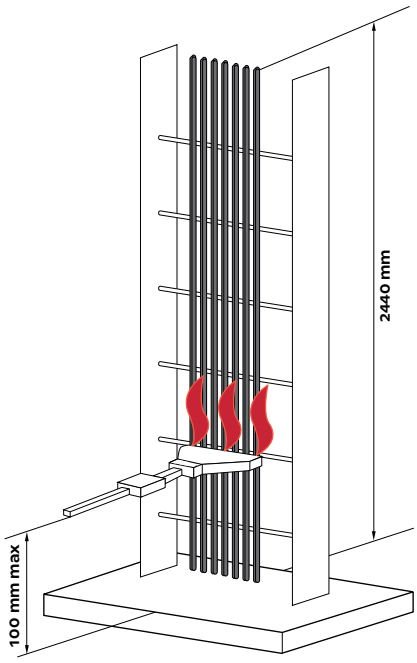


TABLE M7 - Flame tests for electrical cables UL 2556, § 9.6 Method 2-FT4

Description	UL 2556, § 9.6 Method 2-FT4
Length of specimen	2440 mm
Burner	Flat burner (Ribbon burner)
Test temperature	20,5 kW
Position of specimen	vertical in interval of half the cable diameter
Position of flame	horizontal
Duration of flame	20 minutes
Conditions	the charred distance is not allowed to exceed 1,5 m from the bottom edge of the burner

Method 2
Cable diameter ≥ 13mm
(using full width)





Method 2
Cable diameter ≤ 13mm
(using full width with bundles)

OIL RESISTANCE

Test method

- acc. to IEC 60811-404
- corresponds to EN 60811-404
- corresponds to VDE 0473-811-404

Requirements

	PUR compound acc. to EN 50363-10-2, VDE 0207-363-10-2	PVC compound TM54 acc. to EN 50290-2-22, VDE 0819-102	PVC compound TM5 acc. to EN 50363-4-1, VDE 0207-363-4-1
	Characteristics after storage in mineral oil IRM 902 (ASTM No. 2)		
Test temperature	100 °C	70 °C	90 °C
Period of storage in oil	168 hours	4 hours	168 hours
	Mechanical values after storage in oil		
max. deviation of tensile strength	± 40%	± 30%	± 30%
max. deviation of elongation at tear	± 30% (min. 300% effective)	± 30%	± 30%

NORTH AMERICAN REGULATIONS

UL LISTING AND OTHER CERTIFICATIONS

UL AND NFPA MARKINGS

The UL Listed mark refers to a type of cable for fixed installations, both in commercial and industrial environments. Listed cables must not only comply with UL standards but also adhere to NEC (National Electric Code) regulations.
The NEC provides specific guidelines for proper cable installation and use. Cables can be used to connect various components, equipment, electrical instruments, machines, or for powering the structure in accordance with NFPA 79 and NFPA 70.

Examples of UL Listed cable codes:
MTW (Machine Tool Wiring)
THHW (Thermoplastic High Heat Resistance Water)
TC (Tray Cable)
THWM (Thermoplastic High Wet Resistance Nylon)
PLTC (Power Limited Tray Cables)
ER (Exposed Run)
WTTC (Wind Turbine Tray Cable)
DB (Direct Burial)

AWM CABLE MARKING

AWM (Appliance Wiring Material) is the marking for cables intended for use in electrical equipment in accordance with NFPA 79 and UL508A. AWM cables must be used according to the specified style. Using "listed" or "recognized" cables allows manufacturers of automated machinery or other electrical equipment to meet a key requirement for certifying their products in North America (e.g., UL Listed).

NFPA

NFPA 79 is a standard derived from the NEC that addresses the electrical installation of machinery (NEC art. 670). It is the standard to be used in the industrial sector for the design and construction of electrical systems for machines with power up to 1000 V.

NOTE
See UL LISTING - AWM - STYLES tables on pages XXXXXXXXXXXXX

HOW TO INTERPRET MARKINGS ISSUED BY RECOGNIZED CERTIFICATION BODIES (NRTL), SUCH AS UL

UL TEST AND CERTIFICATION

USA	CANADA	CANADA and USA

RECOGNIZED MARKS

UL mark (UL certified products)	C-UL mark (CSA conforming products)	C-UL mark (UL certified products/ CSA conforming products)

LISTING MARKS

CSA NRTL / CSA US mark (UL conforming products)	CSA mark (CSA certified products)	CSA NRTL / CSA US mark (CSA certified products/ UL conforming products)
NRTL US		NRTL / C C US

CSA TEST AND CERTIFICATION

HOW TO INTERPRET UL MARKINGS

The United States and Canada have a Mutual Recognition Agreement (MRA) that allows for unified certification. UL is recognized by the Standards Council of Canada (SCC) as a Certification Body (CO) and Testing Organization (TO), while CSA is recognized as an NRTL (Nationally Recognized Testing Laboratory) by the United States Occupational Safety and Health Administration (OSHA). This allows UL to test, evaluate, and certify compliance with CSA standards, and CSA to test, evaluate, and certify compliance with U.S. standards.

HAZARDOUS LOCATIONS

DEFINITION OF HAZARDOUS LOCATIONS ACCORDING TO NEC (National Electric Code)

Hazardous Locations, as defined by the ANSI/NFPA 70 National Electric Code (NEC), refer to areas where fires or explosions may occur due to the presence of flammable gases, vapors, liquids, or combustible dusts/fibers.
Electrical equipment can become a fire source—due to a short circuit, for example—and the NEC addresses installation and usage rules for such equipment in these areas through articles 500 to 504 and 510 to 517. Hazardous Locations (HL) are classified based on three factors: area type, hazard condition, and the nature of materials present.
The classification includes:

CLASS I
Areas where gases or vapors are present in sufficient quantities to pose a high risk of explosion, which can be triggered by electrical equipment.

CLASS II
Areas where combustible dusts, even in suspension, can lead to explosions.

CLASS III
Areas where fibers or flyings generated from material processing, handling, or storage may cause fire if they settle on machinery and are ignited by overheating or sparks.
The NEC identifies two main hazard conditions based on the materials present:

DIVISION 1 - NORMAL CONDITIONS
The hazard is present during production or maintenance operations.

DIVISION 2 - ABNORMAL CONDITIONS
The hazard arises when hazardous materials are contained in closed systems (e.g., containers, barrels) and may be released into the atmosphere only due to breakage or leakage.

Finally, hazardous materials are grouped by the NEC based on their combustion temperature, explosion risk, or other flammability characteristics. The groups are: A, B, C, D, E, F, G.

GROUP A
Atmosphere with acetylene

GROUP B
Atmosphere with hydrogen or similar gases

GROUP C
Atmosphere with ethylene or similar gases

GROUP D
Atmosphere with butane, gasoline, natural gases, propane

GROUP E
Atmosphere with metal dust

GROUP F
Atmosphere with combustible materials (e.g., coal)

GROUP G
Atmosphere with grain dust or similar materials

UL IQ™ FOR APPLIANCE WIRING MATERIALS

SINGLE-CONDUCTOR, THERMOPLASTIC INSULATION							
1001	1002	1003	1007	1011	1012	1013	1014
1015	1016	1017	1018	1019	1020	1021	1022
1023	1024	1025	1026	1027	1028	1029	1030
1032	1034	1035	1039	1041	1043	1045	1047
1049	1051	1053	1054	1055	1056	1057	1058
1059	1060	1061	1062	1063	1064	1065	1066
1071	1074	1076	1078	1080	1095	1096	1099
1101	1107	1108	1109	1110	1113	1114	1115
1116	1117	1118	1119	1120	1121	1122	1123
1124	1141	1142	1143	1146	1148	1149	1150
1152	1153	1158	1159	1160	1161	1162	1168
1170	1176	1177	1184	1185	1186	1193	1195
1196	1197	1207	1208	1211	1218	1220	1230
1233	1235	1237	1239	1253	1269	1274	1281
1282	1283	1284	1287	1288	1289	1291	1295
1296	1297	1298	1299	1300	1301	1302	1303
1304	1305	1306	1307	1308	1309	1314	1316
1317	1318	1319	1320	1324	1325	1326	1330
1331	1332	1333	1334	1335	1336	1337	1338
1339	1340	1341	1347	1348	1349	1350	1352
1353	1354	1365	1366	1371	1375	1379	1380
1381	1382	1385	1386	1400	1401	1402	1403
1404	1405	1406	1407	1408	1409	1410	1411
1412	1413	1414	1420	1427	1428	1435	1436
1437	1438	1439	1443	1444	1447	1459	1466
1475	1477	1478	1479	1480	1483	1484	1493
1494	1495	1497	1498	1499	1500	1504	1506
1507	1508	1509	1511	1516	1517	1518	1519
1520	1521	1522	1523	1538	1541	1545	1546
1555	1556	1558	1568	1569	1571	1575	1576
1577	1581	1582	1589	1591	1592	1596	1598
1600	1605	1609	1610	1613	1618	1632	1642
1645	1647	1649	1650	1662	1672	1674	1679
1680	1683	1686	1687	1689	1692	1702	1706
1707	1708	1709	1710	1723	1726	1727	1729
1730	1731	1792	1809	1816	1825	1831	1836
1847	1848	1849	1860	1865	1866	1872	1873
1882	1886	1887	1890	1895	1896	1897	1900
1901	1903	1905	1908	1909	1920	1921	1922
1926	1929	1930	1933	1940	1943	1948	1950
1956	1958	1967	1968	1973	1982	1984	1986
1987	1992	1994	1999	10002	10009	10011	10012
10016	10024	10026	10027	10029	10030	10031	10032
10042	10052	10053	10059	10060	10062	10067	10070
10075	10076	10082	10086	10098	10107	10113	10117
10118	10124	10127	10131	10137	10138	10152	10154
10198	10227	10229	10232	10233	10234	10235	10236
10237	10239	10240	10258	10263	10264	10268	10269
10271	10309	10321	10337	10356	10377	10378	10381
10390	10429	10434	10437	10438	10442	10449	10450
10452	10466	10467	10477	10483	10489	10492	10493
10494	10495	10516	10518	10523	10524	10532	10536
10547	10548	10559	10574	10578	10585	10587	10593
10604	10615	10624	10627	10628	10630	10639	10660
10661	10675	10676	10677	10678	10679	10680	10681
10682	10683	10684	10685	10686	10687	10688	10689
10690	10691	10692	10693	10700	10701	10702	10703
10705	10707	10708	10719	10746	10747	10748	10749
10750	10751	10752	10753	10754	10755	10756	10757
10758	10759	10760	10761	10762	10763	10764	10765
10766	10767	10768	10769	10770	10771	10772	10773
10774	10775	10785	10835	10848	10856	10857	10858
10867	10913	10914	10924	10925	10955	10956	10958
10973	10976	10977	10978	10979	10980	10988	10989
11008	11009	11036	11110	11113	11117	11170	11171
11172	11173	11179	11233	11241	11295	11321	11323
11445	11551	11568	11602	11613	11624	11632	11635
11657	11658	11725	11726	11727	11728	11729	11730
11773	11785	11789	11802	11822	11846	11935	11936
11939	11947						

MULTIPLE-CONDUCTOR, THERMOPLASTIC INSULATION							
2089	2090	2091	2092	2093	2094	2095	2096
2097	2098	2099	2100	2101	2102	2103	2106
2107	2108	2112	2113	2114	2115	2116	2117
2121	2122	2123	2124	2125	2126	2127	2128
2129	2134	2135	2145	2146	2147	2151	2165
2166	2262	2263	2264	2265	2266	2267	2268
2269	2270	2271	2272	2273	2274	2275	2276
2277	2278	2279	2280	2281	2282	2283	2284
2285	2286	2287	2288	2310	2311	2317	2319
2321	2325	2331	2332	2338	2339	2340	2343
2344	2345	2346	2347	2350	2351	2352	2353
2354	2355	2356	2384	2385	2386	2387	2388
2397	2405	2422	2423	2424	2425	2426	2430
2431	2441	2446	2448	2461	2462	2463	2464
2481	2482	2483	2486	2490	2493	2498	2501
2502	2516	2517	2518	2526	2530	2532	2535
2549	2550	2551	2560	2570	2571	2574	2576
2582	2584	2586	2587	2589	2598	2610	2611
2614	2626	2630	2631	2637	2651	2653	2654
2655	2656	2660	2661	2662	2668	2704	2709
2726	2732	2733	2754	2777	2778	2785	2786
2789	2803	2833	2835	2839	2841	2842	2854
2876	2885	2889	2897	2907	2919	2920	2921
2929	2930	2931	2934	2935	2936	2937	2938
2941	2960	2961	2967	2969	2990	2991	2992
2993	2996	20002	20039	20041	20042	20060	20063
20066	20082	20083	20084	20090	20099	20106	20112
20113	20121	20124	20125	20130	20132	20135	20150
20153	20154	20155	20167	20173	20181	20195	20200
20201	20207	20233	20234	20235	20236	20241	20242
20243	20253	20254	20265	20266	20267	20276	20280
20288	20293	20294	20295	20317	20319	20322	20336
20339	20352	20361	20379	20381	20402	20405	20429
20432	20433	20437	20438	20448	20464	20470	20475
20481	20482	20492	20517	20531	20549	20552	20553
20554	20572	20601	20626	20668	20671	20724	20850
20851	20882	20886	20910	20939	20940	20950	20963
20978	21014	21060	21061	21080	21089	21095	21096
21098	21100	21115	21126	21132	21143	21161	21165
21176	21179	21184	21188	21198	21209	21216	21217
21218	21223	21235	21238	21273	21274	21281	21282
21330	21339	21441	21481	21484	21527	21576	21613
21694	21695	21926	21947	22008	22009	22010	22021
22066	22083	22176	22177	22178	22179	22180	22182
22187	22192	22193	22225	22254	22381	22382	22383
SINGLE-CONDUCTOR, THERMOSET INSULATION							
3066	3067	3068	3069	3070	3071	3074	3075
3076	3077	3078	3098	3099	3100	3101	3113
3114	3122	3123	3125	3126	3127	3128	3129
3130	3132	3133	3134	3135	3136	3137	3138
3139	3140	3141	3142	3143	3144	3145	3146
3147	3148	3149	3150	3151	3152	3153	3160
3161	3162	3167	3172	3173	3179	3180	3182
3195	3207	3212	3213	3214	3231	3236	3237
3239	3243	3262	3266	3268	3270	3271	3272
3278	3288	3289	3290	3296	3298	3301	3303
3305	3316	3318	3321	3322	3323	3324	3332
3342	3343	3344	3348	3351	3352	3353	3367
3408	3410	3435	3440	3456	3482	3487	3496
3508	3512	3513	3522	3527	3529	3530	3535
3536	3546	3547	3548	3549	3566	3580	3604
3605	3646	3674	3795	3796	3814	3819	30050
30051	30052	30053	30054	30055			
MULTIPLE-CONDUCTOR, THERMOSET INSULATION							
4389	4421	4487					
SINGLE AND MULTIPLE-CONDUCTOR SPECIALTY ITEMS							
5592							

GUIDELINES FOR CABLE USE

GENERAL REQUIREMENTS

These 'General Requirements' have to be understood as generalized directions for proper use of electric cables in safety condition; unless it is otherwise stated, the cables must not be used for purposes other than transmission and distribution of electricity. The cables must be installed, used and protected in the best way to avoid any hazard, as far as it is reasonably possible, ensuring the necessary maintenance. The cables must be used following the boundary conditions of use for which they were produced and guaranteed. The cables must not be exposed to harmful chemicals' actions unless they have been constructed to withstand these actions. For example: solvents, hydrocarbons, oils and grease, flora attacks (especially by mold or by acidic or basic solutions and by wood processing chemicals). The cables must be adequately protected against the risk of mechanical damages to which they could be exposed under normal service conditions or during installation, for instance if attacked by the fauna (particularly rodents and termites) or during the passages through metal covers (pipes, holes, load handling, etc...). The cables must not be installed in locations that are exposed to the rain, or immersed in running or stagnant water unless they are declared suitable to withstand these conditions.
The effect of ultraviolet radiation on the outer jacket of the cable must be taken into consideration.

PERIODIC INSPECTIONS BY THE PURCHASER

The unprotected cables and therefore subjected to the danger of accidental contacts, must be visually inspected all the way up and, if necessary, must be controlled in an appropriate way both after installation and periodically during the service.
The accessible cables for fixed installation or for fixed or portable devices must be periodically examined and whenever the fear arises that the cable may have been damaged by internal (overvoltage, overload) or external stresses. If the cable shows visible changes in appearance or clear signs of damage, it must be repaired by qualified and expert personnel through the use of appropriate devices or it must be replaced. If the external appearance of the cable show signs of wear, damage or visible change in appearance, the cable must be replaced.
One year is the period of time indicated as frequency of control for fixed installation.
The cables accessible to mobile or portable devices have to be examined at the end of each use.

GENERAL CONDITIONS OF STORAGE

The cables which are not intended to be installed outdoor must be stored in a dry environment. All the cables which are suited and intended to be stored outside must have sealed ends in order to avoid the penetration of moisture.

SUGGESTIONS FOR CORRECT CABLE UNROLLING

Unreel the cable from the skein or the drums avoiding eyelets or torsions, as shown in (Fig. A), but following the directions of the (Fig. B).

FIGURE A

INCORRECT PROCESS

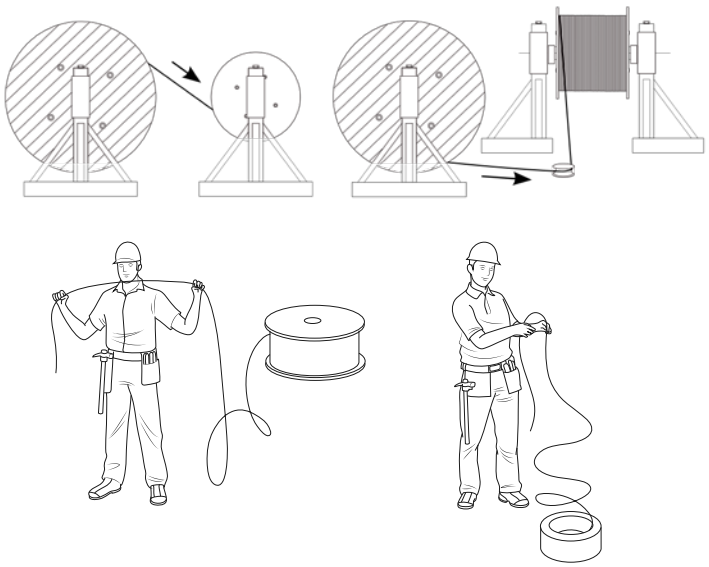
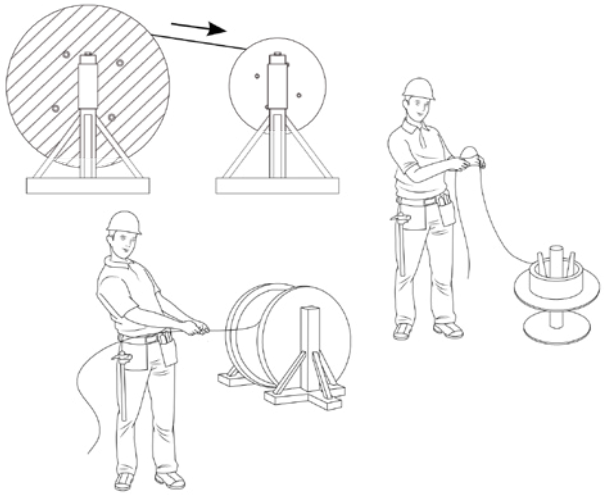


FIGURE B

CORRECT PROCESS



STATIC INSTALLATION

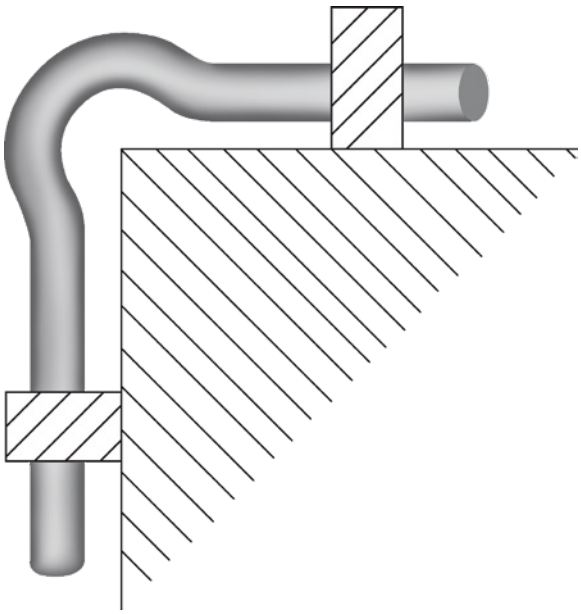
In absence of any specific installation instructions, please comply with the following ones:

- The cables must not be installed in contact or close to hot surfaces, unless they have been projected for these conditions.
- The cables should not normally be directly buried.
- The cables must be adequately supported.
- The cables must not be damaged by mechanical fastening elements used to support them.

DIRECTIONS FOR THE STATIC INSTALLATION OF THE CABLES

The cables are installed and left in a defined position. The cables are moved only for maintenance, repairs or exceptional operations.
Typical case: cables laid in raceways, in pipes, fixed to parts of buildings or industrial equipment.
The cable should be installed complying with the minimum bending radius indicated in the technical specification, avoiding direct contact with sharp edges (Fig. C).

FIGURE C



TRACTION STRESSES

While installing cables in a static installation, inside pipes, raceways, or other, or in a dynamic installation in cable drag chains, it is good to apply a traction limited to the maximum value that the cable can support. The following expressions are meant to calculate the maximum applicable value:
Maximum tensile stress during cable installation, max. 50N per mm2 of conductor section.
Maximum tensile stress in constant fixed position, max. 15N per mm2 of conductor cross section.

INSTALLATION IN DRAG CHAIN

For connections to mobile equipment, portable or transportable, the cables that are used must be flexible or very flexible. The exposed segments of the flexible or highly flexible cable, that are used as terminal connection to fixed equipment, must be as short as possible and must be connected to the fixed parts of the plant and of the equipment in an appropriate way. Flexible or highly flexible cables must not be subjected to excessive force of traction, as well as twist, torque-flex, to crushing, to abrasion or angle bending (in particular, the provided bending radii have to be respected). These cables must not be used in contact or close to hot surfaces, unless they have been provided for these conditions. With regard to the 'boundary conditions' of use (nominal voltage, current flow rate, operating temperature, thermal effects) reference should be made to what is prescribed in the mandatory purchase or technical specification or technical standard reference.
All materials used for cables production allow dynamic use in a wide variety of industrial environment conditions, from the tropics to the lowest temperatures of artic regions. It is nevertheless important to prevent that an inappropriate installation could cause a malfunctioning difficult to be noticed and machine tool breakdown.

IN DRAG CHAIN INSTALLATION SUGGESTIONS

Leave cables unrolled so that they can recover their natural position. For chains longer than 7/8m it is better to leave cables unrolled in vertical position.
Insert cables in the chain following their natural curvature.
Avoid cable twirling, overlapping or torsional stresses. The cables must be placed parallel without overlapping inside the guide. If possible every cable should have its own seat separated from the other.
In the chain include a free space, for the cables, which is at least 10% of the total space. Increase the free space up to 20% of the total if hydraulic pipes are present. The height must be dimensioned according to the cable which has the greater diameter, with a free space which must be at least 10% of the total space.
In the presence of two or more cables, the following rules are recommended to avoid overlapping:

D1 + D2> 1.2 x H THE SEPARATOR IS NOT NEEDED

d1 + d2 ≤ 1.2 x H INSERT THE SEPARATOR

If the chain is in a vertical position it is suggested to slightly oversize the gaps because the cables after an initial period of work will suffer a stretch. Program a repositioning if necessary.

FIGURE D

INCORRECT

The cables must be placed parallel without overlapping inside the guide.

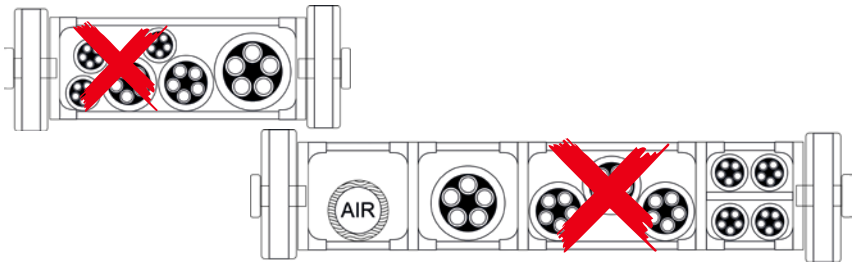


FIGURE E

CORRECT

Every cable should, if possible, have its own seat separated from the other.

In the chain it has to be provided a free space for the cables, which is at least 10% of the total space. Increase the free space up to 20% of the total if hydraulic pipes are present.

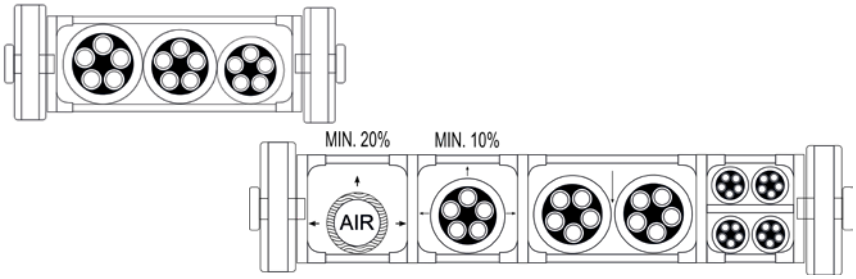
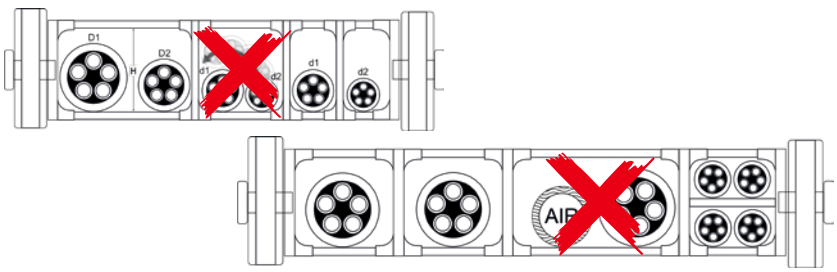


FIGURE F

INCORRECT

Avoid cable twirlings, overlappings or torsional stresses.
Hydraulic or air pipes should be separated from power cables with the separator.



- Cables must not be attached or bound one to the other inside the guide. An utmost care must be taken to allow the cables to freely slide throughout the curve in order to avoid twistings or tension stresses on the cable (Fig. G).
- Connect the cables to the moving carriage. If the cable is provided with a drive element or braid support, it must be fastened at both ends so that it can withstand the mechanical stress of traction.
- Once cables are connected to the moving unit, before connecting them to the fixed end, it is recommend to start the chain and allow some hundreds cycles so as to be sure that cables have reached the most stable position inside the chain without any tension and/or torsion stress; then complete the cable fastening.
- Cables' fastening must allow a certain degree of ease inside the chain so that cables, during motion, always move in the middle of the bending curve (Fig. H).
- The best way to fasten cables at both ends, in particular to the non-moving end, is to secure them at a distance of about 15-20-30 times of the cable diameter (depending on cable type), possibly on a cable terminal unit at 90° to the chain axis (Fig. I). This is particularly recommended in case of high-performance and great acceleration/deceleration needs and/or for very low temperature applications. For 'standard' applications cable fastening can be carried out as shown in (Fig. L) and (Fig. M).

FIGURE G

INCORRECT

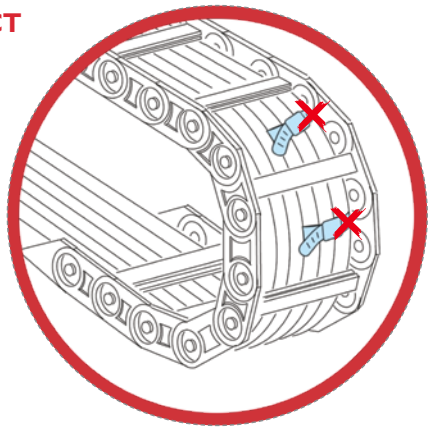
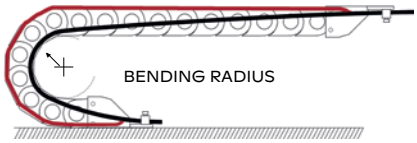


FIGURE H

INCORRECT



CORRECT

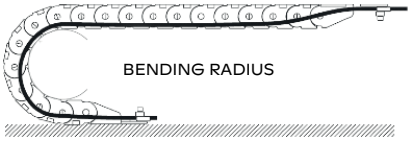
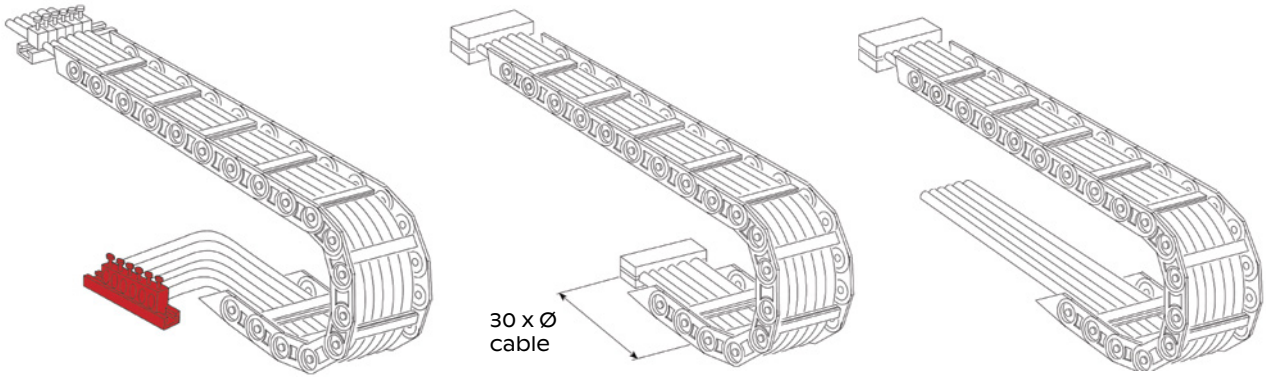


FIGURE I-L-M



UNGUIDED TORSION INSTALLATION

SUGGESTIONS FOR APPLICATIONS INVOLVING TORSIONAL STRESS

In case of applications involving torsional stress, please make sure to assess:

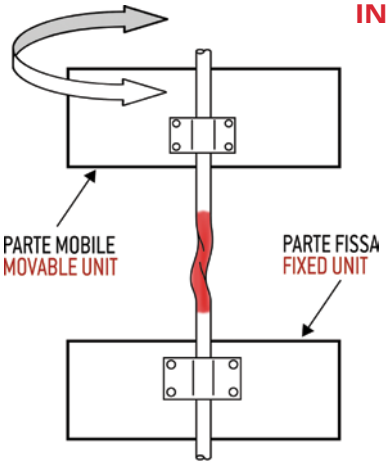
- the fastening distance between the two cable ends;
- the turning angle from the "0°" starting point (i.e: ±180°);
- the speed, acceleration and number of cycles per time unit;
- the working environment.

SUGGESTIONS FOR INSTALLING THE CABLES

- Between a static and a rotating unit, cables must be fastened at the widest possible distance so as to form an arch (Fig. P).
- For installation on robots or rotary devices (Fig. Q) it is recommended to use O.R. PMXX® cables and please ask our technical department for the precautions to take during the installation.
- For the fixing inside the machineries it is important to leave the cable as linear as possible and not to place it on an edge in order not to create twists. Where it is not possible to avoid contact between the cable and the camera body, it is recommended to apply the special lubrificant grease. PLEASE ASK OUR TECHNICAL DEPARTMENT ANYWAY.

FIGURE P

INCORRECT



CORRECT

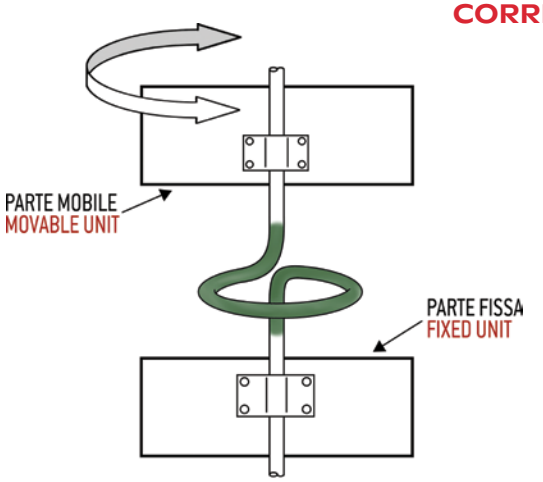
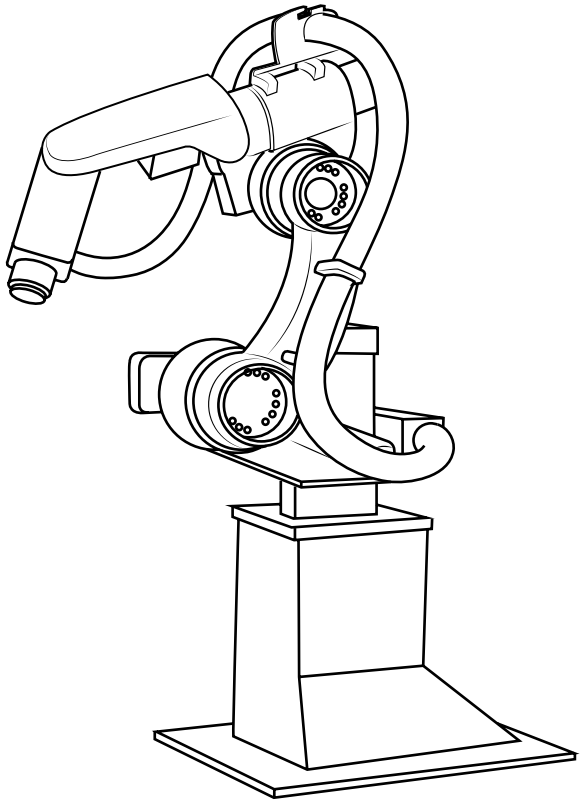


FIGURE Q



REWINDING INSTALLATION

SUGGESTIONS FOR APPLICATIONS WITH ON CABLE REEL OR WINCH INSTALLATION

- For these applications use our cables PMMXX®. Depending on the context, please ask our technical department for suggestions.
- The drum should have a diameter at least 15 times the one of the used cable.
- Before fixing, the cable should be stretched along its whole length in a linear way avoiding a direct rewinding from the supply reel to the operating drum. The rewinding should be without any torsional stress keeping the cable slightly tensioned by placing the coils one next to each other.
- The end of the cable on the drum side should not be stuck, but should be left free. The other end of the cable should only be blocked on the cable jacket and braid to prevent the conductors from being subjected to traction.
- The distance between the cable output from the drum and the first deviation shall be at least 40 times the cable diameter. "S" deviations have to be avoided, if this is not possible, keep a distance of at least 25 times the diameter of the cable between the two points (Fig. R,S).
- While working, the winding and unwinding must be guided by a layerer that allows the coils to be arranged side by side. In any case, the maximum unrolling must include the remanence of at least two layers of coils wound on the drum.
- The winding and unwinding speeds must not exceed 120 m/min with a maximum acceleration of 0,4 m/s2. It is important that, during these winding and unwinding processes, the cable isn't subjected to any sharp pull.

FIGURE R

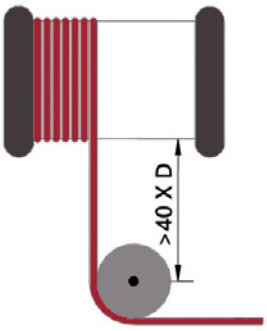
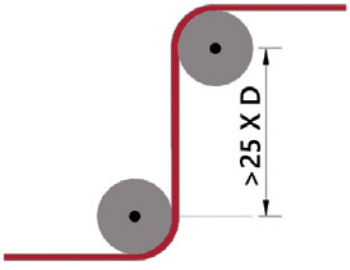


FIGURE S



TABLES

DIN 47100 COLOUR CODE

Number	Colour
1	White
2	Brown
3	Green
4	Yellow
5	Grey
6	Pink
7	Blue
8	Red
9	Black
10	Purple
11	Grey/Pink
12	Red/Blue
13	White/Green
14	Brown/Green
15	White/Yellow
16	Yellow/Brown
17	White/Grey
18	Grey/Brown
19	White/Pink
20	Pink/Brown
21	White/Blue
22	Brown/Blue
23	White/Red
24	Brown/Red
25	White/Black
26	Brown/Black
27	Grey/Green
28	Yellow/Grey
29	Pink/Green
30	Yellow/Pink
31	Green/Blu
32	Yellow/Blue
33	Green/Red
34	Yellow/Red
35	Green/Black
36	Yellow/Black
37	Grey/Blue
38	Pink/Blue
39	Grey/Red
40	Pink/Red
41	Grey/Black
42	Pink/Black
43	Blue/Black
44	Red/Black

Over 45 conductors,
colours upon request

Number	1st Conductor	2nd Conductor
1	White	Brown
2	Green	Yellow
3	Grey	Pink
4	Blue	Red
5	Black	Purple
6	Grey/Pink	Red/Blue
7	White/Green	Brown/Green
8	White/Yellow	Yellow/Brown
9	White/Grey	Grey/Brown
10	White/Pink	Pink/Brown
11	White/Blue	Brown/Blue
12	White/Red	Brown/Red
13	White/Black	Brown/Black
14	Grey/Green	Yellow/Grey
15	Pink/Green	Yellow/Pink
16	Green/Blue	Yellow/Blue
17	Green/Red	Yellow/Red
18	Green/Black	Yellow/Black
19	Grey/Blue	Pink/Blue
20	Grey/Red	Pink/Red
21	Grey/Black	Pink/Black
22	Blue/Black	Red/Black

Upon request

23	Orange	White/Orange
24	Orange/Green	Orange/Yellow
25	Orange/Grey	Orange/Blue
26	Orange/Black	Orange/Red
27	Orange/Pink	Orange/Purple
28	Purple/White	Purple/Brown
29	Purple/Green	Purple/Yellow
30	Purple/Grey	Purple/Pink
31	Purple/Blue	Purple/Red
32	Purple/Black	Green/Yellow

COLOURS ABBREVIATIONS	
BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink
GD	Gold
TQ	Turquoise
SR	Silver
GNYE	Green/Yellow

CENELEC COLOR CHART FOR CONDUCTOR IDENTIFICATION

CENELEC HD 308 S2, CEI-UNEL 00722

New scheme for low voltage cables up to 5 conductors

	Cable with GNYE	Cable without GNYE
bipolar		
tripolar		
quadripolar		
pentapolar		

DIN 4075 - CEI/IEC 60446

Identification of conductors such as phase, mid-point, PEN and Protective by conductor letter and color

Conductor	Alphanumeric		Color	
	Old	**New**	Old	**New**
AC				
Phase 1	R	L1	Black	N.D.
Phase 2	S	L2	Red	N.D.
Phase 3	T	L3	Blue	N.D.
Mid-point	MP	N	Grey	Turquoise
DC				
Positive Negative Mid-point	L+	+	.-	N.D.
	L-	-	-	N.D.
	M	-	-	Turquoise
Protection	-	PE	-	GNYE
Neutral with protection	-	PEN	-	GNYE - TQ
Grounding	-	E	-	N.D.
Grounding for external voltage	-	TE	-	N.D.
Clamps	-	aL1 aL2 aL3 aN	-	

MAIN ABBREVIATIONS USED IN VDE STANDARDS

	USAGE
A	for outdoor use
AB	outdoor use for lightning protection
J	installation cable
JE	electronic installation cable
L	installation in conduit
Li	flexible wire
S	control panel/signal cable

	ELEMENTS
B	armor
Bd	bundle construction
C	copper braid shield
D	spiral copper wire shield
F	jelly filling compound
J	cable with grounding conductor
JZ	numbered, with grounding conductor
L	smooth aluminum sheath
(L)	overlapped aluminum tape
LD	corrugated aluminum sheath
Lg	concentric construction
(L)2Y	aluminum tape laminated with PE
(ms)	magnetic shield
M	lead sheath
Mz	lead alloy sheath
PiMF	single screened pairs
Q	steel wire braid
(St)	metallic foil shield
(T)	support element
W	corrugated steel sheath
Yv	reinforced PVC sheath
2Yv	reinforced PE sheath
(Z)	self-supporting armor

	MATERIALS
G	rubber
2G	silicone rubber (SIR)
3G	ethylene-propylene rubber (EPR)
4G	ethylene-vinyl acetate (EVA)
5G	chlorosulfonated polyethylene (CR)
6G	chlorosulfonated polyethylene (CSM)
7G	fluoroelastomer
GL	fiberglass braid with silicone insulation
H	halogen-free
X	cross-linked PVC
2X	cross-linked polyethylene (PE)
11X	cross-linked polyurethane (PUR)
Y	polyvinyl chloride (PVC)
Yu	flame-retardant polyvinyl chloride (PVC)
Yv	reinforced polyvinyl chloride (PVC) sheath
Yw	polyvinyl chloride (PVC) - 90°C
2Y	polyethylene (PE)
02Y	cellular polyethylene (PE)
02Y S	foam-skin insulation
3Y	styroflex insulation
4Y	polyamide (PA)
5Y	polytetrafluoroethylene (PTFE)
6Y	fluorinated ethylene propylene (FEP)
7Y	ethylene tetrafluoroethylene (ETFE)
8Y	polyimide (PI)
9Y	polypropylene (PP)
10Y	polyvinylidene fluoride (PVDF)
11Y	polyurethane (PUR)

PRACTICAL GUIDE TO CABLE DESIGNATION CODES

According to CEI UNEL 35011 - 36011 regulations

Designation groups	Symbol	Denomination
Conductor material	-	Copper
	A	Aluminum
Conductor form	EF	Extra flexible, round stranded or special construction
	F	Flexible, round stranded
	FF	Extra flexible, round stranded
	R	Rigid, round stranded
	U	Rigid, single wire
Insulation material	E	Thermoplastic polyethylene
	E4	Cross-linked polyethylene for 85°C temperatures
	G 10	Elastomeric compound, low smoke, low toxic and corrosive gas emissions
	G 16	Ethylene-propylene rubber compound, high modulus, low smoke and acidity emissions, 90°C temperature rating (CPR)
	G 17	Cross-linked elastomeric compound, low smoke and acidity emissions, suitable for cables without protective sheaths, 90°C temperature rating (CPR)
	G 18	Cross-linked elastomeric compound, low smoke and acidity emissions, 90°C temperature rating (CPR)
	G 21	Cross-linked compound, low smoke, low toxic and corrosive gas emissions
	G 26	Ethylene-propylene rubber compound, high modulus, low smoke and acidity emissions, 105°C temperature rating (CPR)
	G 7	High modulus ethylene-propylene rubber for 90°C operating temperature
	G 9	Elastomeric compound, low smoke, low toxic and corrosive gas emissions
	M	Plastic material, low toxic and corrosive gas emissions (36011)
	R	PVC for 70°C operating temperature, quality TI1 and TI2
	R2	PVC for 70°C operating temperature, superior quality (anti-aging)
	R7	PVC for 90°C operating temperature, quality TI3
	S17	PVC compound with 70°C temperature rating (CPR)
	S18	PVC insulation compound with 70°C temperature rating (CPR)
	T	One or more mica glass tapes or closed glass braid
Cable form	O	Cores bundled for round cable
	X	Cores helically laid visible
Metallic sheaths (shields and armor)	A	Metal braid or wire armor
	AC	Aluminum concentric conductor
	C	Copper concentric conductor
	F	Steel wire armor
	H	Aluminum tape or metallized paper shield
	H1	Copper tape, flat or wire shield
	H2	Copper braid or wire shield
	N	Steel tape armor
	Z	Steel flat armor
Sheath material	E	Linear polyethylene, EZ quality
	E4	Cross-linked polyethylene, E4M quality
	G	Synthetic rubber, Gy quality
	K	Polychloroprene, Ky, Kn, or Kz quality
	M	Plastic material, low toxic and corrosive gas emissions (36011)
	M1	Thermoplastic compound, low smoke, low toxic and corrosive gas emissions
	M2	Elastomeric compound, low smoke, low toxic and corrosive gas emissions
	M16	Thermoplastic compound, low smoke and acidity emissions (CPR)
	M18	Cross-linked elastomeric compound, low smoke and acidity emissions (CPR)
	M20	Thermoplastic compound, low smoke and acidity emissions (CPR)
	R	PVC of quality TM1, TM2, Rz
	R12	PVC-based sheath compound (CPR)
	R16	Thermoplastic PVC compound (CPR)
	R18	PVC-based sheath compound (CPR)

According to CEI 20-27 regulations

Designation groups	Symbol	Denomination
Reference Standards	A	Authorized national cable
	H	Harmonized cable
	N	Other type of national cable
Rated voltage Uo/U	01	100/100 V
	03	300/300 V
	05	300/500 V
	07	450/750 V
	1	0.6/1 kV
Insulation material	B	Ethylene-propylene rubber for 60°C temperature
	G	Ethylene-vinyl acetate
	N2	Polychloroprene for welding cables
	R	Synthetic rubber for 60°C temperature
	S	Silicone rubber
	V	General-purpose PVC
	V2	PVC for 90°C temperature
	Z	Cross-linked polyolefins, low smoke, low toxic and corrosive gas emissions
	Z1	Thermoplastic polyolefins, low smoke, low toxic and corrosive gas emissions
	Z2	Cross-linked compound, low smoke, low toxic and corrosive gas emissions
Metallic sheaths (shields and armor)	C4	Copper braid shield on all cores
	C5	Copper braid shield on individual cores
	C7	Copper tape, wire, or flat bar shield on all cores
	C	Copper concentric conductor
	Z2	Round steel wire armor
	Z3	Steel flat bar armor
	Z4	Steel tape armor
	Z5	Steel wire braid armor
Cable form	H2	Non-separable flat cables
	H6	Flat cables with three or more cores
	H7	Cables with double-layer insulation applied by extrusion
Sheath material	B	Ethylene-propylene rubber
	G	Ethylene-vinyl acetate
	N	Polychloroprene
	N4	Chlorosulfonated or chlorinated polyethylene
	N8	Water-resistant polychloroprene
	Q	Polyurethane
	R	Synthetic rubber
	S	Silicone rubber
	V	General-purpose PVC
	V2	PVC for 90°C operating temperature
	V5	Oil-resistant PVC
	Z	Cross-linked polyolefins, low smoke, low toxic and corrosive gas emissions
	Z1	Thermoplastic polyolefins, low smoke, low toxic and corrosive gas emissions
	Z2	Cross-linked compound, low smoke, low toxic and corrosive gas emissions
Conductor material	-	Copper
	A	Aluminum
Conductor form	D	Flexible for welding cables
	E	Extra flexible for welding cables
	F	Flexible for mobile installation
	K	Flexible for fixed installation
	R	Rigid, round stranded
	U	Rigid, single wire

CONVERSIONS AND METRIC PREFIXES

CONVERSIONS

	FROM	BY	TO
AREA	Sq. Inch	x 6.452	= Sq. Centimeter
	Sq. Centimeter	x 0.1.550	= Sq. Inch
	Sq. Foot	x 0.0920	= Sq. Meter
	Sq. Meter	x 10.76	= Sq. Foot
	Sq. Mile	x 2.590	= Sq. Kilometer
	Sq. Kilometer	x 0.3861	= Sq. Mile
	Circular mil	x 0.7854	= Sq. Mil
LENGTH	Inch.	x 25.40	= Millimeters
	Millimeters	x 0.03937	= Inches
	Feet	x 0.3048	= Meters
	Miles	x 1.609	= Kilometers
	Kilometers	x 0.6214	= Miles
	Ohms/km	x 0. 3048	= Ohms/kft
	Meters	x 3.2808	= Feet
	Meters	x 39.3701	= Inches
	Meters	x 1.0936	= Yards
	Mils	x 0.001	= Inches
	Mils	x 0.0254	= Millimeters
	Ohms/kft	x 3.2808	= Ohms/km
WEIGHT	Pf/foot	x 3.285	= pF/meter
	Ounce	x 28.35	= Gram
	Gram	x 0.003527	= Ounce
	Pound	x 0.4536	= Kilogram
	Kilogram	x 2.205	= Pound
	Kilograms/km	x 0.6214	= Pound/kft
	Pounds/kft	x 1.4881	= Kilogram/km

METRIC PREFIXES

PREFIX	VALUE	SYMBOL
Tera	10^{12}	T
Giga	10^{9}	G
Mega	10^{6}	M
Kilo	10^{3}	K
Ecto	10^{2}	H
Deca	10^{1}	da
Deci	10^{-1}	da
Centi	10^{-2}	c
Milli	10^{-3}	m
Micro	10^{-6}	μ
Nano	10^{-9}	ŋ
Pico	10^{-12}	P

UNIT MEASURES CORRESPONDANCES

LENGTH

1 mil	=	0,0254 mm
1 in. (inch)	=	25,4 mm
1 ft. (foot)	=	0,3048 m
1 yd. (yard)	=	0,9144 m
1 ch. (Chain)	=	20,1 m
1 mile (land mile)	=	1,609 km
	=	1760 yards
1 mile (nautic mile)	=	1,852 km
1 mm	=	0,039370 inches
1 m	=	39,370079 inches

AREA

1 CM (circular mil)	=	0.507 · 10-3 mm²
1 MCM	=	0.5067 mm²
1 sq. inch (sq. inch)	=	645,16 mm²
1 sq. ft. (sq. foot)	=	0.0929 m²
1 square yard	=	0,836 m²
1 acre	=	4047 m²
1 square mil	=	2.59 km²

DENSITY

1 cu. in. (cubic inch)	=	16,39 cm
1 cu. ft. (cubic foot)	=	0,0283 m³
1 cu. yd. (cubic yard)	=	0,7646 m³
1 gal. (US gallon)	=	3,785 l
1 gal. (brit gallon)	=	4,546 l
1 US pint	=	0,473 l
1 US quart	=	0,946 l
1 US barrel	=	158,8 l
1 lb./cu. ft.	=	16,02 kg/m
1 lb./cu. in.	=	27,68 t/m

TEMPERATURE

F (Fahrenheit)	=	(1,8 x C) + 3°
C (Celsius)	=	0,5556 x (F - 32°)

WEIGHT

1 grain	=	64,8 mg
1 dram	=	1,77 g
1 oz. (ounce)	=	28,35 g
1 lb. (pound)	=	0,4536 kg
1 stone	=	6,35 kg
1 qu. (quarter)	=	12,7 kg
1 US-cwt (hundredweight)	=	45,36 kg
1 US ton (short ton)	=	0,907 t
1 brit. ton (long ton)	=	1,016 t

FORCE

1 lb.	=	4,448 N
1 brit. ton	=	9954 N
1 pdl (Poundal)	=	0,1383 N
1 kp	=	9,81 N
1 N	=	0,102 kp

SPEED

1 mile/h.	=	1,609 km/h
1 knoten	=	1,852 km/h
1 ft./s.	=	0,305 m/s
1 ft./min.	=	5,08 · 10-3 m/s

ENERGY

1 lb./mile	=	0,282 g/m
1 lb./yard	=	0,496 kg/m
1 lb./foot	=	1,488 kg/m

RADIATION ABSORBED DOSE

1 Gray	=	1 J/kg
1 rad	=	10 - 2 J/kg
	=	1 Centi Gy
	=	0,01 Gy
1 Centi	=	100 joule
1 rad	=	cj/kg = 0,01 Gy
1 Mrad	=	1 x 106 cj/kg

PRESSURE

1 psi (lb./sq.)	=	68,95 mbar
	=	$6{,}895 \cdot 10^{-3}$ Nmm²
1 lb./sq. ft.	=	0,478 mbar
1 pdl/sq. ft.	=	1,489 N/m²
1 in. Hg	=	33,86 mbar
1 ft. H2 O	=	29,89 mbar
1 in. H2 O	=	2,491 mbar
1 N/mm²	=	145 psi
	=	10 bar
1 kp/mm²	=	1422 psi
1 at.	=	736 Torr
	=	1 kp/cm²
1 Torr	=	1 mm Hg
1 bar	=	0,1 H Pa
1 Pa	=	1N/m²

HORSE POWER

1 hp · h	=	1.0139 PS · h
	=	2,684 · 106 joule
	=	746 W x h
1 BTU (brit. term. unit)	=	1055 joule

ELECTRICAL UNITS

1 ohm/1000 yd.	=	1.0936/km
1 ohm/1000 ft.	=	3,28/km
1 F/mile	=	0,62 F/km
1 megohm/mile	=	1,61 M/km
1 f/foot	=	3,28 pF/m
1 decibel/mile	=	71.5 mN/m

POWER RATE

1 PS	=	0,736 kW
1 kW	=	1,36 PS
1 hp	=	0,7457 kW
1 kW	=	1,31 hp

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