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BROCHURE

Cable management systems for the railway industry

Fastening and connection solutions

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ABB Inc.
Low Voltage Products
Memphis, Tennessee
USA

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Ty-Rap®

Cable ties for the railway industry

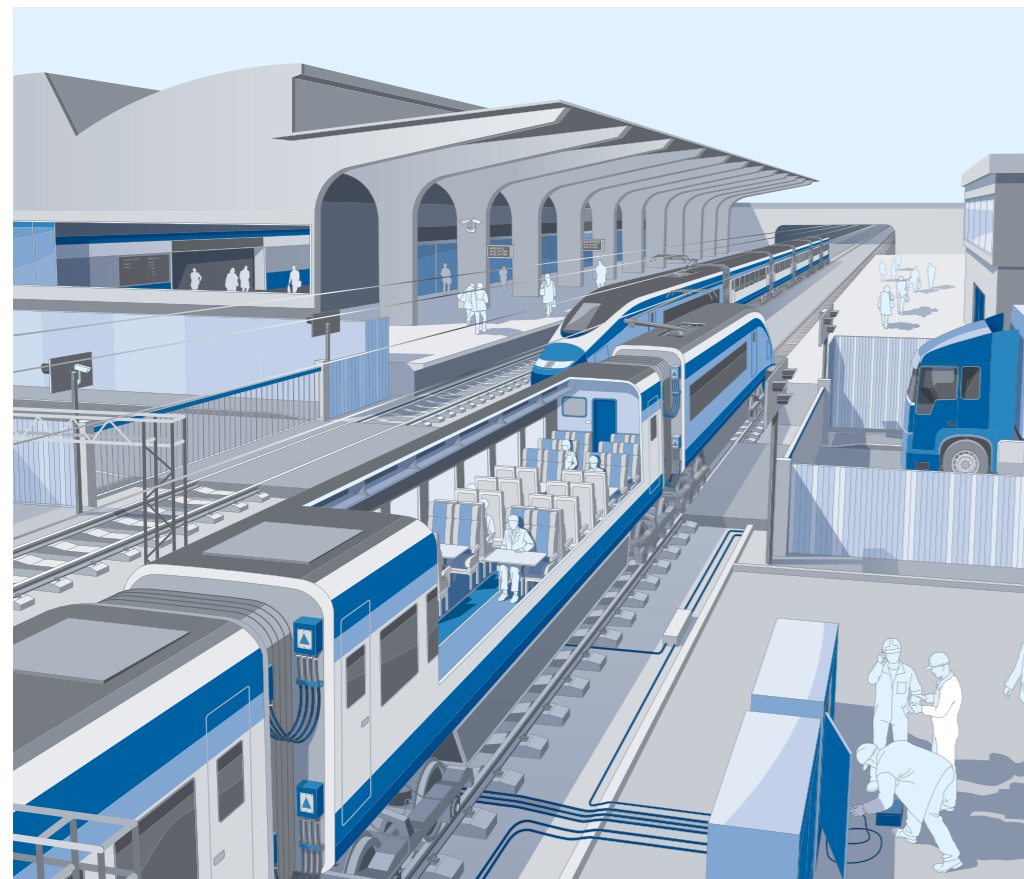
At ABB we're focused on products designed to address the issues facing today's rail industry including quality, safety and regulatory challenges.

Railway industry

From high performance electrical cable ties, conduits and fittings, through to electronic trackside protection and emergency lighting solutions, our expertise in innovative engineering and manufacturing help our customers meet the demands of this challenging industry.

Characteristics

- Premium cable ties with steel locking barb to secure and manage cables
- The "Grip of Steel" Non-Magnetic Stainless Steel locking Barb – marine grade type 316
- Rounded edges to prevent sharp edges from damaging cables
- Smooth, notchless body, making the cable ties stronger
- Ribbed and stippled surface to prevent the tie from slipping under vibration conditions and external shock
- UV-resistant and flame retardant Ty-Rap® cable ties are certified to the latest standard for the train industry
- Complete range of Ty-Rap® cable ties in different dimensions up to a tensile strength of 540N
- Now also available in practical small packaging



UV-resistant and flame retardant Ty-Rap® cable ties for the railway industry. Tested according to the NFF 16-101 standard and to the EN 45545-2.

Ty-Rap® cable tie

The right cable tie for the right application



UV-resistant



Flame retardant

Technical information: UV-resistant

- Material – Moulding: Polyamide 6.6
- Material – Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +105°C
- Color: Black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free, Silicon free
- Test Result NFF 16-101: I3F2
- Test Result EN 45545-2: HL2 for R22 and R23 requirement

Technical information: Flame Retardant

- Material – Moulding: Polyamide 6.6
- Material – Locking barb: 316 grade stainless steel
- Temperature range: -20°C to +65°C
- Color: White
- Flammability rating: UL 94 V-0
- Other properties: Halogen free, Silicon free
- Test Result NFF 16-101: I3F1
- Test Result EN 45545-2: HL3 for R22 and R23 requirement

UV-resistant cable tie

Product code	GID Number	Length [mm]	Width [mm]	Bundle diameter from ... to [mm]	Minimum tensile strength [N]	Quantity [pieces]
TY23MX-RW	7TCG009040R0015	92	2,4	1,5 - 22	80	1000
TY232MX-RW	7TCG009040R0014	203	2,4	1,5 - 51	80	1000
TY234MX-RW	7TAG009050R0005	356	2,4	1,5 - 102	80	1000
TY24MX-RW	7TCG009130R0010	140	3,6	2 - 35	180	1000
TY242MX-RW	7TCG009130R0011	204	3,6	2 - 51	180	1000
TY26MX-RW	7TCG009120R0006	284	3,6	2 - 76	130	1000
TY244MX-RW	7TCG009130R0012	368	3,6	2 - 102	130	1000
TY25MX-RW	7TCG009210R0085	186	4,8	3 - 48	220	1000
TY253MX-RW	7TCG009220R0011	295	4,8	3 - 78	220	1000
TY28MX-RW	7TCG009210R0086	361	4,8	3 - 102	220	1000
TY271MX-RW	7TCG009450R0226	150	7,6	6 - 31	540	500
TY272MX-RW	7TAG009330R0008	223	6,9	6 - 51	540	500
TY277MX-RW	7TAG009340R0003	617	7,0	6 - 177	540	500
TY27MX-RW	7TAG009320R0006	340	6,9	6 - 102	540	500
TY29MX-RW	7TCG009330R0012	771	8,2	6 - 229	540	500

To order the small packaging please add a 5 and an R in the product reference: TY23MX-RW becomes TY523MXR-RW.

Flame retardant cable tie

Product code	GID Number	Length [mm]	Width [mm]	Bundle diameter from ... to [mm]	Minimum tensile strength [N]	Quantity [pieces]
TY23MFR-RW	7TCG009570R0008	92	2,4	1,5 - 22	80	1000
TY232MFR-RW	7TCG009570R0013	203	2,4	1,5 - 51	80	1000
TY24MFR-RW	7TCG009570R0009	140	3,6	2 - 35	180	1000
TY25MFR-RW	7TCG009570R0010	186	4,8	3 - 48	220	1000
TY28MFR-RW	7TCG009570R0011	360	4,8	3 - 102	220	500
TY27MFR-RW	7TCG009570R0012	340	7,0	4,8 - 95	540	100

To order the small packaging please add a 5 and an R in the product reference: TY23MFR-RW becomes TY523MFR-RW.

Ty-Rap® mounting base

Saddle support



Characteristics

- Tie mounting bases with supporting saddle
- For screw- or rivet-mounting
- The prism-shape of the saddle prevents twisting around the fixture
- High strength through compact design
- Non-conductive, non-corrosive, resistant to fuels, lubricants and most chemicals

Technical Information

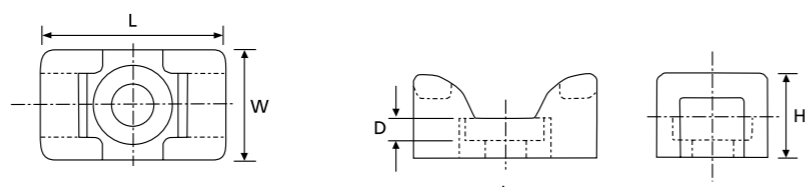
- Material: Heat stabilized Polyamide 6.6
- Temperature range: -40°C to +85°C
- Color: UV-resistant black
- Mounting method: Screw
- Flammability rating: UL 94 V-2
- Test Result NF F 16-101: I3-F2
- Test Result EN 45545-2: HL2 for R22 and R23
- Other properties: Halogen free, Silicone free, UV-resistant

Saddle support mounting base

Product code	Dimensions [mm]				For tie width up to [mm]	Mounting hole diameter [mm]	Quantity [pieces]
	H	W	L	D			
TC140X-RW	6,7	8,7	14,2	1,8	2,4	3,0	1000
TC141X-RW	7,5	11,1	17,0	2,3	4,8	3,8	1000
TC142X-RW	10,7	14,2	23,4	2,9	7,6	5,2	1000

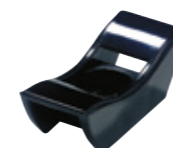
Add: To order the small packaging please add a 5 and an R in the product reference: TC140X-RW becomes TC5140X-RW.

Dimensions



Ty-Rap® mounting base

Weather resistant - Heavy-duty



Characteristics

- Tie mounting base for outdoor installation
- A strong, weatherproof and durable outdoor fastening solution for pipes, hoses, cables, etc.
- For screw-fastening
- Ergonomically shaped for trouble-free installation

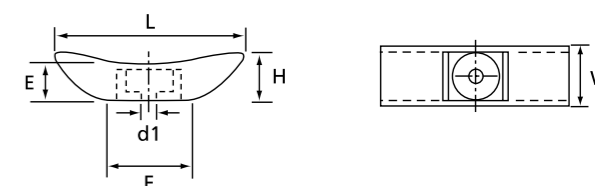
Technical Information

- Material: UV-stabilized Polyamide 6.6
- Temperature range: -40°C to +85°C
- Color: Black
- Mounting method: Screw
- Flammability rating: UL 94 V-2
- Test Result NF F 16-101: I3-F2
- Test Result EN 45545-2: HL2 for R22 and R23
- Other properties: UV-resistant, Halogen free, Silicone free

Weather resistant - heavy duty mounting base

Product code	Dimensions [mm]					For tie width up to [mm]	Mounting hole diameter d1 [mm]	Weight [g/100]	Quantity [pieces]
	H	W	L	E	F				
TC5357X-RW	15,9	19,1	44,5	11,1	28,6	12,7	6,7	500	25

Dimensions



Ty-Rap® mounting base

Screw-mounted strips for multiple bundling



Characteristics

- Tie mounting strips for up to 6 bundles simultaneously
- When mounted, the tie is guided through the clamp for fast assembly
- Simple and strong flat mounting beams for fixing multiple cables, bundles or components

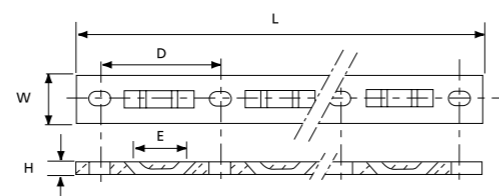
Technical Information

- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C
- Color: UV-resistant black
- Mounting method: 2 or more screws
- Flammability rating: UL 94 V-2
- Test Result NF F 16-101: I3-F2
- Test Result EN 45545-2: HL2 for R22 and R23
- Other properties: Halogen free, Silicone free

Screw-mounted strip mounting base

Product code	Dimensions [mm]					Max. number of bundles	For tie width up to [mm]	Mounting hole diameter [mm]	Weight [g/100]	Quantity [pieces]
	H	W	L	D	E					
TC1101X-RW	3,2	12,7	44,0	31,8	9,5	1	4,8	3,7	160	100
TC1102X-RW	3,2	12,7	76,0	31,8	9,5	2	4,8	3,7	280	100
TC1103X-RW	3,2	12,7	108,0	31,8	9,5	3	4,8	3,7	400	100
TC1104X-RW	3,2	12,7	140,0	31,8	9,5	4	4,8	3,7	520	100
TC1105X-RW	3,2	12,7	171,0	31,8	9,5	5	4,8	3,7	650	100
TC1112X-RW	5,2	15,9	244,0	38,1	14,3	6	7,6	3,7	1679	100
TC1113X-RW	5,2	15,9	53,3	38,1	14,3	1	7,6	3,7	385	100
TC1114X-RW	5,2	15,9	91,4	38,1	14,3	2	7,6	3,7	658	100
TC1115X-RW	5,2	15,9	130,0	38,1	14,3	3	7,6	3,7	914	100
TC1116X-RW	5,2	15,9	168,0	38,1	14,3	4	7,6	3,7	1190	100
TC1117X-RW	5,2	15,9	206,0	38,1	14,3	5	7,6	3,7	1141	100

Dimensions



Bind-It® cable sleeves and spiral wraps

Wrap-around woven sleeving - flame retardant



Characteristics

- Wrap-around sleeving manufactured from flame retardant polyester monofilaments and multifilaments
- Designed for mechanical protection and maintenance of wire and cable bundles
- Its construction with 100% covering ratio provides excellent cut-through and abrasion resistance
- No heat is required to seal the ends of this product as with traditional braided sleeving
- With its wrap-around design, it can be installed on assemblies where the wires are already terminated or wires need to be broken-out
- Bind-It® is available in nominal sizes from 5 mm to 50 mm

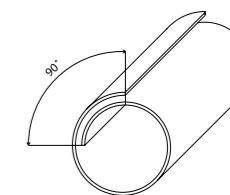
Technical Information

- Material: Mono and multifilaments of polyester
- Temperature range: -50°C to +125°C
- Melt temperature: +240°C
- Automotive temperature class: T3
- Color: Black
- Fire behaviour according to EN 45545-2 : HL3
- Fire behaviour according to NF F 16 101 : I2-F1
- Ignitability test : According to NF-EN-ISO 11925-2
- Abrasion resistance: PSA D44 1722: R8
- Smoke opacity: NFX 10-702-1; 10-702-2: Pass; Smoke index: 12
- Index oxygen: According to EN 45545-2 : 37.5%
- Dielectric strength: From 1kVAC
- Other properties: Halogen free

Bind-It® woven cable sleeve

Product code	GID Number	Nominal Size [mm]	Length per mini-reel [m]
CPS05W-150-FR-EU	7TCG054800R0003	5	150
CPS08W-100-FR-EU	7TCG054800R0007	8	100
CPS13W-50-FR-EU	7TCG054800R0022	13	50
CPS19W-25-FR-EU	7TCG054800R0033	19	25
CPS25W-25-FR-EU	7TCG054800R0050	25	25
CPS29W-15-FR-EU	7TCG054800R0052	29	15
CPS32W-15-FR-EU	7TCG054800R0065	32	15
CPS38W-15-FR-EU	7TCG054800R0069	38	15
CPS50W-15-FR-EU	7TCG054800R0090	50	15

Dimensions



* Nominal size is determined by wrapping the product around a mandrel of a given size to obtain 90 degrees of overlap (average value).

Bind-It® cable sleeves and spiral wraps

Braided sleeving - flame retardant



Characteristics

- Braided sleeving manufactured from flame retardant polyester monofilaments
- Flame retardant polyester, conform to UL 94 V-0, mainly used in the railway industry
- Available in diameters from 3 to 50 mm to cover bundle diameters of 2 to 60 mm
- Recommended in applications such as public transportation, aircraft industry, telecommunications, underground cables, etc.

Technical Information

- Material: Flame retardant polyester monofilaments (PET FR)
- Temperature range: -50°C to +150°C
- Melt temperature: +250°C
- Color: Black or grey
- Tested according to NF F 16 101: I2-F1
- Tested according to EN45545-2 2013: HL3
- Other properties: Halogen free

Bind-It® braided sleeving

Part Number	GID Number	Part Number	GID Number	Nominal as supplied [mm]	Expandable diameter range [mm]	Length per reel [m]
CPS3B-100-CV0	7TCG054800R0072	CPS3G-100-CV0	7TCG054800R0108	3	2 - 5	100
CPS4B-100-CV0	7TCG054800R0082	CPS4G-100-CV0	7TCG054800R0085	4	3 - 7	100
CPS5B-100-CV0	7TCG054800R0093	CPS5G-100-CV0	7TCG054800R0109	5	4 - 9	100
CPS6B-100-CV0	7TCG054800R0098	CPS6G-100-CV0	7TCG054800R0102	6	5 - 11	100
CPS8B-100-CV0	7TCG054800R0104	CPS8G-100-CV0	7TCG054800R0111	8	7 - 13	100
CPS10B-50-CV0	7TCG054800R0010	CPS10G-50-CV0	7TCG054800R0013	10	9 - 15	50
CPS12B-50-CV0	7TCG054800R0016	CPS12G-50-CV0	7TCG054800R0112	12	11 - 17	50
CPS15B-50-CV0	7TCG054800R0026	CPS15G-50-CV0	7TCG054800R0029	15	13 - 20	50
CPS20B-50-CV0	7TCG054800R0036	CPS20G-50-CV0	7TCG054800R0039	20	18 - 25	50
CPS25B-50-CV0	7TCG054800R0043	CPS25G-50-CV0	7TCG054800R0046	25	22 - 30	50
CPS30B-50-CV0	7TCG054800R0059	CPS30G-50-CV0	7TCG054800R0062	30	27 - 40	50
CPS40B-50-CV0	7TCG054800R0077	CPS40G-50-CV0	7TCG054800R0080	40	35 - 50	50
CPS50B-50-CV0	7TCG054800R0087	CPS50G-50-CV0	7TCG054800R0110	50	45 - 60	50



Shield-Kon®

One-piece connector



Characteristics

Due to today's demands on modern rail vehicles, the number of safety, control and guidance systems within motor vehicles and utility vehicles continues to increase. Of course, this raises the challenge that these systems work reliably in parallel.

In order to improve the electromagnetic compatibility of individual systems and, moreover, to ensure trouble-free signal acquisition, transmission and processing, shielded cables are used. ABB offers the Shield-Kon® system to connect the cable shield quickly and safely.

Another advantage of shield connection with Shield-Kon® is increased available space. In driver control rooms, more and more signal heads and control units need to be used, which decreases the space available for the individual system.

There are similar challenges in the modernization of older trains. In this case, more lines must be installed in the existing cable ducts, which ultimately also creates higher demands on the EMC shielding - along with the problem of having less available space.

- Compact, low profile connector
- One piece "Wrap-around" design
- Inventory savings: only 4 sizes
- Transparent insulation, easily inspected
- NO HEAT OR POWER REQUIRED to install
- No damage to inner conductor
- Less installation time required
- Uniform, precise connection every time
- Low installed cost
- Mid-span termination possible, eliminating the need to demount a cable already installed

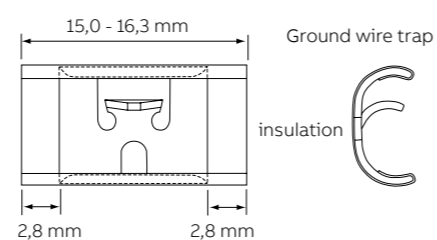
Technical Information

- Material: Copper, conform to CDA No. 110
- Plating: Tin, electro-plated (thickness 3 to 8 µm), in accordance with MIL-T-10727A
- Insulation: Polyester film, color coded for size identification
- Temperature: -65°C to +125°C

Shield-Kon® one piece connector

Product code	GID Number	Color	Shield diameter range [mm]	Acceptable drain wire size	Quantity [pieces]
RSK101	7TCI029060R0026	red	1,27 - 2,28	1 or 2 pieces 0,25mm ²	1000
RSK5101	7TCI029100R0073	blue	2,29 - 3,65	1 or 2 pieces 0,25mm ² or 1 piece 0,5mm ²	100
RSK201	7TCI029060R0027				1000
RSK5201	7TCI029100R0075	yellow	3,66 - 5,12	1 or 2 pieces 0,25mm ² or 1 piece 0,5mm ²	100
RSK301	7TCI029060R0029				1000
RSK5301	7TCI029100R0079	green	5,13 - 7,62	1 or 2 pieces 0,5mm ² or 1 piece 0,5mm ²	100
RSK401	7TCI029060R0031				500
RSK5401	7TCI029100R0082				100

Dimensions



Shield-Kon®

One-piece connector selection gauge



Product Code:: RSK-LEHRE
GID Number: 7TCA131130R0001

Characteristics

The choice of the appropriate connector and die set mainly depends on the size of the shielded cable. The selection can be done very quickly with the RSK-LEHRE gauge.

1. Remove the outer jacket from the shielded cable, making the shielding visible.
2. Insert this stripped end of the cable into the slots located around the gauge. The correct slot will be found when the cable can slide only in the upper

part of the slot. If the cable can slide completely to the bottom of the slot, you should try with the smaller adjacent slot.

3. Once the appropriate slot is found, the corresponding RSK connector is defined by the Color of the strip around the slot, whereas the corresponding die set is given by the number marked below the slot (add prefix "D" to this number).

Shield-Kon®

Ergonomic hand tool



Product Code: ERG740
GID Number: 7TCA131130R0000

Characteristics

- Robust construction: metallic frame, partially covered with plastic
- Dies are easily interchangeable (to be ordered separately)
- Parallel action crimp
- Shure-Stake® mechanism: once pressing has commenced, the tool can be re-opened only after successful completion of the crimping cycle
- Supplied in a plastic case with:
1 tool, 1 bench-mount stand for easier use in

volume production, 1 gauge (Product Code: RSK-LEHRE) for instant selection of the die and the connector to be used

- Dimensions of tool (L x W x H): 210 x 155 x 25 mm
- Weight of tool: 470 g
- Dimensions of plastic case (L x W x H): 245 x 210 x 55 mm
- Weight of plastic case with content: 930 g

ERG740 die selection chart

Product code	GID Number	Color	Shield diameter range [mm]	For connector
D-101A	7TCA131310R0026	red	1,27 - 1,79	RSK 101
D-101B	7TCA131310R0027		1,80 - 2,28	RSK 101
D-201C	7TCA131310R0028	blue	2,29 - 2,55	RSK 201
D-201D	7TCA131310R0029		2,56 - 3,00	RSK 201
D-201E	7TCA131310R0030		3,01 - 3,34	RSK 201
D-201F	7TCA131310R0031		3,35 - 3,65	RSK 201
D-301G	7TCA131310R0032	yellow	3,66 - 4,13	RSK 301
D-301H	7TCA131310R0033		4,14 - 4,71	RSK 301
D-301J	7TCA131310R0034		4,72 - 5,12	RSK 301
D-401K	7TCA131310R0035	green	5,13 - 5,86	RSK 401
D-401L	7TCA131310R0036		5,87 - 6,36	RSK 401
D-401M	7TCA131310R0037		6,37 - 7,00	RSK 401
D-401N	7TCA131310R0038		7,01 - 7,62	RSK 401