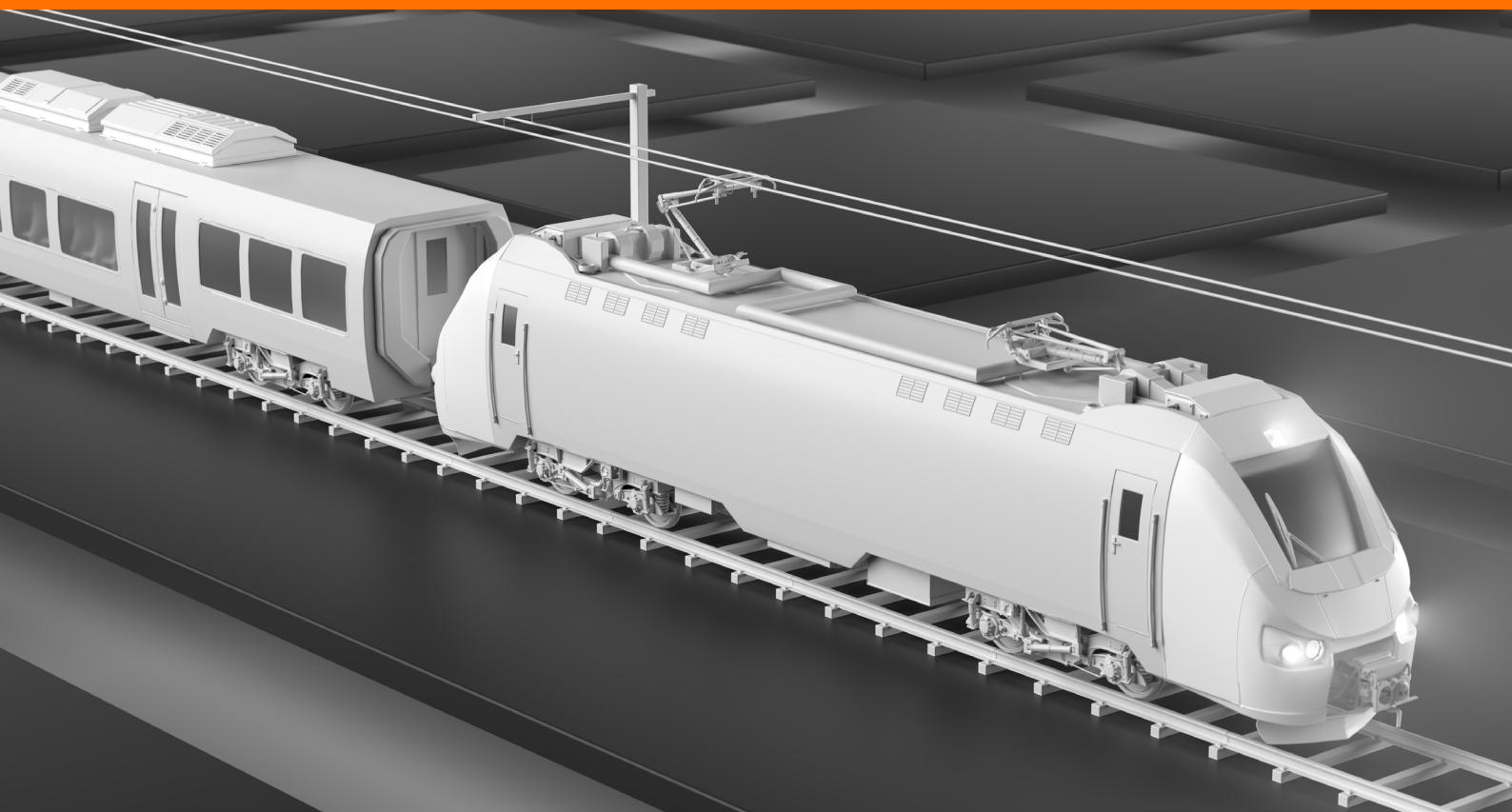


Next stop: LAPP

Connection solutions for railway technology

More products, faster selection, everything at a glance



Fast track:

Discover our railway products in the product overview – so that you can get to your destination faster.

Millions of people around the world travel by train each day. Increasing urbanisation in many major cities means that mobility needs to be rethought and the demand for public transport is growing. Passenger numbers on rail services are on the rise – and with them, so are the expectations for the accessibility, punctuality, safety and reliability of rail transport. The cables that are used play

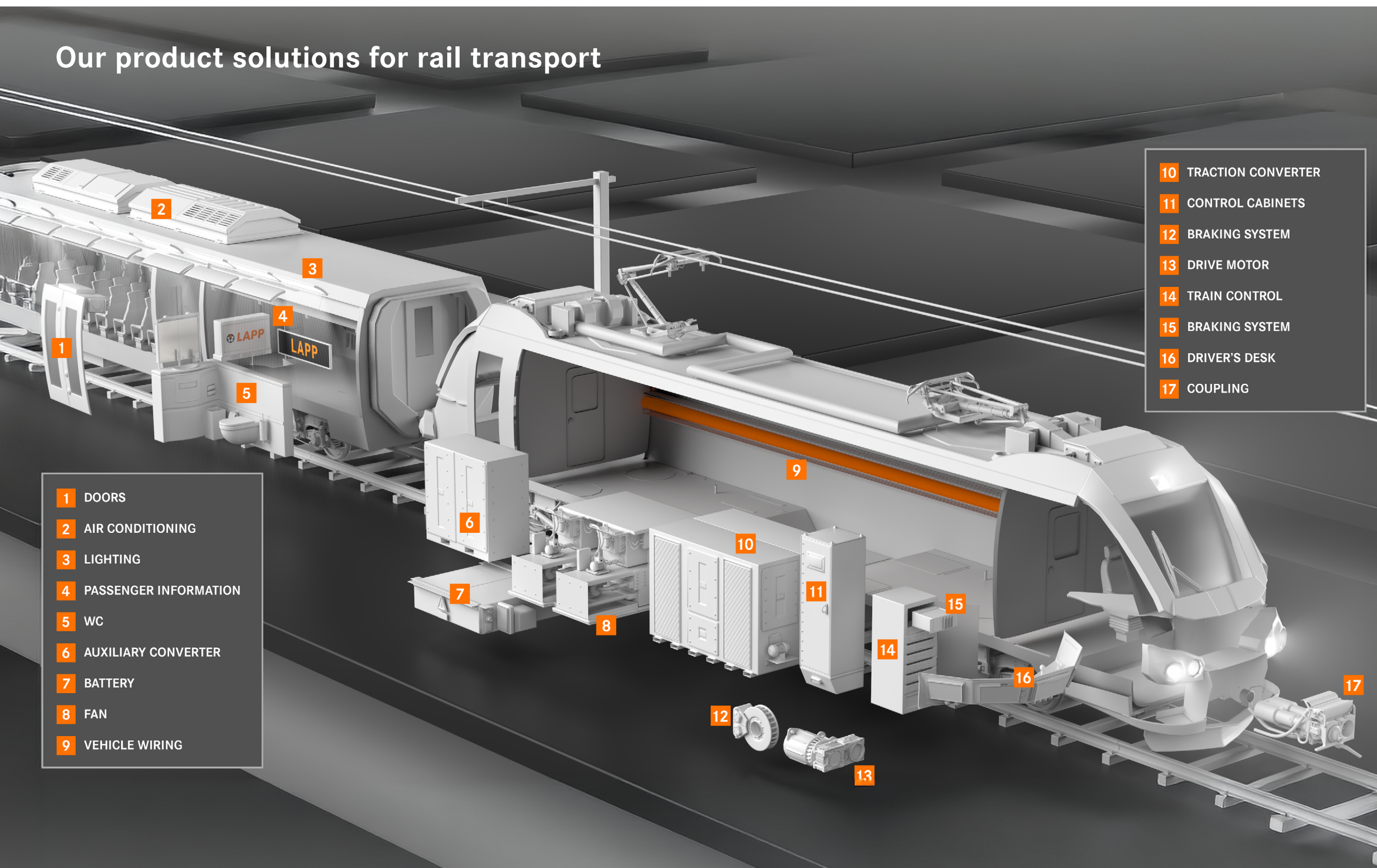
a major part in determining whether these expectations are met. **That is why LAPP supplies you with tested and certified system solutions for railway technology from a single source – now with even greater variety.** We draw on our decades of experience to support you with advice and provide you with exactly the solution you need.

Our entire portfolio now comprises more than **3,400 articles** for railway technology and is constantly growing so that you can always find the right connection. These include proven solutions such as **ÖLFLEX® TRAIN 331 600 V**, the universal single-core cable for railway vehicles in accordance with EN 50264-3-1. It is available in sizes from 0.5 to 300 mm² and in many colours. The halogen-free cable has high-quality electron beam cross-linked insulation and meets the highest HL3 classification according to DIN EN 45545-2. It also offers temperature resistance up to 145 °C, making it the ideal replacement for GKW and similar types.

ON THE RIGHT TRACK: FIND THE RIGHT PRODUCT

With our product overview, **you can easily find the right product.** All LAPP solutions for railway technology are clearly presented, including direct links to the respective product pages in the online shop. There you will find comprehensive information about our available portfolio, recommended accessories, technical data sheets and stock availability. **Order now – quickly, easily and with no minimum quantities.**

Our product solutions for rail transport



RELIABLY TO THE DESTINATION

Connection solutions for rail transport need to meet specific requirements – you can always depend on quality with LAPP:

- Our cables have electron beam or chemical cross-linking and so offer **maximum resistance** to chemical and mechanical stress, UV light and high temperatures.
- All our railway technology products are **fireproof in accordance with EN 45545-2** to ensure the safety of people and goods, most of them in **hazard class HL3**.
- Our production sites in South Korea and India guarantee you **process reliability with IRIS ISO/TS 22163:2017 certification**.
- We monitor the quality of all our products in our **in-house testing laboratories**.

YOUR CONNECTION TO US

We set the course for your railway technology projects. Contact our experts now.

Thorsten Grünberg
Thorsten.Gruenberg@lapp.com

GET STARTED

Find out more about railway technology solutions on our website.

www.lapp.com/en/de/000061



Power and control cables

Standard	Type	Nominal voltage U ₀ /U (EN50306 not ap- plied)[V]	Shielding	Twisted-Pair	Conductor stranding	Number of cores from – to	Conductor cross-section from – to [mm²]	Hazard level (HL) EN45545-2	Temperature range from – to [°C]	Product name
EN 50306-2		300/500 (600/1000)			19/37 wires	1	0.5 – 2.5	1 – 3	-50 – +125	ÖLFLEX® TRAIN 301 TW
EN 50306-4	1P	300/500 (600/1000)	•	•	19/37 wires	2 – 48	0.5 – 2.5	1 – 3	-50 – +125	ÖLFLEX® TRAIN 310 TW-P
	3P									ÖLFLEX® TRAIN 315 C TW-P
	5P									ÖLFLEX® TRAIN 317 C TW-P
	1E			ÖLFLEX® TRAIN 320 TW-E						
	3E		•	•		2 – 8				ÖLFLEX® TRAIN 325 C TW-E
	5E					2x2 – 7x2				ÖLFLEX® TRAIN 327 C TW-E
EN 50264-3-1	M	600/1000			5	1	0.5 – 300	1 – 3	-50 – +120 (145 for 3,000 h)	ÖLFLEX® TRAIN 331 600V
		1800/3000					1.5 – 300		ÖLFLEX® TRAIN 361 1,8kV	
	MM	3600/6000					2.5 – 300		-50 – +120	ÖLFLEX® TRAIN 371 1,8kV
										ÖLFLEX® TRAIN 381 3,6kV
EN 50264-3-2	MM	600/1000	•	5	2 – 40	0.5 – 50	1 – 3	-50 – +120	ÖLFLEX® TRAIN 340 600V	
	MMS								ÖLFLEX® TRAIN 345 C 600V	
	MM	300/500	•			1 – 2.5			ÖLFLEX® TRAIN 350 300V	
	MMS								ÖLFLEX® TRAIN 355 C 300V	
EN 50382	F	1800/3000		5	1	1.5 – 240	1 – 3	-40 – +150	ÖLFLEX® TRAIN HT 150 F 1,8 kV	
	FF					2.5 – 240			ÖLFLEX® TRAIN HT 150 FF 1,8 kV	
	F	3600/6000				1.5 – 240			ÖLFLEX® TRAIN HT 150 F 3,6 kV	
	FF					2.5 – 240			ÖLFLEX® TRAIN HT 150 FF 3,6 kV	
	FX					6			50 – 185	ÖLFLEX® TRAIN HT 150 FX 3,6 kV
4GKW	M	1800/3000			5	1	1.5 – 300	1 – 3	-40 – +125	ÖLFLEX® TRAIN 4GKW
4GKW C	M	1800/3000	•		5	1	1,5 – 300	1 – 3	-40 – +125	ÖLFLEX® TRAIN 4GKW C

Data communication systems

Product type	MVB	WTB	Ethernet Cat.5e	Ethernet Cat.6 _A	Ethernet Cat.7	Outer diameter [mm]	Number of cores and mm² per conductor	Temperature range from – to [°C]	Characteristic impedance [Ω]	Hazard level (HL) EN45545-2	Product name
Bus-Cables	•		•			7.6	1 x 2 x 0.5	-45 – +90	120	1 – 3	UNITRONIC® TRAIN
							1 x 2 x 0.5 + 0.5				
						8.3	2 x 2 x 0.5				
						8.1	2 x 2 x 0.5 + 4 x 0.25				
		8.4				1 x 2 x 0.75					
Ethernet-Cables			•	•		6.5	1 x 4 x AWG22 / 7	-45 – +90	100	1 – 3	ETHERLINE® TRAIN
						7.6	1 x 4 x 0.5 / 7				
						7.7	4 x 2 x AWG24 / 7				
						8.4					
						8.4					

EPIC® rectangular connectors

Product type	Connection type				Number of contacts	Wire cross-section [mm²]	Rated voltage [V]			Rated current [A]			Hazard level(HL) EN45545-2	Product name
	Crimp	Push-In	Cage clamp	Screw			IEC	UL/USR	CSA/CNR	IEC	UL/USR	CSA/CNR		
Inserts standard	•	•		•	3 – 48	0.5 – 2.5	400	600	600	23	10	10	1 – 3	EPIC® H-A
	•			•	6 – 48	0.14 – 4.0	500	600	600	16	16	16		EPIC® H-BE
				•	6 – 12	0.5 – 6.0	500	600	600	35	35	35		EPIC® H-BS
				•	3+2 – 6+2	0.5 – 2.5	630	600	600	16	16	16		EPIC® H-BVE
Inserts modular	•	•	•	•	1 – 36	0.09 – 95.0	up to 1000			up to 250				EPIC® MH MODULAR

Cable marking products

Product type	Properties	Dimensions [mm]	Length / max. characters	Customer-specific labeled	Moun-ting		Colour				Additional colours on request	Product name
					Cable tie	Screw hole	Natural	Yellow	White	Black		
Customized embossed stainless steel marking system	Single-lined	Height: 9.9	15	•	•	•	•					FLEXIMARK® Stainless steel FCC
	Double-lined	Height: 13.9	30									
			25									
Manual embossing machine	Aluminium/stainless steel embossing machine	Height: 12	50		•	•	•					M1011 Manual embossing machine
Stainless steel cable marking plain	Material: AISI-316	Height: 11	75 – 110 mm		•	•	•					SP Metal print
Pre-cutted shrink tube marker	Shrink ratio: 2:1	Diameter: 1.2 – 50.8	12 – 50 mm					•			•	FLEXIMARK® Organized shrink tube
Self-adhesive Safety signs	Warning, prohibition and mandatory signs acc. to EN ISO 7010	Side lenght / Diameter: 25 / 50 / 100										FLEXIMARK® Safety signs

Cable assemblies

Product type	Cat.5e		Cat.6A		Plug side 1						Plug side 2						ClickConnect	IP protection rating	Lengths	Tests in accordance	TRAIN Certified	Product name
					M12 D straight	M12 D angled	M12 X straight	M12 X angled	RJ45	M12 D straight	M12 D angled	M12 X straight	M12 X angled	RJ45	Open							
EPIC® TRAIN Ethernet Patchcords	•				M										•		67	2 m 5 m 10 m	EN 45545-2 (HL 1-3) EN 50155 EN 61373 EN 50125 IEC 61076-2-109 IEC 61076-2-101 IEC 60529	•	EPIC® TRAIN Patchcord	
	•					M									•							
	•				M									M								
	•				M				M													
	•				M					M												
	•						F															
		•					M							M								
	•						M					M										

Protective cable conduit systems

Product type	PA 6	PA 12	Standard version	Heavy duty version	Divisible version	Black	Grey	Nominal size from – to	Plastic thread from – to	Metal thread from – to	Angled – °	Increased chemical resistance	Hazard level (HL) EN45545-2	Integrated SKINTOP® cable gland	Easy assembly	Mounting holes	Product name											
Corrugated conduit	•		•		•	•	7 – 125					•	1 – 3				FIPLOCK® PA6											
			•	17 – 48			FIPLOCK® PA6 - SPLIT																					
				•			7 – 45										FIPLOCK® ONE M											
Conduit fitting	•					•	•	7 – 48	M12 – M63		90°	•	1 – 3	•	•		FIPLOCK® ONE 90° M											
								10 – 48	M16 – M63								M12 – M63	FIPLOCK® ONE Metal M										
										10 – 29	M16 – M32							•	•	FIPLOCK® ONE ST-M								
								10 – 48		M12 – M50	FIPLOCK® ONE CLICK-M																	
								•	7 – 48	PG7 – PG48							90°	PG9 – PG48		FIPLOCK® ONE MS-M								
									7 – 48	PG7 – PG48										FIPLOCK® ONE PG								
							12 – 48			FIPLOCK® ONE 90° PG																		
							10 – 48		NPT3/8“ – NPT2“	FIPLOCK® ONE Metall PG																		
							10 – 29		NPT3/8“ – NPT1“	FIPLOCK® ONE NPT																		
							10 – 48		NPT1/4“ – NPT2“	•	FIPLOCK® ONE ST-NPT																	
											FIPLOCK® ONE MS-NPT																	
							T-divider	•										•	•	10 – 48			•	1 – 3				FIPLOCK® ONE-T
							T-adapter													7 – 48								FIPLOCK® ONE-TA
							Y-divider													7 – 48								FIPLOCK® ONE-Y
Reducer	7 – 48	FIPLOCK® ONE-R																										
Coupler	12 – 48	FIPLOCK® ONE-C																										
Coupler for smooth pipes																FIPLOCK® ONE-CS												
																	FIPLOCK® ONE-CT											
Metal conduit with PUR jacket				•			5/16“ – 1 1/2“					•	1 – 2				SILVYN® HFX-V0											
Metal conduit with polyolefin jacket			•				1/4“ – 2“					•	1 – 2				SILVYN® FCE-V0											
Fireproof cable protection conduit							6 – 102						1 – 3				SILVYN® HIPROJACKET											

Cable glands

Product type	Polyamide black	Polyamide light grey	Nickle plated brass	EMC design (360 °brass brush)	EMC design (contact spring)	Bend protection + strain relief	For connector cut-outs size 24	Size from – to	Clamping range from – to [mm]	Number of cables	Hazard level (HL) EN45545-2	Fire resistance EN45545-3	Product name
Cable gland	•							M12 – M63	4,0 – 45,0	1	1 – 3	E30	SKINTOP® ST-HF-M
		•			•				3,5 – 45,0				SKINTOP® MS-HF-M
				•		•		M12 – M50	3,5 – 35,0				SKINTOP® MS-HF-M SC
			•					M25 – M63	9,0 – 45,0				SKINTOP® MS-HF-M BRUSH
				•				M16 – M63	4,5 – 21,0				SKINTOP® MS-HF-M GRIP
								M12 – M63	3,5 – 44,0				SKINTOP® TRAIN
								M12 – M50	3,5 – 34,0				SKINTOP® TRAIN XL
				•				M16 – M63	3,5 – 44,0				SKINTOP® TRAIN EMC
								M16 – M50	3,5 – 34,0				SKINTOP® TRAIN EMC XL
	•						•		2,0 – 20,0	11 – 30	2*		SKINTOP® MULTI
Mutli cable bushing system with gel technology								M40 – M63	1,0 – 6,0	12 – 30			SKINTOP® MULTI-M

* On request

Accessories

Product type	Properties	Dimensions	Product name
Thin walled shrink tube	Colours: black, yellow, white EN45545-2 HL 1-3, LUL1-085 A3, Boeing BSS7239 shrink ratio: 2:1	Diameter: 0.6 – 25.4 mm	Shrink tube PROTECT-HF RW
Cable tie with steel nose	Material: PA6.6, Colour: natural EN45545-2 HL 1-3, NFF 16-101: I3F1	92.0 x 2,4 – 340.0 x 7.0 mm	TY-RAP® Railway
Edelstahlkabelbinder	Material: AISI 316 corrosion and chemical resistant	4.6 x 100 – 7.9 x 1010 mm	LS steel cable ties
Tube cable lugs with inspection hole	For fine and multi-wire copper conductors (class 2 and 5)	0.75 – 10 mm²	Tube cable lugs KR
	For multi-wire copper conductors (class 2)	10 – 1,000 mm²	Tube cable lugs KRT
	For fine wire copper conductors (class 2, 5 and 6)	16 – 800 mm²	Tube cable lugs KRF
Tube cable lug with insepction hole and narrow flange	With narrow flange for fine wire sopper conductors class 2, 5 and 6, especially for mounting through cable glands	50 – 240 mm²	Tube cable lugs KRFS
EMC shield clamp	Mounting directly on 35mm DIN rails	Clamping range: 3 – 18 mm	Shield clamp EMC-Guard
EMC copper braid	Tinned-copper	Diameter 1 – 50 mm	Copper braid
Copper flat ground straps	Strands made of tinned-copper wires, welded ends or assembled with pressed contact sleeves	Cross-section: 6 / 10 / 16 / 25 mm² Length: 200 / 300 / 500 mm	Flat Ground Straps
Two-part screen connector	Inner sleeve absorbs the pressure and thereby protects the inner conductor against mechanical stress	for shielded cables from 1.1 to 9.4 mm dielectric diameter (diameter under the shield)	SHIELD-KON® - Inner Sleeves
	Hexagonal crimping of the outer sleeve guarantees a gas-tight electrical and mechanical connection		SHIELD-KON® - Outer Sleeves

YOUR CONNECTION TO US

We set the course for your railway technology projects. Contact our experts now.

Thorsten Grünberg
Thorsten.Gruenberg@lapp.com

GET STARTED

Find out more about railway technology solutions on our website: www.lapp.com/en/de/000061





ÖLFLEX®
Power and control cables



UNITRONIC®
Data communication systems



ETHERLINE®
Data communication systems
for Ethernet technology



HITRONIC®
Optical transmission systems



EPIC®
Industrial connectors



SKINTOP®
Cable glands



SILVYN®
Protective cable conduit systems
and cable carrier systems



FLEXIMARK®
Marking systems

Follow LAPP on:



You can find our terms of trade at
www.lapp.com/en/de/e/000010

To contact your local LAPP
representative, please visit
www.lapp.com/en/global

