

THE WORLD OF LAPP

Cabling Solutions - Building & Infrastructure



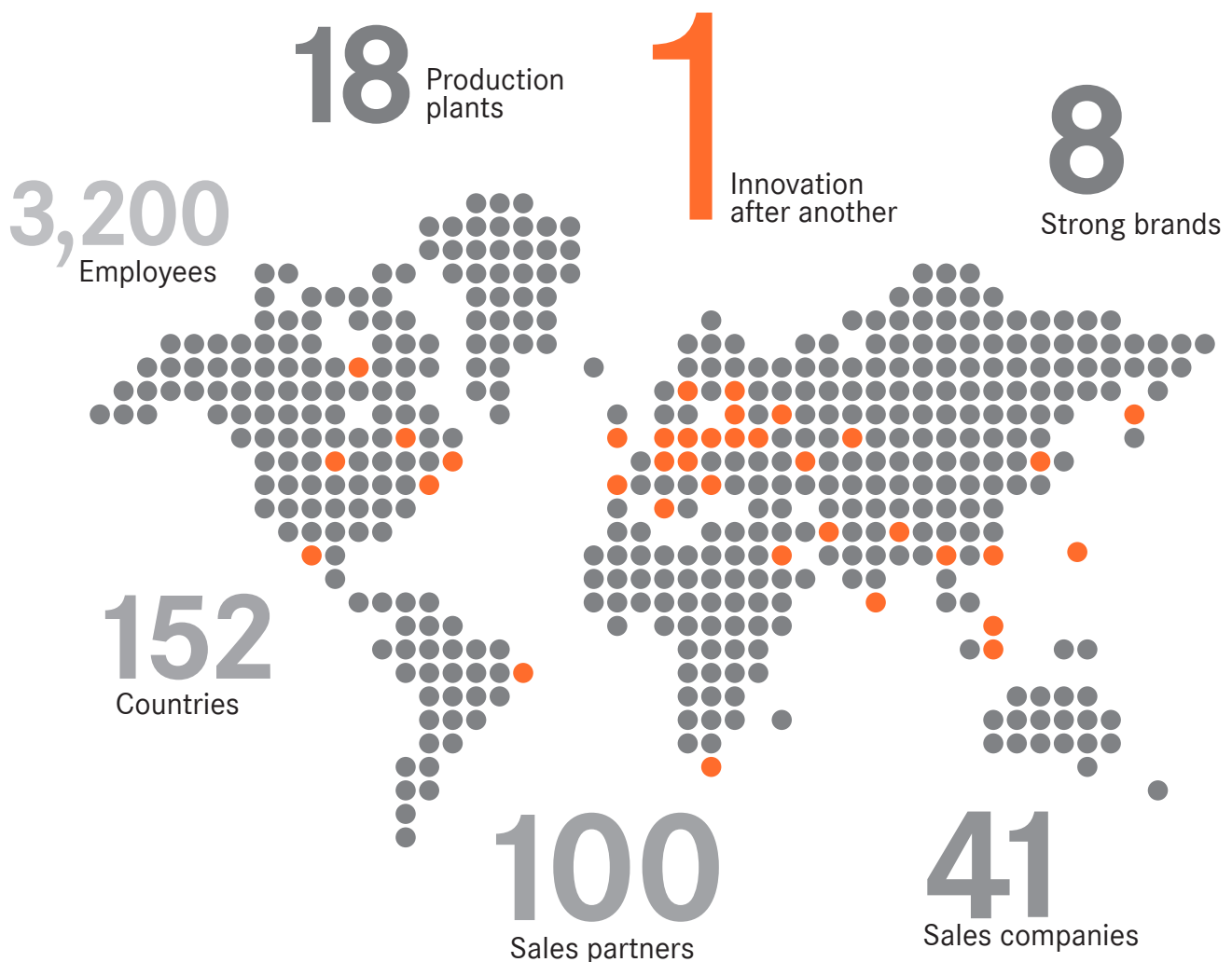
RELIABLY CONNECTING THE WORLD

Headquartered in Stuttgart, Germany, the Lapp Group is a leading supplier of integrated solutions and branded products in the field of cable and connection technology. The Group's portfolio includes standard and highly flexible cables, industrial connectors, customized system solutions, automation technology and robotics solutions for the intelligent factory of the future, as well as technical accessories.

We want to help you become even more productive and successful. This is why we work tirelessly on optimising our processes. We do everything to make sure we always find the best solution for you and also provide you with quick, efficient and effective support.

No matter where you are – we are always by your side. Our plants, sales companies, partners and, above all, our competent teams of advisers ensure that we offer you a comprehensive service in every continent. We do not simply distribute cable technology, but we also manufacture our products ourselves – which represents another advantage for you. As a manufacturer with 18 of our own production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system products and cable accessories. Thanks to this expertise, we can guarantee that Lapp will provide you with the quality that you require and demand for.

You can always rely on quality from Lapp – wherever you are in the world. This is also embodied by our strong brands.



RELIABLY CONNECTING INDIA

Lapp India is a 100% subsidiary of the Lapp Group. Having started its operations in 1996, Lapp India provides about 150,000 km per year of power, control, instrumentation and data cables along with connectors, accessories and EndtoEnd Systems to over 5000 customers pan India. Our customers are spread across different industry segments such as automation, textile, automotive, machine tools, oil and gas, renewable energy, process industries, as well as in the infrastructure and building sectors.

- 23 Sales offices close to customers all over India & 5 service points
- 300 employees committed to best serve customers
- Strong network of 150 dealers
- 2 manufacturing units - Bangalore and Bhopal
- 5 Warehouses
- State of the art laboratory
- Fully fledged Innovation and Engineering Centre



Bangalore factory



Laboratory testing facilities



EndtoEnd System facility for ÖLFLEX® Connect

OUR BRANDS



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



ABOUT INFRASTRUCTURE

Infrastructure: Investment in infrastructure is vital for a country's economic development and prosperity. Transportation, communication, sewage, power, highways, shipping are examples of physical systems that provide impetus to the economy in terms of GDP and wealth generation.

Cables used for infrastructure: The connected society of today has made cables an integral part of our homes, residential complexes, factories, metros and public utilities. Cables are extensively used in electrical and electronic equipment for power supply, control/signal, internal connections and communication from one device to another.

Characteristics: Low flame propagation, low smoke emissions, low generation of corrosive and toxic gases are characteristics necessary for a rapidly growing market. Fire Survival (FS) cables are used in wiring applications in critical life safety systems (e.g. Building Management Systems, emergency lightings, standby power supplies, lifts & elevators) in public and industrial buildings such as airports, hotels, hospitals, subways, train stations, etc. In areas where there is a need to maintain circuit integrity for prolonged period in a fire situation, these cables provide vital additional time to accomplish the evacuation of personnel, to contain and minimize the damage to equipment, plants and buildings, and to mount an effective fire fighting operation.

Industry and Applications: Given below are key applications for industries where cabling plays an important role

a. Buildings:

- Building Automation and Home Automation
- Air handling and Central heating/chilling plants
- Controllers
- Alarms and Security
- Lighting

b. Railways/Metro:

- Power supply, Traffic management systems, Station facilities, Signalling systems, Rolling stock, Depot equipment

c. Roads/Highway:

- Traffic signals, Street Lights, Transport control and Passenger Service Centre

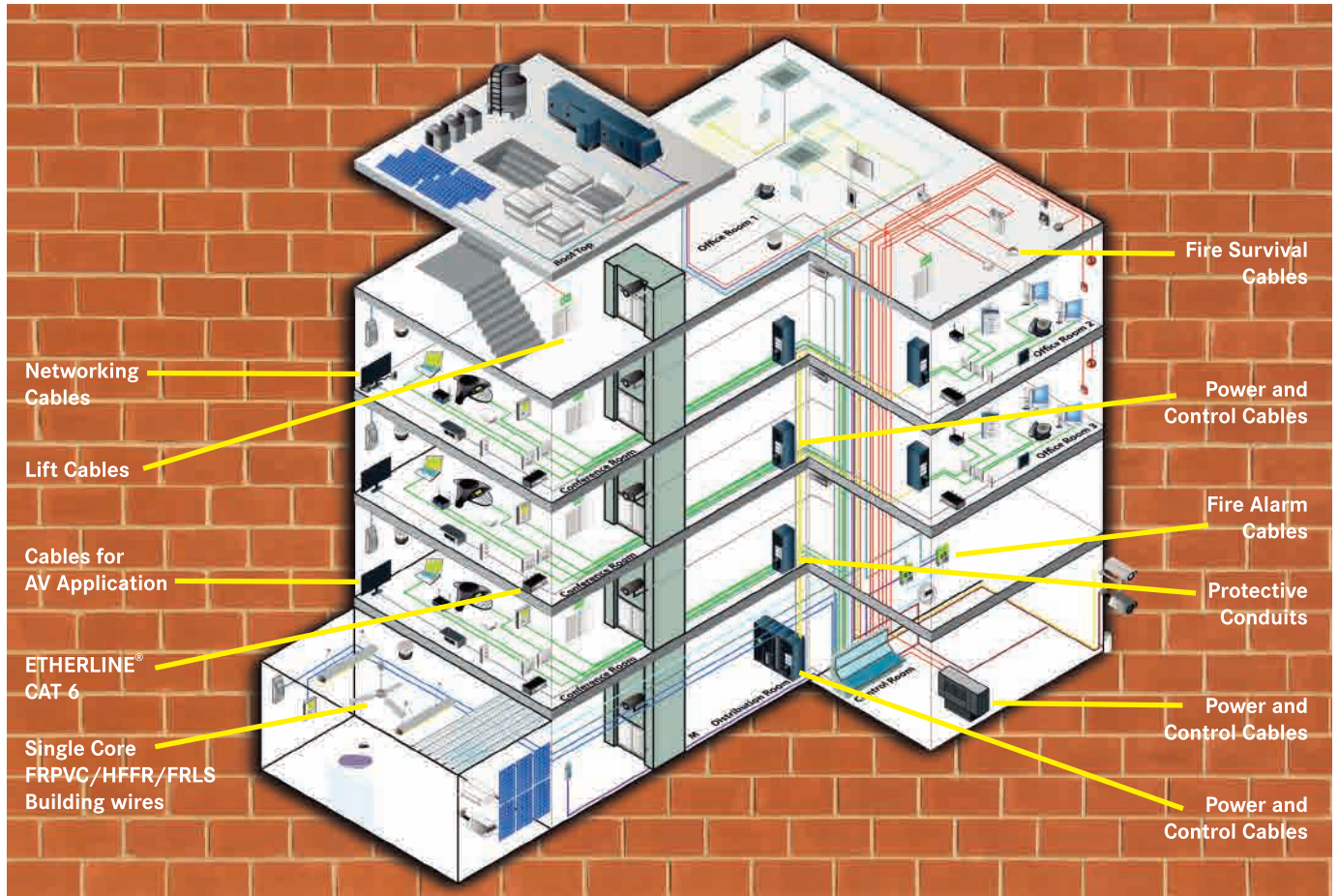
d. Shipping/Ports:

- Ship building, Marine equipments such as unmanned surface and underwater vehicles, Ship automation and communication systems, Ship ports
- **Airports:** Power supply, public address systems, Baggage handling, Communication and Security, Ventilation and heating, Air traffic control

RELIABLY CONNECTING BUILDINGS

Every building is a creation - a result of meticulous planning and painstaking effort. Everything that goes into creating a building, including wires and cables are of utmost importance. Therefore, safety becomes top priority in buildings. You can fortify your creation by opting for our safe cabling solutions.

Our cabling solutions, backed by state of the art German technology, are safe and reliable, in every way. We have Pan India Sales and Service Network to provide safe cabling solutions for your buildings.



Range of Products:

- FR/FR-LSH/HFFR Single cores • Multicore Power and control cables • Fire Survival cables • Fire alarm and security application cables • Lift cables • Speaker cables • Home and lighting automation cables • RG 6 Cables for CATV application • LAN cables for structured building • Protective conduits for infrastructure • Glands for cable bussing system

ÖLFLEX® INFRA FR

ISI marked IS 694:2010 approved 1100 V rated cable

FLAME RETARDANT SINGLE CORES

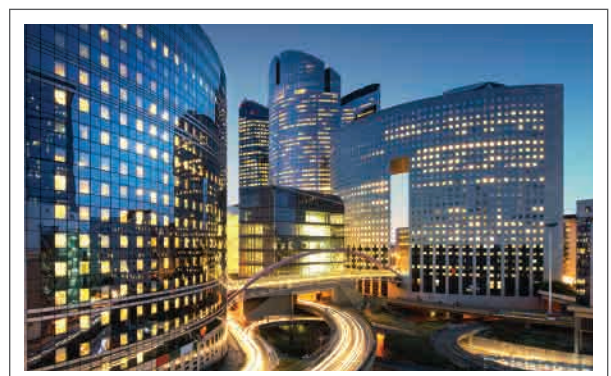


PRODUCT FEATURES:

- Flame retardant
- High drawability and uniform insulation
- Good adhesion between conductor and insulation

APPLICATION RANGE:

- Building wire for installation on wall surface or in concealed conduits
- For lighting & power applications in buildings-residential, commercial, hotels, hospitals & IT parks



ÖLFLEX® INFRA FR-LSH

ISI marked IS 694:2010 approved 1100 V rated cable

FLAME RETARDANT LOW SMOKE AND LOW HALOGEN SINGLE CORES



PRODUCT FEATURES:

- Flame retardant
- Low toxicity, Low smoke and Low halogen
- High drawability and uniform insulation
- Good adhesion between conductor and insulation

APPLICATION RANGE:

- Building wire for installation on wall surface or in concealed conduits
- For lighting & power applications in buildings-residential, commercial, hotels, hospitals & IT parks



ÖLFLEX® INFRA HFFR

Halogen free 1100 V installation cable

HALOGEN FREE FLAME RETARDANT SINGLE CORES



PRODUCT FEATURES:

- Halogen free Flame retardant
- Low smoke
- High drawability and uniform insulation
- Good adhesion between conductor and insulation

APPLICATION RANGE:

- Building wire for installation on wall surface or in concealed conduits
- For lighting & power applications in buildings-residential, commercial, hotels, hospitals & IT parks



ÖLFLEX® INFRA 100 I

ISI marked IS 694:2010 approved 1100 V rated cable

MULTI CORE POWER CABLES



PRODUCT FEATURES:

- Flame retardant
- Suitable for static installation and occasional flexing
- Good adhesion between conductor and insulation

APPLICATION RANGE:

- Main power circuit from metering room to individual apartments
- Plant engineering and construction industrial machinery
- Power circuit for air conditioning installations
- Dry or damp interiors under medium mechanical load conditions
- Fixed installation



ÖLFLEX® CLASSIC 110

VDE registered Oil-resistant PVC control cable

MULTI CORE CONTROL CABLES



PRODUCT FEATURES:

- Flame retardant
- Flexible cable
- Good adhesion between conductor and insulation

APPLICATION RANGE:

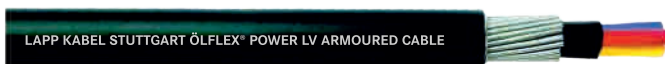
- Home automation
- Plant engineering, industrial machinery, heating and air conditioning systems, power stations, stage applications
- For fixed installation as well as occasional flexing free, noncontinuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads



ÖLFLEX® POWER LV

Heavy duty cable acc. to IS 1554 and IS 7098

SINGLE & MULTI CORE POWER CABLE FOR HEAVY DUTY



PRODUCT FEATURES:

- Available in FR, FR-LSH and HFFR
- Available in armoured and un-armoured
- Heavy duty & suitable fixed installation

APPLICATION RANGE:

- Power cable ideally required for electric power, transmission and distribution
- This will help the power cable in maintaining its electrical properties in the event of any sudden temperature rise caused during short circuit



ETHERLINE® CAT 6

Structured Building Networking LAN Cable

DATA TRANSMISSION CABLES



PRODUCT FEATURES:

- LAN Cat.6 Cables meet requirements in accordance with EIA/TIA 568
- Transfer of digital and analogue data signals
- LAN Cat.6 Cables are specified up to 250 MHz

APPLICATION RANGE:

- Data transfer for horizontal network backbone for wiring office, administration and development buildings
- Transmission of high speed data, digital & analog voice & video signals on LANs. Transmission rate upto 250 MHz.
- Data transfer for cable TV, telephone, video door & CCTV



RG 6 CABLE

Data cable for CATV application



COAXIAL CABLES

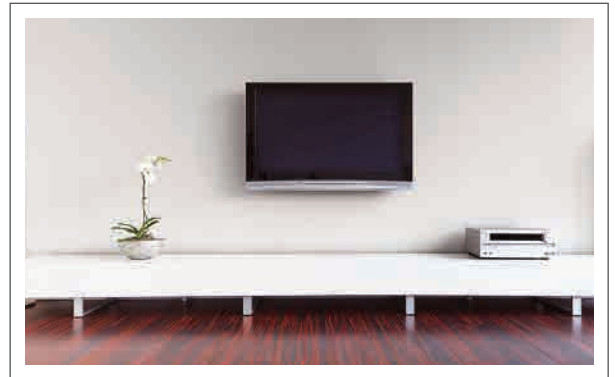


PRODUCT FEATURES:

- Conductor solid bare copper clad steel wire
- Form polyethylene dielectric
- 1st shielding bonded aluminium foil
- 2nd shielding braided aluminium wire, min. 60% coverage

APPLICATION RANGE:

- Suitable for 75 ohm drop cable/data transmission, for CATV installation in public housing and buildings. Indoor and outdoor application



ÖLFLEX® LIFT F

Flexible at cold temperature, PVC flat cable



LIFT CABLES

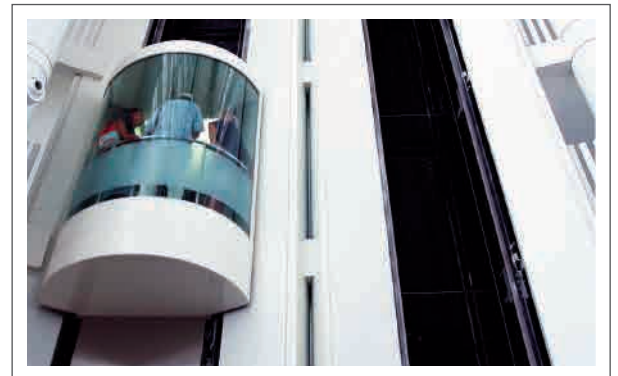


PRODUCT FEATURES:

- Flame retardant
- Flat design requires less space
- Smaller bending radius

APPLICATION RANGE:

- For hoisting equipment and conveyor systems
- Indoor cranes and high-rack facilities
- As supply line for moving machine parts



ÖLFLEX® FIRE

Fire Survival according to BS 786 with 1100 V rated cable



PRODUCT FEATURES:

- Conforming to fire survival test of BS6387 CWZ Category
- Available in different construction variants Power, Control and Instrumentation Application
- Anti radiant & UV resistant inner/outer sheath optional

APPLICATION RANGE:

- Metro, railways, oil and gas industry, airports, commercial and residential buildings require that critical control and power systems



J-H(ST)H... BD BMK

FIRE ALARM CABLES

Halogen free installation cable in accordance with DIN VDE 0815 with red outer sheath cable

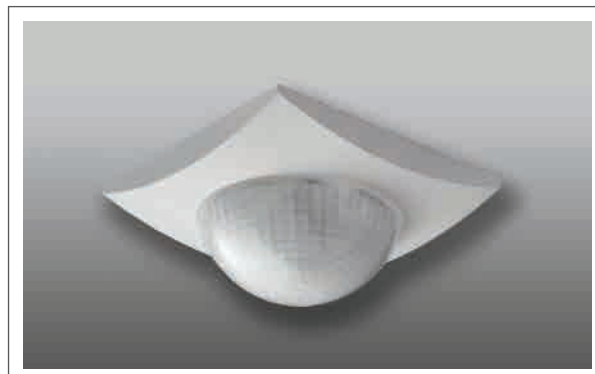


PRODUCT FEATURES:

- Flame retardant
- Halogen free
- UV resistance & laterally water tight optional

APPLICATION RANGE:

- To transmit signals
- For fixed installation on and under plaster, in dry and damp rooms
- For outdoor use this cable should be used installed under plaster only



UNITRONIC® ST

SPEAKER CABLE

Low frequency data transmission metal foil screened pair cable



PRODUCT FEATURES:

- 100% screen coverage, offers optimum protection against external interference at medium and high frequencies
- Flame retardant

APPLICATION RANGE:

- Suitable connection for audio, control signal and instrument measurement
- For use in dry and damp environment



UNITRONIC® BUS EIB / KNX

DATA COMMUNICATION SYSTEMS

Characteristic impedance: 75 ohm



PRODUCT FEATURES:

- Serial data transmission
- EIB cable has been tested at 4 kV (1 min.) in a water bath

APPLICATION RANGE:

- The product is designed for use in building management, e.g. for decentralised control of lighting, heating, air conditioning, ventilation, energy management, blinds, time management, locking systems, etc
- The cable can be laid on or under plaster; in pipes, cable ducts; in dry, damp or wet environments



TECHNICAL TABLE

ÖLFLEX® INFRA FR PVC

Nominal Cross sectional Area of conductor Sq. mm	No of Strands/Nom.Dia of Wire mm ambient temperature	Current carrying capacity in air in Amps at 40°C	Cable Nom. Dia in mm
1.0 sq mm	30/0.2	15	2.60
1.5 sq mm	28/0.25	18	3.0
2.5 sq mm	47/0.25	24	3.6
4.0 sq mm	56/0.3	32	4.25
6.0 sq mm	84/0.3	43	4.80

Note : Higher Cross Sections also available subject to minimum order quantity

ÖLFLEX® INFRA FR-LSH

Nominal Cross sectional Area of conduct	No of Strands/Nom.Dia of Wire mm ambient temperature	Current carrying capacity in air in Amps at 40°C	Cable Nom. Dia in mm
1.0 sq mm	30/0.2	15	2.60
1.5 sq mm	28/0.25	18	3.0
2.5 sq mm	47/0.25	24	3.6
4.0 sq mm	56/0.3	32	4.25
6.0 sq mm	84/0.3	43	4.80

Note : Higher Cross Sections also available subject to minimum order quantity

ÖLFLEX® INFRA HFFR

Nominal Cross sectional Area of conductor Sq. mm	No of Strands/Nom.Dia of Wire mm ambient temperature	Current carrying capacity in air in Amps at 40°C	Cable Nom. Dia in mm
1.0 sq mm	30/0.2	15	2.60
1.5 sq mm	28/0.25	18	3.0
2.5 sq mm	47/0.25	24	3.6
4.0 sq mm	56/0.3	32	4.25
6.0 sq mm	84/0.3	43	4.80

Note : Higher Cross Sections also available subject to minimum order quantity

RG 6 CABLE

Freq MHz	Insertion Loss Max [dB/100m]	Freq MHz	Insertion Loss Max [dB/100m]
5	2.20	450	14.2
55	5.24	550	15.5
211	9.42	750	18.5
270	10.7	870	20.0
300	11.3	1000	22.9
400	13.3		

TECHNICAL TABLE
ETHERLINE® CAT6

Freq	Insertion Loss	Return Loss	NEXT	PS NEXT	ACR	PS ACR	ELFEX (ACR-F)	PS EL-ELFEX (PS ACR-F)
MHz	Max [dB/200m]	[dB]	[dB]	Min [dB]	Min [dB]	Min [dB]	Min [dB]	Min [dB]
1	2.0	20.0	74.3	72.3	72.3	70.3	67.8	64.8
4	3.8	23.0	65.3	63.3	61.5	59.5	55.8	52.8
8	5.3	24.5	60.8	58.8	55.4	53.5	49.7	46.7
10	6.0	25.0	59.3	57.3	53.3	51.3	47.8	44.8
16	7.6	25.0	56.2	54.2	48.6	46.6	43.7	40.7
20	8.5	25.0	54.8	52.8	46.3	44.3	41.8	38.8
25	9.5	24.3	53.3	51.3	43.8	41.8	39.8	36.8
31.25	10.7	23.6	51.9	49.9	41.2	39.2	37.9	34.9
62.5	15.4	21.5	47.4	45.4	32.0	30.0	31.9	28.9
100	19.8	20.1	44.3	42.3	24.5	22.5	27.8	24.8
200	29.0	18.0	39.8	37.8	10.8	8.8	21.8	18.8
250	32.8	17.3	38.3	36.3	5.5	3.5	19.8	16.8

ÖLFLEX® LIFT F

Number of cores and mm ² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
Nominal voltage U0/U: 300/500 V, temperature range: 0°C to +70°C			
12 G 1.0	35.0 x 4.3	115.0	392
16 G 1.0	46.0 x 4.3	154.0	521
20 G 1.0	57.0 x 4.3	192.0	645
24 G 1.0	68.0 x 4.3	230.0	772
Nominal voltage U0/U: 450/750 V, temperature range: -15°C to +70°C			
4 G 1.5	15.0 x 5.0	58.0	132
5 G 1.5	19.0 x 5.0	72.0	170
7 G 1.5	26.5 x 5.0	101.0	236
8 G 1.5	28.5 x 5.0	115.0	266
10 G 1.5	35.5 x 5.0	144.0	333
12 G 1.5	41.5 x 5.0	173.0	422
4 G 2.5	18.4 x 5.7	96.0	206
5 G 2.5	23.4 x 5.7	120.0	257
7 G 2.5	32.0 x 5.7	168.0	345
8 G 2.5	34.5 x 5.7	192.0	390
12 G 2.5	51.5 x 5.7	288.0	580
4 G 4	20.4 x 6.6	154.0	343
7 G 4	36.6 x 6.6	269.0	589
4 G 6	23.2 x 7.3	230.0	425
4 G 10	28.0 x 9.0	384.0	709
4 G 16	34.0 x 10.5	614.0	1015
4 G 25	42.0 x 12.7	960.0	1366

LEGEND



Suitable for outdoor use



Good chemical resistance



Flame-retardant



Wide clamping range



Halogen-free



Heat-resistant



Cold-resistant



Corrosion-resistant



Maximum vibration protection



Mechanical resistance



Quantity



Minimum lever action



Assembly time



Low weight



Oil-resistant



Optimum strain relief



Space requirement



Power chain



Clean room



Robust



Acid-resistant



Reliability



Integrated SKINTOP® cable gland



Voltage



Connector with standard housing unit



Interference signals



Temperature-resistant



Torsion-resistant



Torsion load



UV-resistant



Waterproof



Variety of approval certifications



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