Food & Beverage

The Essential Ingredients
for a Quality Solution

LAPP

Introduction

In the Food & Beverage industry timing is everything. In these high-speed environments there is no off button. New orders are constantly coming in, there is a continuing need to process more, to do this faster and with more efficiency. Errors and disruptions can have a domino effect that directly affects manufacturers as well as F&B suppliers, resulting in unwanted downtime and ultimately profit loss.

THE RIGHT MATERIAL FOR THE RIGHT ENVIRONMENT

Choosing the right cable material is key. Electrical components must not only be able to withstand extreme chemical, physical and thermal stresses, but also satisfy the industry's stringent hygiene standards.

PVC cables (SY, YY and CY) are often used in foodstuffs' production lines, where they are exposed to harsh wash downs, chemical agents, fats, oils and high temperatures. Due to their porous natures, PVC cables are sensitive to water and heat, which causes them to quickly degrade and break down.

THE MAIN CAUSES OF PRODUCTION DOWNTIME

Machinery downtime can cost companies anything from £10,000 to £50,000 per hour – and fixing the issue can take hours or even days depending on the complexity of the problem. Here are the main causes of downtime on Food & Beverage production lines.

HYDROLISIS

Steam cleaning is good for hygiene but bad for most cables and components.

Across the food industry, steam jet cleaners are often used to remove dirt from difficult surfaces and ensure hygienic standards are met. However, if cables are made out of PVC, the hydrolysis phenomenon can take place. This means that substances are flushed out of the sheaths, initiating degradation reactions and eventually mould. Depending on the temperature prevailing within the cable, the insulating material will become brittle and start to break down.

MICROBIAL GROWTH

Bacteria and microbes grow in unexpected places.

The decomposition of organic substances is caused by microbes and bacteria. This typically occurs in agriculture, slaughterhouses, waste disposals etc. where, despite sufficient cleanliness, this natural process cannot be completely avoided.

At a certain temperature and humidity, bacteria and other microbes can feed on the cable's polymeric components, causing not just contamination but also degradation of the cable insulation. If neglected, cable contamination can result in the malfunctioning of the entire network and, in the long run, cause lower production levels.

EXTREME TEMPERATURES

From freezers to ovens, cables often have to withstand temperature extremes.

The plasticisers contained in PVC cables make them unsuitable to withstand extreme conditions. Cold temperatures for example cause PVC cables to become brittle and break, while heat could melt the PVC sheath at only a few hundred degrees. In these scenarios cables will need to be replaced more frequently, increasing overall costs.

– Our Solution

LAPP has engineered a wide range of cables, components and systems that work reliably in any condition. Thanks to their chemical resistance, our products are certified to be suitable for wet cleaning in the food and beverage industry in accordance with ECOLAB and European and North American standards.

Benefits:

+ Optimise production
+ Reduce downtime
+ Increase longevity of product line components
+ Reduce labour cost
+ Maintain food safety and hygiene standards

ÖLFLEX® ROBUST

The ÖLFLEX® ROBUST range is a generation of flexible control and connection cables. They are manufactured with LAPP TPE outer sheath compound P4/11 and other RoHS compliant materials, making them flexible, UV resistant and tough. In addition, these non porous cables are fully microbe resistant and they are estimated to last up to ten times longer then standard SY, CY and YY cables.

FEATURES AND BENEFITS

+ Great resistance to fresh, processed and sewage water and beverages such as fruit juices, wine, beer and lemonade. Ideal for applications where they are in contact with vegetable and animal fats and oils, i.e. dairy products such as milk, butter, cheese or fish and meat processing
+ Well-suited to steam cleaning
+ Repeated longer service life when compared to a standard rubber outer sheath
+ No evaporating substances such as softening agents
+ Compliant with the European RoHS directive black list of forbidden substances

PRODUCTS

ÖLFLEX® ROBUST 200
Colour coded power cable

ÖLFLEX® ROBUST 215C
Number coded control cable with a copper braided screen

ÖLFLEX® ROBUST 210
Number coded control cable

ÖLFLEX® ROBUST FD
A high flexible version for constantly moving applications, e.g. in drag chains.

UNITRONIC® ROBUST

The UNITRONIC® ROBUST range of data and Bus cables are highly resistant to a variety of physical, chemical and thermal stresses. It presents the same characteristics of the OLFLEX® ROBUST range but designed for data and communication applications.

FEATURES AND BENEFITS

+ Ideal for applications that require consistent speed of data communication such as in smart factories and on modern F&B production lines
+ Resistance to contact with organic oils and emulsions as well as a multitude of plant, animal or synthetic-based fats and waxes
+ Well-suited to steam cleaning
+ Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
+ Harmless when exposed to foodstuffs
+ The screened version reduces interference from external power circuits

PRODUCTS

UNITRONIC® ROBUST
A data transmission cable with DIN 47100 colour code

UNITRONIC® ROBUST C
A screened data transmission cable with DIN 47100 colour code

UNITRONIC® ROBUST C (TP)
A twisted pair screened data transmission cable with DIN 47100 colour code

UNITRONIC® ROBUST PROFIBUS
For use on PROFIBUS-DP or FIP and industrial environments

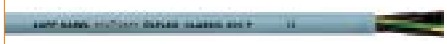
ÖLFLEX® POLYURETHANE CABLES

LAPP offers an extensive range of Polyurethane sheathed cables suitable for a wide range of applications. These control cables comply with the stringent hygiene requirements of the Food & Beverage industry, where every part of a food and beverage line has to be evaluated for its potential to support microbial growth.

FEATURES AND BENEFITS

+ Flexibility yet very high resistance to both mechanical and chemical damage
+ Polyurethane sheathing offers a tear resistant material with high tensile strength
+ Microbe and Hydrolysis resistant
+ Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
+ Compatible with a multitude of acidic cleaning and disinfection solutions

PRODUCTS



ÖLFLEX® CLASSIC 400P

Control cable with fine wire stranded copper conductors and a PVC core insulation with a grey Polyurethane outer sheath

ÖLFLEX 400 CP

Same make as the ÖLFLEX® CLASSIC 400P but featuring a tinned copper wire braid for EMC regulations. Temperature range of -5°C to +70°C

ÖLFLEX® CLASSIC 440P

Added TPE core insulation allowing for a wider temperature range of -40°C to +90°C. It offers the same mechanical and chemical resistance as 400P and also available with a tinned copper wire braid for EMC regulations

ÖLFLEX® CLASSIC 450P

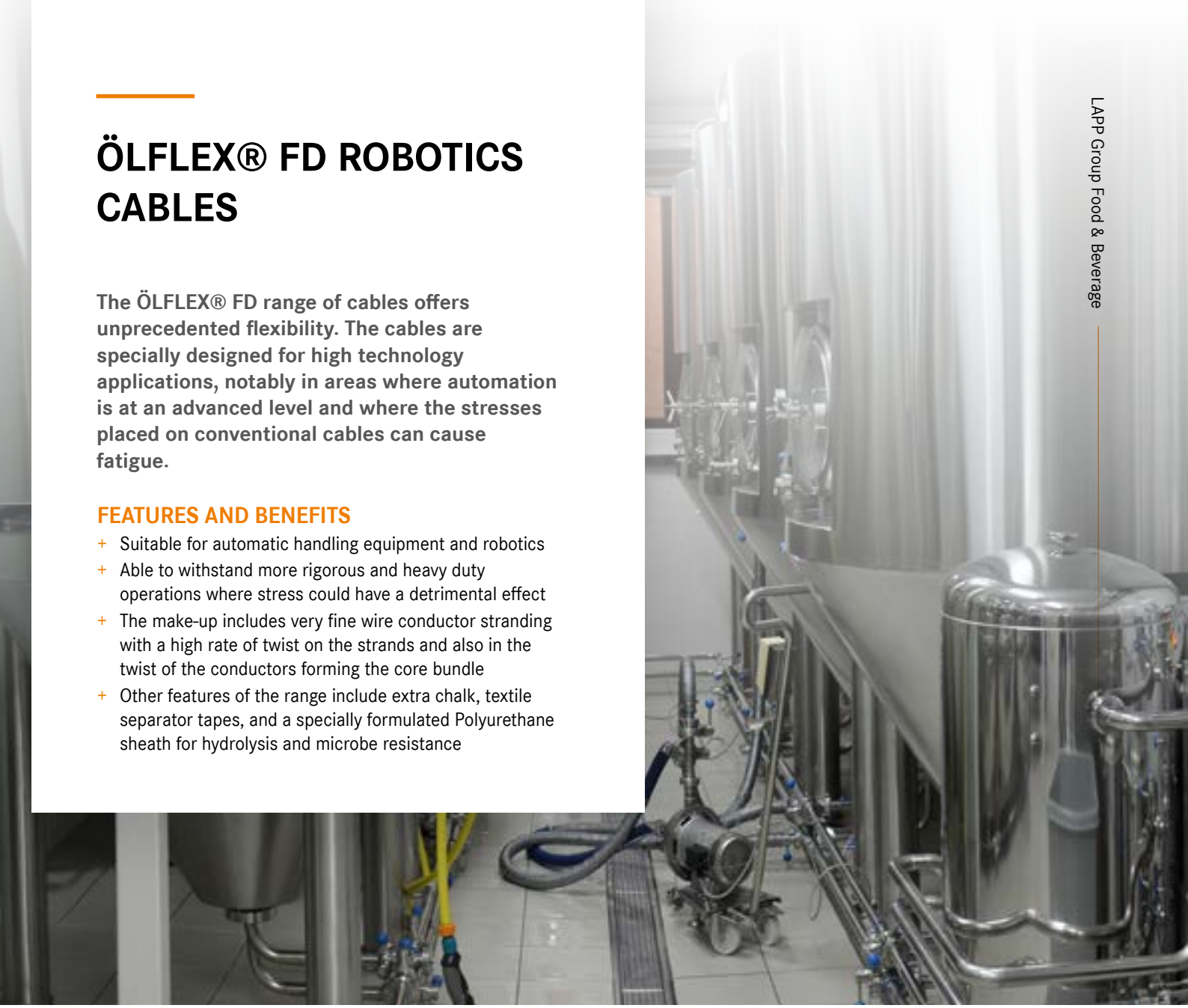
Special red PVC inner sheath to increase durability, ensuring that the cable provides an optimum service life. The flame retardant yellow Polyurethane outer sheath is also resistant to chemical agents, diluted acids and aqueous alkaline solutions

ÖLFLEX® FD ROBOTICS CABLES

The ÖLFLEX® FD range of cables offers unprecedented flexibility. The cables are specially designed for high technology applications, notably in areas where automation is at an advanced level and where the stresses placed on conventional cables can cause fatigue.

FEATURES AND BENEFITS

+ Suitable for automatic handling equipment and robotics
+ Able to withstand more rigorous and heavy duty operations where stress could have a detrimental effect
+ The make-up includes very fine wire conductor stranding with a high rate of twist on the strands and also in the twist of the conductors forming the core bundle
+ Other features of the range include extra chalk, textile separator tapes, and a specially formulated Polyurethane sheath for hydrolysis and microbe resistance



PRODUCTS

ÖLFLEX®-FD CLASSIC 810 P

A highly flexible chain cable with a polyurethane outer sheath for harsh environments

ÖLFLEX®-FD CLASSIC 810 CP

A highly flexible chain cable with a polyurethane outer sheath for harsh environments and an additional copper screening for EMC regulations

ÖLFLEX®-FD 855 P

A highly flexible chain cable with a small bend radius for restricted areas and a polyurethane outer sheath for harsh environments

ÖLFLEX®-FD 855 CP

A highly flexible chain cable with a small bend radius for restricted areas and a polyurethane outer sheath for harsh environments, and an additional copper screening for EMC regulations

SKINTOP® CABLE GLANDS

LAPP renowned SKINTOP® cable glands are approved to IP69K in accordance to DIN 40 050. The IP69K rating enables the use of SKINTOP® under the harshest cleaning procedures with high pressure cleaners and hot water. When exposed to 80°C water vapour and 100 bars pressure from various directions at a close distance, SKINTOP® delivers on hygiene and robustness.

PRODUCTS

SKINTOP® ST-M

SKINTOP® ST-M cable glands are made from Glass Reinforced Nylon, and they come in three colours - Silver Grey, Light Grey and Black. They are available in a range of thread sizes from 12mm to 63mm and can accommodate cable with outer diameters from 1mm to 45mm.

SKINTOP® MS-M

The SKINTOP® MS-M range is made from Nickel Plated Brass and it can withstand a high mechanical demand and a need for chemical resistance. They are available in a range of thread sizes from 12mm to 75mm and can accommodate cable with outer diameters from 1mm to 68mm.

SKINTOP® INOX/INOX-R

These hygienically designed cable glands are manufactured from high-grade stainless steel and are suitable for a wide variety of applications.

MATERIAL

+ Gland Body: Stainless Steel – V4A(1.4404/316L)
+ Insert: Polyamide
+ Seal: Silicone
+ O Ring: Silicone

CHARACTERISTICS

+ Corrosion-resistant
+ Smooth surfaces
+ No edges - minimises the accumulation of moisture, dust, contamination and food residue
+ Compact design
+ Wide, variable clamping ranges
+ Simplified installation
+ The INOX-R has a reduction sealing insert for clamping smaller cable diameters

SKINTOP® INOX SC

SKINTOP® INOX SC is designed specifically for copper-screened cables and is used to achieve a low-resistance screen contact.

MATERIAL

+ Gland body: Stainless steel – V4A (1.4404 / 316L)
+ Cap nut: Stainless steel – V4A (1.4404 / 316L)
+ Insert with lamellar cage: Polyamide
+ Sealing ring: Silicone
+ Contact spring: CuBe, tin-plated
+ O-Ring: Silicone

CHARACTERISTICS

+ No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components
+ Approved according to DIN EN ISO 14 159 (hygiene requirements for the design of machinery)
+ Approved according to DIN EN 1672-2 (hygiene requirements for food processing machinery)
+ ECOLAB® - industry standard in the field of professional cleaning and disinfection
+ IP68 – 10bar, test acc. to EN 60529
+ IP69 acc. to EN 60529

SKINTOP® HYGIENIC

SKINTOP® HYGIENIC / SKINTOP® HYGIENIC-R, resistant stainless steel cable gland with smooth surfaces for use in product zone.

MATERIAL

+ Gland body: Stainless steel–V4A (1.4404 / 316L)
+ Cap nut: Stainless steel – V4A (1.4404 / 316L)
+ Insert: Lamellar cage Polyamide
+ Seals: Special elastomer – conform to FDA 21 CFR 177.2600

Also, as with the SKINTOP® INOX, we can also offer the SKINTOP® HYGIENIC SC which contains a low resistance contact spring which gives a flexible EMC contact for earthing of copper braiding on cables.

CHARACTERISTICS

+ Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
+ No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components
+ Approved according to DIN EN ISO 14 159 (hygiene requirements for the design of machinery)
+ Approved according to DIN EN 1672-2 (hygiene requirements for the design of machinery)
+ EHEDG certified (TYPE EL Class I AUX - hygienic design for machinery and components)
+ ECOLAB® - industry standard in the field of professional cleaning and disinfection
+ FDA 21 CFR 177.2600 - special sealing element for food and beverage industry in North America
+ IP68 – 10bar, test acc. to EN 60529
+ IP69 acc. to EN 60529

SILVYN® FG NM

Thanks to its smooth surface, SILVYN® FG NM offers a high protection against liquids and is easy to clean. Thanks to these special characteristics, the conduit is particularly suitable for food packaging machines and for the food and beverage industry, especially for the production and processing of milk and meat products.

MATERIAL

+ Hard PVC inner Spiral
+ Special FDA-approved plastic sheath

CHARACTERISTICS

+ Flexible
+ Flame-retardant
+ Certified according to FDA CFR 21 and NSF 51
+ ECOLAB® approval – industry standard in the field of cleaning and disinfection
+ Compressive strength – class 1 (125N) acc. to DIN EN 61386
+ Impact strength – class 3 (2J) acc. to DIN EN 61386
+ Tensile strength – class 4 (1000N) acc. to DIN EN 61386
+ Temperature range of -20 C to +60 C

SILVYN® HYGIENIC

The stainless-steel conduit fitting for the SILVYN® FG NM is designed in accordance with the industrial hygiene requirements.

MATERIAL

+ Body: Stainless Steel (Grade 316)
+ Insert: Nickel Plated Brass
+ Inner seal: Polyamide 6
+ Sealing material: Special Elastomer

CHARACTERISTICS

+ Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
+ No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components.
+ Approved according to DIN EN 1672-2 (hygiene requirements for food processing machinery)
+ Approved according to DIN EN ISO 14 159 (hygiene requirements for the design of machinery)

ÖLFLEX®
Power and control cables

ETHERLINE®
Data communication systems
for ETHERNET technology

UNITRONIC®
Data communication systems

EPIC®
Industrial connectors

HITRONIC®
Optical transmission systems

SKINTOP®
Cable glands

FLEXIMARK®
Marking systems

SILVYN®
Protective cable conduit systems
and cable carrier systems

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