Cable + Connectivity Solutions

LUTZE SILFLEX® FBP Cables for Food and Beverage Applications

LUTZE
SYSTEMATIC TECHNOLOGY

UL Approval and FDA Compliance

Equipment and machines designed for the food and beverage industry are required per 21 CFR to be sanitary, easy to clean, and safe for food contact. However, most industrial cables contain flame retardants which do not meet food contact requirements. These flame retardants allow cables to pass testing for UL approvals. Because UL approval is needed to meet NFPA 79 and NEC requirements, there is a tough choice between meeting FDA or UL requirements.

Washdown Resistance

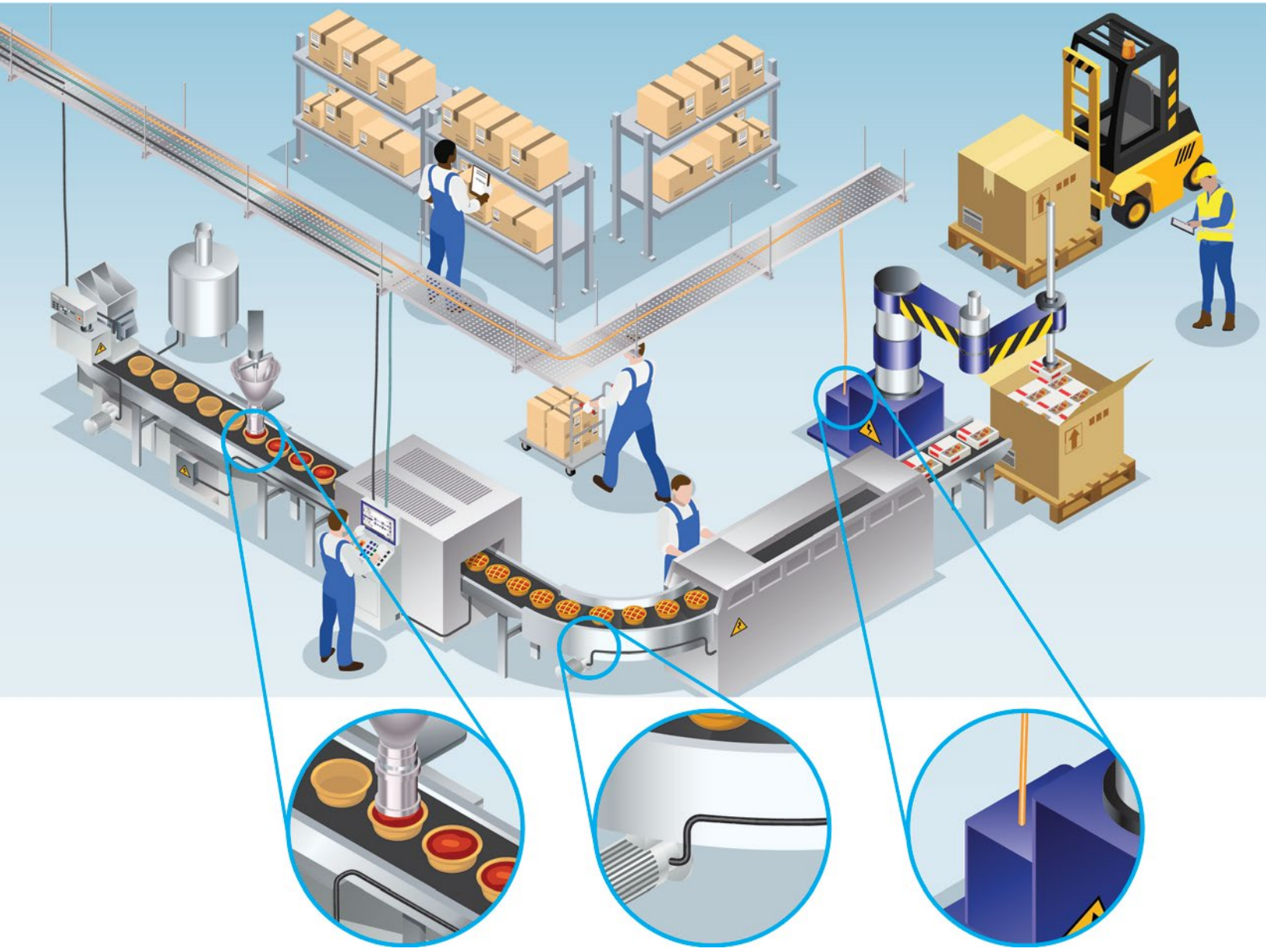
In addition to the requirements from UL and the FDA, cables in food and beverage applications must be able to withstand repeated washdown with a wide variety of chemicals. If a cable cannot withstand frequent washdown cycles, the cable jacket may become degraded. A damaged cable jacket will ultimately lead to cable failure and may pose a safety hazard. For this reason, cables for the food and beverage industry should be certified for washdown resistance.

LUTZE SILFLEX® FBP - the Ultimate Cable for Food and Beverage Applications

LUTZE SILFLEX® FBP cables are a patent pending solution to the challenges that today's food and beverage machine builders and processing companies face:

- Cables meet both UL and FDA requirements, streamlining inspections and reducing the need for exceptions to 21 CFR
- Evaluated by Ecolab for resistance to commonly used cleaning agents
- Reduced diameter for easy routing
- Cables may be run without conduit in some areas due to the external wiring approval, washdown certification, and food contact rating
- Food safe design reduces cabling as a contamination risk

LUTZE SILFLEX® FBP Cables



	Contact Zone	Splash Zone	Non-Contact Zone
Food Contact	Direct food contact with machinery expected and intended as part of processing	Incidental food contact with machinery possible, but not intended during processing	No machinery contact with food expected; product may already be packaged or otherwise protected
Contamination Risk	High	Moderate	Low
Washdown Procedure	Subject to frequent washdown with pressurized water, steam, and industrial cleaning agents	Regular washdown with industrial cleaning agents	No regular washdown procedure; may be exposed to cleaning agents through splashes or atmospheric exposure
Equipment requirements	Highest requirements per FDA regulations. Must be sanitary, safe for food contact, easily cleaned and resistant to repeated washdown	Subject to some FDA requirements. Must be sanitary, easily cleaned, and resistant to washdown procedure	Machinery and components should be suitable for industrial applications, oil resistant, EMC compliant, and may require washdown resistance
What regulations apply?	21 CFR, NFPA 79 for industrial machinery, and other industry specific requirements	21 CFR, NFPA 79 for industrial machinery, and other industry specific requirements	NFPA 79 for industrial machinery or the National Electric Code (NFPA 70)

LUTZE SILFLEX® FBP, Unshielded

Flexible Control Cable for Food and Beverage Processing

Application

- Multi-conductor control cable for machine and handling devices in food, beverage and drug processing applications
- FDA sanctioned jacket material for direct food contact per 21 CFR
- Compliant with NFPA 79, Article 12.9
- Suitable for use in food contact zone, splash zone and non-contact zones

Characteristics

- Flame retardant per UL 1581 Cable Flame
- FDA compliance tested per 21 CFR 175.300
- California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) compliant
- REACH 1907/2006/EC compliant
- RoHS Directive EU 2015/863 compliant
- Phthalate free jacket
- Low capacitance insulation
- Easy stripping and easy installation
- Easy routing and bending due to flexibility
- Resistant to most oils and fats
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Small cable diameter
- Non-wicking fillers
- Talc and silicone free
- Patent-pending design

Technical Data

Voltage	1000V 90C UL AWM 20886
Temperature	-40°C - +90°C static
Minimum bending radius	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground; *2C no ground included
Burning behavior	Flame retardant per UL 1581 Cable Flame
Approvals & compliance	21 CFR 175.300 UL AWM Style 20886 CE, RoHS, REACH NFPA 79 12.9

Construction

- AWG conductor
- Flexible fine wire stranded bare copper conductors
- Polypropylene insulation
- Industrial grade phthalate free thermoplastic polymer jacket
- Black jacket similar to RAL 9005

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
	AWG 20 (10/30)				
A6012002	AWG20/02C*	4.9	0.193	21	6
A6012003	AWG20/03C	5.2	0.203	26	9
A6012004	AWG20/04C	5.6	0.219	31	12
A6012005	AWG20/05C	6.0	0.237	38	16
A6012007	AWG20/07C	6.5	0.255	46	22
A6012012	AWG20/12C	8.6	0.339	77	38
A6012018	AWG20/18C	9.9	0.391	110	56
A6012025	AWG20/25C	11.4	0.448	142	78
	AWG 18 (19/30)				
A6011802	AWG18/02C*	5.5	0.217	29	12
A6011803	AWG18/03C	5.8	0.229	38	18
A6011804	AWG18/04C	6.3	0.248	46	24
A6011805	AWG18/05C	6.8	0.269	55	30
A6011807	AWG18/07C	7.7	0.303	75	42
A6011809	AWG18/09C	8.9	0.349	98	54
A6011812	AWG18/12C	9.9	0.389	122	72
A6011818	AWG18/18C	11.7	0.460	176	108
A6011825	AWG18/25C	13.7	0.539	240	151
	AWG 16 (26/30)				
A6011602	AWG16/02*	6.1	0.239	35	16
A6011603	AWG16/03	6.4	0.253	47	24
A6011604	AWG16/04	7.0	0.274	58	32
A6011605	AWG16/05	7.6	0.298	70	40
A6011607	AWG16/07	8.5	0.336	95	57
A6011612	AWG16/12	11.3	0.443	157	98
A6011618	AWG16/18	13.1	0.514	224	147
A6011625	AWG16/25	15.3	0.604	305	204
	AWG 14 (41/30)				
A6011403	AWG14/03	7.9	0.310	70	38
A6011404	AWG14/04	8.5	0.336	88	51
A6011405	AWG14/05	9.3	0.367	109	64
A6011407	AWG14/07	10.6	0.419	149	89
A6011412	AWG14/12	13.8	0.542	239	154
	AWG12 (65/30)				
A6011204	AWG12/04	10.4	0.410	139	84
A6011205	AWG12/05	11.4	0.447	166	105
	AWG10 (105/30)				
A6011004	AWG10/04	13.0	0.511	205	130
	AWG8 (168/30)				
A6010804	AWG8/04C	16.2	0.636	311	214
	AWG6 (266/30)				
A6010604	AWG6/04C	18.2	0.718	453	339

Specifications are subject to change without prior notice

LUTZE SILFLEX® FBP (C), Shielded

Flexible Control Cable for Food and Beverage Processing

Application

- Dual-shielded multi-conductor control cable for machine and handling devices in food, beverage and drug processing applications
- FDA sanctioned jacket material for direct food contact per 21 CFR
- Compliant with NFPA 79, Article 12.9
- Suitable for use in food contact zone, splash zone and non-contact zones

Characteristics

- Flame retardant per UL 1581 Cable Flame
- FDA compliance tested per 21 CFR 175.300
- California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) compliant
- REACH 1907/2006/EC compliant
- RoHS Directive EU 2015/863 compliant
- Phthalate free jacket
- High protection against electromagnetic interference (EMI)
- Low capacitance insulation
- Easy stripping and easy installation
- Easy routing and bending due to flexibility
- Resistant to most oils and fats
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Small cable diameter
- Non-wicking fillers
- Talc and silicone free
- Patent-pending design

Technical Data

Voltage	1000V 90C UL AWM 20886
Temperature	-40°C - +90°C static
Minimum bending radius	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Burning behavior	Flame retardant per UL 1581 Cable Flame
Approvals & compliance	21 CFR 175.300 UL AWM Style 20886 CE, RoHS, REACH NFPA 79 12.9

Construction

- AWG conductor
- Flexible fine wire stranded bare copper conductors
- Polypropylene insulation
- Shielded with foil tape, tinned copper braid with 75% optical coverage, and drain wire
- Industrial grade phthalate free thermoplastic polymer jacket
- Black jacket similar to RAL 9005

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
	AWG20 (10/30)				
A6022003	AWG20/03C	5.9	0.233	41	20
A6022004	AWG20/04C	6.3	0.248	47	24
A6022005	AWG20/05C	6.8	0.266	53	28
A6022007	AWG20/07C	7.2	0.285	64	35
A6022012	AWG20/12C	9.4	0.369	103	55
A6022018	AWG20/18C	10.7	0.421	133	75
A6022025	AWG20/25C	12.3	0.486	174	100
	AWG 18 (16/30)				
A6021803	AWG18/03C	6.6	0.259	53	30
A6021804	AWG18/04C	7.3	0.289	67	36
A6021805	AWG18/05C	7.9	0.310	77	44
A6021807	AWG18/07C	8.5	0.333	95	57
A6021812	AWG18/12C	10.8	0.427	149	91
A6021818	AWG18/18C	12.4	0.489	202	130
A6021825	AWG18/25C	14.5	0.569	271	176
	AWG 16 (26/30)				
A6021603	AWG16/03C	7.2	0.282	66	39
A6021604	AWG16/04C	8.0	0.316	81	48
A6021605	AWG16/05C	8.6	0.340	95	57
A6021607	AWG16/07C	9.3	0.366	122	76
A6021612	AWG16/12C	12.0	0.472	187	120
A6021618	AWG16/18C	14.1	0.556	263	173
A6021625	AWG16/25C	16.2	0.639	348	240
	AWG 14 (41/30)				
A6021403	AWG14/03C	8.8	0.348	102	58
A6021404	AWG14/04C	9.5	0.374	121	73
A6021405	AWG14/05C	10.3	0.405	139	86
A6021407	AWG14/07C	11.4	0.449	179	114
A6021412	AWG14/12C	14.5	0.572	276	184
	AWG 12 (65/30)				
A6021204	AWG12/04C	11.2	0.439	172	112
A6021205	AWG12/05C	12.1	0.476	204	135
	AWG 10 (105/30)				
A6021004	AWG10/04C	13.7	0.540	384	178

These cables are flame resistant in accordance with NFPA 79 article 12.9 “Special Cables and Conductors” and meet stringent FDA food contact requirements per 21 CFR 175.300.

Specifications are subject to change without prior notice

LUTZE SILFLEX® M FBP, Shielded

Flexible Motor Cable for Food and Beverage Processing

Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- For machine and handling devices in food, beverage and drug processing applications
- FDA sanctioned jacket material for direct food contact per 21 CFR
- Compliant with NFPA 79, Article 12.9
- Suitable for use in food contact zone, splash zone and non-contact zones
- Thermoset XLPE insulation offers superior electrical values for VFD applications

Characteristics

- Flame retardant per UL 1581 Cable Flame
- FDA compliance tested per 21 CFR 175.300
- REACH 1907/2006/EC compliant
- RoHS Directive EU 2015/863 compliant
- Phthalate free jacket
- Low capacitance
- High protection against electromagnetic interference (EMI)
- Easy stripping and easy installation
- Easy routing and bending due to flexibility
- Resistant to most oils and fats
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Non-wicking fillers
- Talc and silicone free
- Patent-pending design

Technical Data

Voltage	1000V 90C UL AWM 20886
Temperature	-40°C - +90°C static
Bending radius	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Burning behavior	Flame retardant per UL 1581 Cable Flame
Approvals	21 CFR 175.300 UL AWM Style 20886 CE, RoHS, REACH NFPA 79 12.9

Construction

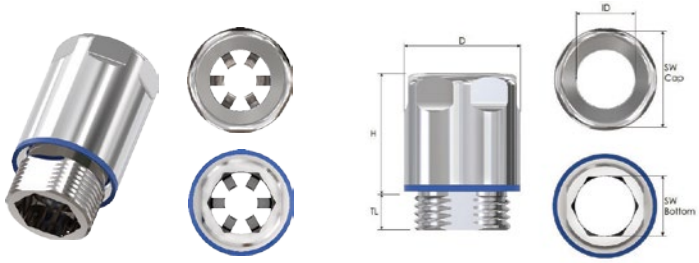
- AWG conductor
- Flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation type XHHW-2, Wet/Dry
- Shielded with foil tape, tinned copper braid with 80% optical coverage, and drain wire
- Industrial grade phthalate free thermoplastic polymer jacket
- Black jacket similar to RAL 9005

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
	AWG 18 (19/30)				
A6061804	**AWG18/04C**	10.5	0.415	108	42
	AWG 16 (26/30)				
A6061604	**AWG16/04C**	10.8	0.425	124	54
	AWG 14 (41/30)				
A6061404	**AWG14/04C**	11.6	0.456	154	76
	AWG 12 (65/30)				
A6061204	**AWG12/04C**	13.0	0.51	208	118
	AWG 10 (105/30)				
A6061004	**AWG10/04C**	16.5	0.650	320	183
	AWG 8 (168/30)				
A6060804	**AWG8/04C**	20.6	0.81	478	279

These cables are flame resistant in accordance with NFPA 79 article 12.9 “Special Cables and Conductors” and meet stringent FDA food contact requirements per 21 CFR 175.300.

Specifications are subject to change without prior notice

Stainless Steel Hygienic Fittings for Food and Beverage Applications



Characteristics

- Designed for the demanding requirements of food, beverage, and drug processing applications
- Made with food contact approved materials in conformance with 21 CFR 177.2600
- Smooth finish prevents microbial build-up
- IP69 high-pressure washdown resistance
- Integrated strain relief
- Wide sealing and clamping range

Specifications

Connecting thread	Metric EN 60423 NPT ANSI B1.20.1
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-40°C - +150°C / -40°F - +302°F
Protection class	Type 4X UL50E IP69 EN 60529
Material	
Body, cap and inner rings	Stainless steel EN 1.4305 / AISI 303
Clamping insert	POM
Seal	EPDM acc. to 21 CFR 177.2600
Contact spring (EMC style)	Special copper alloy

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SWC mm	SWB* mm	H mm	UL R/L
	METRIC							
FHM12	M12x1.5	0.118-0.255	3-6.5	6	14	7	23.5	R
FHM16	M16x1.5	0.196-0.393	5-10	7	18	10	26.5	R
FHM20	M20x1.5	0.236-0.472	6-12	8	22	13	29.5	L
FHM25	M25x1.5	0.472-0.669	12-17	10	28	17	32.5	L
	NPT							
FHNPT14	NPT 1/4”	0.118-0.255	3-6.5	10	18	7	23.5	R
FHNPT38	NPT 3/8”	0.196-0.393	5-10	10	22	10	27.5	R
FHNPT12	NPT 1/2”	0.236-0.472	6-12	11	28	13	30.5	L
FHNPT34	NPT 3/4”	0.472-0.669	12-17	12	35	17	33.5	L
	METRIC EMC							
FHM16-C2	M16x1.5	0.196-0.393	5-10	7	18	10	32.5	R
FHM20-C2	M20x1.5	0.236-0.472	6-12	8	22	13	35.5	L
FHM25-C2	M25x1.5	0.472-0.669	12-17	10	28	17	41.0	L
	NPT EMC							
FHNPT38-C2	NPT 3/8”	0.196-0.393	5-10	10	22	10	33	R
FHNPT12-C2	NPT 1/2”	0.236-0.472	6-12	11	28	13	36	L
FHNPT34-C2	NPT 3/4”	0.472-0.669	12-17	12	35	17	41.5	L

EMC Type Fittings

- 360° shield termination
- Adapts to different size cable shields
- Contact spring made of special copper alloy providing low contact resistance

Item Specific Approvals

- UL Recognized (R) or UL Listed (L), as per table

Matching locknut included with hygienic fittings.
*SWB refers to metric hex key sizing

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