



# **LUTZE**

## **Cable Solutions for Industrial Automation North America**

Control Cable  
Electronic Cable  
BUS and Network Cable  
Motor Supply, VFD, Servo and Feedback Cable  
Wire and Cable Management  
Network Connectivity



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# LUTZE cable, connectivity and wire management solutions for industrial automation



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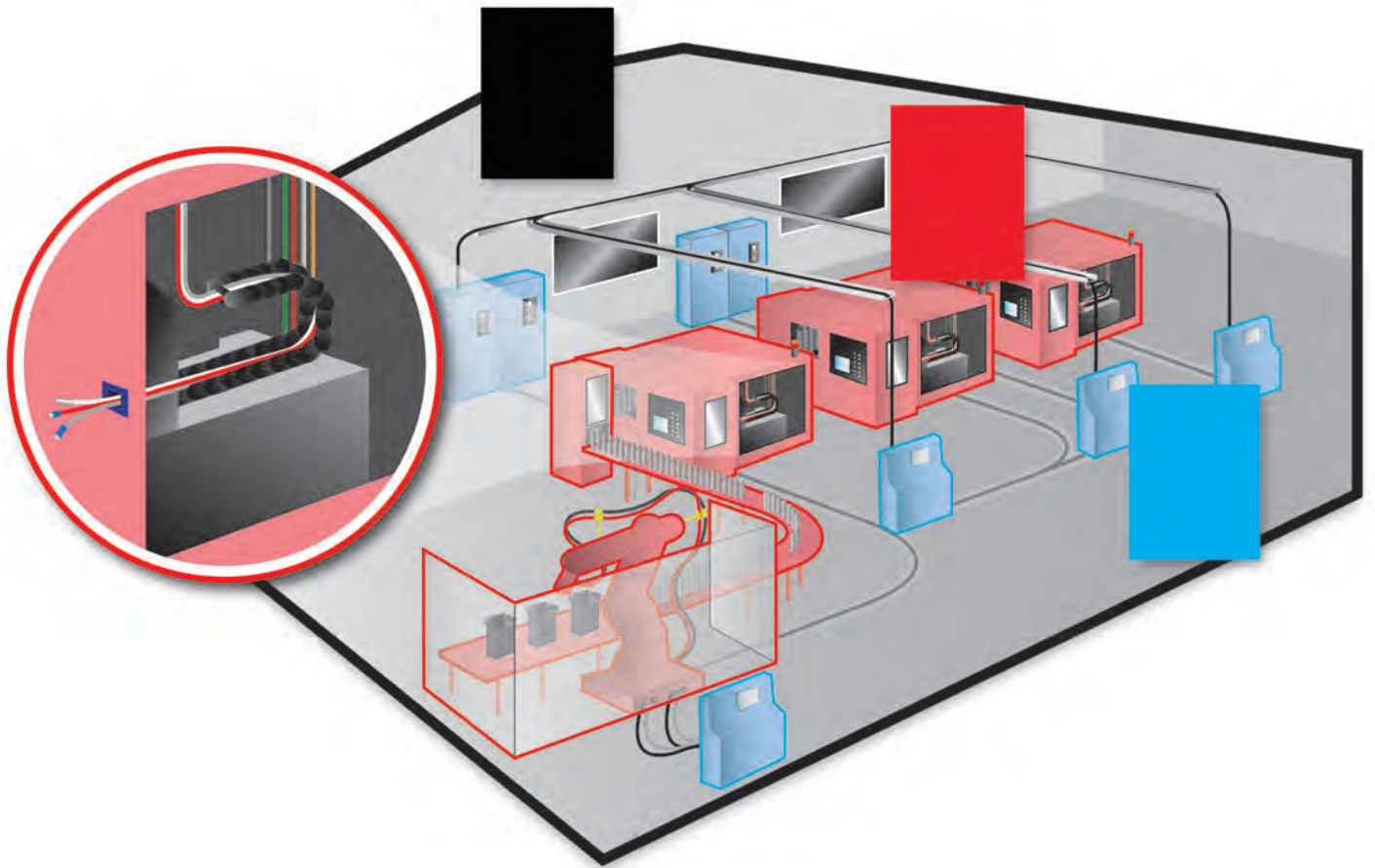
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# Efficiency in Automation

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Your ultimate partner in cable and connectivity products for industrial automation. Our products are designed for harsh environments and carry multiple approvals for code compliance. This gives you peace of mind and allows you to stay focused on your projects.



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NFPA 79 – regulates the machine level



UL 508A – regulated the cabinet level



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# Table of Contents



## Chapter 1: Control Cables

### LUTZE SILFLEX® - Stationary and Flexible Applications

<b>PVC Unshielded</b> , Control TC-ER A308.....	6
<b>PVC Shielded</b> , Control TC-ER A309 .....	8
<b>PVC Unshielded</b> , TC-ER A322 .....	9
<b>TPE Unshielded</b> , Premium Tray and Machine Tool Cable, TC-ER A332.....	10
<b>TPE Shielded</b> , Premium Tray and Machine Tool Cable, TC-ER A331 .....	11
<b>TPE Unshielded</b> , FBP for Food & Beverage, A601 .....	12
<b>TPE Shielded</b> , FBP food & Beverage, A602 .....	13
<b>PVC Unshielded</b> , TC-ER with Blue Conductors A325 .....	14
<b>PVC Unshielded</b> , Control 108xxxA .....	15
<b>PVC Single Conductor Hook Up Wire</b> , Multi-Norm.....	16

### LUTZE MOTIONFLEX® - Continuous Linear and Torsional Motion Applications

<b>TPE Unshielded</b> , Control TC-ER, A422 .....	18
<b>TPE Shielded</b> , Control TC-ER A421 .....	19

### LUTZE SUPERFLEX® - Continuous Motion and High Flexing Applications

<b>PVC Unshielded</b> , Control A148.....	20
<b>PVC Shielded</b> , Control A149 .....	21
<b>PUR Unshielded</b> , Control 3000/4000 .....	22
<b>PUR Shielded</b> , Control 3100/4100 .....	23



## Chapter 2: Electronic Cables

### LUTZE SILFLEX® - Stationary and Flexible Applications

<b>PVC Unshielded</b> , Electronic PLTC A303 .....	25
<b>PVC Shielded</b> , Electronic PLTC A313.....	26
<b>PVC Shielded</b> , Electronic TP PLTC A314 .....	27
<b>PVC Unshielded</b> , Electronic Actuator Sensor A102.....	28

### LUTZE SUPERFLEX® - Continuous Motion and High Flexing Applications

<b>PUR Unshielded</b> , Tronic.....	29
<b>PUR Shielded</b> , Tronic .....	30
<b>PUR Shielded</b> , Tronic TP .....	31
<b>PUR Unshielded</b> , Tronic AS.....	32
<b>PUR Shielded</b> , Tronic AS .....	33



## Chapter 3: BUS and Network Cables

<b>PVC Shielded</b> , Stationary and Flexible PROFIBUS .....	36
<b>PUR Shielded</b> , LUTZE SUPERFLEX® High Flexing PROFIBUS.....	37

# Table of Contents

<b>PVC Shielded, Stationary and Flexible CAN Bus</b> .....	38
<b>PUR Shielded, LUTZE SUPERFLEX® High Flexing CAN Bus</b> .....	39
<b>PVC Shielded, Stationary and Flexible DeviceNet™</b> .....	40
<b>PUR Shielded, LUTZE SUPERFLEX® High Flexing DeviceNet™</b> .....	41
<b>PVC Shielded, Single Pair Ethernet SPE</b> .....	42
<b>PVC Unshielded, Light Duty Stationary Ethernet</b> .....	43
<b>PVC Shielded, Stationary and Flexible Ethernet</b> .....	44
<b>TPE Shielded, LUTZE MOTIONFLEX® High Flexing and Twisting Ethernet</b> .....	45
<b>PUR Shielded, LUTZE SUPERFLEX® High Flexing Ethernet</b> .....	46



## Chapter 4: Motor Supply, VFD, Servo and Feedback Cables

### LUTZE SILFLEX® - Stationary and Flexible Applications

<b>TPE Unshielded, Premium Tray and Machine Tool Cable, TC-ER A332</b> .....	49
<b>PVC Shielded, DRIVEFLEX® XLPE VFD A106</b> .....	50
<b>PVC Shielded, DRIVEFLEX® XLPE VFD 1 TSP A107</b> .....	51
<b>PVC Shielded, DRIVEFLEX® XLPE VFD A216</b> .....	52
<b>PVC Shielded, DRIVEFLEX® XLPE VFD 1 TSP A217</b> .....	53
<b>PVC Shielded, DRIVEFLEX® XLPE VFD 2 TSP A218</b> .....	54
<b>PVC Shielded, DRIVEFLEX® XLPE VFD 3 Symmetrical Grounds A220</b> .....	55
<b>PVC Unshielded, DRIVEFLEX® XLPE Hydro A110</b> .....	56
<b>PVC Shielded, DRIVEFLEX® XLPE Control TSP A244</b> .....	57
<b>TPE Shielded, FBP for Food &amp; Beverage, Motor A606</b> .....	58
<b>TPE Shielded, Motor Cable A316/A317</b> .....	59
<b>TPE Shielded, Feedback Cable for Allen-Bradley® and similar A141</b> .....	60

### LUTZE MOTIONFLEX® - Flexing and Twisting Applications

<b>TPE Shielded, MOTIONFLEX® Motor and VFD A406</b> .....	61
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### LUTZE SUPERFLEX® - Continuous Motion and High Flexing Applications

<b>PUR Unshielded, 0.6/1kV Motor Cable</b> .....	62
<b>PUR Shielded, 0.6/1kV Motor Cable</b> .....	63
<b>PUR Shielded, 0.6/1kV Composite Motor Cable, One Control Pair</b> .....	64
<b>PUR Shielded, 0.6/1kV Composite Motor Cable, Two Control Pairs</b> .....	65
<b>PUR Unshielded, 0.6/1kV Single Conductor Motor Cable</b> .....	66
<b>PUR Shielded, 0.6/1kV Single Conductor Motor Cable</b> .....	67
<b>PUR Shielded, Feedback Cable for Bosch-Rexroth® and similar</b> .....	68
<b>PUR Shielded, Feedback Cable for Allen Bradley® and similar</b> .....	69
<b>PUR Shielded, Feedback Cable for Siemens and similar</b> .....	70

# Table of Contents



## Chapter 5: Wire and Cable Management

<u>Plastic Cable Fittings</u>	
<b>NPT Fittings FPNPT</b> .....	72
<b>PG Fittings FPPG</b> .....	73
<b>Metric Fittings FPM</b> .....	74
<b>Locknuts NPT, PG and Metric LPNPT, LPPG, LPM</b> .....	75
<u>Metal Cable Fittings</u>	
<b>NPT Fittings FMNPT</b> .....	76
<b>PG Fittings FMPG</b> .....	77
<b>Metric Fittings FMM</b> .....	78
<b>Metric and NPT EMC V Fittings, Quick Installation FMM, FMNPT</b> .....	79
<b>Metric and NPT EMC Fittings, Large Diameter FMM, FMNPT</b> .....	80
<b>Metric and NPT FBP Fittings FHM, FHNPT</b> .....	81
<b>Locknuts NPT, PG, Metric and EMC Metric LMNPT, LMPG, LMM</b> .....	82
<b>PG and Metric Reducers RMPG, RMM</b> .....	83
<b>PG and Metric Enlargers EMPG, EMM</b> .....	84
<b>Metric to NPT Adapters AMM</b> .....	85
<b>TPE Multihole Insert for NPT, PG, Metric Fittings</b> .....	86
<u>Cable Entry Systems</u>	
<b>CABLEFIX® Light</b> .....	87
<b>CABLEFIX® X</b> .....	88
<b>CABLEFIX® One</b> .....	89
<b>CABLEFIX® Vario</b> .....	90



## Chapter 6: Network Connectivity

<b>USB and RJ45 Panel Pass Through Devices</b> .....	94
<b>PANELCON USB and RJ45 Panel Pass Through Devices</b> .....	95
<b>RJ45 Jack Module for DIN Rail</b> .....	96
<b>RJ45 IDC Industrial Connectors Straight and Angled</b> .....	97
<b>M12 Connectors with Push-in Technology Straight and Angled</b> .....	98
<b>M12 Connectors with Push-in Technology, Shielded Straight and Angled</b> .....	99

## Chapter 7: Technical Overview ..... 100

## Part Number Index ..... 147

# 1. Control Cables



# LUTZE SILFLEX® Control Cable PVC, Unshielded

## Flexible Control and Tray Cable for Stationary Applications



### Application

- Multi-conductor cable for tray and control applications, with exposed run (open wiring) approval
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- PLTC-ER – power limited tray cable exposed run
- ITC-ER – instrumentation tray cable
- Dry, damp or wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Direct burial (AWG 18 and larger)
- Talc and silicone free

### Technical Data

Voltage	
AWG 20:	300V 90C PLTC-ER 300V 90C ITC-ER 600V MTW 1000V 105C AWM
AWG 18 and larger:	600V 90C TC-ER-JP 1000V 90C WTTC 600V MTW 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground *no ground included
Oil resistance	Oil Res II
Approvals	UL/AWM/CE AWM Style 20886 (UL) Type MTW or DP-1 Meets NEC 336, 392, 725, 727 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 UL 1277 RoHS, REACH, TSCA
AWG specific approvals	
AWG 20:	PLTC-ER and ITC-ER
AWG 18 to AWG 12:	TC-ER-JP and WTTC PLTC-ER and ITC-ER *2C no ER approvals
AWG 10 and larger:	TC-ER-JP and WTTC

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Oil resistant PVC jacket
- Gray jacket similar to RAL 7001

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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#### AWG 20 (10/30)

A3082003	AWG20/03C	6.8	0.268	41	9
A3082004	AWG20/04C	7.3	0.287	49	13
A3082005	AWG20/05C	7.9	0.313	57	16
A3082007	AWG20/07C	8.5	0.335	70	22
A3082012	AWG20/12C	10.8	0.426	110	38
A3082018	AWG20/18C	12.5	0.492	152	56
A3082025	AWG20/25C	17.1	0.672	229	79

#### AWG 18 (19/30)

A3081802	AWG18/02C*	7.0	0.276	46	12
A3081803	AWG18/03C	7.5	0.296	54	18
A3081804	AWG18/04C	8.1	0.320	65	24
A3081805	AWG18/05C	8.8	0.346	82	30
A3081807	AWG18/07C	9.5	0.373	102	42
A3081809	AWG18/09C	10.8	0.425	128	54
A3081812	AWG18/12C	12.1	0.477	157	72
A3081818	AWG18/18C	14.9	0.587	240	108
A3081825	AWG18/25C	17.2	0.677	314	151
A3081834	AWG18/34C	18.9	0.744	404	205
A3081841	AWG18/41C	22.8	0.896	520	248
A3081850	AWG18/50C	23.1	0.910	630	302

#### AWG 16 (26/30)

A3081602	AWG16/02C*	7.7	0.305	53	16
A3081603	AWG16/03C	8.2	0.321	66	24
A3081604	AWG16/04C	8.7	0.347	77	32
A3081605	AWG16/05C	9.5	0.377	98	40
A3081607	AWG16/07C	10.2	0.406	122	57
A3081609	AWG16/09C	12.0	0.473	159	73
A3081612	AWG16/12C	13.4	0.527	196	98
A3081618	AWG16/18C	16.4	0.647	294	147
A3081625	AWG16/25C	19.0	0.748	391	204
A3081634	AWG16/34C	22.3	0.876	541	278
A3081641	AWG16/41C	25.0	0.983	670	335

#### AWG 14 (41/30)

A3081403	AWG14/03C	8.8	0.348	87	38
A3081404	AWG14/04C	9.6	0.378	108	51
A3081405	AWG14/05C	10.4	0.410	125	64
A3081407	AWG14/07C	11.3	0.445	164	89
A3081409	AWG14/09C	13.1	0.516	213	115
A3081412	AWG14/12C	15.5	0.610	283	154
A3081418	AWG14/18C	18.2	0.715	404	231
A3081425	AWG14/25C	20.9	0.825	537	321

Specifications are subject to change without prior notice



# LUTZE SILFLEX® Control Cable PVC, Unshielded

## Flexible Control and Tray Cable for Stationary Applications



### Application

- Multi-conductor cable for tray and control applications, with exposed run (open wiring) approval
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- PLTC-ER – power limited tray cable exposed run
- ITC-ER – instrumentation tray cable
- Dry, damp or wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Direct burial (AWG 18 and larger)
- Talc and silicone free

### Technical Data

Voltage	
AWG 20:	300V 90C PLTC-ER 300V 90C ITC-ER 600V MTW 1000V 105C AWM
AWG 18 and larger:	600V 90C TC-ER-JP 1000V 90C WTTC 600V MTW 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground *no ground included
Oil resistance	Oil Res II
Approvals	UL/AWM/CE AWM Style 20886 (UL) Type MTW or DP-1 Meets NEC 336, 392, 725, 727 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 UL 1277 RoHS, REACH, TSCA
AWG specific approvals	
AWG 20:	PLTC-ER and ITC-ER
AWG 18 to AWG 12:	TC-ER-JP and WTTC PLTC-ER and ITC-ER *2C no ER approvals
AWG 10 and larger:	TC-ER-JP and WTTC

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Oil resistant PVC jacket
- Gray jacket similar to RAL 7001

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 12 (65/30)</b>					
A3081203	AWG12/03C	9.8	0.382	122	63
A3081204	AWG12/04C	11.1	0.437	150	84
A3081205	AWG12/05C	12.1	0.475	183	105
A3081207	AWG12/07C	14.1	0.556	255	147
<b>AWG 10 (105/30)</b>					
A3081004	AWG10/04C	14.6	0.573	239	130
A3081005	AWG10/05C	15.8	0.623	288	162
<b>AWG 8 (168/30)</b>					
A3080804	AWG8/04C	18.9	0.744	398	214
A3080805	AWG8/05C	22.4	0.882	452	268
<b>AWG 6 (266/30)</b>					
A3080604	AWG6/04C	20.8	0.820	535	339
<b>AWG 4 (413/30)</b>					
A3080404	AWG4/04C	27.2	1.070	927	514
<b>AWG 2 (665/30)</b>					
A3080204	AWG2/04C	31.1	1.225	1352	874

"Tray cable marked as TC-ER-JP (Joist Pull) has been evaluated by UL for pulling through structural members per the new NEC article 336.10(9)".



Specifications are subject to change without prior notice

1-800-447-2371



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# LUTZE SILFLEX® Control Cable (C) PVC, Shielded

## Flexible Control and Tray Cable for Stationary Applications



### Application

- Dual-shielded multi-conductor cable for tray and control applications, with exposed run (open wiring) approval
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- PLTC-ER – power limited tray cable exposed run
- ITC-ER – instrumentation tray cable
- Dry, damp or wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Direct burial (AWG 18 and larger)
- Talc and silicone free

### Technical Data

Voltage	
AWG 20:	300V 90C PLTC-ER 300V 90C ITC-ER 600V MTW 1000V 105C AWM
AWG 18 and larger:	600V 90C TC-ER-JP 1000V 90C WTTC 600V MTW 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground *2C no ground included
Oil resistance	Oil Res II
Approvals	UL/AWM/CE AWM Style 20886 (UL) Type MTW or DP-1 Meets NEC 336, 392, 725, 727 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 UL 1277 RoHS, REACH, TSCA
AWG specific approvals	
AWG 20:	PLTC-ER and ITC-ER
AWG 18 to AWG 12:	TC-ER-JP and WTTC PLTC-ER and ITC-ER *2C no ER approvals
AWG 10 and larger:	TC-ER-JP and WTTC

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 20 (10/30)</b>					
A3092003	AWG20/03C	7.5	0.295	56	20
A3092004	AWG20/04C	8.0	0.315	65	25
A3092005	AWG20/05C	8.5	0.336	74	28
A3092007	AWG20/07C	9.1	0.360	92	36
A3092012	AWG20/12C	11.4	0.450	131	56
A3092018	AWG20/18C	13.2	0.520	181	78
A3092025	AWG20/25C	15.7	0.620	246	102
<b>AWG 18 (19/30)</b>					
A3091802	AWG18/02C*	7.7	0.305	61	23
A3091803	AWG18/03C	8.1	0.320	71	30
A3091804	AWG18/04C	8.8	0.345	86	36
A3091805	AWG18/05C	9.3	0.368	100	44
A3091807	AWG18/07C	10.0	0.395	121	58
A3091812	AWG18/12C	12.7	0.500	180	91
A3091818	AWG18/18C	15.5	0.609	268	131
A3091825	AWG18/25C	17.6	0.692	342	177
<b>AWG 16 (26/30)</b>					
A3091603	AWG16/03C	8.7	0.343	87	39
A3091604	AWG16/04C	9.4	0.370	102	48
A3091605	AWG16/05C	10.1	0.398	119	58
A3091607	AWG16/07C	10.9	0.430	145	75
A3091612	AWG16/12C	14.6	0.575	239	121
A3091618	AWG16/18C	16.9	0.664	327	174
A3091625	AWG16/25C	19.6	0.757	423	233
<b>AWG 14 (41/30)</b>					
A3091403	AWG14/03C	9.5	0.375	110	57
A3091404	AWG14/04C	10.3	0.405	133	72
A3091405	AWG14/05C	11.2	0.440	154	85
A3091407	AWG14/07C	12.1	0.475	194	113
A3091412	AWG14/12C	16.3	0.640	316	182
<b>AWG 12 (65/30)</b>					
A3091203	AWG12/03C	10.8	0.425	150	89
A3091204	AWG12/04C	11.7	0.460	182	110
A3091205	AWG12/05C	12.7	0.500	215	133
<b>AWG 10 (105/30)</b>					
A3091004	AWG10/04C	15.2	0.600	284	169

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Shielded with foil tape, tinned copper braid and drain wire
- Oil resistant PVC jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

1-800-447-2371



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# LUTZE SILFLEX® TRAY-ER PVC, Unshielded

## Flexible Control and Tray Cable for Stationary Applications



### Application

- Multi-conductor cable for tray applications, with exposed run (open wiring) approval
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp and wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Direct burial (AWG 18 and larger)
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER-JP 1000V 90C WTTC 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type TC-ER-JP UL/CE UL AWM Style 20886 (UL) Type MTW or DP-1 WTTC Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 UL1277 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Oil resistant PVC jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 18 (19/30)</b>					
A3221803	AWG18/03C	7.5	0.296	54	18
A3221804	AWG18/04C	8.1	0.320	65	24
A3221805	AWG18/05C	8.8	0.346	82	30
A3221807	AWG18/07C	9.5	0.373	102	42
A3221809	AWG18/09C	10.8	0.425	128	54
A3221812	AWG18/12C	12.1	0.477	157	72
A3221818	AWG18/18C	14.9	0.587	240	108
A3221825	AWG18/25C	17.2	0.677	314	151
<b>AWG 16 (26/30)</b>					
A3221602	AWG16/02C	7.7	0.305	53	16
A3221603	AWG16/03C	8.2	0.321	66	24
A3221604	AWG16/04C	8.7	0.347	77	32
A3221605	AWG16/05C	9.5	0.377	98	40
A3221607	AWG16/07C	10.2	0.406	122	57
A3221609	AWG16/09C	12.0	0.471	159	73
A3221612	AWG16/12C	13.4	0.527	196	98
A3221618	AWG16/18C	16.4	0.647	294	147
A3221625	AWG16/25C	19.0	0.748	391	204
<b>AWG 14 (41/30)</b>					
A3221403	AWG14/03C	8.8	0.348	87	38
A3221404	AWG14/04C	9.6	0.378	108	51
A3221405	AWG14/05C	10.4	0.410	125	64
A3221407	AWG14/07C	11.3	0.445	164	89
A3221412	AWG14/12C	15.5	0.610	283	154
<b>AWG 12 (65/30)</b>					
A3221203	AWG12/03C	9.8	0.382	122	63
A3221204	AWG12/04C	11.1	0.437	150	84
A3221205	AWG12/05C	12.1	0.475	183	105
A3221207	AWG12/07C	14.1	0.556	255	147
<b>AWG 10 (105/30)</b>					
A3221004	AWG10/04C	14.6	0.573	239	130
<b>AWG 8 (168/30)</b>					
A3220804	AWG8/04C	18.9	0.744	398	214
<b>AWG 6 (266/30)</b>					
A3220604	AWG6/04C	20.8	0.820	535	339

# LUTZE SILFLEX® TRAY-ER TPE, Unshielded

## Flexible Premium TPE Control and Tray Cable for Stationary Applications



### Application

- Multi-conductor cable for tray applications, with exposed run (open wiring) approval
- Metal cutting equipment, machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp and wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Cutting oil resistant - mineral & bio/vegetable based oils *specifically tested with plant based cutting oil*
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C WTTC 600V MTW 600V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground *no ground included
Oil resistance	Oil Res I, Oil Res II
Approvals	UL Type TC-ER *UL Type TC UL/CE (UL) Type MTW or DP-1 UL1277 WTTC Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 21270 c(UL) and CIC FT4 RoHS, REACH, TSCA
Item specific approvals	UL509 BUS Drop (only 4 or 5 conductors incl. ground)

### Construction

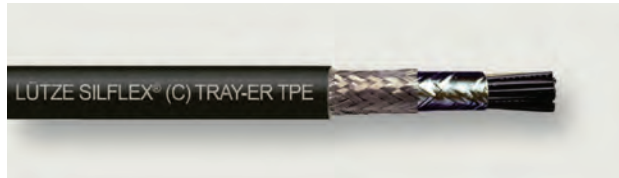
- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Extremely oil resistant TPE jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 18 (16/30)</b>					
A3321802	AWG18/02C*	7.0	0.276	44	10
A3321803	AWG18/03C	7.5	0.296	56	15
A3321804	AWG18/04C	8.1	0.320	67	21
A3321805	AWG18/05C	8.8	0.346	79	25
A3321807	AWG18/07C	9.5	0.373	95	35
A3321812	AWG18/12C	12.1	0.477	148	60
A3321818	AWG18/18C	14.9	0.587	217	90
A3321825	AWG18/25C	17.2	0.677	288	129
<b>AWG 16 (26/30)</b>					
A3321602	AWG16/02C*	7.7	0.305	59	17
A3321603	AWG16/03C	8.2	0.321	72	25
A3321604	AWG16/04C	8.7	0.347	85	33
A3321605	AWG16/05C	9.5	0.377	100	41
A3321607	AWG16/07C	10.2	0.406	125	58
A3321612	AWG16/12C	13.4	0.527	214	100
A3321618	AWG16/18C	16.4	0.647	300	150
A3321625	AWG16/25C	19.0	0.748	396	208
<b>AWG 14 (41/30)</b>					
A3321403	AWG14/03C	8.8	0.348	92	39
A3321404	AWG14/04C	9.6	0.378	108	52
A3321405	AWG14/05C	10.4	0.410	127	65
A3321407	AWG14/07C	11.3	0.445	167	92
A3321412	AWG14/12C	15.5	0.610	287	158
<b>AWG 12 (65/30)</b>					
A3321203	AWG12/03C	9.8	0.382	119	62
A3321204	AWG12/04C	11.1	0.437	146	83
A3321205	AWG12/05C	12.1	0.475	182	104
A3321207	AWG12/07C	14.1	0.556	238	145
<b>AWG 10 (105/30)</b>					
A3321003	AWG10/03C	11.7	0.461	178	100
A3321004	AWG10/04C	14.6	0.573	221	134
A3321005	AWG10/05C	15.8	0.623	285	167
<b>AWG 8 (168/30)</b>					
A3320804	AWG8/04C	18.9	0.744	392	214
<b>AWG 6 (266/30)</b>					
A3320604	AWG6/04C	20.8	0.820	552	339
<b>AWG 4 (413/30)</b>					
A3320404	AWG4/4C	27.2	1.070	910	516
<b>AWG 2 (665/30)</b>					
A3320204	AWG2/04C	31.1	1.225	1,391	883
<b>1/0 (1064/30)</b>					
A3321/004	1/0/4C	36.4	1.435	1,871	1,338
<b>2/0 (1330/30)</b>					
A3322/004	2/0/4C	39.2	1.544	2,257	1,685
<b>3/0 (1665/30)</b>					
A3323/004	3/0/4C	45.6	1.794	2,982	2,156
<b>4/0 (2109/30)</b>					
A3324/004	4/0/4C	48.3	1.903	3,549	2,676

# LUTZE SILFLEX® (C) TRAY-ER TPE, Shielded

## Flexible Premium TPE Control and Tray Cable for Stationary Applications



### Application

- Dual-shielded multi-conductor cable for tray applications, with exposed run (open wiring) approval
- Metal cutting equipment, machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp and wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Cutting oil resistant - mineral & bio/vegetable based oils *specifically tested with plant based cutting oil*
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C WTTC 600V MTW 600V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res I, Oil Res II
Approvals	UL Type TC-ER UL/CE UL AWM Style 21270 (UL) Type MTW or DP-1 WTTC Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) and CIC FT4 UL1277 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Shielded with foil tape, tinned copper braid and drain wire
- Extremely oil resistant TPE jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 18 (16/30)</b>					
A3311803	AWG18/03C	8.1	0.320	76	27
A3311804	AWG18/04C	8.8	0.345	87	36
A3311805	AWG18/05C	9.3	0.368	99	42
A3311807	AWG18/07C	10.0	0.395	116	54
A3311812	AWG18/12C	12.7	0.500	176	85
A3311818	AWG18/18C	15.5	0.609	264	127
A3311825	AWG18/25C	17.6	0.692	368	194
<b>AWG 16 (26/30)</b>					
A3311603	AWG16/03C	8.7	0.343	92	41
A3311604	AWG16/04C	9.4	0.370	106	51
A3311605	AWG16/05C	10.1	0.398	121	61
A3311607	AWG16/07C	10.9	0.430	149	80
A3311612	AWG16/12C	14.6	0.575	254	134
A3311618	AWG16/18C	16.9	0.664	353	191
A3311625	AWG16/25C	19.6	0.757	462	256
<b>AWG 14 (41/30)</b>					
A3311403	AWG14/03C	9.5	0.375	113	59
A3311404	AWG14/04C	10.3	0.405	133	74
A3311405	AWG14/05C	11.2	0.440	154	89
A3311407	AWG14/07C	12.1	0.475	200	117
A3311412	AWG14/12C	16.3	0.640	339	201
<b>AWG 12 (65/30)</b>					
A3311203	AWG12/03C	10.8	0.425	148	88
A3311204	AWG12/04C	11.7	0.460	179	111
A3311205	AWG12/05C	12.2	0.480	216	134
<b>AWG 10 (105/30)</b>					
A3311004	AWG10/04C	15.2	0.600	291	178

# 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
- Patented design US-11443871-B2

### 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, TSCA

### Construction

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

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 20 (10/30)</b>					
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
<b>AWG 18 (19/30)</b>					
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
<b>AWG 16 (26/30)</b>					
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
<b>AWG 14 (41/30)</b>					
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
<b>AWG12 (65/30)</b>					
A6011204	AWG12/04	10.4	0.410	139	84
A6011205	AWG12/05	11.4	0.447	166	105
<b>AWG10 (105/30)</b>					
A6011004	AWG10/04	13.0	0.511	205	130
<b>AWG8 (168/30)</b>					
A6010804	AWG8/04C	16.2	0.636	311	214
<b>AWG6 (266/30)</b>					
A6010604	AWG6/04C	18.2	0.718	453	339

# 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
- Patented design US-11443871-B2

### 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, TSCA

### Construction

- AWG conductor
- Class K 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

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG20 (10/30)</b>					
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
<b>AWG 18 (16/30)</b>					
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
<b>AWG 16 (26/30)</b>					
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
<b>AWG 14 (41/30)</b>					
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
<b>AWG 12 (65/30)</b>					
A6021204	AWG12/04C	11.2	0.439	172	112
A6021205	AWG12/05C	12.1	0.476	204	135
<b>AWG 10 (105/30)</b>					
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.



# LUTZE SILFLEX® TRAY-ER Blue PVC, Unshielded

## Flexible Control and Tray Cable with Blue Conductors for 24V Applications



### Application

- Multi-conductor cable for tray applications, with exposed run (open wiring) approval
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- Compliant with NFPA 79 requirements
- Blue conductors indicating 24 Volt circuits
- MTW for machine tool wiring
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- Dry, damp and wet conditions

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Non-wicking fillers
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 600V MTW
Temperature range	-40°C - +90°C static
Bending radius min	4 x cable OD
Conductor marking	Blue with white numbers; and one green/yellow ground; No. 2 is white with a blue stripe *only two blue with white numbers and one green/yellow ground, no white with a blue stripe
Oil resistance	Oil Res I
Approvals	UL Type TC-ER UL/CE (UL) Type MTW or DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 UL1277 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Oil resistant PVC jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 18 (19/30)</b>					
A3251803	AWG18/3C*	7.3	0.288	47	18
A3251805	AWG18/5C	8.6	0.337	69	30
A3251807	AWG18/7C	9.4	0.370	89	42
A3251812	AWG18/12C	12.0	0.474	143	72
A3251819	AWG18/19C	14.9	0.588	219	108
A3251825	AWG18/25C	17.4	0.686	295	150
A3251837	AWG18/37C	19.9	0.782	410	223
<b>AWG 16 (26/30)</b>					
A3251603	AWG16/3C*	7.9	0.312	58	25
A3251605	AWG16/5C	9.2	0.364	91	41
A3251607	AWG16/7C	10.1	0.398	116	57
A3251612	AWG16/12C	13.9	0.547	194	98
A3251619	AWG16/19C	16.2	0.638	271	155
A3251625	AWG16/25C	18.9	0.746	379	204
<b>AWG 14 (41/30)</b>					
A3251403	AWG14/3C*	8.9	0.352	82	39
A3251404	AWG14/4C	9.8	0.384	103	52
<b>AWG 12 (65/30)</b>					
A3251204	AWG12/4C	10.9	0.428	137	85
A3251205	AWG12/5C	12.4	0.488	183	105

"Blue conductors are used to indicate 24V DC circuits. The cable is rated 600V TC-ER to permit installation alongside other type TC cables".





# LUTZE SILFLEX® N PVC, Unshielded

## Flexible Control Cable for Stationary Applications



### Application

- Multi-conductor control cable for machine and plant construction, HVAC technology, assembly and production lines, and many other industrial applications
- Easy strip design especially suited for cable assemblies
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Most flexible design without nylon for easy stripping and easy installation
- Easy routing and bending due to flexibility
- Resistant to mineral oils, coolants and solvents
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	600V 90C AWM
Temperature range	-40°C - +90°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground; *no ground included
Burning behavior	Flame retardant per UL VW-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 2587 FT4 CE, RoHS, REACH, TSCA

### Construction

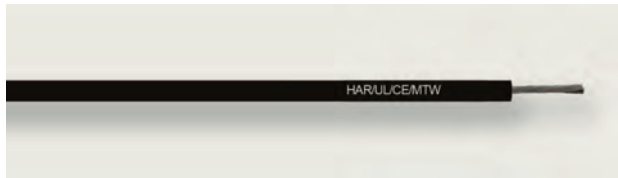
- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC insulation
- Oil resistant PVC jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 20 (10/30)</b>					
108349A	AWG20/02C*	5.7	0.226	27	6.5
108350A	AWG20/03C	6.0	0.235	31	10
108351A	AWG20/04C	6.5	0.255	38	12
108352A	AWG20/05C	7.2	0.282	46	16
108353A	AWG20/07C	8.8	0.345	65	22
108354A	AWG20/12C	10.8	0.424	103	38
108355A	AWG20/18C	12.8	0.505	153	56
108356A	AWG20/25C	15.0	0.592	206	88
<b>AWG 18 (16/30)</b>					
108401A	AWG18/02C*	6.5	0.254	34	10
108357A	AWG18/03C	6.7	0.263	41	15
108358A	AWG18/04C	7.2	0.285	51	20
108359A	AWG18/05C	7.7	0.305	63	25
108360A	AWG18/07C	9.1	0.360	82	35
108392A	AWG18/09C	11.7	0.460	119	45
108361A	AWG18/12C	12.0	0.473	142	60
108362A	AWG18/18C	13.8	0.543	198	90
108363A	AWG18/25C	16.0	0.630	263	125
<b>AWG 16 (26/30)</b>					
108391A	AWG16/02*	6.9	0.270	41	16
108372A	AWG16/03	7.4	0.290	55	24
108373A	AWG16/04	8.0	0.316	69	32
108374A	AWG16/05	8.7	0.341	84	40
108375A	AWG16/07	10.3	0.406	112	57
108393A	AWG16/09	13.0	0.511	159	73
108376A	AWG16/12	13.8	0.543	198	97
108377A	AWG16/18	15.5	0.610	274	147
108378A	AWG16/25	18.0	0.708	366	204
<b>AWG 14 (41/30)</b>					
108380A	AWG14/03	8.9	0.352	82	38
108381A	AWG14/04	9.8	0.384	103	51
108382A	AWG14/05	10.9	0.430	130	63
108383A	AWG14/07	13.4	0.529	183	89
108389A	AWG14/09	16.3	0.642	246	115
108384A	AWG14/12	16.9	0.665	307	153
108385A	AWG14/18	19.7	0.774	433	230
108386A	AWG14/25	23.7	0.935	598	320

# LUTZE Single Conductor Hook Up Wire, Multi-Norm

## Flexible Single Conductor Hook Up Wire with UL/CE/MTW and HAR Approvals



### Application

- Multi-rated single-conductor cable for wiring of cabinets and use in electrical and electronic equipment
- Suited for use in Europe (HAR) and North America (UL MTW)
- MTW for machine tool wiring

### Characteristics

- Fine stranding class 5, per VDE 0295
- Very flexible for easy installation
- Talc and silicone free

### Technical Data

Voltage	H05V2-K 300/500V, H07V2-K 450/750V, 600V MTW 600V 105C AWM
Test voltage	3000V
Bending radius min	Fixed: 5 x cable OD
Temperature range	Flexible -5°C - +105°C Fixed -40°C - + 105°C H05/H07 up to +90°C
Conductor stranding	Fine wire, tinned copper per VDE 0295 class 5, IEC 60228 class 5
Insulation resistance	20MΩ x km
Burning behavior	Flame retardant per UL VW-1, IEC 60332-1
Approvals	HAR: HD 21.3 S3 - H05V-K (≤ AWG 18) - H07V-K (≥ AWG 16) UL 1063 MTW Listed UL AWM 1015 RoHS, REACH, TSCA
Put ups	<b>AWG 19 – AWG 12</b> 100m (328ft) carton or ring 500m (1,640ft) reel upon request <b>AWG 10 and larger</b> Cuts of any length up to 1,000m (3,280ft) reel

### Construction

- Metric conductor
- Flexible stranded tinned copper conductors
- PVC insulation according to UL 1581, class 43 heat and humidity resistant
- Conditionally resistant to oils, solvents, acids and bases

More colors and sizes upon request. Please contact us for information!

Specifications are subject to change without prior notice

Part No.	Description Color	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 19 / 0.75 mm<sup>2</sup></b>					
<b>H05V2-K</b>					
A61900	Green/Yellow	2.7	0.106	9	5
A61901	Black	2.7	0.106	9	5
A61902	Blue	2.7	0.106	9	5
A61903	Brown	2.7	0.106	9	5
A61904	Red	2.7	0.106	9	5
A61914	Dark Blue	2.7	0.106	9	5
<b>AWG 18 / 1.0 mm<sup>2</sup></b>					
<b>H05V2-K</b>					
A61800	Green/Yellow	2.9	0.114	10	6
A61801	Black	2.9	0.114	10	6
A61802	Blue	2.9	0.114	10	6
A61803	Brown	2.9	0.114	10	6
A61804	Red	2.9	0.114	10	6
A61814	Dark Blue	2.9	0.114	10	6
A61844	White/Blue	2.9	0.114	10	6
<b>AWG 16 / 1.5 mm<sup>2</sup></b>					
<b>H07V2-K</b>					
A61600	Green/Yellow	3.3	0.130	14	10
A61601	Black	3.3	0.130	14	10
A61602	Blue	3.3	0.130	14	10
A61603	Brown	3.3	0.130	14	10
A61604	Red	3.3	0.130	14	10
A61605	White	3.3	0.130	14	10
A61609	Orange	3.3	0.130	14	10
A61614	Dark Blue	3.3	0.130	14	10
A61615	Blue/White	3.3	0.130	14	10
A61644	White/Blue	3.3	0.130	14	10
<b>AWG 14 / 2.5 mm<sup>2</sup></b>					
<b>H07V2-K</b>					
A61400	Green/Yellow	3.7	0.145	21	16
A61401	Black	3.7	0.145	21	16
A61402	Blue	3.7	0.145	21	16
A61403	Brown	3.7	0.145	21	16
A61404	Red	3.7	0.145	21	16
A61405	White	3.7	0.145	21	16
A61414	Dark Blue	3.7	0.145	21	16
<b>AWG 12 / 4.0 mm<sup>2</sup></b>					
<b>H07V2-K</b>					
A61200	Green/Yellow	4.3	0.169	31	25
A61201	Black	4.3	0.169	31	25
<b>AWG 10/ 6.0 mm<sup>2</sup></b>					
<b>H07V2-K</b>					
A61000	Green/Yellow	4.8	0.189	44	39
A61001	Black	4.8	0.189	44	39
<b>AWG 8 / 10 mm<sup>2</sup></b>					
<b>H07V2-K</b>					
A60800	Green/Yellow	6.8	0.267	76	64
A60801	Black	6.8	0.267	76	64

# LUTZE Single Conductor Hook Up Wire, Multi-Norm

## Flexible Single Conductor Hook Up Wire with UL/CE/MTW and HAR Approvals



### Application

- Multi-rated single-conductor cable for wiring of cabinets and use in electrical and electronic equipment
- Suited for use in Europe (HAR) and North America (UL MTW)
- MTW for machine tool wiring

### Characteristics

- Fine stranding class 5, per VDE 0295
- Very flexible for easy installation
- Talc and silicone free

### Technical Data

Voltage	H05V2-K 300/500 V, H07V2-K 450/750 V, 600V 90C MTW 600V 105C AWM
Test voltage	3000V
Bending radius min	Fixed: 5 x cable OD
Temperature range	Flexible -5°C - +105°C Fixed -40°C - + 105°C H05/H07 up to +90°C
Conductor stranding	Fine wire, tinned copper per VDE 0295 class 5, IEC 60228 class 5
Insulation resistance	20MΩ x km
Burning behavior	Flame retardant per UL VW-1, IEC 60332-1 HAR: HD 21.3 S3 - H05V-K (≤ AWG 18) - H07V-K (≥ AWG 16)
Approvals	UL 1063 MTW Listed UL AWM 1015 RoHS, REACH, TSCA
Put ups	<b>AWG 19 – AWG 12</b> 100m (328ft) carton or ring 500m (1,640ft) reel upon request <b>AWG 10 and larger</b> Cuts of any length up to 1,000m (3,280ft) reel

Part No.	Description Color	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 6 / 16 mm<sup>2</sup> X07V2-K</b>					
<b>A60600</b>	Green/Yellow	8.6	0.338	126	103
<b>A60601</b>	Black	8.6	0.338	126	103
<b>AWG 4 / 25 mm<sup>2</sup> H07V2-K</b>					
<b>A60400</b>	Green/Yellow	10.0	0.394	180	161
<b>A60401</b>	Black	10.0	0.394	180	161
<b>AWG 2 / 35 mm<sup>2</sup> H07V2-K</b>					
<b>A60200</b>	Green/Yellow	11.0	0.433	247	225
<b>A60201</b>	Black	11.0	0.433	247	225
<b>AWG 1 / 50 mm<sup>2</sup> X07V2-K</b>					
<b>A60100</b>	Green/Yellow	14.0	0.551	347	322
<b>A60101</b>	Black	14.0	0.551	347	322
<b>AWG 2/0 / 70 mm<sup>2</sup> X07V2-K</b>					
<b>A67000</b>	Green/Yellow	15.6	0.614	475	452
<b>A67001</b>	Black	15.6	0.614	475	452
<b>AWG 3/0 / 95 mm<sup>2</sup> X07V2-K</b>					
<b>A69500</b>	Green/Yellow	17.8	0.701	629	613
<b>A69501</b>	Black	17.8	0.701	629	613

### Construction

- Metric conductor
- Flexible stranded tinned copper conductors
- PVC insulation according to UL 1581, class 43 heat and humidity resistant
- Conditionally resistant to oils, solvents, acids and bases

More colors and sizes upon request. Please contact us for information!

Specifications are subject to change without prior notice

# LUTZE MOTIONFLEX® TRAY-ER TPE, Unshielded

## Flexing Control Cable for Linear and Twisting Motion Applications



### Application

- Multi-conductor cable suitable for continuous motion applications with repetitive movement, linear flexing, and torsional stress
- Compatible with all major drag chain brands
- Compliant with NFPA 79 for wiring of industrial machinery
- TC-ER for use in cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Highly flexible conductor design
- Specially formulated jacket for oil resistance and easy strip
- Cutting oil resistant - mineral & bio/vegetable based oils *specifically tested with plant based cutting oil*
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C WTTC 600V MTW 600V 105C AWM
Temperature range	Moving -5°C - +90°C Fixed -40°C - +105°C
Bending radius min	Moving 10 x cable OD Fixed 4 x cable OD
Torsion angle max.	+/- 180° / 1m cable length
Conductor marking	Black with white numbers and one green/yellow ground *2C no ground included
Oil resistance	Oil Res I, Oil Res II
Approvals	UL Type TC-ER *2C UL Type TC WTTC UL/AWM/CE AWM 21270 (UL) Type MTW or DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC, CIC FT4 UL 1277 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class M flexible fine wire stranded bare copper conductors
- Special low friction PVC/Nylon insulation
- Oil resistant TPE 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
<b>AWG 18 (41/34)</b>					
A4221802	AWG18/02C*	6.8	0.270	38	11
A4221803	AWG18/03C	7.2	0.284	46	16
A4221804	AWG18/04C	7.7	0.304	56	21
A4221805	AWG18/05C	8.3	0.329	63	26
A4221807	AWG18/07C	9.5	0.377	90	37
A4221812	AWG18/12C	11.3	0.447	133	63
<b>AWG 16 (65/34)</b>					
A4221602	AWG16/02C*	7.7	0.305	47	16
A4221603	AWG16/03C	8.2	0.324	60	25
A4221604	AWG16/04C	8.8	0.349	74	33
A4221605	AWG16/05C	9.6	0.378	91	41
A4221607	AWG16/07C	11	0.435	125	58
A4221612	AWG16/12C	13.2	0.520	185	99
<b>AWG 14 (104/34)</b>					
A4221403	AWG14/03C	8.7	0.343	79	40
A4221404	AWG14/04C	9.4	0.370	99	53
A4221405	AWG14/05C	10.2	0.405	120	66
A4221407	AWG14/07C	11.9	0.470	170	92
A4221412	AWG14/12C	15.1	0.595	284	157
<b>AWG 12 (168/34)</b>					
A4221203	AWG12/03C	10.7	0.423	114	63
A4221204	AWG12/04C	11.6	0.460	166	84
A4221205	AWG12/05C	12.7	0.501	179	105
A4221207	AWG12/07C	15.7	0.620	270	147
<b>AWG 10 (259/34)</b>					
A4221004	AWG10/04C	14.5	0.573	225	131
A4221005	AWG10/05C	15.9	0.626	285	163

Specifications are subject to change without prior notice

# LUTZE MOTIONFLEX® (C) TRAY-ER TPE, Shielded

## Flexing Control Cable for Linear and Twisting Motion Applications



### Application

- Shielded multi-conductor cable suitable for continuous motion applications with repetitive movement, linear flexing, and torsional stress
- Compatible with all major drag chain brands
- Compliant with NFPA 79 for wiring of industrial machinery
- TC-ER for use in cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Highly flexible conductor design
- Specially formulated jacket for oil resistance and easy strip
- Cutting oil resistant - mineral & bio/vegetable based oils *specifically tested with plant based cutting oil*
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C WTTC 600V MTW 600V 105C AWM
Temperature range	Moving -5°C - +90°C Fixed -40°C - +105°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Torsion angle max.	+/- 130° / 1m cable length
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res I, Oil Res II
Approvals	UL Type TC-ER WTTC UL/AWM/CE AWM 21270 (UL) Type MTW or DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC, CIC FT4 UL 1277 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class M flexible fine wire stranded bare copper conductors
- Special low friction PVC/Nylon insulation
- Tinned copper braid shield with >80% coverage
- Oil resistant TPE jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 18 (41/34)</b>					
A4211803	AWG18/03C	7.8	0.310	59	26
A4211804	AWG18/04C	8.3	0.330	70	32
A4211805	AWG18/05C	9.0	0.354	83	39
A4211807	AWG18/07C	10.2	0.405	110	52
A4211812	AWG18/12C	12.0	0.475	153	85
<b>AWG 16 (65/34)</b>					
A4211603	AWG16/03C	8.6	0.340	79	42
A4211604	AWG16/04C	9.4	0.370	91	47
A4211605	AWG16/05C	10.2	0.400	113	61
A4211607	AWG16/07C	11.6	0.460	167	76
A4211612	AWG16/12C	14.7	0.580	237	132
<b>AWG 14 (104/34)</b>					
A4211403	AWG14/03C	9.4	0.370	95	53
A4211404	AWG14/04C	10	0.395	116	68
A4211405	AWG14/05C	10.9	0.430	140	83
A4211407	AWG14/07C	12.7	0.500	199	119
A4211412	AWG14/12C	15.9	0.625	307	191
<b>AWG 12 (168/34)</b>					
A4211203	AWG12/03C	11.3	0.445	133	80
A4211204	AWG12/04C	12.3	0.485	168	104
A4211205	AWG12/05C	14.2	0.560	224	132
A4211207	AWG12/07C	16.5	0.650	307	180
<b>AWG 10 (259/34)</b>					
A4211004	AWG10/04C	15.3	0.604	263	151
A4211005	AWG10/05C	16.6	0.657	345	219

# LUTZE SUPERFLEX® N PVC, Unshielded

## High Flexing Control Cable for Continuous Motion Applications



### Application

- Suitable for control, monitoring and instrumentation applications with continuous flexing cycles
- For flexing applications such as drag chains and other applications where linear flexing occurs
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Extremely small cable ODs due to special TPE High Glide insulation compliant with UL
- TPE/PVC combination for high performance flexing and longer cable runs
- Very flexible with superfine stranding
- Specially formulated PVC jacket per UL Class 43
- Non-wicking fillers
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe and rot resistant
- UV resistant
- Dry and wet conditions
- Talc and silicone free

### Technical Data

Voltage	600V 105C AWM
Test voltage	3000V
Insulation resistance	Min 100 MΩ x km
Temperature range	Moving -15°C - +90°C Fixed -40°C - +105°C
Bending radius min	Moving 7.5 x cable OD Fixed 4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground *no ground included
Burning behavior	Flame retardant per UL VW-1, DIN EN 50265-2-1 FT1
Oil resistance	4D100C, UL Oil res 80°C and DIN EN 60811-2-1
Approvals	cUL AWM Style 2586 CE RoHS, REACH, TSCA

### Construction

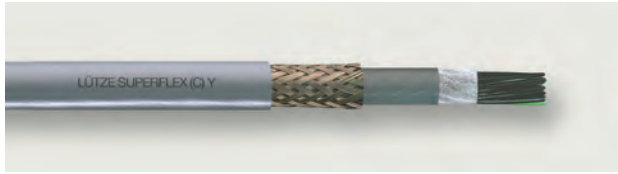
- Metric conductor
- Bare copper super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor
- Optimized construction for flexing applications
- Conductors cabled with fleece wrap
- Special high strength PVC jacket per UL class 43 / VDE 0207 TM5, oil resistant
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 21 / 0.5 mm<sup>2</sup></b>					
A1482003	3G0.5	5.2	0.205	29	10
A1482004	4G0.5	5.6	0.220	34	13
A1482005	5G0.5	6.1	0.240	42	16
A1482007	7G0.5	7.2	0.283	58	23
A1482012	12G0.5	8.6	0.339	83	39
A1482018	18G0.5	10.3	0.406	125	58
A1482025	25G0.5	12.6	0.496	177	80
<b>AWG 18 / 1.0 mm<sup>2</sup></b>					
A1481802	2x1.0*	5.7	0.224	34	13
A1481803	3G1.0	6.1	0.240	44	19
A1481804	4G1.0	6.7	0.264	53	26
A1481805	5G1.0	7.2	0.283	65	32
A1481807	7G1.0	8.5	0.335	92	45
A1481812	12G1.0	10.6	0.417	141	77
A1481818	18G1.0	12.7	0.500	211	116
A1481825	25G1.0	15.3	0.602	291	161
A1481834	34G1.0	17.4	0.685	392	218
<b>AWG 16 / 1.5 mm<sup>2</sup></b>					
A1481603	3G1.5	7.0	0.276	59	28
A1481604	4G1.5	7.7	0.303	73	38
A1481605	5G1.5	8.4	0.331	90	47
A1481607	7G1.5	10.2	0.402	132	66
A1481612	12G1.5	12.7	0.500	203	113
A1481618	18G1.5	14.8	0.583	294	169
A1481625	25G1.5	18.2	0.717	417	235
<b>AWG 14 / 2.5 mm<sup>2</sup></b>					
A1481404	4G2.5	8.6	0.339	102	62
A1481405	5G2.5	9.7	0.382	132	77
A1481407	7G2.5	11.9	0.469	194	108
<b>AWG 12 / 4 mm<sup>2</sup></b>					
A1481204	4G4	11.0	0.433	180	112
A1481207	7G4	15.0	0.591	328	195

# LUTZE SUPERFLEX® N (C) PVC, Shielded

## High Flexing Control Cable for Continuous Motion Applications



### Application

- Shielded multi-conductor high flexing cable suitable for control, monitoring and instrumentation applications with continuous flexing in drag chains
- Machine tools, gantry robots, conveyors and other continuous motion applications in industrial environments
- For flexing applications such as drag chains and other applications where linear flexing occurs
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Extremely small cable ODs due to special TPE High Glide insulation compliant with UL
- Sub-jacket for increased flex life in high performance flexing and long cable runs
- Very flexible with superfine stranding
- Specially formulated PVC jacket per UL Class 43
- Non-wicking fillers
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe and rot resistant
- UV resistant
- Dry and wet conditions
- Talc and silicone free

### Technical Data

Voltage	600V 105C AWM
Test voltage	3000V
Insulation resistance	Min 100MΩ x km
Temperature range	Moving -15°C - +90°C Fixed -40°C - +105°C
Bending radius min	Moving 10 x cable OD Fixed 6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Burning behavior	Flame retardant per UL VW-1, DIN EN 50265-2-1 FT1
Oil resistance	4D100C, UL Oil res 80°C and DIN EN 60811-2-1
Approvals	cUL AWM Style 2586 CE RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor
- Optimized construction for flexing applications
- Conductors cabled with fleece wrap
- PVC sub-jacket
- Tinned copper braid shield
- Special high strength PVC jacket per UL Class 43 / VDE 0207 TM5, oil resistant
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 21 / 0.5 mm<sup>2</sup></b>					
A1492003	(3G0.5)	6.7	0.264	53	19
A1492004	(4G0.5)	7.1	0.280	60	23
A1492005	(5G0.5)	7.8	0.307	74	28
A1492007	(7G0.5)	9.0	0.354	98	37
A1492012	(12G0.5)	10.9	0.429	141	56
A1492018	(18G0.5)	12.5	0.492	194	121
A1492025	(25G0.5)	14.7	0.579	259	164
<b>AWG 18 / 1.0 mm<sup>2</sup></b>					
A1491803	(3G1.0)	7.7	0.303	74	31
A1491804	(4G1.0)	8.4	0.331	89	39
A1491805	(5G1.0)	9.0	0.354	105	46
A1491807	(7G1.0)	10.9	0.429	151	62
A1491812	(12G1.0)	12.9	0.508	213	101
A1491818	(18G1.0)	14.7	0.579	293	145
A1491825	(25G1.0)	18.2	0.717	436	220
A1491834	(34G1.0)	20.9	0.823	585	290
<b>AWG 16 / 1.5 mm<sup>2</sup></b>					
A1491603	(3G1.5)	8.8	0.346	98	42
A1491604	(4G1.5)	9.6	0.378	118	53
A1491605	(5G1.5)	10.7	0.421	147	66
A1491607	(7G1.5)	12.4	0.488	201	90
A1491612	(12G1.5)	14.7	0.579	285	143
A1491618	(18G1.5)	17.1	0.673	369	212
A1491625	(25G1.5)	21.2	0.835	409	308
<b>AWG 14 / 2.5 mm<sup>2</sup></b>					
A1491404	(4G2.5)	11.0	0.433	146	63
A1491405	(5G2.5)	12.0	0.472	200	100
A1491407	(7G2.5)	14.0	0.551	271	134
<b>AWG 12 / 4 mm<sup>2</sup></b>					
A1491204	(4G4)	13.2	0.520	254	136

# LUTZE SUPERFLEX® Plus 3000/4000 PUR, Unshielded

## High Flexing Control Cable for Continuous Motion Applications



### Application

- Multi-conductor cable for robots, handling equipment, machine tools, drag chains and applications with extremely rough operating conditions
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chains brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Superfine stranding per Class 6 for continuous moving applications
- Extremely small cable ODs due to special TPE High Glide insulation compliant with UL
- Reduced friction
- Highest level of resistance against cooling fluids, greases and oils
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- Dry and wet conditions
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	300/1000V 90C AWM
Temperature range	Moving -25°C - +90°C Fixed -40°C - +90°C
Bending radius min	Moving 7.5 x cable OD Fixed 4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground; *no ground included
Insulation resistance	Min 100MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM 21209 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor  
x: without ground conductor
- Optimized construction for flexing applications
- Conductors cabled with fleece wrap
- Extremely oil resistant PUR jacket
- Gray jacket similar to RAL 7001

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### 3000 Series - 300V

AWG 21 / 0.5 mm <sup>2</sup>					
113032	2x0.5*	4.8	0.189	20	6
113033	3G0.5	5.0	0.197	24	10
113034	4G0.5	5.4	0.213	29	13
113035	5G0.5	5.8	0.228	33	16
113036	7G0.5	6.7	0.264	44	23
113037	12G0.5	8.0	0.315	66	40
113038	18G0.5	9.3	0.366	91	59
113039	25G0.5	11.0	0.433	122	88
AWG 18 / 1.0 mm <sup>2</sup>					
113049	2x1.0*	5.6	0.220	28	13
113050	3G1.0	5.9	0.232	36	20
113051	4G1.0	6.4	0.252	45	26
113052	5G1.0	7.0	0.276	54	32
113053	7G1.0	8.2	0.323	73	46
113054	12G1.0	9.8	0.386	113	80
113055	18G1.0	11.4	0.449	180.9	121
113056	25G1.0	13.6	0.535	227.1	175

### 4000 Series - 1000V

AWG 18 / 1.0 mm <sup>2</sup>					
113100	2x1.0*	6.0	0.236	30	13
113101	3G1.0	6.3	0.248	39	19
113102	4G1.0	6.9	0.272	48	26
113103	5G1.0	7.5	0.295	58	32
113104	7G1.0	8.7	0.342	77	46
113105	12G1.0	10.3	0.405	119	80
113106	18G1.0	11.9	0.469	189	120
113107	25G1.0	14.7	0.579	255	176
AWG 16 / 1.5 mm <sup>2</sup>					
113108	2x1.5*	7.0	0.276	42	19
113109	3G1.5	7.3	0.287	53	29
113110	4G1.5	7.9	0.311	67	40
113111	5G1.5	8.6	0.339	81	49
113112	7G1.5	10.3	0.406	113	68
113113	12G1.5	12.1	0.476	173	118
113114	18G1.5	14.1	0.555	255	180
113115	25G1.5	17.4	0.685	346	259
AWG 14 / 2.5 mm <sup>2</sup>					
113117	3G2.5	8.3	0.327	74	47
113118	4G2.5	9.1	0.358	96	65
113119	5G2.5	10.1	0.398	119	82
113120	7G2.5	12.2	0.480	166	115
113121	12G2.5	15.0	0.551	264	198
113122	18G2.5	17.5	0.689	388	290

Specifications are subject to change without prior notice



# LUTZE SUPERFLEX® Plus 3100/4100 (C) PUR, Shielded

## High Flexing Control Cable for Continuous Motion Applications



### Application

- Shielded multi-conductor cable for robots, handling equipment, machine tools, drag chains and applications with extremely rough operating conditions
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chains brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Superfine stranding per Class 6 for continuous moving applications
- Extremely small cable ODs due to special TPE High Glide Insulation compliant with UL
- Reduced friction
- Highest level of resistance against cooling fluids, greases and oils
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe and rot resistant
- Dry and wet conditions
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	300/1000V 90C AWM
Temperature range	Moving -25°C - +90°C Fixed -40°C - +90°C
Bending radius min	Moving 7.5 x cable OD Fixed 5 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Insulation resistance	Min 100MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1, UL VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM 21209 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor
- Optimized construction for flexing applications
- Conductors cabled with fleece wrap
- TPE subjacket for long flex life
- Tinned copper braid shield
- Extremely oil resistant PUR jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### 3100 Series - 300V

#### AWG 21 / 0.5 mm<sup>2</sup>

113070	(3G0.5)	6.6	0.260	39	18
113071	(4G0.5)	7.0	0.276	45	23
113072	(5G0.5)	7.4	0.295	52	26
113073	(7G0.5)	8.3	0.327	64	35
113074	(12G0.5)	9.7	0.382	95	55
113075	(18G0.5)	11.0	0.433	120	89
113076	(25G0.5)	13.1	0.516	157	121

#### AWG 18 / 1.0 mm<sup>2</sup>

113087	(3G1.0)	7.8	0.307	60	31
113088	(4G1.0)	8.3	0.327	70	38
113089	(5G1.0)	9.0	0.354	83	46
113090	(7G1.0)	10.2	0.402	114	70
113091	(12G1.0)	12.1	0.476	166	109
113092	(18G1.0)	13.7	0.539	217.7	158
113093	(25G1.0)	16.0	0.623	295.7	218

### 4100 Series - 1000V

#### AWG 16 / 1.5 mm<sup>2</sup>

113220	(3G1.5)	9.4	0.370	84	42
113221	(4G1.5)	10.0	0.394	100	53
113222	(5G1.5)	11.0	0.433	126	73
113223	(7G1.5)	13.0	0.512	174	99
113224	(12G1.5)	15.2	0.598	248	156
113225	(18G1.5)	17.4	0.685	308	225
113227	(25G1.5)	21.0	0.827	425	331

#### AWG 14 / 2.5 mm<sup>2</sup>

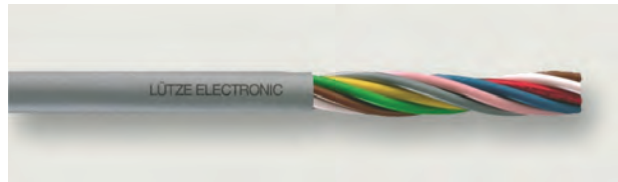
113228	(3G2.5)	10.8	0.425	120	72
113229	(4G2.5)	11.9	0.469	151	91
113230	(5G2.5)	12.9	0.508	181	111
113231	(7G2.5)	15.2	0.598	244	153
113232	(12G2.5)	17.7	0.697	351	243

## 2. Electronic Cables



# LUTZE Electronic PLTC PVC, Unshielded

## Flexible Electronic Cable for Stationary Applications



### Application

- Multi-conductor industrial grade PLTC electronic cable
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, process instrumentation and controls
- Compliant with NFPA 79 requirements
- PLTC for installation in cable trays

### Characteristics

- Flexible for easy installation
- Easy strip design
- Color coded conductors
- Specially formulated jacket for oil resistance
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Premium durability
- Extended temperature range
- Sunlight resistant
- Gas/vapor-tight sheath per UL 13
- Talc and silicone free

### Technical Data

Voltage	300V
Temperature range	-40°C - +105°C
Bending radius min	4 x cable OD
Conductor marking	See tables
Burning behavior	Flame retardant per UL VW-1, FT4
Oil resistance	Oil Res II
Approvals	UL Type PLTC UL Type CM AWM 2464 80C 300V AWM I/II A/B CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 (PLTC Use Only) UL 13 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Flexible fine wire stranded tinned copper conductors
- SR-PVC insulation
- Oil resistant premium PVC jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 22 (19/34)</b>					
A3032202	AWG22/2C	4.4	0.173	17	4
A3032203	AWG22/3C	4.6	0.181	21	7
A3032204	AWG22/4C	4.9	0.194	26	9
A3032206	AWG22/6C	5.7	0.223	33	14
A3032208	AWG22/8C	6.2	0.243	42	19
A3032210	AWG22/10C	7.2	0.283	53	24
A3032215	AWG22/15C	8.1	0.318	70	35
A3032220	AWG22/20C	9.0	0.353	90	47
A3032225	AWG22/25C	10.3	0.407	117	59
<b>AWG 20 (19/32)</b>					
A3032002	AWG20/2C	5.0	0.195	21	7
A3032003	AWG20/3C	5.2	0.204	27	11
A3032004	AWG20/4C	5.6	0.220	33	15
A3032006	AWG20/6C	6.5	0.254	45	22
A3032008	AWG20/8C	7.2	0.282	58	30
A3032010	AWG20/10C	8.2	0.323	72	37
A3032015	AWG20/15C	9.2	0.364	99	56
A3032020	AWG20/20C	10.7	0.420	134	75
A3032025	AWG20/25C	11.7	0.461	163	94
<b>AWG 18 (19/30)</b>					
A3031802	AWG18/2C	5.4	0.213	27	12
A3031803	AWG18/3C	5.7	0.223	35	18
A3031804	AWG18/4C	6.1	0.242	43	24
A3031806	AWG18/6C	7.4	0.291	63	36
A3031808	AWG18/8C	7.9	0.312	79	49
A3031810	AWG18/10C	9.1	0.359	97	61
A3031815	AWG18/15C	10.8	0.427	145	91
A3031820	AWG18/20C	11.9	0.468	185	121
A3031825	AWG18/25C	13.1	0.515	226	152
<b>AWG16 (26/30)</b>					
A3031602	AWG16/2C	6.5	0.257	36	16
A3031603	AWG16/3C	6.9	0.271	48	24
A3031604	AWG16/4C	7.7	0.304	62	32
A3031606	AWG16/6C	9.1	0.357	89	49
A3031608	AWG16/8C	10.3	0.407	119	65
A3031610	AWG16/10C	11.9	0.469	149	81
A3031615	AWG16/15C	13.5	0.532	207	122
A3031620	AWG16/20C	14.9	0.587	264	163
A3031625	AWG16/25C	17.0	0.669	336	204

### Color Code Table AWG 22

1- BK	13- WH/RD
2- BN	14- WH/OG
3- RD	15- WH/YE
4- OG	16- WH/GN
5- YE	17- WH/BU
6- GN	18- WH/VT
7- BU	19- WH/GY
8- VT	20- WH/BK/BN
9- GY	21- WH/BK/RD
10- WH	22- WH/BK/OG
11- WH/BK	23- WH/BK/YE
12- WH/BN	24- WH/BK/GN
	25- WH/BK/BU

### Color Code Table AWG 20, 18 & 16

1- BK	13- RD/GN
2- RD	14- RD/YE
3- WH	15- RD/BK
4- GN	16- WH/BK
5- OG	17- WH/RD
6- BU	18- WH/GN
7- BN	19- WH/YE
8- YE	20- WH/BU
9- VT	21- WH/BN
10- GY	22- WH/OG
11- PK	23- WH/GY
12- TN	24- WH/VT
	25- WH/BK/RD

# LUTZE Electronic PLTC (C) PVC, Shielded

## Flexible Electronic Cable for Stationary Applications



### Application

- Dual-shielded multi-conductor industrial grade PLTC electronic cable
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, process instrumentation and controls
- Compliant with NFPA 79 requirements
- PLTC for installation in cable trays

### Characteristics

- Flexible for easy installation
- Easy strip design
- Color coded conductors
- Specially formulated jacket for oil resistance
- Premium durability
- Extended temperature range
- Sunlight resistant
- Gas/vapor-tight sheath per UL 13
- Talc and silicone free

### Technical Data

Voltage	300V
Temperature range	-40°C - +105°C
Bending radius min	4 x cable OD
Conductor marking	See tables
Burning behavior	Flame retardant per UL VW-1, FT4
Oil resistance	Oil Res II
Approvals	UL Type PLTC UL Type CM AWM 2464 80C 300V AWM II A/B CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 (PLTC Use Only) UL 13 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Flexible fine wire stranded tinned copper conductors
- SR-PVC insulation
- Shielded with foil tape, tinned copper braid and drain wire
- Oil resistant premium PVC jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 22 (19/34)</b>					
A3132202	AWG22/2C	5.0	0.197	27	11
A3132203	AWG22/3C	5.2	0.205	32	15
A3132204	AWG22/4C	5.5	0.218	37	18
A3132206	AWG22/6C	6.3	0.247	47	24
A3132208	AWG22/8C	6.7	0.263	55	30
A3132210	AWG22/10C	7.7	0.303	67	36
A3132215	AWG22/15C	8.6	0.338	88	50
A3132220	AWG22/20C	9.4	0.369	109	62
A3132225	AWG22/25C	10.7	0.423	137	77
<b>AWG 20 (19/32)</b>					
A3132002	AWG20/2C	5.6	0.221	35	17
A3132003	AWG20/3C	5.8	0.230	42	22
A3132004	AWG20/4C	6.2	0.246	48	27
A3132006	AWG20/6C	7.2	0.284	64	37
A3132008	AWG20/8C	7.7	0.302	76	46
A3132010	AWG20/10C	8.7	0.343	91	55
A3132015	AWG20/15C	10.3	0.404	128	76
A3132020	AWG20/20C	11.5	0.454	157	97
A3132025	AWG20/25C	12.2	0.481	189	118
<b>AWG 18 (19/30)</b>					
A3131802	AWG18/2C	5.9	0.233	44	27
A3131803	AWG18/3C	6.2	0.243	53	34
A3131804	AWG18/4C	6.7	0.262	62	41
A3131806	AWG18/6C	7.9	0.311	85	55
A3131808	AWG18/8C	8.4	0.332	102	68
A3131810	AWG18/10C	9.6	0.379	123	83
A3131815	AWG18/15C	11.4	0.447	175	117
A3131820	AWG18/20C	12.4	0.488	217	150
A3131825	AWG18/25C	13.6	0.535	260	182
<b>AWG16 (26/30)</b>					
A3131602	AWG16/2C	7.3	0.288	59	32
A3131603	AWG16/3C	7.7	0.302	68	40
A3131604	AWG16/4C	8.3	0.325	81	49
A3131606	AWG16/6C	9.6	0.378	111	68
A3131608	AWG16/8C	10.9	0.428	143	86
A3131610	AWG16/10C	12.4	0.490	175	105
A3131615	AWG16/15C	14.0	0.553	237	149
A3131620	AWG16/20C	16.0	0.628	308	192
A3131625	AWG16/25C	17.5	0.690	371	236

### Color Code Table AWG 22

1- BK	13- WH/RD
2- BN	14- WH/OG
3- RD	15- WH/YE
4- OG	16- WH/GN
5- YE	17- WH/BU
6- GN	18- WH/VT
7- BU	19- WH/GY
8- VT	20- WH/BK/BN
9- GY	21- WH/BK/RD
10- WH	22- WH/BK/OG
11- WH/BK	23- WH/BK/YE
12- WH/BN	24- WH/BK/GN
	25- WH/BK/BU

### Color Code Table AWG 20, 18 & 16

1- BK	13- RD/GN
2- RD	14- RD/YE
3- WH	15- RD/BK
4- GN	16- WH/BK
5- OG	17- WH/RD
6- BU	18- WH/GN
7- BN	19- WH/YE
8- YE	20- WH/BU
9- VT	21- WH/BN
10- GY	22- WH/OG
11- PK	23- WH/GY
12- TN	24- WH/VT
	25- WH/BK/RD

# LUTZE Electronic PLTC PVC, Shielded

## Flexible Electronic Cable for Stationary Applications



### Application

- Dual-shielded multi-conductor industrial grade PLTC electronic cable
- Machine tools, machine and plant construction, HVAC technology, assembly and production lines, process instrumentation and controls
- Compliant with NFPA 79 requirements
- PLTC for installation in cable trays

### Characteristics

- Flexible for easy installation
- Easy strip design
- Color coded conductors
- Specially formulated jacket for oil resistance
- Premium durability
- Extended temperature range
- Sunlight resistant
- Gas/vapor-tight sheath per UL 13
- Talc and silicone free

### Technical Data

Voltage	300V
Temperature range	-40°C - +105°C
Bending radius min	4 x cable OD
Conductor marking	See tables
Burning behavior	Flame retardant per UL VW-1, FT4
Oil resistance	Oil Res II
Approvals	UL Type PLTC UL Type CM AWM 2464 80C 300V AWM II A/B CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 (PLTC Use Only) UL 13 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Flexible fine wire stranded tinned copper conductors, twisted in pairs
- SR-PVC insulation
- Shielded with foil tape, tinned copper braid and drain wire
- Oil resistant premium PVC jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 22 (19/34)</b>					
A3142202	AWG22/1TP	5.0	0.197	27	12
A3142204	AWG22/2TP	6.6	0.261	42	21
A3142206	AWG22/3TP	6.9	0.273	54	26
A3142208	AWG22/4TP	7.7	0.305	62	31
A3142210	AWG22/5TP	8.3	0.328	71	37
A3142212	AWG22/6TP	9.0	0.353	81	43
A3142216	AWG22/8TP	9.6	0.378	98	54
<b>AWG 20 (19/32)</b>					
A3142002	AWG20/1TP	5.7	0.225	35	18
A3142004	AWG20/2TP	7.6	0.301	55	30
A3142006	AWG20/3TP	8.0	0.315	67	38
A3142008	AWG20/4TP	8.7	0.341	81	47
A3142010	AWG20/5TP	9.3	0.368	95	55
A3142012	AWG20/6TP	10.5	0.413	115	66
A3142016	AWG20/8TP	11.3	0.443	139	84
<b>AWG 18 (19/30)</b>					
A3141802	AWG18/1TP	5.9	0.233	44	27
A3141804	AWG18/2TP	8.4	0.330	72	44
A3141806	AWG18/3TP	8.8	0.348	89	57
A3141808	AWG18/4TP	9.6	0.377	108	71
A3141810	AWG18/5TP	10.9	0.428	135	85
A3141812	AWG18/6TP	11.7	0.462	154	99
A3141816	AWG18/8TP	12.6	0.496	188	125
<b>AWG16 (26/30)</b>					
A3141602	AWG16/1TP	7.3	0.288	61	34
A3141604	AWG16/2TP	10.8	0.425	107	55
A3141606	AWG16/3TP	11.4	0.448	127	72
A3141608	AWG16/4TP	12.3	0.486	155	91
A3141612	AWG16/6TP	14.6	0.573	213	128
A3141616	AWG16/8TP	16.2	0.639	270	162

#### Color Code Table AWG 22 Pair

1-	WH&BK
2-	WH&BN
3-	WH&RD
4-	WH&OG
5-	WH&YE
6-	WH&GN
7-	WH&BU
8-	WH&VT

#### Color Code Table AWG 20, 18 & 16 Pair

1-	BK&RD
2-	BK&WH
3-	BK&GN
4-	BK&BU
5-	BK&BN
6-	BK&YE
7-	BK&OG
8-	RD&GN

# LUTZE Electronic Actuator Sensor PVC, Unshielded

## Flexible Electronic Actuator Sensor Cable for Stationary Applications



### Application

- For the cabling of actuator sensor systems like IO-Link
- Sensors, actuators, digital IO hubs, and field devices used in process instrumentation and controls
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays or exposed runs without conduit
- WTTC – wind turbine tray cable rating for use in wind power generation
- PLTC-ER – power limited tray cable exposed run
- ITC-ER – instrumentation tray cable
- Dry, damp, or wet locations

### Characteristics

- Flexible for easy installation
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277 & 13
- Specially formulated jacket for oil resistance
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Non-wicking fillers
- Sunlight resistant
- Flame retardant
- Direct burial (AWG 18 and larger)
- Talc and silicone free

### Technical Data

Voltage	
AWG 22-20:	300V 90C PLTC-ER 300V 90C ITC-ER 600V MTW 1000V 105C AWM
AWG 18-16:	600V 90C TC-ER-JP 300V 90C PLTC-ER 1000V 90C WTTC 600V MTW
Temperature range	1000V 105C AWM -40°C - +105°C
Bending radius min	4 x cable OD
Conductor marking	See table
Oil resistance	Oil Res II
Approvals	UL/AWM/CE AWM Style 20886 (UL) Type MTW or DP-1 Meets NEC 336, 392, 725, 727 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 UL 1277 & 13 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors
- PVC/Nylon insulation
- Oil resistant PVC jacket
- Yellow jacket similar to Munsell 5y 8.5/12

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 22 (7/30)</b>					
A1022203	AWG22/3C	6.6	0.260	34	7
A1022204	AWG22/4C	7.0	0.276	40	9
A1022205	AWG22/5C	7.6	0.300	48	11
<b>AWG 20 (10/30)</b>					
A1022003	AWG20/3C	6.9	0.271	39	9
A1022004	AWG20/4C	7.4	0.292	47	12
A1022005	AWG20/5C	8.0	0.315	55	16
<b>AWG 18 (19/30)</b>					
A1021803	AWG18/3C	7.5	0.295	51	18
A1021804	AWG18/4C	8.0	0.317	62	24
A1021805	AWG18/5C	8.7	0.345	76	30
<b>AWG16 (26/30)</b>					
A1021603	AWG16/3C	8.1	0.321	62	24
A1021604	AWG16/4C	8.9	0.350	77	32
A1021605	AWG16/5C	9.5	0.375	92	41

### Color Code Table

1-	BU
2-	BK
3-	BN
4-	WH
5-	GY

Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® TRONIC PUR, Unshielded

## High Flexing Electronic Cable for Continuous Motion Applications



### Application

- Multi-conductor cable for robots, handling equipment, machine tools, drag chains and applications with extremely rough operating conditions
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per Class 6 for continuous moving applications
- PUR jacket and TPE conductor insulation for use in extremely harsh operating conditions
- Highest level of resistance against cooling fluids, greases and oils
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe and rot resistant
- Dry, wet and damp conditions
- UV resistant
- Talc and silicone free

### Technical Data

Voltage	300V
Temperature range	Moving -25°C - +80°C
	Fixed -40°C - +80°C
Bending radius min	Moving 10 x cable OD
	Fixed 6 x cable OD
Conductor marking	Color coded per DIN EN 50334 or DIN 47100
Insulation resistance	Min 100MΩ x km
Burning behavior	Flame retardant per
	DIN EN 60332-2-2
	IEC 60332-2-2
	UL 1581
Halogen free	FT-2
	According to
	DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	AWM 20549 80C 300V RoHS, REACH, TSCA

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 24 / 0.25 mm<sup>2</sup></b>					
117039	2x0.25	4.1	0.161	12	3
117040	3x0.25	4.2	0.165	14	5
117041	4x0.25	4.5	0.177	17	7
117042	5x0.25	4.8	0.189	19	8
117043	7x0.25	5.6	0.220	25	11
117044	10x0.25	6.3	0.248	33	16
117028	15x0.25	7.1	0.280	46	24
117046	18x0.25	7.6	0.299	53	29
117047	25x0.25	8.9	0.350	71	40
<b>AWG 22 / 0.34 mm<sup>2</sup></b>					
117048	2x0.34	4.3	0.169	13	6
117049	3x0.34	4.5	0.177	16	7
117050	4x0.34	4.8	0.189	19	9
117051	5x0.34	5.2	0.205	23	11
117052	7x0.34	6.0	0.236	30	15
117053	10x0.34	6.9	0.272	40	20
117029	15x0.34	7.8	0.307	56	30
117056	25x0.34	9.6	0.378	86	52

### Color Code Table

1-	WH	13-	WH/GN
2-	BN	14-	BN/GN
3-	GN	15-	WH/YE
4-	YE	16-	YE/BN
5-	GY	17-	WH/GY
6-	PK	18-	GY/BN
7-	BU	19-	WH/PK
8-	RD	20-	PK/BN
9-	BK	21-	WH/BU
10-	VT	22-	BN/BU
11-	GY/PK	23-	WH/RD
12-	RD/BU	24-	BN/RD
		25-	WH/BK

### Construction

- Metric conductor
- Bare copper super finely stranded per DIN VDE 0295 Class 6 or IEC 60228 Class 6
- TPE conductor insulation
- Layer pitch optimized
- Fleece wrap over cabled conductors
- PUR jacket, matte, adhesion-free surface
- Extremely oil resistant PUR jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® TRONIC (C) PUR, Shielded

## High Flexing Electronic Cable for Continuous Motion Applications



### Application

- Shielded multi-conductor cable for robots, handling equipment, machine tools, drag chains and applications with extremely rough operating conditions
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per Class 6 for continuous moving applications
- PUR jacket and TPE conductor insulation for use in extremely harsh operating conditions
- Highest level of resistance against cooling fluids, greases and oils
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe and rot resistant
- Dry, wet and damp conditions
- UV resistant
- Talc and silicone free

### Technical Data

Voltage	300V
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Conductor marking	Color coded per DIN EN 50334 or DIN 47100
Insulation resistance	Min. 100MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-2-2 IEC 60332-2-2 UL 1581 FT-2
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	AWM 20549 80C 300V RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- Layer pitch optimized
- Fleece wrap over cabled conductors
- Tinned copper braid shield, optical coverage ≥ 85 %
- PUR jacket, matte, adhesion-free surface
- Extremely oil resistant PUR jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG26 / 0.14 mm<sup>2</sup></b>					
117092	(4x0.14)	4.7	0.185	17.5	9.5
117093	(5x0.14)	5.0	0.197	20	11.5
117094	(7x0.14)	5.7	0.224	26	14
117095	(10x0.14)	6.3	0.248	32	19
117096	(12x0.14)	6.5	0.256	36	21
117097	(18x0.14)	7.3	0.287	48	28
<b>AWG 24 / 0.25 mm<sup>2</sup></b>					
117099	(2x0.25)	4.6	0.181	18	9
117100	(3x0.25)	4.7	0.185	20	11
117101	(4x0.25)	5.0	0.197	24	13
117102	(5x0.25)	5.3	0.209	27	15
117103	(7x0.25)	6.1	0.240	34	21
117104	(10x0.25)	6.9	0.272	43	28
117105	(12x0.25)	7.0	0.276	46	36
117106	(18x0.25)	8.0	0.315	65	43
117107	(25x0.25)	9.5	0.374	85	57
<b>AWG 22 / 0.34 mm<sup>2</sup></b>					
117108	(2x0.34)	4.7	0.185	20	10
117109	(3x0.34)	4.9	0.193	23	13
117110	(4x0.34)	5.3	0.209	27	16
117111	(5x0.34)	5.6	0.220	31	19
117112	(7x0.34)	6.5	0.256	39	25
117113	(10x0.34)	7.3	0.287	50	34
117124	(15x0.34)	8.2	0.323	68	50
117115	(18x0.34)	8.6	0.339	77	54
117116	(25x0.34)	10.2	0.402	107	77

### Color Code Table

1-	WH	13-	WH/GN
2-	BN	14-	BN/GN
3-	GN	15-	WH/YE
4-	YE	16-	YE/BN
5-	GY	17-	WH/GY
6-	PK	18-	GY/BN
7-	BU	19-	WH/PK
8-	RD	20-	PK/BN
9-	BK	21-	WH/BU
10-	VT	22-	BN/BU
11-	GY/PK	23-	WH/RD
12-	RD/BU	24-	BN/RD
		25-	WH/BK



# LUTZE SUPERFLEX® TRONIC (C) PUR TP, Shielded

## High Flexing Electronic Cable for Continuous Motion Applications



### Application

- Shielded multi-conductor cable for robots, handling equipment, machine tools, drag chains and applications with extremely rough operating conditions
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per Class 6 for continuous moving applications
- PUR jacket and TPE conductor insulation for use in extremely harsh operating conditions
- Highest level of resistance against cooling fluids, greases and oils
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe and rot resistant
- Dry, wet and damp conditions
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	300V
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Conductor marking	Color coded per DIN EN 50334 or DIN 47100 for twisted pairs
Insulation resistance	Min 100MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-2-2 IEC 60332-2-2 UL 1581 FT-2
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	AWM 20549 80C 300V RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- Layer pitch optimized
- Fleece wrap over cabled conductors
- Tinned copper braid shield, optical coverage ≥ 85 %
- PUR jacket, matte, adhesion-free surface
- Extremely oil resistant PUR jacket
- Gray jacket similar to RAL 7001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 24 / 0.25 mm<sup>2</sup></b>					
117170	(2x2x0.25)	6.2	0.244	30	15
117171	(3x2x0.25)	6.5	0.256	34	19
117172	(4x2x0.25)	6.8	0.268	38	23
117173	(5x2x0.25)	7.7	0.303	49	27
117177	(6x2x0.25)	8.1	0.319	54	32
117174	(8x2x0.25)	9.4	0.370	75	40
117175	(10x2x0.25)	10.5	0.413	83	53
117176	(12x2x0.25)	10.8	0.425	95	61
<b>AWG 22 / 0.34 mm<sup>2</sup></b>					
117180	(2x2x0.34)	6.5	0.256	32	17
117181	(3x2x0.34)	6.8	0.268	39	23
117182	(4x2x0.34)	7.4	0.291	47	28
117185	(8x2x0.34)	10.0	0.394	87	56
<b>AWG 21 / 0.5 mm<sup>2</sup></b>					
117190	(2x2x0.5)	7.1	0.280	40	23
117191	(3x2x0.5)	7.5	0.295	48	30
117303	(4x2x0.5)	8.3	0.327	59	38
117193	(6x2x0.5)	9.9	0.390	91	54
<b>AWG 19 / 0.75 mm<sup>2</sup></b>					
117199	(2x2x0.75)	8.3	0.327	56	32
117202	(4x2x0.75)	9.7	0.382	86	55

### Color Code Table

1-	WH&BN
2-	GN&YE
3-	GY&PK
4-	BU&RD
5-	BK&VT
6-	GY/PK&RD/BU
7-	WH/GN&BN/GN
8-	WH/YE&YE/BN
9-	WH/GY&GY/BN
10-	WH/PK&PK/BN
11-	WH/BU&BN/BU
12-	WH/RD&BN/RD

# LUTZE SUPERFLEX® TRONIC AS PUR, Unshielded

## High Flexing Actuator Sensor Cable for Continuous Motion Applications



### Application

- Termination cable for actuator sensor applications
- For continuous flexing use in drag chains or free movement in automation technology, transport and conveyor technology, machine tool manufacturing
- Full PUR jacket and TPE conductor insulation optimally suited for extremely harsh operating conditions, aggressive coolants and lubricants
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Very good alternating bending strength
- Good pressure and flexing stability
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- Weathering, ozone and UV resistant
- Salt water resistant
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzenes and kerosene
- Talc and silicone free

### Technical Data

Voltage	300V
Test voltage	3000V
Insulation resistance	Min. 100MΩ x km
Temperature range	Moving -20°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 7.5 x cable OD Fixed 4 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-2-2 UL 1581 section VW-1 FT2
Halogen free	According to DIN EN 60754-1
Oil Resistant	UL 758 UL 4D100C DIN EN 60811-404
Approvals	UL AWM 20549 80C 300V RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor  
X: without ground conductor
- Conductors color coded per EN 60947-5-2
- Layer pitch optimized
- Fleece wrap over cabled conductors
- PUR jacket, matte, adhesion-free surface
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG22 / 0.34 mm<sup>2</sup></b>					
117243.2000	3x0.34 BN, BU, BK	4.2	0.165	15	6.6
117244.2000	4x0.34 BN, WH, BU, BK	4.5	0.177	18	8.8
117245.2000	5x0.34 BN, WH, BU, BK, GY	4.9	0.193	22	11

### With Power Supply Conductors

110872.2000	3G1.0+8x0.34 1.0: BN, BU, GNYE 0.34: WH, BK, GN, YE, GY, PK, VT, RD	8.2	0.323	67	37
110874.2000	3G1.0+16x0.34 1.0: BN, BU, GNYE 0.34: WH, GN, YE, GY, PK, RD, BK, VT, GYPK, RDBU, WHGN, BNGN, WHYE, YEBN, WHGY, GYBN	9.7	0.382	91	54

"Extra rugged actuator sensor cable for use in continuous motion applications such as drag chains".



# LUTZE SUPERFLEX® TRONIC AS (C) PUR, Shielded

## High Flexing Actuator Sensor Cable for Continuous Motion Applications



### Application

- Shielded termination cable for actuator sensor applications
- For continuous flexing use in drag chains or free movement in automation technology, transport and conveyor technology, machine tool manufacturing
- Full PUR jacket and TPE conductor insulation optimally suited for extremely harsh operating conditions, aggressive coolants and lubricants
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- High active and passive interference resistance (EMC)
- Very good alternating bending strength
- Good pressure and flexing stability
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- Weathering, ozone and UV resistant
- Salt water resistant
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzenes and kerosene
- Talc and silicone free

### Technical Data

Voltage	300V
Test voltage	3000V
Insulation resistance	Min. 100MΩ x km
Temperature range	Moving -20°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-2-2 UL 1581 section VW-1 FT2
Halogen free	According to DIN EN 60754-1
Oil resistant	UL 758 UL 4D100C DIN EN 60811-404
Approvals	AWM 20549 80C 300V RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- Conductors color coded per EN 60947-5-2
- Layer pitch optimized
- Fleece wrap over cabled conductors
- Tinned copper braid shield, optical coverage ≥ 85 %
- PUR jacket, matte, adhesion-free surface
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG22 / 0.34 mm<sup>2</sup></b>					
<b>117253.2000</b>	(3x0.34) BN, BU, BK	4.8	0.189	24	13
<b>117254.2000</b>	(4x0.34) BN, WH, BU, BK	5.1	0.201	26	16
<b>117255.2000</b>	(5x0.34) BN, WH, BU, BK, GY	5.5	0.217	31	19

“Extra rugged actuator sensor cable for use in continuous motion applications such as drag chains”.





### 3. Bus and Network Cables



# LUTZE PROFIBUS (C) PVC, Shielded

## Flexible PROFIBUS Cable for Stationary Applications



### Application

- For the cabling of industrial field bus systems like PROFIBUS DP, F.I.P.
- With solid conductor AWG22/1 for hard wiring or with stranded conductor for flexible use in stationary applications
- Automation technology, transport and conveyor technology, machine tool manufacturing
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Talc and silicone free

### Technical data

Voltage	300V 600V AWM
Test voltage	1,500V, 50Hz
Impedance	150Ω ± 15Ω
Loop resistance	Solid 22/1 <110Ω/km Flexible 24/7 <175.2Ω/km
Operating capacitance	Nominal 30pF/m
Temperature range	Moving -10°C - +70°C Fixed -40°C - +75°C
Bending radius min	Moving 15 x cable OD Fixed 7.5 x cable OD
Burning behavior	Flame retardant per FT4, UL 1685, IEC 60332-3-24
Approvals	CMG 75C AWM 21694 60C 600V Meets NEC 392, 800 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Bare copper wire
- Conductor insulation special polyolefin
- Stranding with filler
- Foil shield
- Tinned copper braid shield, optical coverage 85% (104293 inner jacket and 70% optical coverage)
- Special thermoplastic on PVC basis
- Violet jacket similar to RAL 4001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### PROFIBUS, Flexible UL/CMG/AWM 21694 600V

104344	(1x2xAWG24/7) RD, GN	8.0	0.315	44	17
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### PROFIBUS, Fast Connect UL/CMG/AWM 20201 600V

104293	(1x2xAWG22/1) RD, GN	7.8	0.307	50	20
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# LUTZE SUPERFLEX® PROFIBUS (C) PUR, Shielded

## High Flexing PROFIBUS Cable for Continuous Motion Applications



### Application

- For the cabling of industrial field bus systems like PROFIBUS DP, SINEC L2, F.I.P.
- For continuous flexing applications in drag chain or free movement in automation technology, transport and conveyor technology, machine tool manufacturing
- Compatible with all major drag chain brands
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	1,500V, 50Hz
Impedance	150Ω ± 15Ω
Loop resistance	<165Ω/km
Operating capacitance	<30pF/m
Temperature range	Moving -30°C - +70°C Fixed -40°C - +80°C
Bending radius min	Moving 7.5 x cable OD Fixed 5 x cable OD Moving Fast Connect 15 x cable OD Fixed Fast Connect 7.5 x cable OD
Burning behavior	Flame retardant per FT1, UL 1581 VW-1 IEC 60332-1
Approvals	CMX 75C AWM 21198 80C 300V Meets NEC 392, 800 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Bare copper wire
- Conductor insulation special polyolefin
- Inner jacket versions with fast assembly FC
- Foil shield
- Tinned copper wire braid, optical coverage 85%, (for 104287 70% Conductor insulation)
- Special PUR
- Violet jacket similar to RAL 4001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### PROFIBUS, UL/CMX

104265	(1x2xAWG24/19) RD, GN	8.0	0.315	37	16
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### PROFIBUS, Fast Connect UL/CMX

104287	(1x2xAWG24/19) RD, GN	8.0	0.315	54	20
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### PROFIBUS, ET200 UL/CMX

104275	((1x2xAWG24/19)ST+3x0.75)C RD/GN, BU, BK, GNYE	9.8	0.386	97	44
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# LUTZE CAN Bus (C) PVC, Shielded

## Flexible CAN Bus Cable for Stationary Applications



### Application

- For wiring of industrial field bus systems
- Automation technology, transport and conveyor technology, machine tool manufacturing
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Flexible for easy installation
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	1,500V
Impedance	nom. 120Ω
Loop resistance	AWG24/7 <175.2Ω/km
Operating capacitance	<60pF/m
Temperature range	Moving -10 °C - +70 °C Fixed -40 °C - +75 °C
Bending radius min	Moving 15 x cable OD Fixed 7.5 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1
Approvals	CMX 75C Meets NEC 392, 800 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Bare copper wire
- Conductor insulation special polyolefin
- Conductors twisted pairs, cabled, foil banded
- Tinned copper braid shield, optical coverage 85%
- Jacket special PVC TM2 according to HD21.1, matte, adhesion-free surface
- Violet jacket similar to RAL 4001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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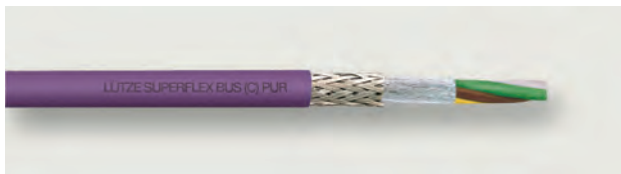
### CAN Bus UL/CMX, 40 m / 131 ft max.

<b>104386</b>	(1x2xAWG24/7) WH/BN	5.7	0.224	29	13
<b>104387</b>	(2x2xAWG24/7) WH/BN, GN/YE	7.4	0.291	46	24



# LUTZE SUPERFLEX® CAN Bus (C) PUR, Shielded

## High Flexing CAN Bus Cable for Continuous Motion Applications



### Application

- For wiring of industrial field bus systems
- For continuous flexing applications in drag chains or free movement in automation technology, transport and conveyor technology, machine tool manufacturing
- Compatible with all major drag chain brands
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	850V
Impedance	nom. 120Ω
Operating capacitance	40pF/m
Temperature range	Moving -30°C - +70°C Fixed -40°C - +75°C
Bending radius min	Moving 15 x cable OD Fixed 7.5 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT 1
Halogen free	According to DIN EN 60754-1
Approvals	CMX 75C Meets NEC 392, 800 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Bare copper wire
- Conductor insulation special polyolefin
- Conductors twisted pairs or star quad cabled, foil banded
- Tinned copper braid shield, optical coverage 85%
- Special PUR jacket, matte, adhesion-free surface
- Violet jacket similar to RAL 4001

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### CAN Bus UL/CMX, 40 m / 131 ft max.

104101	(1x2xAWG24/19) WH/BN	6.5	0.256	32	17
104001	(2x2xAWG24/19) WH/BN, YE/GN	8.4	0.330	50	23

# LUTZE DeviceNet™ BUS (C) PVC, Shielded

## Flexible DeviceNet™ Cable for Stationary Applications



### Application

- For the wiring of industrial sensors, control devices, valves, and other equipment
- Automation technology, transport and conveyor technology, machine tool manufacturing
- Compliant with NFPA 79 requirements

### Characteristics

- 2-pair cable: The pair with the smaller cross section is for the data transmission, the pair with the larger cross section is for the power supply
- High protection against electromagnetic interference (EMI)
- Flexible for easy installation
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	3000V
Impedance	120Ω ± 12Ω
Operating capacitance	< 40pF/m
Temperature range	Moving -10°C - +75°C Fixed -40°C - +75°C
Bending radius min	Moving 10 x cable OD Fixed 5 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL Vertical-Tray FT1
Approvals	CM 75C Meets NEC 392, 800 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Tinned copper wire
- Conductor insulation special polyolefin
- Both pairs shielded with foil shield, 100% coverage and drain wire
- Overall tinned copper braid shield, optical coverage 65%
- Jacket special PVC, matte, adhesion-free surface
- Gray jacket similar to RAL 7001

\*TM registered trademark not associated with LUTZE

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### DeviceNet™ Thick UL/CM, PLTC

<b>104281</b>	((2xAWG18)+(2xAWG16)) AWG16: RD, BK AWG18: WH, BU	12.1	0.480	136	48
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### DeviceNet™ Thin UL/CM, CL2

<b>104280</b>	((2xAWG24)+(2xAWG22)) AWG22: RD, BK AWG24: WH, BU	7.1	0.280	49	18
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# LUTZE SUPERFLEX® DeviceNet™ BUS (C) PUR, Shielded

## High Flexing DeviceNet™ Cable for Continuous Motion Applications



### Application

- For the wiring of industrial devices, sensors and control devices
- For continuous flexing applications in drag chains or free movement in automation technology, transport and conveyor technology, machine tool manufacturing
- Compatible with all major drag chain brands
- Compliant with NFPA 79 requirements

### Characteristics

- 2-pair cable: The pair with the smaller cross section is for data transmission, the pair with the larger cross section is for the power supply
- High protection against electromagnetic interference (EMI)
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	1500V
Impedance	120Ω ± 12Ω
Operating capacitance	< 40pF/m
Temperature range	Moving -20°C - +75°C Fixed -40°C - +75°C
Bending radius min	Moving 10 x cable OD Fixed 5 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT 1
Halogen free	According to DIN EN 60754-1 IEC 60754-1
Approvals	CMX 75C Meets NEC 392, 800 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Tinned copper wire
- Conductor insulation special polyolefin
- Both pairs shielded with foil shield, 100% coverage and drain wire
- Overall tinned copper braid shield 80%
- Jacket special PUR, matte, adhesion-free surface
- Violet jacket similar to RAL 4001

\*TM registered trademark not associated with LUTZE

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>DeviceNet™ Thin UL/CMX</b>					
<b>104289</b>	((2xAWG24)+(2xAWG22)) AWG22: RD, BK AWG24: WH, BU	7.0	0.276	57	19

# LUTZE SINGLE PAIR ETHERNET (C) PVC, Shielded

## Flexible Ethernet Cable for Stationary Applications



### Application

- For the cabling of industrial Single Pair Ethernet systems
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Application in automation and smart sensor technology, transport and conveyor technology, machine tool manufacturing
- Compliant with NFPA 79 requirements
- Designed to IEC 61156-11 (40m) & IEEE 802.3cg (25m)
- PODL compatible

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>Industrial Single Pair Ethernet, Teal</b>					
<b>A1040295</b>	(1x2xAWG22/7) CMG, PLTC, AWM 21695 600V <b>1000BASE-T1</b> BU/WH	5.8	0.228	29.5	13.4

### Characteristics

- High protection against electromagnetic interference (EMI)
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	2000V
Impedance	100Ω ± 10Ω
Loop resistance	AWG22/7 = 0.34 <sup>2</sup> <110Ω/km
Operating capacitance	< 50pF/m
Temperature range	Moving -10°C - +70°C Fixed -40°C - +80°C
Bending radius min	Moving 8 x Cable OD Fixed 4 x Cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-3-24 UL 1685
Approvals	CMG 75C PLTC AWM 21695 80C 600V Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Bare copper wire
- Conductor insulation special polyolefin
- Foil shield
- Tinned copper braid shield, optical coverage ≥ 85 %
- Oil resistant PVC jacket
- Teal jacket similar to RAL 5018

Specifications are subject to change without prior notice

# LUTZE ETHERNET Light Industrial Duty PVC

## Ethernet Cable for Stationary Applications



### Application

- For the cabling of industrial Ethernet systems
- Cable design for industrial environments and operating conditions with low electrical noise levels
- For interconnection of automated equipment inside the factory environment
- For stationary applications
- Compliant with NFPA 79 requirements

### Characteristics

- Oil, abrasion, and sunlight resistant
- Design and approvals for machine and field level
- Talc and silicone free

### Technical data

Voltage	300V 600V AWM
Test voltage	2000V
Impedance	100Ω ± 10Ω
DC resistance	Max. 9.38Ω/100m
Operating capacitance	< 56pF/m
Temperature range	-40°C - +80°C
Bending radius min	7.5 x cable OD
Burning behavior	Flame retardant per UL 1666 (Riser)
Approvals	CMR 75C CMX Outdoor 75C AWM 21695 80C 600V UL 444 -40°C Cold Bend Meets NEC 392, 800 Sun Res RoHS, REACH, TSCA
AWG specific approvals	
AWG 22:	PLTC Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505

### Construction

- AWG conductor
- Bare copper wire
- Conductor insulation HDPE
- Pairs cabled with cross shaped spline
- A1040001: U/UTP unshielded
- A1040005, A1040006: F/UTP foil shield 100% coverage
- Oil resistant PVC jacket
- Teal jacket similar to RAL 5018

For further information, see Ethernet pages in the Technical Overview

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### Industrial Ethernet/Ethernet IP, Unshielded

<b>A1040001</b>	4x2xAWG23/1 CMX Outdoor, CMR, AWM 21695 600V <b>Cat6, U/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	6.7	0.264	30	13
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### Industrial Ethernet/Ethernet IP, Shielded

<b>A1040005</b>	(4x2xAWG23/1) CMX Outdoor, CMR, AWM 21695 600V <b>Cat6A, F/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	8.0	0.315	43	13
<b>A1040006</b>	(4x2xAWG22/1) PLTC, CMX Outdoor, CMR, AWM 21695 600V <b>Cat6, F/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	9.3	0.368	55	16

# LUTZE ETHERNET (C) PVC, Shielded

## Flexible Ethernet Cable for Stationary Applications



### Application

- For the cabling of industrial Ethernet systems
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Application in automation technology, transport and conveyor technology, machine tool manufacturing
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	1500V
Impedance	100Ω ± 10Ω
Loop resistance	AWG 22/1= 0,34 <sup>2</sup> <110Ω/km
	AWG 24/7= 0,22 <sup>2</sup> <165Ω/km
	AWG 26/7=0.14 <sup>2</sup> <273Ω/km
Operating capacitance	< 50pF/m
Temperature range	Moving -5°C - +70°C Fixed -30°C - +80°C
Bending radius min	Moving 12 x Cable OD Fixed 6 x Cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-3-24 UL 1581 FT4
Approvals	CMG 75C RoHS, REACH, TSCA
Item specific certifications	104336 & 104397: CC-Link IE Field
AWG specific approvals	
AWG 22:	PLTC AWM 600V Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505

### Construction

- AWG conductor
- Bare copper wire
- Tinned copper wire (104307, 104197, 104349)
- Conductor insulation special polyolefin
- Foil shield
- Tinned copper braid shield, optical coverage ≥ 85 %
- Oil resistant PVC jacket
- Green jacket similar to RAL 6018
- Teal jacket similar to RAL 5018

For further information, see Ethernet pages in the Technical Overview

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### Industrial Ethernet/PROFINET/EtherCat, Green

<b>104301</b>	(2x2xAWG22/1) CMG, PLTC, AWM 20201 600V <b>Cat5e, SF/UTQ</b> FC, PROFINET Type A WH/BU, YE/OG	6.5	0.256	44	25
<b>104307</b>	(2x2xAWG22/7) CMG, PLTC, AWM 20201 600V <b>Cat5e, SF/UTQ</b> FC, PROFINET Type B WH/BU, YE/OG	6.5	0.256	44	21

### Industrial Ethernet/Ethernet IP, Green

<b>104335</b>	(4x2xAWG26/7) CMG <b>Cat5e, SF/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	6.3	0.248	37	20
<b>104336</b>	(4x2xAWG24/7) CMG <b>Cat5e, SF/UTP</b> WHBU/BU, WHOG/OG, WH GN/GN, WHBN/BN	7.3	0.287	46	26
<b>104338</b>	(4x(2xAWG26/7)) CMG <b>Cat6A, S/FTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	6.4	0.252	36	22
<b>104397</b>	(4x(2xAWG22/1)) CMG, PLTC, AWM 2570 600V <b>Cat6A, S/FTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	9.6	0.378	65	36
<b>104331</b>	(4x(2xAWG26/7)) CMG <b>Cat7, S/FTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	7.0	0.276	42	22

### Industrial Ethernet/Ethernet IP, Teal

<b>104197</b>	(2x2xAWG22/7) CMR, CMX Outdoor, PLTC, AWM 2570 600V <b>Cat5e, SF/UTP</b> WHGN/GN, WHOG/OG	7.5	0.295	43	20
<b>104349</b>	(4x2xAWG22/7) CMG, CMX Outdoor, PLTC, AWM 2570 600V <b>Cat5e, SF/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	8.6	0.338	62	32
<b>A1040300</b>	(4x(2xAWG22/1)) CMR, CMX Outdoor, PLTC, AWM 2570 600V <b>Cat7, S/FTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	9.6	0.378	65	36

# LUTZE MOTIONFLEX® ETHERNET (C) TPE, Shielded

## Flexing Ethernet Cable for Linear and Twisting Motion Applications



### Application

- For the cabling of industrial Ethernet systems
- Cable design for harsh industrial environments and operating conditions with high noise levels.
- Automation technology, material handling, conveyor technology, and industrial machinery
- Suitable for motion applications with repetitive movement, flexing, and torsional stress
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Oil, abrasion, and sunlight resistant
- Ecolab certified resistance to common cleaning agents and chemicals used in washdown procedures
- Design and approvals for machine and field level
- Flexible for easy installation
- Talc and silicone free

### Technical data

Voltage	300V
	600V AWM
Test voltage	2000V
Impedance	100Ω ± 10Ω
DC resistance	Max 14Ω/100m
Operating capacitance	< 56pF/m
Temperature range	Moving      -25°C to +70°C
	Fixed        -40°C to +80°C
Bending radius min	Moving min.    10 x cable OD
	Moving optimal 20 x cable OD
	Fixed min.      7.5 x cable OD
Torsion angle max	+/- 270° / 1m cable length
Oil resistance	Oil Res II
Burning behavior	Flame retardant per
	UL 1666 (CMR types)
	UL 1685 (CM types)
Approvals	CMX Outdoor 75C
	AWM 2463 80C 600V
	UL 444 -40°C Cold Bend
	Sun Res
	RoHS, REACH, TSCA
Item specific approvals	PLTC
	CMR 75C
	CM 75C

### Construction

- AWG conductor
- Tinned copper wire
- Conductor insulation HDPE
- SF/UTP, foil shield 100%, tinned copper braid shield 75% optical coverage
- Extremely oil resistant TPE Jacket
- Teal jacket similar to RAL 5018

For further information, see Ethernet pages in the Technical Overview

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### Industrial Ethernet/Ethernet IP

<b>A1040017</b>	(2x2xAWG22/19) PLTC, ITC, CMX Outdoor, CM, AWM 2463 600V <b>Cat5e, SF/UTP</b> WHOG/OG, WHGN/GN	7.9	0.310	46	22
<b>A1040019</b>	(2x2xAWG24/7) CMX Outdoor, CM, AWM 2463 600V <b>Cat5e, SF/UTP</b> WHOG/OG, WHGN/GN	6.6	0.260	34	18
<b>A1040020</b>	(4x2xAWG24/7) CMX Outdoor, CMR, AWM 2463 600V <b>Cat5e, SF/UTP</b> WHBU/BU, WHOG/OG, WH GN/GN, WHBN/BN	7.6	0.299	46	27
<b>A1040030</b>	(4x2xAWG24/7) CMX Outdoor, CMR, AWM 2463 600V <b>Cat6A, SF/UTP</b> WHBU/BU, WHOG/OG, WH GN/GN, WHBN/BN	8.2	0.322	48	29

Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® ETHERNET (C) PUR, Shielded

## High Flexing Ethernet Cable for Continuous Motion Applications



### Application

- For the cabling of industrial Ethernet systems
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Applicable in automation technology, transport and conveyor technology, machine tool manufacturing
- For continuous flexing applications in drag chains or free movement
- Compatible with all major drag chain brands
- Compliant with NFPA 79 requirements

### Characteristics

- High protection against electromagnetic interference (EMI)
- Talc and silicone free

### Technical data

Voltage	300V
Test voltage	1500V
Impedance	100Ω ± 10Ω
Loop resistance	AWG 22/7= 0.34 <sup>2</sup> <110Ω/km
	AWG 24/19= 0.24 <sup>2</sup> <155Ω/km
	AWG 26/19=0.14 <sup>2</sup> <280Ω/km
Operating capacitance	50pF/m
Temperature range	Moving -30°C - +70°C Fixed -40°C - +80°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 FT1
Halogen free	According to DIN EN 60754-1
Approvals	Meets NEC 392, 800 RoHS, REACH, TSCA
Item specific certifications	CMX 75C AWM 21198 80C 300V CC-Link IE Field (104337)

### Construction

- AWG conductor
- Bare copper wire
- Tinned copper wire (104303, 104347, 104404)
- Conductor insulation special polyolefin
- Foil shield
- Tinned copper braid, optical coverage 85%
- Oil resistant PUR jacket
- Green jacket similar to RAL 6018

For further information, see Ethernet pages in the Technical Overview

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### Industrial Ethernet/PROFINET/EtherCat

<b>104303</b>	(2x2xAWG22/7) CMX <b>Cat5e, SF/UTQ</b> FC, PROFINET, Type C WH/BU; YE/OG	6.5	0.256	41	21
<b>104401</b>	(4x2xAWG24/7) AWM 21198 <b>Cat6A, SF/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	8.9	0.350	59	27

### Industrial Ethernet/Ethernet IP

<b>104337</b>	(4x2xAWG24/19) AWM 21198 <b>Cat5e, S/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	7.8	0.307	46	37
<b>104396</b>	(4x2xAWG26/19) AWM 21198 <b>Cat5e, SF/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	6.7	0.264	36	19
<b>104347</b>	(4x2xAWG26/19) CMX <b>Cat6, SF/UTP</b> WHBU/BU, WHOG/OG, WHGN/GN, WHBN/BN	7.9	0.311	42	28
<b>104404</b>	(4x(2xAWG24/7)) CMX <b>Cat7, S/FTP</b> WH/BU, WH/OG, WH/GN, WH/BN	9.4	0.370	65	30



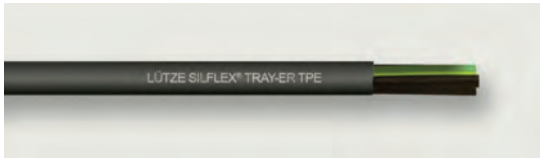
## 4. Motor Supply, VFD, Servo and Feedback Cables





# LUTZE SILFLEX® Tray-ER TPE, Unshielded

## Flexible Premium TPE Power Tray Cable for Stationary Applications



### Application

- Multi-conductor power cable for tray applications, with exposed run (open wiring) approval
- Compliant with NFPA 79 requirements
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- Metal cutting equipment, machine tools, machine and plant construction, HVAC technology, assembly and production lines, and other industrial applications
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp and wet locations

### Characteristics

- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Cutting oil resistant - mineral & bio/vegetable based oils  
*\*specifically tested with plant based cutting oil*
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 600V MTW 1000V 90C WTTC 600V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res I, Oil Res II
Approvals	UL Type TC-ER UL/CE (UL) Type MTW or DP-1 UL1277 WTTC Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 21270 c(UL), CIC FT4 UL509 BUS Drop RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation
- Oil resistant TPE jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 14 (41/30)</b>					
A3321404	AWG14/04C	9.6	0.378	108	52
<b>AWG 12 (65/30)</b>					
A3321204	AWG12/04C	11.1	0.437	146	83
<b>AWG 10 (105/30)</b>					
A3321004	AWG10/04C	14.6	0.573	221	134
<b>AWG 8 (168/30)</b>					
A3320804	AWG8/04C	18.9	0.744	392	214
<b>AWG 6 (266/30)</b>					
A3320604	AWG6/04C	20.8	0.820	552	339
<b>AWG 4 (413/30)</b>					
A3320404	AWG4/04C	27.2	1.070	910	516
<b>AWG 2 (665/30)</b>					
A3320204	AWG2/04C	31.1	1.225	1,391	883
<b>1/0 (1064/30)</b>					
A3321004	1/0/4C	36.4	1.435	1,871	1,338
<b>2/0 (1330/30)</b>					
A3322004	2/0/4C	39.2	1.544	2,257	1,685
<b>3/0 (1665/30)</b>					
A3323004	3/0/4C	45.6	1.794	2,982	2,156
<b>4/0 (2109/30)</b>					
A3324004	4/0/4C	48.3	1.903	3,549	2,676

“Industrial duty power cable with TC-ER and Bus Drop rating for branch wiring from busways in accordance with NEC article 368.56 (B) ”.



# LUTZE DRIVEFLEX® XLPE (C) PVC, Shielded

## Flexible VFD Cable XHHW-2 for Stationary Applications



### Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Type XHHW-2 insulation offering smaller ODs for general VFD applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- Reduced cable ODs
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER-JP 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply, Flexible VFD Servo Cable, TC-ER-JP, WTTC, DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 20886 Submersible Pump (≥ AWG14) c(UL) TC, CIC FT4 UL 1277 CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K 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
- Oil resistant PVC 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
A1061804	AWG18/04C (19/30)	10.5	0.415	108	42
A1061604	AWG16/04C (26/30)	10.8	0.425	124	54
A1061404	AWG14/04C (41/30)	11.6	0.456	154	76
A1061204	AWG12/04C (65/30)	13.0	0.51	208	118
A1061004	AWG10/04C (105/30)	16.5	0.650	320	183
A1060804	AWG8/04C (168/30)	20.6	0.81	478	279

“Small diameter general purpose VFD cable for applications with space restrictions such as conduit installations”.  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice

# LUTZE DRIVEFLEX® XLPE (C) 1 TSP PVC, Shielded

## Flexible Composite VFD Cable XHHW-2 with one Control Pair for Stationary Applications



### Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Type XHHW-2 insulation offering smaller ODs for general VFD applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- Reduced cable ODs
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER-JP 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply Cable, Flexible VFD Servo Cable, TC-ER-JP, WTTC, DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 20886 c(UL) TC, CIC FT4 UL 1277 CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation type XHHW-2, Wet/Dry  
\*A1071404R: XHHW-2, THHN (control pair)
- Shielded with foil tape, tinned copper braid with ≥80% optical coverage, and drain wire
- Oil resistant PVC jacket
- Black jacket similar to RAL 9005



## WITH ONE SHIELDED CONTROL PAIR

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
A1071804	AWG18/04C (19/30)+ 1 TSP AWG18 (19/30)	13.3	0.525	156	66
A1071604	AWG16/04C (26/30)+ 1 TSP AWG18 (19/30)	13.9	0.548	179	79
A1071404	AWG14/04C (41/30)+ 1 TSP AWG16 (26/30)	15.2	0.600	234	112
A1071404R	AWG14/04C (41/30)+ 1 TSP* AWG18 (19/30)	13.0	0.510	184	92
A1071204	AWG12/04C (65/30)+ 1 TSP AWG16 (26/30)	16.5	0.650	285	154
A1071004	AWG10/04C (105/30)+ 1 TSP AWG14 (41/30)	18.8	0.740	378	216
A1070804	AWG8/04C (168/30)+ 1 TSP AWG14 (41/30)	24.0	0.945	605	314

TSP = Twisted  
Shielded Pair

“Small diameter general purpose VFD cable for applications with space restrictions such as conduit installations”.  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice

# LUTZE DRIVEFLEX® XLPE (C) PVC, Shielded

## Flexible VFD Cable Type RHW-2 for Stationary Applications



### Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Increased wall thickness insulation type RHW-2, offering lower capacitance and higher impedance making it ideal for applications with high voltage spikes and long cable runs
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER-JP 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply Cable, Flexible VFD Servo Cable, TC-ER-JP, WTTC, DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 20886 Submersible Pump (≥AWG14) c(UL) TC, CIC FT4 UL 1277 P-07-KA130021-MSHA CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation type RHW-2, Wet/Dry
- Shielded with foil tape, tinned copper braid with ≥80% optical coverage, and drain wire
- Oil resistant PVC 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
A2161604	AWG16/04C (26/30)	12.4	0.490	149	57
A2161404	AWG14/04C (41/30)	14.2	0.560	200	80
A2161204	AWG12/04C (65/30)	15.6	0.615	262	128
A2161004	AWG10/04C (105/30)	17.8	0.700	359	186
A2160804	AWG8/04C (168/30)	23.5	0.925	603	295
A2160604	AWG6/04C (266/30)	25.7	1.010	763	425
A2160404	AWG4/04C (413/30)	29.3	1.155	1,126	632
A2160204	AWG2/04C (665/30)	34.2	1.345	1,559	997

“RHW-2 insulated VFD cable offering optimal capacitance and impedance values. Great for applications with long cable runs”.  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice

# LUTZE DRIVEFLEX® XLPE (C) 1 TSP PVC, Shielded

## Flexible Composite VFD Cable with one Control Pair for Stationary Applications



### Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Increased wall thickness insulation type RHW-2, offering lower capacitance and higher impedance making it ideal for applications with high voltage spikes and long cable runs
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER-JP 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply Cable, Flexible VFD Servo Cable, TC-ER-JP, WTTC, DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 20886 c(UL) TC, CIC FT4 UL 1277 P-07-KA130021-MSHA CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation, Wet/Dry (4C RHW-2, 1 Pair XHHW-2)
- Shielded with foil tape, tinned copper braid with ≥80% optical coverage, and drain wire
- Oil resistant PVC jacket
- Black jacket similar to RAL 9005



## WITH ONE SHIELDED CONTROL PAIR

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
A2171604	AWG16/04C (26/30)+ 1 TSP AWG18 (19/30)	15.7	0.620	228	90
A2171404	AWG14/04C (41/30)+ 1 TSP AWG16 (26/30)	16.8	0.660	265	117
A2171204	AWG12/04C (65/30)+ 1 TSP AWG16 (26/30)	18.3	0.720	335	160
A2171004	AWG10/04C (105/30)+ 1 TSP AWG14 (41/30)	20.6	0.810	420	218
A2170804	AWG8/04C (168/30)+ 1 TSP AWG14 (41/30)	26.0	1.025	713	321
A2170604	AWG6/04C (266/30)+ 1 TSP AWG14 (41/30)	27.8	1.095	873	453
A2170404	AWG4/04C (413/30)+ 1 TSP AWG14 (41/30)	31.0	1.220	1,143	650
A2170204	AWG2/04C (665/30)+ 1 TSP AWG14 (41/30)	35.3	1.388	1,574	1,010

TSP = Twisted  
Shielded Pair

“RHW-2 insulated VFD cable offering optimal capacitance and impedance values. Great for applications with long cable runs”.  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice

1-800-447-2371



www.lutze.com

# LUTZE DRIVEFLEX® XLPE (C) 2 TSP PVC, Shielded

## Flexible Composite VFD Cable with two Control Pairs for Stationary Applications



### Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Increased wall thickness insulation type RHW-2, offering lower capacitance and higher impedance making it ideal for applications with high voltage spikes and long cable runs
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER-JP 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC 1000V 105C AWM
Temperature range	-40°C - +105°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply Cable, Flexible VFD Servo Cable, TC-ER-JP, WTTC, DP-1 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 20886 c(UL) TC, CIC FT4 UL 1277 P-07-KA130021-MSHA CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation, Wet/Dry (4C RHW-2, 2 Pairs XHHW-2)
- Shielded with foil tape, tinned copper braid with ≥80% optical coverage, and drain wire
- Oil resistant PVC jacket
- Black jacket similar to RAL 9005



## WITH TWO SHIELDED CONTROL PAIRS

Part No.	Description No. of conductors incl. ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
A2181604	AWG16/04C (26/30)+ 2 TSP AWG18 (19/30)	17.8	0.699	278	113
A2181404	AWG14/04C (41/30)+ 2 TSP AWG16 (26/30)	19.3	0.760	330	149
A2181204	AWG12/04C (65/30)+ 2 TSP AWG16 (26/30)	20.2	0.795	388	187
A2181004	AWG10/04C (105/30)+ 2 TSP AWG14 (41/30)	23.6	0.930	553	261
A2180804	AWG08/04C (168/30)+ 2 TSP AWG14 (41/30)	27.7	1.070	778	364

TSP = Twisted  
Shielded Pair

"RHW-2 insulated VFD cable offering optimal capacitance and impedance values. Great for applications with long cable runs".  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice



# LUTZE DRIVEFLEX® XLPE (C) Symmetrical, Shielded

## Flexible VFD Cable with 3 Symmetrical Grounds for Stationary Applications



### Application

- Dual-shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Three insulated symmetrical ground design helps to reduce stray currents
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Type XHHW-2 insulation offering smaller ODs for general VFD applications
- Compliant with NFPA 79 requirements
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

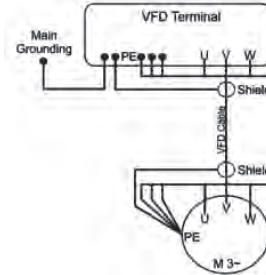
- Flexible XLPE conductors
- Three symmetrical, insulated grounds (PEs)
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC
Temperature range	-40°C - +90°C static
Bending radius min	7.5 x cable OD
Conductor marking	Black with white numbers and three green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply Cable, Flexible VFD Servo Cable up to 4/0 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 UL Types WTTC, TC-ER c(UL), CIC FT4, CE UL 1277, UL 2277 P-07-KA130021-MSHA CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation, Wet/Dry XHHW-2 (3C Power + 3C Grounds/PEs)
- Shielded with foil tape, tinned copper braid with ≥80% optical coverage, and drain wire
- Oil resistant PVC jacket
- Black jacket similar to RAL 9005



## WITH THREE SYMMETRICAL GROUNDS (3 Power + 3 Protective Earth Grounds)

Part No.	Description Power Ground	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
A2200603	AWG6/03C (266 strands)+ AWG12/03C (50 strands)	23.9	0.941	677	432
A2200403	AWG4/03C (420 strands)+ AWG12/03C (50 strands)	26.4	1.039	872	586
A2200203	AWG2/03C (672 strands)+ AWG10/03C (80 strands)	29.3	1.155	1,230	875
A2200103	AWG1/03C (840 strands)+ AWG8/03C (128 strands)	35.2	1.385	1,600	1,121
A2201/003	1/0/03C (1064 strands)+ AWG8/03C (128 strands)	37.1	1.462	1,850	1,348
A2202/003	2/0/03C (1344 strands)+ AWG8/03C (128 strands)	39.1	1.540	2,187	1,620
A2203/003	3/0/03C (1664 strands)+ AWG6/03C (206 strands)	41.4	1.630	2,705	2,059
A2204/003	4/0/03C (2052 strands)+ AWG6/03C (206 strands)	47.8	1.880	3,336	2,461
A22025003	250MCM/03C* (2432 strands)+ AWG6/03C (206 strands)	51.6	2.032	3,815	2,851
A22035003	350MCM/03C* (3458 strands)+ AWG4/03C (322 strands)	59.4	2.340	5,153	3,993
A22050003	500MCM/03C* (4864 strands)+ AWG4/03C (322 strands)	65.8	2.589	6,803	5,397

\*1000V WTTC, 600V TC-ER only

“Three symmetrical grounds design can help to reduce shaft voltage and bearing currents. This design is recommended for larger motors 40HP and up”.  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice

1-800-447-2371



www.lutze.com

# LUTZE DRIVEFLEX® XLPE HYDRO PVC, Unshielded

## Flexible VFD Cable XHHW-2 for Submersible Pump and Stationary Applications



### Application

- Motor cable designed for harsh down-well environments and wet operating conditions
- Motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Type XHHW-2 insulation offering smaller ODs for submersible pump and special VFD applications
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- Water blocking separator tape for increased water ingress protection
- Reduced cable ODs
- High insulation resistance
- Low capacitance cable
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC 1000V 105C AWM (≤ AWG2)
Temperature range	-40°C - +90/105°C static
Bending radius min	4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply, Flexible VFD Servo Cable, TC-ER, WTTC, DP-1 (≤ AWG2) Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 20886 (≤ AWG2) Submersible Pump c(UL) TC, CIC FT4 UL 1277 CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation type XHHW-2, Wet/Dry
- Water blocking separator tape
- Oil resistant PVC 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
A1101404	AWG14/04C (41/30)	11.4	0.450	118	51
A1101204	AWG12/04C (65/30)	12.7	0.500	162	84
A1101004	AWG10/04C (105/30)	15.6	0.615	254	130
A1100804	AWG8/04C (168/30)	20.2	0.795	407	214
A1100604	AWG6/04C (266/30)	23.4	0.920	600	339
A1100404	AWG4/04C (420/30)	27.0	1.060	842	527
A1100204	AWG2/04C (672/30)	31.5	1.240	1,263	874
A1100104	AWG1/04C (840/30)	33.1	1.304	1,505	1,068
A1101/004	1/0/04C (1064/30)	35.6	1.400	1,835	1,363
A1102/004	2/0/04C (1344/30)	38.6	1.520	2,228	1,708
A1103/004	3/0/04C (1664/30)	41.8	1.644	2,651	2,064
A1104/004	4/0/04C (2052/30)	47.9	1.887	3,378	2,606

“Water blocking separator tape reduces the risk of water transmission and wicking through the cable when installed in wet and submerged environments.”



Specifications are subject to change without prior notice

# LUTZE DRIVEFLEX® XLPE CONTROL TSP (C) PVC, Shielded

## Twisted Shielded Pair Cable for Control Signals for Stationary Applications



### Application

- Easily add control pairs to any VFD circuit
- Twisted shielded pair cable for VFD & motor applications to transmit control signals from drives to motors
- Separating control from power allows full ampacity rating of the power cable
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Compliant with NFPA 79 requirements
- TC-ER for use with cable trays without conduit and alongside power tray cables
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Flexible XLPE conductor design
- High insulation resistance
- Low capacitance cable
- Effective dual layer shield for EMC compliance
- Oil resistant jacket designed for easy stripping
- Non-wicking fillers
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Direct burial
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C Flexible VFD Servo Cable 1000V 90C WTTC
Temperature range	-40°C - +90°C static
Bending radius min	6 x cable OD
Conductor marking	Black with white number print
Oil resistance	Oil Res II
Approvals	UL Type Flexible Motor Supply Cable, Flexible VFD Servo Cable UL Type TC-ER, WTTC Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC, CIC FT4 UL 1277 CE, RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Thermoset XLPE insulation type XHHW-2, Wet/Dry
- Each pair shielded with foil tape, drain wire, tinned copper braid with ≥80% optical coverage, then wrapped in clear foil
- Oil resistant PVC jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of pairs	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 18 (16/30)</b>					
<b>A2441802</b>	AWG18/1TSP	8.7	0.344	77	29
<b>A2441804</b>	AWG18/2TSP	14.0	0.550	164	58
<b>AWG 16 (26/30)</b>					
<b>A2441602</b>	AWG16/1TSP	9.4	0.370	88	36
<b>A2441604</b>	AWG16/2TSP	15.5	0.610	189	73
<b>AWG 14 (41/30)</b>					
<b>A2441402</b>	AWG14/1TSP	10.2	0.400	108	51
<b>A2441404</b>	AWG14/2TSP	16.6	0.655	237	102

“1000V rated control pair(s) for installation alongside VFD cable. Separating control pairs from the power conductors eliminates ampacity derating otherwise required for composite power cables per 2023 NEC 310.15(C)(1)”.



# 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
- Patented design US-11443871-B2

### 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, TSCA

### Construction

- AWG conductor
- Class K 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

Specifications are subject to change without prior notice

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



# LUTZE SILFLEX® M (C) Motor TPE, Shielded

## Flexible Motor Cable for Stationary Applications



### Application

- Shielded motor supply cable to connect power to 3-phase motors and servo drives
- Cable design for harsh industrial environments and operating conditions with high noise levels
- Improved insulation design with additional conductor stress relief layer as a power distortion suppressant
- Compliant with NFPA 79 requirements
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- For Allen-Bradley® 2090 and other similar servo systems
- Dry, damp and wet locations

### Characteristics

- Design with conductor stress relief layer helps to prevent premature cable failure
- Crush impact resistant
- Gas/vapor tight sheath per UL 1277
- Very round cable with small diameter
- Specially formulated TPE jacket for superior oil resistance
- Resistant to many mineral and vegetable based cutting oils
- Non-wicking fillers
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 600V MTW 1000V 90C WTTC 1000V 90C Flexible Motor Supply 600V 105C AWM
Temperature range	-40°C - +105°C
Bending radius min	6 x cable OD
Conductor marking	Power: brown, black, blue Ground: green/yellow Control pair: black/white
Oil resistance	Oil Res II
Approvals	UL Flexible Motor Supply Cable UL TC-ER UL/AWM/CE UL MTW WTTC UL AWM Style 20328 Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 c(UL) TC, CIC FT4 UL 1277 RoHS, REACH, TSCA

### Construction

- AWG conductor
- Class K flexible fine wire stranded bare copper conductors
- PVC/Nylon insulation with conductor stress relief layer
- Shielded with tinned copper braid, optical coverage 85%
- Extremely oil resistant TPE jacket
- Orange jacket similar to RAL 2003

Allen-Bradley® article designations are registered trademarks.  
Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD - Ø ca. mm	OD - Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
A3161604	AWG16/04C (26/30)	10.5	0.410	124	50
A3161404	AWG14/04C (41/30)	11.6	0.455	159	71
A3161204	AWG12/04C (65/30)	13.1	0.510	214	107
A3161004	AWG10/04C (105/30)	16.5	0.650	321	161
A3160804	AWG8/04C (168/30)	21.0	0.825	490	267

### WITH ONE SHIELDED CONTROL PAIR

A3171604	AWG16/04C (26/30)+ 1 TSP AWG18	12.1	0.477	161	72
A3171404	AWG14/04C (41/30)+ 1 TSP AWG18	12.8	0.505	196	92
A3171204	AWG12/04C (65/30)+ 1 TSP AWG18	15.0	0.590	263	128
A3171004	AWG10/04C (105/30)+ 1 TSP AWG18	18.1	0.716	380	191
A3170804	AWG8/04C (168/30)+ 1 TSP AWG18	22.5	0.890	568	285
A3170604	AWG6/04C (266/30)+ 1 TSP AWG18	25.5	1.003	786	417
A3170404	AWG4/04C (413/30)+ 1 TSP AWG16	29.5	1.162	1119	613
A3170204	AWG2/04C (655/30)+ 1 TSP AWG16	34.1	1.340	1543	983

**TSP = Twisted  
Shielded Pair**

For standard three phase VFD applications, please refer to LUTZE DRIVEFLEX® cable series.

# LUTZE SILFLEX® (C) TPE Feedback, Shielded

## Flexible Feedback Cable for Stationary Applications



### Application

- Incremental encoder cable and resolver cable for tach sensor, brake sensor, speed sensor
- Cable design for harsh industrial environments and operating conditions with high noise level
- Compliant with NFPA 79 requirements
- For Allen-Bradley® and other Systems
- Dry, damp and wet conditions

### Characteristics

- High protection against electromagnetic interference (EMI)
- Flexible for easy installation
- Specially formulated TPE jacket for superior oil resistance according to UL 1581
- Resistant to many mineral & vegetable based cutting oils
- Non-wicking fillers
- Extended temperature range and premium durability
- Sunlight resistant
- Talc and silicone free

### Technical Data

Nominal Voltage	
A1410001:	300V 105C PLTC 600V 90C AWM
A1410002:	300V 105C CM 600V 90C AWM
Test voltage	1.5 kV
Temperature range	-40°C to + 90°C static
Bending radius min	6 x cable OD static
Burning behavior	Flame retardant per UL Vertical Tray UL VW-1
Oil resistance	Oil Res I, Oil Res II
Approvals	UL AWM Style 20626 CE RoHS, REACH, TSCA
Item specific approvals	
A1410001:	UL PLTC-ER, meets NEC 392, 725 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 Crush impact resistant Gas/vapor tight sheath per UL 13
A1410002:	UL CM, meets NEC 392, 800

### Construction

- AWG conductor
- Flexible fine wire stranded tinned copper conductors
- Special PVC conductor insulation
- Conductors color-coded for specific system
- Shielded with foil tape, drain wire and tinned copper braid shield, optical coverage 85 %
- Extremely oil resistant TPE jacket
- Green jacket similar to RAL 6018

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Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### For Allen-Bradley® Systems and similar

<b>A1410001</b>	(5x2xAWG22) BK/BKWH, RD/RDWH, GN/GNWH, GY/GYWH, OG/OGWH	10.0	0.395	102	40
<b>A1410002</b>	(1x2xAWG16+1x2xAWG22+ 6x2xAWG26) AWG16: GY/GYWH AWG22: OG/OGWH AWG26: BK/BKWH, RD/RDWH, GN/GNWH, BL/BLWH, BN/BNWH, YE/YEWH	11.8	0.465	143	54

# LUTZE MOTIONFLEX® M (C) TPE, Shielded

## Flexing Motor Cable for Linear and Twisting Motion Applications



### Application

- Shielded motor supply cable to connect power to 3-phase motors, VFDs and servo drives
- Suitable for motion applications with repetitive movement, flexing, and torsional stress
- Thermoset XLPE insulation offering superior overload and short-circuit temperature
- Compliant with NFPA 79 for wiring of industrial machinery
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- WTTC – wind turbine tray cable rating for use in wind power generation
- Dry, damp or wet conditions

### Characteristics

- Highly flexible XLPE conductor design
- Reduced cable ODs
- High insulation resistance
- Low capacitance cable
- Cutting oil resistant - mineral & bio/vegetable based oils *specifically tested with plant based cutting oil*
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Crush impact resistant
- Gas/vapor-tight sheath per UL 1277
- Sunlight resistant
- Flame retardant
- Talc and silicone free

### Technical Data

Voltage	600V 90C TC-ER 1000V 90C Flexible Motor Supply Cable 1000V 90C WTTC 600V 105C AWM
Temperature range	Moving -15°C - +80°C Fixed -40°C - +105°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Torsion angle max.	+/- 130° / 1m cable length
Conductor marking	Black with white numbers and one green/yellow ground
Oil resistance	Oil Res I, Oil Res II
Approvals	UL Type Flexible Motor Supply, TC-ER, WTTC Meets NEC 336, 392 Class I & II, Div. 2 and Class I Zone 2 per NEC 501, 502, 505 AWM 21270 c(UL), CIC FT4 UL 1277 CE, RoHS, REACH, TSCA


### Construction

- AWG conductor
- Class M flexible fine wire stranded bare copper conductors
- Thermoset XLPE insulation type XHHW-2, Wet/Dry
- Shielded with tinned copper braid with 85% optical coverage
- Oil resistant TPE 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
<b>AWG 18 (41/34)</b>					
A4061804	AWG18/04C	9.7	0.380	89	40
<b>AWG 16 (65/34)</b>					
A4061604	AWG16/04C	10.8	0.425	124	55
<b>AWG 14 (104/34)</b>					
A4061404	AWG14/04C	11.4	0.450	140	76
<b>AWG 12 (168/34)</b>					
A4061204	AWG12/04C	13.6	0.535	197	115
<b>AWG 10 (259/34)</b>					
A4061004	AWG10/04C	15.9	0.625	275	165
<b>AWG 8 (420/34)</b>					
A4060804	AWG8/04C	19.7	0.775	420	259

Small diameter VFD cable for flexing and twisting applications.  
Meets NFPA 79, article 4.4.2.8.



Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® Plus M PUR 0.6/1kV, Unshielded

## High Flexing Motor Cable for Continuous Motion Applications



### Application

- Continuous flexing motor and power cable for machine tools, handling equipment and processing machines
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per Class 6 for continuous moving applications
- TPE conductor insulation
- Low capacitance
- PUR jacket
- Highest level of resistance against cooling fluids, greases and oils
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	1000V 80C AWM 0.6/1kV U <sub>0</sub> /U
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 7.5 x cable OD Fixed 4 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Insulation resistance	Min 500MΩ x km
Burning behavior	Flame retardant per DIN EN 60322-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 21223 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 Class 6 and IEC 60228 Class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor
- Layer pitch optimized
- Fleece wrap over cabled conductor
- Extremely oil resistant PUR jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 16 / 1.5 mm<sup>2</sup></b>					
111370	4G1.5	8.2	0.323	81	39
<b>AWG 14 / 2.5 mm<sup>2</sup></b>					
111371	4G2.5	10.0	0.394	96	64
<b>AWG 12 / 4 mm<sup>2</sup></b>					
111372	4G4	11.6	0.457	156	103
111545	5G4	13.0	0.512	192	130
<b>AWG 10 / 6 mm<sup>2</sup></b>					
111373	4G6	13.6	0.535	220	155
111430	5G6	14.4	0.567	269	194
<b>AWG 8 / 10 mm<sup>2</sup></b>					
111374	4G10	16.8	0.661	352	257
<b>AWG 6 / 16 mm<sup>2</sup></b>					
111375	4G16	20.4	0.803	663	411
<b>AWG 4 / 25 mm<sup>2</sup></b>					
111376	4G25	24.2	0.953	804	643
<b>AWG 2 / 35 mm<sup>2</sup></b>					
111377	4G35	30.5	1.201	1,240	901



# LUTZE SUPERFLEX® Plus M (C) PUR 0.6/1kV, Shielded

## High Flexing Motor Cable for Continuous Motion Applications



### Application

- Continuous flexing motor, servo and VFD cable
- Suitable for applications with extremely rough operating conditions and oil exposure
- For the most demanding flexing applications such as drag chains and linear flexing
- For Siemens (6FX8008) and similar systems
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per class 6 for continuous moving applications
- Reduced friction
- Low capacitance
- Highest level of resistance against cooling fluids, greases and oils
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	1000V 90C AWM 0.6/1kV U <sub>0</sub> /U
Temperature range	Moving -25°C - +90°C Fixed -40°C - +90°C
Bending radius min	Moving 7.5 x cable OD Fixed 5 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground
Insulation resistance	Min. 500MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 21209 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Orange jacket similar to RAL 2003

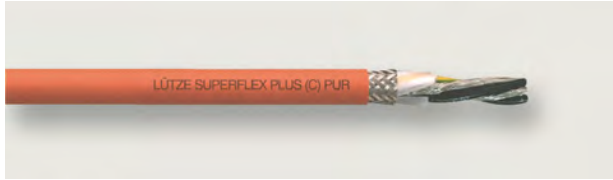
Part No.	Description No. of conductors	Siemens Designatio n	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 16 / 1.5 mm<sup>2</sup></b>						
111460.1000	(4G1.5)	1BB11*	8.7	0.343	82	56
<b>AWG 14 / 2.5 mm<sup>2</sup></b>						
111461.1000	(4G2.5)	1BB21*	10.8	0.425	128	87
<b>AWG 12 / 4 mm<sup>2</sup></b>						
111462.1000	(4G4)	1BB31*	12.2	0.480	183	130
<b>AWG 10 / 6 mm<sup>2</sup></b>						
111463.1000	(4G6)	1BB41*	14.2	0.559	252	185
<b>AWG 8 / 10 mm<sup>2</sup></b>						
111464.1000	(4G10)	1BB51*	17.6	0.693	391	302
<b>AWG 6 / 16 mm<sup>2</sup></b>						
111465.1000	(4G16)	1BB61*	21.2	0.835	603	484

\*SIEMENS article designations are registered trademarks of SIEMENS AG.

Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® Plus M (C) PUR 0.6/1kV, Shielded

## High Flexing Composite Motor Cable for Continuous Motion Applications



### Application

- Continuous flexing motor, servo and VFD cable
- Suitable for applications with extremely rough operating conditions and oil exposure
- For the most demanding flexing applications such as drag chains and linear flexing
- With one control pair for SIEMENS (6FX8008) and similar systems
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per class 6 for continuous moving applications
- Reduced friction
- Low capacitance
- Highest level of resistance against cooling fluids, greases and oils
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	1000V 90C AWM 0.6/1kV U <sub>0</sub> /U
Temperature range	Moving -25°C - +90°C Fixed -40°C - +90°C
Bending radius min	Moving 7.5 x OD ≤ 6AWG 10 x OD ≥ 4AWG Fixed 5 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground Control pair color-coded (bk, wh)
Insulation resistance	Min. 500MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 21209 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor  
x: without ground conductor
- Control pair individually shielded with foil and braid
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Orange jacket similar to RAL 2003

\*SIEMENS article designations are registered trademarks of SIEMENS AG.

## WITH ONE SHIELDED CONTROL PAIR

Part No.	Description No. of conductors	Siemens Designation	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 16 / 1.5 mm<sup>2</sup></b>						
111420.1000	(4G1.5 + (2x1.5))	1BA11*	11.6	0.457	147	100
<b>AWG 14 / 2.5 mm<sup>2</sup></b>						
111421.1000	(4G2.5 + (2x1.5))	1BA21*	13.0	0.512	184	130
<b>AWG 12 / 4 mm<sup>2</sup></b>						
111422.1000	(4G4 + (2x1.5))	1BA31*	14.7	0.579	247	171
<b>AWG 10 / 6 mm<sup>2</sup></b>						
111423.1000	(4G6 + (2x1.5))	1BA41*	16.2	0.638	316	228
<b>AWG 8 / 10 mm<sup>2</sup></b>						
111424.1000	(4G10 + (2x1.5))	1BA51*	19.7	0.776	465	353
<b>AWG 6 / 16 mm<sup>2</sup></b>						
111425.1000	(4G16 + (2x1.5))	1BA61*	23.2	0.913	662	519
<b>AWG 4 / 25 mm<sup>2</sup></b>						
111426.1000	(4G25 + (2x1.5))	BA25*	27.4	1.079	989	759

Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® Plus M (C) PUR 0.6/1kV, Shielded

## High Flexing Composite Motor Cable for Continuous Motion Applications



### Application

- Continuous flexing motor, servo and VFD cable
- Suitable for applications with extremely rough operating conditions and oil exposure
- For the most demanding flexing applications such as drag chains and linear flexing
- With two control pairs for Indramat / Bosch Rexroth and similar systems
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per Class 6 for continuous moving applications
- Reduced friction
- Low capacitance
- Highest level of resistance against cooling fluids, greases and oils
- Ecolab certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Non-wicking fillers
- Talc and silicone free

### Technical Data

Voltage	1000V 90C AWM 0.6/1kV U <sub>0</sub> /U
Temperature range	Moving -25°C - +90°C Fixed -40°C - +90°C
Bending radius min	Moving 7.5 x cable OD Fixed 5 x cable OD
Conductor marking	Black with white numbers and one green/yellow ground Control pairs number printed (5,6) (7,8)
Insulation resistance	Min 500MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 21209 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- G: with GNYE ground conductor
- Control pairs individually shielded with foil and braid
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Orange jacket similar to RAL 2003

## WITH TWO SHIELDED CONTROL PAIRS

Part No.	Description No. of conductors	Indramat Designation*	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 16 / 1.5 mm<sup>2</sup></b>						
111271.1000	(4G1.5+2x(2x0.75))	INK 0650*	12.2	0.480	174	104
<b>AWG 14 / 2.5 mm<sup>2</sup></b>						
111279.1000	(4G2.5+2x(2x1.0))	INK 0602*	14.8	0.583	215	147
<b>AWG 12 / 4 mm<sup>2</sup></b>						
111388.1000	(4G4+2x(2x1.0))	INK 0603*	17.0	0.669	295	197
<b>AWG 10 / 6 mm<sup>2</sup></b>						
111998.1000	(4G6+(2x1.0)+ (2x1.5))	INK 0604*	18.2	0.717	399	250
<b>AWG 8 / 10 mm<sup>2</sup></b>						
111762.1000	(4G10+(2x1.0)+ (2x1.5))	INK 0605*	22.2	0.874	568	383
<b>AWG 6 / 16 mm<sup>2</sup></b>						
111276.1000	(4G16+2x(2x1.5))	INK 0606*	25.5	1.004	827	558

\*Indramat article designations are registered trademarks

Specifications are subject to change without prior notice

# LUTZE SUPERFLEX® Plus M PUR 0.6/1kV, Unshielded

## High Flexing Single Conductor Motor Cable for Continuous Motion Applications



### Application

- Continuous flexing cable suitable for machine and device construction for transport and conveyor technology
- As motor supply or ground conductor
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per class 6 for continuous moving applications
- Very good alternating bending strength
- TPE insulation with very high break through resistance
- PUR jacket for highest level of resistance against cooling fluids, greases and oils
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Talc and silicone free

### Technical Data

Voltage	1000V 80C AWM 0.6/1kV U <sub>0</sub> /U
Test voltage	4000V
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 7.5 x cable OD Fixed 4 x cable OD
Insulation resistance	Min. 200MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 10587 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- Extremely oil resistant PUR jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 10 / 6 mm<sup>2</sup></b>					
111136	1x6	7.1	0.279	61	38
<b>AWG 8 / 10 mm<sup>2</sup></b>					
111126	1x10	8.4	0.331	93	62
<b>AWG 6 / 16 mm<sup>2</sup></b>					
111127	1x16	9.8	0.386	138	99
<b>AWG 4 / 25 mm<sup>2</sup></b>					
111128	1x25	11.4	0.449	206	157
<b>AWG 2 / 35 mm<sup>2</sup></b>					
111129	1x35	13.4	0.528	290	219
<b>AWG 1 / 50 mm<sup>2</sup></b>					
111130	1x50	15.2	0.598	384	321
<b>2/0 / 70 mm<sup>2</sup></b>					
111131	1x70	16.6	0.654	526	433
<b>3/0 / 95 mm<sup>2</sup></b>					
111132	1x95	19.2	0.756	701	597

### Green/Yellow Jacket

<b>AWG 8 / 10 mm<sup>2</sup></b>					
111243	1x10	8.4	0.331	93	62
<b>AWG 6 / 16 mm<sup>2</sup></b>					
111197	1x16	9.8	0.386	138	99

# LUTZE SUPERFLEX® Plus M (C) PUR 0.6/1kV, Shielded

## High Flexing Single Conductor Motor Cable for Continuous Motion Applications



### Application

- Continuous flexing shielded cable suitable for machine and device construction for transport and conveyor technology
- As motor supply conductor
- For the most demanding flexing applications such as drag chains and linear flexing
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- Super finely stranded per class 6 for continuous moving applications
- Very good alternating bending strength
- TPE insulation with very high break through resistance
- PUR jacket for highest level of resistance against cooling fluids, greases and oils
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Talc and silicone free

### Technical Data

Voltage	1000V 80C AWM 0.6/1kV U <sub>0</sub> /U
Test Voltage	4000V
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 7.5 x cable OD Fixed 4 x cable OD
Insulation resistance	Min. 200MΩ x km
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Oil resistance	Oil Res II
Approvals	UL AWM Style 10587 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- Fleece wrap
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Black jacket similar to RAL 9005

Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
<b>AWG 10 / 6 mm<sup>2</sup></b>					
111288	(1x6)	7.7	0.303	77	52
<b>AWG 8 / 10 mm<sup>2</sup></b>					
111289	(1x10)	9.0	0.354	115	81
<b>AWG 6 / 16 mm<sup>2</sup></b>					
111290	(1x16)	10.4	0.409	162	121
<b>AWG 4 / 25 mm<sup>2</sup></b>					
111291	(1x25)	12.0	0.472	237	183
<b>AWG 2 / 35 mm<sup>2</sup></b>					
111292	(1x35)	14.0	0.551	323	250
<b>AWG 1 / 50 mm<sup>2</sup></b>					
111293	(1x50)	15.8	0.622	424	356

# LUTZE SUPERFLEX® Plus (C) PUR Feedback, Shielded

## High Flexing Feedback Cable for Continuous Motion Applications



### Application

- Incremental encoder cable, termination cable for tach sensor, brake sensor, speed sensor
- Suitable for applications with extremely rough operating conditions and oil exposure
- For the most demanding flexing applications such as drag chains and linear flexing
- For Bosch-Rexroth and other systems
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- High resistance to electromagnetic interference (EMI)
- Special braided shield, optimized for continuous flexing
- Very good alternating bending strength
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Salt water resistant
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Talc and silicone free

### Technical Data

Voltage	300V 80C AWM
Test voltage	2000V
Insulation resistance	Min. 200MΩ x km
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Approvals	UL AWM 20233 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- Conductors color-coded for specific system
- Layer pitch optimized
- Fleece wrap over cabled conductors
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Orange jacket similar to RAL 2003

\*Bosch Rexroth article designations are registered trademarks  
Specifications are subject to change without prior notice

Part No.	Description No. of conductors	INK* Description	OD / Ø mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### For Bosch-Rexroth Systems and similar

<b>111749</b>	(2×1.0+4×2×0.25) 1.0: WH, BN 0.25: BN/GN, GY/PK, BU/VT, RD/BK	INK-0209*	9.0	0.354	77	43
<b>111780</b>	(2x0.5+4x2x0.25) 0.5: WH, BN 0.25: BN/GN, GY/PK, BU/VT, RD/BK	INK-0448*	8.5	0.335	67	40
<b>110940</b>	(9×0.5) Conductor color according to DIN 47100	INK-0208*	8.8	0.346	84	50
<b>111781</b>	(2x0.5+2x2x0.25) 0.5: WH, BN 0.25: RD/BK, GY/PK	INK-0750*	7.6	0.299	60	28

# LUTZE SUPERFLEX® Plus (C) PUR Feedback, Shielded

## High Flexing Feedback Cable for Continuous Motion Applications



### Application

- Incremental encoder cable, termination cable for tach sensor, brake sensor, speed sensor
- Suitable for applications with extremely rough operating conditions and oil exposure
- For the most demanding flexing applications such as drag chains and linear flexing
- For Allen-Bradley® and other systems
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- High resistance to electromagnetic interference (EMI)
- Special braided shield, optimized for continuous flexing
- Very good alternating bending strength
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Salt water resistant
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Talc and silicone free

### Technical Data

Nominal Voltage	1000V 80C AWM
Test voltage	3000V
Insulation resistance	Min. 200MΩ x km
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 10 x cable OD Fixed 6 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Approvals	UL AWM 21223 RoHS, REACH, TSCA

### Construction

- Metric conductor
- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- Conductors color-coded for specific system
- Layer pitch optimized
- Fleece wrap over cabled conductors
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Green jacket similar to RAL 6018

Allen-Bradley® is a registered trademark  
Specifications are subject to change without prior notice

Part No.	Description No. of conductors	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### For Allen-Bradley® Systems and similar

<b>111488.2000</b>	(5x2xAWG22) BKWH/BK, RDWH/RD, GNWH/GN, GYWH/GY, OGWH/OG	9.2	0.362	72	36
<b>111489</b>	(2xAWG16+2xAWG22+ 6x2xAWG26) AWG16: GY, WHGY AWG22: OG, WHOG AWG26: BKWH/BK, RDWH/RD, GNWH/GN, BNWH/BN, YEWY/YE, BUWH/BU	10.8	0.425	121	81

# LUTZE SUPERFLEX® Plus (C) PUR Feedback, Shielded

## High Flexing Feedback Cable for Continuous Motion Applications



### Application

- Incremental encoder cable, termination cable for tach sensor, brake sensor, speed sensor
- Suitable for applications with extremely rough operating conditions and oil exposure
- For the most demanding flexing applications such as drag chains and linear flexing
- For Siemens and other systems
- Compatible with all major drag chain brands
- Compliant with NFPA 79, Article 12.9

### Characteristics

- High resistance to electromagnetic interference (EMI)
- Special braided shield, optimized for continuous flexing
- Very good alternating bending strength
- Abrasion, high wear and tear resistance
- Hydrolysis, microbe, and rot resistant
- UV resistant
- Salt water resistant
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Talc and silicone free

### Technical Data

Voltage	30V 80C AWM
Test voltage	500V
Insulation resistance	Min. 500MΩ x km
Temperature range	Moving -25°C - +80°C Fixed -40°C - +80°C
Bending radius min	Moving 12 x cable OD Fixed 6 x cable OD
Burning behavior	Flame retardant per DIN EN 60332-1-2 IEC 60332-1 UL 1581 section VW-1 FT1
Halogen free	According to DIN EN 60754-1
Approvals	UL AWM 20236 RoHS, REACH, TSCA

### Construction

- Bare copper wire super finely stranded per DIN VDE 0295 class 6 and IEC 60228 class 6
- Special TPE conductor insulation
- Conductors color-coded for specific system
- Layer pitch optimized
- Fleece wrap over cabled conductors
- Tinned copper braid shield, optical coverage 85%
- Extremely oil resistant PUR jacket
- Green jacket similar to RAL 6018

\*SIEMENS article designations are registered trademarks of SIEMENS AG.  
Specifications are subject to change without prior notice

Part No.	Description No. of conductors incl. ground	Siemens Designation	OD / Ø ca. mm	OD / Ø inches	Weight Lbs/Mft	Copper Lbs/Mft
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### For Siemens Standard Systems 6FX8000\* and similar

111456	(4×0.5+4×2×0.38) 0.5: WHBU, WHBK, WHRD, WHYE 0.38: BK/BN, RD/OG, GN/YE, BU/VT	1BD21*	9.4	0.370	89	58
111459	(2×(0.5)+3×(2×0.14)) (0.5): BK, RD 0.14: BK/BN, RD/OG, GN/YE	1BD31*	8.7	0.343	86	46
111458	(2×0.5+3×(2×0.14)+4×0.14) 0.5: BNBU, BNRD (0.14) BK/BN, RD/OG, GN/YE 0.14: BU, GY, WHBK, WHYE	1BD41*	8.6	0.339	82	41
111457	(2×0.5+3×(2×0.14)+ 4×0.23+4×0.14) 0.5: BNBU, BNRD 0.23: GNBK, GNRD, BNEY, BNGY (0.14) BK/BN, RD/OG, YEGN 0.14: BU, GY, WHBK, WHYE	1BD51*	9.8	0.386	103	62

### For Siemens DRIVE-CLiQ Standard Systems\* and similar

104002	(2×2×AWG24+1×2×AWG22) AWG24: PK/BU, YE/GN AWG22: RD/BK	2DC00*	7.0	0.275	65	21
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## 5. Wire and Cable Management



# LUTZE TOP-T Fittings NPT

## Plastic NPT



### Characteristics

- Integrated strain relief
- Wide sealing and clamping range
- Easy to install
- Manufactured acc to EN 62444

### Specifications

Connecting thread	NPT ANSI B1.20.1
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-30°C - +150°C / -22°F - +302°F
Protection class	IP68 EN 60529
Material	
Body	Polyamide 6
Seal	CR Chloroprene Rubber
Color	Black RAL 9005 Gray RAL 7001

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW mm	D mm	H mm	UL R/L	PU
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#### BLACK

<b>FPNPT38B</b>	NPT 3/8"	0.197-0.394	5-10	15	22	25	32.2	R	20
<b>FPNPT12B</b>	NPT 1/2"	0.394-0.551	10-14	15	27	30.9	31.9	L	20
<b>FPNPT34B</b>	NPT 3/4"	0.511-0.709	13-18	15	33	37.2	38.4	L	20
<b>FPNPT10B</b>	NPT 1"	0.709-0.984	18-25	18	42	47.1	43.3	L	20

#### GRAY

<b>FPNPT38G</b>	NPT 3/8"	0.197-0.394	5-10	15	22	25	32.2	R	20
<b>FPNPT12G</b>	NPT 1/2"	0.394-0.551	10-14	15	27	30.9	31.9	L	20
<b>FPNPT34G</b>	NPT 3/4"	0.511-0.709	13-18	15	33	37.2	38.4	L	20
<b>FPNPT10G</b>	NPT 1"	0.709-0.984	18-25	18	42	47.1	43.3	L	20

#### REDUCED CLAMPING RANGE

<b>FPNPT38B-R</b>	NPT 3/8"	0.118-0.276	3-7	15	22	25	32.2	R	20
<b>FPNPT12B-R</b>	NPT 1/2"	0.276-0.472	7-12	15	27	30.9	31.9	L	20
<b>FPNPT34B-R</b>	NPT 3/4"	0.354-0.630	9-16	15	33	37.2	38.4	L	20
<b>FPNPT10B-R</b>	NPT 1"	0.472-0.787	12-20	18	42	47.1	43.3	L	20

### Item Specific Approvals

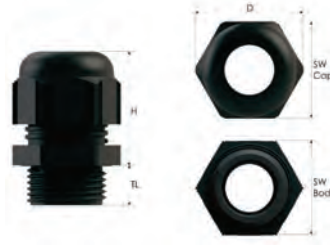
- UL Recognized (R) or UL Listed (L), as per table

Locknuts sold separately.

Specifications are subject to change without prior notice

# LUTZE TOP-T Fittings PG

## Plastic PG



### Characteristics

- Integrated strain relief
- Wide sealing and clamping range
- Easy to install
- Manufactured acc to EN 62444

### Specifications

Connecting thread	PG DIN 40430
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-30°C - +150°C / -22°F - +302°F
Protection class	IP68 EN 60529
Material	
Body	Polyamide 6
Seal	CR Chloroprene
Rubber	Rubber
Color	Black RAL 9005 Gray RAL 7001

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW mm	D mm	H mm	UL R/L	PU
<b>BLACK</b>									
FPPG7B	PG 7	0.118-0.256	3-6.5	8	15	17.0	25.3	R 50	
FPPG9B	PG 9	0.157-0.315	4-8	8	19	21.7	27.4	R 50	
FPPG11B	PG 11	0.197-0.394	5-10	8	22	25.0	32.2	R 50	
FPPG13B	PG 13.5	0.236-0.472	6-12	10	24	27.0	32.4	L 50	
FPPG16B	PG 16	0.394-0.551	10-14	10	27	30.9	31.9	L 50	
FPPG21B	PG 21	0.512-0.709	13-18	11	33	37.2	38.4	L 20	
FPPG29B	PG 29	0.709-0.984	18-25	11	42	47.1	43.3	L 20	
FPPG36B	PG 36	0.866-1.260	22-32	13	53	59.6	52.4	L 5	
FPPG42B	PG 42	1.181-1.496	30-38	13	60	67.8	54.8	L 5	
FPPG48B	PG 48	1.339-1.732	34-44	14	65	72.4	54.9	L 5	
<b>GRAY</b>									
FPPG7G	PG 7	0.118-0.256	3-6.5	8	15	17.0	25.3	R 50	
FPPG9G	PG 9	0.157-0.315	4-8	8	19	21.7	27.4	R 50	
FPPG11G	PG 11	0.197-0.394	5-10	8	22	25.0	32.2	R 50	
FPPG13G	PG 13.5	0.236-0.472	6-12	10	24	27.0	32.4	L 50	
FPPG16G	PG 16	0.394-0.551	10-14	10	27	30.9	31.9	L 50	
FPPG21G	PG 21	0.512-0.709	13-18	11	33	37.2	38.4	L 20	
FPPG29G	PG 29	0.709-0.984	18-25	11	42	47.1	43.3	L 20	
FPPG36G	PG 36	0.866-1.260	22-32	13	53	59.6	52.4	L 5	
FPPG42G	PG 42	1.181-1.496	30-38	13	60	67.8	54.8	L 5	
FPPG48G	PG 48	1.339-1.732	34-44	14	65	72.4	54.9	L 5	

### Item Specific Approvals

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

Locknuts sold separately.

Specifications are subject to change without prior notice

# LUTZE TOP-T Fittings Metric

## Plastic Metric



### Characteristics

- Integrated strain relief
- Wide sealing and clamping range
- Easy to install
- Manufactured acc to EN 62444

### Specifications

Connecting thread	Metric EN 60423
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-30°C - +150°C / -22°F - +302°F
Protection class	IP68 EN 60529
Material	
Body	Polyamide 6
Seal	CR Chloroprene
Rubber	Rubber
Color	Black RAL 9005 Gray RAL 7001

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW mm	D mm	H mm	UL R/L	PU
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#### BLACK

<b>FPM12B</b>	M12x1.5	0.118-0.256	3-6.5	8	15	17.0	25.3	R 50	
<b>FPM16B</b>	M16x1.5	0.197-0.394	5-10	10	22	25.0	32.2	R 50	
<b>FPM20B</b>	M20x1.5	0.315-0.551	10-14	10	27	30.9	31.9	L 50	
<b>FPM25B</b>	M25x1.5	0.512-0.709	13-18	10	33	37.2	38.4	L 20	
<b>FPM32B</b>	M32x1.5	0.709-0.984	18-25	15	42	47.1	43.3	L 20	
<b>FPM40B</b>	M40x1.5	0.866-1.260	22-32	18	53	59.6	52.4	L 5	
<b>FPM50B</b>	M50x1.5	1.181-1.496	30-38	18	60	67.8	54.8	L 5	
<b>FPM63B</b>	M63x1.5	1.339-1.732	34-44	18	65	72.4	54.9	L 5	

#### GRAY

<b>FPM12G</b>	M12x1.5	0.118-0.256	3.0-6.5	8	15	17.0	25.3	R 50	
<b>FPM16G</b>	M16x1.5	0.197-0.394	5-10	10	22	25.0	32.2	R 50	
<b>FPM20G</b>	M20x1.5	0.315-0.551	10-14	10	27	30.9	31.9	L 50	
<b>FPM25G</b>	M25x1.5	0.512-0.709	13-18	10	33	37.2	38.4	L 20	
<b>FPM32G</b>	M32x1.5	0.709-0.984	18-25	15	42	47.1	43.3	L 20	
<b>FPM40G</b>	M40x1.5	0.866-1.260	22-32	18	53	59.6	52.4	L 5	
<b>FPM50G</b>	M50x1.5	1.181-1.496	30-38	18	60	67.8	54.8	L 5	
<b>FPM63G</b>	M63x1.5	1.339-1.732	34-44	18	65	72.4	54.9	L 5	

#### REDUCED CLAMPING RANGE

<b>FPM16G-R</b>	M16x1.5	0.118-0.276	3-7	10	22	25.0	32.2	R 50	
<b>FPM20G-R</b>	M20x1.5	0.276-0.472	7-12	10	27	30.9	31.9	L 50	
<b>FPM25G-R</b>	M25x1.5	0.354-0.630	9-16	10	33	37.2	38.4	L 20	
<b>FPM32G-R</b>	M32x1.5	0.472-0.787	12-20	15	42	47.1	43.3	L 20	

### Item Specific Approvals

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

Locknuts sold separately.

Specifications are subject to change without prior notice

# LUTZE TOP-T Locknuts Plastic

## Plastic NPT, PG and Metric



### Characteristics

- Flanged hexagonal locknut for secure tightening of plastic cable fittings and accessories
- Easy to install
- Flange imprinted with locknut size for easy identification

### Specifications

Connecting thread	NPT ANSI B1.20.1 PG DIN 40430 Metric EN 60423
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-30°C - +150°C / -22°F - +302°F
Material	Polyamide 6, 30% glass fiber reinforced
Color	Black RAL 9005 Gray RAL 7001

Specifications are subject to change without prior notice

Part No.	Thread	SW mm	D mm	H mm	PU
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#### NPT BLACK

LPNPT38B	NPT 3/8"	22	25	6	50
LPNPT12B	NPT 1/2"	27	30.5	6	50
LPNPT34B	NPT 3/4"	33	37.5	6	20
LPNPT10B	NPT 1"	41	46.5	7	20

#### NPT GRAY

LPNPT38G	NPT 3/8"	22	25	6	50
LPNPT12G	NPT 1/2"	27	30.5	6	50
LPNPT34G	NPT 3/4"	33	37.5	6	20
LPNPT10G	NPT 1"	41	46.5	7	20

#### PG BLACK

LPPG7B	PG 7	19	21	5	50
LPPG9B	PG 9	22	24	5	50
LPPG11B	PG 11	24	26	5	50
LPPG13B	PG 13.5	27	29	6	50
LPPG16B	PG 16	30	33	6	50
LPPG21B	PG 21	36	39	7	20
LPPG29B	PG 29	46	50	7	20
LPPG36B	PG 36	60	66	8	10
LPPG42B	PG 42	65	73	8	10
LPPG48B	PG 48	70	78	8	5

#### PG GRAY

LPPG7G	PG 7	19	21	5	50
LPPG9G	PG 9	22	24	5	50
LPPG11G	PG 11	24	26	5	50
LPPG13G	PG 13.5	27	29	6	50
LPPG16G	PG 16	30	33	6	50
LPPG21G	PG 21	36	39	7	20
LPPG29G	PG 29	46	50	7	20
LPPG36G	PG 36	60	66	8	10
LPPG42G	PG 42	65	73	8	10
LPPG48G	PG 48	70	78	8	5

#### METRIC BLACK

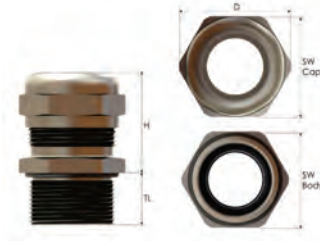
LPM12B	M12x1.5	18	19.5	5	50
LPM16B	M16x1.5	22	24.2	5	50
LPM20B	M20x1.5	26	28.6	6	50
LPM25B	M25x1.5	32	35	6	50
LPM32B	M32x1.5	41	46.1	7	20
LPM40B	M40x1.5	50	55.3	7	10
LPM50B	M50x1.5	60	66.1	8	5
LPM63B	M63x1.5	75	82.5	8	5

#### METRIC GRAY

LPM12G	M12x1.5	18	19.5	5	50
LPM16G	M16x1.5	22	24.2	5	50
LPM20G	M20x1.5	26	28.6	6	50
LPM25G	M25x1.5	32	35	6	50
LPM32G	M32x1.5	41	46.1	7	20
LPM40G	M40x1.5	50	55.3	7	10
LPM50G	M50x1.5	60	66.1	8	5
LPM63G	M63x1.5	75	82.5	8	5

# LUTZE TOP-T Fittings NPT

## Metal NPT



### Characteristics

- Integrated strain relief
- Anti-twist design
- Wide sealing and clamping range
- Easy to install
- Manufactured acc to EN 62444

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	UL R/L	PU
<b>NPT</b>										
<b>FMNPT38</b>	NPT 3/8"	0.157-0.315	4-8	11.5	17	19	21.0	25.5	R	5
<b>FMNPT12</b>	NPT 1/2"	0.236-0.472	6-12	13	22	22	24.5	27.5	L	5
<b>FMNPT34</b>	NPT 3/4"	0.512-0.709	13-18	13	30	30	33.0	38.0	L	5
<b>FMNPT10</b>	NPT 1"	0.709-0.984	18-25	13	40	43	48.5	45.5	L	1

### Specifications

Connecting thread	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	IP68 EN 60529
Material	
Body	Brass, nickel plated
Seal	CR Chloroprene Rubber
O-ring	NBR

### Item Specific Approvals

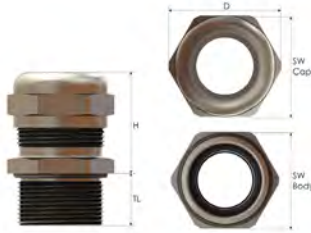
- UL Recognized (R) or UL Listed (L), as per table
- Type 4X for UL Listed items

Locknuts sold separately.

Specifications are subject to change without prior notice

# LUTZE TOP-T Fittings PG

## Metal PG



### Characteristics

- Integrated strain relief
- Anti-twist design
- Wide sealing and clamping range
- Easy to install

### Specifications

Connecting thread	PG DIN 40430
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-40°C - +150°C / -40°F - +302°F
Protection class	IP68 EN 60529
Material	
Body	Brass, nickel plated
Seal	CR Chloroprene Rubber
O-ring	NBR

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	UL R/L	PU
<b>PG</b>										
<b>FMPG7</b>	PG 7	0.118-0.256	3-6.5	6	14	14	15.5	24.0	R	10
<b>FMPG9</b>	PG 9	0.157-0.315	4-8	6	17	17	18.9	25.5	R	10
<b>FMPG11</b>	PG 11	0.197-0.394	5-10	6	20	20	22.0	28.0	R	10
<b>FMPG13</b>	PG 13.5	0.236-0.472	6-12	6.5	22	22	24.5	26.5	L	10
<b>FMPG16</b>	PG 16	0.394-0.551	10-14	6.5	24	24	26.5	30.0	L	5
<b>FMPG21</b>	PG 21	0.512-0.709	13-18	7.2	30	30	33.0	35.0	L	5
<b>FMPG29</b>	PG 29	0.709-0.984	18-25	8	40	40	44.5	40.5	L	5
<b>FMPG36</b>	PG 36	0.866-1.260	22-32	9	50	50	55.5	50.0	L	1
<b>FMPG42</b>	PG 42	1.181-1.496	30-38	12	58	58	64.0	51.0	L	1
<b>FMPG48</b>	PG 48	1.339-1.732	34-44	14	64	64	70.0	54.5	L	1

### Item Specific Approvals

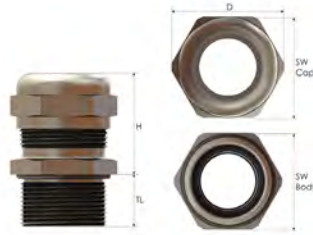
- UL Recognized (R) or UL Listed (L), as per table
- Type 4X for UL Listed items

Locknuts sold separately.

Specifications are subject to change without prior notice

# LUTZE TOP-T Fittings Metric

## Metal Metric



### Characteristics

- Integrated strain relief
- Anti-twist design
- Wide sealing and clamping range
- Easy to install

### Specifications

Connecting thread	Metric EN 60423
Temperature range	
Permanent	-20°C - +100°C / -4°F - +212°F
Intermittent	-40°C - +150°C / -40°F - +302°F
Protection class	IP68 EN 60529
Material	
Body	Brass, nickel plated
Seal	CR Chloroprene
O-ring	Rubber
	NBR

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	UL R/L	PU
<b>METRIC</b>										
<b>FMM12</b>	M12x1.5	0.118-0.256	3-6.5	6	14	14	15.5	24.0	R 10	
<b>FMM16</b>	M16x1.5	0.157-0.315	4-8	7	17	18	20.0	25.5	R 10	
<b>FMM20</b>	M20x1.5	0.236-0.472	6-12	8	22	22	24.5	26.5	L 10	
<b>FMM25</b>	M25x1.5	0.394-0.551	10-14	8	24	27	30.0	30.0	L 10	
<b>FMM32</b>	M32x1.5	0.512-0.709	13-18	9	30	34	37.5	35.0	L 5	
<b>FMM40</b>	M40x1.5	0.709-0.984	18-25	9	40	43	48.5	40.5	L 1	
<b>FMM50</b>	M50x1.5	0.866-1.260	22-32	9	50	55	61.0	50.0	L 1	
<b>FMM63</b>	M63x1.5	1.339-1.732	34-44	14	64	68	75.0	55.0	L 1	
<b>LONG THREAD</b>										
<b>FMM12-L</b>	M12x1.5	0.118-0.256	3-6.5	12	14	14	15.5	24.0	R 10	
<b>FMM16-L</b>	M16x1.5	0.157-0.315	4-8	12	17	18	20.0	25.5	R 10	
<b>FMM20-L</b>	M20x1.5	0.236-0.472	6-12	12	22	22	24.5	26.5	L 10	
<b>FMM25-L</b>	M25x1.5	0.394-0.551	10-14	12	24	27	30.0	30.0	L 10	
<b>FMM32-L</b>	M32x1.5	0.512-0.709	13-18	15	30	34	37.5	35.0	L 5	
<b>FMM40-L</b>	M40x1.5	0.709-0.984	18-25	15	40	43	48.5	40.5	L 1	
<b>FMM50-L</b>	M50x1.5	0.866-1.260	22-32	15	50	55	61.0	50.0	L 1	
<b>FMM63-L</b>	M63x1.5	1.339-1.732	34-44	18	64	68	75.0	55.0	L 1	

### Item Specific Approvals

- UL Recognized (R) or UL Listed (L) as per table
- Type 4X for UL Listed items

Locknuts sold separately.

Specifications are subject to change without prior notice



# LUTZE TOP-T Fittings EMC Metric and NPT

**Metal EMC (Electro Magnetic Compatibility), Quick Installation, Vibration Proof**



### Characteristics

- Adapts to different size cable shields
- 360° vibration proof shield termination
- Integrated strain relief
- Wide sealing and clamping range
- Updated design for easy installation
- Easy insertion of the cable from either end of the fitting
- Low contact resistance due to large alloy copper contacts
- Manufactured acc to EN 62444

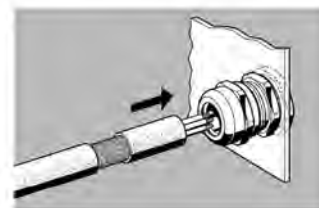
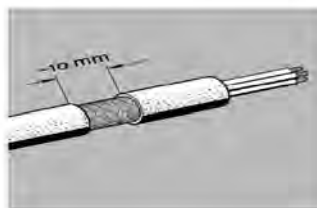
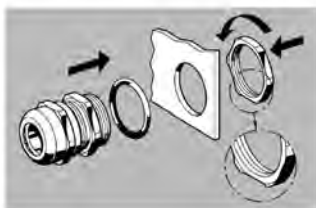
### Specifications

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	IP68 EN 60529
Material	
Body	Brass, nickel plated
Seal	CR Chloroprene
	Rubber
O-ring	NBR (metric) No O-ring for NPT

### Item Specific Approvals

- UL Recognized (R) or UL Listed (L), as per table
- Type 4X UL Listed items

Locknuts sold separately.



Specifications are subject to change without prior notice

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	UL R/L	PU
<b>METRIC</b>										
<b>FMM16-CV</b>	M16x1.5	0.197-0.394	5-10	6	20	20	22.0	35.0	R	5
<b>FMM20-CV</b>	M20x1.5	0.295-0.551	7.5-14	8	24	24	26.8	41.5	L	5
<b>FMM25-CV</b>	M25x1.5	0.394-0.709	10-18	8	30	30	33.0	44.5	L	5
<b>FMM32-CV</b>	M32x1.5	0.630-0.984	16-25	9	40	40	44.5	55.0	L	1
<b>FMM40-CV</b>	M40x1.5	0.866-1.260	22-32	9	50	50	55.5	62.5	L	1
<b>FMM50-CV</b>	M50x1.5	1.181-1.496	30-38	9	58	58	64.0	74.0	L	1
<b>FMM63-CV</b>	M63x1.5	1.457-2.087	37-53	10	75	75	83.0	75.0	L	1

<b>METRIC LONG THREAD</b>										
<b>FMM16-CVL</b>	M16x1.5	0.197-0.394	5-10	10	20	20	22.0	35.0	R	5
<b>FMM20-CVL</b>	M20x1.5	0.295-0.551	7.5-14	10	24	24	26.8	41.5	L	5
<b>FMM25-CVL</b>	M25x1.5	0.394-0.709	10-18	12	30	30	33.0	44.5	L	5
<b>FMM32-CVL</b>	M32x1.5	0.630-0.984	16-25	15	40	40	44.5	55.0	L	1
<b>FMM40-CVL</b>	M40x1.5	0.866-1.260	22-32	15	50	50	55.5	62.5	L	1
<b>FMM50-CVL</b>	M50x1.5	1.181-1.496	30-38	15	58	58	64.0	74.0	L	1
<b>FMM63-CVL</b>	M63x1.5	1.457-2.087	37-53	15	75	75	83.0	75.0	L	1

<b>NPT</b>										
<b>FMNPT38-CV</b>	NPT 3/8"	0.197-0.394	5-10	11.5	20	20	22.0	35.0	R	5
<b>FMNPT12-CV</b>	NPT 1/2"	0.295-0.551	7.5-14	15	24	24	26.8	41.5	L	1
<b>FMNPT34-CV</b>	NPT 3/4"	0.394-0.709	10-18	15	30	30	33.0	43.5	L	1
<b>FMNPT10-CV</b>	NPT 1"	0.630-0.984	16-25	20	40	40	44.5	54.0	L	1
<b>FMNPT114-CV</b>	NPT 1 1/4"	0.866-1.260	22-32	20	50	50	55.5	63.0	L	1
<b>FMNPT112-CV</b>	NPT 1 1/2"	1.181-1.496	30-38	22	58	58	64.0	73.0	L	1
<b>FMNPT20-CV</b>	NPT 2"	1.339-1.732	34-44	22	64	68	75.0	73.0	L	1

Shield termination fittings with special copper alloy contacts providing excellent electrical properties and easy installation.



# LUTZE TOP-T Fittings EMC Metric and NPT

## Large Diameter Metal EMC (Electro Magnetic Compatibility), Quick Installation



### Characteristics

- Designed for large diameter cables
- Two seal inserts for clamping range adjustment
- Adapts to different size cable shields
- 360° shield termination
- Integrated strain relief
- Wide sealing and clamping range
- Fast and easy to install
- Manufactured acc to EN 62444

### 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	IP68 EN 60529
Material	
Body	Brass, nickel plated
Seal	CR Chloroprene Rubber
O-ring	NBR

Part No.	Thread	Clamping Range Ø inches	Clamping Range Ø mm	TL mm	SW Cap mm	SW Body mm	D mm	H mm	UL R/L	PU
<b>METRIC</b>										
<b>FMM63-CEX</b>	M63x1.5	1.378-1.771	35-45	20	64	68	75.0	45.0	L	1
<b>FMM75-CEX</b>	M75x1.5	1.812-2.440	46-62	20	80	80	89.0	53.0	L	1
<b>FMM90-CEX</b>	M90x1.5	2.363-2.952	60-75	20	95	95	105.0	57.0	L	1
<b>NPT</b>										
<b>FMNPT2-CEX</b>	NPT 2"	1.378-1.771	35-45	20	64	68	75.0	45.0	L	1
<b>FMNPT212-CEX</b>	NPT 2-1/2"	1.812-2.440	46-62	21	80	80	89.0	56.5	L	1
<b>FMNPT3-CEX</b>	NPT 3"	2.363-2.952	60-75	21	95	95	105.0	65.0	L	1

### Approvals

- UL Listed acc. to UL2225

Locknuts sold separately.

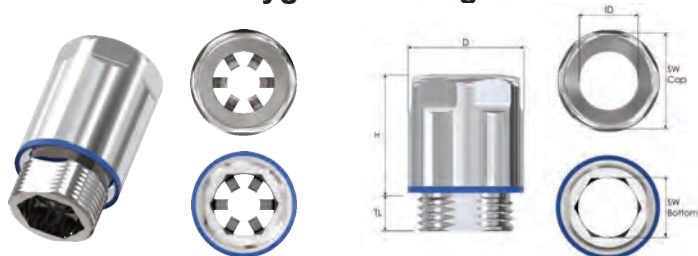
Specifications are subject to change without prior notice

"These fittings are designed to provide strain relief and shield termination for large diameter VFD cables. They offer a wide sealing range with three removeable sealing rings".



# LUTZE FBP Fittings Metric and NPT

## 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	SW Cap mm	SW Body mm	H mm	UL R/L	PU
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### METRIC

<b>FHM12</b>	M12x1.5	0.118-0.255	3-6.5	6	14	7	23.5	R	1
<b>FHM16</b>	M16x1.5	0.196-0.393	5-10	7	18	10	26.5	R	1
<b>FHM20</b>	M20x1.5	0.236-0.472	6-12	8	22	13	29.5	L	1
<b>FHM25</b>	M25x1.5	0.472-0.669	12-17	10	28	17	32.5	L	1

### NPT

<b>FHNPT14</b>	NPT 1/4"	0.118-0.255	3-6.5	10	18	7	23.5	R	1
<b>FHNPT38</b>	NPT 3/8"	0.196-0.393	5-10	10	22	10	27.5	R	1
<b>FHNPT12</b>	NPT 1/2"	0.236-0.472	6-12	11	28	13	30.5	L	1
<b>FHNPT34</b>	NPT 3/4"	0.472-0.669	12-17	12	35	17	33.5	L	1

### METRIC EMC

<b>FHM16-C2</b>	M16x1.5	0.196-0.393	5-10	7	18	10	32.5	R	1
<b>FHM20-C2</b>	M20x1.5	0.236-0.472	6-12	8	22	13	35.5	L	1
<b>FHM25-C2</b>	M25x1.5	0.472-0.669	12-17	10	28	17	41.0	L	1

### NPT EMC

<b>FHNPT38-C2</b>	NPT 3/8"	0.196-0.393	5-10	10	22	10	33	R	1
<b>FHNPT12-C2</b>	NPT 1/2"	0.236-0.472	6-12	11	28	13	36	L	1
<b>FHNPT34-C2</b>	NPT 3/4"	0.472-0.669	12-17	12	35	17	41.5	L	1

### 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

Specifications are subject to change without prior notice

# LUTZE TOP-T Locknuts Metal

## Metal Locknuts for use with NPT, PG, Metric and EMC Fittings



### Characteristics

- Hexagonal locknut for secure tightening of cable fittings and accessories

### Specifications

Temperature range up to +200°C/+392°F  
 Material Brass, nickel plated

Part No.	For Thread Type	OD - Ø mm	SW mm	H mm	PU
<b>NPT</b>					
LMNPT38	NPT 3/8"	26.5	24	5	5
LMNPT12	NPT 1/2"	26.5	24	5	5
LMNPT34	NPT 3/4"	37.5	34	6	5
LMNPT10	NPT 1"	46.4	42	6	5
LMNPT1014	NPT 1 1/4"	57.4	52	7	1
LMNPT1012	NPT 1 1/2"	65.1	60	7	1
LMNPT20	NPT 2"	81.8	74	8	1
LMNPT2012	NPT 2 1/2"	89	80	10	1
LMNPT30	NPT 3"	105.5	95	10	1
<b>PG</b>					
LMPG7	PG 7	16.6	15	2.8	20
LMPG9	PG 9	20	18	2.8	20
LMPG11	PG 11	23.5	21	3	20
LMPG13	PG 13.5	25.5	23	3	20
LMPG16	PG 16	29	26	3	20
LMPG21	PG 21	35.5	32	3.5	20
LMPG29	PG 29	45	41	4	10
LMPG36	PG 36	56	51	5	10
LMPG42	PG 42	66	60	5	5
LMPG48	PG 48	70.5	64	5.5	5
<b>METRIC</b>					
LMM12	M12x1.5	16.6	15	2.8	20
LMM16	M16x1.5	21	19	3	20
LMM20	M20x1.5	26.5	24	3.5	20
LMM25	M25x1.5	33	30	4	20
LMM32	M32x1.5	39.5	36	5	10
LMM40	M40x1.5	51	46	5	5
LMM50	M50x1.5	66	60	5	1
LMM63	M63x1.5	77	70	6	1
LMM75	M75x1.5	89	80	7	1
LMM90	M90x1.5	112	100	8	1
<b>EMC - METRIC CUTTING TEETH</b>					
LMM12-C	M12x1.5	16.5	15	3.3	10
LMM16-C	M16x1.5	21	19	3.5	10
LMM20-C	M20x1.5	26.5	24	3.5	10
LMM25-C	M25x1.5	33	30	3.5	10
LMM32-C	M32x1.5	39.5	36	4	5
LMM40-C	M40x1.5	51	46	4.6	5
LMM50-C	M50x1.5	66	60	5.6	1

### EMC Metric Locknuts with Cutting Teeth

- For secure tightening of EMC cable fittings
- To cut through paint layers or powder coatings ensuring optimal contact
- Increased vibration resistance

Specifications are subject to change without prior notice

# LUTZE TOP-T Fittings Reducer

## Metal PG and Metric Reducer



### Characteristics

- Reduction of threaded or clearance holes to smaller thread size

### Specifications

Internal/External thread	PG DIN 40430 Metric EN 60423
Temperature range	up to +200°C/+392°F
Material	Brass, nickel plated

Locknuts sold separately.

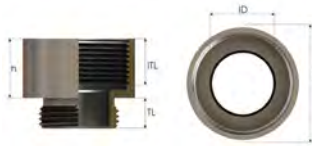
Specifications are subject to change without prior notice

Part	Thread G	Thread G1	SW mm	L mm	L1 mm
<b>PG</b>					
RMPG11-7	PG 11	PG 7	20	9	6
RMPG11-9	PG 11	PG 9	20	9	6
RMPG13-9	PG 13.5	PG 9	22	9	6.5
RMPG13-11	PG 13.5	PG 11	22	9	6.5
RMPG16-9	PG 16	PG 9	24	9.5	6.5
RMPG16-11	PG 16	PG 11	24	9	6
RMPG16-13	PG 16	PG 13.5	24	9	6
RMPG21-11	PG 21	PG 11	30	10	7
RMPG21-13	PG 21	PG 13.5	30	10	7
RMPG21-16	PG 21	PG 16	30	10	7
RMPG29-16	PG 29	PG 16	39	11.5	8
RMPG29-21	PG 29	PG 21	39	11.4	8
RMPG36-21	PG 36	PG 21	50	12.4	9
RMPG36-29	PG 36	PG 29	50	12.5	9.1
RMPG42-36	PG 42	PG 36	57	14.1	10

<b>METRIC</b>					
RMM16-12	M16x1.5	M12x1.5	18	9.5	6.5
RMM20-12	M20x1.5	M12x1.5	22	9.5	6.5
RMM20-16	M20x1.5	M16x1.5	22	9	6.5
RMM25-16	M25x1.5	M16x1.5	28	9	6.5
RMM25-20	M25x1.5	M20x1.5	30	11.5	8
RMM32-20	M32x1.5	M20x1.5	39	11.5	8
RMM32-25	M32x1.5	M25x1.5	39	11.5	8
RMM40-25	M40x1.5	M25x1.5	50	12.5	9
RMM40-32	M40x1.5	M32x1.5	50	12.5	9
RMM50-32	M50x1.5	M32x1.5	64	14	10
RMM50-40	M50x1.5	M40x1.5	64	14	10

# LUTZE TOP-T Fittings Enlargers

## Metal PG and Metric Enlargers



### Characteristics

- Reduction of threaded or clearance holes to larger thread size

### Specifications

Internal/External thread	PG DIN 40430 Metric EN 60423
Temperature range	up to +200°C/+392°F
Material	Brass, nickel plated

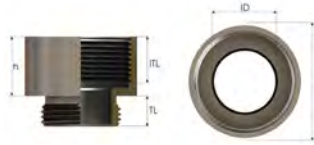
Locknuts sold separately.

Specifications are subject to change without prior notice

Part No.	Thread A	Thread B	L mm	H mm	Da mm	Di mm
<b>PG</b>						
<b>EMPG7-9</b>	PG 7	PG 9	5	15	17	8
<b>EMPG9-11</b>	PG 7	PG 11	6	16.5	20	11.7
<b>EMPG11-13</b>	PG 11	PG 13.5	6	17.5	22	13.8
<b>EMPG13-16</b>	PG 13.5	PG 16	6.5	17	24	16.4
<b>EMPG16-21</b>	PG 16	PG 21	6.5	18.5	29.7	17.6
<b>EMPG21-29</b>	PG 21	PG 29	7	23	39	24
<b>EMPG29-36</b>	PG 29	PG 36	8	27.5	50	32
<b>EMPG36-42</b>	PG 36	PG 42	9	31	57	38
<b>METRIC</b>						
<b>EMM12-16</b>	M12x1.5	M16x1.5	6	15	18	8
<b>EMM16-20</b>	M16x1.5	M20x1.5	6	17.6	22	12
<b>EMM20-25</b>	M20x1.5	M25x1.5	7	17.5	27	16
<b>EMM25-32</b>	M25x1.5	M32x1.5	8	19.5	34	20.5
<b>EMM32-40</b>	M32x1.5	M40x1.5	8	22.5	42	26

# LUTZE TOP-T Fittings Adapter

## Metric to NPT Adapters



### Adapter METRIC to NPT Characteristics

- Adapter from metric to NPT thread

### Specifications

External thread	Metric EN 60423
Internal thread	NPT ANSI B1.20.1
Temperature range	up to +200°C/+392°F
Material	Brass, nickel plated

Part No.	Thread A	Thread B	L mm	H mm	Da mm	Di mm
<b>METRIC TO NPT</b>						
<b>AMM16-12</b>	M16x1.5	NPT 1/2"	6.5	24.5	24	11
<b>AMM20-12</b>	M20x1.5	NPT 1/2"	8	26	24	15
<b>AMM25-34</b>	M25x1.5	NPT 3/4"	8	26	30	18
<b>AMM32-34</b>	M32x1.5	NPT 3/4"	8	26	35	23
<b>AMM32-10</b>	M32x1.5	NPT 1"	8	29	37	27

Locknut sold separately

Specifications are subject to change without prior notice

# LUTZE TOP-T Fittings Accessories

## TPE Multihole Insert for use with NPT, PG, and Metric Fittings



### Characteristics

- Multihole insert for two or more cables in one fitting
- Replaces the existing rubber insert to offer multiple entry points
- Suitable for plastic and metal fittings
- Solid inserts can be drilled to suit any application

### Specifications

Material TPE

Specifications are subject to change without prior notice

Part No.	Replaces Standard Seal min-max mm	Outer OD mm	Number of Cables x OD mm	Height H mm
MHA0204	5-10	13.7	2 x 4.0	10.4
MHA02045	5-10	13.7	2 x 4.5	10.4
MHB0206	6-12	16	2 x 6.0	8.4
MHB0305	6-12	16	3 x 5.0	8.4
MHC0204	10-14	18	2 x 4.0	9.3
MHC0206	10-14	18	2 x 6.0	9.3
MHC0304	10-14	18	3 x 4.0	9.3
MHC0306	10-14	18	3 x 6.0	9.3
MHC0405	10-14	18	4 x 5.0	9.3
MHC0504	10-14	18	5 x 4.0	9.3
MHD0207	13-18	22.9	2 x 7.0	12.2
MHD0208	13-18	22.9	2 x 8.0	12.2
MHD0209	13-18	22.9	2 x 9.0	12.2
MHD0308	13-18	22.9	3 x 8.0	12.2
MHD0407	13-18	22.9	4 x 7.0	12.2
MHE05085	18-25	30.4	5 x 8.5	14



## Light Duty Modular Cable Entry System Cablefix®



### Characteristics

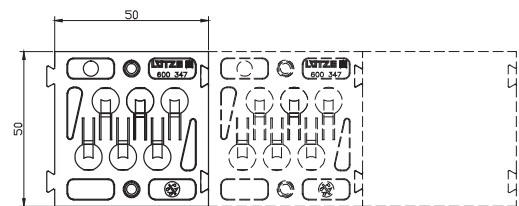
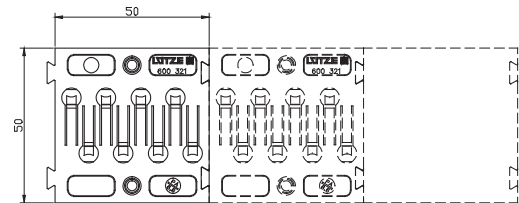
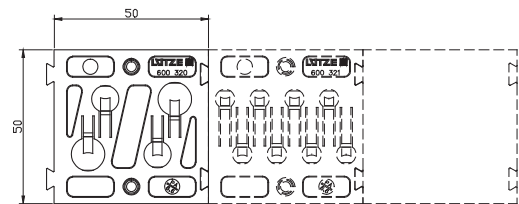
- Cables push easily into position, locks itself and it can no longer be pulled out unless the clamp is released
- Strain relief in one direction
- Integrated seal for ingress protection
- Individual cables can be easily loosened and replaced for troubleshooting, maintenance or retrofitting
- Mix & Match: interlocking seal allows for any combination of the three different Cablefix® versions to custom fit it to your application
- Blanking plugs included to seal unused holes

### Specifications

Material	Polyamide PA
Temperature range	-30°C - +70°C / 22°F - +212°F
Halogen free	Yes
Burning behavior	Polyamide plate according to UL 94 V2
Silicone free	Yes
Enclosure wall thickness	maximum 3 mm
Protection class	IP55 EN 60529
Seal	NBR60 oil resistant

Specifications are subject to change without prior notice

Part No.	Type	Dimensions WxHxD mm	Cut out W x H mm	Number of Cables x Cable OD - Ø mm
<b>600320</b>	1xB/V	50.0 x 50.0 x 10.0	46 x 46	2 x 6.1-8.8 + 2 x 7.8-10.7
<b>600321</b>	1xS/A	50.0 x 50.0 x 10.0	46 x 46	8 x 3.8-6.3
<b>600347</b>	1xST	50.0 x 50.0 x 10.0	46 x 46	6 x 6.3-8.9



## Cablefix® X Cable Entry System



### Characteristics

- Cables install easily by pushing the end through the seal from the front
- Strain relief in one direction
- Saves over 50% installation space and 80% installation time vs. using individual cable glands
- Easy to install: can be bolt mounted or snapped directly into enclosures with a 1.5mm wall thickness
- Integrated seals offer excellent ingress protection
- Entry points are sealed by default, eliminating the need for blanking plugs
- Standard cutout makes cabinet preparation easy and is compatible with common punches
- Mounting hardware included with all frames

### Specifications

Frame material	Polyamide (PA) with glass fiber reinforcement
Seal material	Butyl (IIR) rubber
Spacer	Chloroprene
Inner membrane	Polyurethane
Temperature range	-40°C to +80°C -40°F to +176°F
Burning behavior	HB according to UL 94
Silicone free	Yes
Protection class	UL Type 4X* UL Type 12 UL Type 13 IP65
Gasket	Polyurethane
Frame color	Black RAL 9005

\*Note: UL Type 4x applies to cables with a diameter of 5.0mm and larger.

Part No.	Number of Entry Points	Dimensions WxHxD mm	Cutout W x H mm	Number of Cables x Cable OD - Ø mm
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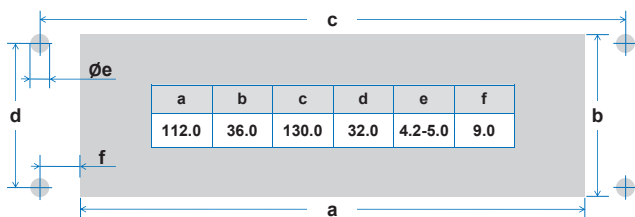
### Bolt-Mounted Design (for all enclosures)

<b>606550</b>	12	148.0 x 60.0 x 13.5	112 x 36	12 x 5.0-13.0
<b>606551</b>	23	148.0 x 60.0 x 13.5	112 x 36	23 x 4.0-8.5
<b>606554</b>	22	148.0 x 60.0 x 13.5	112 x 36	16 x 3.0-6.5 4 x 5.0-9.2 2 x 8.0-12.5

### Snap-in Design (for enclosures with 1.5mm wall thickness)

<b>606561</b>	12	148.0 x 60.0 x 13.5	112 x 36	12 x 5.0-13.0
<b>606562</b>	23	148.0 x 60.0 x 13.5	112 x 36	23 x 4.0-8.5

### Enclosure Cutout Dimensions



Specifications are subject to change without prior notice

# LUTZE Cablefix® One Kits

## Cablefix® One Modular Cable Entry System



### Characteristics

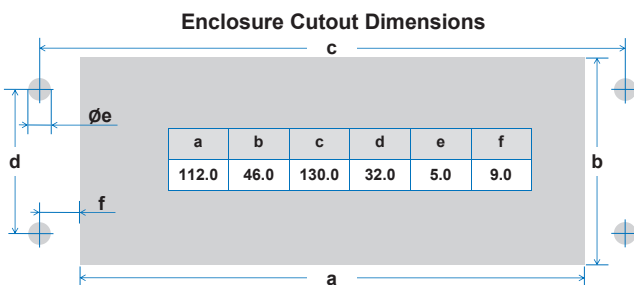
- Suitable for cables with or without pre-installed connectors
- Kits include frame, hardware, and the layered seals needed to cover entire clamping range specified for each entry point (2 seals per entry point)
- Kits simplify the specifying and ordering process by eliminating the need to order individual seals and frame components
- Easy to install, bolt mounted to a 112 x 46mm cutout
- Individual cables can be easily removed and replaced for troubleshooting, maintenance or retrofitting
- Modular multilayer seals accommodate a wide range of cable diameters
- Strong integrated strain relief
- Unused seals are closed by default, eliminating the need for blanking plugs
- Fiberglass reinforced frame withstands harsh industrial environments
- Standard cutout makes cabinet preparation easy and is compatible with common punches
- Mounting hardware included with all frames

### Specifications

Frame material	Polyamide (PA) with glass fiber reinforcement
Seal material	Chloroprene rubber (CR)
Temperature range	-40°C to +80°C -40°F to +176°F
Burning behavior	HB according to UL 94
Silicone free	Yes
Protection class	UL Type 4X UL Type 12 UL Type 13 IP66
Strain relief	Per EN 62444
Gasket	Polyurethane
Frame color	Black RAL 9005

### Cablefix® One Kits (include frame, hardware, and seals)

Part No.	Frame Type	Dimensions WxHxD mm	Cutout W x H mm	Number of Cables x Cable OD – Ø mm
<b>606500</b>	4	156.5 x 75.2 x 27.5	112 x 46	2 x 5.0-15.0 2 x 15.0-29.0
<b>606501</b>	7	156.5 x 75.2 x 27.5	112 x 46	6 x 5.0-15.0 1 x 15.0-29.0
<b>606502</b>	10	156.5 x 75.2 x 27.5	112 x 46	10 x 5.0-15.0



Specifications are subject to change without prior notice

The maximum inside dimension of the Cablefix® One frame is 110mm x 41mm. At least one end of the installed cable must be able to pass through this opening.



## Modular Strain Relief System with Plastic or Aluminum Frame for Cable Assemblies



### Characteristics

- Suitable for cables with or without pre-installed connectors
- Top loading frame allows insertion of cables with large connectors
- Modular system to accommodate a wide variety of cable diameter ranges
- Unused seals can be sealed with optional blanking plugs

### Frame Specifications

Frame material	Polished aluminum or 30% fiberglass reinforced Polyamide 66 (GF30)
Protection class	IP65 EN 60529

### Small (VK) Insert Specifications

Material	TPE
Temperature range	-40°C - +100°C/ -40°F - +212°F
Resistance	UV, ozone, oils and fuels, acids and dyes, solvents and salt water

### Large (VG) Insert Specifications

Material	TPE
Temperature range	-40°C - +100°C/ -40°F - +212°F
Resistance	UV, ozone, oils and fuels, acids and dyes, solvents and salt water

### Blanking Plug Specifications

Material	PA6 (GF15) Gray
Temperature	-40°C - +100°C/ -40°F - +212°F
Resistance	UV, ozone, oils and fuels, acids and dyes, solvents and salt water

Specifications are subject to change without prior notice

Part No.	Frame Type	Dimensions WxHxD mm	No. of Small VK Inserts	No. of Large VG Inserts
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#### PLASTIC

606052	KKLR1	136 x 71 x 30	4	2
606053	KKLR2	164 x 71 x 30	6	3

#### ALUMINUM

606001	AKLR1	108 x 68 x 30	4	2
606002	AKLR2	148 x 68 x 30	6	3
606004	AKLR4	148 x 108 x 30	12	6
606005	AKLR5	188 x 78 x 30	8	4
606007	AKLR7	188 x 118 x 30	16	8

Part No.	Type Small VK	Clamping Range Ø mm	No of Holes
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606150	VK0	SOLID	0
606151	VK4	4 – 4.5	14
606152	VK5	4.5 – 5.5	8
606153	VK6	5.5 – 6.5	8
606154	VK7	6.5 – 7.5	5
606155	VK8	7.5 – 8.5	5
606156	VK9	8.5 – 9.5	3
606157	VK10	9.5 – 10.5	3
606158	VK12	10.5 – 12.5	2
606159	VK14	12.5 – 14.5	2
606160	VK16	14.5 – 16.5	2

Part No.	Type Large VG	Clamping Range Ø mm	No of Holes
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606200	VG0	SOLID	0
606201	VG18	16.5 – 18.5	2
606202	VG20	18.5 – 20.5	1
606203	VG22	20.5 – 22.5	1
606204	VG24	22.5 – 24.5	1
606205	VG26	24.5 – 26.5	1
606206	VG28	26.5 – 28.5	1
606207	VG30	28.5 – 30.5	1
606208	VG32	30.5 – 32.5	1
606209	VG34	32.5 – 34.5	1

Part No.	Fits Insert Part No.	Type	OD - Ø mm	Length mm
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606250	606151	BL4	4	30
606251	606152	BL5	5	30
606252	606153	BL6	6	30
606253	606154	BL7	7	30
606254	606155	BL8	8	30
606255	606156	BL9	9	30
606256	606157	BL10	10	30
606257	606158	BL12	12	30
606258	606159	BL14	14	30
606259	606160	BL16	16	30
606260	606201	BL18	18	30

## Assembly of Modular Strain Relief System



### 1. Choose aluminum or plastic frame.

The Cablefix® Vario features outstanding material characteristics for harsh industrial environments and a high sealing protection of IP65. Every frame ships with an included drill pattern for proper mounting to the cabinet. The plastic frames are made of reinforced polyamide 66 with brass support. The aluminum version is made entirely of solid polished aluminum. Cablefix® Vario offers strain relief options for cable ranges from 4.5 to 34.5mm in diameter. The versatile system is ideal for installations and retrofitting, and offers proper strain relief for already connectorized cables. This is a great advantage over conventional solutions with standard cable fittings.



### 2. Choose appropriate inserts for the selected frame.

Example:  
606052 can hold either

- 4 inserts type VK or
- 2 inserts type VG
- 2 VK inserts replace 1 VG insert

VK small	VK small	VG large	VG large	VG large	VK small
VK small	VK small				VK small

- The tongue and groove design makes combining different inserts quick and easy.
- The slotted design allows easy installation by sliding the assembled cables in from the side.

### 3. Select appropriately sized blanking plugs for unused holes.

Once all unused holes are plugged, the system provides a protection rating IP65. The rubber components do not require the use of grease, which is advantageous over other similar systems.

The advantages at a glance:

- Minimum space requirement
- Simple insertion of rubber inserts due to tongue and groove design
- Very versatile
- Allows future expansion
- Ideal for retrofitting of existing cabinets



Specifications are subject to change without prior notice



# 6. Network Connectivity

## Industrial Connectors and Panel Pass Through Devices



# LUTZE Ethernet and Network Connectors

## Panel Pass Through Devices

### Application

- Industrial USB connectivity

### Characteristics

- Available with or without cord
- 8 different cord lengths
- Female / Female 1:1 or Female / Male 1:1
- Backwards compatible with USB 2.0
- Standard 22.5 mm cutout
- Easy to install

### Technical Data

Temperature range	-25°C - +70°C -13°F - +158°F
Protection class	Type 2, 3R, 4, 4X, 12, 13, IP65 with cap closed, IP20 in inserted operation
Shielding	yes
Transmission performance	5 Gigabit/sec
Contact material	CuSN, gold-plated
Insulation resistance	>100 MΩ (490112)
with cord	>100 MΩ x km
Rated current	900 mA per contact
Cable OD	6.1 mm
Bending radius min	6 x cable OD
Wall mount thickness	1 – 5 mm
Dimensions (490112)	29.5 x 42.5 mm (WxD)
Dimensions (490113)	29.5 x 45 mm (WxD)
Approvals	UL

### Application

- Industrial Ethernet connectivity
- Cat5e or Cat6<sub>A</sub> available

### Characteristics

- Female / Female 1:1
- Gold-plated 8 pin (4 pair) connection
- Standard 22.5 mm cutout
- Easy to install

### Technical Data

Temperature range	-25°C - +70°C -13°F - +158°F
Protection class	Type 2, 3R, 4, 4X, 12, 13, IP65 with cap closed, IP20 in inserted operation
Shielding	yes
Contact material	CuSN, gold-plated
Insulation resistance	>100 MΩ
Rated current	1.5A
Wall mount thickness	1 – 5 mm
Dimensions	29.5 x 29 mm (WxD)
Approvals	UL

Specifications are subject to change without prior notice

## USB 3.0 “SuperSpeed” Panel Pass Through



Part No.	Description	Cord Length
<b>490112</b>	USB 3.0 A/A F/F	N/A
<b>490113.0030</b>	USB 3.0 A/A F/M	0.3 m / 11.8"
<b>490113.0060</b>	USB 3.0 A/A F/M	0.6 m / 23.6"
<b>490113.0080</b>	USB 3.0 A/A F/M	0.8 m / 31.5"
<b>490113.0100</b>	USB 3.0 A/A F/M	1.0 m / 39.4"
<b>490113.0150</b>	USB 3.0 A/A F/M	1.5 m / 59.0"
<b>490113.0200</b>	USB 3.0 A/A F/M	2.0 m / 78.7"
<b>490113.0300</b>	USB 3.0 A/A F/M	3.0 m / 118.0"
<b>490113.0500</b>	USB 3.0 A/A F/M	5.0 m / 196.8"

## RJ45 Panel Pass Through



Part No.	Description
<b>492075</b>	RJ45 F/F 8/8 Cat5e
<b>492076</b>	RJ45 F/F 8/8 Cat6 <sub>A</sub>



# LUTZE Ethernet and Network Connectors

## PANELCON IP69K Panel Pass Through Devices

### Application

- Industrial USB connectivity

### Characteristics

- Available with or without cord
- 8 different cord lengths
- Female / Female 1:1 or Female / Male 1:1
- Backwards compatible with USB 2.0
- Standard 22.5 mm cutout
- Easy to install

### Technical Data

Temperature range	-25°C - +70°C -13°F - +158°F
Protection class	IP69 with cap closed, IP20 in inserted operation
Shielding	yes
Transmission performance	5 Gigabit/sec
Contact material	CuSN, gold-plated
Insulation resistance	>100 MΩ (490112)
with cord	>100 MΩ x km
Rated current	900 mA per contact
Cable OD	6.1 mm
Bending radius min	6 x cable OD
Wall mount thickness	1 – 5 mm
Dimensions (490218)	30 x 36.5 x 44.5 mm (WxHxD)
Dimensions (490219)	30 x 49 x 44.5 mm (WxHxD)
Approvals	UL

### Application

- Industrial Ethernet connectivity
- Cat5e or Cat6<sub>A</sub> available

### Characteristics

- Female / Female 1:1
- Gold-plated 8 pin (4 pair) connection
- Standard 22.5 mm cutout
- Easy to install

### Technical Data

Temperature range	-25°C - +70°C -13°F - +158°F
Protection class	IP69 with cap closed, IP20 in inserted operation
Shielding	yes
Contact material	CuSN, gold-plated
Insulation resistance	>100 MΩ
Rated current	1.5A
Wall mount thickness	1 – 5 mm
Dimensions	30 x 35 x 44.5 mm (WxHxD)
Approvals	UL

Specifications are subject to change without prior notice

## USB 3.0 “SuperSpeed” Panel Pass Through



Part No.	Description	Cord Length
<b>490218</b>	USB 3.0 A/A F/F	N/A
<b>490219.0030</b>	USB 3.0 A/A F/M	0.3 m / 11.8”
<b>490219.0060</b>	USB 3.0 A/A F/M	0.6 m / 23.6”
<b>490219.0100</b>	USB 3.0 A/A F/M	1.0 m / 39.4”
<b>490219.0150</b>	USB 3.0 A/A F/M	1.5 m / 59.0”
<b>490219.0200</b>	USB 3.0 A/A F/M	2.0 m / 78.7”
<b>490219.0500</b>	USB 3.0 A/A F/M	5.0 m / 196.8”

## RJ45 Panel Pass Through



Part No.	Description
<b>492077</b>	RJ45 F/F 8/8 Cat6 <sub>A</sub>
<b>492078</b>	RJ45 F/F 8/8 Cat5e

# LUTZE Ethernet and Network Connectors

## RJ45 Jack Module for DIN Rail Mounting

### Application

- Industrial Ethernet Cat6<sub>A</sub> connectivity
- Data transmission between the field and control cabinet
- Power over Ethernet Plus compatible

### Characteristics

- Pluggable Ethernet or Profinet connections
- Field wireable connector included
- IDC - Insulation Displacement Connector
- Min. 750 insertion cycles
- Narrow housing width (18mm)
- No special tools required
- Protective port door
- Wide AWG conductor range
- Easy to install

### Cat6<sub>A</sub> Jack Module with Field Wireable Connector Insert



Part No.	Description	Conductor Gauge	Color Code
490209	RJ45 – 8 pole Cat6 <sub>A</sub>	AWG 27/7 to AWG 22/7	T568B
490238	RJ45 – 8 pole Cat6 <sub>A</sub>	AWG 27/7 to AWG 22/7	T568A

### Technical Data

Temperature range	-40°C - +70°C -40°F - +185°C
Protection class	IP20
Transmission performance	10 Gigabit/sec
Insulation resistance	>500 MΩ
Rated current	Max 1.0A per contact
Shielding	360°
Contact material	CuSn, gold-plated
Conductor size	AWG 27-22
Cable OD	5.5 – 9 mm
Dimensions	18.0 × 70.5 × 67.5mm (WxHxD)
Approvals	UL

Specifications are subject to change without prior notice

# LUTZE Ethernet and Network Connectors

## Field Wireable Industrial Network RJ45 Connectors

### Application

- Industrial Ethernet Cat6<sub>A</sub> connectivity
- Power over Ethernet

### Characteristics

- IDC - Insulation Displacement Connector
- Cable entry: straight or 90° angled
- Zinc die-cast housing
- Quick connect technology
- Field wireable
- Easy to install

### Technical Data

Temperature range	-40°C - +85°C -40°F - +185°F
Protection class	IP20
Transmission performance	10 Gigabit/sec
Rated current	Max 1.0A per contact
Insulation resistance	>500 MΩ
Shielding	360°
Contact material	Spring steel 0.8 μm gold-plated
Conductor size	AWG 27-22
Cable OD	5.5 – 10 mm
Approvals	UL
Item specific certification	490151 CC-link IE Field

Specifications are subject to change without prior notice

### RJ45 Plug IDC Industrial Connector Straight



Part No.	Description	Cable Cross section	Color Code
490174	RJ45 – 8 pole Cat6 <sub>A</sub>	Solid 24-22/1 Stranded 24-22/7,19	T568B
490175	RJ45 – 8 pole Cat6 <sub>A</sub>	Solid 24-22/1 Stranded 24-22/7,19	T568A
490176	RJ45 – 8 pole Cat6 <sub>A</sub>	Solid 26-24/1 Stranded 27-24/7, 26/19	T568B
490177	RJ45 – 4 pole Cat6 <sub>A</sub>	Solid 24-22/1 Stranded 24-22/7, 19	Profinet

### RJ45 Plug IDC Industrial Connector 90° Angled



Part No.	Description	Cable Cross section	Color Code
490151	RJ45 – 8 pole Cat6 <sub>A</sub>	Solid 24-22/1 Stranded 24-22/7,19	T568B
490152	RJ45 – 8 pole Cat6 <sub>A</sub>	Solid 24-22/1 Stranded 24-22/7,19	T568A
490153	RJ45 – 8 pole Cat6 <sub>A</sub>	Solid 26-24/1 Stranded 27-24/7, 26/19	T568B
490178	RJ45 – 4 pole Cat6 <sub>A</sub>	Solid 24-22/1 Stranded 24-22/7, 19	Profinet

# LUTZE M12 Connectors

## Field Wireable M12 Connectors with Push-In Technology

### Application

- Actuator sensor connections
- Plant floor connectivity
- I/O connections

### Characteristics

- Spring clamp push-in termination
- Solid conductors and ferrules can be terminated by simply pushing into the connector, with no tools required
- Stranded conductors are easily terminated by opening the color-coded tabs and inserting the wire
- Straight or 90° angled design
- Zinc die-cast and plastic housing
- Fast and easy connection
- Suitable for unshielded cables

### Technical Data

Rated voltage	AC/DC 24V
Max voltage	4 Pole: 250V 5 Pole: 125V
Temperature range	-40°C - +85°C -40°F - +185°F
Protection class	IP65, IP67 inserted and tightened
Rated current	4A
Insulation resistance	>100 MΩ
Contact material	CuSn, gold-plated
Conductor size	AWG26-AWG18 with ferrule: AWG28-AWG20
Cable OD	4 - 8 mm
Approvals	cULus

### M12 Straight, Unshielded



Part No.	Description	Coding	Poles
<b>490190</b>	M12 male straight	A	4
<b>490191</b>	M12 male straight	A	5
<b>490192</b>	M12 female straight	A	4
<b>490193</b>	M12 female straight	A	5

### M12 90° Angled, Unshielded



Part No.	Description	Coding	Poles
<b>490194</b>	M12 male angled	A	4
<b>490195</b>	M12 male angled	A	5
<b>490196</b>	M12 female angled	A	4
<b>490197</b>	M12 female angled	A	5

Stranded conductors are easily terminated without tools by opening the tabs and inserting the wire:



Specifications are subject to change without prior notice

# LUTZE M12 Connectors

## Field Wireable M12 Connectors with Push-In Technology

### Application

- Actuator sensor connections
- Field bus connections
- Industrial Ethernet connections
- Plant floor networking
- I/O connections

### Characteristics

- Spring clamp push-in termination
- Solid conductors and ferrules can be terminated by simply pushing into the connector, with no tools required
- Stranded conductors are easily terminated by opening the color-coded tabs and inserting the wire
- Straight or 90° angled design
- Zinc die-cast housing
- Fast and easy connection
- Suitable for unshielded and shielded cables

### Technical Data

Rated Voltage	AC/DC 24V
Max Voltage	4 Pole: 250V 5 Pole: 125V
Temperature range	-40°C - +85°C -40°F - +185°F
Protection class	IP65, IP67 inserted and tightened
Rated current	4A
Shielding	360°
Insulation resistance	>100 MΩ
Contact material	CuSn, gold-plated
Conductor size	AWG26-AWG18 with ferrule: AWG28-AWG20
Cable OD	4 - 8 mm
Approvals	cULus
Item specific applications	B-coded: PROFIBUS D-coded: PROFINET Cat5e

Specifications are subject to change without prior notice

### M12 Straight, Shielded



Part No.	Description	Coding	Poles
490200	M12 male straight	A	5
490201	M12 female straight	A	5
490210	M12 male straight	B	2
490211	M12 female straight	B	2
490212	M12 male straight	D	4
490213	M12 female straight	D	4

### M12 90° Angled, Shielded



Part No.	Description	Coding	Poles
490202	M12 male angled	A	5
490203	M12 female angled	A	5
490214	M12 male angled	D	4
490215	M12 female angled	D	4

## 7. Technical Overview

LUTZE SILFLEX® .....	101
LUTZE MOTIONFLEX® .....	102
LUTZE SUPERFLEX® .....	103
LUTZE MOTIONFLEX® Continuous Motion Cycle Ratings .....	104
LUTZE SUPERFLEX® High Flexing Cable Cycle Rating.....	105
Handling and Installation of LUTZE SUPERFLEX® cables .....	106
BUS and Network Cables .....	108
Ethernet Overview.....	109
Ethernet Cable and Connector Selection Guides.....	111
M12 Connector Overview .....	112
M12 Connector Selection Guide.....	113
DRIVEFLEX® VFD and Servo Motor Cable.....	114
Motor, VFD and Servo Applications.....	115
Approvals for North America.....	116
NFPA 79 Requirements for AWM .....	117
NFPA 79 Requirements for VFD Cable .....	118
Ampacity per NFPA 79 .....	119
Ampacity per National Electric Code (USA).....	120
Motor, VFD and Servo Cable Selection by Horsepower at 75°C .....	121
Motor, VFD and Servo Cable Selection by Horsepower at 90°C .....	122
Conductor Stranding .....	123
Conductor Markings .....	124
Chemical Resistance of LUTZE Cable Jackets.....	126
FBP Material Compatibility .....	127
Ingress Protection (IP) Class Designation .....	128
Enclosure Type Ratings .....	129
Thread Tables for Fittings.....	130
Torque Recommendations for Fittings.....	131
LUTZE Fittings Selection Chart.....	132
LUTZE Hygienic Fittings Chart.....	142
Part Number Index .....	147

# LUTZE SILFLEX®

## LUTZE SILFLEX® - The Flexible Cable for Harsh Industrial Environments

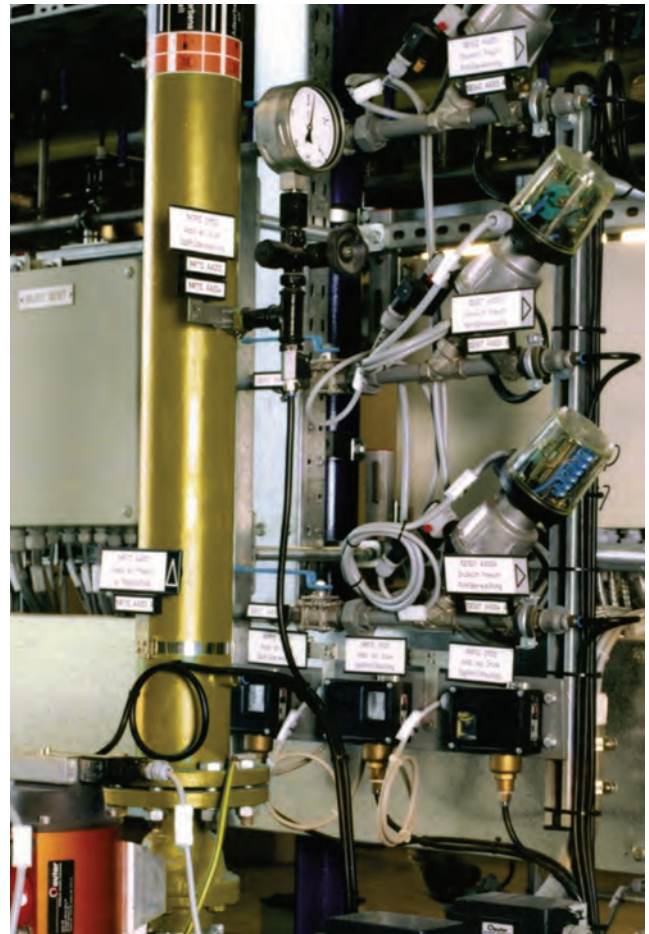
LUTZE SILFLEX® cables are suitable for stationary and flexible applications without continuous linear movement (not recommended for drag chains) and allow easy installation in the field.

LUTZE SILFLEX® cables are available in control and power cable configurations.

LUTZE SILFLEX® cables are flexible for easy routing to the machine and are designed to withstand the exposure to various harsh industrial environments.

LUTZE SILFLEX® cables can be used in machine tools, machine and plant construction, industrial HVAC technology, assembly and production lines as well as many other industrial applications.

LUTZE SILFLEX® cables are silicone free and are approved by many automotive manufacturing plants.





## LUTZE MOTIONFLEX® – One Cable for Many Applications

LUTZE MOTIONFLEX® cables are suitable for moderate drag chain applications as well as motion applications with repetitive movement, flexing and torsional stress.

LUTZE MOTIONFLEX® cables can be used in automation technology, material handling, conveyer technology, and industrial machinery.

LUTZE MOTIONFLEX® cables provide a high quality TPE jacket for resistance to many physical and chemical environmental hazards.

LUTZE MOTIONFLEX® cables carry multiple approvals for use in facility wiring, cable tray, on-machine, and in-cabinet. In addition, they are UL listed for machine and field wiring.







## LUTZE SUPERFLEX® sets Industry Standards: Longevity, Reliability, Flexibility

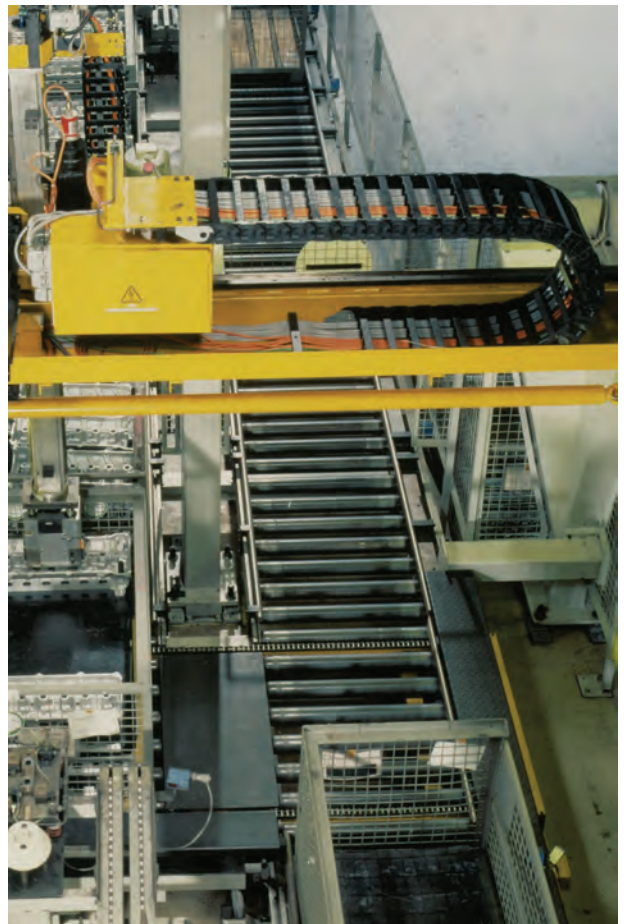
LUTZE offers a variety of high flexing cables specifically designed for use in continuous motion applications such as drag chains.

LUTZE SUPERFLEX® and LUTZE SUPERFLEX® Plus cables include high flexing control and motor supply cables, as well as electronic and network cables. LUTZE SUPERFLEX® cables are compatible with all major drag chain brands.

LUTZE SUPERFLEX® PVC is designed for moderate to higher performance flexing in short to medium length drag chains. LUTZE SUPERFLEX® PVC is offered with PVC or High Glide TPE insulation and with specially formulated PVC jacket.

LUTZE SUPERFLEX® Plus PUR is designed for high performance flexing or longer drag chains. LUTZE SUPERFLEX® Plus PUR cables are manufactured with premium materials such as High Glide TPE insulation and PUR jackets for high performance applications in modern high speed machine tools.

All high flexing cables require special handling and installation techniques which are different from those of standard flexible control cables. To ensure the longest possible life span for your cable, it is important to follow installation procedures precisely.



# LUTZE Technical Overview

## LUTZE MOTIONFLEX® Linear and Torsional Flexing Cable Cycle Ratings

Modern day automation requires the use of specially designed cables, constructed for various motion profiles. The lifetime of cables in automation environments, highly depends on the mechanical parameters of the application, but also on proper handling and installation of the cable.

Cable Type	Traveling distances	Bending Radius	Speed	Acceleration	Cycles
<b>LUTZE MOTIONFLEX® TRAY-ER TPE</b>					
Unshielded & Shielded cables with special PVC/Nylon Insulation, TPE jackets	> 3 ft / 1m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	5,000,000
<b>LUTZE MOTIONFLEX® M (C) TPE</b>					
Unshielded & Shielded cables with XLPE Insulation, TPE jackets	> 3 ft / 1m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	5,000,000
<b>LUTZE MOTIONFLEX® ETHERNET (C) TPE</b>					
Shielded cables with special HDPE Insulation, TPE jackets	> 3 ft / 1m	> 20 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	10,000,000
	> 3 ft / 1m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	1,000,000

## LUTZE MOTIONFLEX® Torsional Flexing

Cable Type	Cable length	Torsion angle	Speed	RPM	Cycles
<b>LUTZE MOTIONFLEX® TRAY-ER TPE</b>					
Shielded cables with special PVC/Nylon Insulation, TPE jackets	> 3 ft / 1m	≤ 120°	< 1 m/s	> 50	2,000,000
Unshielded cables with special PVC/Nylon Insulation, TPE jackets	> 3 ft / 1m	≤ 180°	< 1 m/s	> 50	2,000,000
<b>LUTZE MOTIONFLEX® M (C) TPE</b>					
Shielded cables with special XLPE Insulation, TPE jackets	> 3 ft / 1m	≤ 120°	< 1 m/s	> 50	2,000,000
<b>LUTZE MOTIONFLEX® ETHERNET (C) TPE</b>					
Shielded cables with special HDPE Insulation, TPE jackets	> 3 ft / 1m	≤ 270°	< 1 m/s	> 50	3,000,000

The data in this table shows actual application parameters and accomplished cycles in independent tests. Flexing cycle performance can only be compared by looking at all the data. A rating of "millions of operations" is meaningless if the distance, speed and bend radius is unknown.

# LUTZE Technical Overview

## LUTZE SUPERFLEX® High Flexing Cable Cycle Ratings

The demanding mechanical requirements in drag chains require the use of specially designed cables, constructed for continuous flexing. The lifetime of cables in drag chains highly depends on the mechanical parameters of the application, but also on proper handling and installation of the cable.

Cable Type	Traveling distances	Bending Radius	Speed	Acceleration	Cycles
<b>LUTZE SUPERFLEX® PLUS PUR</b>					

Unshielded cables with special TPE or High Glide Insulation, PUR or TPE jackets	< 16 ft / 5 m	> 10 Ø	< 3 m/s	< 5 m/s <sup>2</sup>	20,000,000
	< 67 ft / 20 m	> 7 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	10,000,000
	< 328 ft / 100 m	> 7 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	2,000,000

<b>LUTZE SUPERFLEX® PLUS (C) PUR</b>					
--------------------------------------	--	--	--	--	--

Shielded cables with special TPE or High Glide Insulation, special sub-jackets, and PUR or TPE jackets	< 16 ft / 5 m	> 12 Ø	< 3 m/s	< 5 m/s <sup>2</sup>	20,000,000
	< 67 ft / 20 m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	10,000,000
	< 328 ft / 100 m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	2,000,000

<b>LUTZE SUPERFLEX® PVC</b>					
-----------------------------	--	--	--	--	--

Unshielded cables with special TPE or High Glide Insulation, PVC and Alloy jackets e.g. A148 series	< 16 ft / 5 m	> 12 Ø	< 3 m/s	< 5 m/s <sup>2</sup>	10,000,000
	< 49 ft / 15 m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	5,000,000

<b>LUTZE SUPERFLEX® PVC (C)</b>					
---------------------------------	--	--	--	--	--

Shielded cables with special TPE or High Glide Insulation, fleece wrap or sub-jackets PVC and Alloy jackets e.g. A149 series	< 16 ft / 5 m	> 15 Ø	< 3 m/s	< 5 m/s <sup>2</sup>	10,000,000
	< 49 ft / 15 m	> 12 Ø	< 5 m/s	< 10 m/s <sup>2</sup>	5,000,000

The data in this table shows actual application parameters and accomplished cycles in independent tests. Flexing cycle performance can only be compared by looking at all the data. A rating of "millions of operations" is meaningless if the distance, speed and bend radius is unknown.

## LUTZE SUPERFLEX® Plus M (C) PUR UL Servo 0,6/1 kV, per SIEMENS®\* standard acc. to SIEMENS MOTION-CONNECT 800PLUS\*

Traveling distances	Bending Radius	Speed	Acceleration
< 10 ft / 3 m	> 10 Ø	< 5 m/s	< 50 m/s <sup>2</sup>
< 16 ft / 5 m	> 10 Ø	< 5 m/s	< 30 m/s <sup>2</sup>
< 32 ft / 10 m	> 10 Ø	< 5 m/s	< 15 m/s <sup>2</sup>
< 49 ft / 15 m	> 10 Ø	< 5 m/s	< 10 m/s <sup>2</sup>
< 164 ft / 50 m	> 10 Ø	< 5 m/s	< 5 m/s <sup>2</sup>

\*registered trademark not associated with LUTZE

# Handling & Installation LUTZE SUPERFLEX® – Quick Overview

## 1. Selecting Cables for Continuous Motion Applications in Drag Chains

We recommend special high flexing cables such as LUTZE SUPERFLEX® cables, for use in C-tracks to ensure long life times:

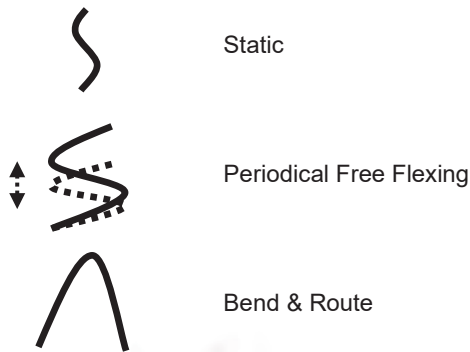
- LUTZE SUPERFLEX® cable is proven to be compatible with all major brands of drag chains.
- LUTZE SUPERFLEX® PVC is designed for moderate flexing in short to medium length drag chains.
- LUTZE SUPERFLEX® Plus PUR is designed for high performance flexing or longer drag chains.

High Flexing Cables such as LUTZE SUPERFLEX® cables are different from standard flexible cables:

### Standard Flexible Cables – LUTZE SILFLEX®



- Low number of strands per conductor
- longer pitch layering
- designed as a pliable cable for easy routing and installation

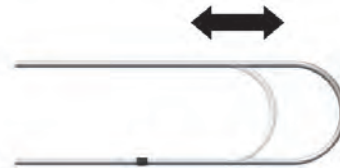


- no central core
- mostly PVC as insulation material
- foil shield or braid shield
- jacket material depends on application

### High Flexing Cables – LUTZE SUPERFLEX®



- high number of super fine strands per conductor
- short pitch layering
- conductors are cabled without back twist
- higher quality of materials
- slower and more complex manufacturing process on high-end equipment
- designed for linear constant motion

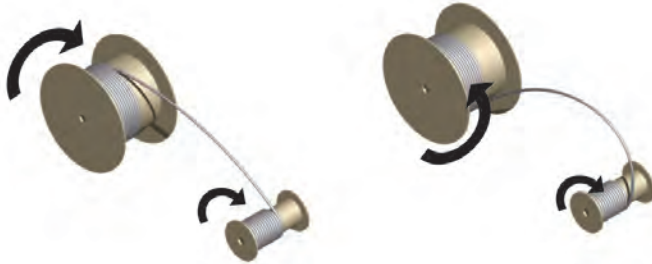


- central core for single layer construction
- special PVC or TPE as insulation material
- tinned copper braid shield
- high abrasion resistant jacket material such as PUR

# Handling & Installation LUTZE SUPERFLEX® – Quick Overview

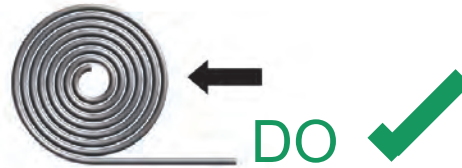
## 2. Correct Handling of LUTZE SUPERFLEX® Cables

- When unreeling the cable, do not change the bend direction. The cable has to go on the new reel in the same direction it came off the reel. Low and equal tensile force during spooling!



DO ✓ DO NOT ✗

- Ring put ups require careful uncoiling by rolling the ring upright over the floor.



- Do not twist the cable when unwinding. Always unwind straight from spool.



DO NOT ✗

## 3. Correct Installation of LUTZE SUPERFLEX® Cables

- Cable retains bend from reel. Do not flex against original bend or relax cable for 24 hrs by laying it flat.



DO ✓ DO NOT ✗

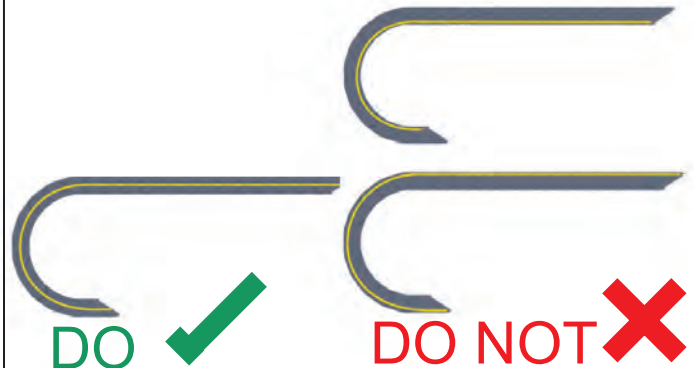
- Try to ensure balanced weight distribution. If you have more than one heavy cable, we recommend installing the heavy cables evenly to each side of the drag chain.



- Use dividers horizontally and vertically to separate the drag chain into separate cavities. Install just one cable per separated cavity. If absolutely necessary, two small or a small and a big cable can share a cavity.



- Observe the minimum bending radius for optimum performance. Make sure that all cables are length-adjusted and run in the neutral zone.



For further information please visit: [www.lutze.com/superflex](http://www.lutze.com/superflex)



## BUS and Network cables

BUS-Systems have become a very vital part of factory automation and it is hard to imagine automation without them. Besides hardware and software components, passive components such as bus cables and connectors play an important role for reliable function of the system. Bus cables must comply with all electrical parameters of the particular system. There is no universally applicable bus cable as the individual requirements are too diverse. LUTZE offers robust, industrial grade fieldbus and network cables for the most commonly used systems worldwide. These cables are being offered for stationary and flexible applications as well as continuous moving applications in drag chains.

## Systems:

### PROFIBUS

PROFIBUS is the most common Bus System used in Europe in the area of automated manufacturing.

### PROFIBUS DP

This PROFIBUS variant, optimized through increased transmission speed and low installation cost, was especially designed for the communication between automation systems and decentralized peripheral devices in the field range. PROFIBUS DP substitutes the conventional parallel data communication with 24V or 0-20 mA. LUTZE PROFIBUS cables meet the specification for PROFIBUS DP type A according to EN 50254. PROFIBUS DP and PROFIBUS FMS use the same transmission technology as well as a unified BUS protocol. Both variants can be operated simultaneously on one cable.

### PROFIBUS Fast Connect®

These cables have an optimized radial, symmetrical construction and can facilitate the application of special tools. Thereby, bus connector plugs are able to be assembled in a fast and installation-friendly way.

## CAN-Bus

CAN-Bus is specified according to ISO 11898. Primarily designed for automotive applications CAN-Buses are used today for the exchange of digital information, Controller Area Network (CAN) for faster data transfer/data exchange.

## DeviceNet™

DeviceNet™ is a service related network, based on the proven CAN-Technology for fast data exchange. The configuration consists of thick cable (aka Trunk cable) and thin cable (aka drop cable). The use of high flexing cables in drag chains is likewise possible. DeviceNet™ has been standardized by Open DeviceNet™ Vendor Association (ODVA) and is the leading bus system for industrial automation in North America.

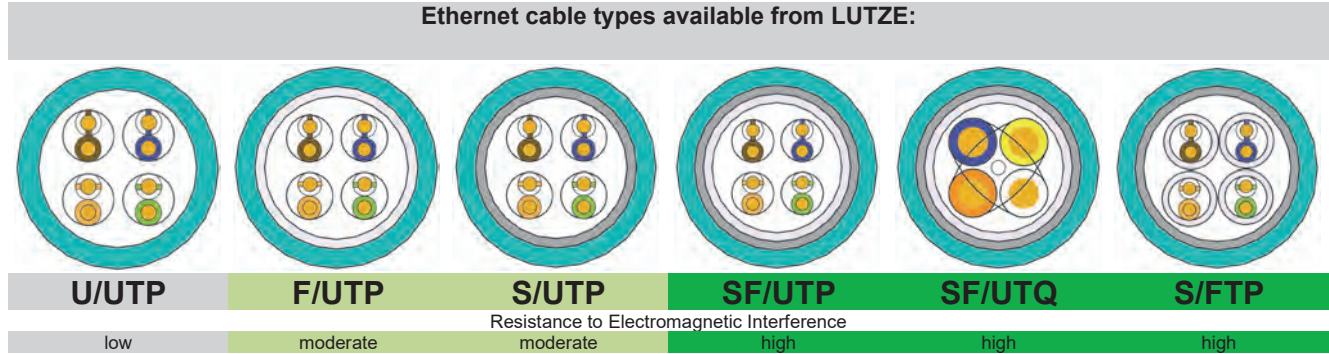
## Industrial Ethernet

Ethernet is the most commonly used communication technology. The Ethernet Standard allows for a remarkable increase in the bandwidth, from 12 Mbits/s for a bus system, to up to 10Gbit/s. In the office world the Ethernet standard has already established itself as the standard technology, however the requirements for wiring systems and active components in the industrial environment differ greatly from those in an office environment. On one hand the infrastructure must be more robust; and on the other hand, criteria such as real time application require special IT solutions. Consequently, this has resulted in the development of various proprietary systems such as PROFINET, EtherCAT, Modbus TCP and Powerlink with system specific components which may not be compatible with others. A structured Ethernet cabling according to EN 50173-3 should support each proprietary system. LUTZE offers Industrial Ethernet solutions in light duty, standard duty and continuous flexing versions. Many options include UL 600V AWM and UL Type PLTC approvals for easy deployment in industrial applications.

# ETHERNET – Overview

## LUTZE Ethernet Cables

We recommend shielded industrial Ethernet cable for use in industrial environment to ensure secure connectivity. Motors and other electrical noise producing devices are often located in close proximity to network cabling. EMI (Electro Magnetic Interference) and RFI (Radio Frequency Interference) can distort data transmission on copper-based network cable. To lessen or eliminate interference, called alien-crosstalk, the use of shielded industrial cable and connectors is recommended.



### Correct Handling and Installation of Network Copper Cable

- Do not subject cable to tension
- Do not kink the cable
- Do not bend the cable more than 90° (See individual specifications for bending radius)
- Strip the cable as short as possible
- Do not crush cable when fastening
- Do not untwist the conductor pairs by more than 0.5 inch
- Terminate the shielding according to ANSI/TIA/EI 568-B, K.6.2.3 or manufacturer’s instructions

### Key for Twisted Pair Cables according to ISO/IEC-11801 (2002)E

XX/YYZ		
<b>XX</b> for the outer shielding	/ <b>Y</b> for the pair shielding	<b>ZZ</b> for the pair arrangement
<b>U</b> = unshielded	/ <b>U</b> = unshielded	<b>TP</b> = twisted pair (regular)
<b>F</b> = foiled shield	/ <b>F</b> = foiled shield	<b>TQ</b> = quad pair (star quad)
<b>S</b> = braided shield	/ <b>S</b> = braided shield	
<b>SF</b> = braided and foiled shield		

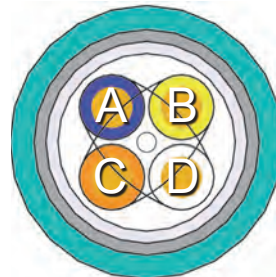
For shielded cables to be effective against EMI/RFI, the shield should be properly terminated at both ends and continuous for the complete channel (ANSI/TIA/EI 568-B, K.6.2.3).

### PROFINET SF/UTQ (Star Quad Design) and Termination

The star quad is a low-impedance Ethernet cable configuration that does not use twisted pairs. This design is commonly used in PROFINET and EtherCAT networks. Four conductors are twisted on a common axis, and the conductors across from each other make a pair.

In **Figure 1** the pairs are as follows:

- Pair 1:**  
 Conductor A ←→ Conductor D
- Pair 2:**  
 Conductor B ←→ Conductor C



**Figure 1**

Other terminations than in Figure 1 can lead to interference, decreased connectivity or no connectivity at all.

# ETHERNET – Overview

## Pin Assignment and Installation

RJ45 is the most common Ethernet connector and is available in both shielded and unshielded designs. All eight pins of the RJ45 connector are used for 1000 Mbit/s (4-pair transmission). Four pins are used for 10/100 Mbit/s (2-pair transmission).

According to the EN 50173 standard, two color codes are defined for installation: T568A and T568B. It makes no difference which color code is used, however the same code should be used consistently throughout the entire installation. Mixing up the two color codes can result in malfunctions.

### Pin assignment RJ45 - Color code according to EN 50173 – hard wiring:

ETHERNET cables									
Star Quad			Regular Twisted Pair						
PIN#	100BASE-TX	Color code	10BASE-T, 100BASE-TX	1000BASE-T		Color code T568A		Color code T568B	
1	Transmit+	yellow	Transmit+	BI_DA+	(bidirectional)	WH/GN		WH/OG	
2	Transmit-	orange	Transmit-	BI_DA-	(bidirectional)	GN		OG	
3	Receive+	white	Receive+	BI_DB+	(bidirectional)	WH/OG		WH/GN	
4	-		-	BI_DC+	(bidirectional)	BU		BU	
5	-		-	BI_DC-	(bidirectional)	WH/BU		WH/BU	
6	Receive-	blue	Receive-	BI_DB-	(bidirectional)	OG		GN	
7	-		-	BI_DD+	(bidirectional)	WH/BN		WH/BN	
8	-		-	BI_DD-	(bidirectional)	BN		BN	

## Ethernet Categories and Classes

	PROFINET	Cat5e	Cat5e	Cat6	Cat6 <sub>A</sub>	Cat7
<b>Class</b>	D	D	De	E	Ea	F
<b>Construction</b>	Star Quad (AWG 22)	2 pair	4 pair	4 pair	4 pair	4 pair
<b>Speed</b>	10/100 Mbit/s	10/100 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s	10/100/1000/10000 Mbit/s	10/100/1000/10000 Mbit/s
<b>LAN Applications (max.)</b>	10BASE-T (2 pair) 100BASE-TX (2 pair)	10BASE-T (2 pair) 100BASE-TX (2 pair)	10BASE-T (2 pair) 100BASE-TX (2 pair) 1000BASE-T (4 pair)	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T
<b>Nominal impedance</b>	100 Ohm	100 Ohm	100 Ohm	100 Ohm	100 Ohm	100 Ohm
<b>Bandwidth</b>	100 MHz	100 MHz	100 MHz	250 MHz	500 MHz	600 MHz
<b>Max. length</b>	328 ft (10BASE-T) 328 ft (100BASE-TX)	328 ft (10BASE-T) 328 ft (100BASE-TX)	328 ft (10BASE-T) 328 ft (100BASE-TX) 328 ft (1000BASE-T)	328 ft (10BASE-T) 328 ft (100BASE-TX) 328 ft (1000BASE-T)	328 ft (10BASE-T) 328 ft (100BASE-TX) 328 ft (1000BASE-T) 328 ft (10GBASE-T)	328 ft (10BASE-T) 328 ft (100BASE-TX) 328 ft (1000BASE-T) 328 ft (10GBASE-T)
<b>Category compatibility</b>	Cat5e	Cat5e	Cat5e	Cat5e	Cat5e, Cat6	Cat5e, Cat6, Cat6 <sub>A</sub>
<b>ISO/IEC standard</b>	-	ISO/IEC 11801	ISO/IEC 11801	ISO/IEC 11801	Amendment 1 to ISO/IEC 11801	ISO/IEC 11801
<b>ANSI/TIA standard</b>	-	ANSI/TIA-568-B	ANSI/TIA-568-C.2	ANSI/TIA-568-C.2	ANSI/TIA-568-C.2	Not recognized



# ETHERNET – Cable and Connector Overview

## LUTZE Ethernet Cable and Connector Selection Guides

### Ethernet Cable Selection Guide

Category	Application Type	Cable Construction	Part Number	Shielding	AWG Size	OD (mm)	NEC 800 Listings	UL Type PLTC	AWM 600V	Outdoor Rated	Jacket Color
Cat5e	Static	Star Quad	104301*	SF/UTQ	22	6.5	CMG	•	•		Green
			104307*	SF/UTQ	22	6.5	CMG	•	•		Green
		2-Pair	104197	SF/UTP	22	7.5	CMX, CMR	•	•	•	Teal
			104349	SF/UTP	22	8.6	CMX, CMR	•	•	•	Teal
			104335	SF/UTP	26	6.3	CMG				Green
			104336	SF/UTP	24	7.3	CMG				Green
	Flexing	Star Quad	104303*	SF/UTQ	22	6.5	CMX				Green
			2-Pair	A1040017	SF/UTP	22	7.9	CM, CMX	•	•	•
		A1040019		SF/UTP	24	6.6	CM, CMX		•	•	Teal
		4-Pair	104337	S/UTP	24	7.8	N/A				Green
			104396	SF/UTP	26	6.7	N/A				Green
		A1040020	SF/UTP	24	7.6	CMX, CMR			•	•	Teal
Cat6	Static	4-Pair	A1040001	U/UTP	23	6.7	CMX, CMR		•	•	Teal
			A1040006	F/UTP	22	9.3	CMX, CMR	•	•	•	Teal
	Flexing		104347	SF/UTP	26	7.9	CMX				Green
Cat6A	Static	4-Pair	A1040005	F/UTP	23	8.0	CMX, CMR		•	•	Teal
			104338	S/FTP	26	6.4	CMG				Green
			104397	S/FTP	22	9.6	CMG	•	•		Green
	Flexing		104401**	SF/UTP	24	8.9	N/A				Green
			A1040030	SF/UTP	24	8.2	CMX, CMR			•	•
Cat7	Static	4-Pair	104331	S/FTP	26	7.0	CMG				Green
			A1040300	S/FTP	22	9.6	CMX, CMR	•	•	•	Teal
	Flexing		104404	S/FTP	24	9.4	CMX				Green

\*Meets PROFINET Star Quad specification

\*\*Meets PROFINET 4-pair specification

### Ethernet RJ45 Connector Selection Guide

Part number	AWG	Straight RJ45 Connectors				90° Angled RJ45 Connectors			
		T568B 490174	T568A 490175	T568B 490176	Profinet 490177	T568B 490151	T568A 490152	T568B 490153	Profinet 490178
A1040001	23	•	•			•	•		
A1040005	23	•	•			•	•		
A1040006	22	•	•			•	•		
A1040017	22	•	•			•	•		
A1040019	24	•	•			•	•		
A1040020	24	•	•			•	•		
A1040030	24	•	•			•	•		
A1040300	22	•	•			•	•		
104197	22	•	•			•	•		
104301	22				•				•
104303	22				•				•
104307	22				•				•
104331	26			•				•	
104335	26			•				•	
104336	24	•	•			•	•		
104337	24	•	•			•	•		
104338	26			•				•	
104347	26			•				•	
104349	22	•	•			•	•		
104396	26			•				•	
104397	22	•	•			•	•		
104401	24	•	•			•	•		
104404	24	•	•			•	•		

# M12 Connectors – Overview

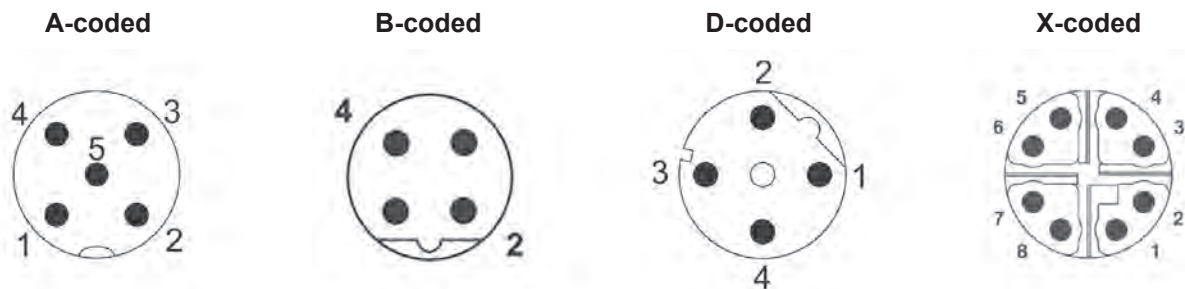
M12 connectors are ruggedized circular connectors with a 12-mm locking thread for secure terminations in factory automation. These style connectors can be used in a variety of automation applications such as for actuators, sensors, Fieldbus, and industrial ethernet protocols. There are many different versions of M12s that designed and optimized for specific applications. It is important when specifying an M12 connector to choose the correct pin count and connector coding. This ensures a proper and secure connection between the connector and its terminal.

## Common M12 Codes and Applications

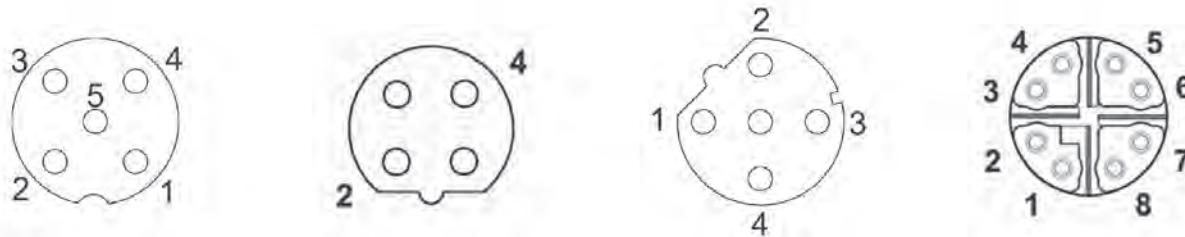
<b>A-coded</b>	Actuator-sensor plug connections for systems such as DeviceNet, IO Link, and Profibus
<b>B-coded</b>	Fieldbus connections for systems such as Profibus and Interbus
<b>D-coded</b>	Industrial Ethernet up to 100 Mbit for systems such as Profinet, Ethernet/IP, and EtherCat
<b>X-coded</b>	Cat6A Industrial Ethernet for high-speed 10 Gbit networks

## Common M12 Connector Layouts

### Male Connectors



### Female Connectors



## LUTZE M12 Connector Pin Color Coding

### M12 4 Pole Color Coding

PIN#	A-Coded	D-Coded Profinet	D-Coded Ethernet
1	BN	YE	WH/OG
2	WH	WH	WH/GN
3	BU	OG	OG
4	BK	BU	GN

### M12 5 Pole Color Coding

PIN#	A-Coded	A-Coded CAN	B-Coded Profibus	B-Coded Interbus
1	BN	Shield	NC*	YE
2	WH	RD	GN	GN
3	BU	BK	NC*	GY
4	BK	WH	RD	PK
5	GY	BU	NC*	BN

\*Pins 1, 3, and 5 are non-contact and unusable

### M12 8 Pole Color Coding

PIN#	A-Coded	A-Coded Ethernet
1	WH	WH/BU
2	BN	WH/BN
3	GN	BN
4	YE	OG
5	GY	WH/GN
6	PK	WH/OG
7	BU	BU
8	RD	GN

# M12 Connectors – Selection Guide

## LUTZE M12 Connector Selection Guide

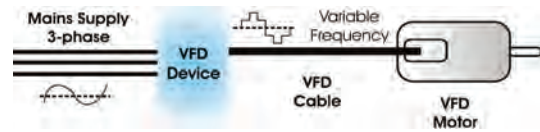
Coding	Terminal Type	Pole Number	Male/Female	Part Number	Shielded	Straight or Angled		
A-Coded	Push-In Spring Clamp	4 Poles	Male	490190		Straight		
				490194		90° Angled		
				5 Poles	Female	490192		Straight
			490196			90° Angled		
		Male	490191			Straight		
			490195			90° Angled		
			490200		•	Straight		
			490202		•	90° Angled		
			Female		490193		Straight	
					490197		90° Angled	
490201	•	Straight						
490203	•	90° Angled						
B-Coded	Push-In Spring Clamp	2 Poles	Male	490210	•	Straight		
			Female	490211	•	Straight		
D-Coded	Push-In Spring Clamp	4 Poles	Male	490212	•	Straight		
				490214	•	90° Angled		
			Female	490213	•	Straight		
				490215	•	90° Angled		

# LUTZE Technical Overview

## LUTZE DRIVEFLEX® VFD and Servo Motor Cables

A Variable Frequency Drive (VFD) is a device designed for alteration of a motor's rotational speed by changing the frequency and the voltage of the electrical power supplied to it. In this manner, the rotational speed can be adjusted within a wide range from standstill to above the nominal rotation speed at 60 hertz.

The second main feature of a VFD is that it offers motor torque control. To avoid overload of the motor, the torque has to decrease when running the motor at higher speeds and vice versa. In VFD applications the constant frequency of 60 hertz in a sinusoidal waveform is altered into a variable frequency as shown in the illustration.



The use of VFD technology poses high demands on the cable connecting the motor to the drive. Standard 600V control cable does not meet the requirements of VFD applications, thus causing operating malfunctions and may result in premature cable failure. High switching frequencies and harmonic waves cause high capacitive charging current and overvoltage spikes well beyond the 600V rating of standard control cables. These problems put tremendous stress on cables and the stress increases even further the longer the distance between drive and motor.

Another stress factor is called “corona discharge effect”. Insulated conductors have very small gaps between the copper strands and the insulation material caused by the irregular surface of stranded conductors. This can lead to an uncontrolled corona discharge across these gaps and break down the insulation over time. This problem is well known in medium voltage applications. Therefore, thermoset XLPE insulation is frequently used in medium voltage applications due to its inherent resistance to corona discharge.

Our internal and external tests have proven that PVC/Nylon insulation commonly used in power tray cables is prone to failure due to corona discharge in 480V VFD applications. With each corona discharge (or partial discharge) the thermoplastic PVC/Nylon insulation is stressed, and pitting occurs. Once the pitting has reached a certain threshold, the microarc will develop into a full short circuit and the cable will be destroyed. This process will occur quicker if the cable lead length from drive to motor is long and moisture is present. Cable failure due to corona discharge is very dangerous, as the operator will typically receive no warning other than nuisance trips, if any at all, before a catastrophic cable failure occurs.

LUTZE offers a premium solution to address the different requirements for VFD and motor cable:

## LUTZE DRIVEFLEX® VFD and Servo Cable A premium solution with thermoset XLPE insulation

XLPE is an insulation material with very low capacitance offering superior electrical characteristics for use as a VFD cable, especially in long cable runs. The XLPE insulation is a thermoset material with a very high voltage breakdown level, thus inherently addressing the corona discharge effect and making it the premium insulation for any type of drive application. XLPE insulation is recommended by most drive manufacturers, and LUTZE DRIVEFLEX® exceeds the VFD cable requirements by Rockwell\* as stated in the “Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives” document. The extra thick insulation offers a nominal voltage rating of 1000V 90°C per UL Flexible VFD & Servo cable specifications. The insulation is designed to withstand even higher voltage spikes and power distortions that can commonly occur in VFD applications. A foil and braid shield combination with drain wire ensures compliance with EMC requirements. LUTZE DRIVEFLEX® XLPE is the most flexible XLPE cable in its class - offering easy stripping & installation, thus saving time and money.

DRIVEFLEX® has also been evaluated as flexible VFD and Servo cable and is UL listed for use on drives and servos, as well as tray cable exposed run (TC-ER). The DRIVEFLEX® cable family includes many different configurations compatible with many standard drive and servo systems.

For more information, please visit [www.driveflex.com](http://www.driveflex.com).



# Motor, VFD and Servo Applications

## LUTZE offers a wide range of cables especially designed for motor supply applications

### Unshielded Motor Supply Cable

For any standard motor supply application without the use of VFDs, and where shielding is not required, we recommend the use of **LUTZE SILFLEX® Tray-ER TPE, Unshielded** cables with PVC/Nylon insulation. These cables are available in sizes up to 4/0 and offer superior flexibility paired with ruggedness due to the premium TPE jacket. These power tray cables offer the ability to be installed within and outside the cable tray due to the TC-ER and MTW ratings in accordance with NEC article 336.

For any submersible VFD applications where EMC is less of a concern and water ingress protection is paramount, **LUTZE DRIVEFLEX® HYDRO XLPE PVC, Unshielded** cables are recommended. These cables are constructed with a water blocking separator tape and are rated for submersible pump applications. XLPE insulation is utilized to create a cable that can deal with many of the issues created by VFDs. These cables are unshielded for better compatibility with isolated pumps where installing a shielded cable is less feasible. These cables are UL multi-listed type Flexible Motor Supply / Flexible VFD Servo Cable and type TC-ER Power Tray cables.

### Flexible Motor Supply and Variable Frequency Drives (VFD, VSD)

For any motor supply application involving an AC Variable Frequency Drive, we recommend **LUTZE DRIVEFLEX®** cables with **XLPE** insulation. These cables have very low capacitance, high impedance and high voltage breakthrough resistance. XLPE insulation is the superior choice for VFD applications with pulse width modulation (PWM) to cope with high voltage spikes and power distortions from the VFD output. These cables are UL multi-listed type Flexible Motor Supply / Flexible VFD Servo Cable and type TC-ER Power Tray cables.



#### **LUTZE DRIVEFLEX® XLPE (C) PVC, Shielded A106 with XLPE Insulation Type XHHW-2**

Small diameter flexible VFD & Motor Supply Cable with 4 conductors including one full size ground. Suitable for all generic drive applications with classic three phase wiring and for any direct, reversing or soft starter application.



#### **LUTZE DRIVEFLEX® XLPE (C) 1 TSP PVC, Shielded A107 with XLPE Insulation Type XHHW-2**

Small diameter flexible VFD & Motor Supply Cable with 4 conductors including one full size ground, plus one twisted shielded pair for feedback. Suitable for servo systems such as Rockwell\*, Siemens\* etc., which require one control pair.



#### **LUTZE DRIVEFLEX® XLPE (C) PVC, Shielded A216 with XLPE Insulation Type RHW-2/XHHW-2**

Flexible VFD & Motor Supply Cable with 4 conductors including one full size ground. Low capacitance design allowing for longer cable runs. Suitable for all generic drive applications with classic three phase wiring.



#### **LUTZE DRIVEFLEX® XLPE (C) 1 TSP PVC, Shielded A217 with Insulation Type RHW-2/XHHW-2**

Flexible VFD & Motor Supply Cable with 4 conductors including one full size ground, plus one twisted shielded pair for feedback. Low capacitance design allowing for longer cable runs. Suitable for servo systems such as Rockwell\*, Siemens\* etc., which require one control pair.



#### **LUTZE DRIVEFLEX® XLPE (C) 2 TSP PVC, Shielded A218 with Insulation Type RHW-2/XHHW-2**

Flexible VFD & Motor Supply Cable with 4 conductors including one full size ground, plus two twisted shielded pairs for feedback. Suitable for servo systems such as Rockwell\*, Indramat\* etc., which require two control pairs.



#### **LUTZE DRIVEFLEX® XLPE (C) Symmetrical Grounds PVC, Shielded A220 with Insulation Type XHHW-2**

Flexible VFD & Motor Supply Cable with 3 symmetrical grounds. The symmetry in the conductor design reduces motor frame voltage induced by high motor current. Symmetrical ground cable is recommended by ABB\* and Rockwell\* for larger horsepower motors.

### Flexing Cable for Servo Systems and Motion Control

For any continuous moving applications utilizing servo drives, we recommend our special low capacitance cables with TPE or LUTZE High Glide Insulation (HGI) based on polypropylene, including **LUTZE SUPERFLEX® PLUS M (C) PUR UL SERVO 0,6/1 kV** for high flexing applications in drag chains and **LUTZE MOTIONFLEX® M** cables for motor applications with moderate linear flexing, torsion, and free-flexing movement.



\*registered trademarks not associated with LUTZE

# Approvals

## UL Ratings for Cables

Product approvals in the USA are typically conducted by National Recognized Testing Laboratories (NRTL). The NRTLs are determined by the Occupational Safety and Health Administration (OSHA). You can find a list of the current NRTLs on [www.osha.gov](http://www.osha.gov). LUTZE primarily uses Underwriters Laboratories (UL) to certify products. UL (USA) and CSA (Canada) have an agreement that allows the usage of one approval for both USA and Canada.

There are two main certification classes available for cables:

Certification	Logo	Meaning
UL Recognized		“UL Recognized“ signifies that the product is rated as a component. A component is a part of an application. Cables with an “Appliance Wiring Material“ (AWM per Standard 758) are always “recognized“. Typically these cables are already installed on the machine when it ships.
UL Listed		“UL Listed“ signifies a cable as actually tested and proven for a specific use. This way the cable has to match the UL Standards and the requirements of the National Electric Code (NEC). Typically, cables with a UL Listing are used for field wiring in North America.

UL Listing type	Description	Meaning
CM	Communication	Cables for data communication per UL category DUZX and NEC 800
CMG	Communication General	Cables for data communication per UL category DUZX and NEC 800
CMX	Communication Residential	Cables for data communication with restrictions per UL category DUZX and NEC 800
CMX Outdoor	Communication Residential	Type CMX cable may be marked "Outdoor" to indicate its suitability for installation outdoors on dwellings
CMR	Communication Riser	Cables for data communication in vertical shafts per UL category DUZX and NEC 800
PLTC	Power Limited Tray Cable	Cables for tray applications per UL category QPTZ and NEC 725
PLTC-ER	Power Limited Tray Cable	Exposed Run Cables for tray applications per UL category QPTZ and NEC 725 (exposed use possible)
ITC	Instrumentation Tray Cable	Instrumentation cables for tray applications per UL category NYTT and NEC 727
ITC-ER	Instrumentation Tray Cable Exposed Run	Instrumentation cables for tray applications per UL category NYTT and NEC 727 (exposed use possible)
TC	Power and Control Tray Cable	Power and control cables for tray applications per UL category QPOR and NEC 336
TC-ER	Power and Control Tray Cable, Exposed Run	Power and control cables for tray applications per UL category QPOR and NEC 336 (exposed use possible)
TC-ER-JP	Power and Control Tray Cable, Exposed Run, Joist Pull	TC-ER cable that is suitable for pulling through structural members is marked “JP” per NEC article 336.10(9)
Bus Drop	Bus Drop Cable	Bus drop cable to create branches from busways per NEC 368.56 (B)
MTW	Machine Tool Wire	Single or multi conductor control cables for Machine Tool Wiring per UL category ZKHZ and NEC 670
Flexible Motor Supply	Flexible Motor Supply Cable	Power cables for motor and variable frequency drive applications per UL category ZJFH
Flexible VFD and Servo	Flexible VFD and Servo Cable	Power cables for motor and variable frequency drive applications per UL category ZJFH
WTTC	Wind Turbine Tray Cable	Power and control cables for wind turbine applications per UL category ZGZN

This list only shows the common UL Listings for typical applications in the field of automation and does not represent a complete overview of the available UL Listings.

It is possible to combine different UL Listings in one cable. LUTZE offers a variety of cables with UL Listings for various industrial applications.

# LUTZE Technical Overview

## NFPA 79 Requirements for Appliance Wiring Material

NFPA 79 is the Electrical Standard for Industrial Machinery in the USA. The NFPA 79 is a standard published by the National Fire Protection Agency, the same agency that publishes the National Electric Code (a.k.a. NEC or NFPA 70).

NFPA 79 Chapter 12 “Conductors, Cables and Flexible Cords” and Chapter 13 “Wiring Practices” address the majority of cable related topics.



A common concern in automation applications is the use of Appliance Wiring Material (AWM) per UL Subject 758 versus UL Listed cables such as UL Type TC-ER or many other listed types.

The NFPA 79 has special provisions addressing safe wiring practices for industrial machinery, such as machine tools, described in article 12.9. This text was introduced with the 2012 edition, allowing the use of appliance wiring material (AWM) to be used with industrial machinery but is limited with special provisions. The use of such cable had been prohibited under the 2007 edition, and this restriction had caused a lot hardship for many machine manufacturers using AWM. This has been resolved since 2012 with the introduction of article 12.9 Special Cables and Conductors.

NFPA 79 still mainly makes references to “Listed” cable. These cables carry a National Recognized Testing Laboratory (NRTL) listed logo such as the “UL Listed” logo. It should be noted that cables can have dual or multi ratings and carry both marks UL Recognized and UL Listed along with other marks.

Permitted for all applications:   

Appliance Wiring Material is regulated by UL 758 and carries the UL Recognized logo.

Since 2012 permitted for special applications:  

In order to use Appliance Wiring Material on industrial machinery and be compliant with NFPA 79, the cable must accommodate the provisions stated in article 12.9 “Special Cables and Conductors” of the NFPA 79 standard.

It is sufficient to comply with one of the three conditions in section 12.9.2 instead of having to meet their requirements in combination. For example:

1. It is permissible to use AWM cable or conductors if part of a listed assembly has been identified for the intended use.
2. Or it is permissible to use AWM cable or conductors where the AWM has been identified for use with approved equipment and is used in accordance with the equipment manufacturer’s instructions.  
One example would be a servo drive system with a cable assembly made per the servo drive system manufacturer’s specification and installed per the manufacturer’s instructions.
3. Or it is permissible to use AWM cable or conductors where its construction meets all applicable requirements of Section 12.2 through Section 12.6 with some modifications. These modifications set requirements in terms of construction, flame resistance, insulation and voltage ratings as well as marking and print legends for clear identification. This will allow those types of AWM cables which are suitable for industrial use by their nature. However, it will control the misuse of AWM cables which do not meet industrial application requirements, e.g. voltage rating, insulation thickness, oil resistance, etc.

All LUTZE AWM cables are designed for use in industrial environments and the AWM style and voltage rating is clearly marked on each cable jacket, therefore all LUTZE AWM cables can be used in applications governed by the NFPA 79 standard. For field installation it will still be safest to rely on cable that is UL Listed and verified for the intended use as required by the NEC (NFPA 70). UL Listed cable will make it easier to evaluate a machine in the field and will therefore remain a prominent choice for most machine builders in the USA. UL Listed cable will also eliminate the need for documentation that the use of AWM cable may require.

Please contact your LUTZE representative with questions regarding our offering of UL Listed and UL Recognized cables to help you be compliant with the latest standards for industrial machinery.

LUTZE offers many listed types, including MTW, TC-ER, PLTC and CM marks. Cables with these markings are considered listed types and are always permitted to be used in NFPA 79 compliant applications, as well as in applications per NEC.

## NFPA 79 Requirements for VFD Cables

NFPA 79 Chapter 4 “General Requirements and Operating Conditions” describes the general requirements and conditions for the operation of the electrical equipment of the machine.

The relevant section regarding VFD cable can be found in article 4.4.2.8 “Circuits Supplied from Power Conversion Equipment” which addresses the proper selection of insulation materials and/or cables to be used with power conversion equipment such as VFDs and servo drives. VFDs and servos utilizing Pulse Width Modulation (PWM) technology typically create power distortions leading to harmonics, voltage spikes and overcurrent issues. This section aims to bring awareness to a potential safety concern regarding the use of thermoplastic wiring such as PVC or PVC/Nylon commonly used in power and control tray cables which are not designed as VFD or motor supply cables under such conditions.

NFPA 79 article 4.4.2.8 “Circuits Supplied from Power Conversion Equipment” describes two requirements to safely operate a VFD which is crucial for drives operating at 480V or higher. Conductors and equipment must be identified as suitable for the electrical power characteristics and in accordance with all manufacturer’s instructions.

NFPA 79 provides additional guidance in annex A.12.1.1(5) which describes typical operating conditions that may cause some insulated circuit conductors (e.g., thermoplastic) to be susceptible to breakdown from arcing if considerations are not made to mitigate them. This includes the consideration of power conversion equipment output voltage, current, and frequency; as well as the length, dielectric strength and spacing of conductors.

A safety concern may exist when thermoplastic wiring materials are being used and many drive manufacturers instructions specify against the use of such wiring. Most thermoplastic insulation types have difficulty to withstand the output voltages and currents from a VFD utilizing pulse width modulation over time. Thermoplastic insulation, such as PVC/Nylon which commonly used in power tray cables, can create problems, for example, in moist environments or in longer cable runs between VFD and motor. The dielectric properties of PVC cause high cable capacitance leading to high charging currents; the low voltage breakthrough resistance can lead to corona discharge and the potential for shorting out the cable. Additionally, thermoplastic PVC can melt and be deformed when exposed to excessive heat generated by short circuits or overloads.

Insulation types “RHH, RHW, RHW-2, XHH, XHHW, or XHHW-2” all are thermoset Insulation types per UL 44 which have strong dielectric properties and will not melt. These are common designations translating as follows:

XLPE	Cross Linked Polyethylene is a thermoset insulation material
RHH	Rubber High Heat resistant
RHW	Rubber Heat and Water resistant
RHW-2	Rubber Heat and Water resistant 90°C dry and 90°C wet locations
XHH	Crosslinked (Polyethylene) High Heat resistant
XHHW	Crosslinked (Polyethylene) High Heat and Water resistant
XHHW-2	Crosslinked (Polyethylene) High Heat and Water resistant 90°C dry and 90°C wet locations

Informational note: Even though the “R” stands for “Rubber”, the designation includes other thermoset materials such as XLPE, SBR, CPE and others.

Designations such as THHN (Thermoplastic High Heat resistant, Nylon coated) or any designation beginning with T is considered thermoplastic material and should be avoided unless the equipment manufacturer specifically permits them.

All products within the DRIVEFLEX® series are made with XLPE insulation of type XHHW-2 or RHW-2 depending on model.



# Ampacity per NFPA 79 (2021 Edition)

12.5.1 The ampacities of conductors shall not exceed the corresponding temperature values given in Table 12.5.1 before any correction factors for ambient temperature or adjustment factors for the number of current-carrying conductors have been applied.

**Table 12.5.1: Conductor Ampacity Based on Copper Conductors with 60°C (140°F), 75°C (167°F), and 90°C (194°F) Insulation in an Ambient Temperature of 30°C (86°F)**

Conductor Size (AWG)	Ampacity		
	60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)
30	—	0.5	0.5
28	—	0.8	0.8
26	—	1	1
24	2	2	2
22	3	3	3
20	5	5	5
18	7	7	14
16	10	10	18
14	15	20	25
12	20	25	30
10	30	35	40
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	115
2	95	115	130
1	110	130	145
1/0	125	150	170
2/0	145	175	195
3/0	165	200	225
4/0	195	230	260
250	215	255	290
300	240	285	320
350	260	310	350
400	280	335	380
500	320	380	430
600	355	420	475
700	385	460	520
750	400	475	535
800	410	490	555
900	435	520	585
1000	455	545	615

Notes: (1) Conductor types listed in section 12.3.1 of *NFPA 79* shall be permitted to be used at the ampacities listed in this table.  
 (2) The source for the ampacities in this table is Table 310.15(B)(16) of *NFPA 70*.

## Correction Factors

**Table 12.5.5(a) Ambient Temperature Correction Factors**

For ambient temperatures other than 30 °C (86 °F), multiply the allowable ampacity by the appropriate factor shown below.

Ambient Temperature (°C)	Correction Factor		
	60 °C	75 °C	90 °C
21-25	1.08	1.05	1.04
26-30	1.00	1.00	1
31-35	0.91	0.94	0.96
36-40	0.82	0.88	0.91
41-45	0.71	0.82	0.87
46-50	0.58	0.75	0.82
51-55	0.41	0.67	0.76
56-60	—	0.58	0.71
61-70	—	0.33	0.58
71-80	—	—	0.41

**Table 12.5.5(b) Adjustment Factors for More Than Three Current-Carrying Conductors in a Raceway or Cable**

Number of Current-Carrying Conductors	Percent of Values in Table 12.5.5(a) as Adjusted for Ambient Temperature if Necessary
4-6	80
7-9	70
10-20	50
21-30	45
31-40	40
41 and above	35

Example: Application with a LUTZE DRIVEFLEX® XLPE (C) 1 TSP PVC, Shielded with control pair and an ambient temperature of 43 °C and a required ampacity of 34 Ampere.

- Factor ambient temperature: 0.87
  - Percentage factor current carrying conductors: 80
- 55 A x 0.87 x 0.8 = 38 A > 34 A  
 Our recommendation is a AWG8 + 1 TSP AWG14, Item no. A2170804

Note: The given values are reference numbers to calculate the required cable sizes. LUTZE Inc. is not responsible for the conformity of the values provided by the NFPA.

# Ampacity per National Electric Code (USA)

## Calculation of the max. ampacity (Based on “NEC 2023 Edition”)

Allowable Ampacities of Insulated Conductors Rated 0 Through 2000 Volts, 60°C - 90°C (140°F - 194°F), with Not More Than Three Current Carrying Conductors in Raceway, Cable or Earth (Directly Buried), Based on Ambient Temperature of 30°C (86°F)\* (Based on Table 310.16)

Copper size AWG or kcmil	Temperature Rating of Conductor		
	60 °C (140 °F) Types TW, UF	75 °C (167 °F) Types RHW, THHW, THW, THWN, XHHW, XHWN, USE, ZW	90 °C (194 °F) Types TBS, SA, SIS, FEP, FEPB, MI, PFA, RHH, RHW-2, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, XHWN, XHWN-2, XHHN, Z, ZW-2
18**	–	–	14
16**	–	–	18
14**	15	20	25
12**	20	25	30
10**	30	35	40
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	115
2	95	115	130
1	110	130	145
1/0	125	150	170
2/0	145	175	195
3/0	165	200	225
4/0	195	230	260
250	215	255	290
350	260	310	350
500	320	380	430
750	400	475	535

\* Refer to 310.15(B)(1) for the ampacity correction factors where the ambient temperature is other than 30°C (86°F)

\*\* Refer to 240.4(D) for conductor overcurrent protection limitations

## Correction Factors

### Ambient temperature (Based on Table 310.15(B)(1)(1))

For ambient temperatures other than 30 °C (86 °F), multiply the allowable ampacities shown above by the appropriate factor shown below.

Ambient temp. °C	60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)
21-25 (70-77 °F)	1.08	1.05	1.04
26-30 (78-86 °F)	1	1	1
31-35 (87-95 °F)	0.91	0.94	0.96
36-40 (96-104 °F)	0.82	0.88	0.91
41-45 (105-113 °F)	0.71	0.82	0.87
46-50 (114-122 °F)	0.58	0.75	0.82
51-55 (123-131 °F)	0.41	0.67	0.76
56-60 (132-140 °F)	–	0.58	0.71
61-65 (141-149 °F)	–	0.47	0.65
66-70 (150-158 °F)	–	0.33	0.58
71-75 (159-167 °F)	–	–	0.50
76-80 (168-176 °F)	–	–	0.41
81-85 (177-185 °F)	–	–	0.29

### Number of current carrying conductors (Based on Table 310.15(C)(1))

Adjustment factors for more than three current carrying conductors in raceway or cable.

Number of Current-Carrying Conductors	Percent of Values in Tables 310.16 Through Table 310.19 as Adjusted for Ambient Temperature if Necessary
1-3	100
4-6	80
7-9	70
10-20	50
21-30	45
31-40	40
40 and more	35

Number of conductors is the total number of conductors in the raceway or cable adjusted in accordance with 310.15 (E) and (F)

Example: Application with a LUTZE DRIVEFLEX® XLPE (C) 1 TSP PVC, Shielded with control pair and an ambient temperature of 43 °C and a required ampacity of 34 Ampere.

- |   |        |   |
|---|--------|---|
| 1. Factor ambient temperature:                    | } 0.87 | 55 A x 0.87 x 0.8 = 38 A > 34 A<br>Our recommendation is a AWG8 + 1 TSP AWG14,<br>Item no. A2170804 |
| 2. Percentage factor current carrying conductors: |        |   |

Note: The given values are reference numbers to calculate the required cable sizes. LUTZE Inc. is not responsible for the conformity of the values provided by the NEC.

# LUTZE Technical Overview

## Simplified Motor, VFD and Servo Cable Selection by Horsepower (HP) rated at 75°C

Part#	Amps	AWG (POWER)	230V-3 Ø	460V-3 Ø	575V-3 Ø
A1061804	4C	-	18 AWG	Up to 5 Amps See NEC 430.22(G) <sup>†</sup>	
A2161604	4C	-	16 AWG	Up to 8 Amps See NEC 430.22(G) <sup>†</sup>	
A1061604					
A2161404	4C	20	14 AWG	5 HP	10 HP
A1061404					
A2161204	4C	25	12 AWG	5 HP	10 HP
A1061204					
A2161004	4C	35	10 AWG	10 HP	20 HP
A1061004					
A2160804	4C	50	8 AWG	10 HP	30 HP
A1060804					
A2160604	4C	65	6 AWG	15 HP	40 HP
A2200603	3C				
A2160404	4C	85	4 AWG	25 HP	50 HP
A2200403	3C				
A2160204	4C	115	2 AWG	30 HP	60 HP
A2200203	3C				
A2200103	3C	130	1 AWG	40 HP	75 HP
A2201/003	3C	150	1/0	40 HP	75 HP
A2202/003	3C	175	2/0	50 HP	100 HP
A2203/003	3C	200	3/0	60 HP	125 HP
A2204/003	3C	230	4/0	60 HP	150 HP
A22025003	3C	255	250 kcmil	75 HP	150 HP
A22035003	3C	310	350 kcmil	100 HP	200 HP
A22050003	3C	380	500 kcmil	100 HP	250 HP

Number of current carrying conductors is three (3) + green/yellow ground(s)

Part#	Amps	AWG (POWER)	230V-3Ø	460V-3 Ø	575V-3 Ø
A1071804	4C+1TSP	-	18 AWG	Up to 5 Amps See NEC 430.22(G) <sup>†</sup>	
A2171604	4C+1TSP	-	16 AWG	Up to 8 Amps See NEC 430.22(G) <sup>†</sup>	
A1071604					
A2171404	4C+1TSP	16	14 AWG	3 HP	7.5 HP
A1071404					
A2171204	4C+1TSP	20	12 AWG	5 HP	10 HP
A1071204					
A2171004	4C+1TSP	28	10 AWG	7.5 HP	15 HP
A1071004					
A2170804	4C+1TSP	40	8 AWG	10 HP	20 HP
A1070804					
A2170604	4C+1TSP	48	6 AWG	10 HP	25 HP
A2170404	4C+1TSP	68	4 AWG	20 HP	40 HP
A2170204	4C+1TSP	92	2 AWG	25 HP	50 HP

Number of current carrying conductors is five (5) + 1 green/yellow ground

Part#	Amps	AWG (POWER)	230V-3Ø	460V-3 Ø	575V-3 Ø
A2181604	4C+2TSP	-	16 AWG	Up to 8 Amps See NEC 430.22(G) <sup>†</sup>	
A2181404	4C+2TSP	14	14 AWG	3 HP	7.5 HP
A2181204	4C+2TSP	17.5	12 AWG	3 HP	10 HP
A2181004	4C+2TSP	24.5	10 AWG	5 HP	10 HP
A2180804	4C+2TSP	35	8 AWG	10 HP	20 HP

Number of current carrying conductors is seven (7) + 1 green/yellow ground

### Notes:

Type of Motor is design B

Class of Service is continuous

Duty-Cycle Service is continuous

Conductor is copper 75°C

Ambient temperature is 26-30°C

Values are based on 2023 NEC 430.250 multiplied x 1.25

Ampacities are based on 2023 NEC 310.16, 75°

Cables with Signal pair(s) have been de-rated in accordance to 2023 NEC 310.15(C)(1)

<sup>†</sup>NEC430.22(G) may permit the use of 18 AWG and 16 AWG conductors provided specific circuit protection, overcurrent protection, and overload protection is utilized as described in (G)(1) or (G)(2).

\*All values given are calculated based on 2023 NEC. For actual amperage consult your Motor/Drive manual and your local code restrictions. This guideline is simplified in order to select cable sizes. This document has no legal meaning, the interpretation of the NEC code has to be verified by the Authority Having Jurisdiction (AHJ).

# LUTZE Technical Overview

## Simplified Motor, VFD and Servo Cable Selection by Horsepower (HP) at 90°C

Part#	Amps	AWG (POWER)	230V-3 Ø	460V-3 Ø	575V-3 Ø	
A1061804	4C	14	18 AWG	Up to 5 Amps See NEC 430.22(G)†		
A2161604	4C	18	16 AWG	Up to 8 Amps See NEC 430.22(G)†		
A1061604						
A2161404	4C	25	14 AWG	5 HP	10 HP	15 HP
A1061404						
A2161204	4C	30	12 AWG	7.5 HP	15 HP	20 HP
A1061204						
A2161004	4C	40	10 AWG	10 HP	20 HP	30 HP
A1061004						
A2160804	4C	55	8 AWG	15 HP	30 HP	40 HP
A1060804						
A2160604	4C	75	6 AWG	20 HP	40 HP	50 HP
A2200603	3C					
A2160404	4C	95	4 AWG	25 HP	50 HP	60 HP
A2200403	3C					
A2160204	4C	130	2 AWG	40 HP	75 HP	100 HP
A2200203	3C					
A2200103	3C	145	1 AWG	40 HP	75 HP	100 HP
A2201/003	3C	170	1/0	50 HP	100 HP	125 HP
A2202/003	3C	195	2/0	60 HP	125 HP	150 HP
A2203/003	3C	225	3/0	60 HP	150 HP	150 HP
A2204/003	3C	260	4/0	75 HP	150 HP	200 HP
A22025003	3C	290	250 kcmil	75 HP	150 HP	200 HP
A22035003	3C	350	350 kcmil	100 HP	200 HP	250 HP
A22050003	3C	430	500 kcmil	125 HP	250 HP	350 HP

Number of current carrying conductors is three (3) + green/yellow ground(s)

Part#	Amps	AWG (POWER)	230V-3Ø	460V-3 Ø	575V-3 Ø	
A1071804	4C+1TSP	11	18 AWG	Up to 5 Amps See NEC 430.22(G)†		
A2171604	4C+1TSP	14	16 AWG	Up to 8 Amps See NEC 430.22(G)†		
A1071604						
A2171404						
A1071404	4C+1TSP	20	14 AWG	5 HP	10 HP	10 HP
A1071404R						
A2171204	4C+1TSP	24	12 AWG	5 HP	10 HP	15 HP
A1071204						
A2171004	4C+1TSP	32	10 AWG	7.5 HP	15 HP	20 HP
A1071004						
A2170804	4C+1TSP	44	8 AWG	10 HP	25 HP	30 HP
A1070804						
A2170604	4C+1TSP	60	6 AWG	15 HP	30 HP	40 HP
A2170404	4C+1TSP	76	4 AWG	20 HP	40 HP	50 HP
A2170204	4C+1TSP	104	2 AWG	30 HP	60 HP	75 HP

Number of current carrying conductors is five (5) + 1 green/yellow ground

Part#	Amps	AWG (POWER)	230V-3Ø	460V-3 Ø	575V-3 Ø	
A2181604	4C+2TSP	12.5	16 AWG	Up to 8 Amps See NEC 430.22(G)†		
A2181404	4C+2TSP	17.5	14 AWG	3 HP	10 HP	10 HP
A2181204	4C+2TSP	21	12 AWG	5 HP	10 HP	10 HP
A2181004	4C+2TSP	28	10 AWG	7.5 HP	15 HP	20 HP
A2180804	4C+2TSP	38.5	8 AWG	10 HP	20 HP	25 HP

Number of current carrying conductors is seven (7) + 1 green/yellow ground

### Notes:

Type of Motor is design B  
 Class of Service is continuous  
 Duty-Cycle Service is continuous  
 Conductor is copper 90°C  
 Ambient temperature is 26-30°C  
 Values are based on 2023 NEC 430.250 multiplied x 1.25  
 Ampacities are based on 2023 NEC 310.16, 90°  
 Cables with Signal pair(s) have been de-rated in accordance to 2023 NEC 310.15(C)(1)

\*All values given are calculated based on 2023 NEC. For actual amperage consult your Motor/Drive manual and your local code restrictions. This guideline is simplified in order to select cable sizes. This document has no legal meaning, the interpretation of the NEC code has to be verified by the Authority Having Jurisdiction (AHJ).

†NEC430.22(G) may permit the use of 18 AWG and 16 AWG conductors provided specific circuit protection, overcurrent protection, and overload protection is utilized as described in (G)(1) or (G)(2).

# LUTZE Technical Overview

## Conductor Stranding according to DIN VDE 0295/IEC 60228

Cross section mm <sup>2</sup>	Conversion to AWG (nominal)	Fine stranded conductor class 5 per VDE 0295	Superfine stranded conductor class 6 per VDE 0295	Conductor resistance (Ω/km)
0.14	26	-	18x0.10	138
0.25	24	14x0.15	32x0.10	79
0.34	22	19x0.15	42x0.10	56
0.38	22	12x0.20	21x0.15	-
0.50	21	16x0.20	28x0.15	40.1
0.75	19	24x0.20	42x0.15	26.7
1.00	18	32x0.20	56x0.15	20.0
1.50	16	30x0.25	84x0.15	13.7
2.50	14	50x0.25	140x0.15	8.21
4	12	56x0.30	224x0.15	5.09
6	10	84x0.30	192x0.20	3.39
10	8	80x0.40	320x0.20	1.95
16	6	128x0.40	512x0.20	1.24
25	4	200x0.40	800x0.20	0.795
35	2	280x0.40	1120x0.20	0.565
50	1	400x0.40	705x0.30	0.393
70	2/0	356x0.50	990x0.30	0.277
95	3/0	485x0.50	1340x0.30	0.210
120	4/0	614x0.50	1690x0.30	0.164
150	250 kcmil	765x0.50	2123x0.30	0.132
185	350 kcmil	944x0.50	1470x0.40	0.108
240	450 kcmil	1225x0.50	1905x0.40	0.0817
300	550 kcmil	1530x0.50	2385x0.40	0.0654

The number of strands is non-binding and may vary slightly to meet specified wire resistance. The VDE 0296 determines only the maximum diameter of the single wire that is required for compliance with the maximum wire resistance at 20°C.

## Conductor Stranding to ASTM B174 (172)

Comparison Class M, K, (B) and conversion AWG to metric

Size AWG	Size Metric (actual) mm <sup>2</sup>	Class K AWG 30	Class M AWG 34	Class B (for comparison only)
22	≈ 0.324	7	16	-
20	≈ 0.52	10	26	7
18	≈ 0.82	16	41	7
16	≈ 1.32	26	65	7
14	≈ 2.08	41	104	7
12	≈ 3.31	65	168	7
10	≈ 5.26	104	259	7
9	≈ 6.32	133	336	7
8	≈ 8.39	168	420	7
7	≈ 10.55	210	532	7
6	≈ 13.29	266	665	7
5	≈ 16.77	336	836	7
4	≈ 21.15	420	1,064	7
3	≈ 26.69	532	1,323	7
2	≈ 33.62	665	1,666	7
1	≈ 42.41	836	2,107	19
1/0	≈ 53.4	1,064	2,646	19
2/0	≈ 67.4	1,323	3,325	19
3/0	≈ 85	1,666	4,265	19
4/0	≈ 107	2,107	5,320	19
250	≈ 127	2,499	6,384	37
350	≈ 178	3,458	8,806	37
500	≈ 254	5,054	12,691	37

Class K is constructed with AWG30 wires and Class M with AWG34 wires.

## Conductor Marking According to DIN 47100

No. Base/ring colors	No. Base/ring colors	No. Base/ring colors	No. Base/ring colors
1 white WH	16 yellow/brown	31 green/blue	46 brown
2 brown BN	17 white/grey	32 yellow/blue	47 green
3 green GN	18 grey/brown	33 green/red	48 yellow
4 yellow YE	19 white/pink	34 yellow/red	49 grey
5 grey GY	20 pink/brown	35 green/black	50 pink
6 pink PK	21 white/blue	36 yellow/black	51 blue
7 blue BU	22 brown/blue	37 grey/blue	52 red
8 red RD	23 white/red	38 pink/blue	53 black
9 black BK	24 brown/red	39 grey/red	54 violet
10 violet VT	25 white/black	40 pink/red	55 grey/pink
11 grey/pink	26 brown/black	41 grey/black	56 red/blue
12 red/blue	27 grey/green	42 pink/black	57 white/green
13 white/green	28 yellow/grey	43 blue/black	58 brown/green
14 brown/green	29 pink/green	44 red/black	59 white/yellow
15 white/yellow	30 yellow/pink	45 white	60 yellow/brown

## Conductor Marking According to DIN 47100 for Twisted Pairs (TP)

Pair No. Conductor A & B	Pair No. Conductor A/B	Pair No. Conductor A/B	Pair No. Conductor A/B
1 white & brown	4 blue & red	7 white/green & brown/green	10 white/pink & pink/brown
2 green & yellow	5 black & violet	8 white/yellow & yellow/brown	11 white/blue & brown/blue
3 grey & pink	6 grey/pink & red/blue	9 white/grey & grey/brown	12 white/red & brown/red

## Color Chart for Hook Up Wire

Color	Abbreviation	LUTZE Color No.	RAL No.
Green/yellow	GN/YE	00	6018/1021
Black	BK	01	9005
Blue	BU	02	5015
Brown	BN	03	8003
Red	RD	04	3000
White	WH	05	9010
Gray	GY	06	7001
Purple (violet)	VT	07	4001
Pink	PK	08	3015
Orange	OG	09	2003
Yellow	YE	10	1021
Green	GN	11	6018
Dark blue	DBU	14	5010
Blue/white	BU/WH	15	5015/9010
White/blue	WH/BU	44	9010/5015
Red/White	RD/WH	45	3000/9010
Teal			5021

# LUTZE Technical Overview

## Conductor Marking for LUTZE Electronic Cables

### Electronic PLTC A313, A303

AWG 22				AWG 20, 18 and 16			
1-	Black			1-	Black		
2-	Brown			2-	Red		
3-	Red			3-	White		
4-	Orange			4-	Green		
5-	Yellow			5-	Orange		
6-	Green			6-	Blue		
7-	Blue			7-	Brown		
8-	Purple			8-	Yellow		
9-	Gray			9-	Purple		
10-	White			10-	Gray		
11-	White	Black		11-	Pink		
12-	White	Brown		12-	Tan		
13-	White	Red		13-	Red	Green	
14-	White	Orange		14-	Red	Yellow	
15-	White	Yellow		15-	Red	Black	
16-	White	Green		16-	White	Black	
17-	White	Blue		17-	White	Red	
18-	White	Purple		18-	White	Green	
19-	White	Gray		19-	White	Yellow	
20-	White	Black	Brown	20-	White	Blue	
21-	White	Black	Red	21-	White	Brown	
22-	White	Black	Orange	22-	White	Orange	
23-	White	Black	Yellow	23-	White	Gray	
24-	White	Black	Green	24-	White	Purple	
25-	White	Black	Blue	25-	White	Black	Red

### Electronic TP PLTC A314

AWG 22			AWG 20, 18 and 16		
1-	White	Black	1-	Black	Red
2-	White	Brown	2-	Black	White
3-	White	Red	3-	Black	Green
4-	White	Orange	4-	Black	Blue
5-	White	Yellow	5-	Black	Brown
6-	White	Green	6-	Black	Yellow
7-	White	Blue	7-	Black	Orange
8-	White	Purple	8-	Red	Green

## Chemical Resistance of PVC, TPE and PUR Cable Jackets

Inorganic	Concentration	PVC	TPE	PUR
Alum	c.s.	+	+	
Aluminum salts	ec.	+	+	+
Ammonia, a	10 %	+	+	+
Ammonium acetate, a	ec.	+	+	
Ammonium carbonate, a	ec.	+	+	-
Ammonium chloride, a	ec.	+	+	+
Barium salts	ec.	+	+	+
Boric acid	100 %	+	+	O
Calcium chloride, a	c.s.	+	+	O
Calcium chloride, a	10 % and 40 %			+
Calcium nitrate, a	c.s.	+	+	
Chrome salts, a	c.s.	+	+	+
Potassium carbonate, a (potash)		+	+	
Potassium chlorate, a	c.s.	+	+	
Potassium chloride, a	c.s.	+	+	O
Calcium dichromate, a		+	+	
Calcium iodide, a		+	+	
Calcium nitrate, a	c.s.	+	+	+
Potassium permanganate, a		O	O	-
Potassium sulfate, a		+	+	+
Copper salts, a	c.s.	+	+	+
Magnesium salts, a	c.s.	+	+	O
Sodium carbonate, a (natron)		+	+	O
Sodium bisulfate, a		+	+	
Sodium chloride, a (common salt)		+	+	+
Sodium thiosulfate, a (fixing salt)		+	+	O
Nickel salts, a	c.s.	+	+	+
Phosphoric acid	50 %	+	+	-
Mercury	100 %	+	+	+
Mercury salts, a	c.s.	+	+	+
Nitric acid	30 %	-	-	-
Hydrochloric acid	concentrated	-	-	-
Sulfur	100 %	+	+	+
Sulfur dioxide	gaseous	+	+	O
Carbon disulfide		-	-	-
Hydrogen sulfide		+	+	-
Sea water		+	+	+
Silver salts, a		+	+	+
Hydrogen peroxide, a	3 %	+	+	+
Zinc salts, a		+	+	-
Tin (II) chloride		+	+	

Organic	Concentration	PVC	TPE	PUR
Ethyl alcohol	100 %	-	-	-
Formic acid	30 %	-	-	-
Benzine/Benzene		-	O	+
Succinic acid, a	c.s.	+	+	-
Acetic acid	20 %	O	O	O
Hydraulic oil		-	*	O*
Isopropyl alcohol	100 %	-	-	O
Kerosene			O	O
Machine oil		O*	O*	+
Methyl alcohol, a	100 %	O	O	O
Mineral oil, depending on type (ASTM)			*	*
Oxalic acid, a	c.s.	+	+	
Paraffin oil			+	+
Plant oils and greases		O/+*	+	+
Cutting oil		O*	O/+*	+
Tartaric acids, a		+	+	
Citric acid		+	+	

**Legend:** ec. = each concentration  
c.s. = cold saturated  
a = aqueous  
\* = depending on the additive in oil  
results may vary greatly  
+ = resistant  
O = conditionally resistant  
- = unstable

**Disclaimer:** The information is to be used ONLY as a guide in selecting equipment for appropriate chemical compatibility. Before permanent installation, test the equipment with the chemicals and under the specific conditions of your application. LUTZE Inc. makes no guarantee or representation as to the completeness or accuracy thereof, and disclaims all liability for any loss or damage resulting from use or reliance upon any information, recommendations or suggestions contained herein.



# LUTZE SILFLEX® FBP Material Compatibility

## Chemical Compatibility of LUTZE SILFLEX® FBP Cable Jackets

Cleaning Agent	Description	Recommended Dilution	Relative pH	LUTZE SILFLEX® FBP
Bleach	Solvent	5%	11.3	+
Hydrogen Peroxide	Solvent	35% - 45%	4.6 – 4.8	+
RELEASE QF-BNP PLUS™	Solvent	3%	13.4	+
QUORUM CLEAR V™	Sanitizer	N/A	7.73	O
ChemTreat CP2100™	Solvent	N/A	12.2	+
ChemTreat CP2202™	Solvent	3% – 10%	9.5	+
ChemTreat CP1100™	Solvent	N/A	1.2	O
ChemTreat CP3250™	Solvent	N/A	11.9	+
STER-BAC QUAT™	Sanitizer	N/A	6 – 10	+
AC-55-5 RED™	Solvent	2%	0.9 – 1.1	+
EXELERATE CIP™	Solvent	N/A	13.9	+
OCTAVE™	Sanitizer	N/A	1	+
CONQUEST™	Solvent	2.5%	13.2	+
ENFORCE LP™	Solvent	N/A	13.9	+
FOAM-SHINE™	Solvent	N/A	0.5 – 1.0	+
Envirocid Plus™	Solvent	2%	0.9 – 11	+
XY-12-P™	Sanitizer	N/A	12.5	+
P3-Topactive DES™	Disinfectant	3%	2 – 3	+
P3-Topactive LA™	Solvent	N/A	10.7 – 11	+
P3-Topax 56™	Solvent	N/A	0.7 – 1.2	O
P3-Topax 66™	Disinfectant	5%	13 – 14	+
P3-Topax 91™	Disinfectant	N/A	8 – 8.5	+

**Legend:** + = resistant  
 O = conditionally resistant  
 - = unstable

**Disclaimer:** The information is to be used ONLY as a guide in selecting equipment for appropriate chemical compatibility. Before permanent installation, test the equipment with the chemicals and under the specific conditions of your application. LUTZE Inc. makes no guarantee or representation as to the completeness or accuracy thereof and disclaims all liability for any loss or damage resulting from use or reliance upon any information, recommendations or suggestions contained herein.

## LUTZE Jackets with Ecolab® Testing

Ecolab® Cleaning Agent	Description	Dilution	LUTZE SILFLEX® FBP
P3-Topax 66™	Alkaline-chlorine Disinfectant	5%	+
Topaz LD1™	Alkaline Foam Detergent	5%	+
Topaz AC5™	Acid Foam Detergent	5%	+
P3-Topactive DES™	Acid Foam Disinfectant	3%	+*
P3-Topax 990™	Neutral Foam Disinfectant	3%	+

**Legend:** + = resistant  
 O = conditionally resistant  
 - = unstable  
 \* = slight jacket discoloring may occur after prolonged exposure

Ecolab® is a registered trademark of Ecolab USA Inc.

## Ingress Protection (IP) Class Designation according to EN 60529

The protection of electrical equipment through corresponding enclosure is specified with code letters and code numbers. This protection class designation consists of the letters "IP" and two code numbers from 0 to 8. The first code number stands for the protection against contact and foreign substances, the second number specifies the degree of protection against water. The higher the respective code number is, the higher the offered protection. The protection class for each product is specified in the respective technical information.

### For example:

IP 65	<b>Code letter IP</b>	<b>IP</b>	
	<b>First code number</b>	<b>6</b>	<b>corresponds to: Protection against entrance of dust</b>
	<b>Second code number</b>	<b>5</b>	<b>corresponds to: Protection against sprayed water</b>

### For protection against contact and foreign substances

First code number	Protection scope designation	Explanation
0	No protection	No special protection of persons from accidental contact with standing or moving parts under voltage. No protection of the equipment against entry of solid foreign substances.
1	1 Protection against foreign substances > 50 mm	Protection against accidental contact of large area surfaces of standing and internally moving parts under voltage, e.g. with the hand, but no protection against intentional access to these parts. Protection against entry of solid foreign substances with a diameter larger than 50 mm.
2	Protection against foreign substances > 12 mm voltage	Protection against contact by the fingers of standing or internally moving parts under voltage. Protection against entry of solid foreign substances with a diameter larger than 12 mm.
3	Protection against foreign substances > 2.5 mm tools	Protection against contact of standing or internally moving parts under voltage with, wires or similar of a thickness larger than 2.5 mm. Protection against entry of solid foreign substances with a diameter larger than 2.5 mm.
4	Protection against foreign substances > 1 mm	Protection against contact of standing or internally moving parts under voltage with tools, wires or similar of a thickness larger than 1 mm. Protection against entry of solid foreign substances with a diameter larger than 1 mm.
5	Protection against dust accumulation	Full protection against contact of standing or internally moving parts under voltage. Protection against dust accumulation. The entry of dust is not fully prevented but the dust may not enter in such quantities that the functioning is impaired.
6	Protection against dust accumulation	Full protection against contact of standing or internally moving parts under voltage. Protection against entry of dust.

### For water protection

Second code number	Protection scope designation	Explanation
0	No protection	No special protection.
1	Protection against vertically falling dripping water	Water drops that fall vertically may not have any damaging effect.
2	Protection against dripping water falling at an angle	Water drops that fall at an arbitrary angle of up to 15° to vertical may not have any damaging effect.
3	Protection against sprayed water	Water that falls in an arbitrary angle up to 60° to vertical may not have a damaging effect.
4	Protection against splashed water	Water that is splashed from all directions against the equipment may not have a damaging effect.
5	Protection against water projected from a nozzle	Water projected from a nozzle that is aimed at the equipment from all directions may not have any damaging effect.
6	Protection against flooding	Water may not enter into the equipment in damaging amounts during temporary flooding (e.g. by heavy seas)
7	Protection against immersion	Water may not enter in damaging amounts if the equipment is immersed in water for the defined pressure and time conditions.
8	Protection against submersion	Water may not enter in damaging amounts if the equipment is submerged in water for the defined pressure and indefinite amount of time.
9	Protection against high temperature water jets	Water may not enter in damaging amounts if the equipment is subjected to predefined high temperature, high pressure water jets from four angles for three minutes.

# LUTZE Technical Overview

## Enclosure Type Ratings According to UL 50E and NEMA 250-2003

In the United States the protection level of electrical enclosures is standardized using Type ratings, which have been defined by the National Electrical Manufacturers Association (NEMA). These ratings specify the level of protection that a complete enclosure provides against foreign objects such as dust and fibers, liquids, coolants, and corrosive agents. Enclosures are rated based on the complete enclosure installation, including pass-through devices, ports, and entry points when properly installed.

### For protection against contact and foreign substances

Type Rating	Description
Type 1	Constructed for indoor use to provide a degree of protection to personnel against access to hazardous parts and to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt).
Type 2	Constructed to meet the requirements of Type 1 and to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (dripping and light splashing).
Type 3	Constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure.
Type 3R	Constructed to meet the requirements of Type 3 but does not include protection against windblown dust.
Type 3S	Constructed to meet the requirements of Type 3 and for which the external mechanism(s) remain operable when ice laden.
Type 4	Constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); and that will be undamaged by the external formation of ice on the enclosure.
Type 4X	Constructed to meet the requirements of Type 4 with an additional level of protection against corrosion.
Type 6	Constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (hose directed water and the entry of water during occasional temporary submersion at a limited depth); and that will be undamaged by the external formation of ice on the enclosure.
Type 6P	Constructed to meet the requirements of Type 6 with an additional level of protection against corrosion.
Type 12	Constructed (without knockouts) for indoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and circulating dust, lint, fibers, and flyings); and to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (dripping and light splashing).
Type 12K	Constructed (without knockouts) for indoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and circulating dust, lint, fibers, and flyings); and to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (dripping and light splashing).
Type 13	Constructed to meet the requirements of Type 12 and to provide a degree of protection against the spraying, splashing, and seepage of oil and non-corrosive coolants.

# LUTZE Technical Overview

## Thread Tables for LUTZE Cable Fittings - NPT, PG, Metric

NPT	Pitch mm	Outside Diameter mm	Number of Threads per Unit Length	Clearance Hole mm
NPT 3/8"	1.411	17.055	18	17.0
NPT 1/2"	1.814	21.223	14	22
NPT 3/4"	1.814	26.568	14	29
NPT 1"	2.209	33.227	11.5	33.5
NPT 2"	2.209	60.091	11.5	60.8
NPT 2 1/2"	3.175	72.699	8	73.5
NPT 3"	3.175	88.609	8	89.4

PG to DIN 40430	Pitch mm	Outside Diameter mm	Core Diameter mm	Clearance Hole mm
PG7	1.270	12.5	11.28	12.7
PG9	1.410	15.2	13.86	15.4
PG11	1.410	18.6	17.26	18.8
PG13	1.410	20.4	19.06	20.7
PG16	1.410	22.5	21.16	22.8
PG21	1.588	28.3	26.78	28.6
PG29	1.588	37.0	35.48	37.4
PG36	1.588	47.0	45.48	47.5
PG42	1.588	54.0	52.48	54.5
PG48	1.588	59.3	57.78	59.8

Metric to EN 60423	Pitch mm	Outside Diameter mm	Core Diameter mm	Clearance Hole mm
M12x1.5	1.5	12	10.5	12.2
M16x1.5	1.5	16	14.5	16.2
M20x1.5	1.5	20	18.5	20.2
M25x1.5	1.5	25	23.5	25.2
M32x1.5	1.5	32	30.5	32.2
M40x1.5	1.5	40	38.5	40.2
M50x1.5	1.5	50	48.5	50.2
M63x1.5	1.5	63	61.5	63.2
M75x1.5	1.5	75	73.5	75.5
M90x1.5	1.5	90	80	90.2

# LUTZE Technical Overview

## Torque Recommendations for LUTZE Cable Fittings - Plastic and Metal Dome Nuts

Nominal Size	Recommended Torque in Nm	
	Plastic	Metal
NPT 3/8"	2.5	4.5
NPT 1/2"	3.0	5
NPT 3/4"	5.0	7.0
NPT 1"	5.0	7.0
PG7	2.5	6.25
PG9	3.75	6.25
PG11	3.75	6.25
PG13.5	3.75	6.25
PG16	5.0	7.5
PG21	7.5	10.0
PG29	7.5	10.0
PG36	7.5	10.0
PG42	7.5	10.0
PG48	7.5	10.0
M12x1.5	1.0	5
M16x1.5	2.5	5
M20x1.5	4.0	7.5
M25x1.5	6.0	10
M32x1.5	7.0	15
M40x1.5	7.5	18
M50x1.5	8.0	20
M63x1.5	9.0	20

## Torque Recommendations for LUTZE Cable Fittings – EMC Style

Nominal Size	Recommended Torque in Nm	
	Body (Dome Nut)	locknut
NPT 3/8"	6.5	-
NPT 1/2"	8.0	-
NPT 3/4"	16.0	-
NPT 1"	22.0	-
M12x1.5	5.5	3
M16x1.5	6.5	4
M20x1.5	8.0	5.5
M25x1.5	16.0	6
M32x1.5	22.0	6
M40x1.5	42.0	12
M50x1.5	42.0	18
M63x1.5	43.0	25

## Torque Recommendations for LUTZE Cable Fittings –CEX Style

Nominal Size	Recommended Torque in Nm			Recommended Torque in Nm locknut
	Body (Dome Nut)			
	3 seal rings	2 seal rings	1 seal ring	
NPT 2"	190 ± 3	125 ± 3	140 ± 3	-
NPT 2 1/2"	130 ± 3	125 ± 3	120 ± 3	-
NPT 3"	123 ± 3	115 ± 3	107 ± 3	-
M63x1.5	190 ± 3	125 ± 3	140 ± 3	25 ± 2.5
M75x1.5	130 ± 3	125 ± 3	120 ± 3	30 ± 2.5
M90x1.5	123 ± 3	115 ± 3	107 ± 3	35 ± 2.5

The specified values are recommended for achieving the protection class IP68 at 5 bar. Please choose the suitable torque for the material and cable application. The actual crush resistance of each cable must be considered and you may have to significantly reduce the torque. The values shown are for reference only.

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
104001	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	111371	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
104002	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111372	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
104101	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111373	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
104197	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111374	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
104265	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	111375	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
104275	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	111376	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
104280	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111377	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
104281	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	111430	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
104287	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	111456	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104289	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111457	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
104293	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	111458	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104301	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111459	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104303	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111489	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
104307	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111545	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
104331	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111749	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104335	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111780	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104336	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	111781	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104337	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113032	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
104338	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	113033	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
104344	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113034	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
104347	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113035	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
104349	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113036	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
104386	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV	113037	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104387	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	113038	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
104396	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	113039	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
104397	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	113049	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
104401	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113050	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
104404	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113051	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
110940	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113052	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
111126	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113053	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
111127	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	113054	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
111128	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	113055	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
111129	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	113056	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
111130	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	113070	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
111131	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	113071	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
111132	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	113072	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
111136	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	113073	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT12-CV	FMPG11	FMM20 FMM16-CV
111197	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	113074	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
111243	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113075	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
111288	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113076	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
111289	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113087	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
111290	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	113088	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
111291	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	113089	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
111292	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV	113090	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
111293	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	113091	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
111370	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	113092	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
113093	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117049	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113100	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV	117050	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113101	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	117051	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113102	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	117052	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113103	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	117053	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
113104	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117056	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
113105	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	117092	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113106	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	117093	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113107	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117094	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
113108	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	117095	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113109	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	117096	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113110	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117097	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113111	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117099	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113112	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	117100	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113113	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	117101	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113114	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117102	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
113115	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117103	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
113117	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117104	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113118	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117105	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113119	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	117106	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
113120	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	117107	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
113121	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV	117108	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113122	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117109	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
113220	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117110	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
113221	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	117111	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
113222	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	117112	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113223	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	117113	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113224	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117115	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
113225	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117116	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
113227	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	117124	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113228	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	117170	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113229	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	117171	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113230	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	117172	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
113231	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	117173	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
113232	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT34-CV	FMPG29	FMM40 FMM32-CV	117174	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
117028	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	117175	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
117029	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	117176	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
117039	FPNPT38-R	FPPG7	FPM12	N/A	FMPG7	FMM12	117177	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
117040	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	117180	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
117041	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	117181	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
117042	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	117182	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
117043	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	117185	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
117044	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	117190	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
117046	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	117191	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
117047	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	117193	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
117048	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	117199	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
117202	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	11424.1000	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
117303	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	11425.1000	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
108349A	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	11426.1000	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
108350A	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	11460.1000	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108351A	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	11461.1000	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
108352A	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	11462.1000	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
108353A	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	11463.1000	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
108354A	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	11464.1000	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT34-CV	FMPG29	FMM40 FMM32-CV
108355A	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	11465.1000	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
108356A	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	11488.2000	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108357A	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	11762.1000	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
108358A	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	11998.1000	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
108359A	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	117243.2000	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
108360A	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	117244.2000	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
108361A	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	117245.2000	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
108362A	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	117253.2000	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
108363A	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	117254.2000	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
108372A	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	117255.2000	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
108373A	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1021603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108374A	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1021604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108375A	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1021605	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108376A	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A1021803	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108377A	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A1021804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108378A	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40 FMM32-CV	A1021805	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108380A	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1022003	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108381A	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1022004	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108382A	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1022005	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108383A	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A1022203	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108384A	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A1022204	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108385A	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A1022205	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108386A	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A1040001	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108389A	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A1040005	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108391A	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A1040006	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108392A	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A1040017	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
108393A	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A1040019	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
108401A	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A1040020	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
110872.2000	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1040030	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
110874.2000	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1040295	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
111271.1000	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A1040300	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
111276.1000	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV	A1060804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
111279.1000	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A1061004	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
111388.1000	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A1061204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
111420.1000	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A1061404	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
111421.1000	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A1061604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
111422.1000	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A1061804	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
111423.1000	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A1070804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV



# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A1071004	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A1482018	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A1071204	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A1482025	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A1071404	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A1491204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A1071404R	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A1491404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A1071604	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV	A1491405	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A1071804	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A1491407	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
A1100104	N/A	FPPG42	FPM50	N/A	FMPG42	FMM63 N/A N/A	A1491603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A1100204	N/A	FPPG36	FPM40	N/A	FMPG36	FMM50	A1491604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A1100404	N/A	FPPG36	FPM40	N/A	FMPG36	FMM50	A1491605	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A1100604	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A1491607	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A1100804	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A1491612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1101004	N/A	FPPG42	FPM50	FMNPT112-CV FMNPT2-CEX	FMPG42	FMM63 FMM50-CV FMM63-CEX	A1491618	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1101004	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A1491625	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A1101204	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A1491803	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A1101404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1491804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A1102004	N/A	FPPG48	FPM63	FMNPT20-CV FMNPT2-CEX	FMPG48	FMM63 FMM63-CV FMM63-CEX	A1491805	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A1103004	N/A	FPPG48	FPM63	FMNPT20-CV FMNPT2-CEX	FMPG48	FMM63 FMM63-CV FMM63-CEX	A1491807	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A1104004	N/A	N/A	N/A	FMNPT212- CEX	N/A	FMM63-CV	A1491812	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A1410001	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	A1491818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1410002	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A1491825	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A1481204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1491834	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A1481207	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A1492003	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A1481404	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1492004	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A1481405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A1492005	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A1481407	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A1492007	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A1481603	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A1492012	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A1481604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1492018	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A1481605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A1492025	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1481607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A2160204	N/A	FPPG42	FPM50	FMNPT112-CV	FMPG42	FMM63 FMM50-CV
A1481612	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A2160404	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
A1481618	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A2160604	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
A1481625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A2160804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A1481802	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A2161004	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT34-CV	FMPG29	FMM40 FMM32-CV
A1481803	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A2161204	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1481804	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A2161404	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1481805	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A2161604	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A1481807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A2170204	N/A	FPPG42	FPM50	FMNPT112-CV FMNPT2-CEX	FMPG42	FMM63 FMM50-CV FMM63-CEX
A1481812	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A2170404	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
A1481818	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A2170604	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
A1481825	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A2170804	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
A1481834	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A2171004	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A1482003	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A2171204	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A1482004	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A2171404	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1482005	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A2171604	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A1482007	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A2180804	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV
A1482012	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A2181004	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A2181204	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3032015	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A2181404	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3032020	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A2181604	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT34-CV	FMPG29	FMM40 FMM32-CV	A3032025	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A2200103	N/A	FPPG42	FPM50	FMNPT112-CV FMNPT2-CEX	FMPG42	FMM63 FMM50-CV FMM63-CEX	A3032202	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A2200203	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV	A3032203	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A2200403	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV	A3032204	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A2200603	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3032206	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A2201/003	N/A	FPPG42	FPM50	FMNPT112-CV FMNPT2-CEX	FMPG42	FMM63 FMM50-CV FMM63-CEX	A3032208	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A2202/003	N/A	FPPG48	FPM63	FMNPT20-CV FMNPT2-CEX	FMPG48	FMM63 FMM63-CV FMM63-CEX	A3032210	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A22025003	N/A	N/A	N/A	FMNPT212- CEX	N/A	FMM63-CV	A3032215	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A2203/003	N/A	FPPG48	FPM63	FMNPT20-CV FMNPT2-CEX	FMPG48	FMM63 FMM63-CV FMM63-CEX	A3032220	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A22035003	N/A	N/A	N/A	FMNPT212- CEX	N/A	FMM75-CEX	A3032225	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A2204/003	N/A	N/A	N/A	FMNPT212- CEX	N/A	FMM63-CV	A3080204	N/A	FPPG42	FPM50	N/A	FMPG42	FMM63
A22050003	N/A	N/A	N/A	FMNPT3-CEX	N/A	FMM63-CV	A3080404	N/A	FPPG36	FPM40	N/A	FMPG36	FMM50
A2441402	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3080604	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40
A2441404	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3080804	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A2441602	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3080805	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40
A2441604	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3081004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A2441802	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3081005	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A2441804	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV	A3081203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3031602	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A3081204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3031603	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A3081205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3031604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3081207	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3031606	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3081403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3031608	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3081404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3031610	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3081405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3031615	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3081407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3031620	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3081409	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3031625	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A3081412	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3031802	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A3081418	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A3031803	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A3081425	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40
A3031804	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A3081602	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3031806	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A3081603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3031808	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3081604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3031810	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3081605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3031815	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3081607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3031820	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3081609	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3031825	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3081612	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3032002	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A3081618	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3032003	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A3081625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A3032004	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A3081634	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40
A3032006	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A3081641	FPNPT10	FPPG36	FPM40	FMNPT10	FMPG36	FMM50
A3032008	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A3081802	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A3032010	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3081803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A3081804	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3092018	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3081805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3092025	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3081807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3131602	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3081809	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3131603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3081812	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3131604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3081818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3131606	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3081825	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A3131608	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3081834	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A3131610	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3081841	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A3131615	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
A3081850	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A3131620	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3082003	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A3131625	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3082004	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A3131802	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3082005	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3131803	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3082007	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3131804	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3082012	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3131806	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3082018	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3131808	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3082025	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A3131810	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3091004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3131815	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3091203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3131820	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3091204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3131825	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
A3091205	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3132002	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3091403	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132003	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3091404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3132004	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3091405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3132006	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3091407	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3132008	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3091412	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3132010	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3091603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132015	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3091604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132020	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3091605	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3132025	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3091607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3132202	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3091612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3132203	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3091618	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3132204	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3091625	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3132206	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3091802	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132208	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3091803	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132210	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3091804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132215	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3091805	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3132220	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3091807	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	A3132225	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3091812	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3141602	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A3091818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3141604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3091825	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT34-CV	FMPG29	FMM40 FMM32-CV	A3141606	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3092003	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	A3141608	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3092004	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3141612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3092005	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3141616	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3092007	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3141802	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A3092012	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3141804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A3141806	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3141808	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	A3221605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3141810	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3221607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3141812	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3221609	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3141816	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3221612	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3142002	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV	A3221618	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3142004	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A3142006	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A3142008	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221804	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142010	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142012	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3221807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142016	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3221809	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3142202	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV	A3221812	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3142204	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	A3221818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3142206	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	A3221825	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3142208	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3251204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3142210	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3251205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3142212	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3251403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142216	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	A3251404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3160804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3251603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3161004	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3251605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3161204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3161404	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3161604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3251619	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3170204	N/A	FPPG42	FPM50	FMNPT112-CV	FMPG42	FMM63 FMM50-CV	A3251625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A3170404	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV	A3251803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A3170604	FPNPT10	FPPG36	FPM40	FMNPT10 FMNPT10-CV	FMPG36	FMM50 FMM40-CV	A3251805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3170804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3251807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3171004	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3251812	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3171204	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3251819	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3171404	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251825	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3171604	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251837	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40
A3220604	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A3311004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3220804	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A3311203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3311204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311205	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3221204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311403	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3221205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3311404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3221207	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3311405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3311407	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3221404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311412	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3221405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3221407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3221412	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3311605	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3221602	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3311607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3311612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A3311618	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3221604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3311625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3221605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3311803	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3311804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221609	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3141816	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3221612	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3142002	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV	A3221618	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3142004	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A3142006	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A3142008	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221804	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142010	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3221805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142012	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3221807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142016	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3221809	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3142202	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV	A3221812	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3142204	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	A3221818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3142206	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV	A3221825	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3142208	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3251204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3142210	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3251205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3142212	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A3251403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3142216	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	A3251404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3160804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3251603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3161004	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3251605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3161204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3161404	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3161604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV	A3251619	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3170204	N/A	FPPG42	FPM50	FMNPT112-CV	FMPG42	FMM63 FMM50-CV	A3251625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40
A3170404	N/A	FPPG36	FPM40	FMNPT114-CV	FMPG36	FMM50 FMM40-CV	A3251803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A3170604	FPNPT10	FPPG36	FPM40	FMNPT10 FMNPT10-CV	FMPG36	FMM50 FMM40-CV	A3251805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3170804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3251807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3171004	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A3251812	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3171204	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A3251819	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3171404	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251825	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3171604	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A3251837	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40
A3220604	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A3311004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3220804	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A3311203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3311204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311205	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3221204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311403	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3221205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A3311404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3221207	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3311405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3311407	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3221404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311412	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3221405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3221407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A3311604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3221412	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A3311605	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3221602	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3311607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3221603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A3311612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A3311618	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A4061004	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3311625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A4061204	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
A3311803	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A4061404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3311804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A4061604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3311805	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV	A4061804	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3311807	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV	A4211004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3311812	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV	A4211005	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3311818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A4211203	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3311825	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV	A4211204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3320204	N/A	FPPG36	FPM40	N/A	FMPG36	FMM50	A4211205	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3320404	N/A	FPPG36	FPM40	N/A	FMPG36	FMM50	A4211207	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3320604	FPNPT10	FPPG29	FPM32	FMNPT10	FMPG29	FMM40	A4211403	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3320804	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A4211404	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A3321/004	N/A	FPPG42	FPM50	FMNPT112-CV FMNPT2-CEX	FMPG42	FMM63	A4211405	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3321003	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A4211407	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3321004	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A4211412	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A3321005	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A4211603	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3321203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A4211604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3321204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A4211605	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3321205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A4211607	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3321207	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A4211612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV
A3321403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4211803	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3321404	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4211804	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3321405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A4211805	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A3321407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A4211807	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A3321412	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A4211812	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A3321602	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A4221004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32
A3321603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4221005	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3321604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4221203	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3321605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4221204	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3321607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A4221205	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3321612	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A4221207	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3321618	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A4221403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3321625	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A4221404	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3321802	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A4221405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3321803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A4221407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3321804	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4221412	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32
A3321805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4221602	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3321807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A4221603	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3321812	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A4221604	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20
A3321818	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A4221605	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3321825	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A4221607	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20
A3322/004	N/A	FPPG36	FPM40	N/A	FMPG36	FMM50	A4221612	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25
A3323/004	N/A	N/A	N/A	FMNPT212- CEX	N/A	FMM63-CV	A4221802	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A3324/004	N/A	N/A	N/A	FMNPT212- CEX	N/A	FMM63-CV	A4221803	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16
A4060804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV	A4221804	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20

# LUTZE Fittings Selection Chart

Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric	Part#	Plastic NPT	Plastic PG	Plastic Metric	Metal NPT	Metal PG	Metal Metric
A4221805	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6021412	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A4221807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6021603	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A4221812	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A6021604	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6010604	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10	FMPG29	FMM40	A6021605	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6010804	FPNPT34	FPPG21	FPM25	FMNPT34	FMPG21	FMM32	A6021607	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6011004	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A6021612	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A6011204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A6021618	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A6011205	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A6021625	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A6011403	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6021803	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A6011404	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6021804	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A6011405	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6021805	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6011407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A6021807	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6011412	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A6021812	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A6011602	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A6021818	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A6011603	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A6021825	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A6011604	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A6022003	FPNPT38-R	FPPG7	FPM12	FMNPT38 FMNPT38-CV	FMPG7	FMM12 FMM16-CV
A6011605	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6022004	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A6011607	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6022005	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A6011612	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A6022007	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A6011618	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A6022012	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6011625	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A6022018	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A6011802	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A6022025	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A6011803	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A602xx	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A6011804	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A604xx	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT38-CV	FMPG13	FMM20 FMM20-CV
A6011805	FPNPT38	FPPG9	FPM16	FMNPT38	FMPG9	FMM16	A6060804	FPNPT10	FPPG29	FPM32	FMNPT10 FMNPT10-CV	FMPG29	FMM40 FMM32-CV
A6011807	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6061004	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A6011809	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A6061204	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A6011812	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A6061404	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV
A6011818	FPNPT12	FPPG16	FPM20	FMNPT34	FMPG16	FMM25	A6061604	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A6011825	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A6061804	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV
A6012002	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A606xx	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV
A6012003	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A608xx	FPNPT38	FPPG9	FPM16	FMNPT38 FMNPT38-CV	FMPG9	FMM16 FMM16-CV
A6012004	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A610xx	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A6012005	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12	A612xx	FPNPT38-R	FPPG7	FPM12	FMNPT38	FMPG7	FMM12
A6012007	FPNPT38-R	FPPG9	FPM16G-R	FMNPT38	FMPG9	FMM16	A614xx	FPNPT38-R	FPPG7	FPM12	N/A	FMPG7	FMM12
A6012012	FPNPT38	FPPG11	FPM16	FMNPT12	FMPG11	FMM20	A616xx	FPNPT38-R	FPPG7	FPM12	N/A	FMPG7	FMM12
A6012018	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A618xx	N/A	N/A	N/A	N/A	N/A	N/A
A6012025	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12	FMPG13	FMM20	A619xx	N/A	N/A	N/A	N/A	N/A	N/A
A601xx	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34	FMPG21	FMM32	A695xx	FPNPT10B-R	FPPG29	FPM32G-R	FMNPT10 FMNPT34-CV	FMPG29	FMM40 FMM32-CV
A6021004	FPNPT34-R	FPPG21	FPM25G-R	FMNPT34 FMNPT12-CV	FMPG21	FMM32 FMM25-CV	A670xx	FPNPT34	FPPG21	FPM25	FMNPT34 FMNPT34-CV	FMPG21	FMM32 FMM25-CV
A6021204	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV							
A6021205	FPNPT12	FPPG16	FPM20	FMNPT34 FMNPT12-CV	FMPG16	FMM25 FMM20-CV							
A6021403	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV							
A6021404	FPNPT38	FPPG11	FPM16	FMNPT12 FMNPT38-CV	FMPG11	FMM20 FMM16-CV							
A6021405	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV							
A6021407	FPNPT12-R	FPPG13	FPM20G-R	FMNPT12 FMNPT12-CV	FMPG13	FMM20 FMM20-CV							

# LUTZE HYGIENIC Fittings Selection Chart

Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC
104001	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11371	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113093	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117049	FHNPT14	FHM12
104002	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11372	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113100	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117050	FHNPT14	FHM12
104101	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11373	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113101	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117051	FHNPT14	FHM12
104197	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11374	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113102	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117052	FHNPT38	FHM16
104265	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11375	N/A	N/A	113103	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117053	FHNPT38	FHM16
104275	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	11376	N/A	N/A	113104	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117056	FHNPT38	FHM16
104280	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11377	N/A	N/A	113105	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117092	FHNPT14	FHM12
104281	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	11430	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113106	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117093	FHNPT14	FHM12
104287	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11456	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113107	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117094	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104289	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11457	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113108	FHNPT38	FHM16	117095	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104293	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11458	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113109	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117096	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104301	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11459	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113110	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117097	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104303	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11489	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113111	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117099	FHNPT14	FHM12
104307	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11545	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113112	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117100	FHNPT14	FHM12
104331	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11749	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113113	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117101	FHNPT14	FHM12
104335	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11780	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113114	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117102	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2
104336	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	11781	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113115	N/A	N/A	117103	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104337	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113032	FHNPT14	FHM12	113117	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117104	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104338	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113033	FHNPT14	FHM12	113118	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117105	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104344	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113034	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2	113119	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117106	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104347	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113035	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113120	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117107	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104349	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113036	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113121	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117108	FHNPT14	FHM12
104386	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113037	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113122	N/A	N/A	117109	FHNPT14	FHM12
104387	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113038	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113220	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117110	FHNPT14	FHM12
104396	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113039	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113221	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117111	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2
104397	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113049	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113222	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117112	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104401	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113050	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113223	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117113	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
104404	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113051	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113224	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117115	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
110940	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113052	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113225	N/A	N/A	117116	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
111126	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113053	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113227	N/A	N/A	117124	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111127	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113054	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113228	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117170	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111128	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113055	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113229	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117171	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111129	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113056	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113230	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117172	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111130	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113070	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113231	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117173	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111131	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113071	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113232	N/A	N/A	117174	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111132	N/A	N/A	113072	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117028	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117175	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
111136	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113073	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117029	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117176	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
111197	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113074	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117039	FHNPT14	FHM12	117177	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111243	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113075	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117040	FHNPT14	FHM12	117180	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111288	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113076	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117041	FHNPT14	FHM12	117181	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111289	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113087	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117042	FHNPT14	FHM12	117182	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111290	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	113088	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117043	FHNPT14	FHM12	117185	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
111291	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113089	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	117044	FHNPT38	FHM16	117190	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111292	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113090	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	117046	FHNPT38	FHM16	117191	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
111293	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	113091	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117047	FHNPT38	FHM16	117193	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
111370	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	113092	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	117048	FHNPT14	FHM12	117199	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2



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117202	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	111424.1000	N/A	N/A	A1071004	N/A	N/A	A1482018	FHNPT12	FHM20
117303	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	111425.1000	N/A	N/A	A1071204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1482025	FHNPT34	FHM25
108349A	FHNPT38	FHM16	111426.1000	N/A	N/A	A1071404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1491204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108350A	FHNPT38	FHM16	111460.1000	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1071404R	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1491404	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
108351A	FHNPT38	FHM16	111461.1000	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A1071604	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1491405	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108352A	FHNPT38	FHM16	111462.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1071804	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1491407	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108353A	FHNPT38	FHM16	111463.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1100104	N/A	N/A	A1491603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108354A	FHNPT12	FHM20	111464.1000	N/A	N/A	A1100204	N/A	N/A	A1491604	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
108355A	FHNPT34	FHM25	111465.1000	N/A	N/A	A1100404	N/A	N/A	A1491605	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
108356A	FHNPT34	FHM25	111488.2000	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1100604	N/A	N/A	A1491607	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108357A	FHNPT38	FHM16	111762.1000	N/A	N/A	A1100804	N/A	N/A	A1491612	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108358A	FHNPT38	FHM16	111998.1000	N/A	N/A	A1101004	N/A	N/A	A1491618	N/A	N/A
108359A	FHNPT38	FHM16	117243.2000	FHNPT14	FHM12	A1101004	FHNPT34	FHM25	A1491625	N/A	N/A
108360A	FHNPT38	FHM16	117244.2000	FHNPT14	FHM12	A1101204	FHNPT34	FHM25	A1491803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108361A	FHNPT34	FHM25	117245.2000	FHNPT14	FHM12	A1101404	FHNPT12	FHM20	A1491804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108362A	FHNPT34	FHM25	117253.2000	FHNPT14	FHM12	A1102004	N/A	N/A	A1491805	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108363A	FHNPT34	FHM25	117254.2000	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2	A1103004	N/A	N/A	A1491807	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
108372A	FHNPT38	FHM16	117255.2000	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2	A1104004	N/A	N/A	A1491812	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108373A	FHNPT38	FHM16	A1021603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1410001	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A1491818	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108374A	FHNPT38	FHM16	A1021604	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1410002	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1491825	N/A	N/A
108375A	FHNPT12	FHM20	A1021605	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481204	FHNPT12	FHM20	A1491834	N/A	N/A
108376A	FHNPT34	FHM25	A1021803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481207	FHNPT34	FHM25	A1492003	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108377A	FHNPT34	FHM25	A1021804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481404	FHNPT38	FHM16	A1492004	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108378A	N/A	N/A	A1021805	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481405	FHNPT12	FHM20	A1492005	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108380A	FHNPT38	FHM16	A1022003	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481407	FHNPT34	FHM25	A1492007	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
108381A	FHNPT12	FHM20	A1022004	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481603	FHNPT38	FHM16	A1492012	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
108382A	FHNPT12	FHM20	A1022005	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481604	FHNPT38	FHM16	A1492018	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108383A	FHNPT34	FHM25	A1022203	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481605	FHNPT38	FHM16	A1492025	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108384A	FHNPT34	FHM25	A1022204	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481607	FHNPT12	FHM20	A2160204	N/A	N/A
108385A	N/A	N/A	A1022205	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481612	FHNPT34	FHM25	A2160404	N/A	N/A
108386A	N/A	N/A	A1040001	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481618	FHNPT34	FHM25	A2160604	N/A	N/A
108389A	FHNPT34	FHM25	A1040005	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481625	N/A	N/A	A2160804	N/A	N/A
108391A	FHNPT38	FHM16	A1040006	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481802	FHNPT38	FHM16	A2161004	N/A	N/A
108392A	FHNPT34	FHM25	A1040017	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481803	FHNPT38	FHM16	A2161204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108393A	FHNPT34	FHM25	A1040019	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481804	FHNPT38	FHM16	A2161404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
108401A	FHNPT38	FHM16	A1040020	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481805	FHNPT38	FHM16	A2161604	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
110872.2000	FHNPT38	FHM16	A1040030	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481807	FHNPT38	FHM16	A2170204	N/A	N/A
110874.2000	FHNPT12	FHM20	A1040295	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A1481812	FHNPT12	FHM20	A2170404	N/A	N/A
111271.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1040300	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A1481818	FHNPT34	FHM25	A2170604	N/A	N/A
111276.1000	N/A	N/A	A1060804	N/A	N/A	A1481825	FHNPT34	FHM25	A2170804	N/A	N/A
111279.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1061004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1481834	N/A	N/A	A2171004	N/A	N/A
111388.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1061204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1482003	FHNPT14	FHM12	A2171204	N/A	N/A
111420.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1061404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1482004	FHNPT38	FHM16	A2171404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
111421.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1061604	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A1482005	FHNPT38	FHM16	A2171604	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
111422.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1061804	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A1482007	FHNPT38	FHM16	A2180804	N/A	N/A
111423.1000	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A1070804	N/A	N/A	A1482012	FHNPT38	FHM16	A2181004	N/A	N/A

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A2181204	N/A	N/A	A3032025	FHNPT34	FHM25	A3081812	FHNPT34	FHM25	A3131604	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2181404	N/A	N/A	A3032202	FHNPT14	FHM12	A3081818	FHNPT34	FHM25	A3131606	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A2181604	N/A	N/A	A3032203	FHNPT14	FHM12	A3081825	N/A	N/A	A3131608	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A2200103	N/A	N/A	A3032204	FHNPT14	FHM12	A3081834	N/A	N/A	A3131610	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A2200203	N/A	N/A	A3032206	FHNPT38	FHM16	A3081841	N/A	N/A	A3131615	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A2200403	N/A	N/A	A3032208	FHNPT38	FHM16	A3081850	N/A	N/A	A3131620	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A2200603	N/A	N/A	A3032210	FHNPT38	FHM16	A3082003	FHNPT38	FHM16	A3131625	N/A	N/A
A2201/003	N/A	N/A	A3032215	FHNPT38	FHM16	A3082004	FHNPT38	FHM16	A3131802	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2202/003	N/A	N/A	A3032220	FHNPT38	FHM16	A3082005	FHNPT38	FHM16	A3131803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A22025003	N/A	N/A	A3032225	FHNPT12	FHM20	A3082007	FHNPT38	FHM16	A3131804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2203/003	N/A	N/A	A3080204	N/A	N/A	A3082012	FHNPT12	FHM20	A3131806	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A22035003	N/A	N/A	A3080404	N/A	N/A	A3082018	FHNPT34	FHM25	A3131808	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2204/003	N/A	N/A	A3080604	N/A	N/A	A3082025	N/A	N/A	A3131810	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A22050003	N/A	N/A	A3080804	N/A	N/A	A3091004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3131815	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A2441402	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3080805	N/A	N/A	A3091203	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3131820	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A2441404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3081004	FHNPT34	FHM25	A3091204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3131825	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A2441602	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3081005	FHNPT34	FHM25	A3091205	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3132002	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2441604	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3081203	FHNPT12	FHM20	A3091403	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132003	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2441802	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3081204	FHNPT12	FHM20	A3091404	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3132004	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A2441804	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3081205	FHNPT34	FHM25	A3091405	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3132006	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031602	FHNPT38	FHM16	A3081207	FHNPT34	FHM25	A3091407	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3132008	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031603	FHNPT38	FHM16	A3081403	FHNPT38	FHM16	A3091412	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3132010	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031604	FHNPT38	FHM16	A3081404	FHNPT12	FHM20	A3091603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132015	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3031606	FHNPT38	FHM16	A3081405	FHNPT12	FHM20	A3091604	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132020	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3031608	FHNPT12	FHM20	A3081407	FHNPT12	FHM20	A3091605	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3132025	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3031610	FHNPT34	FHM25	A3081409	FHNPT34	FHM25	A3091607	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3132202	FHNPT14	FHM12
A3031615	FHNPT34	FHM25	A3081412	FHNPT34	FHM25	A3091612	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3132203	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2
A3031620	FHNPT34	FHM25	A3081418	N/A	N/A	A3091618	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3132204	FHNPT14 FHNPT38-C2	FHM12 FHM16-C2
A3031625	FHNPT34	FHM25	A3081425	N/A	N/A	A3091625	N/A	N/A	A3132206	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031802	FHNPT14	FHM12	A3081602	FHNPT38	FHM16	A3091802	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132208	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031803	FHNPT38	FHM16	A3081603	FHNPT38	FHM16	A3091803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132210	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031804	FHNPT38	FHM16	A3081604	FHNPT38	FHM16	A3091804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132215	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031806	FHNPT38	FHM16	A3081605	FHNPT38	FHM16	A3091805	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3132220	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031808	FHNPT38	FHM16	A3081607	FHNPT12	FHM20	A3091807	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3132225	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3031810	FHNPT38	FHM16	A3081609	FHNPT34	FHM25	A3091812	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3141602	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3031815	FHNPT12	FHM20	A3081612	FHNPT34	FHM25	A3091818	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3141604	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3031820	FHNPT34	FHM25	A3081618	FHNPT34	FHM25	A3091825	N/A	N/A	A3141606	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3031825	FHNPT34	FHM25	A3081625	N/A	N/A	A3092003	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3141608	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3032002	FHNPT14	FHM12	A3081634	N/A	N/A	A3092004	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3141612	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3032003	FHNPT14	FHM12	A3081641	N/A	N/A	A3092005	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3141616	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3032004	FHNPT38	FHM16	A3081802	FHNPT38	FHM16	A3092007	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3141802	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3032006	FHNPT38	FHM16	A3081803	FHNPT38	FHM16	A3092012	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3141804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3032008	FHNPT38	FHM16	A3081804	FHNPT38	FHM16	A3092018	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3141806	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3032010	FHNPT38	FHM16	A3081805	FHNPT38	FHM16	A3092025	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3141808	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3032015	FHNPT38	FHM16	A3081807	FHNPT38	FHM16	A3131602	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3141810	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3032020	FHNPT34	FHM25	A3081809	FHNPT12	FHM20	A3131603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3141812	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2

# LUTZE HYGIENIC Fittings Selection Chart

Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC
A3141816	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3221612	FHNPT34	FHM25	A3311805	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A4061804	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3142002	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221618	FHNPT34	FHM25	A3311807	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A4211004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142004	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221625	N/A	N/A	A3311812	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A4211005	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142006	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221803	FHNPT38	FHM16	A3311818	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A4211203	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142008	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221804	FHNPT38	FHM16	A3311825	N/A	N/A	A4211204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142010	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221805	FHNPT38	FHM16	A3320204	N/A	N/A	A4211205	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142012	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3221807	FHNPT38	FHM16	A3320404	N/A	N/A	A4211207	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142016	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3221809	FHNPT12	FHM20	A3320604	N/A	N/A	A4211403	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3142202	FHNPT14	FHM12	A3221812	FHNPT34	FHM25	A3320804	N/A	N/A	A4211404	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3142204	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221818	FHNPT34	FHM25	A3321004	N/A	N/A	A4211405	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142206	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3221825	N/A	N/A	A3321003	FHNPT34	FHM25	A4211407	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142208	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3251204	FHNPT12	FHM20	A3321004	FHNPT34	FHM25	A4211412	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3142210	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3251205	FHNPT34	FHM25	A3321005	FHNPT34	FHM25	A4211603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3142212	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3251403	FHNPT38	FHM16	A3321203	FHNPT12	FHM20	A4211604	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3142216	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3251404	FHNPT12	FHM20	A3321204	FHNPT12	FHM20	A4211605	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3160804	N/A	N/A	A3251603	FHNPT38	FHM16	A3321205	FHNPT34	FHM25	A4211607	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3161004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3251605	FHNPT38	FHM16	A3321207	FHNPT34	FHM25	A4211612	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3161204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3251607	FHNPT12	FHM20	A3321403	FHNPT38	FHM16	A4211803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3161404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3251612	FHNPT34	FHM25	A3321404	FHNPT38	FHM16	A4211804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3161604	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3251619	FHNPT34	FHM25	A3321405	FHNPT12	FHM20	A4211805	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A3170204	N/A	N/A	A3251625	N/A	N/A	A3321407	FHNPT12	FHM20	A4211807	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A3170404	N/A	N/A	A3251803	FHNPT38	FHM16	A3321412	FHNPT34	FHM25	A4211812	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A3170604	N/A	N/A	A3251805	FHNPT38	FHM16	A3321602	FHNPT38	FHM16	A4221004	FHNPT34	FHM25
A3170804	N/A	N/A	A3251807	FHNPT38	FHM16	A3321603	FHNPT38	FHM16	A4221005	FHNPT34	FHM25
A3171004	N/A	N/A	A3251812	FHNPT34	FHM25	A3321604	FHNPT38	FHM16	A4221203	FHNPT12	FHM20
A3171204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3251819	FHNPT34	FHM25	A3321605	FHNPT38	FHM16	A4221204	FHNPT34	FHM25
A3171404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3251825	N/A	N/A	A3321607	FHNPT12	FHM20	A4221205	FHNPT34	FHM25
A3171604	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3251837	N/A	N/A	A3321612	FHNPT34	FHM25	A4221207	FHNPT34	FHM25
A3220604	N/A	N/A	A3311004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3321618	FHNPT34	FHM25	A4221403	FHNPT38	FHM16
A3220804	N/A	N/A	A3311203	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3321625	N/A	N/A	A4221404	FHNPT38	FHM16
A3221004	FHNPT34	FHM25	A3311204	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3321802	FHNPT38	FHM16	A4221405	FHNPT12	FHM20
A3221203	FHNPT12	FHM20	A3311205	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3321803	FHNPT38	FHM16	A4221407	FHNPT12	FHM20
A3221204	FHNPT12	FHM20	A3311403	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3321804	FHNPT38	FHM16	A4221412	FHNPT34	FHM25
A3221205	FHNPT34	FHM25	A3311404	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3321805	FHNPT38	FHM16	A4221602	FHNPT38	FHM16
A3221207	FHNPT34	FHM25	A3311405	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3321807	FHNPT38	FHM16	A4221603	FHNPT38	FHM16
A3221403	FHNPT38	FHM16	A3311407	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3321812	FHNPT34	FHM25	A4221604	FHNPT38	FHM16
A3221404	FHNPT12	FHM20	A3311412	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A3321818	FHNPT34	FHM25	A4221605	FHNPT12	FHM20
A3221405	FHNPT12	FHM20	A3311603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3321825	FHNPT34	FHM25	A4221607	FHNPT12	FHM20
A3221407	FHNPT12	FHM20	A3311604	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A3322004	N/A	N/A	A4221612	FHNPT34	FHM25
A3221412	FHNPT34	FHM25	A3311605	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3323004	N/A	N/A	A4221802	FHNPT38	FHM16
A3221602	FHNPT38	FHM16	A3311607	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A3324004	N/A	N/A	A4221803	FHNPT38	FHM16
A3221603	FHNPT38	FHM16	A3311612	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A4060804	N/A	N/A	A4221804	FHNPT38	FHM16
A3221604	FHNPT38	FHM16	A3311618	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A4061004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A4221805	FHNPT38	FHM16
A3221605	FHNPT38	FHM16	A3311625	N/A	N/A	A4061204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A4221807	FHNPT38	FHM16
A3221607	FHNPT12	FHM20	A3311803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A4061404	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A4221812	FHNPT12	FHM20
A3221609	FHNPT34	FHM25	A3311804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2	A4061604	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2	A6010604	N/A	N/A

# LUTZE HYGIENIC Fittings Selection Chart

Part#	HYGIENIC NPT	HYGIENIC METRIC	Part#	HYGIENIC NPT	HYGIENIC METRIC
A6010804	FHNPT34	FHM25	A6021607	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011004	FHNPT34	FHM25	A6021612	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011204	FHNPT12	FHM20	A6021618	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011205	FHNPT12	FHM20	A6021625	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011403	FHNPT38	FHM16	A6021803	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011404	FHNPT38	FHM16	A6021804	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011405	FHNPT38	FHM16	A6021805	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011407	FHNPT12	FHM20	A6021807	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011412	FHNPT34	FHM25	A6021812	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A6011602	FHNPT38	FHM16	A6021818	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011603	FHNPT38	FHM16	A6021825	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011604	FHNPT38	FHM16	A6022003	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011605	FHNPT38	FHM16	A6022004	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011607	FHNPT38	FHM16	A6022005	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011612	FHNPT12	FHM20	A6022007	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011618	FHNPT34	FHM25	A6022012	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6011625	FHNPT34	FHM25	A6022018	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A6011802	FHNPT14	FHM12	A6022025	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011803	FHNPT38	FHM16	A602xx	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A6011804	FHNPT38	FHM16	A604xx	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A6011805	FHNPT38	FHM16	A6060804	N/A	N/A
A6011807	FHNPT38	FHM16	A6061004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011809	FHNPT38	FHM16	A6061204	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011812	FHNPT12	FHM20	A6061404	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6011818	FHNPT34	FHM25	A6061604	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A6011825	FHNPT34	FHM25	A6061804	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2
A6012002	FHNPT14	FHM12	A606xx	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6012003	FHNPT14	FHM12	A608xx	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2
A6012004	FHNPT38	FHM16	A610xx	FHNPT14	FHM12
A6012005	FHNPT38	FHM16	A612xx	FHNPT14	FHM12
A6012007	FHNPT38	FHM16	A614xx	FHNPT14	FHM12
A6012012	FHNPT38	FHM16	A616xx	FHNPT14	FHM12
A6012018	FHNPT12	FHM20	A618xx	N/A	N/A
A6012025	FHNPT12	FHM20	A619xx	N/A	N/A
A601xx	FHNPT34	FHM25	A695xx	N/A	N/A
A6021004	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2	A670xx	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2
A6021204	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2			
A6021205	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2			
A6021403	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2			
A6021404	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2			
A6021405	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2			
A6021407	FHNPT12 FHNPT12-C2	FHM20 FHM20-C2			
A6021412	FHNPT34 FHNPT34-C2	FHM25 FHM25-C2			
A6021603	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2			
A6021604	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2			
A6021605	FHNPT38 FHNPT38-C2	FHM16 FHM16-C2			

# LUTZE Part Number Index

Part#	Page	Part#	Page	Part#	Page	Part#	Page	Part#	Page
104001	39	111377	62	113093	23	117097	30	490177	97
104002	70	111388.1000	65	113100	22	117099	30	490178	97
104101	39	111420.1000	64	113101	22	117100	30	490190	98
104197	44	111421.1000	64	113102	22	117101	30	490191	98
104265	37	111422.1000	64	113103	22	117102	30	490192	98
104275	37	111423.1000	64	113104	22	117103	30	490193	98
104280	40	111424.1000	64	113105	22	117104	30	490194	98
104281	40	111425.1000	64	113106	22	117105	30	490195	98
104287	37	111426.1000	64	113107	22	117106	30	490196	98
104289	41	111430	62	113108	22	117107	30	490197	98
104293	36	111456	70	113109	22	117108	30	490200	99
104301	44	111457	70	113110	22	117109	30	490201	99
104303	46	111458	70	113111	22	117110	30	490202	99
104307	44	111459	70	113112	22	117111	30	490203	99
104331	44	111460.1000	63	113113	22	117112	30	490209	96
104335	44	111461.1000	63	113114	22	117113	30	490210	99
104336	44	111462.1000	63	113115	22	117115	30	490211	99
104337	46	111463.1000	63	113117	22	117116	30	490212	99
104338	44	111464.1000	63	113118	22	117124	30	490213	99
104344	36	111465.1000	63	113119	22	117170	31	490214	99
104347	46	111488.2000	69	113120	22	117171	31	490215	99
104349	44	111489	69	113121	22	117172	31	490218	95
104386	38	111545	62	113122	22	117173	31	490219.0030	95
104387	38	111749	68	113220	23	117174	31	490219.0060	95
104396	46	111762.1000	65	113221	23	117175	31	490219.0100	95
104397	44	111780	68	113222	23	117176	31	490219.0150	95
104401	46	111781	68	113223	23	117177	31	490219.0200	95
104404	46	111998.1000	65	113224	23	117180	31	490219.0500	95
110872.2000	32	113032	22	113225	23	117181	31	490238	96
110874.2000	32	113033	22	113227	23	117182	31	492075	94
110940	68	113034	22	113228	23	117185	31	492076	94
111126	66	113035	22	113229	23	117190	31	492077	95
111127	66	113036	22	113230	23	117191	31	492078	95
111128	66	113037	22	113231	23	117193	31	600320	87
111129	66	113038	22	113232	23	117199	31	600321	87
111130	66	113039	22	117028	29	117202	31	600347	87
111131	66	113049	22	117029	29	117243.2000	32	606001	90
111132	66	113050	22	117039	29	117244.2000	32	606002	90
111136	66	113051	22	117040	29	117245.2000	32	606004	90
111197	66	113052	22	117041	29	117253.2000	33	606005	90
111243	66	113053	22	117042	29	117254.2000	33	606007	90
111271.1000	65	113054	22	117043	29	117255.2000	33	606052	90
111276.1000	65	113055	22	117044	29	117303	31	606053	90
111279.1000	65	113056	22	117046	29	490113.0030	94	606150	90
111288	67	113070	23	117047	29	490113.0060	94	606151	90
111289	67	113071	23	117048	29	490113.0080	94	606152	90
111290	67	113072	23	117049	29	490113.0100	94	606153	90
111291	67	113073	23	117050	29	490113.0150	94	606154	90
111292	67	113074	23	117051	29	490113.0200	94	606155	90
111293	67	113075	23	117052	29	490113.0300	94	606156	90
111370	62	113076	23	117053	29	490113.0500	94	606157	90
111371	62	113087	23	117056	29	490151	97	606158	90
111372	62	113088	23	117092	30	490152	97	606159	90
111373	62	113089	23	117093	30	490153	97	606160	90
111374	62	113090	23	117094	30	490174	97	606200	90
111375	62	113091	23	117095	30	490175	97	606201	90
111376	62	113092	23	117096	30	490176	97	606202	90

# LUTZE Part Number Index

Part#	Page	Part#	Page	Part#	Page	Part#	Page	Part#	Page
606203	90	108392A	15	A1481604	20	A2170404	53	A3032203	25
606204	90	108393A	15	A1481605	20	A2170604	53	A3032204	25
606205	90	108401A	15	A1481607	20	A2170804	53	A3032206	25
606206	90	A1021603	28	A1481612	20	A2171004	53	A3032208	25
606207	90	A1021604	28	A1481618	20	A2171204	53	A3032210	25
606208	90	A1021605	28	A1481625	20	A2171404	53	A3032215	25
606209	90	A1021803	28	A1481802	20	A2171604	53	A3032220	25
606250	90	A1021804	28	A1481803	20	A2180804	54	A3032225	25
606251	90	A1021805	28	A1481804	20	A2181004	54	A3080204	7
606252	90	A1022003	28	A1481805	20	A2181204	54	A3080404	7
606253	90	A1022004	28	A1481807	20	A2181404	54	A3080604	7
606254	90	A1022005	28	A1481812	20	A2181604	54	A3080804	7
606255	90	A1022203	28	A1481818	20	A2200103	55	A3080805	7
606256	90	A1022204	28	A1481825	20	A2200203	55	A3081004	7
606257	90	A1022205	28	A1481834	20	A2200403	55	A3081005	7
606258	90	A1040001	43	A1482003	20	A2200603	55	A3081203	7
606259	90	A1040005	43	A1482004	20	A2201/003	55	A3081204	7
606260	90	A1040006	43	A1482005	20	A2202/003	55	A3081205	7
606500	89	A1040017	45	A1482007	20	A22025003	55	A3081207	7
606501	89	A1040019	45	A1482012	20	A2203/003	55	A3081403	6
606502	89	A1040020	45	A1482018	20	A22035003	55	A3081404	6
606550	88	A1040030	45	A1482025	20	A2204/003	55	A3081405	6
606551	88	A1040295	42	A1491204	21	A22050003	55	A3081407	6
606554	88	A1040300	44	A1491404	21	A2441402	57	A3081409	6
606561	88	A1060804	50	A1491405	21	A2441404	57	A3081412	6
606562	88	A1061004	50	A1491407	21	A2441602	57	A3081418	6
108349A	15	A1061204	50	A1491603	21	A2441604	57	A3081425	6
108350A	15	A1061404	50	A1491604	21	A2441802	57	A3081602	6
108351A	15	A1061604	50	A1491605	21	A2441804	57	A3081603	6
108352A	15	A1061804	50	A1491607	21	A3031602	25	A3081604	6
108353A	15	A1070804	51	A1491612	21	A3031603	25	A3081605	6
108354A	15	A1071004	51	A1491618	21	A3031604	25	A3081607	6
108355A	15	A1071204	51	A1491625	21	A3031606	25	A3081609	6
108356A	15	A1071404	51	A1491803	21	A3031608	25	A3081612	6
108357A	15	A1071404R	51	A1491804	21	A3031610	25	A3081618	6
108358A	15	A1071604	51	A1491805	21	A3031615	25	A3081625	6
108359A	15	A1071804	51	A1491807	21	A3031620	25	A3081634	6
108360A	15	A1100104	56	A1491812	21	A3031625	25	A3081641	6
108361A	15	A1100204	56	A1491818	21	A3031802	25	A3081802	6
108362A	15	A1100404	56	A1491825	21	A3031803	25	A3081803	6
108363A	15	A1100604	56	A1491834	21	A3031804	25	A3081804	6
108372A	15	A1100804	56	A1492003	21	A3031806	25	A3081805	6
108373A	15	A1101/004	56	A1492004	21	A3031808	25	A3081807	6
108374A	15	A1101004	56	A1492005	21	A3031810	25	A3081809	6
108375A	15	A1101204	56	A1492007	21	A3031815	25	A3081812	6
108376A	15	A1101404	56	A1492012	21	A3031820	25	A3081818	6
108377A	15	A1102/004	56	A1492018	21	A3031825	25	A3081825	6
108378A	15	A1103/004	56	A1492025	21	A3032002	25	A3081834	6
108380A	15	A1104/004	56	A2160204	52	A3032003	25	A3081841	6
108381A	15	A1410001	60	A2160404	52	A3032004	25	A3081850	6
108382A	15	A1410002	60	A2160604	52	A3032006	25	A3082003	6
108383A	15	A1481204	20	A2160804	52	A3032008	25	A3082004	6
108384A	15	A1481207	20	A2161004	52	A3032010	25	A3082005	6
108385A	15	A1481404	20	A2161204	52	A3032015	25	A3082007	6
108386A	15	A1481405	20	A2161404	52	A3032020	25	A3082012	6
108389A	15	A1481407	20	A2161604	52	A3032025	25	A3082018	6
108391A	15	A1481603	20	A2170204	53	A3032202	25	A3082025	6

# LUTZE Part Number Index

Part#	Page	Part#	Page	Part#	Page	Part#	Page	Part#	Page
A3091004	8	A3132025	26	A3221403	9	A3311805	11	A4061804	61
A3091203	8	A3132202	26	A3221404	9	A3311807	11	A4211004	19
A3091204	8	A3132203	26	A3221405	9	A3311812	11	A4211005	19
A3091205	8	A3132204	26	A3221407	9	A3311818	11	A4211203	19
A3091403	8	A3132206	26	A3221412	9	A3311825	11	A4211204	19
A3091404	8	A3132208	26	A3221602	9	A3320204	10	A4211205	19
A3091405	8	A3132210	26	A3221603	9	A3320204	49	A4211207	19
A3091407	8	A3132215	26	A3221604	9	A3320404	10	A4211403	19
A3091412	8	A3132220	26	A3221605	9	A3320404	49	A4211404	19
A3091603	8	A3132225	26	A3221607	9	A3320604	10	A4211405	19
A3091604	8	A3141602	27	A3221609	9	A3320604	49	A4211407	19
A3091605	8	A3141604	27	A3221612	9	A3320804	10	A4211412	19
A3091607	8	A3141606	27	A3221618	9	A3320804	49	A4211603	19
A3091612	8	A3141608	27	A3221625	9	A3321/004	10	A4211604	19
A3091618	8	A3141612	27	A3221803	9	A3321/004	49	A4211605	19
A3091625	8	A3141616	27	A3221804	9	A3321003	10	A4211607	19
A3091802	8	A3141802	27	A3221805	9	A3321004	10	A4211612	19
A3091803	8	A3141804	27	A3221807	9	A3321004	49	A4211803	19
A3091804	8	A3141806	27	A3221809	9	A3321005	10	A4211804	19
A3091805	8	A3141808	27	A3221812	9	A3321203	10	A4211805	19
A3091807	8	A3141810	27	A3221818	9	A3321204	10	A4211807	19
A3091812	8	A3141812	27	A3221825	9	A3321204	49	A4211812	19
A3091818	8	A3141816	27	A3251204	14	A3321205	10	A4221004	18
A3091825	8	A3142002	27	A3251205	14	A3321207	10	A4221005	18
A3092003	8	A3142004	27	A3251403	14	A3321403	10	A4221203	18
A3092004	8	A3142006	27	A3251404	14	A3321404	10	A4221204	18
A3092005	8	A3142008	27	A3251603	14	A3321404	49	A4221205	18
A3092007	8	A3142010	27	A3251605	14	A3321405	10	A4221207	18
A3092012	8	A3142012	27	A3251607	14	A3321407	10	A4221403	18
A3092018	8	A3142016	27	A3251612	14	A3321412	10	A4221404	18
A3092025	8	A3142202	27	A3251619	14	A3321602	10	A4221405	18
A3131602	26	A3142204	27	A3251625	14	A3321603	10	A4221407	18
A3131603	26	A3142206	27	A3251803	14	A3321604	10	A4221412	18
A3131604	26	A3142208	27	A3251805	14	A3321605	10	A4221602	18
A3131606	26	A3142210	27	A3251807	14	A3321607	10	A4221603	18
A3131608	26	A3142212	27	A3251812	14	A3321612	10	A4221604	18
A3131610	26	A3142216	27	A3251819	14	A3321618	10	A4221605	18
A3131615	26	A3160804	59	A3251825	14	A3321625	10	A4221607	18
A3131620	26	A3161004	59	A3251837	14	A3321802	10	A4221612	18
A3131625	26	A3161204	59	A3311004	11	A3321803	10	A4221802	18
A3131802	26	A3161404	59	A3311203	11	A3321804	10	A4221803	18
A3131803	26	A3161604	59	A3311204	11	A3321805	10	A4221804	18
A3131804	26	A3170204	59	A3311205	11	A3321807	10	A4221805	18
A3131806	26	A3170404	59	A3311403	11	A3321812	10	A4221807	18
A3131808	26	A3170604	59	A3311404	11	A3321818	10	A4221812	18
A3131810	26	A3170804	59	A3311405	11	A3321825	10	A60100	17
A3131815	26	A3171004	59	A3311407	11	A3322/004	10	A60101	17
A3131820	26	A3171204	59	A3311412	11	A3322/004	49	A6010604	12
A3131825	26	A3171404	59	A3311603	11	A3323/004	10	A6010804	12
A3132002	26	A3171604	59	A3311604	11	A3323/004	49	A6011004	12
A3132003	26	A3220604	9	A3311605	11	A3324/004	10	A6011204	12
A3132004	26	A3220804	9	A3311607	11	A3324/004	49	A6011205	12
A3132006	26	A3221004	9	A3311612	11	A4060804	61	A6011403	12
A3132008	26	A3221203	9	A3311618	11	A4061004	61	A6011404	12
A3132010	26	A3221204	9	A3311625	11	A4061204	61	A6011405	12
A3132015	26	A3221205	9	A3311803	11	A4061404	61	A6011407	12
A3132020	26	A3221207	9	A3311804	11	A4061604	61	A6011412	12

# LUTZE Part Number Index

Part#	Page	Part#	Page	Part#	Page	Part#	Page	Part#	Page
A6011602	12	A60401	17	EMM25-32	84	FMNPT10	76	FPPG11G	73
A6011603	12	A60600	17	EMM32-40	84	FMNPT10-CV	79	FPPG13B	73
A6011604	12	A60601	17	EMPG11-13	84	FMNPT112-CV	79	FPPG13G	73
A6011605	12	A6060804	58	EMPG13-16	84	FMNPT114-CV	79	FPPG16B	73
A6011607	12	A6061004	58	EMPG16-21	84	FMNPT12	76	FPPG16G	73
A6011612	12	A6061204	58	EMPG21-29	84	FMNPT12-CV	79	FPPG21B	73
A6011618	12	A6061404	58	EMPG29-36	84	FMNPT20-CV	79	FPPG21G	73
A6011625	12	A6061604	58	EMPG36-42	84	FMNPT212-CEX	80	FPPG29B	73
A6011802	12	A6061804	58	EMPG7-9	84	FMNPT2-CEX	80	FPPG29G	73
A6011803	12	A60800	16	EMPG9-11	84	FMNPT34	76	FPPG36B	73
A6011804	12	A60801	16	FHM12	81	FMNPT34-CV	79	FPPG36G	73
A6011805	12	A61000	16	FHM16	81	FMNPT38	76	FPPG42B	73
A6011807	12	A61001	16	FHM16-C2	81	FMNPT38-CV	79	FPPG42G	73
A6011809	12	A61200	16	FHM20	81	FMNPT3-CEX	80	FPPG48B	73
A6011812	12	A61201	16	FHM20-C2	81	FMPG11	77	FPPG48G	73
A6011818	12	A61400	16	FHM25	81	FMPG13	77	FPPG7B	73
A6011825	12	A61401	16	FHM25-C2	81	FMPG16	77	FPPG7G	73
A6012002	12	A61402	16	FHNPT12	81	FMPG21	77	FPPG9B	73
A6012003	12	A61403	16	FHNPT12-C2	81	FMPG29	77	FPPG9G	73
A6012004	12	A61404	16	FHNPT14	81	FMPG36	77	LMM12	82
A6012005	12	A61405	16	FHNPT34	81	FMPG42	77	LMM12-C	82
A6012007	12	A61414	16	FHNPT34-C2	81	FMPG48	77	LMM16	82
A6012012	12	A61600	16	FHNPT38	81	FMPG7	77	LMM16-C	82
A6012018	12	A61601	16	FHNPT38-C2	81	FMPG9	77	LMM20	82
A6012025	12	A61602	16	FMM12	78	FPM12B	74	LMM20-C	82
A60200	17	A61603	16	FMM12-L	78	FPM12G	74	LMM25	82
A60201	17	A61604	16	FMM16	78	FPM16B	74	LMM25-C	82
A6021004	13	A61605	16	FMM16-CV	79	FPM16G	74	LMM32	82
A6021204	13	A61609	16	FMM16-CVL	79	FPM16G-R	74	LMM32-C	82
A6021205	13	A61614	16	FMM16-L	78	FPM20B	74	LMM40	82
A6021403	13	A61615	16	FMM20	78	FPM20G	74	LMM40-C	82
A6021404	13	A61644	16	FMM20-CV	79	FPM20G-R	74	LMM50	82
A6021405	13	A61800	16	FMM20-CVL	79	FPM25B	74	LMM50-C	82
A6021407	13	A61801	16	FMM20-L	78	FPM25G	74	LMM63	82
A6021412	13	A61802	16	FMM25	78	FPM25G-R	74	LMM75	82
A6021603	13	A61803	16	FMM25-CV	79	FPM32B	74	LMM90	82
A6021604	13	A61804	16	FMM25-CVL	79	FPM32G	74	LMNPT10	82
A6021605	13	A61814	16	FMM25-L	78	FPM32G-R	74	LMNPT1012	82
A6021607	13	A61844	16	FMM32	78	FPM40B	74	LMNPT1014	82
A6021612	13	A61900	16	FMM32-CV	79	FPM40G	74	LMNPT12	82
A6021618	13	A61901	16	FMM32-CVL	79	FPM50B	74	LMNPT20	82
A6021625	13	A61902	16	FMM32-L	78	FPM50G	74	LMNPT2012	82
A6021803	13	A61903	16	FMM40	78	FPM63B	74	LMNPT30	82
A6021804	13	A61904	16	FMM40-CV	79	FPM63G	74	LMNPT34	82
A6021805	13	A61914	16	FMM40-CVL	79	FPNPT10B	72	LMNPT38	82
A6021807	13	A67000	17	FMM40-L	78	FPNPT10B-R	72	LMPG11	82
A6021812	13	A67001	17	FMM50	78	FPNPT10G	72	LMPG13	82
A6021818	13	A69500	17	FMM50-CV	79	FPNPT12B	72	LMPG16	82
A6021825	13	A69501	17	FMM50-CVL	79	FPNPT12B-R	72	LMPG21	82
A6022003	13	AMM16-12	85	FMM50-L	78	FPNPT12G	72	LMPG29	82
A6022004	13	AMM20-12	85	FMM63	78	FPNPT34B	72	LMPG36	82
A6022005	13	AMM25-34	85	FMM63-CEX	80	FPNPT34B-R	72	LMPG42	82
A6022007	13	AMM32-10	85	FMM63-CV	79	FPNPT34G	72	LMPG48	82
A6022012	13	AMM32-34	85	FMM63-CVL	79	FPNPT38B	72	LMPG7	82
A6022018	13	EMM12-16	84	FMM63-L	78	FPNPT38B-R	72	LMPG9	82
A6022025	13	EMM16-20	84	FMM75-CEX	80	FPNPT38G	72	LPM12B	75
A60400	17	EMM20-25	84	FMM90-CEX	80	FPPG11B	73	LPM12G	75



# LUTZE Part Number Index

Part#	Page	Part#	Page
LPM16B	75	MHE05085	86
LPM16G	75	RMM16-12	83
LPM20B	75	RMM20-12	83
LPM20G	75	RMM20-16	83
LPM25B	75	RMM25-16	83
LPM25G	75	RMM25-20	83
LPM32B	75	RMM32-20	83
LPM32G	75	RMM32-25	83
LPM40B	75	RMM40-25	83
LPM40G	75	RMM40-32	83
LPM50B	75	RMM50-32	83
LPM50G	75	RMM50-40	83
LPM63B	75	RMPG11-7	83
LPM63G	75	RMPG11-9	83
LPNPT10B	75	RMPG13-11	83
LPNPT10G	75	RMPG13-9	83
LPNPT12B	75	RMPG16-11	83
LPNPT12G	75	RMPG16-13	83
LPNPT34B	75	RMPG16-9	83
LPNPT34G	75	RMPG21-11	83
LPNPT38B	75	RMPG21-13	83
LPNPT38G	75	RMPG21-16	83
LPPG11B	75	RMPG29-16	83
LPPG11G	75	RMPG29-21	83
LPPG13B	75	RMPG36-21	83
LPPG13G	75	RMPG36-29	83
LPPG16B	75	RMPG42-36	83
LPPG16G	75		
LPPG21B	75		
LPPG21G	75		
LPPG29B	75		
LPPG29G	75		
LPPG36B	75		
LPPG36G	75		
LPPG42B	75		
LPPG42G	75		
LPPG48B	75		
LPPG48G	75		
LPPG7B	75		
LPPG7G	75		
LPPG9B	75		
LPPG9G	75		
MHA0204	86		
MHA02045	86		
MHB0206	86		
MHB0305	86		
MHC0204	86		
MHC0206	86		
MHC0304	86		
MHC0306	86		
MHC0405	86		
MHC0504	86		
MHD0207	86		
MHD0208	86		
MHD0209	86		
MHD0308	86		
MHD0407	86		



# LUTZE Product Overview

## Cable Solutions

LUTZE specializes in flexible and continuous motion industrial control, power and network cables, such as LUTZE SILFLEX®, LUTZE SUPERFLEX®, MOTIONFLEX® flexing and twisting cables and DRIVEFLEX® VFD cables, for various applications in industrial automation.

LUTZE SILFLEX® FBP cables meet both UL and FDA requirements providing an innovative patented solution for food and beverage processing applications.

Wire and cable management components such as CABLEFIX® X and CABLEFIX® One cable entry systems complement the offering for industrial automation.



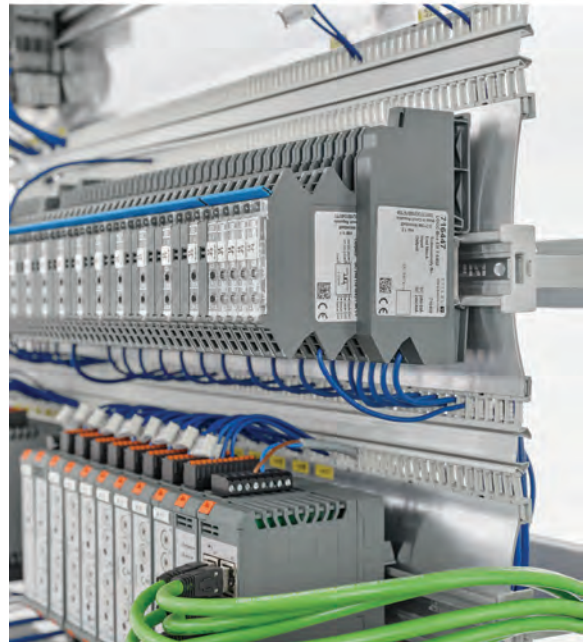
## Connectivity Solutions

In addition to industrial flexible and continuous motion cables, LUTZE offers servo cable assemblies according to SIEMENS 6FX, Allen-Bradley® 2090 and Bosch Rexroth Indramat standards.



## Cabinet Solutions

LUTZE *AirSTREAM* wiring system saves space, time and cost. *AirSTREAM* is an aluminum frame that replaces the traditional back panel and wire duct for mounting and wiring of electrical components in a control enclosure. It shortens wiring times and improves heat dissipation within the cabinet to enhance component longevity.



## Control Solutions

LUTZE offers DIN rail mountable compact power supplies, industrial Ethernet switches, LCIS relays and intelligent control circuit protection with the LUTZE LOCC-Box.

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