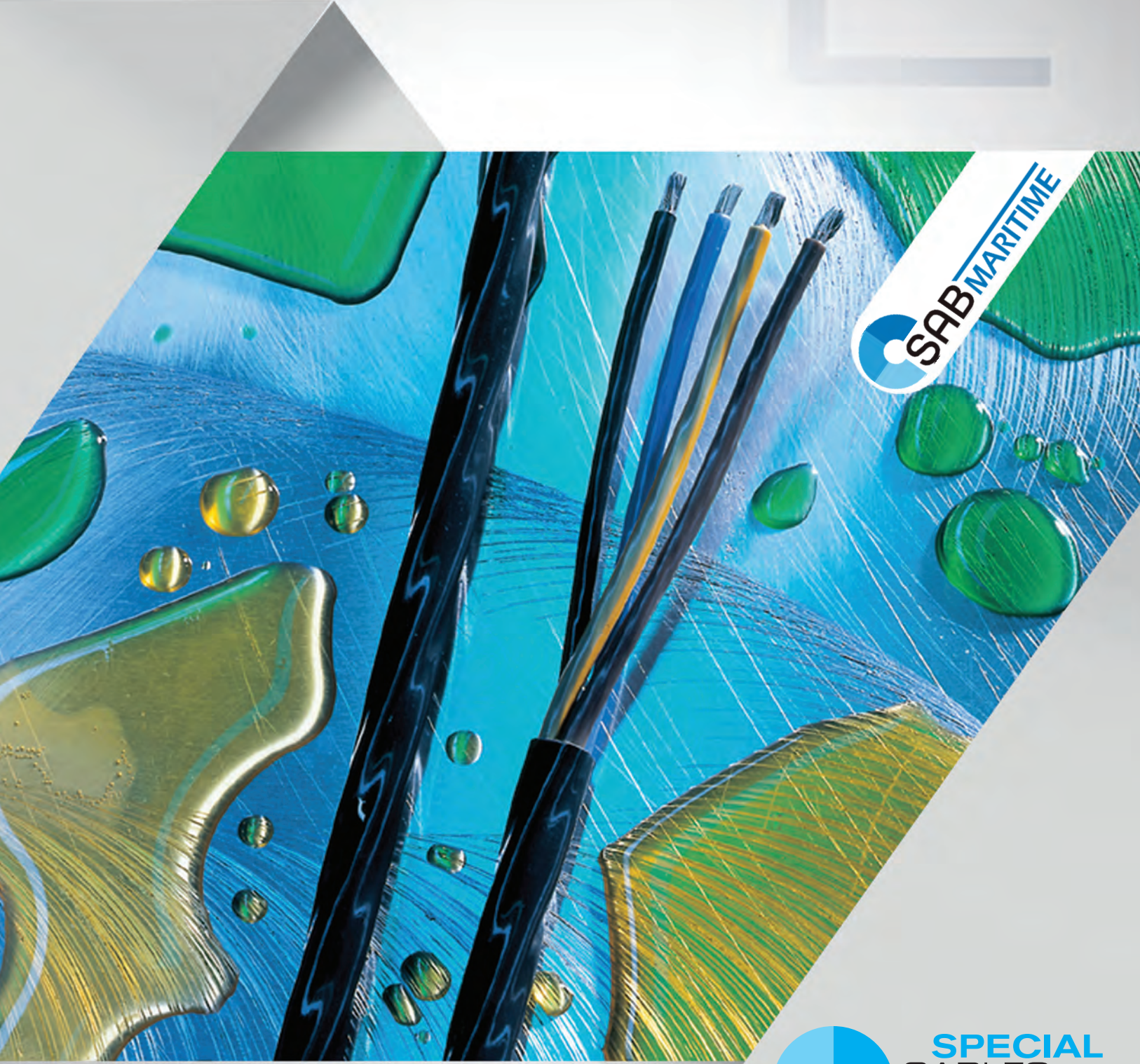


# ETFE, FEP, & PFA CABLES



**SAB** MARITIME

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# ETFE, FEP, PFA Cables

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### BL - Connection Cables for Maritime Use acc. to DNV, UL and cUL

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### Data Cables with Extended Temperature Range and UL Recognition

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### Connection Cables with Extended Temperature Range and UL Recognition

■ TA 866 F		FEP insulated connection cable with wider temperature range, +180°C	L/9
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### ETFE, FEP, PFA Hook-up Wire with Extended Temperature Range

■ Li6Ybl		FEP hook-up wire with bare copper strands, 375 V	L/11
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■ Li7Ybl		ETFE hook-up wire with bare copper strands, 900 V	L/12
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■ Li6Yvz		FEP hook-up wire with tinned copper strands, 900 V	L/12
■ LiPFAvn		PFA hook-up wire with nickel plated copper strands, 900 V	L/12

L  
2

# ETFE, FEP, PFA Cables

## Applications

### ■ Applications of FEP BL cables for Shipbuilding

The development of the new BL cable series has been advanced in co-operation with customers coming from the shipbuilding field. The new cables are available in high temperature and oil resistant types. All SAB BL types are constructed with tinned copper strands in class 5 in order to offer advantages in corrosion resistance and flexibility. Due to the approval by DNV-GL and American Bureau of Shipping, it also offers a "certain planning reliability for classification". These cables are suitable for adverse conditions in engine rooms. They are both oil and fuel resistant, have very good chemical resistances and excellent fire performance.

#### Exemplary applications:

BL TA 180 C      Ship engine rooms, control panels for ship diesel engines

### ■ Applications of FEP Cables

These cables are used, for example, in new technologies where high demands for resistance against chemicals and solvents must be fulfilled. Compared to ETFE, FEP has slightly better resistance. Further advantages are the excellent temperature resistance and flexibility at cold temperatures as well as the good electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics.

#### Exemplary applications:

Li6Ybl  
Li6Yvz  
TD 801 F  
TD 833 CF  
TD 838 CF TP  
TA 866 F  
TA 867 CF

Applications in high-frequency and broad-band techniques, coaxial and microwave techniques, high information velocity with exact information transmission at the same time, chemical industry, furnace construction, brick works, heating appliances

### ■ Application of ETFE Cables

These cables are used for example in new technologies if high demands for resistance against chemicals and solvents must be fulfilled. Further advantages are the low and high temperature resistance as well as the good electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics.

#### Exemplary applications:

Li7Ybl

Applications in high-frequency and broad-band techniques, coaxial and microwave techniques, high information velocity with exact information transmission at the same time, chemical industry, furnace construction, brick works, heating appliances

### ■ Application of PFA Cables

These cables are used for example in new technologies if excellent resistance against chemicals and solvents is requested. Further advantages are the excellent temperature resistance and flexibility at low temperatures as well as the good electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics.

#### Exemplary applications:

LiPFAvn

Applications in high-frequency and broad-band techniques, coaxial and microwave techniques, high information velocity with exact information transmission at the same time, chemical industry, furnace construction, brick works, heating appliances

# ETFE, FEP, PFA Cables

## Selection Table

		Cable Type												
		L/5	L/6	L/7	L/8	L/9	L/10	L/11	L/11	L/11	L/12	L/12	L/12	L/12
		BL TA 180 C	TD 801 F	TD 833 CF	TD 838 CF TP	TA 866 F	TA 867 CF	Li6Ybl	Li6Yvz	LiPFAvn	Li7Ybl	Li6Ybl	Li6Yvz	LiPFAvn
								375 V			900 V			
Basic construction	ETFE cable													
	FEP cable	●	●	●	●	●	●	●	●	●	●	●	●	
	PFA cable								●				●	
	Single conductor							●	●	●	●	●	●	
	Data cable		●	●	●									
	Connection cable	●				●	●							
	Copper strands acc. to ASTM B 286		●	●	●			●	●	●	●	●	●	●
	Copper strands acc. to IEC 60228, VDE 0295, class 5	●				●	●							
	Color code with reference to DIN 47100		●	●	●									
	Color code acc. to HD 308					●	●							
	Color code acc. to EN 50334 + VDE 0293-334	●												
	Shielded	●		●	●		●							
Twisted pairs				●										
Temperature range fixed installation*	+260°C													
	+250°C		●	●	●									
	+200°C		●	●	●									
	+180°C	●	●	●	●	●	●	●	●	●	●	●	●	
	+150°C	●	●	●	●	●	●	●	●	●	●	●	●	
	+135°C	●	●	●	●	●	●	●	●	●	●	●	●	
	- 90°C	●	●	●	●	●	●	●	●	●	●	●	●	
Voltage	Peak operating voltage max. 375 V		●	●	●			●	●	●				
	Peak operating voltage max. 900 V										●	●	●	
	Nominal voltage U <sub>0</sub> /U: 300/500 V	●				●	●	●	●		●	●	●	
	Voltage UL: 600 V	●	●	●	●	●	●							
	Voltage cUL: 600 V	●	●	●	●	●	●							
	Test voltage: 2500 V	●	●	●	●	●	●	●	●		●	●	●	
Standards & Approvals	UL recognized	●	●	●	●	●	●	●	●			●	●	
	cUL recognized	●	●	●	●	●	●							
	Approvals: DNV-GL, ABS, RS	●												
	Flame retardant and self-extinguishing acc. to IEC 603332-1-2 and VDE 0482-332-1-2	●	●	●	●	●	●	●	●	●	●	●	●	
	Fire performance: UL FT1	●	●	●	●	●	●							
	Fire performance: UL FT2	●	●	●	●	●	●	●	●		●	●	●	
	Fire performance: no flame propagation acc. to IEC 60332-3-22 + VDE 0482-332-3-22 cat. A	●												
Charac-teristics	Chemical resistance	A	A	A	A	A	A	A	A	A	A	A	A	
	Oil resistant acc. to UL standard 758		A	A	A	A	A	A	A	A	A	A	A	
	Oil and fuel resistance	A												

from  
 to

limited time of use

A = very good

\*The temperature range for flexible application is mentioned on the corresponding catalog page

# ETFE, FEP, PFA Cables

## BL TA 180 C

Flexible FEP connection cables with overall tinned copper shield

+180°C



Marking for BL TA 180 C 37530715:

SAB BRÖCKSKES · D-VIERSEN · BL TA 180 C 7x1.5mm<sup>2</sup> - IEC 60332-3-22 -

300/500V DNV AWM Style 21618 150°C 600V AWM I/II A/B 150°C 600V FT1 FT2 CE

**Application:** e.g. as connection cable for the control of marine diesel engines.

### Construction:

<b>Conductor:</b>	tinned copper strands acc. to IEC 60228, VDE 0295, class 5
<b>Insulation:</b>	FEP
<b>Color code:</b>	black conductors with consecutive numbers acc. to EN 50334 + VDE 0293-334 and a green/yellow ground
<b>Stranding:</b>	in layers
<b>Inner jacket:</b>	Besilen®
<b>Shield:</b>	tinned copper braiding
<b>Jacket material:</b>	FEP
<b>Jacket color:</b>	black (RAL 9005)

### Outstanding features:

- no flame propagation
- flame retardant and self-extinguishing
- good EMC characteristics\*
- oil and fuel resistant
- good chemical resistance
- high cold and heat resistance
- asbestos-free
- approvals:  
UL/cUL recognized  
DNV

\*copper braiding should be connected circularly to optimize the EMC characteristics

### Technical data:

<b>Nominal voltage:</b>	Uo/U 300/500 V	
<b>Voltage UL/cUL:</b>	600 V	
<b>Testing voltage:</b>	conductor/conductor: 2000 V (AC) conductor/shielding: 2000 V	
<b>Min. bending radius:</b>	fixed installation: 5 x O.D. free movement: 10 x O.D.	
<b>Radiation resistance:</b>	1 x 10 <sup>7</sup> cJ/kg	
<b>Temperature range:</b>	<b>DIN VDE</b> static: -55/+180°C flexible: -55/+180°C	<b>UL/cUL:</b> up to +150°C
<b>Burning characteristics:</b>	no flame propagation acc. to IEC 60332-3-22 + VDE 0482-332-3-22 cat. A. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT1, FT2	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Oil and fuel resistance:</b>	very good	
<b>Flexibility:</b>	good	
<b>Halogen-free:</b>	not fulfilled	
<b>Approvals:</b>	UR, cUR, DNV, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

item no.	no. of conductors incl. ground	outer-ø approx. inch	approx. mm	cable weight ≈ lbs/mft
<b>▶ 19 AWG (≈ 23/32) · 0.75 mm<sup>2</sup></b>				
37530207	2	0.224	5.7	42
37530307	3	0.236	6.0	46
37530407	4	0.244	6.2	54
37530507	5	0.280	7.1	67
37530607	6	0.303	7.7	78
37530707	7	0.303	7.7	81
37530807	8	0.350	8.9	102
37531207	12	0.402	10.2	136
37531607	16	0.449	11.4	175
37532007	20	0.504	12.8	224
<b>▶ 18 AWG (≈ 30/32) · 1.00 mm<sup>2</sup></b>				
37530210	2	0.232	5.9	43

item no.	no. of conductors incl. ground	outer-ø approx. inch	approx. mm	cable weight ≈ lbs/mft
<b>▶ 16 AWG (≈ 27-29/30) · 1.50 mm<sup>2</sup></b>				
37530215	2	0.260	6.6	54
37530315	3	0.272	6.9	65
37530515	5	0.323	8.2	97
37530615	6	0.354	9.0	115
37530715	7	0.354	9.0	122
37531215	12	0.472	12.0	208
<b>▶ 15 AWG (≈ 38/30) · 2.00 mm<sup>2</sup></b>				
37530220	2	0.295	7.5	72
37530320	3	0.319	8.1	87

Other dimensions and colors are available on request



#### Possible on request:

- without overall copper shield
- alternative color code and jacket color



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# ETFE, FEP, PFA Cables

## TD 801 F

FEP data cable with extended temperature range

+180°C

AWG 22/3c  AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 3801-0322 



Marking for TD 801 F 38010322:

SAB BRÖCKSKES · D-VIERSEN · TD 801 F AWG 22/3c  AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 38010322 

### Construction:

<b>Conductor:</b>	tinned copper strands acc. to ASTM B 286
<b>Insulation:</b>	FEP, 6Y11 acc. to VDE 0207-6
<b>Color code:</b>	DIN 47100, see below
<b>Stranding:</b>	in layers
<b>Jacket material:</b>	FEP, 6YM1 acc. to VDE 0207-6
<b>Jacket color:</b>	white (RAL 1013)

### Technical data:

<b>Peak operating voltage:</b>	max. 375 V	
<b>Voltage UL/cUL:</b>	600 V	
<b>Testing voltage:</b>	conductor/conductor: 2000 V	
<b>Min. bending radius:</b>	7.5 x O.D.	
<b>Radiation resistance:</b>	1 x 10 <sup>7</sup> cJ/kg	
<b>Temperature range:</b>	<b>DIN VDE</b>	<b>UL/cUL:</b> up to +150°C
<i>static:</i>	-90/+180°C	
<i>flexible:</i>	-55/+180°C	
<i>limited time of use:</i>	+200°C	
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT1, FT2	
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Approvals:</b>	UR, cUR, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

### Outstanding features:



- excellent resistance against chemicals and solvents
- excellent temperature resistance and flexibility at low temperatures
- excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- UL/cUL recognized

item no.	no. of conductors	outer-ø		cable weight ≈ lbs/mft
		max inch	max mm	
<b>▶ 28 AWG (7 strand) - 0.08 mm<sup>2</sup></b>				
38010228	2	0.079	2.0	4
38010328	3	0.083	2.1	5
38010428	4	0.091	2.3	7
38010528	5	0.098	2.5	8
38010728	7	0.106	2.7	10
38011028	10	0.134	3.4	14
38011228	12	0.138	3.5	16
<b>▶ 26 AWG (7 strand) - 0.14 mm<sup>2</sup></b>				
38010226	2	0.087	2.2	5
38010326	3	0.094	2.4	7
38010426	4	0.098	2.5	9
38010526	5	0.110	2.8	10
38010726	7	0.118	3.0	13
38011026	10	0.157	4.0	18
38011226	12	0.157	4.0	22

item no.	no. of conductors	outer-ø		cable weight ≈ lbs/mft
		max inch	max mm	
<b>▶ 24 AWG (7 strand) - 0.25 mm<sup>2</sup></b>				
38010224	2	0.098	2.5	7
38010324	3	0.102	2.6	9
38010424	4	0.114	2.9	11
38010524	5	0.122	3.1	14
38010624	6	0.138	3.5	17
38010724	7	0.134	3.4	18
38011024	10	0.177	4.5	26
38011224	12	0.185	4.7	30
<b>▶ 22 AWG (7 strand) - 0.34 mm<sup>2</sup></b>				
38010222	2	0.110	2.8	9
38010322	3	0.114	2.9	12
38010422	4	0.126	3.2	15
38010522	5	0.138	3.5	19
38010722	7	0.161	4.1	26
38011022	10	0.201	5.1	37
38011222	12	0.209	5.3	43

item no.	no. of conductors	outer-ø		cable weight ≈ lbs/mft
		max inch	max mm	
<b>▶ 20 AWG (7 strand) - 0.50 mm<sup>2</sup></b>				
38010220	2	0.126	3.2	12
38010320	3	0.134	3.4	17
38010420	4	0.146	3.7	22
38010520	5	0.173	4.4	28
38010720	7	0.177	4.5	36
38011020	10	0.232	5.9	53
38011220	12	0.248	6.3	62

Other dimensions and colors are available on request

**DIN 47100 color code:**

#1- white, #2- brown, #3- green, #4- yellow, #5- gray, #6- pink, #7- blue, #8- red, #9- black, #10- violet, #11- gray-pink, #12- red-blue



**Possible on request:**

- ETFE or PFA insulated strands

# ETFE, FEP, PFA Cables

## TD 833 CF

FEP data cable with extended temperature range and overall copper shield

+180°C

IM Style 21618 I/II A/B 150°C 600V FT1 FT2 3833-0320 CE



Marking for TD 833 CF 38330320:

SAB BRÖCKSKES · D-VIERSEN · TD 833 CF AWG 20/3c eUL AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 38330320 CE

### Construction:

<b>Conductor:</b>	tinned copper strands acc. to ASTM B 286
<b>Insulation:</b>	FEP, 6Y11 acc. to VDE 0207-6
<b>Color code:</b>	DIN 47100, see below
<b>Stranding:</b>	in layers
<b>Wrapping:</b>	PETP foil
<b>Shielding:</b>	tinned copper braiding
<b>Jacket material:</b>	FEP, 6YM1 acc. to VDE 0207-6
<b>Jacket color:</b>	white (RAL 1013)

### Technical data:

<b>Peak operating voltage:</b>	max. 375 V	
<b>Voltage UL/cUL:</b>	600 V	
<b>Testing voltage:</b>	conductor/conductor:	2000 V
	conductor/shielding:	2000 V
<b>Min. bending radius:</b>	7.5 x O.D.	
<b>Radiation resistance:</b>	1 x 10 <sup>7</sup> cJ/kg	
<b>Temperature range:</b>	<b>DIN VDE</b>	<b>UL/cUL:</b>
<i>static:</i>	-90/+180°C	up to +150°C
<i>flexible:</i>	-55/+180°C	
<i>short-term use:</i>	+200°C	
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT1, FT2	
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Approvals:</b>	UR, cUR, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

### Outstanding features:



- excellent resistance against chemicals and solvents
- excellent temperature resistance and flexibility at low temperatures
- excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- UL/cUL recognized

item no.	no. of conductors	outer-ø approx. inch	approx. mm	cable weight ≈lbs/mft
<b>▶ 28 AWG (7 strand) ▪ 0.08 mm<sup>2</sup></b>				
38330228	2	0.094	2.4	8
38330328	3	0.102	2.6	9
38330428	4	0.110	2.8	12
38330528	5	0.118	3.0	13
38330728	7	0.126	3.2	16
38331028	10	0.157	4.0	22
38331228	12	0.157	4.0	24
<b>▶ 26 AWG (7 strand) ▪ 0.14 mm<sup>2</sup></b>				
38330226	2	0.106	2.7	11
38330326	3	0.110	2.8	12
38330426	4	0.122	3.1	14
38330526	5	0.138	3.5	16
38330726	7	0.138	3.5	19
38331026	10	0.173	4.4	28
38331226	12	0.177	4.5	30
38331426	14	0.185	4.7	34

item no.	no. of conductors	outer-ø approx. inch	approx. mm	cable weight ≈lbs/mft
<b>▶ 24 AWG (7 strand) ▪ 0.25 mm<sup>2</sup></b>				
38330224	2	0.122	3.1	13
38330324	3	0.122	3.1	15
38330424	4	0.130	3.3	17
38330524	5	0.150	3.8	22
38330724	7	0.157	4.0	25
38331024	10	0.197	5.0	36
38331224	12	0.205	5.2	40
<b>▶ 22 AWG (7 strand) ▪ 0.34 mm<sup>2</sup></b>				
38330222	2	0.130	3.3	15
38330322	3	0.138	3.5	18
38330422	4	0.150	3.8	22
38330522	5	0.165	4.2	27
38330622	6	0.181	4.6	32
38330722	7	0.173	4.4	33
38331022	10	0.220	5.6	47
38331222	12	0.228	5.8	54

item no.	no. of conductors	outer-ø approx. inch	approx. mm	cable weight ≈lbs/mft
<b>▶ 20 AWG (7 strand) ▪ 0.50 mm<sup>2</sup></b>				
38330220	2	0.146	3.7	20
38330320	3	0.157	4.0	25
38330420	4	0.169	4.3	30
38330520	5	0.189	4.8	37
38330620	6	0.205	5.2	43
38330720	7	0.205	5.2	46
38330820	8	0.232	5.9	56
38331020	10	0.252	6.4	64
38331220	12	0.260	6.6	73

Other dimensions and colors are available on request

### DIN 47100 color code:

#1- white, #2- brown, #3- green, #4- yellow, #5- gray, #6- pink, #7- blue, #8- red, #9- black, #10- violet, #11- gray-pink, #12- red-blue, #13- white-green, #14- brown-green



### Possible on request:

- ETFE or PFA insulated strands

# ETFE, FEP, PFA Cables

## TD 838 CF TP

FEP data cable, twisted pairs with extended temperature range and overall copper shield

+180°C

UL AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 3838-0326 CE



Marking for TD 838 CF TP 38380326:

SAB BRÖCKSKES · D-VIERSEN · TD 838 CF TP AWG 26/3pr UL AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 38380326 CE

### Construction:

<b>Conductor:</b>	tinned copper strands acc. to ASTM B 286
<b>Insulation:</b>	FEP, 6Y11 acc. to VDE 0207-6
<b>Color code:</b>	DIN 47100, see below
<b>Stranding:</b>	conductors twisted to pairs, pairs together in specially adjusted layering
<b>Wrapping:</b>	foil
<b>Shielding:</b>	tinned copper braiding
<b>Jacket material:</b>	FEP, 6YM1 acc. to VDE 0207-6
<b>Jacket color:</b>	white (RAL 1013)

### Technical data:

<b>Peak operating voltage:</b>	max. 375 V	
<b>Voltage UL/cUL:</b>	600 V	
<b>Testing voltage:</b>	conductor/conductor:	2000 V
	conductor/shielding:	2000 V
<b>Min. bending radius:</b>	7.5 x O.D.	
<b>Radiation resistance:</b>	1 x 10 <sup>7</sup> cJ/kg	
<b>Temperature range:</b>	<b>DIN VDE</b>	<b>UL/cUL:</b>
<i>static:</i>	-90/+180°C	up to +150°C
<i>flexible:</i>	-55/+180°C	
<i>short-term use:</i>	+200°C	
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT1, FT2	
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Approvals:</b>	UR, cUR, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

### Outstanding features:

- excellent resistance against chemicals and solvents
- excellent temperature resistance and flexibility at low temperatures
- excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- UL/cUL recognized

item no.	no. of pairs	outer-ø approx. inch	approx. mm	cable weight ≈lbs/mft
<b>▶ 28 AWG (7 strand) ▪ 0.08 mm<sup>2</sup></b>				
38380228	2	0.126	3.2	13
38380328	3	0.142	3.6	17
38380428	4	0.165	4.2	20
38380528	5	0.181	4.6	25
38380628	6	0.185	4.7	27
<b>▶ 26 AWG (7 strand) ▪ 0.14 mm<sup>2</sup></b>				
38380226	2	0.138	3.5	15
38380326	3	0.161	4.1	21
38380426	4	0.185	4.7	24
38380526	5	0.205	5.2	29
38380626	6	0.209	5.3	35

item no.	no. of pairs	outer-ø approx. inch	approx. mm	cable weight ≈lbs/mft
<b>▶ 24 AWG (7 strand) ▪ 0.25 mm<sup>2</sup></b>				
38380224	2	0.157	4.0	20
38380324	3	0.177	4.5	25
38380424	4	0.217	5.5	33
38380524	5	0.228	5.8	34
38380624	6	0.232	5.9	45
<b>▶ 22 AWG (7 strand) ▪ 0.34 mm<sup>2</sup></b>				
38380222	2	0.181	4.6	25
38380322	3	0.205	5.2	34
38380422	4	0.232	5.9	42
38380522	5	0.256	6.5	51
38380622	6	0.272	6.9	60

item no.	no. of pairs	outer-ø approx. inch	approx. mm	cable weight ≈lbs/mft
<b>▶ 20 AWG (7 strand) ▪ 0.50 mm<sup>2</sup></b>				
38380220	2	0.201	5.1	33
38380320	3	0.232	5.9	45
38380420	4	0.268	6.8	57
38380520	5	0.295	7.5	70
38380620	6	0.307	7.8	83
<b>▶ 18 AWG (7 strand) ▪ 1.00 mm<sup>2</sup></b>				
38380418	4	0.319	8.1	83

Other dimensions and colors are available on request

### DIN 47100 color code:

#1- white/brown, #2- green/yellow, #3- gray/pink, #4- blue/red, #5- black/purple, #6- gray-pink/red-blue



### Possible on request:

- ETFE or PFA insulated strands



# ETFE, FEP, PFA Cables

## TA 866 F

FEP connection cable with extended temperature range

+180°C

VM Style 21618 I/II A/B 150°C 600V FT1 FT2 3866-0415 CE



Marking for TA 866 F 38660415:

SAB BRÖCKSKES · D-VIERSEN · TA 866 F AWG 16/4c cUL<sup>us</sup> AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 38660415 CE

### Construction:

<b>Conductor:</b>	tinned copper strands acc. to IEC 60228, VDE 0295, class 5
<b>Insulation:</b>	FEP, 6Y11 acc. to VDE 0207-6
<b>Color code:</b>	up to 5 conductors- HD 308 (VDE 0293-308) see below, from 6 conductors- black conductors with consecutive numbers acc. to EN 50334 + VDE 0293-334 from 3 conductors a green/yellow ground
<b>Stranding:</b>	in layers
<b>Jacket material:</b>	FEP, 6YM1 acc. to VDE 0207-6
<b>Jacket color:</b>	black (RAL 9005)

### Technical data:

<b>Nominal voltage:</b>	Uo/U 300/500 V	
<b>Voltage UL/cUL:</b>	600 V	
<b>Testing voltage:</b>	conductor/conductor: 2000 V	
<b>Min. bending radius:</b>	7.5 x O.D.	
<b>Radiation resistance:</b>	1 x 10 <sup>7</sup> cJ/kg	
<b>Temperature range:</b>	<b>DIN VDE</b>	<b>UL/cUL:</b> up to +150°C
<i>static:</i>	-90/+180°C	
<i>flexible:</i>	-55/+180°C	
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT1, FT2	
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Approvals:</b>	UR AWM, cUR AWM, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

### Outstanding features:

- excellent resistance against chemicals and solvents
- excellent temperature resistance and flexibility at low temperatures
- excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- UL/cUL recognized

item no.	no. of conductors incl. ground	outer-ø ±10% inch	outer-ø ±10% mm	cable weight ≈lbs/mft
<b>▶ 24 AWG ▪ 0.25 mm<sup>2</sup></b>				
38660202	2	0.114	2.9	9
38660302	3	0.122	3.1	12
38660402	4	0.134	3.4	15
38660502	5	0.146	3.7	18
38660702	7	0.165	4.2	24
38661002	10	0.213	5.4	35
38661202	12	0.220	5.6	42
<b>▶ 20 AWG ▪ 0.50 mm<sup>2</sup></b>				
38660205	2	0.138	3.5	14
38660305	3	0.146	3.7	19
38660405	4	0.165	4.2	25
38660505	5	0.181	4.6	31
38660705	7	0.205	5.2	41
38661005	10	0.260	6.6	58
38661205	12	0.268	6.8	68
<b>▶ 19 AWG ▪ 0.75 mm<sup>2</sup></b>				
38660207	2	0.161	4.1	18
38660307	3	0.173	4.4	25
38660407	4	0.209	5.3	32
38660507	5	0.213	5.4	41
38660707	7	0.244	6.2	53
38661007	10	0.303	7.7	76
38661207	12	0.315	8.0	90

item no.	no. of conductors incl. ground	outer-ø ±10% inch	outer-ø ±10% mm	cable weight ≈lbs/mft
<b>▶ 18 AWG ▪ 1.00 mm<sup>2</sup></b>				
38660210	2	0.169	4.3	22
38660310	3	0.189	4.8	29
38660410	4	0.217	5.5	39
38660510	5	0.228	5.8	49
38660710	7	0.244	6.2	63
38661010	10	0.319	8.1	91
38661210	12	0.331	8.4	107
<b>▶ 16 AWG ▪ 1.50 mm<sup>2</sup></b>				
38660215	2	0.193	4.9	29
38660315	3	0.209	5.3	41
38660415	4	0.240	6.1	52
38660515	5	0.272	6.9	66
38660715	7	0.283	7.2	87
38661015	10	0.370	9.4	131
38661215	12	0.382	9.7	147
<b>▶ 14 AWG ▪ 2.50 mm<sup>2</sup></b>				
38660225	2	0.228	5.8	43
38660325	3	0.244	6.2	60
38660425	4	0.295	7.5	77
38660525	5	0.303	7.7	99
38660725	7	0.331	8.4	130
38661025	10	0.433	11.0	187
38661225	12	0.453	11.5	223

item no.	no. of conductors incl. ground	outer-ø ±10% inch	outer-ø ±10% mm	cable weight ≈lbs/mft
<b>▶ 12 AWG ▪ 4.00 mm<sup>2</sup></b>				
38660240	2	0.276	7.0	63
38660340	3	0.299	7.6	91
38660440	4	0.327	8.3	118
38660540	5	0.370	9.4	152
38660740	7	0.406	10.3	201
<b>▶ 10 AWG ▪ 6.00 mm<sup>2</sup></b>				
38660260	2	0.343	8.7	98
38660360	3	0.370	9.4	143
38660460	4	0.409	10.4	185
38660560	5	0.457	11.6	240
38660760	7	0.504	12.8	308

Other dimensions and colors are available on request

### HD 308 color code: up to 5 conductors

- 1c: natural
- 2c: blue, brown
- 3c: green/yellow, blue, brown
- 4c: green/yellow, brown, black, gray
- 5c: green/yellow, blue, brown, black, gray



### Possible on request:

- ETFE or PFA insulated strands

# ETFE, FEP, PFA Cables

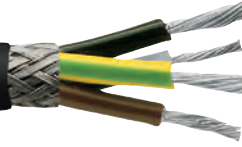
## TA 867 CF

FEP connection cable with extended temperature range and overall copper shield

+180°C



Style 21618 I/II A/B 150°C 600V FT1 FT2 3867-0415 CE



Marking for TA 867 CF 38670415:

SAB BRÖCKSKES · D-VIERSEN · TA 867 CF AWG 16/4c AWM Style 21618 I/II A/B 150°C 600V FT1 FT2 38670415 CE

### Construction:

<b>Conductor:</b>	tinned copper strands acc. to IEC 60228, VDE 0295, class 5
<b>Insulation:</b>	FEP, 6Y11 acc. to VDE 0207-6
<b>Color code:</b>	up to 5 conductors- HD 308 (VDE 0293-308), see below from 6 conductors- black conductors with consecutive numbers acc. to EN 50334 + VDE 0293-334 from 3 conductors a green/yellow ground
<b>Stranding:</b>	in layers
<b>Wrapping:</b>	foil
<b>Shielding:</b>	tinned copper braiding
<b>Jacket material:</b>	FEP, 6YM1 acc. to VDE 0207-6
<b>Jacket color:</b>	black (RAL 9005)

### Technical data:

<b>Peak operating voltage:</b>	U <sub>0</sub> /U 300/500 V	
<b>Voltage UL/cUL:</b>	600 V	
<b>Testing voltage:</b>	conductor/conductor: 2000 V	conductor/shielding: 2000 V
<b>Min. bending radius:</b>	7.5 x O.D.	
<b>Radiation resistance:</b>	1 x 10 <sup>7</sup> cJ/kg	
<b>Temperature range:</b>	<b>DIN VDE</b> -90/+180°C	<b>UL/cUL:</b> up to +150°C
<b>flexible:</b>	-55/+180°C	
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT1, FT2	
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Approvals:</b>	UR AWM, cUR AWM, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

### Outstanding features:

- excellent resistance against chemicals and solvents
- excellent temperature resistance and flexibility at low temperatures
- excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- UL/cUL recognized

item no.	no. of conductors incl. ground	outer-ø ±10% inch	outer-ø ±10% mm	cable weight ≈lbs/mft
<b>▶ 24 AWG ▪ 0.25 mm<sup>2</sup></b>				
38670202	2	0.134	3.4	15
38670302	3	0.142	3.6	17
38670402	4	0.157	4.0	23
38670502	5	0.169	4.3	26
38670702	7	0.185	4.7	32
38671002	10	0.201	5.1	43
38671202	12	0.240	6.1	51
<b>▶ 20 AWG ▪ 0.50 mm<sup>2</sup></b>				
38670205	2	0.161	4.1	22
38670305	3	0.169	4.3	27
38670405	4	0.185	4.7	32
38670505	5	0.205	5.2	40
38670705	7	0.224	5.7	51
38671005	10	0.272	6.9	69
38671205	12	0.291	7.4	82
<b>▶ 19 AWG ▪ 0.75 mm<sup>2</sup></b>				
38670207	2	0.181	4.6	26
38670307	3	0.193	4.9	33
38670407	4	0.213	5.4	41
38670507	5	0.232	5.9	51
38670707	7	0.252	6.4	63
38671007	10	0.319	8.1	89
38671207	12	0.335	8.5	104

item no.	no. of conductors incl. ground	outer-ø ±10% inch	outer-ø ±10% mm	cable weight ≈lbs/mft
<b>▶ 18 AWG ▪ 1.00 mm<sup>2</sup></b>				
38670210	2	0.189	4.8	30
38670310	3	0.205	5.2	39
38670410	4	0.220	5.6	49
38670510	5	0.244	6.2	59
38670710	7	0.264	6.7	74
38671010	10	0.339	8.6	106
38671210	12	0.350	8.9	122
<b>▶ 16 AWG ▪ 1.50 mm<sup>2</sup></b>				
38670215	2	0.217	5.5	39
38670315	3	0.228	5.8	50
38670415	4	0.248	6.3	62
38670515	5	0.283	7.2	80
38670715	7	0.303	7.7	101
38671015	10	0.398	10.1	158
38671215	12	0.409	10.4	175
<b>▶ 14 AWG ▪ 2.50 mm<sup>2</sup></b>				
38670225	2	0.248	6.3	53
38670325	3	0.264	6.7	70
38670425	4	0.291	7.4	91
38670525	5	0.323	8.2	112
38670725	7	0.350	8.9	145
38671025	10	0.461	11.7	220
38671225	12	0.488	12.4	254

item no.	no. of conductors incl. ground	outer-ø ±10% inch	outer-ø ±10% mm	cable weight ≈lbs/mft
<b>▶ 12 AWG ▪ 4.00 mm<sup>2</sup></b>				
38670240	2	0.299	7.6	77
38670340	3	0.319	8.1	105
38670440	4	0.346	8.8	135
<b>▶ 10 AWG ▪ 6.00 mm<sup>2</sup></b>				
38670360	3	0.398	10.1	168

Other dimensions and colors are available on request

#### HD 308 color code: up to 5 conductors

- 2c: blue, brown
- 3c: green/yellow, blue, brown
- 4c: green/yellow, brown, black, gray
- 5c: green/yellow, blue, brown, black, gray



#### Possible on request:

- ETFE or PFA insulated strands



# ETFE, FEP, PFA Cables

## FEP and PFA insulated stranded hook-up wire

Li6Ybl, Li6Yvz, and LiPFAvn with extended temperature range

375V



### Construction:

<b>Conductor:</b>	
Li6Ybl:	bare tinned copper strands
Li6Yvz:	tinned copper strands
LiPFAvn:	nickel-plated copper strands acc. to ASTM B 286
<b>Insulation:</b>	
Li6Ybl & Li6Yvz:	FEP, 6Y11 acc. to VDE 0207-6
LiPFAvn:	PFA, 51Y11 acc. to VDE 0207-6

### Outstanding features:

- excellent resistance against chemicals and solvents
- excellent temperature resistance and flexibility at low temperatures
- excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- UL recognized

### Technical data:

<b>Peak operating voltage:</b>	max. 375 V	
<b>Voltage UL:</b>	600 V	
<b>Testing voltage:</b>	2000 V	
<b>Installation:</b>	for one single bend the inner bending radius must not be smaller than 0.5 x outer diameter of the insulated strands	
<b>Radiation resistance:</b>	<b>FEP:</b> 1 x 10 <sup>7</sup> cJ/kg	<b>PFA:</b> 1 x 10 <sup>8</sup> cJ/kg
<b>Temperature range:</b>	<b>FEP:</b> static: -90/+180°C flexible: -55/+180°C short-term use: +200°C	<b>PFA:</b> -90/+250°C -55/+250°C +260°C
	<b>UL:</b>	up to +150°C up to +250°C
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT2	
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days	
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds	
<b>Approvals:</b>	UR AWM, CE, RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30	

### Li6Ybl - bare copper / FEP insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3339 .. 28	28 AWG/7	0.028	0.70	1
▶ 3339 .. 26	26 AWG/7	0.031	0.80	1
▶ 3339 .. 24	24 AWG/7	0.037	0.93	2
▶ 3339 .. 22	22 AWG/7	0.043	1.08	3
▶ 3339 .. 20	20 AWG/7	0.050	1.28	4

### Color code for single conductors:

01 = black	05 = yellow	09 = orange
02 = blue	06 = green	11 = red
03 = brown	07 = violet	15 = nature
04 = gray	08 = white	

### Li6Yvz - tinned copper / FEP insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3340 .. 28	28 AWG /7	0.028	0.70	1
▶ 3340 .. 26	26 AWG/7	0.031	0.80	1
▶ 3340 .. 24	24 AWG/7	0.037	0.93	2
▶ 3340 .. 22	22 AWG/7	0.043	1.08	3
▶ 3340 .. 20	20 AWG/7	0.050	1.28	4
▶ 3340 .. 16	16 AWG/7	0.070	1.79	9

### LiPFAvn - nickel-plated copper / PFA insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3344 .. 28	28 AWG /7	0.028	0.71	1
▶ 3344 .. 26	26 AWG/7	0.031	0.80	1
▶ 3344 .. 24	24 AWG/7	0.037	0.93	2
▶ 3344 .. 22	22 AWG/7	0.043	1.08	3
▶ 3344 .. 20	20 AWG/7	0.050	1.28	4

Other dimensions and colors are available on request



### Possible on request:

- ETFE insulated strands

# ETFE, FEP, PFA Cables

## ETFE, FEP, and PFA insulated stranded hook-up wire

Li7Ybl, Li6Ybl, Li6Yvz, and LiPFAvn with extended temperature range

900V



### Construction:

<b>Conductor:</b>	
Li7Ybl & Li6Ybl:	bare copper strands
Li6Yvz	tinned copper strands
LiPFAvn:	nickel-plated copper strands acc. to ASTM B 286
<b>Insulation:</b>	
Li7Ybl:	ETFE, 7Y11 acc. to VDE 0207-6
Li6Ybl & Li6Yvz:	FEP, 6Y11 acc. to VDE 0207-6
LiPFAvn:	PFA, 5Y11 acc. to VDE 0207-6

### Outstanding features:

- **ETFE:**
  - high resistance against chemicals and solvents
  - low and high temperature resistance
  - good electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
- **FEP + PFA:**
  - excellent resistance against chemicals and solvents
  - excellent temperature resistance and flexibility at low temperatures
  - excellent electrical insulating characteristics with low, nearly frequency-independent dielectric characteristics
  - UL recognized

### Technical data:

<b>Peak operating voltage:</b>	max. 900 V		
<b>Voltage UL:</b>	Li6Ybl, Li6Yvz, LiPFAvn: 600 V		
<b>Testing voltage:</b>	2500 V		
<b>Installation:</b>	for one single bend the inner bending radius must not be smaller than 0.5 x outer diameter of the insulated strands		
<b>Radiation resistance:</b>	<b>ETFE:</b> 2 x 10 <sup>8</sup> cJ/kg	<b>FEP:</b> 1 x 10 <sup>7</sup> cJ/kg	<b>PFA:</b> 1 x 10 <sup>6</sup> cJ/kg
<b>Temperature range:</b>	<b>ETFE:</b> static: flexible: short-term use:	<b>FEP:</b> -90/+135°C -55/+180°C +200°C	<b>PFA:</b> -90/+250°C -55/+250°C +260°C up to 250°C
<b>Burning characteristics:</b>	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL FT2		
<b>Oil resistance:</b>	very good acc. to UL standard 758, at 80°C after 80 days		
<b>Chemical resistance:</b>	very good against acids, halogens, bases, chlorinated solvents as well as organic and inorganic compounds		
<b>Approvals:</b>	Li6Ybl, Li6Yvz, LiPFAvn: UR AWM, CE, RoHS	Li7Ybl: CE RoHS	
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page O/30		

### Li7Ybl bare copper / ETFE insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3345 .. 28	28 AWG /7	0.037	0.93	1
▶ 3345 .. 26	26 AWG /7	0.041	1.03	2
▶ 3345 .. 24	24 AWG /7	0.046	1.16	2
▶ 3345 .. 22	22 AWG /7	0.052	1.31	3
▶ 3345 .. 20	20 AWG /7	0.059	1.51	5
▶ 3345 .. 18	18 AWG /7	0.070	1.78	7
▶ 3345 .. 16	16 AWG /7	0.076	1.94	9
▶ 3345 .. 14	14 AWG /7	0.091	2.30	14
▶ 3345 .. 12	12 AWG /7	0.109	2.76	22

### Li6Yvz tinned copper / FEP insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3349 .. 28	28 AWG /7	0.037	0.93	1
▶ 3349 .. 26	26 AWG /7	0.041	1.03	2
▶ 3349 .. 24	24 AWG /7	0.046	1.16	2
▶ 3349 .. 22	22 AWG /7	0.052	1.31	3
▶ 3349 .. 20	20 AWG /7	0.059	1.51	5
▶ 3349 .. 18	18 AWG /7	0.070	1.78	8
▶ 3349 .. 16	16 AWG /7	0.076	1.94	9
▶ 3349 .. 14	14 AWG /7	0.091	2.30	15
▶ 3349 .. 12	12 AWG /7	0.109	2.76	22

### Li6Ybl bare copper / FEP insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3348 .. 28	28 AWG /7	0.037	0.93	1
▶ 3348 .. 26	26 AWG /7	0.041	1.03	2
▶ 3348 .. 24	24 AWG /7	0.046	1.16	2
▶ 3348 .. 22	22 AWG /7	0.052	1.31	3
▶ 3348 .. 20	20 AWG /7	0.059	1.51	5
▶ 3348 .. 18	18 AWG /7	0.070	1.78	8
▶ 3348 .. 16	16 AWG /7	0.076	1.94	9
▶ 3348 .. 14	14 AWG /7	0.091	2.30	15
▶ 3348 .. 12	12 AWG /7	0.109	2.76	22

### LiPFAvn nickel-plated copper / PFA insulation

item no.	AWG/stranding	outer-ø		cable weight ≈lbs/mft
		approx. inch	approx. mm	
▶ 3353 .. 28	28 AWG /7	0.038	0.96	1
▶ 3353 .. 26	26 AWG /7	0.042	1.06	2
▶ 3353 .. 24	24 AWG /7	0.046	1.17	2
▶ 3353 .. 22	22 AWG /7	0.053	1.34	3
▶ 3353 .. 20	20 AWG /7	0.061	1.54	5
▶ 3353 .. 18	18 AWG /7	0.071	1.81	7
▶ 3353 .. 16	16 AWG /7	0.078	1.97	9

Other dimensions and colors are available on request

#### Color code for single conductors:

01 = black	05 = yellow	09 = orange
02 = blue	06 = green	11 = red
03 = brown	07 = violet	15 = nature
04 = gray	08 = white	

L  
12

