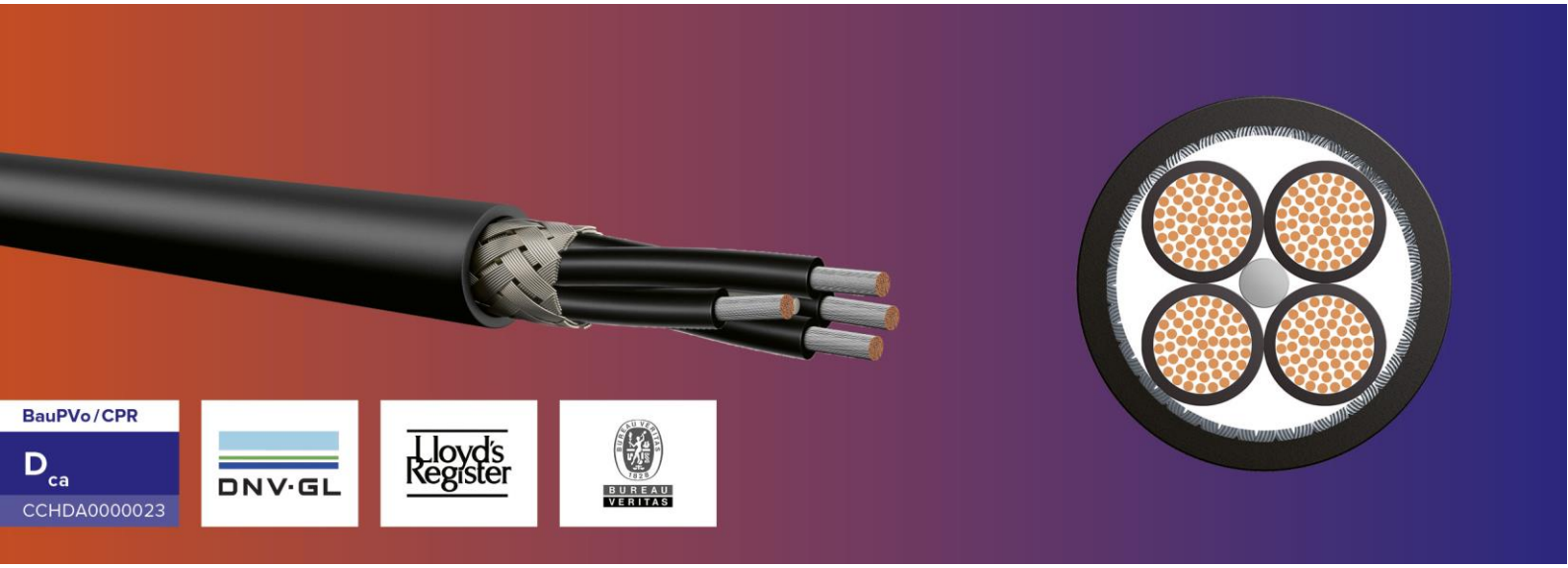
CONNECTION AND POWER CABLES

BETAflam® 145 C-flex
Screened sheathed multicore cable



Application

Fixed and flexible application in dry, humid and wet rooms. Good weather and UV resistance. Extensively oil resistant. Intended for installation outdoors. Typical areas of application are connections of:
Lamps, heating units, electrical machinery (thermal class B), switch boards, switch cabinets and distributors in apparatus, mechanical or plant engineering.

Construction

Conductor	Tinned fine copper strand acc. to VDE 0295 / IEC 60228, class 5
Insulation	Polyolefin Copolymer (Comp 752), electronbeam cross-linked
Core colour	≤ 5 cores acc. to HD 308 S2, ≥ 6 cores NR, NRPE
Shield	Tinned copper braid
Sheath	Polyolefin Copolymer (Comp 752), electronbeam cross-linked
Sheath colour	Black

Advantages

- Very high resistance to temperature
- service temperature up to +145 °C
- Resistance to cold down to –55 °C
- Best fire performance, halogenfree
- EMC-optimised braided shield
- Good media resistance
- Electron-beam cross-linked

Electrical properties

Rated value	U0/U ≤ 1 mm2	300 / 500 V
Rated value	U0/U ≥1.5 mm2	470 / 750 V
Rated value	U0/U ≥1.5 mm2	600 / 1000 V AC*
Rated value	U0/U ≥1.5 mm2	750 / 1500 V DC*
Test voltage	Core/core ≤ 1 mm²	2.0 kV, 50 Hz / 5 min.
Test voltage	Core/shield ≤ 1 mm²	1.5 kV, 50 Hz / 5 min.
Test voltage	Core/core ≥ 1.5 mm²	3.5 kV, 50 Hz / 5 min.
Test voltage	Core/shield ≥ 1.5 mm²	2.5 kV, 50 Hz / 5 min.

Thermal properties

Operating temperature	Fixed installation	-55 to + 145°C
Operating temperature	Occasionally moved	-35 to + 120°C
Max. short circuit temperature		+280°C (max. 5s)

Mechanical properties

Bending radius	Fixed installation	≥4 x Ø
Bending radius	Occasionally moved	≥8 x Ø

Material properties / Standards

Halogenfree	IEC 60754-1, EN 50267-2-1
No corrosive gases	IEC 60754-2, EN 50267-2-2
No toxic gases	NF X 70-100

Material properties / Standards

Low smoke density	IEC 61034, DIN EN 61034-2, EN 50268-2
Flame retardant	EN IEC 60332-1-2
Non-flame propagating	IEC 60332-3, DIN EN 60332-3, EN 50266-2
Low fire load	DIN 51900
Cross-linked insulating compound HF90	IEC 60092-360
Cross-linked sheating compound SHF2	IEC 60092-360
Oil resistant	EN 50264-1, 72h/100°C, IRM 902
Fuel resistant	EN 50264-1, 168h/70°C, IRM 903
Fire properties acc. (CPR)	
Dca- s2, d2, a1	EN 50575, EN 13501-6
Fire performance Dca	EN 50399
Medium smoke emission s2	EN 50399
Drip off behavior d2	EN 50399
Low corrosive gases a1	EN 60754-2
CPR-Identification code	CCHDA0000023

Approvals

DNV / GL	Certificate No. TAE00001RT / TAE00001RM
Lloyd's Register	Certificate No. LR2016000TA
BUREAU VERITAS	Certificate No. 13348/E0 BV

Additional information

* fixed and protected installation
Special types upon reques
CPR approvals do not apply to the following cross-sections (mm²):
7/8x0.50, 1/7x0.75, 1/7/8x1, 1/7/8x1.5, 1/7/8x2.5, 1/7/8x4, 1/7x6, 1x10 - 1x240

Construction Cross-sec.	Color code	Conductor-Ø	R20	Core-Ø	Shield-Ø	Cross-sec shield	Outer-Ø	Weight	Fire load	Part no.
[mm2]		[mm]	[mΩ/m]	[mm]	[mm]	[mm2]	[mm]	[kg/km]	[kWh/m]	
2 x 0.50	NR	0.90	40.1	1.85	4.2	1.01	5.6	45	0.090	217371
3 x 0.50	NR	0.90	40.1	1.85	4.5	1.26	5.9	53	0.110	302707
4 x 0.50	NR	0.90	40.1	1.85	5.0	1.26	6.5	65	0.130	221012
5 x 0.50	NR	0.90	40.1	1.85	5.6	1.51	7.1	82	0.170	224825
7 x 0.50	NR	0.90	40.1	1.85	6.6	1.76	8.2	107	0.230	316390
8 x 0.50	NR	0.90	40.1	1.85	7.2	1.76	8.8	124	0.274	315920
1 x 0.75	L	1.15	26.7	2.2	#	#	3.8	28	0.060	*
2 x 0.75	LN	1.15	26.7	2.2	4.9	1.26	6.4	59	0.150	217638
2 x 0.75	NR	1.15	26.7	2.2	4.9	1.26	6.4	59	0.150	211367
3 G 0.75	NRPE	1.15	26.7	2.2	5.2	1.26	6.7	70	0.140	304100
3 x 0.75	NR	1.15	26.7	2.2	5.2	1.51	6.7	70	0.140	211368
4 x 0.75	NR	1.15	26.7	2.2	5.8	1.51	7.4	86	0.180	211369
4 G 0.75	NRPE	1.15	26.7	2.2	5.8	1.51	7.4	86	0.180	304645
5 x 0.75	NR	1.15	26.7	2.2	6.45	1.76	8.1	104	0.210	211370
5 G 0.75	NRPE	1.15	26.7	2.2	6.45	1.76	8.1	104	0.210	304101
6 x 0.75	NR	1.15	26.7	2.2	7.1	1.76	8.7	122	0.250	211371
7 x 0.75	NR	1.15	26.7	2.2	7.9	1.76	9.7	148	0.320	211372
7 G 0.75	NRPE	1.15	26.7	2.2	7.9	1.76	9.7	148	0.320	304102
8 G 0.75	NRPE	1.15	26.7	2.2	#	#	10.4	172	0.370	*
10 x 0.75	NR	1.15	26.7	2.2	9.4	2.64	11.3	197	0.410	218891
12 x 0.75	NR	1.15	26.7	2.2	9.4	2.64	11.3	208	0.400	214971
14 G 0.75	NRPE	1.15	26.7	2.2	#	#	12.0	240	0.460	*
16 x 0.75	NR	1.15	26.7	2.2	10.7	2.64	12.7	267	0.520	218512
19 x 0.75	NR	1.15	26.7	2.2	12.1	2.64	14.3	331	0.690	304932
21 x 0.75	NR	1.15	26.7	2.2	12.8	2.64	15.0	364	0.750	309996
25 G 0.75	NRPE	1.15	26.7	2.2	13.7	4.46	16.1	435	0.815	224561
27 x 0.75	NR	1.15	26.7	2.2	13.7	4.46	16.1	435	0.815	304933
1 x 1	L	1.25	20.0	2.4	#	#	4.0	33	0.070	*
2 x 1	NR	1.25	20.0	2.4	5.3	1.51	6.8	71	0.150	212661
3 x 1	NR	1.25	20.0	2.4	5.7	1.51	7.2	81	0.160	218841
3 G 1	NRPE	1.25	20.0	2.4	5.7	1.51	7.2	81	0.160	300812
4 x 1	NR	1.25	20.0	2.4	6.3	1.76	7.9	103	0.200	221126

Construction Cross-sec. [mm2]	Color code	Conductor-Ø [mm]	R20 [mΩ/m]	Core-Ø [mm]	Shield-Ø [mm]	Cross-sec shield [mm2]	Outer-Ø [mm]	Weight [kg/km]	Fire load [kWh/m]	Part no.
4 G 1	NRPE	1.25	20.0	2.4	6.3	1.76	7.9	103	0.200	218185
5 x 1	NR	1.25	20.0	2.4	7.1	1.76	8.7	124	0.250	218790
5 G 1	NRPE	1.25	20.0	2.4	7.1	1.76	8.7	124	0.250	218852
6 x 1	NR	1.25	20.0	2.4	7.7	1.76	9.3	145	0.280	225248
7 x 1	NR	1.25	20.0	2.4	8.5	1.76	10.3	175	0.360	218786
7 G 1	NRPE	1.25	20.0	2.4	8.5	1.76	10.3	175	0.360	218868
8 x 1	NR	1.25	20.0	2.4	9.2	2.64	11.2	210	0.430	*
10 G 1	NRPE	1.25	20.0	2.4	#	#	12.3	240	0.480	*
12 x 1	NR	1.25	20.0	2.4	10.3	2.64	12.3	253	0.470	224022
1 x 1.5	L	1.55	13.7	2.95	3.45	1.01	4.75	43	0.090	301698
2 x 1.5	NR	1.55	13.7	2.95	6.4	1.76	8.0	94	0.210	211373
3 x 1.5	NR	1.55	13.7	2.95	6.9	1.76	8.5	94	0.210	211374
3 G 1.5	NRPE	1.55	13.7	2.95	6.9	1.76	8.5	94	0.210	221809
4 x 1.5	NR	1.55	13.7	2.95	7.6	1.76	9.2	136	0.270	211375
4 G 1.5	NRPE	1.55	13.7	2.95	7.6	1.76	9.2	136	0.270	219673
5 x 1.5	NR	1.55	13.7	2.95	8.5	1.76	10.3	171	0.340	211376
5 G 1.5	NRPE	1.55	13.7	2.95	8.5	1.76	10.3	171	0.340	221047
6 x 1.5	NR	1.55	13.7	2.95	9.4	2.64	11.3	209	0.420	308211
7 x 1.5	NR	1.55	13.7	2.95	10.4	2.64	12.4	245	0.510	211378
7 G 1.5	NRPE	1.55	13.7	2.95	10.4	2.64	12.4	245	0.510	214030
8 x 1.5	NR	1.55	13.7	2.95	11.4	2.64	13.5	288	0.620	304226
10 x 1.5	NR	1.55	13.7	2.95	12.6	2.64	14.8	330	0.670	308438
12 x 1.5	NR	1.55	13.7	2.95	12.6	2.64	14.8	352	0.640	222149
14 x 1.5	NR	1.55	13.7	2.95	13.4	4.46	15.7	415	0.770	216957
16 G 1.5	NRPE	1.55	13.7	2.95	14.3	4.46	16.7	472	0.870	226405
19 x 1.5	NR	1.55	13.7	2.95	16.2	4.46	19.0	592	1.170	226401
21 x 1.5	NR	1.55	13.7	2.95	17.2	4.46	20.0	655	1.300	215657
25 G 1.5	NRPE	1.55	13.7	2.95	18.5	5.94	21.5	748	1.420	214031
36 G 1.5	NRPE	1.55	13.7	2.95	21.0	7.92	24.2	1004	1.834	221192
1 x 2.5	L	2.05	8.21	3.65	#	#	5.6	61	0.110	*
2 x 2.5	NR	2.05	8.21	3.65	7.8	1.76	9.4	132	0.280	211379
3 x 2.5	NR	2.05	8.21	3.65	8.4	1.76	10.2	160	0.290	211380
3 G 2.5	LNPE	2.05	8.21	3.65	8.4	1.76	10.2	160	0.290	217068

Construction Cross-sec.	Color code	Conductor-Ø	R20	Core-Ø	Shield-Ø	Cross-sec shield	Outer-Ø	Weight	Fire load	Part no.
[mm2]		[mm]	[mΩ/m]	[mm]	[mm]	[mm2]	[mm]	[kg/km]	[kWh/m]	
3 G 2.5	NRPE	2.05	8.21	3.65	8.4	1.76	10.2	160	0.290	218770
4 x 2.5	NR	2.05	8.21	3.65	9.35	2.64	11.3	205	0.380	211381
4 G 2.5	2LNPE	2.05	8.21	3.65	9.35	2.64	11.3	205	0.380	214028
4 G 2.5	NRPE	2.05	8.21	3.65	9.35	2.64	11.3	205	0.380	225386
5 x 2.5	NR	2.05	8.21	3.65	10.4	2.64	12.4	252	0.470	211382
5 G 2.5	NRPE	2.05	8.21	3.65	10.4	2.64	12.4	252	0.470	221810
6 x 2.5	NR	2.05	8.21	3.65	#	#	13.6	309	0.570	*
7 G 2.5	NRPE	2.05	8.21	3.65	12.8	2.64	15.0	364	0.710	217278
8 x 2.5	NR	2.05	8.21	3.65	13.8	4.46	16.2	438	0.840	306603
10 G 2.5	NRPE	2.05	8.21	3.65	15.6	4.46	18.0	509	0.960	316809
12 x 2. 5	NR	2.05	8.21	3.65	15.6	4.46	18.0	540	0.920	304333
14 G 2.5	NRPE	2.05	8.21	3.65	16.5	4.46	19.3	634	1.100	309997
16 G 2.5	NRPE	2.05	8.21	3.65	17.6	4.46	20.4	715	1.240	304071
19 x 2.5	NR	2.05	8.21	3.65	20.1	5.94	23.3	906	1.670	226045
21 x 2.5	NR	2.05	8.21	3.65	21.0	7.92	24.2	990	1.820	304334
24 x 2.5	NR	2.05	8.21	3.65	22.8	7.92	26.2	1108	2.010	316794
27 x 2.5	NR	2.05	8.21	3.65	22.8	7.92	26.2	1164	1.975	304940
37 x 2.5	NR	2.05	8.21	3.65	27.3	11.4	31.1	1650	2.900	226046
1 x 4	L	2.55	5.09	4.15	#	#	6.1	84	0.120	*
2 x 4	NR	2.55	5.09	4.15	8.8	1.76	10.6	176	0.340	217057
3 x 4	NR	2.55	5.09	4.15	9.4	2.64	11.2	214	0.340	*
3 G 4	NRPE	2.55	5.09	4.15	9.4	2.64	11.2	214	0.340	226128
4 x 4	NR	2.55	5.09	4.15	10.6	2.64	12.6	276	0.450	214029
5 x 4	NR	2.55	5.09	4.15	11.8	2.64	12.6	276	0.450	222150
5 G 4	NRPE	2.55	5.09	4.15	11.8	2.64	13.9	342	0.560	221811
6 x 4	NR	2.55	5.09	4.15	#	#	15.4	415	0.700	*
7 x 4	NR	2.55	5.09	4.15	14.3	4.46	16.7	503	0.850	304726
8 x 4	NR	2.55	5.09	4.15	15.6	4.46	18.0	580	1.000	304335
10 x 4	NR	2.55	5.09	4.15	#	#	20.5	701	1.170	*
12 G 4	NRPE	2.55	5.09	4.15	17.6	4.46	20.4	754	1.130	308110
14 x 4	NR	2.55	5.09	4.15	18.9	5.94	21.9	884	1.330	304727
1 x 6	L	3.10	3.39	4.7	5.2	1.51	6.7	102	0.140	306566
2 x 6	NR	3.10	3.39	4.7	9.9	2.64	11.8	228	0.410	217828

Construction Cross-sec. [mm2]	Color code	Conductor-Ø [mm]	R20 [mΩ/m]	Core-Ø [mm]	Shield-Ø [mm]	Cross-sec shield [mm2]	Outer-Ø [mm]	Weight [kg/km]	Fire load [kWh/m]	Part no.
3 x 6	NR	3.10	3.39	4.7	10.6	2.64	12.6	300	0.490	215519
4 x 6	NR	3.10	3.39	4.7	11.9	2.64	14.0	382	0.600	213135
4 G 6	NRPE	3.10	3.39	4.7	11.9	2.64	14.0	382	0.600	309539
5 x 6	NR	3.10	3.39	4.7	13.4	4.46	15.7	486	0.750	*
5 G 6	NRPE	3.10	3.39	4.7	13.4	4.46	15.7	486	0.750	301614
6 x 6	NR	3.10	3.39	4.7	14.7	4.46	17.1	564	0.830	303331
7 G 6	NRPE	3.10	3.39	4.7	16.2	4.46	19.0	684	1.080	302400
8 x 6	NR	3.10	3.39	4.7	17.6	4.46	20.4	769	1.200	304336
1 x 10	L	4.10	1.95	6.1	#	#	8.2	165	0.210	*
2 x 10	NR	4.10	1.95	6.1	12.7	2.64	14.9	366	0.640	305813
3 x 10	NR	4.10	1.95	6.1	13.7	4.46	16.0	486	0.750	221677
4 x 10	NR	4.10	1.95	6.1	15.4	4.46	17.8	623	0.930	222976
4 G 10	NRPE	4.10	1.95	6.1	15.4	4.46	17.8	623	0.930	304455
5 x 10	NR	4.10	1.95	6.1	17.1	4.46	19.9	782	1.200	301723
5 G 10	NRPE	4.10	1.95	6.1	17.1	4.46	19.9	782	1.200	302127
6 x 10	NR	4.10	1.95	6.1	#	#	22.0	905	1.360	*
7 x 10	NR	4.10	1.95	6.1	#	#	24.0	1054	1.590	*
1 x 16	L	5.00	1.24	7.2	#	#	9.2	229	0.260	*
2 x 16	NR	5.00	1.24	7.2	15.0	4.46	17.4	531	0.840	224005
3 x 16	NR	5.00	1.24	7.2	16.1	4.46	18.9	715	1.030	221678
4 G 16	NRPE	5.00	1.24	7.2	18.1	5.94	21.1	928	1.280	304456
4 G 16	2LNPE	5.00	1.24	7.2	18.1	5.94	21.1	928	1.280	220735
4 x 16	NR	5.00	1.24	7.2	18.1	5.94	21.1	928	1.280	226254
5 G 16	NRPE	5.00	1.24	7.2	20.2	5.94	23.4	1151	1.600	*
1 x 25	L	6.20	0.795	8.6	9.1	2.64	11.0	320	0.360	317255
2 x 25	NR	6.20	0.795	8.6	#	#	21.2	824	1.210	*
3 x 25	NR	6.20	0.795	8.6	#	#	22.4	1064	1.330	*
4 x 25	NR	6.20	0.795	8.6	#	#	25.0	1369	1.680	*
5 G 25	NRPE	6.20	0.795	8.6	#	#	27.8	1713	2.160	*
1 x 35	L	7.70	0.565	10.1	#	#	12.8	448	0.450	*
2 x 35	NR	7.70	0.565	10.1	20.9	7.92	24.3	1101	1.550	224007

Construction Cross-sec. [mm2]	Color code	Conductor-Ø [mm]	R_{20} [mΩ/m]	Core-Ø [mm]	Shield-Ø [mm]	Cross-sec shield [mm2]	Outer-Ø [mm]	Weight [kg/km]	Fire load [kWh/m]	Part no.
3 x 35	NR	7.70	0.565	10.1	#	#	26.1	1459	1.760	*
4 x 35	NR	7.70	0.565	10.1	25.2	7.92	28.8	1852	2.220	226044
4 G 35	NRPE	7.70	0.565	10.1	25.2	7.92	28.8	1852	2.220	304457
5 G 35	NRPE	7.70	0.565	10.1	28.2	11.4	32.4	2334	2.820	317625
1 X 50	L	9.70	0.393	12.5	13.0	2.64	15.3	623	0.671	309241
1 X 70	L	11.20	0.277	14.0	14.6	4.46	17.0	834	0.775	316815
1 X 95	L	12.80	0.21	16.0	16.6	4.46	19.4	1093	0.986	311368
1 X 120	L	14.60	0.164	17.8	18.5	5.94	21.5	1357	1.132	218046
1 x 150	L	16.40	0.132	20.0	20.7	7.92	23.9	1691	1.445	314906
1 X 185	L	17.90	0.108	21.9	22.6	7.92	26.0	2016	1.628	316355
1 X 240	L	20.70	0.0817	25.1	25.9	11.40	29.5	2643	1.996	317748

Note:

*: Upon request