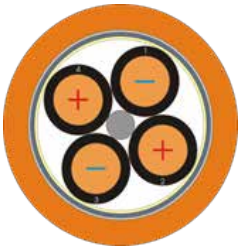
Current carrying capacity Bayka direct current cables

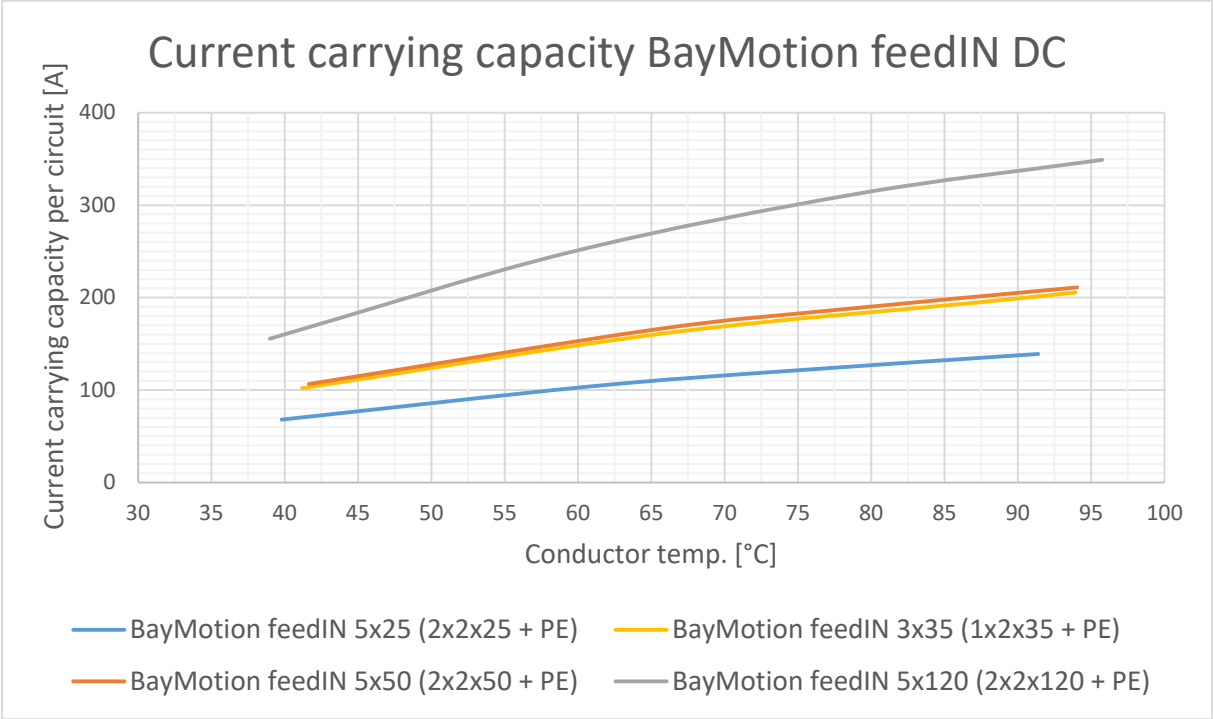
General

This section applies to the current-carrying capacity under both standard and deviating provisions provided that the cables are in DC-operation. For multi-core cables the values apply to each DC circuit.

Example graphic DC cable with two circuits:



The rated current-carrying capacity are only valid under standard conditions and are based on measurements.



General conditions

Temperatures °C (conductor)	
Maximum permissible operating temperature	+90
Maximum short-circuit temperature	+250

Concentric conductors bonded at both ends.

Power frequency 0 Hz.

The tabulated rated current-carrying capacities are based on standard provisions such as:

- operating mode
- laying conditions
- environmental conditions

For deviating operating conditions the current-carrying capacities in the tables are to be multiplied by appropriate conversion factors which shall be based on the same calculation method and operating conditions as used for the current-carrying capacity given in this clause.

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Current carrying capacity Bayka DC cables

Laying in earth (20°C)

	feedIN DC [copper, without concentric conductor and braid]			feedIN DC, feedIN DC EMC, feedIN DC EMC+, Metro 1000V DC [copper, with concentric conductor or braid]	
	*)				
Number of loaded conductors	1	3	3	3	3
cross-section mm²	Copper conductor Rated current in A				
1,5	49	32	34	32	34
2,5	65	41	43	41	44
4	84	53	54	53	56
6	105	66	69	67	70
10	139	88	91	89	93
16	180	115	118	116	120
25	235	149	152	150	154
35	282	178	181	180	183
50	334	211	214	213	216
70	410	260	262	262	263
95	492	313	315	315	312
120	562	357	358	358	350
150	631	402	403	401	386
185	715	455	456	453	428
240	835	530	530	522	481
300	950	600	598	583	527
400	1091	688	680	653	579
500	1258	777	768	708	639
630	1457	-	864	-	707
800	1679	-	958	-	-
1000	1916	-	1049	-	-

*) Rated current for cables in DC systems with return conductor far away.

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Current carrying capacity Bayka DC cables

Laying in air (30°C)

	feedIN DC [copper, without concentric conductor and braid]			feedIN DC, feedIN DC EMC, feedIN DC EMC+, Metro 1000V DC [copper, with concentric conductor or braid]	
	*)				
Number of loaded conductors	1	3	3	3	3
cross-section mm²	Copper conductor Rated current in A				
1,5	34	25	27	26	28
2,5	44	33	35	34	37
4	58	43	45	44	48
6	74	54	57	55	60
10	101	76	79	77	83
16	134	100	105	103	112
25	181	136	141	139	150
35	222	166	174	169	183
50	272	202	212	206	223
70	344	256	270	261	282
95	425	316	333	322	344
120	497	368	390	373	398
150	571	422	448	426	449
185	662	487	520	492	514
240	793	578	619	579	595
300	924	665	714	659	670
400	1087	780	831	755	751
500	1283	888	964	827	846
630	1523	-	1110	-	957
800	1795	-	1259	-	-
1000	2090	-	1402	-	-

*) Rated current for cables in DC systems with return conductor far away.

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Current carrying capacity Bayka DC cables

Admissible short-circuit temperatures and rated short-time current densities

Cables with	Admissible short-circuit temperature in °C	Rated short-time current density in A/mm² for a rated short-circuit duration of 1 s							
		Conductor temperature at the beginning of short-circuit in °C							
		90	80	70	60	50	40	30	20
Copper conductor	250	143	149	154	159	165	170	176	181

Current carrying capacity multicore cables

Group rating factors for multicore cables with different number of loaded conductors.

The current carrying capacity in the tables above apply to cables with 2 or 4 loaded cores.

For higher numbers of loaded cores consider the following group rating factors.

Group rating factors for multicore cables with different number of loaded cores

number of loaded conductors	Laying in earth	Laying in air
6	0,70	0,75
8	0,60	0,65
10	0,50	0,55
14	0,45	0,50
20	0,40	0,45
24	0,35	0,40
40	0,30	0,35
62	0,25	0,30