

# Current rating medium voltage cables with impregnated paper insulation – triple core

acc. to HD 621 S1, part 4C

## General conditions

Temperatures °C (conductor)	NKBY/NAKBY	NHKBY/NAHKBY & NEKEBY/NAEKEBY		
	6/10 kV	6/10 kV	12/20 kV	18/30 kV
highest permissible operating temperature	+65	+70	+65	+60
highest short circuit temperature (max. 5 s)	+170 *)	+170 *)	+170 *)	+150

\*) 160°C for soldered conductor connections.

Metal sheath and concentric conductors are grounded on both ends.

Operating frequency 50 Hz.

The tabulated loading capacities are based on various conditions such as







- operating mode,
- laying conditions,
- environmental conditions.

In the event of deviating operating conditions, the loading capacities are to be multiplied by suitable conversion factors, which are based on the same calculation principles and operating conditions as the given values.

## Current carrying capacity of medium voltage cables with impregnated paper insulation (6/10 kV)

### Laying in earth (20°C)

Recommended values according to HD 621 S1, part 4C, table 11







U <sub>0</sub> / U	6/10 kV					
Design short code *)	NKBY	NHKBY	NEKEBY	NAKBY	NAHKBY	NAEKEBY
Arrangement						
Cross-section mm <sup>2</sup>	copper conductor rated current in A			aluminium conductor rated current in A		
25	122	136	136	95	106	106
35	150	163	164	117	126	127
50	179	192	194	139	149	150
70	222	236	238	173	183	185
95	269	282	285	209	219	221
120	308	321	324	240	250	253
150	347	361	364	270	281	284
185	392	407	412	307	318	322
240	454	471	477	357	370	374
300	511	528	538	403	417	424
400	577	597	609	461	477	485
500	-	-	685	-	-	554

\*) The current carrying capacity is identical for designs with other protective sheaths.

## Current carrying capacity of medium voltage cables with impregnated paper insulation (6/10 kV)

### Laying in air (30°C)

Recommended values according to HD 621 S1, part 4C, table 12





U <sub>0</sub> / U	6/10 kV					
Design short code *)	NKBY	NHKBY	NEKEBY	NAKBY	NAHKBY	NAEKEBY
Arrangement						
Cross-section mm <sup>2</sup>	copper conductor rated current in A			aluminium conductor rated current in A		
25	100	114	116	78	88	90
35	123	139	141	96	107	109
50	148	166	169	115	129	131
70	187	208	211	145	162	164
95	228	253	257	177	196	199
120	263	291	296	205	227	231
150	301	332	337	234	258	262
185	345	380	385	270	297	301
240	408	449	453	320	352	355
300	467	511	519	368	403	408
400	536	591	596	428	472	475
500	-	-	684	-	-	552

\*) The current carrying capacity is identical for designs with other protective sheaths.

## Current carrying capacity of medium voltage cables with impregnated paper insulation (12/20 kV)

### Laying in earth (20°C)

Recommended values according to HD 621 S1, part 4C, table 11





$U_0 / U$	12/20 kV			
Design short code *)	NHKBY	NEKEBY	NAHKBY	NAEKEBY
Arrangement				
Cross-section mm <sup>2</sup>	copper conductor rated current in A		aluminium conductor rated current in A	
25	127	129	99	100
35	153	155	119	121
50	182	185	141	144
70	230	229	179	178
95	276	274	214	213
120	314	314	245	244
150	354	354	276	275
185	399	402	312	314
240	459	468	361	367
300	515	530	407	417
400	580	600	465	478
500	-	674	-	545

\*) The current carrying capacity is identical for designs with other protective sheaths.

## Current carrying capacity of medium voltage cables with impregnated paper insulation (12/20 kV)

### Laying in air (30°C)

Recommended values according to HD 621 S1, part 4C, table 12





$U_0 / U$	12/20 kV			
Design short code *)	NHKBY	NEKEBY	NAHKBY	NAEKEBY
Arrangement				
Cross-section mm <sup>2</sup>	copper conductor rated current in A		aluminium conductor rated current in A	
25	108	111	84	86
35	131	134	102	104
50	157	161	122	125
70	198	200	154	156
95	240	243	186	189
120	275	279	214	218
150	312	317	243	247
185	356	363	279	284
240	415	426	326	334
300	472	488	372	384
400	543	560	433	445
500	-	641	-	516

\*) The current carrying capacity is identical for designs with other protective sheaths.

## Current carrying capacity of medium voltage cables with impregnated paper insulation (18/30 kV)

### Laying in earth (20°C)

Recommended values according to HD 621 S1, part 4C, table 11





$U_0 / U$	18/30 kV			
Design short code *)	NHKBY	NEKEBY	NAHKBY	NAEKEBY
Arrangement				
Cross-section mm <sup>2</sup>	copper conductor rated current in A		aluminium conductor rated current in A	
25	-	-	-	-
35	143	146	111	113
50	170	174	132	135
70	217	215	169	167
95	259	259	202	201
120	295	297	230	231
150	329	334	257	260
185	372	379	292	297
240	432	442	340	347
300	486	501	384	394
400	551	569	441	454
500	-	644	-	520

\*) The current carrying capacity is identical for designs with other protective sheaths.

## Current carrying capacity of medium voltage cables with impregnated paper insulation (18/30 kV)

### Laying in air (30°C)

Recommended values according to HD 621 S1, part 4C, table 12

$U_0 / U$	18/30 kV			
Design short code *)	NHKBY	NEKEBY	NAHKBY	NAEKEBY
Arrangement				
Cross-section mm <sup>2</sup>	copper conductor rated current in A		aluminium conductor rated current in A	
25	-	-	-	-
35	122	126	95	98
50	146	150	113	117
70	186	187	145	145
95	224	227	174	176
120	256	261	200	203
150	289	295	225	230
185	328	338	257	264
240	383	397	301	311
300	434	453	343	356
400	497	519	398	414
500	-	594	-	478

\*) The current carrying capacity is identical for designs with other protective sheaths.

## Current carrying capacity of paper insulated medium voltage cables with impregnated paper insulation

### Permissible short-circuit temperatures and rated short-time current densities

Recommended values according to HD 621 S1, part 4C, table 14

Cables with	admissible short-circuit temperature °C	rated short-circuit current densities in A/mm <sup>2</sup> for a rated short-circuit duration of 1s						
		conductor temperature at the beginning of short-circuit in °C						
		70	65	60	50	40	30	20
<b>copper conductor</b>								
6/10 kV & 12/20 kV	170	120	124	127	134	141	147	154
18/30 kV	150	-	-	117	124	131	138	145
<b>aluminium conductor</b>								
6/10 kV & 12/20 kV	170	80	82	84	89	93	97	102
18/30 kV	150	-	-	77	82	87	91	96