Current rating – HIKRA® Solar Cable

Calculation of current rating during permanent operation

I = IN * f1 * f2

by

I[A]= Current rating in continuous duty under operating conditions
IN[A]= Current rating in continuous duty under standard conditions (see table 1)
f1[]= Reduction factor in case of higher ambient temperature (see table 2)
f2[]= Reduction factor in case of cable accumulation (see table 3)

Nominal cross section	Current rating - laying at 60° C free in air		
	single - free in air	single - on surfaces	two with opposite contact - on surfaces
mm²	A	A	A
1,5	30	29	24
2,5	41	39	33
4	55	52	44
6	70	67	57
10	98	93	79
16	132	125	107
25	176	167	142
35	218	207	176

Table 1. Continuous duty under standard conditions (60°C free in air)

Ambient temperature °C	Conversion factor
to 60	1,00
70	0,91
80	0,82
90	0,71
100	0,58
110	0,41

Table 2. Reduction factor in case of higher ambient temperature
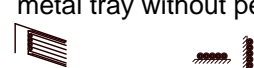
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Laying	Number of electrical circuits or multicore cable											
	1	2	3	4	5	6	7	8	9	12	16	20
Bundled in air, on a surface, embedded or enclosed	1,00	0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,45	0,41	0,38
Single laying on plaster, floor or in a metal tray without perforation	1,00	0,85	0,79	0,75	0,73	0,72	0,72	0,71	0,70	No further reduction factor for more than 9 channels or multicore cable		
Single laying directly fixed beneath the ceiling	0,95	0,81	0,72	0,68	0,66	0,64	0,63	0,62	0,61			
Single laying in a perforated horizontal or vertical metal tray	1,00	0,88	0,82	0,77	0,75	0,73	0,73	0,72	0,72			
Single laying with ladder fixture or cable clamp, etc.	1,00	0,87	0,82	0,80	0,80	0,79	0,79	0,78	0,78			

Remarks:
1. These factors are applicable to uniform groups of cables, equally loaded.
2. Where horizontal clearances between adjacent cables exceeds twice their overall diameter, no reduction factor need be applied.
3. The same factors are applied to:
   - groups of two or three single-core cables
   - multicore cables
4. If a system consists of both two- and three-core cables, the total number of cables is taken as the number of circuits, and the corresponding factor is applied to the tables for two loaded conductors for the two-core cables, and to the tables for three loaded conductors for the three-core cables.
5. A cable is „free in air" or "in ducts in the grounding" if the distance to the next conductor or wall is bigger than its cross section. More information can be found under IEC 60364-5-52

Table 3. Reduction factor in case of cable accumulation

* It is explicitly referred to the fact that HIS carefully reviewed and maintained data, but no guarantee for accuracy or completeness can be granted. The user of this data is not exempted from his obligation, to verify himself the data with regard on these aspects.