



**PERMANENT DOCUMENT**

**ENEC 303  
Annex AY**

**Annex AY  
to Routine Test Requirements for manufacturers  
(as per Article 9 of the Agreement)**

**Low-voltage switchgear and controlgear  
Terminal blocks  
EN 60947 Series**

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## Annex AY to PD ENEC 303

# LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR TERMINAL BLOCKS

## EN 60947-7 series

### 1 ROUTINE TESTS (100%)

Dielectric tests:

Each test shall be carried out on five adjacent terminal blocks wired and installed on a metal Support.

The test voltage shall be applied first between the adjacent terminal blocks and then between all terminal blocks connected together and the support to which the terminal blocks are attached

The value of the test voltage shall be as stated in Table 12A

**Table 12A – Dielectric test voltage corresponding to the rated insulation voltage**

Rated insulation voltage $U_i$ V	AC test voltage (r.m.s.) V	DC test voltage <sup>b, c</sup> V
$U_i \leq 60$	1 000	1 415
$60 < U_i \leq 300$	1 500	2 120
$300 < U_i \leq 690$	1 890	2 670
$690 < U_i \leq 800$	2 000	2 830
$800 < U_i \leq 1 000$	2 200	3 110
$1 000 < U_i \leq 1 500$ <sup>a</sup>	–	3 820

<sup>a</sup> For d.c. only.

<sup>b</sup> Test voltages based on 4.1.2.3.1, third paragraph of IEC 60664-1.

<sup>c</sup> A direct current test voltage may be used only if an alternating test voltage cannot be applied. See also 3) b) ii) of 8.3.3.4.1.

### 2 Periodic Tests

4 Verification of rated cross-section and rated connecting capacity

The test shall be carried out on each clamping unit of one terminal block.

For conductors of the rated cross-section and for terminal blocks with a rated connecting capacity up to 35 mm<sup>2</sup>, one conductor of the two next smaller cross-sections shall be inserted unhindered in the opened clamping unit and be connected.

Theoretical diameter of the largest conductor is given in Table 7a.

**Table 7a – Relationship between conductor cross-section and diameter**

Conductor cross-section	Theoretical diameter of the largest conductor						
	Metric			AWG/kcmil			
	Rigid		Flexible	Gauge	Rigid		Flexible Classes I,K,M.
Solid	Stranded	b			b Class B		
mm <sup>2</sup>	mm	mm	mm		mm	mm	mm
0,2	0,51	0,53	0,61	24	0,54	0,61	0,64
0,34	0,63	0,66	0,8	22	0,68	0,71	0,80
0,5	0,9	1,1	1,1	20	0,85	0,97	1,02
0,75	1,0	1,2	1,3	18	1,07	1,23	1,28
1,0	1,2	1,4	1,5	–	–	–	–
1,5	1,5	1,7	1,8	16	1,35	1,55	1,60
2,5	1,9	2,2	2,3 <sup>a</sup>	14	1,71	1,95	2,08
4,0	2,4	2,7	2,9 <sup>a</sup>	12	2,15	2,45	2,70
6,0	2,9	3,3	3,9 <sup>a</sup>	10	2,72	3,09	3,36
10,0	3,7	4,2	5,1	8	3,43	3,89	4,32
16,0	4,6	5,3	6,3	6	4,32	4,91	5,73
25,0	–	6,6	7,8	4	5,45	6,18	7,26
35,0	–	7,9	9,2	2	6,87	7,78	9,02
50		9,1	11,0 <sup>a</sup>	0		9,64	12,08
70		11,0	13,1 <sup>a</sup>	00		11,17	13,54
95		12,9	15,1 <sup>a</sup>	000		12,54	15,33
–		–	–	0000		14,08	17,22
120		14,5	17,0 <sup>a</sup>	250		15,34	19,01
150		16,2	19,0 <sup>a</sup>	300		16,80	20,48
185		18,0	21,0 <sup>a</sup>	350		18,16	22,05
–		–	–	400		19,42	24,05
240		20,6	24,0 <sup>a</sup>	500		21,68	26,57
300		23,1	27,0 <sup>a</sup>	600		23,82	30,03

NOTE Diameters of the largest rigid and flexible conductors are based on Table 1 and Table 3 of IEC 60228A and on IEC 60344 and, for AWG conductors, on ASTM B172-71 [1], ICEA Publication S-19-81 [2], ICEA Publication S-66-524 [3] and ICEA Publication S-66-516 [4].

Figures in square brackets refer to the bibliography.

<sup>a</sup> Dimensions for class 5 flexible conductors only, according to IEC 60228A.  
<sup>b</sup> Nominal diameter +5 %.  
<sup>c</sup> Largest diameter for any of the three classes I, K, M +5 %.

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<sup>b</sup> Test voltages based on 4.1.2.3.1, third paragraph of IEC 60664-1.

<sup>c</sup> A direct current test voltage may be used only if an alternating test voltage cannot be applied. See also 3) b) ii) of 8.3.3.4.1.