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INTERSTATE COUNCIL FOR STANDARDIZATION, METROLOGY AND CERTIFICATION
(ISC)

IEC 61008-1— 2020

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(IEC 61008*1:2013, Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) — Part 1: General rules, IDT)

2020

IEC 61008-1—2020

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 2020 . N» 466- IEC 61008*1—2020
 1 2021 .
 5 IEC 61008-1:2013 «
 1. » [«Residual current operated circuit-breakers
 without integral overcurrent protection for household and similar uses (RCCBs) — Part 1: General rules». IDT].
 SC 23 « 23 «
 » (IEC).
 1.5 (3.6).
 6 IEC 61008-1—2012

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Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses.
Part 1. General rules and test methods

— 2021—03—01

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IEC 60364.

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(. IEC 60364-4-44).

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(IEC 61009-1):

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IEC 60884-1

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IEC 62640.

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BS 1363-2.

IEC 60884-1

BS 1363-1

(7.1).

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IEC 60038. IEC standard voltages ()

IEC 60060-1:198s¹ High-voltage test techniques — Part 1: General definitions and test requirements (1.)

IEC 60060-2:1994². High-voltage test techniques — Part 2: Measuring systems (2.)

IEC 60068-2-30:2005. Environmental testing — Part 2-30: Tests — Test Db: Damp heat, cyclic (12 h 12 h cycle) [2-30. Db (12+12-)]

IEC 60068-3-4:2001. Environmental testing — Part 3-4: Supporting documentation and guidance — Damp heat tests (3-4.)

IEC 60112:2003. Method for the determination of the proof and the comparative tracking indices of solid insulating materials ()

¹ IEC 60060-1:2010.

² IEC 60060-2:2010.

- IEC 60228:2004. Conductors of insulated cables ()
- IEC 60364 (all parts). Low-voltage electrical installations ((IEC 60364)]
- IEC 60364-4-44:2007. Low-voltage electrical installations — Part 4-44: Protection for safety — Protection against voltage disturbances and electromagnetic disturbances (- 4-44. -)
- IEC 60364-5-53:2001¹⁾. Electrical installations of buildings — Part 5-53: Selection and erection of electrical equipment — Isolation, switching and control (. 5-53.)
- IEC 60417. Graphical symbols for use on equipment ()
- IEC 60529. Degrees of protection provided by enclosures (IP Code) (, - (IP Code)]
- IEC 60664-1:2007. Insulation coordination for equipment within low-voltage systems — Part 1: Principles, requirements and tests (. 1. -)
- IEC 60664-3. Insulation coordination for equipment within low-voltage systems — Part 3: Use of coating, potting or moulding for protection against pollution (. 3. ,)
- IEC 60695-2-10:20004 Fire hazard testing — Part 2-10: Glowing/hot-wire based test methods — Glow-wire apparatus and common test procedure (. 2-10. - / -)
- IEC 60864-1. Plugs and socket-outlets for household and similar purposes—Part 1: General requirements (. 1.)
- IEC 61009-1. Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)— Part 1: General rules (, (RCBOs). 1.]
- IEC 61543:1995. Residual current-operated protective devices (RCDs)for household and similar use — Electromagnetic compatibility [(RCDs) -]
- IEC 61543:1995/AMD1:2004 1
- IEC 61543:1995/AMD2:2005 2
- CISPR 14-1:20054 Electromagnetic compatibility — Requirements for household appliances, electric tools and similar apparatus — Part 1: Emission (. 1.)

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• IEC 60364-5-53:2019. -

21 IEC 60695-2-10:2013. -

31 CISPR 14-1:2016. ,

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3.1	,	,	
3.1.1	(earth fault current):	.	-
3.1.2	(earth leakage current):	,	-
3.1.3	() (pulsating direct current):	,	-
		0,006	,
3.1.4	() 150* (current delay angle):	,	-
3.2	,		
3.2.1	(energizing quantity):	,	-
3.2.2	(energizing input-quantity):	,	-
3.2.3	/ (residual current. /):		
3.2.4	() (residual operating current):		
3.2.5	() (residual non-operating current):		-
3.3	,		
3.3.1	(residual current operated circuit-breaker):	,	-
3.3.2	(residual current operated circuit-breaker without integral overcurrent protection. RCCB):	,	-
3.3.3	(residual current operated circuit-breaker with integral overcurrent protection. RCBO):	,	-
3.3.4	(RCCBs functionally independent of line voltage):	,	-
3.3.5	(RCCBs functionally dependent on line voltage):	,	-
3.3.6	(switching device):	,	-
(IEV 441-14-01:1984]			

3.3.7	(mechanical switching device):	-
(IEV 441-14-02)]	
3.3.8	(trip-free RCCB):	-
3.3.9	(break time of an RCCB):	-
3.3.10	(limiting non-actuating time):	-
3.3.11	(time-delay RCCB):	-
3.3.12	(closed position):	-
(IEV 441-16-22)		
3.3.13	(open position):	-
(IEV 441-16-23)		
3.3.14	(pole):	-
3.3.15	(switched neutral pole):	-
3.3.16	() (main circuit (of RCCB):	-
	(. 4.3).	
3.3.17	() [control circuit (of an RCCB): (-
),	
3.3.18	() [auxiliary circuit (of an RCCB):	-
(IEV 441-15-04)		
3.3.19	AC (RCCB type):	-
3.3.20	A (RCCB type):	-
3.3.21	(test device):	-
3.4		
3.4.1	(rated value):	-

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3.4.2 (non-operating overcurrents in the main circuit)
3.4.2.1 3.4.2.2.

— » -

3.4.2.1 () (limiting value of

overcurrent in case of a load through an RCCB with two current paths):

3.4.2.2 (limiting value of overcurrent in case of a single phase load through a three-
pole or four-pole RCCB):

3.4.3 (residual short-
circuit withstand current):

3.4.4 (prospective current):
()

3.4.5 () [maximum prospective
peak current (of an a.c. circuit)]:

3.4.6 / (short-circuit (making
and breaking) capacity):

3.4.7 (making capacity):

3.4.8 (breaking capacity):

3.4.9 (residual
making and breaking capacity):

3.4.10 (conditional short-circuit current):

3.4.11 (conditional residual short-circuit
current):

3.4.12 (U* Uy) ,
[limiting values (U_k and U_y) of the line voltage for RCCBs functionally dependent on line voltage]

3.4.12.1 , (limiting values U_x):

(. 9.17.1).

3.4.12.2 I_y (limiting values U_y):

(. 9.17.2).

3.4.13 *fit* [*fit* (Joule integral)]:

(^ .):

fit » *jfidt*.

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[IEV 441-18-23:1984]

3.4.14 (recovery voltage):

[IEV 441-17-25:1984]

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3.4.14.1

(transient recovery voltage):

[IEV 441-17-26:1984.]

3.4.14.2

(power-frequency recovery

voltage):

[IEV 441-17-27:1984]

3.5

3.5.1

(influencing quantity).

3.5.2

(reference value of an influencing quantity):

3.5.3

(reference conditions of influencing quantities):

3.5.4

(range of an influencing quantity):

3.5.5

(extreme range of an influencing quantity):

3.5.6

(ambient air temperature):

(

).

3.6

23F

3.6.1

(terminal):

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3.6.2 (screw-type terminal):

3.6.3 (pillar terminal):

1

2 IC.1 IC.

3.6.4 (screw terminal):

3.6.5 (stud terminal):

3.6.6 (saddle terminal):

3.6.7 (lug terminal):

IC. IC.4

3.6.8 (screwless terminal):

3.6.9 (tapping terminal):

3.6.10 (thread forming tapping crew):

1

2

3.6.11 (thread cutting tapping screw):

1

2

3.7

3.7.1 (operation):

		(. . .)	-
		(. . .)	-
3.7.2		(closing operation):	-
(IEV 441-16-08:1984]			
3.7.3		(opening operation):	-
(IEV 441-16-09:1984]			
3.7.4		(operating cycle):	-
3.7.5		(sequence of operations):	-
3.8			
3.8.1		(type test):	-
	()		-
3.8.2		(routine test):	-
3.9			
3.9.1		(insulation coordination):	-
(IEC 60664-1,	3.1]		
3.9.2		(working voltage):	-
(IEC 60664-1.	3.5]		
1			
2			
3.9.3		(overvoltage):	-
(IEC 60664-1,	3.7]		
3.9.4		(impulse withstand voltage):	-
[IEC 60664-1,	3.8.1]		
3.9.5		(overvoltage category):	-
[IEC 60664-1,	3.10]		
3.9.6		(macro-environment):	-
[IEC 60664-1,	3.12.1]		
3.9.7		(micro-environment):	-
[IEC 60664-1,	3.12.2]		
3.9.8		(pollution):	-
(IEC 60664-1.	3.11]		

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3.9.9 (pollution degree): -
 (IEC 60664-1, 3.13]

3.9.10 () [isolation (isolation function)]: -
 [IEC 60947*1, 2.1.19.]
 3.9.11 (isolation distance): -

[IEV 441-17-35:1984,]
 3.9.12 (clearance) (.): -

[IEV 441-17-31,]
 —
 3.

3.9.13 (creepage distance) (.): -
 (IEV 604*03-61:1987,]

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4.1

IEC 60364-5-53.

4.1.1 (3.3.4).
 4.1.2 (3.3.5).
 4.1.2.1

(. 8.12):
 a) ;
 b) .
 4.1.2.2 :
 a) (,),
 ;
 b) (,) -
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— 531.2.2.2 IEC60364-5-53:2001.

4.2 :
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4.3 :
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4.4
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4.5
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1 2.).

4.6
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- — S ;

4.8
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4.9
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4.10
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4.11
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- J;
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- L.

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5.1
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- (.4.2);
• (.4.3);

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	/ (. 5.2.2);		/ (. 5.2.3);
-			/ ₀ (. 5.2.4);
•	U_n (. 5.2.1);		
•	(. 5.2.5);		1 (. 5.2.6);
-			/ (. 5.2.7);
•	, (. 5.2.8);		
(. 5.2.9);	(. IEC 60529);		(. 5.4.2);
•			/ (. 5.4.3);
•	(. 4.9);		
-	(. 4.10).		
-			; (. 4.1.2).
5.2			
5.2.1			
5.2.1.1	(t_e)	(—)	-
			-
5.2.1.2	()		-
			-
5.2.1.3		($U_{отр}$)	-
			-
3.			
5.2.2	(/)		
5.2.3		(/)	(. 3.2.4),
			-
5.2.4		(/ ₀)	(. 3.2.5),
5.2.5			
5.2.6		(/)	(. 3.4.4),
		9.11.2.2.	

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5.2.7 (/) (3.2.3 3.4.4). -

9.11.2.3.

5.2.8 S (. 3.3.11) -

1 2. -

5.2.9 -

5.2.9.1 -

5.2.9.2 -

5.3

5.3.1 (1/)

	«	230 . 230/400 . 400 .	120/240 240 .
(-)	()	230	120
	(, , -)	230	120
	,)	400	240
	, . 3-	—	120/240
	(4-) (230/400) 230 -)	230	—
(-)	((3- 400 . 230/400 . 4- 240))	400	240
	(4-) (230/400)	400	—

1 IEC 60038 230/400 . -

2 220 240 . 380 415 . 230 400

3 100 . 100/200 . 200 . 120 . 120/240 . 240

4 100 120/208 . 240 -

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	—	()	,	.	-
5.3.2		(/)		:		
5.3.3		10, 13.16. 20. 25. 32.40. 63. 80.100, 125	.	(/)	:	
5.3.4		0,006; 0,01; 0,03; 0,1; 0,3; 0,5	.	0.5/		(I _{ino})
5.3.5	—	(. 3.1.4).				-
5.3.6	8	6/ .				-
5.3.7	-	(3.4.2.2)				-
5.3.8		6/ .		50 . 60 50/60	.	-
5.3.9	10/ 500	()	19.		-
5.3.10	/	10/ 500	()	19.	-
5.3.10.1		10 000		3000.4500, 6000. 10 000	.	-
5.3.10.2		10 000		1000; 1500:2000:2500; 7500; 9000		-
5.3.11	20 000	10 000	25 000	19.		-
5.3.11.1		10 000		3000.4500, 6000, 10 000	.	-

500.1000 1500

19.

5.3.11.2

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5.3.12

5.3.12.1

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		0.03	0.30	0.15	—	0.04	0.04	0.04	
		0.03	0.30	0.15	0.04	—	0.04	0.04	
S	25	0.03	0.5	0.20	0.15	—	0.15	0.15	
		0.03	0.13	0.06	0.05	—	0.04	0.04	

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9.9.2.4.

5.3.12.2

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		G...A	()							
				2'	2- '	4,		0.35	0.6	350
		0.03	—	0.3	—	0.15	—	—	0.04	0.04
		0.03	0.3	—	0.15	—	—	0.04	—	0.04
		0.03	0.3	—	0.15	—	0.04	—	—	0.04
S	25	0.03	0.5	—	0.2	—	0.15	—	—	0.15

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5.3.13

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4 »	—	120/240. 240 »	
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5.4

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5.4.1

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9.11.2.4.

9.11.2.1

5.4.2

(/)

5.4.3

9.11.2.4,

(/)

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IEC 60529

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^7)	5 ' 40 ' 2*	20'	+ 5'
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40 ' -	50 % ³⁾	—	—
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^A 2>	35 * .		-

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71

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2. . ..

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8.1

8.1.1

8.1.2

(. 3.3.15)
(. 3.3.14).

(, , .).

(. 3.3.12)

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(. 8.3).

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9.11.

[4.1.2.1,

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9.15.

8.1.3

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9.7.7.4.1

9.7.7.4.2.

9.7.1.

2 4 5 (

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9.7.2 (b).), d))] 9.7.1 2,4 5 5 -

- 9.7.2—9.7.6. : 16 -

• 9.7.7.2 9.7.7.2

), d).).

3 5

— 8.1.3.

9.7.7.2 9.7.1

2 IEC 60664-3.

() IEC 60664-1:2007 (4.8.1).

1 IEC 60664-1:2007 (5.3 6.1.3).

2 IEC 60664-1:2007

(3 F.2): « 0.04 F.4». -

1 60664-17007 (F.4).

IEC 60664-3. 2

3 IEC 60664-5. -

HL.2 HL.3.

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				<175 BS *to*** < 400)				<400 S < 000 ! '			1 <000BsCMT)«'					
	»W«>			*1												
	25	4	4.0													
	120/240 120	120/240 240	230/400 230.400	25 50*1	120	250	400	25 50*1	120	250	400	25 60>	120	260	400	
1	20	4.0	4.0	1.2	2.0	4.0	4.0	0.9	2.0	4.0	4.0	0.6	2.0	4.0	4.0	
2	15	3.0	3.0	1.2	15	3.0	4.0	0.9	1.5	3.0	3.0	0.6	1.5	3.0	3.0	
3		6.0	8.0	—	3.0	6.0	80	—	3.0	6.0	8.0	—	3.0	6.0	8.0	

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8.1.4 ,
 8.1.4.1 , -
 Inna. — (),
 9.4.
 8.1.4.2 — 9.8. 9.11—9.13 9.23. -
 8.1.4.3 -
 8.1.4.4 -
 • ;
 - 58 % ;
 50 % ;
 9.25. -
 8.1.5 , , , , , -
 8.1.5.1 -
 8.1.5.2 J. . L , , 9.5 , -
 6.

L.

IC.

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—	13	1.0—2.5	1.0—2.5
13	16	1.0—4.0	1.0—4.0
16	25	1.5—6.0	1.5—6.0
25	32	2.5—10.0	2.5—6.0
32	50	4.0—16.0	4.0—10.0
50	80	10.0—25.0	10.0—16.0
80	100	16.0—35.0	16.0—25.0
100	125	24.0—50.0	25.0—35.0
<p>9> , , -</p> <p>> , , 50 , -</p> <p>1 6 2 , -</p> <p>> 1.5 50 2 2</p> <p>IEC 60228</p> <p>AWG — ID.</p>			

8.1.5.3

8.1.5.4

8.1.5.5

8.1.5.6

8.1.5.7

9.5.

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9.4 9.5.1.

9.5.2.

9.4 9.5.1.

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8.1.5.8

9.5.3.

8.1.5.9

9.4.

8.1.5.10

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8.1.5.11

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(. 9.6).

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9.9.1.9.9.2.9.9.3 9.9.4,

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4.1		a
(4.1.2.1)	-	9.17.2.)
	-	9.17.2. -). 9.17.3
(4.1.2.2)		

8.13

9.18.

8.14

S

9.19.

8.15

9.9.3.

8.16

9.22 9.23.

8.17

()

9.24.

9

9.1

9.1.1

9.

9 —

1	9.3
2	9.4
3	9.5
4	9.6

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9

5	9.7
6	9.8
7	9.9
8	9.10
9	9.11
10	9.12
11	9.13
12	9.14
13	9.15
14	9.16
15 4.1.2.1	9.17
16	9.18
17	9.19
20	9.22
21	9.23
22 ()	9.24
23	9.25

9.1.2

— « » :

• , ()

8

4.

9.1.3

D.

9.2

20 °C 25 ' .

10.

20

10 —

t_n			S.
6	.		1.0
.6	13	.	1.5
.13	20	.	2.5
.20	25	.	4.0
.25	32	.	6.0
.32	50	.	10.0
.50	63	.	16.0
.63	80	.	25.0
.80	100	.	35.0
.100	125	.	50.0

AWG ID.

± 5 %.

9.8—9.10. 9.22.2 9.23

- 1
- 2

10^{-2}
 10^{-2}

11.

0.1 / ± 25 %.

2/3

9.10 9.11

9.3

15

0.1 %

15

(
29.

* 65 *

* 69 *

0.66 / ³).

9.4

8.1.4

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11.

6.

11 —

	... 0 1 .	1		II)
—	2.8	0.20	0.4	0.4
2.8	3.0	0.25	0.5	0.5
3.0	3.2	0.30	0.6	0.6
3.2	3.6	0.40	0.8	0.8
3.6	4.1	0.70	1.2	1.2
4.1	4.7	0.80	1.8	1.8
4.7	5.3	0.80	2.0	2.0
5.3	6.0		2.5	3.0
6.0	8.0	2.50	3.5	6.0
8.0	10.0	—	4.0	10.0

I

II

III

II III

III.

II.

II III

9.5

8.1.5

9.4.

6 (

6²

9.5.1—9.5.3

9.5.1—9.5.3.

9.5.1

6.

11. ... () -
 :
 - 1 6 2 ;
 - 1,5 50 2 ;
 - 1 35 2 .
 — AWG . ID.
 ,
 ()
 , 2/3
 11. , 12.
 1

12—

()	
1 4	50
.4 6	60
. 10	80
. 16	90
.16 50	100

9.5.2 6. - ,
 11. 2/3
 , , -

9.5.3 6. ,
 11. 2/3

9.7.2

30—60 , 9.7.1. 5

a) 500 — : -

b) — : -

c) — : -

d) -

) -

) -

« » : -

- : -

- : -

• , 8.2. : -

) -

() .

- 2) .);

- 5 .

9.7.3

1 , 9.7.2 9.7.2. () -

45 65 . -

0.2 . -

100 . -

- 2000 9.7.2. a)—d):

- 2500 9.7.2.).

5 .

0 1 61008-1—2020

9.7.4

a)

b)

c)

1 500 2 14. 14 —

	()	
0	30	600
30	50	1000
50	110	1500
110	250	2000
250	500	2500

20

1

2

3

4

9.7.5

9.7.6

• : 600j²⁵, .
— :
* : 5 %.
— (%)«¹-----100;
- : 12] .
1
, .
9.9.2.3.
9.7.7 ()
9.7.7.1
1.2 .
50 . :
±5% :
±30% :
±20% .
1
, .
500 .
— 9.7.7.2
2 .
, .
5 % .
10 % .
—
9.7.7.2
)—) 9.7.2 2 4 5
,
9.7.4.
—

0 1 61008-1—2020

16 —

16

3.

16

*) () () () , () , ()

• () () , () ()

() () ,

— () () .

— () () .

)—) 9.7.2.

16 —

%-	If,				
	200	500	1000	2000	
	2.5	2.9	2.8	2.8	2.7
4.0	4.9	4.8	4.7	4.4	4.0

9.7.7.3 ()

9.11.2.2, 9.11.2.3, 9.)—) 9.12.11.4.

1.1

2 .

9.7.7.4

9.7.7.4.1

9.7.1.

— S.7.7.4. 8.1.3.

9.7.1

22

22 / 3. -

22 —

	, 240 «				
	200	600	1000	2000	
	120/240»)	3.5	3.5	3.4	3.2
120/240,240 >	6.2	6.0	5.8	5.6	5.0

	U, 2,^0			
	200	600	1000	2000
	6.2	6.0	5.8	5.6
230/400	6.2	6.0	5.8	5.6
> >				

97.7.4.2 8

9.77.4.3

9.77.5

97.7.5

IEC 60664-1

1200 + t/0. U_Q—

1

2

1450 .

5

() ()

() ()

50/60

IEC 60364-4-44:2007 (44. 2).

9.7.7.4.3.

= 250

1200 + 250 .

9.9.2

9.9.2.1

S_1 , S_2 ,
0.2/ 1 30 -
/ / .

9.9.2.2

S_n , S_2 ,
1 1 , -

9.9.2.3

a)

1. S_1 , S_2 ,

b)

1. S_1 ,
1. S_2 ,
5 %.

9.9.2.4

5/ 500

5; 10; 20; 50; 100; 200 5 200 .
— 5:10; 20; 50; 100; 200
 S_1 , S_2 .

9.3.2.5

9.9.2.2 9.9.2.3,
9.9.2.3 S_1 ,
 S_2 .

9.9.2.6

a)

5* . 9.9.2.3. :

b)

40 °C,

1 1 .

30 .

0 1 61008-1—2020

30 .

5

50 60 .

(-

9.9.3

9.9.3.1

5.

S_1, S_2

0 . 90» 135».

I.

II -

S_3

1,4/ /30

$\delta > 0.01$ 2/ /30

$\delta \leq 0.01$.
20.

20 —

0°	0.35	1.4 2 (5.3.12)
90°	0.25	
135°	0.11	

9.9.3.2

5.

, S_1

S_2

2 -

= 0°

I

S_3 -

II

9.9.3.3

no 9.9.3.1

9.9.3.4

5

0,006

6

0,006 .

(-0°)

I II.

1,4/ /30 /

$\delta > 0,01$

2/ /30 /
1,4/ 2/ I_W

$\delta \leq 0.01$.

9.9.4

: 1,1 0,85

9.10

9.10.1

0.6 %

0.85 0.9.

10.

9.10.2

/ > 0.010

2000

1000

500

500

/

/ „ £ 0,010

500 — 750 — 750

- 2000

/ £ 25 ;

- 1000

/ > 25 .

-

1

/ £25 .

« .» 1.5 2 ;

-

1

/ > 25 .

« .» 1,5 2 .

9.10.3

9.10.2

*

-

*

-

no 9.9.2.3,

1.25/ .

9.7.3.

900 8

1 .

9.11

9.11.1

17.

0 1 61008-1—2020

17 — ,

/	9.11.2.2
<i>hm</i>	9.11.2.3
/	9.11.2.4,)
1	9.11.2.4,)
-	9.11.2.4)

9.11.2

9.11.2.1

9.11.2

)

7. 8 9

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S

(.3.4.8)].

Z,

[

Z_y / Z_z

L

R.

0.6 %

R.

L

[. 9.11.2.2,

)

S

9.11.2.3,

))

Z

Z_y

9.11.2.4,

),)

0,75

6.

0.5

0.25 —

18 —

1.1

18 —

ft /

18.

18.

18.

		«								
		16	20	25	32	40	63	60	100	125
500	.	0,45	0.47	0.5	0.57	—	—	—	—	—
	ft. ²	0.4	0.45	0.53	0.68	—	—	—	—	—
1000	.	0.65	0.75	0.9	1.18	—	—	—	—	—
	ft. ²	0.5	0.9	1.5	2.7	—	—	—	—	—
1500	/.	1.02	1.1	1.25	1.5	1.9	2.1	—	—	—
	ft. ²	1	1.5	2.4	4.1	9.75	22			
3000	'„	1.1	1.2	1.4	1.85	2.35	3.3	3.5	3.8	3.95
	ft. ²		1.8	2.7	4.5	8.7	22.5	26	42	72.5
4500	/.	1.15	1.3	1.5	2.05	2.7	3.9	4.3	4.8	5.6
	ft. ²	1.45	2.1	3.1	5.0	9.7	28	31	45	82.0
6000	v	1.3	1.4	1.7	2.3	3	4.05	4.7	5.3	5.8
	ft. *	1.6	2.4	3.7	6.0	11.5	25	31	48	65,0
10 000	/.	1.45	1.8	2.2	2.6	3.4	4.3	5.1	6	6.4
	ft. ²	1.9	2.7	4	6.5	12	24	31	48	60.0

— ft /.

Pt /

0 1 61008-1—2020

50

100

100

1

()

4.1.2.1.

b)

4.

(0...+ 5) %;

9.2;

(0,05 ... 0) %;

() ± 5 %.

c)

1

19.

19 —

500	0.95—1,00
. 500 1500	0.93—0,98
. 1500 3000	0.85—0,90
. 3000 4500	0.75—0,80
. 4500 6000	0.65—0,70
. 6000 10 000	0.45—0,50
. 10 000 25 000	0.20—0,25

d)

105 %

— 105 %

0.1

G₂

9.11.2.4,
G₂

Z

9.11.2.2. 9.11.2.3, 9.11.2.4.
Z₂ / Z₁

),)

(I₁ / I₂)

9.11.2.1,

f). 1),

9.11.2.1.

9.11.2.1.
f). 1).

f). 2)

1)

()

()

()

()

()

()

()

()

R'

7

1.5

F'

()

230 . 0.16

50

0.12

400

1500

« »

35

« »

40. 45.

50. 55

2)

. 1.

()

()

()

()

9.1 U.1.

f). 1).

7 8.

R.

10 « 1.

)

—

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t — (— 9.11.2.4):

3

h)

F .

l)

). 9.11.2.4.). 9.11.2.4.). 9.11.2.2. 9.11.2.3, 9.11.2.4.

• 9.7.7.3;
9.7.3

2 24 1 ;

), 9.7.2,

9.7.2,).

1,25/ 9.9.2.3.)

9.17.

j)

1)

30.

2)

(2 30).

9.11.2.2 (l)

a)

9.11.2.1.

G_1

S,

b)

R_{21}

$10i_{in}$

S,

9.11.2.3

(/)

8

a)

9.11.2.1.

Z,

G,

S,

b)

$(45 \pm 5)^\circ$

c)

IT

105 %

105 %

N

5.3.9

500

101 .

8.

O — t —

(. . .2)

30*

$\pm 5^\circ$

9.11.2.4

(. 5.3.10).

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(. , 17) , 9.11.2.1:

[9.11.2.4.)] , -

/ . -

- [9.11.2.4,)] , -
- [9.11.2.4.)] , - ; i_m

/ ,

(45 ± 5) .

a) (/)

1) G, S, : -

2) : -

b) (/)

1) G, S, : -

2) : -

O — t—CO—t—CO.

c) <7 J

1) , 9.11.2.1. -

, , -

, -

G, S, -

2) : -

— — —/— .

9.12

9.12.1

9.12.1.1

14. -

. , -

. , -

D. -

25 / .

	180	:		,					-
			200	.					-
		,			<i>D</i>	,		25	.
9.12.1.2									-
	50							40	-
V									-
							50		,
							90°		-
	200								-
					: 50				-
	50								-
9.12.2									-
									(
8.2).									,
9.12.2.1					:				
- 9.12.2.2 —					:				
- 9.12.2.3 —									
									,
9.12.2.1									
15—17.									
								10	.
	100 HRC.						(150 ± 1)		-
					9			0.5	.
									-
									(
									1000 * 1)
									-
									:
									(12.7 ± 0.0025) :
									(100 ± 2) :
									(500 ± 2.5) .
									-
									ASTM D 785-08.
									-
									1.9
2 .									-
									175 * 175
8 .									,
									-
									17.
									(10 ± 1)
									-
									,
									18.
									,
									19.

0 1 61008-1—2020

18 19.

2/3 11. 10

10

60° 90°

8.1.3.

9.12.2.2

50 (. 50 . 1 1 -
20).) -
9.12.2.3 , . -
— . -
9.13 -
9.13.1 , , 1 1 (70 ±2) °C. -
(100 ±2)' : . , 1 () , -
, , () , -
, , , , -
, , 5 . -
, 1.251 . 9.9.2.3.). -
, , , -
9.13.2 . , -
, , 21. , , -
, , 9.13.3. -
20 5 . , -
1 (125 ±2)' . 10 -
9.13.3 2 . -
, , 9.13.2. -
{70 12} °C {40 ± 2} 9.8. -
— 9.13.2 9.13.3 -
9.13.2 9.13.3 , -
, 9.13.2 9.13.3. -
9.13.2 9.13.3. -
9.14 -
IEC 60695-2-10 : -
{960 ± 15}- ; -

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•
(650 ± 10) *

8

()

(. IEC 60695-2-11:2000. 4).

30

9.15

9.15.1

9.15.2

1.51 ,

4.

S₂

1

1

2

9.16

- a) 25 , 0.85 5 . , -
- b)) , 1.1 -
- c)) , . -
- 2.5- , - , -
- / , -

9.10.

- 9.17 ,
- 4.1.2.1,
- 9.17.1 () -
- 30 , -
- (. 8.12). , .
- . 0.85 , 0.85 .
- 1. , / . -

9.17.2

- a) , 0.5 . -
- b) , -
- $U?$ (. 3.4.12.2) .

9.17.3

- 4) .
- S_3 .

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	(. 8).		-
9.9.2.		S_3	-
—	30 ,	9.9.2.1.	-
9.17.4	8		-
	(. 4.3)		-
9.9.2.3.	4.		-
9.17.5			-
9.18			-
—			-
9.18.1			-
61 .			1
	1 .		-
	(.)		-
9.18.2			-
	22.	61 .	-
R		D	-
—		S.,	-
1 .			1
			-
	(.)		-
9.19			-
9.19.1	0,5 /100)	(-
		23.	-
24.			-
		30 .	-

- 200 *10% 25 *10% ! / . :
 ! „ s 10 :
 • 0.5 ± 30 %:
 • 10 ± 20 %:
 60 %
 9.9.2.3 / , ^ -
 9.19.2 3000 (-
 8/20)
 9.19.2.1 -
 (IEC 60060-2). 28. , 8/20
 29. -
 30 . -
 • 3000 * 10 %: / / . :
 • 8 ± 20 %:
 - 20 ± 20 %:
 30 %
 9.19.2.2 1 / S , 30 %
 9.9.2.3 !
 9.19.2.3 -
 9.9.2.3 / -
 9.20 -
 9.21 , -
 9.22 -
 9.22.1 9.22.2.
 9.22.1 IEC 60068-2-30 IEC 60068-3-4.
 9.22.1.1 4 IEC 60068-2-30:2005.

IEC 61008-1—2020

500
100

pH -7 ± 0.2 .

pH 7.0 ± 1.0 .

9.22.1.2

9.22.1.3

IEC 60068-3-4.
a)

IEC 60068-2-3:2000 (4)

9.9.2.3,

1
b)

1)

2)

(25).

(25 ± 3) :

l)

)

(25 ± 3) “

(4).

95 %

(25 ± 3)’ .

3)

24-

(26).

i)

9.22.1.2.

± 30

26.

95 %.

95 %.

»

)

± 2 °C

12 ± 30

(93 ± 3) %.

15

90% 100 %.

in)

15
3—6

(2513) °C.

26.

1.5
(25 ± 3) °C

± 15

95 %.

iv)

15

90 %.

(25 ± 3) °C

95 %.

24-

9.22.1.4

4—6 ()

) 28

9.22.1.5 9.9.2.3 1,25/ -

9.22.2 40 "

20 () 1

10. 2/3 11.

(40 ±2)⁹ 28

21 21-

65 ()

1251 9.9.2.3

9.23 168 (40 ±2)⁹ -

1.1 -

() -

9.9.2.3 1.251

27.

9.24 ()

9.24.1 21.

21 —

(81543 1995. » 4 5 1:2004		no (61000-1
1.3		9.9.4 9.17
1.4		9.9.4 9.17
1.5		9.2
1.8		9.11 9.18
2.4		9.19

IEC 61008-1—2020

9.24.2

23.

.1 J.

23 —

IEC 61543

(IEC 61543 1995, 4. 6 1:2004	
1.1	,
1.2	,
2.3	/ -
2.1	
2.5	
2.2	
2.6	150
3.1	

IEC 61543

CISPR 14*1.

9.25

10

10

10%-

(20 ± 5) °C

10

(20 ± 5) °C.

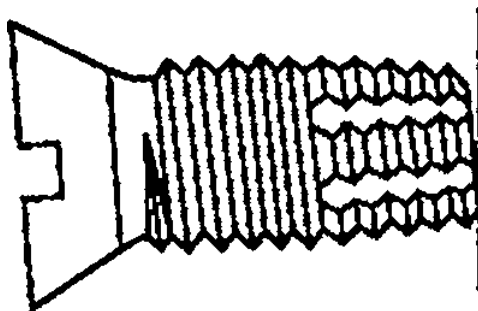
10

(100 ± 5)



1 —

(3.6.10)



? «2»

(3,6,11)

S

«



$$w \frac{mt}{D}$$

4m

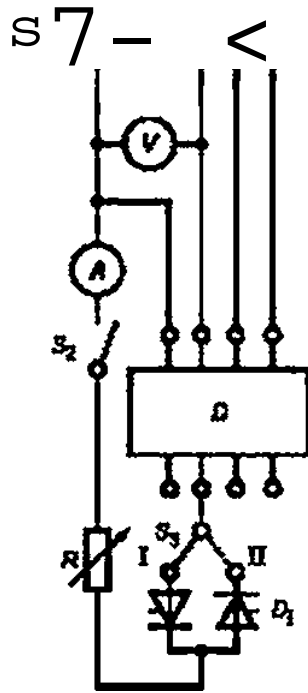


S— . Sj— . V— , . A— ; \$,— : — . S₃— ;
 — Sj , 9.17.3. (9.9).
 — (9.15), (9.17.3 9.17.4) .

0 1 61008-1—2020

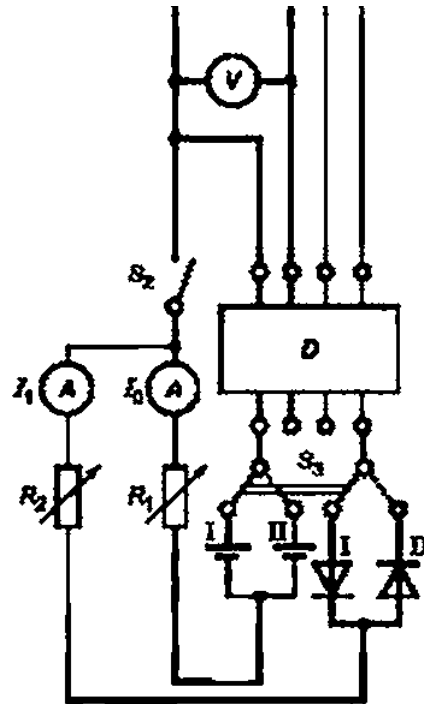
8

«



S — ; V — , — () ; —
 — ; — ; S₁ — ; S₂ —
 S₃ — ; N —
 5 —

$t^* \sim \rightarrow S$
 « 009



S — ; A — (; — 8 .
 ; (?„ Sj — ; S1 « ; — :
 3 — ; N —

6 —

0.006

0 1 61008-1—2020

7—9:

N — ;
 S — ;
 R — ;
 Z — ;

Z_y — ;

$Z?$ — 1 :

D — 8 ;

G_1 — ;

G_2 — * ;

I_1, I_2, I_3 — ;

I_4 — ;

$U_{r_1}, U_{t_2}, U_{t_3}$ — ;

F — 10 :

R_2 — , F ;

— , 0.6 % (. 9.12.2);

— ; () , ;

L — ;

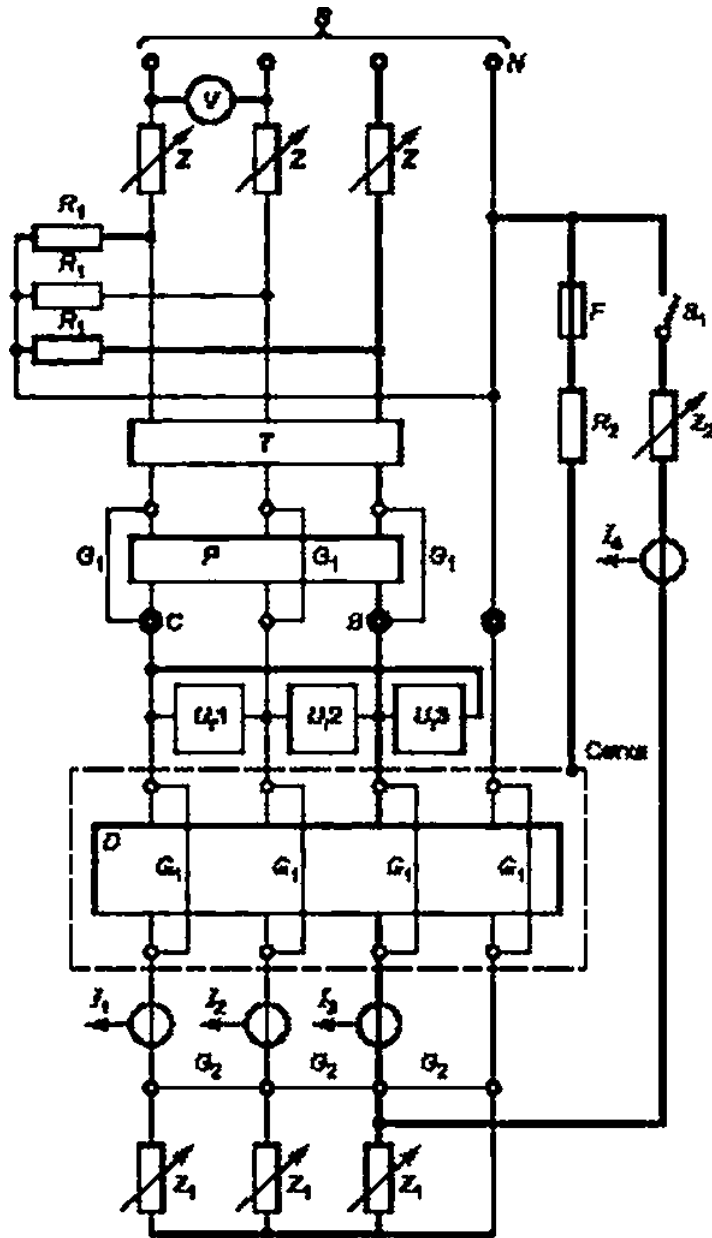
— .

1 » I_2 I_3 7

2 $U_{r_1}, U_{r_2}, U_{r_3}$.

3 Z .

4 R_y .



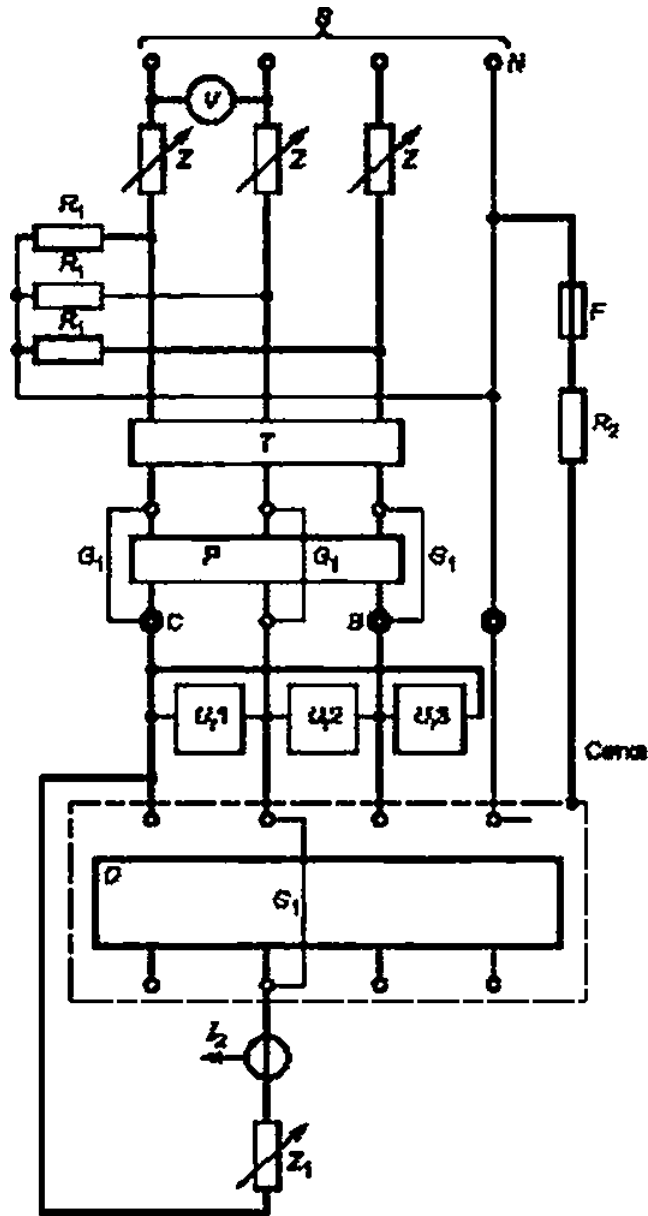
? —

)

, Г О С W

0.11.2.3,

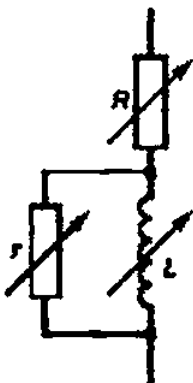
0 1 61008-1—2020



8 —

9.11.2.3.

)



9—

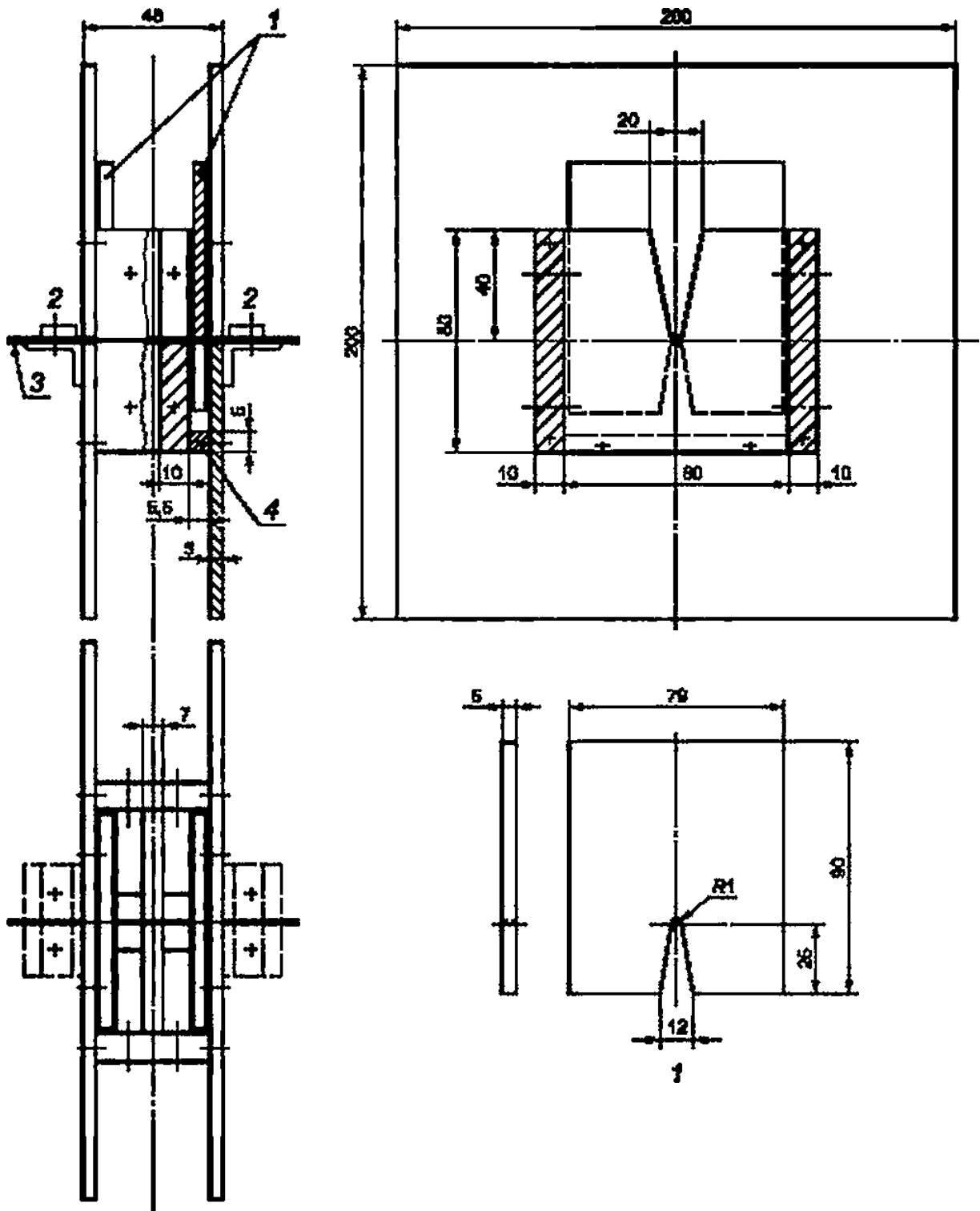
Z Z^

10— .

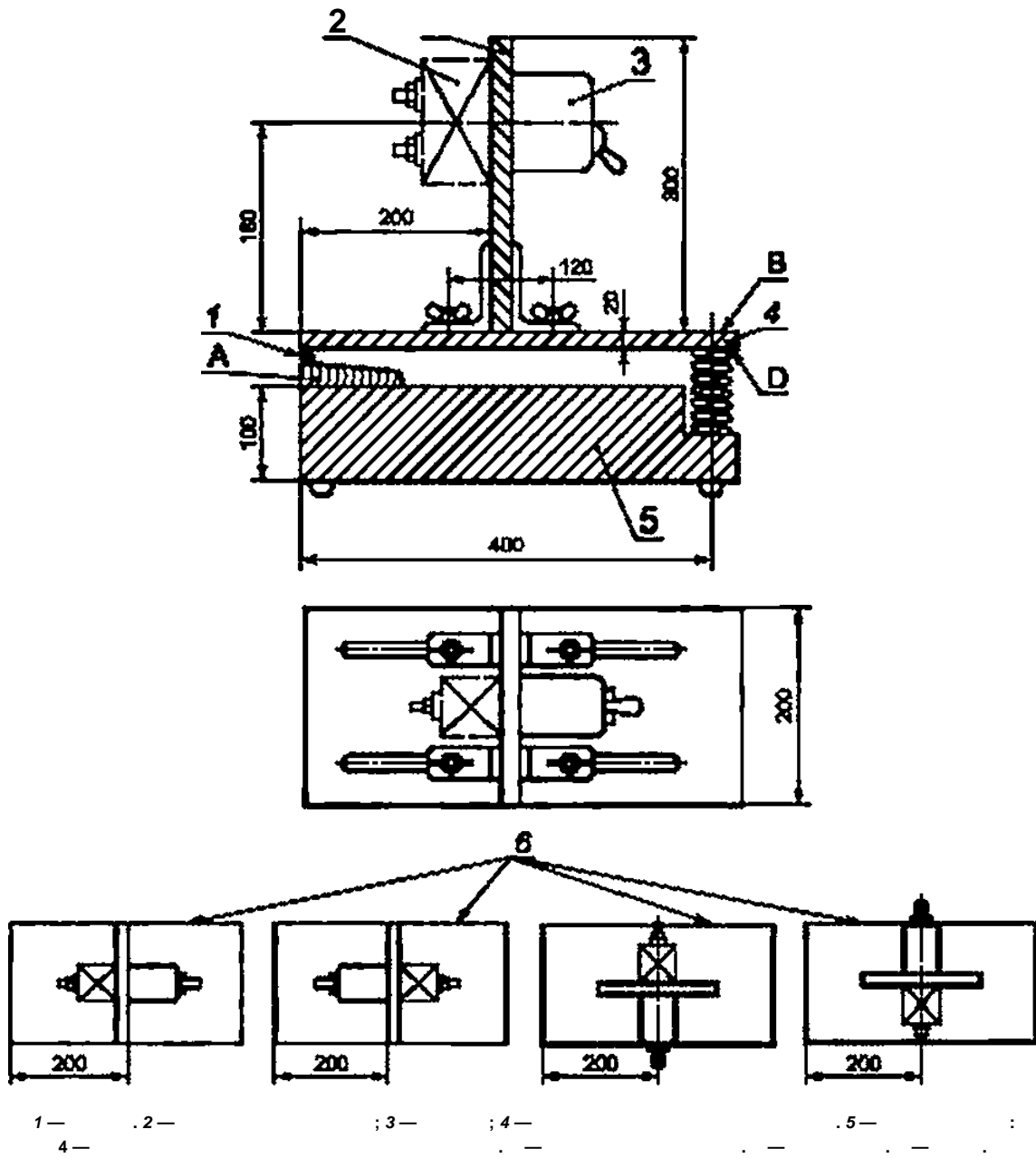
11— .

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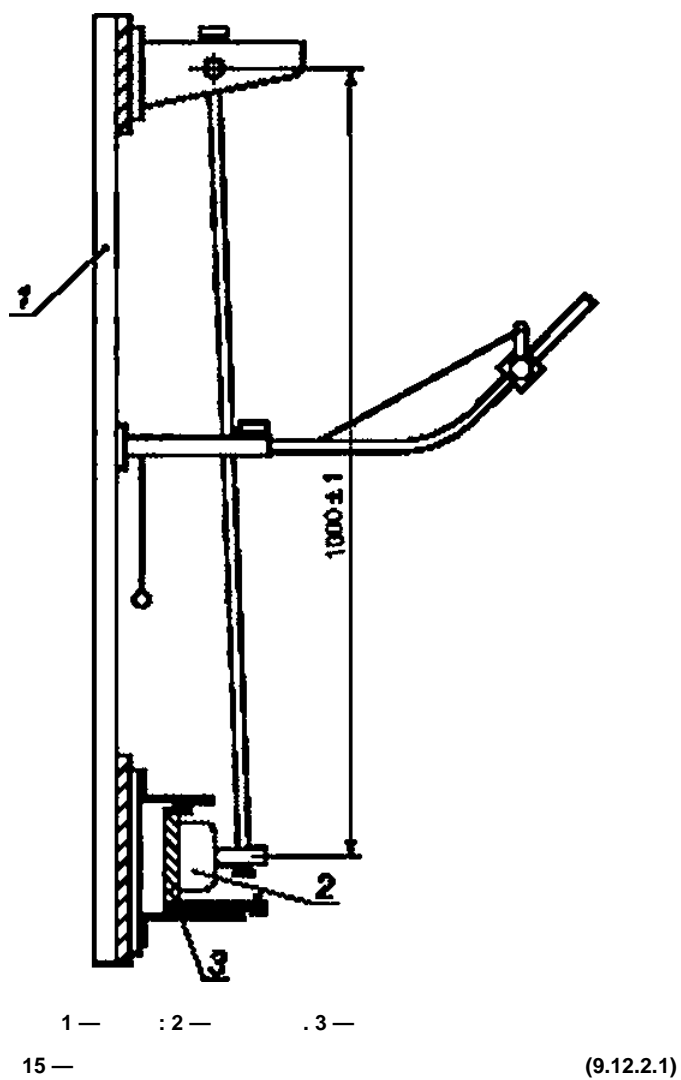
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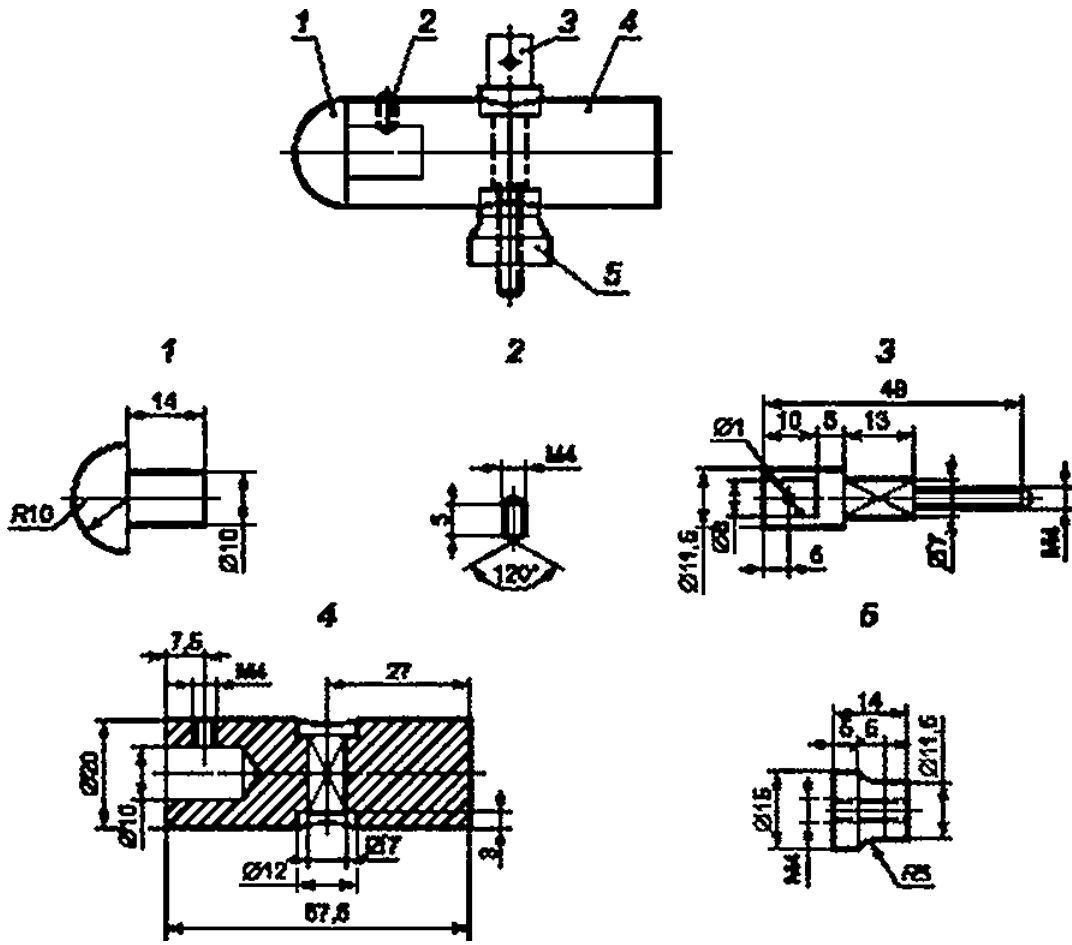


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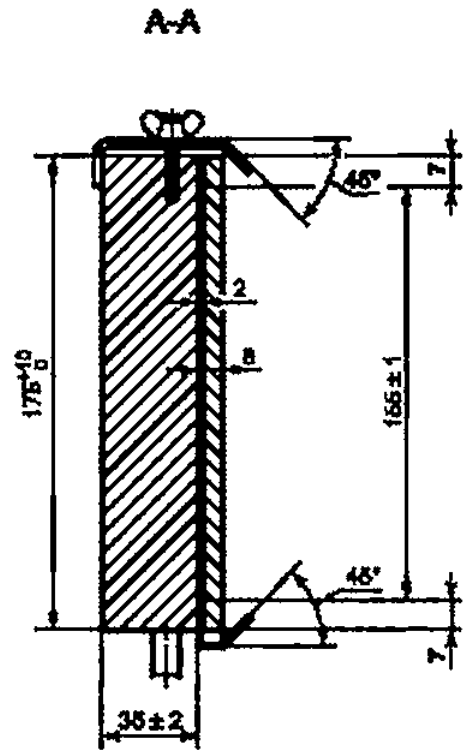
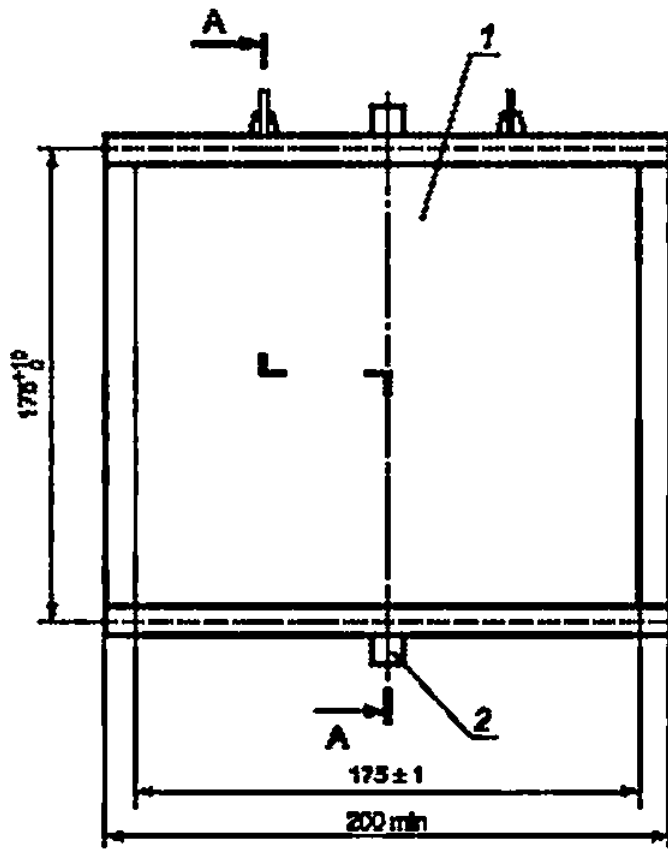




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Размеры в миллиметрах

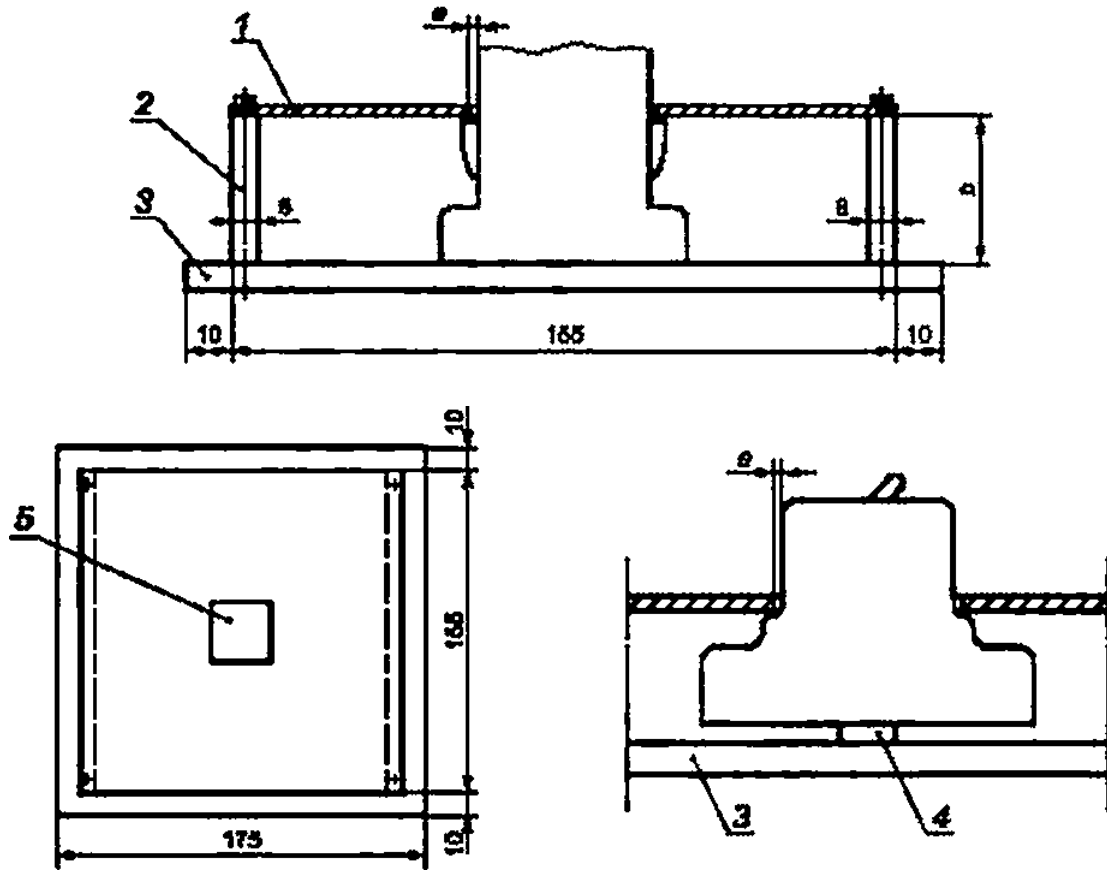


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Размеры в миллиметрах



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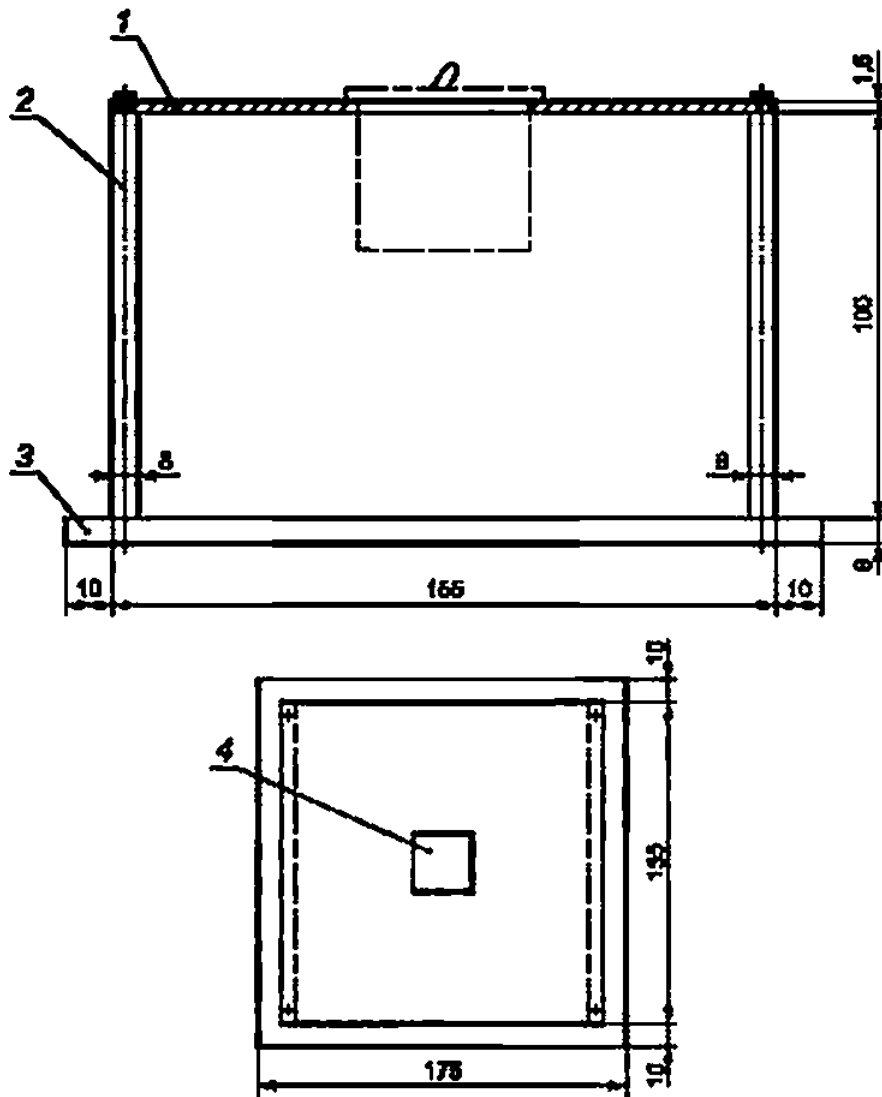
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Размеры в миллиметрах



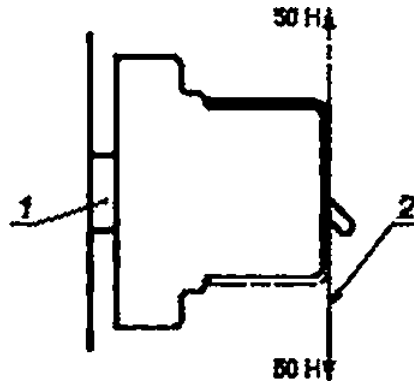
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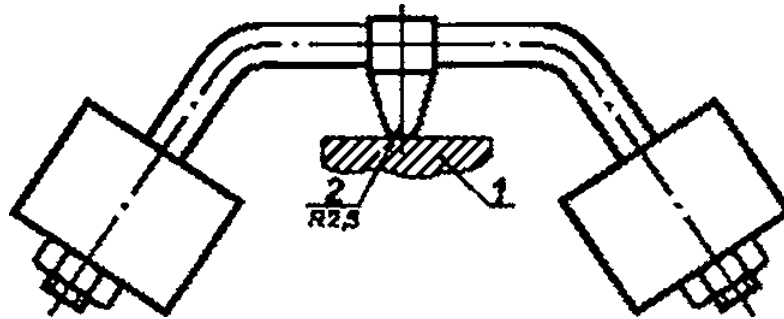
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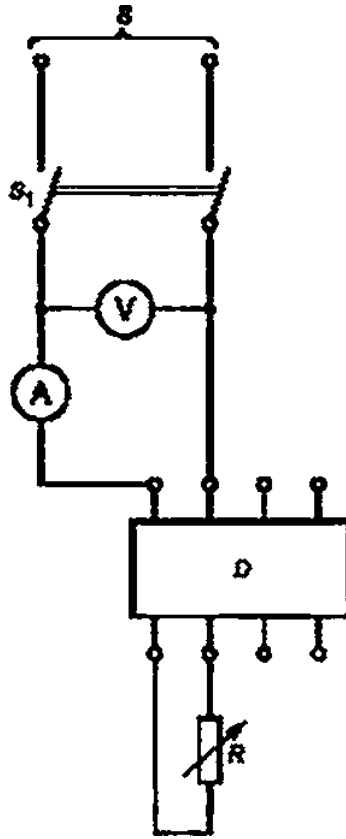
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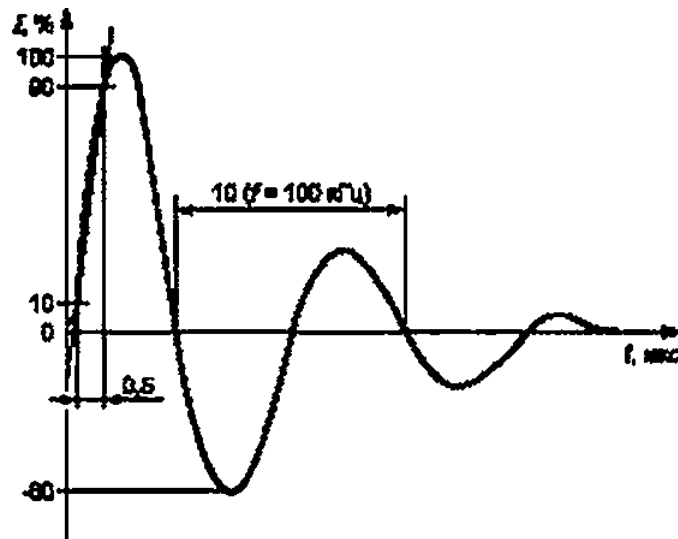
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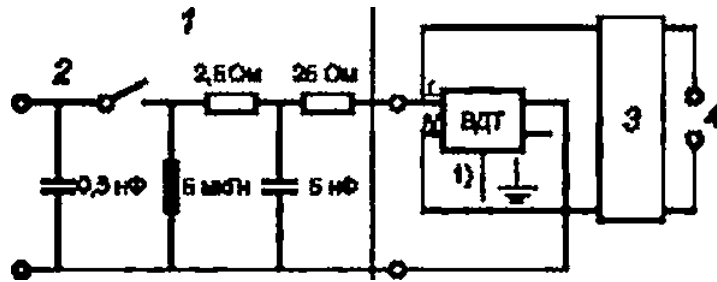


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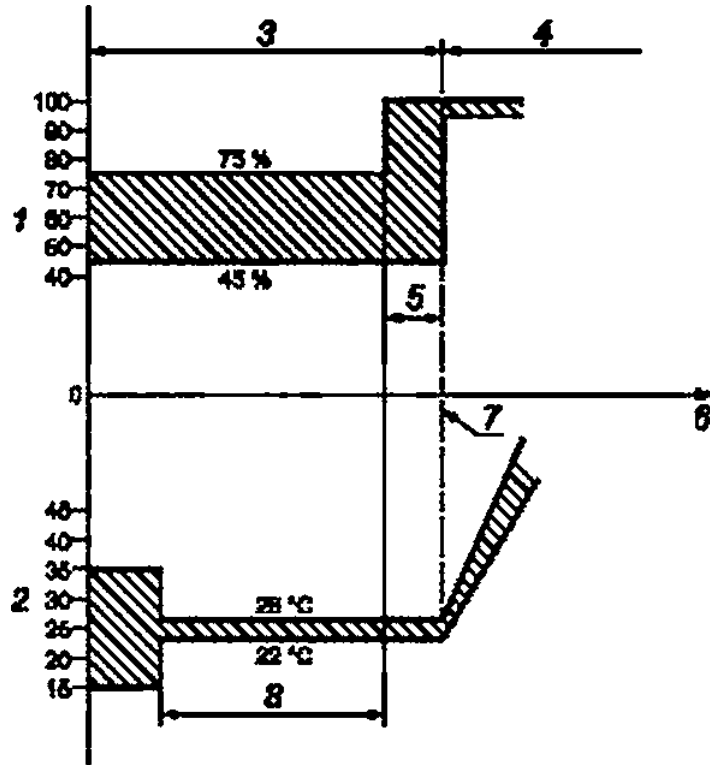
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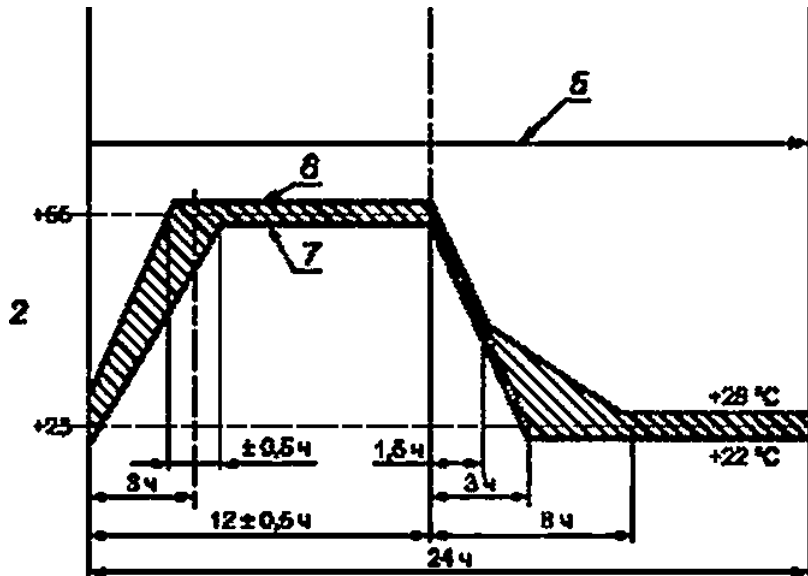
1 — температура в месте измерения; 2 — температура в месте измерения; 3 — температура в месте измерения; 4 — температура в месте измерения; 5 — температура в месте измерения; 6 — температура в месте измерения; 7 — температура в месте измерения; 8 — температура в месте измерения

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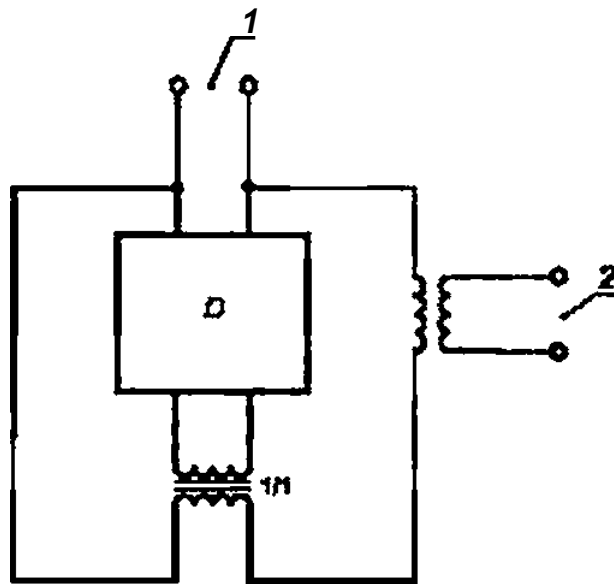
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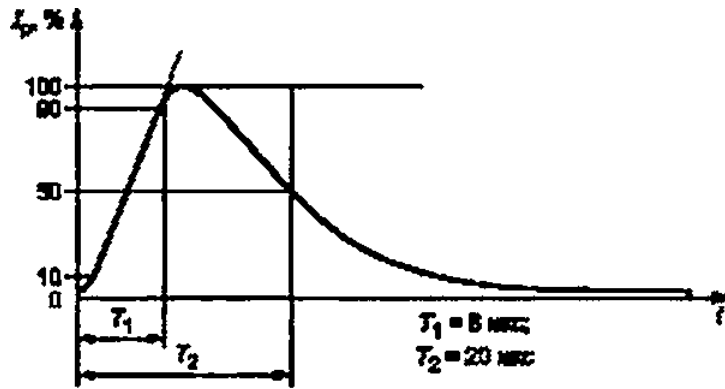
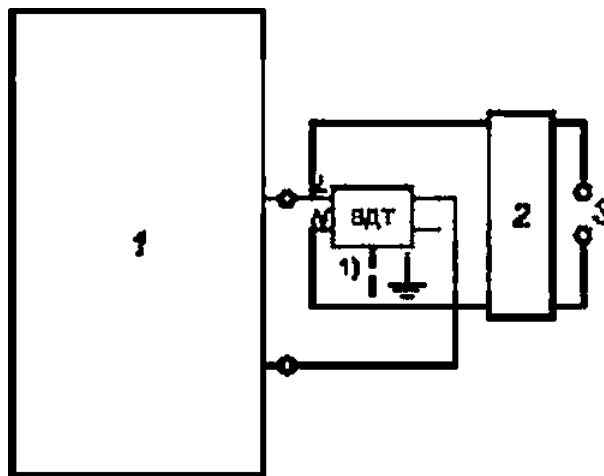


Рисунок 28 — Бросок импульсного тока 8/20 мкс



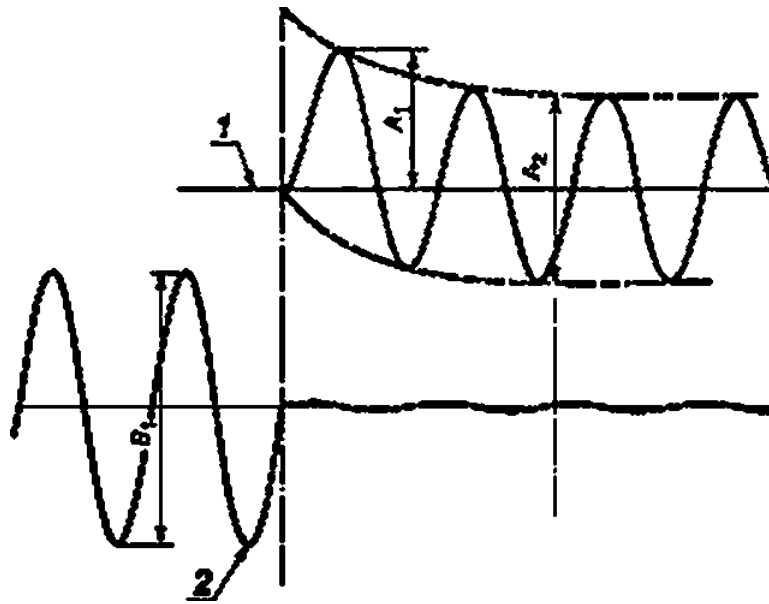
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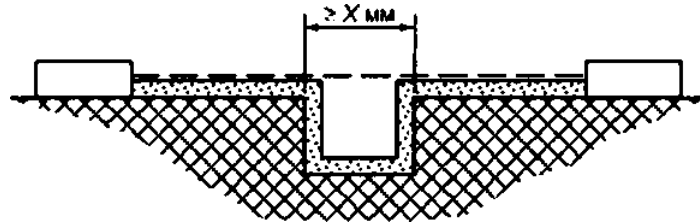
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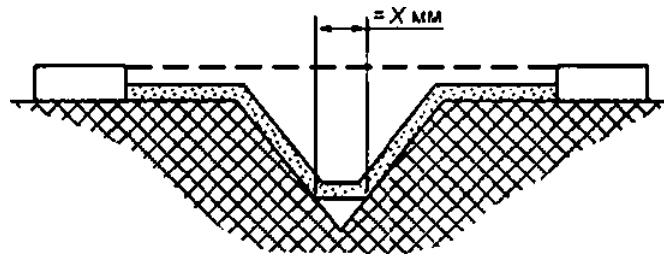
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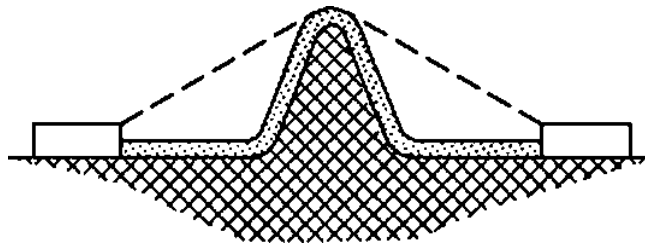
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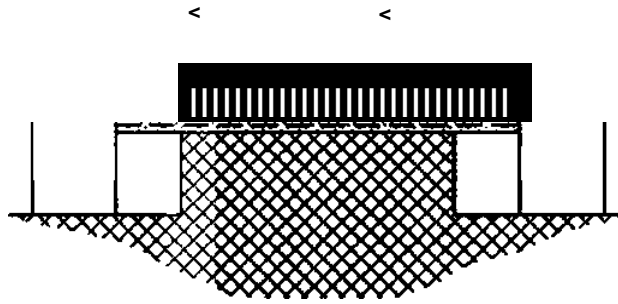
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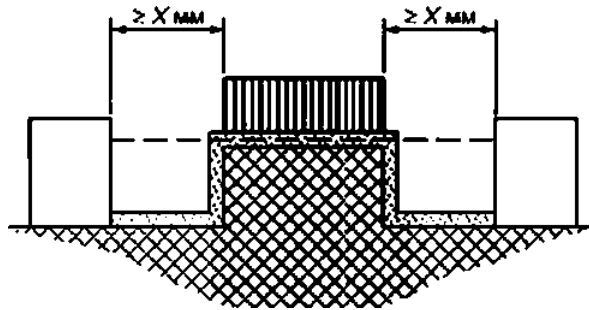
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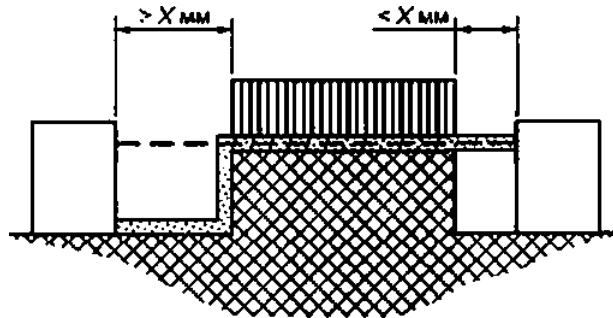
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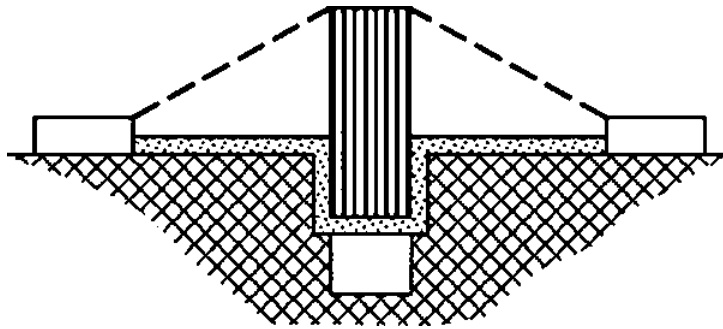
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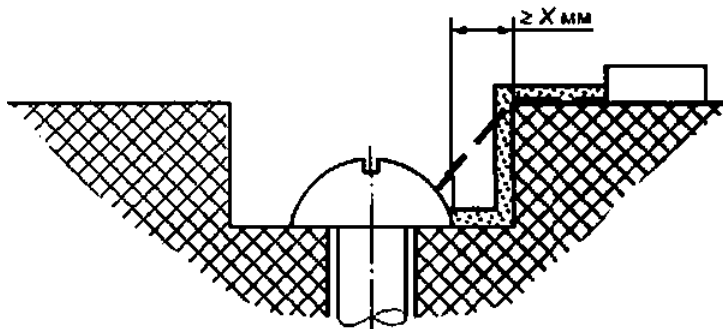
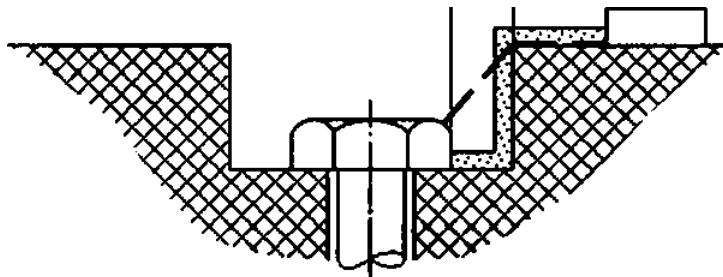


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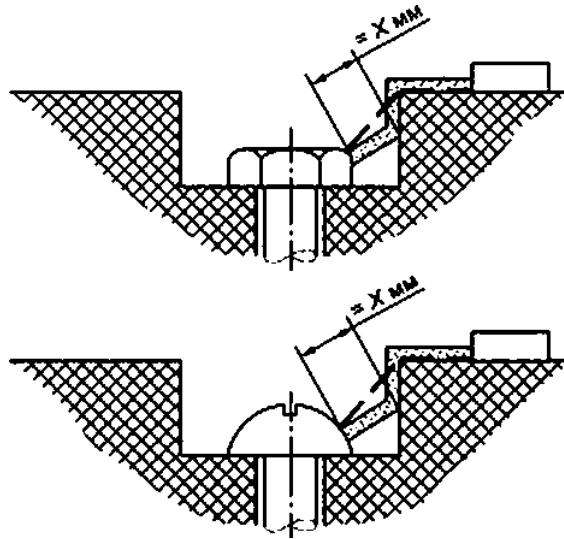


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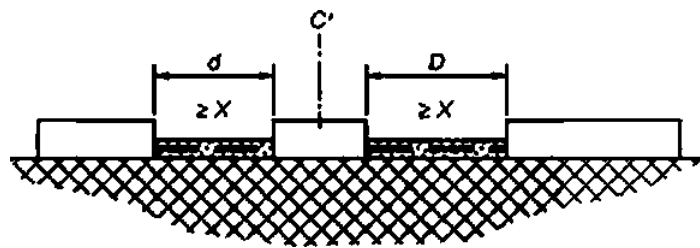
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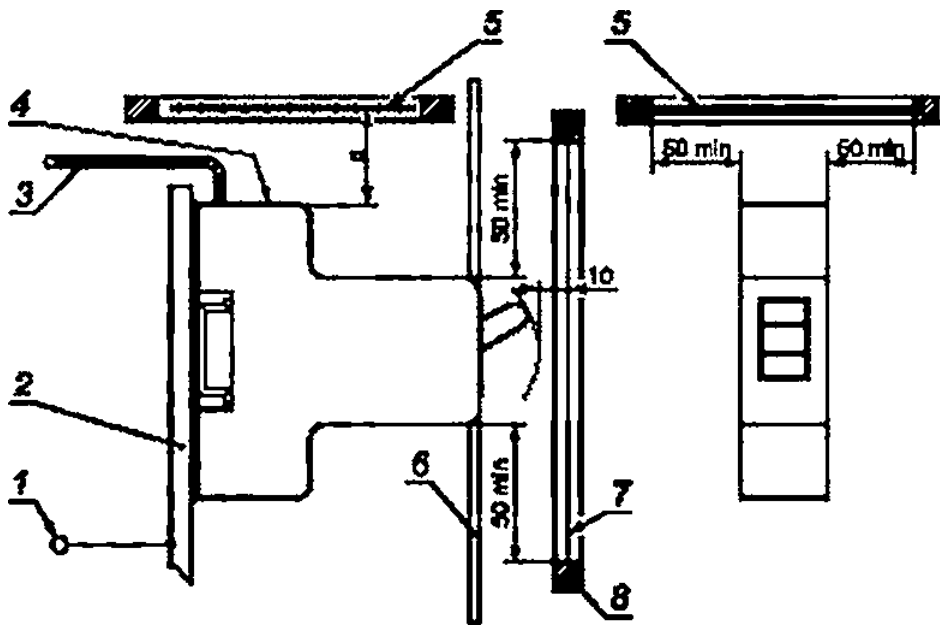
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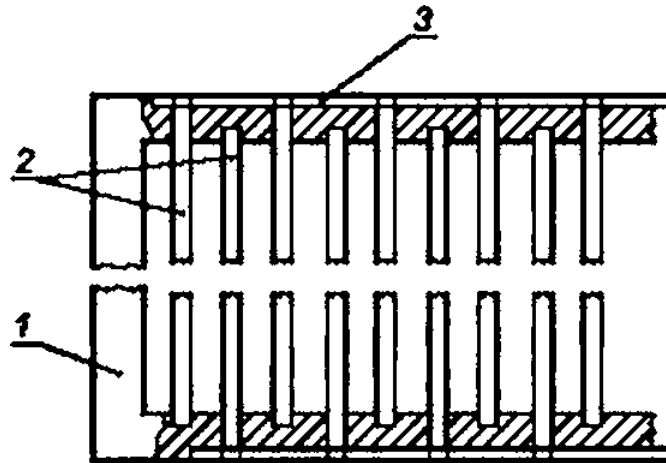
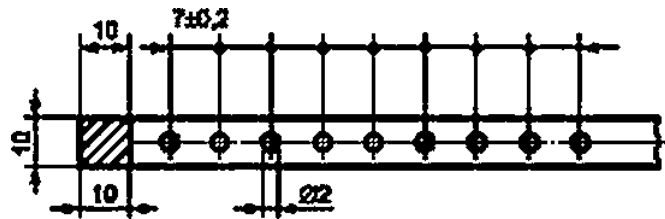
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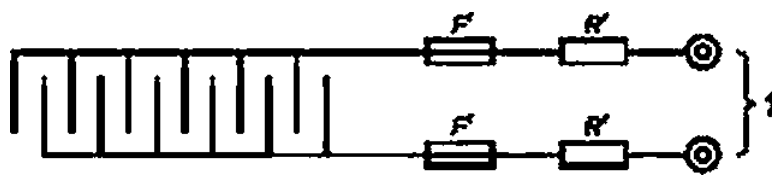
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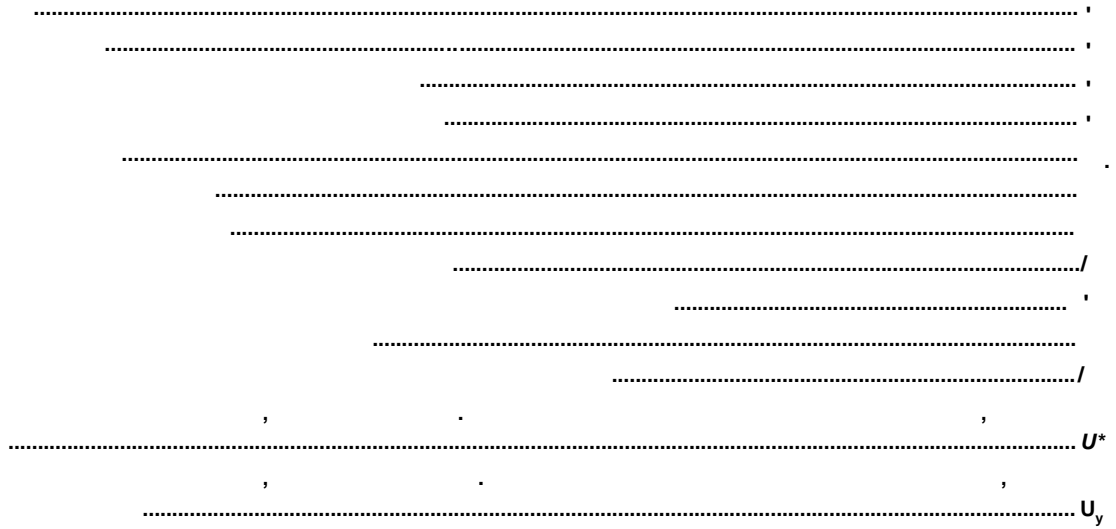
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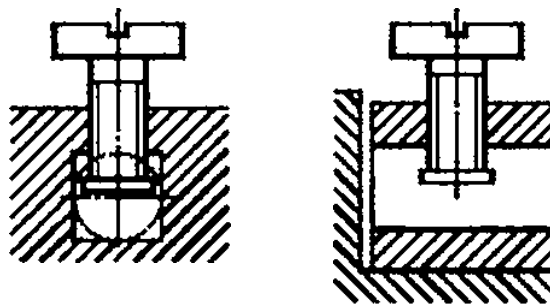
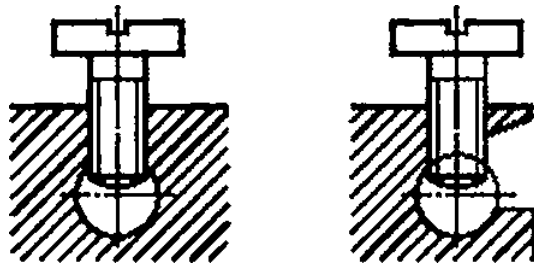
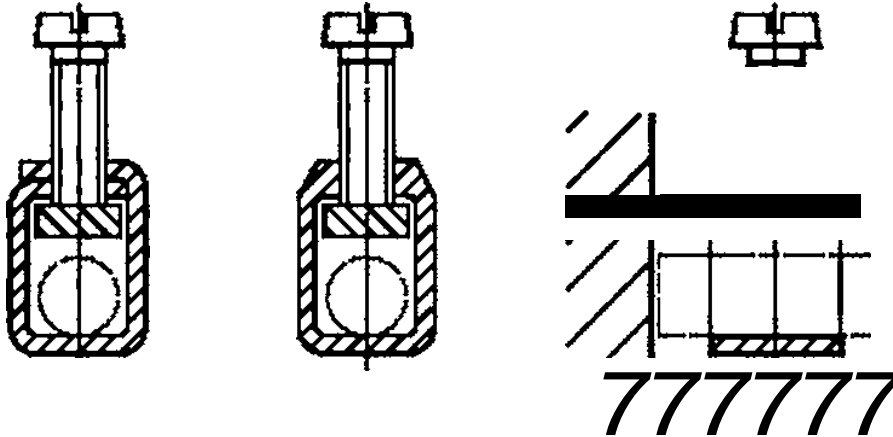
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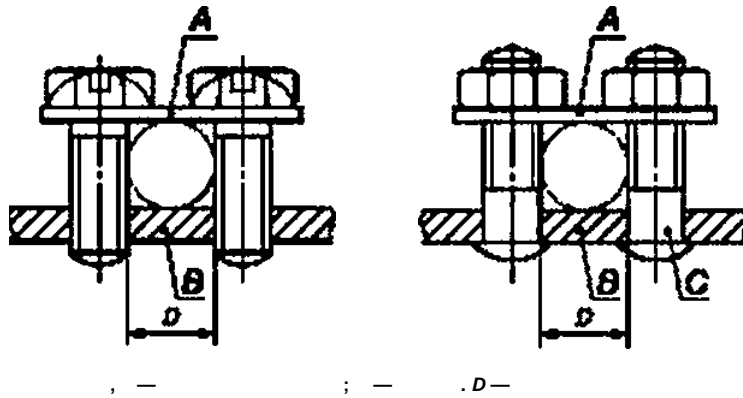
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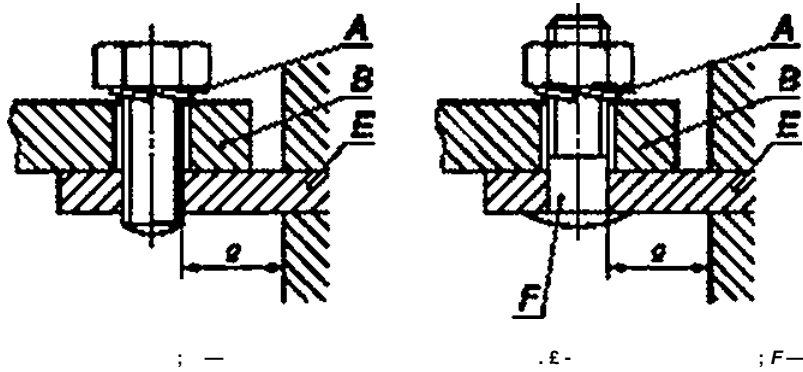


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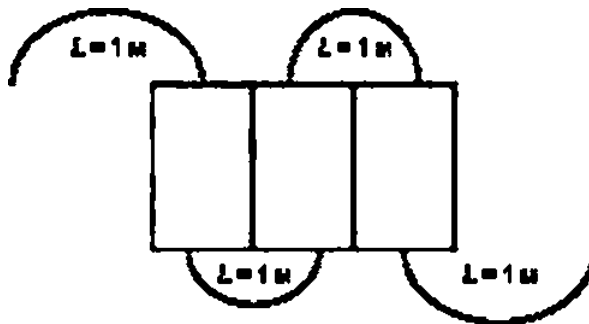
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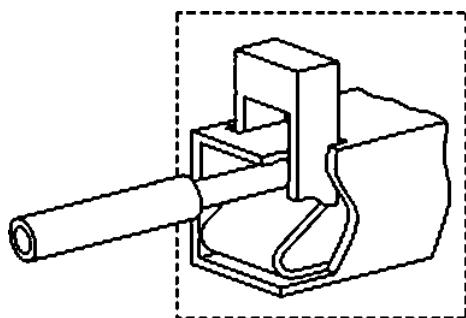
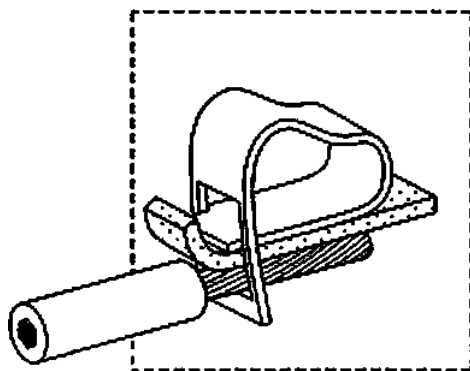
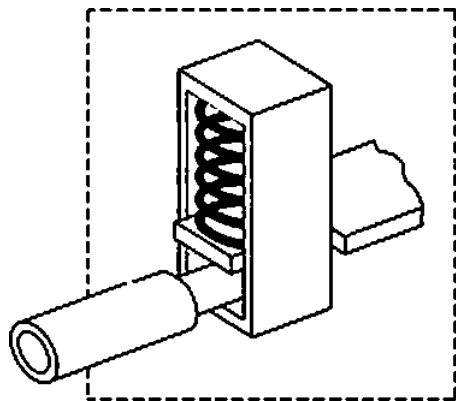
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J.10

IEC 60228:2004. Conductors of insulated cables ()

IEC 60998-1, Connecting devices for low-voltage circuits for household . similar purposes — Part 1: General requirements (.

1.)

IEC 60998-2-2. Connecting devices for low-voltage circuits for household and similar purposes—Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units (-
2-2. -

IEC 60999 (parts). Connecting devices — Electrical copper conductors — Safety requirements for screw-type and screwless-type clamping units [.

()]

ASTM 172-01 , Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Members, for Electrical Conductors (

)

ICEAS-19-81/NEMA WC3^{1*}. Rubber-Insulated Wire and Cable ()

ICEA S-66-524/NEMA WC7²⁾, Cross-Linked-Thermosetting-Polyethylene Insulated Wire and Cable (-
)

ICEAS-68-516/NEMA WC8¹⁾, Ethylene-Propylene-Rubber-Insulated Wire and * (-
-)

¹¹ .

²⁾ WC7-1988/ICEAS-66-524 Cross-Linked Polyethylene Insulated Wiresion & Distribution.

IEC 61008-1—2020

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IEC 61210. Connecting devices — Flat quick-connect terminations for electrical copper conductors — Safety requirements ()

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(flat quick-connect termination):

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(mate tab):

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(female connector):

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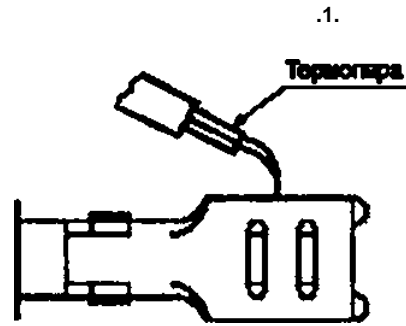
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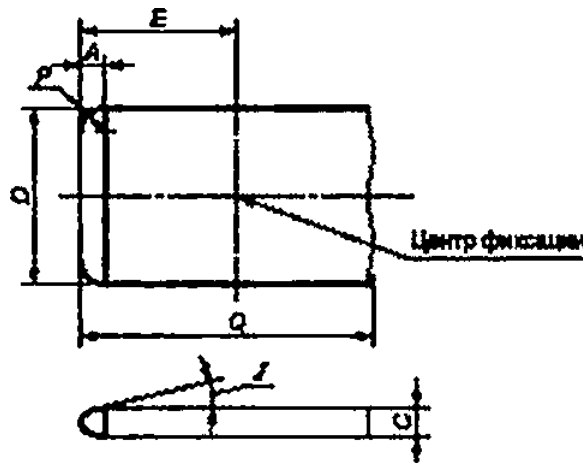
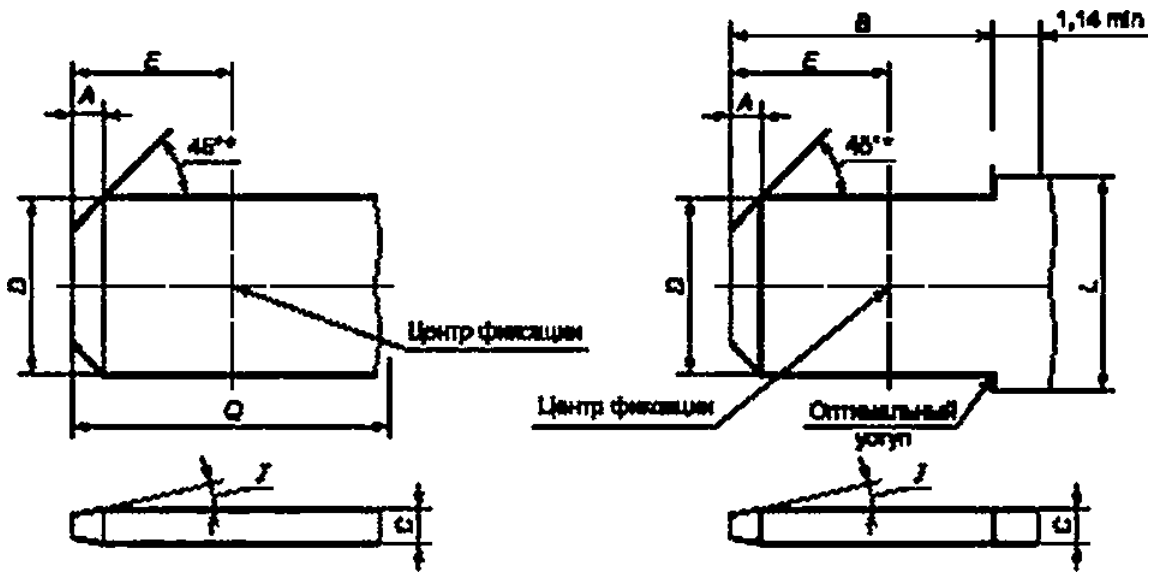
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9.8.3:



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			min		ε>	ε	F	J		N		mtn
6.3 X 0.8		1.0	—	0.84	6.40	4.1	2.0	12°	2.5	2.0	1.8	—
		0.7	7.8	0.77	6,20	3.6	1.6	8°	2.2	1.8	0.7	8.9
		1.0	—	0.84	6.40	4.7	2.0	12°	—	—	1.8	—
		0.5	7.8	0.77	6.20	4.3	1.6	8°	—	—	0.7	8.9
1	—Q											
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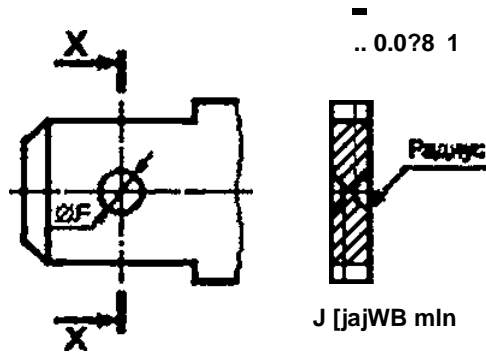


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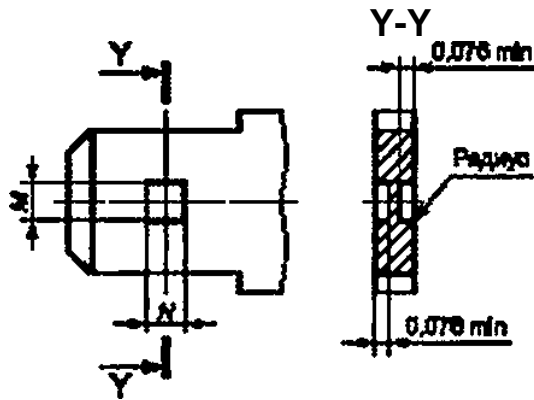
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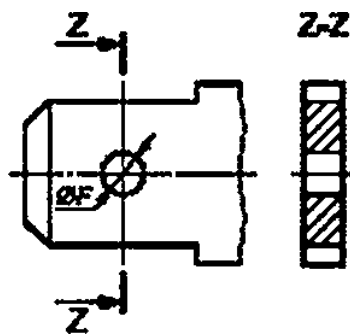
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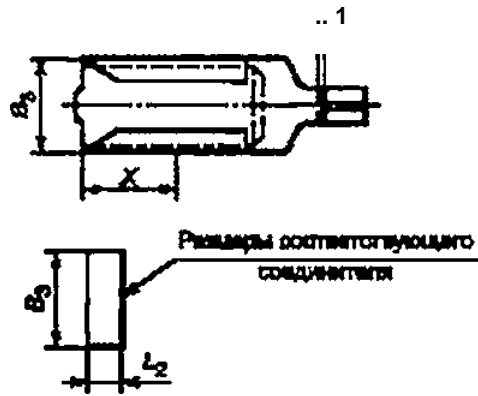
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I 61210:2010, Connecting devices — Flat quick-connect terminations for electrical copper conductors — Safety requirements (

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IEC 61545:1996. Connecting devices — Devices for the connection of aluminium conductors in damping units of any material and copper conductors in aluminium bodted clamping units (

L.3

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L.3.1

(treated conductor):

L.3.2

(untreated/unprepared conductor):

L.3.3

() (equalizer):

L.3.4

(reference conductor):

L.3.5

, S* (stability factor (S'))]:

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	Al/Cu

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6*			^	
13			1.0	4.0
13	16		1.0	6.0
16	25		1.5	10.0
25	32		2.5	16.0
32	50		4.0	25.0
50			10.0	35.0
	100		16.0	50.0
100	125		25.0	70,0
50				
			1,0	10.0 *
>			5	0.21 61545:1996.

8.1.5.4

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no L.9.2

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L.3 —

	E.1.4.4 I		1**	
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(L.1)	L.2 L.5	8 13	L.2 L.5	
	L.2. L.5 14	8, 13 14	L.2. L.5 14	
9.4	L.2. L.5 14	8, 13 14	L.2. L.5 14	
9.5.1 *»	L.2. L.5 14	8. 13 14	L.2. L.5 14	
9.5.2	L.4	16	L.4	
9.5.3	L.5	13	L.4	
9.8	L.5	13	L.5	
9.22	14	14	14	
L.9.2	14	14	14	

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(* 9.5.1 70 2 —)

L.4 —

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()					()				
*	-	* *	*	*		- *)	-)		*
2					2				
1.0	1.2	1.4	1.0	1.5	18	1.07		18	128
1.5	1.5	1.7	1.5	1.8	16	1.35	1.55	16	1.50
2.5	1.9	2.2	2.5	2.3 *	14	1.71	1.95	14	2.08
4.0	2.4	2.7	4.0	2.9 *	12	2.15	2.45	12	2.70
6.0	2.9	3.3	4.0	2.9 *	10	2.72	3.09	—	—
10.0	3.7	4.2	6.0	3.9	8	3.43	3.89	10	3.36
16.0	4.6	5.3	10.0	5.1	6	4.32	4.91	8	4.32
25.0	—	6.6	16.0	6.3	4	5.45	6.18	6	5.73
35.0	—	7.9	25.0	7.8	2	6.87	7.78	4	7.25
—	—	—	—	—	1	7.72	8.85	—	—
50.0	—	9.1	35.0	9.2	0	8.51	9.64	—	12.08

L.4

				AWG			
		()				()	
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2			2				!
70,0	12.0		50.0	12.0	00	9.266	10.64
81			+ 5 %.			1,	
>			+ 5 %		5	IEC 60228.	
—		AWG —	172-71 ASTM			IEC 60228,	
						S-19-81. S-66-524. S-68-516 ICE	

L.9.1

9.1.

L.5.

L.5 —

(S). 2	J.
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4.0	. 13 20
6.0	. 20 25
10.0	. 25 32
16.0	. 32 50
25.0	. 50 63
35.0	. 63 80
50.0	. 80 100
70.0	. 100 125

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L.9.2.2

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L.6 —

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16.0	25.0	6	3	300
35,0	70.0	2	00	460

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51	125	105	.	85
126	225	185	.	155

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IEC 61008-1—2020

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15	2.5	26	0 15	12	30
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. 25 32	10.0	60	. 40 50	6	69
. 32 50	16,0	79	. 50 65	4	99
. 50 65	25.0	99	. 65 75	3	110
. 65 80	35,0	137	. 75 90	2	123
. 80 100	50.0	171	. 90 100	1	152
. 100 125	70.0	190	. 100 120	0	190

L.9 —

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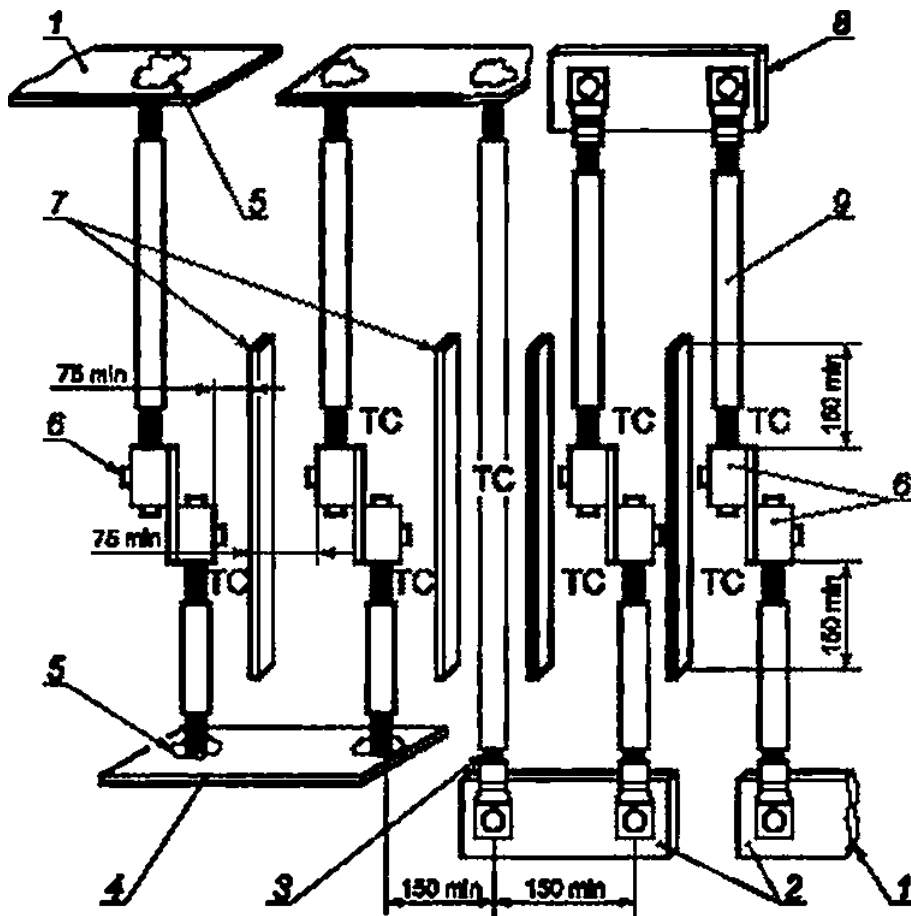
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		.	.		
1	25	79	78	1	0.18
2	50	80	77	3	2.18

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L.9

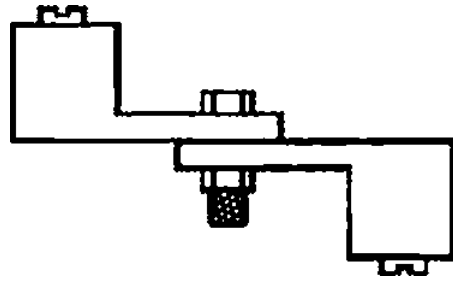
				d• -	s'- a - £>
		.*	.*		
3	75	78	78	0	-0.82
4	100	76	77	-1	- 1.82
5	125	77	77	0	-0.82
6	175	78	77	1	0.18
7	225	79	76	3	2.18
8	275	78	76	2	1.18
9	350	77	78	-1	- 1,82
10	425	77	79	-2	-2.82
11	500	81	78	3	2.18

D = = - = 0.82.



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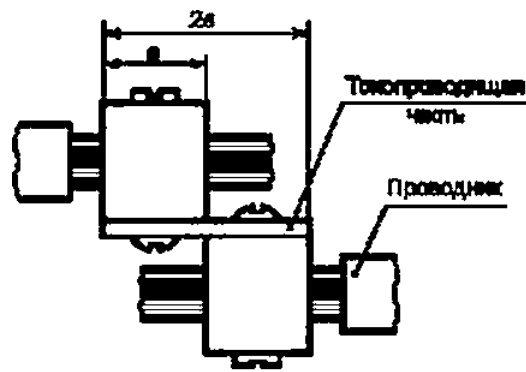
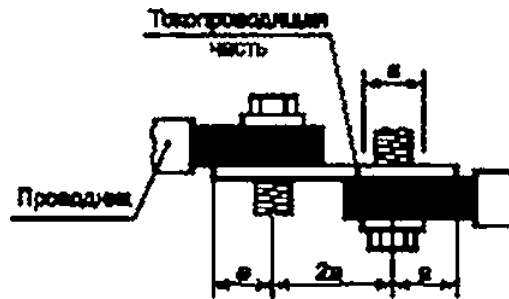
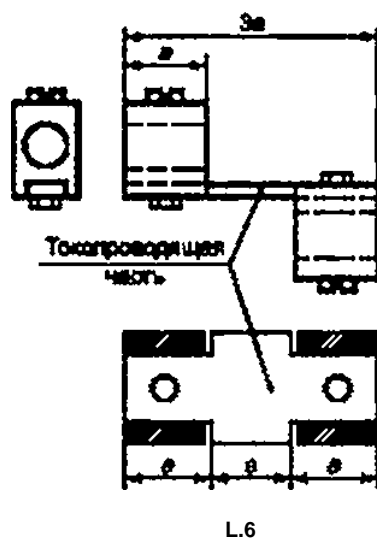
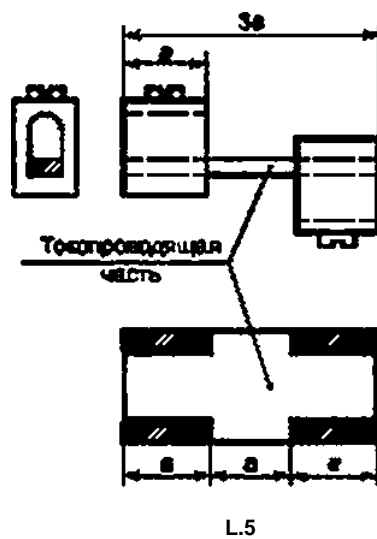


Рисунок L.3



L.4

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IEC 60038:2009	MOD	29322—2014 (IEC 60038:2009) «	-
IEC 60060-1:2010	—	». 1»	
IEC 60060-2:2010	—	-2»	
IEC 60068-2-30:2005	MOD	28216—89 (68-2-30—87) «	-
		. Db : , 2.	-
		(12 * 12-)» ³³	-
IEC 60068-3-4:2001	NEQ	28214—89 «	-
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IEC 60112:2003	MOD	27473—87 (112—79) «	-
		.	-
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IEC 60228:2004	MOD	22483—2012 (IEC 60228:2004) «	
		,	
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IEC 60364-4-44:2007	—	*.4»	
IEC 60364-5-53:2019	—		
IEC60417	MOD	28312—89 (417—73) «	-
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IEC 60529:2013	MOD	14254—2015 (IEC 60529:2013) «	-
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IEC 60664-1:2007	—	.6}	

*1 55194—2012 « -

1 750 . ».

2* 55193—2012 (60060-2—2010) « -

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3) 60068-2-30—2009 «

. 2-30. . Db: , (12 * 12-)». -

. 4.44. . 50571.4.44—2019 (60364-4-44:2007) «

». 50571.5.53—2013/ 60364-5-53:2002 «

. 5-53. . , ». -

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IEC 61008-1—2020

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IEC 60664-3:2010	IDT	IEC 60664-3—2015 «	3. -
IEC 60695-2-10:2013	—		*.1
IEC 60684-1:2013	MOD	30988.1—2020 (IEC 60864-1:2013) «	1. -
IEC 61009-1:2013	IDT	IEC 61009-1—2020 «	1. -
1 61543:1995	MOD	31216—2003 (61543:1995) «	(-).
CISPR 14-1:2016	IDT	CISPR 14-1—2015 «	1. -
1 61210:2010	IDT	IEC 61210—2011 «	-
1 61545:1996	MOD	31604—2020 (IEC 61545:1996) «	-
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¹¹
2-10.

60695-2-10—2011 «

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51329—2013 { 61543:1995) «

(-).

- (11 IEC 60050-441:1984 International Electrotechnical Vocabulary — Chapter 441: Switchgear, controlgear and fuses (441. -)
- (2 IEC 60050-604:1987 international Electrotechnical Vocabulary — Chapter 604: Generation, transmission and distribubon of electricity — Operation (604. -)
- (31 IEC 60050-604:1987/AMD1:1998 1:1998
- (4J IEC 60269-1:2006 Low-voltage fuses — Part 1: General requirements (1.)
- (5J IEC 60664-5 Insulation coordination for equipment within low-voltage systems — Part 5: Comprehensive method for determining clearances and creepage distances equal to or less than 2 mm (5. 2)
- (6 IEC/TR 60755:2008 General requirements for residual cunent operated protective devices ()
- (IEC 60947-1:2007 Low-voRage switchgear and controlgear — Part 1: General rules (1.)
- [8 IEC 62640 Residual cunent devices with or without overcurrent protection for socket-outlets for household and simitar uses ()
- (91 ASTM D785-08 Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials (-)

IEC 61008-1—2020

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