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INTERSTATE COUNCIL FOR STANDARDIZATION, METROLOGY AND CERTIFICATION
(ISC)

IEC 60898-1 — 2020

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(IEC 60898-1:2019, IDT)

2020

IEC 60898-1—2020

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IEC 60896-1—2020
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IEC 60898-1:2019 «

1. » («Electrical accessories — Circuit-breakers for overcurrent protection for household and similar installations — Part 1: Circuit-breakers for a.c. operation», IDT).

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**Electrical accessories. Circuit-breakers for overcurrent protection for household and similar installations.
Part 2. Circuit-breakers for a.c. operation**

— 2021—03—01

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IEC 60947-2. , -
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III. 2
120 120/240 (. 1), IT. , -
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IP20 no IEC 60529. (,) ,
IEC 60696-2. ,
IEC 60896-3. ,

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IEC 61009*1. IEC 61009*2*1 IEC 61009*2*2.

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D.

(IEC 60947*2).

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b)

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IEC 60050 (all parts). International Electrotechnical Vocabulary () (IEC 60050)

IEC 60227 (all parts). Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 450/750) (

IEC 60227)

IEC 60269 (all parts), Low-voltage fuses () (IEC 60269)

IEC 60364-4-41:2005. Low-voltage electrical installations — Part 4*41: Protection for safety — Protection against electric shock (4-41.)

IEC 60417. Graphical symbols for use on equipment. ()

IEC 60529. Degrees of protection provided by enclosures (IP Code) [(IP)]

IEC 60664-1:2007. Insulation co-ordination 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. Fire hazard testing — Part 2-10: Glowing/hot-wire based test methods — Glow-wire apparatus and common test procedure (2-10.)

/)
IEC 60695-2-11:20004 Fire hazard testing — Part 2-11: Glowing/hot-wire based test methods — Glow-wire flammability test method for end-products (2-11.)

)
IEC 60947-1:2007. Low-voltage switchgear and controlgear — Part 1: General rules (1.)

IEC 60947-2:20064 Low-voltage switchgear and controlgear — Part 2: Circuit-breakers (2.)

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

3

no IEC 60050-441.

3.1

3.1.1 (switching device):

[IEC 60050-441 (14-01)]

3.1.2 (mechanical switching device):

(IEC 60050-441 (14-02.))
3.1.3 (fuse):

(IEC 60050-441 (18-01. — « »))

3.1.4 () [circuit-breaker (mechanical)]:

[IEC 60050-441 (14-20,)]
3.1.5 (plug-in circuit-breaker):
(3.3.20).

3.2

3.2.1 (overcurrent):

[IEC 60050-441 (11-06)]

3.2.2 (overload current):

¹⁾ IEC 60695-2-11:2014.

²⁾ IEC 60947-2:2016.

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3.2.3	(short-circuit current):	-
[IEC 60050-441 (14-07)]		-
3.2.4	() [main circuit (of a circuit-breaker)]:	-
3.2.5	() [control circuit (of a circuit-breaker)]:	-
3.2.6	() [auxiliary circuit (of a circuit-breaker)]:	-
3.2.7	() [pole (of a circuit-breaker)]:	-
3.2.7.1	(protected pole):	-
(3.3.6).		
3.2.7.2	(unprotected pole):	-
(3.3.6),		
1		
2		
3.2.7.3	(switched neutral pole):	-
3.2.8	(closed position):	-
3.2.9	(open position):	-
3.2.10		
3.2.10.1	(ambient air temperature):	-
[IEC 60050-441 (11-13, «)]		-
3.2.10.2	(reference ambient air temperature):	-
3.2.11	(operation):	-
3.2.12	(operating cycle):	-

3.2.13	(operating sequence):	-
(IEC 60050-441 (16-03])		
3.2.14	(uninterrupted duty):	-
3.2.15	(type test):	-
(IEC 60050-411 (53-01. — « » « »		
3.2.16	(routine test):	-
(IEC 60050-411 (53-02, — « » « »)		
3.3		
3.3.1	(main contact):	-
3.3.2	(arcing contact):	-
(IEC 60050-441 (1508))		
3.3.3	(control contact):	-
3.3.4	(auxiliary contact):	-
3.3.5	(release):	-
3.3.6	(overcurrent release):	-
3.3.7	(inverse time-delay overcurrent release):	-
3.3.8	(direct overcurrent release):	-
3.3.9	(overload release):	-
3.3.10	(conductive part):	-
3.3.11	(exposed conductive part):	-

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3.3.12	(terminal):			
3.3.12.1	(screw-type terminal):			*
3.3.12.2	(pillar terminal):			
1				-
2		F.1 (F).	
[IEC 60050-442 (06-22]]			
3.3.12.3	(screw terminal):			-
		F.2 (	F).	
[IEC 60050-442 (	06-08]]			
3.3.12.4	(stud terminal):			-
1				-
2		F.2 (	F).	
[IEC 60050-442 (	06-23]]			
3.3.12.5	(saddle terminal):			-
		F.3 (	F).	
[IEC 60050-442 (	06-09]]			
3.3.12.6	(lug terminal):			-
(	F).			F.4
[IEC 60050-442 (	06-16]]			
3.3.12.7	(screwless terminal):			-
[IEC 60050-442 (	06-13,			
3.3.12.8	(plug-in terminal):			-
3.3.13	(tapping screw):			-
1				
2				
3.3.13.1	(thread-forming tapping screw):			

1			
2		1.	
3.3.13.2		(thread-cutting tapping screw):	
			2.
3.4			
3.4.1		(closing operation):	
3.4.2		(opening operation):	
3.4.3		(dependent manual operation):	
(IEC 60050-441 (16-13])			
3.4.4		(independent manual operation):	
(IEC 60050-441 (16-16])			
3.4.5		(trip-free circuit-breaker):	
3.5			
3.5.1		(rated value):	
3.5.2		(prospective current):	
(IEC 60050-441 (17-01. « »]			
3.5.3		(prospective peak current):	
[IEC 60050-441 (17-02])			
3.5.4		(maximum prospective peak current):	
[IEC 60050-441 (17-04])			

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3.5.5 () (short-circuit making and breaking capacity): *

3.5.5.1 (ultimate short-circuit breaking capacity):

0,85 3.5.5.2 (service short-circuit breaking capacity):

0.85 3.5.6 (breaking current): -

3.5.7 (applied voltage): ,

(IEC 60050-441 (17-24]) -

3.5.8 (recovery voltage): ,

(IEC 60050-441 (17-25.))

1 , -

2 -

3.5.8.1 (transient recovery voltage):

(IEC 60050-441 (17-26,))

3.5.8.2 (power-frequency recovery voltage): ()

(IEC 60050-441 (17-27])

3.5.9 (opening time): ,

3.5.10 (arcing time)

3.5.10.1 (arcing time of a pole): -

(IEC 60050-441 (17-37,))].

3.5.10.2 (arcing time of a multipole circuit-breaker):

(IEC 60050-441 (17-38]).

3.5.11 () (break time):

3.5.12		, ft [ft (Joule integral)]:	-
	((q .)		
		$ft \ll jfdt$.	
		I_o	
3.5.13		ft (ft characteristic of a circuit-breaker):	,
	ft		.
3.5.14		(co-ordination between overcurrent protective devices in series)	-
3.5.14.1		(overcurrent protective coordination of overcurrent protective devices):	,
			/
3.5.14.2		(overcurrent discrimination):	-
			,
[IEC 60947-2:2016 (	2.17.1.	— « »]	
3.5.14.3		(back-up protection):	,
			,
			.
(IEC 60947-1:2007 (	2.5.24)]		
3.5.14.4		(total selectivity):	-
			,
			.
[IEC 60947-2:2006 (	2.17.2)]		
3.5.14.5		(partial selectivity):	,
			,
			.
(IEC 60947-2:2006. (2.17.3)]		
3.5.14.6		I_s [selectivity limit current (I_s):	
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			()
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			.
			[. D.1 (-
D)]:	—	—	-
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			(. . -
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[IEC 60947-2:2006. (2.17.4)]		
3.5.14.7		I_6 [take-over current (I_6):	-
			.
			.
			« -
			»
			.
[IEC 60050-441 (17-16)]		
3.5.14.8		()
(conditional short-circuit current (of a circuit or a switching device):			-
			,
			-

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1 , , -

2 IEC 60050-441 (17-20) -

[IEC 60947-1:2007. (2.5.29)]
 3.5.14.9 / [rated conditional short-circuit
 current (I_{nc}): , , -

(IEC 60947-1:2007 (4.3.6.4)]
 3.5.15 I_1 [conventional non-tripping current (I_{nt}): , , -

()
 3.5.16 I_c [conventional tripping current (I_c): ()

3.5.17 (instantaneous tripping current): ,

3.6 ,

3.6.1 (insulation coordination): -

[IEC 60664-1:2007 (3.1)]
 3.6.2 (working voltage): -

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[IEC 60664-1:2007 (3.5)]
 3.6.3 (overvoltage): ,

[IEC 60664-1:2007 (3.7)]
 3.6.4 (impulse withstand voltage): -

[IEC 60664-1:2007 (3.8.1)]
 3.6.5 (overvoltage category): , -

[IEC 60664-1:2007 (3.10. —))
 3.6.6 (macro-environment): , -

[IEC 60664-1:2007 (3.12.1)]
 3.6.7 (micro-environment): ,

[IEC 60664-1:2007 (3.12.2)]
 3.6.8 (pollution): , , -

[IEC 60664-1:2007 (3.11)]
 3.6.9 (pollution degree): -

(IEC 60664-1:2007 (3.6.10

3.13. — 1))
() [isolation (isolating function)]:

[IEC 60947-1:2007 (3.6.11

2.1.19]]
(isolating distance):

[IEC 60050-441:1984 (3.6.12

17-35]]
(clearance):

(IEC 60050-441:1984 (3.6.13

17-31, —)]
(creepage distance):

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(IEC 60050-151:1984 (4

15-50, — 1 2))

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- (. 3.2.7.3).

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4.5.1

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4.5.2

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- Pt*
- Pt.*
- Pt.*

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- (. 4.3);
- (. 4.4);
- (. 4.5);
- (. 5.3.1);
- (. 5.3.2);
- (. 5.3.3);
- (. 4.6 5.3.5);
- (. 5.3.4);
- *Pt*(. 3.5.13);
- no *Pt*{ . 4.7).

5.2

5.2.1

5.2.1.1

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5.2.1.2

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5.2.1.3

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5.2.2

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IEC 60364.

5.2.3

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(. 3.5.5.1).

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/ (. 5.2.7 IEC 61009-1:2010).

5.3.4.1.

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5.3.1

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	» < . IEC 60464-1)	230.30/400, 400	120/240. 240
	()	230	—
	()	230	—

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	IEC 60464-1)	230.30/400. 400	120/240. 240
	()	—	120
	() ()	230/400	
	()	230	—
	()	400	240
	()	—	120/240
	()	230	—
	(-)	400	240
	()	400	

1 230 400 220 240 380
 415
 2 120 120/240 100 100/200

5.3.2

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5.3.3

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5.3.4.1 10 000 10 000

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7500 9000 1000. 2000. 2500. 5000.

9.12.5.

5.3.4.2 10 000 25 000 20 000

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9.12.5.

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- c) () ();
- d) « ; 16 — 16 ;
- e) ,
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- h) , 30 °C;
- i) , IP20;
- j) D , 20/
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- k) ,
- l)
- d)
-)—),), f). h)—j) l)
-)
- x_j (IEC 60417-6169-1),
- (,) I 60417.
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IP20 IEC 60529.

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Pt (. 4.7)

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« » () IEC 60417*5008.
) no IEC 60417*5007.

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« » (IEC 60417*5008).

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IEC 60417-5019.

IEC 60417-5019

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8.1.1

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9.10.3.

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(. 3.2.9)

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9.10.3.

9.12.12.1 9.12.12.2.

8.1.3

2 IEC 60664-3.

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IEC 60664-1.

IEC 60664-1:2007.

F.4 IEC 60664-1:2007

3 F.2

IEC 60664-3,

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				<175 Bs ^h < 400) ⁴¹				<400 « <000) ⁴¹				<000 ¹) ⁴¹			
	IVp «8			91											
	2.5	4.0	4.0												
	120/240 120	120/240 240	230/400 230. 400	> 25 \$ 50 ¹¹	120	250	400	> 25 S50 ^{1*}	120	250	400	> 25 S50 ¹¹	120	250	400
1 *, **_**	2.0	4.0	4.0	12	2.0	4.0	4.0	0.9	2.0	4.0	4.0	0.6	2.0	4.0	4.0
2 3'	1.5	3.0	3.0		1.5	3.0	4.0	0.9	1.5	3.0	3.0	0.6	1.5	3.0	3.0
3 SELV91 PELV	3.0	6.0	8.0	—	3.0	6.0	8.0	—	3.0	60	8.0	—	3.0	6.0	8.0

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	25	4.0	4.0						
	20/240 20	20/240 240	230/400 230.400	20/240	230/400	20/240	230/400	20/240	230/400
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-	16	3.0	3.0	1.5	4.0	1.5	3.0	1.5	3.0
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<p>IEC 60112.</p> <p>9.6 (8).</p> <p>1.6.</p> <p>60664*1.</p>									

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8.1.3.1

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97.5.4.

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— 97.5.2. ,

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, IEC 60664-1 .
2 4 4 ,

97.5.2. — , -

8.1.3.2

3 4 .
1—4 4 -

— , 8.1.3.
9.7.2—9.7.5

8.1.3.3

97.2—97.5,

8.1.4

8.1.4.1

— , ,

9.4.

— 9.8. 9.9, 9.12, 9.13 9.14.

8.1.4.2

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8.1.4.3

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8.1.4.4

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8.1.5

8.1.5.1

8.1.5.2

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		(- *	41.
13	13	1.0—2.5	1.0—2.5
16	16	1.0—4.0	1.0—4.0
25	25	1.5—6.0	1.5—6.0
32	32	2.5—10.0	2.5—6.0
50	50	4.0—16.0	4.0—10.0
80	100	10.0—25.0	10.0—16.0
100	125	16.0—35.0	16.0—25.0
		25.0—50.0	25.0—35.0
81 , 50			
1 6 2			
) 2 IEC 60228:2004			
1.5 2 50 2			

AWG . G.

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8.1.5.3									*
									*
8.1.5.4			32	9.5.					
	—	«		»					-
8.1.5.5								ISO	,
	—			9.4	9.5.2.				
					SI.			UN.	
					ISO.				
8.1.5.6									*
8.1.5.7				9.5.3.					*
8.1.5.8				9.4	9.5.2.				*
									*
8.1.5.9				9.5.4.					
1									-
2									-
8.1.5.10								9.4.	
	—							F.	-
									-
8.1.5.11									-
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	11								
8.1.5.12				5.					,
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8.3

8.3.1

8.3.2

9.7.1—9.7.3

9.12

9.11
no 9.7.3.

9.11.3

9.12.12.2

9.7.1.

8.3.3

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9.7.5.1 9.7.5.3.

8.3.4

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9.7.5.2.

8.4

8.4.1

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9.8.2,

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91	
61	60
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81	-
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8.4.2

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7.2.

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8.6.1

7. () -

7. 30^{±5} °C. 9.2.

9.10.

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1.2 % 1“ -

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-						
)	B. C. D	1.13/	3*	/ \$1 (/ n s 63) / \$2 (/ > 63)	-	
)	B. C. D	1.45/	3*	/ \leq 1 (/ £ 63) / \leq 2 (/ > 63)	-	5 -
>	B. C. D	2.55/	3*	1 <(\leq 60 (/ < 32) 1 c<t< 120 (/ > 32)	-	
	D	/ 5' 10'	3*	/\$0.1	-	- -
)	D	5' / 20/?>	3*	/ \leq 0.1	-	- -
>	«	»				-
>		50/ .				
		—	D	D.		

30 °C.

8.6.2

8.6.2.1

1 63 2

. 63 .

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8.6.2.2	(I_{nt})	8	1.13	-
8.6.2.3)		1.45	-
8.6.3				-
8.6.3.1			8.6.1.	-
			9.2 (-
				-
				-
7.2.				-
8.6.32	«			-
			8.6.2.1.	-
-1.1			:	-
:				-
-1.2				-
			9.10.4.	-
8.6.3.3				-
5 X	40 “			-
			9.10.5.	-
8.7				-
			9.11.	-
8.8				-
				-
			9.12.	-
				-
			(105 ± 5) %	-
			Pt(.3.5.13).	9.12.5;
8.9				-
				-
			9.13.	-
8.10				-
			9.14.	-
8.11				-
				-
			9.15.	-

8.12

9.16.

8.13

8.

9.8.5.

8 —

10			3.0
16			3.5
16	25		4.5
25	32		6.0
32	40		7.5
40	50		9.0
50	63		13.0
63	100		15,0

8.14

8.15

9

9.1

9.

9 —

28-	9.3 9.4 9.5 9.6 9.7 9.8 9.9

IEC 60898-1—2020

9

	<p>9.10 9.11 9.12 9.13 9.14 9.15 9.16</p>
--	---

9.2

20 °C 25 "

S.

10.

20

11.

2/3

±5%

9.8—9.11

a)

IEC 60227;

b)

c)

d)

-1 —

10²

-2 —

10²

10 —

S

1	S. 2
6	1.0
13	1.5
13 20	2.5
20 25	4.0
25 32	6.0
32 50	10.0

10

t_{ij}			S. 2
.50	63	.	16.0
.63	80	.	25.0
.80	100	.	35,0
.100	125	.	50.0

— AWG G.

9.3

15 , (29.

0.1 %
65 ' ,

69*

0.68 / 3).

: - 95 % (-

CAS RN: 110-54-3).

110-54-3)

— - 95 % (

CAS RN:

().

6.

9.4

8.1.4

-10

-5

11.

11 —

	1	It	ill
2.8 .	0.2	0.4	0.4
.2.8 3.0 .	0.25	0.5	0.5
.3.0 3.2 .	0.3	0.6	0.6
.3.2 3.6 .	0.4	0.8	0.8

IEC 60898-1—2020

11

	1	II	
. 3.6 4.1 .	0.7	1.2	
. 4.1 4.7 .	0.8	1.8	1.8
. 4.7 5.3 .	0.8	2.0	2.0
. 5.3 6.0 .	1.2	2.5	3.0
. 6.0 8.0 .	2.5	3.5	6.0
. 8.0 10.0 .	3.5	4.0	10.0
1			-
11			
111		II III	-
III.		II.	-
II III			

9.5

9.5.1

8.1.5

9.4.

5

(

9.4 9.5

2
9.5.2—9.5.4.

9.5.2

5.

(—

—),

-

1 6 2:

-

1.5 50 2:

•

1 35 2.

().

2/3

11.

12.

1

12 —

2 ()	1 4	4 6	6 10	10 16	16 50
	50	60	80	90	100

9.5.3

11. $\frac{2}{3}$ 5.

9.5.4

5.

11. $\frac{2}{3}$

9.6

90°

40

1 75 ()

(8.1.6).

(8.1.6).

9.7

9.7.1

9.7.1.1

9.7.1.2

91 % 95 %.

IEC 60898-1—2020

20 °C 30 *

± 1'

* 4'

9.7.1.3

48 .

91 % 95 %
(Na₂SO₄) (KNO₃).

9.7.1.4

9.7.2—97.4 97.5.2 ().

9.7.2

9.7.1.

30—60

5

500

a)

b)

c)

d)

)—)

« »

8.2.

)—d)

« 2

- 5

9.7.3

9.7.2

1

9.7.2,

45 65 .

0.2 .

100 .

. 2000 9.7.2. }—);
 * 2500 9.7.2. d).

5 .

9.7.4

a)

)),

b)

500

2 .

1 .

c)

1

13.

13 —

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

5 .

1

2

9.7.5

9.7.5.1

1,2

- ± 5 % —

• ± 30 % —

• ± 20 % —

0.5

— 50

0.5.

1

10 .

IEC 60898-1—2020

500 . { ,) 2 . * * 5 % 10 % * 97.5.2 2 4 4 - - 2 4 4. - 14 3. - 14 / - a) ; b) ; c) * - 9.77. - « » - 14 —

	, 2< 0 .				
		200	500	1000	2000
2.5	2.9	2.8	2.8	2.7	2.5
4.0	4.9	4.8	4.7	4.4	4.0

IEC 60898-1—2020

9.7.5.3 ()
 9.12.11.4.2. 9.12.11.4.3. 9.12.11.4.4. , 9.12.11.2. 9.12.11.3, -
 , 1.1
 , 2 .
 9.7.5.4 (-)
)
 , 9.7.1. -
 — 9.7.1. , 9.7.5.4. 8.1.3. -
 . 9.7.1. .
 15
 , / ,
 3. ,
 15.
 15 — -

	4				
		200	500	1000	2000
120/240 ^{8*}	3.5	3.5	3.4	3.2	3.0
120/240. 240)	6.2	6.0	5.8	5.6	5.0
230/400	2	6.0	5.8	5.6	5.0
81					

9.8

9.8.1

1

9.8.2

1

1 1 .

N-

6.

IEC 60898-1—2020

9.8.3

6.

9.8.4

9.8.3.

9.8.1.

9.8.5

1.

30

30

8.

9.9

28

21

8.2.

30

15

5

9.10

9.10.1

8.6.1.

9.10.2

9.10.2.1

1.131 (

).

(. 8.6.1 8.6.2.1)

(. 7).

5 1.451 (

).

9.10.2.2

2.551 .

1

• 60 —

32

• 120 —

32 .

9.10.3
9.10.3.1

9.10.3.2—9.10.3.4

U_n () : 0.95 1.

O—t—CO—1—CO—t—CO.

t 9.12.11.1.

0.1 / ± 25 %.

9.10.3.2

31 .

0.1 .

51 .

0.1 .

9.10.3.3

51 .

0.1 .

101 .

0,1 .

9.10.3.4

101 .

D

0.1 .

201 .

0,1 .

9.10.4

9.2.

8.6.3.2.

(. 8.6.2.1).

9.10.5

:

a)

(35 ± 2) *

1.131 () .

5

1,91 .

:

b)

(10 ± 2) °C

IEC 60898-1—2020

1.

9.11

9.11.1

9.2.

0.6%

0,85 0.9.

230/400

10.

9.11.2

4000

32

240

13

32

120

28

0.1 /

1 25 %.

9.11.3

9.11.2

(. 9.6):

40

IEC 60898-1—2020

*
 ,
 9.7.3. 500 9.10.2.2 -
 9.7.4 .
 9.12
 9.12.1 -
 16. -
 , 7.2.
 500 101. uoom-
 emcm uuc9.12.11.2 1500 9.12.11.3. 1500 -
 (. 3.5.5.2)— 9.12.11.4.2 9.12.12.1:
 18:
 - (. 5.2.4) 9.12.11.4.3
 9.12.12.2. 1.

16 —

(9.12.11.2.1)	-	9.12.12.1
(9.12.11.2.2)	, 120 120/240	-
1500 (9.12.11.3)		
(9.12.11.4.2)	, / > 1500	9.12.12.1
(9.12.11.4.3)	- > /qs	9.12.12.2
(9.12.11.4.4)		9.12.12.2

9.12.2
 ,
 .
 ,
 ,
 ,
 (. 3.5.8.2)
 105 %
 (. 230/400) -
 105 %
 (. 400) d) 9.12.11.4.2.) 9.12.11.4.3
 9.12.11.2.2 105 % (. 230) 9.12.
 (. 120) 9.12.11.2 105 % (-
 . 230) 9.12.

IEC 60898-1—2020

— (105 ± 5) %

9.12.3

• : + 5 %:

• (: ±5%.

): ± 5 %:

9.12.4

4

-
-
-
-

$Z_u Z_j$ (. 5)

(. 3.5.8.1)

0.6 %

S

Z

Z_v

0.75

5.

R_2

F

0.5

D

D.

F

50

• 0.1 —

- 0.3 —

R_v 10 , -

9.12.5

17.

17 —

I_n				
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

9.12.6

P_t / P_t (I) P_t P_t P_t 9.12.11.2—9.12.11.4. -

9.12.7

9.12.7.1

G. -

3 4.

9.12.7.2

16.

G,

Z,

9.12.7.3

G,

Z_r

4.

9.12.8

9.12.8.1

(. 9.12.11.1)

6.

9.12.8.2

(, 2 6).

9.12.9

9.12.9.1

9.12.9.2.

9.12.9.3

9.12.9.2.

9.12.9.2. 9.12.9.3.

0.1 / ± 25 %.

9.12.9.2

0.16

0.75

9.12.9.3

10

1.

230/400

400 230/400 120 120/240

0.12 1.5 3. 3. 3) 230

1500 1500 35 1 40. 45. 50. 55

R 50 0.12 0.12 0.12

3.4 . 4 . 5

R"

9.12.9.1

9.12.10

9.12.11.2.

9.12.11.3.

9.12.11.4

1.

9.12.11.1.

9.12.11

9.12.11.1

« » —

« » —

«I» —

3

t

0.1

9.12.11.2

9.12.11.2.1

Z_y (. 9.12.7.3)

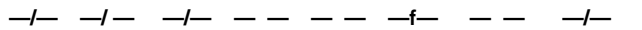
500

101 .

0.93

0.98.

3.



15°.

9.12.11.2.2

240 . 230/240

IT

230 .

Z_y (. 9.12.7.3)

500 .

1.2

2.

2500

0.93

0.98

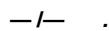
105%

1.2

201 ,

2500

4.



0*

± 5°).

IEC 60898-1—2020

)] 30 [. .2 (-
 ± 5[®] -
 9.12.11.3 1500 1500 -
 9.12.7.1 9.12.7.2 1500 -
 17. -
 9.12.7.1 9.12.7.3 1500 -
 1500 . 17. -
 3. -
 G, -
 15 . -
 9.12.11.2. -
 230/400 . -
 ; -
 (3) , -
 9.12.11.4 1500 -
 9.12.11.4.1 *
 () -
 18. -
 18 — (1) -
 (X) -

6000 .	1.00
. 6000 10 000 .	0.75' ^{>}
. 10 000	0.50* ^{>}
. > © /,, = 6000 / = 7500 .	

9.12.11.4.2 (^) -
) 9.12.7.1 9.12.7.3 -
 17. -
 9.12.11.3.

) - , — . :

—f— —/— .

9

45°

— 30 75°.

± 5°.

19.

19 — / -

	1	2	3
1	0(0*)	(15'>	(30')
2	0(45*)	0(60')	0(75')
3			

) - :

—/— —/— .

9

60°

60°

± 5 .

20.

20 — / -

	1	2	3
1	(*)	(**60')	(X + 120')
2			
3			

) 3 N- 230/400

21. P*i*.

IEC 60898-1—2020

21 —
230/400

	1	2	3
1			
2			
3			
4			—

9.12.11.4.3

)

9.12.7.1 9.12.7.2.

(/)

9.12.11.3.

0 — t—CO.

15°

30°

30°

± 5°.

22.

22 —

	1	2	3
1	0(15")	(45")	0(75")
2			

)

3 N-

230/400

23.

23

Pt.

23 —

230/400

		2	3	4
1				
2	—	—		
3				

9.12.11.4.4

9.12.7 (7_{cn1}J

3.

Z_r

0 — t—CO.

15*

30°

30"

± 5*.

9.12.12

9.12.12.1

1500

9.12.11.2.

9.12.11.3.

9.12.11.4.2

a)

b)

9.7.5.3:

9.7.3.

2

24

500

9.7.3.

) 9.7.2.

) 9.7.2 —

c)

9.12.11.3

9.12.11.4.2

0.85

5

1.1

9.12.12.2

9.12.11.4.3

9.12.11.4.4

a)

b)

9.7.5.3:

9.7.2.

2

24

900

) 9.7.2,

) 9.7.2 —

c)

7

2.81,

0.1

1

1

23

9.12.10.

IEC 60898-1—2020

9.13

9.13.1

9.13.1.1

/.

25 / .

180 .

200 .

7.

D.

D

25 .

9.13.1.2

50

40

50

90°

200

50

50

9.13.2

9.13.2.1

(.

8.1.6).

9.13.2.2

• 9.13.2.3 —

- 9.13.2.4 —

- 9.13.2.5 —

9.13.2.2

9—13.

10

100 HR.

(150 ±1)

9

0.5

(1000 ± 1)

• (12.7 ± 0,0025) :

• (100 ± 2) :

(500 ± 2.5) .

50

—
ISO 2039-2.

8 1.9 2 175* 175

11. 11.
(10 ± 1)

11. 12. 13.

11. 13 —

175 8

2/3 11. 10

60* 90

», -

», -

« ». — « ».

, , , , , -

, -

, -

», -

», -

— , 8.1.3.

9.13.2.3 1 2.5 .

9.13.2.4 , , , , , -

», -

», -

», -

1 1

50 (. 50 14).

9.13.2.5 , , , -

», -

», -

1 20 (. 16).

— —

9.14

9.14.1 1 1

(100 ± 2) ' ;

(70 ± 2) ' .

, -

, -

, -

5 .

», -

», -

9.14.2 , -

, -

15.

9.14.3.

20

5

(125 ± 2)

1

10

2

9.14.3

9.14.2.

(70 ± 2) *

(40±2) *

9.8.

1

9.14.2 9.14.3

2

9.14.2 9.14.3

3

9.14.2 9.14.3.
9.14.2 9.14.3.

9.15

()

IEC 60695-2-10

(960 ± 15) "

(650 ± 10) ' .

15

15

8

(. 17

).

IEC 60898-1—2020

()

IEC 60695-2-11:2014. 4.3.

30

9.16

10

10%-

10

10

(20 ± 5) "

10

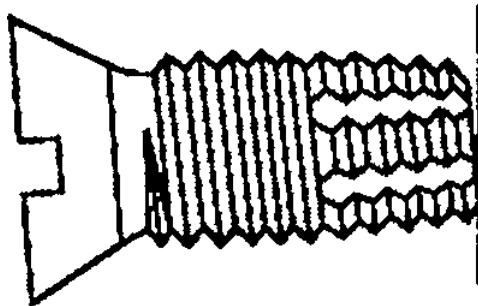
(20 ± 5) "

(100 ± 5) °C



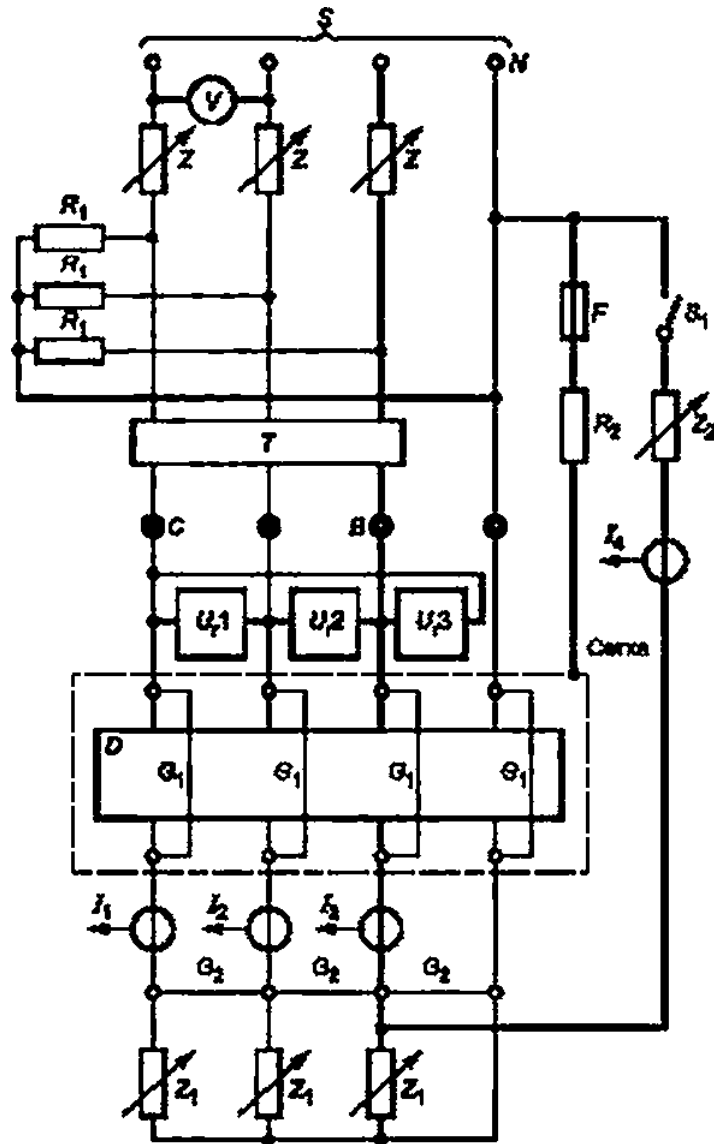
1—

(. 3.3.22)



2—

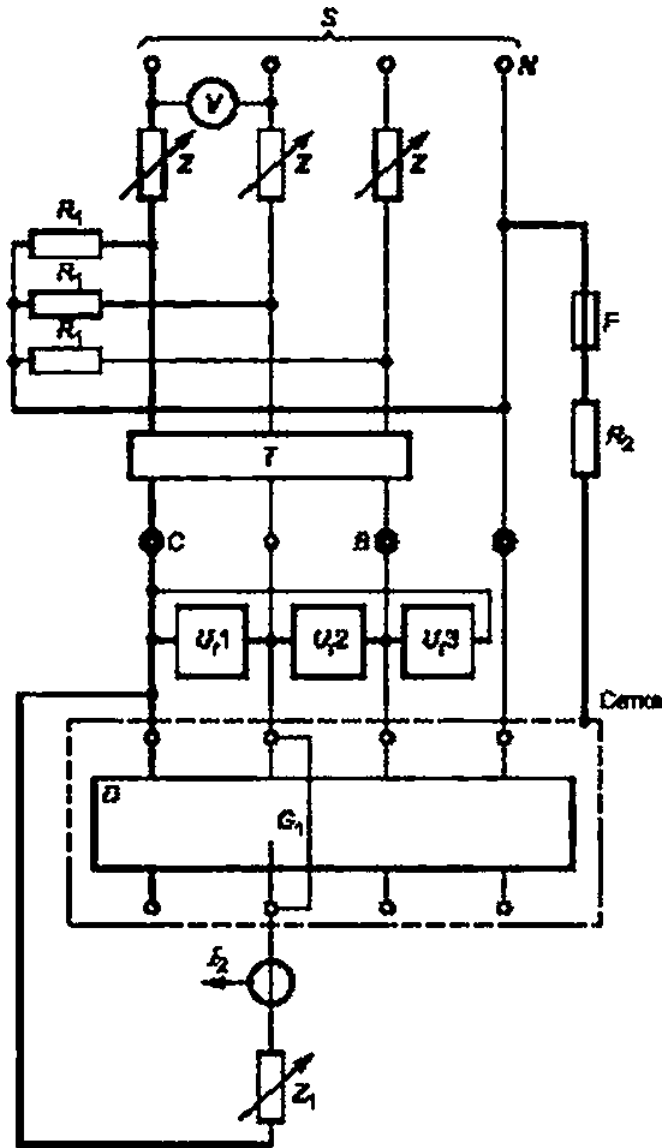
(, 3.3.23}



3—

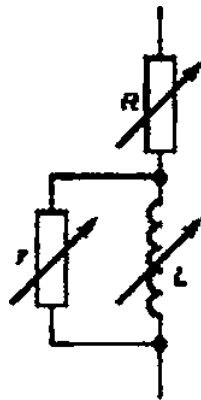
9.12.11.2.2

1



4—

9.12.11.2.2

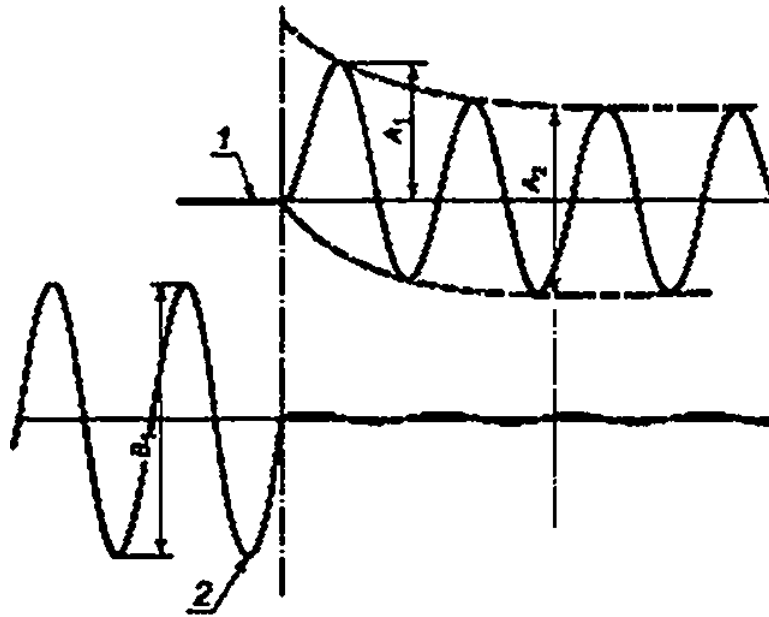


Рмс ^hokS—

.Z, hZ?

3—5:

N —	;	
S —	:	
R —	;	
Z —		;
Z_y —		;
$Z?$ —		1 ;
D —	;	
	—	,
	;	
G_1 —		;
G_2 —		
	;	
	—	;
$I_r, I_{2,13}$ —	;	
		;
I_4 —		,
1. $U, 2, Uf3$ —	;	
F —	:	
		10 ;
R_2 —	,	F ;
	,	0.6 % (. 9.12.2);
	;	
	—	(). () ;
L —		;
		D.
1		
2	U_{fj}	I_2
3	Z	
4		
5		— 0.5 . — 0,25 .



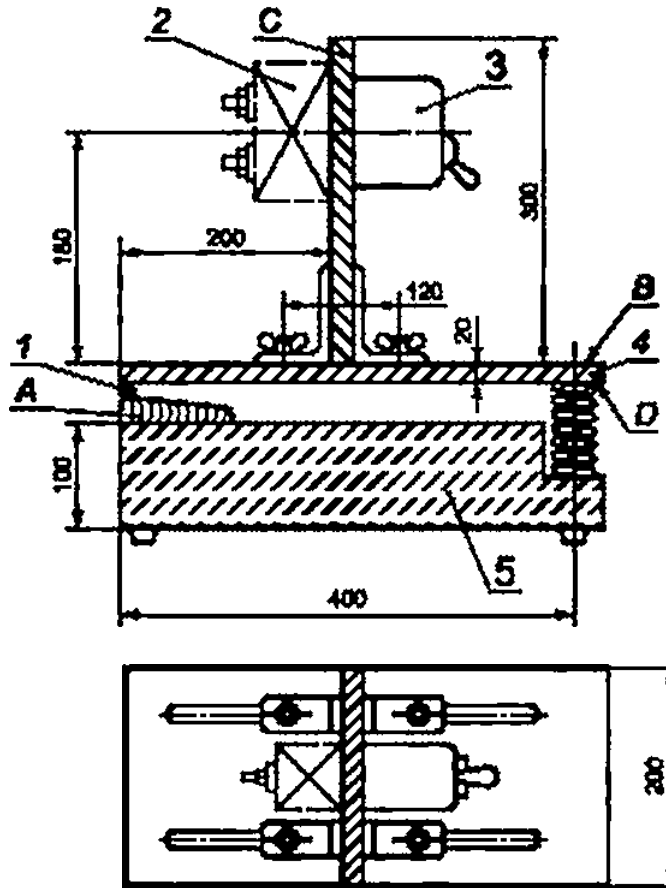
1 — ток; 2 — напряжение

- a) : ();
) — ();
 2V2
 fl, () (. 3.5.7).
 —
- b) : ();
) — ();
 2^2
 2v2 () (. 3.5.8).
 —

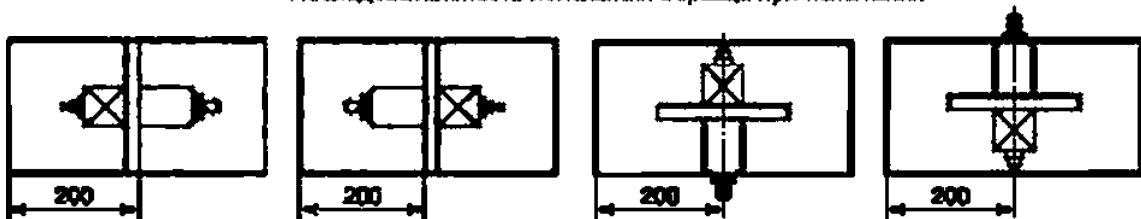
6 —

()

Размеры в миллиметрах



Последовательность половинной образцы при испытании

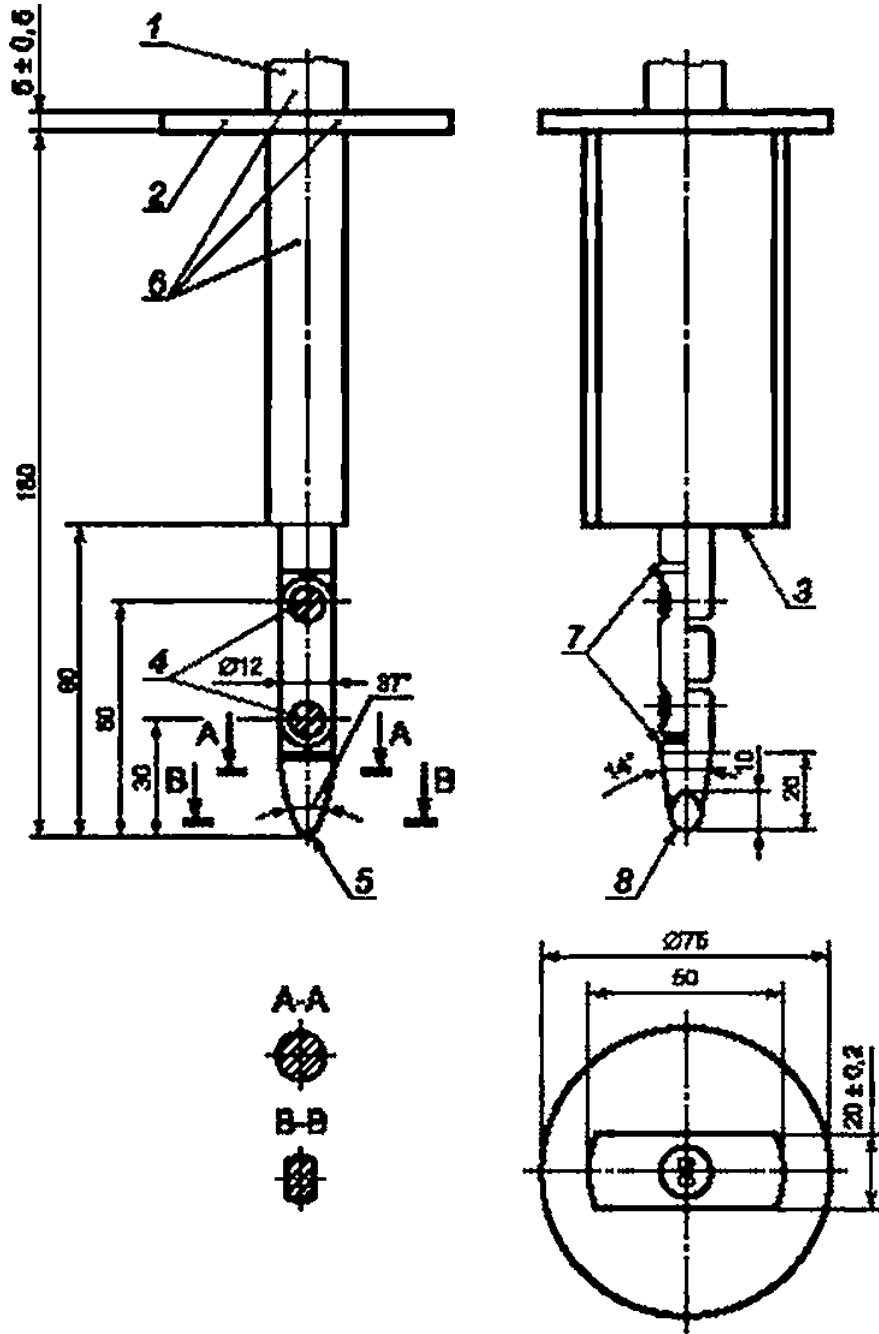


1— . 2— : . 3— : . 4— : . 5— : . D—

7—

(. 9.13.1)

IEC 60898-1—2020



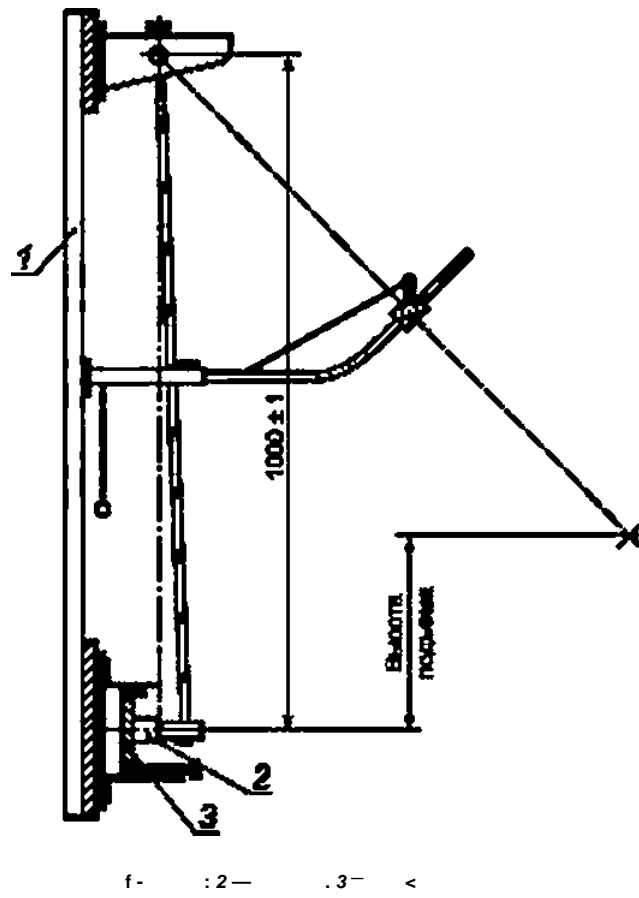
- : -10";
;
25 - 0.05;
25 ± 2.

90° * 10,

90° * 10,

— ; 2 — : 3 — ; 4 — . 5 — R2 10.05; —
; 7 — , — R4 0.05

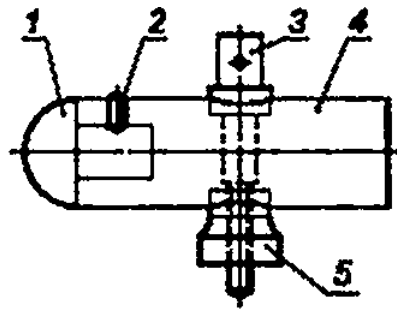
8 — (. 9.6)



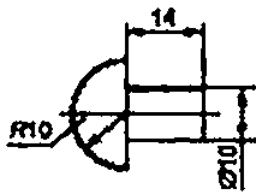
9 —

(. 9.13.2)

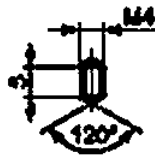
IEC 60898-1—2020



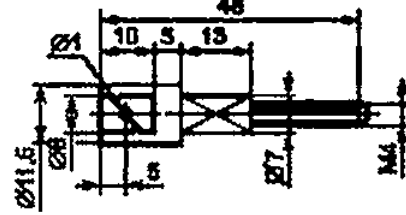
Деталь 1



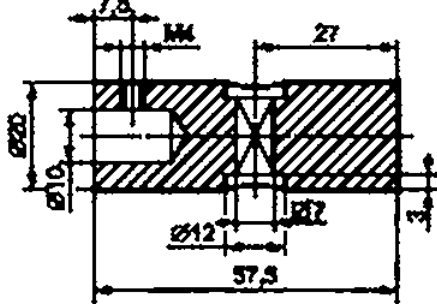
Деталь 2



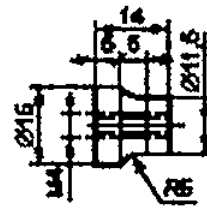
Деталь 3



Деталь 4



Деталь 5



: 1 —

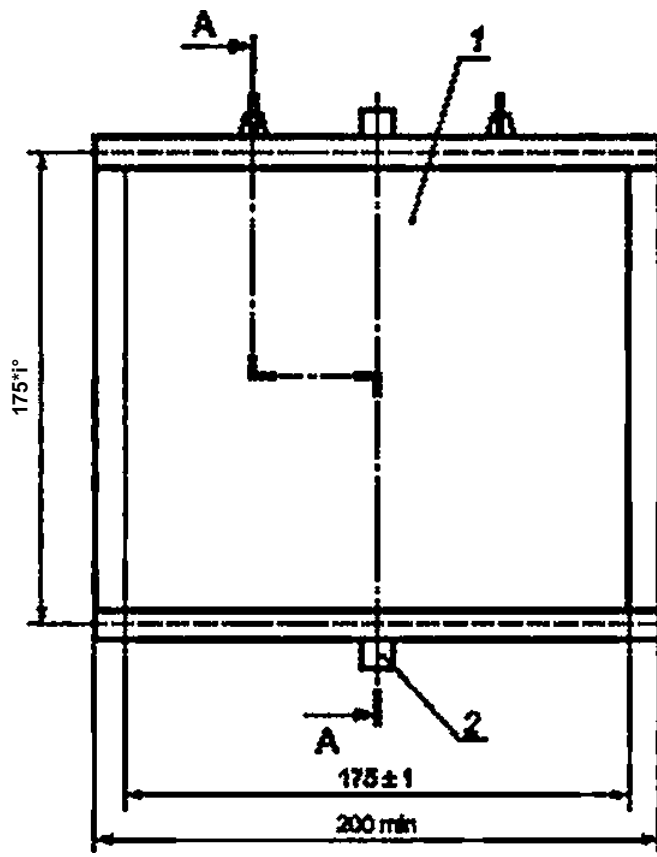
. 2-5 —

35

10 —

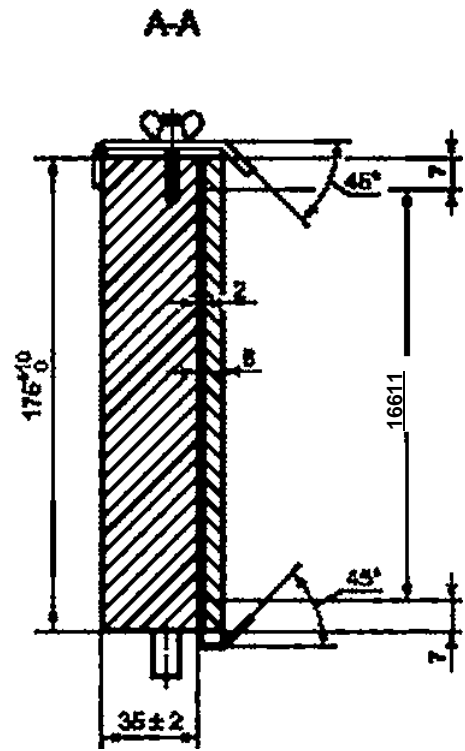
(. 9.13.2)

Размеры в миллиметрах



f— ; 2—

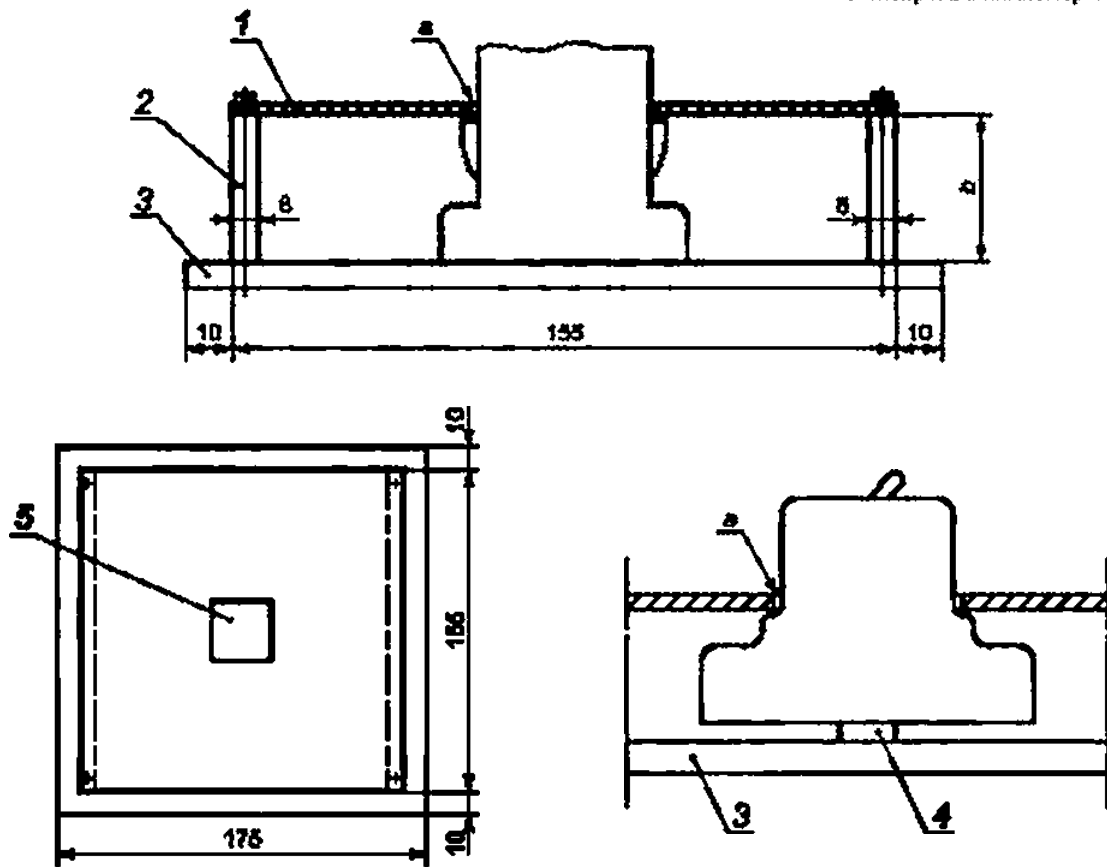
11 —



(. 9.13.2)

IEC 60898-1—2020

Размеры в миллиметрах

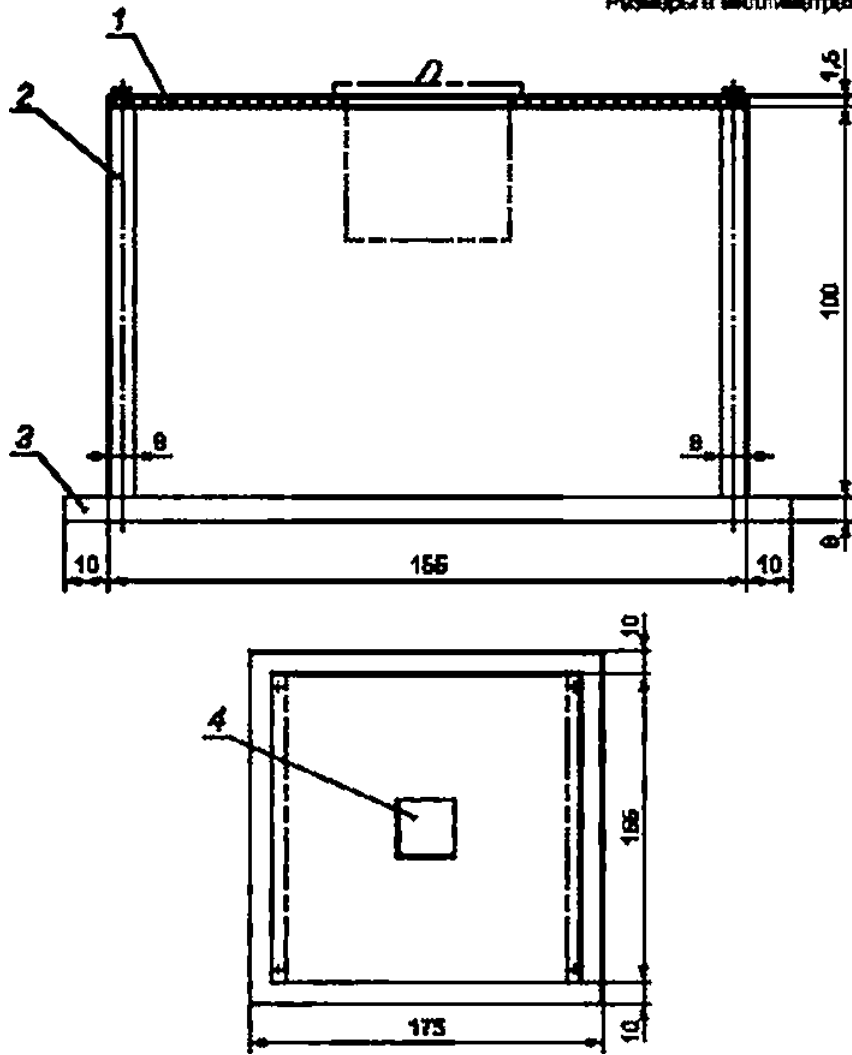


t — ; 4 — ; 1 ; 2 — ; 3 — ; 5 — ; 1—2 ;

12 —

(.9.13.2)

Размеры в миллиметрах



1— ; 2— ; 3— ;

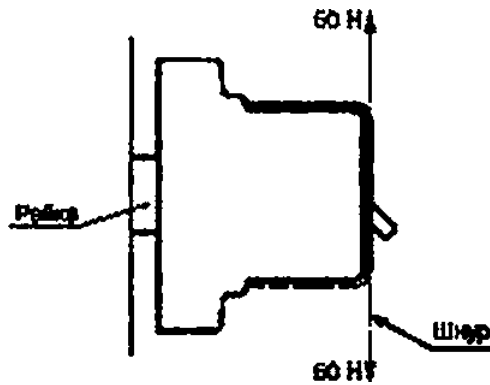
4—

1,5 ; 2—

8 ; 3—

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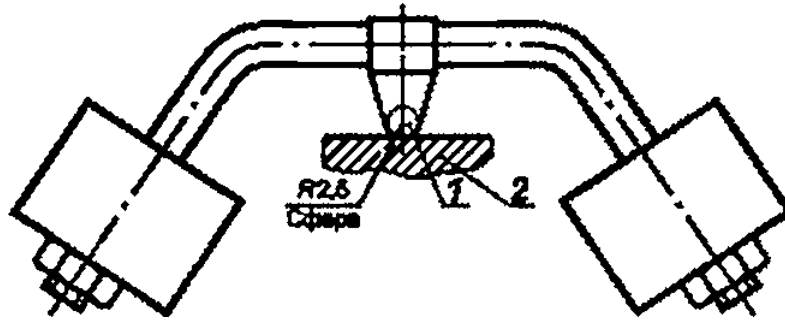
(. 9.13.2)



14—

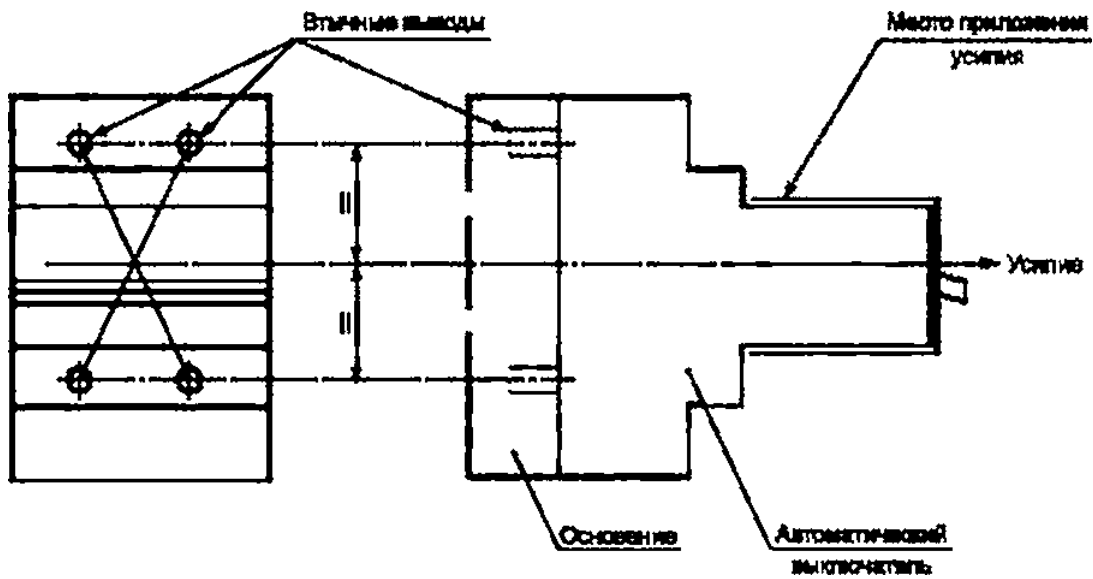
(. 9.13.2.4)

IEC 60898-1—2020



1 — ; 2 —

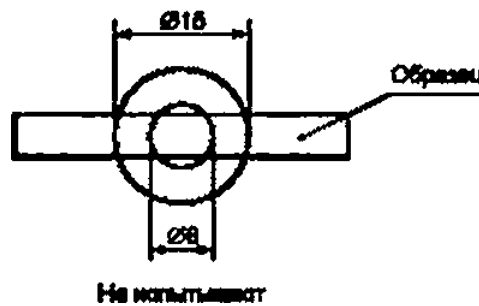
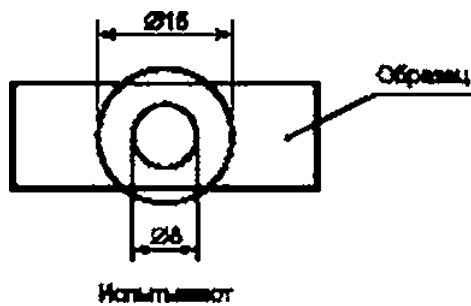
15 —



16 —

(. 9.13.2.5)

Размеры в миллиметрах



17 —

(. 9.15)

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a)

$L_{d0} \cdot \omega$

ft

i_a —

L/R —

L —

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UR

t

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b) <

$i_a / I ;$

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UR.

$= \arctg \frac{UR}{Rt/L}$

$< -2nf (f —)$.

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IEC 60898-1—2020

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IEC 60664-1:2007.

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IEC 60664-1
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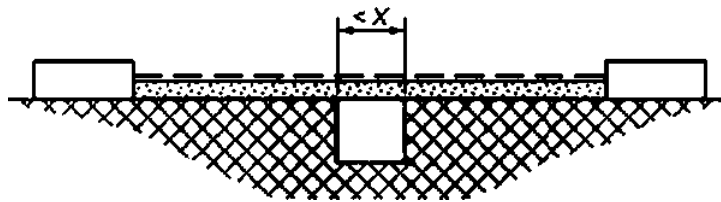
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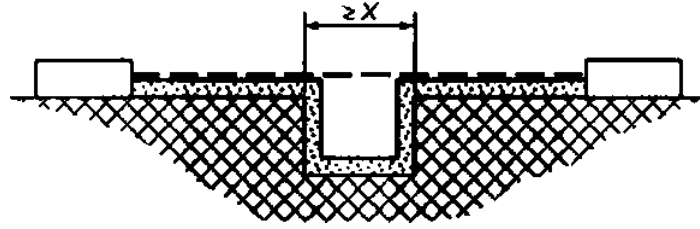
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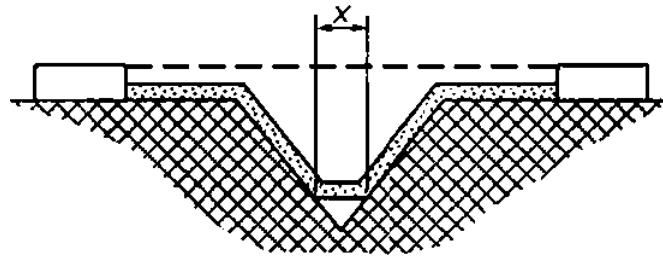
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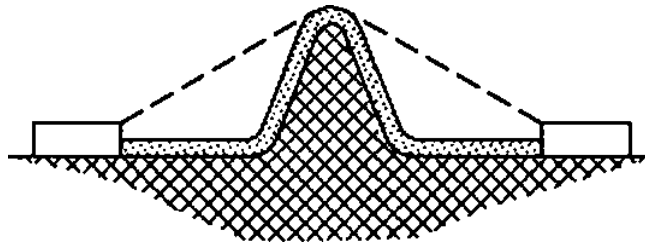


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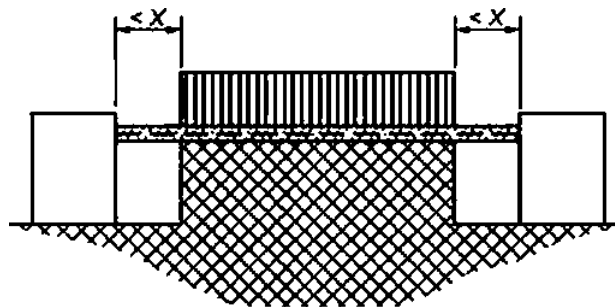
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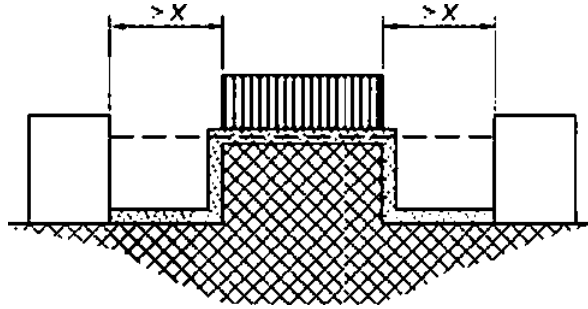
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.1. 2

IEC 60898-1—2020

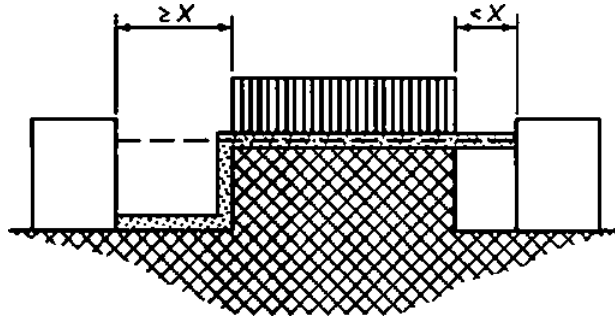
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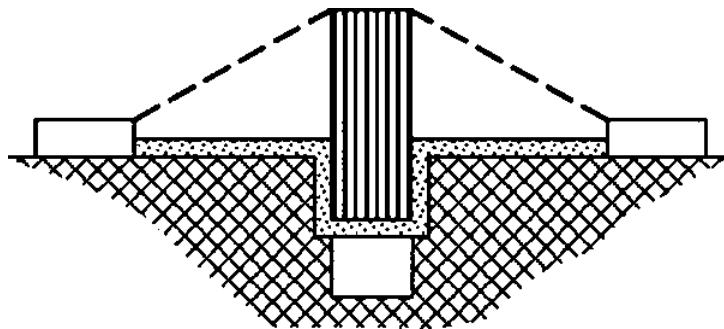


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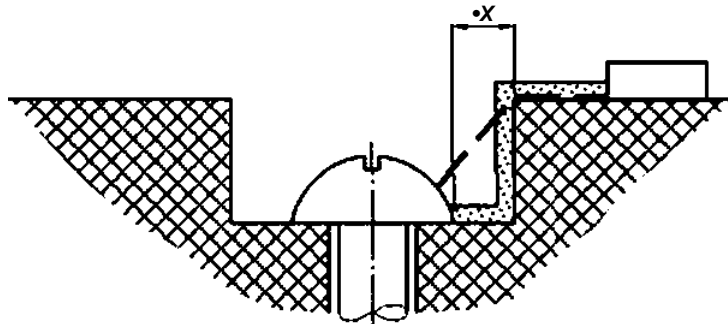
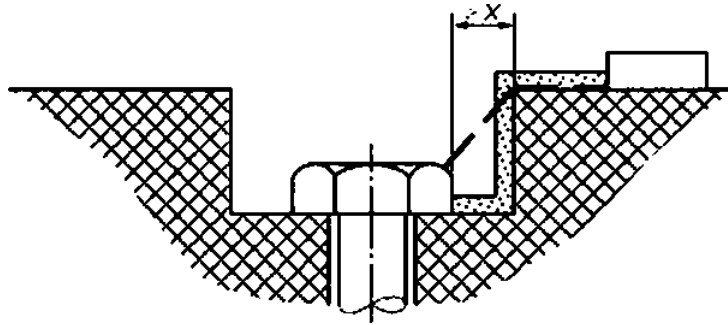


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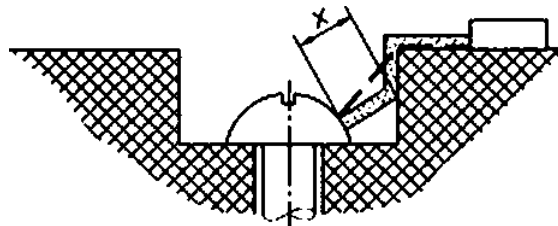
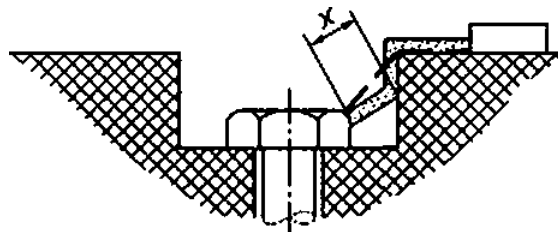
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.1. 3

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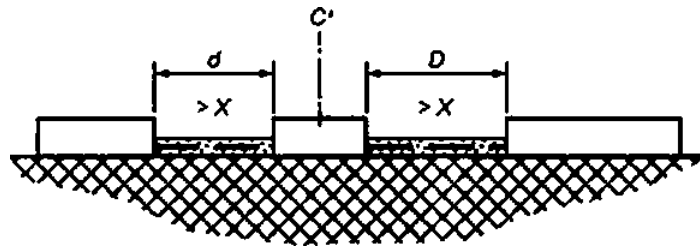
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IEC 60898-1—2020

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	9.15		
	9.7.5.4 9.7.1 9.7.2 9.7.3 9.7.4 .7.5.2 9.8 9.9	28-	
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IEC 60898-1—2020

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81 » » 230/440 (. 1). 81 9»			9.12.10. 9.12.11.2. 9.12.11.3 9.12.11.4. « » « . 9.12.11.3.

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		3 -	3 -	3 -	3 -
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Du + D,		3 -	3 - *1)	3 -	3 -
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E1	3 + 3^		3 -	3 -	3 -
	3 + 3*)		3 -	3 -	3 -
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IEC 60898-1—2020

.2,
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 d). 9.12.11.4.3,). 9.12.11.4.2.
 9.5
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fit.

C_t

C_f

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(. D.5).

(. D.6).

(I_{cn}) 1 %.

1 60947-2.

(I) 2

D.2

D.3

D.3.1

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a)

I, (. 3.5.14.6)

b)

D.3.3.

(. 3.5.14.7),

D.3.2.

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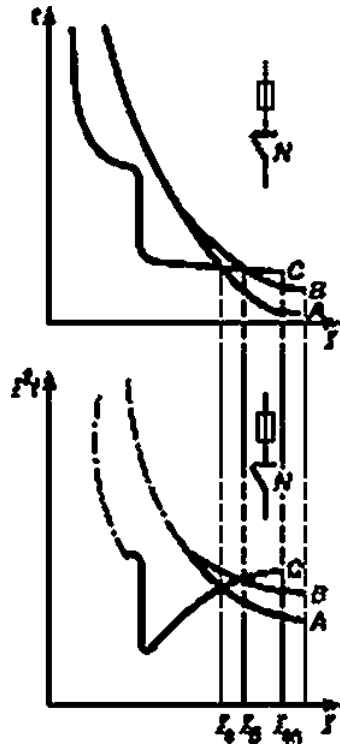
D.3a).

b)

()

D.6.4

9.12.12.2.

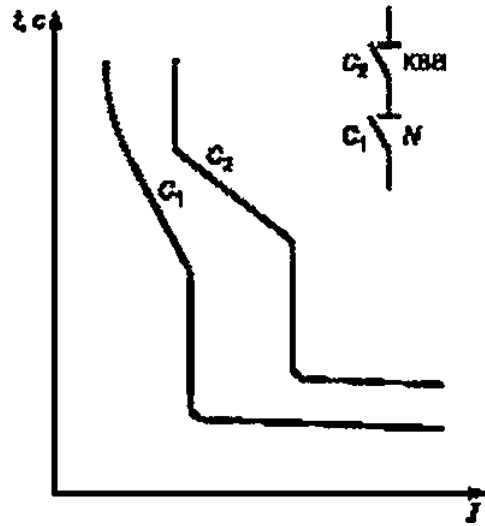
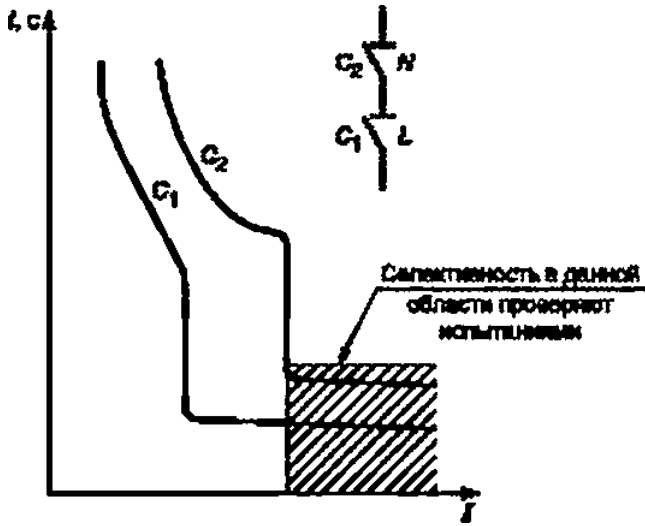


J— :—
 (5.2.4); f_B —
 <3.5.14.6>: J_g — (3.5.14.7); —
 ; — ; —
 (N) (Δt); t—

1
 2

.8 —
 fit

D.1 —

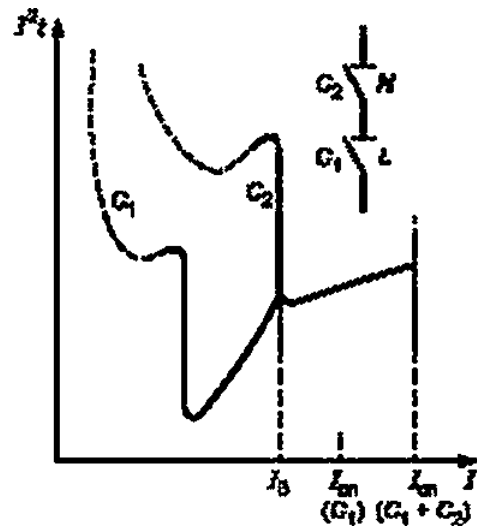
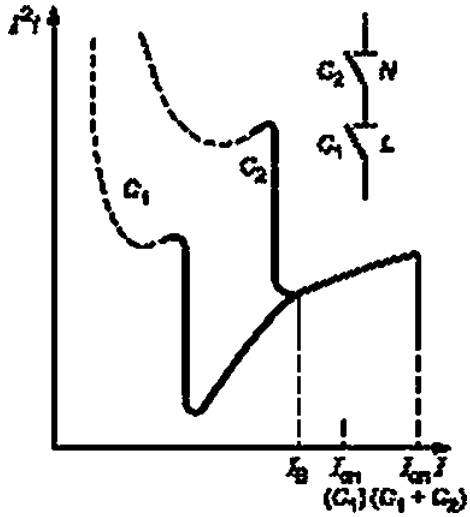
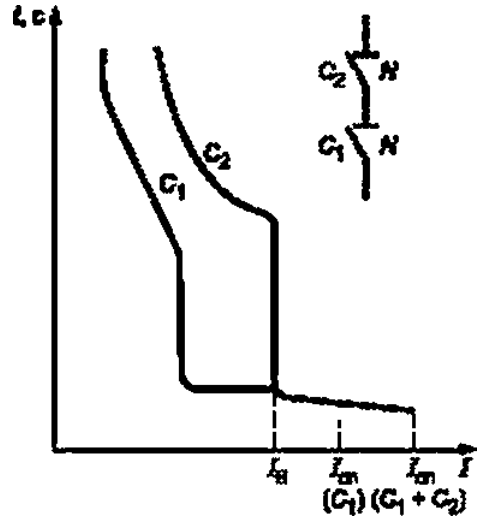
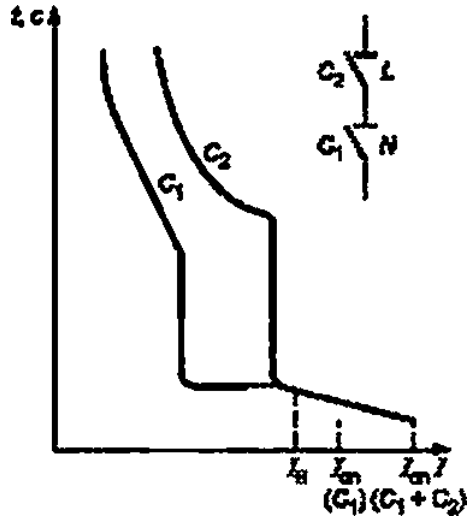


(1) ()
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 () t — , > —
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(—) (N)
 ; 2 —
 (8) () : t — : t —
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0.2 —

IEC 60898-1—2020



0, — (N);
 3 — ; \hat{I}_{in} — ; fg — ;
 ()

(W);
 I — ; i_w — ;
 I_0 — ;
 ()

1
 2 > (, *) S / (I > I_q)
 3

2
 () ,

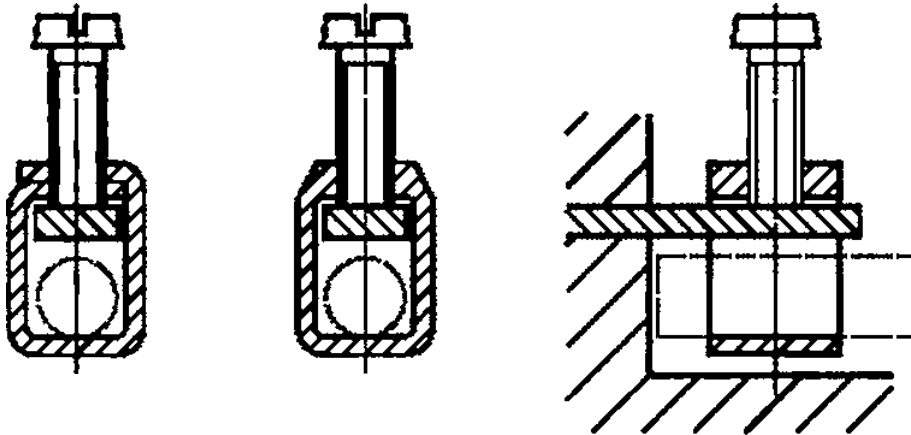
D.3 —

IEC 60898-1—2020

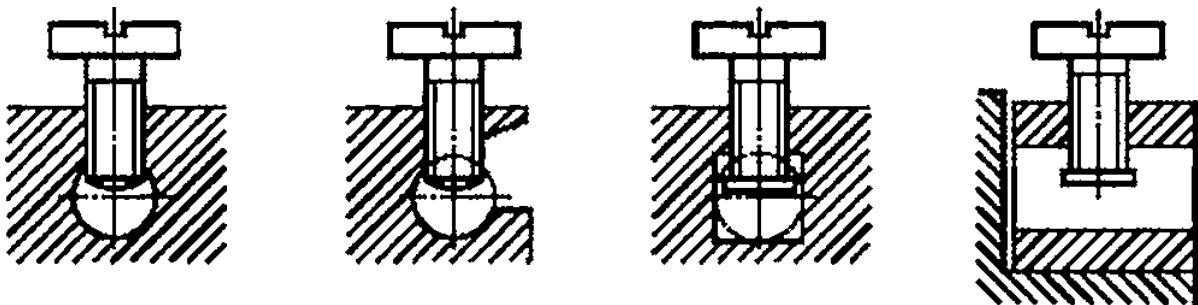
(F)

F.1—F.4

(8.1.5).



а) Завинты с болтами

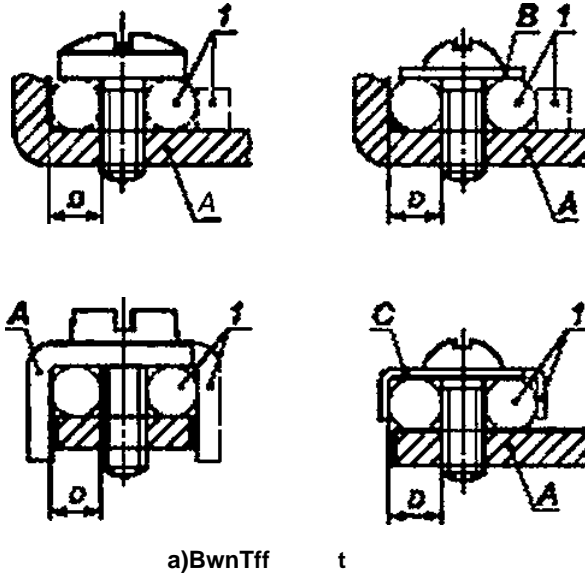


) »

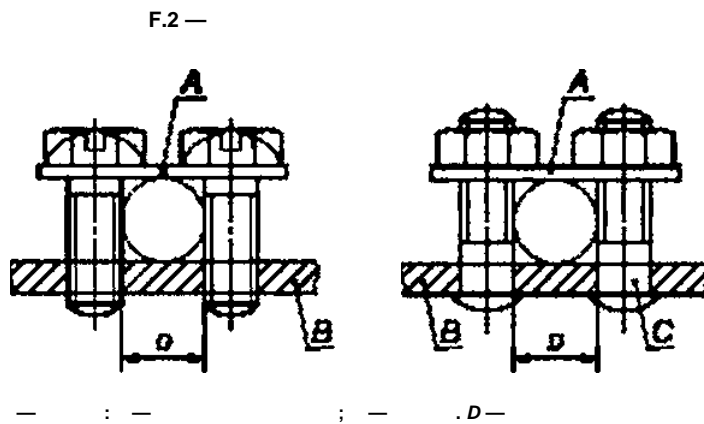
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F.1 —

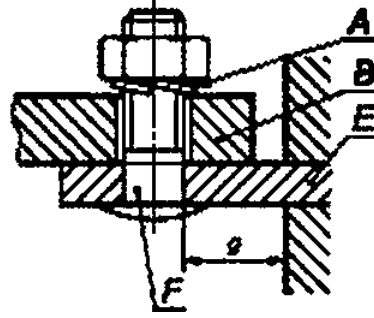
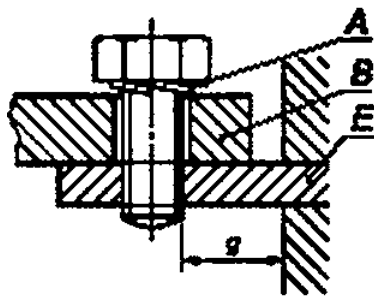


1— (; —) ; 2— (; —) ; —
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F.3—

IEC 60898-1—2020



— ; —

. E — ; F —

F.4 —

(G)

ISO AWG

G.1

ISO. ²	AWG	
		, ²
1.0	18	0.82
1.5	16	1.30
2.5	14	2.10
4.0	12	3.30
6.0	10	5.30
10.0	8	8.40
16.0	6	13.30
25.0	3	26.70
35.0	2	33.60
50.0	0	53.50
— AWG.	ISO.	-

IEC 60898-1—2020

()

.1.

(0,05 ± 0.01) *

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200 » 200

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23' : (0.92 ± 0.05) / 3:
: 110' — 120* .

2 .

.1.

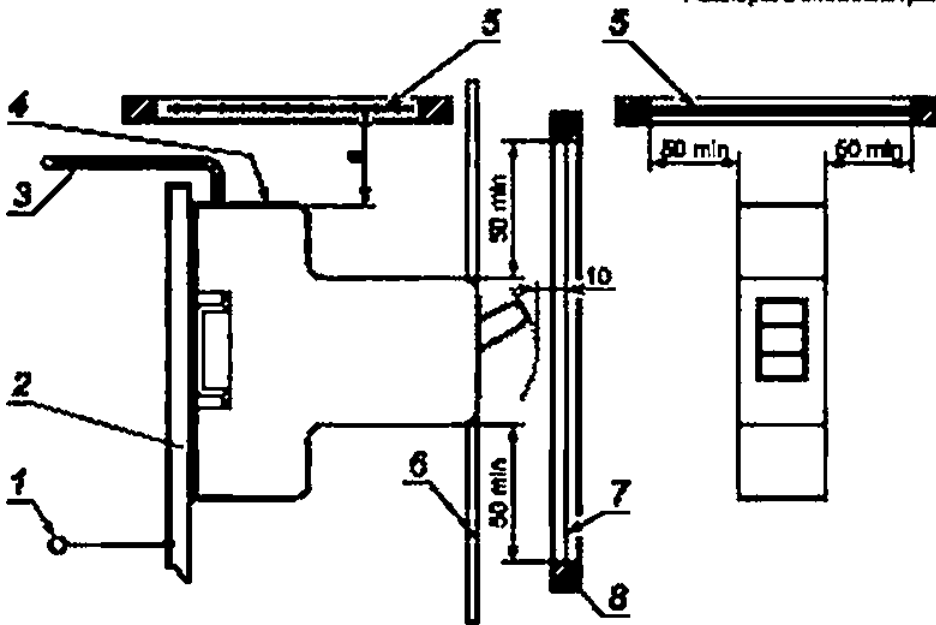
() .2. (.)
(. 3—4).

R: 1.5 :

50 .

9.12.9.2.

Размеры в миллиметрах

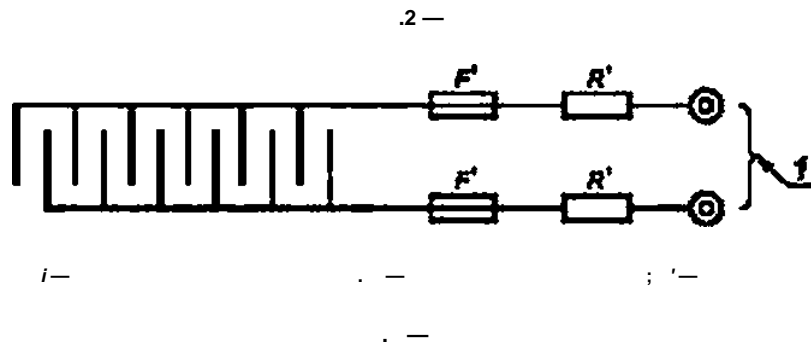
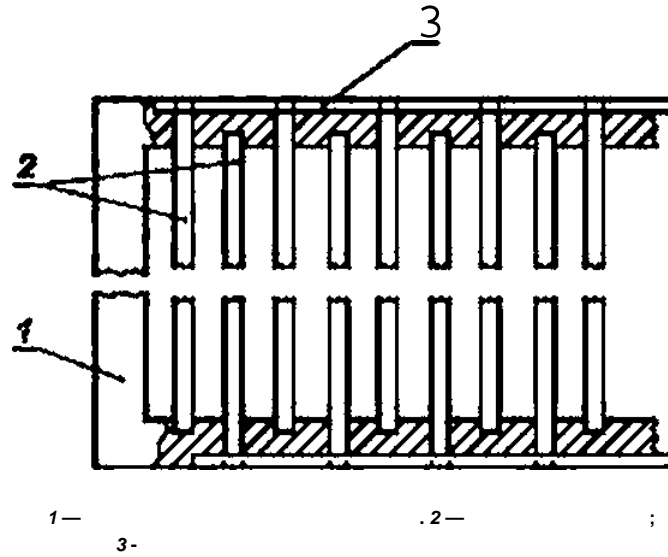


— 5 — (F.2 —) : — : 7 — : 3 — : 4 — : —

.1 —

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IEC 60898-1—2020

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1.2

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D)

b)

1.3

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J.1		J						-
{ J.3.6)			40	.				-
			10	.	3.			
1	.							
2	16	.						
3						30	.	-
				:		—		;
J.2								
	2.							
J.3								
	3			:				
J.3.1		(clamping units):		,				-
				,				
J.3.2		(screwless-type terminal):		,				-
				,				
	—		J.2.					
J.3.3		(universal terminal):		,				-
	()					
	—		(
J.3.4		(non-universal terminal):		,				
			(
J.3.5		(push-wire terminal):		,				
			(
J.3.6		(unprepared conductor):		,				
1	,		,					
2	«		»	,				
				,				
J.4								
	4.							
J.S								
	5.							

IEC 60898-1—2020

J.6

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J.7

7.

J.8

J.8.1

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8.1.5

8.1.5.2

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8.1.5.1. 8.1.5.3. 8.1.5.6 8.1.5.7.

J.2.

J.9.1

J.9.2

J

9.4

9.5.

J.8.2

-

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J.8.3

J.9.1 J.9.2.

J.1.

J.9.1 J.9.2.

J.1 —

					AWG				
*			*	-					*
	*	*				®¹	®¹		
2			2						
1.0	1.2	1.4	1.0	1.5	18	1,02	1.16	18	1.28
1.5	1.5	1.7	1.5	1.8	16	1.29	1.46	16	1.60
2.5	1.9	2.2	2.5	2.3	14	1.63	1.84	14	2,08
4.0	2.4	2.7	4.0	2.9	12	2.05	2.32	12	2.70

J.1

* + 5 %.
 > + 5 % I. .
 — AWG — 172-71ASTM 11 60228.
 S-19-81.S-66-524. S-68-516ICEA.

J.8.4

J.2.

J.2 —

13		1.0	2.5	
. 13 20		1,5	4,0	

no J.9.1 J.9.2.

J.8.5

J.8.6

J.9.1 J.9.2.

J.8.7

J.9.3.

J.9

9 9.4 9.5

J.9.1

J.9.1.1

J.2.

J.8.1.

90"

J.9.1.2

J.2.

J.8.1.

IEC 60898-1—2020

J.9 J

J.2.

J.3.

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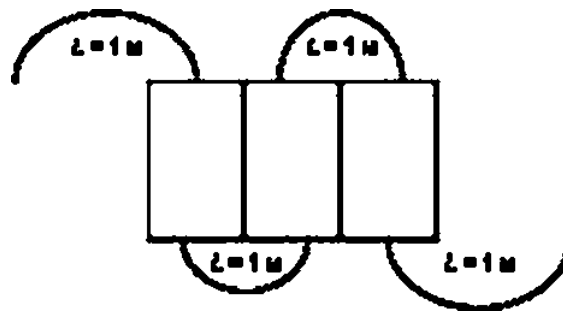
J.3 —

1.0	35
1.5	40
2.5	50
4.0	60
6.0	80
10.0	90

J.9.3

10.

(—),
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 ():
 ():
 10
 J.1.



J.1 —

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192

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40'

± 5'

10

20

10
(20 ± 2)

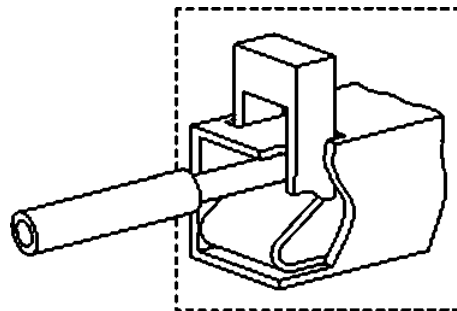
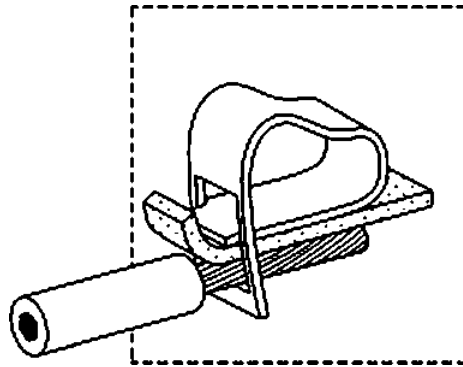
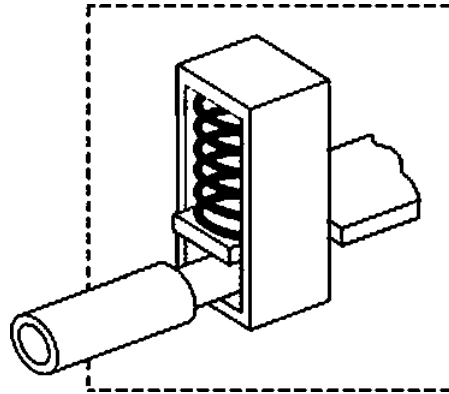
30 * -

192-

: 22.5

24-

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J.2 —

IEC 60898-1-2020

J.10

IEC 60228:2004. Conductors of insulated cables ()

IEC 60998-1, Connecting devices for low-voltage circuits for household and 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 172-17. Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Members, for Electrical Conductors ()

{ }

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.1

1. (. .3.2)

6,3

0,8

16

(.)

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(—)

2.5 2

{ 4 2 AWG 12 }.

.2

2

IEC 61210:1993. Connecting devices— Flat quick-connect terminations for electrical copper conductors — Safety requirements ()

.3

3

.3.1

(Rat quick-connect termination):

.3.2

(mate tab):

. .

(female connector):

.3.4

(detent): ()

.4

4.

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6

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IEC 61210

- a)
- b)
- c)
- d)

(. . . .1);

IEC 60898-1—2020

.1 —

1.0 1.5 2.5 4.0	
--------------------------	--

.7

7.

.8

8

8.1.3

.8.1

8.1.3:

8.1.5

.8.2

.8.2.1

.8.2.2

16

6,3

0.8

.2— .5.

.4.

.8.2.3

.9

9

9.5

.9.1

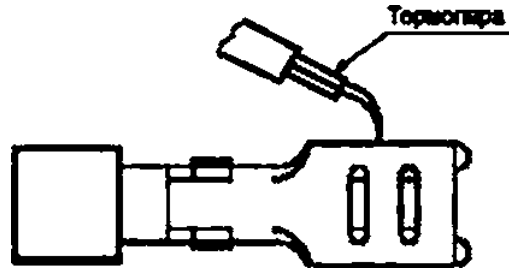
10

.2 —

96	88
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9.8.3:

.1.



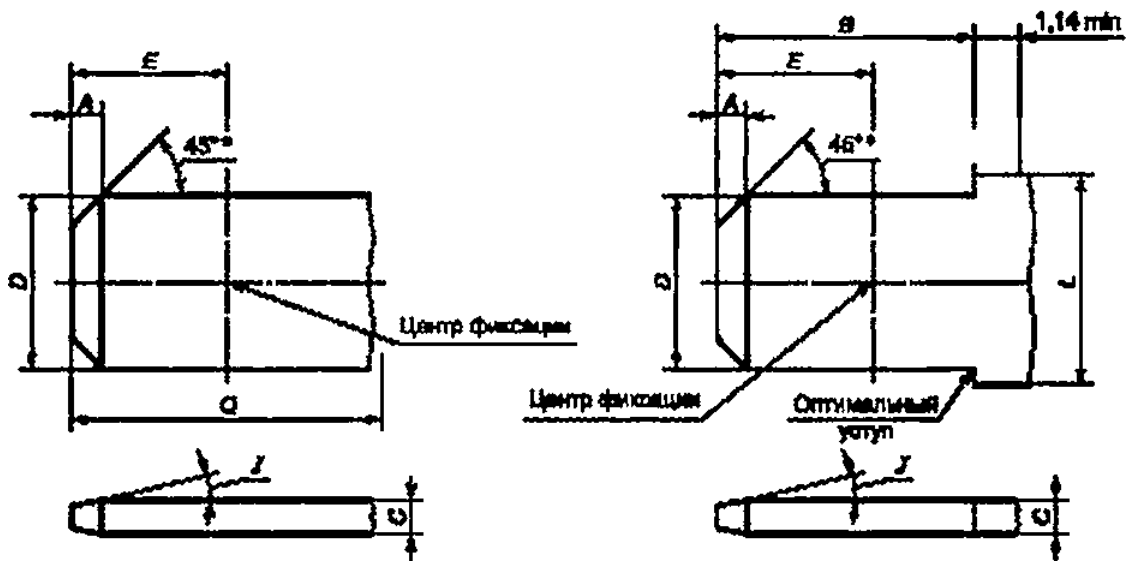
.1 —

.3 —

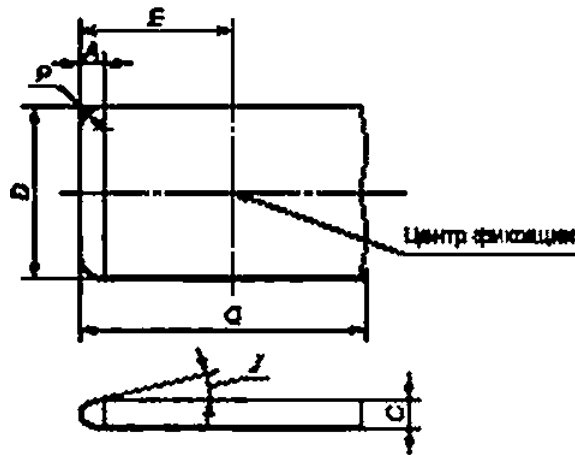
			6 min		0	ε	F	J		N		
6.3 0.8		1.0	—	0.84	6.40	4.1	2.0	12*	2.5	2.0	1.8	—
		0.7	7.8	0.77	6.20	3.6	1.6	8'	2.2	1.8	0.7	8.9
		1.0	—	0.84	6.40	4.7	2.0	12*	—	—	1.8	—
		0.5	7.8	0.77	6.20	4.3	1.6	8'	—	—	0.7	8.9
1	— — .	.2— .5.										
2												

IEC 60898-1—2020

Размеры в миллиметрах

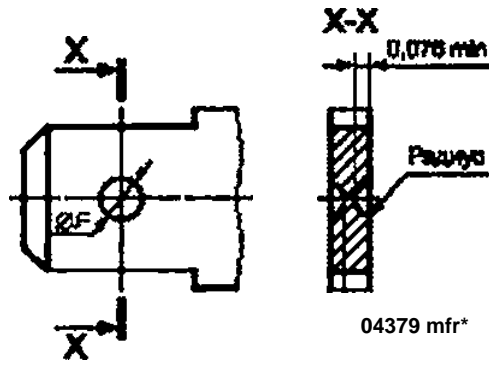


Альтернативный вариант



1	45°			
2	L			(,)
3				
4				
5	—		Q	* 1.14
6				, 1.3
	0.025			

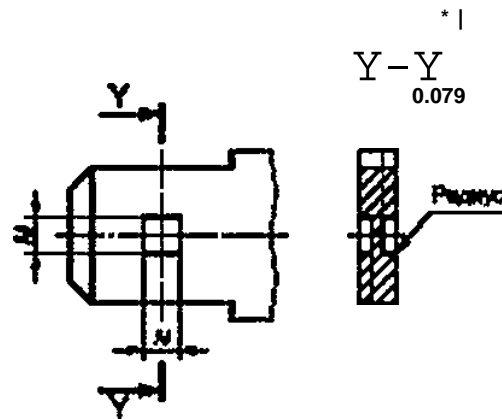
.2—



0,076 .

.3 —

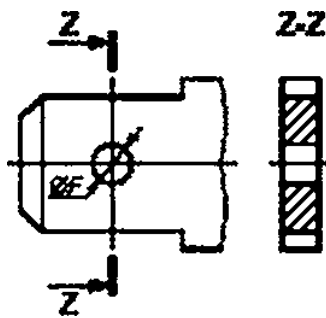
(. .2)



«0,13 -

.4 —

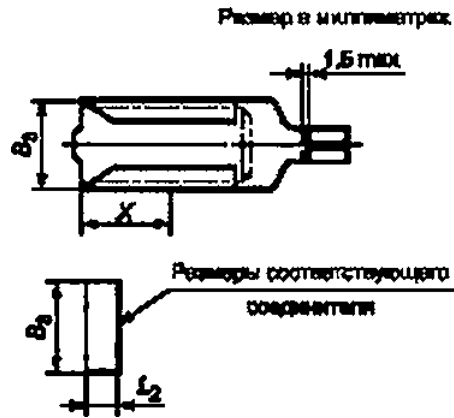
(. .2)



0,076 .

.5 —

IEC 60898-1—2020



1

3

(

).

2

X

,

-

3

,

-

-

4

,

.6—

.4—

	8_3	
6.3 ± 0.8	7.8	3.5

.10

IEC 60760:1989. Flat, quick-connect terminations (

)

{ L)

L.1

58 %

50 %

16 2.

L.2

L.3

3

L.3.1

(treated conductor):

L.3.2

(untreated/unprepared conductor):

L.3.3

(equalizer):

L.3.4

(reference conductor):

L.3.5

(S_f) (stability factor S_f):

L.4

4.

L.5

5.

L.6

6

:

IEC 60898-1—2020

L.1.

11)

L.1—

	1
	Al/Cu

L.7

7.

L.8

8.

.5.2

L.2.

9.4

11

11.

L.2 —

4*	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 80	10.0 35.0
80 100	16.0 50.0
100 125	25.0 70.0
50	1,0 10,0 ²
	D.2IEC61545:1996.

8.1.5.4

L.9.

L.9

9

/

;

L.3.

£.9.2

L.3 —

	8 1.4.4 ^{4*}		1*>			
	1		AI			
(L.1)	L.2	L.5	5	10	L.2	L.5
9.4	L2	11	5	11	L.2	11
9.5.2 -	L.2		5		L.2	
9.5.3 -	L.2.11	12	5.11	12	L.2.11	12
9.5.4 *»	L.24	11	5	11	L.2	11
9.8 -	L.5		10		L.5	
9.9 -	L.5		10		L.5	
L.9.2 -	11		11		11	

>

(

>

9.5.2

70 2—

L.4 —

					AWG				
{					}				
»			*	-					*
	-	*				4*	11			1.
2			2						«
1.0	1.2	1.4	1.0	1.5	18	1.07	1,23	18	1.28
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	6.1	6	5.73
35.0	—	7.9	25.0	7.0	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
70.0	—	12.0	50.0	12.0	00	9.266	10.64	—	—

IEC 60898-1—2020

L.4

> + 5 %.
 > + 5 %
) 5 I. IEC 60228.
 — no IEC 60228.
 AWG — noASTM 172-17.

L.9.1

9.1.

L.5.

L.5 —

(S). ²	(I).
1.5	6
2.5	.6 13
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

L.9.2

L.9.2.1

L.9.2.2

(. L.2—L.6).

L.9.2.3

90 %

L.1.

10

L.5

L.6.

(. L.3.3)

L.6 —

, ²	AWG	,
10	8	200
16.0 25.0	6 3	300
35.0 70.0	2 00	460

L.7.

L.7 —

0	50	45	45
51	125	105	85
126	225	185	155

150

(25 ± 1 5)

(150 ± 10)

(L.1).

450

600

20 ± 1 25 *

L.9.2.4

0.07² (

30 AWG).

600

50 « 50

6 10

L.9.2.5

500

1

1

1.12

L.8.

24

75 *

25-

25. 50. 75.

100. 125.175. 225, 275. 350.425 500

5

5

25

5

+ 5 *

IEC 60898-1—2020

(S*) 11
d 11

d

110* ;
± 10* .

L9.

L.8 —

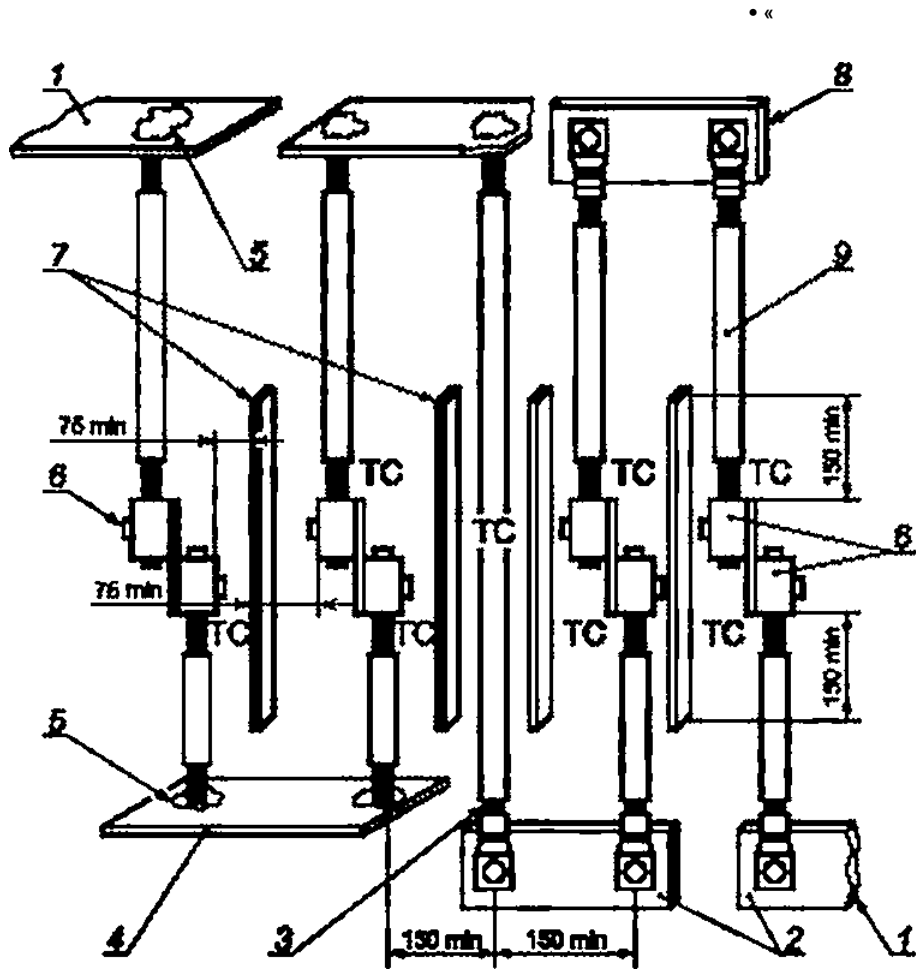
			AWG		
15	2.5	26	15	12	30
15 20	4.0	35	15 25	10	40
20 25	6.0	46	25 40	8	53
25 32	10.0	60	40 50	6	69
32 50	16.0	79	50 65	4	99
50 65	25.0	99	65 75	3	110
65 80	35.0	137	75 90	2	123
80 100	50.0	171	90 100	1	152
100 125	70.0	190	100 120	0	190

L.9 —

D

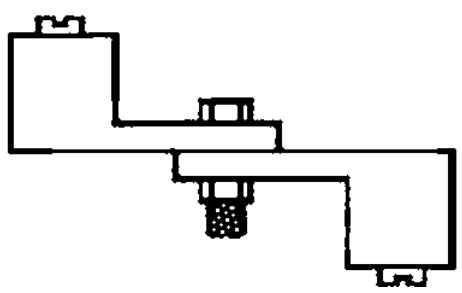
				tf » 9-	S'» - 0
		*	*		
1	25	79	78	1	0.18
2	50	80	77	3	2.18
3	75	78	78	0	-0.82
4	100	76	77	-1	-1.82
5	125	77	77	0	-0.82
6	175	78	77	1	0.18
7	225	79	76	3	2.18
8	275	78	76	2	1.18
9	350	77	78	-1	-1.82
10	425	77	79	-2	-2.82
11	500	81	78	3	2.18

$$D \text{ ----- } \frac{1}{11} = 0.82.$$



1— ; 2— ; 3— ; 4— ; 5— ; 6—
 ; 7— ; 8— ; 9—

Рисунок L.1 — Испытательная установка



L.2

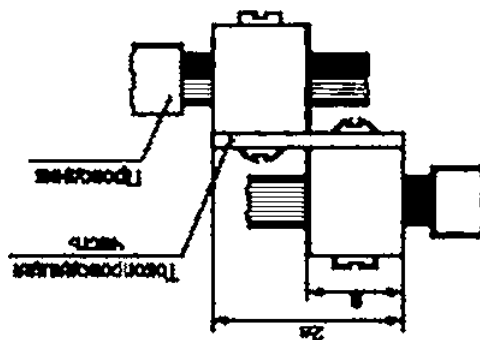


Рисунок Л.3

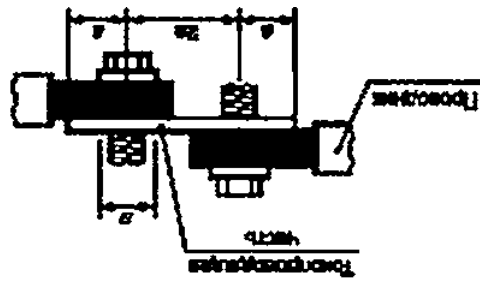


Рисунок Л.4

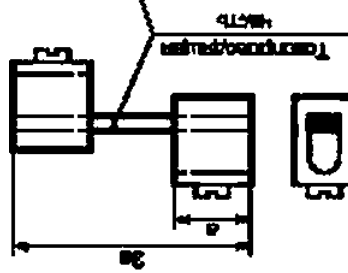


Рисунок Л.5

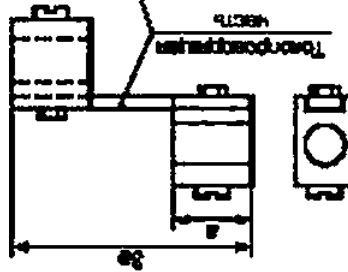


Рисунок Л.6

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.1

IEC 60050 ()		IEC 60050-113—2015 « . 113. »
		IEC 60050-151—2014 « . 151. »
	MOD	30372—2017 (IEC 60050-161:1990) « - . »
		IEC 60050-300—2015 « . 311. , . 312. , - . 313. . 314. - . »
		IEC 60050-321—2014 « . 321. »
		IEC 60050-411—2015 « . 411. »
		IEC 60050-436—2014 « . 436. »
		IEC 60050-441—2015 « . 441. , - . »
		IEC 60050-442—2015 « . 442. »
		IEC 60050-444—2014 « . 444. »
		IEC 60050-445—2014 « . 445. »
		IEC 60050-447—2014 « . 447. »
		IEC 60050-581—2015 « . 561. - *
		IEC 60050-651—2014 « . 651. »
		IEC 60050-841—2016 « . 841. »
		IEC 60050-901—2016 « . 901. »
	IEC 60050-902—2016 « . 902. »	

IEC 60898-1—2020

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IEC 60227 ()	IDT	IEC 60227-1—2011 « 450/750 »	1. -
	1DT	IEC 60227-2—2012 « 450/750 »	2. -
	IDT	IEC 60227-3—2011 « 450/750 »	.
	IDT	IEC 60227-4—2011 « 450/750 »	.
	1DT	IEC 60227-5—2011 « 450/750 ()»	5.
	1DT	IEC 60227-6—2011 « 450/750 »	.
	1DT	IEC 60227-7—2012 « 450/750 »	7. -
IEC 60269 ()	1DT	IEC 60269-1—2016 « 1. »	.
	MOD	31196.2.1—2012 (IEC 60269-2-1:1987) « 2-1. 1—III»	-
	MOD	31196.3—2012 (IEC 60269-3:1987. IEC 6 269- :1978) « 3. »	-
	IDT	IEC 60269-3-1—2011 « 3-1. () 1—IV»	. -
	IDT	IEC 60269-4—2016 « 4. »	.
	IDT	IEC 60269-4-1—2011 « 4-1. 1—III. »	. -
	IDT	IEC 60269-6—2013 « 6. »	.
IEC 60364-4-41:2005	MOD	30331.3—95 (364-4-41—92)/ 4-41—92) « . 4. 50571.3—94 (364- » ^{1*}	-

1 . 4-41. 50571.3—2009 (60364-4-41:2005) « -
».

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IEC 60417:2002	MOD	28312—89 (417—73) « - »
IEC 60529:2013	MOD	14254—2015 (IEC 60529:2013) « , - (IP)»
IEC 60664-1:2007	—	1)
IEC 60664-3:2016		IEC 60664-3—2015 « 3. , - »
IEC 60695-2-10:2013		IEC 60695-10-2—2013 « . 10-2. »
IEC 60695-2-11:2000		IEC 60695-2-11—2013« . 2-11. »
IEC 60947-1:2007		IEC 60947-1—2017 « 1. »
IEC 60947-2:2006		IEC 60947-2—2014 « 2. » ^{2*}
1 61545:1996	MOD	31604—2012 (IEC 61545:1996) « . »
<p>•</p> <p>— :</p> <p>• — ;</p> <p>• MOD — .</p>		

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60664.1—2012 « -

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50030.2—2010 (60947-2:2006) « -

2.

IEC 60898-1-2020

IEC 60038	IEC standard voltages ()
IEC 60228A:1982	First supplement to Publication 228. Conductors of insulated cables — Guide to the dimensional limits of circular conductors ()
IEC 60060-1:1989	High-voltage test techniques — Part 1: General definitions and test requirements ()
IEC 60112	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions ()
IEC 60364-1	Low-voltage electrical installations — Part 1: Fundamental principles, assessment of general characteristics, definitions ()
IEC 60898-2:1996	Circuit-breakers for overcurrent protection for household and similar installations — Part 2: Circuit-breakers for a.c. and d.c. operation
IEC 61009-1:1996	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's)— Part 1: General rules ()
IEC 61009-2-1:1991	Residual current operated circuit-breakers with integral overcurrent protection for household and similar use (RCBO's) — Part 2-1: Applicability of the general rules to RCBO's functionally independent of line voltage ()
IEC 61009-2-2:1991	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's) — Part 2-2: Applicability of the general rules to RCBO's functionally dependent on line voltage ()
ISO 2039-2:1987	Plastics — Determination of hardness — Part 2: Rockwell hardness ()
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621.316.57:006.354

29.120.50

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