



**62133-2—  
2019**

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**(IEC 62133-2:2017, IDT)**



2019

62133-2—2019

1 « »

( « ») 4

2 044 « »

3 7 2019 . No 963-

4 62133-2:2017 «

2. » (IEC 62133-2:2017 «Secondary cells and batteries containing alkaline or other -add electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications — Part 2: Lithium systems». IDT).

5 62133—2004

6 (IEC)

29 2015 . 162- « 26 ».

) « ( 1 »),

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(www.gost.ru)

© . 2019

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5	.....	3
5.1	.....	3
5.2	.....	4
5.3	.....	4
5.4	..... / / .....	4
5.5	.....	4
5.6	.....	4
5.6.1	.....	4
5.6.2	.....	5
5.6.3	.....	5
5.7	.....	5
6	.....	5
7	.....	6
7.1	.....	6
7.1.1	.....	6
7.1.2	.....	7
7.2	.....	7
7.2.1	..... ( ) .....	7
7.2.2	..... ( ) .....	7
7.3	.....	7
7.3.1	..... ( ) .....	7
7.3.2	..... ( ) .....	8
7.3.3	.....	8
7.3.4	..... ( ) .....	8
7.3.5	.....	9
7.3.6	.....	9
7.3.7	..... ( ) .....	9
7.3.8	..... ( ) .....	10
7.3.9	..... ( ) .....	11
8	.....	13
8.1	.....	13
8.2	.....	13
9	.....	14
9.1	.....	14
9.2	.....	14
9.3	.....	14
9.4	.....	15
10	.....	15
	..... ( ) .....	16
	..... 8 ( ) .....	30

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D ( )	..... 32
( )	..... 32
F ( )	..... 32
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Secondary cells and batteries containing alkaline or other non-acid electrolytes. Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications. Part 2. Lithium systems

— 2020—05—01

1

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( );  
IEC 60050-482:2004, International Electrotechnical Vocabulary — Part 482: Primary and secondary cells and batteries ( 482.

IEC 61960. Secondary cells and batteries containing alkaline or other non-acid electrolytes. Secondary lithium cells and batteries for portable applications (

ISO/IEC Guide 51. Safety aspects — Guidelines for their inclusion in standards (

3

60050-482 / 51.

3.1 (safety):

3.2 (risk):

3.3 (harm):

3.4 (hazard):

3.5 (intended use):

3.6 (reasonably foreseeable misuse):

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3.7	( ) (secondary cell):	-
3.8	( ) (secondary battery):	-
3.9	(leakage):	-
3.10	(venting):	-
3.11	(rupture):	-
3.12	(explosion):	-
3.13	(fire):	-
3.14	(portable battery):	-
3.15	(portable cell):	-
3.16	(lithium ion polymer cell):	-
3.17	(rated capacity):	-
1	— 5 ( - ),	-
0.2/		-
2	— 60050-482:2004. 482-03-15. :	-
	« » « », .	-
3.18	$I_5$ (reference test current $I_5$ ):	-
	$I_5 = I_1 / 5$ ( 61434)	-
3.19	(upper limit charging voltage):	-
3.20	(maximum charging current):	-
3.21	(button cell, coin cell, coin battery):	-
1	— « » « »	-
	« » « »	-
	« » « »	-
2	— 60050-482:2004, 482-02-40. :	-
	« » « »	-
3.22	(cylindrical ):	-
—	60050-482:2004. 482-02-39.	-
3.23	(prismatic cell):	-

1 — -

2 — 60050-482:2004. 482-02-38. : -

« » ( .) « » -

« »,

3.24 { } (cell block, parallel connection):

, -

— 60050-482:2004. 482-03-39. : -

« ».

3.25 (functional safety):

, -

— 60050-351:2013. 351-57-06.

3.26 { } (end-of-discharge voltage, final volt-

age):

, -

— 60050-482:2004. 482-03-30. : -

« » « ».

#### 4

: -

a) ±1% — ;

b) ±1% — :

c) ±2' — :

d) ±0,1% — :

e) ±1% — ;

±1% — .

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#### 5

5.1

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1) ;

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5.2—57

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5.6.1

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2. , -

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5.6.3 -

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5.7 , -

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6 , -

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6 1. -

6 1. -

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D.

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1.

(25 ± 5) °C.

6

6

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7.2.1	5	—	—
7.2.2	—	3	3
7.3.1	5	—	—
7.3.2	—	5	5
7.3.3	3	3	3
7.3.4	5	—	—
7.3.5	5	—	—
7.3.6	—	5	5
7.3.7	5	—	—
7.3.8	:		
7.3.8.1	—	3	3
7.3.8.2	—	3	3
7.3.9	6* *	5	—
D.2	3	—	—
<p>&gt; 61* : 3 .                  ) ^ , 7.1.2 ( 2): .                  * 7.3.9. ) ( -                  ).</p>			

5.6.1

## 7

7.1

7.1.1

7.1.2.

(20 ± 5) \*

0.2 /,

(20 ± 5) \* .

7.1.2

7.3.1, 7.3.4. 7.3.5 7.3.9.

1 4

0.05 / , .

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7.2

7.2.1

a)

b)

c)

7.2.2

a)

b)

7 .

c)

7.3

7.3.1

)

(701 2) °C.

7.1.1

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b) 7.1.2 1 4  
 $(55 \pm 5)$  ,  
 $(55 \pm 5) \text{ }^\circ\text{C}$   
 $(80 \pm 20)$  -  
 24 , .

20 %  
 c) 7.3.2 ( )  
 a) b) 7.1.1  
 $(20 \pm 5)$  .  
 $(80 \pm 20)$  . -  
 24 20 %  
 1 , . -  
 ) 0.8 ( 0,1 30 . -  
 1—4 ( ) .  
 MOSFET). ( ) .  
 — 8 -  
 F. , , , -  
 c) 7.3.3 ( , ) -  
 a) b) 7.1.1  $(20 \pm 5)$  -  
 1 -  
 1 -  
 c) 7.3.4 ( )  
 a) b) 7.1.2  
 $(20 \pm 5) *$   
 $(5 \pm 2) \text{ }^\circ /$   
 1 .

(130 ± 2) ' .

30 ,

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7.3.5

a)

b)

7.1.2

(13 ± 0.78) .

c)

7.3.6

a)

b)

(20 ± 5) °C.

0.2 I<sub>c</sub>

2.0 I<sub>c</sub>

1.4  
6.0 ),  
1.2

.1 (

.1,

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2.0 I<sub>c</sub>

10

30-

c)

7.3.7

a)

. 8

b)

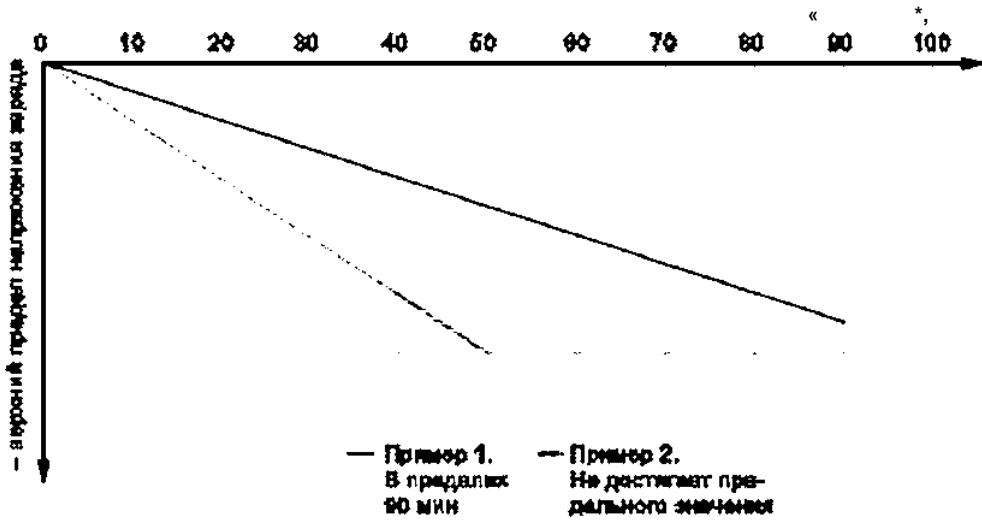
1 I<sub>c</sub>

90

( . 1 1).

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2 1).



7.3.8  
7.3.8.1  
a)

b)

7.1.1

3.

12

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3—

				7 -200 -7			
$\wedge = 7$	$h$	$1 = 1$ „	15		X	12	
	$< 3$	$S = 0.8$			Y	12	
	$Q = 200$	2			Z	12	
$l_1 = 7$						36	
		0.8			1.6		
f., Q —		; /j. < 3 —		$(l_2 \gg 17.62 \cdot 789.84)$ ; Al. 2 —			
		$(2 = 8)$ ; S —					

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7.3.8.2

a)

b)

7.1.1

4.

— 18.

4 —

		150		3

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7.3.9

a)

b)

1)

2)

i)

(20 ± 5) \*

0,2

ii)

1—4

5.

5 —

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)2) )	10 ± 2	4512
b)2)iv)	10 ± 2	4512
b) 3)i) A	512	5012
)3) )	1015	4515
*)		2.

62133-2—2019

iii)

iv)

5.

0.05 /

3)

i)

A.

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5.

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(45 ± 15)

B.

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ii)

A.

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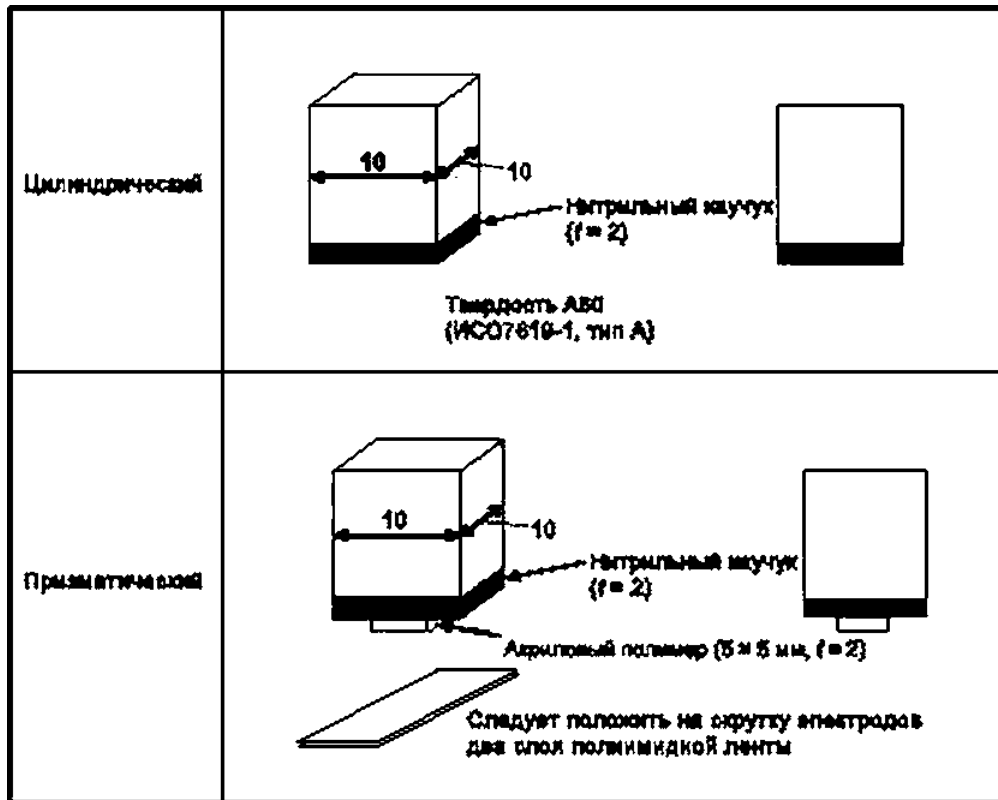


Рисунок 2 — Приспособление для нажатия

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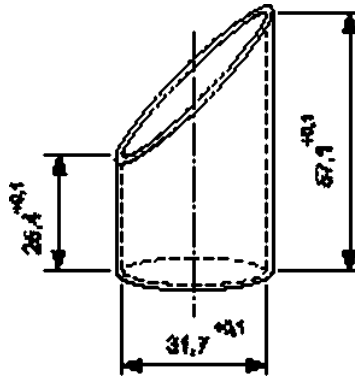
8.1

62188

8.2

3).

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9.1

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9.3

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61960.

8.2.

8.2.

9.4

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3.

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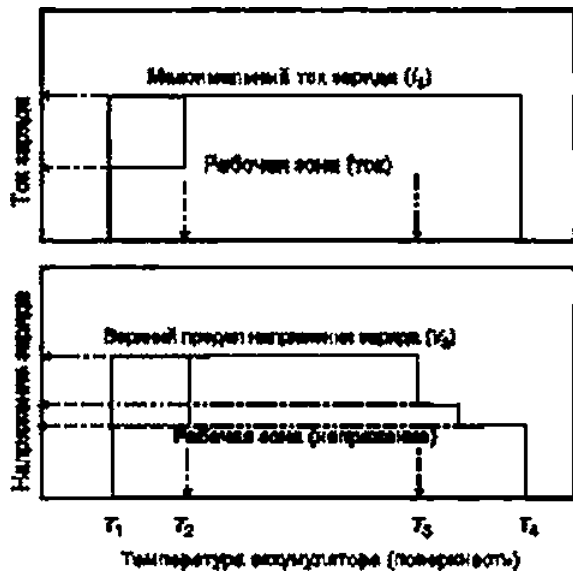
.2

( , , .1)

.3.1

.3.2  
.2.1

4.25 1 .1



.3.2.2

50

.1 —

					( — 3)
	( , )			4.25 / ( )	. 10' —45 * )
				4.25 / ( )	
				2.85 / ( )	
				3.80 / ( )	
	( , )			4.25 / ( )	. 10' —45 * )

.3.2.3

. 1.

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.1.

7.2—7.3,

a)

1.

b)

1.

c)

( , , .1).

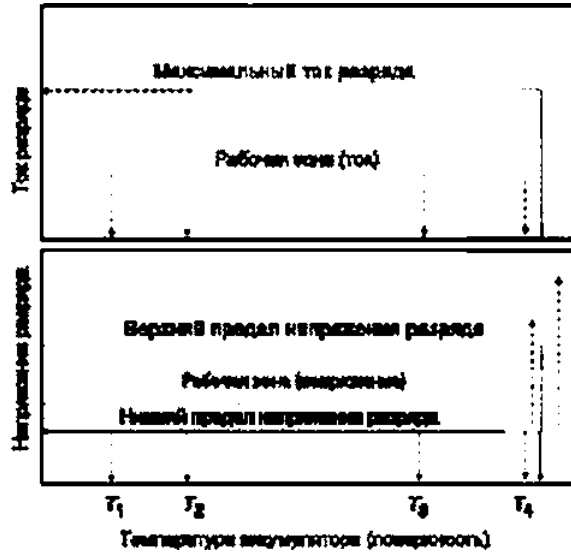
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.4.3.3		-	
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.4.3.4	8 7.2—7.3.		
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	.1.		
	7.2—7.3.		
a)		-	
		-	
b)		-	
. 5 *			
	7.2—7.3.		
.4.4.1			
		-	
.4.4.2			
		-	
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.4.4.3			
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.4.6  
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.4.6.2

.4.6.3

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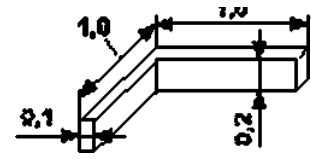
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.5.4

: — 0,2 : — 0,1 : L- ( — 90° ±1,0 99 % )  
 — 1,0 )  
 .5.5  
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8

( . . .4):  
 1)

2)

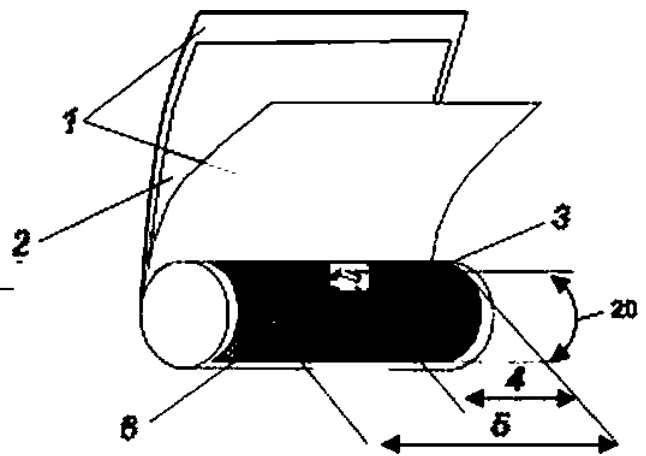
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.4.

L-

.2— ; 3— ; 4—1/2 ; 5— ; 6—

.4 —



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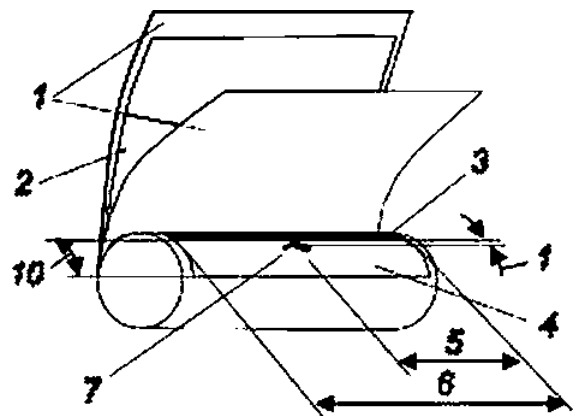
2)

.5.

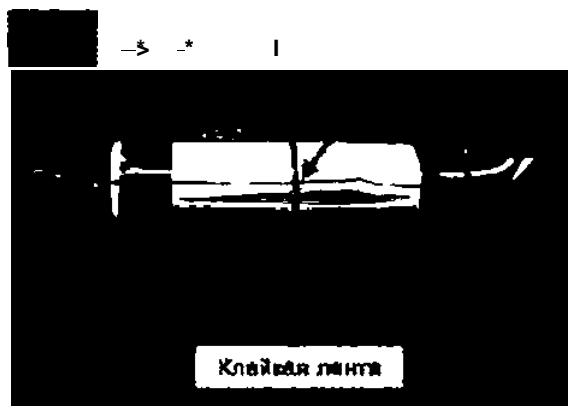
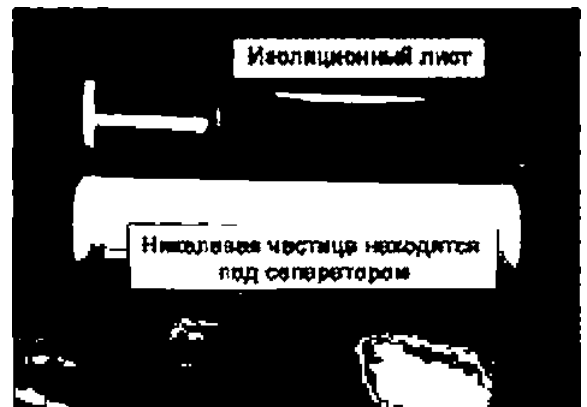
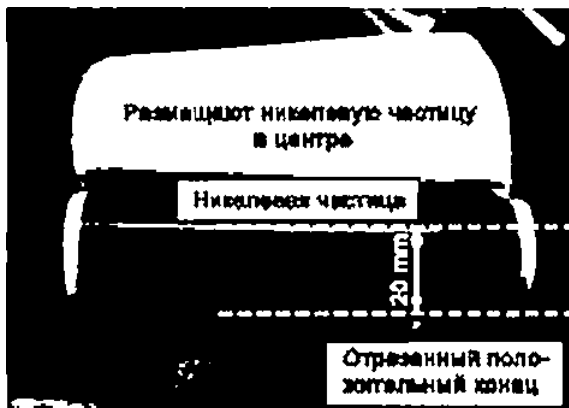
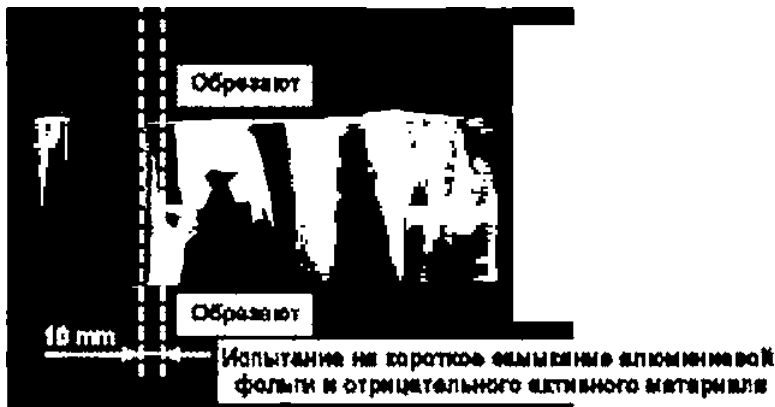
1.0

; 2— ; 3— ; 4— ; S— 1/2 ; .7—

.5 —



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.5.5.2

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

8

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.5.6

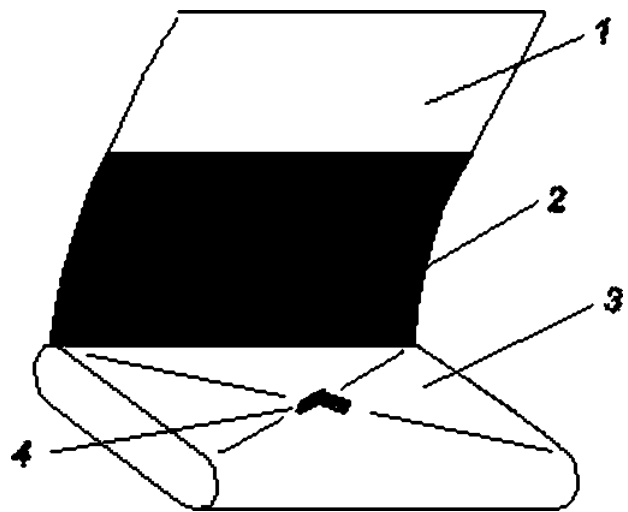
- a)
- b) 1)
- l)

.9.

.9):

- ii)

.7.



3— ; 2—  
: 4—

.7—

- ii)
- iv)
- v)
- vi)

( — 10 . — 25 )

30

b) in) — vi)

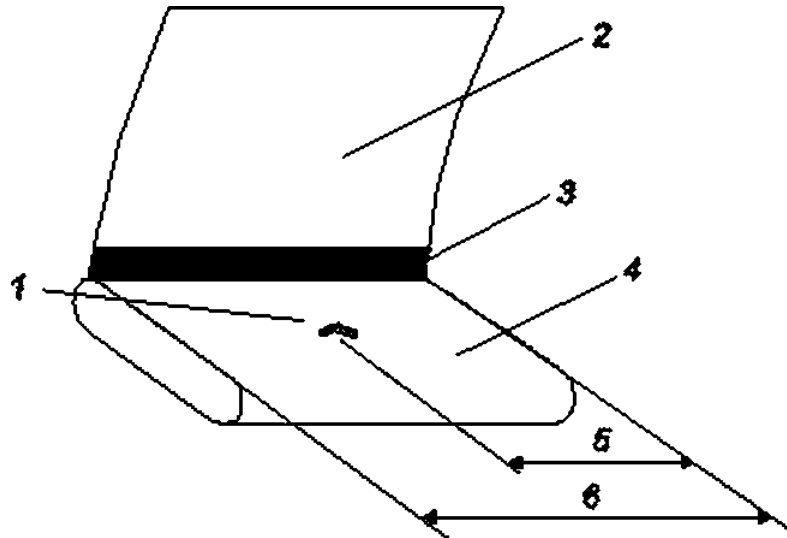
2) ( .5.6).

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2)

i)

ii)



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: 2 →

6 —

. 4 —

. 5 — 1/2

. 8 —

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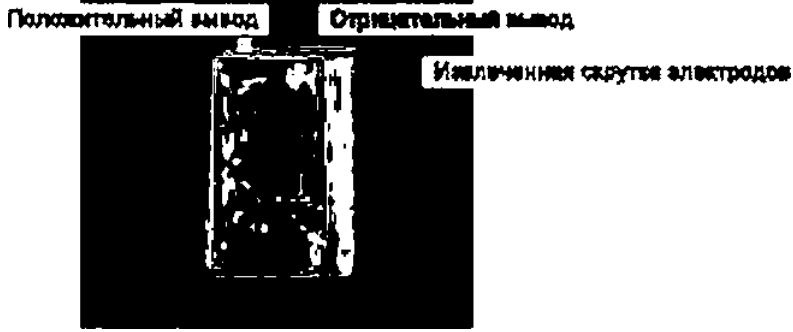
iv)

v)

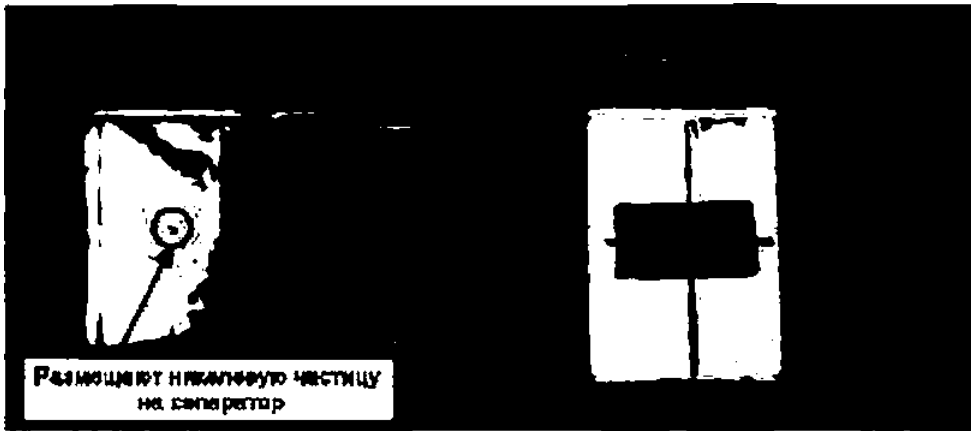
vi)

( -10 . -25 )

30



» «



\* «

9—

.6									
.6.1									
)									
(Ni 99.0-LC)	(0,10 ± 0,01)	]		{		6208 NW 2200 (Ni 99.0)	NW2201		
						(2,00 ± 0,30)			
<sup>2&gt;</sup>									
( 5.4. .6.2.					0.020	0.20.			
8 .6.1.	)	)	]						

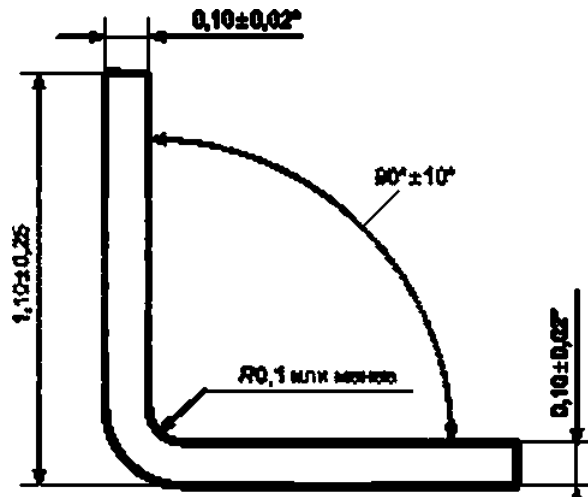
62133-2—2019

- b) :
- c) :
- d) (2 : 1 ) ;
- e) ( 1 ) ;

.6.2

- a) :
- b) : 0,20
- c) 2.00 (1.0 )
- d) (1.0 )
- e) ;
- f) 90

.10

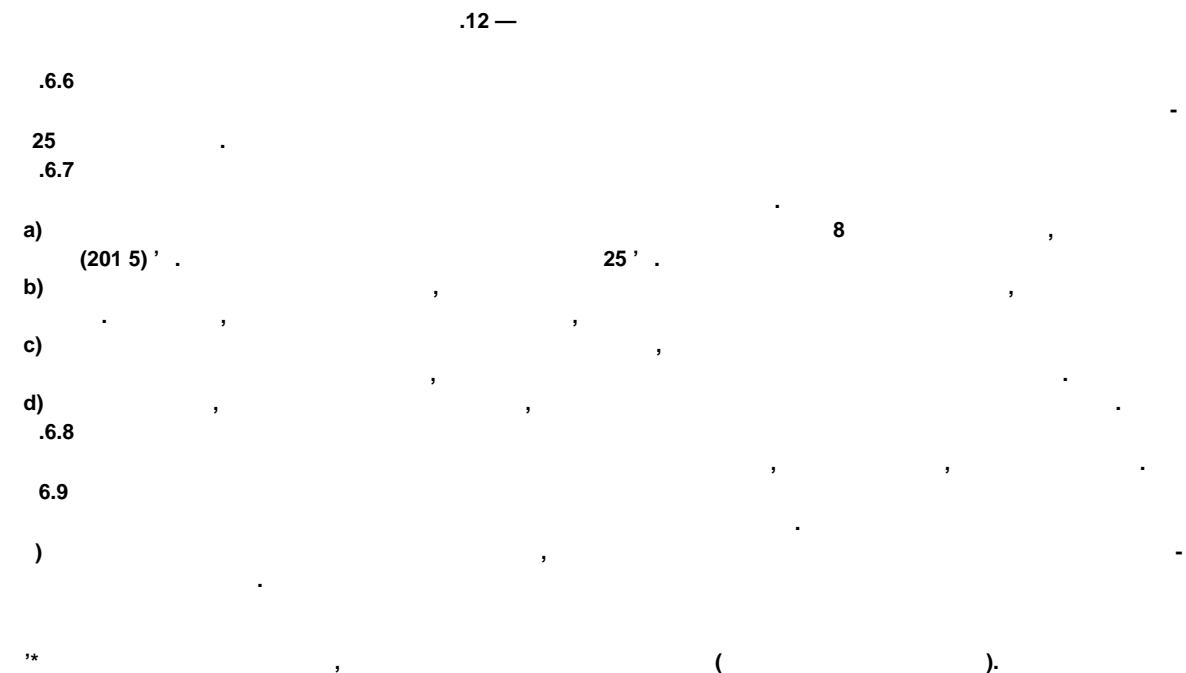
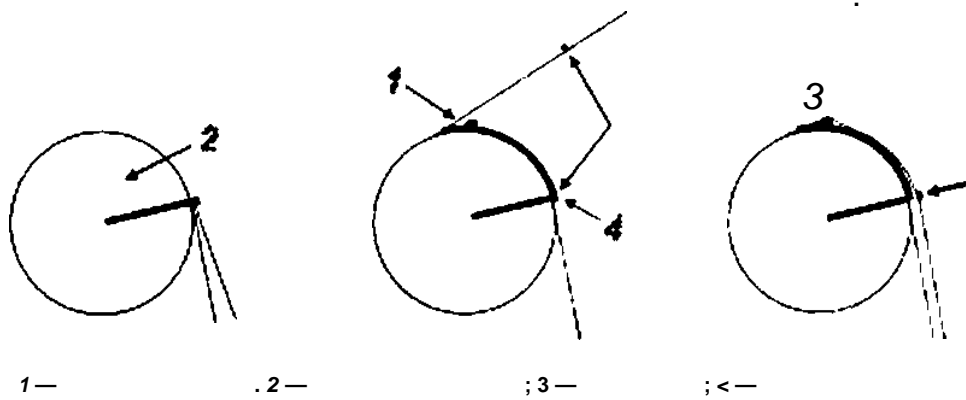
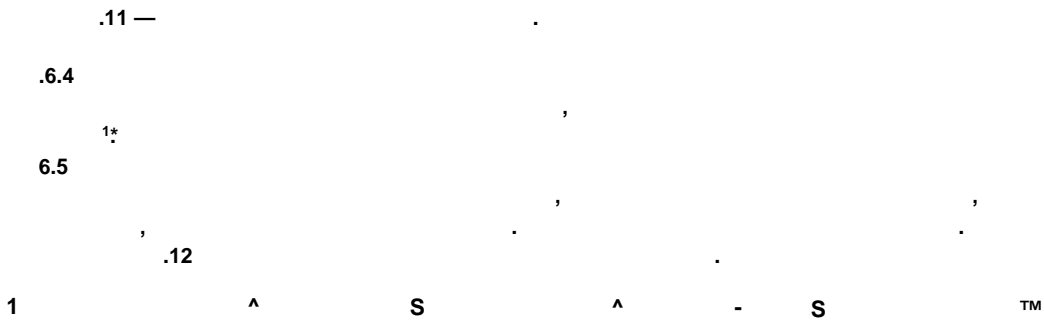
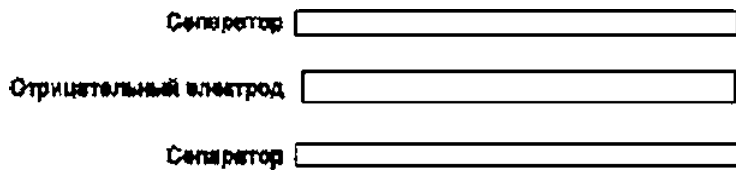


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.10 —

.6.3 ( )

- a) .5.
- b) 11.
- c) ,
- d) ,



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.6.10

a) 8

1000 ( ) 120 « 180 » 0.11 ( ).

b) 30

c) 12 :

1) 2

2) :

3) 3 8 10

.6.11 8

2.

.2—

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	0.1 /	(0.1 ±0,01) /
	—	± 0,02
	800 :	1000 ( )
	400 :	
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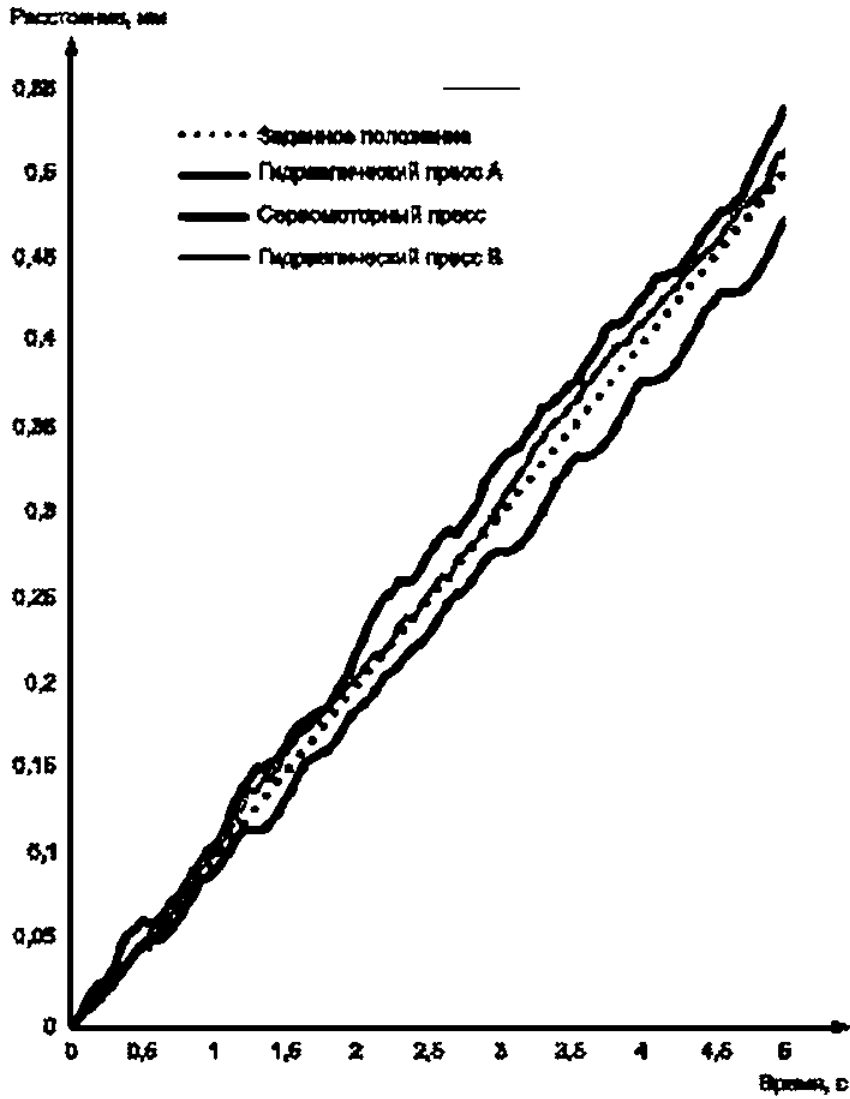


Рисунок А.13 — Отношение расстояние — время нескольких типов прессов

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- a) : , . ;
- b) ; , -
- c) ; , -
- d) : ;
- e) . ;
- f) ; : -
- g) ) ; ;
- h) , , . ; -
- i) , , , , , ; -
- j) ; , , , ; -
- k) , / ; -
- l) : , , , , , ; -
- m) ) ; ; -
- n) ) , , , ; -
- o) ) ; ; -
- p) ; ; -
- q) ) ; ; -
- r) ; ; -
- s) ; ; -

( )

a)  
b)

c)  
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h)

i)  
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q)

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l)  
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v)

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( D )

D.1

1.

D.2

a)

3

1.

b)

6.

1.

(20 ± 5) \*

2.

(20 ± 5) \*

1

4 .

3.

(1.0 1 0.1)

1—5 .

$U_a$

$$R_{ac} = \frac{U_a}{I_a}$$

$U_a$  —

$I$  —

1

20 .

2

8

3

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3

6

1.

3

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(IMO)

(1 ).

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( F )

F. 1

F.1—

	60127 ( ). [1 60127 ( parts). Miniature fuses]
( )	60736-1. 1. (IEC 60738-1. Thermistors — Directly heated positive temperature coefficient — Part 1: Generic specification)
	60691. (IEC 60691. Thermal-links — Requirements and application guide)
(FET)	60747-8. 8. (IEC 60747-6. Semiconductor devices — Discrete devices — Part 8: Field-effect transistors)

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! 60050482:2004	—	•
IEC 61960	IDT	61960—2007 « »
ISO/IEC Guide 51	IDT	57149—2016/ISO/IEC Guide 51:2014 « »
* 01.05.2020 — :	58593—2019 «	».
- IDT —	.	-

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IEC 60050-351:2013	International Electrotechnical Vocabulary — Part 351: Control technology ( )	-
IEC 60051 {all parts}	Direct acting indicating analogue electrical measuring instruments and their accessories ( )	-
IEC 60664 {all parts}	Insulation coordination for equipment within low-voltage systems ( )	-
(IEC 61434)	Secondary cells and batteries containing alkaline or other -acid electrolytes — Guide to the designation of current in alkaline secondary cell and battery standards ( )	-
IECTR 61438	Possible safety and health hazards in the use of alkaline secondary cells and batteries — Guide to equipment manufacturers and users ( )	-
IEC TR 62188	Secondary cells and batteries containing alkaline or other -acid electrolytes — Design and manufacturing recommendations for portable batteries made from sealed secondary cells ( )	-
IEC 62281	Safety of primary and secondary lithium cells and batteries during transport ( )	-
IECTR 62914	Secondary cells and batteries containing alkaline or other -acid electrolytes — Experimental procedure for the forced internal short-circuit test of IEC 62133:2012 ( ) (62133:2012)	-
ISO 6208	Nickel and nickel alloy plate, sheet and strip ( ) <sup>1*</sup>	-
ISO 7619-1	Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 1: Durometer method (Shore hardness) [ ] <sup>21</sup>	-
ISO 8124-1	Safety of toys — Part 1: Safety aspects related to mechanical and physical properties ( )	-
United Nations. New York & Geneva. Recommendations on the Transport of Dangerous Goods. Manual of Tests and Criteria. Chapter 38.3 ( )	(38.3)	-

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ISO 48-4:2018.



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