

**70514—  
2022**

1 « -

« » ( « ») -

2 056 « »

3 6 2022 . 1446-

4

29 2015 . 162- « 26 -

) ( » 1 -

— « », ».

( ) «

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(www.rst.gov.ru)

1	.....	1
2	.....	1
3	.....	3
4	.....	5
5	.....	5
6	.....	5
7	.....	9
8	.....	11
9	.....	13
10	.....	14
11	.....	15
12	.....	15
13	.....	26
14	.....	26
15	.....	27
16	.....	31
17	.....	31
18	.....	32
19	.....	32
( )	.....	37
( )	.....	39
( )	.....	41
( )	.....	42
( )	.....	44
/	.....	45

«

[1].

Personal light electric vehicles. Technical requirements and test methods

— 2023—02—01

1

240 ; 100 25 / ; /

60.2.2.1. 25 / ,

( . [2]). — 8.3.

2

- 18425
- 18725
- 30630.1.9
- 30630.1.10 (IEC 60068-2-75:1997)
- 30804.4.2 (IEC 61000-4-2:2008)

70514—2022

30804.6.1	(IEC 61000-6-1:2005)			
33470			/	
34695.21-1	(IEC 61851-21-1:2017)			
21-1.				
34695.21-2	(IEC 61851-21-2:2018)			
21-2.				
IEC 60335-1	—2015			1.
IEC 60335-2-29				2-29.
IEC 60384-14				14.
IEC 61000-3-2		( )	3-2.	
IEC 61000-3-3		( )	3-3.	
		16	( )	
			16 ( )	-
IEC 61000-6-3		( )	6-3.	-
IEC 61558-1				-
1.				
60.2.2.1	—2016/ 13482:2014			
50571.5.52	—2011/ 60364-5-52:2009			5-52.
51318.14.1	( 14-1-93)			
3452-1				1. -
7176-8	- 8.			
60204-1	—2007			
1.				
61851-1			1.	
62133-1				-
		1.		
62133-2				-
		2.		
62485-1				-
1.				
—				-
«	»,	«	1	»

( ) .

**3**

3.1 : ,  
3.2 : ,

3.3 :

2 °C 1 .

3.4 :

3.5 :

3.6 :

3.7 :

3.8 :

- ( ) ;

- ( . ) .

3.9 :

3.10 :

3.11 :

3.12 : ,

3.13 : 30 %

100

66 %

3.14 : ,

3.15 : ,

3.16 : 8 / .

3.17 : ,

3.18 :  
 3.19 : ,  
 3.20 : ,  
 3.21 :  
 10 % 3.22 : ,  
 3.23 : ,  
 3.24 :  
 3.25 : -

1 -  
 2 -  
 3 -

3.26 : ( ) -  
 ( ) )  
 3.27 : ( ) ( ) -  
 ( ) ( )  
 )  
 — « ».

3.28 : ( ) -  
 3.29 : ,  
 3.30 : ,  
 3.31 : ,  
 3.32 : ,  
 3.33 : ,  
 3.34 : ,

1 3 4 1 2.  
 2 60204-1—2007 (9.2.2).  
 3.35 : ,  
 3.36 : ,  
 3.37 : ,  
 3.38 : [ ( ) , ] ( )



3.39 : /

3.40 : , -  
/

— , -

3.41 :

3.42 [ ] : / -

3.43 ; :

( ),  
( ),

25 / .

3.44 : , -

**4**

1.

1

		, /	
1		15 /	
2		25 /	
3		15 /	
4		25 /	
—			

**5**

, ( , , ), -

**6**

6.1

30630.1.10

(0,7 ± 0,05) ;

0,90

18425.

( ),

6.3.2.2.

IEC 60335-1—2015 ( 3).

62133-1

62133-2.

**6.2**

/

/

/

/

15.4.2.5.

/

. .)

(

/

. .).

(

**6.3**

**6.3.1**

**6.3.2**

**6.3.2.1**

6.3.2.2.

IEC 61558-1,

IEC 60335-1,

IEC 60335-2-29 ( . [3]),

6.3.2.2

5 °C

1

2

(

IEC 61558-1,

IEC 60335-1,

IEC 60335-2-29) ( .

[3])

6.3.2.2

(20 ± 5) °C

6.3.3

(20 ± 5) °C

)

)

;

)

)

)—)

)

)

), )

10 000

100

6.3.4

10

6.3.5

50571.5.52.

$L_T$ ,

$$I = 500 + 2 \cdot U_N$$

(1)

$U_N$

2

6.3.6

50571.5.52

6.4

IPX4

IEC 60335-1—2015 (15.1).

6.5

6.5.1

1—4.

6.5.2,

6.5.2

30630.1.9.

0,5 g - ( — ) 5 500  
1,0

15

(23 ± 5) °C ( — 85 %, — 82,5 ).

2

1.

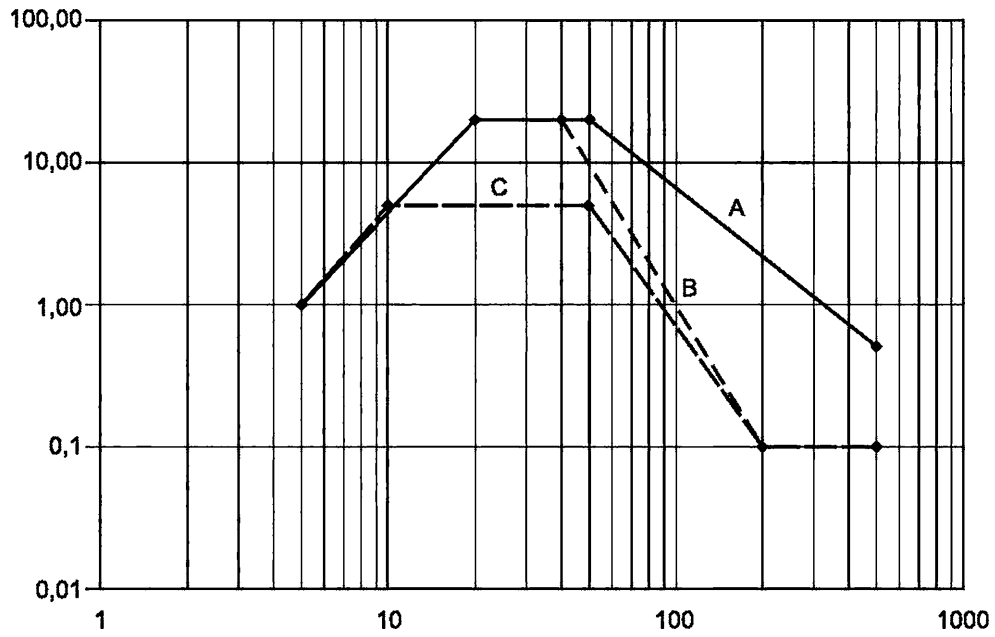
2—

( )					
				/	/
	<10 (<254 )				
>10 (>254 )					

3—

, ( / ²)²/

	5	10	20	40	50	200	500
	1	5	—	—	5	0,1	0,1
	1	—	20	20	—	0,1	0,1
	1	—	20	—	20	—	0,5



- (1,96g rms);----- (3,05g rms);----- (4,53g rms)

X— , ; — , ( / <sup>2</sup>)<sup>2</sup>/  
1—

**7**

**7.1**

**7.1.1**

( )

) 1 2 :  
3 / .

7.1.2;

) 1 2 ,  
( . 7.3 19.4). 3 4

; 1 2 ( , , )  
)

7.1.2;

) 3 4 : :  
1) :  
2) :  
3) :  
4) :

);

)

) 1 2  
( ) ( )  
15.4.2;

)

) ;

) ;

) 3 4

1) ;

2) (

) 3 4:

1)

2)

3)

) 3 4:

1)

2)

3)

) ;

) 2 / 2,

) — )

7.1.2.

**7.1.2**

7.1.2.1

)

) ;

) 8.2.1.2;

) ±2%;

) 5 °C 35 °C;

) 3 / ;

) ;

) (

) ;

) 33 %

7.1.2.2

) 1 2  
3 / .

1)

2) 3 /

);

) 1 2

1)

2)

30

-

( )

).

-

. 15.4;

0 / .

(6 ± 2) / .

-

33 %

,

60 %

50 %

7.2

$1 \quad 2$   
1.5 2 / 2.

3 4

( , , )

( . 17).

-

6 /

4.

-

7.3

( , , , ) .

-

8

8.1

2 4

-

-

( )

-

8.2.1

8.2

2 4

8 / .

8.2.1.

8.2.1

8.2.1.1

)

)

1) —  $\pm 2\%$ ,

2) — 0,1 / ;

)

)

)

)

5 °C 35 °C;

3 / ;

33 %

8.2.1.2

0,5 %.

0,2 %

0,2 %

0,5 %

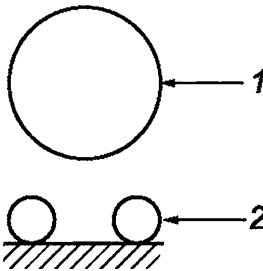
0,75.

8.2.1.3

8.2.1.2.

8.2.1.4

( . . . 2).



7 — ; 2 —

( — 25 , )

2 —

( )

8.2.1.5

)

5

80 %

,

)

8 / ( ),

8 / ( ).

8.3

8.3.1

$\pm 10\%$

8.3.2.

25 / .

8.3.2

8.3.2.1

8.2.1.1, 8.2.1.2 8.2.1.3.



8.3.2.2

- ) :
- 1) 60 ;
- 2) :
- 1) 60 ;
- 2) ;
- 3) 25 / (±10 %) (±10 %),

8.4

8.4.1

6 /

8.4.2

- ) 5
- 80 % ) ;
- ) 6 / ( -
- ).

9

9.1

- 1 2 [4] -
- 3 4 IEC 61000-6-3. -
- (75 ±10) % , -

1 -

2 -

9.2

- 1 2 [4] -
- 3 4 30804.6.1 -

- ) 90 %
- ) ;
- ) ;
- ) ;
- 1) , 90 %
- 2) , 90 %

9.2.1

30804.4.2

- 4 —
- 8 —

( )

- :
- ;
- :

- ;
- :

9.3

IEC 61000-3-3.

51318.14.1,

IEC 61000-3-2,

10

10.1

),

6.4.

60204-1

IEC 60335-2-29.

62485-1

10.2.

10.2

( ),

)  
 )  
 IEC 60384-14;  
 )

)

50 %

( , ).

60204-1,

IEC 60335-2-29,

61851-1,

34695.21-1,

34695.21-2.



12.1.2

- $-0^{+5} \%$ ;
- $- \pm 1 \%$ ;
- $- \pm 1$  ;
- $- \pm 1^\circ$ ;
- $- \pm 5$  ;
- $- \pm 2^\circ$  ;
- $- \pm 5 \%$ .

12.1.3

3452-1.

12.2

12.2.1 /

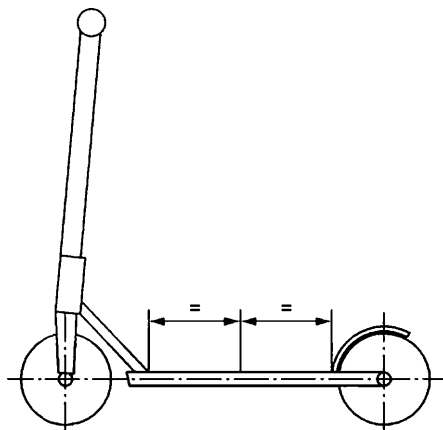
12.2.1.1

12.2.1.2, 12.2.1.3 12.2.1.4

12.2.1.2

2,5 ( 100 100 , 19.2.1, 100 ), 1  
 ( . 3).

1 40 , 100 ,  
 2 120 ( 19.2.1) 2,5.  
 300 .



3—

6

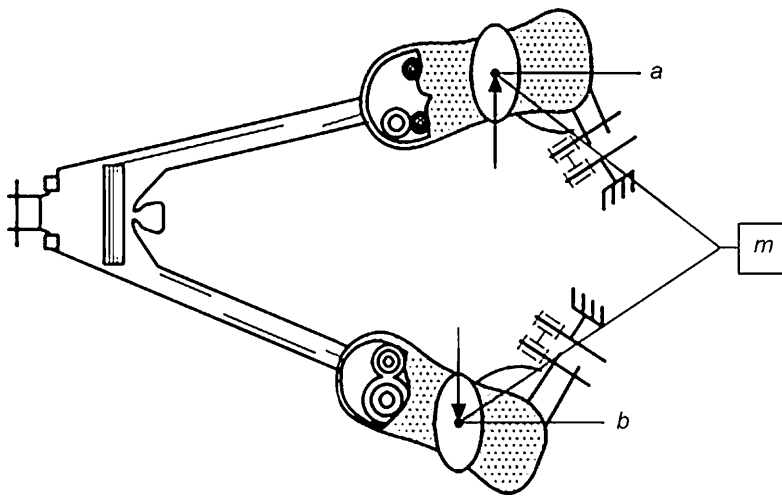
(5 ± 1) °C.

1

5

1 2.2.1.3 — , 100 , ( )  
 2.5 ( 100  
 19.2.1, ), 1 , -  
 100 \* 100 , b( . 4).  
 1 40 , 100 ,  
 2 ( 19.2.1) 120 2.5.  
 300 .

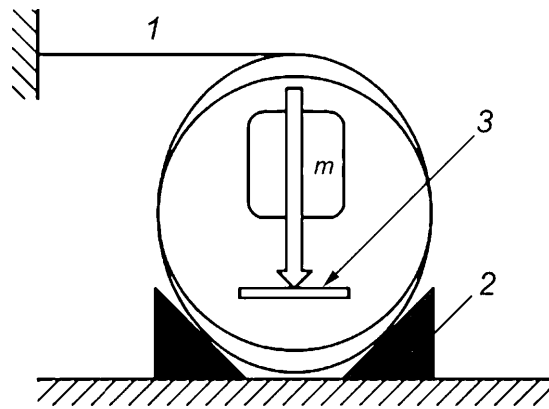
6 (5 ± 1)° .  
 1 5 .



— ; b— ; —  
 4—

1 2.2.1.4 — , 100 ,  
 2.5 ( 100  
 19.2.1, ), 1 , -  
 100 \* 100 , ( . 5).  
 1 40 , 100 ,  
 2 120 ( 19.2.1) 2.5.  
 300 .

6 (5 ± 1) °C.  
 1 5 .



1— ; 2— ; 3—

5—

**12.2.2**

12.2.2.1

)

)

50

50

12.2.2.2

)

)

50

8.

1

12.2.2.3

)

)

-

-

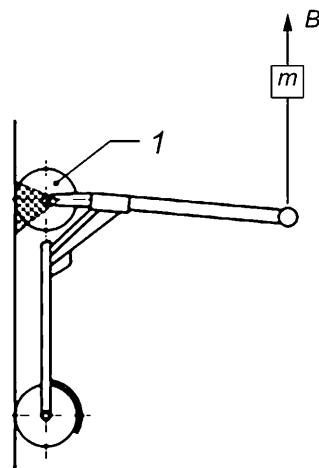
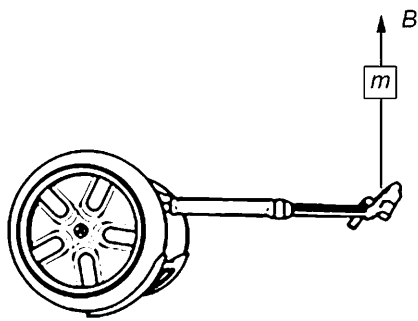
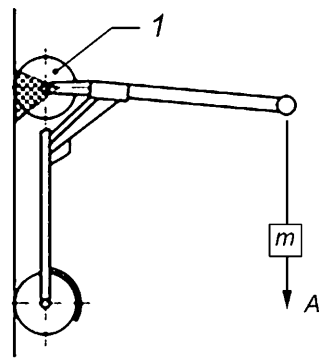
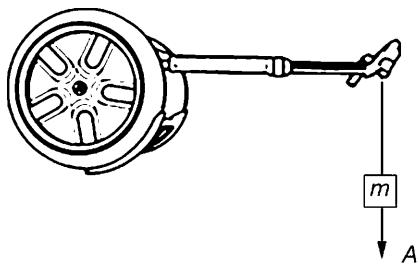
-

20

1

—

9.

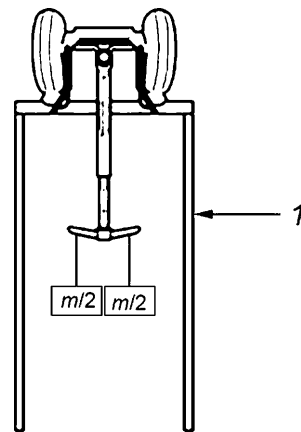
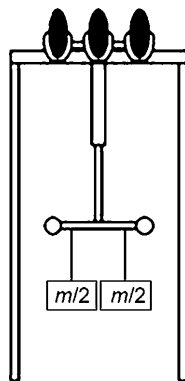


1— ( ); — 50

6— ( )

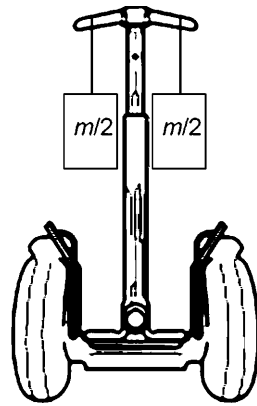
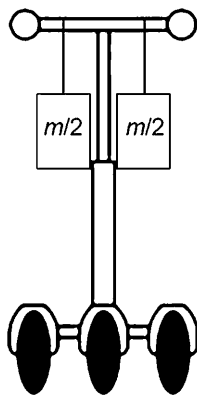
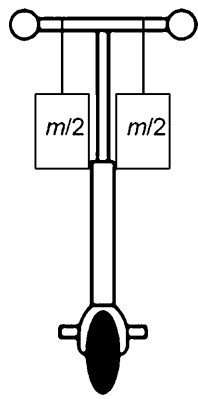


$\frac{1}{2}$ —  
 $l/2 \quad l/2$



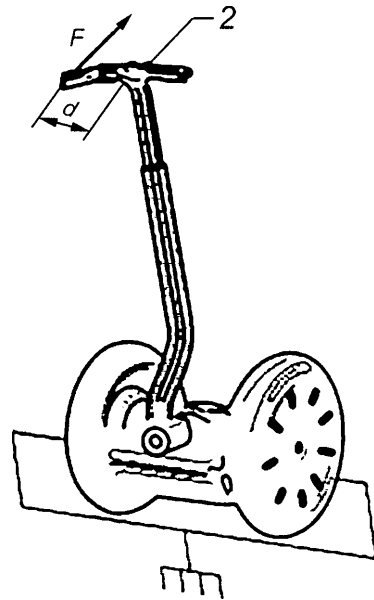
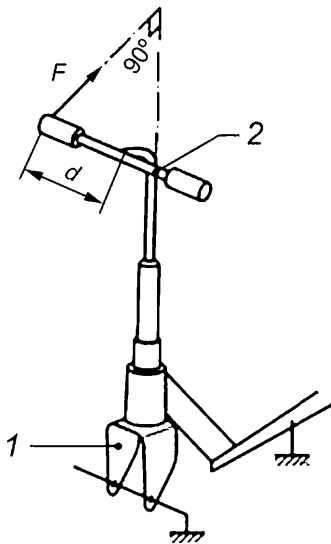
1— ( ); — 50

7— ( )



— 50

8— ( )



)

)

1 ; 2 ; F ( d); d ,

9— ( )

12.2.2.4

)

/

70

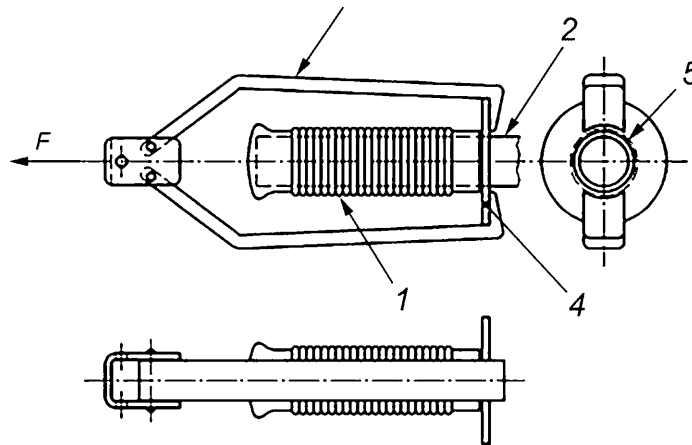
)

70

1

10.





1— ; 2— ; 3— ; 4— ; 5—

—

10—

12.2.2.5

( )

)

2,5

)

).

12. 3

12.3. 1

2

12.3.2

12.3. 2

2

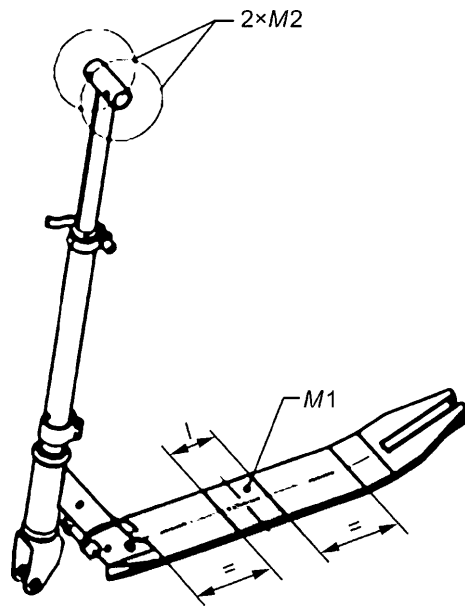
11.

( . 11).

1

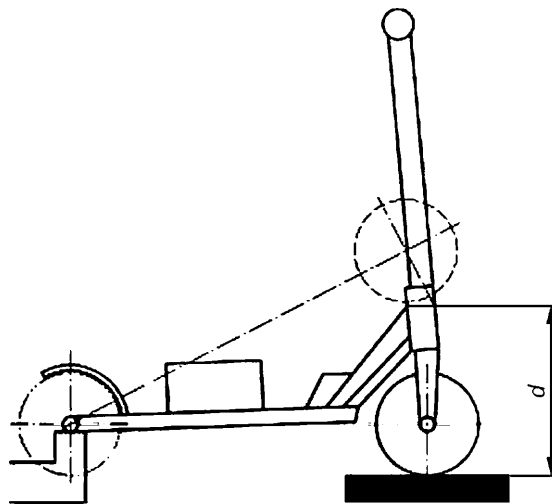
100 ,

2



41 — (50 ); 2 — <sub>2</sub>(2-10 ); / —  
11 —

(200 ± 1) ( . 12). *d*



*d* —

12 —

12.3. 3

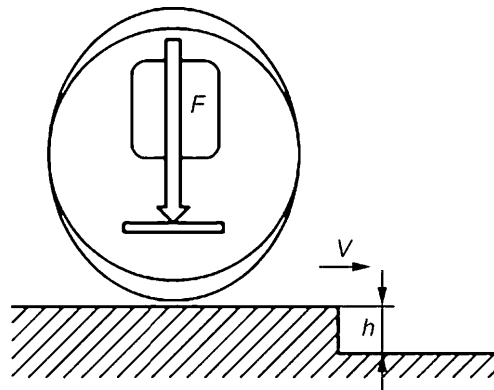
4

12.3.4

12.3. 4

4  
8 10 / ( . 13).

).



$F = 1/2$

$h = 1/4$

;  $V = 8 \text{ 10 / ;}$

13 —

12. 4

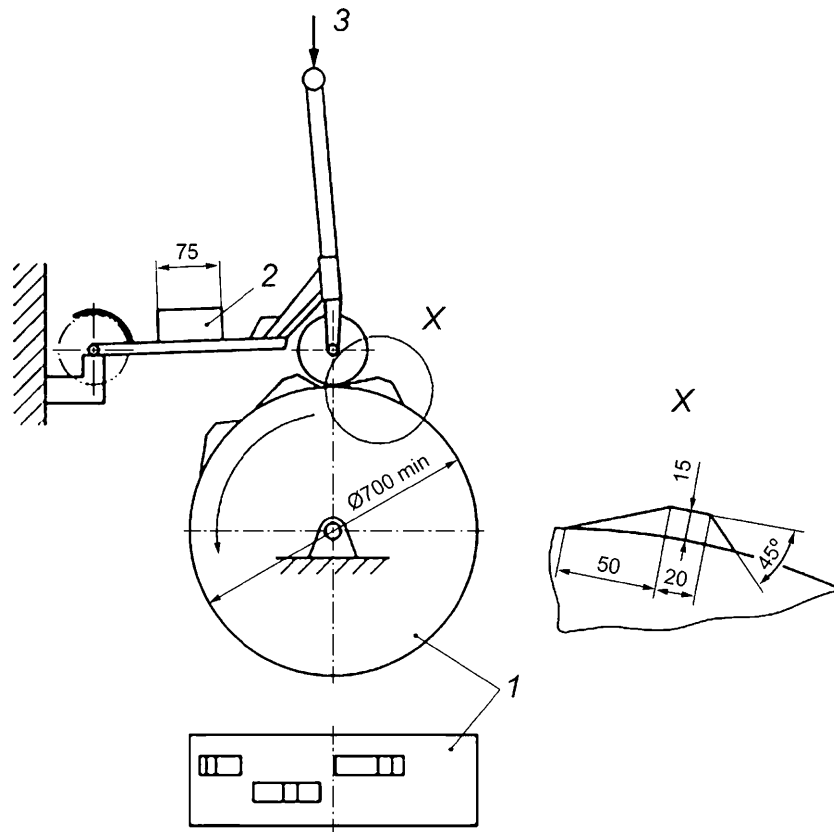
12.4. 1

12.4. 2

12.4.3—12.4.5

12.4. 3

14.



1— ; 2— ( ) ; 3— ( )

14—

:

—0,8 / ;

—25 ;

—700 ;

100 ( . 3);

10

;

1,5 .

1 .

12.4. 4

:

—0,8 / ;

—25 ;

—700 ;

100 ( . 3);

10

;

1,5 .

14.

12.4. 5

12.4.5. 1

1 .

:

;

;

;

;

;

( , ) .

7176-8.

12.4.5. 2

)

7 200 7 15-

12 3 . 7

18 . 0,8 ( 1 , 1,6 ),

2 g ( 25 ) .

200 ;

2 g

)

1)

( , )

2)

( , ) ,

3)

)

12.4. 6

12.4.5.2

12.4.5.2.

**13**

**13.1**

( , , ),

**13.2**

**13.3**

**14**

**14.1**

18

5

**14.2**

**14.3**

**14.3.1**

**14.3.1.1**

**14.3.1.3.**

**14.3.1.2.**

**14.3.1.2**

**14.3.1.3**

)

:

1)

2)

14.3.2.2;

) :  
 1) , ), ( , -  
 2) , ( ) ( , ;  
 ( )  
 14.3.2 ( )

**14.3.2**

14.3.2.1

200

14.3.2.2

150

2,2

5

**15**

15.1

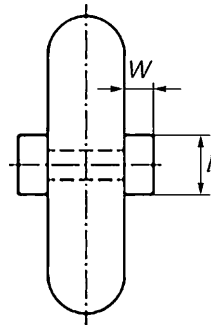
/

150<sup>2</sup>

6,5

6,5

10,0 ( . 15).



/ — ; / —

15 — ( )

**15.2**

**15.3**

15.3.1

15.3.1.1

15.3.1.2

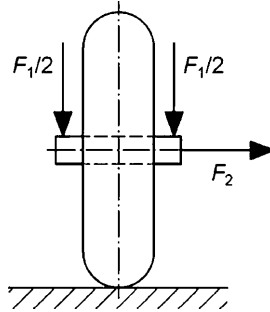
0

0,30.

15.3.1.2

Ra 1,5

2,0 ( . 16).



16 —

$$F_v = F_2 \cdot 100 \cdot 10^{-3} = 10 \text{ N}$$

$$M_o = F_2 \cdot 2$$

$$F_2 = \dots$$

$$g = 9,81 \text{ m/s}^2$$

$$F_1 = \dots$$

15.3.2

- 90
- 1) — 125
  - 2) — 25
  - 3) — 25
- 1) — 125
  - 2) — 25
- 1) — 125 — 25

15.4

15.4.1

- 1) — 1 2
- 2) — 1 2
- 1) —
- 2) —



) 3 4 -  
 ;  
 ) 3 4 -  
 .  
 — ) ( , .

**15.4.2**

15.4.2.1

- , :  
 — ,  
 ; ,  
 - , ) [2]

7.1.1.

15.4.2.2

15.4.3.2.

15.4.2.3

15.4.3.4 1,7 / 2.  
 90 % , -

15.4.2.4

15.4.3 ( )  
 :  
 ) ;  
 ) ;  
 ) ( , );  
 ) ;  
 )

15.4.2.5

;  
 ) ).  
 -  
 ,  
 (1,25 ± 0,25) / 2,  
 -

15.4.3.5.

15.4.2.6

15.4.1,  
 18 % ,  
 ,  
 .  
 — ( .1 .2).

**15.4.3**

15.4.3.1

)  
 200 25  
 .  
 70  
 )

15.4.3.2

450

)  
)

10

15.4.3.3

$M_t$

( 2 4)

(

3 / .

5 °C 1,20 35 °C.

15.4.3.1.

±1 %

±3 %.

1 %,

90 %

10

3

(3) 15.4.3.4

0,2 %,

1)

2)

3)

)

0,2 % 0,5 %,

1)

2)

3)

)

15.4.3.4

) [1), 3)]

) [1), 3)] 15.4.3.3

3

15.4.3.4

( 2 4)  
MFDD, / 2,

$$MFDD = 25,94(S_e - S_b)' \quad (3)$$

$V_b$  — 0,8  $V_v$  / ;  
 $V_e$  — 0,1  $V_{ft}$  / ;  
 — , / ;  
 $S_e$  — ,  $V_e$  ;  
 $S_b$  — ,  $V_b$  .

15.4.3.5  
)

15.4.2.5.

7.2.

)

;  
 - ;  
 - 0,5 ;  
 - 1 %,  
 ( , ) 1,20 ;  
 - 5 °C 35 °C.  
 3 / .

**16**

**16.1**

**16.1.1**

, ( . [5]).

( ) .

**16.1.2**

2 4

( . [6]).

1 3.

**16.2**

( ) .

[7] ( II).

17.1.

**17**

**17.1**

17.2

II).

17.3

18

18.1

57 °C),

43 °C.

«W 017»),

57 °C

18.2

( — ±2 °C).

20 % (

19

19.1

19.2

19.2.1

— , ;

— ;

— , 2, 25 / ;

— ( . [9]);

( , );

;

19.2.2

15 , 15 —

19.2.3

;

;

19.2.4

( )

19.3

19.3.1

,

19.3.2

;

—

2,5 . « » ,

! »;

! ».

( . ).



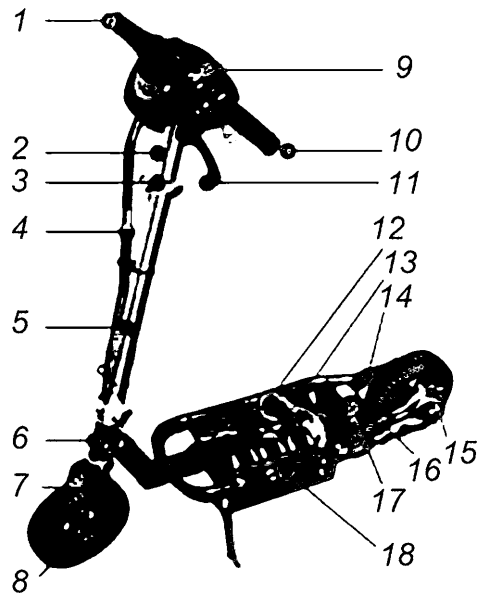


- ;  
- ( , , .);  
- , , , -  
— -20 / , ;  
- : , ;  
- ;  
- , ;  
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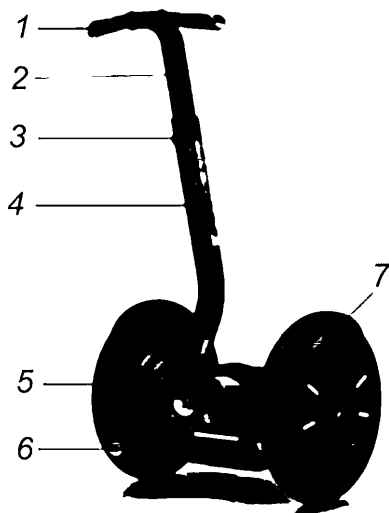
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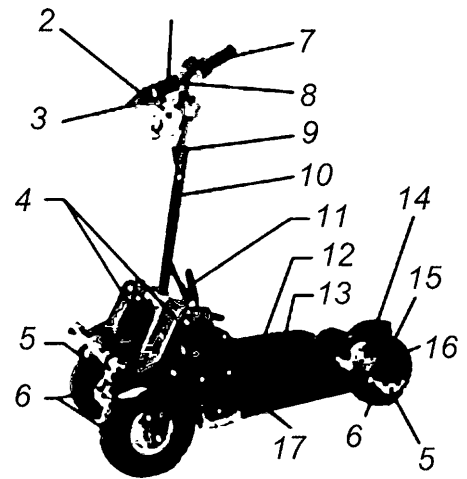
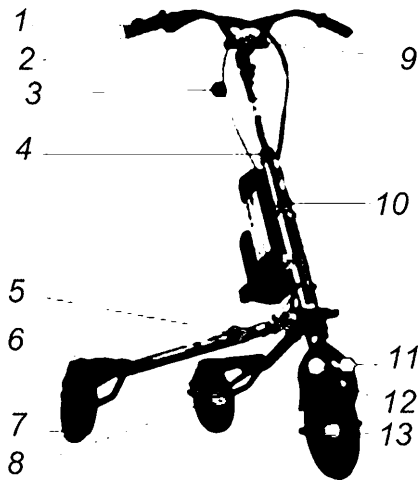
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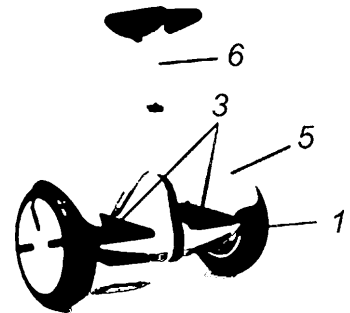
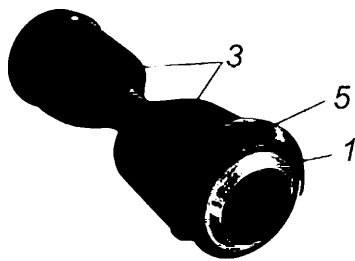
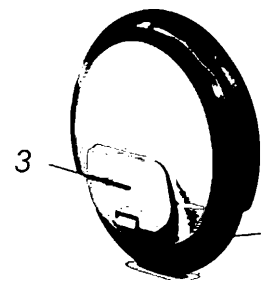
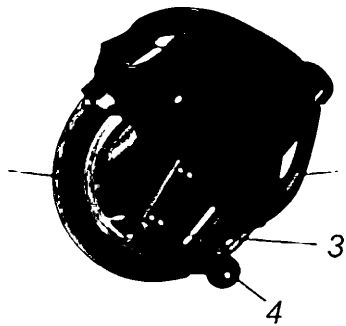
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**GSM/UMTS/LTE**

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GSM/UMTS

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**GSM/UMTS/LTE**

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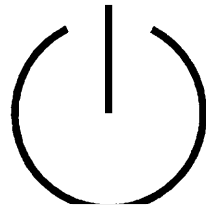
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- [1] 17128—2020  
(PLEV).  
(Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type-approval for on-road use — Personal light electric vehicles (PLEV) — Requirements and test methods)
- [2] 018/2011
- [3] 61558-2-16(2021) 2-16. -  
-  
(Safety of transformers, reactors, power supply units and combinations thereof — Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications)
- [4] 10
- [5] 6742-2:2015 2.  
(Cycles — Lighting and retro-reflective devices — Part 2: Retro-reflective devices)
- [6] 6742-1:2015 1.  
(Cycles — Lighting and retro-reflective devices — Part 1: Lighting and light signalling devices)
- [7] 14878:2015 -  
(Cycles — Audible warning devices — Technical specification and test methods)
- [8] 7010:2019  
(Graphical symbols — Safety colours and safety signs — Registered safety signs)
- [9] 3779:2009 (VIN). -  
(Road vehicles — Vehicle identification number (VIN) — Content and structure)

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