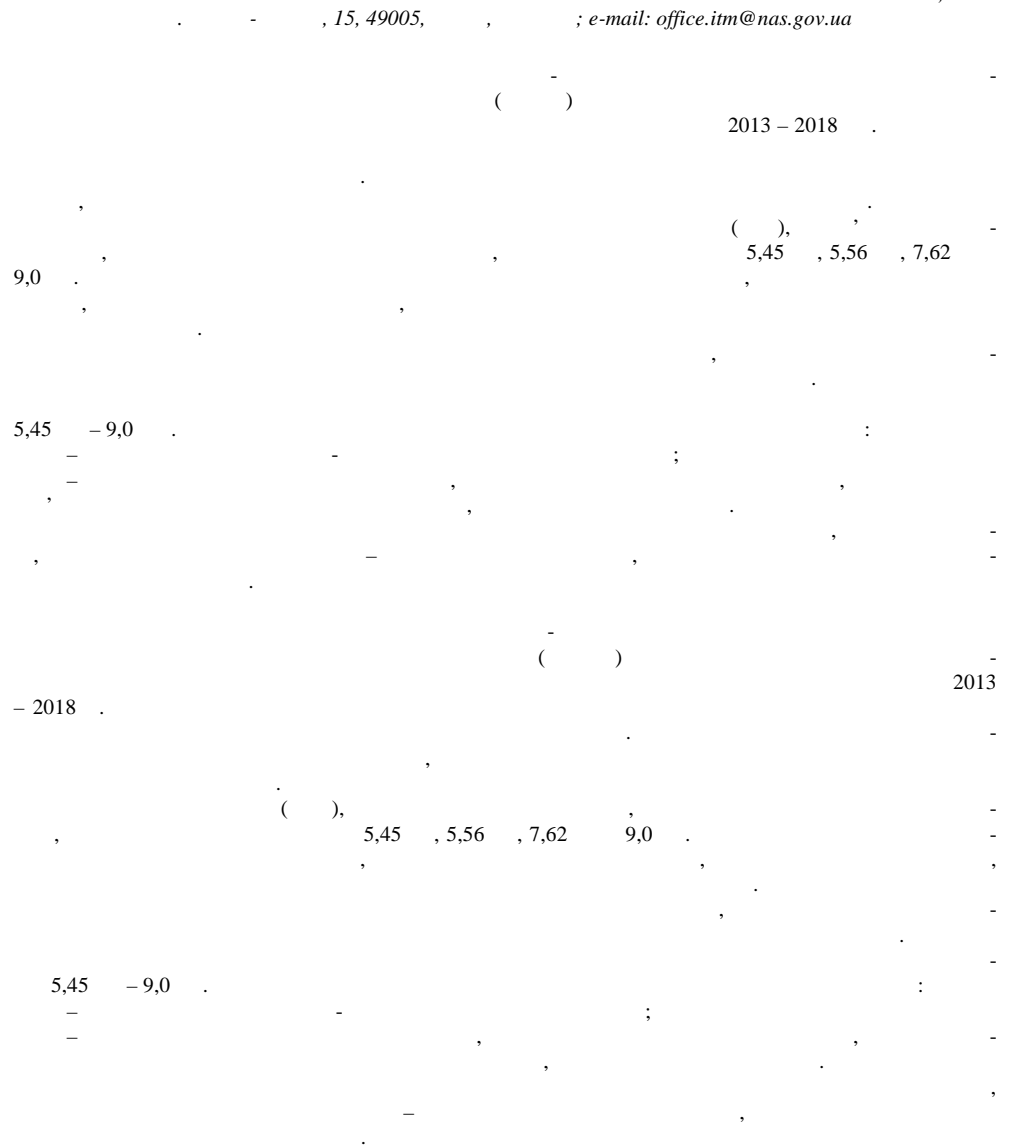


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This paper presents the results of the research into the design and development of firearm silencers conducted at the Institute of Technical Mechanics of the National Academy of Sciences of Ukraine and the State Space Agency of Ukraine in 2013 – 2018. As a result, high-efficiency silencers were developed and made owing to new design solutions and modern production technologies. Theoretical studies made it possible to refine a physical model and the gas-dynamic pattern of supersonic gas flows in the silencer chambers and at the silencer exit. Among the designs developed for small arms and classified by purpose, caliber, and cartridge type, namely, for 5.45 mm, 5.56 mm, 7.62 mm, and 9.0 mm arms, the most efficient ones were unified. A technology was developed for the production of silencers made of stainless steel and titanium and aluminum allows, which made possible silencers competitive in performance characteristics with their best foreign counterparts.

The shape and location of baffles that form expansion chambers and govern the thermogasdynamic processes inside the silencer were chosen, and their choice was substantiated.

© . . . . . , 2018 . – 2018. – 3.

Efficient silencers with spherical baffles were developed for 5.45 mm – 9.0 mm small arms. The most promising silencers of this type are those with:

- peripheral labyrinth vortex gas withdrawal circuit;
- additional expansion chamber that embraces the outside part of the barrel and is connected gas-dynamically to a traditional muzzle silencer, which extends beyond the muzzle end.

Silencers with deformable elastic structural components made by the traditional scheme – movable flat baffles loaded by coil compression springs – were developed and tried out too.

1995  
5,45 – 9,0  
[13].  
2013 – 2018  
[14 – 17].  
[1 – 12].

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2013 – 2018 .

( .)

Advanced Armament Corporation, AWC System Technology, GEMTECH, Sure Fire .

(Grade 5, Grade 9

), 1-0; 5; 5-1; 6.

5,56 , 7,62 9,0 . 5,45 ;

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[4].

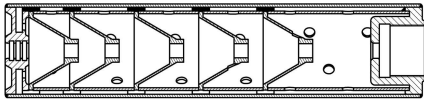
( . 1)

- 7,62 - Blaser, Browning Bar, SAKO, Manlicher, - ;
- 5,45 , 5,56 - -74 , -74,
- 16, Blaser, M4A1, SAKO, . :
- 5,45 - -11 .12-5,45;
- 7,62 - -19 .12-7,62.

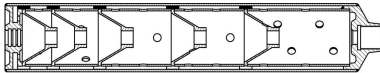
ASE Ultra SL7-7,62,

( . 1).

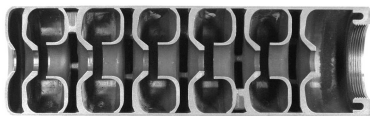
-11 .12-5,45



-19 .12-7,62



ASE Ultra SL7-7,62



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ASE Ultra SL7-7,62

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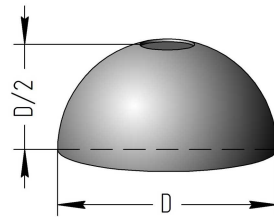
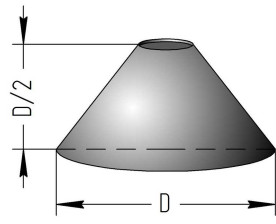
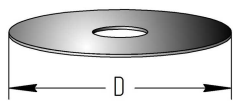
	-19 .12-7,62	-11 .12-5,45	ASE Ultra SL7-7,62
	7,62	5,45 , 5,56	.308 Win .338 Lapua Mag
	44	44	45
	238	195	166
	14x1; 15x1; 16x1; 18x1; 9/16"-24; 14x1 ( )	24x1,5; 18x1; 1/2"-284; 1/2'-20 14x1 ( )	24x1,5; 18x1; 1/2"-284; 1/2'-20 14x1 ( - )
	( - )	( - )	-
	435 (750)	400 (690)	800
	32 36	28 32	32 35

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[1 - 13].

( . 2),  
1:1,41:2,0, . . .

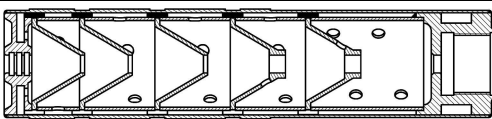
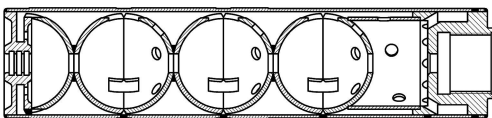
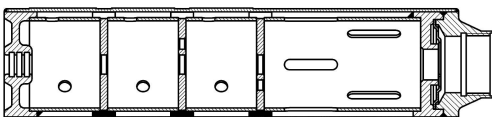
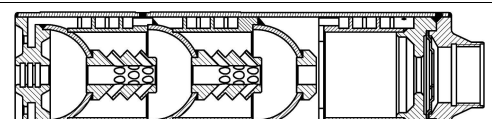
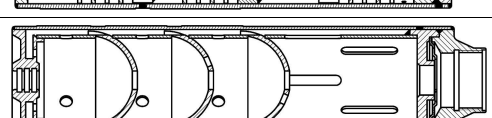


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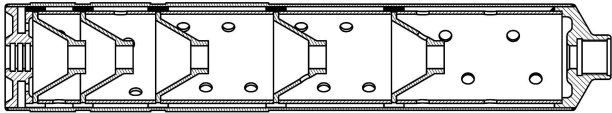
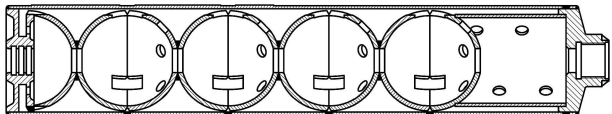
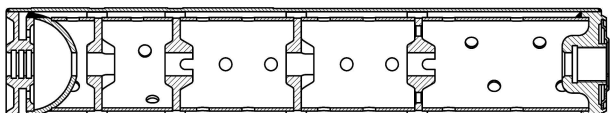
.2-

[2, 3, 7, 8, 11, 12].

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 - ;  
 8,6 9,0 . 5,45 ; 5,56 ; 6,2 ; 7,62 ;  
 20 36  
 : -74 -74 5,45  
 ( 2)  
 7,62 ( 3).  
 2 -  
 5,45

11 .12-5,45		Ø44,0×195,420
01 .15(2)-5,45		Ø44,0×195,420
154 ( .17)-5,45		Ø44,0×195,470
11 .16-5,45		Ø50,0×186,550
14 .16-5,45		Ø44,0×188,425

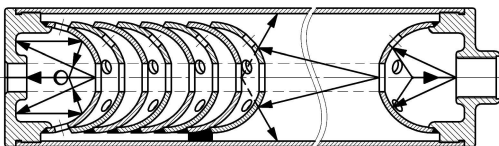
7,62 3-

19 .12-7,62		Ø44,0×241,475
02 .15(2)-7,62		Ø44,0×239,470
09 .17-7,62		Ø44,0×239,407

Koch 9×19 1000 MP5, Heckler & Koch  
MP5

MP5 - MKM-091 - 9×21

MP5.  
-05 .18-9,0 MP5 KA1/KA5  
9,0 Heckler & Koch;  
-05 .18-9,0 -04 .18-9,0  
MP5 A2/A4 9,0 Heckler & Koch.



.3-  
05 .18-9,0 9,0 -05 .18-  
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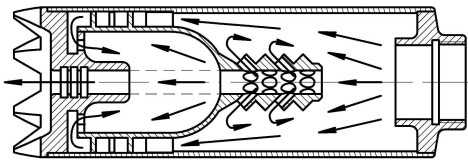
	$\text{Ø}50 \times 200$ ; 450 ; 28
	$\text{Ø}50 \times 375$ ; 500 ; 34
	$\text{Ø}50 \times 309$ ; 520 ; 30

\* - 15x1

.5

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	17 33	28 34
2	$\text{Ø}35 \times 226$ $\text{Ø}51 \times 338$	$\text{Ø}50 \times 200$ $\text{Ø}50 \times 375$



.4 -

.6

Serefire.

	Mini Monster	-01 .14-5,45
	5,56	5,45
	400	299
	38	45
	133	130
	134	132

[12].

( .5).

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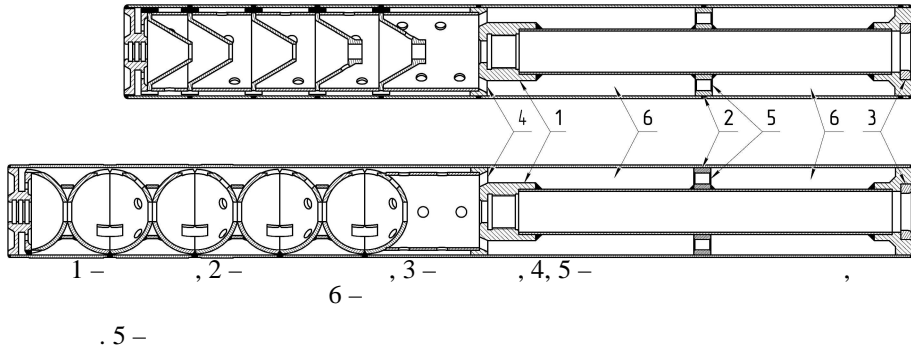
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Savage Arms Rem.233,  
CZ 525,  
50

MR223, O CB ,Blaser R93,  
7,62, Mauser 98, Heckler&Koch MR .338,  
C.T.S.M.338 C.T.S.M.308 ..

32 36 .



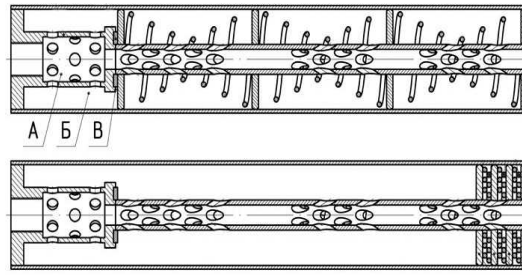
Reflex Suppressors ( ) -

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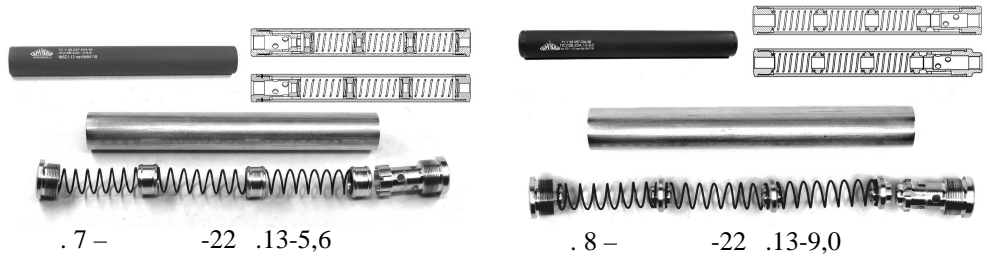
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. 7, 8

22 .13-9,0,

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-22 .13-5,6



. 7 -

-22 .13-5,6

. 8 -

-22 .13-9,0

7 -

	-22 .13-5,6	-22 .13-9,0
,	5,6	9,0
,	25	25
,	200	200
	14x1 , 1/2-20	12x1
	,	,
,	140	140
,	5,6	9,0
	5,6 , Savage 64, Savage 93	

[10],

5,6 ,

MAE Kilwell Whisper .22LR.

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12.	2017. 3. . 5-15.			-
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14.	: . 108783	F41A 21/20.	201310602;	. 02.09.13;
	. 10.06.15, . 11. 8 .			
15.	: . 110644	F41A 21/30.	a201313818;	. 28.11.13; . 25.01.16,
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16.			. 111772	F41A 21/30.
	a201409056; . 11.08.14; . 10.06.16, . 11. 9 .			
17.	. 109381	F41A 21/30 (2006.01).	201410885;	. 06.10.14; . 10.08.15,
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				09.08.2018
				01.10.2018