

. . . , . . . , . . . , . . .

MULTI-Y

. . . , 15, 49005, . . . ; e-mail: office.itm@nas.gov.ua

() (5,45 , 5,56 7,62),

Multi-Y.

(18 – 35) ().

17,6 %.

-03 .19-7,62 Mulli-Y,

-02 .19-7,62 ,

-50° +50°

02 .19-7,62 , -03 .19-7,62 ,

Multi -Y,

() (5,45 , 5,56 7,62),

Multi-Y.

5,45

7,62 . (18 – 35) ().

17,6 %.

-03 .19-7,62

Mulli-Y,

-02 .19-7,62 ,

-50° +50°

-02 .19-7,62 , -03 .19-7,62 ,

Multi-Y,

. . . – 2019. – 3. © . . . , . . . , . . . , . . . , 2019

This paper describes the development stages of universal silencers for firearms (of caliber 5.45 mm, 5.56 mm, and 7.62 mm) that have expansion chambers equipped with baffles in the form of thin-walled conical shells whose longitudinal axis coincides with the longitudinal axis of the silencer body and a newly designed Multi-Y front cover.

The efficiency of the silencers developed was measured with a sound level meter and was confirmed by comparison tests with basic prototypes developed earlier and foreign silencers. The tests were conducted using different types of 5.45 mm and 7.62 mm small arms. The efficiency was found to be 18 – 35 dB(A). The efficiency of the silencers developed was also estimated theoretically by simulating the gas-dynamic process in a chamber-type silencer using the gas mass and energy conservation laws in integral form. The theoretical results agree with the experimental data to within 17.6 % on average.

The silencer design does not affect firearm automatics and sustains standard firing regimes. The PSUZV-03T.19-7.62 mm silencer provides a high level of muzzle flash suppression thanks to the Multi-Y cover design, which improves muzzle flash suppression in comparison with the PSUZV-02T.19-7.62 mm silencer, whose cover is of the traditional design.

The silencers affect the position of the mean point of impact only minimally, and they do not affect the scattering characteristics throughout the barrel service life.

With the silencers developed, firearms operate reliably and safely after exposure to dust, mud, salt fog, rain, and icing in the temperature range -50° to $+50^{\circ}$ without any impairment of the service characteristics.

Thus the measured and calculated efficiency of the PSUZV-02T.19-7.62 mm and PSUZV-03T.19-7.62 mm universal silencers show that they reduce gunfire sound intensity to a sufficient extent and eliminate muzzle flash. It is expedient that these silencers be used by law-enforcement agencies in special operations and range practice.

Keywords: *firearm silencer, baffle elements, Multi-Y front cover, gunfire sound intensity reduction.*

() , -74 , , -12.

100 7,62×39 -15 5,45×39 -12.

5,56×45 -221, -224, -16 -4

(),

Multi-Y,

5,45 , 5,56 7.62

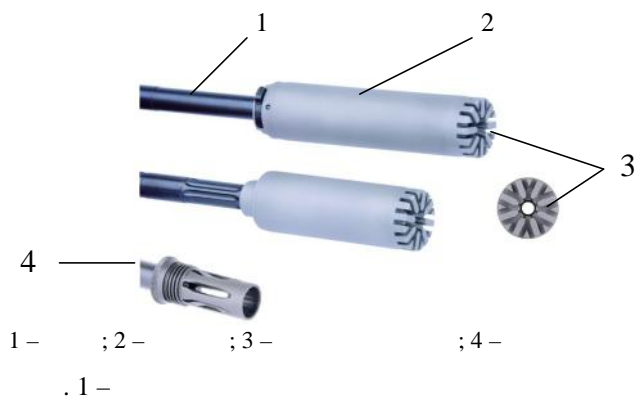
[1]:

;

;

- ;
 - , ;
 - ;
 - ;
 - .
 [2].
 [3, 4].

17,6 %.



Multi-Y. Enforce Tac 2018
 Brugger&Thomet (B&T)
 M.A.R.S. (Miniature Assault Rifle Suppressor) [5], . 1.

(8,6×70) . (5,56×45) , (7,62×51) .338 Lapua Magnum
 ,
 B&T
 , . 1.

1 - M.A.R.S.

	5,56 (.223)	7,62 (.308)	5,56 (.223)	7,62 (.308)
, ()				
, ()	26	-	20	-
	QD -	QD -	DM	DM
, ,	39	39	39	39
, ,	161	192	126	142
, ,	97	128	110	126
, ,	415	480	380	450

Thermax. (30) (), 5,56 , (450 – 480) 8,6 .
 (380 – 415) 7,62 (620 – 660) -
 Inconel (20 -
 B&T Multi-Y

G29 [6]

, .2, .2.
 28x1



.2- B&T

G29

2-

G29

, /	.308 / 7,62	.338 / 8,6
,	297	297
,	650	650
,	50	50
	/	/
	SD-988320	SD-988321
, (A)	30,0	28,0

-03 .19-7,62

Multi-Y.

()

«

» [7]

«

()

» [8].

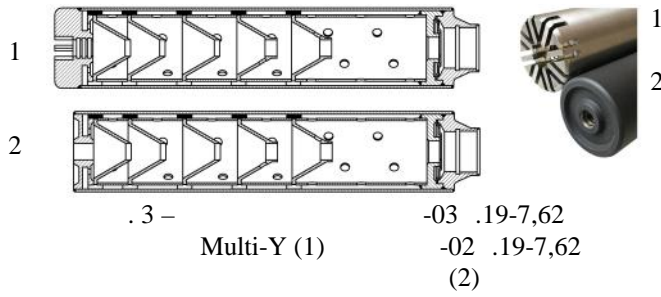
7,62 (-02 .19-7,62): ; -03 .19-

; ;
 24x1,5 , L = 22 ;
 L = 233 (L = 223); — 540 (560).

28 , 28 , 28 , 17 . : 72 ,
 (72 — 14 .; 28 — 5 .; 17 — 3 .). Ø5

Ø3

.3.



.3 - Multi-Y (1) -03 .19-7,62
 -02 .19-7,62 (2)

-03 .19-7,62

Mulli-Y,
 -02 .19-7,62

(.3),

-03 .19-7,62

16

3,0

10,0

Ø9,0

(10-15)

-03 .19-7,62

-02 .19-7,62

5,45 , 5,56

7,62

7,62

24x1,5

14x1

01.19-7,62.

01 .19-7,62 , .4.

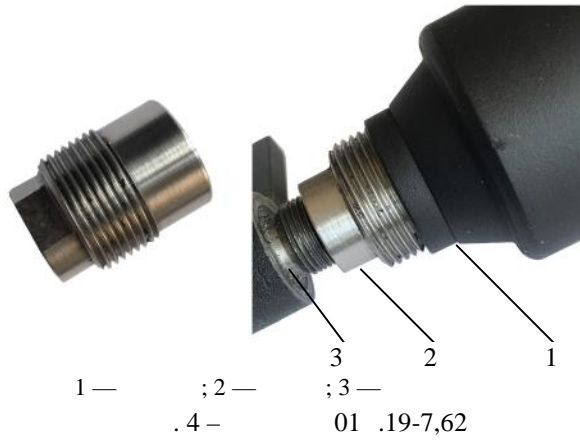
(): L = 31,0

Ø24,0

56,0

12 18 10

221, 224, -16, -4
 5,56 x 45



3.

3 -

			ASe Ultra SL7- 7.62 (cal. 30)	02 .19- 7,62 (1)	02 .19 - 7,62 (2); 03 .19 - 7,62
	11 .12- 5,45	19 .12- 7,62			
()	28 34	32 36	32 35	27 35	31 35
, /	5,45	7,62	.308 .338	5,45 - 7,62	5,45 - 7,62
,	195	238	166	215	233
,	44	44	45	44	44
,	400	435 (750)	800	560	550
				24x1,5	24x1,5
, /	24x1,5	14x1	18x1	: 18x1; 1/2"-28; 1/2"-20; 14x1 (); 14x1; 15x1; 16x1; 18x1; 9/16"-24; 14x1	
	- ()	- ()			

-19 .12-7,62
 -19 .12-7,62

ASE Ultra SL-7.62
 , 7,62

. - 14x1 . : Ø43 ,
 L = 230 . 450 .
 -19 .12-7,62 .
 SL7-7,62
 32 () 35 () .
 — -
 03 .19-7,62 5,45 7,62 . -02 .19-7,62 -
 -19 .12-7,62 -
 32 () 36 () , -
 5,45
 -11 .12-5,45 ,
 (25 - 34) () . -
 :
 - -19 .12-7,62 -11 .12-5,45
 .22 Lr,
 ;
 - -02 .19-7,62 -03 .19-7,62
 7,62 , -11 .12-5,45 . -19 .12-
 :
 - -19 .12-7,62 -11 .12-5,45
 ;
 - -02 .19-7,62 -03 .19-7,62
 3, 5 8
 -11 .12-5,45 . -19 .12-7,62
 5,45 7,62 . -
 18 () 35 () -
 ,
 ,
 [2, 9].
 :

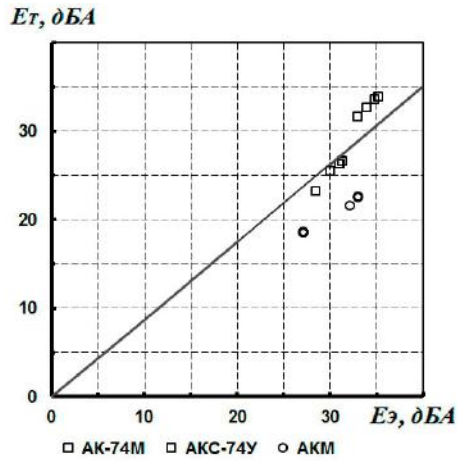
- , 3,
 - , / .
 , -
 , -
 -02 .19-7,62 , -03 .19-7,62 .
 , ...
 .
 ,
 .

[9]

$$E = 20 \lg \frac{\rho_1(t^*)}{\rho_1(0)}$$

E - ; $\rho_1(t^*)$ -
 1- ; $\rho_1(0)$ -

. 5 4
 -7,62 , -74 -5,45 , -74 -
 5,45 .
 ;
 ,



.5 -

17,6 %,

4 , .5, .4.
4 —

	11 .12- 5,45	02 .19- 7,62 (1)	02 .19 - 7,62 (2); 03 .19 - 7,62	ASe Ultra SL7-7.62 (cal. 30)	19 .12- 7,62
, .	5	5	5	12	5
, 3	192800	211900	228500	173300	265300
1, 3/ %	59400 / 31	78500 / 37	95100 / 42	27500 / 16	87100 / 33
/ ()					
⁻⁷⁴ , .5,45	25,4 / 30,1	26,2 / 31,1	26,5 / 31,4	23,2 / 28,5	—
⁻⁷⁴ , .5,45	32,6 / 34,0	33,5 / 34,94	33,8 / 35,25	31,6 / 33,0	—
, .7,62	—	18,5 / 27,13	21,6 / 32,1	18,5 / 27,13	22,5 / 33,0

1. -03 .19-7,62

Multi-Y,

140 ().

5,45 7,62

18 () 35 ()

17,6 %.

2.

03 .19-7,62

Mulli-Y,

3.

4.

5.

6.

7.

7,62

-02 .19-7,62

-03 .19-

1.

., 1976. 140 .

2.

. 1999. 1. . 13–17.

3.

. 18–32.

4.

4. . 44–65.

5.

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7.

88.057.004-98.

8.

()

, 1998. 5 .

9.

, 2008. 303 .

10.

. 2014. 1. . 3–10.

12.09.2019,
24.09.2019