

Fire Control

T 2 - The simplified preparation



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

References and further reading 1/3:

MO ČR. *Bojové použití dělostřelectva Armády České republiky*. Dě1-1-1. Praha: 2002. 92 s.

MO ČR. *Dělostřelecký průzkum, topograficko-geodetická a meteorologická příprava dělostřelectva všeobecné palebné podpory*. Dě1-6-4. Praha: 1996. 144 s.

MO ČR. *Palebná služba pozemního dělostřelectva*. Dě1-3-1. Praha: 1995. 185 s.

MO ČR. *Doktrína Armády České republiky*. Praha: 2004. 148 s.

References and further reading 2/3:

MO ČR. *Bezpečnostní strategie České republiky*. Praha: 2003. 22 s.

AAP-6 (STANAG 3680), *NATO glossary of terms and definitions, Přehled termínů a definic používaných v NATO*. Brusel: NSA, apríl 2007.

AArtyP-1(A) (STANAG 2934) *Artillery Procedures, Dělostřelecké postupy*. Brusel: NSA, březen 2004.

AArtyP-5 (STANAG 2484) *Field artillery tactical doctrine, Taktická doktrína polního dělostřelectva NATO*. Brusel: NSA, leden 2002.

AAP-38 (STANAG 2484) *NATO Artillery Glossary, Terminologický slovník dělostřelectva NATO*. Draft document. Brusel: NSA, únor 2001.

References and further reading 3/3:

STANAG 2014 *Formats for orders and designation of timings, locations and boundaries, Struktura rozkazů, uvádění časových údajů, názvů, míst a rozhraní*. Brusel: NSA, říjen 2000.

ČOS 10001 *Dělostřelecké zbraně názvy a definice*. Praha: Úřad pro obrannou standardizaci, katalogizaci a statní ověřování jakosti, 2006. 20 s.

SOBARŇA, M., POTUŽÁK, L., VONDRÁK, J., aj. *Základní pojmový aparát pozemního dělostřelectva AČR*. Brno: Univerzita obrany, 2011. 186 s.

Pravidla střelby a řízení palby pozemního dělostřelectva (dělo, četa, baterie, oddíl). Pub-74-14-01. Vyškov: Správa doktrín Ředitelství výcviku a doktrín, 2007. 256 s.

Course Objectives:

Explain the principles and procedures for determining the initial elements for firing of artillery units due to the simplify preparation.

Content:

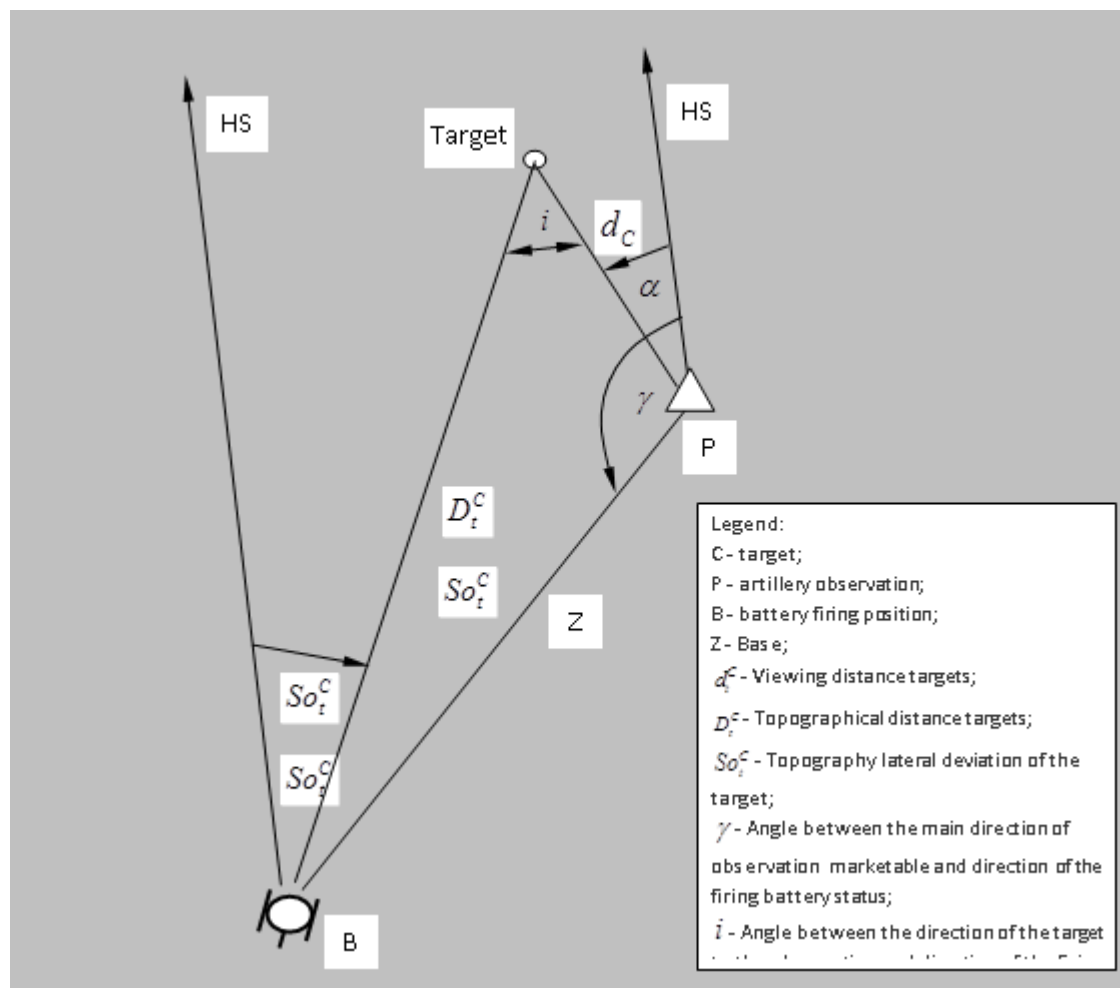
- 1) The Simplified preparation
- 2) The Artillery coefficient
- 3) Fire tasks characteristics (Fires) according to required Firing effect
- 4) Methods of firing data assessment and their accuracy

1) The Simplified preparation

Elements for simplified shooting training are determined graphically, and then only in exceptional cases, the firing battery. The procedure is as follows.

After finding the target from the vantage angle α measured from the main direction of the goal and draws a line in the direction of the target. Rangefinder is determined or estimated viewing distance, which is plotted on an appropriate scale on the line, plotted from the vantage point in the direction of the target and mark the point targets.

1) The Simplified preparation



2) The Artillery coefficient

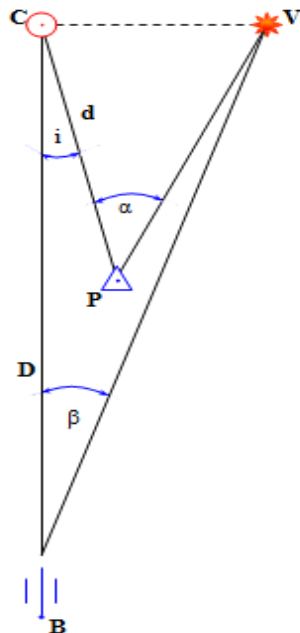
The artillery coefficients are values, which have to be calculated during adjusting fire.

REDUCTION COEFFICIENT (R_p)

$$i < 5-00$$

R_p – is value, which has to be multiplied by burst inclination observed from observation post to get the correction for firing position.

R_p is used for burst springing to observing line.



$$\alpha = \beta$$

$$\overline{CV} = 0,001 d \cdot \alpha$$

$$\overline{CV} = 0,001 D \cdot \beta$$

$$0,001 d \cdot \alpha = 0,001 D \cdot \beta \quad / \cdot 1000$$

$$d \cdot \alpha = D \cdot \beta$$

$$\beta = \alpha \cdot \frac{d}{D}$$

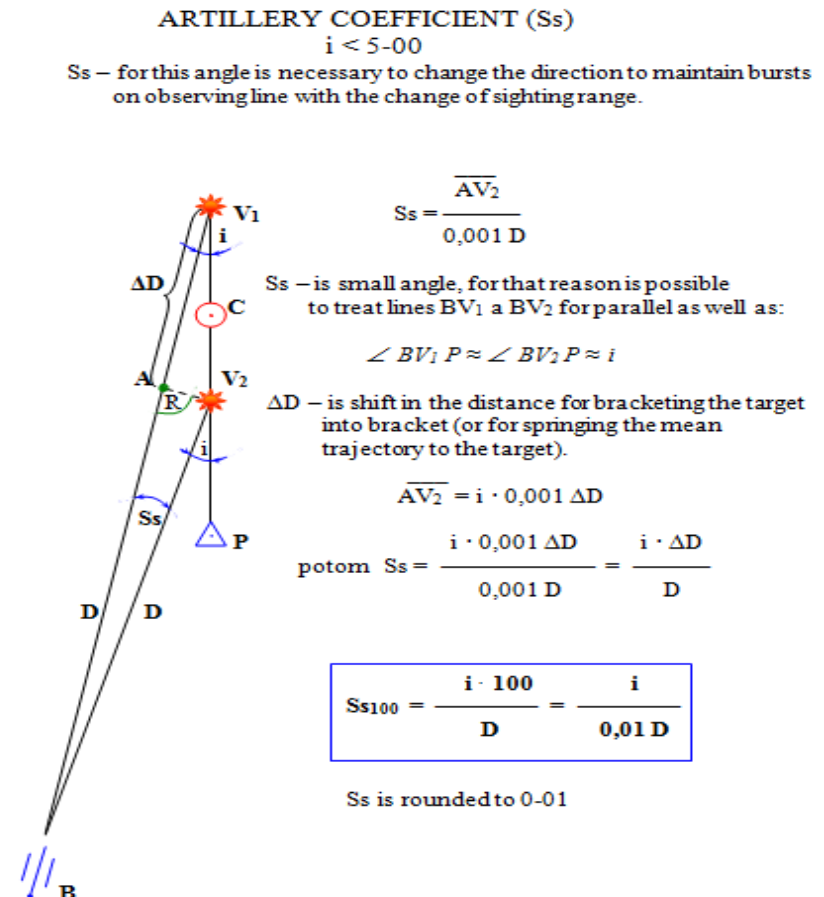
$$R_p = \frac{d}{D}$$

$$\beta = \alpha \cdot R_p$$

R_p is rounded to 0,1

2) The Artillery coefficient

The artillery coefficients are values, which have to be calculated during adjusting fire.



3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's ELimination)

Fire tasks with lethal effect

DESTROY
SCOTCH
FRUSTRATE FIRE
DEMOLISH

Fire tasks with non-lethal effect

BOTHER
SMOKE
LIGHT UP
ILLUMINATE
BLIND
MARK

3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's Elimination)

DESTROY	– To cause immediate irretrievable people losses or such material (functional) damage of combat arms, which disables target from action and other combat use for long time (6-12 h) or permanently; target loses (permanently) his combat efficiency (operability). – Complete loss of combat efficiency is reached with simultaneous affectig of physical and psychological people losses or material losses of combat arms altogether with reach of functional disability.	Lethal (non-lethal too)	$M(a) \geq 35\%$ (max. 50%) On individual unobserved target: – probability of elimination (for destroy) $P_z = 0,7 - 0,9.$
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3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's EElimination)

SCOTCH	– To cause such physical and psychological people losses, material losses of combat arms, which exclude the fulfilling of target's tasks during application of fire and partially after completion of fire (1-3 h; to getting 50 % of primary combat potential); target loses his combat efficiency temporarily.	Lethal (non-lethal too)	$M(a) \geq 20\%$ (max. 35%) On individual unobserved target: –probability of elimination (for scotch) $P_u \geq 0,5$.
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3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's EElimination)

FRUSTRATE FIRE	– To cause limited physical and psychological people losses and material losses of combat arms, which make target's activities more difficult or disable the target to do those activities during application of fire; the target loses his combat efficiency only for time of firing by surprise.	Lethal (non-lethal too)	$M(a) \geq 3\%$ (max. 10%)
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DEMOLISH	– To demolish (physical destruction) the target (object); the target loses completely (permanently) combat efficiency (combat use), reason or function.	Lethal (non-lethal too)	As for destroy.
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3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's EElimination)

BOTHER	– To bother units in areas of concentration and in final assembly areas. – To isolate units and to disrupt the movement of units under threat of losses. – To influence negatively and to lower the morale of units. – Before realisation of this kind of fire, it is necessary to consider all aspects of fire-control first (especially tactical aspects). – This kind of fire causes almost usual (standard) operational load of own fire units and danger of opposition against own units as well (enemy fire).	Non-lethal	Specific effect. Lethal (material, physical) effect on the enemy is small, it can be multiplied by real tactical situation (circumstances).
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3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's Elimination)

SMOKE	– To create (short term or permanent) smoke screen for screening individual (group) enemy object with intention to disable it's observing or navigation. – To create smoke screens for screening the manoeuvre or another activity of own troops.	Non-lethal	Specific effect.
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3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's EElimination)

LIGHT UP	– To light up flammable material in the target area with incendiary (high explosive, illuminating, smoke) projectiles.	Non-lethal (lethal too)	Specific effect. Eventual lethal (physical) effect is reached by acting of fire.
ILLUMINATE	– To create conditions, so it is possible to detect the target with reconnoitering device in night and observe process of registration fire, appropriately results of effective fire.	Non-lethal	Specific effect.

3) Fire tasks characteristics (Fires) according to required Firing effect (level of target's Elimination)

BLIND	– To blind the enemy target and disable his observing.	Non-lethal	Specific effect.
MARK	– To mark the target (area) for action of helicopter or tactical aircraft.	Non-lethal	Specific effect.

4) Methods of firing data assessment and their accuracy

According to frequency of use	According to accuracy
- Full preparation - According to results of establishment (registration fire) of fictitious (real) auxiliary targets: · use of ranging canons · transfer of fire off auxiliary targets - Shortened preparation - Simplified preparation - Registration fire	- Registration fire - Transfers of fire off auxiliary targets - Full preparation - Use of ranging canons - Shortened preparation - Simplified preparation

4) Methods of firing data assessment and their accuracy

Canons and mortars		Rocket launcher		Probable error	
Battalion	Gun tier	Battalion	Gun tier	of distance (% D ₀)	of direction (dc)
Full preparation	Full preparation ⁺	Full preparation	Full preparation	0,7 – 0,9 0,8 – 1,8 ⁺ 80-120m ⁺	0-03 – 0-05 0-05 – 0-10 ⁺ 0-05 – 0-06 ⁺
Use of ranging canons	-----	-----	-----	0,8 – 1,2	0-02 – 0-03
-----	Transfers of fire off auxiliary targets ^o	-----	-----	0,5 – 0,7	0-01 – 0-03
Shortened preparation ⁺⁺	Shortened preparation	Shortened preparation	Shortened preparation	1,4 – 6	0-07 – 0-20
-----	Simplified preparation	-----	-----	8 – 10	0-30 – 0-40
Target's fire registration	Target's fire registration	Target's fire registration [*]	Target's fire registration [*]	0,3 – 0,5	0-02 – 0-03