

N105 21.5 gr

WARNING: Since we have no control over equipment or data which may be used with this program, no responsibility is implied or assumed for results obtained through its use. Input data and results may be incorrect or wrong. Therefore the use of this data for loading ammunition can cause serious injury to personnel and material. The computer-results had to be checked against data available in current loading manuals.

LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.

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User Data:**Date:**23-mai-2023**Time:**13:56:21**File:** 5744 20gr.dat**Cartridge / Caliber****.577 Sld. Snider****Bullet****.58, 505, LYM LFN MINIE 575**

Maximum Average Pressure, allowed

21756 psi.

1500 bar (Piezo CIP)

with flatbase

505,0 gr.

32,72 gm

Groove Caliber

0,574 in.

14,58 mm

Bullet Weight

1,080 in.

27,43 mm

Case Capacity, overflow

114,0 gr. H₂O7,402 cm³

Bullet Length

0,610 in.

15,49 mm

Case Length

2,470 in.

62,74 mm

Bullet Seating Depth

30,0 in.

762,0 mm

Cartridge O.A. Length

1160 psi.

80,0 bar

Cross Section Area of Bore

0,25933 in.²1,6731 cm²

Shot Start / Init Pressure

Propellant type**Vihtavuori N105 *C**

Charge Weight

21,5 gr.

1,393 gm

Load Density

73,3 gr./in.³0,290 gm/cm³

Heat of Explosion, Potential

259,2 J/gr.

4000 J/gm

Energy Density of Charge

18976 J/in.³1158 J/cm³

Propellant Solid Density

354,05 gr./in.³1,4 gm/cm³

Used Ratio of Specific Heats cp/cv

1,237

Burning Rate Factor Ba

1,44 1/s

Weighting Factor

0,7

Burning Function Limit Z1

0,505

Prog.-/ Degressivity Factor a0

1,361

Factor b

1,846

Bulk Density

182,1 gr./in.³0,720 gm/cm³**Calculated and Estimated Data:**

Bullet Shank Seating Depth

0,61 in.

15,49 mm

Capacity Displaced by Seated Bullet

0,1581 in.³2,591 cm³

Useable Case Capacity

0,2936 in.³4,811 cm³

Bullet Travel at Muzzle Exit

28,61 in.

726,69 mm

Loading Ratio("Density") / Filling

40.2 %

Charge Fraction Burnt at Shot Start

2,31 %

Predicted Data:

Maximum Chamber Pressure

8380 psi.

578 bar

Bullet Travel at Pmax

1,08 in.

27,5 mm

at Muzzle Exit:

Bullet Velocity

1210 fps.

368,9 m/s

Pressure at Muzzle

863 psi.

60 bar

Bullet Energy

1642 ft.lbs.

2227 Joule

Bullet Barrel Time

3,082 ms

Propellant Burnt

99,3 %

Ballistic Efficiency

40,0 %

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !

Real maximum (peak) of pressure is reached while bullet moves within barrel.

End of combustion occurs after the bullet's base passes muzzle.

