

TrailBoss

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:22-mai-2023

Time:19:37:29

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

Groove Caliber

0,574 in.

14,58 mm

Bullet Weight

505,0 gr.

32,72 gm

Case Capacity, overflow

114,0 gr. H2O

7,402 cm³

Bullet Length

1,080 in.

27,43 mm

Case Length

2,000 in.

50,8 mm

Bullet Seating Depth

0,610 in.

15,49 mm

Cartridge O.A. Length

2,470 in.

62,74 mm

Barrel/Tube Length

30,0 in.

762,0 mm

Shot Start / Init Pressure

1160 psi.

80,0 bar

Cross Section Area of Bore

0,25933 in.²

1,6731 cm²

Propellant type

IMR TrailBoss

Charge Weight

21,5 gr.

1,393 gm

Load Density

73,3 gr./in.³

0,290 gm/cm³

Heat of Explosion, Potential

200,2 J/gr.

3090 J/gm

Energy Density of Charge

14666 J/in.³

0895 J/cm³

Propellant Solid Density

376,81 gr./in.³

1,49 gm/cm³

Used Ratio of Specific Heats cp/cv

1,231

Burning Rate Factor Ba

3,463 1/s

Weighting Factor

0,7

Burning Function Limit Z1

0,405

Prog.-/ Degressivity Factor a0

2,834

Factor b

1,9

Bulk Density

78,4 gr./in.³

0,310 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth

0,61 in.

15,49 mm

Capacity Displaced by Seated Bullet

0,1581 in.³

2,591 cm³

Useable Case Capacity

0,2936 in.³

4,811 cm³

Bullet Travel at Muzzle Exit

28,61 in.

726,69 mm

Loading Ratio("Density") / Filling

93.4 %

Charge Fraction Burnt at Shot Start

3,12 %

Predicted Data:

Maximum Chamber Pressure

21184 psi.

1461 bar

Bullet Travel at Pmax

0,44 in.

11,2 mm

at Muzzle Exit:

Bullet Velocity

1207 fps.

368,0 m/s

Pressure at Muzzle

525 psi.

36 bar

Bullet Energy

1634 ft.lbs.

2216 Joule

Bullet Barrel Time

2,585 ms

Propellant Burnt

100,0 %

Ballistic Efficiency

51,5 %

WARNING: Near Maximum Average Pressure - unknown tolerances may cause dangerous pressures !

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

End of combustion reached before bullet's base passes muzzle.

