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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:8-Apr-2015

Time:22:03:04

File: xpert 243 win 68 gr.dat

Cartridge / Caliber

.243 Win.

Bullet

.243, 68, XPERT Bullet

Maximum Average Pressure, allowed
Groove Caliber
Case Capacity, overflow
Case Length
Cartridge O.A. Length
Shot Start / Init Pressure

60191 psi. 4150 bar (Piezo CIP)
0.243 in. 6.17 mm
54.0 gr. H2O 3.506 cm³
2.044 in. 51.92 mm
2.638 in. 67.0 mm
3625 psi. 249.94 bar

with flatbase
68.0 gr. 4.41 gm
Bullet Weight
Bullet Length 1.031 in. 26.2 mm
Bullet Seating Depth 0.438 in. 11.13 mm
Barrel/Tube Length 24.0 in. 609.6 mm
Cross Section Area of Bore 0.04534 in.² 0.2925 cm²

Propellant type

Somchem S365

Charge Weight
Heat of Explosion, Potential
Propellant Solid Density
Burning Rate Factor Ba
Burning Function Limit Z1
Factor b

44.0 gr. 2.851 gm
238.8 J/gr. 3685 J/gm
404.63 gr./in.³ 1.6 gm/cm³
0.44 1/s
0.605
2.271

Load Density 227.3 gr./in.³ 0.899 gm/cm³
Energy Density of Charge 54274 J/in.³ 3312 J/cm³
Used Ratio of Specific Heats cp/cv 1.239
Weighting Factor 0.65
Prog.-/ Degressivity Factor a0 1.715
Bulk Density 231.4 gr./in.³ 0.915 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth
Useable Case Capacity
Loading Ratio("Density") / Filling

0.438 in. 11.13 mm
0.1936 in.³ 3.172 cm³
98.2 %

Capacity Displaced by Seated Bullet 0.0204 in.³ 0.334 cm³
Bullet Travel at Muzzle Exit 22.39 in. 568.81 mm
Charge Fraction Burnt at Shot Start 1.38 %

Predicted Data:

Maximum Chamber Pressure
at Muzzle Exit:
Bullet Velocity
Bullet Energy
Propellant Burnt

45421 psi. 3132 bar
3314 fps. 1010.2 m/s
1658 ft.lbs. 2248 Joule
99.3 %

Bullet Travel at Pmax 2.90 in. 73.7 mm
Pressure at Muzzle 9812 psi. 677 bar
Bullet Barrel Time 1.137 ms
Ballistic Efficiency 21.4 %

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.

