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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:**9-Apr-2015**Time:**18:35:25**File:**xpert 303 epps 133gr.dat**Cartridge / Caliber****.303 Epps Imp.****Bullet****.312, 133GR XPERT TARGET**

Maximum Average Pressure, allowed

49000 psi.

3378 bar (Wildcat)

with flatbase

Groove Caliber

0.312 in.

7.92 mm

Bullet Weight

133.0 gr.

8.62 gm

Case Capacity, overflow

63.01 gr. H₂O4.091 cm³

Bullet Length

1.236 in.

31.39 mm

Case Length

2.160 in.

54.86 mm

Bullet Seating Depth

0.522 in.

13.25 mm

Cartridge O.A. Length

2.874 in.

73.0 mm

Barrel/Tube Length

24.0 in.

609.6 mm

Shot Start / Init Pressure

3625 psi.

249.94 bar

Cross Section Area of Bore

0.07451 in.²0.4807 cm²**Propellant type****Somchem S341**

Charge Weight

46.0 gr.

2.981 gm

Load Density

219.3 gr./in.³0.867 gm/cm³

Heat of Explosion, Potential

237.2 J/gr.

3660 J/gm

Energy Density of Charge

52013 J/in.³3174 J/cm³

Propellant Solid Density

409.68 gr./in.³1.62 gm/cm³

Used Ratio of Specific Heats cp/cv

1.242

Burning Rate Factor Ba

0.56 1/s

Weighting Factor

0.5

Burning Function Limit Z1

0.45

Prog.-/ Degressivity Factor a0

0.74

Factor b

1.557

Bulk Density

250.4 gr./in.³0.990 gm/cm³**Calculated and Estimated Data:**

Bullet Shank Seating Depth

0.522 in.

13.25 mm

Capacity Displaced by Seated Bullet

0.0399 in.³0.654 cm³

Useable Case Capacity

0.2097 in.³3.437 cm³

Bullet Travel at Muzzle Exit

22.36 in.

567.99 mm

Loading Ratio("Density") / Filling

87.6 %

Charge Fraction Burnt at Shot Start

1.51 %

Predicted Data:

Maximum Chamber Pressure

37319 psi.

2573 bar

Bullet Travel at Pmax

1.59 in.

40.4 mm

at Muzzle Exit:

Bullet Velocity

2686 fps.

818.7 m/s

Pressure at Muzzle

6840 psi.

472 bar

Bullet Energy

2131 ft.lbs.

2889 Joule

Bullet Barrel Time

1.259 ms

Propellant Burnt

91.6 %

Ballistic Efficiency

26.5 %

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.

