

Nick van Zyl 300 WM S365 180gr Sierra node 6

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:**30-Nov-2014**Time:**19:30:42 **File:** *.dat**Cartridge / Caliber****.300 Win. Mag.(W)****Bullet****.308, 180, Sierra SP 2150**

Maximum Average Pressure, allowed

62366 psi. 4300 bar (Piezo CIP)

with flatbase

Groove Caliber

0.308 in. 7.82 mm

Bullet Weight

180.0 gr. 11.66 gm

Case Capacity, overflow

91.8 gr. H₂O 5.96 cm³

Bullet Length

1.226 in. 31.14 mm

Case Length

2.620 in. 66.55 mm

Bullet Seating Depth

0.500 in. 12.69 mm

Cartridge O.A. Length

3.346 in. 85.0 mm

Barrel/Tube Length

23.2283 in. 590.0 mm

Shot Start / Init Pressure

3626 psi. 250.0 bar

Cross Section Area of Bore

0.07335 in.² 0.4732 cm²**Propellant type****Somchem S365 ?, Temperature: 87.5 °F**

Charge Weight

64.3 gr. 4.167 gm

Load Density

197.0 gr./in.³ 0.779 gm/cm³

Heat of Explosion, Potential

238.8 J/gr. 3685 J/gm

Energy Density of Charge

47031 J/in.³ 2870 J/cm³

Propellant Solid Density

404.63 gr./in.³ 1.6 gm/cm³

Used Ratio of Specific Heats cp/cv

1.239

Burning Rate Factor Ba

0.471 1/s

Weighting Factor

0.5

Burning Function Limit Z1

0.605

Prog.-/ Degressivity Factor a0

1.715

Factor b

2.271

Bulk Density

231.4 gr./in.³ 0.915 gm/cm³**Calculated and Estimated Data:**

Bullet Shank Seating Depth

0.5 in. 12.69 mm

Capacity Displaced by Seated Bullet

0.0373 in.³ 0.611 cm³

Useable Case Capacity

0.3265 in.³ 5.35 cm³

Bullet Travel at Muzzle Exit

21.11 in. 536.14 mm

Loading Ratio("Density") / Filling

85.1 %

Charge Fraction Burnt at Shot Start

1.87 %

Predicted Data:

Maximum Chamber Pressure

50646 psi. 3492 bar

Bullet Travel at Pmax

3.01 in. 76.6 mm

at Muzzle Exit:

Bullet Velocity

2788 fps. 849.9 m/s

Pressure at Muzzle

10867 psi. 749 bar

Bullet Energy

3108 ft.lbs. 4213 Joule

Bullet Barrel Time

1.265 ms

Propellant Burnt

100.0 %

Ballistic Efficiency

27.4 %

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 reached before bullet's base passes muzzle.

