

**Nick van Zyl 300 Win Mag 165 SST node 6 1.267mS**

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:**27-Nov-2014**Time:**20:36:35 **File:** \*.dat**Cartridge / Caliber****.300 Win. Mag.(W)****Bullet****.308, 165, Hornady SST Inter**

Maximum Average Pressure, allowed

62366 psi. 4300 bar (Piezo CIP)

with boattail

Groove Caliber

0.308 in. 7.82 mm

Bullet Weight

165.0 gr. 10.69 gm

Case Capacity, overflow

91.8 gr. H<sub>2</sub>O 5.96 cm<sup>3</sup>

Bullet Length

1.270 in. 32.26 mm

Case Length

2.620 in. 66.55 mm

Bullet Seating Depth

0.544 in. 13.82 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.<sup>2</sup> 0.4732 cm<sup>2</sup>**Propellant type****Somchem S385 ?, Temperature: 87.5 °F**

Charge Weight

73.7 gr. 4.776 gm

Load Density

226.1 gr./in.<sup>3</sup> 0.894 gm/cm<sup>3</sup>

Heat of Explosion, Potential

238.8 J/gr. 3685 J/gm

Energy Density of Charge

53963 J/in.<sup>3</sup> 3293 J/cm<sup>3</sup>

Propellant Solid Density

404.63 gr./in.<sup>3</sup> 1.6 gm/cm<sup>3</sup>

Used Ratio of Specific Heats cp/cv

1.241

Burning Rate Factor Ba

0.374 1/s

Weighting Factor

0.5

Burning Function Limit Z1

0.42

Prog.-/ Degressivity Factor a0

2.206

Factor b

1.823

Bulk Density

235.2 gr./in.<sup>3</sup> 0.930 gm/cm<sup>3</sup>**Calculated and Estimated Data:**

Bullet Shank Seating Depth

0.344 in. 8.74 mm

Capacity Displaced by Seated Bullet

0.0376 in.<sup>3</sup> 0.616 cm<sup>3</sup>

Useable Case Capacity

0.3261 in.<sup>3</sup> 5.344 cm<sup>3</sup>

Bullet Travel at Muzzle Exit

21.15 in. 537.27 mm

Loading Ratio("Density") / Filling

96.1 %

Charge Fraction Burnt at Shot Start

1.39 %

**Predicted Data:**

Maximum Chamber Pressure

46332 psi. 3195 bar

Bullet Travel at Pmax

2.67 in. 67.9 mm

**at Muzzle Exit:**

Bullet Velocity

2829 fps. 862.3 m/s

Pressure at Muzzle

12041 psi. 830 bar

Bullet Energy

2933 ft.lbs. 3976 Joule

Bullet Barrel Time

1.267 ms

Propellant Burnt

94.1 %

Ballistic Efficiency

22.6 %

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.

