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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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<b>User Data:</b>	<b>Date:9-Apr-2015</b>	<b>Time:18:36:47</b>	<b>File: xpert 303 epps 133gr.dat</b>	
<b>Cartridge / Caliber</b>	<b>.303 Epps Imp.</b>	<b>Bullet</b>	<b>.312, 133GR XPERT TARGET</b>	
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. H2O	4.091 cm <sup>3</sup>	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. <sup>2</sup> 0.4807 cm <sup>2</sup>
<b>Propellant type</b>	<b>Somchem S355</b>			
Charge Weight	46.0 gr.	2.981 gm	Load Density	219.3 gr./in. <sup>3</sup> 0.867 gm/cm <sup>3</sup>
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	55569 J/in. <sup>3</sup> 3391 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	1.2291
Burning Rate Factor Ba	0.5 1/s		Weighting Factor	0.5
Burning Function Limit Z1	0.39		Prog.-/ Degressivity Factor a0	2.36
Factor b	1.774		Bulk Density	227.6 gr./in. <sup>3</sup> 0.900 gm/cm <sup>3</sup>

**Calculated and Estimated Data:**

Bullet Shank Seating Depth	0.522 in.	13.25 mm	Capacity Displaced by Seated Bullet	0.0399 in. <sup>3</sup>	0.654 cm <sup>3</sup>
Useable Case Capacity	0.2097 in. <sup>3</sup>	3.437 cm <sup>3</sup>	Bullet Travel at Muzzle Exit	22.36 in.	567.99 mm
Loading Ratio("Density") / Filling	96.4 %		Charge Fraction Burnt at Shot Start	1.47 %	

**Predicted Data:**

Maximum Chamber Pressure	37782 psi.	2605 bar	Bullet Travel at Pmax	1.78 in.	45.1 mm
<b>at Muzzle Exit:</b>					
Bullet Velocity	2725 fps.	830.7 m/s	Pressure at Muzzle	7190 psi.	496 bar
Bullet Energy	2194 ft.lbs.	2974 Joule	Bullet Barrel Time	1.263 ms	
Propellant Burnt	92.8 %		Ballistic Efficiency	25.5 %	

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.

