User Data:

Date:8-Apr-2015 **Time:23:07:01** **File: xpert 270 win 105gr.dat**

Cartridge / Caliber	**.270 Win. (CIP)**		**Bullet**	**.277, 105 gr, XPERT**	
Maximum Average Pressure, allowed	62366 psi.	4300 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.277 in.	7.04 mm	Bullet Weight	105.0 gr.	6.8 gm
Case Capacity, overflow	67.0 gr. H2O	4.35 cm³	Bullet Length	1.189 in.	30.2 mm
Case Length	2.540 in.	64.52 mm	Bullet Seating Depth	0.540 in.	13.72 mm
Cartridge O.A. Length	3.189 in.	81.0 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.05971 in.²	0.3852 cm²
Propellant type	**Somchem S365**				
Charge Weight	55.0 gr.	3.564 gm	Load Density	236.2 gr./in.³	0.934 gm/cm³
Heat of Explosion, Potential	238.8 J/gr.	3685 J/gm	Energy Density of Charge	56404 J/in.³	3442 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	0.44 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	0.54 in.	13.72 mm	Capacity Displaced by Seated Bullet	0.0326 in.³	0.534 cm³
Useable Case Capacity	0.2329 in.³	3.816 cm³	Bullet Travel at Muzzle Exit	22.0 in.	558.8 mm
Loading Ratio("Density") / Filling	102.1 % = compressed		Charge Fraction Burnt at Shot Start	1.26 %	
Predicted Data:					
Maximum Chamber Pressure	48459 psi.	3341 bar	Bullet Travel at Pmax	2.52 in.	63.9 mm
at Muzzle Exit:					
Bullet Velocity	3241 fps.	987.8 m/s	Pressure at Muzzle	10576 psi.	729 bar
Bullet Energy	2449 ft.lbs.	3320 Joule	Bullet Barrel Time	1.110 ms	
Propellant Burnt	99.6 %		Ballistic Efficiency	25.3 %	

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.