User Data:

Date:9-Apr-2015 **Time:18:22:32** **File: xpert 8 x 68mm 153gr.dat**

Cartridge / Caliber	**8 x 68 S**		**Bullet**	**.323, 153GR XPERT TARGET**	
Maximum Average Pressure, allowed	63817 psi.	4400 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.323 in.	8.2 mm	Bullet Weight	153.0 gr.	9.91 gm
Case Capacity, overflow	86.0 gr. H2O	5.584 cm³	Bullet Length	1.299 in.	33.0 mm
Case Length	2.657 in.	67.49 mm	Bullet Seating Depth	0.531 in.	13.49 mm
Cartridge O.A. Length	3.425 in.	87.0 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.08026 in.²	0.5178 cm²
Propellant type	**Somchem S365**				
Charge Weight	69.0 gr.	4.471 gm	Load Density	232.2 gr./in.³	0.918 gm/cm³
Heat of Explosion, Potential	238.8 J/gr.	3685 J/gm	Energy Density of Charge	55454 J/in.³	3384 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	0.531 in.	13.49 mm	Capacity Displaced by Seated Bullet	0.0436 in.³	0.715 cm³
Useable Case Capacity	0.2971 in.³	4.869 cm³	Bullet Travel at Muzzle Exit	21.87 in.	555.6 mm
Loading Ratio("Density") / Filling	100.4 % = compressed		Charge Fraction Burnt at Shot Start	1.32 %	
Predicted Data:					
Maximum Chamber Pressure	45888 psi.	3164 bar	Bullet Travel at Pmax	2.41 in.	61.1 mm
at Muzzle Exit:					
Bullet Velocity	3055 fps.	931.0 m/s	Pressure at Muzzle	10213 psi.	704 bar
Bullet Energy	3170 ft.lbs.	4297 Joule	Bullet Barrel Time	1.167 ms	
Propellant Burnt	99.5 %		Ballistic Efficiency	26.1 %	

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.