User Data:

Date:9-Apr-2015 **Time:18:19:24** **File: xpert 8 x 60mm 153gr.dat**

Cartridge / Caliber	**8 x 60 S**		**Bullet**	**.323, 153GR XPERT TARGET**	
Maximum Average Pressure, allowed	58740 psi.	4050 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.323 in.	8.2 mm	Bullet Weight	153.0 gr.	9.91 gm
Case Capacity, overflow	63.99 gr. H2O	4.155 cm³	Bullet Length	1.299 in.	33.0 mm
Case Length	2.362 in.	59.99 mm	Bullet Seating Depth	0.590 in.	14.99 mm
Cartridge O.A. Length	3.071 in.	78.0 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 S355**				
Charge Weight	48.0 gr.	3.11 gm	Load Density	233.9 gr./in.³	0.925 gm/cm³
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	59288 J/in.³	3618 J/cm³
Propellant Solid Density	404.63 gr./in.³	1.6 gm/cm³	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.³	0.900 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.59 in.	14.99 mm	Capacity Displaced by Seated Bullet	0.0485 in.³	0.794 cm³
Useable Case Capacity	0.2051 in.³	3.361 cm³	Bullet Travel at Muzzle Exit	22.23 in.	564.6 mm
Loading Ratio("Density") / Filling	102.8 % = compressed		Charge Fraction Burnt at Shot Start	1.27 %	
Predicted Data:					
Maximum Chamber Pressure	43704 psi.	3013 bar	Bullet Travel at Pmax	1.53 in.	38.9 mm
at Muzzle Exit:					
Bullet Velocity	2722 fps.	829.7 m/s	Pressure at Muzzle	7101 psi.	490 bar
Bullet Energy	2517 ft.lbs.	3413 Joule	Bullet Barrel Time	1.208 ms	
Propellant Burnt	94.7 %		Ballistic Efficiency	28.1 %	

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.