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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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User Data:	Date:9-Apr-2015	Time:18:14:45	File: xpert 8 x 57mm 153gr.dat	
Cartridge / Caliber	8 x 57 IS (8 mm Mauser CIP) Bullet		.323, 153GR XPERT TARGET	
Maximum Average Pressure, allowed	56565 psi.	3900 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.323 in.	8.2 mm	Bullet Weight	153.0 gr. 9.91 gm
Case Capacity, overflow	63.01 gr. H2O	4.091 cm ³	Bullet Length	1.299 in. 33.0 mm
Case Length	2.244 in.	57.0 mm	Bullet Seating Depth	0.591 in. 15.0 mm
Cartridge O.A. Length	2.953 in.	75.0 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 cm ²
Propellant type	Somchem S355			
Charge Weight	47.0 gr.	3.046 gm	Load Density	233.7 gr./in. ³ 0.924 gm/cm ³
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	59190 J/in. ³ 3612 J/cm ³
Propellant Solid Density	404.63 gr./in. ³	1.6 gm/cm ³	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/cm ³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.591 in.	15.0 mm	Capacity Displaced by Seated Bullet	0.0484 in. ³	0.794 cm ³
Useable Case Capacity	0.2012 in. ³	3.297 cm ³	Bullet Travel at Muzzle Exit	22.35 in.	567.6 mm
Loading Ratio("Density") / Filling	102.7 % = compressed		Charge Fraction Burnt at Shot Start	1.28 %	

Predicted Data:

Maximum Chamber Pressure	42465 psi.	2928 bar	Bullet Travel at Pmax	1.52 in.	38.5 mm
at Muzzle Exit:					
Bullet Velocity	2689 fps.	819.7 m/s	Pressure at Muzzle	6900 psi.	476 bar
Bullet Energy	2457 ft.lbs.	3331 Joule	Bullet Barrel Time	1.227 ms	
Propellant Burnt	94.1 %		Ballistic Efficiency	28.0 %	

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.

