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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:14:30:04</b>	<b>File: xpert 7 x 57mm 108gr.dat</b>	
<b>Cartridge / Caliber</b>	<b>7 x 57 mm Mauser</b>	<b>Bullet</b>	<b>.284, 108, XPERT TARGET M</b>	
Maximum Average Pressure, allowed	56565 psi.	3900 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.285 in.	7.24 mm	Bullet Weight	108.0 gr. 7.0 gm
Case Capacity, overflow	59.5 gr. H2O	3.863 cm <sup>3</sup>	Bullet Length	1.189 in. 30.2 mm
Case Length	2.244 in.	57.0 mm	Bullet Seating Depth	0.520 in. 13.21 mm
Cartridge O.A. Length	2.913 in.	73.99 mm	Barrel/Tube Length	24.0 in. 609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.06264 in. <sup>2</sup> 0.4041 cm <sup>2</sup>
<b>Propellant type</b>	<b>Somchem S321</b>			
Charge Weight	43.0 gr.	2.786 gm	Load Density	212.4 gr./in. <sup>3</sup> 0.840 gm/cm <sup>3</sup>
Heat of Explosion, Potential	259.8 J/gr.	4010 J/gm	Energy Density of Charge	55175 J/in. <sup>3</sup> 3367 J/cm <sup>3</sup>
Propellant Solid Density	409.68 gr./in. <sup>3</sup>	1.62 gm/cm <sup>3</sup>	Used Ratio of Specific Heats cp/cv	1.221
Burning Rate Factor Ba	0.56 1/s		Weighting Factor	0.5
Burning Function Limit Z1	0.39		Prog.-/ Degressivity Factor a0	1.649
Factor b	1.641		Bulk Density	250.4 gr./in. <sup>3</sup> 0.990 gm/cm <sup>3</sup>

**Calculated and Estimated Data:**

Bullet Shank Seating Depth	0.52 in.	13.21 mm	Capacity Displaced by Seated Bullet	0.0333 in. <sup>3</sup> 0.545 cm <sup>3</sup>
Useable Case Capacity	0.2025 in. <sup>3</sup>	3.318 cm <sup>3</sup>	Bullet Travel at Muzzle Exit	22.28 in. 565.81 mm
Loading Ratio("Density") / Filling	84.8 %		Charge Fraction Burnt at Shot Start	1.62 %

**Predicted Data:**

Maximum Chamber Pressure	43612 psi.	3007 bar	Bullet Travel at Pmax	1.87 in. 47.6 mm
<b>at Muzzle Exit:</b>				
Bullet Velocity	2958 fps.	901.5 m/s	Pressure at Muzzle	8126 psi. 560 bar
Bullet Energy	2098 ft.lbs.	2844 Joule	Bullet Barrel Time	1.171 ms
Propellant Burnt	97.0 %		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.

