User Data:

Date:9-Apr-2015 **Time:14:33:59** **File: xpert 7 x 64mm bren 108gr.dat**

Cartridge / Caliber	**7 x 64 Brenneke**		**Bullet**	**.284, 108, XPERT TARGET M**	
Maximum Average Pressure, allowed	60191 psi.	4150 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.285 in.	7.24 mm	Bullet Weight	108.0 gr.	7.0 gm
Case Capacity, overflow	69.0 gr. H2O	4.48 cm³	Bullet Length	1.189 in.	30.2 mm
Case Length	2.519 in.	63.98 mm	Bullet Seating Depth	0.519 in.	13.18 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	0.06245 in.²	0.4029 cm²
Propellant type	**Somchem S355**				
Charge Weight	50.0 gr.	3.24 gm	Load Density	208.1 gr./in.³	0.823 gm/cm³
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	52750 J/in.³	3219 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	0.519 in.	13.18 mm	Capacity Displaced by Seated Bullet	0.0332 in.³	0.544 cm³
Useable Case Capacity	0.2402 in.³	3.936 cm³	Bullet Travel at Muzzle Exit	22.0 in.	558.8 mm
Loading Ratio("Density") / Filling	91.5 %		Charge Fraction Burnt at Shot Start	1.65 %	
Predicted Data:					
Maximum Chamber Pressure	45072 psi.	3108 bar	Bullet Travel at Pmax	2.29 in.	58.1 mm
at Muzzle Exit:					
Bullet Velocity	3073 fps.	936.7 m/s	Pressure at Muzzle	9501 psi.	655 bar
Bullet Energy	2265 ft.lbs.	3070 Joule	Bullet Barrel Time	1.165 ms	
Propellant Burnt	97.7 %		Ballistic Efficiency	24.2 %	

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.