User Data:

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Cartridge / Caliber	**7 mm-08 Rem.**		**Bullet**	**.284, 108, XPERT TARGET M**	
Maximum Average Pressure, allowed	60191 psi.	4150 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.284 in.	7.21 mm	Bullet Weight	108.0 gr.	7.0 gm
Case Capacity, overflow	55.0 gr. H2O	3.571 cm³	Bullet Length	1.189 in.	30.2 mm
Case Length	2.035 in.	51.69 mm	Bullet Seating Depth	0.507 in.	12.89 mm
Cartridge O.A. Length	2.717 in.	69.0 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.06261 in.²	0.4039 cm²
Propellant type	**Somchem S355**				
Charge Weight	43.0 gr.	2.786 gm	Load Density	231.4 gr./in.³	0.915 gm/cm³
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	58649 J/in.³	3579 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	0.507 in.	12.89 mm	Capacity Displaced by Seated Bullet	0.0322 in.³	0.527 cm³
Useable Case Capacity	0.1857 in.³	3.044 cm³	Bullet Travel at Muzzle Exit	22.47 in.	570.8 mm
Loading Ratio("Density") / Filling	101.7 % = compressed		Charge Fraction Burnt at Shot Start	1.30 %	
Predicted Data:					
Maximum Chamber Pressure	46154 psi.	3182 bar	Bullet Travel at Pmax	1.75 in.	44.5 mm
at Muzzle Exit:					
Bullet Velocity	2987 fps.	910.3 m/s	Pressure at Muzzle	7923 psi.	546 bar
Bullet Energy	2139 ft.lbs.	2900 Joule	Bullet Barrel Time	1.142 ms	
Propellant Burnt	95.8 %		Ballistic Efficiency	26.6 %	

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.