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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:8-Apr-2015	Time:21:32:12	File: xpert 204 ruger 33gr.dat	
Cartridge / Caliber	.204 Ruger	Bullet	.204, 33gr, XPERT TM	
Maximum Average Pressure, allowed	58740 psi.	4050 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.204 in.	5.18 mm	Bullet Weight	33.0 gr. 2.14 gm
Case Capacity, overflow	30.96 gr. H2O	2.01 cm ³	Bullet Length	0.697 in. 17.7 mm
Case Length	1.843 in.	46.81 mm	Bullet Seating Depth	0.335 in. 8.51 mm
Cartridge O.A. Length	2.205 in.	56.01 mm	Barrel/Tube Length	24.0 in. 609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.03216 in. ² 0.2075 cm ²
Propellant type	Somchem S335			
Charge Weight	25.0 gr.	1.62 gm	Load Density	223.8 gr./in. ³ 0.885 gm/cm ³
Heat of Explosion, Potential	240.4 J/gr.	3710 J/gm	Energy Density of Charge	53815 J/in. ³ 3284 J/cm ³
Propellant Solid Density	407.15 gr./in. ³	1.61 gm/cm ³	Used Ratio of Specific Heats cp/cv	1.224
Burning Rate Factor Ba	0.624 1/s		Weighting Factor	0.6
Burning Function Limit Z1	0.35		Prog.-/ Degressivity Factor a0	2.299
Factor b	1.666		Bulk Density	227.6 gr./in. ³ 0.900 gm/cm ³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.335 in.	8.51 mm	Capacity Displaced by Seated Bullet	0.011 in. ³	0.18 cm ³
Useable Case Capacity	0.1117 in. ³	1.83 cm ³	Bullet Travel at Muzzle Exit	22.49 in.	571.3 mm
Loading Ratio("Density") / Filling	98.4 %		Charge Fraction Burnt at Shot Start	1.53 %	

Predicted Data:

Maximum Chamber Pressure	46146 psi.	3182 bar	Bullet Travel at Pmax	1.87 in.	47.6 mm
at Muzzle Exit:					
Bullet Velocity	3582 fps.	1091.8 m/s	Pressure at Muzzle	6996 psi.	482 bar
Bullet Energy	940 ft.lbs.	1274 Joule	Bullet Barrel Time	0.976 ms	
Propellant Burnt	96.9 %		Ballistic Efficiency	21.2 %	

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.

