

5744 20gr

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:20-mai-2023	Time:22:22:38	File: 5744 20gr.dat	
Cartridge / Caliber	.577 Sld. Snider	Bullet	.58, 505, LYM LFN MINIE 575	
Maximum Average Pressure, allowed	21756 psi.	1500 bar (Piezo CIP)	with flatbase	
Groove Caliber	0,574 in.	14,58 mm	Bullet Weight	505,0 gr. 32,72 gm
Case Capacity, overflow	114,0 gr. H2O	7,402 cm ³	Bullet Length	1,080 in. 27,43 mm
Case Length	2,000 in.	50,8 mm	Bullet Seating Depth	0,610 in. 15,49 mm
Cartridge O.A. Length	2,470 in.	62,74 mm	Barrel/Tube Length	30,0 in. 762,0 mm
Shot Start / Init Pressure	1160 psi.	80,0 bar	Cross Section Area of Bore	0,25933 in. ² 1,6731 cm ²
Propellant type	Accurate 5744			
Charge Weight	20,0 gr.	1,296 gm	Load Density	68,0 gr./in. ³ 0,269 gm/cm ³
Heat of Explosion, Potential	305,4 J/gr.	4713 J/gm	Energy Density of Charge	20812 J/in. ³ 1270 J/cm ³
Propellant Solid Density	397,04 gr./in. ³	1,57 gm/cm ³	Used Ratio of Specific Heats cp/cv	1,211
Burning Rate Factor Ba	1,11 1/s		Weighting Factor	0,7
Burning Function Limit Z1	0,119		Prog.-/ Degressivity Factor a0	-0,175
Factor b	1,054		Bulk Density	222,5 gr./in. ³ 0,880 gm/cm ³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0,61 in.	15,49 mm	Capacity Displaced by Seated Bullet	0,1581 in. ³ 2,591 cm ³
Useable Case Capacity	0,2936 in. ³	4,811 cm ³	Bullet Travel at Muzzle Exit	28,61 in. 726,69 mm
Loading Ratio("Density") / Filling	30.6 %		Charge Fraction Burnt at Shot Start	2,47 %

Predicted Data:

Maximum Chamber Pressure	4212 psi.	290 bar	Bullet Travel at Pmax	0,63 in. 15,9 mm
at Muzzle Exit:				
Bullet Velocity	824 fps.	251,1 m/s	Pressure at Muzzle	512 psi. 35 bar
Bullet Energy	761 ft.lbs.	1032 Joule	Bullet Barrel Time	4,494 ms
Propellant Burnt	52,7 %		Ballistic Efficiency	16,9 %

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.

