

**375 H&H 300 gr Impala Solid 63.1 gr IMR4350**

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**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:15-Oct-2024</b>	<b>Time:16:20:33</b>	<b>File: 300gr impala rnfp ph range 63.1gr imr4350.dat</b>	
<b>Cartridge / Caliber</b>	<b>.375 H.&amp; H. Mag.</b>	<b>Bullet</b>	<b>.375, 300, Impala RNFP PH R</b>	
Maximum Average Pressure, allowed	62366 psi.	4300 bar (Piezo CIP)	with flatbase	
Groove Caliber	0,375 in.	9,53 mm	Bullet Weight	300,0 gr. 19,44 gm
Case Capacity, overflow	89,71 gr. H2O	5,825 cm <sup>3</sup>	Bullet Length	1,457 in. 37,01 mm
Case Length	2,841 in.	72,16 mm	Bullet Seating Depth	0,750 in. 19,05 mm
Cartridge O.A. Length	3,548 in.	90,12 mm	Barrel/Tube Length	24,1728 in. 613,99 mm
Shot Start / Init Pressure	3336 psi.	230,01 bar	Cross Section Area of Bore	0,10875 in. <sup>2</sup> 0,7016 cm <sup>2</sup>
<b>Propellant type</b>	<b>IMR 4350</b>			
Charge Weight	63,1 gr.	4,089 gm	Load Density	231,6 gr./in. <sup>3</sup> 0,916 gm/cm <sup>3</sup>
Heat of Explosion, Potential	243,6 J/gr.	3760 J/gm	Energy Density of Charge	56453 J/in. <sup>3</sup> 3445 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	1,2403
Burning Rate Factor Ba	0,515 1/s		Weighting Factor	0,5
Burning Function Limit Z1	0,45		Prog.-/ Degressivity Factor a0	0,248
Factor b	1,422		Bulk Density	231,4 gr./in. <sup>3</sup> 0,915 gm/cm <sup>3</sup>

**Calculated and Estimated Data:**

Bullet Shank Seating Depth	0,75 in.	19,05 mm	Capacity Displaced by Seated Bullet	0,0831 in. <sup>3</sup>	1,362 cm <sup>3</sup>
Useable Case Capacity	0,2724 in. <sup>3</sup>	4,463 cm <sup>3</sup>	Bullet Travel at Muzzle Exit	22,08 in.	560,88 mm
Loading Ratio("Density") / Filling	100.1 % = compressed		Charge Fraction Burnt at Shot Start	1,21 %	

**Predicted Data:**

Maximum Chamber Pressure	45636 psi.	3146 bar	Bullet Travel at Pmax	1,29 in.	32,8 mm
<b>at Muzzle Exit:</b>					
Bullet Velocity	2294 fps.	699,2 m/s	Pressure at Muzzle	7025 psi.	484 bar
Bullet Energy	3505 ft.lbs.	4752 Joule	Bullet Barrel Time	1,380 ms	
Propellant Burnt	93,9 %		Ballistic Efficiency	30,9 %	

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.

