

.308 Win - PrviPartizan FMJ 150gr - RS40

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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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User Data:	Date:25-Feb-2019		Time:14:03:56		File: *.dat
Comment	450mm barrel - 69.85mm COL - 39.0gr start load - 736m/s - 2913bar				
Cartridge / Caliber	.308 Win. (CIP)		Bullet		.3085, 150, PrviPartizan FMJ B-099
Maximum Average Pressure, allowed	4150 bar	60191 psi. (Piezo CIP)			with flatbase
Groove Caliber	7.82 mm	0.308 in.	Bullet Weight	9.72 gm	150.0 gr.
Case Capacity, overflow	3.636 cm³	56.0 gr. H2O	Bullet Length	28.09 mm	1.106 in.
Case Length	51.16 mm	2.014 in.	Bullet Seating Depth	9.4 mm	0.370 in.
Cartridge O.A. Length	69.85 mm	2.750 in.	Barrel/Tube Length	450.0 mm	17.7165 in.
Shot Start / Init Pressure	250.0 bar	3626 psi.	Cross Section Area of Bore	0.4751 cm²	0.07364 in.²
Propellant type	ReloadSwiss RS 40				
Charge Weight	2.527 gm	39.0 gr.	Load Density	0.794 gm/cm³	200.8 gr./in.³
Heat of Explosion, Potential	3990 J/gm	258.5 J/gr.	Energy Density of Charge	3168 J/cm³	51914 J/in.³
Propellant Solid Density	1.6 gm/cm³	404.63 gr./in.³	Used Ratio of Specific Heats cp/cv	1.2293	
Burning Rate Factor Ba	0.643 1/s		Weighting Factor	0.5	
Burning Function Limit Z1	0.419		Prog.-/ Degressivity Factor a0	0.782	
Factor b	1.494		Bulk Density	0.938 gm/cm³	237.2 gr./in.³
Calculated and Estimated Data:					
Bullet Shank Seating Depth	9.4 mm	0.37 in.	Capacity Displaced by Seated Bullet	0.453 cm³	0.0276 in.³
Useable Case Capacity	3.183 cm³	0.1943 in.³	Bullet Travel at Muzzle Exit	408.24 mm	16.07 in.
Loading Ratio("Density") / Filling	84.6 %		Charge Fraction Burnt at Shot Start	1.73 %	
Predicted Data:					
Maximum Chamber Pressure	2913 bar	42249 psi.	Bullet Travel at Pmax	37.2 mm	1.46 in.
at Muzzle Exit:					
Bullet Velocity	735.9 m/s	2414 fps.	Pressure at Muzzle	645 bar	9359 psi.
Bullet Energy	2632 Joule	1941 ft.lbs.	Bullet Barrel Time	1.060 ms	
Propellant Burnt	95.7 %		Ballistic Efficiency	26.1 %	

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.

Table of incremented charges ranging from +10.0% to -20.0% of above specified charge

D A N G E R ! : Table data may exceed maximum average pressures ! Pressures exceeding SAAMI or CIP specs are printed underlined!

Diff. %	Charge Weight Gramm	Grains	Muzzle Vel. m/s	fps	Muzzle Energy Joule	ft.lbs	Max. Pressure bar	psi	Muzzle Pressure bar	psi	Prop.Burnt %	B_Time ms	L.R./Filling %
-20.0	2.02	31.2	596	1955	1725	1273	1677	24328	490	7108	86.0	1.333	68
-18.0	2.07	32.0	610	2001	1807	1333	1776	25764	507	7352	87.2	1.304	69
-16.0	2.12	32.8	624	2046	1891	1395	1880	27264	524	7593	88.3	1.275	71
-14.0	2.17	33.5	638	2092	1977	1458	1988	28830	540	7831	89.4	1.247	73
-12.0	2.22	34.3	652	2138	2065	1523	2100	30465	556	8065	90.5	1.220	74
-10.0	2.27	35.1	666	2184	2155	1589	2219	32181	572	8295	91.5	1.193	76
-8.0	2.32	35.9	680	2230	2247	1657	2343	33989	587	8520	92.4	1.167	78
-6.0	2.38	36.7	694	2276	2340	1726	2475	35894	603	8739	93.3	1.142	80
-4.0	2.43	37.4	708	2322	2436	1797	2613	37903	617	8952	94.2	1.116	81
-2.0	2.48	38.2	722	2368	2533	1868	2759	40019	632	9159	95.0	1.087	83
Nominal	2.53	39.0	736	2414	2632	1941	2913	42249	645	9359	95.7	1.060	85
+2.0	2.58	39.8	750	2460	2733	2016	3075	44600	659	9551	96.4	1.032	86
+4.0	2.63	40.6	764	2506	2836	2091	3246	47079	671	9735	97.0	1.007	88
+6.0	2.68	41.3	778	2551	2940	2168	3426	49693	683	9910	97.6	0.981	90
+8.0	2.73	42.1	792	2597	3045	2246	3616	52451	695	10076	98.1	0.957	91
+10.0	2.78	42.9	805	2642	3153	2325	3817	55361	705	10232	98.6	0.934	93

Results caused by ±3% powder lot-to-lot burning rate variation using nominal charge

Data for burning rate increased by 3% relative to nominal value :													
Nominal	2.53	39.0	748	2454	2719	2006	3066	44472	650	9428	97.2	1.035	85
Data for burning rate decreased by 3% relative to nominal value :													
Nominal	2.53	39.0	723	2372	2540	1874	2761	40050	638	9253	93.9	1.086	85