

6.5 Creedmoor Hornady - Nosler BalTip 140gr - RS60

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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:9-Jan-2018	Time:10:34:10	File: *.dat
Comment	24" barrel - 71.12mm COL - 39.5gr start load - 801m/s - 3004bar		
Cartridge / Caliber	6.5 Creedmoor Hornady	Bullet	.264, 140, Nosler BalTip 2614
Maximum Average Pressure, allowed	4350 bar	63091 psi. (Piezo CIP)	with boattail
Groove Caliber	6,71 mm	0,264 in.	9,07 gm 140,0 gr.
Case Capacity, overflow	3,474 cm³	53,5 gr. H2O	Bullet Weight
Case Length	48,77 mm	1,920 in.	Bullet Length
Cartridge O.A. Length	71,12 mm	2,800 in.	Bullet Seating Depth
Shot Start / Init Pressure	250,0 bar	3626 psi.	Barrel/Tube Length
		Cross Section Area of Bore	609,6 mm 24,0 in.
			0,3466 cm² 0,05372 in.²
Propellant type	ReloadSwiss RS 60		
Charge Weight	2,56 gm	39,5 gr.	Load Density
Heat of Explosion, Potential	3990 J/gm	258,5 J/gr.	Energy Density of Charge
Propellant Solid Density	1,61 gm/cm³	407,15 gr./in.³	Used Ratio of Specific Heats cp/cv
Burning Rate Factor Ba	0,468 1/s		Weighting Factor
Burning Function Limit Z1	0,695		Prog.-/ Degressivity Factor a0
Factor b	2,192		Bulk Density
			0,836 gm/cm³ 211,4 gr./in.³
			3335 J/cm³ 54651 J/in.³
			1,2291
			0,5
			0,669
			0,965 gm/cm³ 244,0 gr./in.³

Calculated and Estimated Data:

Bullet Shank Seating Depth	9,91 mm	0,39 in.	Capacity Displaced by Seated Bullet	0,411 cm³	0,0251 in.³
Useable Case Capacity	3,063 cm³	0,1869 in.³	Bullet Travel at Muzzle Exit	572,77 mm	22,55 in.
Loading Ratio("Density") / Filling	86.6 %		Charge Fraction Burnt at Shot Start	1,57 %	

Predicted Data:

Maximum Chamber Pressure	3004 bar	43568 psi.	Bullet Travel at Pmax	55,3 mm	2,18 in.
at Muzzle Exit:					
Bullet Velocity	800,8 m/s	2627 fps.	Pressure at Muzzle	649 bar	9413 psi.
Bullet Energy	2909 Joule	2146 ft.lbs.	Bullet Barrel Time	1,371 ms	
Propellant Burnt	100,0 %		Ballistic Efficiency	28,5 %	

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 reached before 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_TimeL.R./Filling ms	%
-20,0	2,05	31,6	648	2126	1905	1405	1681	24382	535	7760	94,8	1,750	69
-18,0	2,10	32,4	663	2177	1997	1473	1782	25842	551	7995	95,9	1,709	71
-16,0	2,15	33,2	679	2228	2092	1543	1888	27389	566	8216	96,8	1,670	73
-14,0	2,20	34,0	695	2279	2189	1614	2001	29019	581	8424	97,7	1,631	74
-12,0	2,25	34,8	710	2330	2288	1687	2120	30753	594	8616	98,4	1,594	76
-10,0	2,30	35,6	726	2380	2388	1761	2247	32595	606	8793	99,0	1,557	78
-8,0	2,35	36,3	741	2431	2490	1837	2382	34542	617	8952	99,4	1,521	80
-6,0	2,41	37,1	756	2480	2593	1913	2524	36601	627	9093	99,8	1,486	81
-4,0	2,46	37,9	771	2530	2698	1990	2674	38789	635	9216	99,9	1,447	83
-2,0	2,51	38,7	786	2579	2803	2068	2834	41108	643	9320	100,0	1,408	85
Nominal	2,56	39,5	801	2627	2909	2146	3004	43568	649	9413	100,0	1,371	87
+2,0	2,61	40,3	815	2675	3016	2225	3184	46179	655	9504	100,0	1,335	88
+4,0	2,66	41,1	830	2723	3124	2304	3375	48955	661	9594	100,0	1,300	90
+6,0	2,71	41,9	844	2769	3233	2384	3579	51903	667	9681	100,0	1,266	92
+8,0	2,76	42,7	858	2816	3342	2465	3795	55040	673	9766	100,0	1,233	94
+10,0	2,82	43,5	872	2862	3452	2546	4025	58378	679	9848	100,0	1,201	95

Results caused by ±10% powder lot-to-lot burning rate variation using nominal charge

Data for burning rate increased by 10% relative to nominal value :													
Nominal	2,56	39,5	834	2738	3159	2330	3635	52722	622	9024	100,0	1,267	87
Data for burning rate decreased by 10% relative to nominal value :													
Nominal	2,56	39,5	750	2460	2550	1881	2455	35602	660	9569	97,1	1,502	87