

.338 Win Mag - Hornady SST 200gr - 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:11-Mai-2016	Time:17:39:29	File: *.dat
Comment	26" barrel - 84.84mm COL - 66.5gr start load - 863m/s - 3008bar		
Cartridge / Caliber	.338 Win Mag.	Bullet	.338, 200, Hornady SST InterLock 3
Maximum Average Pressure, allowed	4300 bar	62366 psi. (Piezo CIP)	with boattail
Groove Caliber	8.59 mm	0.338 in.	Bullet Weight 12.96 gm 200.0 gr.
Case Capacity, overflow	5.584 cm³	86.0 gr. H2O	Bullet Length 33.6 mm 1.323 in.
Case Length	63.5 mm	2.500 in.	Bullet Seating Depth 12.27 mm 0.483 in.
Cartridge O.A. Length	84.84 mm	3.340 in.	Barrel/Tube Length 660.4 mm 26.0 in.
Shot Start / Init Pressure	250.0 bar	3626 psi.	Cross Section Area of Bore 0.5695 cm² 0.08827 in.²
Propellant type	ReloadSwiss RS 60		
Charge Weight	4.309 gm	66.5 gr.	Load Density 0.878 gm/cm³ 222.0 gr./in.³
Heat of Explosion, Potential	3990 J/gm	258.5 J/gr.	Energy Density of Charge 3505 J/cm³ 57437 J/in.³
Propellant Solid Density	1.61 gm/cm³	407.15 gr./in.³	Used Ratio of Specific Heats cp/cv 1.2291
Burning Rate Factor Ba	0.468 1/s		Weighting Factor 0.5
Burning Function Limit Z1	0.695		Prog.-/ Degressivity Factor a0 0.669
Factor b	2.192		Bulk Density 0.965 gm/cm³ 244.0 gr./in.³
Calculated and Estimated Data:			
Bullet Shank Seating Depth	8.97 mm	0.353 in.	Capacity Displaced by Seated Bullet 0.679 cm³ 0.0414 in.³
Useable Case Capacity	4.905 cm³	0.2993 in.³	Bullet Travel at Muzzle Exit 609.17 mm 23.98 in.
Loading Ratio("Density") / Filling	91.0 %		Charge Fraction Burnt at Shot Start 1.41 %
Predicted Data:			
Maximum Chamber Pressure	3008 bar	43633 psi.	Bullet Travel at Pmax 50.2 mm 1.98 in.
at Muzzle Exit:			
Bullet Velocity	862.9 m/s	2831 fps.	Pressure at Muzzle 615 bar 8916 psi.
Bullet Energy	4825 Joule	3559 ft.lbs.	Bullet Barrel Time 1.327 ms
Propellant Burnt	99.9 %		Ballistic Efficiency 28.1 %

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	3.45	53.2	691	2268	3098	2285	1654	23984	493	7146	91.9	1.707	73
-18.0	3.53	54.5	709	2325	3254	2400	1755	25455	509	7386	93.2	1.668	75
-16.0	3.62	55.9	726	2381	3414	2518	1863	27018	525	7615	94.5	1.628	76
-14.0	3.71	57.2	743	2438	3579	2640	1977	28677	540	7832	95.6	1.590	78
-12.0	3.79	58.5	760	2495	3747	2764	2099	30440	554	8035	96.6	1.552	80
-10.0	3.88	59.9	778	2551	3920	2891	2228	32310	567	8224	97.5	1.514	82
-8.0	3.96	61.2	795	2608	4095	3020	2365	34304	579	8398	98.3	1.478	84
-6.0	4.05	62.5	812	2664	4274	3152	2511	36422	590	8554	98.9	1.443	86
-4.0	4.14	63.8	829	2720	4455	3286	2667	38676	599	8693	99.4	1.404	87
-2.0	4.22	65.2	846	2776	4639	3422	2832	41076	608	8814	99.7	1.364	89
Nominal	4.31	66.5	863	2831	4825	3559	3008	43633	615	8916	99.9	1.327	91
+2.0	4.40	67.8	879	2885	5013	3697	3196	46360	620	8997	100.0	1.290	93
+4.0	4.48	69.2	896	2939	5202	3837	3397	49269	625	9066	100.0	1.255	95
+6.0	4.57	70.5	912	2993	5393	3978	3611	52377	630	9132	100.0	1.221	97
+8.0	4.65	71.8	928	3046	5585	4119	3840	55700	634	9196	100.0	1.188	98
+10.0	4.74	73.2	944	3098	5779	4262	4085	59253	638	9257	100.0	1.157	100

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	4.31	66.5	877	2877	4984	3676	3187	46225	606	8783	100.0	1.293	91
Data for burning rate decreased by 3% relative to nominal value :													
Nominal	4.31	66.5	847	2779	4648	3428	2837	41144	620	8988	99.3	1.363	91