

8 x 68 S - Hornady SST 170gr - RS60

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:19-Jan-2018	Time:17:00:34	File: *.dat
Comment	650mm barrel - 87.00mm COL - 64.5gr start load - 898m/s - 3022bar		
Cartridge / Caliber	8 x 68 S	Bullet	.323, 170, Hornady SST 3233
Maximum Average Pressure, allowed	4400 bar	63817 psi. (Piezo CIP)	with boattail
Groove Caliber	8,2 mm	0,323 in.	Bullet Weight 11,02 gm 170,0 gr.
Case Capacity, overflow	5,584 cm³	86,0 gr. H2O	Bullet Length 35,08 mm 1,381 in.
Case Length	67,49 mm	2,657 in.	Bullet Seating Depth 15,57 mm 0,613 in.
Cartridge O.A. Length	87,0 mm	3,425 in.	Barrel/Tube Length 650,0 mm 25,5906 in.
Shot Start / Init Pressure	250,0 bar	3626 psi.	Cross Section Area of Bore 0,5178 cm² 0,08026 in.²

Propellant type	ReloadSwiss RS 60		
Charge Weight	4,18 gm	64,5 gr.	Load Density 0,873 gm/cm³ 220,8 gr./in.³
Heat of Explosion, Potential	3990 J/gm	258,5 J/gr.	Energy Density of Charge 3484 J/cm³ 57093 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	10,57 mm	0,416 in.	Capacity Displaced by Seated Bullet	0,797 cm³	0,0486 in.³
Useable Case Capacity	4,787 cm³	0,2921 in.³	Bullet Travel at Muzzle Exit	598,08 mm	23,55 in.
Loading Ratio("Density") / Filling	90.5 %		Charge Fraction Burnt at Shot Start	1,43 %	

Predicted Data:					
Maximum Chamber Pressure	3022 bar	43834 psi.	Bullet Travel at Pmax	54,5 mm	2,15 in.
at Muzzle Exit:					
Bullet Velocity	897,7 m/s	2945 fps.	Pressure at Muzzle	660 bar	9578 psi.
Bullet Energy	4440 Joule	3275 ft.lbs.	Bullet Barrel Time	1,279 ms	
Propellant Burnt	99,8 %		Ballistic Efficiency	26,6 %	

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_TimeL.R./Filling ms	%
-20,0	3,34	51,6	718	2356	2841	2095	1659	24057	525	7618	91,2	1,646	72
-18,0	3,43	52,9	736	2415	2985	2201	1761	25538	543	7880	92,6	1,608	74
-16,0	3,51	54,2	754	2474	3133	2310	1869	27104	561	8131	93,9	1,570	76
-14,0	3,59	55,5	772	2533	3285	2423	1984	28780	577	8370	95,1	1,533	78
-12,0	3,68	56,8	790	2593	3440	2537	2107	30555	593	8595	96,2	1,497	80
-10,0	3,76	58,1	808	2652	3600	2655	2237	32440	607	8804	97,1	1,461	81
-8,0	3,85	59,3	826	2711	3762	2775	2375	34442	620	8997	98,0	1,427	83
-6,0	3,93	60,6	844	2770	3928	2897	2522	36576	632	9171	98,6	1,393	85
-4,0	4,01	61,9	862	2829	4096	3021	2678	38844	643	9327	99,2	1,353	87
-2,0	4,10	63,2	880	2887	4267	3147	2845	41260	652	9463	99,6	1,315	89
Nominal	4,18	64,5	898	2945	4440	3275	3022	43834	660	9578	99,9	1,279	90
+2,0	4,26	65,8	915	3003	4614	3403	3211	46576	667	9672	100,0	1,244	92
+4,0	4,35	67,1	932	3059	4790	3533	3412	49492	672	9747	100,0	1,210	94
+6,0	4,43	68,4	950	3115	4967	3664	3629	52630	677	9817	100,0	1,177	96
+8,0	4,51	69,7	966	3171	5146	3795	3859	55970	682	9885	100,0	1,145	98
+10,0	4,60	71,0	983	3226	5325	3928	4105	59542	686	9951	100,0	1,114	100

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	4,18	64,5	941	3087	4879	3598	3651	52959	631	9158	100,0	1,180	90
Data for burning rate decreased by 10% relative to nominal value :													
Nominal	4,18	64,5	834	2737	3834	2828	2473	35866	652	9449	94,6	1,405	90