

.308 Win - Sellier-Bellot FMJ-BT 2908 147gr - RS50

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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:31-Mrz-2016	Time:14:58:32	File: *.dat
Comment	26" barrel - 67.67mm COL - 43.5gr start load - 794m/s - 2819bar		
Cartridge / Caliber	.308 Win. (CIP)	Bullet	.308, 147, Sellier-Bellot FMJ-BT 290
Maximum Average Pressure, allowed	4150 bar	60191 psi. (Piezo CIP)	with boattail
Groove Caliber	7.82 mm	0.308 in.	Bullet Weight
Case Capacity, overflow	3.636 cm³	56.0 gr. H2O	Bullet Length
Case Length	51.16 mm	2.014 in.	Bullet Seating Depth
Cartridge O.A. Length	67.66 mm	2.664 in.	Barrel/Tube Length
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 50		
Charge Weight	2.819 gm	43.5 gr.	Load Density
Heat of Explosion, Potential	3815 J/gm	247.2 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	0.512 1/s		Weighting Factor
Burning Function Limit Z1	0.35		Prog./ Degressivity Factor a0
Factor b	1.484		Bulk Density
			0.914 gm/cm³ 231.1 gr./in.³
			3487 J/cm³ 57142 J/in.³
			1.239
			0.5
			1.231
			0.957 gm/cm³ 242.0 gr./in.³
Calculated and Estimated Data:			
Bullet Shank Seating Depth	8.0 mm	0.315 in.	Capacity Displaced by Seated Bullet
Useable Case Capacity	3.084 cm³	0.1882 in.³	Bullet Travel at Muzzle Exit
Loading Ratio("Density") / Filling	95.5 %		Charge Fraction Burnt at Shot Start
			0.552 cm³ 0.0337 in.³
			621.44 mm 24.47 in.
			1.30 %
Predicted Data:			
Maximum Chamber Pressure	2819 bar	40891 psi.	Bullet Travel at Pmax
at Muzzle Exit:			34.1 mm 1.34 in.
Bullet Velocity	794.0 m/s	2605 fps.	Pressure at Muzzle
Bullet Energy	3003 Joule	2215 ft.lbs.	Bullet Barrel Time
Propellant Burnt	89.4 %		Ballistic Efficiency
			416 bar 6036 psi.
			1.346 ms
			27.9 %

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.

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	2.26	34.8	634	2081	1916	1413	1536	22273	308	4473	77.3	1.725	76
-18.0	2.31	35.7	650	2132	2012	1484	1631	23654	320	4638	78.6	1.684	78
-16.0	2.37	36.5	666	2184	2110	1557	1732	25124	331	4801	79.9	1.644	80
-14.0	2.42	37.4	681	2236	2212	1631	1840	26689	342	4964	81.2	1.604	82
-12.0	2.48	38.3	697	2288	2316	1708	1955	28357	353	5125	82.5	1.566	84
-10.0	2.54	39.2	713	2340	2424	1788	2078	30138	364	5284	83.8	1.528	86
-8.0	2.59	40.0	729	2393	2534	1869	2209	32035	375	5440	85.0	1.492	88
-6.0	2.65	40.9	745	2446	2647	1952	2348	34061	386	5594	86.1	1.457	90
-4.0	2.71	41.8	762	2499	2762	2038	2496	36204	396	5745	87.3	1.422	92
-2.0	2.76	42.6	778	2552	2881	2125	2653	38473	406	5893	88.4	1.384	94
Nominal	2.82	43.5	794	2605	3003	2215	2819	40891	416	6036	89.4	1.346	96
+2.0	2.88	44.4	810	2658	3127	2307	2997	43474	426	6175	90.4	1.310	97
+4.0	2.93	45.2	827	2712	3255	2401	3188	46238	435	6309	91.4	1.275	99
+6.0	2.99	46.1	843	2766	3385	2497	3392	49197	444	6438	92.3	1.241	101
+8.0	3.04	47.0	859	2820	3519	2595	3611	52367	452	6562	93.2	1.207	103
+10.0	3.10	47.9	876	2874	3655	2696	3845	55768	460	6679	94.0	1.175	105

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	2.82	43.5	809	2655	3118	2300	2980	43221	423	6134	91.6	1.314	96
Data for burning rate decreased by 3% relative to nominal value :													
Nominal	2.82	43.5	778	2553	2883	2127	2660	38586	408	5918	87.0	1.381	96