

.308 Win - Sellier-Bellot FMJ-BT 2908 147gr - 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:31-Mrz-2016	Time:14:56:21	File: *.dat
Comment	26" barrel - 67.67mm COL - 38.5gr start load - 809m/s - 2926bar		
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 40		
Charge Weight	2.495 gm	38.5 gr.	Load Density
Heat of Explosion, Potential	3990 J/gm	258.5 J/gr.	Energy Density of Charge
Propellant Solid Density	1.6 gm/cm³	404.63 gr./in.³	Used Ratio of Specific Heats cp/cv
Burning Rate Factor Ba	0.643 1/s		Weighting Factor
Burning Function Limit Z1	0.419		Prog./ Degressivity Factor a0
Factor b	1.494		Bulk Density
			0.809 gm/cm³ 204.6 gr./in.³
			3228 J/cm³ 52897 J/in.³
			1.2293
			0.5
			0.782
			0.938 gm/cm³ 237.2 gr./in.³

Calculated and Estimated Data:

Bullet Shank Seating Depth	8.0 mm	0.315 in.	Capacity Displaced by Seated Bullet	0.552 cm³	0.0337 in.³
Useable Case Capacity	3.084 cm³	0.1882 in.³	Bullet Travel at Muzzle Exit	621.44 mm	24.47 in.
Loading Ratio("Density") / Filling	86.2 %		Charge Fraction Burnt at Shot Start	1.67 %	

Predicted Data:

Maximum Chamber Pressure	2926 bar	42444 psi.	Bullet Travel at Pmax	36.0 mm	1.42 in.
at Muzzle Exit:					
Bullet Velocity	808.5 m/s	2653 fps.	Pressure at Muzzle	407 bar	5900 psi.
Bullet Energy	3114 Joule	2297 ft.lbs.	Bullet Barrel Time	1.320 ms	
Propellant Burnt	97.9 %		Ballistic Efficiency	31.3 %	

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	2.00	30.8	662	2172	2088	1540	1670	24226	322	4666	90.0	1.666	69
-18.0	2.05	31.6	677	2221	2183	1610	1769	25662	331	4808	91.1	1.628	71
-16.0	2.10	32.3	692	2270	2280	1681	1874	27181	341	4946	92.1	1.591	72
-14.0	2.15	33.1	707	2318	2378	1754	1984	28782	350	5082	93.0	1.555	74
-12.0	2.20	33.9	721	2367	2478	1828	2100	30455	359	5213	93.9	1.520	76
-10.0	2.25	34.7	736	2415	2580	1903	2220	32204	368	5340	94.7	1.486	78
-8.0	2.30	35.4	751	2463	2684	1980	2347	34038	377	5462	95.5	1.453	79
-6.0	2.35	36.2	765	2511	2789	2057	2480	35972	385	5580	96.2	1.421	81
-4.0	2.39	37.0	780	2558	2896	2136	2621	38014	392	5692	96.8	1.388	83
-2.0	2.44	37.7	794	2606	3004	2216	2770	40169	400	5799	97.4	1.353	85
Nominal	2.49	38.5	809	2653	3114	2297	2926	42444	407	5900	98.0	1.320	86
+2.0	2.54	39.3	823	2700	3225	2379	3092	44845	413	5996	98.4	1.289	88
+4.0	2.59	40.0	837	2746	3337	2461	3267	47381	419	6084	98.8	1.258	90
+6.0	2.64	40.8	851	2792	3450	2545	3452	50060	425	6166	99.2	1.228	91
+8.0	2.69	41.6	865	2838	3565	2629	3647	52892	430	6242	99.5	1.200	93
+10.0	2.74	42.4	879	2884	3681	2715	3853	55886	435	6310	99.7	1.172	95

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	2.49	38.5	820	2691	3204	2364	3082	44705	407	5897	99.0	1.292	86
Data for burning rate decreased by 3% relative to nominal value :													
Nominal	2.49	38.5	796	2611	3016	2225	2772	40208	405	5880	96.6	1.351	86