6.5 Creedmore 129SST

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 personnell 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.

User Data:

Date:8-Aug-2024 **Time:21:35:04** **File: *.dat**

Cartridge / Caliber	**6.5 Creedmoor Hornady**		**Bullet**	**.264, 129, Hornady SST InterLoc**	
Maximum Average Pressure, allowed	63091 psi.	4350 bar (Piezo CIP)		with boattail	
Groove Caliber	0.264 in.	6.71 mm	Bullet Weight	129.0 gr.	8.36 gm
Case Capacity, overflow	51.5 gr. H2O	3.344 cm³	Bullet Length	1.300 in.	33.02 mm
Case Length	1.920 in.	48.77 mm	Bullet Seating Depth	0.420 in.	10.68 mm
Cartridge O.A. Length	2.800 in.	71.12 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3626 psi.	250.0 bar	Cross Section Area of Bore	0.05372 in.²	0.3466 cm²
Propellant type	**Alliant Reloder-17 *T**				
Charge Weight	44.0 gr.	2.851 gm	Load Density	241.5 gr./in.³	0.955 gm/cm³
Heat of Explosion, Potential	258.5 J/gr.	3990 J/gm	Energy Density of Charge	62467 J/in.³	3812 J/cm³
Propellant Solid Density	407.15 gr./in.³	1.61 gm/cm³	Used Ratio of Specific Heats cp/cv	1.2291	
Burning Rate Factor Ba	0.47 1/s		Weighting Factor	0.5	
Burning Function Limit Z1	0.625		Prog.-/ Degressivity Factor a0	0.805	
Factor b	2.002		Bulk Density	244.0 gr./in.³	0.965 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.288 in.	7.32 mm	Capacity Displaced by Seated Bullet	0.0219 in.³	0.36 cm³
Useable Case Capacity	0.1821 in.³	2.984 cm³	Bullet Travel at Muzzle Exit	22.5 in.	571.51 mm
Loading Ratio("Density") / Filling	99.0 %		Charge Fraction Burnt at Shot Start	1.16 %	
Predicted Data:					
Maximum Chamber Pressure	61883 psi.	4267 bar	Bullet Travel at Pmax	1.96 in.	49.9 mm
at Muzzle Exit:					
Bullet Velocity	2991 fps.	911.7 m/s	Pressure at Muzzle	9870 psi.	681 bar
Bullet Energy	2563 ft.lbs.	3475 Joule	Bullet Barrel Time	1.131 ms	
Propellant Burnt	100.0 %		Ballistic Efficiency	30.5 %	

WARNING: Near Maximum Average Pressure - unknown tolerances may cause dangerous pressures !
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		Muzzle Vel.		Muzzle Energy		Max. Pressure		Muzzle Pressure		Prop.Burnt	B_Time	L.R./Filling
%	Gramm	Grains	m/s	fps	Joule	ft.lbs	bar	psi	bar	psi	%	ms	%
-20.0	2.28	35.2	737	2417	2268	1673	2190	31767	585	8487	96.5	1.523	79
-18.0	2.34	36.1	755	2476	2381	1756	2340	33933	600	8705	97.4	1.481	81
-16.0	2.39	37.0	773	2535	2495	1841	2499	36248	614	8906	98.2	1.441	83
-14.0	2.45	37.8	791	2594	2612	1927	2670	38725	627	9089	98.8	1.398	85
-12.0	2.51	38.7	808	2652	2731	2014	2853	41379	638	9253	99.3	1.356	87
-10.0	2.57	39.6	826	2710	2852	2103	3049	44221	648	9398	99.7	1.315	89
-8.0	2.62	40.5	843	2767	2974	2194	3259	47266	656	9521	99.9	1.275	91
-6.0	2.68	41.4	861	2824	3098	2285	3484	50536	663	9623	100.0	1.237	93
-4.0	2.74	42.2	878	2881	3222	2377	3726	54048	669	9709	100.0	1.201	95
-2.0	2.79	43.1	895	2936	3348	2469	3987	57822	675	9791	100.0	1.165	97
Nominal	**2.85**	**44.0**	**912**	**2991**	**3475**	**2563**	**4267**	**61883**	**681**	**9870**	**100.0**	**1.131**	**99**
+2.0	2.91	44.9	928	3046	3603	2657	*4569*	*66261*	686	9946	100.0	1.099	101
+4.0	2.97	45.8	945	3100	3733	2753	*4894*	*70985*	691	10018	100.0	1.067	103
+6.0	3.02	46.6	961	3154	3863	2850	*5246*	*76087*	696	10087	100.0	1.037	105
+8.0	3.08	47.5	978	3208	3996	2947	*5627*	*81608*	700	10153	100.0	1.007	107
+10.0	3.14	48.4	994	3261	4130	3046	*6039*	*87592*	704	10214	100.0	0.979	109

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	2.85	44.0	944	3096	3723	2746	*5215*	*75631*	654	9478	100.0	1.051	99

Data for burning rate decreased by 10% relative to nominal value :

Nominal	2.85	44.0	862	2829	3108	2293	3442	49918	707	10258	98.8	1.238	99