6.5 Creedmoor Hornady - Hornady ELD-M 147gr - RS60

User Data:

Date:9-Jan-2018 **Time:10:45:25** **File: *.dat**

Comment	**24'' barrel - 71.12mm COL - 38.5gr start load - 781m/s - 3014bar**				
Cartridge / Caliber	**6.5 Creedmoor Hornady**		**Bullet**	**.264, 147, Hornady ELD-M 26**	
Maximum Average Pressure, allowed	4350 bar	63091 psi. (Piezo CIP)		with boattail	
Groove Caliber	6,71 mm	0,264 in.	Bullet Weight	9,53 gm	147,0 gr.
Case Capacity, overflow	3,474 cm³	53,5 gr. H2O	Bullet Length	36,07 mm	1,420 in.
Case Length	48,77 mm	1,920 in.	Bullet Seating Depth	13,72 mm	0,540 in.
Cartridge O.A. Length	71,12 mm	2,800 in.	Barrel/Tube Length	609,6 mm	24,0 in.
Shot Start / Init Pressure	250,0 bar	3626 psi.	Cross Section Area of Bore	0,3466 cm²	0,05372 in.²
Propellant type	**ReloadSwiss RS 60**				
Charge Weight	2,495 gm	38,5 gr.	Load Density	0,831 gm/cm³	210,2 gr./in.³
Heat of Explosion, Potential	3990 J/gm	258,5 J/gr.	Energy Density of Charge	3316 J/cm³	54340 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	11,18 mm	0,44 in.	Capacity Displaced by Seated Bullet	0,471 cm³	0,0288 in.³
Useable Case Capacity	3,002 cm³	0,1832 in.³	Bullet Travel at Muzzle Exit	574,55 mm	22,62 in.
Loading Ratio("Density") / Filling	86.1 %		Charge Fraction Burnt at Shot Start	1,59 %	
Predicted Data:					
Maximum Chamber Pressure	3014 bar	43719 psi.	Bullet Travel at Pmax	54,2 mm	2,14 in.
at Muzzle Exit:					
Bullet Velocity	780,9 m/s	2562 fps.	Pressure at Muzzle	632 bar	9171 psi.
Bullet Energy	2905 Joule	2142 ft.lbs.	Bullet Barrel Time	1,400 ms	
Propellant Burnt	100,0 %		Ballistic Efficiency	29,2 %	

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 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	2,00	30,8	634	2079	1913	1411	1691	24529	526	7635	95,6	1,787	69
-18,0	2,05	31,6	649	2129	2005	1479	1792	25994	542	7856	96,6	1,745	71
-16,0	2,10	32,3	664	2178	2099	1548	1899	27543	556	8064	97,5	1,705	72
-14,0	2,15	33,1	679	2227	2195	1619	2012	29183	569	8258	98,2	1,665	74
-12,0	2,20	33,9	694	2276	2293	1691	2132	30919	582	8436	98,9	1,627	76
-10,0	2,25	34,7	709	2325	2392	1764	2258	32754	593	8598	99,3	1,590	78
-8,0	2,30	35,4	723	2373	2492	1838	2393	34702	603	8744	99,7	1,553	79
-6,0	2,35	36,2	738	2421	2594	1913	2535	36764	612	8872	99,9	1,518	81
-4,0	2,39	37,0	752	2469	2697	1989	2685	38948	619	8981	100,0	1,478	83
-2,0	2,44	37,7	767	2516	2800	2066	2845	41263	626	9077	100,0	1,438	84
Nominal	**2,49**	**38,5**	**781**	**2562**	**2905**	**2142**	**3014**	**43719**	**632**	**9171**	**100,0**	**1,400**	**86**
+2,0	2,54	39,3	795	2608	3010	2220	3194	46320	639	9263	100,0	1,364	88
+4,0	2,59	40,0	809	2653	3115	2298	3385	49089	645	9353	100,0	1,328	90
+6,0	2,64	40,8	822	2698	3222	2376	3587	52027	651	9440	100,0	1,294	91
+8,0	2,69	41,6	836	2743	3329	2455	3802	55146	657	9526	100,0	1,261	93
+10,0	2,74	42,4	849	2787	3437	2535	4031	58469	663	9609	100,0	1,229	95

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	2,49	38,5	812	2665	3144	2319	3649	52925	607	8799	100,0	1,296	86

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

Nominal	2,49	38,5	733	2404	2557	1886	2462	35712	648	9395	97,7	1,534	86