.222 Rem - Hornady FMJ-BT 2267 55gr - RS40

User Data:

Date:30-Mrz-2016 **Time:15:59:45** **File: *.dat**

Comment **22" barrel - 54.10mm COL - 21.0gr start load - 853m/s - 2538bar**

Cartridge / Caliber	**.222 Rem.**		**Bullet**	**.224, 55, Hornady FMJ-BT w/c 2267**	
Maximum Average Pressure, allowed	3700 bar	53664 psi. (Piezo CIP)		with boattail	
Groove Caliber	5.69 mm	0.224 in.	Bullet Weight	3.56 gm	55.0 gr.
Case Capacity, overflow	1.812 cm³	27.9 gr. H2O	Bullet Length	18.67 mm	0.735 in.
Case Length	43.18 mm	1.700 in.	Bullet Seating Depth	7.74 mm	0.305 in.
Cartridge O.A. Length	54.1 mm	2.130 in.	Barrel/Tube Length	558.8 mm	22.0 in.
Shot Start / Init Pressure	250.0 bar	3626 psi.	Cross Section Area of Bore	0.2509 cm²	0.03889 in.²
Propellant type	**ReloadSwiss RS 40**				
Charge Weight	1.361 gm	21.0 gr.	Load Density	0.841 gm/cm³	212.7 gr./in.³
Heat of Explosion, Potential	3990 J/gm	258.5 J/gr.	Energy Density of Charge	3356 J/cm³	54995 J/in.³
Propellant Solid Density	1.6 gm/cm³	404.63 gr./in.³	Used Ratio of Specific Heats cp/cv	1.2293	
Burning Rate Factor Ba	0.643 1/s		Weighting Factor	0.6	
Burning Function Limit Z1	0.419		Prog.-/ Degressivity Factor a0	0.782	
Factor b	1.494		Bulk Density	0.938 gm/cm³	237.2 gr./in.³

Calculated and Estimated Data:

Bullet Shank Seating Depth	6.22 mm	0.245 in.	Capacity Displaced by Seated Bullet	0.193 cm³	0.0118 in.³
Useable Case Capacity	1.618 cm³	0.0988 in.³	Bullet Travel at Muzzle Exit	523.36 mm	20.6 in.
Loading Ratio("Density") / Filling	89.7 %		Charge Fraction Burnt at Shot Start	1.54 %	
Predicted Data:					
Maximum Chamber Pressure	2538 bar	36805 psi.	Bullet Travel at Pmax	38.1 mm	1.50 in.
at Muzzle Exit:					
Bullet Velocity	852.6 m/s	2797 fps.	Pressure at Muzzle	444 bar	6438 psi.
Bullet Energy	1296 Joule	956 ft.lbs.	Bullet Barrel Time	1.113 ms	
Propellant Burnt	90.2 %		Ballistic Efficiency	23.9 %	

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		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	1.09	16.8	686	2251	839	619	1422	20630	329	4771	77.8	1.396	72
-18.0	1.12	17.2	702	2304	879	648	1507	21851	341	4947	79.2	1.364	74
-16.0	1.14	17.6	719	2358	921	679	1596	23146	353	5121	80.6	1.334	75
-14.0	1.17	18.1	735	2413	964	711	1690	24518	365	5295	81.9	1.304	77
-12.0	1.20	18.5	752	2467	1008	743	1791	25975	377	5466	83.2	1.274	79
-10.0	1.22	18.9	769	2522	1053	777	1897	27520	389	5636	84.5	1.246	81
-8.0	1.25	19.3	785	2577	1099	811	2011	29160	400	5803	85.7	1.218	82
-6.0	1.28	19.7	802	2632	1147	846	2131	30902	411	5967	86.9	1.191	84
-4.0	1.31	20.2	819	2687	1195	882	2258	32751	423	6128	88.1	1.164	86
-2.0	1.33	20.6	836	2742	1245	918	2394	34716	433	6285	89.2	1.138	88
Nominal	**1.36**	**21.0**	**853**	**2797**	**1296**	**956**	**2538**	**36805**	**444**	**6438**	**90.2**	**1.113**	**90**
+2.0	1.39	21.4	869	2853	1347	994	2691	39028	454	6586	91.3	1.085	91
+4.0	1.42	21.8	886	2908	1400	1033	2854	41394	464	6729	92.2	1.057	93
+6.0	1.44	22.3	903	2964	1454	1073	3028	43913	473	6867	93.1	1.030	95
+8.0	1.47	22.7	920	3019	1509	1113	3212	46584	482	6998	94.0	1.004	97
+10.0	1.50	23.1	937	3074	1565	1154	3406	49407	491	7123	94.8	0.978	99

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	1.36	21.0	869	2850	1345	992	2686	38959	451	6544	92.4	1.087	90

Data for burning rate decreased by 3% relative to nominal value :

Nominal	1.36	21.0	835	2741	1244	918	2395	34738	435	6309	87.8	1.139	90