

**.222 Rem - Hornady A-MAX 22492 52gr - RS40**

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 personell 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.**

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<b>User Data:</b>	<b>Date:30-Mrz-2016</b>	<b>Time:15:58:17</b>	<b>File: *.dat</b>
<b>Comment</b>	<b>22" barrel - 54.10mm COL - 21.0gr start load - 869m/s - 2544bar</b>		
<b>Cartridge / Caliber</b>	<b>.222 Rem.</b>	<b>Bullet</b>	<b>.224, 52, Hornady A-MAX 22492</b>
Maximum Average Pressure, allowed	3700 bar	53664 psi. (Piezo CIP)	with boattail
Groove Caliber	5.69 mm	0.224 in.	Bullet Weight 3.37 gm 52.0 gr.
Case Capacity, overflow	1.812 cm³	27.9 gr. H2O	Bullet Length 20.24 mm 0.797 in.
Case Length	43.18 mm	1.700 in.	Bullet Seating Depth 9.32 mm 0.367 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
<b>Propellant type</b>	<b>ReloadSwiss RS 40</b>		
Charge Weight	1.361 gm	21.0 gr.	Load Density 0.862 gm/cm³ 218.0 gr./in.³
Heat of Explosion, Potential	3990 J/gm	258.5 J/gr.	Energy Density of Charge 3441 J/cm³ 56388 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	7.8 mm	0.307 in.	Capacity Displaced by Seated Bullet	0.233 cm³	0.0142 in.³
Useable Case Capacity	1.578 cm³	0.0963 in.³	Bullet Travel at Muzzle Exit	524.94 mm	20.67 in.
Loading Ratio("Density") / Filling	91.9 %		Charge Fraction Burnt at Shot Start	1.46 %	

**Predicted Data:**

Maximum Chamber Pressure	2544 bar	36893 psi.	Bullet Travel at Pmax	34.6 mm	1.36 in.
<b>at Muzzle Exit:</b>					
Bullet Velocity	868.9 m/s	2851 fps.	Pressure at Muzzle	432 bar	6261 psi.
Bullet Energy	1272 Joule	939 ft.lbs.	Bullet Barrel Time	1.087 ms	
Propellant Burnt	88.9 %		Ballistic Efficiency	23.4 %	

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	1.09	16.8	697	2287	819	604	1414	20503	318	4610	76.1	1.368	74
-18.0	1.12	17.2	714	2342	859	633	1498	21731	330	4782	77.5	1.337	75
-16.0	1.14	17.6	731	2397	900	664	1588	23035	342	4955	78.9	1.306	77
-14.0	1.17	18.1	748	2453	942	695	1684	24419	353	5126	80.3	1.277	79
-12.0	1.20	18.5	765	2509	986	727	1785	25890	365	5296	81.6	1.248	81
-10.0	1.22	18.9	782	2566	1031	760	1893	27454	377	5463	82.9	1.219	83
-8.0	1.25	19.3	799	2622	1077	794	2007	29116	388	5629	84.2	1.192	85
-6.0	1.28	19.7	817	2679	1124	829	2129	30883	399	5792	85.5	1.166	86
-4.0	1.31	20.2	834	2736	1172	865	2259	32766	410	5952	86.7	1.139	88
-2.0	1.33	20.6	851	2793	1222	901	2397	34769	421	6109	87.8	1.114	90
<b>Nominal</b>	<b>1.36</b>	<b>21.0</b>	<b>869</b>	<b>2851</b>	<b>1272</b>	<b>939</b>	<b>2544</b>	<b>36893</b>	<b>432</b>	<b>6261</b>	<b>89.0</b>	<b>1.087</b>	<b>92</b>
+2.0	1.39	21.4	886	2908	1324	977	2701	39178	442	6409	90.1	1.059	94
+4.0	1.42	21.8	904	2966	1377	1016	2869	41605	452	6552	91.1	1.031	96
+6.0	1.44	22.3	922	3024	1432	1056	3047	44195	461	6689	92.1	1.004	97
<b>+8.0</b>	<b>1.47</b>	<b>22.7</b>	<b>939</b>	<b>3082</b>	<b>1487</b>	<b>1097</b>	<b>3238</b>	<b>46963</b>	<b>470</b>	<b>6821</b>	<b>93.0</b>	<b>0.978</b>	<b>99</b>
<b>+10.0</b>	<b>1.50</b>	<b>23.1</b>	<b>957</b>	<b>3140</b>	<b>1543</b>	<b>1138</b>	<b>3442</b>	<b>49922</b>	<b>479</b>	<b>6946</b>	<b>93.9</b>	<b>0.953</b>	<b>101</b>

**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	886	2907	1323	976	2692	39050	440	6375	91.2	1.061	92
Data for burning rate decreased by 3% relative to nominal value :													
Nominal	1.36	21.0	851	2792	1221	900	2402	34839	422	6125	86.5	1.112	92