

### Hornady 150 GMX

**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 personnel 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:</b> 4-mar-2019	<b>Time:</b> 23:52:10	<b>File:</b> *.dat
<b>Comment</b>	<b>Steyr Scout 19"</b>		
<b>Cartridge / Caliber</b>	<b>.308 Win. (CIP)</b>	<b>Bullet</b>	<b>.308, 150, Hornady GMX 3037</b>
Maximum Average Pressure, allowed	60191 psi.	4150 bar (Piezo CIP)	with boattail
Groove Caliber	0,308 in.	7,82 mm	150,0 gr. 9,72 gm
Case Capacity, overflow	56,0 gr. H2O	3,636 cm³	Bullet Weight
Case Length	2,008 in.	51,0 mm	Bullet Length
Cartridge O.A. Length	2,795 in.	71,0 mm	Bullet Seating Depth
Shot Start / Init Pressure	4351 psi.	299,99 bar	Barrel/Tube Length
		Cross Section Area of Bore	0,07364 in.² 0,4751 cm²
<b>Propellant type</b>	<b>ReloadSwiss RS 40</b>		
Charge Weight	36,0 gr.	2,333 gm	Load Density
Heat of Explosion, Potential	258,5 J/gr.	3990 J/gm	Energy Density of Charge
Propellant Solid Density	404,63 gr./in.³	1,6 gm/cm³	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
			237,2 gr./in.³ 0,938 gm/cm³

### Calculated and Estimated Data:

Bullet Shank Seating Depth	0,403 in.	10,24 mm	Capacity Displaced by Seated Bullet	0,0405 in.³	0,664 cm³
Useable Case Capacity	0,1814 in.³	2,972 cm³	Bullet Travel at Muzzle Exit	17,56 in.	445,9 mm
Loading Ratio("Density") / Filling	83,7 %		Charge Fraction Burnt at Shot Start	2,13 %	

### Predicted Data:

Maximum Chamber Pressure	39372 psi.	2715 bar	Bullet Travel at Pmax	1,34 in.	34,0 mm
<b>at Muzzle Exit:</b>					
Bullet Velocity	2360 fps.	719,3 m/s	Pressure at Muzzle	7848 psi.	541 bar
Bullet Energy	1855 ft.lbs.	2515 Joule	Bullet Barrel Time	1,140 ms	
Propellant Burnt	94,7 %		Ballistic Efficiency	27,0 %	

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 Gramm	Weight Grains	Muzzle Vel. m/s	fps	Muzzle Energy Joule	ft.lbs	Max. Pressure bar	psi	Muzzle Pressure bar	psi	Prop.Burnt %	B_Time L.R./Filling ms	%
-20,0	1,87	28,8	585	1918	1662	1226	1598	23171	410	5949	85,0	1,409	67
-18,0	1,91	29,5	598	1962	1739	1283	1686	24455	424	6152	86,2	1,379	69
-16,0	1,96	30,2	612	2006	1818	1341	1779	25807	438	6353	87,3	1,350	70
-14,0	2,01	31,0	625	2050	1899	1400	1878	27235	452	6552	88,3	1,321	72
-12,0	2,05	31,7	638	2095	1981	1461	1982	28740	465	6748	89,4	1,293	74
-10,0	2,10	32,4	652	2139	2066	1524	2090	30318	479	6942	90,4	1,266	75
-8,0	2,15	33,1	665	2183	2152	1587	2204	31966	492	7132	91,3	1,240	77
-6,0	2,19	33,8	679	2227	2240	1652	2323	33687	505	7318	92,3	1,214	79
-4,0	2,24	34,6	692	2271	2330	1718	2447	35486	517	7499	93,1	1,189	80
-2,0	2,29	35,3	706	2316	2421	1786	2577	37378	529	7676	93,9	1,164	82
<b>Nominal</b>	<b>2,33</b>	<b>36,0</b>	<b>719</b>	<b>2360</b>	<b>2515</b>	<b>1855</b>	<b>2715</b>	<b>39372</b>	<b>541</b>	<b>7848</b>	<b>94,7</b>	<b>1,140</b>	<b>84</b>
+2,0	2,38	36,7	733	2404	2610	1925	2860	41475	553	8014	95,4	1,117	85
+4,0	2,43	37,4	746	2448	2706	1996	3012	43690	564	8174	96,1	1,094	87
+6,0	2,47	38,2	760	2492	2804	2068	3173	46027	574	8328	96,7	1,069	89
+8,0	2,52	38,9	773	2536	2904	2142	3343	48490	584	8474	97,3	1,044	90
+10,0	2,57	39,6	786	2580	3005	2217	3522	51089	594	8614	97,8	1,019	92

### 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	2,33	36,0	756	2481	2779	2050	3187	46228	550	7974	98,9	1,070	84
Data for burning rate decreased by 10% relative to nominal value :													
Nominal	2,33	36,0	673	2209	2204	1626	2248	32603	510	7395	87,3	1,238	84