6.5 SAUM, 16.5"

User Data:

Date:21-Feb-2022 **Time:15:12:47** **File: *.dat**

Comment	**TEST LOADS 2022.02.20**				
Cartridge / Caliber	**6.5 mm RSAUM**		**Bullet**	**.264, 143, Hornady ELD-X 2635**	
Maximum Average Pressure, allowed	65000 psi.	4482 bar (Piezo SAAMI)		with boattail	
Groove Caliber	0.264 in.	6.71 mm	Bullet Weight	143.0 gr.	9.27 gm
Case Capacity, overflow	72.0 gr. H2O	4.675 cm³	Bullet Length	1.405 in.	35.69 mm
Case Length	2.035 in.	51.69 mm	Bullet Seating Depth	0.615 in.	15.62 mm
Cartridge O.A. Length	2.825 in.	71.76 mm	Barrel/Tube Length	16.5 in.	419.1 mm
Shot Start / Init Pressure	3626 psi.	250.0 bar	Cross Section Area of Bore	0.05351 in.²	0.3452 cm²
Propellant type	**Vihtavuori N570 *C**				
Charge Weight	75.0 gr.	4.86 gm	Load Density	296.1 gr./in.³	1.171 gm/cm³
Heat of Explosion, Potential	256.0 J/gr.	3950 J/gm	Energy Density of Charge	75774 J/in.³	4624 J/cm³
Propellant Solid Density	409.68 gr./in.³	1.62 gm/cm³	Used Ratio of Specific Heats cp/cv	1.247	
Burning Rate Factor Ba	0.277 1/s		Weighting Factor	0.5	
Burning Function Limit Z1	0.516		Prog.-/ Degressivity Factor a0	2.697	
Factor b	2.223		Bulk Density	245.3 gr./in.³	0.970 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.465 in.	11.81 mm	Capacity Displaced by Seated Bullet	0.0319 in.³	0.523 cm³
Useable Case Capacity	0.2534 in.³	4.152 cm³	Bullet Travel at Muzzle Exit	15.08 in.	383.03 mm
Loading Ratio("Density") / Filling	120.7 % = compressed		Charge Fraction Burnt at Shot Start	0.61 %	
Predicted Data:					
Maximum Chamber Pressure	109020 psi.	7517 bar	Bullet Travel at Pmax	2.30 in.	58.3 mm
at Muzzle Exit:					
Bullet Velocity	3321 fps.	1012.3 m/s	Pressure at Muzzle	25921 psi.	1787 bar
Bullet Energy	3502 ft.lbs.	4749 Joule	Bullet Barrel Time	0.766 ms	
Propellant Burnt	99.6 %		Ballistic Efficiency	24.7 %	
Additional Data:					
Powder Lot			Primer Type and Lot	CCI 250	
Bullet Lot			Case Manufacturer	ADG	
Measured Muzzle Vel., StdDev.			Measured Pressure, StdDev.		

D A N G E R : PRESSURE EXCEEDS ALLOWED MAXIMUM LEVEL !
Real maximum (peak) of pressure is reached while bullet moves within barrel.
End of combustion occurs after the bullet's base passes muzzle.

Table with predicted charges of different powders for a nominal pressure of about 448 MPa or 65000 psi or a maximum loading ratio or filling of 105 %

CAUTION! - D A N G E R ! : Table may exceed limits of recommended loads ! Pressures exceeding SAAMI or CIP specs are underlined!
Be aware that the powders listed may be totally unsuitable for the given cartridge !
In reality the order of loads may vary due to lot-to-lot variations of propellants and other components.

Propellant type	L.R./Filling	Charge Weight		Muzzle Vel.		Max. Pressure		Prop.Burnt	B_Time
	%	Gramm	Grains	m/s	fps	bar	psi	%	ms
ReloadSwiss RS 76 *C	104	4.26	65.7	867	2844	4482	65000	99.9	0.976
Alliant Reloder-26 *C	95	3.90	60.2	849	2784	4482	65000	100.0	0.998
PB Clermont PCL 517	101	4.11	63.5	847	2780	4482	65000	98.4	0.976
Alliant Reloder-25 *C	104	3.95	61.0	847	2779	4482	65000	100.0	0.980
SNPE Vectan SP 12	101	4.11	63.4	847	2779	4482	65000	98.5	0.977
Vihtavuori N560 *C	98	3.83	59.2	846	2774	4482	65000	97.5	0.981
Norma MRP *C	96	3.84	59.2	845	2773	4482	65000	99.6	0.988
IMR 7828	103	3.81	58.8	845	2772	4482	65000	98.0	0.970
IMR 7828 SSC	97	3.81	58.8	845	2772	4482	65000	98.0	0.970
ADI AP 2214	102	4.05	62.5	844	2768	4482	65000	98.3	0.963
Accurate MAGPRO	98	4.00	61.7	843	2766	4482	65000	96.2	0.987
ReloadSwiss RS 80 *C	105	4.35	67.2	843	2766	4306	62451	96.4	1.008
ADI AR 2213	98	3.79	58.5	842	2763	4482	65000	98.0	0.966
ReloadSwiss RS 70 *C	90	3.67	56.6	840	2756	4482	65000	100.0	0.977
Raufoss RA15 *C	98	3.80	58.7	840	2755	4482	65000	98.9	0.985
Bofors RP5/NP ~approximation	98	3.80	58.7	840	2755	4482	65000	98.9	0.985
Alliant Reloder-22 *C	98	3.80	58.7	840	2755	4482	65000	98.9	0.985
Vihtavuori N565 *C*T	103	4.03	62.2	839	2754	4482	65000	97.7	0.999
Bofors RP15	101	3.82	59.0	839	2754	4482	65000	98.9	0.985
Winchester WXR	101	3.82	59.0	839	2754	4482	65000	98.9	0.985
Vihtavuori N570 *C	105	4.23	65.3	838	2749	4158	60305	92.8	1.017
ReloadSwiss RS 60 *T	87	3.50	53.9	836	2743	4482	65000	100.0	0.981
Ramshot Magnum	98	4.09	63.1	836	2743	4482	65000	99.4	0.982
Vihtavuori N568 *C*T	105	4.19	64.6	835	2741	4237	61453	95.6	1.013
Norma MRP 2 *C	105	4.01	61.9	835	2740	4310	62506	98.0	1.011

continued

Table with predicted charges of different powders for a nominal pressure of about 448 MPa or 65000 psi
or a maximum loading ratio or filling of 105 %

CAUTION! - D A N G E R ! : Table may exceed limits of recommended loads ! Pressures exceeding SAAMI or CIP specs are underlined!
Be aware that the powders listed may be totally unsuitable for the given cartridge !
In reality the order of loads may vary due to lot-to-lot variations of propellants and other components.

Propellant type	L.R./Filling %	Charge Weight Gramm	Grains	Muzzle Vel. m/s	fps	Max. Pressure bar	psi	Prop.Burnt %	B_Time ms
Bofors RP30	105	4.01	61.9	835	2740	4310	62506	98.0	1.011
Bofors RP5 NT *C ~approximation	102	3.97	61.3	835	2738	4482	65000	96.2	0.965
Rottweil R905	100	3.79	58.4	833	2734	4482	65000	97.6	0.981
Bofors RL16 TZ *C *T	91	3.40	52.4	833	2732	4482	65000	100.0	0.974
Alliant Reloder-16 *C *T	91	3.40	52.4	833	2732	4482	65000	100.0	0.974
ADI AR 2209	95	3.62	55.9	832	2730	4482	65000	98.9	0.969
Alliant Reloder-19 *C	96	3.66	56.5	831	2726	4482	65000	98.9	0.976
Elcho 17	86	3.46	53.5	831	2726	4482	65000	100.0	0.984
Alliant Reloder-17 *T	86	3.46	53.5	831	2726	4482	65000	100.0	0.984
Bofors RP14 ~approximation	97	3.69	56.9	829	2721	4482	65000	98.9	0.976
PB Clermont PCL 518	92	3.63	56.1	829	2720	4482	65000	99.9	0.983
Alliant Reloder-23 *C *T	100	3.73	57.6	829	2719	4482	65000	100.0	0.992
Bofors RP36 ZT *C *T	100	3.73	57.6	829	2719	4482	65000	100.0	0.992
Hodgdon H414	86	3.49	53.9	829	2718	4482	65000	99.7	0.983
Winchester 760	86	3.49	53.9	829	2718	4482	65000	99.7	0.983
PB Clermont PCL 511	88	3.60	55.6	828	2718	4482	65000	99.9	0.983
Ramshot Hunter	91	3.61	55.6	828	2717	4482	65000	99.9	0.983
Vihtavuori N555 *C*T	97	3.63	56.0	827	2715	4482	65000	100.0	1.008
ReloadSwiss RS 62	90	3.59	55.4	827	2712	4482	65000	100.0	0.997
Hodgdon H4831 *T	101	3.75	57.9	826	2711	4482	65000	97.4	0.972
Hodgdon H4831 SC *T	97	3.75	57.9	826	2711	4482	65000	97.4	0.972
Raufoss RA4	94	3.59	55.4	826	2711	4482	65000	98.8	0.974
Bofors RP4 ~approximation	94	3.59	55.4	826	2711	4482	65000	98.8	0.974
Norma 204 *C	91	3.59	55.4	826	2711	4482	65000	98.8	0.974
Hodgdon LVR	89	3.39	52.4	823	2700	4482	65000	100.0	0.982
Norma URP *C	91	3.44	53.1	822	2698	4482	65000	100.0	0.988
Bofors RP19 ~approximation	91	3.44	53.1	822	2698	4482	65000	100.0	0.988
Vihtavuori N550 *C*T	88	3.45	53.3	822	2697	4482	65000	100.0	0.990
Somchem S365	92	3.51	54.2	822	2695	4482	65000	100.0	0.998
Somchem S385	96	3.70	57.2	821	2694	4482	65000	99.5	0.993
Rottweil R904	95	3.58	55.2	820	2692	4482	65000	98.1	0.972
ADI AR 2217	105	3.97	61.2	820	2692	4133	59941	97.4	1.002
Hodgdon H1000 *T	105	3.97	61.2	820	2692	4133	59941	97.4	1.002
Accurate 4350	90	3.44	53.1	820	2691	4482	65000	100.0	1.005
Winchester Supreme 780	95	3.81	58.8	820	2691	4482	65000	98.9	0.980
Bofors RP4 NT *C ~approximation	92	3.56	54.9	820	2689	4482	65000	99.6	0.985
IMR 4955 Enduron *C*T	99	3.66	56.6	819	2686	4482	65000	97.7	0.970
Vihtavuori N165 *C	101	3.82	58.9	819	2686	4482	65000	99.3	0.984
IMR 4831	95	3.49	53.9	818	2683	4482	65000	100.0	0.995
Lovex S071	104	3.77	58.2	816	2679	4482	65000	99.9	1.009
Accurate 3100	99	3.77	58.2	816	2679	4482	65000	99.9	1.009
Lovex S070	91	3.44	53.1	816	2677	4482	65000	99.8	0.989
Shooters World SW4350	91	3.44	53.1	816	2677	4482	65000	99.8	0.989
Alliant Reloder-33 *C	105	4.35	67.2	815	2673	3881	56292	91.9	1.052
Vihtavuori N160 *C	89	3.45	53.3	814	2671	4482	65000	100.0	0.985
Hodgdon H380	84	3.30	50.9	814	2670	4482	65000	100.0	0.988
Bofors RP7	89	3.35	51.7	813	2667	4482	65000	99.5	0.979
Rottweil R907	89	3.35	51.7	813	2667	4482	65000	99.5	0.979
IMR 4007 SSC	87	3.35	51.8	813	2667	4482	65000	99.5	0.979
Somchem S361	94	3.83	59.1	813	2666	4482	65000	97.5	0.981
Hodgdon Hybrid 100V	93	3.45	53.2	812	2665	4482	65000	100.0	0.988
Lovex S065	90	3.37	52.0	810	2659	4482	65000	100.0	0.986
Shooters World Long Rifle	90	3.37	52.0	810	2659	4482	65000	100.0	0.986
Bofors RP3	84	3.26	50.3	808	2651	4482	65000	100.0	1.001
Norma 203 old	84	3.26	50.3	808	2651	4482	65000	100.0	1.001
Rottweil R903	86	3.26	50.3	807	2649	4482	65000	100.0	1.000
Somchem S355	87	3.24	50.0	807	2649	4482	65000	100.0	0.992
IMR 7977 Enduron *C*T	103	3.90	60.1	806	2643	4482	65000	90.9	0.967
Hodgdon Retumbo	105	4.03	62.2	802	2633	3673	53267	98.8	1.072
ADI AR 2225	105	4.03	62.2	802	2633	3673	53267	98.8	1.072
Shooters World Match Rifle	80	3.15	48.6	799	2620	4482	65000	100.0	1.002
Lovex D073.6	80	3.15	48.6	799	2620	4482	65000	100.0	1.002
ADI AR 2218	105	4.27	65.9	796	2610	3611	52369	89.1	1.068
Ramshot LRT	105	4.33	66.7	795	2609	3792	55001	84.3	1.048
Shooters World BMG	105	4.32	66.6	795	2608	4164	60400	87.6	1.014
Lovex D100	105	4.32	66.6	795	2608	4164	60400	87.6	1.014
Accurate 4064	84	3.13	48.3	795	2608	4482	65000	100.0	1.017
Rottweil R901	80	2.91	44.9	790	2593	4482	65000	100.0	0.995
Vihtavuori 24N41 *C	105	4.27	65.9	786	2578	3801	55134	84.5	1.047
Norma 217 *C	105	3.95	61.0	775	2543	3336	48389	96.6	1.146
Vihtavuori N170 *C	105	3.97	61.2	773	2537	3779	54815	89.8	1.078
Hodgdon H870	105	4.14	63.9	768	2520	3309	47986	90.6	1.140
IMR 8133 Enduron *C*T	105	3.92	60.6	767	2516	3312	48036	93.9	1.145
Alliant Reloder-50 *C	105	4.34	66.9	757	2484	3213	46606	86.9	1.182

continued

Table with predicted charges of different powders for a nominal pressure of about 448 MPa or 65000 psi
or a maximum loading ratio or filling of 105 %

CAUTION! - D A N G E R ! : Table may exceed limits of recommended loads ! Pressures exceeding SAAMI or CIP specs are underlined!
Be aware that the powders listed may be totally unsuitable for the given cartridge !
In reality the order of loads may vary due to lot-to-lot variations of propellants and other components.

Propellant type	L.R./Filling	Charge Weight		Muzzle Vel.		Max. Pressure		Prop.Burnt	B_Time
	%	Gramm	Grains	m/s	fps	bar	psi	%	ms
Bofors 12,7mmRA NC1214 Lot20115087	105	4.24	65.5	742	2434	3304	47924	78.8	1.182
Hodgdon US 869	105	4.27	65.9	729	2392	3124	45312	80.1	1.166
Hodgdon 50BMG	105	4.07	62.8	728	2390	3131	45416	75.8	1.161
Somchem 12.7-0	105	4.14	63.9	719	2357	3150	45685	75.8	1.150
SNPE Vectan SP 13	105	4.10	63.2	713	2338	2894	41971	84.4	1.221
Accurate 8700	105	4.19	64.6	707	2319	2811	40768	83.1	1.223
Vihtavuori 20N29 *C	105	4.32	66.6	700	2295	2743	39786	79.7	1.251
PB Clermont PCL 513/520/9520	105	4.10	63.2	694	2277	2710	39310	81.1	1.259
NC A3502 ,test only	105	3.92	60.6	641	2104	2440	35392	56.8	1.295
TLP A 502(RH) ,test only	105	3.92	60.6	634	2080	2309	33486	61.3	1.334
V1734 7-multiperf ,test only	105	3.92	60.6	457	1498	1261	18288	28.1	1.712