

WB Wpn	Class	Service	Name	Cartridge	Av.Proj.Wt.	Av.Proj.Wt.	ROF	MuV/V	M	MassOP	KE	MuFac	KE DMG	API %	API effects	HEI %	HEI effects	HE %	HE effects	WB DMG	Rd Type	Average	HE %
					gram	pounds	rpm	m/s	ft/s	grams	J	WtMuV/V	APeBall rds	% explosive	(%T0)	% explosive	(%X30)	% explosive	(%X50)	av DMG/rd	Ball/AP/HE/HEI/HE		
WB	MMG	USA	Browning 30 M2	7.62 x63	10.6	0.0231	1200	870	2032	21000	3973.73	9.14	0.57	0.0%	0	0.0%	0	0.0%	0	0.57	Ball/AP		0.0%
WB	MMG	UK	Browning 303	7.7 x 56R	10.6	0.0234	1150	760	2031	20317	2981.25	7.95	0.50	5.0%	0.5	0.0%	0	0.0%	0	0.75	Ball/AP de Wilde		5%+/-
ria	MMG	France	Darne	7.6 x 54	9.2	0.0203	1100-1200	830	22.6	1840	3168.94	7.64	0.48	0.0%	0	0.0%	0	0.0%	0	0.48	Ball/AP		
ria	MMG	France	MAC 1934	7.6 x 54	9.2	0.0203	1200-1500	830	24.4	2300	3168.94	7.64	0.48	0.0%	0	0.0%	0	0.0%	0	0.48	Ball/AP		
WB	MMG	Germany	MG 17	7.92 x 57	10.8	0.0238	1200	775	17.1	2160	3243.38	8.37	0.52	0.0%	0	0.0%	0	0.0%	0	0.52	Ball/AP		
WB	MMG	Germany	MG 81	7.92 x 57	10.8	0.0238	1600	745	45.7	2880	2997.14	8.05	0.50	0.0%	0	0.0%	0	0.0%	0	0.50	Ball/AP		
WB	MMG	Italy	Breda-SAFAT	7.7 x 56R	10.6	0.0234	800-900	730	12	159	2824.37	7.74	0.48	0.0%	0	0.0%	0	2.0%	1	0.88	Ball/AP/HE		-72%
ria	MMG	JPN Army	Type 89 Flexible	7.7 x 58SR	10.5	0.0231	1500	810	9.4	262.50	3444.53	8.51	0.53	0.0%	0	0.0%	0	2.0%	1	0.88	Ball/AP/HE		-72%
ria	MMG	JPN Army	Te-4	7.7 x 58SR	10.5	0.0231	760	810	14.4	131.25	3444.53	8.51	0.53	0.0%	0	0.0%	0	2.0%	1	0.88	Ball/AP/HE		-72%
WB	MMG	JPN Army	Type 89 Fixed	7.7 x 58SR	10.5	0.0231	900	810	12.4	157.50	3444.53	8.51	0.53	0.0%	0	0.0%	0	2.0%	1	0.88	Ball/AP/HE		-72%
ria	MMG	JPN Army	Type 98 Flexible	7.92 x 57	10.8	0.0238	1000	775	25	1800	3243.38	8.37	0.52	0.0%	0	0.0%	0	0.0%	0	0.52	Ball/AP		
ria	MMG	JPN Army	Te-1	7.7 x 58SR	10.5	0.0231	900	810	13.3	157.50	3444.53	8.51	0.53	0.0%	0	0.0%	0	2.0%	1	0.88	Ball/AP/HE		-72%
ria	MMG	JPN Army	Type 100 / Type 1	7.92 x 57	10.8	0.0238	2200	775	23.7	396.00	3243.38	8.37	0.52	0.0%	0	0.0%	0	0.0%	0	0.52	Ball/AP		
WB	MMG	JPN Navy	Type 92 Flexible	7.7 x 56R	10.6	0.0234	600	750	12.5	106.00	2981.25	7.95	0.50	0.0%	0	0.0%	0	2.0%	1	0.83	Ball/AP/HE		-72%
WB	MMG	JPN Navy	Type 97 Fixed	7.7 x 56R	10.6	0.0234	900	750	13.5	159.00	2981.25	7.95	0.50	0.0%	0	0.0%	0	2.0%	1	0.83	Ball/AP/HE		-72%
ria	MMG	JPN Navy	Type 1 Flexible	7.92 x 57	10.8	0.0238	1000	775	25.5	1800	3243.38	8.37	0.52	0.0%	0	0.0%	0	0.0%	0	0.52	Ball/AP		
WB	HMG	Germany	MG 131	13 x 64B	10.9	0.0240	1800	870	30.9	327	4125.11	9.48	0.59	0.0%	0	0.0%	0	0.0%	0	0.59	Ball/AP		
WB	HMG	USA	Browning 50 M2	12.7 x 99	43.3	0.0955	750-850	880	19.9	649.50	16765.76	38.10	2.38	2.0%	0.2	0.0%	0	0.0%	0	2.45	Ball/AP/API		2.0%
WB	HMG	JPN Army	Ho-103 (Type 1)	12.7 x 81SR	34.2	0.0754	800-900	765	21.1	513.00	10007.35	26.16	1.64	2.0%	0.2	2.0%	0.6	2.0%	1.1	2.11	Ball/AP/HE		2/2/2.2
ria	HMG	JPN Navy	13 mm Type 2	13 x 64B	36.2	0.0798	900	730	31.9	543.00	9645.49	26.43	1.65	0.0%	0	0.0%	0	3.5%	1.75	2.23	Ball/AP/HE		3.5%
ria	HMG	JPN Navy	13 mm Type 3	13 x 64B	49.5	0.1091	800	745	21.3	660.00	15642.82	38.35	2.46	7.0%	0.7	0.0%	0	0.0%	0	2.69	Ball/AP		7.0%
WB	HMG	Germany	MG 151	15 x 96	64.5	0.1422	700	905	17.9	750.50	26415.56	58.37	3.65	2.0%	0.2	0.0%	0	4.9%	2.45	4.46	Ball/AP/HE		4.9%
WB	HMG	Italy	Breda-SAFAT	12.7 x 81SR	34.2	0.0754	700	765	13.8	399.00	10007.35	26.16	1.64	2.0%	0.2	2.0%	0.6	2.0%	1	2.09	Ball/AP/HE		2%/2%/2%
ria	HMG	Italy	Scoti	12.7 x 81SR	34.2	0.0754	700	765	17.3	399.00	10007.35	26.16	1.64	2.0%	0.2	2.0%	0.6	2.0%	1	2.09	Ball/AP/HE		2%/2%/2%
ria	HMG	USSR	UBK	12.7 x 108	52	0.1146	1050	860	36.4	910.00	19229.80	44.72	2.80	4.2%	0.42	0.0%	0	0.0%	0	2.94	Ball/AP		4.2%
WB	HMG	USSR	UBS	12.7 x 108	52	0.1146	800	860	27.3	693.33	19229.80	44.72	2.80	4.2%	0.42	0.0%	0	0.0%	0	2.94	Ball/AP		4.2%
ria	20mm	Swiss	Oerlikon FF F	20 x 72RB	128	0.2822	520	600	46.2	1109.33	23040.00	76.80	4.80	0.0%	0	0.0%	0	6.0%	3	6.30	AP/HE		6.0%
ria	20mm	Swiss	Oerlikon FF L	20 x 101RB	128	0.2822	500	750	35.6	1066.67	36000.00	96.00	6.00	0.0%	0	0.0%	0	6.0%	3	7.50	AP/HE		6.0%
ria	20mm	Swiss	Oerlikon FF S	20 x 110RB	122	0.2690	470	830	24.5	955.67	42022.80	101.26	6.33	0.0%	0	0.0%	0	8.0%	4	8.33	AP/HE		8.0%
ria	20mm	Germany	MG 93L	20 x 338B	134	0.2954	300-350	950	11.3	781.67	60467.50	127.30	7.96	3.1%	0.31	3.2%	0.96	0.0%	4	8.38	AP/HE/HEI		3.1/3.2%
ria	20mm	Germany	MG-F	20 x 80RB	134	0.2954	530	600	42.3	1183.67	24120.00	80.40	5.03	3.1%	0.31	3.2%	0.96	0.0%	0	5.45	AP/HE/HEI		3.1/3.2%
WB	20mm	Germany	MG-FFM	20 x 80RB	104	0.2293	530	640	32.8	918.67	21299.20	66.56	4.16	3.1%	0.31	3.2%	0.96	25.0%	12.5	7.60	AP/AP/HE/HE(M)		3.1/3.2%/25%
WB	20mm	Germany	MG-151(20)	20 x 82	105	0.2315	700-750	725	30.2	1312.50	27595.31	76.13	4.76	3.1%	0.31	3.2%	0.96	25.0%	12.5	8.00	AP/AP/HE/HE(M)		3.1/3.2%/25%
WB	20mm	USSR	ShVAK	20 x 99R	95	0.2094	800	750	30.2	1266.67	28162.75	71.25	4.45	2.0%	0.2	6.0%	1.8	0.0%	0	5.12	AP/AP/HEI		2.0/6.0%
WB	20mm	USSR	B-20	20 x 99R	95	0.2094	800	750	30.7	1266.67	28162.75	71.25	4.45	2.0%	0.2	6.0%	1.8	0.0%	0	5.12	AP/AP/HEI		2.0/6.0%
ria	20mm	France	HS 9	20 x 110RB	122	0.2690	360-420	830	16.5	854.00	42022.80	101.26	6.33	0.0%	0	0.0%	0	8.0%	4	8.33	AP/HE		8.0%
ria	20mm	France	HS 404	20 x 110	130	0.2866	700	880	25.3	1516.67	50336.00	114.40	7.15	0.0%	0	0.0%	0	8.0%	4	9.15	AP/HE		8.0%
WB	20mm	UK	Hispano Mk.II	20 x 110	130	0.2866	600	880	26	1300.00	50336.00	114.40	7.15	0.0%	0	0.0%	0	8.0%	4	9.15	AP/HE		8.0%
ria	20mm	UK	Hispano Mk.V	20 x 110	130	0.2866	750	840	38.7	1625.00	45864.00	109.20	6.83	0.0%	0	0.0%	0	8.0%	4	8.83	AP/HE		8.0%
ria	20mm	JPN Army	Type 94 Flexible	20 x 99RB	127	0.2800	380	675	18.7	804.33	28932.19	68.73	5.36	0.0%	0	0.0%	0	6.0%	3	6.86	AP/HE		6.0%
ria	20mm	JPN Army	Ho-1	20 x 125	144	0.3175	400	805	21.3	860.00	46567.80	115.92	7.25	0.0%	0	0.0%	0	7.0%	3.5	9.00	AP/HE		7.0%
WB	20mm	JPN Army	Ho-3	20 x 125	144	0.3175	400	805	34.6	960.00	46567.80	115.92	7.25	0.0%	0	0.0%	0	7.0%	3.5	9.00	AP/HE		7.0%
WB	20mm	JPN Army	Ho-5 (Type 2)	20 x 94	96	0.2116	750-850	715	43	1360.00	24538.80	68.64	4.29	0.0%	0	0.0%	0	12.0%	6	7.29	AP/HE		12.0%
WB	20mm	JPN Navy	Type 99-1	20 x 72RB	128	0.2844	520	525	43	1118.00	17777.81	67.73	4.23	0.0%	0	0.0%	0	6.0%	3	5.73	AP/HE		6.0%
WB	20mm	JPN Navy	Type 99-2	20 x 101RB	128	0.2822	480	590	30.7	1045.33	36000.00	96.00	6.00	0.0%	0	0.0%	0	6.0%	3	7.50	AP/HE		6.0%
WB	HC	USA	37 mm M4	37 x 145R	680	1.4991	140	390	16.5	1596.67	114376.00	394.40	24.65	0.0%	0	0.0%	0	7.4%	3.7	26.50	AP/HE		7.4%
ria	HC	USA	37 mm M10	37 x 145R	680	1.4991	160	580	16.6	1813.33	114376.00	394.40	24.65	0.0%	0	0.0%	0	7.4%	3.7	26.50	AP/HE		7.4%
ria	HC	USA	37 mm M9	37 x 223SR	744	1.6402	140	860	9.6	1736.00	275131.20	639.84	39.99	0.0%	0	0.0%	0	7.4%	3.7	41.84	AP/HE		7.4%
ria	HC	Germany	Mk 101	30 x 184B	330	0.7275	230	920	7	1265.00	139656.00	303.60	18.98	0.0%	0	0.0%	0	25.0%	12.5	25.23	AP/HE(M)		25.0%
ria	HC	Germany	Mk 103	30 x 184B	330	0.7275	360-420	860	15.2	2910.00	120094.00	293.80	17.74	0.0%	0	0.0%	0	25.0%	12.5	23.99	AP/HE(M)		25.0%
WB	HC	Germany	Mk 108	30 x 90RB	330	0.7275	600-650	525	57.3	3675.00	42079.13	166.65	10.42	0.0%	0	0.0%	0	25.0%	12.5	22.92	HE/HEI		