223 Remington

The 223 Remington resulted from military development of a new service rifle cartridge. Adopted by the U.S. Military in February 1964 as the 5.56mm Ball Cartridge M193, the 223 Remington was announced as a commercial cartridge a month earlier.

Based on the 222 Remington case head dimensions, the 223 case is only .060" longer than its parent. However, it has greater powder capacity because the case body was lengthened at the expense of the neck. It also has a higher maximum pressure assignment. With equivalent bullet weights in factory ammo, the 223 Remington enjoys a 100 to 300 ft/sec velocity advantage over its predecessor.

Original military and commercial rifles had a 1-in-14 inch rifling twist, later changed to 1-in-12 inches for better long-range stability with the 55-grain service bullet. However, when the military adopted a heavier 62-grain service round, military rifles were fitted with 1-in-7 inch twist barrels to handle the new bullet. Several commercial makers of semi-automatic rifles followed suit and changed to the faster twist.

Although the fast twist works well with military ammo, handloaders have a problem. Most conventional jacketed bullets are of light construction for varmint hunting. When fired at 3200 ft/sec in a 1-in-7 inch twist barrel, the bullet is rotating at nearly 330,000 rpm when it leaves the muzzle. This rotational speed is more than most varmint bullets can withstand so they are literally ripped apart as they leave the barrel. This phenomenon will not damage the firearm, but few bullets will reach the target intact. Most bolt-action and single-shot rifles have the slower twist recommended for varmint bullets, but at least one maker of bolt-action rifles has sold 223 Remington rifles with the 1-in-7 inch twist. Research before you buy; if you want to use conventional varmint bullets to their full potential, avoid the fast-twist models.

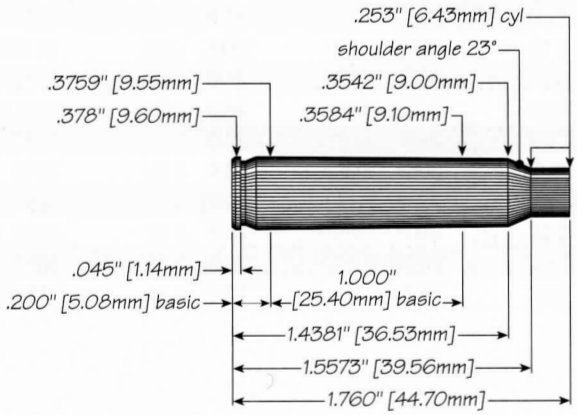
If you have a rifle with the faster 1-in-7 inch twist, you should limit the muzzle velocity of varmint bullets to around 2800 ft/sec. Speer sells a 62-grain FMJ-BT bullet that is a duplicate of the bullet in the new M855 service cartridge. The Speer 70-grain semi-spitzer is also a good bullet in the fast-twist rifles; however, be sure to watch overall length, as the long bullet can stick in the throat if seated too long. The tough 55-grain Trophy Bonded Bear Claw will survive fast twist barrels, and gives deeper penetration than most 22-caliber bullets. The TBBC retained 93 percent of its weight when fired into test media at 3000 ft/sec.

Some rifle makers recommend that bullets be crimped if used in their semi-automatic rifles. Three Speer 22-caliber bullets feature a cannelure for easy crimping. The 62-grain FMJ-BT is not properly stabilized by 12-inch twist barrels, and should be restricted to rifles with 10-inch or faster rifling twists.

The commercial IMI cases used for our tests are built to the same specification as military cases, so load reduction is not required when using surplus military brass with these loads. Remember that military cases have crimped primers. The crimp must be removed before repriming.

We have added reduced loads for bullets through 55 grains using Accurate Arms XMP-5744. This propellant gave exceptional consistency at the modest pressures these loads generate. With the 40-grain bullet, 11.0 grains of this powder drove the bullet at just over 22 Magnum RF velocities.

The 223 Remington's maximum average pressure is 52,000 CUP. These loads do not exceed that limit.



Max. Case Length:	1.760"	**Cart. Case:**	IMI
Trim-to Length:	1.750"	**Primer:**	CCI 400, 450*
Max Cart. OAL:	2.260"	**Test Firearm:**	Ruger M77 MkII
RCBS Shell Holder:	#10	**Barrel Length:**	22"

NOTE: *CCI No. 41 primers may be substituted for CCI 450.*

0.224"	22 Spire SP
Weight, grains	40
Ballistic Coefficient	0.144
Sectional Density	0.114
COAL Tested:	2.060"
Speer Part No.	1017

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
748*	28.0	3339	**30.0C**	3557
Viht. N133	23.0	3139	**25.0C**	3486
Reloder 10X	22.5	3198	**24.5**	3481
AA 2015	23.5	3068	**25.5**	3461
Varget	26.0	3148	**28.0C**	3461
AA 2460*	24.5	3086	**26.5**	3445
IMR 3031	25.0	3032	**27.0C**	3410
H322	24.0	3027	**26.0**	3388
AA 2230	24.0	3062	**26.0**	3361
H4198	20.5	2981	**22.5**	3342
BL-C(2)*	26.0	3064	**28.0**	3315
H4895	23.5	2954	**25.5C**	3297
H335*	26.5	2903	**28.5**	3133
Reloder 7	18.5	2694	**20.5**	3011
AA 5744 (reduced load)	11.0	1990	**12.0**	2134

0.224"	22 Spitz SP
Weight, grains	45
Ballistic Coefficient	0.143
Sectional Density	0.128
COAL Tested:	2.155"
Speer Part No.	1023

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
IMR 4895	25.0	3098	**27.0C**	3404
748*	27.0	2988	**29.0C**	3396
Varget	26.0	3109	**28.0C**	3387
IMR 4198	21.0	3006	**23.0**	3377
H322	24.0	2959	**26.0**	3362
IMR 3031	25.0	3070	**27.0C**	3337
Reloder 10X	22.0	3039	**24.0**	3292
AA 2460*	24.0	2948	**26.0**	3275
Viht. N133	22.5	2969	**24.5C**	3263
AA 2015	23.0	2901	**25.0**	3260
BL-C(2)*	26.0	2897	**28.0C**	3219
AA 2230	23.5	2777	**25.5**	3156
Reloder 7	18.0	2814	**20.0**	3059
H335*	25.0	2688	**27.0C**	3020
AA 5744 (reduced load)	11.0	1949	**12.0**	2091

*Maximum Loads should be used with CAUTION • C = Compressed Load • *Magnum Primer used with this powder.*

0.224"	22 Spitz SP	22 TNT HP
Weight, grains	50	50
Ballistic Coefficient	0.207	0.228
Sectional Density	0.142	0.142
COAL Tested:	2.185"	2.235"
Speer Part No.	1029	1030

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
748*	26.5	3083	**28.5C**	3398
AA 2520*	26.0	3178	**28.0C**	3328
Varget	25.5	3034	**27.5C**	3316
IMR 4895	25.0	3028	**27.0C**	3313
H322	24.0	3001	**26.0**	3300
IMR 3031	24.0	2969	**26.0C**	3284
Reloder 10X	21.5	2997	**23.5**	3267
AA 2015	22.5	2951	**24.5**	3266
H335*	25.0	2975	**27.0**	3262
Viht. N133	22.0	2899	**24.0**	3237
H4895	23.5	2871	**25.5C**	3203
BL-C(2)*	25.5	2961	**27.5**	3200
H4198	20.0	2850	**22.0**	3178
AA 2230	23.0	2847	**25.0**	3138
AA 5744 (reduced load)	11.0	1905	**12.0**	2047

0.224"	22 HP	22 Match BTHP
Weight, grains	52	52
Ballistic Coefficient	0.168	0.230
Sectional Density	0.148	0.148
COAL Tested:	2.200"	2.200"
Speer Part No.	1035	1036

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
748*	26.0	3138	**28.0C**	3448
Varget	25.0	2995	**27.0**	3276
IMR 4895	24.5	2850	**26.5C**	3202
IMR 3031	24.0	2876	**26.0C**	3195
Reloder 10X	20.5	2914	**22.5**	3179
Viht. N133	22.0	2826	**24.0**	3175
Reloder 15	25.0	2790	**27.0C**	3170
H4895	23.5	2863	**25.5C**	3146
H335*	24.5	2879	**26.5**	3129
H322	22.5	2822	**24.5**	3101
IMR 4064	24.0	2840	**26.0C**	3087
BL-C(2)*	25.0	2695	**27.0**	3062
AA 2460*	23.0	2750	**25.0**	3056
Reloder 7	18.5	2609	**20.5**	2931
AA 5744 (reduced load)	11.0	1899	**12.0**	2036

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0.224"	22 TNT HP	22 FMJ BT	22 Spitz SP	22 SP/cann
Weight, grains	55	55	55	55
Ballistic Coefficient	0.233	0.269	0.212	0.212
Sectional Density	0.157	0.157	0.157	0.157
COAL Tested:	2.235"	2.215"	2.175"	2.215"
Speer Part No.	1032	1044	1047	1049

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
748*	26.0	2965	**28.0C**	3313
AA 2230	24.0	3017	**26.0**	3233
IMR 3031	24.0	2976	**26.0C**	3223
Varget	25.0	2969	**27.0**	3216
H4895	23.5	2908	**25.5C**	3194
AA 2520*	25.0	3021	**27.0C**	3187
Reloder 10X	21.0	2934	**23.0**	3159
H322	22.5	2823	**24.5**	3158
IMR 4064	24.5	2843	**26.5**	3143
BL-C(2)*	25.0	2868	**27.0**	3138
H335*	24.0	2805	**26.0**	3092
Viht. N133	21.5	2775	**23.5**	3091
AA 2015	21.5	2753	**23.5**	3026
H4198	19.0	2693	**21.0**	2978
AA 5744 (reduced load)	11.0	1885	**12.0**	2022

0.224"	22 TBBC SP
Weight, grains	55
Ballistic Coefficient	0.201
Sectional Density	0.157
COAL Tested:	2.220"
Speer Part No.	1725

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
AA 2230	23.0	2950	**24.0**	3077
Varget	25.0	2910	**26.0C**	3046
IMR 4064	24.5	2927	**25.5C**	3024
Win 748*	25.0	2888	**26.0C**	3009
H322	22.0	2888	**23.0**	3003
AA 2015	22.0	2822	**23.0**	2950
Viht. N133	21.0	2809	**22.0**	2947

NOTE: *Trophy Bonded Bear Claw and Trophy Bonded Sledgehammer Solid bullets have unique ballistic behavior compared to conventional bullets. Loads for TBBC and TBSS bullets may not "track" with data for conventional bullets. Use TBBC and TBSS data ONLY for TBBC and TBSS bullets.*

Bob Zastrow, Engineering Manager, ATK Onalaska Operations, with son Danny; 308 Winchester, 165-grain Grand Slam®; Wisconsin whitetail.

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0.224"	22 FMJ BT
Weight, grains	62
Ballistic Coefficient	0.307
Sectional Density	0.177
COAL Tested:	2.255"
Speer Part No.	1050

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
AA 2520*	24.5	2875	**26.5C**	3024
AA 2460*	22.5	2636	**24.5**	2962
Viht. N133	21.0	2646	**23.0**	2939
AA 2230	22.0	2642	**24.0**	2919
IMR 4895	22.5	2548	**24.5C**	2896
IMR 4064	23.5	2661	**25.5C**	2892
748*	23.5	2556	**25.5**	2888
H335*	23.0	2625	**25.0**	2885
Viht. N135	22.0	2590	**24.0**	2878
AA 2015	20.5	2509	**22.5**	2851
Reloder 15	23.0	2549	**25.0C**	2832
IMR 4320	23.5	2568	**25.5C**	2822
BL-C(2)*	23.0	2476	**25.0**	2782
IMR 3031	21.5	2466	**23.5C**	2778

NOTE: *Recommended only for rifles with 1-in-10 inch or faster twist rates.*

0.224"	22 Semi Spitz SP
Weight, grains	70
Ballistic Coefficient	0.219
Sectional Density	0.199
COAL Tested:	2.140"
Speer Part No.	1053

	START CHARGE		MAXIMUM CHARGE	
Propellant	Weight, grs	Muzzle Velocity, ft/sec	Weight, grs	Muzzle Velocity, ft/sec
748*	25.0	2824	**27.0**	3068
H414*	26.0	2658	**28.0**	2883
IMR 4895	22.5	2628	**24.5C**	2826
H335*	22.5	2592	**24.5**	2812
AA 2460*	21.5	2500	**23.5**	2778
AA 2230	21.0	2464	**23.0**	2715
H380*	26.0	2533	**28.0**	2700
Viht. N135	20.5	2425	**22.5**	2661
IMR 4320	22.5	2450	**24.5**	2644
BL-C(2)*	21.5	2450	**23.5**	2618
AA 2015	18.0	2328	**20.0**	2555

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