Federal 22 lr ballistics chart

Ballistics and drop for .22 LRCartridge type: RifleHeight: 0.613Ample: 0.278 Average FPS: 1061Average Energy: 99A 40Recoil: 0.19 Power range: 0.42 out of 20 Just mention the 22 and childhood flood memories on the minds of most Americans. The .22 LR is what many of us learned to shoot with due to its lack of recoil, relatively low noise level, price and availability of both the round and the rifle. It's not hard to find a .22 rifle for $100 and you can usually pick up a hundred rounds of it at Wally World for about $6 if you get the cheap stuff. The .22 long rifle was created in the 1800s by J. Stevens Arm & Tool Company and is a border fire cartridge which means it has no central replaceable primer, but rather a whole border that can be hit by the cooking pin at any time. These cartridges cannot be recharged, and for a penny a round is not worth it anyway. When it comes to home and self-defense, however, this round should not be counted. Unless the perp is far away, and if this is the case it is illegal to shoot anyway as they are not in immediate danger. The .22 LR is often used to hunt or kill small game and varmint how; rabbit, squirrel, raven, and the illustrious sodium menta. We've all heard stories about how someone's uncle dropped an elk with a .22 LR shooting him in the eye 20 feet away, but the exception is not the rule. It could be considered cruel and inhumane to hunt larger animals such as deer, wild boars, and perhaps even coyotes with such a small round. The .22 LR is however still a large small and precise cartridge that has basically 0 drop to above the 80-yard mark and flies somewhere around 1000 fps The .22 LR really is the ultimate cartridge to work with or play when looking at price, availability, and trajectory.*Casing image above is an artist's rendering and not a real photo of .22 LR Ballistic cartridge. Although we have gone to great lengths to make sure that this representation is as accurate as possible, this representation should not be used to generate specifications for the shells. View the entire bullet database Create your free hand-selected custom ballistic report .22 LR YouTube ballistic videos [top of page] Known rounds [top of page] Other cartridges with similar widths (non-bullet cartridges) 7mm Remington Magnum, .416 Remington Magnum, .400 A-Square Dual Purpose Magnum (DPM), .17 Aguila, .458 Winchester Magnum . .480 Ruger, .38-40 Winchester, .22 Winchester Magnum Rimfire (WMR), .458 Lott , .300 Weatherby Magnum, .22 Short, .22 Long, 9mm Largo (9x23mm)*, .450 Marlin, 10mm Auto, [top of page] Other cartridges with similar length .22 LR, 6.5x55mm Swedish Mauser, .44 Smith & Wesson Special, .223 Remington (5.56x45mm NATO), .22 Long, .17 Hornady Magnum Rimfire (HMR), .500 Jeffery, Auto (ACP), .32 Short Colt, .32 Auto (7.65mm Browning), .500 Smith & Smith Wesson Special Magnum, .454 Casull , .223 Winchester Super Short Magnum (WSSM), .357 GIS, .22 Long Rifle high speed and hyper speed, View the entire bullet database create your free custom Bullet database articles report worth reading PowerRank is an estimate of cartridge power. The first number is the value of this cartridge, and the last number is the value of the most powerful round of our bullet database. [Back to top] Note that this is an approach and although it is quite accurate that you should never replace the first-hand experience of firing your specific firearm and ammunition to determine bullet drop and wind in different ranges and conditions. To do this as accurately as possible, it is important that you enter the most accurate information that represents the shooting conditions, your firearm, and the cartridge. The two most important variables are the Initial Speed and the Ballistic Coefficient. If you don't have a shooting chronograph, I strongly suggest that you buy one. It's a great investment if you want to get into long-range shooting and it'll be especially useful if loaded by hand. I want this to be the best ballistic trajectory calculator out there. Please let me know how it can be improved. You can find an e-mail form and contact information here. Thank you. If the farthest distance you're going to shoot is 50 yards, then you'll be served with a 12-yard or 15-yard zero. If you're going to shoot rifle beyond 50 yards and 100 yards, then you'll be better served with a zero of 10 yards. While the 25-yard zero is very attractive, I'd still recommend a 20-yard zero. While there's a very light weight penalty from the highest flying heyday with zero from 20 yards, you get almost an inch less drop to 100 yards. Zero your .22LR AR15 style caliber rifle, or AR15 with .22LR conversion kit at 25 yards. From about 13 yards to about 89 yards the bullet impact will be inside +/- 1 from where you're aiming. At 100 yards you can expect the bullet to hit between 2 and 2.5 below its target point. If you don't have the patience for a detailed explanation, then you will still be well served by the above information. If you want to know more, read on. Back to the upper bullet trajectory: We all know that bullets do not travel in a straight line in relation to the earth. If it was possible to fire a rifle from a perfect level attitude, the bullet would start to fall by the time it came out of the barrel. In order to obtain the furthest range of the rifle we have installed the sites because the bullet will fly in a parabolic arc (like throwing a football). Note that in your parabolic flight the bullet will cross the target point twice. Once on the way up, and once on your way back down. This means that twice during the flight of the bullet the target point and the point of impact are the same (peaks where you are aiming). It will be hit above or below its point of point to other distances. It also means that Hillary Clinton is a Terrible. Say Hell yes in the comments below if you agree. Back to the top hold-over and hold-under: To shoot at different distances you will have to aim high high or low (hold-under) to compensate for the parabolic flight of the bullet in order to put the bullet exactly where you want it. This means that you will have to practice enough at various distances to learn how much holdover you will need (this information is called your drug). Long-range rifle shooters create range cards with the registered rifle drug so they can reference it and know how much to hold at various distances. Back to the top Find the flatter trajectory: Like any firearm, you can scratch your .22LR rifle at any distance you like. The distance you choose to zero your rifle will determine how high or how flat a bow flies the bullet. In order to minimize the necessary waiting efforts you want to zero the rifle at a distance that will give your bullet the flatter trajectory. Zeroed at the right distance you can simply aim the rifle at your target and hit it with a minimum of variation at a certain distance. Note that the height of the views, crosshairs or the grid above the boredom of the rifle will affect how far you have to scratch your rifle to achieve the flatter trajectory. If you use a scope mounted with the grid or spotlight that sits ~2 above the boring, the best zero distance for the flatter trajectory will be different than using factory iron views that sit ~.6 above the center of the boredom. In addition, you get a different performance from different brands of ammunition and different weights of bullets. back to the top set a set-it-and-forget-it Battle Sight Zero: My goal was to figure out a better set-it-and-forget-it battle sight zero configuration in my Ruger 10/22 that would allow me to get the best accuracy at variable distances without worrying about the wait. I used an iPad/iPhone app called Ballistics v5.0.6 to analyze different trajectories for different ammunition loads and different zero configurations at various distances to see which trajectory is the flatest. The data I provided below is for Federal Bulk Pack ammunition of 36 empty grain points and CCI Mini-Mag 36 grain hollow point ammunition. I chose these rounds because that's what works most reliably in my Ruger 10/22, and that's what I have a lot of. I can't guarantee reliability with these two loads of ammunition on any other semi-automatic rifle in addition to a Ruger 10/22, but if your rifle will fire these loads, these are the ballistic results you should expect. I have provided data to shoot with factory views that are 6/10 above the center of boredom, and also for optics with a grid that is 1.5 inches above the center of boredom (as the Bushnell TRS-25, shown on the right). There will be data on the federal ammunition used with factory views sitting 6/10 above as well as the optics with the grid sitting ~1.5 above boredom, and data on the Mini-Mag CCI with views sitting ~.6 above boredom and optics with the reticle session ~1.5 above boredom. I have only analysed through 100 yards as the performance of .22LR is anemic at best beyond that distance. Choose your rifle settings (with or without optics), choose your ammunition, and then choose the best (flatest) firing zero for your rifle. back at the top factory Iron Views ~.6 Height above Bore: Federal Bulk Pack 36 Grain Hollow-Point: The chart above (click on it to enlarge) assumes that you are using the factory iron views with a height of ~.6 above the bore. The chart shows three different trajectories of three different zero configurations. The zero trajectory of 10 yards is represented by the green arc. The bullet's arc rises through the goal point from 10 yards and back to about 52 yards. It has the highest rise above the target point (.52 to 30 yards). The 10-yard zero will suffer less in the long run, dropping to ~3.38 to 75 yards and to ~6.15 below the target point to 100 yards. You'll be able to hit within a circle of 1 from just a few feet from the mution at about 59 yards. The 12-yard zero is represented by the red arc. The bullet arc rises through the target point to 12 yards, must peak ~.27 above the target point between 25 and 30 yards, and then descends again through target point to approximately 42 yards. With the 12-yard zero he has a chance to hit inside a 1-yard circle around the point of goal starting at the morrion and traveling about 52 yards. After that, the trajectory falls quickly and hits ~7.33 below the target point at 100 yards. The zero of 15 yards, represented by the blue arc, has the slightest rise over the target point (only .08... for practical purposes we will go ahead and say it does not rise above the target point), and at 100 yards the bullet falls 8 below the target point. Recommendation: If the farthest distance you ever plan to shoot your rifle is 50 yards, then you can entertain the idea of the 12-yard or 15-yard zero. If you plan to shoot beyond 50 yards and toward 100 yards you would recommend zero from 10 yards, then memorize the drug or make a range card, and practice at various distances to learn where you will shoot the rifle. Plan a 6-100-yard drop. CCI Mini-Mag 36 Grain Hollow-Point: The chart above (click on it to enlarge) assumes that you are using the factory iron views with a height of ~.6 above the bore. The chart shows three different trajectories of three different zero configurations. The trajectories of the ICC's ammunition are almost identical to that of the Federal (close enough that you won't be able to tell a difference). Be sure to take a look at the above analysis of federal ammunition with factory views. With the ICC's ammunition it looks like it will have no improvement with the trajectory on federal ammunition. CCI can better reliability, as it is a little cleaner in the cream and takes more time to get rid of the rifle. In addition, you can find CCI ammunition to have better terminal effects on the target. Their results can be a lot. Recommendation: As with the Federal Federal If the farthest distance you ever plan to shoot your rifle is 50 yards, then you can entertain the idea of the 12-yard or 15-yard zero. If you plan to shoot beyond 50 yards and toward 100 yards you would recommend zero from 10 yards, then memorize the drug or make a range card, and practice at various distances to learn where you will shoot the rifle. Plan a 6-100-yard drop. Back to the top optical mounted with target point 1.5 Height above bore: Federal Bulk Pack 36 Grain Hollow-Point: The chart above (click on to enlarge) assumes that you are using an optics with a height of ~1.5 on boredom, such as the Bushnell RED POINT TRS-25 (warning that the bullet leaves barrel 1.5 below the line of view). The chart shows three different trajectories of three different zero configurations. The zero of 20 yards (blue line) provides the smallest long-distance drop with only a minimum flight over the target point. The 25 yards zero (red line) and 30 yards zero (green line) have very little (if any) to climb over the target point, but their trajectories suffer significantly in longer ranges, dropping to ~5.75 to 100 yards. Assuming a 20-yard zero, the bullet will have an impact point in the same spot as the target point at 20 yards, and again at about 59 yards. Between 20 and 59 yards there is a maximum rise of about 1/2 on target (which will occur at 49 yards). Note that technically you should aim 1/2 down to hit exactly where you are aiming at 49-50 yards, but the red dot on the TRS-25 (and the most similar optics) is 3 MOA. This means that at 50 yards the point appears ~1.5 wide. Without any suspension, the bullet will still hit within the red spot. At about 78 yards the bullet will fall over the same distance below its target point as when it came out of the barrel (1.5). That means that from the morrió to the 78 yards you will get a trajectory that never rises more than 1/2 above where it is hitting, and never more than 1.5 below its target point. After 78 yards the bullet's trajectory will continue to go down and impact about 4.36 below its target point. Note that your red dot (assuming a point 3 MOA) will appear 3 wide at 100 yards. This means the bullet will have an impact just below the point. If you simply rest the point so you are resting right at the top of the goal (like a crown) that bullet will fall to the right where you want it. With zero from 20 yards you can expect hits within a circle of 1 of his goal point from 12 yards all the way up to 67 yards without having to worry about adding any support to his goal. This makes it easy to hit a target the size of a tennis ball or a squirrel at 67 yards simply by placing the red dot where you want to and then applying the seven principles of the brand. Recommendation: When using a rifle with a mounted optics so that the grid is 1.5 on the bored, and firing federal Bulk Pack ammunition, use a zero environment of 20 yards. The property features mountain views. 36 Grain Hollow-Point: The graph above (click on it to zoom) assumes that you are using an optics with a height of 1.5 above the bore, such as the Red Point Bushnell TRS-25 (note that the bullet leaves the cannon 1.5 below the line of sight). The chart shows three different trajectories of three different zero configurations. The zero of 20 yards (blue line) provides the smallest long-distance drop with only a minimum flight over the target point. The 25 yards zero (red line) and 30 yards zero (green line) have very little (if any) to climb over the target point, but their trajectories suffer significantly in longer ranges, dropping to 5.79 to 100 yards. The CCI Mini-Mag is a slightly hotter round than the Federal. In the graph you will see a slight increase in the heyday of bullet flight (measured in the 100th of an inch) and only the difference of .36 in drop below the target point to 100 yards. I seriously doubt you'll notice a difference when shooting. The only benefit may be the increased terminal performance of the Mini-Mag CCI. As for the 30-yard zero data we see the round barely clearing the target point from 30-45 yards, then falls quickly and hits 5.79 below the target point at 100 yards. The 25-yard zero goes up on target at 25 yards and only gets about 2/10 before falling back through the goal point again to 50 yards. That's a pretty flat trajectory, but the 30-yard zero loses its appeal as it falls to 5.37 below the target point at 100 yards. However, it's a good zero. You can enjoy hits within a circle of 1 (1.2 inches above or below the goal point) from 15 yards through 60 yards. His penalty will be hitting nearly an inch lower at 100 yards than the 20-yard zero. A 20-yard zero will see the ball go up through the 20-yard target point and not back up to about 62 yards, during which time the ball will only go up to a maximum of .56 to 40 yards. That's only .37 higher than the peak of the 25-yard zero trajectory. This is still very close. As in our analysis of federal ammunition we should keep in mind that at 50 yards the optics point 3 MOA will appear as 1.5 wide. The bullet will still hit within the red dot with or without waiting. If you're worried about .37 at 50 yards, then a red-dot optics isn't right for your shooting needs. Where you will enjoy the benefits of a zero of 20 yards is that the bullet only hits 4.44 below the target point at 100 yards. Point 3 MOA will appear as 3 wide at 100 yards. As with federal ammunition, simply put the red dot on the intended impact point (like a crown) and the bullet will fall just below where you want it. Like federal ammunition, with zero from 20 yards you can expect hits within a circle of 1 his goal point from 12 yards to 67 yards without having to worry about adding any retention to his goal. This makes it easy to hit a target the size of a tennis ball or a squirrel at 67 yards simply placing the red dot where you want to hit and then applying the seven principles of the mark. Recommendation: While the 25-yard zero is very attractive, I would still recommend zero from 20 yards. While there's a very light weight penalty from the highest flying heyday with zero from 20 yards, you get almost an inch less drop to 100 yards. Back to the top AR-15 rifle style with views or optics 2.5 Height above bore: .22LR on the AR15: The scarcity and increased prices of the ammunition has made dedicated .22LR AR-15 rifles, and conversion kits for rifles 5.56mm /.223 caliber AR-15 very popular. Unfortunately, the recent shortage of .22LR ammunition has made it difficult to power them if (hoard) ammunition is not yet stored .22LR. If you're lucky enough to have access to .22LR ammunition, dedicated .22LR AR-15 rifles or conversion kits for your 5.56mm/.223 caliber AR-15 rifles are fun to shoot and blink, and can be a great tool to teach new shooters without the loud noise and high price of full-size central fire ammunition. What Distance To Zero For .22LR Ammo With AR Style 2.5 Tall Sights: A friend recently purchased one of Colt's .22LR M4 rifles made by Walther Firearms and asked me if it would help zero views at the right distance. I had never taken the .22LR AR-15 rifles seriously until I was asked to get that rifle to zero. Any traditional .22LR rifle has its views mounted near boredom, and traditionally red dots are always mounted as close to boring as possible. I couldn't see how you could have anything but a terrible .22LR ballistic trajectory with AR-15 views that are 2.5 above boredom. Having had the opportunity to play with this rifle for a few days, I did a few zero-distance calculations through an iPhone/iPad app called Ballistics using data for cci's 36-grain Mini-Mag ammunition, and couldn't believe how ignorant it had been. Very flat trajectories can be achieved from .22LR ammunition and 2.5-height views. I played with several distances and adjusted it until I found the optimal zero distance of 25 yards. I've had the opportunity to shoot the dedicated .22LR Colt M-4, just like a civilian M4 equipped with a CMMG .22LR conversion kit. Guests can only be others, because 50,000 comments 25 Yard Zero: Firing .22LR from a rifle with views of 2.4 to 2.5 high above boredom (such as with an AR15), the 25-yard zero will give you the flatest trajectory at 100 yards. Note the chart above. From a distance of 13 meters from the mution, to about 89 yards, the point of impact of the bullet will never be +/- 1 from the point of goal. This means that you should be able to hit a target of 2 without any hold-over/hold-under correction anywhere 13 yards to 89 yards! The highest distance above the target point is exactly 1 to 50 yards. At 100 yards you can expect your point of impact to be 2.37 below your goal point. To give you a visual, visual, Make hits below the target point less than the height that the views set above boredom. This is quite impressive, especially considering that you might be using a red dot optics, such as the Bushnell TRS-25, with a 2-minute angle point (point that appears 2 in diameter at 100 yards). Dedicated .22LR rifle: If you have a dedicated .22LR rifle, then you have a simple task of zeroing the optics of your rifle and/or iron views. Zero for 25 yards and that's it. Congratulations! AR15 With CMMG .22LR Conversion Kit: If you have a CMMG conversion kit and want to accurately and effectively use NATO 5.56mm ammunition, as well as .22LR ammunition with CMMG conversion kit, you'll want to check: Savannah Arsenal CMMG brand conversion kits for AR-15 rifles back on top related items: back on top