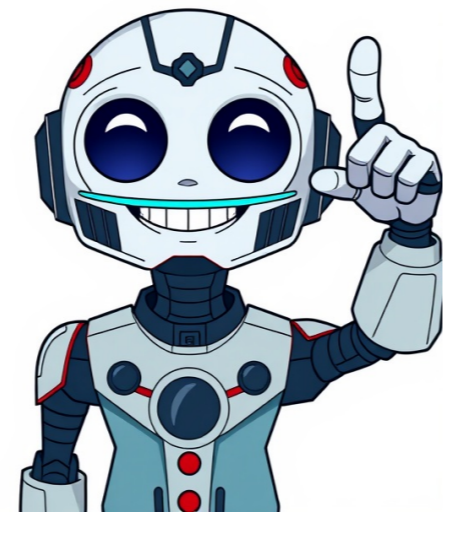


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ATTENTION: Effective Sept 1, 2020, the BBTI Project is in "Archive Status." No further tests will be conducted, but we will maintain this site and data for the use of the firearms community. Thank you. Welcome to Ballistics By The Inch, or "BBTI" as people have taken to calling it. Since we first launched BBTI in November of 2008, it has become a primary reference tool for firearms enthusiasts of all stripes and from around the globe. Our initial research data covered the relationship between barrel length and velocity for some 13 common handgun calibers/cartridges. In response to the phenomenal popularity of the site, we've continued to do testing, and have expanded the data to include an additional 8 handgun calibers/cartridges (and a repeat of the .380 Auto tests with additional ammunition) as well as the .223 rifle cartridge. We've also conducted a major study of the "cylinder gap effect" on a revolver, involving more than 6,000 rounds fired, as well as a comparison of the performance differences between polygonal and traditionally rifled barrels. As always, all of our data is freely available, though we happily accept donations (see button below left) and would greatly appreciate your tangible support to help us continue the project. Up above you'll find links to four main pages: Calibers/cartridges will take you to a list of all 22 different data sets. You can just browse the charts, click on a given ammunition type listed in the header of each chart for a graph of how that particular ammunition performed, or download the raw data for your own use. Cylinder gap will take you to the results of that study, which used an Uberti Single Action Army clone in .38/.357 mag to examine velocity differences between three different cylinder gaps (0.006", 0.001", and "flush", polygonal rifling will take you to the newest part of our site, documenting performance comparisons between polygonal and traditionally rifled barrels in 9mm. Real world guns will take you to a comprehensive list of all the firearms we used as 'benchmark' comparisons for results obtained from our T/C Encore test platform. You'll also see "review" listed after a number of the guns, which will take you to a review of that particular gun (or a closely related model) over at Guns.com written by Jim Downey of the BBTI team (who is also a writer for Guns.com). Along the left side there you'll find some more basic information about BBTI. As we've noted previously, we have no illusions that our data is comprehensive. It is meant to be indicative - giving an indication to the general relationships between barrel length and velocity, or the effect of a cylinder gap, or how polygonal and traditionally rifled barrels perform. It would be impossible for us, at least, to test all the different ammunition types available, or all the different firearms - particularly so when manufacturers of ammunition and firearms are constantly tweaking and improving their products. So use the data here to get an idea of what to expect, and perhaps as a jumping-off point for your own research. Thanks for coming by. Other Resources BBTI is not the end-all of ballistics testing, just one more component available for the common good. In addition to extensive discussion about ballistics to be found at many gun forums, here are some other great resources pertaining to ballistics testing you should check out. (And if you would like to recommend a site to list here, please send an email.) BrassFetecher: excellent resource, with an emphasis on bullet performance in ballistic gelatin The Box O' Truth: testing ammo penetration through various barriers Terminal Ballistics Research: Specializes in the research of cartridge & projectile performance, using hard data gathered from 20 years of hunting game. We'd like to personally and specifically thank Pat Childs at Fin & Feather in Iowa City, as he not only helped get most of our ammunition and other supplies, he was the brilliant gunsmith who worked with us to make this insane project much more practical. Without his help all of this would have been much more difficult and perhaps impossible. Anyone who uses our data owes him a debt of gratitude. And thanks to our spouses, who were not just tolerant but enthusiastically supportive of this rather nutty project. This project, and all of its results, is only our fault. We (well, Jim K, mostly) paid for everything ourselves, and we did not receive any kind of sponsorship or remuneration from anyone. We did all the work. We used products we were either familiar with, or because they were what was available, and mentioning them by name does not constitute an endorsement of any kind. Furthermore, the data is provided purely for entertainment purposes - to better facilitate arguments over what ammo or caliber or gun is "best." How you use the data is entirely up to you. And if you think you could do better, feel free to spend the money and do the work and publish your own results. Or not. Your choice. All the ballistics from all manufacturers, finally... in one place. Cartridge Name Bullet Diameter Case Length Cartridge Length Type 2.34 mm rimfire .092 in (2.3 mm) 240 in (6.1 mm) - Rimmed, rimfire 2.7 mm Kolibri .107 in (2.7 mm) .370 in (9.4 mm) .430 in (10.9 mm) Rimless 3 mm Kolibri .120 in (3.0 mm) .320 in (8.1 mm) .430 in (10.9 mm) Rimless 4.25 mm Liliput (4.25 mm Erika) .167 in (4.2 mm) .410 in (10.4 mm) .560 in (14.2 mm) Rimless 17 Hornady Mach 2 (.17 HM2) .172 in (4.4 mm) .714 in (18.1 mm) - Rimmed, rimfire 17 Hornady Magnum Rimfire (.17 HMR) .172 in (4.4 mm) 1.058 in (26.9 mm) - Rimmed, rimfire 17-357 RG - - - 4.6x30 mm .183 in (4.6 mm) .1201 in (30.5 mm) - Rimless 5 mm Clement Aut. 202 in (5.1 mm) .710 in (18.0 mm) 1.010 in (25.7 mm) Rimless 5 mm Bergmann Rimless .202 in (5.1 mm) .960 in (24.4 mm) Rimless 5 mm Remington Rimfire Magnum .205 in (5.2 mm) 1.020 in (25.9 mm) 1.130 in (28.7 mm) Rimmed, rimfire 5.45x18 mm .210 in (5.3 mm) .700 in (17.8 mm) .980 in (24.9 mm) Rimless .22 BB .222 in (5.6 mm) .284 in (7.2 mm) .343 in (8.7 mm) Rimmed, rimfire .22 CB .222 in (5.6 mm) .420 in (10.7 mm) .520 in (13.2 mm) Rimmed, rimfire .22 Short .223 in (5.7 mm) .423 in (10.7 mm) .686 in (17.4 mm) Rimmed, rimfire .22 Long .223 in (5.7 mm) .595 in (15.1 mm) .880 in (22.4 mm) Rimmed, rimfire .22 Long Rifle .22 Stinger (hot loading) .223 in (5.7 mm) .595 in (15.1 mm) .975 in (24.8 mm) Rimmed, rimfire .22 Remington Jet .223 in (5.7 mm) 1.280 in (32.5 mm) 1.580 in (40.1 mm) Rimless .22 Reed Express (7.62x25 mm necked down to .22) .223 in (5.7 mm) - - - Rimless .22 Winchester Magnum Rimfire .224 in (5.7 mm) 1.052 in (26.7 mm) 1.350 in (34.3 mm) Rimmed, rimfire .224 Kay-Chuk .224 in (5.7 mm) 1.35 in (34 mm) - Rimmed .221 Remington Fireball .224 in (5.7 mm) 1.400 in (35.6 mm) 1.820 in (46.2 mm) Rimless .224 BOZ .224 in (5.7 mm) .909 in (23.1 mm) - Rimless .224 Montgomery .224 in (5.7 mm) .620 in (15.7 mm) - Rimless .224-32 FA (.327 Federal necked to .22) .224 in (5.7 mm) 1.120 in (28.4 mm) - Rimmed 5.7x28 mm .220 in (5.6 mm) 1.130 in (28.7 mm) 1.710 in (43.4 mm) Rimless 5.5 mm Velo-Dog .220 in (5.6 mm) 1.120 in (28.4 mm) 1.350 in (34.3 mm) Rimmed 5.6x21 mm DAP92 .230 in (5.8 mm) .827 in (21.0 mm) - Rimless .25 ACP (.6.35 mm Browning, 6.35x16 mmSR) .251 in (6.4 mm) .620 in (15.7 mm) .910 in (23.1 mm) Semi-rimmed .25 NAA .251 in (6.4 mm) - - - Semi-rimmed .256 Winchester Magnum .257 in (6.5 mm) 1.300 in (33.0 mm) 1.530 in (38.9 mm) Rimless 6.5 mm Bergmann .264 in (6.7 mm) .870 in (22.1 mm) 1.230 in (31.2 mm) Rimless 7 mm Nambu (.7x20 mm) .280 in (7.1 mm) .780 in (19.8 mm) 1.060 in (26.9 mm) Rimless 7.62 mm Nagant (7.62 mm Russian, 7.62x38 mmR) .295 in (7.5 mm) 1.530 in (38.9 mm) Rimmed .32 Colt .299 in (7.6 mm) .755 in (19.2 mm) - Rimmed .32 Protector .300 in (7.6 mm) .350 in (8.9 mm) - Rimmed 7.65 mm Roth-Sauer, 7.65 mm Frommer .301 in (7.6 mm) .510 in (13.0 mm) .840 in (21.3 mm) Rimless 7.62 mm Tokarev (7.62x25 mm) .307 in (7.8 mm) .970 in (24.6 mm) 1.350 in (34.3 mm) Rimless 7.62x42 mm SP-4 .307 in (7.8 mm) 1.634 in (41.5 mm) - Rimless 7.65 mm Borchartd (.307 in (7.8 mm) .990 in (25.1 mm) 1.340 in (34.0 mm) Rimless 7.65x22 mm Para (7.65x21 mm Luger, .30 Luger) .308 in (7.8 mm) .750 in (19.1 mm) 1.150 in (29.2 mm) Rimless 7.65mm Mannlicher (7.65x21 mm) .308 in (7.8 mm) .840 in (21.3 mm) 1.120 in (28.4 mm) Rimless 7.63 mm Mauser (7.63x25 mm) .308 in (7.8 mm) .990 in (25.1 mm) 1.360 in (34.5 mm) Rimless .35 S&W Auto (.35 Auto) .309 in (7.8 mm) .670 in (17.0 mm) .970 in (24.6 mm) Rimless .32 ACP (7.65 mm Browning, 7.65x17 mmSR) .309 in (7.8 mm) .880 in (22.4 mm) 1.030 in (26.2 mm) Semi-rimmed 7.62x17 mm Type 64 (7.62 mm Chinese) .309 in (7.8 mm) .780 in (19.8 mm) - Rimless 7.65 mm Longue (7.65 mm MAS) .309 in (7.8 mm) .780 in (19.8 mm) 1.190 in (30.2 mm) Rimless .30 Wildey (.30 Wildey Magnum) .309 in (7.8 mm) - - - Rimless .32 NAA .312 in (7.9 mm) .680 in (17.3 mm) - Rimless .32 S&W .312 in (7.9 mm) .610 in (15.5 mm) .920 in (23.4 mm) Rimmed .32 S&W Long (.32 Colt New Police) .312 in (7.9 mm) .930 in (23.6 mm) 1.270 in (32.3 mm) Rimmed 7.92 x 24 mm VBR (shortened .30 Carbine case) .312 in (7.9 mm) .940 in (23.9 mm) - Rimless .32-20 Winchester (.32 WCF, .32-20 Martin) .312 in (7.9 mm) 1.320 in (33.5 mm) - Rimmed .32 H&R Magnum .312 in (7.9 mm) 1.080 in (27.4 mm) 1.350 in (34.3 mm) Rimmed .32 Federal Magnum .312 in (7.9 mm) 1.200 in (30.5 mm) - Rimmed .32 Short Colt .313 in (8.0 mm) .610 in (15.5 mm) - Rimmed .32 Long Colt (.32 LC) .313 in (8.0 mm) .900 in (22.9 mm) - Rimless .38 Casull .316 in (8.0 mm) .866 in (22.0 mm) Rimless .40 G&A Magnum .400 in (10.2 mm) - - - Belted .400 CorBon .401 in (10.2 mm) .898 in (22.8 mm) 1.200 in (30.5 mm) Rimless .41 Short Colt .401 in (10.2 mm) .650 in (16.5 mm) .910 in (23.1 mm) Rimmed .41 Long Colt .401 in (10.2 mm) 1.130 in (28.7 mm) 1.390 in (35.3 mm) Rimmed .38 AU (.38 Army Marksmanship Unit) .357 in (9.1 mm) 1.15 in (29 mm) - Rimless .357 Peterbilt (.357 Wildey Magnum) - - - Rebated rim .357 AutoMag (.357 AMP) .357 in (9.1 mm) 1.298 in (33.0 mm) 1.600 in (40.6 mm) Rimless .357-45 GWM (.357-45 Grizzly Winchester Magnum) .357 in (9.1 mm) 1.300 in (33.0 mm) - Rimless .357-44 Bain & Davis .357 in (9.1 mm) 1.280 in (32.5 mm) 1.550 in (39.4 mm) Rimmed .357 Magnum (9x31 mm Rem. .353 Casull) .357 in (9.1 mm) 1.290 in (32.8 mm) 1.510 in (38.4 mm) Rimmed .360 DW .357 in (9.1 mm) 1.415 in (35.9 mm) - Rimmed .357 Remington Maximum (.357 Maximium) .357 in (9.1 mm) 1.590 in (40.4 mm) 1.970 in (50.0 mm) Rimmed .357 SuperMag .357 in (9.1 mm) 1.810 in (45.9 mm) - Rimmed .357 SIG .357 in (9.1 mm) .865 in (22.0 mm) 1.140 in (29.0 mm) Rimless .38 ACP (.38 Auto, 9x23 mmSR) .358 in (9.1 mm) .900 in (22.9 mm) 1.280 in (32.5 mm) Semi-rimmed .38 Super .358 in (9.1 mm) .900 in (22.9 mm) 1.280 in (32.5 mm) Semi-rimmed .38 Super Comp .358 in (9.1 mm) .896 in (22.8 mm) 1.280 in (32.5 mm) Rimless .38 S&W (.38 Colt New Police, .380 Rim) .359 in (9.1 mm) .780 in (19.8 mm) 1.200 in (30.5 mm) Rimmed 9 mm Makarov (9x18 mm PM) .363 in (9.2 mm) .710 in (18.0 mm) .970 in (24.6 mm) Rimless 9x21 mm Gyurza - - - Rimless .380 Revolver Short .375 in (9.5 mm) 1.100 in (27.9 mm) Rimmed .380 Revolver Long British Webley pattern from 1860s) .375 in (9.5 mm) 1.000 in (25.4 mm) 1.400 in (35.6 mm) Rimmed .375 SuperMag .357 in (9.1 mm) 1.610 in (40.9 mm) - Rimmed 9.8 mm Auto Colt (9.65 mm Browning Automatic) .378 in (9.6 mm) .912 in (23.2 mm) 1.267 in (32.2 mm) Rimless .41 Long Colt (smokeless inside-lubricated variant) .386 in (9.8 mm) 1.310 in (28.7 mm) - Rimmed .40 S&W (.40 Auto, .40 Short, .40x22 mm) .400 in (10.2 mm) .850 in (21.6 mm) 1.235 in (31.4 mm) Rimless 10 mm Auto (10 mm Norma, .40x25 mm) .400 in (10.2 mm) .990 in (25.1 mm) 1.260 in (32.0 mm) Rimless 10 mm Magnum .400 in (10.2 mm) 1.255 in (31.9 mm) - Rimless .40 Super .400 in (10.2 mm) .986 in (25.1 mm) - Rimless .40 G&A .400 in (10.2 mm) .866 in (22.0 mm) Rimless .40 G&A Magnum .400 in (10.2 mm) - - - Belted .400 CorBon .401 in (10.2 mm) .898 in (22.8 mm) 1.200 in (30.5 mm) Rimless .41 Short Colt .401 in (10.2 mm) .650 in (16.5 mm) .910 in (23.1 mm) Rimmed .41 Long Colt .401 in (10.2 mm) 1.130 in (28.7 mm) 1.390 in (35.3 mm) Rimmed .38 AU (.38 Army Marksmanship Unit) .357 in (9.1 mm) 1.15 in (29 mm) - Rimless .357 Peterbilt (.357 Wildey Magnum) - - - Rebated rim .401 Powermag (.401 Hertenberger Powermag) .401 in (10.2 mm) 1.290 in (32.8 mm) 1.640 in (41.7 mm) Rimless .41 Action Express (.41 AE) .410 in (10.4 mm) .866 in (22.0 mm) 1.170 in (29.7 mm) Rebated rim .41 Avenger .410 in (10.4 mm) .950 in (24.1 mm) - Rimless .44 Wildey Magnum (10 mm Wildey Magnum) .410 in (10.4 mm) - - - Rebated rim .41 Special .410 in (10.4 mm) 1.160 in (29.5 mm) - Rimless .41 Remington Magnum (.41 Magnum) .410 in (10.4 mm) 1.280 in (32.5 mm) - Rimmed .44 SuperMag .410 in (10.4 mm) 1.610 in (40.9 mm) - Rimmed 10.4 mm Italian (10.4 mm Italian Ordinance) .422 in (10.7 mm) .890 in (22.6 mm) - Rimmed 10.4 mm Swiss (.41 Swiss) - - - Rimmed .44 Russian (.44 Smith & Wesson Russian) .429 in (10.9 mm) .970 in (24.6 mm) - Rimmed .44 Special (.44 S&W Special) .429 in (10.9 mm) 1.160 in (29.5 mm) - Rimmed .44 Magnum (.44 Remington Magnum) .429 in (10.9 mm) 1.290 in (32.8 mm) - Rimmed .44-40 Winchester (.44 WCF) .429 in (10.9 mm) 1.310 in (33.3 mm) - Rimmed .44S SuperMag .432 in (11.0 mm) 1.100 in (28.0 mm) - Rimmed .440 Cor-bon .429 in (10.9 mm) 1.280 in (32.5 mm) - Rebated rim .44 Wildey Magnum (11 mm Wildey Magnum) .429 in (10.9 mm) - - - Rebated rim .44 AMP (.44 AutoMag) .429 in (10.9 mm) 1.298 in (33.0 mm) - Rimless .44 S&W American (.44 American) .434 in (11.0 mm) .910 in (23.1 mm) - Rimmed .442 Webley (.442 Kurz, 10.5x17 mm) .436 in (11.1 mm) .690 in (17.5 mm) - Rimmed .44 Bull Dog .440 in (11.2 mm) .570 in (14.5 mm) - Rimmed .44 Colt .443 in (11.3 mm) 1.100 in (27.9 mm) - Rimmed 11.75 mm Montegrin (11 mm Gasser, 11.25x36 mm) .445 in (11.3 mm) 1.400 in (35.6 mm) - Rimless .45 Remington (Udar revolver cartridge) - - - Rimmed 12.3x50 mm (Udar revolver cartridge) - - - Rimmed 50 GI .500 in (12.7 mm) .899 in (22.8 mm) - Rebated rim .50 Action Express (.50 AE) .500 in (12.7 mm) 1.285 in (32.6 mm) - Rebated rim .500 Wyoming Express (.500 WE) .500 in (12.7 mm) 1.370 in (34.8 mm) - Belted .500 JRH .500 in (12.7 mm) 1.400 in (35.6 mm) .866 in (22.0 mm) Rimless .40 G&A Magnum .400 in (10.2 mm) - - - Belted .400 CorBon .401 in (10.2 mm) .898 in (22.8 mm) 1.200 in (30.5 mm) Rimless .41 Short Colt .401 in (10.2 mm) .650 in (16.5 mm) .910 in (23.1 mm) Rimmed .45 GAP (.45 Glock) .452 in (11.5 mm) .755 in (19.2 mm) - Rebated rim .45 HP (.45 Hirtenberg Patron, .45 Italian) .452 in (11.5 mm) .860 in (21.8 mm) - Rimless .45 ACP (.45 Auto, 11.43x23 mm) .452 in (11.5 mm) .898 in (22.8 mm) 1.260 in (32.0 mm) Rimless .45 Super .451 in (11.5 mm) .898 in (22.8 mm) 1.260 in (32.0 mm) Rimless .450 SMC (.450 Short Magnum Cartridge) .451 in (11.5 mm) .898 in (22.8 mm) 1.260 in (32.0 mm) Rimless .45 Wildey Magnum - - - Rebated rim .451 Detonics (.451 Detonics Magnum) .452 in (11.5 mm) .942 in (23.9 mm) - Rimless .454 Casull (.45 Magnum) .452 in (11.5 mm) 1.390 in (35.3 mm) - Rimmed .455 SuperMag .1.610 in (40.9 mm) - Rimmed .460 S&W Magnum .452 in (11.5 mm) 1.800 in (45.7 mm) - Rimmed .455 Webley (.455 Webley Revolver) .454 in (11.5 mm) .770 in (19.6 mm) - Rimmed .45 Schofield (.45 Smith & Wesson) .454 in (11.5 mm) 1.100 in (27.9 mm) - Rimmed .45 Long Colt (.45 Colt) .454 in (11.5 mm) 1.290 in (32.8 mm) - Rimmed .45 Mars Short - - - Rimless .45 Mars Long - - - Rimless .450 Adams (.450 Boxer, .450 Corto) .455 in (11.6 mm) .690 in (17.5 mm) - Rimmed .455 Webley Auto .455 in (11.6 mm) .930 in (23.6 mm) - Semi-rimmed .455 Revolver Mk I (.455 Colt) .455 in (11.6 mm) .870 in (22.1 mm) - Rimmed .476 Enfield (.476 Eley, .476 Revolver, .455/476) .472 in (12.0 mm) .870 in (22.0 mm) - Rimmed .480 Ruger .475 in (12.1 mm) 1.285 in (32.6 mm) - Rimmed .475 Wildey Magnum .475 in (12.1 mm) 1.295 in (32.9 mm) - Rimless .475 Linebaugh Long (.475 Maximium) .476 in (12.1 mm) 1.610 in (40.9 mm) - Rimmed 12.3x22 mm (Udar revolver cartridge) - - - Rimmed 12.3x40 mm (STs-110 Udar revolver cartridge) - - - Rimmed 12.3x50 mm (Udar revolver cartridge) - - - Rimmed 50 GI .500 in (12.7 mm) .899 in (22.8 mm) - Rebated rim .50 Action Express (.50 AE) .500 in (12.7 mm) 1.285 in (32.6 mm) - Rebated rim .500 Wyoming Express (.500 WE) .500 in (12.7 mm) 1.370 in (34.8 mm) - Belted .500 JRH .500 in (12.7 mm) 1.400 in (35.6 mm) .866 in (22.0 mm) Rimless .500 S&W Special .500 in (12.7 mm) - - - Rimmed .500 S&W Magnum .500 in (12.7 mm) 1.600 in (40.6 mm) - Rimless .50 Remington .508 in (12.9 mm) .875 in (22.2 mm) - Rimmed .50 Special (.50 Bowen Special) .511 in (13.0 mm) 1.160 in (29.5 mm) - Rimmed .500 Linebaugh .511 in (13.0 mm) 1.410 in (35.8 mm) - Rimmed .500 Linebaugh Long (.500 Maximum) .511 in (13.0 mm) 1.610 in (40.9 mm) - Rimmed .505 SuperMag (.510 SuperMag) - - - Rimmed 13 mm Gyrojet - - - Rimless .577 Boxer (.577 Eley, .577 Webley) - - - Rimmed Copyright 2023 | Ballistics101.com | All rights reserved Choosing the wrong handgun caliber can have deadly consequences. When confronted with a use-of-force situation where you need to use your gun, you want to make sure that it will do what it was made to do: make a bad guy stop in his tracks. That doesn't mean you need to go all Dirty Harry and carry a monster .44 Magnum. If a gun is too heavy and/or recoils too hard, you probably won't carry it or practice enough to be proficient. At the same time, teeny tiny pocket guns can be difficult to shoot well and are often chambered in anemic cartridges (like the .25 Auto and .32 ACP). Choosing any handgun caliber comes with certain tradeoffs. Your job is to find the middle-of-the-road ideal that's easy to shoot, operates reliably, and is effective in its intended purpose. Not every handgun is made for self defense, but many are. To help you make the best choice, we'll take a look at the most popular handgun cartridges and types, then spell out the pros and cons for each - with an eye toward practical uses and how each one stacks up against its peers. What's a Handgun Good For? Handguns serve a wealth of purposes. In the military, they're sidearms to long rifles. For most police, they're a primary line of defense in a deadly encounter. For civilians, handguns are ideal for concealed carry as well as home defense when a rifle isn't practical. Other uses for handguns are target shooting in competitions such as metallic silhouette, run-and-gun competitions like US Practical Shooting Association (USPSA), and good old fashioned plinking (casual target shooting). The biggest difference between the two types of handguns. The pros and cons of these two platforms are many, but these are the big takeaways: Revolvers Semi-Automatic (Autoloaders) Can shoot more powerful ammunition Carries more bullets More versatile (lots of ammo compatibility)* Slimmer (more easily concealed) Unquestioned reliability Lighter weight More popular for self defense * A gun chambered in the powerful .357 Magnum can also shoot the mild-mannered .38 Special, and the mighty .44 Magnum can fire the less burly .44 Special, giving shooters a less punishing shooting experience on the practice range. Handgun & Pistol Caliber Comparison Let's dive into a (mostly) complete list of handgun calibers and compare bullet weights, velocity, power (kinetic energy), recoil, and price. Then, we'll grade them with an overall shootability score from 1-5. We say "mostly" complete because it's unlikely you'll find a common gun chambered in something not on this list - but it's still possible. If you're just looking for the facts and specs, here's a ballistic chart comparing the types of pistol calibers we'll cover: Avg. Bullet Weight (grains) Avg. Velocity (fps) Avg. Energy (ft.-lbs.) .22LR 36-40 700-1,300 130-200 .25 Auto/ACP 35-50 700-670 .32 Auto/ACP 60-70-90 .380 Auto/ACP 60-70-90-100-1,050 120-170 .380 Auto/ACP 85-100 1,000-1,200 200-300 .38 S&W 100-158 700-1,150 180-235 9mm Luger 115-147 1,100-1,300 350-500 .357 Sig 100-125 1,300-1,600 500-650 .40 S&W 135-185 1,100-1,300 450-590 .45 Auto/ACP 185-230 850-1,200 350-800 .357 Magnum 110-200 1,100-1,400 550-800 .44 Special 200-240 700-900 300-400 .44 Magnum 240-300 1,050-1,500 1,000-1,400 Of course, this is just a brief overview. Read on for a more in-depth look at each caliber. .22 Long Rifle (LR) The .22 LR is the darling of the plinking crowd, and is a fantastic way to get newbies into the shooting sports. In large revolvers, it has almost nonexistent recoil, minimal blast, and great capacity in newer autoloaders. However, its paltry energy levels prevent it from being considered a serious defensive cartridge. Some folks like to use the .22 as the perfect "woods gun" caliber, perfect for when they're traipsing about in flannel blasting squirrels off tree limbs. This is a silly fantasy. If you're really out camping and living off the land, you're more likely to have a shotgun for gathering meat and a centerfire rifle for protection. Common bullet weights: 36-40 grains Kinetic Energy: 130-200 ft.-lbs. Recoil: Low Price: \$ Overall: **** Despite its anemic numbers, the .22 LR still gets four stars because of its affordability, user friendliness, and how much fun it is to shoot. It's the gateway drug into shooting sports. .25 Auto The .25 Automatic Colt Pistol (ACP) is something of an enigma these days. It's super weak, hard to find, and most of the guns that fire it are more than 100 years old. That's not saying that everything 100 years old is outdated (the 9mm Luger still kicks ass), but there's been zero innovation on the .25 in a very long time. About the only ammo available for it is full metal jacket (FMJ), which isn't a great option for self defense. However, at such weak velocities, it's about your only choice. Its cost makes it impractical for training and plinking, its energy makes it a no-go for serious defensive work, and just about the only way you're gonna find a gun chambered in .25 ACP is to inherit it from your grandpa or grab one at an estate auction. Common bullet weights: 35-50 gr. Average Velocity: 700 fps Kinetic Energy: 60-70 ft.-lbs. Recoil: Low Price: \$\$\$ Overall: * Unless you already have a .25, don't go looking for one. This old jewelry ain't worth the squeeze. .32 ACP The .32 Automatic Colt Pistol (ACP) is where gun fans begin to flirt with acceptable power levels of a defensive cartridge. There are modern guns that fire the .32, as well as modern expanding bullet designs. Many .32 guns are subcompact or pocket pistol-sized, so shooting well takes practice. Common bullet weights: 60-70 gr. Average Velocity: 900-1,050 Kinetic Energy: 120-170 ft.-lbs. Recoil: Low Price: \$\$\$ Overall: ** If you're especially shy toward recoil and blast, or want a tiny mouse gun that's not a .22, give the .32 a look. For everyone else, it's usually not the best pick. .380 Auto The .380 Auto/ACP (Automatic Colt Pistol) is where we get into "real" self defense calibers. We say real because it has decent power and energy levels, plus there are plenty of modern guns chambered for it. Magazine capacities can be in the teens in some models. Even in larger offerings, the recoil can be easily controlled by a novice. Common bullet weights: 85-100 gr. Average Velocity: 1,000-1,200 Kinetic Energy: 200-300 ft.-lbs. Recoil: Low-Medium Price: \$\$\$ Overall: ***/2 The .380 combines decent power levels with a good selection of modern ammo and can be found in a plethora of guns. It's a great option for new or older shooters, or those who aren't quite ready to take on a 9mm or greater. .38 Special The venerable .38 Special is long in the tooth, but it's benefited from more than a century of innovation. It's a revolver cartridge, and the most popular one at that. Its popularity has kept it current with bullet designs as they've evolved from plain lead slugs into modern, expanding hollow points. The .38 is an extremely versatile cartridge. Loadings for the .38 range from "mouse fart" softies to full-power +P loads that deliver serious kinetic energy. Before venturing out on a power trip, however, be sure that your firearm is capable of handling +P loads. Hint: it will if it's a .357 Magnum or it says .38 Special +P on the barrel. Common bullet weights: 110-158 gr. Average Velocity: 700-1,150 fps Kinetic Energy: 180-235 ft.-lbs. Recoil: Low-High, depending on the load Price: \$\$\$ Overall: **** The .38 Special gets 4 stars because of the huge range of loads for it, from low-recoiling plinking rounds to hot 'n' heavy defensive loads. The only downside to the .38 Special is the fact that it's exclusively a revolver round. This means if you choose to carry a .38, you're stuck with a gun that's chunky and carries only five or six shots. That said, revolvers are a solid choice for defensive purposes. 9mm Luger In today's world, the 9mm Luger, aka 9mm Parabellum or 9x19mm, is the king of handgun calibers. It's the most ubiquitous and popular option for a bevy of reasons. Chief among them is the fact that it offers the best blend of recoil, performance, ammo selection, and price. The 9mm is a 100-plus year old design, but it's been the recipient of the bulk of handgun innovation in that time, especially in the past decade. When a new pistol round is designed, it usually debuts in 9mm. The 9mm offers great capacity, with as many as 15 rounds in a subcompact magazine. It also delivers excellent velocity even in short barrels. In pocket-sized guns, the recoil is manageable enough that even timid shooters can learn to harness the recoil of the 9mm (which is definitely worth it). Common bullet weights: 115-147 gr. Average Velocity: 1,100-1,300 fps Kinetic Energy: 350-500 ft.-lbs. Recoil: Medium Price: \$ Overall: *** The 9mm earns five stars because of its versatility and excellent combination of velocity, power, recoil, capacity, and price. It's also got the widest variety of ammo available of any caliber. .357 Sig This funky bottlenecked cartridge is a speed demon, but it's also kind of pointless. Sure, it puts up great numbers for energy and velocity. But it's a handful to shoot, marders on the ears, and pretty expensive. Even in larger guns the .357 Sig produces snappy recoil, making follow-up shots and double taps (shooting two shots in quick succession) difficult without lots of practice. It has a cult following of shooters who appreciate its excellent on-target penetration, but most shooters find the marginal performance gains not worth the extra coin and harsh shooting. Common bullet weights: 100-125 gr. Average Velocity: 1,300-1,600 fps Kinetic Energy: 500-650 ft.-lbs. Recoil: High Price: \$\$\$ Overall: ** The .357 Sig is the answer to a question very few folks are asking. It costs a lot to shoot and is nasty when fired. But it does have excellent penetration and velocity. .40 Smith & Wesson The .40 Smith & Wesson (.40 S&W) is a Goldilocks cartridge if there ever was one - but it is "just right"! It came as a result of police departments looking for a more "shootable" cartridge with less harsh recoil than the mighty 10mm Auto, but with more power than the 9mm Luger. On paper, it's the perfect solution. The .40 does fall neatly between the 10mm and 9mm, but it's generally still too hot for most new shooters. It's not an uber hammer that's gonna leave you concussed, but it's a high pressure cartridge shot from polymer-framed autoloaders (which are generally lightweight), so you feel more of the recoil. Plus, you give up magazine capacity in a .40 vs. a 9mm - but .40 fans are obviously okay with this tradeoff. Common bullet weights: 135-185 grains Average Velocity: 1,100-1,300 fps Kinetic Energy: 450-590 ft.-lbs. Recoil: High Price: \$\$\$ Overall: **** If you're willing to put the time in to train with it, the .40 is a very good option for self defense. For plinking and casual work, you might want to find a nicer round to play with. .45 ACP The .45 has enjoyed success for more than a century. It's somewhat of a throwback from a time when both rifle and pistol ammo was lower powered and lower velocity, mainly because propellants weren't as efficient as they are today. This meant you needed a big slug to achieve the desired results on bad guys. There's a wide array of ammo available from slow-moving 230-grain FMJ ball ammo to HOT 185-grain +P loads that will really get your attention. A modern .45 is unquestionably an effective man stopper, and it's been made even more lethal through the decades with the advent of modern projectiles and propellants. Delivering a slug that's nearly a half-inch in diameter through a perp sends a message pretty quick. It's also snappy recoiling in lightweight autoloaders, but in hefty steel-framed guns like 1911-style pistols, it's more manageable and incredibly accurate. Common bullet weights: 185-230 gr. Average Velocity: 850-1,200 fps Kinetic Energy: 350-800 ft.-lbs. Recoil: High Price: \$\$\$ Overall: **** Like the .40, if you want to put in the time to train and manage its recoil, the .45 is an extremely effective defensive cartridge. Plus, when someone asks you why you carry a .45 you'll be able to deliver the ultimate Boomer banality, "CaUSe TheY Don't MaKe A .46!" The phrase is silly for many reasons, not least because "they" in fact do make a few varieties of the .46 (.460 Rowland, .460 XVR) and even a few .50s (.500 S&W Magnum, .50 Action Express). .357 Magnum The .357 Magnum is about as versatile a round as there is. It can be an absolute behemoth, slinging 158-grains of hate at nearly 1,300 fps. It can also be a powder puff, popping lead slugs out at speeds less than that plus. That's why, revolvers chambered in .357 Magnum can also shoot .38 Special bullets. The .357 was a long-standing service revolver cartridge, offering more energy than the .38 Special to cops who needed more oomph to get bullets through auto glass and car doors. To put this in perspective, a full-house .357 load would easily pass through a car windshield, the criminal driving the car, his seat, the back seat, and finally lodge itself into the freshly stolen stack of cash in his trunk. By now, you ought to know physics is a thing - and this kind of performance comes at cost. The cost is your wrist and ear drums if you're not wearing hearing protection. You want a revolver with a barrel length of at least 4" to get the most out of this cartridge, otherwise the impressive fireball of gunpowder is just wasted energy. Common bullet weights: 110-200 gr. Average Velocity: 1,110-1,400 fps Kinetic Energy: 550-800 ft.-lbs. Recoil: Low - High, depending on load Price: \$\$\$ Overall: ***/2 The .357 Magnum is a proven threat stopper. It's also a very popular cartridge for competitions like metallic silhouette, where shooters attempt to knock over steel targets at distances up to 100 yards. The .357's flat-shooting and powerful nature make knocking over heavy targets easy at most any distance. .44 Special This is a cartridge that doesn't get enough love. If you're set on carrying a revolver and want to put the biggest hole in something without biblical levels of recoil, the .44 Special is a strong contender. It offers a good blend of whoopin' power and manageable recoil. The .44 Special is actually the parent case of the .44 Magnum and can be shot in .44 Magnum revolvers. The case is large and in charge and requires a big gun to house the rounds, but that's a feature, not a bug. You want some weight to soak up the recoil. Like many wheelgun loads, the .44 Special can be loaded super mild or stuffed full of gunpowder (do NOT do this when handloading), and is made to mimic some .44 Magnum loads. That's the beauty of it (as with many revolver loads). You don't have to give a cartridge enough juice to cycle a slide and eject an empty like you do with autoloaders. All you need is enough juice to get the bullet out of the case and down the barrel. The downside of the .44 Special is price. Like many niche or not-so-mainstream cartridges, ammo can be hard to come by unless you're a handloader. When you do find it, it can be pricey. Common bullet weights: 200-240 gr. Average Velocity: 700-900 fps Kinetic Energy: 300-400 ft.-lbs. Recoil: Medium to High Price: \$\$\$ Overall: *** Don't be fooled by the seemingly low kinetic energy levels of this big-bore cartridge. It's a bruiser and a good option even if you buy a .44 Magnum wheelgun. .44 Magnum "Do you feel lucky?" These famous lines could only come from someone holding "the most powerful handgun in the world," one that "will take your head clean off." .44 Magnum. Dirty Harry's Smith & Wesson Model 29 was, at the time, indeed, the world's most powerful handgun. Since the film debuted, the .44 Mag's power levels have been exceeded a few times over. That said, it's still an absolute hammer of a cartridge. While it won't take your head clean off, it'll certainly make your dentist blush if you try to catch a .44 slug with your teeth. A .44 Magnum can be described as a gun that kills on one end and maims on the other. Recoil in smaller guns is extremely stout to the point of being painful. If you're a novice shooter, that's dangerous. It's not just the recoil that makes the .44 Magnum impractical for a defensive cartridge, it's the size of most guns that shoot it. They're huge, and rightfully so. A "small" gun shooting full-power loads and held with a timid grip is liable to be able to kick back and lodge itself in your forehead. Okay, maybe it's not that bad. Still, it is a fun cartridge to shoot once in a while - when it's someone else's gun. If blast and recoil detectable by the Richter scale and artillery-sized guns aren't enough to turn you off, the .44 Mag is also pretty spendy. At the same time, why wouldn't you want to shoot a .44 for less than a few times? Common bullet weights: 240-300 gr. Average Velocity: 1,050-1,500 fps Kinetic Energy: 1,000-1,400 ft.-lbs. Recoil: Crap-your-pants biblical (High) Price: **** Overall: **/2 The .44 Magnum is not to be trifled with, but when you absolutely must have a hand cannon, accept no substitute. Final Thoughts So what's the best handgun cartridge? It's the one you're most comfortable with, can afford to shoot regularly, and have confidence in. If any of these three factors isn't present, you're not going to shoot or carry your gun all that much. The path to proficiency begins with testing a few different guns