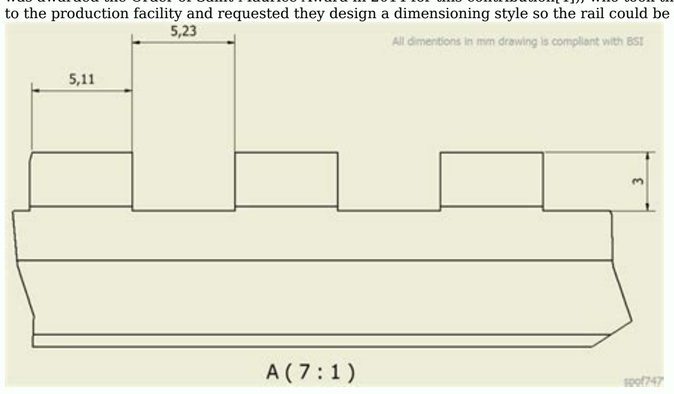


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Rail interface for firearm accessories This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "Picatinny rail" – news · newspapers · books · scholar · JSTOR (July 2015) (Learn how and when to remove this template message) The M4 carbine with a Picatinny rail system, Grip Pod vertical forward grip, and M68 CCO sight The Picatinny rail (/ˈpɪkətɪni/ or /ˌpɪkəˈtɪni/), or Pic rail for short, also known as a MIL-STD-1913 rail, 1913 rail or STANAG 2324 rail (cancelled), is a rail integration system that provides a mounting platform for firearm accessories. It was originally used for mounting of scopes atop the receivers of larger caliber rifles. Once established as United States Military Standard, its use expanded to also attaching other accessories, such as: iron sights, tactical lights, laser aiming modules, night vision devices, reflex sights, holographic sights, foregrips, bipods, slings and bayonets. An updated version of the rail is adopted as a NATO standard as the STANAG 4694 NATO Accessory Rail. History Picatinny rail dimensions, cross section (dimensions in inches) Attempts to standardize the Weaver rail designs date back to the early 1980s from work by the A.R.M.S. company and Otto Repa.[citation needed] Specifications for the M16A2E4 rifle and the M4E1 carbine received type classification generic in December 1994.[citation needed] These were the M16A2[1] and the M4[2] modified with new upper receivers where rails replaced hand guards.[verification needed] The rail itself is named after the Picatinny Arsenal in New Jersey, which was named "after the Lenape-named peak overlooking the old forge, loosely translated to mean 'rugged cliff by water' or 'water by the hills'".[3] The Picatinny Arsenal was tasked in 1992 to develop a standardized mounting system after the U.S. Army was dissatisfied with the contemporary products on the market. The Picatinny team was headed by mechanical designer Gary Houtsma (who was awarded the Order of Saint Maurice Award in 2014 for this contribution[4]), who took the measurements from 20 or so different Weaver rail products from weapons bunkers at Picatinny (and even local sporting goods stores) and came up with an average set of numbers set on a 45-degree angled surface. Houtsma then took the specifications over to the production facility and requested they design a dimensioning style so the rail could be easily produced and inspected. The factory recognized the similarity of the purposed rail interface to the existing rail design on 105 mm howitzers, so they chose to scale down the howitzer rail design and co-opted the production and inspection procedures.



The team then sent the finished prototype over to Rock Island Arsenal for review and trial, and then to the technical data section to determine if it should be a standard or a specification. After it was determined that the new rail should be a standard, not a specification, it was adopted and fielded in 1995[5] with the designation MIL-STD-1913, dated February 3, 1995.[6] A metric-upgraded version of the Picatinny rail, the STANAG 4694 NATO Accessory Rail, was designed in conjunction with weapon manufacturers like Aimpoint, Beretta, Colt, FN Herstal and Heckler & Koch, and was approved by the NATO Army Armaments Group (NAAG), Land Capability Group 1 Dismounted Soldier (LCG1-DS) on May 8, 2009. Currently, many firearm manufacturers include a Picatinny rail system out of factory, such as the Ruger Mini-14 Ranch Rifle.[7] Design The rail consists of a strip undercut to form a "flattened T" with a hexagonal top cross-section, with cross slots interspersed with flats that allow accessories to be slid into place from the end of the rail and then locked in place. It is similar in concept to the earlier commercial Weaver rail mount used to mount telescopic sights, but is taller and has wider slots at regular intervals along the entire length. The Picatinny locking slot width is 0.206 in (5.23 mm). The spacing of slot centres is 0.394 in (10.01 mm) and the slot depth is 0.118 in (3.00 mm).[6] Comparison to Weaver rail This section does not cite any sources. Please help improve this section by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "Picatinny rail" – news · newspapers · books · scholar · JSTOR (July 2018) (Learn how and when to remove this template message) Picatinny rail side view (dimensions in inches) The only significant difference between the Picatinny rail and the similar Weaver rail are the size and shapes of the slots. Whereas the earlier Weaver rail is modified from a low, wide dovetail rail and has rounded slots, the Picatinny rail has a more pronounced angular section and square-bottomed slots. This means that an accessory designed for a Weaver rail will fit onto a Picatinny rail whereas the opposite might not be possible (unless the slots in the Weaver rail are modified to have square bottoms). While some accessories are designed to fit on both Weaver and Picatinny rails, most Picatinny devices will not fit on Weaver rails. From May 2012, most mounting rails are cut to Picatinny standards.[citation needed] Many accessories can be secured to a rail with a single spring-loaded retaining pin. Designed to mount heavy sights of various kinds, a great variety of accessories and attachments are now available and the rails are no longer confined to the rear upper surface (receiver) of long arms but are either fitted to or machine milled into the upper, side or lower surfaces of all manner of weapons from crossbows to pistols and long arms up to and including anti-materiel rifles. Impact Because of their many uses, Picatinny rails and accessories have replaced iron sights in the design of many firearms and are available as aftermarket add-on parts for most actions that do not have them integrated, and they are also on the undersides of semi-automatic pistol frames and grips.[8] Their usefulness has led to them being used in paintball, gel blasters and airsoft.[9] See also Third Arm Weapon Interface System Warsaw Pact rail Zeiss rail References ^ Pike, John. "M16 5.56mm Rifle". www.globalsecurity.org. Retrieved May 30, 2016. ^ Pike, John. "M4 / M4A1 5.56mm Carbine". www.globalsecurity.org. Retrieved May 30, 2016. ^ "Picatinny Peak".
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Bigfoot Gun Belts. Retrieved December 19, 2018. ^ "Magfed TCR". Tippmann Sports. Archived from the original on December 20, 2018. Retrieved December 19, 2018. External links Wikimedia Commons has media related to Picatinny rail. Picatinny Rail Specifications Retrieved from " A Weaver rail A Weaver rail mount is a system to connect telescopic sights (often via a scope mount) and other accessories to firearms and certain crossbows.[1] It uses a pair of parallel rails and several slots perpendicular to these rails. The later Picatinny rail, developed by the US military, is a development of the key concepts of the Weaver system, and they are partially compatible.[2] History The Weaver mount was developed by William Ralph Weaver (1905 – 8 November 1975) at his telescopic sight company W.R. Weaver Co., which he founded in 1930.[3] Previous systems included the Leupold/Redfield mounts.[4] Compared to the Leupold mount, the Weaver rail is not as strong and cannot be adjusted for windage.[4] W.R. Weaver Co. became Weaver Optics, and was a subsidiary of Meade Instruments Corporation from 2002 to 2008, when it was on-sold to become part of Alliant Techsystems's Security and Sporting division in Onalaska, Wisconsin. Features Older Weaver systems used two pieces mounted a distance apart from one another, typically on the receiver of a rifle over the bolt opening, where the cartridge would be inserted and/or ejected. However, alignment problems of the two piece system can put undue stress on a rifle scope and cause problems between the scope and rifle barrel parallels and bullet Point Of Impact (POI). The two piece system must be mounted with exacting tolerances to ensure perfect alignment, using a scope alignment device called Alignment Sleeves. The two piece type can be problematic on some rifles that do not allow for the two pieces to be mounted due to metal thickness of the receiver, or other issues of receiver length that will not allow for proper distance to hold the scope. With the later one piece approach, the rail system remains consistent in alignment. The slots on a Weaver system are primarily used as a clearance of the locking screw that tightens the clamp to the rail. Some Weaver-type accessories have a bar that fits inside the machined slots on the rails while many others do not. Weaver rails have a slot width of 0.180 in (4.57 mm), but are not necessarily consistent in the spacing of slot centers.[5] Failings The lack of a locking bar on many Weaver-type accessories lends to another alignment issue: side-to-side canting. Although this issue is not common, it can be very problematic especially with scopes. Because scopes need to be mounted to a rifle in perfect parallel to the barrel, and to ensure the cross hairs indicate a point of aim (POA) exactly at a bullet's point of impact (POI) at a known distance, a small variation of even one quarter of one degree can cause massive problems at longer ranges. The locking bar holds the mount in a perfect 90 degrees to the rail system, whereas a non-locking bar system can cant to the left or right. This canting, sometimes called jamming of surfaces, is caused by not matching the clamping surface perfectly to the rail. When tightened down, stress exerted on the base can cause the scope's POA to be off from the POI by as much as several feet at 100–200 yards, and gets progressively worse with greater distance. Lower grade materials used in manufacturing of scope bases, inconsistent design tolerances from one manufacturer to another, and other factors can cause twisting stress and cause the mount to move out of parallel with the rifle barrel. The locking bar system allows for even stress to be distributed and prevent canting of the scope mount. Another form of scope canting is caused by the rings themselves. Many Weaver-type mounts, including many Picatinny-type scope rings and even the Redfield Type, have either two or four screws on top of the scope ring that hold the scope in place. Both the Weaver and Picatinny clamp systems have a screw side and a clamp side.
With the two-screw style, the ring usually aligns well but does not have the strength of the four screw system. Many times, when tightening the screws of the four screw type, the scope can twist in place, causing misalignment. Tightening the mounts in an “X” pattern and usually starting opposite of the outside clamp side. Holding the scope slightly to the opposite side while tightening the screws usually allows for proper alignment of the scope to barrel parallel. Compatibility with Picatinny The military standard, MIL-STD-1913 "Picatinny rails" date from the mid-1990s and have very strict military standard dimensions and tolerances. The Picatinny rail has a similar profile to the Weaver, but the recoil groove width of the Picatinny rail is 0.206 in (5.23 mm) versus 0.180 in (4.57 mm) of the Weaver rail/mount, and by contrast with the Weaver, the spacing of the Picatinny recoil groove centers is consistent, at 0.394 in (10.01 mm).[5] Many rail-grabber-mounted accessories can be used on either type of rail, and accessories designed for a Weaver system will generally fit Picatinny rails – although not vice versa. because the Picatinny locking slot width is 0.206 in (5.232 mm) vs the .180 width of the Weaver, and the spacing of slot centers is 0.394 in (10.008 mm).[5] Because of this, with devices that use only one locking slot, Weaver devices will fit on Picatinny rails, but Picatinny devices will not always fit on Weaver rails.[5] Another difference is that Weaver rails are continuous with only two to four recoil grooves cut, while Picatinny rails have recoil grooves cut across the entire length of the rail at the above noted spacing (like a dotted line). This allows for more mounting position flexibility and also helps to neutralize expansion caused by barrel heating. See also Rail integration system References ^ Todd A. Kuhn (13 December 2013). Shooter's Bible Guide to Bowhunting. Skyhorse Publishing Company, Incorporated. p. 289. ISBN 978-1-62873-404-1.
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