

7,62 mm general purpose machinegun MG 42:



PICTURE: Finnish 7.62 mm x 54R calibre version of MG 42 general purpose machinegun on Finnish-designed tripod. Basically this tripod combined upper part of German MG 42 tripod to lower part of Soviet [DS-39](#). The prototype-nature of this tripod is rather obvious - the part taken from German tripod of MG 42 is still painted with German *dunkelgelb* yellow. The weapon partly visible on the foreground is [L-41](#) general purpose machinegun prototype. (Photo taken in Sotamuseo). [CLICK THUMBNAIL TO SEE LARGER PIC \(101 KB\)](#).

Calibre:	7,62 mm x 54 R
Length:	1219 mm
Barrel length:	533 mm
Weight:	11,7 kg (with bipod)
Fire-rate:	1050/minute
Ammunition belt:	250-round (?) continuous metal belt (*)
Mount:	Tripod, weight 16,6 kg
Country of origin:	Finland / Germany
Production status:	Prototype 1943

(*) The Finnish 7.62 mm x 54R ammunition belt of similar number of cartridges took more room than the original German belt. Because of this original German belt cans of 50- and 250-rounds could not be used with Finnish belts containing similar number of cartridges. If the project would have succeeded reaching mass-production level presumably Finnish military would have either needed to manufacture new belt cans or introduce ammunition-belts in small number of rounds.

Concept-wise this general purpose machinegun was based to earlier MG 34 machinegun and like MG 34 also it was belt-fed air-cooled general purpose machinegun. However from technical and manufacturing point of it marked considerable progress and proved much more suitable for mass-production. Large percentage of parts used in MG 42 were stamped and punched, when the basic structure was also quite simple this reduced production costs, time needed for manufacturing and amount of materials needed considerably. Not only were MG 42 excellent machineguns manufacturing-wise, but they also proved exceptionally useful, reliable and robust weapon in battlefields of World War 2. The lock mechanism, which was based to roller locking bolt, may have been originally based to design patented by Edward Stecke. But the actual work of planning this for MG 42 was done in *Metall- and Lackierfabrik Paul Johannes Grossfuss AG*. This machinegun was capable only to automatic fire and relied to short recoil principle. Only real handicap (if considered as such) was its very high rate of fire - cyclic rate was usually some 1,200 shots/minute. Rate of fire this high overheated the barrel frequently and also worn them out very fast, so frequent changing of barrel was necessary during combat. But as quick-

changing method of barrel used in MG 42 was extremely well designed (likely based to design earlier used in Italian Breda) and allowed replacing barrel in only few seconds, this was not a serious flaw. The high rate of fire gave it also rather unusual barrel report - which has often been described resembling ripping of cloth. Due to this sound US soldiers called MG 42 with nicknames "Hitler's Buzzsaw" and "Spandau". During World War 2 some 415,000 were manufactured for German Armed Forces. That time the numerous manufacturers included: *Mausser Werke AG, Gustloff Werke, Grossfuss, Magnet, Steyr-Daimler-Puch, Eickhorn, Waffenwerke Brunn, Guss Stahlwerke, Saschisce Gusstahlwerke, Mercedes-Buromaschinenwerke, Frankel und Vienbann, Deutch Kuhl Kr.masch.* and others. German military used MG 42 in many roles, including light machinegun (with bipod only), heavy machinegun (with tripod) and anti-aircraft weapon. It proved to be one of the most successful machineguns ever and have seen plenty of use also after World War 2. New versions based to MG 42 were developed after the war and manufactured in number of countries. These include German MG 42/53 (also known as MG1), Swiss MG-51, Yugoslavian model 53, German MG3 (manufactured also in several other countries, these include Iran, Italy, Pakistan, Spain and Turkey). Even today these machineguns based to MG 42 remain in use world-wide and also original MG 42 are still encountered in military use in some regions.

Like all competent Armed Forces everywhere Finnish Armed Forces observes development of new military equipment abroad. In 1930's the Finns had noted introduction of new belt-fed MG-34 machineguns to German use. April of 1943 the Germans offered to deliver five MG 42 machineguns for testing. These five weapons were delivered in July of 1943. For some reason they arrived without tripods. Both tripods and optical sights belonging to these five weapons arrived in October of the same year. Three of these machineguns were issued to Finnish Army units in different parts of the frontline for field tests the other two remained in home front. Also these two were put to good use as Ordnance Department of Finnish Armed Forces GHQ and VKT (Valtion Kivääritehdas = State Rifle Factory) tried to determine if this machinegun could be modified to 7.62 mm x 54R cartridge, which was standard ammunition for Finnish frontline infantry. While the Germans had designed MG 42 for their own standard military cartridge (7.92 mm x 57 JS), this was not among ammunition types issued to Finnish frontline infantry and Finnish military had no intention of further burdening frontline infantry with new ammunition type. The modification for 7.62 mm x 54R ammunition was possible, but not an easy one. As to be expected the rim of this cartridge proved a major problem. Rimmed ammunition (like 7.62 mm x 54R) needs usually much more complicated feeding mechanism than non-rimmed ammunition, (like 7.92 mm x 57 JS for which the Germans had designed MG 42). Aimo Lahti succeeded to making this by designing a new feeding mechanism, modified bolt and his brother Aarno Lahti developed new kind of metal ammunition belt to MG 42. Key point of this new feeding mechanism was ammunition belt, which was unusual as it allowed rimmed ammunition to be fed though its belt loops.

By 8th of September 1943 VKT (State Rifle Factory) had the plans of the modifications ready. With these basic modifications MG 42 would work with Finnish 7.62 mm x 54R ammunition. Modified parts required included:

- Complete new receiver-lid and lower part of feeding mechanism.
- New barrel.

- New bolt head (forward part of bolt)
- Rear sight tangent (needed if ammunition has large ballistic difference compared to original).
- Ammunition belts with new kind of belt links.

Estimated prices mentioned in offer sent by VKT to Army Ordnance Department 11th of November 1943:

- 7.62 mm MG 42 machinegun without tripod:
- Price per weapon for 5,000 weapons 5,400 Finnish marks
- Price per weapon for 10,000 weapons 4,360 Finnish marks
- Belt links for ammunition belts: 0.90 Finnish marks / belt link

The offer did not include spare parts or belt drums.

The feedback from Finnish field tests with three unmodified German-supplied MG 42 arrived in October of 1943 and proved exceptionally positive. This far Finnish military had kept Finnish ["Sampo" L-41](#) general purpose machinegun project in back burner, but these positive reports decided the matter. Finnish L-41 project was stopped in favour of MG 42 project, which now become unquestioned priority, so VKT continued its work and successfully modified the MG 42 delivered to it earlier for 7.62 mm x 54R ammunition. Only detail, that the Finns very decisively unhappy with MG 42 was its original tripod. The original German tripod was considered both too complicated and not stable enough. In fact there were even suspicion that the instability of the tripod might have been intentional detail for adding dispersion - the MG 42 machinegun itself proved less accurate than [Maxim M/32-33](#), but accuracy-wise still perfectly acceptable considering the differences of weight and rate of fire. Anyway the Finns decided to replace it with a new tripod, which would be simpler and give more stable platform for the weapon. The Finnish tripod design combined upper part of original German tripod with lower part of Soviet [DS-39](#) machinegun tripod. For this use the tripod of DS-39 had been rotated in such a way, that it had one of its three legs facing onward and two legs on both sides of the soldier shooting with the weapon. By end of December 1943 both this prototype and the first ammunition belts for it were ready for testing. The modification proved a success - the test results achieved with this prototype were extremely favourable. While the weapon itself proved good, the Finnish-designed tripod still proved less than satisfactory - it proved too high and caused some muzzle climb during test firing. So VKT decided to develop slightly improved tripod version with lower centre of gravity and modified attachment point for the machinegun. Finnish Army was planning to replace [Maxim medium machineguns](#) used in machinegun companies of infantry units with this Finnish version of MG 42. According plans made by Weapons HQ of Finnish Army General Headquarters December 1943 this required 2,576 of these new machineguns. As this plan suggested also adding two 7.62-mm MG 42 machineguns to weaponry of each rifle company, which would have required 1,168 of these machinegun increasing the total need to 3,744. Marshal Mannerheim approved acquiring of these 3,744 machineguns 29th of December 1943 and two days later Major General Svanström (Head of Weapons HQ in Finnish Army GHQ) issued orders starting the process for getting the parts needed for manufacturing them.



PICTURE: MG 42 general purpose machinegun cut open for presentation. (Photo taken in Sotamuseo). CLICK THUMBNAIL TO SEE LARGER PIC (53 KB).

Finnish Armed Forces was ready to place on order for the first batch of these machinegun and also VKT had the prototype ready and tested ready for mass-production, but this proved much more difficult than anticipated. Rather ironically German modern and cost-effective manufacturing methods proved difficult for Finnish industry. Many of the most important parts of MG 42 (like receiver) were stamped and/or punched and this far Finnish industry had manufactured receivers only by milling (machining) them. VKT lacked tools and machinery for this kind of work and building them could take so much time that it could endanger the whole project. For this reason VKT estimated that starting the mass-production might take about a year (in other words: until December of 1944). Considering this and the number (of MG 42 machineguns Finnish Army needed (calculated as 3,744 machineguns by Ordnance Department) VKT suggested acquiring stamped parts needed for these weapons from Germany. While manufacturing about 4,000 machineguns would have been very large work for Finnish armaments industry, it was still small number for German one. January of 1944 Finnish military contacted the Germans asking possibility of buying 4,000 MG 42 machineguns or their parts for manufacturing this number of weapons in Finland. In addition the Finns requested also blueprints of MG 42 and exact technical specifications - basically all the documents needed for creating similar exact documentation for manufacturing Finnish version. For some reason the Germans took their time and didn't give their reply until April - May of 1944. The German reply was negative - they didn't have capacity for delivering either the weapons or even their parts. This far in the war German industry was too hard pressed for foreign delivery of this magnitude. The reply surprised Finnish military, whose plans were now destroyed. Concentrating to MG 42 project had lead to abandoning of domestic [L-41](#) project already earlier, so now both of Finnish general purpose machinegun projects were as good as dead. Finnish military might have considered continuing with either of these projects, but beginning of Soviet offensive 9th of June 1944 in Carelian Isthmus ended the relatively quiet trench-war period in Finnish front and the capacity needed for refining and manufacturing new machinegun simply wasn't available anymore. Only one MG 42 prototype in 7.62 mm x 54R calibre was ever made, nowadays it belongs to collections of Finnish Military Museum. Year 2002 Finland bought 124 Leopard 2A4 tanks from Germany. Weaponry of these tanks includes MG3A1 (improved version of German MG3 machinegun, which is direct descendant of MG 42) machineguns in 7.62 mm x 51 calibre.