

D E S C R I P T I O N

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Housing

10 The invention relates to a weapon housing, in particular for machine guns. The invention relates in particular to a method for producing the weapon housing.

15 Weapon housings for machine guns such as for the MG3, for example, are in practice produced as semi-finished products from sheet metal using a bending/stamping method. The basic shape would be cut out of the sheet metal for this purpose. This was followed by bending
20 with intermediate annealing, etc., so that the stresses caused by bending were once again removed. The curved piece was then riveted to the sheet metal, the sheet-metal housing welded, and the guide rails/guide strips of a bolt carrier riveted. The disadvantage is that the
25 production of this housing is also only feasible to a limited extent for material reasons. In addition, the bending/stamping method is only carried out by a small number of manufacturers. The devices required for this wear out and their replacement is time-consuming and
30 expensive.

The problem addressed by the invention is therefore that of disclosing a method that can be used to produce a weapon housing.

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The idea on which the solution is based is that of cutting the housing from a solid material, a steel block. This process gives rise to the possibility of changing the material and using new materials which

allow cutting in the form of machining from a material block, for example. This possibility emerges since formability is no longer necessary to the extent required with the earlier bending/stamping production.

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According to the new production method, the following methods, among others, can be used:

- 10 • C35(E) (carbon 35%, electrofusion) in the normalized state;
- C35(E) in the hardened state;
- C40(E) in the normalized state.

15 In the case of small structural changes which do not necessitate direct hardening of the weapon housing, the following material groups are likewise conceivable:

- 20 • traditional unalloyed structural steels, e.g. S355;
- micro-alloyed structural steels,
- titanium alloys, e.g. TiAl6V4.

25 The cutting of small parts of a weapon is disclosed by DE 199 53 365 A1, DE 10 2004 021 952 B3 or DE 10 2012 019 422 B3, for example. There is no reference in these documents to the use of this method for a weapon housing too.

30 The outcome of the manufacture is that the weapon housing comprises a thin-walled hollow body with various openings and breakthroughs. For cutting the inner contour, it is therefore provided that the weapon housing is preferably made up of two half shells, the inner contour of which is created separately in each case. To simplify production, these half shells can be subdivided into further individual parts. These individual or multiple shells are finally welded to one another, for example.

The cutting of the housing parts represents a challenge in the case of small housing thicknesses. This requires devices which support the housing parts over the largest surface possible from the outside during internal machining and from the inside during external machining.

The advantage of this solution is that standard machine tools can be used. With a corresponding raw material, virtually distortion-free production is possible. Different material strengths no longer lead to different rebending. A tool adjustment is no longer necessary. Production in low numbers is also feasible based on economic criteria. Production can still be economical, in particular for small and medium batch sizes too.

The solution is to be explained in greater detail with the help of a sketched exemplary embodiment with a drawing. In the drawing:

Fig. 1 shows a weapon housing comprising an upper shell and a lower shell,

Fig. 2 shows a further subdivision of the upper shell and the lower shell into multiple individual parts.

A weapon housing of an automatic weapon or machine gun which is not depicted in greater detail is denoted as 1 in Fig. 1. The weapon housing 1 is preferably two-part and has a lower shell 2 and an upper shell 3 as lower subassemblies of the weapon housing 1. Openings 5 or recesses 6 are contained in the lower shell 2 and in the upper shell 3. A barrel support 4 of the gun barrel which is not depicted in greater detail is created on the front side by the two shells 2, 4.

Fig. 2 shows the lower shell 2 and the upper shell 3 from Fig. 1 which have been divided into two further subassemblies 2.1, 2.2 and 3.1, 3.2. These subassemblies 2.1, 2.2, 3.1, 3.2 can be broken down further in order to achieve production simplification.

The production of the weapon housing 1 takes place as follows:

10 A steel block (not depicted in greater detail) is used which corresponds to the size of the respective subassembly 2, 3, 2.1, 2.2, 3.1, 3.2. The steel block should preferably correspond at least in length. An inner contour 2', 3', 2.1', 2.2', 3.1', 3.2' and
15 openings 5 and recesses 6 are preferably milled (milled in or milled out) in this steel block. The thickness of the housing wall is preferably around 2.5 mm, but this does not have limiting force.

20 The subassemblies 2, 3 or the subassemblies 2.1, 2.2 and 3.1, 3.2 are then connected, preferably welded, to one another, in order to create the weapon housing 1.

It is self-evident that the inner contours 2', 3',
25 2.1', 2.2', 3.1', 3.2 also contain necessary guide rails, etc. However, these may also be introduced into the weapon housing subsequently as separate components, for example by riveting or welding.

30 As already stated, the steel block may be made from a material such as C35(E) in the normalized state, C35(E) in the hardened state or C40(E) in the normalized state. Alternatives are known in the art.

PATENT CLAIMS

- 5 1. A method for producing a weapon housing (1),
wherein the weapon housing comprises at least two
subassemblies (2, 3, 2.1, 2.2, 3.1, 3.2), wherein
an inner contour (2', 3', 2.1', 2.2', 3.1', 3.2')
is cut into at least one solid block for each
10 subassembly (2, 3, 2.1, 2.2, 3.1, 3.2).
2. The method as claimed in claim 1, **characterized in
that** the solid block is a steel block.
- 15 3. The method as claimed in claim 1 or 2,
characterized in that openings (5) and recesses
(6) are introduced into the at least two
subassemblies (2, 3, 2.1, 2.2, 3.1, 3.2).
- 20 4. The method as claimed in claim 3, **characterized in
that** the openings (5) and recesses (6) are
introduced by machining.
5. The method as claimed in one of claims 1 to 4,
25 **characterized in that** the machining involves
cutting.
6. A weapon housing (1) comprising at least two
subassemblies (2, 3, 2.1, 2.2, 3.1, 3.2), wherein
30 an inner contour (2', 3', 2.1', 2.2', 3.1', 3.2')
is machined into at least one solid block for each
subassembly (2, 3, 2.1, 2.2, 3.1, 3.2).
7. The weapon housing (1) as claimed in claim 6,
35 **characterized in that** the solid block is a steel
block.

8. The weapon housing (1) as claimed in claim 6 or 7,
characterized in that openings (5) and recesses
(6) are introduced into at least two subassemblies
(2, 3, 2.1, 2.2, 3.1, 3.2).
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9. The weapon housing (1) as claimed in claim 8,
characterized in that openings (5) and recesses
(6) are introduced by machining.
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10. The weapon housing (1) as claimed in one of claims
6 to 9, **characterized in that** the machining
involves cutting.
11. The weapon housing (1) as claimed in one of claims
15 6 to 10, **characterized in that** the weapon housing
(1) comprises more than two subassemblies (3, 4,
3.1, 3.2, 4.1, 4.2).
12. The weapon housing (1) as claimed in one of claims
20 6 to 11, **characterized in that** the material is a
C35(E) in the normalized state, a C35(E) in the
hardened state, a C40(E) in the normalized state.