

The invention concerns a method for producing a woven fabric for the filter part of a multi-part airbag.

In woven airbag fabrics, a low air permeability is normally required for the side facing the occupants of the vehicle. It should not exceed $10 \text{ l/dm}^2 \cdot \text{min}$ for a test differential pressure of 500 Pa. If an airbag is produced only from such a fabric, when the airbag is inflated by the ignition of the pyrotechnic gas generator the air cushion that is produced will be very hard. This presents the danger that in the event of a high-momentum impact the body of the driver or passenger, after first being thrown forward, is then thrown abruptly backwards. This can result in injury, particularly to the head and neck areas.

For this reason there is a requirement to design the airbag so that, in the event of an impact, the occupants of the vehicle can be restrained by a soft cushion without a risk of back-spring. This is achieved in that, when the airbag function is activated, some of the gas flowing into the airbag is allowed to escape.

In US-A 34 81 625 it is proposed to provide the airbag with holes for this purpose. This, however, allows hot particles from the gas produced by the generator to enter the driver's space. These constitute a considerable hazard for the occupants of the vehicle.

In order to prevent the penetration by these particles it has been proposed in DE-C 36 44 554 to cover the holes provided for releasing the gas with a woven filter fabric made from aramid fibres. This method requires a substantial amount of making-up, for sewing in the woven filter fabric. Due to the addition of this work process together with the high price of woven aramid fabrics, the production costs of an airbag are increased to such an extent that cost-effective production is not possible.

For this reason it was proposed in a presentation (Krummheuer, W.R., Engineering with Fibres for Airbags, Bag and Belt '90, International Akzo Symposium, Cologne, 25.-27.04.1990) to produce a two-part airbag. This consists of a contact part and a filter part. A woven fabric with a very low air permeability ($< 10 \text{ l/dm}^2 \cdot \text{min}$) is used for the contact part, this being the part of the airbag which catches the occupants of the vehicle in the event of an accident.

The filter part is constituted by those parts of the inflated airbag not facing the driver or passenger. It is composed of a woven fabric with a substantially higher air permeability which thereby allows the gas produced by the generator to escape and filters the emerging gas. In addition, when the hot gas passes through the woven fabric, a heat exchange effect occurs at this point so that the gas is cooled slightly as it enters the passenger compartment.

It has been proposed in EP-A 363 490 to weave a one-part airbag as a round woven fabric. Unlike two-part or multi-part airbags, however, woven airbag fabrics produced in this way cannot be adapted to any given type of vehicle. Current requirements for the construction of the passenger's airbag render it absolutely impossible for this airbag to be produced as a single piece, sewing together of two or more parts being unavoidable in this case. Moreover, it is considerably more difficult to sew the necessary retaining straps into a one-part airbag than into a two-part or multi-part airbag.

A one-part airbag having woven fabric parts of differing air permeability characteristics is also described in WO-A 90-09 295. Again, it is not possible to produce airbags for passengers using the method described.

Although airbags composed of two or more parts are very easily adaptable to the requirements of the various types of vehicle and also allow passenger airbags to be made up without

difficulty, there is a problem in that it is necessary to sew together two woven fabrics of widely differing air permeability characteristics. This problem does not exist in the case of the airbags made from a single-piece woven fabric described in EP-A- 363 490 and WO-A- 90-09295. Since the high air permeability of the woven fabric used for the filter part of the airbag is achieved through the use of a less densely woven fabric while the contact part of the airbag is made from a densely woven fabric, it is necessary to sew together two fabrics of differing weave densities. When the airbag is inflated the less densely woven fabric can tear at the seam locations or the threads of the less densely woven fabric can become displaced, resulting in an uncontrolled discharge of gas.

Furthermore, this method also causes pattern problems in the weaving department due to the fact that the air permeability of the filter part has to be matched to the type of vehicle and to the generator used. It is therefore necessary for the weaving department to produce and stock a large number of fabrics of differing weave densities.

Consequently, there has been a requirement to develop a method for producing a woven fabric which, when used in the filter part of the airbag, does not have the disadvantages indicated above and which can be adapted in an extremely flexible and cost-effective manner to the requirements for the various types of vehicle, but which additionally allows the gas produced by the generator to escape as required and has a filtering and cooling effect on the gas.

This requirement is met by the production of a woven fabric in which zones of lower and higher air permeability, which can be varied with respect to their shape and size, are produced by weaving techniques. The disadvantages indicated above can be avoided in a most advantageous manner through the creation of zones of differing air permeability characteristics according

to the invention. The requirements for an airbag can be met in full through the use of a filter part produced according to the invention.

The more densely woven fabric zones have a low air permeability and, due to the high cutting and seam strength achieved within them, they constitute the areas intended for the cutting form. The less dense zones, which are disposed within the woven fabric in the manner of windows and which have a higher air permeability, provide for controlled escape and cooling of the gas produced by the generator when the airbag is inflated. These locations are scarcely suitable for the cutting and seam edges.

The zones with a lower air permeability are arranged within the woven fabric produced for the filter part of the airbag in such a manner that when the woven fabric is cut for subsequent making-up as an airbag they automatically form the seam locations. Due to the greater density of these locations, when the filter part of the airbag is sewn together with the contact part a very strong seam is obtained which is not liable to tearing or thread displacement when the airbag is inflated. In addition, the dense locations at the edges of the cutting form are advantageous in cutting due to the fact that a stronger cutting edge is produced without fraying.

The higher or lower air permeability is positioned within the fabric by changing the fabric weaves or by varying the warp and weft thread counts. Thus, for example, in the first method a woven fabric can be produced using a dense plain basic weave. The thread counts and finishing conditions for the woven fabric are selected so that a low air permeability is obtained at the locations where the basic weave remains unchanged and, along with this, a high cutting and seam strength at these densely woven locations in the fabric. The weave of the fabric is changed to produce zones of higher air permeability at the locations which are not intended to form

the seam or cutting edges and which are intended to allow the escape of the gas produced by the generator.

The type of weave selected for this purpose depends on the machine stock available and on the air permeability requirements. The invention is not limited to a particular type of fabric weave for the purpose of positioning within the fabric zones with a higher air permeability having a fabric weave differing from the basic weave. All types of weave known in the art of weaving are suitable for this purpose. Twill weave and panama weave are mentioned as examples of fabric weaves, differing from a plain basic weave, used in the zones with a higher air permeability.

The use of tappet and dobby looms, which are commonly known in weaving technology, offers a means of obtaining zones which have a different fabric weave and consequently, a greater air permeability. The dobby loom can be used as an additional device with any loom. It enables the loom heald shafts to be controlled so that weaves of different types can be positioned within a woven fabric. The tappet loom can be used in the same way.

Fig. 1 and Fig. 2 show how the fabric weaves can be varied with the use of a dobby loom to obtain zones with a higher air permeability.

Fig. 1a shows the weave pattern of a fabric woven in a dense plain basic weave (1). A window in a panama weave (2) has been woven into this plain basic weave by means of a dobby loom. Fig. 1b is a sectional representation of the same woven fabric. A higher air permeability is obtained at the window-type zone woven in using the panama weave.

Fig. 2a shows the weave pattern of a fabric woven in a dense plain basic weave (1). A window in a twill 3/1 weave (3) has been woven into this plain basic weave by means of a dobby

loom. Fig. 2b is a sectional representation of the same woven fabric. A higher air permeability is obtained at the window-type zone woven in using the twill weave.

The locations having a dense basic weave are defined as part of the structure of the woven fabric so that when the woven fabric is subsequently cut to form the filter part of the airbag they automatically form the cutting and seam edges. The outline of the cutting form constitutes the edge of the zone with a lower air permeability or lies within this zone. The locations with a higher air permeability woven into the fabric with a weave which differs from the basic fabric weave provide for controlled escape of the gas produced by the generator, with a good filtering and cooling action.

The following table shows the extent to which the air permeability can be influenced by changing the weave of the fabric. A dobby loom was used to weave windows in a variety of weave types into a fabric in a plain basic weave with a warp and weft count of 20 threads/cm (polyamide 6.6 filament yarn, having the titre of 470 f 72). The following air permeability values were obtained for the various weaves :

Fabric weave	Air permeability l/dm ² ·min
Plain basic weave	9
Cross rib 2/2	40
Panama 2/2	54
Huckaback	64
Fancy weave	79
Twill 3/1	87
Twill 2/2	135
Mock leno	150

This table shows the air permeability can be controlled very precisely, not only through the size of the zones but also through the type of weave chosen.

The necessity of positioning the seam locations within the zones with a low air permeability, thus, in the case described here, within the zones having the dense plain basic weave, is demonstrated by an examination of the seam strength and the seam displacement strength :

	Plain basic weave	Panama weave 2/2
Seam strength		
Strength, N	1 210	840
Elongation, %	18.9	29.1
Seam displacement in mm for applied force of		
5 daN	0	4.5
10 daN	0	not measurable

In the case of the panama weave, the seam had already been torn around the 10 daN measurement range to the extent that further measurement was not possible.

A jacquard loom, commonly known in weaving technology, can also be used for positioning within the fabric zones which have a different fabric weave and consequently, a greater air permeability. Use of the jacquard loom has the advantage, compared with the dobby or tappet loom, that the healds can be controlled individually whereas, if a dobby loom is used, the healds can only be controlled in groups. Through the use of a

jacquard machine, therefore, it is possible to vary the weaves to obtain an optimal match between the weaves and the forms to be cut to form the airbag. The locations having a dense basic weave are selected when the structure of the woven fabric is determined so that when the filter part of the airbag is cut out they automatically form the cutting edges and, consequently, the seam edges in the subsequent sewing operation. Through the use of this method, the number of miscuts in the cutting operation is very low, this having a particularly favourable effect on production costs.

Fig. 3a shows a section of a woven fabric containing zones of higher air permeability (4). These zones were created by varying a dense plain basic weave (1) with the use of a tappet or dobby loom to produce in the fabric window-type areas of a different weave. The plain weave locations form the cutting and seam edges in the subsequent cutting and sewing operations. The locations with a weave which differs from the basic fabric weave provide for controlled escape of the gas produced by the generator, with a very good filtering and cooling action.

Fig. 3b shows a section of a woven fabric with zones of higher air permeability (5). These zones were created by varying a dense plain basic weave (1) with the use of a jacquard loom to produce in the fabric window-type areas of a different weave. The plain weave locations form the cutting and seam edges in the subsequent cutting and sewing operations. The locations with a weave which differs from the basic fabric weave provide for controlled escape of the gas produced by the generator, with a very good filtering and cooling action. As shown by the diagram, the use of a jacquard loom permits the zone with a higher air permeability to be shaped so as to be optimally matched to the cutting form for the filter part of the airbag so that, in the subsequent cutting operation, there is only a

very small amount of miscut, thereby rendering possible a highly cost-effective making-up process.

Using the method described, it is possible to produce from the same warp woven fabrics for different applications. This permits extremely cost-effective production of woven fabrics where it is necessary to adapt the woven airbag fabric to different types of vehicle and to different air permeability requirements.

The method according to the invention is not limited to the inclusion of only one window-type zone with a higher air permeability within the cutting form for the filter part of an airbag. This is also understood to include, in the same manner, multiple window-type zones in each cutting form. The number of these windows, their arrangement within the cutting form and their size depend on the particular air permeability requirements and the type of vehicle.

In production of the woven fabric, in order to balance the stresses resulting from the variation of the weave it is expedient that the windows should be offset relative to each other along the length of the fabric, rather than arranged in succession. Another means of balancing these stresses is the use of a second warp.

In addition to the methods described which make use of a dobby or jacquard loom, it is also possible to vary the warp and weft thread counts to create within a woven fabric zones, of differing air permeability and differing cutting and seam strength, which can be varied with respect to their shape and size. This is achieved by processing warps in which sections with a high warp thread reed count per cm alternate with sections with a low warp thread count. This warp is filled in a plain weave. The weft thread counts are selected so that, with electronically controlled insertion of the weft, sections with a high weft thread count per cm alternate with sections

with a low weft thread count to form a repeat pattern, in the same manner as the warp.

A count of 22-28 warp threads/cm is used for the sections with a high warp thread count, those with a low warp thread count containing 17-21 warp threads/cm. Corresponding weft thread counts are used in the same manner to create sections with high and low weft thread counts. The values stated are examples for grey fabric settings. They relate to a yarn titre of 350 dtex. If other yarn titres are used, the thread count must be adapted to suit the titre. The thread counts must also be adjusted to suit the shrinkage behaviour of the yarns used.

Three air permeability groups are formed within the woven fabric by varying the warp and weft thread counts. Fabric zones with a low air permeability and a high cutting and seam strength are produced at locations where sections with a high warp thread count intersect with sections with a high weft thread count. The woven fabric is designed so that, ideally, the filter part of the airbag will subsequently be cut out at these locations since they do not present a risk of tearing of the seams or displacement of the threads at the seam location when the airbag is inflated.

Fabric zones with a high air permeability are produced at locations where sections with a low warp thread count intersect with sections with a low weft thread count. These locations are not suitable for subsequent cutting or seam locations, but they do permit controlled escape of the gas produced by the generator when the airbag is inflated and they are very effective in filtering and cooling this gas.

In addition, zones with a medium air permeability are produced at locations where sections with a high warp thread count intersect with sections with a low weft thread count or where

sections with a low warp thread count intersect with sections with a high weft thread count.

Fig. 4 shows a woven fabric which was produced by varying the warp and weft thread counts. Within the warp, a section with a low thread count (6) is located next to a section with a high thread count (7). Similarly, within the weft, a section with a low thread count (8) is located next to a section with a high thread count (9). By this means, zones with a low air permeability (10) are produced in a plain weave at the locations where the sections with a high warp thread count (7) intersect with sections with a high weft thread count (9). These zones are selected so that when the filter part of the airbag is subsequently cut out, the cut or subsequent seam will ideally be made within them. Furthermore, zones with a high air permeability (11) are formed at locations where sections with a low warp thread count (6) intersect with sections with a low weft thread count (8). These locations form the filtering areas in the filter part of the airbag. They permit the gas produced by the generator to escape in a controlled manner and also have a good filtering and cooling effect. Finally, zones with a medium air permeability are also produced at the intersections (12) between sections with a low warp thread count (6) and a high weft thread count (9) and at the intersections (12) between sections with a high warp thread count (7) and a low weft thread count (8).

Such fabrics can be produced with the use of this method on any loom, without the aid of any additional equipment.

The table given below shows how the air permeability can be influenced by the formation of zones with lower thread counts. The tests which are reproduced here were conducted using a polyamide 6.6 filament yarn having a titre of 470 f 72 :

Thread count/cm		Corresponding Zone in Fig. 4	Air permeability l/dm ² ·min
Warp	Weft		
20	20	10	9
15	15	11	107
20	15	12	62
15	20	12	66

Fig. 5 is a schematic diagram of the test piece for testing the seam strength. This is explained below, in the description of the test method.

Fig. 6 is a schematic diagram of the test piece for testing the seam displacement strength. This is explained in the description of the test method.

Fig. 7 shows a woven fabric, with cutting forms for the filter part of the airbag, of a type which can be produced on a weaving machine combined with a dobby loom. Explanations are given with reference to embodiment 1.

Fig. 8 shows a woven fabric, with cutting forms for the filter part of the airbag, of a type which can be produced on a jacquard machine. Explanations are given with reference to embodiment 2.

Fig. 9 shows a woven fabric, with cutting forms for the filter part of the airbag, of a type which can be produced by varying the warp and weft thread counts. Explanations are given with reference to embodiment 3.

The production of woven fabrics by the described method according to the invention is not limited to woven fabrics for the filter part of an airbag. This method can be applied to any woven fabric in which there is a requirement for differing air permeability characteristics or differing seam strengths.

The method according to the invention is particularly suitable for the production of technical fabrics in which there is a requirement for a differential zonal filtering action, e.g., for gases. This method is especially suitable for the production of woven fabrics for the filter part of an airbag.

Any yarn can be used in the application of the method according to the invention. For example, polyamide 6.6 filament yarns have proved to be very suitable for airbag fabrics. These yarns can be used in titres of 235 f 36, 350 f 72, 470 f 72 or 940 f 140. Other titres can also be used.

The wet treatment method, as described in the German patent application P 40 00 740.5, is used for shrinking the fabric and setting the required air permeability.

The woven fabrics produced according to the invention, when used for the filter part of an airbag, following sewing together with a woven fabric having an air permeability of $< 10 \text{ l/dm}^2 \cdot \text{min}$ which forms the contact part of the airbag, produce an airbag which enables the occupants of the vehicle to be safely caught in the event of an impact without the risk of additional injury.

The use of airbags with a filter part containing woven fabrics produced in accordance with the invention renders it possible to fit the vehicle with a safe airbag system which also meets the requirements of the car manufacturer. The term airbag system refers to the airbag itself, the mounting of the airbag in the vehicle and the control system for activating the airbag function.

Testing of the air permeability :

The air permeability is tested on the basis of DIN 53 887. In deviation from this standard, the test differential pressure

is only increased to 500 Pa in order that an unambiguous test signal can be obtained even for low air permeability characteristics. All air permeability values specified in this document were determined using this test differential pressure, although this is not expressly stated in every case.

Testing of the seam strength :

Two T-shaped test pieces are cut from the test material for this purpose. Fig. 5 shows a diagram illustrating the arrangement of these test pieces. The total width of 15 cm is divided into the side pieces (13), each of which are 5 cm wide, and the centre piece (14) which is 5 cm wide. The zones 15 and 15a constitute the clamping locations for the test, the length of the clamped material, between 16 and 16a, being 20 cm. The two test pieces overlap in the wide middle section. There are two seams (17, 17a), 1 cm apart. The seams are sewn with a needle 1.1 mm in diameter and there are 3-4 stitches per cm. The sewing yarn used for the seams is a 3 x 250 dtex polyester filament yarn. The test piece prepared in this manner is tested on a laboratory tearing apparatus, at a strain rate of 200 mm/min.

Testing of the seam displacement strength :

A test piece in the form of a double T, as illustrated in Fig. 6, is cut from the test material for this purpose. The test piece is folded along the line 18. A seam is sewn in the doubled material along the lines 19 and 19a. The distance between line 18 and line 19 and between line 18 and line 19a is 1 cm both cases. Likewise, the distance between line 19 and the edge of the test piece and between 19a and the edge of the test piece is 1 cm in both cases. The sewing conditions are the same as those described for testing of the seam strength. The test material is then cut along line 18. The test material is clamped into a laboratory tearing apparatus

at locations 20 and 20a. The two sewn partial samples are subjected to a strain rate of 100 mm/min., the seam displacement readings being taken following loads of 5 and 10 daN.

Possible means of realizing the method according to the invention are described with reference to the following embodiment examples. The arrangement of the windows and the cutting forms given in this document must not be considered to be restrictive. They are examples which can be modified in a large number of ways and optimally adapted to the particular requirements.

Embodiments

Example 1 :

Polyamide 6.6 filament yarn having a titre of 470 f 72 is worked on a gripper loom to produce a fabric woven in plain weave. The woven fabric has a total width of 180 cm, the warp and weft thread counts being each 19/cm.

The fabric is woven for a length of 15 cm, after which the weave is partially changed to panama 2/2. This change of weave is not made across the whole width of the material, but only for segments, starting 15 cm from the left-hand selvedge. As shown by Fig. 7, a total of three windows (21) in panama 2/2 weave are positioned width-wise within the fabric. The windows are 40 cm wide and 30 cm long. The fabric weave is changed to the plain basic weave by means of a dobby loom. When the woven fabric is 45 cm in length, weaving is continued in plain basic weave across the full width of the material until the woven fabric then attains a length of 90 cm, at which point the weave is again changed in the same manner so that windows are woven into the fabric. This process is continued thus over the full length of the woven fabric. It

is then expedient to offset the windows relative to each other for the purpose of equalizing the stresses in the fabric.

The fabric for the filter part of the airbag is cut out along the lines 22. This ensures that the locations which will necessarily contain the seam when the airbag is subsequently sewn together lie within densely woven areas of fabric which do not present any danger of tearing of the seam when the airbag is inflated.

The air permeability of the parts woven with the plain basic weave is $17 \text{ l/dm}^2 \cdot \text{min}$, that of the window-type locations (21) woven into the fabric in a panama 2/2 weave being $50 \text{ l/dm}^2 \cdot \text{min}$.

Example 2 :

Test 1 was repeated, but with a jacquard loom being used in place of the gripper and dobby loom combination used in the first test.

Fig. 8 illustrates the insertion of windows (23) with a higher air permeability through variation of the weave by means of a jacquard loom. By contrast with the process in which the weave is produced by means of a dobby loom, in this case the zones with a higher air permeability can be closely matched to the shape of the cutting forms for the filter part of the airbag (along the lines numbered 24).

Example 3 :

Polyamide 6.6 filament yarn, having a titre of 470 f 72, is worked on a gripper loom to produce a fabric woven in plain weave. The woven fabric has a total width of 170 cm.

In this case, the warp is set with a varying thread count per cm. The set weave pattern is illustrated in Fig. 9.

Starting at the left-hand edge, a 10 cm wide segment having a thread count of 19/cm (25) is positioned in the fabric. Adjacent to this is a segment of 30 cm in width, having a thread count of 16/cm (26), this being followed in turn by 30 cm wide segment having a thread count of 19/cm (27). There then follow, in sequence, segments each 30 cm in width, having thread counts of 16/cm (28), 19/cm (29) and 16/cm (30) and, at the edge, a 10 cm wide segment having a thread count of 19/cm (31).

The weft is inserted electronically, set so that a segment 20 cm in length having a thread count of 19/cm (32) is inserted first. The weft filling is then changed to a thread count of 16/cm, to a length of 20 cm (33). This changes again to a weft filling having a thread count of 19/cm to a length of 60 cm (34). Thread counts of 16/cm (35) and 19/cm (36) are then inserted, each section being 30 cm in length. This alternation of higher and lower thread counts is then repeated in the same manner.

As already explained (see description of Fig. 4), this produces zones with a low air permeability, zones with a medium air permeability and zones with a high air permeability. The cutting forms for the filter part of the airbag, delineated by the line numbered 37, are arranged so that the cutting edges which will also form the subsequent seam locations are located, ideally, within the zones which have a low air permeability.

In the areas in which warp threads having thread counts of 19/cm intersect with weft threads having thread counts of 19/cm, the air permeability values are $17 \text{ l/dm}^2 \cdot \text{min}$. In locations in which warp threads at 16/cm intersect with weft threads at 16/cm, the air permeability values are $90 \text{ l/dm}^2 \cdot \text{min}$. In the areas of medium thread density (16 warp threads/cm intersecting with 19 weft threads/cm or 19 warp

threads/cm intersecting with 16 weft threads/cm) the air permeability values are 60 l/dm²·min.

Using this method, it is not possible to match the zones with a low air permeability to the non-rectangular cutting forms so that the cutting area is wholly within the area with a low air permeability. Consequently, some of the subsequent seam edge is also located within areas of high air permeability and some within areas of medium air permeability. This method, therefore, does not offer the same high degree of reliability with respect to the strength of the seam locations as in the case of the methods which make use of a dobby loom (see embodiment 1) or a jacquard loom (see embodiment 2). It does, however, have the advantage that it can be applied on any loom and therefore presents no limitations with respect to the available machine stock.

Claims :

1. Method for producing a woven fabric for the filter part of a multi-part airbag, to be cut out either immediately following production or subsequently, characterized in that zones of differing air permeability characteristics and differing cutting or seam strengths are positioned within the fabric by variation of the warp and weft thread counts and/or the fabric weaves, the warp and weft thread counts and/or the fabric weaves being varied so that a particularly low air permeability and a high cutting or seam strength are obtained at the subsequent cutting or seam locations (22, 24, 37), while the zones in the inner area of the cut part (21, 23) have a higher air permeability.
2. Method according to Claim 1, characterized in that in a woven fabric with a dense basic weave (1), window-type zones with a higher air permeability and a lower cutting and seam strength (2, 3, 4, 5) are produced by variation of the fabric weave and in that the dense basic weave (1) is retained at the subsequent cutting and seam locations.
3. Method according to either of Claims 1 - 2, characterized in that zones with a higher air permeability can be positioned within the fabric by the use of any fabric weave, known in the art of weaving, which differs from the basic weave.
4. Method according to any one of Claims 1 - 3, characterized in that the zones with a higher air permeability, having a fabric weave differing from the basic weave, are positioned within the fabric by the use of a dobby loom.
5. Method according to any one of Claims 1 - 3, characterized in that the zones with a higher air



permeability, having a fabric weave differing from the basic weave, are positioned within the fabric by the use of a tappet loom.

6. Method according to any one of Claims 1 - 3, characterized in that the zones with a higher air permeability, having a fabric weave differing from the basic weave, are positioned within the fabric by the use of a jacquard loom.
7. Method according to Claim 1, characterized in that a woven fabric is produced in plain weave and in that, for the purpose of positioning within the fabric zones with a low air permeability and a high cutting or seam strength, the sequence of the warp and weft threads is selected so that many warp and weft threads cross at locations with a low air permeability and a high cutting or seam strength (10), so that few warp and weft threads cross at locations with a high air permeability (11) and so that, in addition, zones with a medium air permeability and a medium cutting and seam strength (12) are produced.
8. Method according to Claim 1, characterized in that each of the areas of the woven fabric intended to constitute the cutting forms contains one zone with a lower air permeability, in that the outline of this zone follows the outline of the particular cutting form, the distance between the two outlines being constant or varying, such that the edge of the cutting forms is formed by a zone with a lower air permeability (22, 24, 37).
9. Woven fabric for the filter part of a multi-part airbag, characterized in that it contains zones of differing air permeability characteristics which are positioned within the fabric by variation of the warp and weft thread counts and/or the fabric weaves, the zones being arranged within the fabric so that when the woven fabric is cut



for subsequent making-up of the airbag, the zones with a lower air permeability form the locations of the seams.

10. Use of a woven fabric according to Claim 9 for the purpose of producing the filter part of an airbag, characterized in that when the filter part is cut out, the cutting locations (22, 24, 37) lie within the area of the woven fabric with a low air permeability (1, 10), in that the area of the woven fabric with a high air permeability (4, 5, 11, 21, 23) forms the inner area of the filter part and in that the edge of the cutting form is formed by a zone with a low air permeability.
11. Filter part of an airbag, produced from a woven fabric according to Claim 9, characterized in that it is composed of a woven fabric having zones of differing air permeability characteristics, in that the seam locations of the filter part lie within the area of the woven fabric with a low air permeability and in that the inner area of the filter part is formed by one or several zones with a high air permeability.
12. Airbag with a filter part according to Claim 11.
13. Airbag system with an airbag according to Claim 12.

