

**PROFILED ELEMENT AND METHOD FOR PRODUCING A PROFILED
ELEMENT**

5 The present invention relates to a section element, in particular to a structural section, for example a dry construction section, a facade section, a plaster section, a screed section or a tile section, having an elongated base body, in particular comprising metal or plastic, in which at least one opening is formed. The invention is furthermore directed to a
10 method of manufacturing such a section element.

Section elements of this kind are known, for example, from WO 2004/055289 A1 and can in particular be used as C-shaped upright sections for dry construction. The elongated base body is provided with a
15 predefined cutting pattern, for example, for manufacturing the section elements. On the selection of suitable cutting patterns, two longitudinal portions of the section element which extend in parallel can in particular be drawn apart in a folding process, whereby a widening of the section element takes place without additional material input. The drawn apart
20 longitudinal sections are in this respect connected to one another via connection elements formed integrally with the longitudinal portions. Corresponding cutting patterns are described in WO 2004/055289 A1 whose content, in particular relating to the cutting patterns described in this document, is herewith explicitly included in the disclosure content of
25 the present application.

A further possibility of producing widened section elements is described in WO 2007/101594 A1. In this document, a section element is inter alia described which is not produced by a folding process, but rather by a
30 purely widening process, in which slits introduced into the section are

widened by drawing up to diamond-shaped openings. Such a section element can also in particular be used for manufacturing upright sections. The content of this document, in particular relating to the cutting patterns described in this document, is also herewith explicitly included in the
5 disclosure content of the present application.

Corresponding section elements can furthermore also be manufactured without a widening procedure or folding procedure so that the base body, as is, for example, usual with normal upright sections, has a non-
10 elongated, substantially closed design. Openings of the initially named kind can be introduced into such a base body, for example by a punching process. It is disadvantageous in this that the punched out material forms waste, whereby the manufacturing costs for such section elements are increased.

15 It is generally often desirable with section elements of the initially named kind, and in particular with upright sections, that leadthrough openings are provided through which, for example, cables, lines or other elongated band-like or cord-like elements as well as pipes or other hollow bodies can
20 be led. Independently of whether such leadthrough openings are produced by punching out corresponding holes in the base body, by the described folding process or by drawing apart, there is the problem that the section element has a reduced stiffness in the region of the produced opening, in particular in a direction transverse to the longitudinal extent of the section
25 element.

DE 10 2007 053 471 A1 discloses a section element having an elongated base body in which at least one opening is formed which includes at least one edge which is formed transversely to the longitudinal extent of the base body and which is covered by a cover element.

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FR 2 712 831 A1 discloses a section element having a plurality of openings and a bent over flange edge surrounding the openings.

US 2003/0221384 A1 discloses a wall panel for a room divider having
10 clips which are clipped to panel elements of the wall panel.

It is an object of the present invention to provide a section element of the initially named kind in which the stiffness in the region of the opening is increased with respect to conventional section elements.

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Starting from a section element of the initially named kind, this object is satisfied in accordance with the invention in that the opening includes at least one edge which is formed transversely to the longitudinal extent of the base body and which is formed at least partly by a bent over portion of
20 the base body; in that the bent-over portion forms an at least double-layer region of the base body together with an adjacent portion of the base body made in one piece with the bent over portion; and in that the bent-over portion is connected to the adjacent portion within the at least double-layer region to increase the stiffness of the section element transversely to
25 its longitudinal extent.

A method designed in accordance with the invention of manufacturing such a section element has the features that slits are introduced into the base body for folding out a portion of the base body; in that the portion is
30 folded out and bent over for forming an opening in the base body, along a

kink line extending transversely to the longitudinal extent of the base body and connecting the slits, until the bent over portion forms an at least double-layer region of the base body together with an adjacent portion of the base body made in one piece with the bent over portion; and in that
5 the bent over portion is connected to the adjacent portion within the at least double-layer region to increase the stiffness of the section element transversely to its longitudinal extent.

In accordance with the invention, the reduced stiffness caused by the
10 opening is compensated in that an at least double-layer region is produced directly in the region of an edge of the opening extending transversely to the longitudinal direction of the section element and the individual layers of this region are connected to one another so that no displacement of the two layers toward one another is possible. At least one of the layers is
15 produced by a material portion which forms at least one region of the opening by folding out of the base body. It is thereby achieved, on the one hand, that the material used for forming the opening is not wasted, but is

rather used for stiffening the base body. On the other hand, it is automatically ensured by folding out the portion from the opening that the stiffening effect is present directly in the region of the opening, i.e. in the region of the weak point produced by the opening. In this respect, the
5 term "transverse" is to be understood as any direction which does not extend only in the longitudinal direction of the section element. The transversely extending edge can in particular be formed as a straight line or curved as long as it extends transversely to the longitudinal direction of the section element at least in a part region.

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Furthermore, no supply of a separate part to increase the stiffness is required due to the integral connection of the portion folded out of the base body. The manufacture of the stiffening region is possible in an online process, even at very high speeds such as much higher than 100
15 m/min, due to the integral connection of the bent over portion to the base body.

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In accordance with an advantageous embodiment of the invention, the edge extends at least regionally substantially perpendicular to the longitudinal extent of the base body. A uniform support edge for lines to be led through the opening or the like is thereby provided. At the same time, the double layered region also extends perpendicular to the longitudinal extent of the base body so that the increased stiffness is also achieved in an ideal fashion in a direction perpendicular to the
25 longitudinal extent of the base body.

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In accordance with a further preferred embodiment of the invention, the bent over portion is connected to the adjacent portion by a pressure joining process such as clinching or crimping, by clamping, squeezing, pressing, welding, screwing, bonding or riveting. The firmer the connection

between the bent over portion and the adjacent portion of the base body, the greater the stiffness of the section. In particular a shear movement between the layers of the multilayer region should be prevented using the selected connection process so that, for example, an arching of the section element is prevented.

The edge is advantageously formed over its total length by the bent over portion. This can be the case, for example, when the base body is not divided into two spaced apart longitudinal portions by drawing apart or by the initially described folding process, but rather substantially forms a closed surface. In this case, after introduction of corresponding slits into the base body, a portion defined by these slits can be bent out of the base body, wherein the edge arising on the bending over of this portion automatically extends over the total length of the opening thereby arising. Since the edge is in this case formed as a kink edge over its total length, it is ensured that the edge is not formed as a sharp edge, but rather has a certain roundness. It is thereby achieved that lines led through the opening can lie on the edge without there being any risk of damage to the lines.

In accordance with a further advantageous embodiment of the invention, a first part of the edge is formed by the bent over portion. A second part of the edge, which is formed by a non-bent over portion of the base body, advantageously adjoins the first part of the edge. In this respect, the non-bent over portion can in particular form at least a part of the adjacent portion of the base body. The first part of the edge can preferably be formed by a single-layer bent over portion which is adjoined by at least one second part of the edge which is formed by a double-layer bent over portion of the base body.

This design is in particular sensible when the base body is divided into two longitudinal portions which are drawn apart by the initially described folding process. The openings already arising due to the folding process can additionally be enlarged by correspondingly bent over portions, 5 whereby parts of the edge merging into one another are formed both by the bent over portions of the first longitudinal portion of the base body, for example, and by non-bent over portions of the second longitudinal portion. The bent over portion can in this case form a double-layer region both with the first longitudinal portion and with the second longitudinal 10 portion, wherein the connection of the bent over portion to the respective adjacent portions can be established both in one of these double-layer regions and in both double-layer regions to achieve an increased stiffness.

In this embodiment, the base body advantageously includes two mutually 15 spaced apart longitudinal portions which extend parallel to one another and are connected to one another at a plurality of connection points via connection elements formed in one piece with the longitudinal portions and in each case bridging the spacing between the longitudinal portions, wherein the opening extends from one of the longitudinal portions beyond 20 the spacing to the other longitudinal portion and the bent over portion forms a region of the edge bridging the spacing between the longitudinal portions.

In accordance with a further advantageous embodiment of the invention, 25 the opening includes at least two correspondingly formed edges in particular disposed opposite one another. The desired improved stiffness is thereby achieved at both oppositely disposed sides of the opening and thus an even higher stiffness of the section element in the region of the opening overall.

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In accordance with a further preferred embodiment of the invention, the section element is formed as a C section, a U section, an L section, a T section, H sections, a hat section or a Z section. The section element in accordance with the invention can generally also be used for other
5 suitable section types.

In accordance with a further advantageous embodiment of the invention, the edge is at least regionally engaged over and in particular encompassed by a cover element. This is in particular sensible with a sharp-edged
10 design of the edge since in this case lines led through the opening do not lie on the edge formed with a sharp edge, but rather on the cover element engaging around it. It is thereby ensured that no damage can occur to the elements led through the opening. The cover elements can in this respect not only engage around the support edge, but advantageously also be
15 formed so that the total peripheral edge of the opening is engaged over and in particular encompassed.

The edge can advantageously be provided at least regionally with a bend, in particular a flange. This can in particular take place as an alternative;
20 generally, also however, in addition to the described cover element. It is also achieved by a bend that the support for lines led through the opening is made rounded despite any formation of the edge as a sharp edge. Damage to the elements led through the opening is thereby in turn avoided.

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Whereas the opening can, as already described, advantageously be formed as a leadthrough opening, in particular for electrical lines, it is generally also possible that the opening satisfies a function different from this. The opening can in particular, for example, also be used as an air passage
30 opening or as a passage opening for other materials such as insulating

materials. A stiffening of the section element is also achieved by the design in accordance with the invention in this case.

A plurality of openings are advantageously provided which are in particular arranged distributed in the longitudinal direction of the base body. The openings can in this respect in particular be present at regular intervals. The flexible use of a section element designed in accordance with the invention for the leading through of lines, cables or the like is further increased by the arrangement of a plurality of openings.

Further advantageous embodiments of the invention are set forth in the dependent claims.

The invention will be described in more detail in the following with reference to embodiments and to the drawings; there are shown in these:

Fig. 1 a detail of a strip-like material portion with cutting patterns for producing a section element formed in accordance with the invention;

Fig. 2 a C section made in accordance with the invention,

Fig. 3 a detail of a further strip-like material portion with a modified cutting pattern;

Fig. 4 the metal element in accordance with Fig. 3 after the expansion;

- Fig. 5 a further C section in accordance with the invention
formed with the cutting pattern in accordance with Fig.
3;
- 5 Fig. 6 a perspective representation of a cover element;
- Figs. 7 to 9 perspective representations of further cover elements;
 and
- 10 Figs. 10 to 13 four different states during the manufacture of a further
 embodiment of the invention.

Fig. 1 shows an elongated, flat material portion 1, which can comprise, for
example, metal, plastic or other suitable materials for manufacturing a
15 section element in accordance with the invention. The material portion 1
includes an elongated base body 2 which includes a base portion 3
extending in the longitudinal direction as well as two portions 4 which are
laterally adjacent to the base portion 3 and which can be bent over by 90°
in each case along a dashed line 6 for producing limbs 5 (Fig. 2) so that an
20 upright section 7 shown in Fig. 2 is produced. In this respect, outwardly
disposed marginal regions 8 of the portions 4 can again be angled by 90°
with respect to the limbs 5 to produce a C-shaped upright section 7 in this
manner.

25 A plurality of slits 9, 10 are formed in the base portion 3 of which the slits
9 extend in the longitudinal direction of the base body 2 and the slits 10
extend perpendicular thereto. The slits 9, 10 can in this respect be
produced, for example, by rotary stamping, laser cutting or another
suitable cutting or stamping process.

Two respective slits 9 are connected by kink lines 11 which are shown as dashed lines and along which portions 12 of the base body 2 can be bent over for forming openings 13 (Fig. 2). Edges 14 of the openings 13 are respectively produced by the bent over portions 12 in accordance with Fig. 2 and extend transversely, and in particular perpendicular, to the longitudinal extent of the base body 2. The bent over portions 12 of the base body 2 are in this respect bent over so much in accordance with Fig. 2 that they come into areal contact at adjacent portions 15 of the base body 2 which are shown as hatched areas in Fig. 1. Together with the adjacent portions 15, the bent over portions 12 thus form double-layer regions 16 of the base body 2 which are disposed, viewed in each case in the longitudinal direction of the base body 2, respectively directly adjoining the openings 13.

As can further be recognized from Fig. 2, connection means 17 are provided which are, for example, formed as rivets, and with which the bent over portions 12 are fixedly connected to the adjacent portions 15. Relative movements between the bent over portions 12 and the adjacent portions 15 are prevented by the connection means 17, whereby a stiffening of the base body 2 is achieved directly in the region of the openings 13, i.e. in the region weakened in its stiffness by the openings 13. It can, for example, be achieved by this stiffening effect that, on the use as an upright section, a bending of the base portion 3 on a lateral load of the limbs 5, such as can occur on the screwing in of screws on the attachment of planking, is avoided.

The openings 13 can be used for leading through elements such as electrical lines 18. Since the edges 14 are each formed by the bent over portions 12, the edges 14 are not made as sharp edges, but rather have a

certain rounding. It is thereby avoided that damage takes place to the insulation of the electrical lines 18 which lie on the edges 14.

Fig. 3 shows a material portion 19 with a base body 35 which has a
5 plurality of slits 20 which extend obliquely and along the longitudinal
extent of the material portion 19. Corresponding cutting patterns and
modified cutting patterns are described in WO 2004/055289 A1 whose
disclosure content relating to the different possible cutting patterns and
their use for expanding material portions is explicitly included in the
10 present application.

In addition to the slits forming these known cutting patterns, slits 22 are
formed in Fig. 3 which adjoin two slits 21 extending obliquely and which
extend transversely to the longitudinal extent of the material portion 19. A
15 slit 23 extending in the longitudinal direction of the material portion 19
adjoins each of the slits 22 and is in turn adjoined by a further slit 24
extending parallel to the respective slit 22. The ends of the two slits 24 are
in turn connected to one another by a slit 25 extending in the longitudinal
direction.

20 Starting approximately from the center of the slit 25, a further slit 26 in
turn extends parallel to the slits 24 and beyond their ends, with in turn
two slits 27, 28 adjoining the end of the slit 26 which extend in the
longitudinal direction and which each end approximately at the level of
25 the slits 24. The ends of the slits 27, 28 are connected to the slits 24 in
each case via dashed lines 29,30 which represent kink lines 31, 32 such
as will be set forth in the following.

Portions 33, 34, of the base body 35 which can be bent over along the
30 kink lines 31, 32, as will be explained in more detail in the following, are

bounded by the slits 24, 25, 26, 27 and 28. Respective slit-shaped openings 36 are formed in the portions 33, 34 and extend in the longitudinal direction of the material portion 19.

- 5 Tongue-like portions 37, 38 of the base body 35 at whose ends tabs 39, 40 are formed are furthermore formed by the slits 22, 23 and 24.

The base body 35 of the material portion 19 is divided into two longitudinal portions 41, 42 by the slits 20 to 28, said longitudinal
 10 portions being able to be drawn apart transversely to the longitudinal extent of the material portion 19 in accordance with Fig. 4 and being connected to one another in the drawn apart state via connection elements 43 formed in one piece with the longitudinal portions 41, 42 and respectively bridging the spacing between the longitudinal portions 41, 42.
 15 It can be recognized from Fig. 4 that an opening 44 which is bounded by edges 45, 46 in the longitudinal direction of the material portion 19 is created between the longitudinal portions 41, 42 by the drawing apart and by an additional bending over of the portions 33, 34 along the kink lines 29, 30.

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A first part 47 of the edges 45, 46 is in this respect in each case formed by the bent over portions 33, 34, whereas a second part 48 of the edges 45, 46 adjoining it is formed by the non-bent over tongue-like portions 37, 38. The bent over portions 33, 34 in this respect contact, in a similar manner
 25 to that described in Figs. 1 and 2, adjacent portions 49, 50 of the base body 35 which are in turn shown as hatched regions in Fig. 3. Further adjacent portions 51, 52 are formed by the ends of the tongue-like portions 37, 38 which, after the bending over of the portions 33, 34, as also the adjacent portions 49, 50, form double-layer regions 53, 54 of the
 30 base body 35 together with the bent over portions 33, 34.

The bent over portions 33, 34 are respectively fixedly connected to the adjacent portions 49 to 52 via connection means 55, 56 within the double-layer regions 53, 54. The connection means 55 are in this respect shown
5 by way of example as rivet connections, but can also be formed as other suitable connection means already initially described. The connection means 56 are formed by way of example in Fig. 4 by the slit-shaped openings 36 and by the tabs 39, 40 of the tongue-like portions 37, 38. For this purpose, the tabs 39, 40 are bent over and pushed through the slit-
10 shaped openings 36, as can be recognized from Fig. 4.

Fig. 5 shows a C-shaped upright section 57 which is manufactured from a material portion 35 in accordance with Figs. 3 and 4. The upright section 57 includes a plurality of openings 44 through which respective electrical
15 lines 18 or other supply lines can be led. Since the edges 45 of the openings 44 on which the electrical lines 18 lie are only formed as a rounded edge by bending over the portion 34 in their regions 58 shown at the right in Fig. 5, there is a risk that the electrical lines 18 led through will be damaged without additional protective measures if they lie on the
20 other region of the edge 45.

To avoid such damage, in accordance with the representation of the upper opening 44 in Fig. 5, the remaining region of the edge 45 can be provided with a bend 63, for example with a flange.

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Additionally or alternatively, in accordance with the middle representation in Fig. 5, the edge 45 can be provided with a cover element 59. The cover element 59 can, for example, have the shape of a sleeve with a longitudinal slit shown in Fig. 6. The cover element 59 can in this case be
30 simply plugged onto the edge 45 and can either be held by a

corresponding clamping effect or can additionally be squeezed or pressed. Since the upper side of the cover element 59 is made rounded, damage to the electrical line 18 is prevented in this manner.

- 5 The cover element can have different shapes and can, for example, also be made as a hook-shaped cover element 60 in accordance with Figs. 7 to 9. In this respect, an additional fastening of the cover element 60 to the base body 35 is possible by an extended downwardly projecting portion 61 of the cover element 60, for example by riveting or by another of the initially
10 described kinds of connection.

- As shown in the lower region in Fig. 5, the opening 44 can also be covered over its total periphery by a corresponding cover element 62. The cover element 62 thus forms an eyelet which is closed all round and which
15 covers the edge 45 as well as the edges of the opening 44 adjoining it in a similar manner to the cover elements 59 and 60 respectively.

- In contrast to the rectangular shape shown in Fig. 5, the cover element or the eyelet can also have rounded regions so that ultimately a
20 correspondingly rounded inner contour of the opening is achieved. In this manner, a circular, an elliptical, an oval or also an angular shape with rounded corners can be achieved, for example. In this respect, the openings themselves can already have a corresponding rounded shape. It is, however, also possible that the openings have an angular shape such
25 as is shown by way of example in Fig. 5 and a rounded inner contour only arises by correspondingly formed cover element or eyelets which e.g. have a larger radial thickness at the corners than in the portions lying between the corners.

Fig. 10 shows a further embodiment of the invention in which the cutting pattern in accordance with Fig. 3 is modified. For simplification, only the differences from the embodiment in accordance with Figs. 3 to 5 will be described in more detail in the following. The same or similar elements are in this respect provided with the same reference numerals in Figs. 10 to 13 as in Figs. 3 to 5.

In Fig. 10, slits 64 adjoin the slits 21 and respectively extend transversely to the longitudinal extent of the material portion 19 and respectively extend only up to the center line 65 of the material portion 19 or up to the level of the center of the cutting patterns formed by the obliquely extending slits 20, 21 in the upper and lower regions of the material portion 19. In this respect, one of the slits 64 extends starting from a slit 21 ending at one side of the middle line 65 and the other slit 64 extends starting from a slit 21 ending on the other side of the center line 65 in the direction toward the center line 65.

A respective slit 66 which runs along the center line 65 and which is in turn adjoined by a further slit 67 extending oppositely and parallel to the respective slit 64 adjoins the slits 64. A respective slit 68 extending perpendicular to the respective slit 67 is formed at the ends of the slits 67 and thus extend parallel to one another and parallel to the longitudinal extent of the material portion 19. The centers of the two slits 68 are connected to one another via a slit 69 extending parallel to the slits 67. The slits 68 furthermore each extend beyond the slits 67 and end in obliquely extending slits 70 which are connected to one another via kink lines 71 shown in dashed lines. In a similar manner, the ends of the slits 67 are connected to the slits 68 via kink lines 72 shown in dashed lines.

Corresponding to the obliquely extending slits 70, respective slits 73 which extend obliquely and through which triangular holes 74 are created between the slits 68, 68 and 73 are formed between the slits 68 and 69, as can be recognized in Fig. 10. Both the obliquely extending slits 70 and the obliquely extending slits 73 are only provided optionally and prevent corners with sharp edges from arising at the resulting section element. These slits can therefore also generally also be omitted. To avoid corners with sharp edges, the slits 70, 73 could also be replaced by curved slits, for example, so that ultimately rounded corners are created.

First portions 75 which are adjoined by second portions 76 bordered between the kink lines 71 and 72 and the slits 68 and 70 are formed between the slits 68 and 69 and the kink lines 72. Furthermore, third portions 77 are formed between the slits 66, 67, 68 and 70 and the kink lines 71.

After introduction of the cutting pattern shown in Fig. 10, as already described analogously with respect to Fig. 4, the two longitudinal portions 41, 42 of the base body 35 are drawn apart. A spacing thereby arises between the longitudinal portions 41, 42 which is bridged by the connection elements 43, as is shown in Fig. 11.

The portions 74 are subsequently each bent over along the kink lines 72, whereby an opening 78 shown in Fig. 12 is produced.

In a further step, the portions 75 already bent over once are bent over a second time together with the portions 76 and 77 now to be bent over for the first time along the kink lines 71 so that the opening 78 receives its final size as is shown in Fig. 13. The bent over portions 75, 76, 77 form, together with adjacent portions 79, 80 (see Fig. 10) of the base body 35,

double-layer or triple-layer regions 81, 82, 83, within which the bent over portions 75, 76, 77 are connected to the adjacent portions 79, 80 by connection means 84. The connection means 84 can in this respect again be formed in a variety of manners such as was already described in detail within the framework of this application.

In this embodiment, not only one part, but two respective parts 85, 86 of the edges 87, 88 bounding the opening 78 in the longitudinal direction of the material portion are formed directly by kink edges created along the kink lines 71 on the bending over of the portions 76, 77 so that these parts 85, 86 are formed as rounded edges. Additional cover elements or eyelets for the edges 87, 88 are therefore not absolutely necessary. Generally, however, the already described cover elements and eyelets can also additionally be used in this embodiment.

Reference numeral list

	1	material portion
	2	base body
5	3	base portion
	4	portions
	5	limbs
	6	dashed lines
	7	upright section
10	8	marginal regions
	9	slits
	10	slits
	11	kink lines
	12	bent over portions
15	13	openings
	14	edges
	15	adjacent portions
	16	double-layer regions
	17	connection means
20	18	electrical lines
	19	material portion
	20	slits
	21	slits
	23	slits
25	24	slits
	25	slit
	26	slit
	27	slit
	28	slit
30	29	dashed line

	30	dashed line
	31	kink line
	32	kink line
	33	bent over portions
5	34	bent over portions
	35	base body
	36	slit-shaped opening
	37	tongue-like portion
	38	tongue-like portion
10	39	tab
	40	tab
	41	longitudinal portion
	42	longitudinal portion
	43	connection elements
15	44	openings
	45	edges
	46	edges
	47	first part of the edge
	48	second part of the edge
20	49	adjacent portions
	50	adjacent portions
	51	adjacent portions
	52	adjacent portions
	53	double-layer regions
25	54	double-layer regions
	55	connection means
	56	connection means
	57	upright section
	58	region of the edge
30	59	cover element

	60	cover element
	61	portion of the cover element
	62	cover element
	63	bend
5	64	slits
	65	center line
	66	slits
	67	slits
	68	slits
10	69	slit
	70	slits
	71	kink lines
	72	kink lines
	73	slits
15	74	holes
	75	portions
	76	portions
	77	portions
	78	opening
20	79	adjacent portions
	80	adjacent portions
	81	three-layer regions
	82	three-layer regions
	83	double-layer regions
25	84	connection means
	85	part of the edge
	86	part of the edge
	87	edge
	88	edge
30		

PROTEKTORWERK Florenz Maisch GmbH
& Co. KG

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Claims

- 5 1. A section element, in particular a structural section, for example a
dry construction section, a facade section, a plaster section, a
screed section or a tile section, having an elongated base body (2,
35) which in particular comprises metal or plastic and in which at
least one opening (13, 44, 78) is formed,
10 wherein the opening (13, 44, 78) includes at least one edge (14, 45,
87, 88) which is formed transversely to the longitudinal extent of the
base body (2, 35) and which is formed at least partly by a bent over
portion (12, 33, 34, 75, 76, 77) of the base body (2, 35),
characterized in that the bent over portion (12, 33, 34, 75, 76, 77)
15 forms, together with an adjacent portion (15, 49, 50, 51, 52, 79, 80)
of the base body (2, 35) made in one piece with the bent over portion
(12, 33, 34, 75, 76, 77), an at least double-layer region (16, 53, 54,
81, 82, 83) of the base body (2, 35); and in that the bent-over
portion (12, 33, 34, 75, 76, 77) is connected to the adjacent portion
20 (15, 49, 50, 51, 52, 79, 80) within the at least double-layer region
(16, 53, 54, 81, 82, 83) to increase the stiffness of the section
element transversely to its longitudinal extent.
- 25 2. A section element in accordance with claim 1,
characterized in that
the edge (14, 45, 87, 88) extends at least regionally substantially
perpendicular to the longitudinal extent of the base body (2, 35).

3. A section element in accordance with claim 1 or claim 2,
characterized in that
the bent over portion (12, 33, 34, 75, 76, 77) is connected to the
adjacent portion (15, 49, 50, 51, 52, 79, 80) by a pressure joining
5 process such as clinching or crimping, by clamping, squeezing,
pressing, welding, screwing, bonding or riveting.
4. A section element in accordance with claim 1 or claim 2 or claim 3,
characterized in that
10 the edge (14) is formed substantially over its total length by the bent
over portion (12).
5. A section element in accordance with claim 1 or claim 2 or claim 4,
characterized in that
15 a first part (47, 85) of the edge (45, 87, 88) is formed by the bent
over portion (33, 34, 75, 76, 77).
6. A section element in accordance with claim 5,
characterized in that
20 a second part (48) of the edge (45) which is formed by a non-bent
over portion (37, 38) of the base body (35) adjoins the first part (47)
of the edge (45).
7. A section element in accordance with claim 6,
25 characterized in that
the non-bent over portion (37, 38) forms at least a part of the
adjacent portion (51, 52) of the base body.
8. A section element in accordance with claim 5 or claim 6 or claim 7,
30 characterized in that

the first part (85) of the edge (87, 88) is formed by a single-layer bent-over portion (75) which is adjoined by at least one second part (86) of the edge (87, 88) which is formed by an at least double-layer, bent-over portion (75, 76; 75, 77) of the base body (35).

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9. A section element in accordance with any one of the preceding claims,

characterized in that

the base body (35) includes two mutually spaced apart longitudinal portions (41, 42) which extend parallel to one another and are connected to one another at a plurality of connection points via connection elements (43) formed in one piece with the longitudinal portions (41, 42) and respectively bridging the spacing between the longitudinal portions (41, 42); in that the opening (44, 78) extends from one of the longitudinal portions (41) beyond the spacing to the other longitudinal portion (42); and in that the bent-over portion (33, 34) forms a region of the edge (45, 87, 88) bridging the spacing between the longitudinal portions (41, 42).

10. A section element in accordance with any one of the preceding claims,

characterized in that

the opening (13, 44, 78) includes at least two correspondingly formed edges (14, 45, 87, 88), which are in particular disposed opposite one another.

11. A section element in accordance with any one of the preceding claims,

characterized in that

the section element is formed as a C section (7, 57), a U section, an L section, a T section, an H section, a hat section or a Z section.

12. A section element in accordance with any one of the preceding
5 claims,
characterized in that
the edge (45, 87, 88) is engaged over, at least regionally, by a cover
element (59, 60, 62) and is in particular encompassed by the cover
element (59, 60, 62).
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13. A section element in accordance with any one of the preceding
claims,
characterized in that
the edge (45, 87, 88) is provided at least regionally with a bend (63),
15 in particular a flange.
14. A section element in accordance with any one of the preceding
claims,
characterized in that
20 the opening (13, 44, 78) is formed as a leadthrough opening, in
particular for electrical lines, or for other supply lines.
15. A section element in accordance with any one of the preceding
claims,
25 characterized in that
a plurality of openings (13, 44, 78) are provided which are in
particular arranged distributed in the longitudinal direction of the
base body (2, 35).

16. A method of manufacturing a section element in accordance with at least one of the preceding claims, characterized in that
- 5 slits (9, 10, 24, 25, 26, 27, 28, 66, 67, 68, 69, 70, 73) are introduced into the base body (2, 35) for folding out a portion (12, 33, 34, 75, 76, 77) of the base body (2, 35); in that the portion (12, 33, 34, 75, 76, 77) is folded out and bent over for forming an opening (13, 44, 78) in the base body (2, 35), along a kink line (11, 31, 32, 71, 72) extending transversely to the longitudinal extent of the base body (2, 35) and connecting at least some of the slits (9, 10, 24, 25, 26, 27, 28, 66, 67, 68, 69, 70, 73), until the bent over portion (12, 33, 34, 75, 76, 77) forms, together with an adjacent portion (15, 49, 50, 51, 52, 79, 80) of the base body (2, 35) made in one piece with the bent over portion (12, 33, 34, 75, 76, 77), an at least double-layer region
- 10 (16, 53, 54, 81, 82, 83) of the base body (2, 35); and in that the bent-over portion (12, 33, 34, 75, 76, 77) is connected to the adjacent portion (15, 49, 50, 51, 52, 79, 89) within the at least double-layer region (16, 53, 54, 81, 82, 83) to increase the stiffness of the section element transversely to its longitudinal extent.
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