

# Thermoplastics sealing strips for sealing joints in in-situ concrete

## Concepts, geometry and dimensions

**DIN**  
**18 541**  
Part 1

Fugenbänder aus thermoplastischen Kunststoffen zur Abdichtung von Fugen in Ortbeton; Begriffe, Formen, Maße

Supersedes  
January 1991 edition.

*In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.*

Dimensions in mm

### 1 Scope and field of application

This standard specifies the geometry and dimensions of joint sealing strips made from thermoplastics material, which are completely or partly embedded in concrete, and establishes relevant concepts.

This standard does not give guidance on the use of thermoplastics sealing strips, nor does it deal with the properties of sealing strip materials, for which requirements are specified in Part 2 of this standard.

This standard does not cover sealing strips used for post-sealing of joints, nor for connecting strips used for fastening plastics waterproofing sheeting.

### 2 Concepts

#### 2.1 Thermoplastics sealing strips

Thermoplastics sealing strips are products fabricated in strips with continuous profiling over their length. They consist of a sealing flank on either side of an elastic central web.

Thermoplastics sealing strips ('sealing strips', for short) are classified according to their position in the concrete and their type of application (i.e. in construction or expansion joints) as follows:

- sunken sealing strip for expansion joints (type D);
- sunken sealing strip for construction joints (type A);
- surface sealing strip for expansion joints (type DA);
- surface sealing strip for construction joints (type AA);
- joint terminating strip (type FA).

#### 2.2 Sunken sealing strip for expansion joints (type D)

Sunken sealing strip for expansion joints is a strip with a central longitudinal channel or a loop and with parallel profiling at both sides (cf. subclause 2.9, items a), b) and d)). It may be provided with a strap for nailing onto the formwork and is embedded in the concrete.

#### 2.3 Sunken sealing strip for construction joints (type A)

A sunken sealing strip for construction joints is the same as a sunken sealing strip for expansion joints except that it is solid and does not have a loop. It is embedded in the concrete.

#### 2.4 Surface sealing strip for expansion joints (type DA)

A surface sealing strip for expansion joints is a sealing strip with a smooth, unprofiled exterior, and an interior with a central continuous channel or a loop and parallel profiling of the sealing flanks (cf. subclause 2.9 c)). It may be provided with straps for nailing to the formwork, and is embedded with its external surface flush with the surface of the concrete element.

#### 2.5 Surface sealing strip for construction joints (type AA)

A surface sealing strip for construction joints is a sealing strip which is the same as a surface sealing strip for expansion joints except that it is designed without a cavity or loop. It is embedded with its external surface flush with the surface of the concrete element.

#### 2.6 Joint terminating strip (type FA)

A joint terminating strip is a channel-type sealing strip. It is embedded in grooves on the side faces of concrete elements by means of its sealing flanks, which are profiled on one side (cf. subclause 2.9, item c)).

#### 2.7 Elastic central web

The elastic central web in a sealing strip (central web, for short) serves to accommodate joint movement. Sunken sealing strips are kept separate from sealing flanks by anchor ribs, and surface sealing strips from joint terminating strips by anchor blocks.

#### 2.8 Sealing flank

Sealing flanks are profiled (cf. subclause 2.9) and are located on either side of the central web. They retain their basic shape when there is movement on both sides of the joint.

#### 2.9 Profiling

Profiling takes the form of longitudinal ribs and reinforcement. A distinction shall be made between the following:

- a) ribs which anchor the sealing strip within the concrete ('anchor ribs', for short);
- b) ribs impeding the collection of water between the concrete and the sealing strip (termed 'sealing ribs' for the purposes of this standard);

Continued on pages 2 to 6.

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c) ribs which both anchor the sealing strip to the concrete and impede the collection of water between the concrete and the sealing strip, and which may, in turn, be provided with sealing ribs and be reinforced;

d) edge reinforcement, which increases the stiffness of the sealing strip and facilitates its installation.

### 3 Designation

Sealing strips of geometry and dimensions complying with the specifications of this standard and Part 2 of this standard shall be designated 'sealing strip', followed by the DIN number, the code letter denoting the type (cf. subclause 2.1), their overall width,  $a$ , in mm, and the code for their compatibility with bitumen.

Sealing strips which are compatible with bitumen are designated BV and those which are not, NB (cf. Part 2 of this standard).

### EXAMPLE:

Designation of a surface sealing strip (DA) of 240 mm overall width, compatible with bitumen (BV):

Sealing strip DIN 18 541 - DA 240 - BV

## 4 Geometry and dimensions

### 4.1 General

Thermoplastics sealing strips shall have one of the cross-sectional shapes shown in figures 1 to 5. Individual designs may vary provided that strips have the minimum dimensions specified in subclauses 4.2 to 4.5.

Sealing strips shall be of the minimum dimensions specified for their geometry, as given in tables 1 to 4. In addition, the sealing ribs shall be at least 1 mm in height and shall be spaced not less than 10 mm apart.

### 4.2 Type D sealing strips

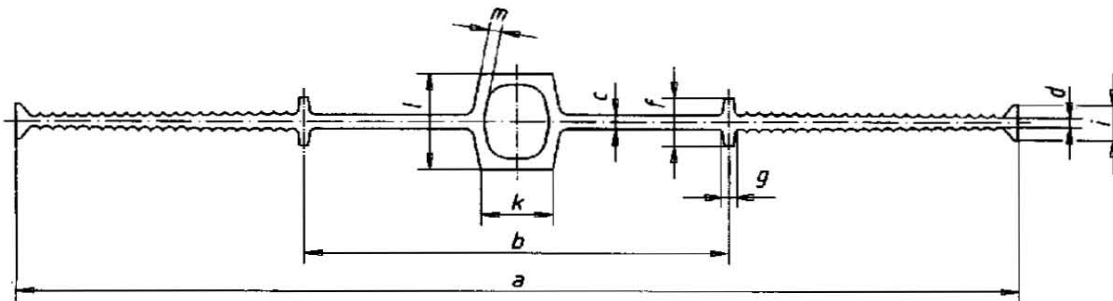


Figure 1: Typical cross section of type D sealing strips

Table 1: Minimum dimensions of type D sealing strips

Width		Thickness		Profiling			Channel/loop		
$a$	$b$	$c$	$d$ <sup>1)</sup>	$f$	$g$	$i$	$k$	$l$	$m$
190	70	3,5	2,5	15	4	11	10	25	3
240	80	4	3		5		20	30	3,5
320	100	5	3,5		6		45	4	
500	150	6	4,5	20	6		45	4,5	

<sup>1)</sup> The thickness of the sealing flanks shall be the same as that of the central web where they meet, but may decrease to  $d$  at the edges.

Key to symbols used in figure 1 and table 1:

$a$  overall width

$b$  width of central web

$c$  thickness of central web at thinnest point

$d$  thickness of sealing flanks at thinnest point

$f$  height of anchor ribs, measured on both sides

$g$  thickness of anchor ribs at the root (tangent intersection)

$i$  thickness of edge reinforcement

$k$  width of channel or loop

$l$  height of channel or loop

$m$  wall thickness of channel or loop at narrowest point

### 4.3 Type A sealing strips

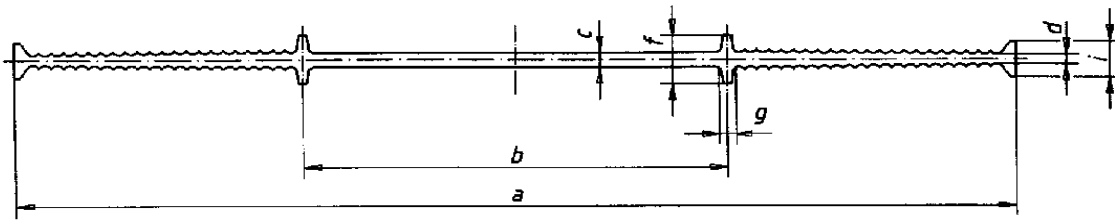


Figure 2: Typical cross section of type A sealing strips

Table 2: Minimum dimensions of type A sealing strips

Width		Thickness		Profiling		
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i> <sup>1)</sup>	<i>f</i>	<i>g</i>	<i>i</i>
190	70	3	2,5	15	4	11
240	80	3,5				
320	100	4,5	3			
500	150	6	3,5	20		

<sup>1)</sup> The thickness of sealing flanks shall be of the same thickness *c* as the central web where the two parts meet but may be reduced to *d* towards the edge.

Key to symbols used in figure 2 and table 2:

- a* overall width
- b* width of central web
- c* thickness of central web at thinnest point
- d* thickness of sealing flanks at thinnest point
- f* height of anchor ribs, measured on both sides
- g* thickness of anchor ribs at root (tangent intersection)
- i* thickness of edge reinforcement

4.4 Types DA and AA sealing strips

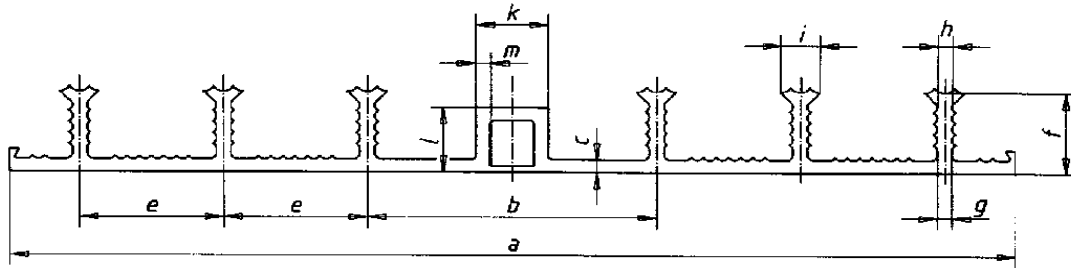


Figure 3: Typical cross section of types DA sealing strips

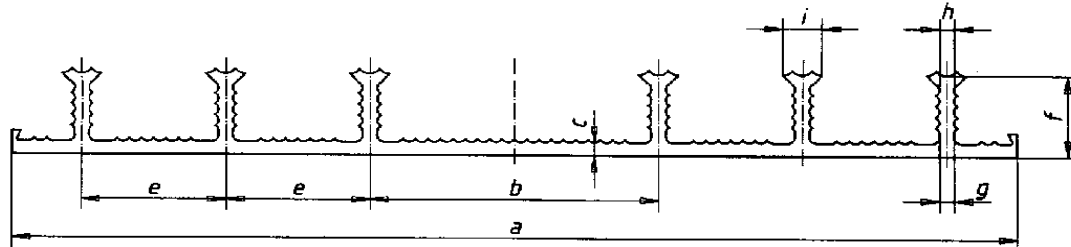


Bild 4: Typical cross section of type AA sealing strips

Table 3: Minimum dimensions of types DA and AA sealing strips

Width		Thickness <i>c</i>	Profiling						Channel/loop		
<i>a</i>	<i>b</i>		<i>N</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>k</i>	<i>l</i>	<i>m</i>
240	80	4	4	40	20	4	4	11	20	20	4
320	100		6								
500	120		8								

Key to symbols used in figures 3 and 4 and table 3:

- a* overall width
- b* width of central web
- c* thickness of strip
- e* axial spacing of anchor blocks
- f* height of anchor block
- g* thickness of anchor block at root
- h* thickness of anchor block at narrowest point
- i* thickness of reinforcement at anchor block
- k* width of channel or loop
- l* height of channel or loop
- m* wall thickness of channel or loop at narrowest point
- N* number of anchor blocks

#### 4.5 Type FA sealing strips

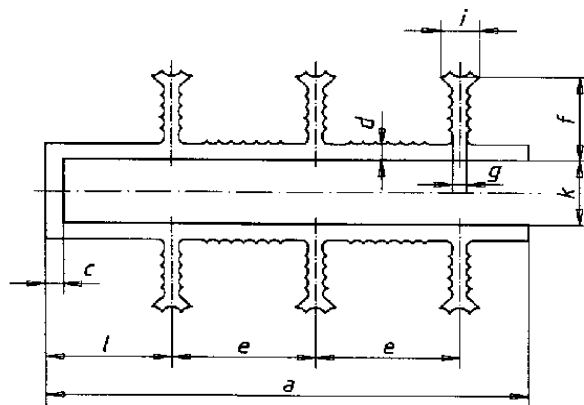


Figure 5: Typical cross section of type FA sealing strips

Table 4: Minimum dimensions of type FA sealing strip

Overall width <i>a</i>	Thickness		Profiling					Loop	
	<i>c</i>	<i>d</i>	<i>N</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>i</i>	<i>k</i>	<i>l</i>
50	5	5	2	—	25	5	11	20	35
90			4	40					
130			6						

Key to symbols used in figure 5 and table 4:

- |   |  |
|---|--|
| <i>a</i> overall width                  | <i>g</i> thickness of anchor block at root                             |
| <i>c</i> thickness of top               | <i>i</i> thickness of reinforcement at anchor blocks                   |
| <i>d</i> thickness of legs              | <i>k</i> clear distance between sides of loop (joint width)            |
| <i>e</i> axial spacing of anchor blocks | <i>l</i> distance of inner anchor block from top of loop (loop height) |
| <i>f</i> height of anchor blocks        | <i>N</i> number of anchor blocks                                       |

#### 5 Marking

Sealing strips complying with Parts 1 and 2 of DIN 18 541 and which are subject to inspection as specified in Part 2 of this standard shall be provided with a permanent and well-visible marking containing the following information, repeated at intervals of no more than 3 m:

- manufacturer's mark;
- standard designation;
- fire behaviour as specified in DIN 4102 Part 1;
- date of production (month and year);
- code of inspection body.

### **Standards referred to**

DIN 4102 Part 1 Fire behaviour of building materials and elements; concepts, requirements and testing

DIN 18 541 Part 2 Thermoplastics sealing strips for sealing joints in in-situ concrete; requirements and inspection

### **Previous edition**

DIN 18 541 Part 1: 01.91.

### **Amendments**

In comparison with the January 1991 edition, the following amendments have been:

- a) This standard no longer deals with sealing strips with which to post-seal joints.
- b) Dimension g has been specified more exactly in figures 1 and 2.

### **International Patent Classification**

E 04 B 1/68