



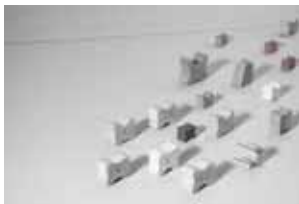
BUILDING  
COMMON GROUND

# Spacers



## Spacers

Spacers are used to ensure that the specified cover to the reinforcement in concrete structures and structural elements is maintained both before and during concreting.



Block spacers made of fibre concrete



Fibre-reinforced concrete bar spacer



Spacers - cast concrete



Spacers - plastic



Steel spacers



Distance tubes - extruded fibre concrete



Spacers and distance tubes for drinking water applications



## Fibre concrete spacers

Getting the right amount of concrete cover is essential for the durability of reinforced concrete structures. Fibre concrete spacers ensure correct concrete cover before and during concreting. They are characterized by high compressive strength and excellent chemical and physical resistance. A test report according to DBV leaflet "Spacers - January 2011" is available from the German concrete association.

The spacers fulfil the requirements of all exposure classes. All recipes used are tested by independent testing institutes with regard to the required properties.

### ★ Advantages

- High density with low porosity
- High load-bearing capacity
- Same material properties as the structural concrete
- Excellent bond with the structural concrete, no hairline cracks
- KOMO certified according to the Dutch assessment guideline BRL2817

### Block spacers

- High compressive strength, no deformation in heat or cold, concrete cover completely maintained.
- Spacers remain in position during formwork erection and concreting.
- Ideal for impermeable concrete, no hairline cracks between the spacer and the concrete
- Fire resistant to the highest requirements specified in DIN 4102 - Class A1 (non combustible)

### Bar spacers

- High compressive strength, no deformation in heat or cold, concrete cover completely maintained.
- Ideal for impermeable concrete, no hairline cracks between the spacer and the concrete
- Large support area - reduced pressure on the formwork
- Substantial labour cost savings due to rapid and simple laying
- Fire resistant to the highest requirements specified in DIN 4102 - Class A1 (non combustible)
- All bar spacers from a length of 33 cm are provided with an interior reinforcement fibre for high protection against breakage

### Additional properties on standardisation according to EC2

Due to the function and use of a building, spacers often have to meet quality requirements that aren't covered by the standard requirements for spacers. In order to ensure that you always have the correct spacer, we can manufacture custom spacers according to your requirements:



- Drinking water compatibility



- Fire resistance



- Reduced water absorption



- Chloride resistance



- Sulphate resistance



- Fair-faced concrete application

## Spacer according to Eurocode 2

Spacers tested in accordance with the fact sheet “Spacers” 01/2011 of DBV (German Society for Concrete and Construction Technology) meet the requirements of DIN EN 1992-1-1:2011-01 (Eurocode 2) and are equipped with the following identification:



### DBV

This spacer fulfils the requirements of the present data sheet

### Concrete cover – $c_{nom}$

Laying dimension concrete cover  $c_v$  in mm

### Performance class L

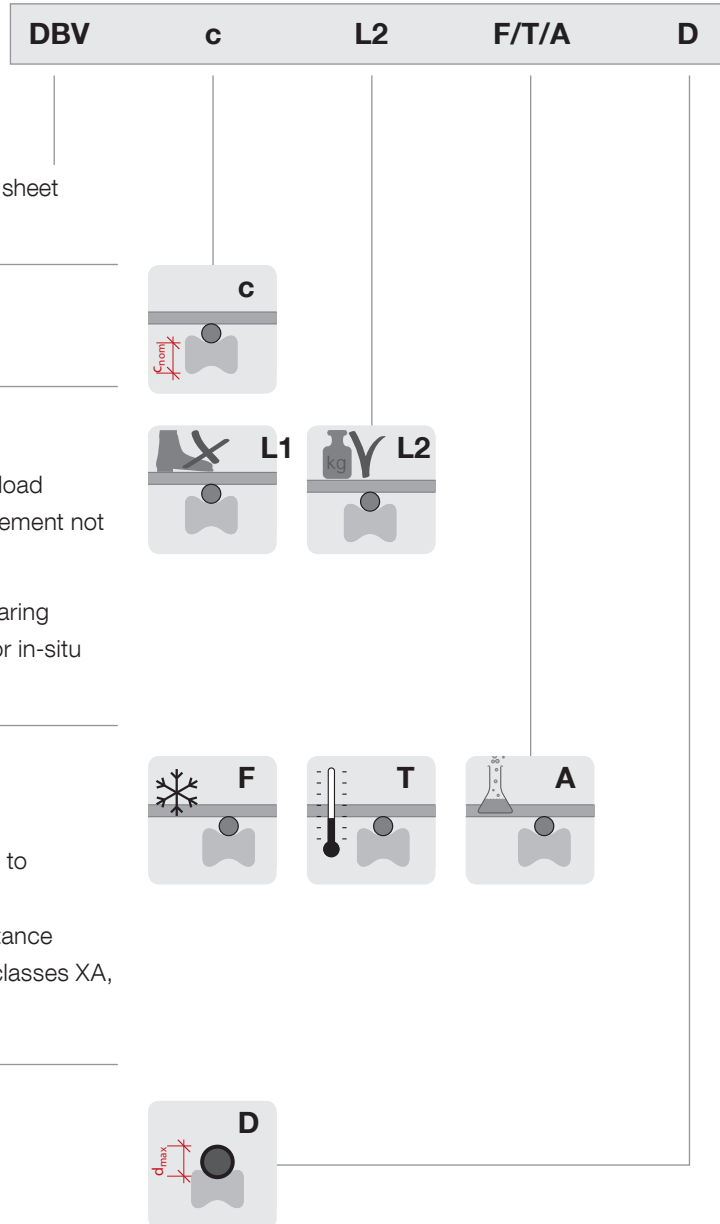
- L1 = no requirements beyond norms with regard to load bearing capacity and toppling stability, e.g.: reinforcement not subject to foot traffic
- L2 = increased requirements with regard to load bearing capacity and toppling stability - standard spacers for in-situ concrete applications

### Special requirements F/T/A

- F - increased resistance to freeze/thaw
- T - suitable for structural elements that are exposed to extreme temperature conditions
- A - higher resistance to water penetration and resistance against chemical attack and chlorides in exposure classes XA, XD and XS 1)

### Permissible steel diameter - D

- Only needs to be marked if necessary.
- Laying dimension concrete cover  $c_v$  in mm



1) Exposure classes according to DIN EN 206-1/DIN 1045-2:  
 XA = concrete corrosion due to chemical attack;  
 XD = reinforcement corrosion due to chlorides (except sea water);  
 XS = reinforcement corrosion due to chlorides from sea water

- Spacers with single cover, concrete cover 15 + 20 mm fulfils performance class L1: DBV - c - L1
- Spacers with single cover for concrete cover of 25 mm up fulfils performance class L2: DBV - c - L2
- Multiple cover spacers are certified based on the DBV data sheet but may not carry the DBV mark as they have two or three different concrete covers.

## You should consider the following when selecting spacers:

- Spacer selection information based on exposure classification in DIN EN 1992-1-1:2001-01 (Eurocode 2)
- Spacer selection information dependent on nature of structure and type of spacer used based on the DBV data sheet "spacers".
- Required concrete cover according to EN206, paragraph 6.3 nominal measurement of concrete cover  $c_{nom}$
- Spacer loading from the weight of reinforcement and additional loads e.g. foot traffic during concreting, fixing and erection work
- Diameter and location of the reinforcement - wall/slab
- Type of reinforcement - single bars or mats
- Simple, rapid and cost effective fixing
- Type of fixing - without tying wire, with tying wire, with steel or plastic clips
- External influences affecting the concrete, such as pressure, temperature, chemical attack, alternating moisture penetration, fire and corrosion
- Concrete surface finishing - stucco work
- Exposed concrete - the spacer imprint becomes visible on the concrete surface (kindly refer to DBV instructions sheet "exposed concrete")

## Required quantities and positioning

**Thin rebar can bend during concreting!**

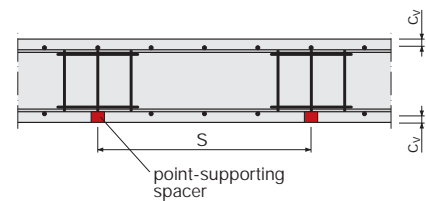
**If the reinforcement is very heavy, check the spacer loading capacity!**

The fixing interval is based primarily on the accepted deflection at maximum loading, e.g. when the reinforcement is walked on, especially during concreting. When placing bar spacers in the tension zone of the component to be concreted, use spacers of reduced length and arrange them with overlaps.

### Structural element: slabs

#### Spacer fixing distances S

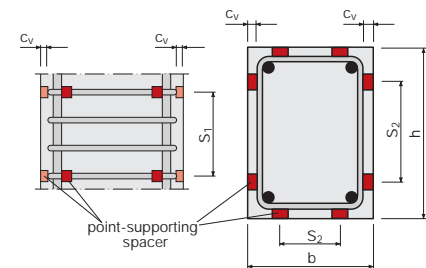
Supported bars Ø	max. S	Pcs. required per m <sup>2</sup>			
		Block spacer	Bar spacers		
			L = 18 cm	L = 33 cm	L = 100 cm
up to 6.5 mm	0,50 m	4	3,0	2,5	1,33
from 6.5 mm	0,70 m	2	1,6	1,4	0,84



### Structural component: beams and columns

#### Spacer fixing distances max. S<sub>1</sub> in longitudinal direction

longitudinal bars Ø	columns	beams
up to 10 mm	0,50 m	0,25 m
12 to 20 mm	1,00 m	0,50 m
over 20 mm	1,25 m	0,75 m



#### Spacer fixing distances max. S<sub>2</sub> in transverse direction

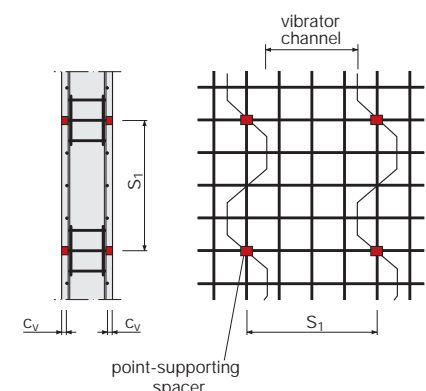
Quantity, distances		
b or h	columns	beams
up to 1.000 mm	2 pcs.	2 pcs.
over 1.00 m	≥ 3 pcs.	≥ 3 pcs.
max. S <sub>2</sub>	0,75 m	0,50 m

### Structural element: walls

#### Spacer fixing distances S<sub>1</sub> and quantity

supporting bars Ø	max. S <sub>1</sub>	Pcs. required per m <sup>2</sup> wall*		
		Block spacer	Bar spacers	
			L = 18 cm	L = 33 cm
up to 8 mm	0,70 m	4	1,6	1,4
over 10 mm	1,00 m	2	1,0	0,8

\*and per wall side





## Block spacers made of fibre concrete

Fibre concrete block spacers have minimal contact with formwork and can be used for small components. There is no heat/cold deformation and maintenance of concrete cover is guaranteed. Choose from a wide range of spacers to find the optimum type for your application.

All MAX FRANK fibre concrete bar spacers meet the maximum fire resistance requirements.

The items listed represent a standard selection. The respective spacers can be produced in further concrete covers, cut widths and lengths.

### We offer you the ideal spacer for every application:

	with flat support surface	with linear support surface	with steel clip	with cross-clip	with shuttlecock	Cast concrete with steel
Type series	AD	AD	AK	AK-Q	AB	AB
Drawing						
Horizontal reinforcement	+	+ <sup>1)</sup>	-	-	+	+
Vertical reinforcement	-	+ <sup>1)</sup>	+ <sup>1)</sup>	+ <sup>1)</sup>	+ <sup>1)</sup>	+
Exposed concrete <sup>2)</sup>	-	+	+	+	+	-
Type group <sup>3)</sup>	B2	B2	B2	B2	B2	B2

⊕ suitable

⊖ not suited

1) If tilting or displacement is not possible

2) Check the suitability of spacers for exposed concrete or self compacting concrete prior to use by testing at test surfaces.

3) Type group to DBV-instruction sheet "spacers"

B1 = point shaped, not fixed

C1 = linear shaped, not fixed

B2 = point shaped, fixed

C2 = linear shaped, fixed

## Spacers without tying wire

made of fibre concrete for horizontal reinforcement

	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet
	BAO25	25	3.30	600	812
	BAO30	30	3.60	600	884
	BAO40	40	5.70	400	932
	BAO50	50	7.50	250	770
	AO2071	20/25/30	2.80	750	860
	AO3572	35/40/50	9.30	250	950
	AO4572	45/55/60	15.00	125	770

Packaging: 40 sacks per pallet.

## Spacers with tying wire

made of fibre concrete for horizontal and vertical reinforcement

	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet
	BAD25	25	3.50	600	860
	BAD30	30	3.80	600	932
	BAD35	35	4.70	500	960
	BAD40	40	6.00	400	980
	BAD45	45	7.00	250	720
	BAD50	50	7.80	250	800
	AD2501	25	3.80	500	780
	AD3001	30	4.80	500	980
	AD3512	35	6.30	400	1028
	AD4012	40	8.30	250	850
	AD4512	45	8.80	250	900
	AD5013	50	12.00	200	980
	AD5513	55	13.40	175	958
	AD6013	60	14.50	175	1035
	AD3562	35/40	7.00	250	720
	AD4562	45/55	11.70	200	956
	AD5062	50/60	12.30	200	1004
	AD2071	20/25/30	2.90	750	890
	AD3572	35/40/50	9.60	250	980
	AD4572	45/55/60	15.30	125	785

Packaging: 40 sacks per pallet.

## Spacers with steel clips



made of fibre reinforced concrete for vertical reinforcement

	Designation	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet
	Bracket for steel up to Ø 8 mm	AK25RA	25	2.40	1000	980
		AK30RA	30	2.90	750	890
		AK35RA	35	3.50	500	720
	Fillet for steel Ø 10 + 12 mm, bracket for steel Ø 10 - 16 mm	AK30ZS	30	5.50	400	900
		AK40ZS	40	6.60	350	944
		AK50ZS	50	7.90	250	810

Packaging: 40 sacks per pallet.

## Spacers with cross-clips


made of fibre reinforced concrete for vertical reinforcement

	Designation	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet
	Groove for steel from Ø 3 to 10 mm for external reinforcement	AK30S5Q10	30	7.00	250	720
		AK35S5Q10	35	7.70	250	790
		AK40S6Q10	40	9.10	250	930
	Groove for steel from Ø 12 to 16 mm for internal reinforcement	AK30S5Q16	30	7.00	250	720
		AK35S5Q16	35	8.10	250	830
		AK40S6Q16	40	9.00	250	920

Packaging: 40 sacks per pallet.

## Reinforcement end supports

made of fibre concrete used as stands for vertical single rebars


	Designation	Art. no.	External Ø mm	Concrete cover mm	Height mm	Weight kg/pce.	Sack contents pcs.	Weight kg/pallet
	suitable for steel diameter 6.0 - 10.0 mm	FBSP53530	35	30	50	0.10	250	1020
		FBSP53535	35	35	55	0.11	200	900
		FBSP53540	35	40	60	0.12	200	980
		FBSP53545	35	45	65	0.13	200	1060
		FBSP53550	35	50	70	0.14	175	1000

Packaging: 40 sacks per pallet.



## “Rondo” round spacer


round spacers made of fibre concrete for insertion of prefabricated reinforcement cages into formwork

	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet
	RONDO03002512	30	21.80	110	979
	RONDO03502512	35	25.50	100	1040
	RONDO04002512	40	34.20	60	841
	RONDO05002512	50	60.20	40	983

For steel diameters of up to 12 mm. Non-stock items. Delivery time on request. Packaging: 40 sacks per pallet.

## Pile cage spacers “AROLLE”


If pile cage spacers are fixed to the horizontal reinforcement, the cages can be accurately lowered into the borehole. If Tubbox® column formers are used, pile cage spacers make the insertion of the reinforcement cage much easier.

	Art. no.	Concrete cover mm	Drillhole Ø mm	Weight kg/100 pcs.	Weight kg/pallet
	AR0208515	35	15	24.00	980
	AR02009515	40	15	31.00	950
	AR02010515	45	15	34.60	885

For steel diameters of up to 12 mm. Non-stock items. Delivery time on request.

## Kickers made of fibre concrete


acting as continuous stop spacers between shutters, square profiles 40 x 40 mm with 2 nail holes

	Art. no.	Length mm	Weight kg/pce.	Carton contents piece	Weight kg/pallet
	SAV400150	150	0.38	95	1303
	SAV400200	200	0.50	65	1190

36 boxes/pallet. Further dimensions available on request.



## Kickers made of fibre concrete

acting as stop spacers between shutters

	Designation	Art. no.	External Ø mm	Height mm	Weight kg/pce.	Pack size piece
	with nail insert (without nail)	SAR60N	60	40	0.23	100
	Nail suitable for nail gun, shaft diameter 3.7 mm, shaft length 72 mm	SAFBRN72	-	-	0.01	100

If nail guns are used, it is recommended that a trial installation is carried out to determine appropriate cartridge strength and tool settings on site in order to avoid damage to the kickers.

## Tying wire

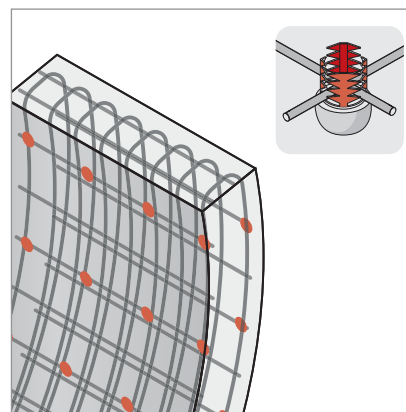
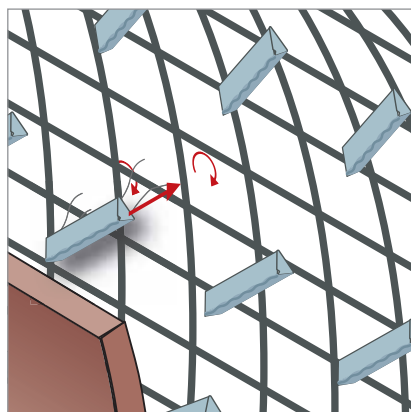
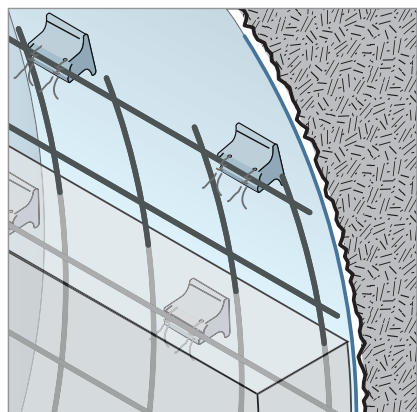
	Designation	Art. no.	Wire thickness mm	Pack size kg	Packaging unit/pallet	Weight kg/pallet
	Tying wire roll BR 1.4 black annealed	HSBDRS14	1,4	20	36	740
	Tying wire roll BR 1.4 galvanised	HSBDRV14	1,4	20	36	740
	Tying wire coil black annealed	HSBD1440	1,4	25-40	25	920

## Tunnel spacers

for fixing of sealing film in tunnel constructions

	Designation	Art. no.	Concrete cover mm	Pallet unit	Weight kg/pce.	Weight kg/pallet
	From fibre concrete, contact surface 80 x 100 mm, round-shaped corners	FBTA50	50	2000	0.50	1020
		FBTA60	60	2000	0.63	1280
	Made of synthetic material, contact surface 60 x 68 mm	KTA50	50	4800	0.06	298
		KTA60	60	2400	0.07	188
	Made of plastic, support surface 72 x 68 mm, tilt protection on both sides	KTAS60	60	1800	0.06	20

Packaging in large boxes.





## Fibre concrete bar spacers

High load-bearing capacity and resistance to heat and cold ensure absolute maintenance of concrete cover. All bar spacers from a length of 33 cm are provided with an interior reinforcement fibre for high protection against breakage.

The items listed represent a standard selection. The respective spacers can be produced in further concrete covers, cut widths and lengths.

In the DBV data sheet, edition 2011, section 2.1.1 (5), the following conditions are defined for linear spacers for use with components that are subject to bending stresses. As a rule, the installation lengths are to be limited as follows:  $L < 350 \text{ mm}$  or  $L < 2h$  ( $h$  = component height), or  $L < 0.25w$  ( $w$  = component width)

**We offer you the ideal spacer for every application:**

	Snake, Snake N + Banana N	Rail + Rail B	Triangular	Triangular concave	Triangular concave with hook	Triangular concave with tying wire	Square	Combined spacers
Type series	FAHKS FAHKBN	FAHSS FAHSB	FAHD	FAHK	FAHDH	FAHKZD	FAHV	KOMBI KOMBST
Drawing								
Horizontal reinforcement	⊕ <sup>1)</sup>	⊕ <sup>1)</sup>	⊕ <sup>1)</sup>	⊕ <sup>1)</sup>	⊖	○	⊕ <sup>1)</sup>	⊕
Vertical reinforcement	⊖	⊖	⊖	⊖	⊕	⊕ <sup>1)</sup>	⊖	⊖
Exposed concrete <sup>2)</sup>	○	⊖	⊖	⊖	○	○	⊖	⊕
Type group <sup>3)</sup>	C1	C1	C1	C1	C2	C2	C1	B1/C1

- ⊕ suitable
- conditionally suitable
- ⊖ not suited

1) with longitudinal limitation when installed transversally to the main tension direction of the reinforcement ( $350 \text{ mm}$  and/or  $< 2 \times h$  or  $< 0.25 \times b$  whereby  $h$  = component thickness and  $b$  = component width)

without length limitation:

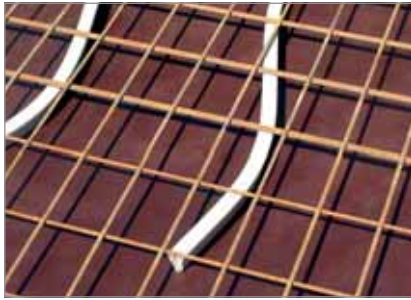
- cement-bound spacers in the pressure zone
- when installing longitudinally to the main tension direction of the reinforcement
- within tension zone when the crack formation plays a tangential role and for components without any specific requirement regarding the appearance - see DBV fact sheet "Spacers" 1/2011

2) Check the suitability of spacers for exposed concrete or self compacting concrete prior to use by testing at test surfaces.

3) Type group to DBV-instruction sheet "spacers"

B1 = point shaped, not fixed  
C1 = linear shaped, not fixed

B2 = point shaped, fixed  
C2 = linear shaped, fixed

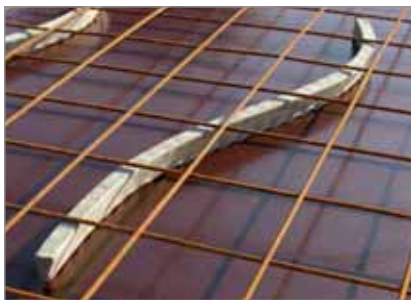


Suitable for rapid and cost effective fixing of mesh and loose reinforcement. Stable and non-tipping, simple laying.

**“Snake” type bar spacers - length approx. 100 cm / 80 cm**

made from fibre concrete for support of horizontal mesh and loose bars

Art. no.	Concrete cover mm	Length cm	Weight kg/pce.	Pallet unit	Weight kg/pallet
FAHKS20100	20	100	0.54	1250	695
FAHKS25100	25	100	0.70	1000	720
FAHKS30100	30	100	0.81	1000	830
FAHKS35100	35	100	1.03	750	792
FAHKS40100	40	100	1.27	600	782
FAHKS45100	45	100	1.41	500	725
FAHKS50100	50	100	1.74	500	890
FAHKS55100	55	100	1.92	400	788
FAHKS60100	60	100	2.20	350	790
FAHKS20080	20	80	0.43	1250	558
FAHKS25080	25	80	0.56	1250	720
FAHKS30080	30	80	0.64	1250	820
FAHKS35080	35	80	0.83	1000	852
FAHKS40080	40	80	1.02	750	785
FAHKS45080	45	80	1.13	600	698
FAHKS50080	50	80	1.39	600	854



Contact with the formwork is reduced to a few points due to the notched contact surface. Designed for use with exposed concrete.

Suitable for supporting overlapping individual rebars

**“Snake N” type bar spacers - length approx. 100 cm / 80 cm**

made of fibre concrete with notches for support of horizontal mesh and loose bars

Art. no.	Concrete cover mm	Length cm	Weight kg/pce.	Pallet unit	Weight kg/pallet
FAHKSN20100	20	100	0.57	1250	732
FAHKSN25100	25	100	0.71	1000	734
FAHKSN30100	30	100	0.79	1000	810
FAHKSN35100	35	100	1.07	750	823
FAHKSN40100	40	100	1.26	600	776
FAHKSN45100	45	100	1.43	500	735
FAHKSN50100	50	100	1.71	500	875
FAHKSN55100	55	100	1.93	400	792
FAHKSN60100	60	100	2.07	350	745
FAHKSN20080	20	80	0.46	1250	595
FAHKSN25080	25	80	0.54	1250	695
FAHKSN30080	30	80	0.63	1250	808
FAHKSN35080	35	80	0.86	1000	880
FAHKSN40080	40	80	1.01	750	778
FAHKSN45080	45	80	1.14	600	704
FAHKSN50080	50	80	1.36	600	836



Contact with the formwork is reduced to a few points due to the notched contact surface. Designed for use with exposed concrete.

Suitable for supporting overlapping individual rebars

### “Banana N” type bar spacers - length approx. 33 cm / 25 cm

made from fibre concrete with notches for support of horizontal mesh

Art. no.	Concrete cover mm	Length cm	Weight kg/pce.	Pallet unit	Weight kg/pallet
FAHKBN2033	20	33	0.22	4050	915
FAHKBN2533	25	33	0.27	3375	945
FAHKBN3033	30	33	0.32	2700	895
FAHKBN3533	35	33	0.41	2160	910
FAHKBN4033	40	33	0.49	1890	950
FAHKBN4533	45	33	0.53	1350	740
FAHKBN5033	50	33	0.57	1080	640
FAHKBN2025	20	25	0.17	5400	938
FAHKBN2525	25	25	0.20	4050	838
FAHKBN3025	30	25	0.25	3510	880
FAHKBN3525	35	25	0.31	2970	950
FAHKBN4025	40	25	0.37	2700	1006
FAHKBN4525	45	25	0.41	2430	1004
FAHKBN5025	50	25	0.44	2160	979

Packaging: Loose on pallets, shrink-wrapped.



- High load-bearing capacity
- Excellent bonding
- Protects formwork
- Rapid, efficient laying
- Secure application
- Technically accurate and cost effective

### “Rail” type bar spacers - length approx. 100 cm

made from fibre concrete for support of horizontal mesh and loose bars

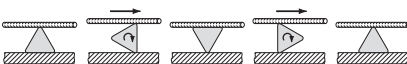
Art. no.	Concrete cover mm	Weight kg/pce.	Pallet unit	Weight kg/pallet
FAHSS30100	30	0.84	1000	860
FAHSS35100	35	1.09	750	835
FAHSS40100	40	1.15	600	710
FAHSS45100	45	1.45	500	745
FAHSS50100	50	1.70	500	870
FAHSS55100	55	2.10	400	860
FAHSS60100	60	2.43	350	870

Packaging: Loose on pallets, shrink-wrapped.



#### Security in use

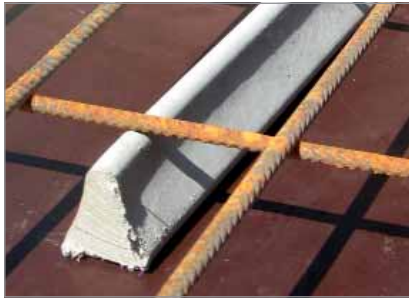
Triangular bar spacers always provide the same concrete cover in any position.



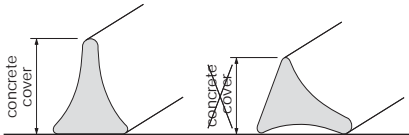
### Triangular bar spacers - length approx. 100 cm / 33 cm

made from fibre concrete with continuous reinforcing threads for support of horizontal mesh and loose bars

Art. no.	Concrete cover mm	Length cm	Weight kg/pce.	Pallet unit	Weight kg/pallet
FAHD020100	20	100	0.65	1500	995
FAHD025100	25	100	1.00	1000	1020
FAHD030100	30	100	1.41	800	1148
FAHD035100	35	100	1.92	600	1172
FAHD040100	40	100	2.51	400	1024
FAHD045100	45	100	3.17	350	1130
FAHD050100	50	100	3.87	300	1181
FAHD055100	55	100	4.63	250	1178
FAHD015033	15	33	0.12	8250	1010
FAHD020033	20	33	0.21	4950	1079
FAHD030033	30	33	0.47	2475	1183
FAHD035033	35	33	0.63	1980	1269
FAHD040033	40	33	0.83	1650	1390
FAHD050033	50	33	1.28	1089	1414
FAHD055033	55	33	1.53	990	1535



Always place flat side downwards when laying horizontally.



Triangular concave bar spacers are cost effective. If there is a likelihood that they will roll over, triangular bar spacers should be used.

### Triangular concave bar spacers - length approx. 100 cm

made from fibre concrete with continuous reinforcing threads for support of horizontal mesh and loose bars - lightweight version

Art. no.	Concrete cover mm	Weight kg/pce.	Pallet unit	Weight kg/pallet
FAHK025100	25	0.81	1000	830
FAHK030100	30	1.02	1000	1035
FAHK035100	35	1.34	750	1025
FAHK040100	40	1.78	600	1090
FAHK045100	45	1.96	500	1000
FAHK050100	50	2.34	500	1190
FAHK055100	55	2.63	400	1070



- For vertical reinforcement
- Simply clip to reinforcement
- With continuous fibre reinforcement to prevent breakages

### Triangular concave bar spacers with hook clips - length approx. 18 cm / 33 cm

depending on the distance between the horizontal reinforcement layers

Art. no.	Concrete cover mm	Length cm	Carton contents piece	Weight kg/carton	Cartons/pallet	Weight kg/pallet
FAHDH20018	20	18	250	32.00	24	788
FAHDH25018	25	18	180	34.56	24	849
FAHDH30018	30	18	125	24.75	24	614
FAHDH35018	35	18	100	25.80	24	639
FAHDH40018	40	18	75	21.90	24	546
FAHDH45018	45	18	60	22.92	24	570
FAHDH50018	50	18	50	22.90	24	570
FAHDH55018	55	18	50	24.60	24	610
FAHDH60018	60	18	50	28.55	24	705
FAHDH20033	20	33	150	34.35	24	844
FAHDH25033	25	33	110	39.60	24	970
FAHDH30033	30	33	75	26.48	24	655
FAHDH35033	35	33	60	27.06	24	669
FAHDH40033	40	33	50	26.05	24	645
FAHDH45033	45	33	40	27.08	24	670
FAHDH50033	50	33	33	27.09	24	670
FAHDH55033	55	33	33	29.37	24	725
FAHDH60033	60	33	30	31.26	24	770

Clip type "PL" for max. steel Ø max. 16 mm.



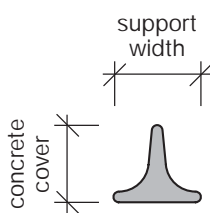
### Triangular concave bar spacers with studs and two wires - length approx. 22 cm, equilateral shape

made of fibre concrete for secure fixing in any position

WG: 052

Art. no.	Concrete cover mm	Length cm	Support width approx. mm	Weight kg/pce.	Pieces/pallet	Weight kg/pallet
FAHKZDN600220	60	22	68	0,69	1250	882
FAHKZDN650220	65	22	73	0,78	1200	958
FAHKZDN700220	70	22	79	0,89	1000	910
FAHKZDN750220	75	22	83	0,95	1000	967

- Secure fixing in any position, even with overhanging reinforcement (tunnel construction)
- Bar spacers for multiple rebars
- Non-tipping due to the large support width



### Square bar spacers - length approx. 100 cm

made of fibre concrete for heavy, horizontal reinforcement with continuous reinforcing threads

Art. no.	Concrete cover mm	Weight kg/pce.	Pieces/pallet	Weight kg/pallet
FAHV025025100	25 x 25	1.32	850	1142
FAHV030030100	30 x 30	1.89	600	1154
FAHV035035100	35 x 35	2.58	450	1181
FAHV040040100	40 x 40	3.39	350	1207
FAHV050050100	50 x 50	5.38	200	1096
FAHV060060100	60 x 60	7.71	150	1177

Other dimensions and rectangular profiles available on request.

- For particularly heavy reinforcement
- Large support surface for laying on insulation
- Large support area prevents tipping



### Combined spacer with structural steel rail

Fibre concrete spacers with mild steel bar, suitable for applications where the reinforcement is not walked on such as precasting plants.

Art. no.	Production length cm	Concrete cover mm	Weight kg/pce.	Pieces/pallet	Weight kg/pallet
KOMBST20110	approx. 110 with 6 spacers	20	0.39	2000	800
KOMBST25110		25	0.40	1000	420
KOMBST30110		30	0.45	1000	470
KOMBST35110		35	0.51	1000	533
KOMBST40110		40	0.53	1000	550
KOMBST45110		45	0.56	1000	580
KOMBST50110	50	0.64	1000	660	

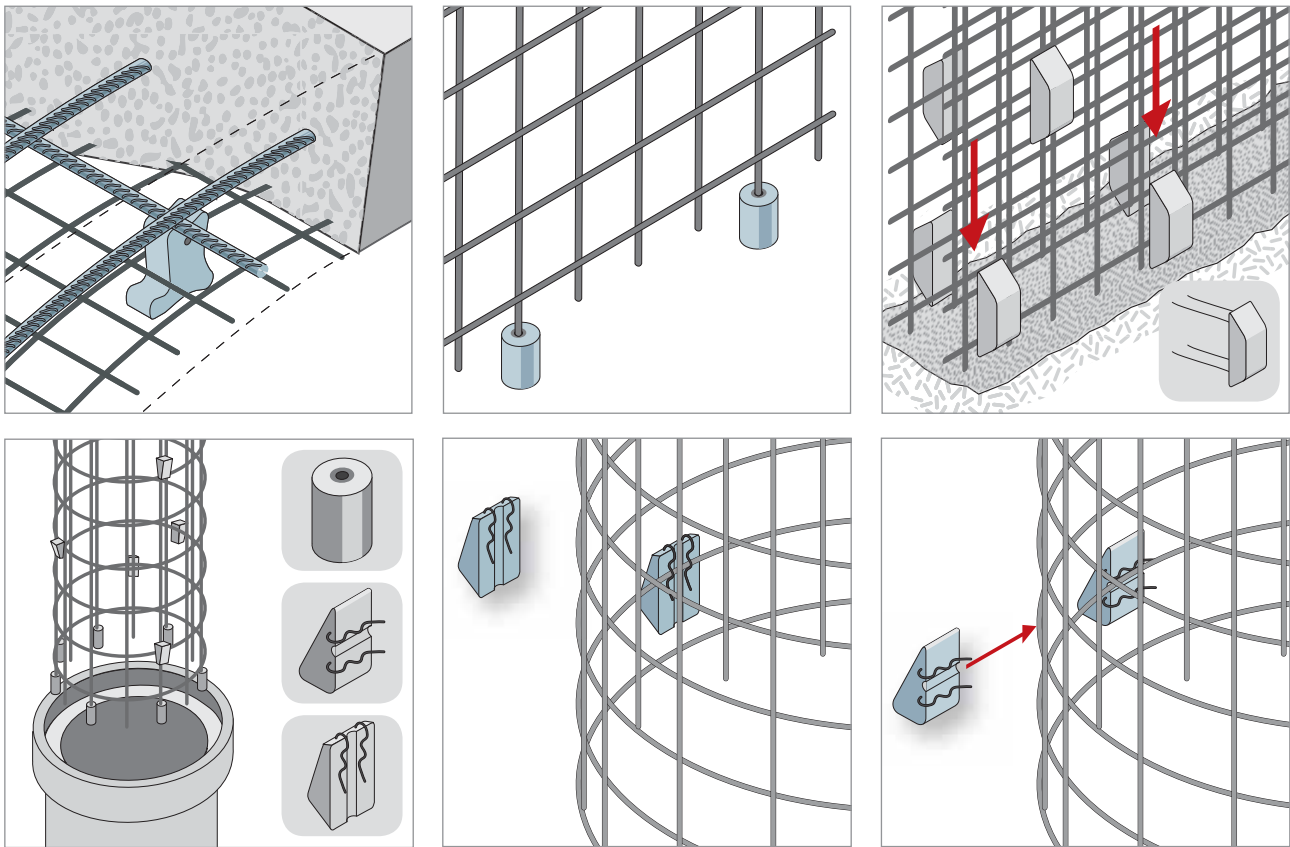
Steel bar within tolerance dimension of the concrete cover.

## Special spacers

**Special spacers according to your wishes available to order with short lead times.**

**We can offer numerous cost effective solutions to tight tolerances.**

- “Shoe-shape” spacers are provided with a nail hole and are suitable for the use of inclined formwork. The spacer can be fixed with a nail and slipping is thus ruled out.
- The reinforcement support consists of a cylinder made of fibre-reinforced concrete and a plastic dowel for the fixing of vertical reinforcing bars. The plastic dowel automatically clamps the reinforcing bar when pushed onto the end of it.
- Spacers for slotted walls prevent the contact of the reinforcement and the excavation wall and ensure an edging-free lowering of large reinforcement components thanks to the skid profile.
- Spacers for concrete pipe manufacture can be attached to the internal and/or external reinforcement and centre the reinforcement cage.







## Cast concrete spacers



Getting the right amount of concrete cover is essential for the durability of reinforced concrete structures. Cast concrete spacers are used to guarantee concrete cover for structures and components before and during concreting. A test report according to DBV leaflet "Spacers - January 2011" is available from the German concrete association.

### ★ Advantages

- Cement-bound spacers, no heat/cold deformation
- Absolute guarantee of concrete cover
- Various attachment options for quick and easy use
- Precise positioning
- Homogeneous bond, no hairline cracks between spacer and concrete
- Fire-resistant according to the maximum requirements of DIN 4102 - Class A1 (non-flammable)


The items listed represent a standard selection. The respective spacers can be produced in further concrete covers, cut widths and lengths.

### Spacers with shuttlecock clips

	Designation	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs	Weight kg/pallet
	for vertical reinforcement rebar dia. 4 - 10 mm	AB25HRF	25	3.20	250	340
		AB30HRF	30	3.90	250	410
		AB35HRF	35	4.80	250	500
		AB40HRF	40	5.50	250	570
	for vertical and horizontal reinforcement rebar dia. 4 - 10 mm	AB25HVF	25	4.60	250	480
		AB30HVF	30	5.90	250	610
		AB35HVF	35	7.10	250	730
		AB40HVF	40	8.30	250	850
		AB45HVF	45	11.00	250	1120
		AB50HVF	50	12.80	200	1044


Packaging: 40 sacks per pallet. Further types made of cast concrete available on request.

### Spacers with plastic clips

	Designation	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet
	for vertical and horizontal reinforcement, clamp for steel diameter 12 mm	AB20HLZ10	20	4.10	250	430
		AB30HLZ10	30	5.10	250	530
		AB40HLZ10	40	8.30	250	

Packaging: 40 sacks per pallet. Further types made of cast concrete available on request.

### Spacer with loop wire

	Art. no.	Concrete cover mm	Weight kg/100 pcs.	Sack contents pcs.	Sack/pallet	Weight kg/pallet
	AB30HFOED	30	8.80	250	50	1120
	AB40HFOED	40	11.10	250	40	1130
	AB50HFOED	50	14.50	200	40	890



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