

emco Grids

Planning manual part 2.2.0

Linear foot grids · Rolling foot grids

emco **Grids**

Creating free space to live and work in, that is the underlying concept for the varied emco rolling foot grid range. emco delivers the predestined design for all buildings in the residential, property and industrial sectors, for window sills, shop windows, kitchens and all types of convector and air conditions.

Designs with specific advantages in various different designs and the most appropriate materials; developed based on 5 decades of experience with the most modern manufacturing methods. In the swimming pool sector emco manufactures overflow grids with the specific properties to this end.



emco **rolling foot grids**

emco **linear foot grids**

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emco **Grids**

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emco grids

emco **rolling foot grids**

Rolling foot grids have been manufactured by emco for more than 5 decades for the most diverse fields of application with specific construction details to this end.

Upon closer inspection it becomes clear that there are marked advantages, which make the product safer and more durable.

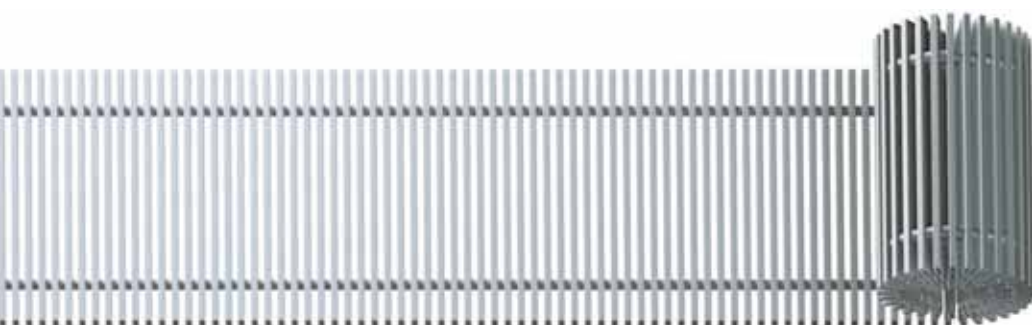
Advantages, which have grown from our experience and which are demonstrated by the most appropriate material selection, by the design

and modern manufacturing methods. In the face of all these advantages the benefits to ensure the maximum effectiveness of progressive energy saving is to the fore.

emco **linear foot grids**

High-quality grid units made from aluminium or stainless steel (depending on model) and consisting of longitudinal full-profile bars. Can be supplied in a variety of colours, with five profiles to choose from. For installation purposes, we recommend an installation frame made from aluminium angled profiles or the Z frame made from aluminium.























emco linear foot grids can be used in a wide variety of applications: In furniture construction, as an effective and aesthetically pleasing ventilation method in fitted kitchens. As part of windowsills for free circulation of warm air from radiators fitted underneath. In doors, for ventilating closed rooms such as bathrooms. In commercial cooling and deep-freeze units such as refrigerated display cases in the food trade.





Project: Technology park, Karlsruhe (Germany)

Use recommendation, colours and surfaces

						
Linear foot grid model 632*						
Rolling foot grid model 624						
Rolling foot grid model 860						
Rolling foot grid model 616						
Rolling foot grid model 900						
Rolling foot grid model 950						
Rolling foot grid model 730						
Linear foot grid model 631						

* Standard delivery

Use recommendation



for private living areas



for commercial high rise buildings



for sports hall (only rigid systems)



recommendable



for windows and bench heating, shop windows, shops in store, DIY kitchens



Outdoor covers



for swimming pools and damp rooms



only recommendable to a limited extent

Load table foot grid

Bar width [(A) mm] →	150	200	250	282	300	362	400	442	500	522	600	692
Linear foot grid model 632	57	43	34	31	29	24	22	-	-	-	-	-
Rolling foot grid model 624	92	70	55	49	45	38	35	31	26	25	23	20
Rolling foot grid model 860	181	137	108	96	88	74	68	59	52	49	46	38
Rolling foot grid model 616	169	127	102	90	85	70	63	57	51	49	42	37
Rolling foot grid model 900	206	154	123	109	103	85	77	70	62	59	51	45
Rolling foot grid model 950 ¹⁾	137	103	82	73	69	57	51	46	41	39	34	30
Rolling foot grid model 730 ²⁾	44	33	26	23	21	-	-	-	-	-	-	-

All the load information in kg/individual bar. The load values states are dead lump loads, which are exerted in the bar centre respectively.

The permissible load values are higher as a load per surface area arises. Permissible overall load: number of loaded bars x permissible individual load.

¹⁾ For model 950, load values apply for bar dimensions 27 x 12 mm. ²⁾ For model 730, load values apply for a maximum ambient temperature of 30 °C.

Colours steel zinc coated, stove enamelled



aluminium white RAL 9006



beige RAL 1001



brass RAL 1036



bronze RAL 8014



black RAL 9005



white RAL 9010

Colours aluminium, anodised



natural colour E6/C0



brass colour E6/EV3



bronze colour E6/C33



black E6/C35

Colours, powder coated



acc. to RAL

Colours polyester



white



grey



yellow



beige

Surface finish
wooden grids model 950

natural (varnished)



oil-treated

Rolling foot grid model 624

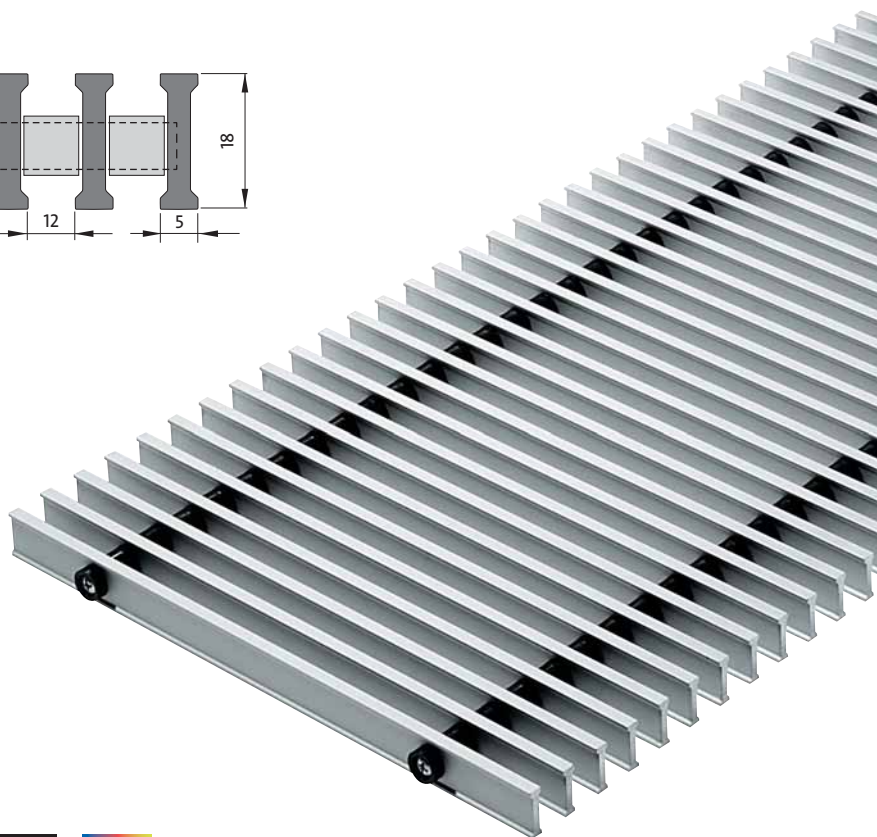
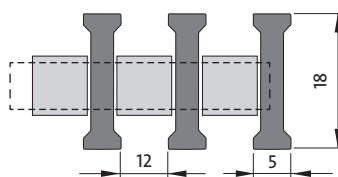
Rolling foot grid, which you can walk on, with transverse profile bars made of Aluminium AlMgSi 0,5, bar dimension 18 x 5 mm.

Optionally available in the colours

anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35 or
powder coated acc.to RAL.

The connection of the profile bars is carried out by means of galvanised steel springs.

The exact profile gap of 12 mm (70 % free cross-section) is achieved by means of the use of colour-matched plastic distance bushes.



In case of using this rolling foot grid without emcotherm floor convectors we suggest for installation insert for

Installation frame model 545

made of aluminium corner sections 20 x 20 x 2 mm optionally available in the colours

anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35 or
powder coated acc. to RAL.

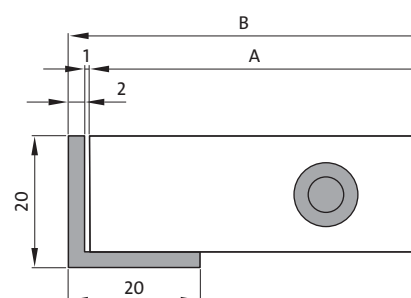
Frame including steel wall cramps and spacer angles.

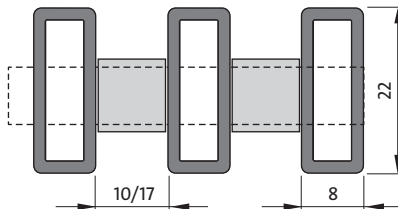
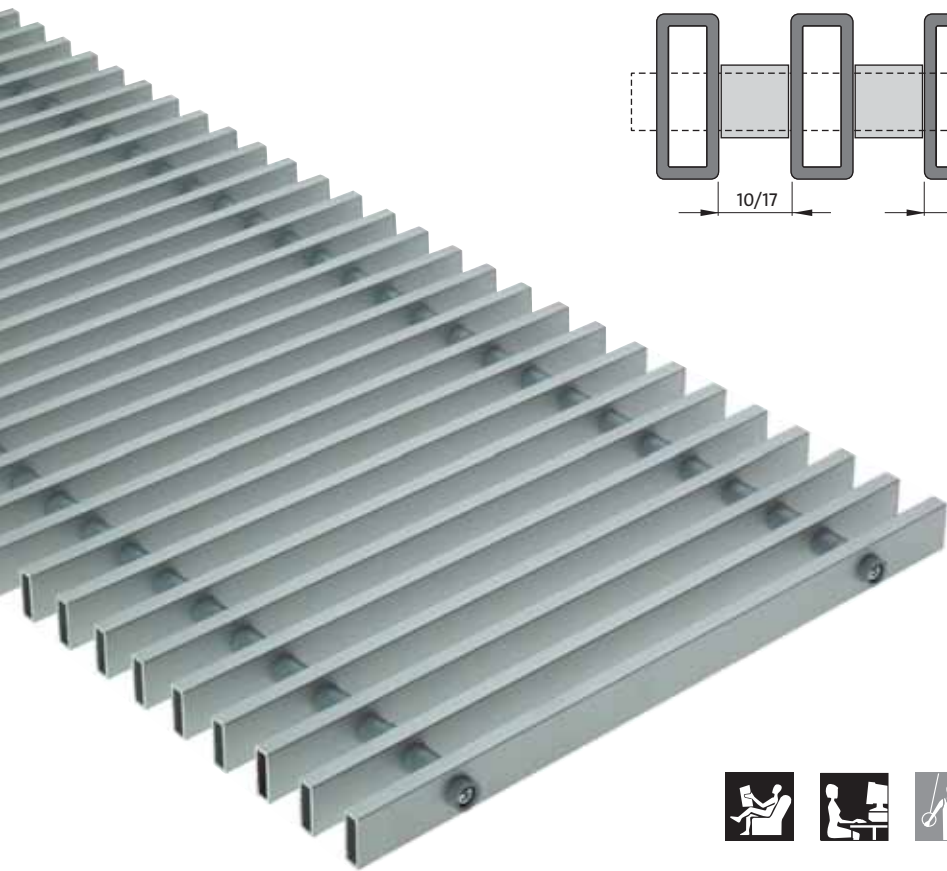
Further instruction for installation: see page 22.

Dimensions model 624

L	2000				1500		1000			
A	50	100	150	200	250	300	350	400	450	500
B	56	106	156	206	256	306	356	406	456	506

Width in mm. Intermediate dimensions can be delivered, A and B see installation frame

Installation frame model 545



Rolling foot grid model 616

Rolling foot grid, which you can walk on, with transverse profile bars made of aluminium AlMgSi 0,5, bar dimension 22 x 8 mm.

Optionally available in the colours anodised natural E6/C0, anodised brass E6/EV3, anodised bronze E6/C33, anodised black E6/C35 or powder coated acc. to RAL.

The connection of the profile bars is carried out by means of galvanised steel springs.

The exact profile gap of 10 mm (55% free cross-section) or 17 mm (70% free cross section) is achieved by means of the use of plastic spacer shells which go with the selected anodised colour.

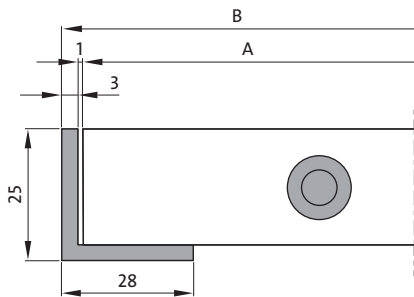


In case of using this rolling foot grid without emcotherm floor convectors we suggest for installation insert for **Installation frame model 540** made of aluminium corner sections 25 x 28 x 3 mm optionally available in the colours anodised natural E6/C0, anodised brass E6/EV3, anodised bronze E6/C33, anodised black E6/C35 or powder coated acc. to RAL.

Frame including steel wall cramps and spacer angles.

Further instruction for installation: see page 22.

Installation frame model 540



Dimensions model 616

L	2000		1500			1000				800		
A	150	200	250	282	300	362	400	442	500	522	600	692
B	158	208	258	290	308	370	408	450	508	530	608	700

Width in mm. Intermediate dimensions can be delivered, A and B see installation frame

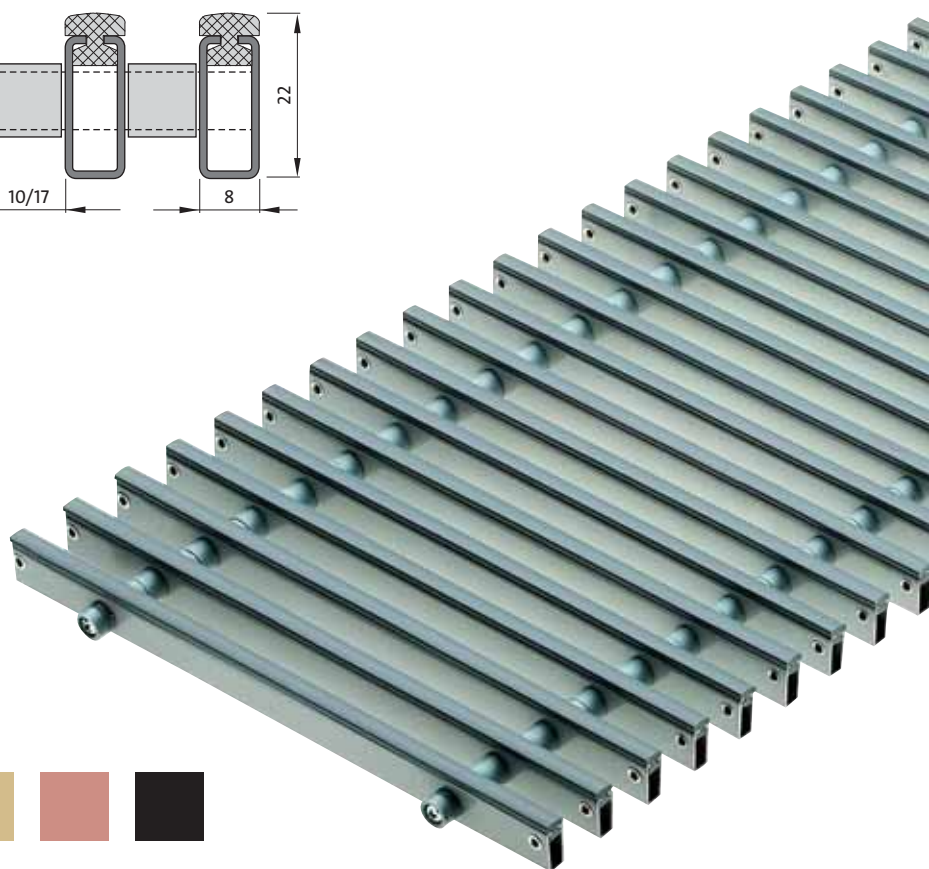
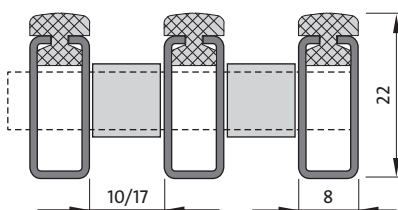
Rolling foot grid model 900

Rolling foot grid, which you can walk on, with transverse profile bars made of steel, zinc coated and additionally stove-enamelled.

Bar size 22 x 8 mm with PVC walking surfaces, comes optionally in the shades aluminium, beige, brass, bronze and black.

The connection of the profile bar is carried out by means of galvanised steel springs.

The exact profile gap of 10 mm (55 % free cross-section) or 17 mm (70 % free cross section) is achieved by means of plastic distance sleeves which go with the colour of the PVC walking surface.



In case of using this rolling foot grid without emcotherm floor convectors we suggest for installation insert for

Installation frame model 540

made of aluminium corner sections 25 x 28 x 3 mm optionally available in the colours

anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33 or
anodised black E6/C35.

Frame including steel wall cramps and spacer angles.

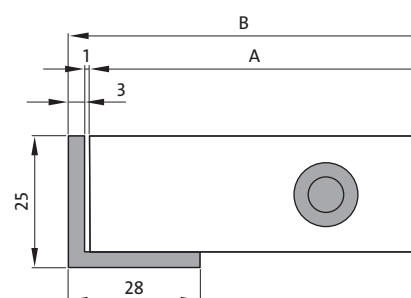
Further instruction for installation: see page 22.

Dimensions model 900

L	2000		1500			1000				800		
A	150	200	250	282	300	362	400	442	500	522	600	692
B	158	208	258	290	308	370	408	450	508	530	608	700

Width in mm. Intermediate dimensions can be delivered, A and B see installation frame

Installation frame model 540



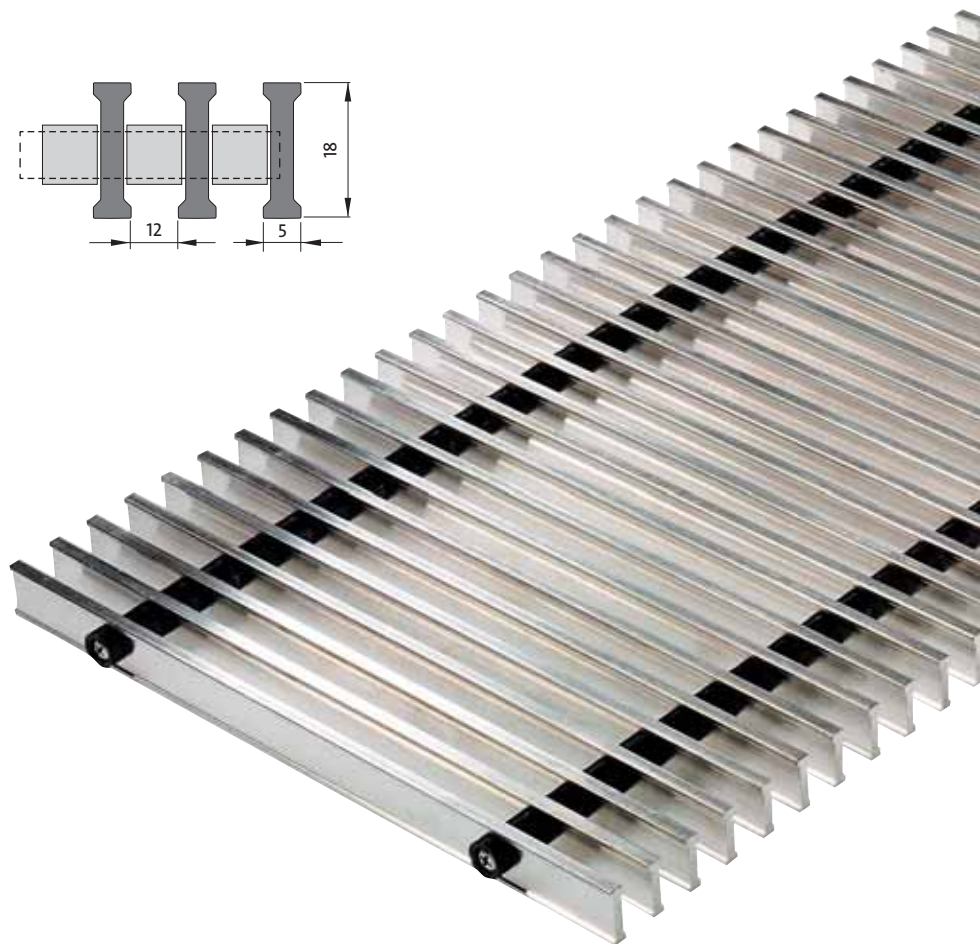
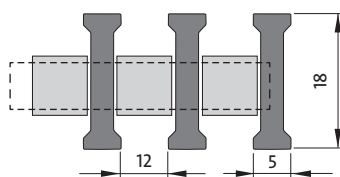


Project: Puma Headquarters, Herzogenaurach (Germany)

Rolling foot grid model 860

Rolling foot grid, which you can walk on, with transverse profile bars made of chrome nickel steel (V2A, material no. 1.4301), bar dimensions 18 x 5 mm. The connection of the profile bars is carried out by means of chrome nickel steel springs.

The exact profile gap of 12 mm (70 % free cross-section) is achieved by means of the use of standard black plastic distance bushes (colour matched distance bushes are available upon request).



In case of using this rolling foot grid without emcotherm floor convectors we suggest for installation insert for **Installation frame model 547**

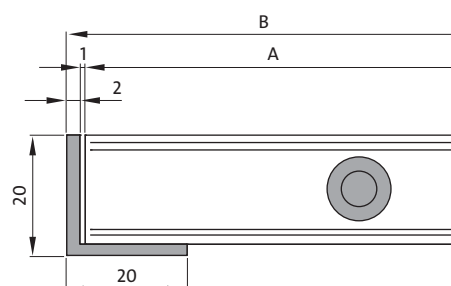
made of chrome nickel steel corner sections (V2A, material no.1.4301) 20 x 20 x 2 mm with chrome nickel steel wall cramps and spacer angles made of steel.

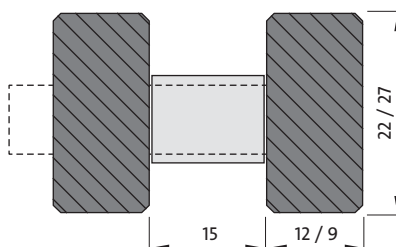
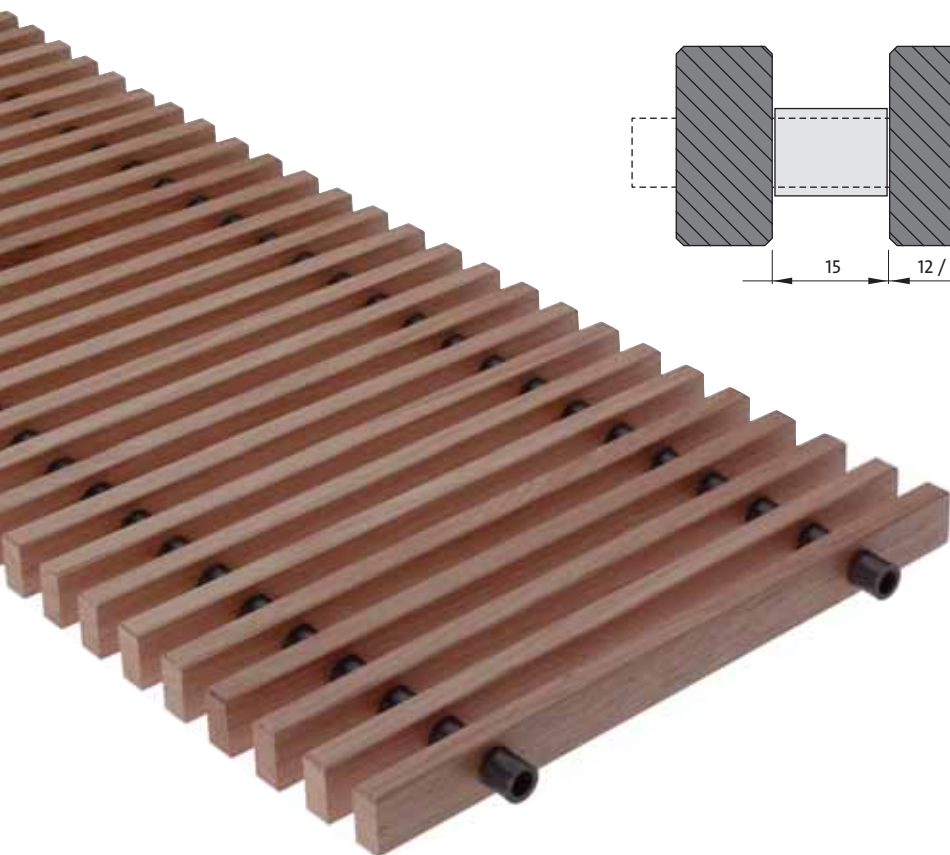
Further instruction for installation: see page 22.

Dimensions model 860

L	2000				1500		1000			
A	50	100	150	200	250	300	350	400	450	500
B	56	106	156	206	256	306	356	406	456	506

Width in mm. Intermediate dimensions can be delivered, A and B see installation frame

Installation frame model 547



Rolling foot grid model 950

Rolling foot grid, which you can walk on with transverse profile bars made of wood, bar dimension 27 x 12 mm (55% free cross-section), alternatively 22 x 9 mm (62% free cross-section). The connection of the profile bars is carried out by means of galvanised steel springs.

The profile gap of 15 mm is achieved by means of the use of colour-matched plastic distance bushes.

Types of wood

- Oak
- Beech
- Maple
- Merbau
- Mahogany

Possible surfaces:

natural (varnished) or oil-treated



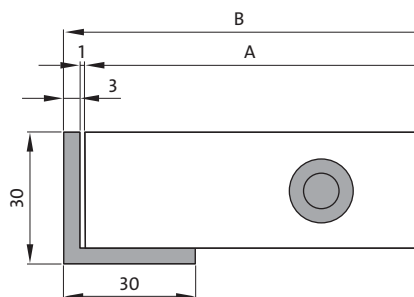
In case of using this rolling foot grid **Bar dimension 27 x 12 mm** without emcotherm floor convectors we suggest for installation insert for **Installation frame model 542**

made of aluminium corner sections 30 x 30 x 3 mm optionally available in the colours anodised natural E6/C0, anodised brass E6/EV3, anodised bronze E6/C33, anodised black E6/C35 or powder coated acc. to RAL.

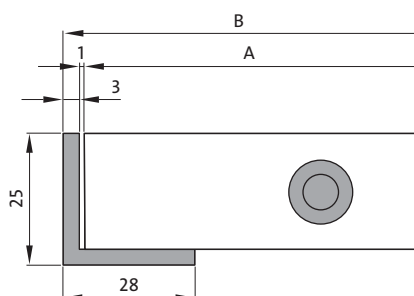
Frame including steel wall cramps and spacer angles.

Further instruction for installation: see page 22.

Installation frame model 542



Installation frame model 540



In case of using this rolling foot grid **Bar dimension 22 x 9 mm** without emcotherm floor convectors we suggest for installation insert for **Installation frame model 540**

made of aluminium corner sections 25 x 28 x 3 mm optionally available in the colours anodised natural E6/C0, anodised brass E6/EV3, anodised bronze E6/C33, anodised black E6/C35 or powder coated acc. to RAL.

Frame including steel wall cramps and spacer angles.

Further instruction for installation: see page 22.

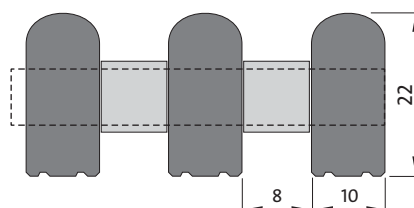
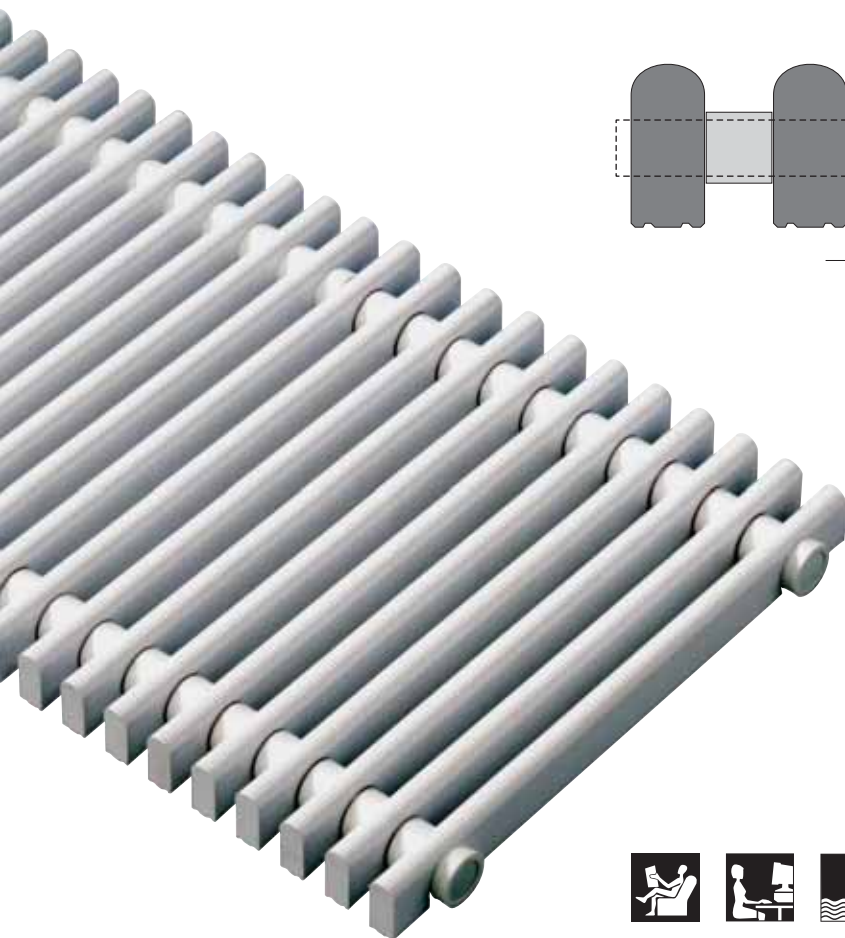
Dimensions model 950

L	2000		1500			1000				800
A	150	200	250	282	300	362	400	442	500	522
B	158	208	258	300	308	370	408	450	508	530

Width in mm. Intermediate dimensions can be delivered, A and B see installation frame

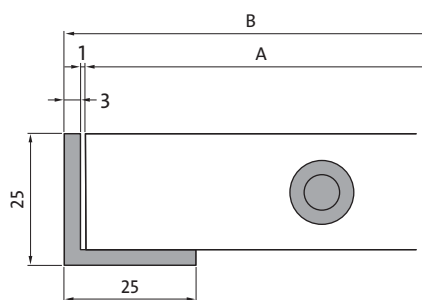
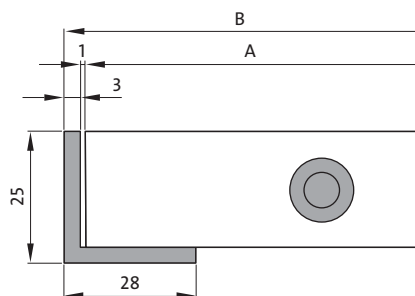


Project: Restaurant Beluga Shipping, Bremen (Germany)

**Rolling foot grid model 730**

Roll-up grating, transverse rods, 22 x 10 mm solid profile made of high-grade, high-impact plastic. Corrosion-resistant, embossed safety profiles resistant to sea-water, chlorinated water and spa waters, slip-resistant according to DIN 51097, category C. Connecting elements made of PUR, spacers made of plastic. Colour choices: White, beige, grey or yellow.

Rod spacing is 8 mm (44 % free cross section). Walk-on design in connection with emco floor convectors.

**Installation frame model 790****Installation frame model 540**

In case of using this rolling foot grid without emcotherm floor convectors we suggest for installation insert for **Installation frame model 790** made of glass fibre reinforced polyester corner profiles 25 x 28 x 3 mm in white.

Alternatively:

Installation frame model 540

made of aluminium corner sections 25 x 28 x 3 mm optionally available in the colours anodised natural E6/C0, anodised brass E6/EV3, anodised bronze E6/C33, anodised black E6/C35 or powder coated acc. to RAL. Frame including steel wall cramps and spacer angles.

Further instruction for installation: see page 22.

Dimensions model 730

L	2000			1500	
A	150	200	250	282	300
B	158	208	258	290	308

Width in mm. Intermediate dimensions on request. A and B see installation frame. Grille dimensions between 100 and 300 mm.

Physical values of emco rolling foot grid model 730

Physical data	Test method	Unit	Value
Density	DIN 53479 ISO R 823 ASTM D 1505	g/ml	1,43 (0,91)
Tensile strength	DIN 53455 ISO R 527 ASTM D 638	N/mm ²	48 (34)
Stretch expansion	DIN 53455 ISO R 527 ASTM D 638	%	> 15 (> 7)
Vicat softening point	DIN 53460/B ISO R 306	°C	80 (90)
Elasticity module	DIN 53457 ISO R 306	N/mm ²	2500 (1250)
Water absorption (100 °C, 24h)	DIN 53471 ISO R 117	%	< 0,1 (0,1)
Notch impact value	DIN 53453	KJ/m ²	30 (7)
Ball indentation hardness	DIN 53456	N/mm ²	65 (100)
Max. environment temperature	—	°C	106 (70)
Longitudinal expansion-coefficient	—	10 ⁻⁴ /K	0,7 (1,5)

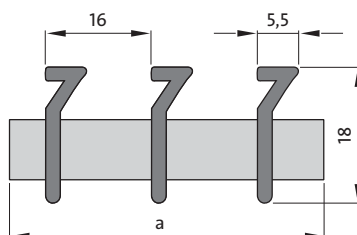
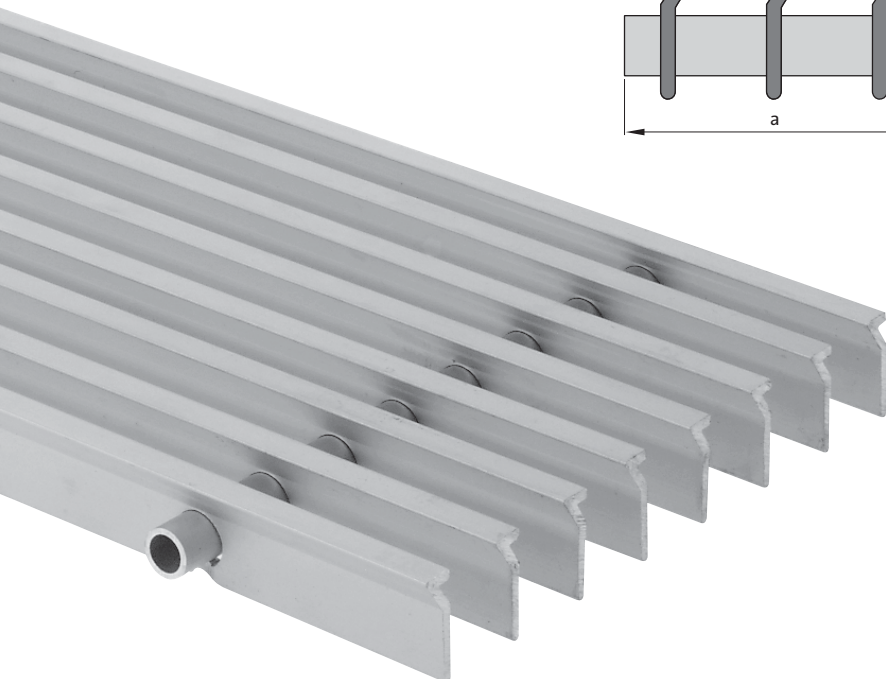
Chemical resistance of emco rolling foot grid model 730

Water	+
Inorganic acids	+
Weak acids	+
Strong acids	ö
Oxidising acids	—
Hydrofluoric acids	ö
Strong organic acids	°
Weak bases	+
Strong bases	+
Aliphatic substances	+
Chlorine carbon hydride	—
Low alcohols	ö
Ester	+
Ketons	—
Ether	+
Aromatic carbon hydride	—
Petroleum	+
Fuel mixture	—
Mineral oil	+
Fats, oils	+
Unsaturated chlorine carbon hydride	—
Turpentine	—

- + resistant
- ° generally sufficiently resistant
- ö conditionally resistant
- unresistant



emco grid model 730 with emcotherm floor convectors in a swimming bath in Wurzen (Germany)



Linear foot grid model 631

Linear foot grid with longitudinal profile bars made of aluminium (AlMgSi 0,5), bar design solid profile, air exit under 30 degrees, spacing of collector bars 16 mm, 64% free cross section.

Not suitable for emcotherm floor convectors.

Optionally available in the standard colours

anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35 or
powder coated acc. to RAL.



For installation, it is recommended to use

Installation frame model 545

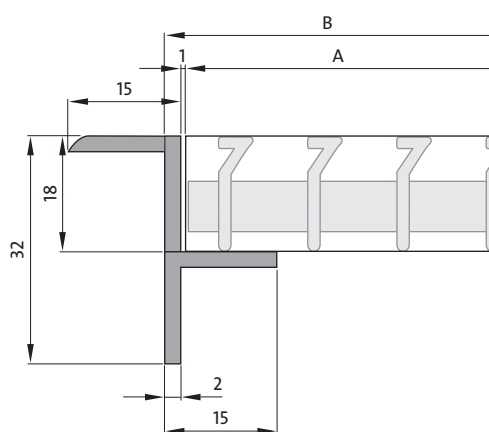
made of aluminium corner sections 20 x 20 x 2 mm, respectively

Z-Frame model 546

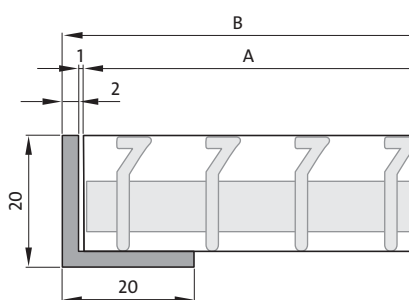
made of aluminium, 15 x 20 x 15 x 2 mm; optionally available in the colours anodised natural E6/C0, anodised brass E6/EV3, anodised bronze E6/C33, anodised black E6/C35 or powder coated acc. to RAL.

Further instruction for installation: see page 22.

Installation frame model 546



Installation frame model 545



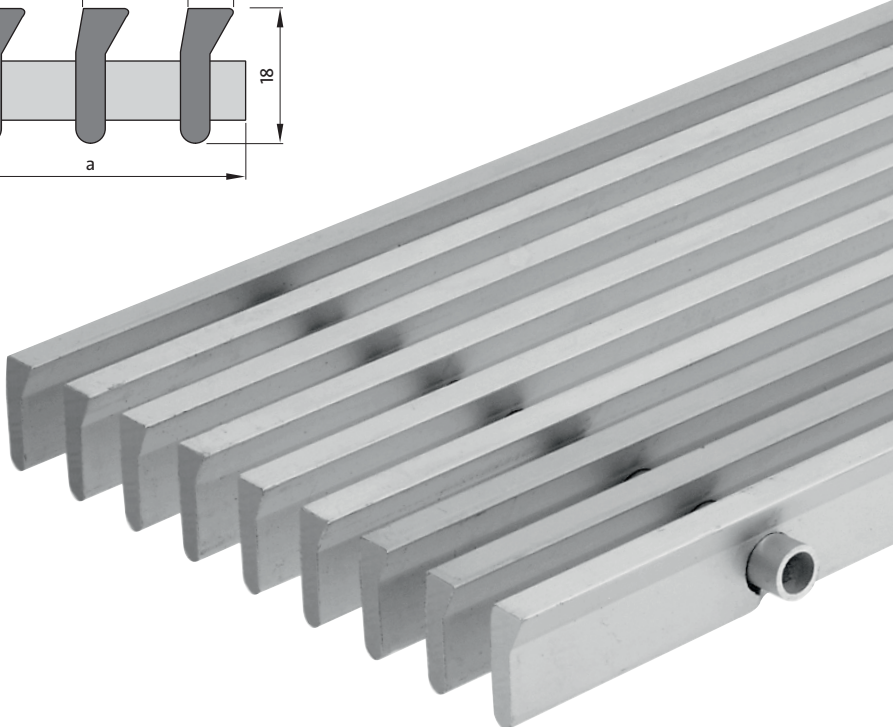
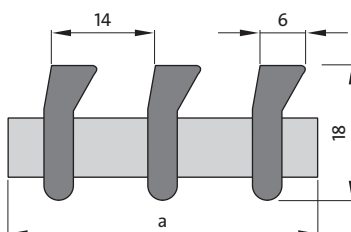
Linear foot grid model 632

Linear foot grid with longitudinal profile bars made of aluminium (AlMgSi 0,5), bar design solid profile, air exit under 30 degrees, spacing of collector bars 16 mm, 57% free cross section.

Only load-bearing if used in conjunction with emcotherm floor convectors or supports installed by the customer.

Optionally available in the standard colours

anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35 or
powder coated acc. to RAL.



In case of using this rolling foot grid without emcotherm floor convectors we suggest for installation insert for **Installation frame model 545**

made of aluminium corner sections 20 x 20 x 2 mm, respectively

Z-Frame model 546

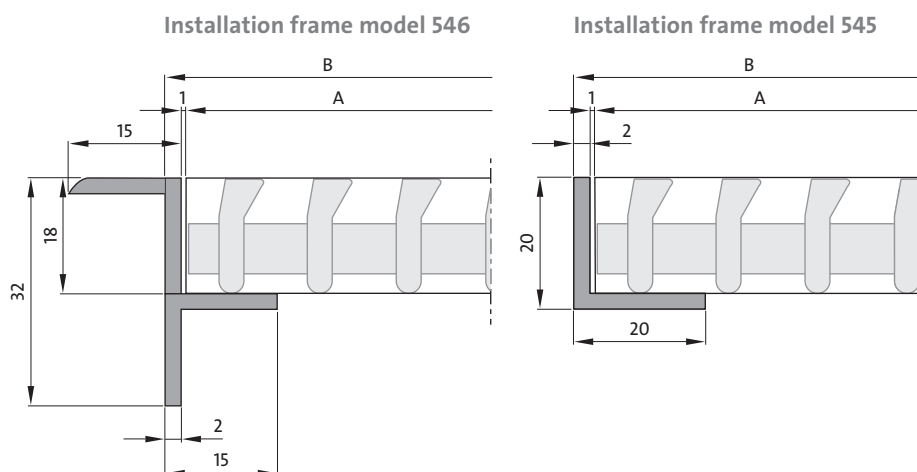
made of aluminium,

15 x 20 x 15 x 2 mm;

optionally available in the colours

anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35 or
powder coated acc. to RAL.

Further instruction for installation: see page 22.



Installation frame model 540

made of aluminium corner sections
25 x 28 x 3 mm,
optionally available in the colours
anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35,
powder coated acc. to RAL.

Frame including steel wall cramps
and spacer angles.

Instruction for installation:
see page 22.

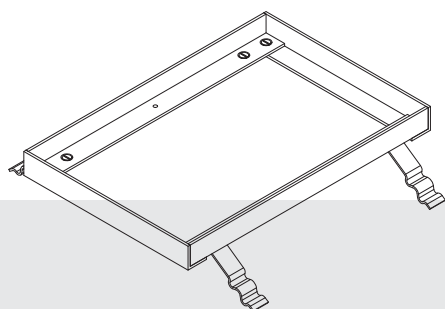
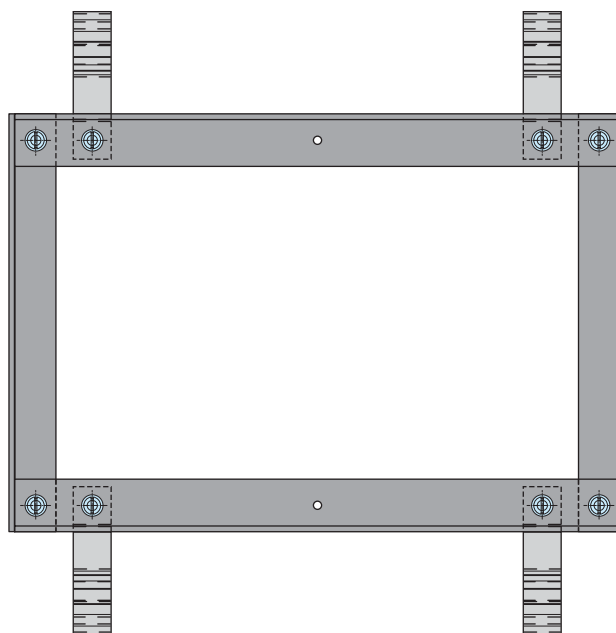
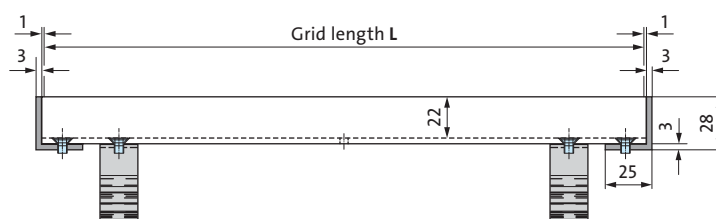
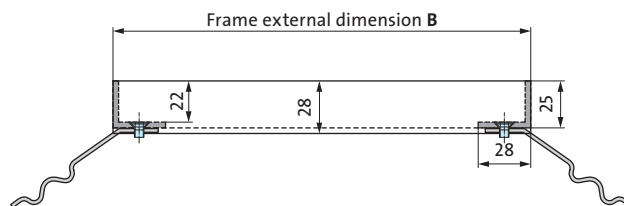


Installation frame model 790

made of glass fibre reinforced corner
profiles 25 x 28 x 3 mm,
optionally available in the colours:
white, beige, grey or yellow

Frame including steel wall cramps
and spacer angles.

Instruction for installation:
see page 22.

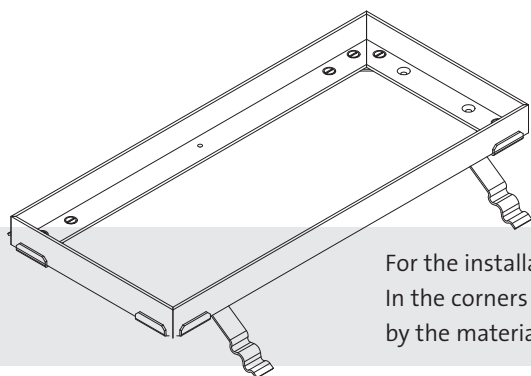
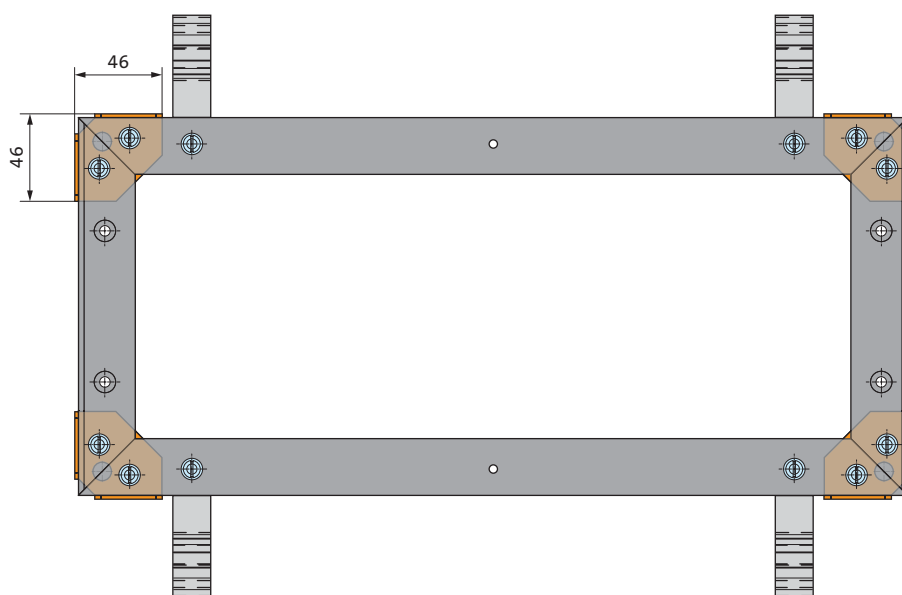
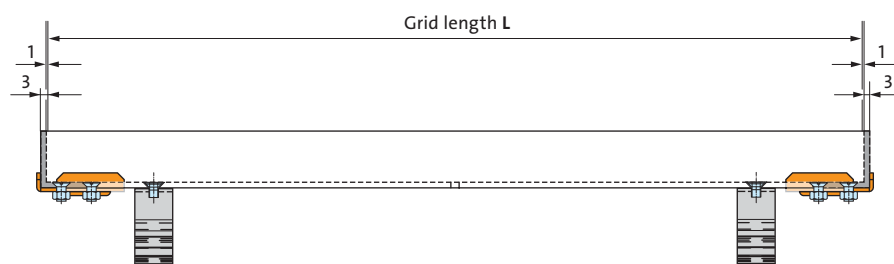
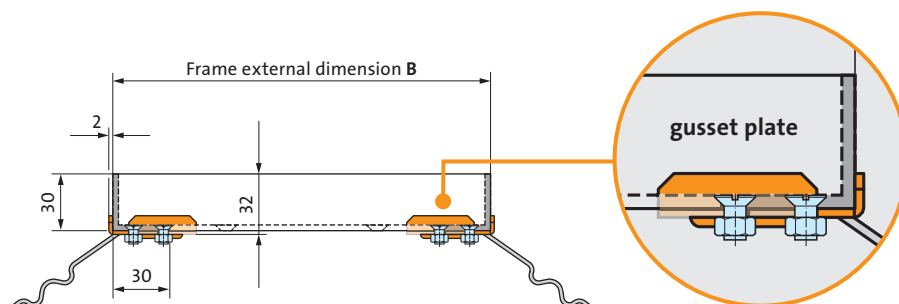


Installation frame model 542

made of aluminium corner sections
30 x 30 x 3 mm,
optionally available in the colours
anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35.

Frame including steel wall cramps
and spacer angles.

Instruction for installation:
see page 22.

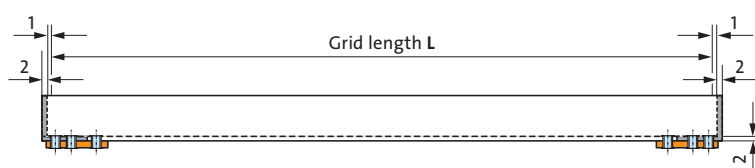
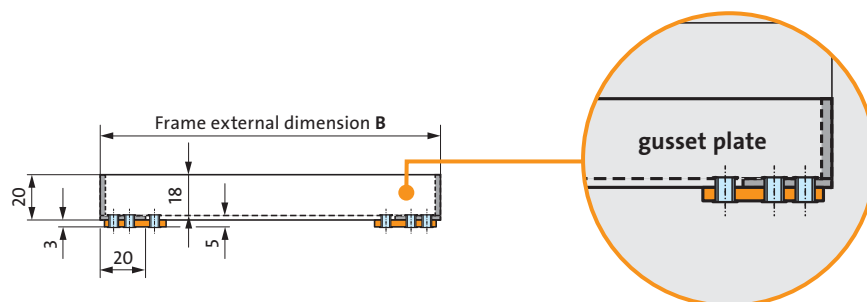


For the installation dimensions, please note:
In the corners of the installation frames, the installation dimension increases
by the material thickness of the **gusset plates** used to connect the scantlings!

Installation frame model 545

made of aluminium corner sections
20 x 20 x 2 mm,
optionally available in the colours
anodised natural E6/C0,
anodised brass E6/EV3,
anodised bronze E6/C33,
anodised black E6/C35,
pulverbeschichtet nach RAL.

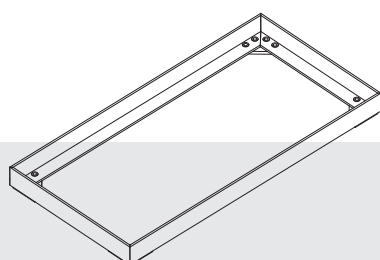
Instruction for installation:
see page 22.



Installation frame model 547

made of chrome nickel steel corner
sections (V2A, material no.1.4301)
20 x 20 x 2 mm with chrome nickel
steel wall braces and spacer angles
made of steel.

Instruction for installation:
see page 22.

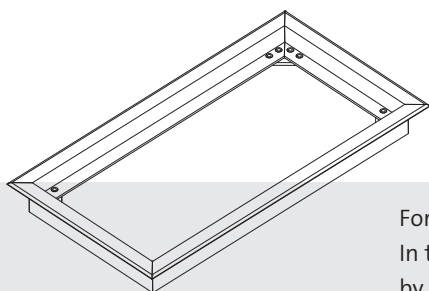
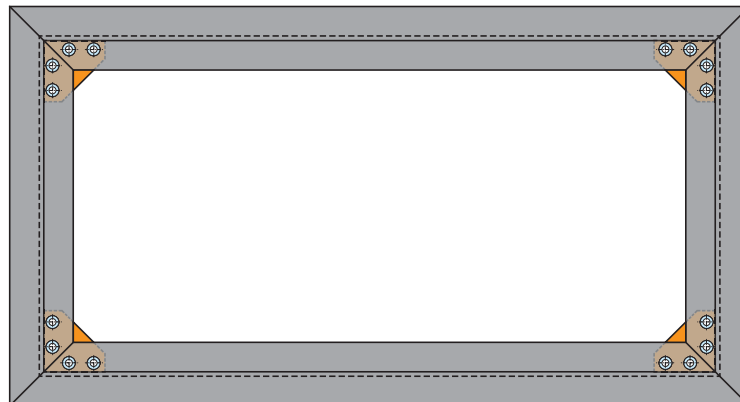
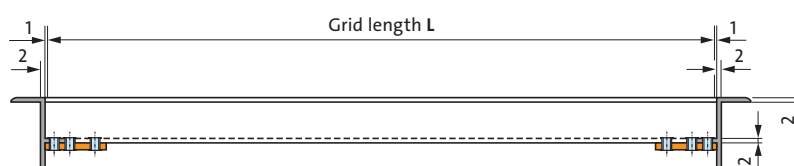
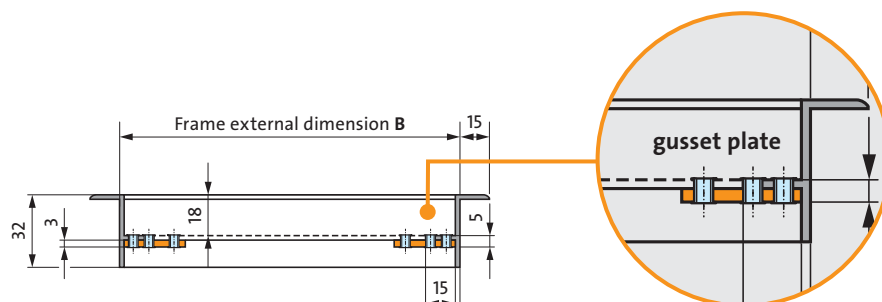


For the installation dimensions, please note:
In the corners of the installation frames, the installation dimension increases
by the material thickness of the **gusset plates** used to connect the scantlings !

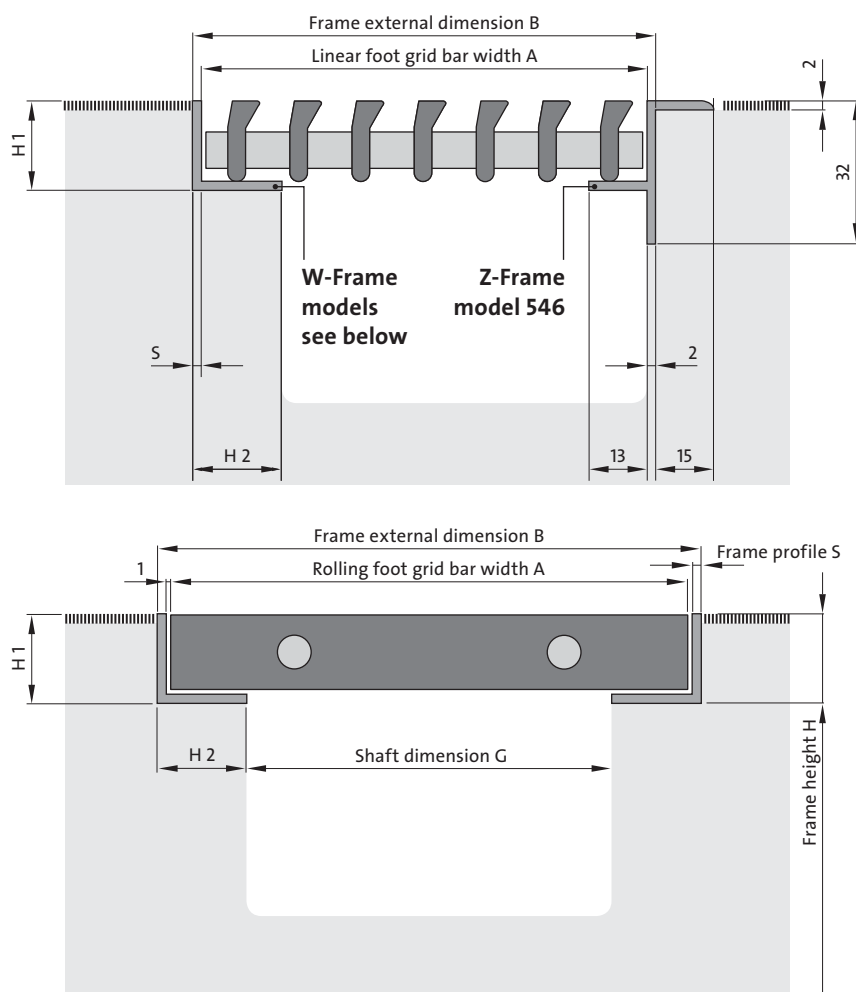
Z-frame model 546

made of aluminium profiles
 15 x 20 x 15 X 2 mm,
 optionally available in the colours
 anodised natural E6/C0,
 anodised brass E6/EV3,
 anodised bronze E6/C33,
 anodised black E6/C35,
 pulverbeschichtet nach RAL.

Instruction for installation:
 see page 22.



For the installation dimensions, please note:
 In the corners of the installation frames, the installation dimension increases
 by the material thickness of the **gusset plates** used to connect the scantlings !



Grids installation principle

The frame and the rolling foot grids should fit flush with the floor covering. The emco assembly frame is supplied with spacers in order to prevent deformation during the floor

manufacturer. We recommend that you only remove the spacers immediately prior to the installation of the rolling foot grid.

Installation frames: dimensions and material

Installation frame	S [mm]	H 1 [mm]*	H 2 [mm]*	Material
Model 540	3	25	28	aluminium
Model 542	3	30	30	aluminium
Model 545	2	20	20	aluminium
Z-Frame Model 546	2	s. a.	s. a.	aluminium
Model 547	2	20	20	chrome nickel steel (V2A)
Model 790	3	25	28	Polyester, glass fibre reinforced

*All frames: including steel wall cramps and spacer angles.

In the corners of the installation frames, the installation dimension increases by the material thickness of the gusset plates!

Determination of the frame external dimensions B:

$$B = \text{shaft dimension } G + (2 \times H2)$$

Model 900, 616, 730

inside shaft dimension (G) plus (2xH2=) 50 mm in length (L) and width (B)

Model 624, 860

inside shaft dimension (G) plus (2xH2=) 40 mm in length (L) and width (B)

Model 950 (Bar dimension 27 x 12 mm)

inside shaft dimension (G) plus (2xH2=) 60 mm in length (L) and width (B)

Model 950 (Bar dimension 22 x 9 mm)

inside shaft dimension (G) plus (2xH2=) 50 mm in length (L) and width (B)

Determination of the rolling foot grid dimensions

$$A = B - (2 \times S) - 2$$

(Valid for all rolling foot grid series)

Length (L):

Frame external dimension (B) minus 2 x profile width of the respective frame, minus 2 mm.

Width (A):

Frame external dimension (B) minus 2 x profile width of the respective frame, minus 2 mm.

Rolling foot grids partial length design

If the length of the remaining residual piece is smaller than 50 % of a part length then the residual piece will be suspended to a section. If the length of the remaining residual piece is greater than 50 % of a part length then the residual piece will be manufactured as an individual section.

Example:

ordering dimensions:

$$L = 3450 \text{ mm} / A = 362 \text{ mm}$$

Calculation:

$$3 \times 1000 \text{ mm, residual piece} = 450 \text{ mm}$$

450 mm is less than 50 % of 1000 mm,

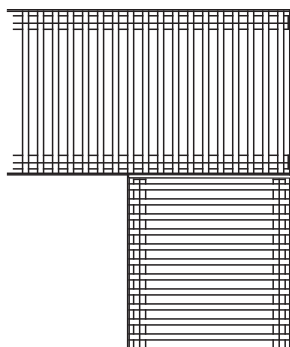
for this reason 2 x 1000 mm, 1 x 1450 mm.

Special design forms

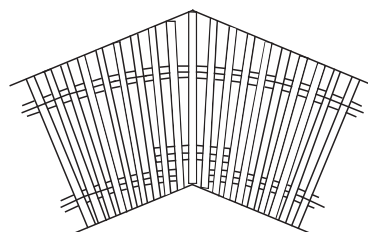
When laying rolling floor grids the following dimensions cannot be undershot for production engineering reasons:

Grid dimension (a):	up to	upwards
	362	362
External radius:	850	1250
Spacer interior:	8,5	4
Spacer exterior:	17	16
(stated in mm)		

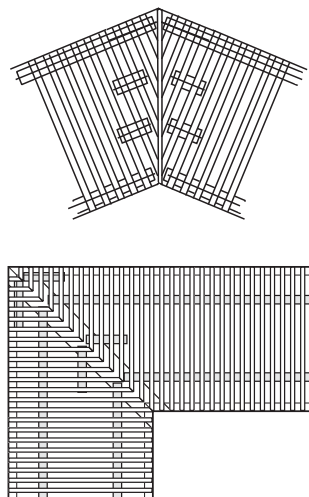
Rigid corner, 90°



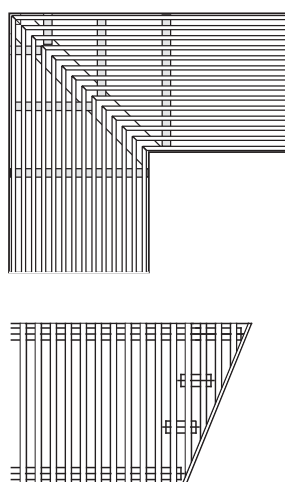
Radial corner, 179°- 135°



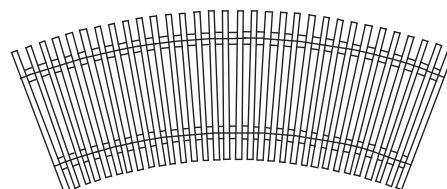
Mitre joint corner, 90°- 135°



Grid end on mitre joint



Laying in radii

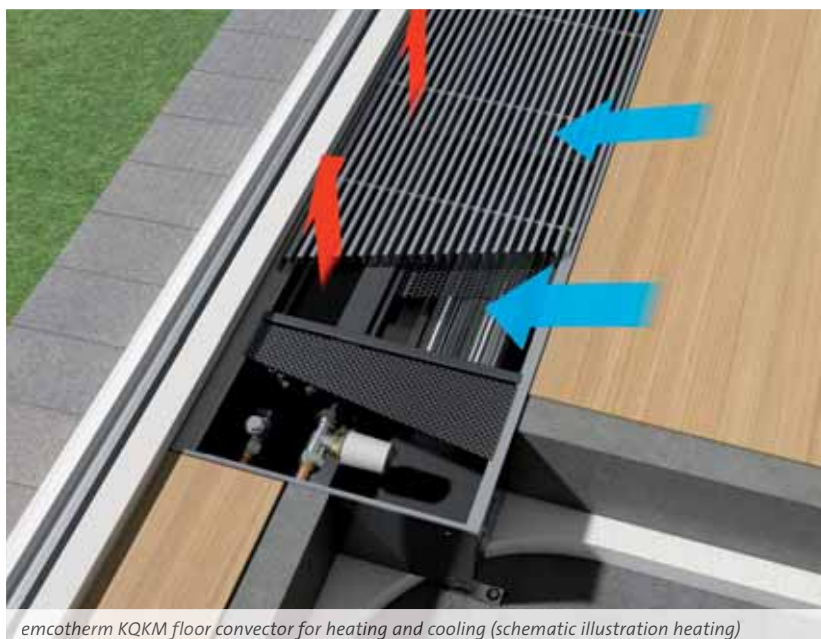


emcotherm floor convectors

Perfection under the foot grille. emcotherm floor convectors are manufactured to heat, cool and ventilate in standard dimensions and as customised solutions.

Regardless of whether you wish to be shielded from cold air, for full room heating, residual heat covering or rapid heating up of the room, property developers and architects value the varied programme for economic comfort air conditioning.

Ask for further information.



emcotherm KQKM floor convector for heating and cooling (schematic illustration heating)

www.emco.de

855-5300 / 11.12 – The right of technical modification is reserved without prior notice. Technische Änderungen vorbehalten.

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