



Technical Information

emco swimming pool gratings

EMCO



Swimming pools in tip-top shape

In modern swimming pool construction, a high water level (deck level system) combined with overflow channel is the established practice. It offers indisputable advantages in terms of ease of access and hygiene.

The system imposes various requirements on the cover of the overflow channel:

- It must collect all the water that spills over the edge of the pool and offer maximum safety and hygiene.
- It must provide a pleasant surface to walk on, and the design should blend harmoniously with the pool layout as a whole.

All of this is provided by emco swimming pool grates, which have been used successfully in public and private swimming pools for over 45 years. Further advantages of emco swimming pool grates include the wide choice of materials and the stability, strength and durability these provide. Thanks to the range of high-quality plastics available as profile materials, emco swimming pool grates are fully recyclable.



Adaptable element

emco swimming pool grates are comfortable to walk on and hygienically impeccable. In terms of design, they offer a great deal of flexibility: they are available in rigid or roll-up version with grating bars that run diagonally or parallel to the pool edge. The grates are manufactured according to the individual customer or construction site specifications, to fit straight and curved pool edges and the different corner solutions. There are almost no limits to what can be designed.

emco swimming pool gratings are manufactured in white, beige, grey and yellow as standard, although virtually any special colour (based on a RAL card or tile sample) can be supplied on request.

The variety of grating designs available enable channel widths from 100 mm to 1000 mm to be bridged without the need for additional support for the gratings. To convince you even more that emco swimming pool gratings are the right choice for you, at the end of this brochure you will find an excerpt from our reference list demonstrating that among our satisfied customers we can count not only many local authorities, but also clinics, rehabilitation centres and swimming pool manufacturers.







Success starts with safety

emco swimming pool gratings are resistant to ultraviolet light, chlorine, sea water and spa water, and are equipped with a safety profile seal which, depending on the model in question, meets the criteria of assessment grade B or C according to the German Institut der Säurefließner-Vereinigung (Research and Advisory Institute for Wall and Floor Coverings).

Non-slip properties assessment grades for floor covering materials according to DIN 51097 testing criteria



Group A: Angle of inclination $\geq 12^\circ$

- Barefoot areas (largely dry)
- Floors of pools for non-swimmers (0.80 to 1.35 m water depths)



Group B: Angle of inclination $\geq 18^\circ$

- Barefoot areas, where these do not fall into Group A
- Shower areas, pool edges, disinfectant spray areas
- Bottoms of pools for nonswimmers, in zones with depths of < 0.80 m, also in wave pools
- Paddling pools, elevating floors
- Steps and ladders leading into water and outside of it
- Seating steps and loungers



Group C: Angle of inclination $\geq 24^\circ$

- Steps leading into water, where these do not fall into Group B
- Footbaths
- Inclined pool edge designs



3444 (2x1722)

425

425

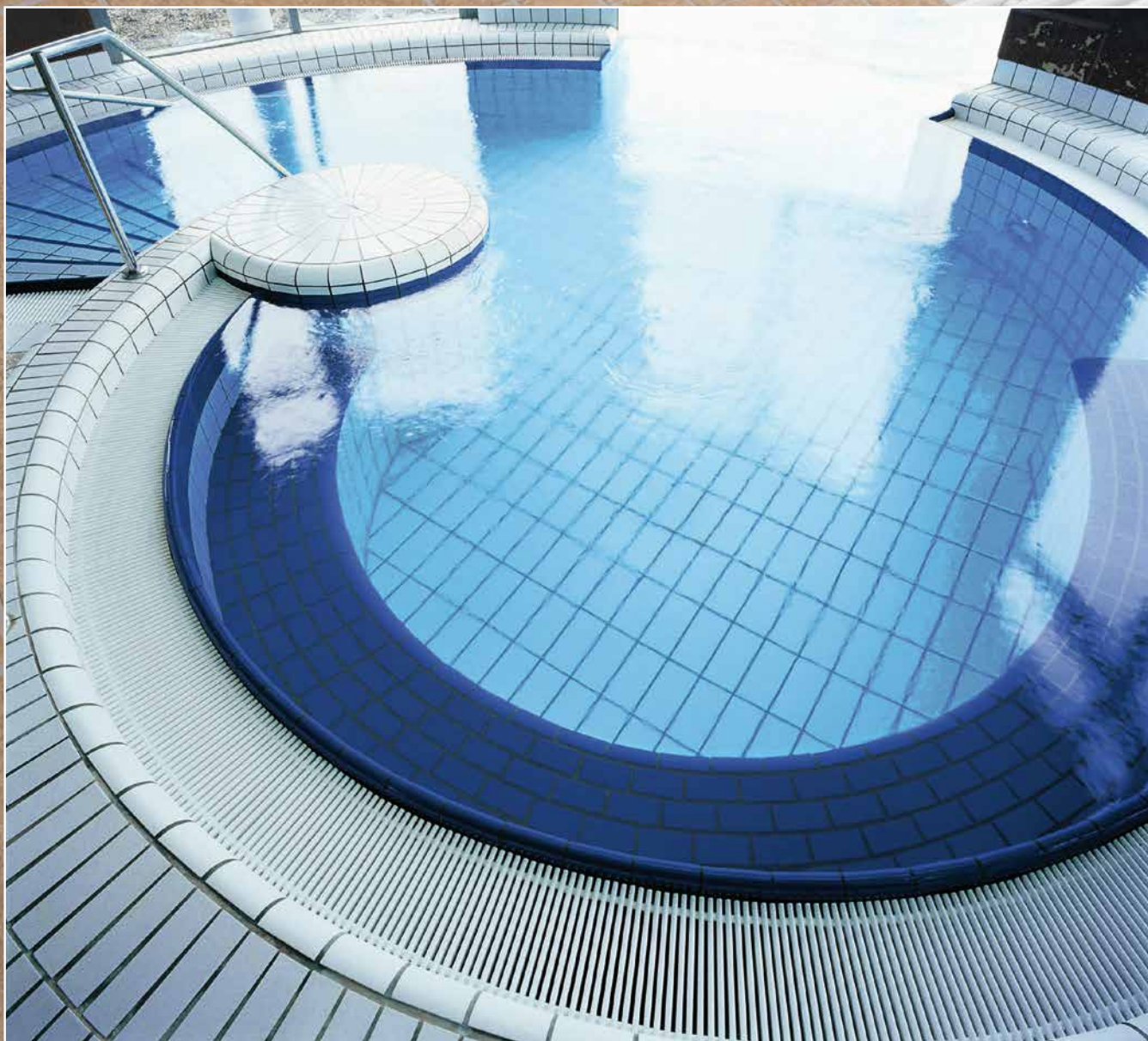
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emco swimming pool gratings

Model 723

Swimming pool gratings running at right angles to the pool edge, in roll-up design featuring flexible PUR cord as connection element. Profile spacing in accordance with DIN EN 13451-1 and DIN EN 16582-1.

Rounded upper profile surface: model 723,
flat upper profile surface: model 720.





Can be used in:

- Public and private swimming pools with overflow channels
- Whirlpools with overflow channels

Features:

- Easy to use
- Excellent technical features
- Overflow channels can be cleaned easily
- Custom application options
- Freedom to create your own design thanks to our extensive range of special shapes

Profiles:

All gratings are provided with a safety-profile seal which has been tested for non-slip properties by the German Institut der Säurefließner-Vereinigung (Research and Advisory Institute for Wall and Floor Coverings) and meets the criteria of classification C.

With model 723, channel widths of between 100 mm and 500 mm can be bridged without the need for additional support (and larger widths can also be dealt with by means of supports provided on site), while gratings measuring 22, 25, 27 and 35 mm in height are available. All gratings in this model are manufactured in a roll-up format, but are also available in a rigid format on request. When it comes to the design of roll-up gratings, the sky's the limit. Besides radial versions, different types of corner designs (mitred corners, fan corners and rigid corners) can also be produced.

Full details:

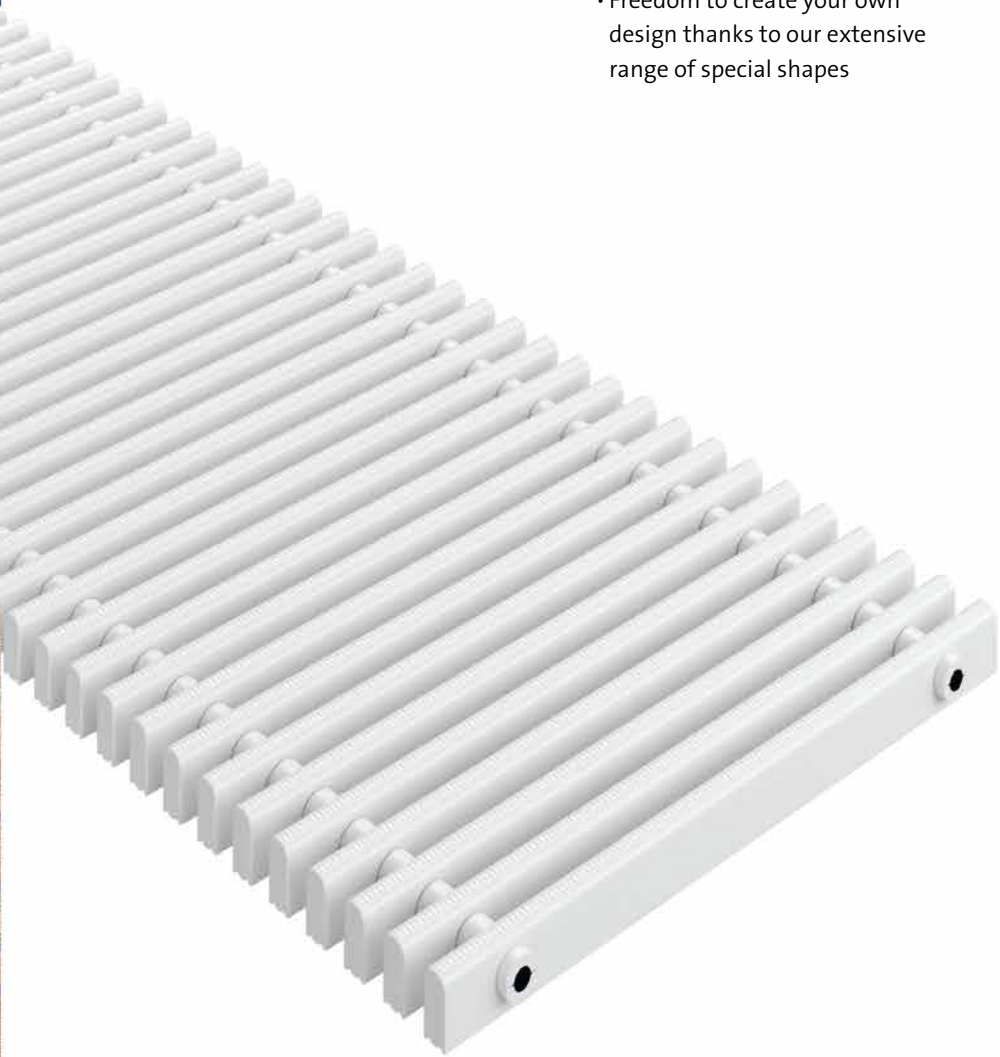
www.emco-bau.com
www.ausschreiben.de

Standard colours:

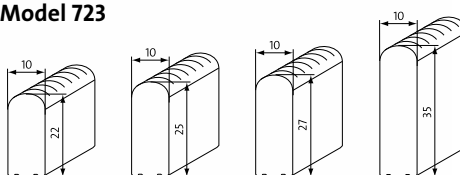


white, similar to RAL 9010 grey, similar to RAL 7001 beige, similar to RAL 1001 yellow, similar to RAL 1018

Special colours: On request



Model 723



Specifications:

Model **	Height (mm)	Grating width (mm)
723/22	22	100 - 300
723/25	25	100 - 360
723/27	27	100 - 380
723/35	35	100 - 500

* For corner solutions and special shapes, s. p. 17

** Also applies to type 720



Profiles:

All gratings are provided with a safe-profile seal which has been tested for non-slip properties by the German Institut der Säurefließner-Vereinigung (Research and Advisory Institute for Wall and Floor Coverings) and meets the criteria of classification C.

In addition to straight profiles, radial-profiles can also be provided under certain circumstances. Both mitred and rigid versions of corners are available.* emco 724 swimming pool gratings are available in widths ranging from 100 to 340 mm as standard: these do not require any additional supports. Longer widths can, however, also be produced with the aid of channel supports provided on site – so the possibilities in terms of design are virtually endless.

Full details:

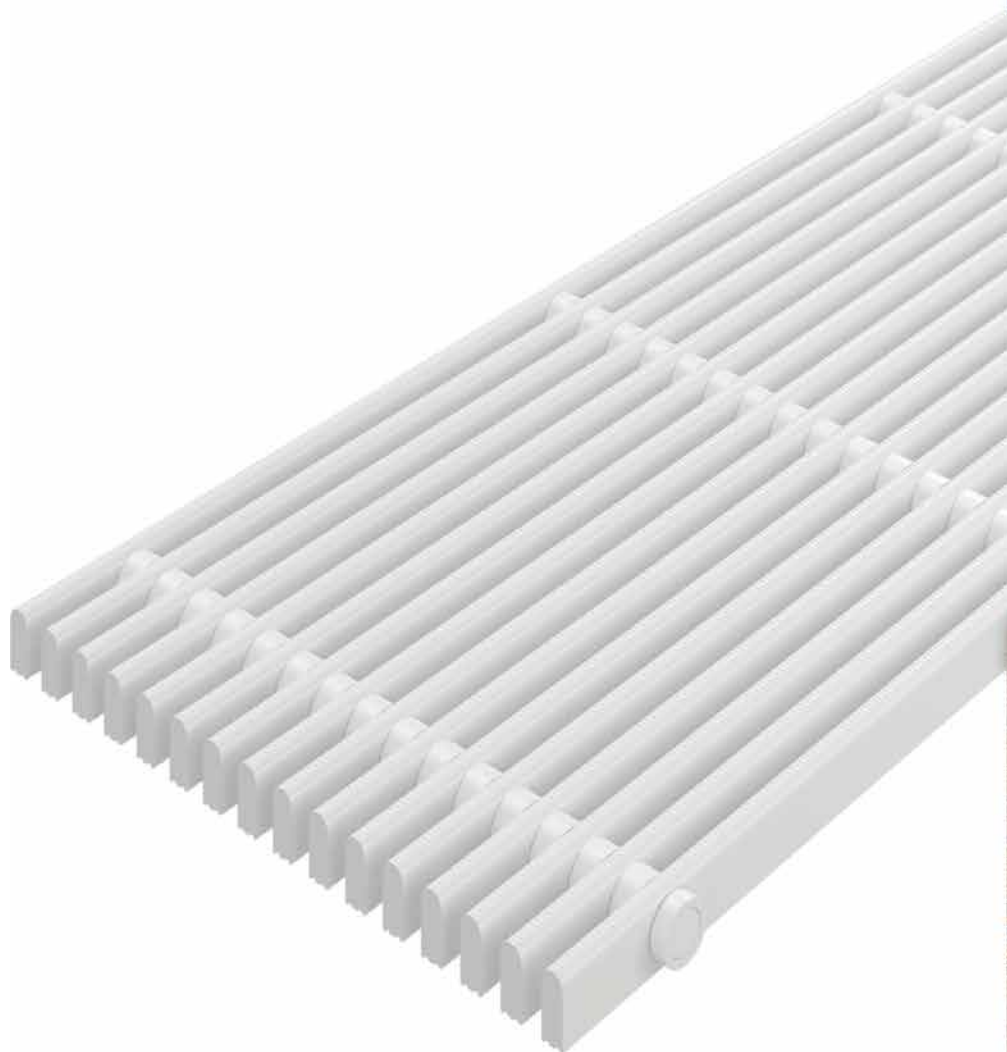
www.emco-bau.com
www.ausschreiben.de

Features:

- Excellent water drainage
- Excellent technical features
- Custom application options

Can be used in:

- Public and private swimming pools with overflow channels
- Whirlpools with overflow channels



Standard colours:



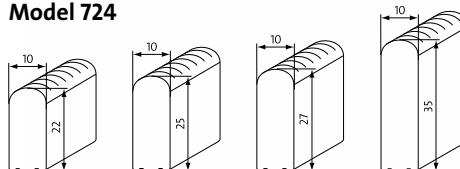
white, similar to RAL 9010 grey, similar to RAL 7001 beige, similar to RAL 1001 yellow, similar to RAL 1018

Special colours: On request

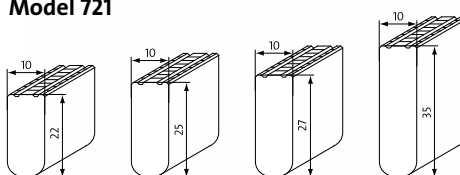
Specifications:

Model**	Height (mm)	Grating width (mm)
724/22	22	100 - 300
724/25	25	100 - 340
724/27	27	100 - 340
724/35	35	100 - 340

Model 724



Model 721



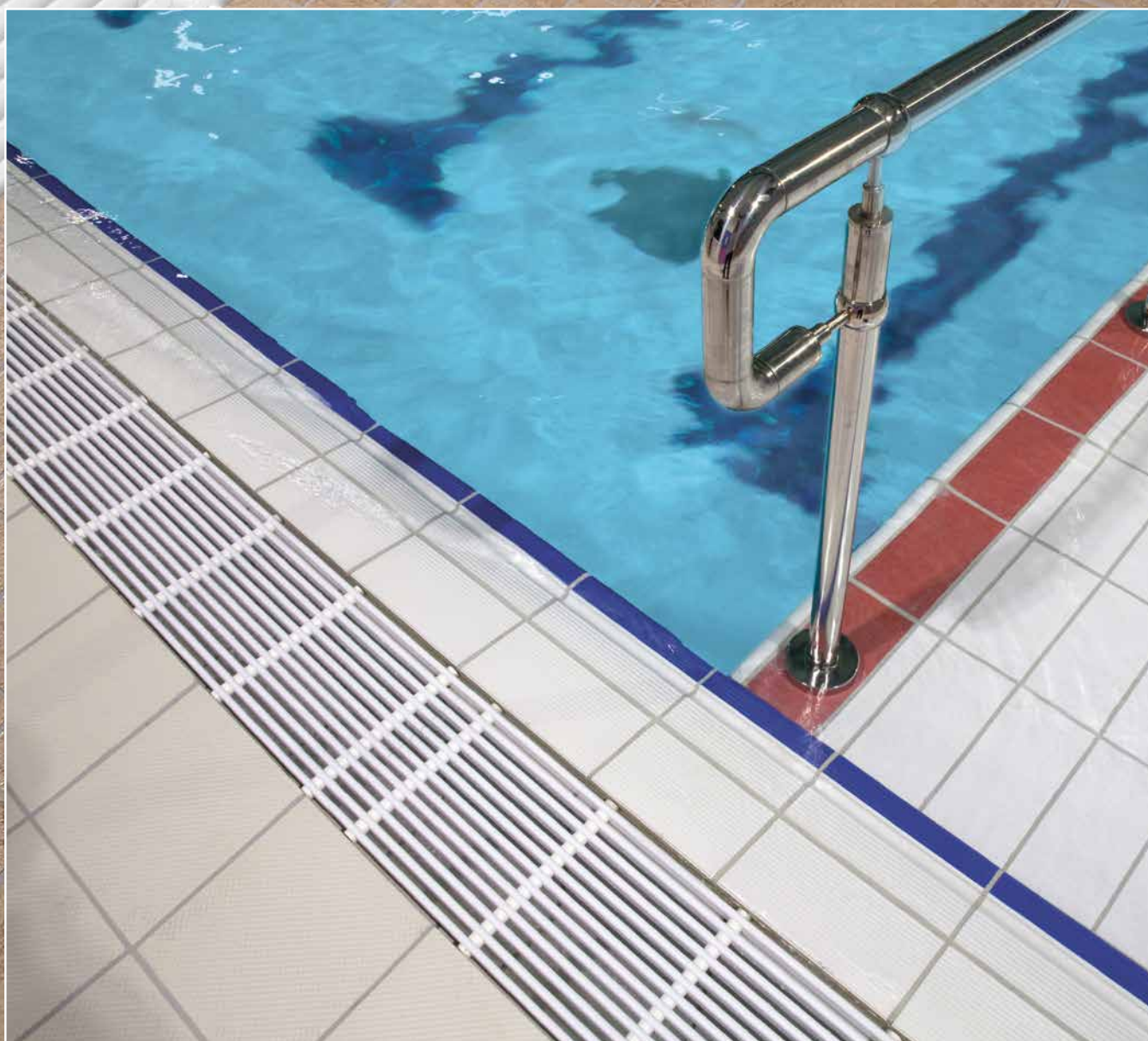
* For corner solutions and special shapes, s. p. 17

**Also applies to type 720

emco swimming pool gratings

Model 724

Swimming pool gratings running parallel to the pool edge, in rigid design (rounded upper profile surface: model 724; flat upper profile surface: model 721). Fibre-glass reinforced polyester pipes as connection elements. Profile spacing in accordance with DIN EN 13451-1 and DIN EN 16582-1.



emco swimming pool gratings

Models 760 and 760 E

Swimming pool gratings running at rightangles to the pool edge, in rigid design. The maximum profile spacing is <math>< 8\text{ mm}</math> in accordance with DIN EN 13451-1 and DIN EN 16582-1.





Can be used in:

- Public and private swimming pools with overflow channels

Features:

- Easy to use
- Value for money
- Custom application options

Profiles:

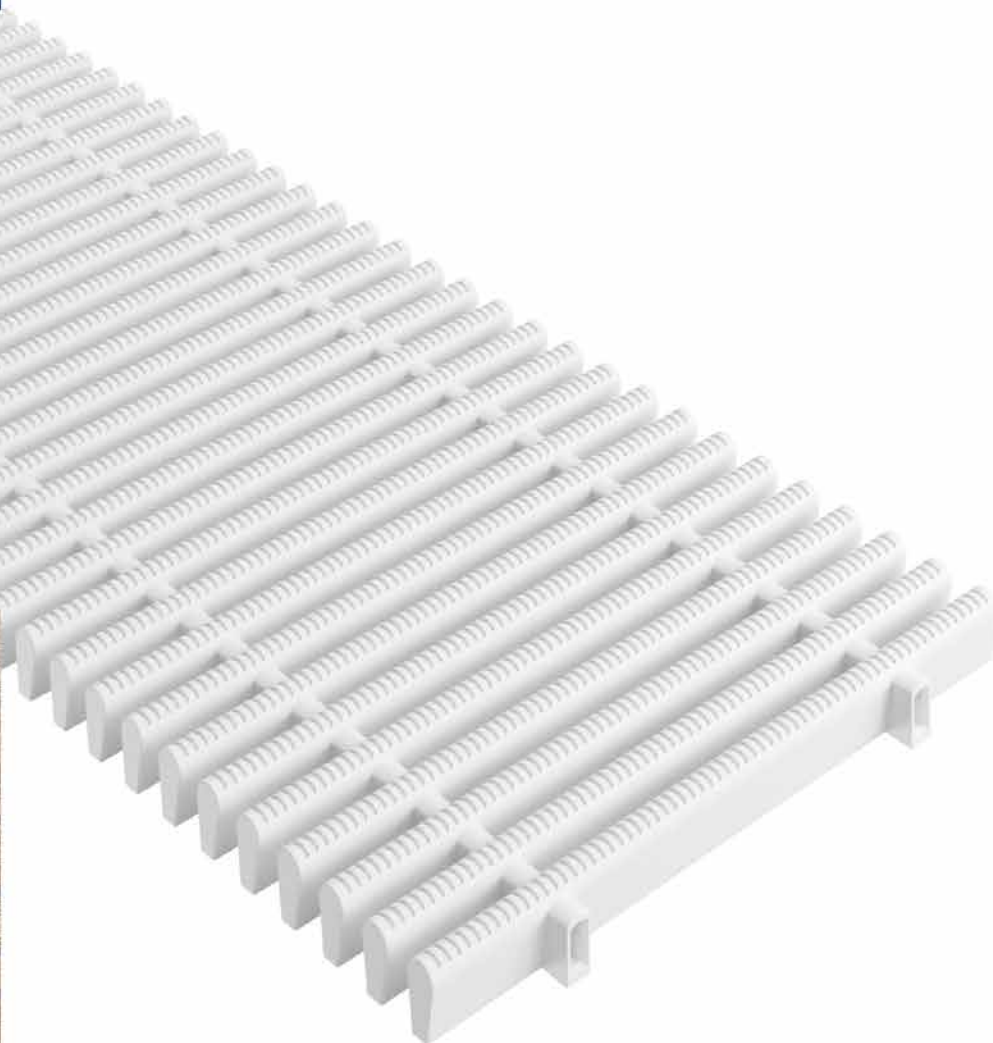
With model 760, three standard elements measuring 295 mm in length and made from solid Hostalen® are connected to 885 mm-long section pieces using a completely secure joint. Model 760 E is manufactured as a standard element with a length of 295 mm.

The gratings are provided with a safety profile seal which has been tested for non-slip properties by the German Institut der Säurefließner-Vereinigung (Research and Advisory Institute for Wall and Floor Coverings) and meets the criteria of classification C.

These gratings are suitable wherever stringent specifications have to be met in wet areas. They are produced in the standard widths of 200, 300 and 400 mm, but special widths ranging from 110 to 399 mm can also be provided on request. The grating height is 22 mm.

Full details:

www.emco-bau.com
www.ausschreiben.de



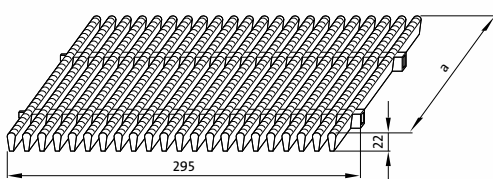
Standard colours:



white, similar to RAL 9010 grey, similar to RAL 7001 beige, similar to RAL 1001 yellow, similar to RAL 1018

Special colours: On request

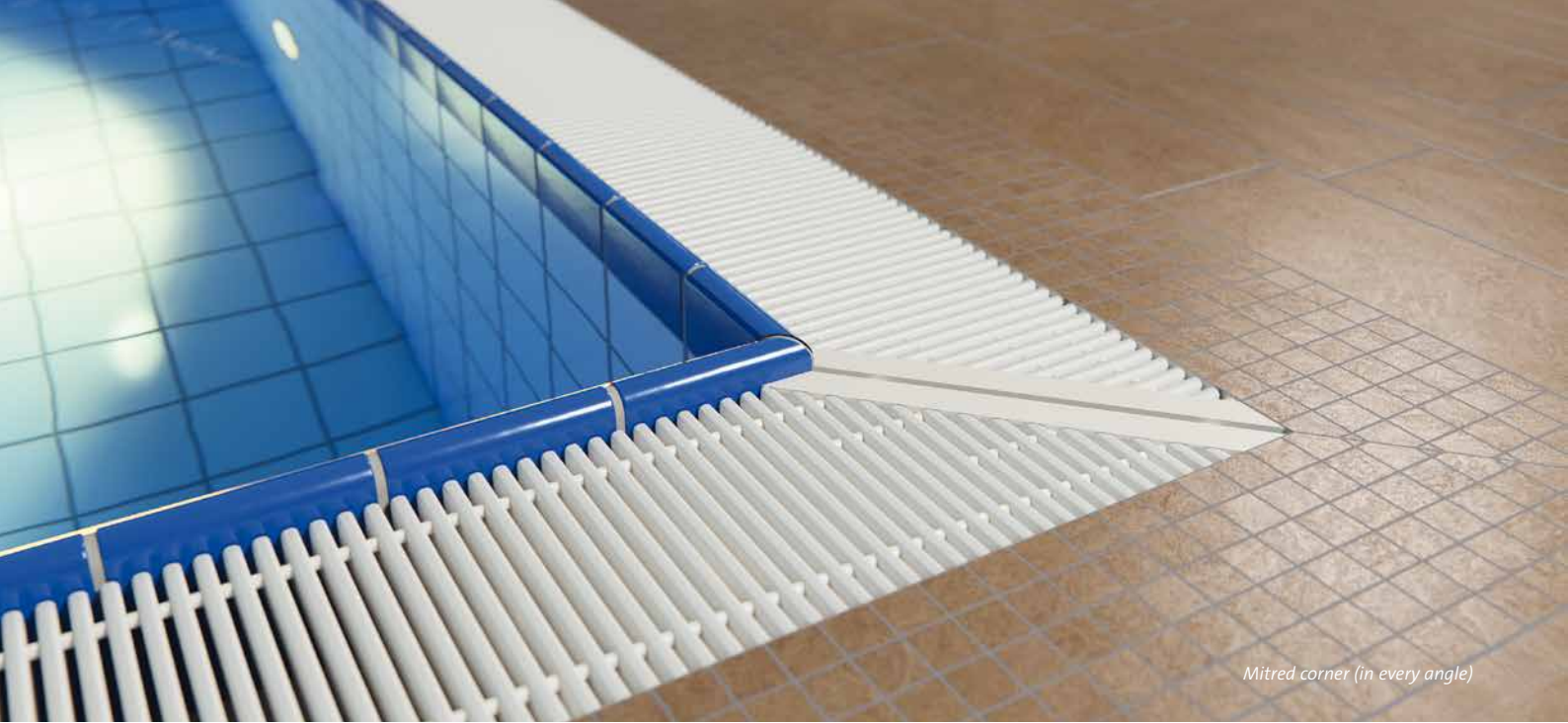
Model 760 E



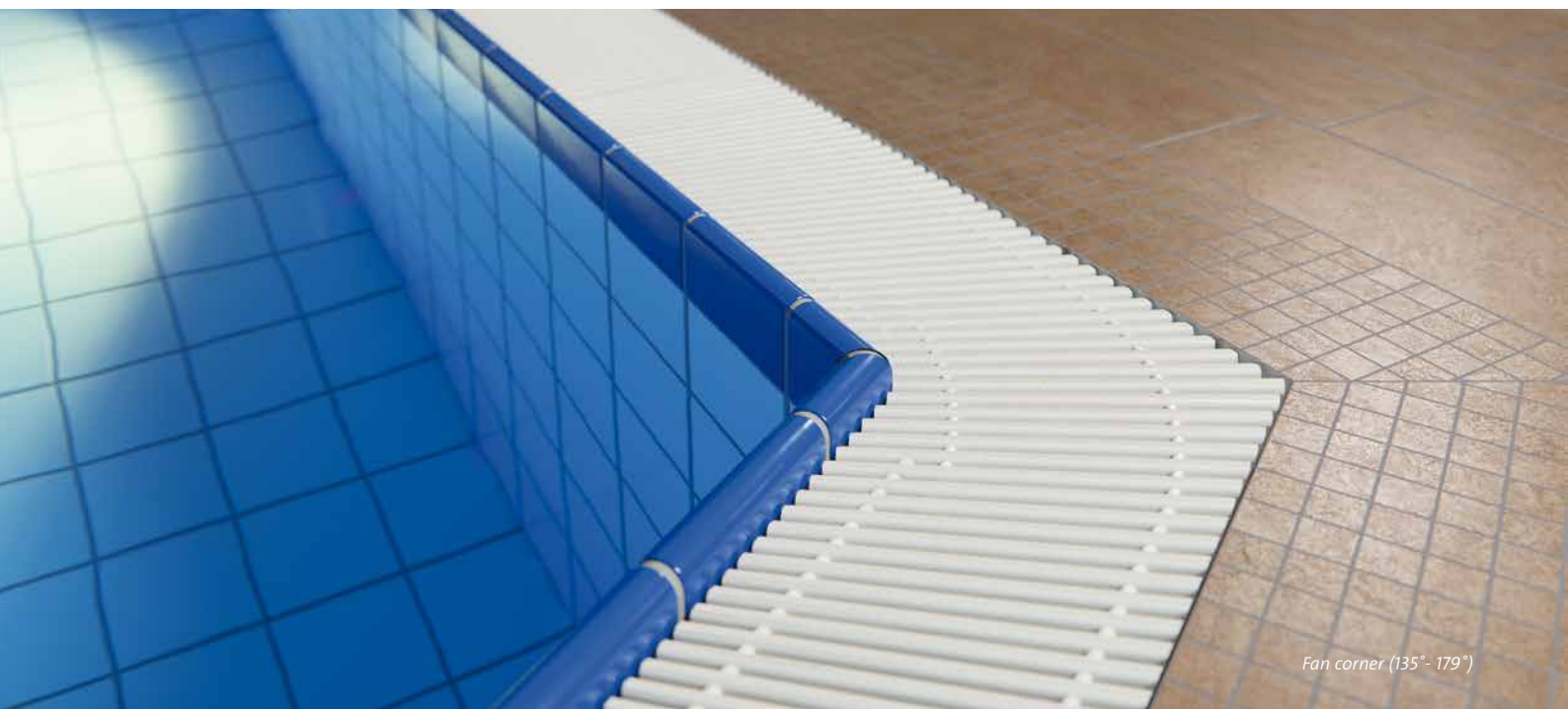
Specifications:

Model	Height (mm)	Grating width (mm) Special widths (pre-cut part)	Grating width (mm) Standard widths		
			200	300	400
760 E	22	110 - 399	✓	✓	✓
760	22	110 - 399	✓	✓	✓

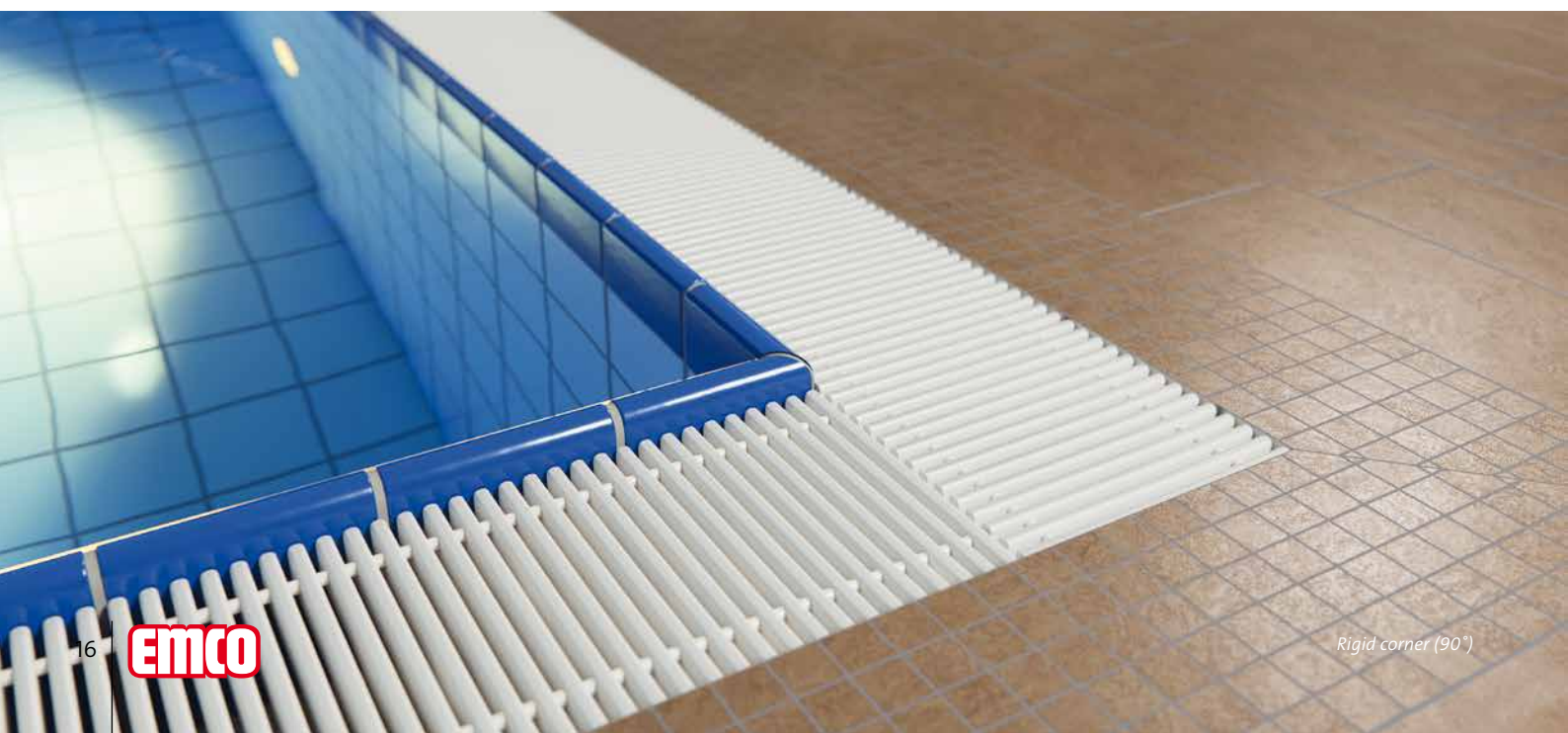
For corner solutions and special shapes, s. p. 17



Mitred corner (in every angle)



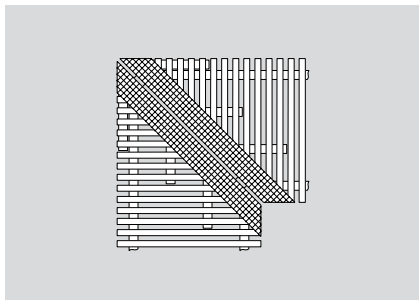
Fan corner (135° - 179°)



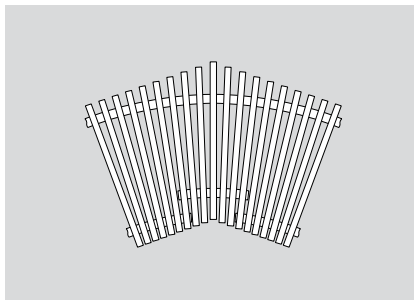
Rigid corner (90°)

emco corner solutions

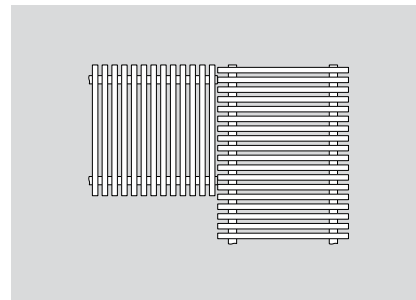
Mitred corner (in every angle)



Fan corner (135° - 179°)



Rigid corner (90°)



Description:

Mitred corners (in every angle), fan corners (135° - 179°) and rigid corners (90°) are available.

Please allow for longer delivery times in case where special colours are required.

Corner designs for swimming pool gratings:

Typ	723/720	724/721	760
Mitred corners	✓	✓	✓
Fan corners	✓	–	–
Rigid corners	✓	✓	✓



emco swimming pool gratings – labels

Description:

emco 723 (720), 724 (721) and 760 swimming pool gratings are also available with information signs.



These are blue with a textured (structured) surface into which white lettering is engraved. They are lowered into the grating surfaces and made flush with them using a milling process, and permanently attached to the grating.

Material:

Plastic

Background colour:

Blue

Colour of letters:

White

Height of lettering:

approx. 80 mm

Examples of inscriptions:

Swimmers, Non-swimmers,
Adventure pool, Water depth, etc.

Dimensions:

150 x 295 mm

(Lettering e.g. "WD 0.80 m" or similar)

150 x 590 mm

(Lettering e.g. "Non-swimmers" or similar)

Thickness of sign:

3,2 mm

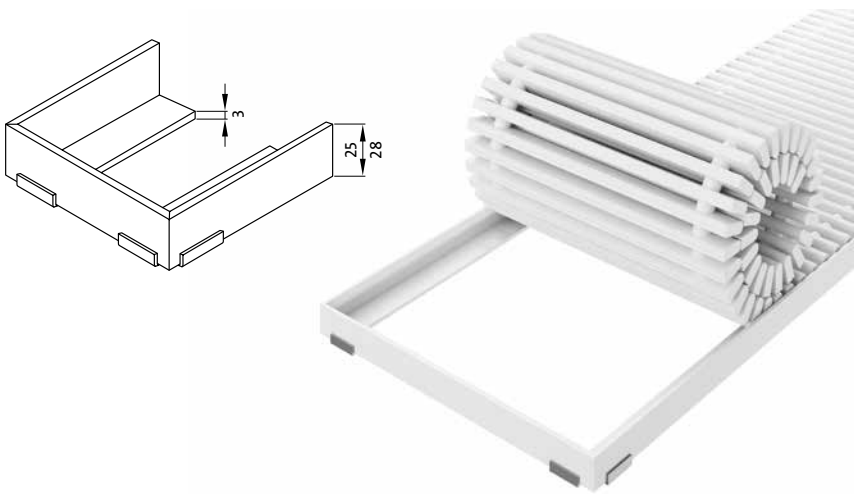
Full details:

www.emco-bau.com

www.ausschreiben.de



Model 780



Model	R profile dimensions	R width (mm)	Material	For swimming pool grating heights of
780	25 x 28 x 3 mm 28 x 25 x 3 mm	100 - 350 mm 351 - 800 mm	Polyester	22 mm 25 mm

Installation frames

Description:

emco installation frames (model 780), with a pre-fitted design and angled profile dimensions of 25 x 28 x 3 mm or 28 x 25 x 3 mm (model 780) are suitable for swimming pool gratings available with construction heights of 22, 25 mm.

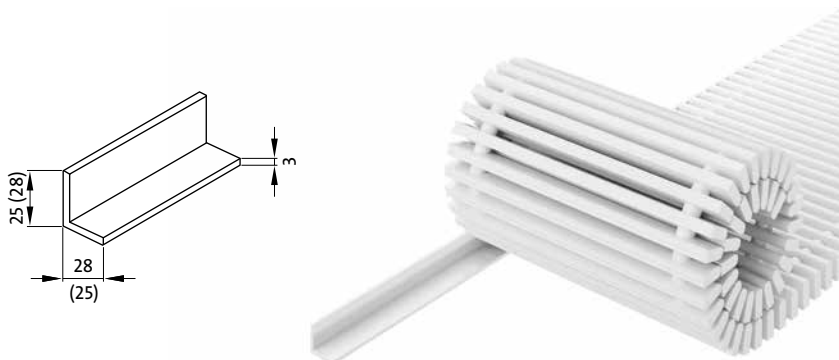
Profiles:

Polyester, white (model 780)

The wall anchors and spacer angles (also in stainless steel) are included in the scope of delivery. Radial profiles can not be provided.

Full details:

www.emco-bau.com
www.ausschreiben.de



Angled profiles

Description:

Similar to an installation frame but for one-sided laying (without face and spacer angles).

Full details:

www.emco-bau.com
www.ausschreiben.de

Model	Angled profiles*	Material	For swimming pool grating heights of
780	25 x 28 x 3 mm 28 x 25 x 3 mm	Polyester	22 mm 25 mm

*Suitable for installation at one side

emco swimming pool gratings

(plastic insert which runs at right angles to the pool edge and onto which tiles can be applied)

Can be used in:

- private swimming pools
- hotel pools

Not suitable for public swimming pools or pools with high levels of overflow water.

Available grate geometry:

- Linear gratings
- Mitred corners

Profile spacing:

The notches of the plastic insert represent the adhesion points for the tiles/natural stones.

The top side of the plastic insert is prepared in such a way that the maximum gap dimensions according to DIN EN 16582-1 and DIN EN 13451-1 can be observed by the tile/natural stone setters.

Water drainage:

Water drainage is effected through several independent, parallel drainage slots. Due to the reduced free cross-section of the bonded plastic cassette, water may be carried over to the edge of the pool. This does not constitute grounds for complaint.

In the event of very high water accumulation, an emco swimming pool grate as shown on Pages 10-15 should be planned from the outset.

Full details:

www.emco-bau.com
www.ausschreiben.de

Standard colours:

Jet black, similar to RAL 9005

On request available in white, similar to RAL 9010

Specifications:

Type	Height* (mm)	Grating width (mm)	Segment length (mm)
723 DESIGN	approx. 22-32	150 - 300	max. 500

* incl. 8mm thick tile strips

Note: Construction heights of less than 28 mm are obtained through cut-outs on both sides under the plastic insert.

Features:

- tailor-made plastic insert
- load-carrying capacity suitable for normal personal traffic in swimming pools
- compatible with most overflow channels (as long as they have a level surface)
- also suitable for retrofitting



reddot award 2017
winner



Support chassis/plastic insert:

The full profiles with cut-outs on the top are connected using plastic threaded rods and interim spacers to form rigid plastic inserts. The inserts are ready for the customer to bond tile or natural stone strips onto them.



General information:

The customer is responsible for ensuring that tiles or natural stones are supplied, cut, chamfered, as well as bonded according to emco assembly instructions by specialist stone-laying companies.

Requirements to be met by the tiles:

- approved for wet, barefoot areas, tested for non-slip properties
- as standard, the type 723 DESIGN is designed for a tile thickness of 8 mm
- emco must be notified of other tile thicknesses before the start of production (the minimum tile thickness is 7 mm)
- manufacturer-independent tile selection possible

Requirements to be met by the natural stone:

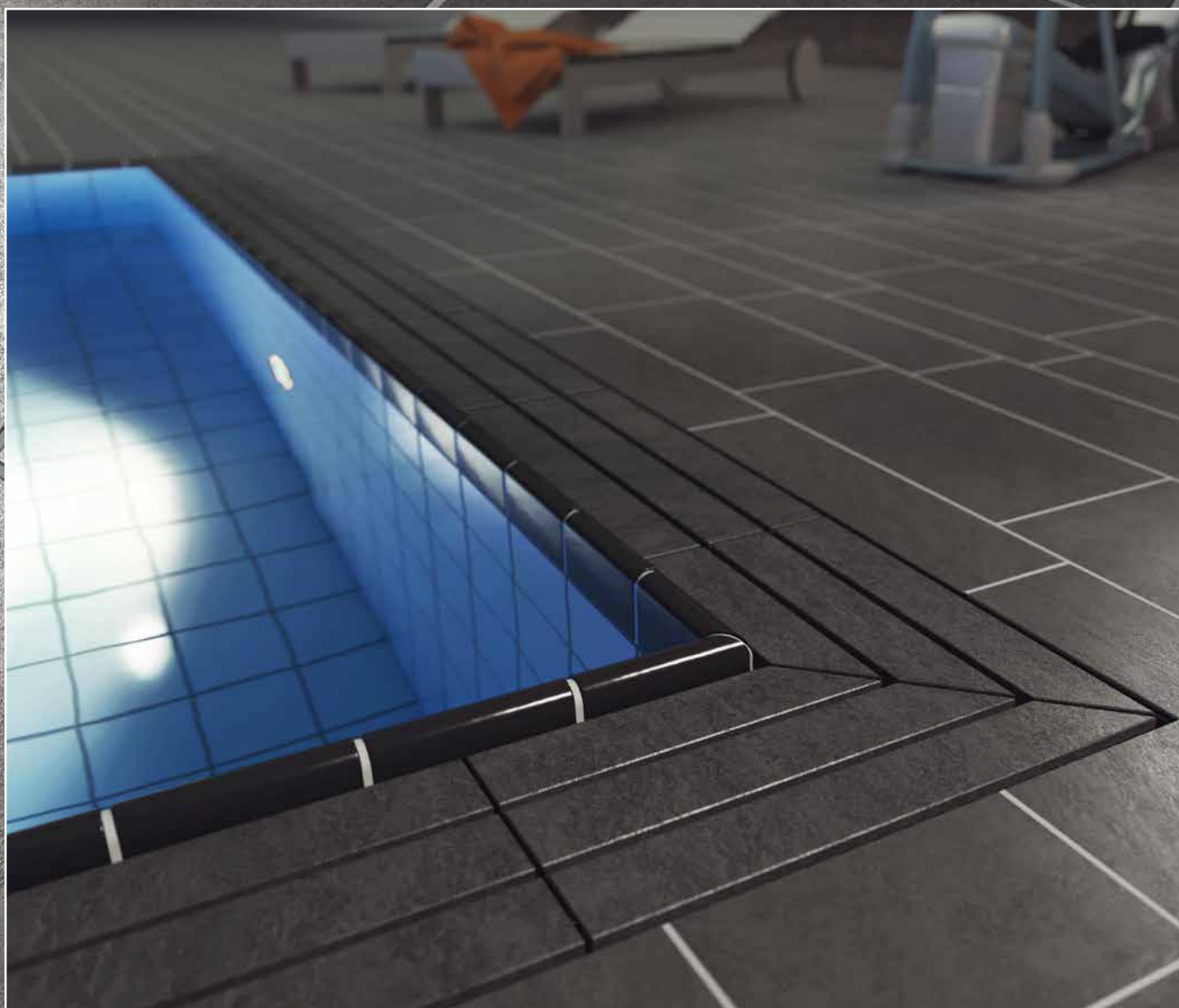
- in general, the selection of a natural stone suitable for use in swimming pools must be made by the specialist planner or natural stone specialist, taking account of the required non-slip properties as well as water quality and water treatment
- the material thickness of natural stone results in different construction heights than when tiles are used
- in general, natural stone should not be used with salty bathing water

emco swimming pool gratings

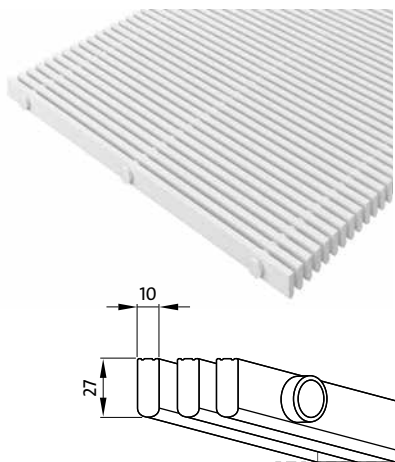
Model 723 DESIGN

Cover of overflow channels in private swimming pools and hotel pools in which the main focus is on the visually harmonious design of the swimming pool grate with the edge of the pool.

The rigid plastic insert type 723 DESIGN is delivered; the customer can bond tile or natural stone strips onto this.



Model 771



Description:

Floor gratings in rigid design with construction heights from 27 to 45 mm (special heights also available on request), designed for fully supported installation (model 771), water drainage on all sides (model 772), and for self-supporting installation up to a max. width of 1000 mm (model 775).

Can be used in:

- Public shower areas
- Barrier-free shower areas
- Footbaths

Standard colours:



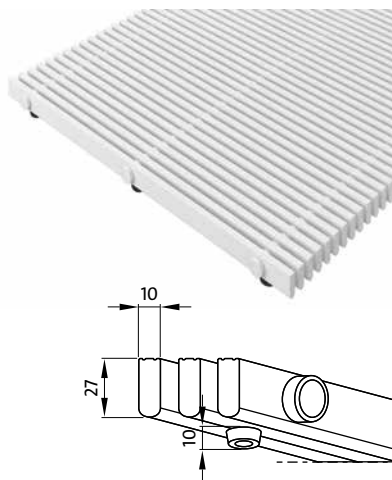
white, similar to RAL 9010	grey, similar to RAL 7001 (not for type 775)	beige, similar to RAL 1001 (not for type 775)	yellow, similar to RAL 1018 (not for type 775)
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Special colours: On request

Specifications:

Model	Construction height (mm)	Width up to (mm)	Comment
771	27	Any	Fully supported
772	27 + 10	Any	Water drainage
775	45	max. 1000	Self-supporting (GFK profile)

Model 772

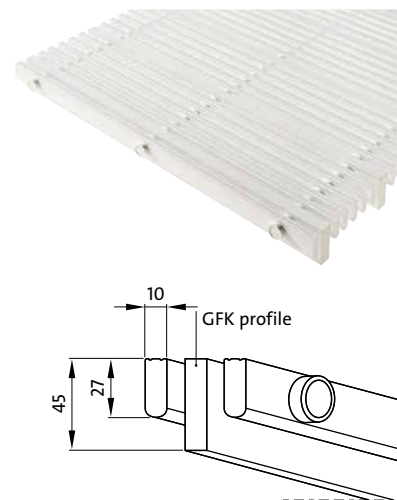


Features:

- Aesthetically pleasing
- Good water drainage
- Good non-slip properties
- Corrosion-free
- Resistant to chlorine, sea water and spa water

These gratings meet the requirements placed on them in terms of safety, stability and sound workmanship as a matter of course. Their high specific weight prevents them from floating in water. In addition to rectangular gratings, we can provide you with virtually any special shape, such as circular or multisided gratings. (GFK profiles for model 775 have a spacing of 250 mm; profiles are only available in white.)

Model 775



Profiles:

Full profiles made from high-quality, highly impact-resistant plastic featuring UV absorbency. Upper surface of gratings equipped with a safety profile seal (SPS).

Fibre-glass reinforced polyester pipes as connection elements; profile spacing in accordance with DIN EN 13451-1 and DIN EN 16582-1.

Full details:

www.emco-bau.com
www.ausschreiben.de



emco hygiene mats

Description:

emco hygiene mats have stood the test of decades of use in all types of wet area which present a risk of slipping and infection, proving themselves to be an ideal solution for, in particular, public swimming pools – where the large number of visitors requires particular emphasis to be placed on accident prevention and hygiene – but also for private swimming pools and saunas. emco hygiene mats can easily be incorporated into the design of the facilities in question. (Not recommended for precise laying in depressions in the ground). They are available in the tried-and-tested standard widths of 600, 800 and 1000 mm, but other widths, up to a maximum of 2000 mm (model 600) and 1200 mm (model 601), can also be produced.

Material:

Only high-quality plastic is used in the production of these mats. This material guarantees high resistance to wear, a high level of durability and, thanks to its non-porous, closed surfaces, outstanding hygiene levels. The temperature range for emco hygiene mats is 0–60°C.

Attention:

Hygiene mats are only suitable for installation in areas exposed to water!

Full details:

www.emco-bau.com
www.ausschreiben.de

Can be used in:

1. Public facilities
 - Indoor and outdoor pools
 - Adventure pools and thermal baths
 - Sports centres
 - Schools
 - Saunas
 - Rehabilitation clinics and hospitals
 - Hotels
 - Shower facilities
2. Industry and business
 - Dental and chemical laboratories
 - Restaurants and catering facilities
 - Fitness studios
 - Solariums
3. Shipping
 - Passageways on boats, etc.
4. Households
 - Swimming pools
 - Saunas
 - Showers (bathrooms)





Model 600

The upper bars on model 600 are made from profiled, impact-resistant hard plastic, while the lower bars are made from soft black plastic that is permanently bonded in place.



Features:

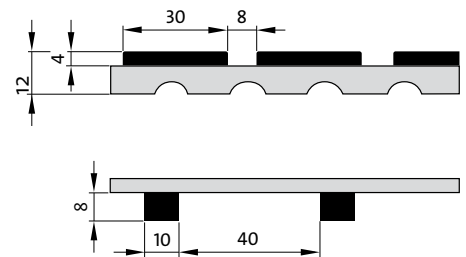
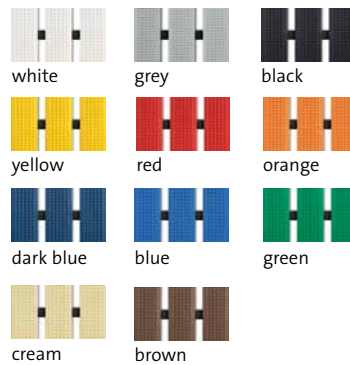
- Aesthetically pleasing
- Good water drainage
- Excellent non-slip properties, with classification C
- Corrosion-free
- Resistant to chlorine, sea water and spa water
- Maximum hygiene
- Prevents athlete's foot
- Can be rolled up
- Water drainage on all sides
- Wide choice of colours

Specifications:

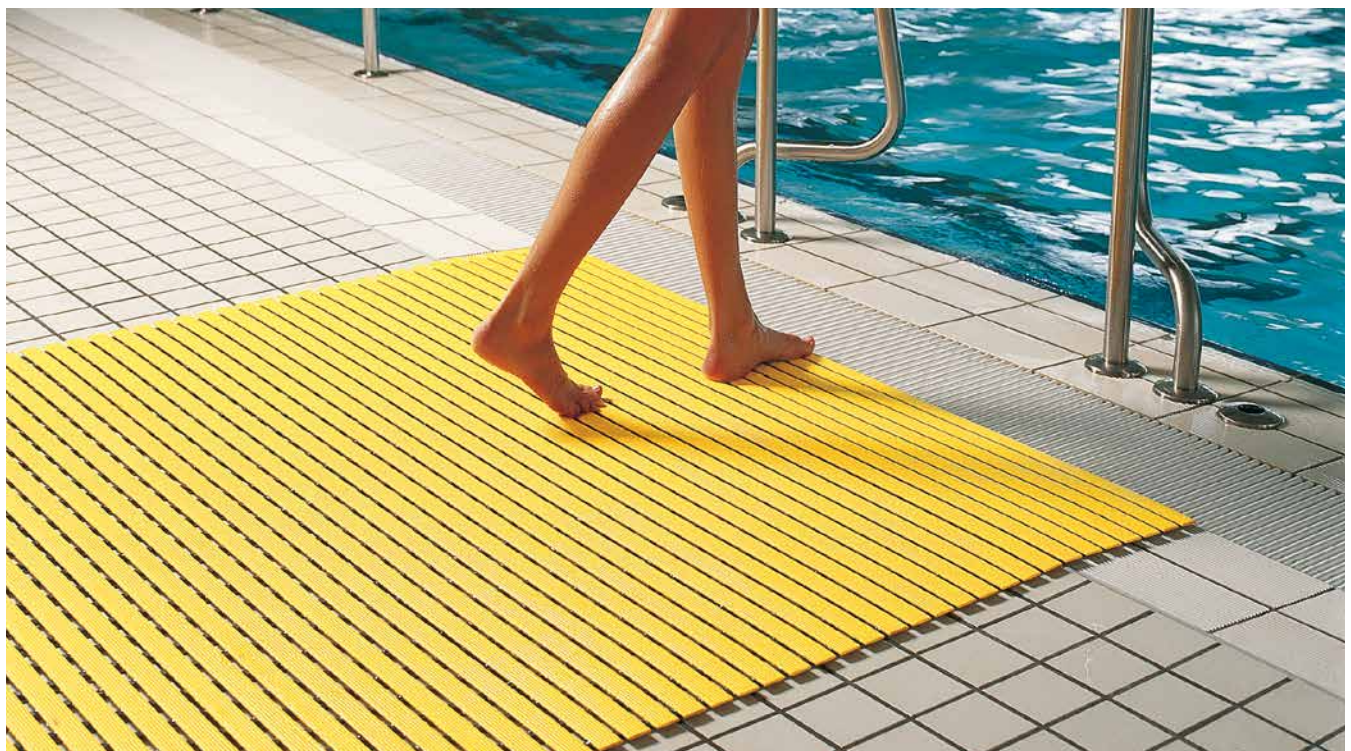
Model	Height (mm)	Standard widths (mm)	Pre-cut part (mm)
600	12	600/800/1000	max. 2000

Weight per m² (for widths up to 2 m and lengths up to 25 m): approx. 6 kg/m²

Colours:



emco hygiene mats are not available in Switzerland.



Model 601

Both the upper and lower bars on model 601 are made from profiled soft plastic, providing an extremely pleasant surface to walk on.

Features:

- With water drainage on all sides
- UV-resistant
- Also suitable for outdoor areas
- Excellent non-slip properties thanks to classification C in accordance with DIN 51097
- Prevents both bacteria and fungigrowing thanks to antibacterial and fungicidal treatment
- Resistant to chlorine, sea water and spa water
- Corrosion-free
- Can be rolled up

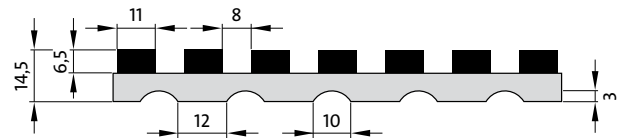
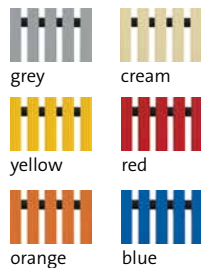


Specifications:

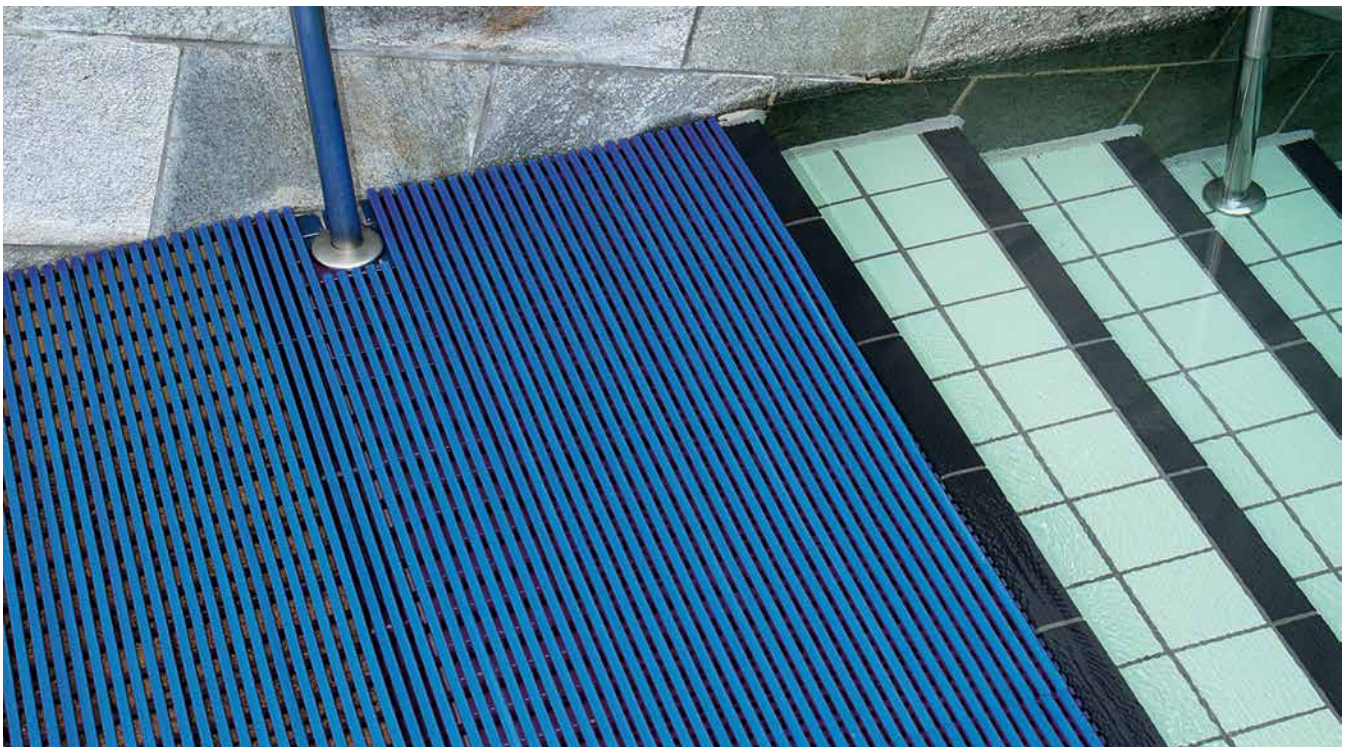
Model	Height (mm)	Standard widths (mm)	Pre-cut part (mm)
601	14,5	600/800/1000	max. 1200

Weight per m² (for widths up to 1.2 m and lengths up to 15 m): approx. 7 kg/m²

Colours:



emco hygiene mats are not available in Switzerland.





Cleaning and maintenance instructions

You can rely on the experience emco has gained from more than 45 years of swimming pool grating manufacturing and the use of top-quality materials, for an excellent branded product that looks great and is available in a number of designs.

General information about emco swimming pool gratings

All of the components of emco swimming pool gratings are made from weather-resistant and ozone-resistant plastic; they are also resistant to chlorine, salt water and spa water. The swimming pool gratings are tough and feature a high level of resistance to wear and excellent non-slip properties, as well as resistance to chemicals.

emco swimming pool gratings – Cleaning and maintenance

To ensure that emco swimming pool gratings have a long service life they must be properly maintained and cleaned at regular intervals. The gratings should be cleaned once or twice per week (more frequently in thermal and salt-water spas, mineral spas and sulphur baths) in compliance with the requirements of standard DIN 19643 and the fact sheets issued by the Deutsche Gesellschaft für das Badewesen (the German bathing association).

We recommend the use of standard neutral and slightly alkaline plastic cleaning products only to clean emco swimming pool gratings.* The amount of cleaner to use and the reaction time can be found in the relevant manufacturer's information and must be adhered to. In all cases, any cleaning agent residue must be rinsed off with plenty of clean water (high-pressure cleaners can also be used up to 50 bar, with a maximum water temperature of 65°C and at a distance of at least 30 cm or so from the grating). The use of unsuitable cleaners or dosing in incorrect quantities, allowing the cleaner to re-

act for too long or rinsing with an inadequate amount of clean water can cause the material to become brittle, porous or possibly discoloured.

Type 723 DESIGN

If tiles or natural stone are bonded onto the emco swimming pool grate type 723 DESIGN, special maintenance and cleaning recommendations apply; these are enclosed with each shipment. We should be pleased to send them to you on request.

The chemical and physical resistance of the type 723 DESIGN swimming pool grate is influenced to a large extent by the chosen tiles or natural stone. Please observe the information provided by the tile and natural stone supplier.

emco hygiene mats

The cleaning and maintenance instructions for swimming pool gratings apply equally to the cleaning and maintenance of model 600 and 601 hygiene mats. However, high-pressure cleaners should only be used for short periods on model 601 mats due to the risk of damage.

During the winter season

Outside the bathing season, the swimming pool gratings (if they are being used in open-air swimming pools) should be put into storage and covered with a suitable film to prevent unnecessary damage and soiling.

emco installation frames – Cleaning and maintenance

Stainless steel installation frame (V4A, material no. 1.4404):

Cleaning agents containing hydrochloric or acetic acid must not be used on or in the vicinity of stainless frames. Phosphoric and citric acid-based cleaning agents* have proven to be effective. Dirt particles may become deposited on stainless steel frames that are not constantly in contact with swimming pool water due to repeated evaporation of the swimming pool water.

Without regular cleaning at least once a week (in compliance with DIN 19643 and the fact sheets issued by the Deutsche Gesellschaft für das Badewesen – the German bathing association), this can lead to pitting corrosion, which becomes visible in the form of brown specks of rust.

Installation frames made from fibre-glass reinforced polyester: Please consider the cleaning and maintenance instructions for emco swimming pool gratings.

* Note about cleaning agents:

Please only use cleaning agents which appear in the list of approved cleaning agents for ceramic surfaces in swimming pools (RK list). The cleaning agent manufacturer's instructions concerning usage and quantity must be followed exactly.

emco swimming pool gratings service

We recommend you take advantage of the emco advice, dimensioning and installation service. The experience we have gained from more than 45 years of swimming pool grating production has enabled us to build up a level of expertise that ensures success right from the start.

The benefits are obvious:

- You can be sure of the best possible result right from the start
- No expensive and time-consuming changes
- Expert solutions to individual problems
- Rapid response from a service network covering the whole of Germany

We do not accept liability for damage caused by failure to follow these cleaning and maintenance instructions or incorrect use of the emco products.

All swimming pool gratings are not approved for use in/on inflow openings in swimming pools.

Chemical and physical resistance

Chemical resistance of swimming pool gratings, floor gratings and hygiene mats:

Models	720, 721, 723, 724, 771, 772, 775	760, 760 E	600, 601
Water	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Inorganic acids	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Weak acids	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Strong acids	■ ■	–	■ ■
Oxidising acids	–	–	■ ■
Hydrofluoric acid	■ ■	–	■ ■
Strong org. acids	■ ■ ■	■ ■ ■ ■	■ ■ ■
Weak bases	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Strong bases	■ ■ ■ ■	■ ■ ■ ■	■ ■
Aliphatic hydrocarbons	■ ■ ■ ■	■ ■ ■ ■	–
Chlorinated hydrocarbons	–	–	–
Low-strength alcohols	■ ■	■ ■ ■ ■	■ ■ ■ ■
Ester	■ ■ ■ ■	■ ■	■ ■ ■ ■
Ketone	–	■ ■ ■ ■	–
Ether	■ ■ ■ ■	■ ■	■ ■
Aromatic hydrocarbons	–	■	–
Benzine	■ ■ ■ ■	■	–
Mixed fuels	–	■	–
Mineral oil	■ ■ ■ ■	■ ■	■ ■
Greases, oils	■ ■ ■ ■	■ ■ ■	■ ■
Unsat. chlorin. hydrocarbons	–	–	–
Turpentine	–	–	–

■ ■ ■ ■ = resistant, ■ ■ ■ = generally sufficiently resistant, ■ ■ = partially resistant, ■ = mostly non-resistant, – = non-resistant

Physical resistance of swimming pool gratings, floor gratings and hygiene mats:

Physical data	Testing method	Units	Value 723, 724 (760)
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)
Yield strain	DIN 53455 ISO R 527 ASTM D 638	%	> 15 (> 7)
Vicat softening temperature	DIN 53460/B ISO R 306	°C	80 (90)
Elasticity modulus	DIN 53457 ISO R 306	N/mm ²	2500 (1250)
Water absorption (100°C, 24 h.)	DIN 53471 ISO R 117	%	< 0,1 (0,1)
Impact strength	DIN 53453	KJ/m ²	30 (7)
Indentation hardness	DIN 53456	N/mm ²	65 (100)
Max. operating temperature		°C	106 (70)
Linear expansion coefficient		10 ⁻⁴ /K	0,7 (1,5)