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CHANNEL GRATINGS





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Frame and Grating

Kaj cast-in-situ drainage solution.

Ductile iron frame and grating, width 200 mm and 300 mm

Technical

information

Frame and grating

All our products are fully certified

Safety and functionality is our priority in the development of access covers. During the development we can rely on many strength calculations, tests and real applications that we have implemented in recent years. We aim to be on the top of technological development and innovation.

Kaj frames and gratings are type tested and certified according to following standards

DIN EN 1433 Line drainage - external

Kaj Industries is using a quality management system certified according to EN ISO 9001. The company has been certified since 1996.

Factory production control, employees qualification and technical equipment are certified.

Customers can rely on key parameters of ACO line drainage:

- ✓ Safety
- ✓ Declared load capacity
- ✓ Tightness
- ✓ Functionality

Kaj frames and grating - Innovation you can trust

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Frame and Grating





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Product Range

Kaj cast-in-situ drainage solution.

Ductile iron frame and grating, width 200 mm and 300 mm

Product range and specification

Kaj heelguard grating with frame and push-fit lock

Product range:

- Drainage channels for vehicle and pedestrian areas
Classification, design and testing requirements marking and evaluation of conformity
- It consists of a heavy duty ductile iron grating fixed with two push-fit locks per half meter to ductile rails cated into a concrete channel

Product specification:

- **Kaj** heel guard gratings are secured within the frame with two push-fit locks per half meter to avoid ejection and/or inappropriate movements
- The screwless and exchangeable blocking devices are engineered and tested to withstand vertical ejection forces.
- The system complies with DIN En1433, load class D400





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Recommended installation advise

Kaj cast-in-situ drainage solution.

Ductile iron frame and grating, width 200 mm and 300 mm

Recommended bedding mortar

Failure of the cementitious bedding mortar was found to be a principal cause of failure of road ironwork installations. Cracking of bedding material caused the ironwork to become loose

Cracking occurred due to a number of factors:

- Shrinkage of the mortar during installation
- Mortar having insufficient strength. Both compressive and tensile strain is built up during loading
- Installation opened to traffic too early
- Differential stiffness between the access chamber and the surrounding road
- Movement of the frame and flange of the casting under dynamic loading
- Failure of the bond/adhesion between the casting and mortar giving rise to separation.

An understanding of the behaviour of the ironwork under loading and the subsequent load transfer was developed along with the quantification of the strength (compressive and tensile) requirements of bedding material.

Polyester resin manhole bedding mortar which has been purpose-designed to provide:

- Long-term strength
- Resistance to shrinkage
- Long-term durability
- Optimum workable properties
- Early site opening
- Consistency of performance



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Our service for you

Every project is different, has its own requirements and challenges. In addition to our products, we offer you our know-how and our service to jointly develop tailor-made solutions- from planning to after-sales support.



train

Information and further education

In the **Kaj** Academy, we share the expertise of the global **Kaj** Group with dealers, planners, architects and installers, who place a big priority on quality. We invite you to profit from our expertise.



design

Planning and optimisation

The tendering and planning of drainage solutions is associated with many alternatives. But which concept produces the most economical and safest technical solution? We'll help you find the right answer.



support

Construction advice and assistance

We provide you with project-related advice and support on your construction site to ensure that no unpleasant surprise occur between the planning and realisation of a drainage solution.



care

Inspection and servicing

Kaj products are designed and built for long service lives. Our customer care services ensure that **Kaj** continues to satisfy your high quality requirements year after year.



train



design



support



care

ACO service chain

because quality does not stop with the product

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Kaj drainage systems for airports



Highest quality for maximum safety

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Civil Engineering & Infrastructure



Kaj TRAM Drainage System

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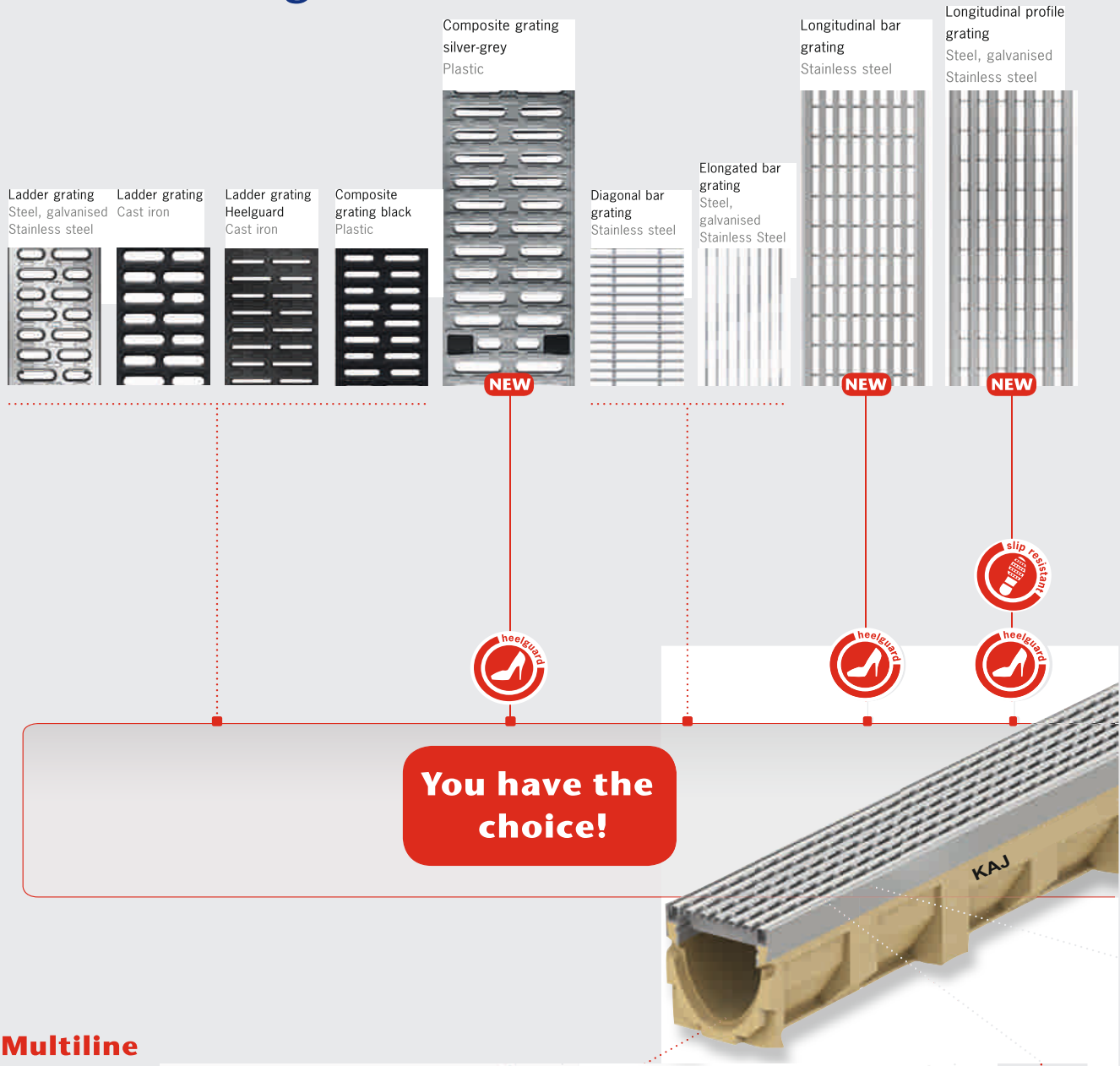


***Kaj* creating the future of drainage**

***Kaj* Systems FZE – drainage and water treatment solutions**

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Channel Grating



***Kaj* Multiline Channel bodies**

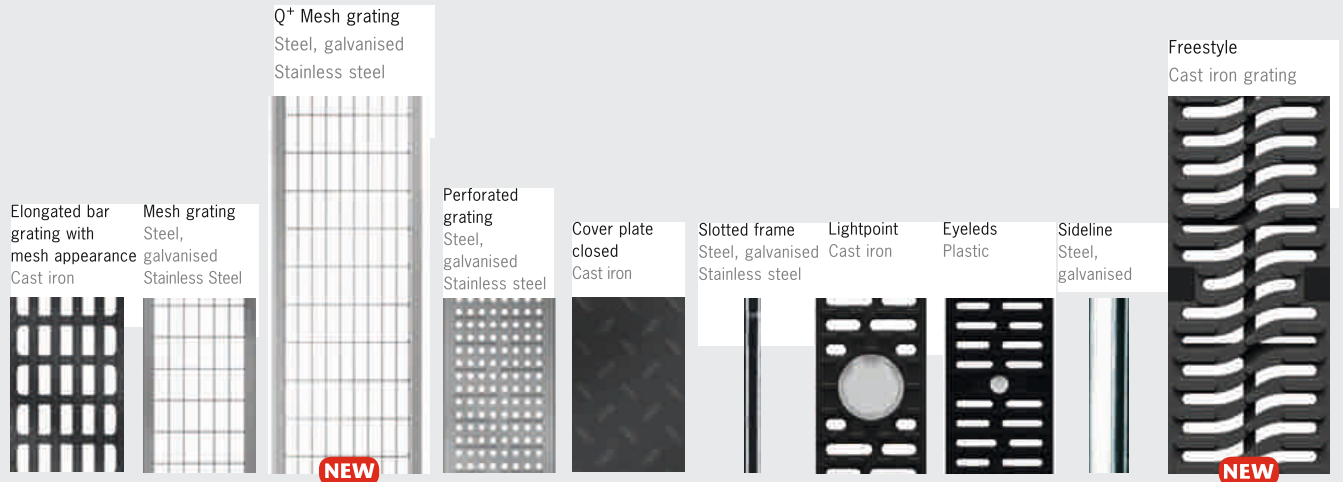


Frame: steel, galvanised



Frame: stainless steel

Frame & Grating



Frame: Cast iron

- heelguard: Slot width max. 10 mm
- non-slip: according to DIN 51130 min. R 11
- hydraulics: optimised intake area
- individual: unmistakable grating designs



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Drainlock Grating



Ladder gratings

Ladder gratings by **Kaj** with slot widths of up to 10mm protect your heels. You have the choice between gratings in galvanised steel, stainless steel and cast iron. The “Heelguard” ladder grating made of cast iron, with a slot width of only 5 mm, even offers high heels a stylish and safe footing at all times. This makes it ideal for public areas in cities.

- ladder grating steel, galvanised/stainless steel, nominal width 100 mm, load classes A 15 and C 250
- “Heelguard” ladder grating, cast iron EN-GJS, load class C 250
- ladder grating, cast iron EN-GJS, nominal widths 100, 150, 200, 300, 400 and 500 mm, load classes B 125, C 250 and D 400
- according to DIN EN 1433/DIN 19580
- with Drainlock screwless stop



Ladder grating
Steel, galvanised



Ladder grating
Stainless steel



„Heelguard“ ladder grating
Cast iron

Slot width only 5 mm



Ladder grating
Cast iron

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- with Drainlock screwless stop



Ladder grating
Steel, galvanised



Ladder grating
Stainless steel



„Heelguard“ ladder grating
Cast iron

Slot width only 5 mm



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Channel Grating



Composite grating black
Plastic



Composite grating silver grey
Plastic

Ladder gratings made of plastic

Composite gratings represent the absolutely rust-free alternative to covers made of metal. This protects adjacent surface coatings from discoloration caused by rust transmission. Further advantages of the exceedingly robust silver grey or black plastic gratings are their colour fastness as well as their high resistance to wear and chemical agents. And they also feature "heelguard".

- plastic grating,
nominal width 100 mm
- load classes B 125 and
C 250 (black only)
- according to DIN EN 1433/DIN 19580
- with Drainlock screwless stop



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Drainlock Gratings



Elongated and diagonal bar grating

The simple elongated bar gratings, available in galvanised steel or stainless steel, and the diagonal bar grating made of stainless steel fit unobtrusively into all floor coverings. An elongated cast iron bar grating is available with a rustic mesh appearance.

- cast iron EN-GJS, nominal widths 100, 150, 200, 300 and 400 mm, load classes C 250, D 400 and E 600
- optionally steel, galvanised/stainless steel, nominal width 100 mm, load class A 15
- diagonal bar grating stainless steel, nominal width 100 mm, load class B 125
- according to DIN EN 1433/DIN 19580
- with Drainlock screwless stop



Elongated bar grating
Cast iron



Elongated bar grating
Galvanised steel and stainless
steel



Diagonal bar
grating
Galvanised steel

Drainlock Gratings



Longitudinal bar grating



With the new longitudinal bar grating made of high-quality stainless steel, **Kaj** is emphasising design. This grating is particularly suitable for installation in front of glass façades. Thanks to its free intake area, it quickly drains off any surface water. A slot width of only 6 mm makes the grating especially anti-slip – an elegant solution for line drainage on façades and also at the interface between the façade and the open area.



- grating made of stainless steel, nominal width 100 mm
- load class B 125
- according to DIN EN 1433/DIN 19580
- with Drainlock screwless stop
- pickle passivated and grinded surface

Longitudinal profile gratings

The longitudinal profile grating meets the highest safety requirements and thus sets new standards in line drainage: it has been awarded the "heel-guard" seal and with slot widths of 8 mm is anti-slip. In addition, this grating, which is available in galvanised steel and stainless steel, has a slip-proof structure. The free intake area guarantees fast drainage, and the continuous U-shaped profile also ensures clear visual lines. As an additional design option, this grating can be electro-polished on demand.



- optionally steel, galvanised / stainless steel nominal width 100 mm
- load class B 125
- according to DIN EN 1433/DIN 19580
- with Drainlock screwless stop
- pickle passivated surface in stainless steel

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Drainlock Gratings



Practical example

5 Lightpoints on a 2,5 m channel

Components required:

1 x basic set, 3 x extensions

2 x channels 100 cm

1 x channel 50 cm

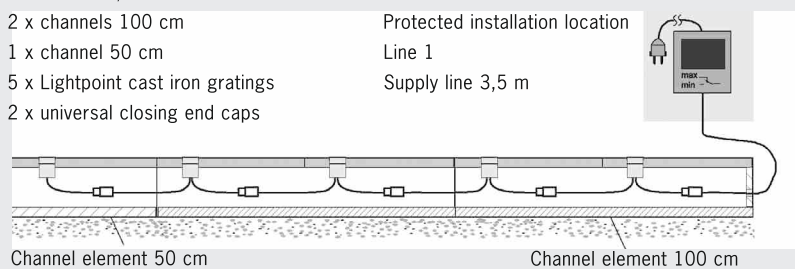
5 x Lightpoint cast iron gratings

2 x universal closing end caps

Protected installation location

Line 1

Supply line 3,5 m

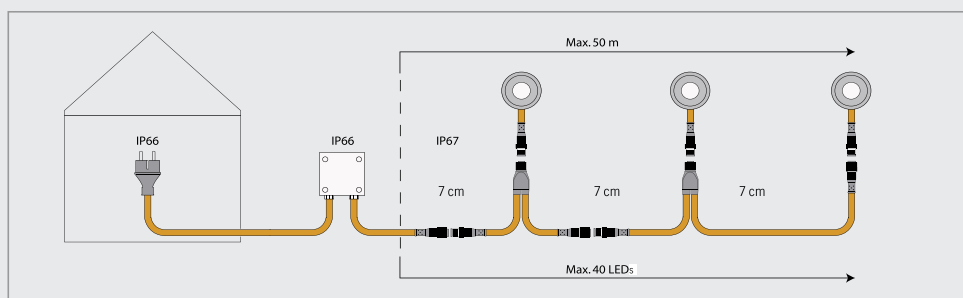


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Drainlock Gratings



Practical example

5 ACO Lightpoints on a 2.5 m channel

Components required:

2 x channels 100 cm

1 x channel 50 cm

5 x plastic gratings with Eyed

1 x transformer

4 x splitters 30/30

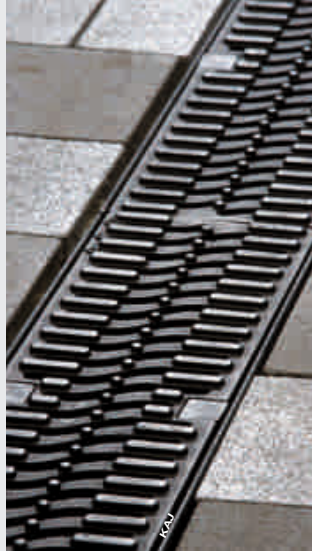
2 x universal closing end caps

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Drainlock Gratings



Kaj Freestyle cast iron gratings designed according to customer's wishes: **Kaj** Freestyle Flag, **Kaj** Freestyle Leaf, **Kaj** Freestyle Sturgeon



Kaj Freestyle with lighting using Eyeleds



Drainlock Gratings



Mounting the LED elements in the slotted frame



Sideline
Stainless steel



Sideline

Drainage channels disguised as narrow slots guarantee clean lines on squares and pathways, in gardens and parks. Slotted frame drainage now has a new design dimension: it holds new lighting effects. The **Kaj** Sideline shows a well thought-out symbiosis of drainage and LED technology.

Besides the effective design, an important advantage is the improved feeling of safety achieved through the combination of slotted frame drainage and LED technology. The linear light tracks also underscore the character of modern architecture.

A user-friendly control unit allows solutions ranging from small applications to complex integration in all building automation systems. The energy-efficient IP 67 LED lamps are highly resistant and maintenance-free.

Versions in the lengths of 1,000 and 500 mm are available. In the RGB version, a 6 m light line can be connected to one power supply.

Maintenance for the drainage channel is effected using service components. Inspection elements allow easy cleaning and fast access to the cables. With the help of the 100 mm high slotted frame, paving stones can be accurately aligned with the slots.

- made of stainless steel,
- nominal width 100 mm
- LED light colour: monochrome or RGB
- (All colours, mixed colours, colour gradations, colour changes; dynamic lighting scenes are also possible.)
- load class C 250
- according to DIN EN 1433/DIN 19580

Introduction Industrial Drainage selection guide

Application

The layout of the drainage system as well as the design of drainage items has an impact on future operational effectiveness as well as on costs. This guide offers a range of basic areas which need to be considered when specifying a drainage system.

To specify an appropriate drainage system for a particular application, the zone of operation, amount and frequency of water used is crucial.

	Zones with high risk for food safety	Zones with medium or low risk for food safety	Zones without direct risk for food safety
Wet process / Wet cleaning	- Hygienic design - one piece solution without connections; ladder or cast gratings - High retention - high flow rate - Slip resistant - high requirement	- Hygienic design - connections and mesh gratings could be considered if cleaning and sanitation procedures allow - High retention - high flow rate - Slip resistant - high requirement	- Hygienic design is recommended for easy cleaning and maintenance; combination of products could be considered for easy layout design - High retention - high flow rate - Slip resistant - high requirement
Dry process / Wet cleaning	- Hygienic design - one piece solution without connections; ladder or cast gratings - High flow rate - Slip resistant - medium requirement	- Hygienic design - connections and mesh gratings could be considered if cleaning and sanitation procedures allow - High retention - high flow rate - High flow rate - Slip resistant - medium requirement	- Hygienic design is recommended for easy cleaning and maintenance; combination of products could be considered for easy layout design - High flow rate - Slip resistant - medium requirement
Dry process / Controlled wet cleaning	- Hygienic design - one piece solution without connections; ladder or cast or odour proof gratings - Medium to low flow rate	- Hygienic design - connections and mesh gratings could be considered if cleaning and sanitation procedures allow - Medium to low flow rate - Odour proof cover	- Hygienic design is recommended for easy cleaning and maintenance; combination of products could be considered for easy layout design - Medium to low flow rate - Odour proof cover



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General Introduction

Kaj is one of the World's leading drainage specialists with 60 years' experience gained across a wide range of sectors. Our passion for producing high performance products has led us to make major investments in research and development.

We are working in partnership with commercial facility owners, managers and operators. We are continuously developing our products and enhancing our expertise. We understand the critical role that drainage plays in a successful business.

Our product portfolio includes items which are fully compliant with the highest hygienic requirements. We also have a full understanding of the food industry's own standards such as HACCP and we work with bodies including the European Hygienic Engineering and Design Group (EHEDG).

Kaj drainage is used in applications anywhere where hygienic, corrosion resistant and durable drainage performance is essential:

- Professional kitchens
- Food processing facilities
- Brewing, bottling and canning plants
- Chilled warehouses
- Laboratories
- Chemical and pharmaceutical industries
- Restaurants
- Schools
- Hospitals
- Hotels
- and others



Hygiene**First**

As one of the World's leading commercial drainage specialists, **Kaj** Group understands the critical role that drainage plays in a successful commercial food preparation business. We appreciate that food safety, hygiene and cost control are all vital factors yet we also understand that for many, drainage is out of sight and therefore out of mind.

As a result, many drainage systems are not designed well. At best this leads to costly on going cleaning and maintenance, and at worst it can result in food contamination, closure of a facility and the loss – or even closure – of business. As the company that's driving the future of drainage, we are determined to change this by raising the profile of hygienic drainage and improving standards across every part of the process.

Our HygieneFirst philosophy represents our commitment to delivering products that provide ultimate hygienic performance. We design intelligent drainage solutions that minimize operational costs without compromising food safety.



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General Introduction

Kaj Systems FZE

**ACO Service for all GCC countries,
the Middle East Region and
parts of South Asia**

Kaj Systems FZE at a glance

- 2006, company established by **Kaj** International in Jebel Ali Free Zone Dubai
- 40+ employees in the United Arab Emirates and distribution companies in the GCC countries
- office and warehouse with 10.000 sqm production facility for stainless steel products



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Drainlock Gratings

Cast iron



Kaj cast iron – quality for all standards

The types of cast iron used by ACO Guss in Kaiserslautern and Aarbergen are adapted to the continuously increasing requirements through intensive innovation and development processes: Both cast iron with lamellar graphite (grey cast iron GJL) and cast iron with nodular graphite (spheroidal cast iron GJS) have proven their worth as materials for use in cast iron sewers due to their high corrosion resistance. ACO Guss offers the optimum solution for the respective application, independent of the material.

Steel/stainless



Kaj steel/stainless steel – sophisticated components

The processing of both steel and stainless steel is a core expertise of **Kaj** in the different production facilities of the ACO Group worldwide. Large investment sums ensure that our production facilities are always state-of-the-art. The high qualification of our skilled workers ensure high-quality products. Our own in-house plants for surface protection and finishing are used, among other things, in the production of ACO Drainlock gratings.

Plastic



Kaj plastic – innovative and flexible

Components made of plastic offer the greatest possible design freedom with regard to form and function. We use this potential to avoid expensive material combinations and time-consuming joining processes and to develop intelligent solutions “cast in one piece” to take their place. The plastics used by ACO are characterised not only by their high breaking stress (crushing strength) but also by their outstanding resistance to environmental influences. Simple machining options and low weight are the reasons for the outstanding user-friendliness of our plastic solutions.

Concrete



Kaj concrete – durable and reliable

Concrete is a material that plays a decisive role in tank construction for separator and drainage technology. **Kaj** tanks for drainage technology are made from a highly waterproof concrete, have a very high resistance and stability. The tanks can be used as separators, pumping stations, accident (spillage) systems or special chambers and can also be equipped with a plastic coating or lining. **Kaj** tanks made of concrete are a durable solution for the drainage and treatment of water.

Highlights from the A15 - E600 range of gratings

Longitudinal bar grating

Stainless steel



Mesh grating Q

Galvanised steel
Stainless steel



Composite grating with microgrip

Anti-slip plastic



Slotted grating

Galvanised steel
Stainless steel
Ductile iron



Cross bar grating

Stainless steel



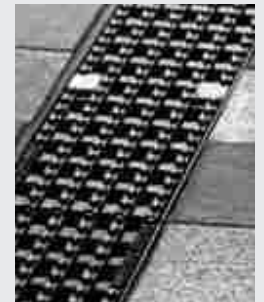
Perforated grating

Galvanised steel
Stainless steel



Composite grating Heelguard

Ductile iron



Composite grating

Ductile iron



optimised
intake area



slot width
max. 10 mm



according to
DIN 51130, min. R 11

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Drainlock Gratings



Stability under the highest loads

Load resistance

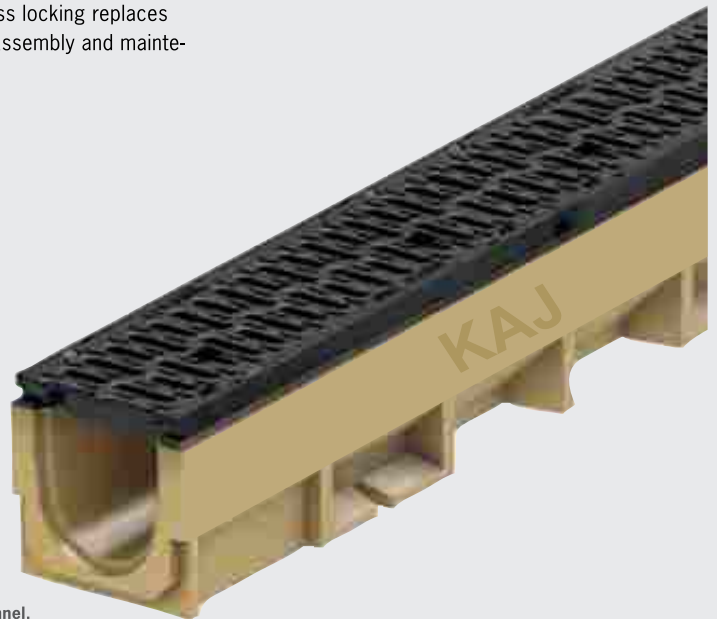
The high strength of this heavy duty channel system is based on many details:

- Reinforcing ribs increase side wall strength and optimise load distribution
- Special anchoring feet provide perfect stability in the concrete surround
- Integrated anti-shunt lugs to prevent longitudinal grating movement, and low centre of gravity provides safety even during installation
- An abutting edge rail for paviers of 10 cm height avoids unnecessary seams
- Smooth lateral walls are free of any protrusions, permitting easy abutment of surface coverings such as paviers, asphalt or concrete
- powerlock boltless locking replaces bolts for easier assembly and maintenance

Award winning design

This product was awarded a German product design (recognition) award for its excellent combination of form and function. A great design with many beneficial features:

- High load resistance
- High inflow profile
- Longitudinal bars preventing water by-pass
- Powerlock boltless locking
- Anti-shunt lugs to prevent longitudinal grate movement
- High quality coating to prevent corrosion
- Grate installation independent of channel direction



S 100 K channel.

Appearance and functionality optimised by a new grating design



Drainlock Gratings

Planning and design with no limitations

The ACO Profiline channel system is a reliable professional solution for the drainage of façades, terraces and balconies. It is available in fixed heights of 5.0 and 7.5 cm, as well as in continuously adjustable versions between 6 to 16.5 cm. Customised versions can also be supplied upon request.

The advantages for planners and designers: ACO Profiline enables the connection height to building seals to be reduced from 15 cm to 5 cm.

The channel system works on two levels: it drains the water from the surface as well as water from the underlying drainage layer. Water flowing down façades is also reliably collected and removed. Backflow reservoirs prevent the build-up of water puddles during sudden downpours.

ACO Profiline is available in galvanised steel and stainless steel versions and therefore perfectly harmonises with visually sophisticated settings.



Typical applications

- Facades
- Terraces
- Balconies
- Flat roofs
- Green roofs
- Roof gardens

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External Drainage

Qmax features

ACO Qmax was designed to handle high hydraulic capacities, enable minimum installation times, and be lightweight and yet rigid enough to withstand the rigours of typical construction site handling practice. Manufactured from tough, chemically resistant medium density polyethylene (MDPE), ACO Qmax is light, easy to handle and quick to install. Connecting to pipes is also made easy with the availability of a special side inlet unit.

The ACO Qmax system is a patented design currently available in four sizes for effective and economical drainage of a range of catchment sizes: ACO Qmax 225 can carry flows of around 25 l/s even when laid level (depending on channel length etc.). The largest ACO Qmax 900 can carry flows of around 300 l/s when laid level and considerably more when laid with a gradient.



Typical applications

- Airport surfaces
- Distribution centres
- Highways
- Car parks



ACO Qmax is available in different sizes and lengths providing an effective and economical drainage solution for the application requirement

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Classic Top and Multi Top

The ACO manhole top program with ACO CityTop, ClassicTop and MultiTop



For tomorrow's infrastructure –

ACO manhole covers: CityTop, ClassicTop and MultiTop

Operational safety, durability and cost efficiency are the main criteria defined for high traffic infrastructure. With the ACO range of manhole covers, top sections and inlet gratings, ACO satisfies all specifications pursuant to DIN EN 124/E DIN 1229. Intelligent product features such as lightweight covers and gratings, boltless locks, damping frame inserts, and hydraulic, optically attractive and technically sophisticated surface designs, underpin the ACO Manhole product line's high engineering standards.

Typical applications

- roads, paths, piazzas
- airports and ports
- control shafts

Benefits

- durability and reliability
- high securing level and long lifetime
- user-friendly and safe in operation

Cover features

- ClassicTop is secured by highest mass per unit area
- CityTop and MultiTop are secured by screwless and maintenance free locking devices
- two anti-theft devices can be installed to prevent theft of CityTop

Frame features

- a cushioning insert is placed in the frame of all ACO manhole tops
- Bituplan frames offer highest load transfer to protect mortar bedding and shaft top
- a mobile entry-facility tool is firmly fixed in Multitop Lift or Bituplan frames



Maintenance-free, boltless, traffic-proof lock made of heavy-duty wear-and-tear resistant plastic in accordance with EN 124

A Plus for tomorrow's infrastructure –

ACO manhole cover Multitop Plus

A dramatic increase in goods traffic is expected in the next few years. Roads remain the number one mode of transport. ACO has adapted the Multitop Plus manhole cover to the increasing market requirements. We have retained the tried and tested weight, handling, wear and mortar joint solutions and focussed on the new product advantages: Quiet. Air permeable. Slip resistant.

- **Quiet** by means of safe, damping inserts and by mechanically machined, extremely flat bearing surfaces on the cover and frame.
- **Permeable** through 323 cm² ventilation cross sections for better ventilation of the sewer.
- **Slip resistant** through a special surface profile on the cover and frame – at least R11 according to DIN 51130.



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External Drainage

ACO Freestyle cast iron gratings

The desire for individual solutions in landscape architecture can be met so easily when it comes to line drainage: with its Freestyle cast iron gratings, ACO provides unique design options for cast iron gratings.



Drainlock Gratings



Slim, quiet and extremely efficient

Slim solutions are not just good looking: the combination of crucial product properties make the ACO Powerdrain a real professional all-round solution in polymer concrete. Its compelling features include unusually good hydraulic specifications, extremely high safety, and outstanding stability right up to the toughest heavy duty class F. All of these product benefits are founded on four main properties:

- reduced nominal widths
- innovative V-channel profile
- rugged sidewall construction
- integrated damping

The nominal widths differ from traditional widths: the Powerdrain was developed with internal widths of 75, 125, 175 and 275 mm. The design retains the hydraulically highly effective V-profile – an innovation launched by ACO for line drainage solutions – and is made of high-strength polymer concrete. This not only makes the new slim Powerdrain systems extremely tough, they also have efficiencies

comparable to the previously standard 100, 150, 200 and 300 channels. The special elastomer damping between the grating and the channel, combined with the safely locked but still flexibly bedded grating, means permanent noise damping when vehicles drive over the channel.



ACO DRAIN® PowerDrain
V 75/100 P to V 275/300 P



slim: V-profile for high▲
hydraulic performance



quiet: the special elastomer damping means
permanent noise damping



efficient: the boltless lock and tried-and-tested
installation aids boost safety and efficiency
at the construction site

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External Drainage

Kaj DRAIN[®] point drains

Kaj point drainage systems are ideal for surfaces which require point drainage for structural or topographical reasons.



Floor gullies

A floor gully and drainage channel guide wastewater from floors into the drainage pipe, safely for people and without damage to structures. It is the installation location, for example, a large catering kitchen, which primarily determines which variant of a gully or chan-

nel for the drainage has to be selected. Depending on their type, they can be combined with extensions. **Kaj** offers gullies made of cast iron, stainless steel and plastic. The most important factors in the design include:

- Wastewater quantity
- Traffic load and load capacity of the grating
- Slip resistance
- Waterproofing/seals
- Fire protection requirements
- Hygienic properties



Fire protection floor gullies

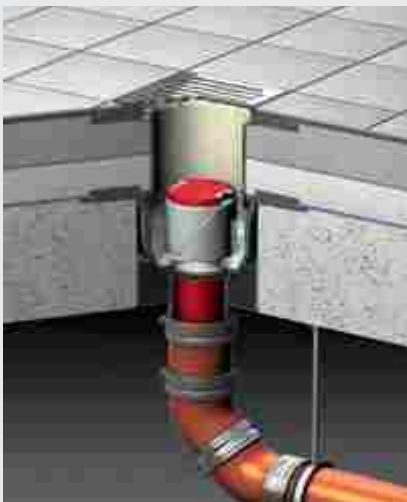
Kaj Passavant fire protection floor drains R 30 to R 120 with odour seals and vertical outlet sockets

The **Kaj** passavant fire protection floor drain series is made of inflammable ductile iron.

A replaceable and retrofittable fire protection kit is fitted into the floor drains. The fire protection kit varies according to the floor drain and consists of a fire

protection odour seal with intumescent material in the head. This ensures safe sealing of the floor drain during a fire to prevent fires spreading from above the ceiling to below the ceiling. There is also a fire protection cartridge containing intumescent material which securely blocks off the floor drain and prevents fire spreading from beneath the ceiling to the floor above.

"Preventative fire protection for all floor gullies" has attracted an increasing amount of interest in recent years – particularly for installation in buildings for special uses, e.g. hotels, hospitals, care homes or schools – where fire-resistance specifications already exist for ceilings and floors.



Function of the **Kaj** haustechnik fire protection floor drains before a fire



If a fire is present beneath the ceiling, the intumescent mass in the cartridge safely blocks the socket in the drain



A fire on top of the ceiling expands. The intumescent mass in the odour seal to completely block the drain

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Modular System



Modular system – a channel for every application

Kaj Self® drainage was developed especially for private usage and combines optimum standard with high-quality design. The covers can be produced from a range of different materials from galvanised powder painted steel through high-grade steel and cast to plastic. This allows for a wide array of design possibilities. The channel bodies are either made from plastic, polymer concrete or steel. You can create individual solutions for every construction situation using the modular principle.

Slotted top for **Kaj Self** – More stylish looks for your outdoor areas

The **Kaj Self** slotted top replaces the 12 cm wide drainage channel grating with a less than 2 cm wide slot which fits elegantly into the overall look – at the end of your drive, on your patio, or alongside a garage.



External Drainage



Cobblestones, flagstones or asphalt are the customary coverings that are used nowadays for paving the areas around the house, as well as the large areas around public buildings and commercial buildings. Rainwater and waste water cannot soak away naturally because these pavings usually seal the ground. The pavings must not only be laid skilfully but they must also ensure that the surface water will be collected and drained in order to prevent puddles from forming. The **Kaj Self[®] Point** gullies are a simple and practical solution for draining the surfaces of yards, driveways and large areas. The frostproof gullies for waste water and rainwater, which are passable by vehicles and resistant to thawing salt, reliably ensure that the surface water is collected quickly and drained via the point gullies from these areas or underneath the tap of a standpipe in the garden or yard.



The XtraPoint gullies made from plastic

- Passable by motor car (Class B125)
- Shallow installing height
- Large mud trap with a handle
- Permanently colourfast
- It is possible to pave directly up to the gully
- The gullies comply with DN 100
- The draining performance is at least 4.5 l/s

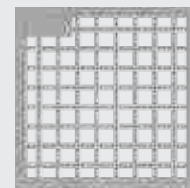


Typical applications

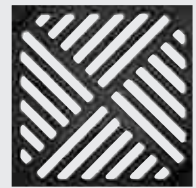
- car parks
- domestic water tap
- school yards

The yard gully made from polymer concrete

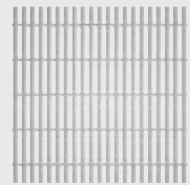
- Removable odour seal
- Removable mud trap
- Frostproof
- The depth of penetration by water into the polymer concrete is 0 mm
- The drainage capacity is up to 4.0 l/s
- Surface-draining performance: 150 m²



Mesh grating,
galvanized steel



Ductile iron grating



Longitudinal profile
grating, stainless steel

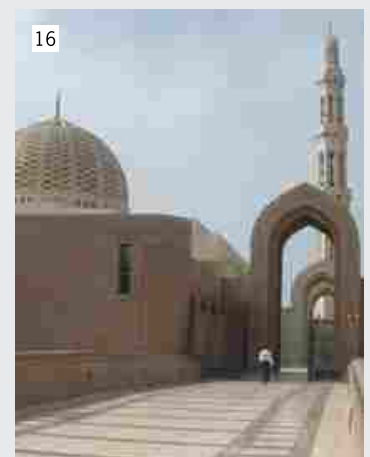
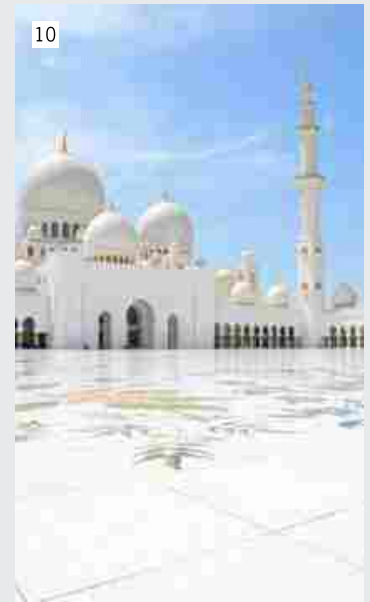


Slotted grating,
galvanized steel

External Drainage



- 1 Holy Mosque in Makkah, Saudi Arabia
- 2 Dubai Opera, Dubai
- 3 Palm Jumeirah, Dubai
- 4 Yas Island & Ferrari World, Abu Dhabi
- 5 Metro Stations, Dubai
- 6 Midfield Terminal Project, Abu Dhabi
- 7 Dubai Mall and Burj Khalifa, Dubai
- 8 Masdar City, Abu Dhabi
- 9 Emirates Flight Catering, Dubai
- 10 Sheikh Zayed Mosque, Abu Dhabi
- 11 Jebel Ali Port, Dubai
- 12 Conrad Hotel, Dubai
- 13 Burj Al Arab Hotel, Dubai
- 14 King Abdullah Financial District, Saudi Arabia
- 15 Etihad Museum, Dubai
- 16 Grand Mosque, Oman



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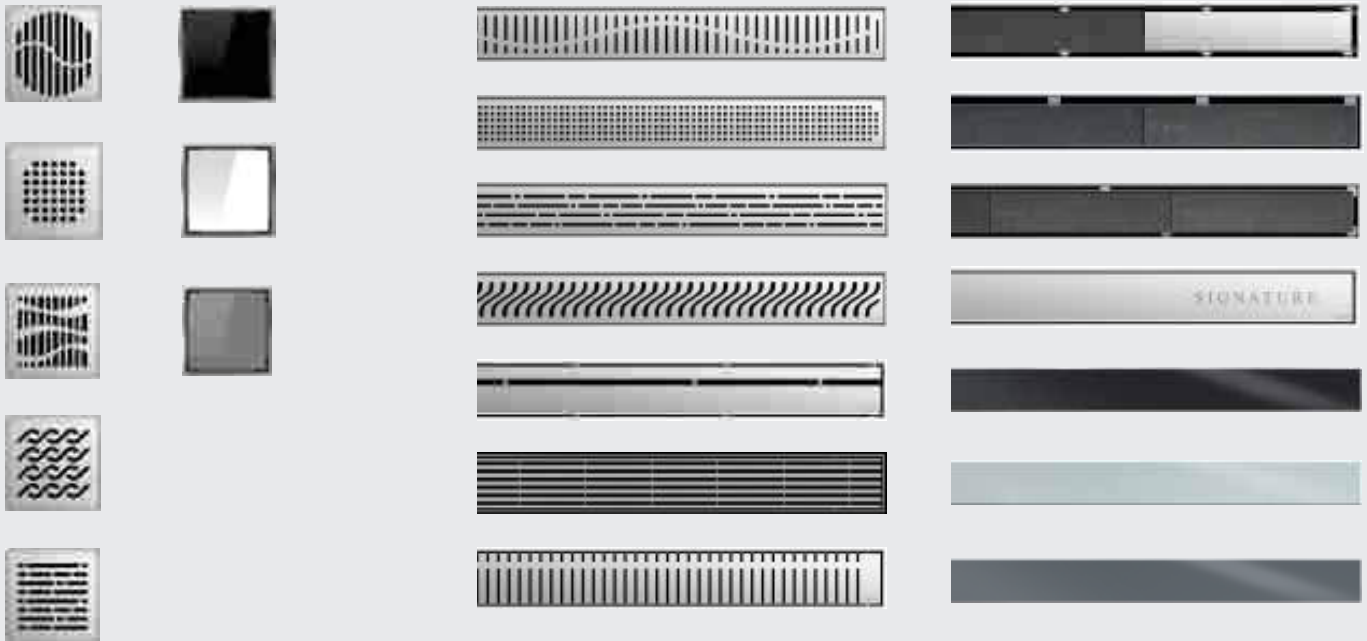
Designer Gratings

The **Kaj** stainless steel designer gratings are laser-cut and have an electro-polish finish. They are elegant, individual and superbly functional.

The gratings fit the 150 x 150 mm and Ø 136 mm frames and are therefore used as standard with the MEKU or AV-SELECTA PP risers from **Kaj** for the thin mortar bed sealing method. The risers can be combined with all **Kaj** ductile iron and stainless steel gullies in sizes DN 50 and DN 70 and the plastic floor gullies DN 50-100.

Kaj designer gratings can also be individually made to customer specifications. In addition to the patterns shown here, any other pattern can be cut out and customised from stainless steel plate.

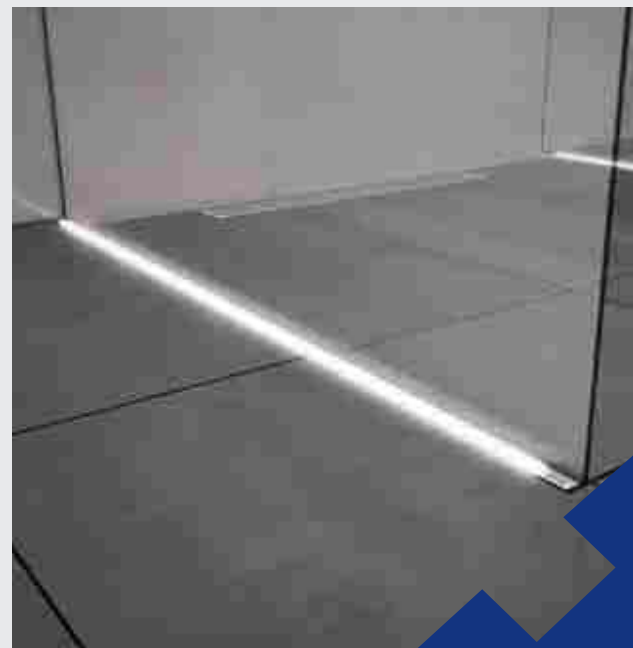
Kaj Showerdrains are available in standard lengths from 700 to 1000 mm. The Showerdrain is an attractive alternative to a conventional shower tray in high-class bathrooms as well as in public areas.



ACO Lightline Pro

ACO Lightline Pro allows you to create exclusive lighting designs in the bath - room. The floor lighting system produces impressive light effects, is easy to install, offers huge scope for design, and is extremely safe and durable. The idea behind ACO Lightline Pro is as simple as it is clever: A stainless steel U-profile filled with transparent resin to make it

utterly leak tight houses a strip of LED lights (protection class IP68) that is connected to the electric circuit and is therefore switchable. In addition to enhancing individual lighting design in modern private bathrooms, ACO Lightline Pro is also ideal for designing and implementing floor guidance systems in large spa and wellness facilities.





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Freestyle grating samples:

Freestyle grating samples:



Leaf Design



Flag Design



Square Design

Specification notes

For **Kaj** Multiline channel V 100 - 300 G

Load class: to D 400 according DIN EN 1433

Material: EN-GJS-500-7

With screwless **Kaj** Drainlock-grate adjustment

Length: 500 mm

You design - we detail and provide you with the finished product. Unique solution for your property you will receive a template with technical specifications. Please contact www.aco.ae

A key unique feature of the **Kaj** cast iron Freestyle grate is the customised design freedom of the visible surface. Variable production tools can be imaginative and individual design concepts, which each planner distinctive design options in the surface of the grate and thus to be drained provide open space. This allows for specific open space in the simplest way unique grate designs will be developed.

New designs and other sizes, prices and delivery times on request.

Minimum order 200 pieces (length 500 mm).



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Cast and ductile Iron Products



Cast and ductile iron products

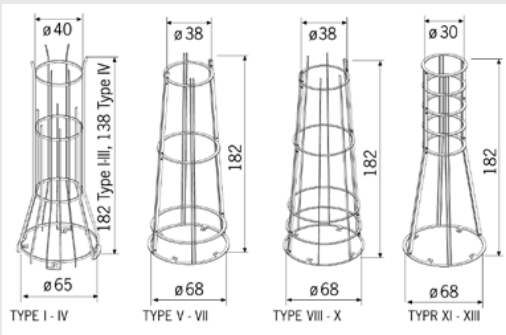
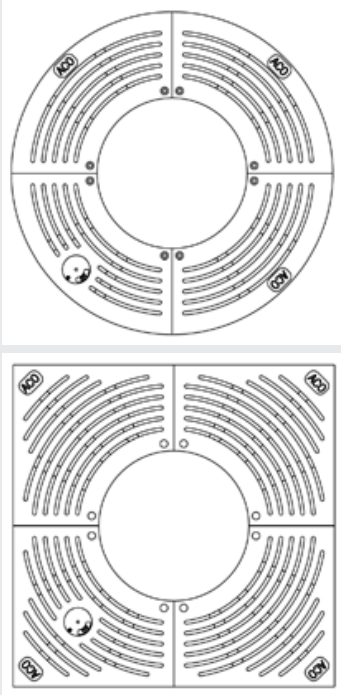
to suit all applications,

loadings and sizes

medium and heavy duty

Cast and ductile Iron Products

ACO tree grate systems – offering optimum protection to street trees



Specification note

All **Kaj Tree grilles** are stable and they are composed of galvanised sub-structure (including frame) and the Tree grilles are made from cast iron according EN-GJL-250 DIN EN1561 (grey cast GG25). This proven material's inherent benefits include rigidity, strength and corrosion resistance. Each grille is coated with a high-grade epoxy resin primer containing zinc phosphate and a two-part black (RAL 9005) structural varnish. Due to customers' varying demands, **Kaj** can supply all tree grilles for unbraked wheel loads of 15kN or 50 kN.

Kaj standard cast iron tree grilles are available in either circular or square shapes, both of which can be ordered with the classic ray and radial designs. Square tree grilles also in the new diagonal and linear designs. Overall sizes range from 1.25 to 3.00 metres, with an internal opening dimension of 60, 70 or 80cm.

More information, other designs or sizes are available upon request.

**Healthy vegetation
and great optical appearance**



References

Middle East and International References



**Tree protection in
Hamburg / Germany**



**Manhole covers in Shamka residential,
Abu Dhabi / United Arab Emirates**



**PUMA Headquarter,
Germany**



**Manhole covers for Al Ain Municipality,
Al Ain - Abu Dhabi / United Arab Emirates**



**UNESCO,
Germany**



**Manhole covers for Municipality,
Abu Dhabi / United Arab Emirates**



**Manhole covers for Municipality,
Sofia / Bulgaria**



**Multipart covers for Khalifa Port,
Abu Dhabi / United Arab Emirates**



**Adidas Headquarter,
Germany**



**Gratings for Dubai Mall,
Dubai / United Arab Emirates**



**Manhole covers for sewerage company ,
Abu Dhabi / United Arab Emirates**



**International Airport ,
Frankfurt / Germany**



**Multipart covers in residential area Remraam,
Dubai / United Arab Emirates**

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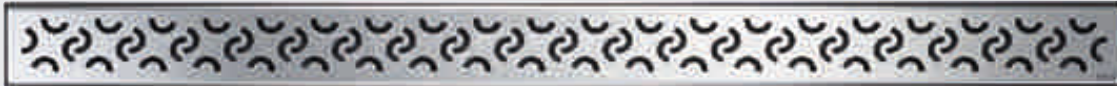
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External Drainage



Chain



Curl



Flag



Hawaii



Mix



Pixel



Quadrato



Wave



Tile (tileable)



Mix illuminated*

*Stainless steel designer gratings
can be illuminated in blue, red,
green and rainbow colours

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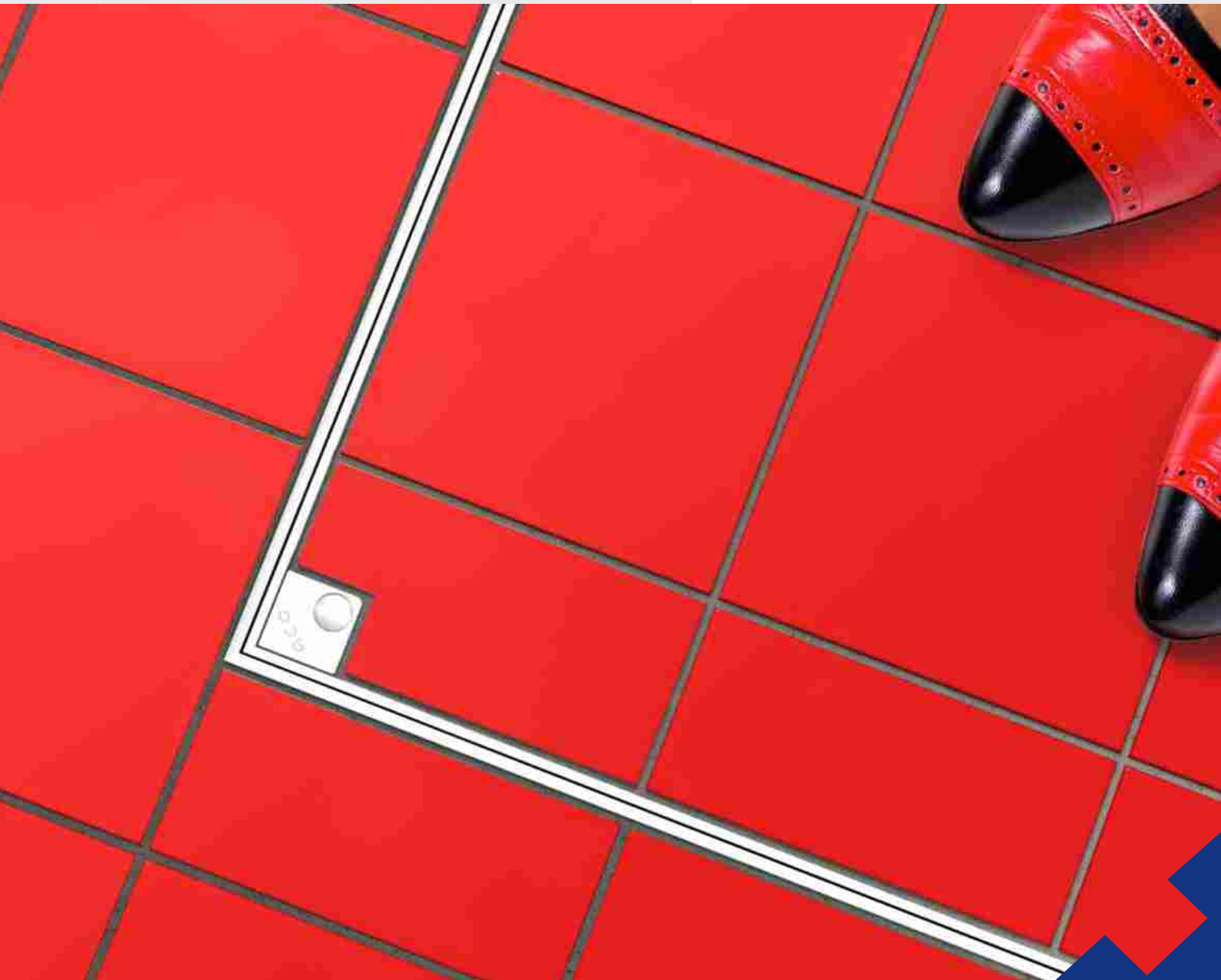
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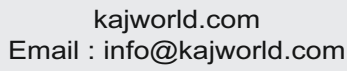
Access Cover UNIFACE

Typical applications are inside buildings or in building surroundings, where high level of design is required. Recessed access covers are suitable for a thin floor surfaces in thickness up to 15 mm. The cover must be filled-up with concrete of required quality (C35/45) in order to achieve declared load capacity.

Kaj product benefits

- Type tested and certified according to EN 1253-4.
- Tested with space for tiles 15 mm (competitors covers tested completely filled with concrete)
- Bolt locked – child safety
- Corrosion resistant
- Small corner parts
- Secure installation – good connection with concrete (profiled frame or anchors)
- Discreet product after installation
- Easy tool for opening and manipulation





		Product selector																			
		Products	UNIFACE								PAVING			SOLID							
			GS	SS	ASSIST GS	ASSIST SS	MULTI GS	MULTI SS	AL	AL shallow	SMART AL	GS	ASSIST GS	MULTI GS	GS	SS	ASSIST GS	ASSIST SS	MULTI GS	MULTI SS	AL
Exposition	Inside building	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Outside building	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
Applications	Airports	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	
	Chemicals and Pharma	✗	✓	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	
	Domestic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Food/Drink Processing	✗	✓	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	
	Hospitals	✗	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✗	✓	
	Industrial Estate	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	
	Landscaping	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
	Pedestrian Areas	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
	Prisons	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	
	Parking areas	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
	Railways	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
	Residential	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Schools	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	
	Sports and Leisure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	
	Wetrooms	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✗	✓	
	Load capacity	L15 / A15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
M125 / B125		✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
C250		✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	
EN 1253-4		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	
Certified	EN 124	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Other parameters	Concrete infill C35/45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	
	Floor finishing up to 15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Cover infill up to 80	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Cover infill up to 120	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Watertight	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Odourtight	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Opening assistance	✗	✗	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	
	Removable beam	✗	✗																		

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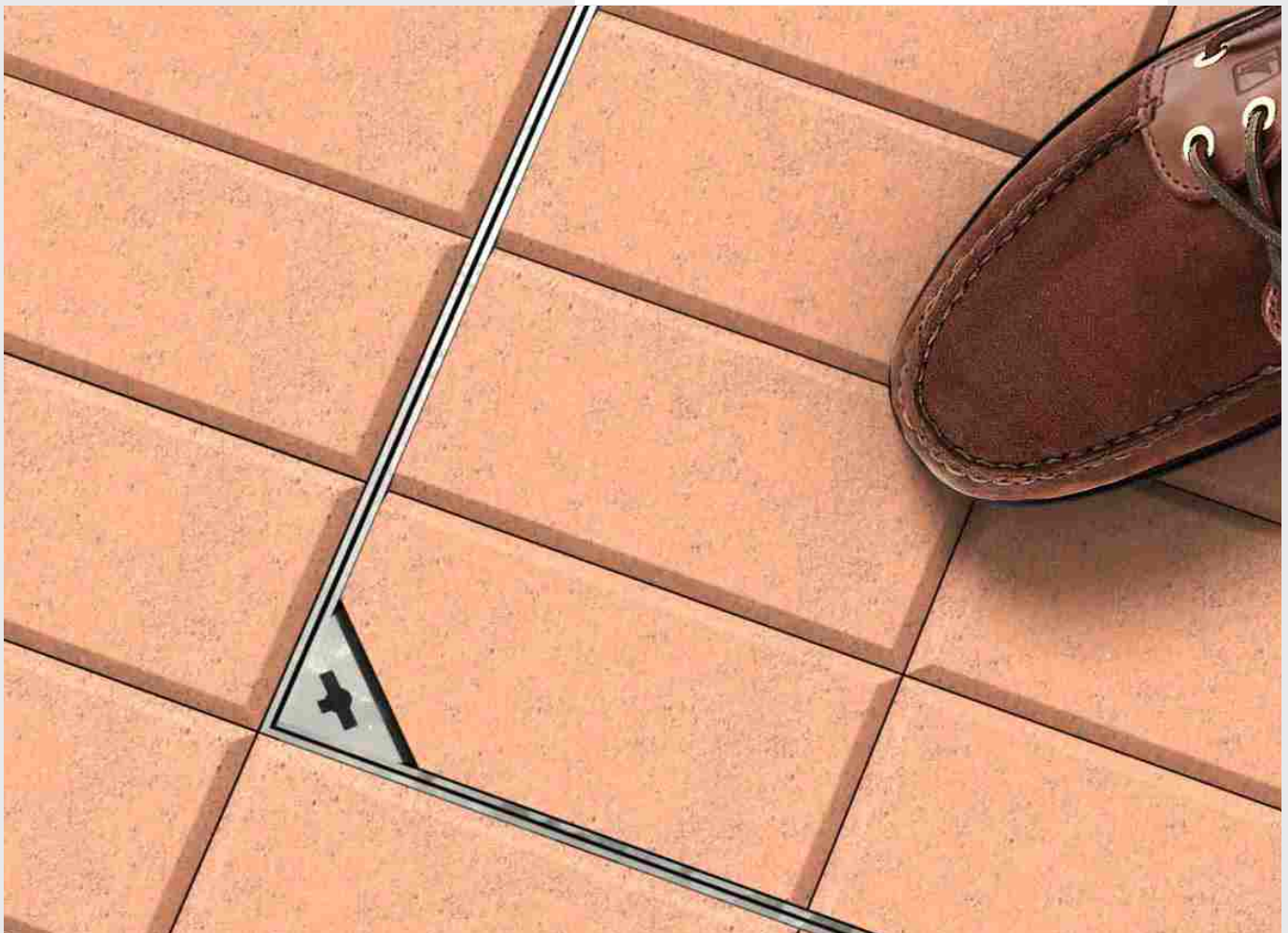
Access Cover PAVING

Kaj Access Cover PAVING

Typically specified for use outside buildings, for pedestrian areas, driveways and car parks. Recessed access covers for a pavement, natural stone or bitumen infill in height up to 120 mm.

Kaj product benefits

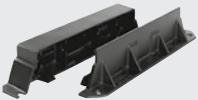
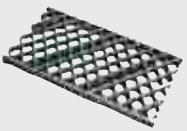
- Strong supports are welded underneath of the cover
- Load capacity up to load class C250 for all clear openings up to 1 m
- No concrete or any other additional structural infill necessary



Drainage Gratings

Linear Gratings F900	features How to specify product	product code	reference	clear opening (mm)	overall dimensions (mm)	height (mm)	weight (kg)	waterway area (cm2)
C250								
CA 75.. EN124 C250	Linear trench ductile iron grating, C250 to EN124:1994, Channel grating to be placed on 30x30x3 steel angles or ductile iron frame, Third party certified with AFNOR NF Options: C7 frame	500575 500576 500577 500578 500580 500586 500587 500588	CA752 CA752B CA753 CA753B CA754 CA755 CA756 CA757	750 X 140 750 X 210 750 X 240 750 X 310 750 X 340 750 X 440 750 X 540 750 X 640	750 X 200 750 X 250 750 X 300 750 X 350 750 X 400 750 X 500 750 X 600 750 X 700	27 27 27 27 27 27 27 27	14 15 20 21 25 36 46 56	900 760 900 1100 1300 1590 1900 2100
CA750 LR EN124 C250	Linear trench ductile iron grating, C250 to EN124:1994, 750x300mm over grate dimension, Channel grating to be placed on 30x30x3mm steel angles or ductile iron frame, Pedestrianised gratings slots, Third party certified with AFNOR NF Options: C7 frame	520538 538331 01 538332 01	CA 753 LR CA 754 LR CA 755 LR	750 X 240 750 X 340 750 X 440	750 X 300 750 X 400 750 X 500	27 27 27	24 27 38	720 924 1129
CA 1040 FVLV CA 1055 FLV EN124 F900	Linear trench ductile iron grating and frame, F900 to EN124:1994, 100mm deep frame with locating lugs, Non rock, Selflocking by means of spring bars and stainless steel bolts, Third party certified with AFNOR NF Options: end bars (pair), frame levelling kit	532105 528251	CA 1040 FVLV CA 1055 FLV	1000 x 305 1000 x 450	1000 X 400 1000 X 555	100 100	97 128	1860 2545
CA 1070 FLV CA 1085 FVL EN124 F900	Linear trench ductile iron grating and frame, F900 to EN124:1994, 100mm deep frame with locating lugs, Non rock, Selflocking by means of spring bars and stainless steel bolts, Third party certified with AFNOR NF Options: end bars (pair), frame levelling kit	522289 538074	CA1070 FLV CA1085 FVL	1000 x 610 1000 x 760	1000 x 700 1000 x 1028	100 100	180 215	2434 3000
D400								
CA 10.. DVL EN124 D400	Linear trench ductile iron grating and frame, D400 to EN124:1994, 100mm deep frame with locating lugs, Non rock, Selflocking by means of spring bars and stainless steel bolts, Third party certified with AFNOR NF Options: end bars (pair), frame levelling kit	52282301 522824 522825 522826 01 528919	CA1030DVL CA1040DVL CA1050DVL CA1060DVL CA 05110 DVL	1000 X 210 1000 X 310 1000 X 410 1000 X 510 500 x 1000	1000 X 300 1000 X 400 1000 X 500 1000 X 600 650 x 1270	100 100 100 100 103	56 67 84 100 100	1023 1563 1871 2443 2514

Drainage Gratings

	features How to specify product	product code	reference	clear opening (mm)	overall dimensions (mm)	height (mm)	weight (kg)	waterway area (cm2)
ANGLE IRON C250 	2 m long steel angle iron with anchor bolts		ANGLE IRON 30 X 30 X 3 MM				3	
Accessories								
C 750 C250 	Steel frame, to suit CA75x grating series, 37mm deep frame.	501051 501052 501054 501055 501058 501059 501060 02 501064	C752 C752B C753 C753B C754 C755 C756 C757	710 x 160 710 x 210 710 x 260 710 x 310 710 x 360 710 x 460 710 x 560 710 x 660	790 x 230 790 x 280 790 x 330 790 x 380 790 x 430 790 x 530 790 x 630 790 x 730	37 37 37 37 37 37 37 37	9 9 10 10 11 11 13 13	
END PLATES 	Pair of cast iron end plates for even finish Protects the ends of the gratings	528572 528706 01 528573 528574 528575 528920	PEDF3003.04 PEDF4003.04 PEDF5003.04 PEDF5503.04 PEDF6003.04 PEDF11003.04	CA1030 CA1040 CA1050 CA1055 CA1060 CA05110			10 12 15 16 18 26	
FRAME BARS C250 	Ductile iron rails which do not bend to ensure a level finish	510957 510958 502244	C10001 FRAMEBAR G. 1M C10001 FRAMEBAR D. 1M LG075 FRAMEBAR				7 7 3	
125 kN								
LE 500 125kN 	Material-ductile iron with galvanised frame Channel grating (500 mm lengths) may be placed on 30 x 30 x 3 mm steel angle iron frames Diamond shaped slots on grating suitable for cyclists	502233 502234 502235	LE 502 LE 502 B LE 503	500 X 140 500 X 190 500 X 260	500 X 200 500 X 250 500 X 300	27 27 27	9 9 12	420 580 700
LUGS For CA750 GRATING 	Lugs in galvanised steel to align the CA 750 range of grating		CLAVET 1 CLAVET 2 CLAVET 3 CLAVET CALR	CA752/753/753B/755 CA752B/754 CA756/757 CA750 LR			0,2 0,2 0,2 0,2	

Drawings, photographs and weights are given as an indication only and without any contractual value.

Our policy is one of continuous product improvement, we reserve the right to modify product specifications without prior notice.