



KOMPOSITE INNOVATION

COVER IN COMPOSITE MATERIAL

POLIECO[®]
GROUP

kio-polieco.com





POLIECO Group has recently patented a new and innovative industrial production process for the use of a special composite material.

COVER KIO EN 124



This composite material is used for manufacturing high resistance covers of various sizes.

This high performance composite material can be used to replace traditional materials which are more subject to wear and tear.

Main characteristics of cover KIO:

-  SOLIDITY AND RESISTANCE
-  LIGHTNESS AND HANDINESS
-  ELECTRIC INSULATION
-  NOISE REDUCTION
-  RESISTANCE TO CORROSION
-  ENVIRONMENT PROTECTION
-  CUSTOMIZATION
-  THEFT PREVENTION
-  SMART KIO



SOLIDITY AND RESISTANCE

The cover KIO made of composite material has been obtained through a patented production process, as a result of years of research and testing, within the field of activity of a well-established European group. At present Class B125, Class C250 and Class D400 covers are available.

External size (mm)	Clear opening (mm)
400x400	305x305
500x500	402x402
600x600	502x502
700x700	602x602
950x950	760x760
Ø 800	Ø 600
Ø 1100	Ø 905



The cover KIO is fabricated in compliance with EN 124 (1994) standard. Performance tests, locking system and other devices are guarantee of safety and strength.

Available in different sizes, it is suitable for the same applications of products made of traditional materials with equivalent or higher performances.





LIGHTNESS AND HANDINESS

The weight of KIO composite material covers is 70% lower than the weight of European made cast iron covers.



Thanks to its low weight the cover is easy to handle and to install, which means manpower and tool costs saving and a substantial reduction

of injuries during installation and maintenance. Low weight also reflects into a considerable reduction of transport expenses.



Italian Decree-law 81/08 defines the maximum weight allowed for handling loads: the limit is 25 kg. All our composite material covers' weight is lower than this limit.

TOTAL WEIGHT OF COVER + FRAME

B125	Grey cast iron (kg)	Ductile cast iron (kg)	Composite material (kg)
400x400	15,00	12,80	3,50
500x500	26,00	18,20	6,80
600x600	40,00	29,40	10,50
700x700	56,00	38,80	15,50
C250	Grey cast iron (kg)	Ductile cast iron (kg)	Composite material (kg)
400x400	23,00	25,00	5,00
500x500	39,00	33,00	10,30
600x600	57,00	45,00	16,20
700x700	74,00	61,00	22,40



ELECTRIC INSULATION

The cover KIO made of composite material is particularly suitable for installation in pedestrian areas as it protects pedestrians against voltage dispersion, especially in moist and wet environments, considering that composite material is not electrical-conductive.



Moreover the composite material presents little interference with the radio frequency, satellite or cell phone signals associated with modern transmission system.

Composite material is also a low thermal conductor which offers protection against hot steam leakages in district heating piping systems.





NOISE REDUCTION

Another advantage of using the cover KIO, compared to cast iron covers, is noise reduction in pedestrian and traffic areas.



The material and sealings used for installation make it suitable for the reduction and of smell release in the environment.





RESISTANCE TO CORROSION

The composite material resists to chemicals and is not subject to rust and corrosion caused by constant exposure to atmospheric agents. It maintains its load bearing capacity unchanged when tested at -20 C° and at $+150\text{ C}^{\circ}$. For this reason KIO has never to be painted.



The use of the cover KIO is particularly suitable in areas with flammable liquids because it resists to corroding substances and reduces the risk of dangerous sparks. For this reason, the cover KIO made of composite material can be installed in refuelling stations or fuel storage plants.





ENVIRONMENT PROTECTION

The manufacturing of covers in composite material ensures a remarkable reduction of CO₂ emission compared to cast iron.



This becomes clear when comparing the energy required to reach the temperature to mould cast iron (higher than 1200 °C) and the energy required to reach the temperature to mould composite materials (close to 60 °C).

The lower amount of CO₂ released in the atmosphere is strictly connected with the lower weight of each single

cover allowing to load on a truck a number of covers three times higher than cast iron covers with subsequent reduction of pollution due to the lower number of transports.

The composite material can also be recycled for successive use which allows further reduction of the environmental impact of the product.



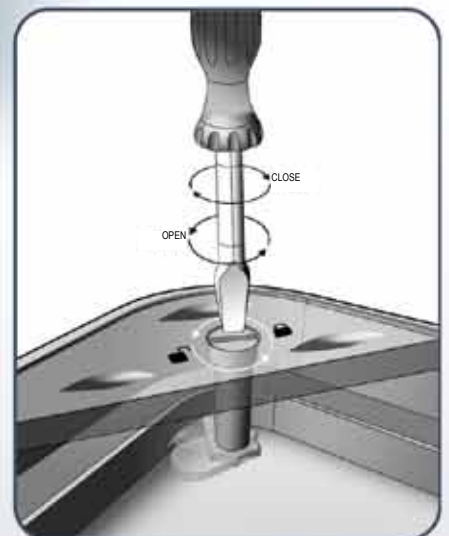


CUSTOMIZATION

The cover KIO can be made with the logo of the agency, the service or the sponsor printed on the front side. Frames can also be produced in different colours.



The locking system is available for class B125 and C250 covers. A simple screwdriver or a special wrench can be used for the locking system.





THEFT PREVENTION

The value of scrap iron is rising increasingly and the number of thefts to the detriment of local authorities and service companies are rising as well.



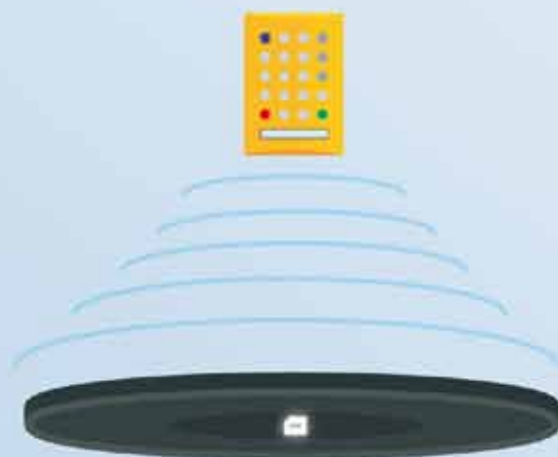
Every day we read that covers have been stolen to be sold and melt. Beside an economic damage caused by the need to replace the stolen products, there is also the risk of serious accidents and injuries caused by dangerous openings on the road. Once the strong point of cast iron covers, their high weight is becoming now their weak point because it makes them even more attractive to thieves.

SMART KIO



Thanks to RFID (Radio Frequency IDentification) SMART KIO is the manhole cover which allows you to:

- Receive and transmit without battery when it is interrogated by a reader
- Be located, if it is covered with asphalt
- To be georeferenced (GIS coordinates)
- Knowing all the information about what is present inside the manhole
- Record of maintenance actions
- Have a unique identification of the product (each manhole has its own serial number on the microchip)





GRATING KIO

Thanks to the new technology, **POLIECO Group** can also manufacture composite material gratings.



Gratings are available in the hollow version in size 500x500 for class C250.
Sizes 400x400 and 600x600 will be available soon.





HYDRAULIC FRAME

The standard frame for KIO system has "U" shaped internal seating for airtight.



Thanks to the new frame externally flat (available in the class B125 in sizes 400x400, 500x500 and 600x600), the composite manhole cover KIO is ideal for installation where there are self-locking pavers and natural stones.





BIG DIMENSION KIO

New dimensions are available for fuel stations and industrial area applications: 950x950 and Ø 1100 in two classes: C250 and D400



CERTIFICATION OF PRODUCT

KIO covers obtained certification according to EN 124 (1994) standard.



The certificates are released by Italian Institute ICMQ and by German Institute TUV.



CLASS B125 square EN 124

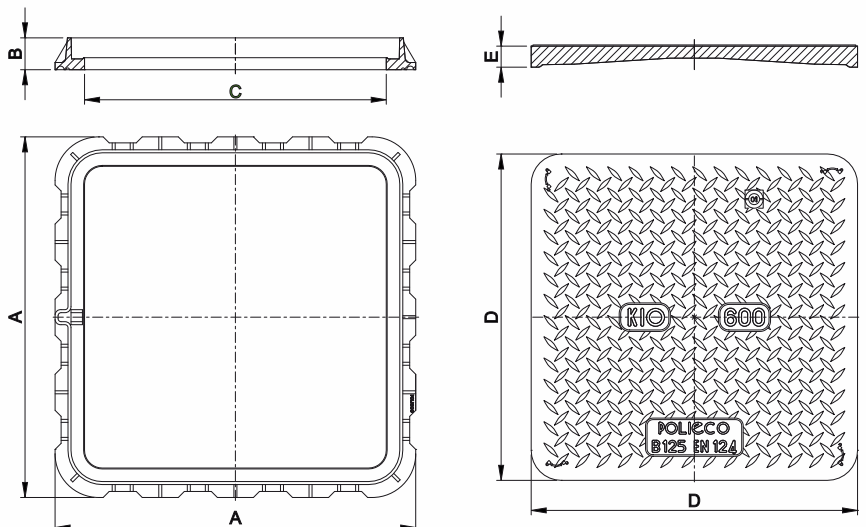


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class B125 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Square frame, external size mm made of composite material, with special flaps for anchoring during installation
- Square cover made of composite material
- Name of buyer or service available as an option



Description	A x A (mm)	B (mm)	C x C (mm)	D x D (mm)	E (mm)
KIO 400 B125	400 x 400	36	305 x 305	335 x 335	22
KIO 500 B125	500 x 500	42	402 x 402	443 x 443	24
KIO 600 B125	600 x 600	44	502 x 502	543 x 543	26
KIO 700 B125	700 x 700	46	602 x 602	643 x 643	28

CLASS
B125 round
 EN 124

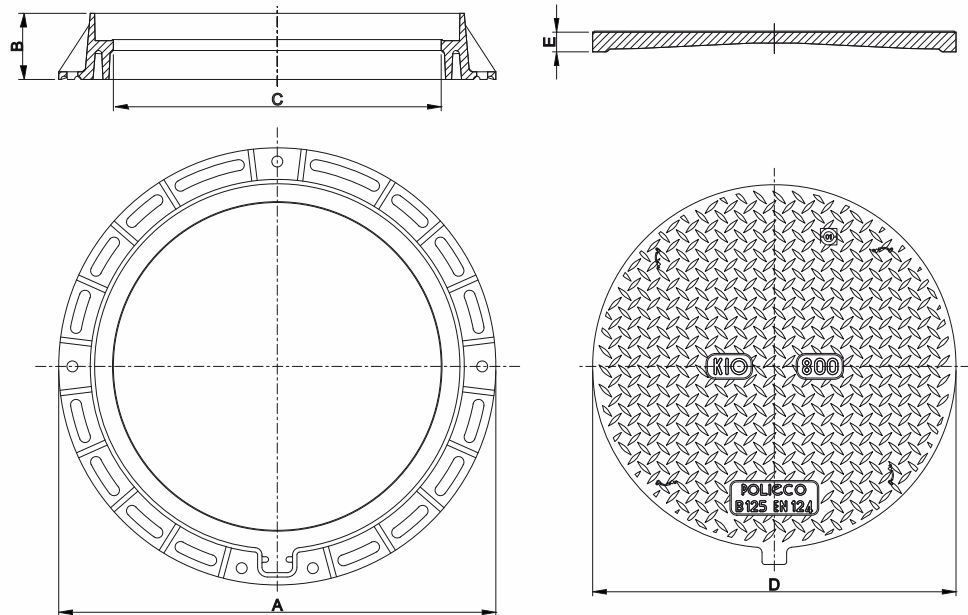


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class B125 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Round frame, external size \varnothing 800 mm made of composite material, with special flaps for anchoring during installation
- Round cover made of composite material
- Name of buyer or service available as an option



Description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
KIO 800 B125	\varnothing 800	100	\varnothing 600	\varnothing 665	29

CLASS C250 square EN 124

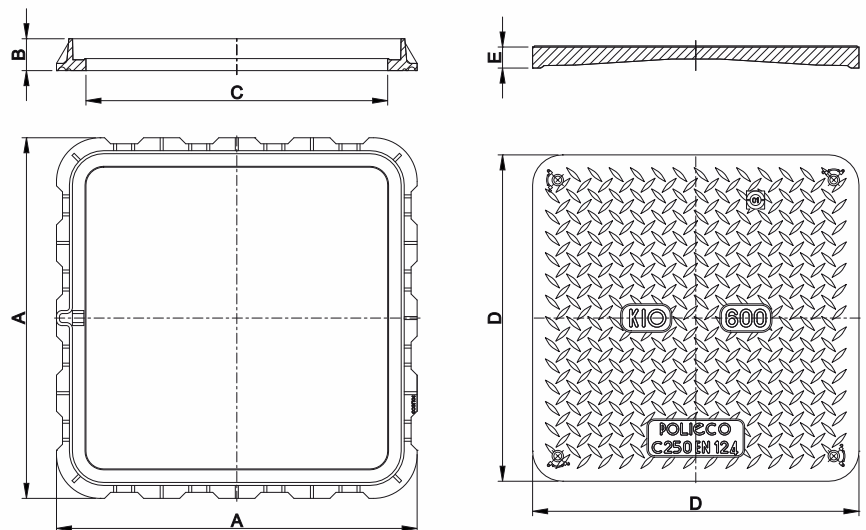


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class C250 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Square frame, external size..... mm made of composite material, with special flaps for anchoring during installation
- Square cover made of composite material
- Optional locking system
- Name of buyer or service available as an option



Description	A x A (mm)	B (mm)	C x C (mm)	D x D (mm)	E (mm)
KIO 400 C250	400 x 400	41	305 x 305	335 x 335	30
KIO 500 C250	500 x 500	50	402 x 402	443 x 443	37
KIO 600 C250	600 x 600	53	502 x 502	543 x 543	38
KIO 700 C250	700 x 700	55	602 x 602	643 x 643	40

CLASS
C250 round
 EN 124

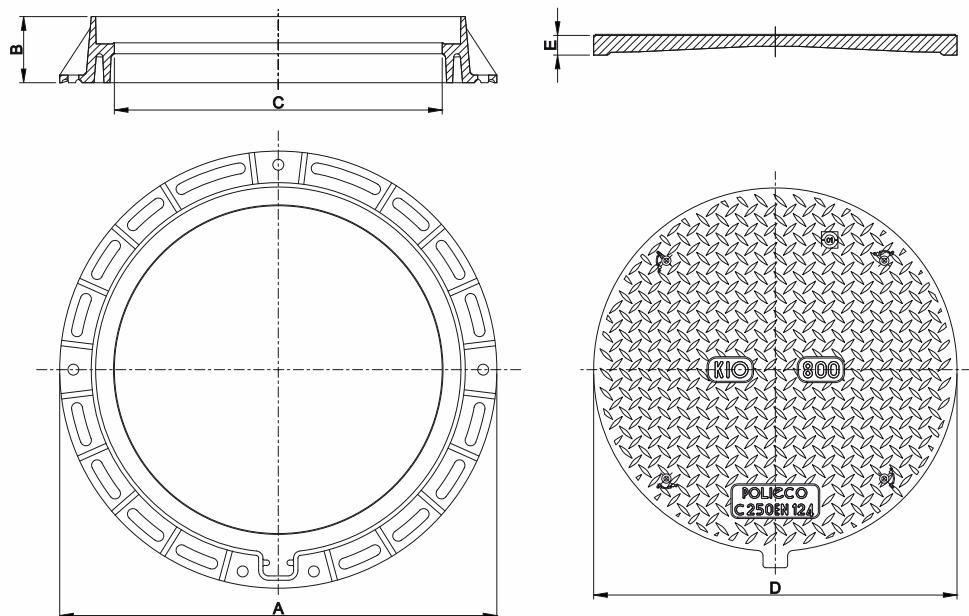


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class C250 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Round frame, external size Ø 800 mm made of composite material, with special flaps for anchoring during installation
- Round cover made of composite material
- Optional locking system
- Name of buyer or service available as an option



Description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
KIO 800 C250	Ø 800	107	Ø 600	Ø 665	36

CLASS

D400 round
EN 124

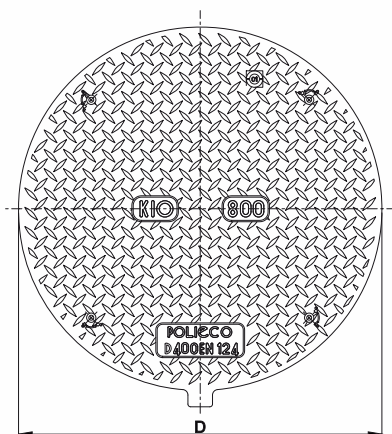
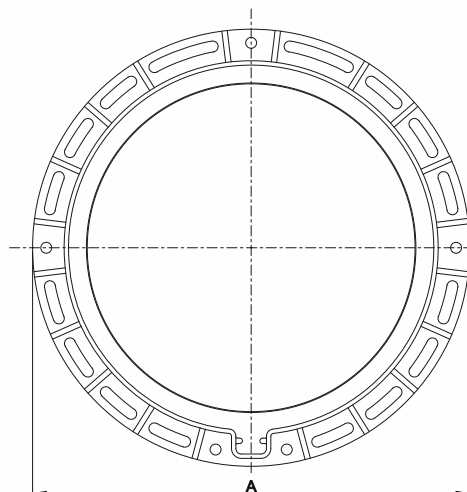
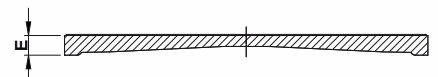
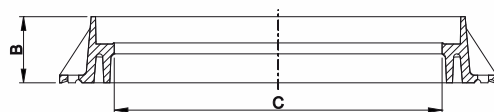


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class D400 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Round frame, external size \varnothing 800 mm made of composite material, with special flaps for anchoring during installation
- Round cover made of composite material
- Locking system, stainless steel
- Name of buyer or service available as an option



Description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
KIO 800 D400	\varnothing 800	116	\varnothing 600	\varnothing 665	45

CLASS

D400 square
EN 124

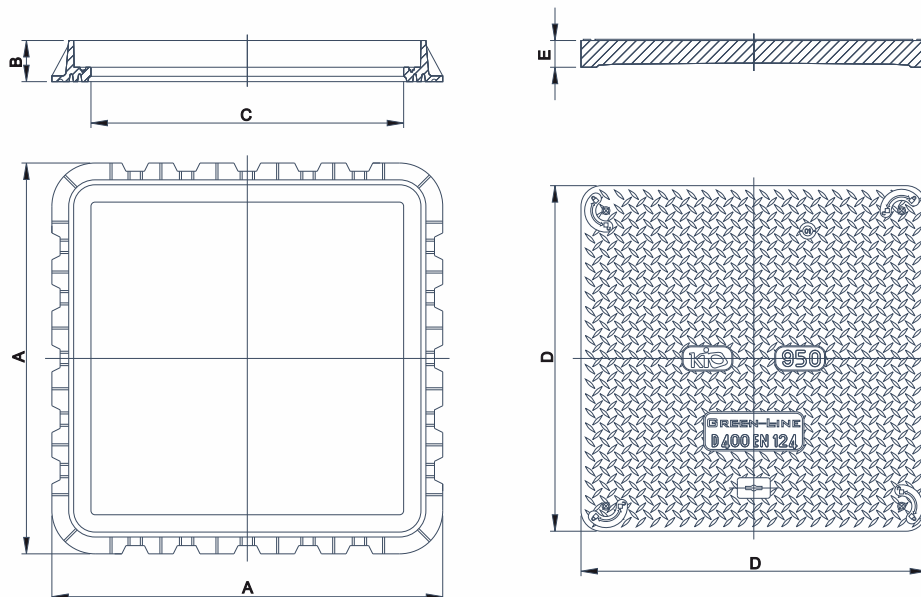


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class D400 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Square frame, external size 950x950 mm made of composite material, with special flaps for anchoring during installation
- Square cover made of composite material
- Locking system, stainless steel
- Name of buyer or service available as an option



Description	AxA (mm)	B (mm)	C (mm)	D (mm)	E (mm)
KIO 950 D400	950 x 950	100	760 x 760	840 x 840	65

CLASS

D400 round
EN 124

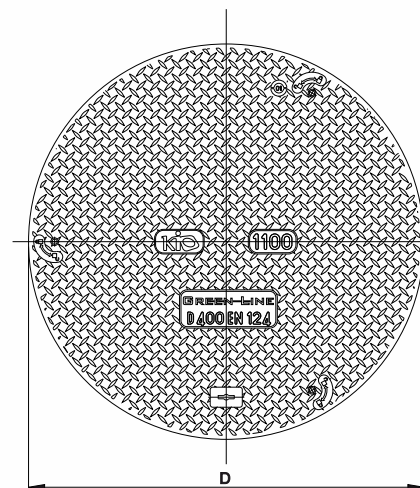
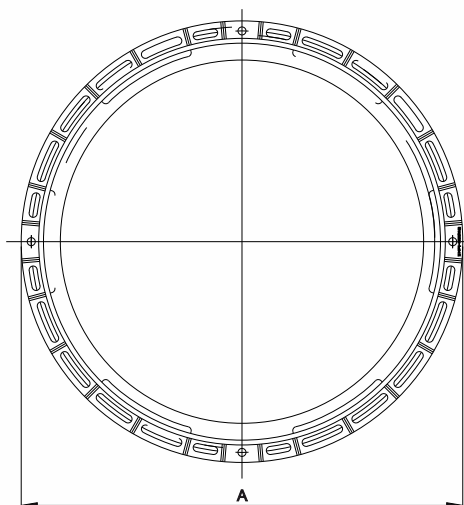
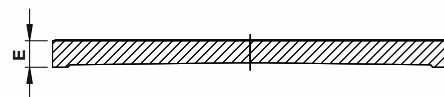
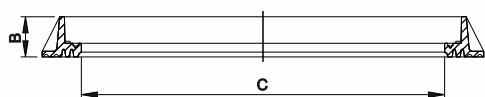


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class D400 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Round frame, external size \varnothing 1100 mm made of composite material, with special flaps for anchoring during installation
- Round cover made of composite material
- Locking system, stainless steel
- Name of buyer or service available as an option



Description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
KIO 1100 D400	\varnothing 1100	100	\varnothing 905	\varnothing 985	66

CLASS
C250 grating
 EN 124

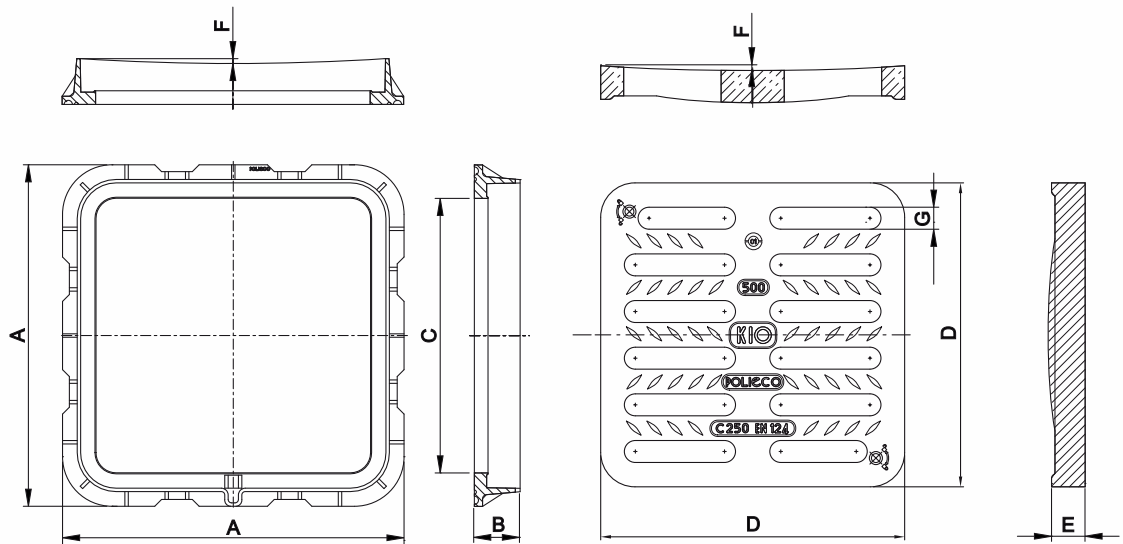


Grating in composite material with anti-slip surface made in compliance with EN 124 standard – class C250 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Square frame, external size..... mm made of composite material, with special flaps for anchoring during installation
- Hollow square grating made of composite material
- Optional locking system
- Radial slots, width 32 mm



Description	A x A (mm)	B (mm)	C x C (mm)	D x D (mm)	E (mm)	F (mm)	G (mm)
*Grating KIO 400 C250	400 x 400	60	305 x 305	335 x 335	42	7	32
Grating KIO 500 C250	500 x 500	67	402 x 402	443 x 443	49	7	32
*Grating KIO 600 C250	600 x 600	74	502 x 502	543 x 543	56	7	32

* available soon

CLASS B125 with mouthpiece EN 124

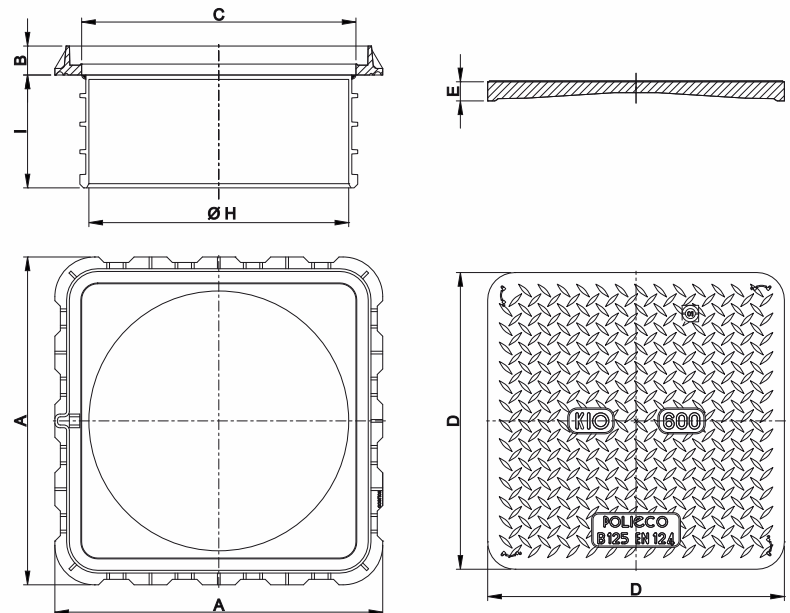


Cover in composite material with anti-slip surface made in compliance with EN 124 standard – class B125 produced by a company ISO 9001:2008 and 14001:2004 certified.

Marking with load class, reference standard, manufacturer's name and quality marking issued by a certification body recognized on an international level.

It includes:

- Square frame, external size..... mm made of composite material, with special flaps for anchoring during installation
- Square cover made of composite material
- Extension for connection to manhole rise DN 315-400-630 mm
- Name of buyer or service available as an option



Description	A x A (mm)	B (mm)	C x C (mm)	D x D (mm)	E (mm)	H (mm)	I (mm)
KIO w/mouthpiece 400 B125	400 x 400	36	305 x 305	335 x 335	22	Ø 315	135
KIO w/mouthpiece 500 B125	500 x 500	42	402 x 402	443 x 443	24	Ø 400	160
KIO w/mouthpiece 700 B125	700 x 700	46	602 x 602	643 x 643	28	Ø 630	225



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