AODISI

FIRE TECHNOLOGY

产品资料与销售咨询

PRODUCT DOCUMENTATION & SALES CONTACT

GEAQUELLO ® E 950 (System) - Installation Manual-en

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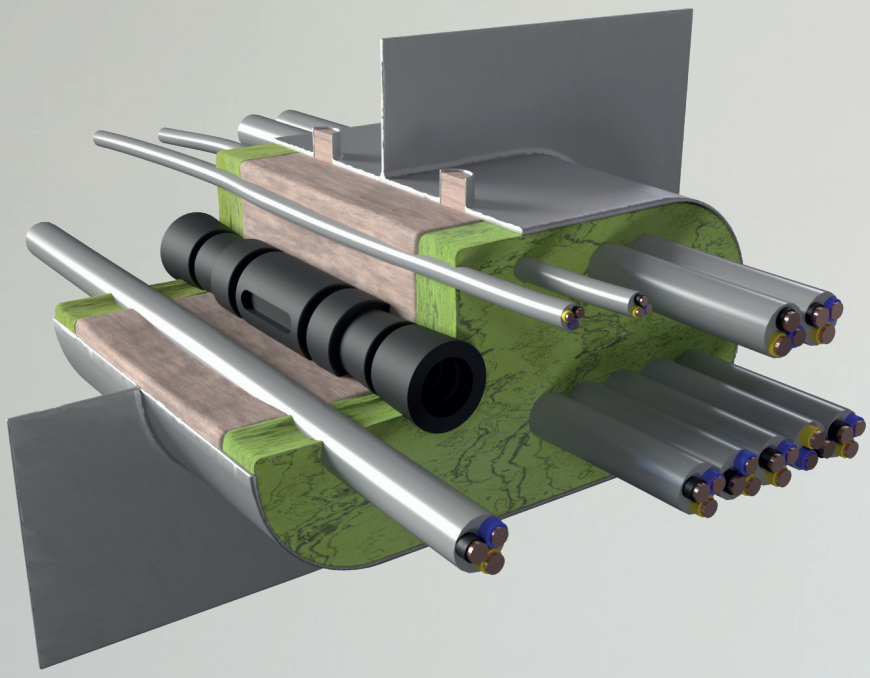
www.gmfireproof.com

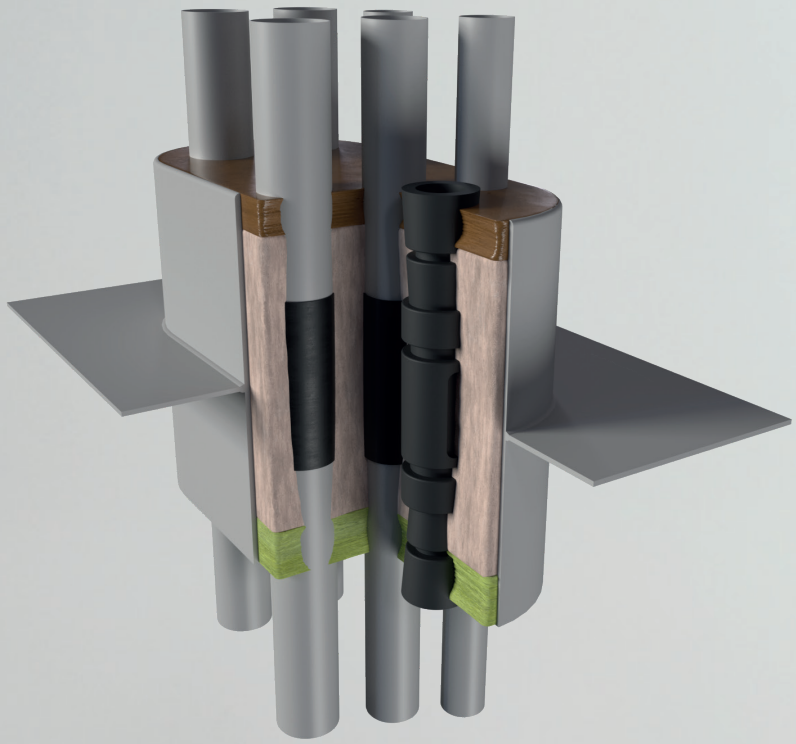
以上为销售联系信息，不替代安全数据表中的应急联系电话。
原始技术内容及制造商、检测机构和证书签发信息见后续资料页。

Sales contact only; emergency contacts in safety data sheets remain applicable.
Original technical, manufacturer and certification details follow.

Instructions for use

GEAQUELLO® E 950 Casting System





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Using these instructions

These application instructions are intended solely for personnel who are trained in technical fire safety.
Read through these application instructions in full before commencing work. Observe the safety notes below in particular.

The authorisation holder accepts no liability for damage caused by the failure to follow these instructions.
The depicted images serve only as examples. The results of the installation may differ.

Safety notes

Refer to the applicable safety notes for the individual penetration seal components.



Wear protective clothing and non-slip shoes.



Use safety glasses.



Use a P2 particle filter for short-term or low-level exposure.
Use respiratory protection in accordance with the international/national standards.



Use chemical-resistant gloves.
Recommended materials: butyl rubber, nitrile rubber, fluorinated rubber or PVC.



During penetration sealing work, the area below the floor penetration seal must be cordoned off to prevent entry (cordon tape and warning sign: warning that there is a risk of falling objects, that access is prohibited and that penetration sealing work is being performed in the floor openings).



The contractor commissioned to establish the floor penetration seals must inform the client in writing (to notify the client or the representative of the client) that, once the fire penetration seals are established in the floor, suitable measures must be taken to protect them from being walked on in particular or subjected to other loads (e.g. by enclosing them or covering them with grates).

Hazard warnings

Damage to organs (lungs/respiratory system) caused by long-term or repeat exposure (inhalation).

- Do not inhale dust.
- Wash hands, forearms and face thoroughly after work.
- Do not eat, drink or smoke while using this product.
- If you feel unwell, consult a doctor/get medical aid.
- Dispose of the contents/container at a collection point for hazardous waste or special waste in accordance with the applicable local, regional, national and/or international regulations.

Product description

GEAQUELLO® E 950 is a sealant for safe and efficient pipe or cable penetrations in decks and bulkheads.

Fire resistance class

Class A-60 in accordance with IMO Resolution MSC 754(18).

Properties

- Fire-retardant, gas-tight and water-tight (as per SOLAS / IMO)
- Seal length: 180 mm
- Easy to use – no adapters, moulded parts or subdivision required for the installation, despite the varied cable and pipe diameters
- All components react neutrally, are physiologically harmless and are not subject to any labelling requirements
- Simple retrofitting of cables and pipes with GEAQUELLO® E 234 retrofit modules
- Suitable for indoor and outdoor use
- EMC/EMI penetration system in combination with highly-conductive FLAMMADUR® E 711 sealant

Fields of application

The GEAQUELLO® E 950 casting system was developed for use in shipbuilding.
In the event of fire, the system provides a safe seal for cables and pipes above and below the water line.



Either cables or pipes can be fed through and sealed in one casting unit in the GEAQUELLO® E 950 system. Mixing cables and pipes within the same penetration is not permitted.

System components

	Size	Item number
GEAQUELLO® E 950 casting compound	3 kg	4145486-1
	15 kg	4145524-1
GEAQUELLO® R 312 / R 380 Formwork modules	360 modules, 120 x 25 x 6 mm	4148143
	25 modules, 800 x 25 x 6 mm	4148142
GEAQUELLO® E 824	1 kg	4145152
	20 kg	4145286
GEAQUELLO® E 234 retrofit modules	Ø 40 x 235 mm	4145500
	Ø 66 x 235 mm	4145502
	Ø 90 x 235 mm	4145504

System options

	Size	Item number
FLAMMADUR® E 292 T	345 ml cartridge	4146603
	1 kg pail	4146219
GEAQUELLO® A 365 strip	5 pieces, 1000 x 100 x 3 mm	4246488
FLAMMADUR® E 292 top sealant	1 kg pail	4125671
	5 kg pail	4172744
FLAMMADUR® A 386 top sealant	1 kg pail	4146315
GEAQUELLO® E 234 T two-component sealant	345 ml cartridge	4145512

Penetration seal dimensions [mm]

Penetration seal	Max.	500 x 250 x 230
	Min.	90 x 90 x 230
Deck	Max.	500 x 250 x 205
	Min.	100 x 100 x 205

Producing a penetration seal

Penetration seal with combustible pipes

Combustible pipes must be wrapped in accordance with the table below.

Plastic pipes [mm]	≤ Ø 100	One layer of FLAMMADUR® A 365 strip must be wrapped around each pipe and fastened with cable ties, adhesive tape or similar.
	≥ Ø 100	Two layers of FLAMMADUR® A 365 strip must be wrapped around each pipe and fastened with cable ties, adhesive tape or similar.

	Wall penetrations (penetration seals)	Deck penetrations
Positioning	Position on the centre of the pipe.	Position approx. 2 cm above the front wall.

Integration of GEAQUELLO® E 234 retrofit modules

If you want to enable subsequent retrofitting, GEAQUELLO® E 234 retrofit modules must be installed in the penetration seal beforehand while producing the penetration seal.



The distance to other components must correspond to two R 312 / R 380 layers (approx. 8 – 12 mm)

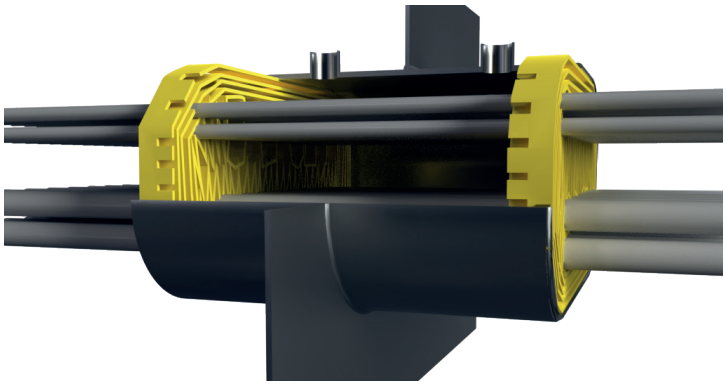
Producing the formwork

To produce the formwork, roughly install the GEAQUELLO® R 312 and/or R 380 Formwork modules.

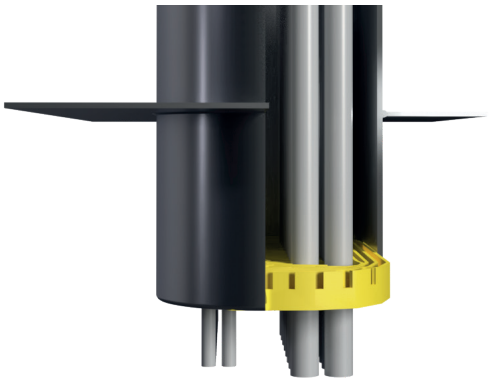


- The Formwork modules must be installed in such a way that the side with slits points towards the centre of the penetration seal.
- You can shorten the length of the Formwork modules using a simple tool.

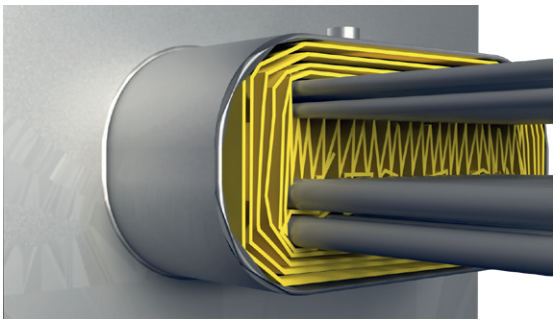
All cables/pipes must be separated from each other with the aid of Formwork modules. This ensures that the minimum spacings are observed and the installation is fully covered by the seal.

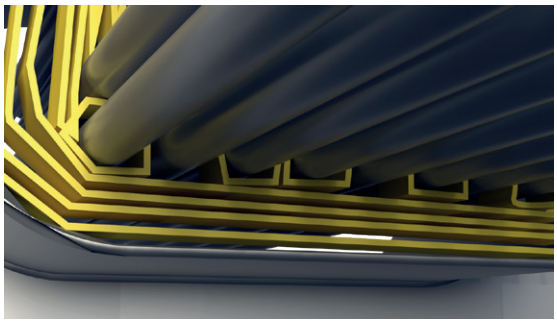


In the bulkhead:
mount Formwork modules on both sides



In the deck:
mount Formwork modules on the lower side





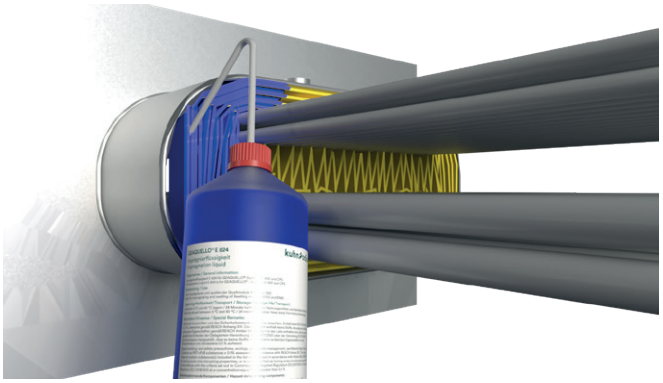
Impregnate Formwork modules with GEAQUELLO® E 824.



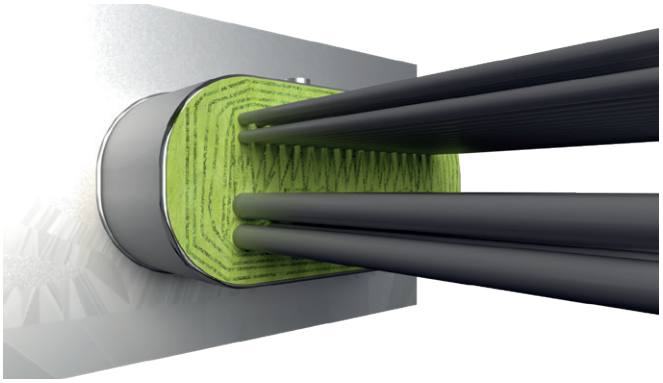
Impregnation liquid	Recommended quantity
GEAQUELLO® E 824	5× R 380 strips corresponds to approx. 1 kg GEAQUELLO® E 824

- Cover work area with paper or film.
- The absorption of the liquid causes the modules to swell to up to ten times their original volume.
- A stable, leak-proof front wall forms within minutes.

The impregnation gives the Formwork modules fire-retardant and self-extinguishing properties. They can remain in the penetration permanently.

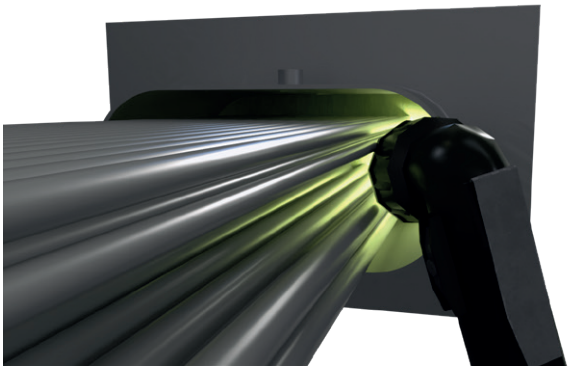


Impregnation with GEAQUELLO® E 824

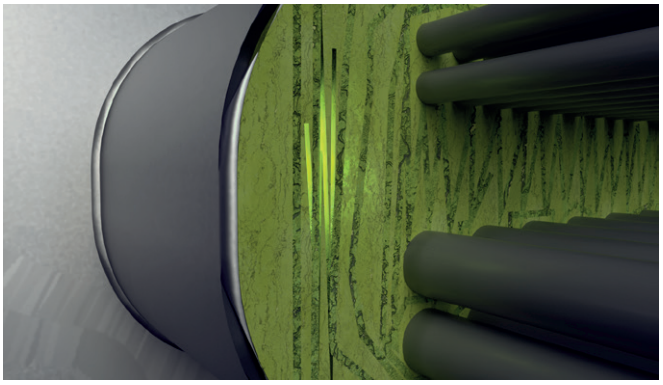


Impregnated and dried Formwork modules

The impregnation can be tested using a light check. In this case, light is shone through the fill openings or from the opposite side of the penetration seal. Areas that allow light through are insufficiently impregnated and must be reworked accordingly.



Shine light through fill openings or the opposite side of the penetration seal



Areas that allow light through are insufficiently impregnated

Mixing the GEAQUELLO® E 950 sealant

The quantity required is based on the size of the penetration and the diameter of the installed cables or pipes.

Quantities (with cable filling 30%)

$$\text{E 950 (kg)} = \frac{\text{(Seal length) cm x (Width) cm x (Height) cm x 0,7}}{1000}$$

Stir the GEAQUELLO® E 950 powder into clean water.



Mixing ratio	2: 1 (powder: water)
3 kg container	1.5 litres of water
15 kg container	7.5 litres of water

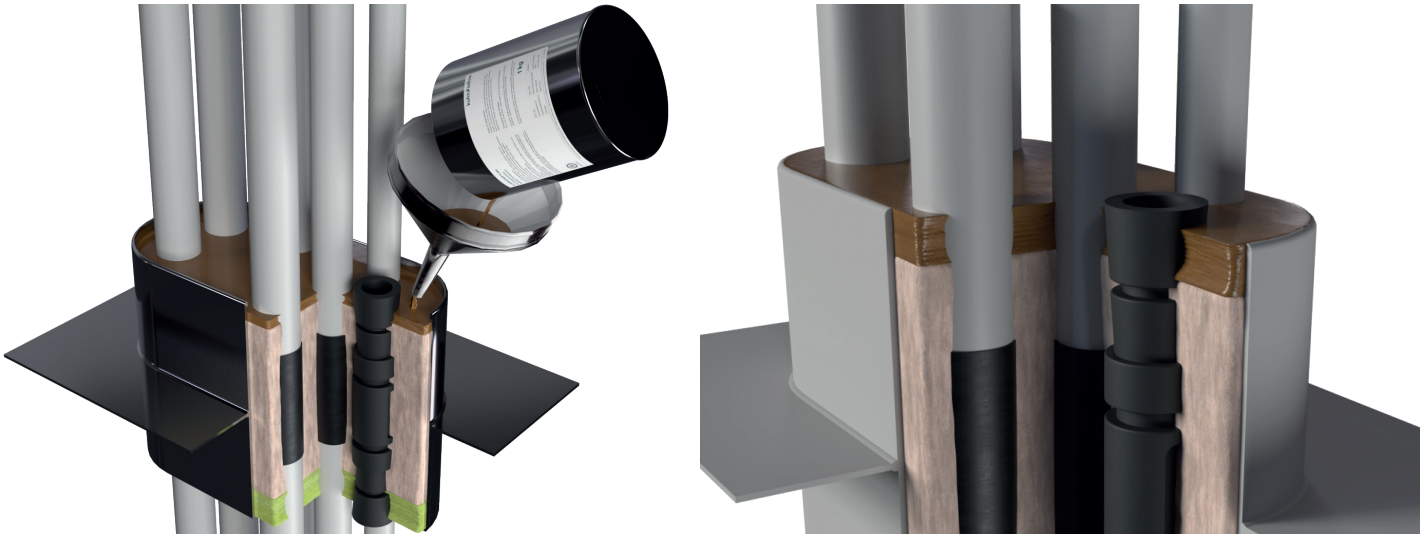
Pot life	Approx. 60 minutes at +20 °C
Application temperature	Not below +3 °C



- Stir the powder into the water in the ratio specified above and mix thoroughly to form a smooth, homogeneous mass. The mixture should fall from the mixing tool without forming threads or droplets.
- As a suitable mixing tool, we recommend a paint mixer in a drill or a comparable device.
- Continue mixing until the compound starts to thicken. Ensure that no air is taken in – the mix must not foam up.
- The sealant must be free from clumps and air pockets.
- Leave the mixed sealant to sit for approx. 5 minutes.
- For larger quantities, we recommend stirring the mix regularly during the pot life to ensure an even consistency.
- Stir again briefly immediately before filling in the opening.
- Fill in the penetration (e.g. using a pump or funnel).
- Look out for any shrinkage. If there is a loss of volume, refill the penetration. It should be refilled during the pot life to ensure adhesion to the first layer.

Weather protection:

for external penetrations, cover with approx. 20 mm of FLAMMADUR® E 292, FLAMMADUR® E 292 T or FLAMMADUR® A 386.



Deck with FLAMMADUR® A 365 strip and FLAMMADUR® E 292 cover