



Specialised

manhole covers

ACO Passavant Detego



ACO Passavant Detego Specialised manhole covers

Detego: derived from the Latin for “cover”, this name reflects our product focus – the covering of virtually every kind of structural opening. ACO Passavant Detego are specialists in shaft cover systems, floor hatches, escape hatches and extraction dampers that need to meet project-specific requirements. In the specialist market of shaft covers, we offer a comprehensive range of standard products as well as development and production in line with individual requirements.





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We offer high-quality shaft covers that are either standard options or individually manufactured. They comprise of one or multiple parts, come equipped with an opening aid, an automatic opening function or without an opening aid altogether. They can be used as an escape hatch or floor hatch for any required design. Due to our wide-ranging expertise, there are very few requirements that we cannot meet. Our employees are on hand as your primary contact partner and would be happy to provide you with further assistance.

www.aco-detego.de



A wide range of options

Special manhole covers are always used when conventional shaft covers are no longer able to satisfy the project-specific requirements. ACO Passavant Detego is a specialist in this area and offers an individually tailored solution for every demand.



Individual advice and support

High-quality industrial or customised special manhole covers in all desired shapes. With our broad expertise, hardly any wish remains unfulfilled.

Our team of employees with many years of expertise, plan, coordinate, design, renovate and maintain shaft coverings to meet project-specific requirements. Do not hesitate to contact us, we are happy to help with your specific needs.

Designs

Both round and rectangular designs are feasible. Should you require a bespoke design, please enquire with our team.

Load classes

From “Safe to walk on” to “Suitable for heavy duty traffic areas” and “Special loads”.

Materials

Hot-dip galvanised or coated steel, stainless steel, aluminium, concrete and reinforced concrete composite designs are all used, dependant of the application. Additional coatings can also be applied to protect against corrosive substances, to provide optical aspects and to add anti-slip properties to surfaces. The cover surfaces can be manufactured from metal, concrete or adapted to the surrounding surface (e.g. filled with stone or asphalt).

Page 8 Automatic opening function and with/without opening aid



Simple operation using a hydraulic drive



An opening aid provides assistance to manually opening the cover



Small and handy or manhole covers that are rarely opened – without an opening aid

Page 12 Escape and floor hatches



Hydraulic shaft covers that comply with the EC Machinery Directive and have been confirmed as being suitable for use as an escape hatch



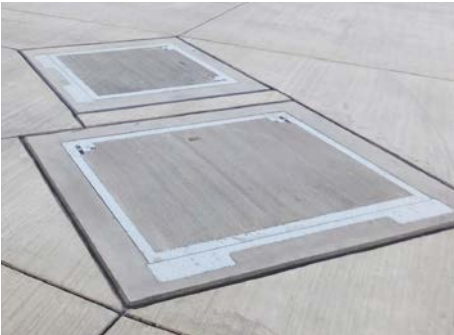
Large, rectangular covers on structural openings

Page 16 Surface adaptation



Special manhole covers offer the option of visually blending into the surrounding area

Page 19 Backwater and floodproof



Special manhole covers with anti-flood and backwater protection

Special manhole covers with automatic opening function

- **Use:** for covers that are opened frequently or need to be opened automatically as well as for heavy covers. Operated manually or automated (e.g. via a fire alarm system)
- **Applications:** access openings, emergency exits, entrances and exits, extraction dampers (dampers for smoke and heat venting systems) and woodchip silo covers
- Hydraulics, electric lifting cylinders and counterweights are used as opening aids, depending on the way it is operated. All covers are equipped with an additional mechanical backup opening function
- **Dimensions:** almost all clear openings are possible starting from 800 x 800 mm
- Single and multiple covers – depending on the size and weight
- **Materials:** hot-dip galvanised or coated steel, stainless steel, aluminium and concrete
- **Leak-tightness:** according to requirements, number of covers and dimensions – surface-water-tight, floodproof and backwater-proof
- Fire protection/heat insulation/soundproofing available on request
- **Options:** Gratings and guardrails as anti-fall-in protection, joint gap heating, optical and acoustic alarms, connection to fire alarm and malfunction monitoring systems, e.g. circumferential drainage channel or shaft covers in a prefabricated reinforced concrete design
- **Service offering:** comprehensive advice on the full system, including assembly and control as per your requirements. Installation and maintenance on request



Hydraulic escape hatch cover, Stuttgart



Hydraulic heavy-duty cover made from prefabricated reinforced concrete, load class F 900, Frankfurt



Hydraulically actuated smoke extraction damper with collapse protection at the Isartor, Munich



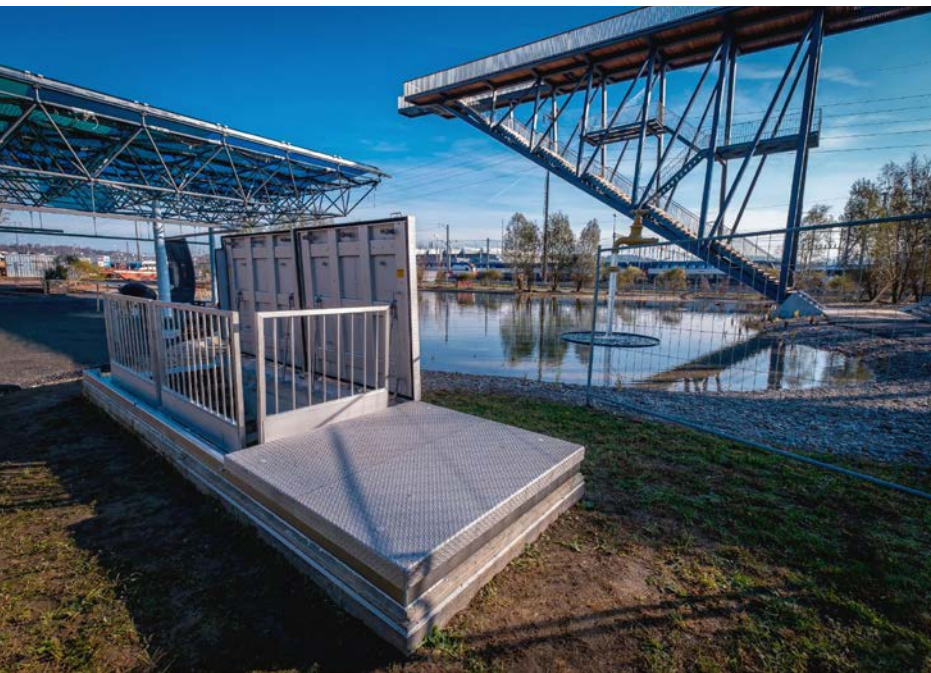
Hydraulic cover on a woodchip silo with a fire protection classification of F90, Eisenstadt/Austria



Automatic opening even in the event of a power failure thanks to hydraulic pressure accumulators with integrated emergency power supply, Munich State Archaeological Collection

Special manhole covers with opening aids

- **Use:** for covers that are opened frequently. Usually operated manually. In the case of larger covers and/or heavier covers, operation will require two persons
- **Applications:** access openings, emergency exits, entrances and exits, extraction dampers, inspection openings and maintenance openings
- Gas rams, mechanical springs, counterweights and hydraulics are used as opening aids, depending on the way it is operated
- All covers are equipped with an additional mechanical backup opening function
- **Dimensions:** clear opening from 600 x 600 mm to 2000 mm x 6000 mm. Special dimensions available on request
- Single and multiple covers – depending on the size and weight
- **Materials:** hot-dip galvanised steel, stainless steel, aluminium and concrete
- **Leak-tightness:** according to requirements, number of covers and dimensions surface-water-tight, floodproof and backwater-proof
- Fire protection/heat insulation/soundproofing available on request
- **Options:** e.g. general drainage or shaft covers in a prefabricated reinforced concrete design



Entry and exit at the Swiss Science Centre Technorama in Winterthur/Switzerland



Access and assembly opening, load class F 900



Heavy load cover with two inspection openings, load class F 900



Three-piece cover with opening aid and folding guardrail, Frankfurt

Special manhole covers without an opening aid



Row manhole cover with concrete surface, Krams at the Donau/Austria

- **Use:** for covers that are not opened frequently. Appropriate lifting equipment is needed for larger/heavier covers
- **Applications:** cable shaft covers and assembly openings
- **Dimensions:** almost all clear openings are possible starting from 300 x 300 mm
- **Surfaces:** metal, concrete or can be adapted to the surrounding surface (cover designed as a trough)
- **Leak-tightness:** according to requirements, number of covers and dimensions – surface-water-tight, floodproof and backwater-proof – inspection openings can be integrated
- Fire protection/heat insulation/soundproofing available on request
- **Options:** e.g. drainage or shaft covers in a prefabricated reinforced concrete design



Six-piece grating cover, Frankfurt



Two-piece shaft cover with concrete surface, Frankfurt



Backwater-proof covers filled with asphalt, Ansbach

Certified escape hatches

Security is our highest priority

To meet this requirement, we offer solutions tailored to the respective application, which guarantee reliable operation in all weather conditions and even in the event of a power failure. Take advantage of the extensive optional features available, such as optical and acoustic alarms, joint gap heating, remote operation and system status indicators.

ACO Passavant Detego attaches great importance to installing and commissioning the covers ourselves with integrated drive technology. This gives manufacturers and users the assurance that everything is working as it should.

The TÜV Süd technical inspection association has confirmed that our hydraulic shaft covers comply with the EC Machinery Directive and are suitable for use as escape hatches.



Escape hatch with a telescopically retractable grating, Leverkusen



Hydraulic stainless steel escape hatch, Cologne



Escape hatch cover, safe to walk on, can be operated manually, Essen



Escape hatch with paved cover, Frankfurt



Small escape hatch that can be opened by hand



Small escape hatch that can be opened by hand, Cologne



Escape hatch with a counterweight drive, Berlin



Hydraulic escape hatch with collapse protection, Berlin



Escape hatch with a hydraulic drive and grating, Ingolstadt

Floor hatches

Large rectangular covers on structural openings are usually referred to as floor hatches. They are installed on staircase accesses, to or from underground infrastructure as well as on assembly and filling openings. They have hinges and opening aids or a drive (hydraulic, electric or counterweight).

The floor hatches are designed and built according to customer requirements with respect to the application and structure, and for all load classes from “Safe to walk on” to “Heavy duty”. The materials available for use are hot-dip galvanised steel, stainless steel and reinforced concrete.

Floor hatches that can be walked on are often installed on a structure, while floor hatches that can be driven over are always installed flush with the surface and in many cases are provided with the same covering as the surrounding traffic area.

ACO Passavant Detego also attaches a great deal of importance to durability, the utmost level of safety and user-friendliness.

Upon request, we can install and commission the floor hatches for you. This full package offer from a single source gives manufacturers and users the assurance that everything functions as it should and that the warranty covers the full installation.

We also offer extensive options, such as:

- Integrated anti-fall-in solutions (automatically opening and retracting guardrails and gratings)
- Warning lights
- Signal alarms
- Joint gap heating
- Remote operation
- System status indicators



Floor gate and emergency exit at Berlin's Futurium future museum in the immediate vicinity of the Reichstag and the main railway station: The escape staircase including handrail is fully extended and accessible within 25 seconds



2-piece floor hatch as an emergency exit, Munich



Pump station access, Seligenstadt



Floor hatch that can be walked on and comes equipped with an opening aid, Koblenz

Applications

- Entrances and exits, access/filling openings and assembly openings
- Hydraulics, electric lifting cylinders and counterweights are used as opening aids, depending on the way in which it is going to be operated
- All covers are equipped with an additional mechanical backup opening function
- **Dimensions:** clear opening from 800 x 1500 mm to 2500 x 6000 mm
- Single and multiple covers – depending on the size and weight
- **Materials:** hot-dip galvanised steel, stainless steel and reinforced concrete
- **Leak-tightness:** according to requirements, number of covers and dimensions – surface-water-tight, floodproof and backwater-proof
- Fire protection/heat insulation/sound insulation available on request
- **Options:** Gratings, guardrails as anti-fall-in protection, joint gap heating, optical/acoustic alarms, connection to fire alarm and malfunction monitoring systems
- Comprehensive advice
- Full system, including assembly and control as per your requirements
- Installation and maintenance possible

Special manhole covers with surface adaptation

Shaft covers with customised surfaces are becoming increasingly important, as they provide an interface between the functional aspects of drainage and the aesthetic elements in the public sphere.

ACO Passavant Detego provides both of these to the highest quality.



Urban areas

These shaft covers have become indispensable in urban areas. In order to make the urban landscape of a city as pleasant as possible, ACO Passavant Detego offers special shaft covers, escape hatches and floor hatches as well as shaft covers with customised surfaces. This ensures that shaft covers blend into the scenery in the best way possible.



Special spatial requirements

A good example of a cover that is perfectly adapted to its surroundings can be found at Berne Town Hall. Here, a special shaft cover with an automatic opening function has been installed. The cover blends in perfectly with the surrounding historical architecture and preserves the classic flair of this historic site.



Landscape architecture

The special manhole covers from ACO Passavant Detego also blend perfectly into the scenery in landscape architecture and are therefore an excellent solution in terms of both functionality and aesthetics. The special shaft cover fits inconspicuously into the natural ambience.



Hint

Any questions about surface adaption?
Get in touch with us!
Our contact details:
www.aco-detego.de/kontakt





Discreet, as little metal on the surface as possible – this can be realised with pavalbe floor hatches, Luxembourg

Large hatches, with a lot behind them – design meets function



Truck-accessible, watertight, hydraulic transformer covers with thermal insulation, Luxembourg

Large transformer covers with surface adaptation

The largest manhole covers that ACO Passavant Detego has ever developed and installed are also a prime example of several of our areas of expertise. The client was the Luxembourg tram company Luxtram, and a number of additional requirements had to be taken into account for the desired oversized floor flaps.

Electrically powered trams that run without overhead lines charge their batteries in seconds during stops at stations. This requires powerful transformers, which should disappear underground along with their infrastructure. When developing the transformer covers, it was very important that the design blends in with the local architecture.

There is no standard range of manhole hatches in the required sizes. The largest of the floor flaps realised has an area of 3 x 19 m and is watertight, thermally insulated and can also be accessed by trucks with automatic opening.

Special manhole covers with backwater and flooding protection



For a number of specific applications, shaft covers have to be floodproof, i.e. impervious to pressurised water (according to the pressure level/overflow level) from the top down, or backwater-proof, i.e. impervious to pressurised water (according to the pressure level) from the bottom up. In these systems, appropriate measures have to be taken to ensure that the cover is fixed in place on the shaft and that the seal is impervious to pressurised water. We would be delighted to offer you a solution tailored to your specific application.

Manually actuated, backwater-proof cover with a load class of D 400 and an opening aid



View from below of a floodproof cover on an assembly opening, power plant on the river Danube near Augsburg



Backwater-proof covers filled with asphalt and with a load class of D 400, Ansbach



View from below of a floodproof cover on an assembly opening, power plant on the river Danube near Augsburg

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Cast-iron

manhole covers

ACO Passavant Detego

Cast-iron shaft covers are usually subjected to a great deal of stress. ACO Passavant Detego uses ductile cast iron GJS-500-7 to fulfil the various applications and meet sustainability requirements. Roll-in and attachable designs are available with a variety of individual options.



Opening the triangular shaped covers, load class F 900, Hamburg

Round cast-iron manhole covers



Cast-iron cover with screw-in locking lever fastenings, a load class of F 900 and a clear opening of 800 mm

Product benefits

- **Material:** Made from GJS-500-7 cast iron
- **Load classes:** D 400, F 900
- **Dimensions:** Clear openings 600, 800 mm
- Can be rolled-in/self-levelling or attached
- Comes with or without ventilation
- Surface-water-tight
- Backwater-proof
- Floodproof
- Comes with or without an opening aid
- Various fastening systems
- Prefabricated reinforced concrete possible



Underground railway station with entry and exit openings for smoke extraction technology and inspection openings for quick access, Karlsruhe city centre



Combination: round cast-iron cover with hinge and an opening aid and a stainless steel cover with an opening aid and safety grating



For tomorrow's infrastructure – ACO Manhole covers

The latest innovation is the PowerTop cover. To secure safe operation on land- and airside it is equipped with a dual hinge including an encapsulated pressure spring. To protect the ground water against pollution by hazardous liquids like oil and gas the cover has an integrated seal as a standard. The cover is available as a class D 400 and as an F 900 version for heavy load applications.



Rectangular cast-iron manhole covers



Product benefits

- **Load classes:** B 125, D 400 and F 900
- **Materials:** ductile cast iron – surfaces of solid casting, concrete or paving
- Customisable

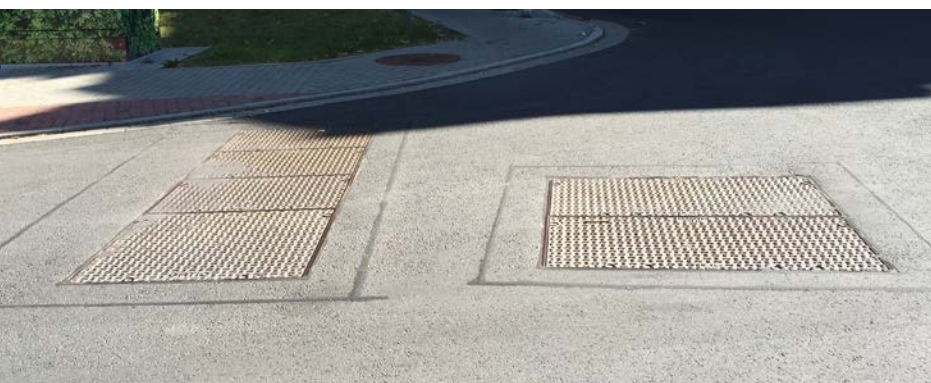
Cast-iron cover with triangular covers, prefabricated concrete frames, load class F 900

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In **special load and heavy load traffic areas** such as ports, container handling terminals and airports, manhole covers must be able to withstand extreme load requirements due to high wheel loads and high traffic volumes. You will find manhole covers from ACO Passavant Detego wherever there is heavy traffic!



Series of cast-iron covers as a module cover, load class D 400, Dresden





Surface-water-tight cast-iron cover with an opening aid, a load class of D 400 and a clear opening of 1000 mm x 1000 mm, Munich



Surface-water-tight cast-iron cover, load class D 400, Munich



Cable chamber covers – surface-water-tight design

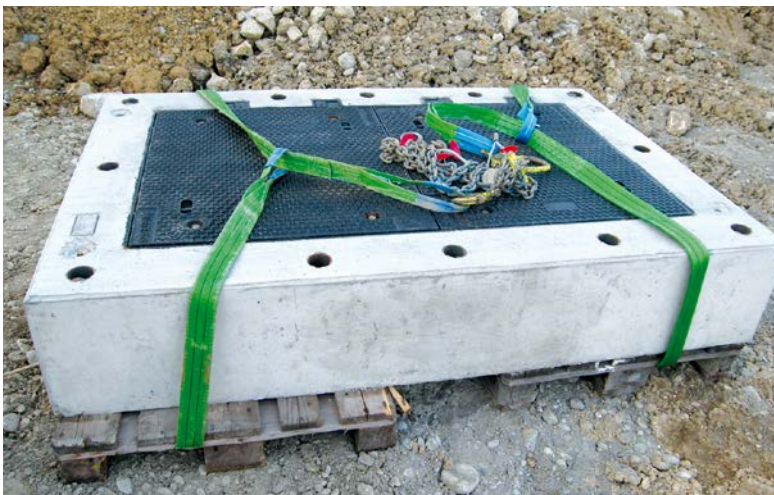
Only watertight shaft covers may be used in sealing surfaces – and only those that also have sealing systems that are resistant to substances present in polluted water.



Surface-water-tight cable shaft cover, reinforced concrete frame, class F 900, Frankfurt

Product benefits

- **Load classes:** D 400 – F 900
- **Dimensions:**
 - Clear opening of 700 x 750 mm
 - Clear opening of 750 x 1450 mm
 - Clear opening of 800 x 800 mm
 - Clear opening of 1000 x 1000 mm
- Prefabricated reinforced concrete possible
- Oil and petrol-resistant seal
- Comes with an opening aid



Prefabricated surface-water-tight cable shaft cover with a height-adjustable reinforced concrete frame and a load class of D 400, Biel/Switzerland



Prefabricated surface-water-tight cable shaft cover with a height-adjustable reinforced concrete frame, Düsseldorf

Cable chamber covers – triangular cover design



Prefabricated triangular cable shaft covers with a height-adjustable reinforced concrete frame and a load class of F 900, Frankfurt

Product benefits

- **Load classes:** B 125 – F 900
- **Dimensions:**
 - Clear opening of 750 x 750 mm
 - Clear opening of 750 x 1500 mm
 - Clear opening of 750 x 2250 mm
 - Clear opening of 750 x 3000 mm
- Prefabricated reinforced concrete possible



Cast-iron module covers



Series of cast-iron covers with a load class of B 125, Heidelberg

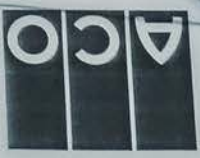
Product benefits

- Available as individual covers, a series of covers and covers for a large area
- **Load classes:** B 125 - F 900
- **Dimensions:**
 - Various dimensions
- Prefabricated reinforced concrete possible
- **Surfaces:**
 - Solid casting
 - Concrete
 - Paveable
- Hinges and opening aids also available

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Project: AL WATANIA
DATE: 06/06/2016
DRAWING N: 3

LAYOUT Channels





Services

and contact

ACO Passavant Detego

With our committed team of industry experts, we deliver to our customer proficiency, in terms of a high level of customer focus and quality service. In addition to our range of products, we strive to satisfy your individual requirements and needs.

www.aco-detego.de/en/contact

Simply fill out the form online at www.aco-detego.de

Planning assistance for covers

Company: Telephone number:

Contact: Fax:

Street: E-Mail:

Postcode, town/city: Date:

1. Basic information Please fill out/mark with a cross

Intended use of the cover

- Assembly opening
- Entrance
- Other
- District heating
- Firefighter access
- Access opening
- Inspection shaft
- Exit
- Escape hatch

Intended use if escape hatch is selected above

- Public area
- Private premises
- For third parties
- For trained staff

Is there an emergency power supply?

- Yes
- No

Place of installation of the cover

- Shaft
- a building in a green space
- Road
- Square, paved area
- Concrete upstand
- Unpaved area
- Ceiling/roof of
- Materials silo

Shape of the structural opening:

- Round
- Rectangular
- Other

Clear opening of the structural opening:

..... x mm

Cover:

- Able to be driven over (flush-mounted)
- Elevated (fitted)

Frequency of being driven over:

- Rarely
- Occasionally
- Frequently
- Very frequently

Frequency of being opened:

- Rarely
- Occasionally
- Frequently
- Very frequently

Indoors or outdoors?

- Cover is indoors
- Cover is outdoors

If outdoors:

- Is it under a roof or
- is it exposed to the weather?
- Does the cover come into contact with corrosive substances (e.g de-icing, salt)

What is below the cover?

- Drying room
- Stairwell
- Wood chip
- Wet room
- Cable duct
- Corrosive substances (e.g. faecal matter, industrial effluent, etc.)
- Underground car park
- Sewage shaft
- Escape tunnel
- Drinking water supply

Ex protection zone:

- Zone 1
- Zone 2

Operation:

Operation from above the cover:

- Opening and closing manually with an operating key, via screws etc.
- Automatically with a keyholder, remote control, etc.

Operation from below the cover:

- Opening and closing manually via a panic switch, pull cable, etc.
- Opening and closing electrically via a control panel, emergency exit button, etc.

Access security measures: e.g.

- Special screw-in locking lever head
- Transponder activation
- Signal contact in the cover

Drive type:

- | | | | |
|-----------------------------------|--------------------------|--------------------------|--------------------------|
| Hydraulic | Electric | Spring mechanism | Counterweight |
| <input type="checkbox"/> Gas rams | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | | | |

Hydraulic power unit

Location of power unit and control panel:

- | | |
|--------------------------|--------------------------|
| Drying room | Wet room |
| <input type="checkbox"/> | <input type="checkbox"/> |

Distance of the power unit and control panel from the cover:

..... mm

Hydraulic unit:

- | | | | |
|--------------------------------|---|---|---|
| Mobile 12 V | Mobile 24 V | Mobile 230 V | Mobile 400 V |
| <input type="checkbox"/> Fixed | <input type="checkbox"/> Without a handpump | <input type="checkbox"/> With a separate handpump | <input type="checkbox"/> With a built-in handpump |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

For escape hatches without an emergency power supply:

- | | |
|--------------------------|-------------------------------------|
| With an accumulator | With a rechargeable battery/battery |
| <input type="checkbox"/> | <input type="checkbox"/> |

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Accessories:

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| Joint gap heating | Signal alarms | Flashing warning lights | Crush guard |
| <input type="checkbox"/> Prefabricated reinforced concrete frame | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Control unit with interface for displaying status and error messages | | | |
| <input type="checkbox"/> For stairwell access: short side of frame designed as step in the same gradient as staircase | | | |
| <input type="checkbox"/> | | | |

3. Installation

Assembly and Installation

- | | |
|---|--------------------------|
| Assembly support during installation and connection | Full assembly |
| <input type="checkbox"/> | <input type="checkbox"/> |

Do you have any questions? Our team would be happy to help you!

Specialists with extensive expertise

Planning

Upon request, we can help you with the planning for our special shaft covers, escape hatches and extraction dampers in accordance with the HOAI (Fees for Services by Architects and Engineers) service phases.

Installation

The specialist shaft cover market is predominantly focused on high-quality, complex products. We offer the service to install hydraulic shaft covers, floor hatches with counterweight drives, escape hatches and emergency doors for you and would gladly provide you with a quote.

Maintenance

Regular maintenance safeguards the functionality of products and ensures that they have a long service life. Current legislation states that escape hatches should undergo maintenance work once per year. This includes a functional test carried out by qualified staff and the associated documentation of results and findings. Commission us to carry out the work you require.

Renovations

Our specialist staff can carry out renovations on shaft covers of any shape and size. We work with a wide range of brands and can also carry out renovations on products that have not been purchased from us.



Planning for worldwide projects and locations in Mülheim-Kärlich



ACO. we care for water

ACO is a Water-Tech company that protects water. Building on our global drainage expertise that protects people from water, we increasingly see our mission as also protecting water from people.

With the ACO WaterCycle, ACO provides systems that collect and channel, clean, retain and ultimately reuse water. In this way, ACO contributes to the preservation of clean groundwater as a vital resource, and makes a contribution to tomorrow's world. In its Agenda 2030, the UN global community set the improvement of water quality as one of 17 sustainable development goals.

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination by pollutants such as fat and grease, fuels, heavy metals and microplastics.

Today, ACO goes one step further: we accept the challenge of reusing water, and thus establishing a resource-saving cycle. For all products and systems, ACO attaches great importance to durability, reusability and a low carbon footprint. The pursuit of sustainability is an ongoing process that we strive to meet every day.

The ACO Group is a global family business that is one of the world market leaders in the Water-Tech segment. Founded in Schleswig-Holstein in 1946, it operates as a transnational network in over 50 countries. Worldwide, ACO is characterised by a high level of decentralised ownership, and explicit regional market proximity.

www.aco.com



Holder
Iver and Hans-Julius Ahlmann



Headquarters of the ACO Group
in Rendsburg/Büdelisdorf



5,200

employees in more than 47 countries (Europe, North and South America, Asia, Australia, Africa)

1.2 Billion

Euro Sales in 2022

37

production sites in 18 countries



ACO Academy
for practical training

ACO. we care for water

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination. We accept the challenge of reusing water, and thus establishing a resource-saving cycle.

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