



*Specialist shaft covers*

**ACO Detego**





## **ACO Detego shaft covers**

Detego: derived from the Latin for “cover”, this name reflects our product focus – the covering of virtually every kind of structural opening.

ACO 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.



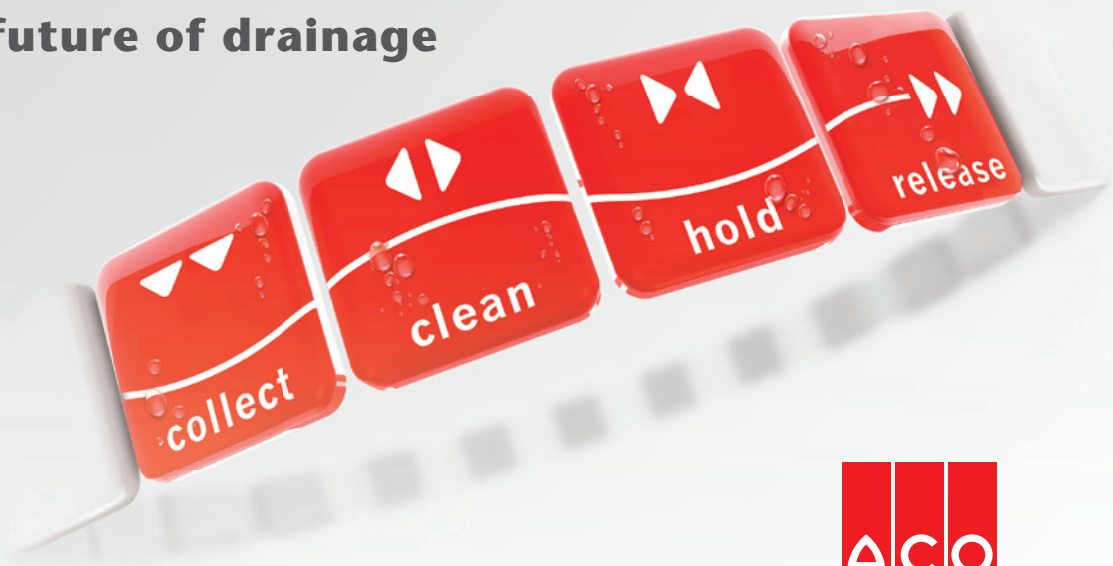




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the future of drainage**



## **ACO Detego**

ACO Detego is part of the ACO Group and is specialist for shaft covers, floor hatches, escape hatches and extraction dampers in line with individual requirements

**[www.aco-detego.de](http://www.aco-detego.de)**



The headquarters of the ACO Group in Büdelsdorf, near Rendsburg



Hans-Julius Ahlmann and his son Iver





## The ACO Group

The ACO Group is one of the leaders on the global market for drainage technology. Climate change is presenting us with the challenge of having to react to new environmental conditions. Thanks to its holistic approach, ACO is synonymous with the professional drainage, efficient cleaning and controlled transport and recycling of water.

The company's product portfolio includes drainage trenches and drain outlets, oil and grease separator systems, backwater systems and pumps, as well as water pressure-tight cellar windows and light wells.

The family-run company is headquartered in Büdelsdorf, near Rendsburg, and was founded in 1946 on the site of the former Carlshütte iron foundry, the first industrial company to be opened in Schleswig-Holstein. The innovative capacity of the ACO Group comes as a result of intensive research and development, as well as from its expertise in the processing of polymer concrete, plastic, cast iron, stainless steel and reinforced concrete.

### ACO at a glance

- 5000 employees in more than 40 countries (Europe, North and South America, Asia, Australia and Africa)
- 30 production facilities in 15 countries
- Revenue 2018: 850 Mio. Euro

**ACO. creating  
the future of drainage**



The ACO Academy offers practical training







## Detego shaft covers

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.





## A wide range of options

Special shaft covers are always used when conventional covers are no longer able to satisfy the project-specific requirements. ACO Detego is a specialist product in this area and offers an individually tailored solution for every requirement – the solutions can comprise 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.

### Individual advice and support

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 requirements.



### 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).

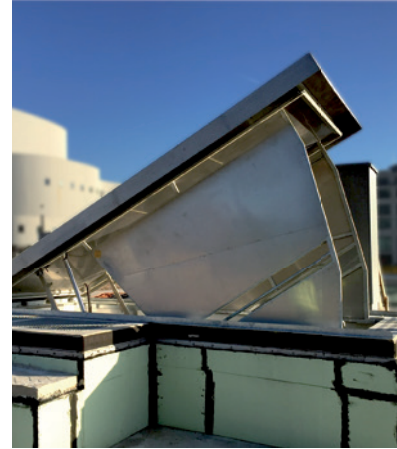
### Types of special shaft covers

- **With automatic opening function:**  
Simple operation using a hydraulic drive (page 9)
- **With an opening aid**  
An opening aid provides assistance to manually opening the cover (page 10)
- **Without an opening aid**  
Shaft covers that are either small or do not need to be opened often (page 11)
- **Escape hatches**  
Hydraulic shaft covers that comply with the EC Machinery Directive and have been confirmed as being suitable for use as an escape hatch (page 12)
- **Floor hatches**  
Large, rectangular covers on structural openings (page 14)
- **Shaft covers with surface adaptation**  
Shaft covers offer the option of visually blending into the surrounding area (page 16)
- **Backwater and floodproof**  
Special shaft covers with anti-flood and backwater protection (page 17)



## Special shaft 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 – Düsseldorf



Hydraulic heavy-duty cover made from prefabricated reinforced concrete and with a load class of F900 – Frankfurt



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



Hydraulic shaft cover as an assembly opening with anti-fall-in protection that can be driven on with a forklift truck – Krefeld

## Special shaft covers with opening aids



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



Heavy-duty cover with a load class of F900 – Geneva

- 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 approx. 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



Three-piece cover with two inspection openings and a load class of F900



Cover with spring drive as an opening aid, – Saarlouis



Access and assembly openings with a load class of F900 – Düsseldorf



Cover with a paveable surface – Landau

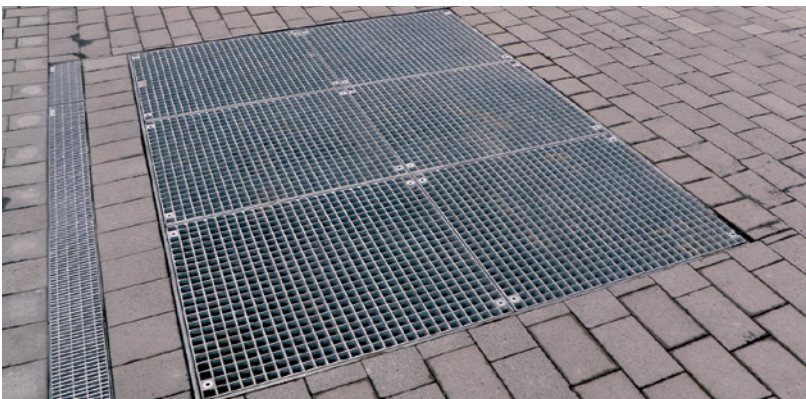


## Special shaft covers without an opening aid

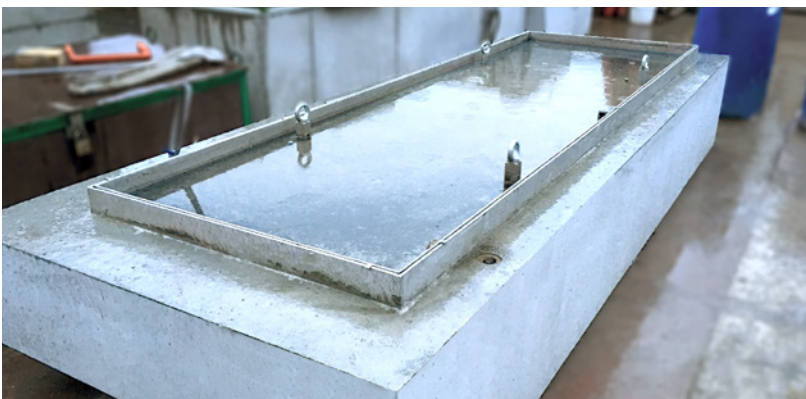


Two-piece shaft cover with concrete surface – Frankfurt

- 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. general drainage or shaft covers
- In a prefabricated reinforced concrete design



Six-piece grating cover – Frankfurt



Paveable stainless steel cover that can be driven on by a truck and come in a prefabricated surface-water-tight design



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 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 that is safe to walk on and can be operated manually – Essen



Escape hatch with paved cover – Frankfurt



## Escape hatches and floor hatches



Small escape hatch that can be opened by hand



Hydraulic roof hatch and a damper for the smoke and heat venting system – Cologne



Escape hatch with a counterweight drive – Berlin



Hydraulic escape hatch – Frankfurt



Escape hatch with a hydraulic drive and grating – Ingolstadt



## Floor hatches



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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.

**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

ACO 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.





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 – Frankfurt

### 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 and guardrails as anti-fall-in protection, joint gap heating, optical and 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 shaft covers with customised surfaces

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 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 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 shaft covers from ACO 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.



#### Do you have any questions about surface adaptation?

ACO Detego's expert team are ready to answer your questions, our contact details are listed on page 27



## Special shaft covers with backwater and flooding protection



Manually actuated, backwater-proof cover with a load class of D400 and an opening aid

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.

### Do you have any questions?

ACO Detego's expert team are ready to answer your questions, our contact details are listed on page 27



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 D400 – Ansbach



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







## Cast-iron shaft covers

Cast-iron shaft covers are usually subjected to a great deal of stress. ACO 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.



## Round cast-iron shaft covers



Cast-iron cover with screw-in locking lever fastenings, a load class of F900 and a clear opening of 800 mm

### Product benefits

- Made from GJS-500-7 cast iron
- Available in load classes of D400 and F900
- Clear openings of 600 mm and 800 mm
- Can be rolled-in/self-levelling or can be 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



Combination: round cast-iron cover with hinge and an opening aid (on the left) and a stainless steel cover with an opening aid and safety grating (on the right)



## Rectangular cast-iron shaft covers



Cast-iron cover with triangular covers, a prefabricated concrete frame and a load class of F900 – Hamburg

- Load classes: B125, D400 and F900
- Materials: ductile cast iron – surfaces of solid casting, concrete or paving
- Customisable



Surface-water-tight cast-iron cover with an opening aid, a load class of D400 and a clear opening of 1000 mm x 1000 mm – Munich



Surface-water-tight cast-iron cover with an opening aid, a load class of D400 and a clear opening of 1000 mm x 1000 mm – Munich



Series of cast-iron covers as a module cover and with a load class of D400 – Dresden



## Cable shaft 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.

ACO Detego has a high-quality range of shaft covers that meet all requirements and at the same time are extremely operator-friendly.



Surface-water-tight cable shaft cover with a reinforced concrete frame and a load class of F900 – Frankfurt

### Product benefits

- Load classes D400 - F900
- 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 D400 – Biel, Switzerland



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



## Cable shaft covers – triangular cover design



Prefabricated triangular cable shaft covers with a height-adjustable reinforced concrete frame and a load class of F900 – Frankfurt

### Product benefits

- Load classes D400 - F900
- 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 B125 – Heidelberg

### Product benefit

- Available as individual covers, a series of covers and covers for a large area
- Load classes: B125 – F900
- Dimensions
  - Various dimensions
- Prefabricated reinforced concrete possible
- Surfaces
  - Solid casting
  - Concrete
  - Paveable
- Hinges and opening aids also available







## Services

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.



## 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.





## **Contact details for the ACO Detego team**

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# 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	District heating	Access opening	Exit
Entrance	Firefighter access	Inspection shaft	Escape hatch
Other .....			

### Intended use if escape hatch is selected above

Public area	Private premises	For third parties	For trained staff
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### Is there an emergency power supply?

Yes	No
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### Place of installation of the cover

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

### Shape of the structural opening:

Round	Rectangular	Other .....
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### Clear opening of the structural opening:

..... x ..... mm

### Cover:

Able to be driven over (flush-mounted)	Elevated (fitted)
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### Frequency of being driven over:

Rarely	Occasionally	Frequently	Very frequently
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### Frequency of being opened:

Rarely	Occasionally	Frequently	Very frequently
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### 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)
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### What is below the cover?

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

Ex protection zone:	Zone 1	Zone 2
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## 2. Equipement

### Load class:

Can be walked on	Can be driven over	... by passenger cars	... by trucks – max. 7.5 t
Heavy duty (e.g. industrial areas)		Heavy duty (e.g. airports)	... by trucks – max. 30 t
Other loads: .....			... by trucks – max. 60 t

### Preferred materials:

Galvanised steel	Stainless steel 1.4301	Stainless steel 1.4571	Aluminium
Reinforced concrete	Cast iron		

### Surface of the cover:

Stud plate	Brushed concrete	Cast iron	Aluminium
cover in a trough design for surface adaptation with filling dimensions of ..... mm			
Polyurethane coating required (due to corrosive substances or non-slip safety)			

### Leak-tightness:

Not airtight	Surface-water-tight	Gastight against unpressurised gases
With ventilation: Ventilation shaft .....	cm	backwater-proof up to ..... bar
Floodproof up to ..... m water depth with circumferential internal trench and drainage pipes (to be connected on site)		

### Underside of cover:

Heat insulation	Sound insulation
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### Fire protection requirements:

F30	F60	F90	From above
From below	From above/below		

### Operation method:

Only manual	With lifting equipment	With an opening aid (gas spring, spring, counterweight)
Automatic (hydraulic, electric, counterweight)		

### Number of covers

Symmetrical cover parts	Asymmetrical cover parts	Cover with built-in inspection opening.
		Size inspection opening: ..... x ..... mm

### Position of hinges:

Long side	Short side
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### Anti-fall-in guardrails:

#### Guardrail:

Folding guardrails	Push-in guardrails	Fixed guardrails
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#### Material required:

Aluminium	Galvanised steel	Stainless steel
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#### Grating:

Folding	Fixed in place
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#### Material required:

Aluminium	Galvanised steel	Stainless steel
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# Planning assistance for covers

## 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  
Gas rams

## Hydraulic power unit

### Location of power unit and control panel:

Drying room                      Wet room

### 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  
Fixed                      Without a handpump                      With a separate handpump                      With a built-in handpump

### For escape hatches without an emergency power supply:

With an accumulator                      With a rechargeable battery/battery

## Accessories:

Joint gap heating                      Signal alarms                      Flashing warning lights                      Crush guard  
Prefabricated reinforced concrete frame  
Control unit with interface for displaying status and error messages  
For stairwell access: short side of frame designed as step in the same gradient as staircase

## 3. Installation

### Assembly and Installation

Assembly support during installation and connection                      Full assembly

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

**www.aco-detego.de**







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