

ACO DRAIN® Monoblock RD 100 V/200 V/300



ACO. The future of drainage.



The ACO system chain provides the drainage solutions for tomorrow's environmental conditions.

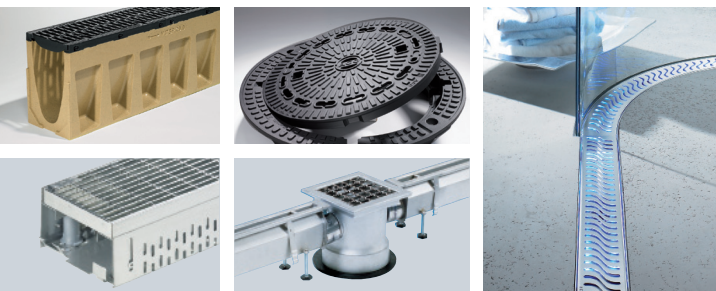
Increasingly extreme weather must be counteracted by more complex and sophisticated drainage concepts. ACO achieves this with intelligent system solutions which have a dual purpose: protecting people from water, and water from people. Every ACO product within the ACO system chain therefore safely controls the water as it passes along the chain to ensure that it can be ecologically and economically reused in a viable way.

2



collect

The surface water or the liquids being treated are collected from the surface as quickly and as completely as possible by the drainage system. This part of the ACO system chain guarantees protection, safety and comfort for the people, buildings and traffic routes in the immediate vicinity.



clean

The collected liquids are treated using integrated physical, chemical or biological processes that ensure they can be discharged into the public sewers – the minimum requirement. This part of the ACO system chain creates the conditions for recycling and sustainable use.





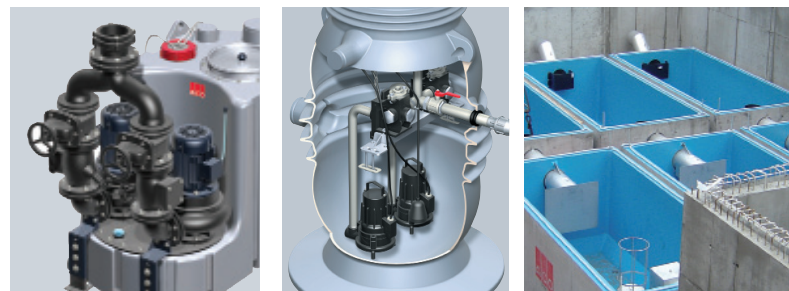
hold

Containers, barriers and valves ensure that the liquids stay within the drainage system where they can be properly controlled. This part of the ACO system chain enhances protection and safety for extreme situations: e.g. heavy rain, flooding or handling hazardous liquids.



release

Pumps, lifting plants and pipe systems transfer the collected, treated and controlled water into the downstream systems and processes. This part of the ACO system chain brings the collected, treated and controlled water to the interfaces for further treatment, re-use or release.



ACO System chain
in action



ACO DRAIN® Monoblock – the single block channel system

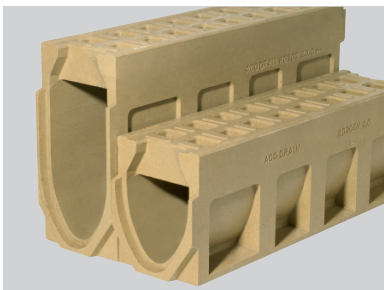


ACO DRAIN® Monoblock is a unique product which cannot be compared to other channel systems. The latest production methods combined with the tried and tested material polymer concrete, enable the manufacturing of a drainage channel made out of a single piece with no loose parts and no adhesive joints.

High functionality thanks to the one piece design.

The unique single cast construction guarantees maximum safety and stability for all types of drainage in traffic areas including transverse and longitudinal drainage on freeways and motorways up to load class F 900 according to DIN EN 1433: an ideal alternative to conventional solutions. The large outlet diameter and the V-profile ensure water is drained rapidly. The easy modular approach with very few system elements provides a simple and easily understood solution to all kind of different applications.

The drainage channel is available in anthracite black or natural colour.



ACO DRAIN® Monoblock RD 200 V

ACO Polymer concrete is the ideal material for the Monoblock construction

Thanks to the special composition of this material and the most modern production processes, polymer concrete delivers the ideal combination of material features for the Monoblock construction.

Components' weight:

Because of its considerably higher level of rigidity compared to concrete products but with approximately the same thickness, polymer concrete products are noticeably lighter than comparable concrete products. This lower weight makes the products easier to handle on the building site, increases the laying rate and therefore reduces costs.

Impermeability:

In comparison to uncoated concrete products, fluids cannot permeate the surface of this material as the water penetration depth of polymer concrete is 0 mm. Freeze-thaw conditions and extreme coatings of de-icing salt cannot destroy the polymer concrete. Polymer concrete is automatically classified with the highest weathering level as defined in DIN EN 1433, which makes it the ideal material for use in modern road construction.

Chemical resistance:

Thanks to the use of the most recent polymer compounds, polymer concrete products are resistant to even aggressive agents without any additional coatings or PE-HD in-liners as required for



The benefits of the system at a glance



ACO DRAIN® Monoblock RD 300 DF on the A3 motorway at Cologne

One-piece design

- one piece with no adhesive joints
- clearly designed system
- no covers which might rust
- no rattling
- high strength

The polymer concrete material is what makes the Monoblock

- lightweight
- resistant to ageing
- highly stable
- non-corroding
- resistant to frost, de-icing salt and chemicals



Laying ACO DRAIN® Monoblock RD 300 D

The advantages of the system

- Monolithic building method!
Monoblock covers all load classes of DIN EN 1433.
- Simple and clearly structured!
Most applications can be covered using just a few system components, so minimum stocks need to be held.
- Sealing as required by DIN EN 1433!
A built-in sealant option is provided, to meet the requirements of the Euro-standard.
- DF version available for use with open-pore asphalt.



ACO DRAIN® Monoblock RD 300 DF at an airport

Benefits for installation

- Low-cost installation!
Because the polymer concrete material is highly stable, the amount of concrete required to provide bedding can be significantly reduced.
- Stable unit!
Thanks to the monolithic construction without adhesive joints, the Monoblocks remain stable and keep their shape even under extreme loads. Unlike systems with adhesives, the upper and lower parts cannot loosen. During installation, no reinforcements are required and the surface layer can be laid without any slippage.
- Low weight!
Given the high rigidity of the material the construction weights for Monoblock systems are significantly lower compared with similar concrete products. Low product weights significantly reduce installation costs, because no extra equipment is required.

The advantages for maintenance

- Absolutely non-corroding!
All parts are made from polymer concrete, there are no unsightly corroding covers after completion.
- The polymer concrete channel bodies are available in natural polymer concrete colour or in anthracite black
- Simply clean!
Appropriate cleaning of the channels is done by using high-pressure or low-pressure rinsing.



ACO DRAIN® Monoblock as a modular system



ACO DRAIN® Monoblock Channel RD 100 V/200 V/300 V



ACO DRAIN® Monoblock RD 300 DF at a logistics centre

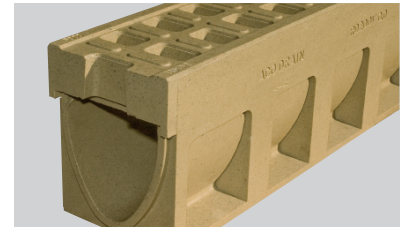
Areas of application

- Transverse and longitudinal drainage on motorways and freeways
- Logistics yards
- Motorway parking areas with HGV traffic
- Airports
- Formula 1 racetracks

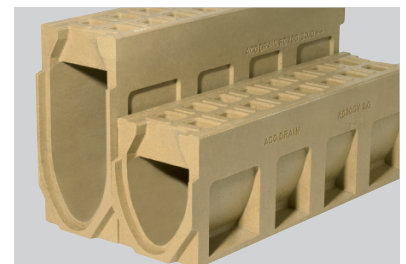
A guarantor for the highest level of stability, particularly in the areas of transverse and longitudinal drainage on motorways and freeways. Applications such as container terminals and airports are also very well suited for Monoblock channels. All these applications have one thing in common: high dynamic forces which are created for example, these are created by being driven over by around 120,000 vehicles per day. Be it at the high speeds found on Formula 1 racetracks and motorways, or in places where heavy loads are being moved. For the RD 100 V/RD 200 V and RD 300 the technical approval (No. Z 74.4-53) has been granted for use in storage, loading and transfer facilities by the DIBT (German Institute for Building Technology), and for the RD 200 V, depending on the application, two versions can be offered (see on right). Depending on the application, the RD 200 V can be offered in two versions (see on the right).

ACO DRAIN® Monoblock RD 100 V and RD 200 V

- with a modified V-profile
- with side and full surface anchoring for maximum hold, stability and buoyancy safety even during the installation phase.
- available in nominal widths of 100 and 200 to be absolutely sure of coping with the massive requirements of draining water off carriage ways during heavy rain and thus delivering total safety from aquaplaning to car drivers.
- Nominal width 200 is offered in height 0.0 as well as in height 20.0.



ACO DRAIN® Monoblock RD 200 V (standard)



ACO DRAIN® Monoblock RD 200 V (sealing according to DIBT)



NEW! ACO DRAIN® Monoblock RD 200 V standard version



ACO DRAIN® Monoblock RD 200 V version with general technical approval Z 74.4-53 for use in storage, loading and transfer facilities



ACO DRAIN® Monoblock RD 200 V on the A1 motorway in Germany as longitudinal drainage

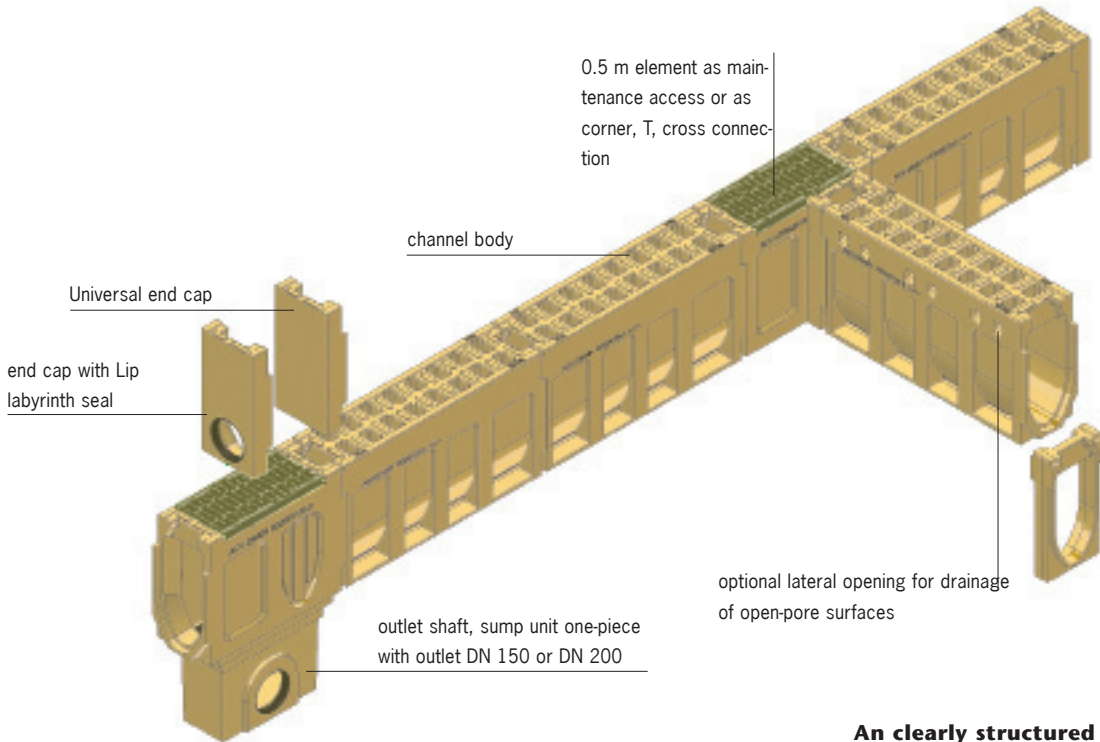


Used for racetracks. Here: Formula 1 track in Shanghai



ACO DRAIN® Monoblock RD 200 V for transverse drainage

Overview of the RD 100 V/200 V system

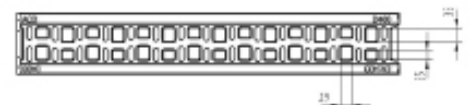
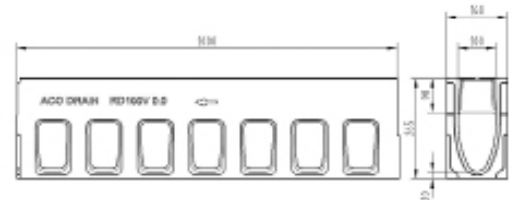


Technical data RD 100 V/200 V

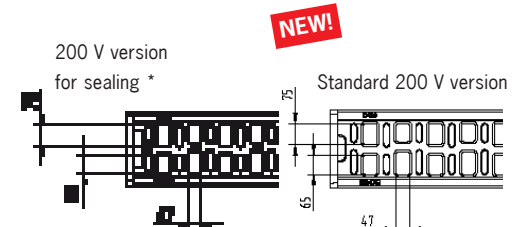
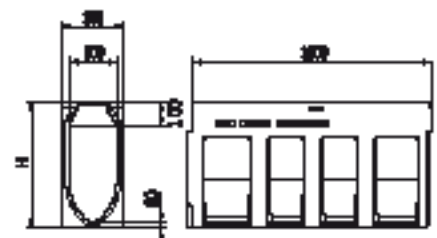
Description	Installation length in cm	Installation Width in cm	Installation Height in cm	Weight in kg	Cross-section of inflow cm ² /m
Channel RD 100 V Cl. D400/F900	100	16	26,5	50	308
Channel with maintenance access	50	16	27,5	21	380
Sump unit, one piece, DN 100	50	16	52,5	31,5	380
Sump unit, one piece, DN 150	50	16	52,5	31,3	380
Channel RD 200 V Cl. D400/F900 0.0/20.0	100	26	33/53	88/110	583
Channel with maintenance access	66	26	33/53	48/65	935
Sump unit bottom part, one piece, DN 150	50	23	36,5	26,5	935
Sump unit bottom part, one piece DN 200	50	23	36,5	26,5	935

* With general technical approval Z-74.4-53 for use in storage, loading and transfer facilities.

An clearly structured modular system - using the example of the RD 200 V



Dimension of channel body Monoblock RD 100 V, 1.0 m



Dimension of channel body Monoblock RD 200 V, 1.0 m

ACO DRAIN® Monoblock channel RD 300



ACO DRAIN® Monoblock RD 300 at Manching airport

The RD 300 channel system was specially developed for the drainage of large surfaces.

The RD 300 Monoblock channel complies with load class F 900 under EN 1433.

The DIBT (German Institute for Building Technology) granted it general technical approval (No. Z-74.4-53) for use in storage, loading and transfer facilities. For the sealing of the safety joint a special spray nozzle is needed, which ACO can provide on request. The sealing of the safety joint is carried out by approved companies, who have the knowledge and equipment required to seal large joints.

The inflow cross section and the flow diameter allow the connection of very large drainage areas with simultaneous optimization of the drainage points. Long trenches can be realized. The application technology takes care of the dimensioning in relation to the site.

A 75 cm long element is available for corners, T and cross connections.

The sump unit is designed in a way that allows even large volumes of water to be stored and discharged. End caps, end caps with outlet and adapters complete the system.

The surface of the channels should not be driven over with steel wheels.



ACO DRAIN® Monoblock channel RD 300



ACO DRAIN® Monoblock channel RD 300 front view

Areas of application

- Transverse and longitudinal drainage on motorways and freeways
- Logistics yards
- Motorway parking areas with HGV traffic
- Airports
- Formula 1 racetracks

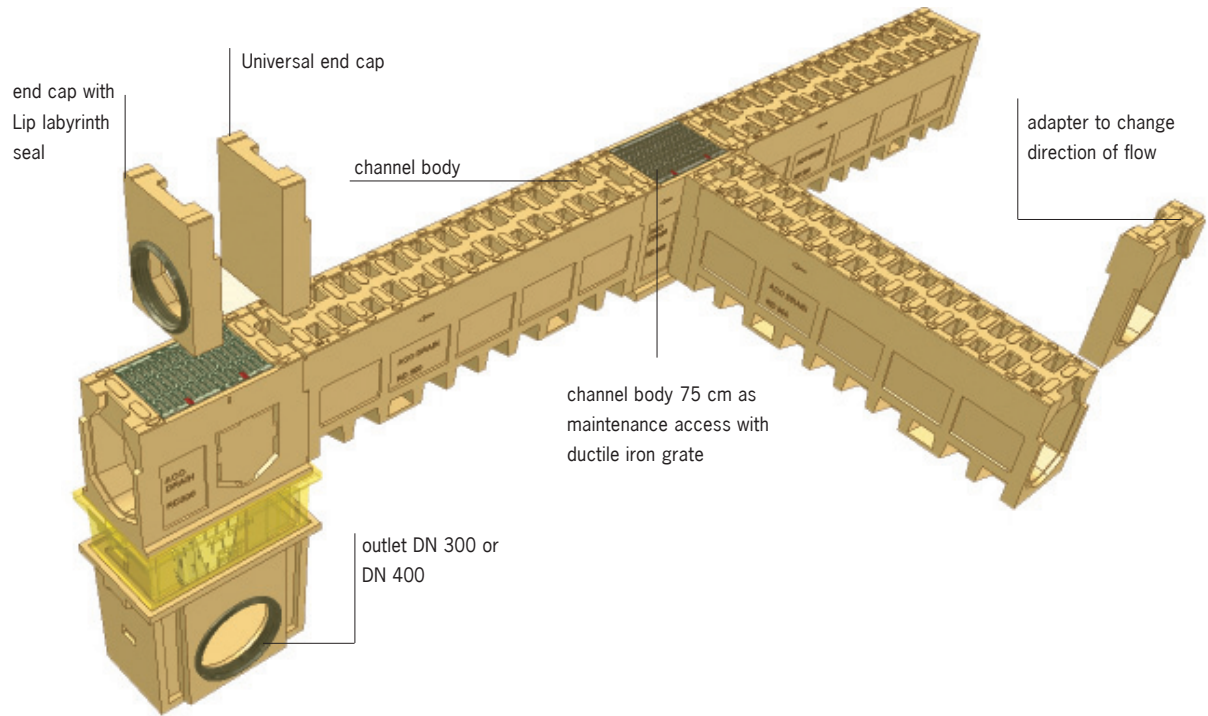


ACO DRAIN® Monoblock RD 300 at Manching airport with outlet shaft



ACO DRAIN® Monoblock RD 300 being installed

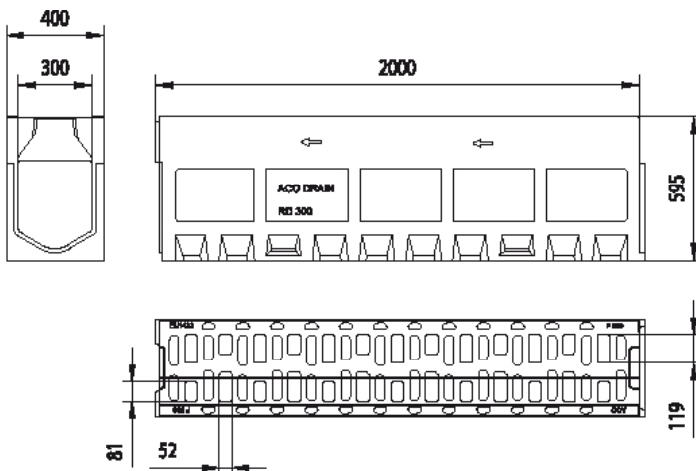
Overview of the RD 300 system



Technical data RD 300

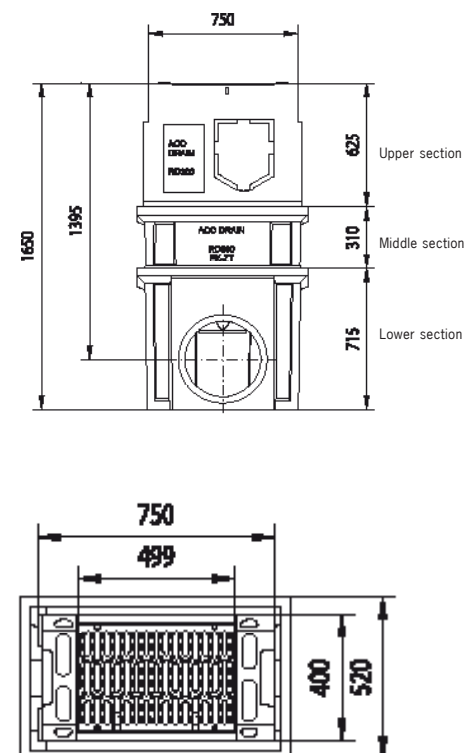
Description	Installation length in cm	Installation Width in cm	Installation Height in cm	Weight in kg	Cross-section of inflow cm ² /m
Channel RD 300 Cl. D400/F900	200	40	59,5	484	800
Channel with maintenance access	75	40	64,5	219	1511
Multi-pieces sump unit DN 300	75	40	165 ¹⁾	425 ²⁾	1511
Multi-pieces sump unit DN 400	75	40	165 ¹⁾	425 ²⁾	1511

²⁾ without middle section 353 kg



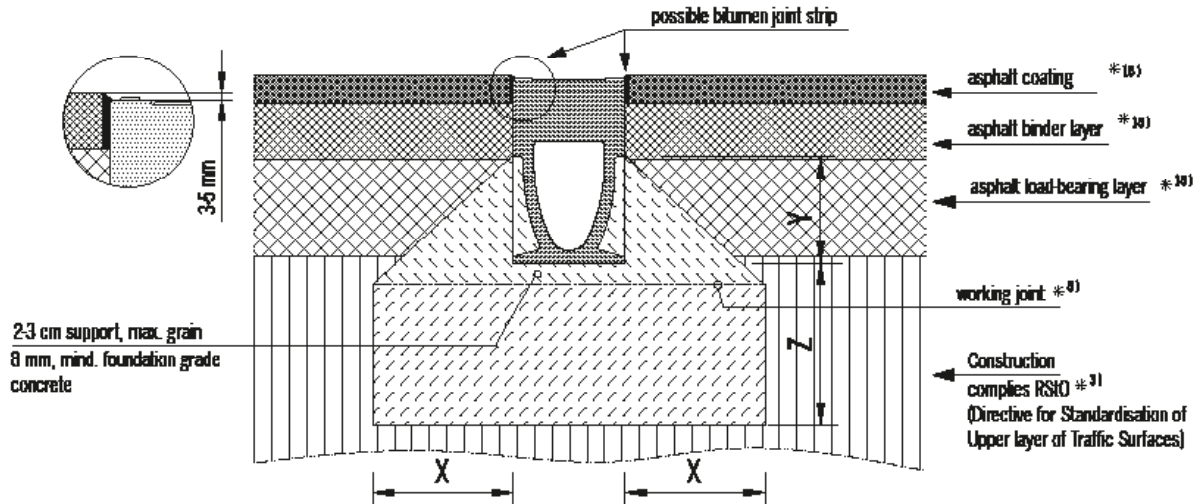
Sump unit RD 300

¹⁾ The sump unit combination can also be used without the 310 mm high middle section. The total height is then 1340 mm.



ACO DRAIN® Monoblock RD 100 to RD 300

ACO DRAIN® drainage channel Monoblock RD 100 to RD 300 monolithic, installation in asphalt, without adhesive joint for load classes C 250/D 400 according to DIN EN 1433.



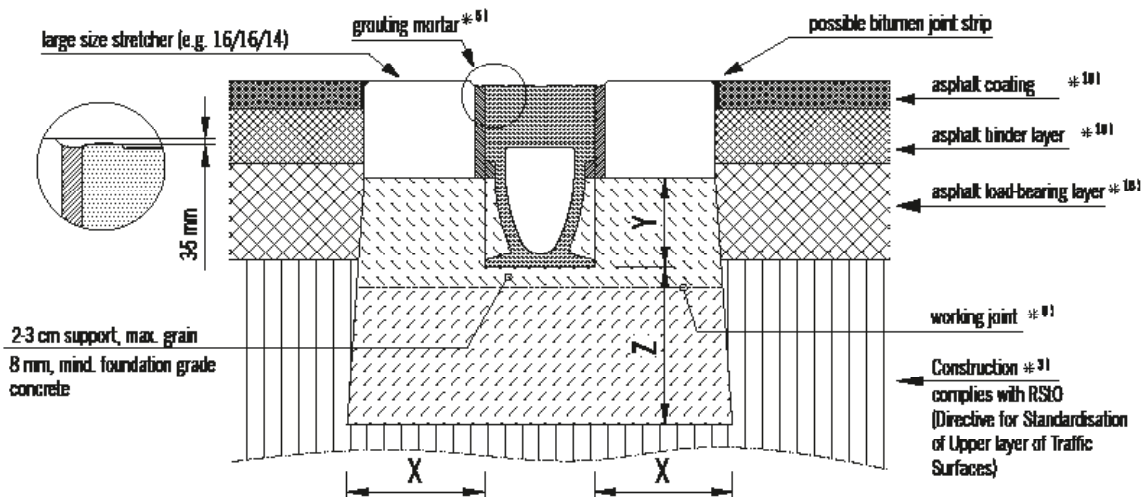
*..) see index list in the preface to our installation instructions

Load class	(ref. DIN EN 1433)	A 15	B 125	C 250	D 400	E 600	F 900
Compressive strength class - foundation	(ref. DIN EN 206-1)			≥ C 20/25	≥ C 25/30		depends on site
Exposure class - foundation concrete *16)				(X0)	(X0)		on request
Foundation dimensions – Type M (ref. DIN EN 1433)	X [cm]			≥ 15	≥ 20		
	Y [cm]			Upper edge anchoring pocket *2)			
	Z [cm]			≥ 15	≥ 20		

Only valid in combination with the general ACO installation advices! Download at www.aco-tiefbau.de

Drawing G1-E01-931-3.1, version 12/09

ACO DRAIN® drainage channel Monoblock RD 100 to RD 300 monolithic, installation in asphalt, without adhesive joint for load classes D 400 to F 900 according to DIN EN 1433.



*..) see index list in the preface to our installation instructions

Load class	(ref. DIN EN 1433)	A 15	B 125	C 250	D 400	E 600	F 900
Compressive strength class - foundation	(ref. DIN EN 206-1)				≥ C 25/30	≥ C 25/30	depends on site
Exposure class - foundation concrete *16)					(X0)	(X0)	on request
Foundation dimensions – Type M (ref. DIN EN 1433)	X [cm]				≥ 20	= 20	
	Y [cm]				UK stretcher		
	Z [cm]				≥ 20	= 20	

Only valid in combination with the general ACO installation advices! Download at www.aco-tiefbau.de

Drawing G1-E01-931-3.2, version 12/09

The ACO Service Chain

Every project is different, with its own demands and challenges. In addition to our top products, we also make available our in-depth know-how and our services to assist you in developing individual customised solutions – from planning to service provision after completion.



train:
information and further training

At the ACO Academy, we share the in-depth expertise of the global ACO Group with architects, planners, operatives and dealers who place a high priority on quality. We invite you to attend and benefit from this know-how.

design:
planning and optimisation

Tendering and planning for drainage solutions can be based on a range of possible options. But which concept produces the best economic and safest technical solution? We can help you find the optimum answer.

support:
construction advice and assistance

To ensure that there are no nasty surprises between the planning and implementation of a drainage solution, we can provide you with project specific advice and support at your construction site.

care:
inspection and maintenance

ACO products are designed and manufactured for long service lives. With our after sales service, we ensure that ACO fully satisfies its high quality standards even after many years of efficient operation.

**ACO Severin Ahlmann
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