

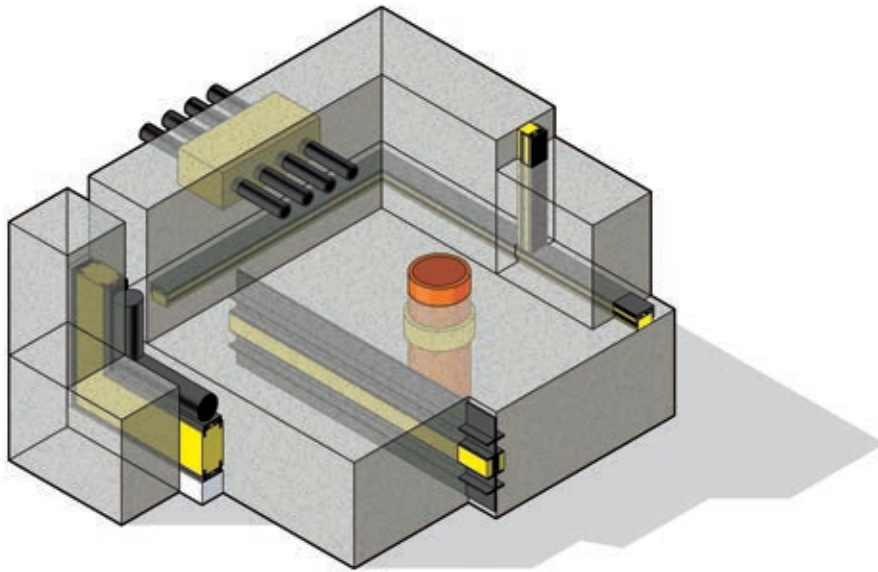
rascor[®]

Injection Systems
RASCOTec



Injection System

RASCOTec Injection System



From a technical point of view, injection systems are widely recognized as the number-one solution for waterproofing buildings exposed to hydrostatic pressure!

WHAT ARE INJECTION SYSTEMS?

Injection systems are generally acknowledged as the last word in structural waterproofing. Their key advantage consists in the incorporation of a waterproof barrier within the structural fabric over its entire cross-section.

This barrier is installed in two stages. The first operation entails the fixing of various units that ensure the controlled distribution of grout within the building fabric during injection. In the second operation – constituting the actual waterproofing process – which takes place after the concrete has fully cured, grout is injected into the fabric through the previously installed units.

Thanks to this two-stage procedure, injection systems are completely independent of weather conditions and highly resistant to external action. This has rightly earned them the reputation of delivering “uncompromizing” performance.

RASCOR INJECTION SYSTEM

The RASCOTec injection systems feature a range of different units for specific functions, which – after installation and grouting – combine to provide highly professional, integral waterproofings.

The key advantage of the RASCOTec systems lies in their ability to accommodate very large joint movements thanks to the special geometry of the sections, which are in direct contact with the joint, are likewise filled with hydrophilic acrylic and thereby form a grout reservoir.

RASCOR’s unique detail solutions underline the company’s supreme technological standards in the field of waterproofing.

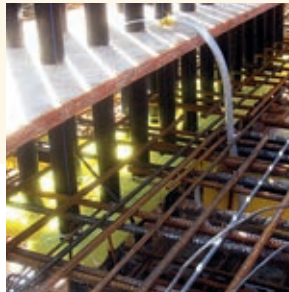
CONSTRUCTION JOINTS

Construction joints are easily and dependably waterproofed using RASCOTec injection channels. These are fixed to the existing concrete fabric in the construction joint and cast in with the following pour.



DUMMY JOINTS FOR CRACK CONTROL

By ensuring controlled crack formation at predetermined locations, RASCOTec crack inducer units allow the uninterrupted casting of concrete bays of unlimited size. This shortens construction times and may also reduce the reinforcement requirement!



PENETRATIONS

Whatever their size, shape or constituent material, structural penetrations can be simply, reliably and permanently sealed using RASCOTec injection collars. The RASCOTec multiple-penetration units cater for several penetrations at the same location, e.g. bunches of pipes for borehole heat exchangers.

MOVEMENT JOINTS

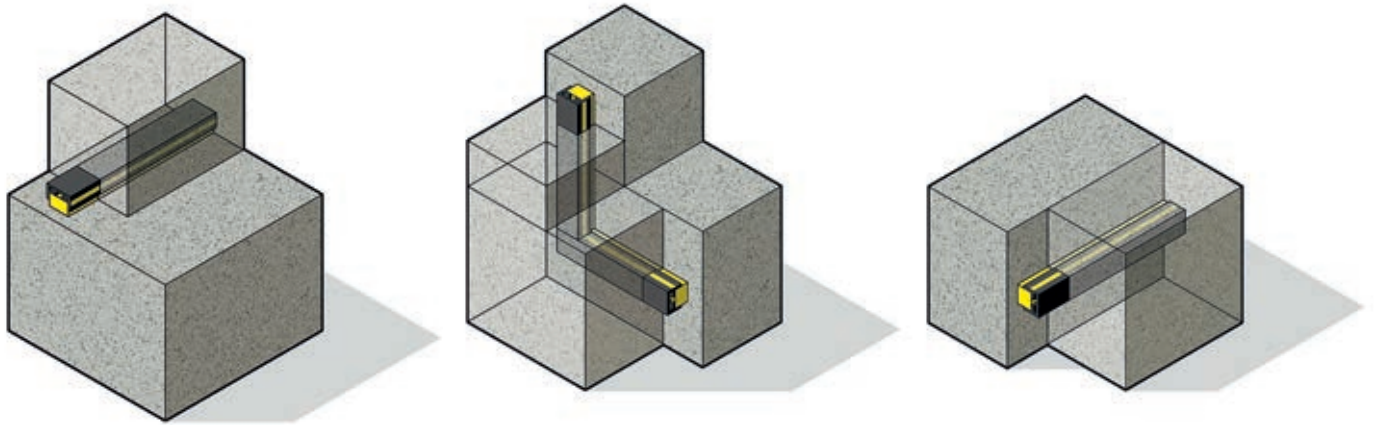
Movement joints are the most difficult joint types in any waterproofing concept. The RASCOTec expansion joint unit, which is freely combinable with the other joint systems, was specially developed for incorporation in structural expansion joints.

INJECTIONS

Alongside reliable components and fixtures for incorporation in the structure, any fully fledged, state-of-the-art waterproofing system also requires properly co-ordinated, best-in-class grouting products. Here, the RASCOflex resin grouts fit the bill in every respect.

Injection System

RASCOTec Injection Channel



Injection channels are ideal for waterproofing all types of construction joint in general building and civil engineering works as well as special applications such as tunnelling.

SYSTEM DESCRIPTION

RASCOTec injection channels are installed as a preventive system in construction joints. The actual waterproofing operation is performed later, in a second stage, by means of efficient, controlled grout injections. The injection channels guarantee the full and proper distribution of grout in and along the joint.

The grout-filled foam component of the channels provides a second line of defence by accommodating any substantial, unforeseen movement.

RASCOTec injection channels are capable of resisting all standard mechanical loads, both at high and low temperatures.

ADVANTAGES

- No elaborate joint preparation needed
- Also suitable for use on extremely uneven bases
- Independent of temperature and weather
- Regroutable
- Ensures simultaneous sealing of cracks and honeycombing in joint area
- Provides reliable waterproof barrier even against high water pressures
- Straightforward fixing
- Made from eco-friendly plastics (HDPE)

PREPARATION

RASCOTec injection channels necessitate no elaborate preparation of the construction joints. Continuous contact with the concrete base is all that is needed.

However rough or irregular the surface, the specially developed foam prevents any infiltration by cement fluid during concreting. Even junctions with diaphragm or contiguous pile walls can be reliably waterproofed using the injection channels.

INSTALLATION

RASCOTec injection channels are fixed to the existing concrete element between the reinforcement bars.

The units are quick and easy to install using either nail plugs or cartridge-fixing tools.



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INJECTIONS

Honeycombing and hairline cracks in the lower wall area at ground slab/wall junctions are a perennial cause of significant leakages. Grouting of the RASCOTec injection channels automatically seals any adjoining cracks and honeycombing to provide a permanent waterproof barrier.

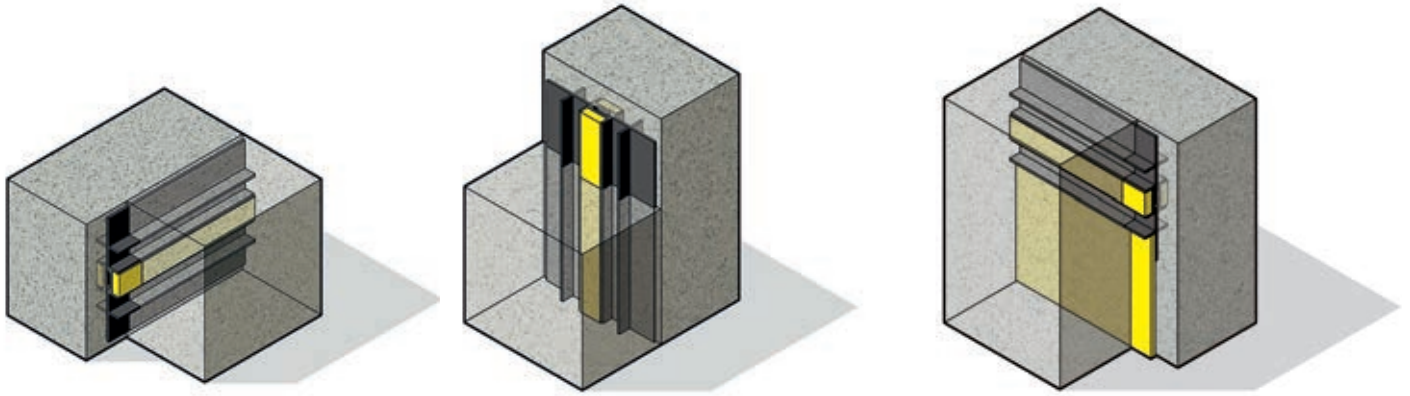
A wide variety of grouting materials can be used in conjunction with the RASCOTec injection channels.

- 1 Reliable transition from slab/wall to wall/wall joint
- 2 Flexible foam component of RASCOTec injection channel
- 3 RASCOTec injection channel on contiguous pile wall

- 4 Grouting of injection channel in construction joint
- 5 Grouting of injection channel and adjoining cracks

Injection System

RASCOtec Crack Inducer



RASCOtec crack inducer and stop end units are used to maximize concreting capacity.

SYSTEM DESCRIPTION

Effectively, RASCOtec crack inducer are straightforward, stiffened plastics boards with a continuous injection channel down the middle and escape holes on either side.

They are systematically installed at predetermined locations to bring about controlled crack formation. This allows the casting of concrete bays of unlimited size, while obviating the need for alternate-bay ("chequer-board") construction. In many cases, savings are also achievable due to the lower quantities of anti-crack reinforcement needed as a result of this crack control method.

ADVANTAGES

- Savings in time, with associated savings in cost
- Simplified formwork erection
- Maximization of concreting capacity
- Controlled crack formation (obviating the need for construction joints)
- Independent of temperature and weather
- Regroutable
- Enhanced reliability
- Made from eco-friendly plastics (HDPE)

PREPARATION

RASCOtec crack inducer can be supplied in widths corresponding to the thickness of the concrete and are fixed between the inner and outer reinforcement of walls or the upper and lower reinforcement layers of ground or suspended slabs. The required cross-sectional reduction in the concrete element is separately calculated for each project.

Where dictated by aesthetic demands, a triangular fillet can be inserted in the wall formwork on the exposed side to form a crisp joint in the line of the crack inducer.

INSTALLATION

RASCOtec crack inducer are installed between the two reinforcement layers, the width of the units being adapted in line with the particular concrete thickness. Although they are cast in during concreting, they still perform the same function as a construction joint.



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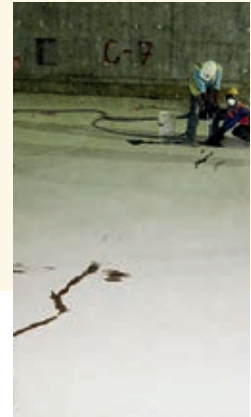
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ADDITIONAL FUNCTION: STOP ENDS

RASCOtec crack inducer can also double up as stop end units at the end of a concrete pour. This further speeds up site operations by saving the time and effort needed for formwork striking and extra waterproofing.

INJECTIONS

The resulting cracks are elastically grouted via the crack inducer after a minimum 28-day curing time to create a permanent, reliable waterproof barrier.

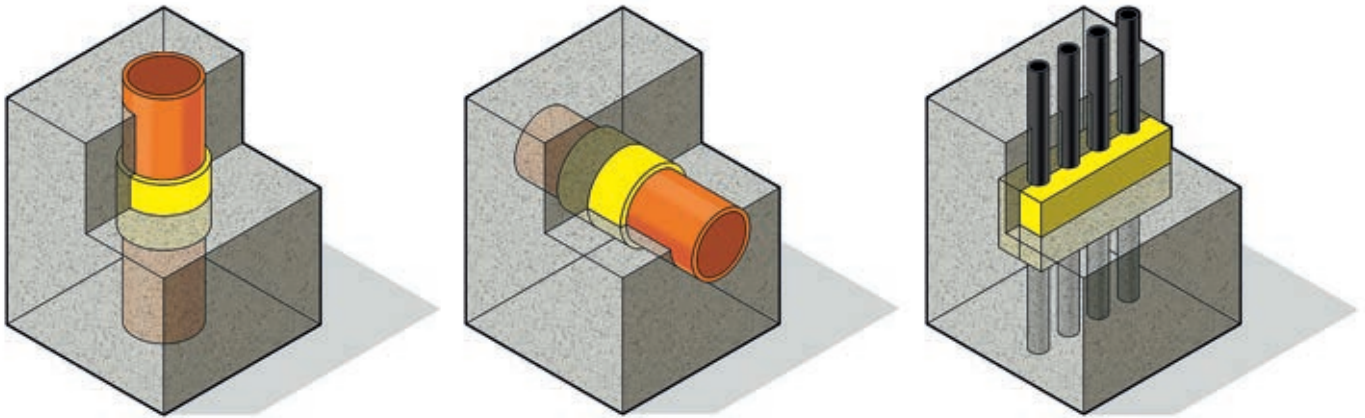
RASCOtec crack inducer accommodate a wide variety of grouting materials and reinjection is possible at any required time.

- 1 Wall with RASCOtec crack inducer
- 2 Connector hose for grouting
- 3 Ground slabs for concreting

- 4 RASCOtec crack inducer unit used as stop end units
- 5 Crack control, even for 240 cm thick ground slabs
- 6 Grouting using RASCOflex acrylic grout

Injection System

RASCOtec Collar



The RASCOtec injection collars and multiple-penetration units are groutable sections made from special foam for use in conjunction with any material type.

SYSTEM DESCRIPTION

RASCOtec injection collars are installed in the middle of the concrete elements around built-in components such as waste water or groundwater relief pipes, gullies, shafts, underwater floodlights or other penetrations, and serve as a receptacle for the subsequently injected grout.

RASCOtec injection collars can be used regardless of the shape and constituent material of the penetrating element. The only constraint is for the compressive strength of this element to be adequate to withstand the relevant loads.

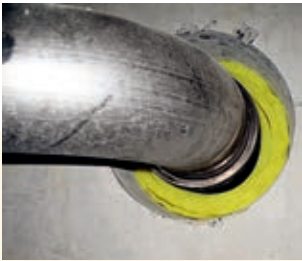
ADVANTAGES

- Penetrating element can be made from any material
- Independent of diameter
- Independent of temperature and weather
- Regroutable
- Easy fixing
- Even special shapes can be reliably sealed

PREPARATION

No special preparation is needed prior to the installation of RASCOtec injection collars. Tight fitting of the collars is, however, important to ensure that they are in full contact with the surface of the penetration.

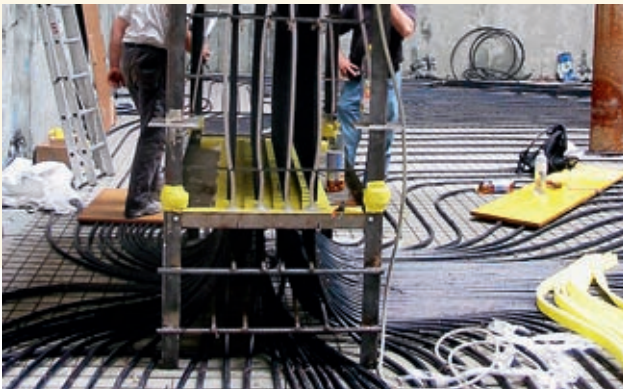
A special support is needed for RASCOtec multiple-penetration units to prevent displacement of the foam block during concreting. The spacing of the holes also needs careful prior co-ordination with the horizontal and vertical positions of the pipes.



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INSTALLATION

RASCOtec injection collars are positioned around the penetrating element, e.g. pipes, groundwater relief pipes, gullies, shafts etc., between the two reinforcement layers.

As a safety measure, we always recommend the use of injection collars or multiple-penetration units fitted with connector hoses. Later drilling into the collars for grouting always entails the risk of damage to the penetrating element.



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MULTIPLE-PENETRATION UNITS

RASCOtec multiple-penetration units are purpose-made to accommodate the specific number and diameters of the penetrations. The foam block encases the pipe bundles while at the same time ensuring the necessary spacing. The injected grout then permeates around all the pipes in the bundle to provide a waterproof seal.

INJECTION

With PVC or other soft piping products, injections should be performed at minimum pressure. At least two connector hoses are required, one for grouting and the other for venting.

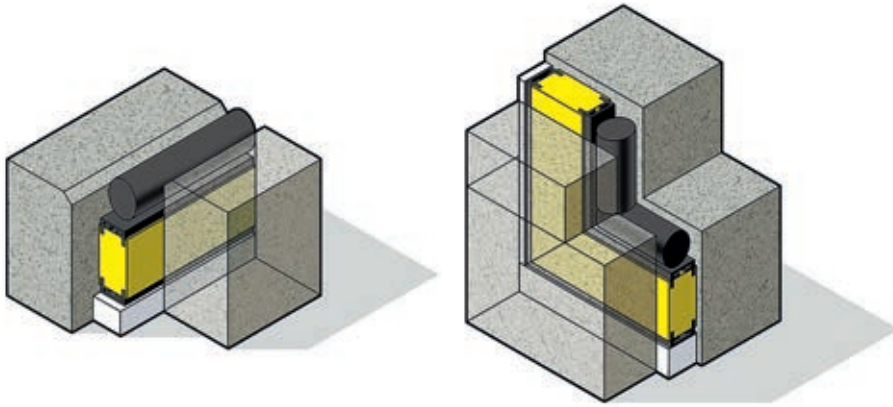
A wide variety of grouting materials can be used in conjunction with the RASCOtec injection collars and multiple-penetration units.

- 1 Pipe penetration built into existing fabric
- 2 RASCOtec injection collar around filter well

- 3 RASCOtec multiple-penetration unit for floor heating pipes
- 4 RASCOtec injection collar with connector hoses

Injection System

RASCOtec Expansion Joint



RASCOtec expansion joint units – a combination of two injection channels and a special, large-size foam insert – is used for the flexible waterproofing of movement joints.

SYSTEM DESCRIPTION

RASCOtec expansion joint units are chiefly incorporated at locations where the structural geometry or subsoil conditions necessitate the accommodation of movement.

The expansion joint units may be used for a maximum joint width of 20mm and a maximum horizontal joint movement equivalent to 10–15% of the original joint width. The joint design should be such as to minimize any vertical joint movement (e.g. through the incorporation of dowel bars).

The RASCOtec expansion joint unit can even be used for the trouble-free sealing of angles and stepped geometries.

ADVANTAGES

- Enhanced reliability through expanded grout reserve
- Easy fixing
- Independent of temperature and weather
- Regroutable
- Made from eco-friendly plastics (HDPE)

PREPARATION

The surface of the joint must be smooth and free from loose aggregate etc. Wherever possible, the dowel bars should be installed before the RASCOtec expansion joint unit. Prior knowledge of the future structural movement and the consequent provision for any necessary additional measures are essential in ensuring reliable waterproofing of the expansion joint.



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INSTALLATION

After fixing the RASCOtec expansion joint unit, polystyrene or a similar material is bonded to the top and bottom so as to create a void during concreting to allow for later movement.

The expansion joint is sealed using the RASCOjoint CD gasket. Where expansion joints are subject to mechanical loads, e.g. traffic, metal sections capable of accommodating movement are needed over the joint.

Any dowel bars used in conjunction with expansion joints can be easily integrated in the RASCOtec expansion joint unit.



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INJECTIONS

Grouting operations are the same as for the other units and should be carried out as late as possible after concreting, i.e. when the joints have reached their maximum width.

A wide variety of grouting materials can be used in conjunction with the RASCOtec expansion joint units.

- 1 RASCOtec expansion joint with dowel bars
- 2 Expansion joint around a door opening

- 3 Continuous expansion joint along section of building
- 4 Expansion joint sealed by RASCOjoint CD gasket



Injection Products



Injection Systems



Hydrophilic Systems



Waterbar Systems



Machines and Accessories