

Injection Systems

Planning and execution

EXPERTISE
INJECTION



A solution to match any job

With the right product system, you can perform almost any injection task safely and successfully in compliance with your own high quality standards. MC offers proven solutions for the injection of cracks, cavities, voids and joints in and around structures of all kinds. And even in extreme situations, the company provides special-purpose systems to meet the challenge.

To deliver in line with their full performance spectrum, injection materials need to be accompanied by appropriate application technology. Each injection system should therefore be designed and put together in line with the specific demands of the project in hand.

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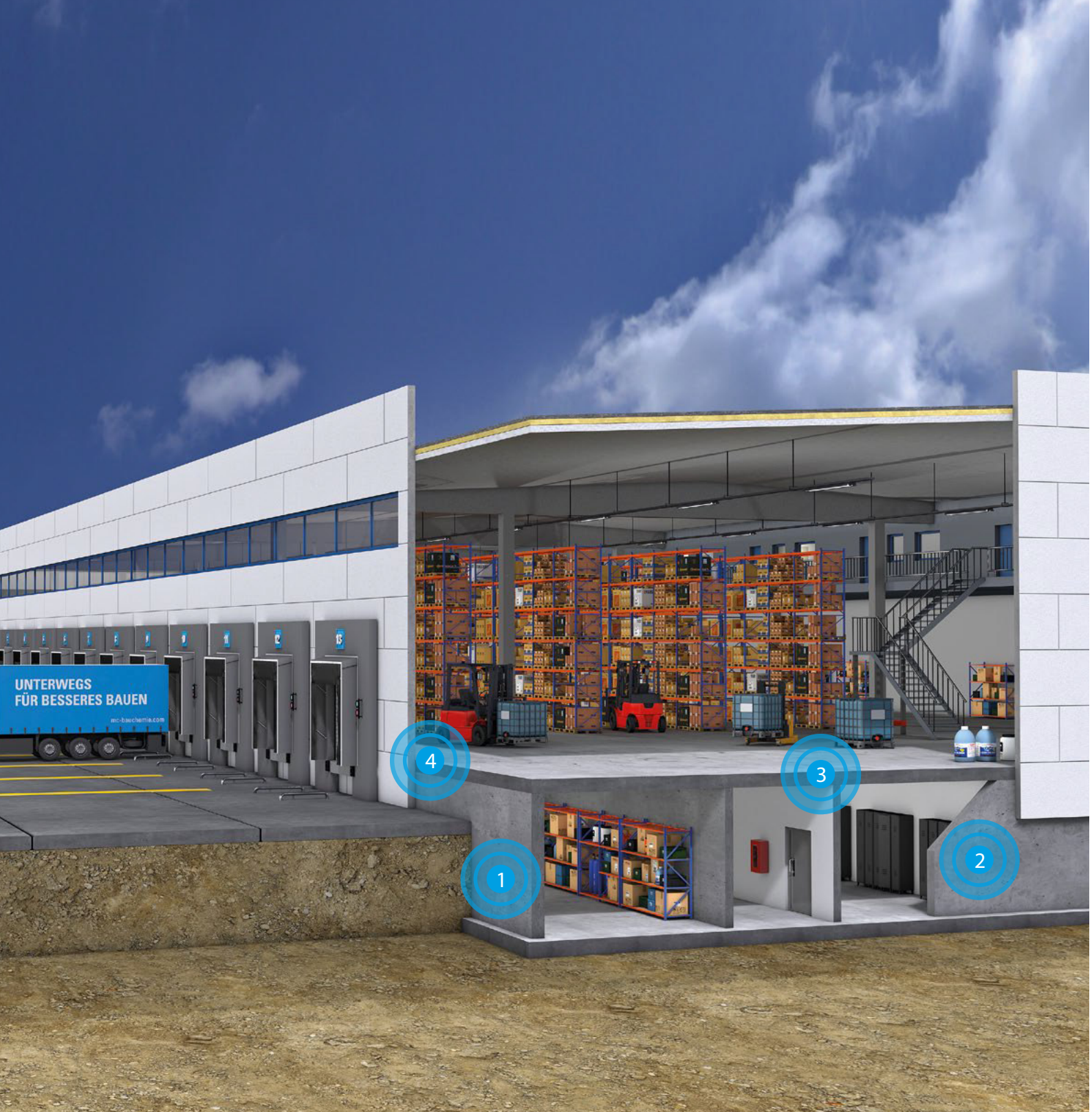


1

MC-Injekt 2300 top

SEALING with flexible injection resin

- Durable protection against water and contaminants
- Excellent injectability
- Outstanding durability
- Sustainable, durable and environmentally compatible



2

MC-Injekt 3000 HPS

SEALING with swellable injection gel

- Reliable filling and sealing/water-proofing with post-sealing effect
- Controllable flow behaviour
- Sustainable, durable and environmentally compatible

3

MC-Injekt 1264 compact

STRENGTHENING with rigid injection resin

- Increased bearing capacity plus protection against contaminants
- Highly penetrative action
- Optimal moisture tolerance

4

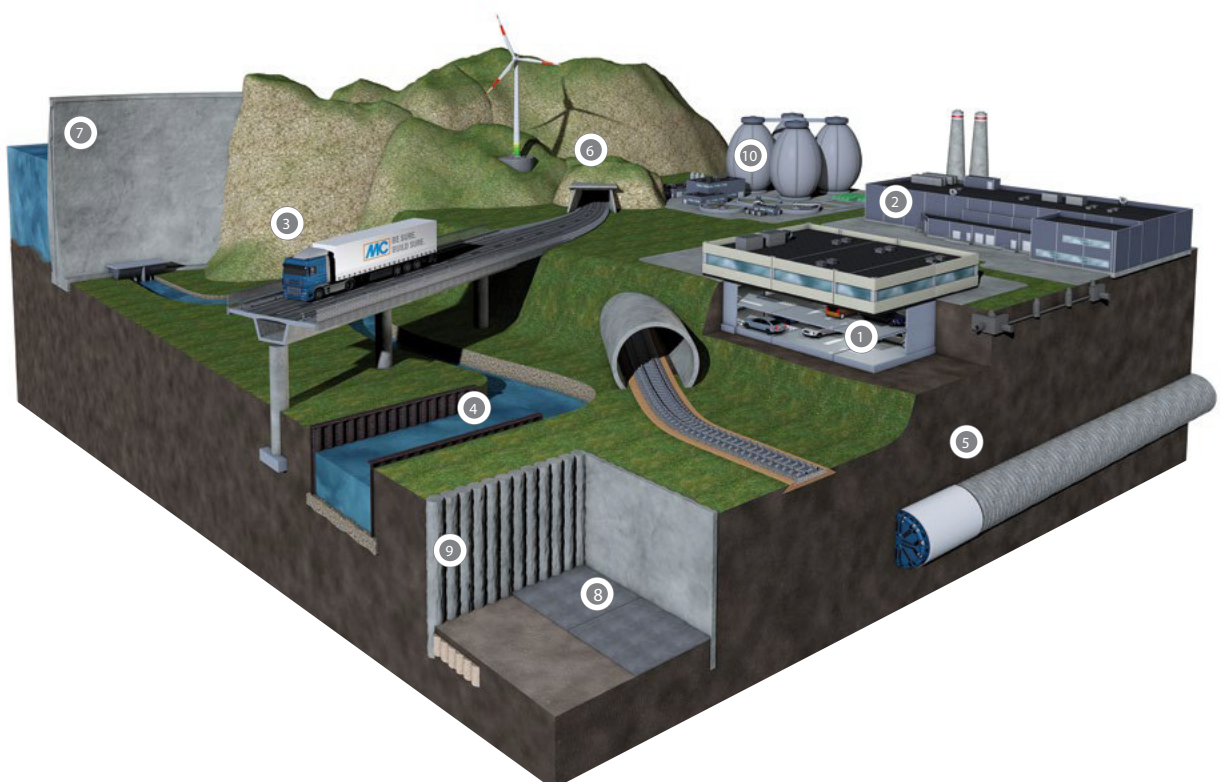
Centricrete HCS

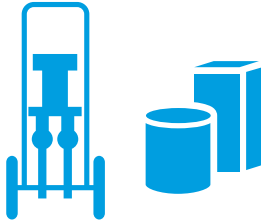
STRENGTHENING with load-bearing cement suspension

- Rehabilitation with concrete-equivalent properties
- Straightforward application
- Alkalinity restoration effect

Injection Systems for Structures , Field of Expertise

- | | | |
|---|---|--|
| ① |  | Multi-storey and under-ground car parks |
| ② |  | Industrial buildings |
| ③ |  | Bridges |
| ④ |  | Potable water structures |
| ⑤ |  | Sewerage structures |
| ⑥ |  | Tunnels |
| ⑦ |  | Hydraulic structures |
| ⑧ |  | Concrete bearing surfaces |
| ⑨ |  | Excavation pits and foundation soil |
| ⑩ |  | Subterranean infrastructure |
| ⑪ |  | Planning aids |
| ⑫ |  | System components and application instructions |





System components and application information

Standard systems for structural engineering

FLEXIBLE SEALANT

Sealing injection with extendable elastomer resin



MC-Injekt 2300 top/2300 rapid

SWELLABLE SEALANT

Sealing injection with swellable hydrostructural resin



MC-Injekt 3000 HPS

RIGID-SETTING SEALANT

Sealing injection work with rigid-setting duromer resin



MC-Injekt 1264 compact/
MC-Injekt 1264 KF-E

RIGID-SETTING FILLER

Rigid-setting filling injection with reinforcing cement suspension



Centricrete HCS

Speciality systems for structural and civil engineering

SWELLABLE SEALANT

Sealing injection with polymer-modified hydrostructural resin



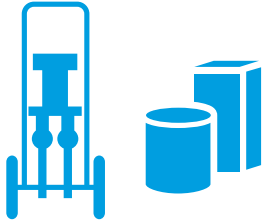
MC-Injekt GL-95 TX

RIGID-SETTING SEALANT

Sealing compound with highly viscous duromer resin



MC-Injekt 2700/2700 L



MC-Injekt 2300 top/2300 rapid

FLEXIBLE SEALANT



Injection

of cracks, joints, crevices, cavities and voids in

- concrete and reinforced concrete
- masonry
- subsoil

with a flexible resin for the protection of components, structures and building work against penetrating water and other harmful substances.



Performance features:

- Very good injectability
- Curing reaction unaffected by water
- Reaction time can be varied
- High elasticity and cold flexibility
- Good chemical resistance
- Very good environmental compatibility
- Approved for potable water applications

System components:

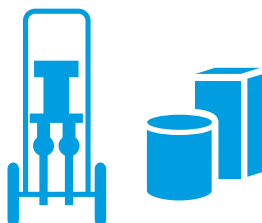
Injection resin	MC-Injekt 2300 top/2300 rapid
Injection pump	MC-I 510 (for long application times) MC-I 700 (for short and long application times)
Injection packers	MC-Injektionspacker DS 14 MC-Klebepacker (adhesion packer)
Auxiliary materials	MC-Injekt 2033 MC-Adhesive PU-solid

Range of applications:

- Dry, damp, wet and water-bearing components
- Cracks and crevices from 0.1 mm in width
- Construction joints and expansion joints of limited width movement
- Damp-proof course membranes in masonry
- Loose rock, subsoil

Alternative injection products:

- MC-Injekt 2300 NV with a longer application time and higher viscosity
- MC-Fastpack 2300 top with the MC-Fastpack system



MC-Injekt 3000 HPS

SWELLABLE SEALANT



Injection

of cracks, joints, cavities and voids in

- concrete and reinforced concrete
- masonry
- subsoil

with a swellable hydrostructural resin for the protection of building components, structures and construction work to prevent the penetration of water and other harmful substances.



Performance features:

- Very good injectability
- Fast, adjustable reaction time
- High swellability and elasticity
- Good chemical resistance
- Very good environmental compatibility
- Approved for potable water applications

System components:

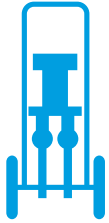
Injection resin	MC-Injekt 3000 HPS
Injection pump	MC-I 700
Injection packers	MC-Injektionspacker LS 18 MC-Schlagpacker (tap-in packer)

Range of applications:

- Permanently damp, wet and water-bearing components
- Cracks and crevices from 0.1 mm in width
- Construction joints and expansion joints of significant width movement
- Damp-proof course membranes in masonry
- Loose rock, subsoil

Alternative Injection products:

- MC-Injekt GL-95 TX with a short reaction time



MC-Injekt 1264 compact/ MC-Injekt 1264 KF-E

RIGID-SETTING SEALANT



Injection

of cracks, joints, crevices and cavities in

- concrete and reinforced concrete
- masonry

with a resin of high tensile and compressive strength that reinforces the construction through the creation of a solid bond, ideal for the protection of components and structures against the penetration of water and other harmful substances.



Performance features:

- Good injectability
- High penetration activity
- Curing reaction unaffected by water (only applicable for MC-Injekt 1264 compact)
- High tensile and compressive strength
- Good chemical resistance

System components:

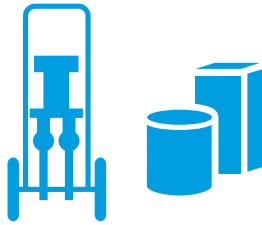
Injection resin	MC-Injekt 1264 compact
Injection pump	MC-I 510
Injection packers	MC-Klebepacker (adhesion packer) MC-Injektionspacker DS 14
Auxiliary material	MC-Adhesive PU solid

Range of applications:

- Dry and damp components (damp components only applicable to MC-Injekt 1264 compact)
- Cracks and crevices from widths of 0.2 mm
- Construction joints and expansion joints of limited width movement

Alternative Injection products:

- MC-Injekt 1264 TF of low viscosity
- MC-Fastpack 1264 compact with the MC-Fastpack system
- MC-Injekt 2700/2700 L with adjustable reaction time
- MC-Fastpack PU solid for cracks with widths wider than 0.5 mm



Centricrete HCS

RIGID FILLING



Injection

of crevices, cavities, cracks and joints in

- concrete and reinforced concrete
- masonry

with a mineral suspension that cures to a highly adhesive solid of significant compressive strength to reinforce and protect structures and building components against the penetration of water and other harmful substances.



Performance features:

- Good injectability
- Curing reaction unaffected by water
- High compressive strength
- Realkalisation effect
- High resistance values

System components:

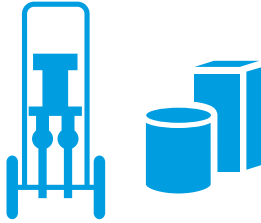
Injection resin	Centricrete HCS
Injection pump	MC-I 910
Injection packers	MC-Schlagpacker (tap-in packer) MC-Hammerpacker LP 12 (tap-in packer)
Auxiliary material	MC-Fix ST

Range of applications:

- Dry, damp and wet components
- Cracks and crevices from widths of 0.8 mm
- Construction joints and expansion joints with no width movement
- Cavities and voids

Alternative injection products:

- Centricrete UF with a finer particulate
- Oxal injection adhesives for masonry



MC-Injekt GL-95 TX

SWELLABLE SEALANT



Injection

of joints, cracks, crevices, cavities and voids in

- concrete and reinforced concrete
- masonry
- subsoil

with a polymer-modified, highly reactive hydrostructural resin for the protection of components, structures and ongoing building work against the penetration of water and other harmful substances.



Performance features:

- Very good injectability
- Fast but adjustable reaction time
- High level of swellability and elasticity
- Good chemical resistance
- Very good environmental compatibility
- Approved for potable water applications

System components:

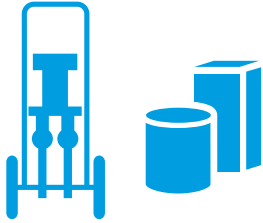
Injection resin	MC-Injekt GL-95 TX
Injection pump	MC-I 700
Injection packers	MC-Injektionspacker LS 18 MC-Schlagpacker (tap-in packer)

Range of applications:

- Permanently damp, wet and water-bearing components
- Cracks and cavities of widths greater than 0.1 mm
- Construction joints and expansion joints of significant width movement
- Damp-proof course membranes in masonry
- Loose rock

Alternative injection products:

- MC-Injekt 3000 HPS for a lower viscosity



MC- Injekt 2700/2700 L

RIGID-SETTING SEALANT



Injection

of gaps, crevices, cavities and voids in

- mountainous zones
- subsoil
- structures

with a resin of high tensile and compressive strength to create a solid bond for the reinforcement and protection of components and structures against the penetration of water and other harmful substances and also for the protection of excavation pits from inflowing water and soil slippage.



Performance features:

- Good injectability
- Adjustable reaction time
- High tensile and compressive strength values
- Good chemical resistance
- Very good environmental compatibility
- Approved for potable water applications

System components:

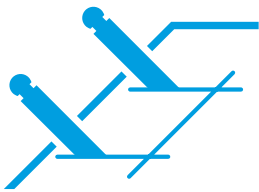
Injection resin	MC-Injekt 2700/2700 L
Injection pump	MC-I 700 (for short and long application times)
Injection packers	MC-Injektionspacker LS 18
	Injection lances

Range of applications:

- Sealing and consolidation of rock strata and earthworks against pressurised water
- Excavation pit stabilisation
- Consolidation and strengthening of subsoil, floor slabs and foundations to improve their load-bearing capacity
- Sealing and strengthening of cavities and cracks in concrete and masonry
- Sealing of rigid joints

Alternative injection products:

- MC-Montan Injekt FR/FN/FS



Application techniques for the filling, grouting and sealing of subsoil, joints, cracks, crevices, cavities and voids

Component filling from the surface

Dry and moderately damp cracks in components can be filled from the surface. This has to be prepared and then provided with appropriate packers to enable the injection work to be carried out. The injection packers are bonded into place at intervals corresponding to the depth of the crack (up to max. 60 cm). The cracked surface needs to be sealed. Cracks that are accessible from both faces need to be sealed on both faces. From depths of 60 cm, these may again be provided with adhesion packers in order to optimise the level of fill. On surfaces that are horizontal or only slightly inclined, cracks can be simply filled under gravity. To ensure a continuous material flow, a cut should be made along the line of the crack for feeding in the injection compound. Further information is available in the form of instructions relating to each specific injection material.



Adhesion packers: These are bonded onto the component surface at intervals corresponding to the crack depth (with surface sealant).



Gravitational filling: Gravitational filling is performed under pressureless conditions (and without packers). Wide cracks can be filled without preparation, whereas narrow cracks will need to be ground out first.

Filling of components through drilled channels

Damp, moist and water-bearing cracks and cavities in components can be filled via channels drilled at a certain angle crossing the crack or cavity. The intervals between the drilled channels should correspond to half the crack depth (up to a maximum of 60 cm). Further information is available in the instructions relating to the relevant injection compound.



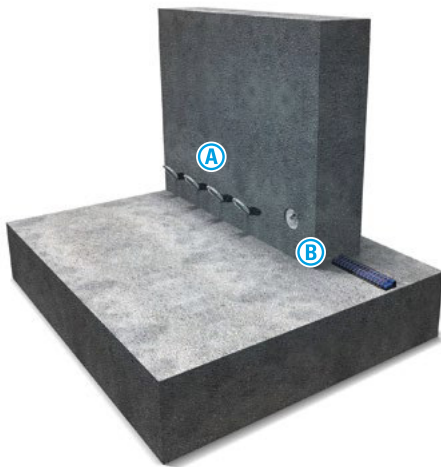
Borepacker drill hole packers: These are inserted in the drilled holes at a distance corresponding to half the crack depth in a staggered formation on both sides of the crack (usually without surface sealant).



Borepacker drill hole packers: Shown inserted in drilled holes (usually without surface sealant).

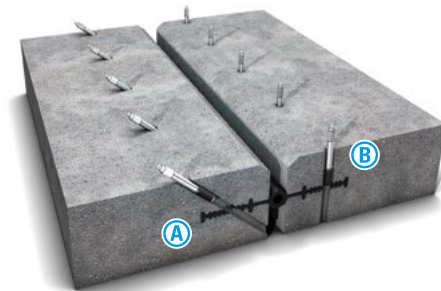
Joint injection

Water-bearing construction joints or expansion joints can be filled via drilled channels or injection hoses. For injection via drilled channels, the holes required are made at a certain inclined angle crossing the joint or at 90° through the rear material. The intervals in the case of construction joints should correspond to half the component thickness (up to max. 60 cm). Significantly larger packer intervals are possible in the case of expansion joint injection work, depending on the flow path configuration. For further information, please consult the application instructions relating to the injection material used.



Borepacker and hose injection: Packers arranged at intervals corresponding to half the component thickness at an angle of 30–45° to access the joint. **A**

Hose injection at construction joints. **B**



Borepacker arrangement: Drilled holes with inserted packers crossing construction joints through the joint strip flange. Techniques **A+B**

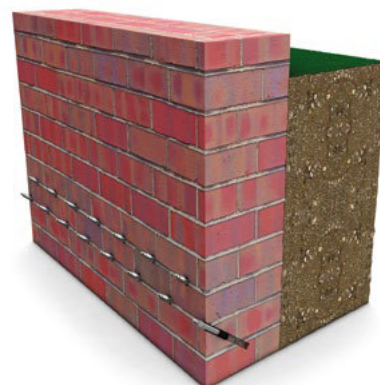
For solutions with no joint strip contact, see “Subsequent interface sealing” below.

Subsequent interface sealing

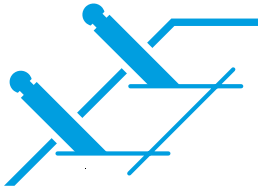
Damp components may be subsequently sealed from the outside (curtain injection) or through provision of a barrier membrane (horizontal and vertical). For this, injection holes are drilled through the component (illustration left) or crossing relevant joints (illustration right).



Borepacker use: Packer arrangement for concrete interfaces



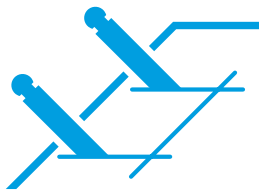
Borepacker use: Packer arrangement for masonry



Summary of injection products and applications

Condition of structure Structural aspect	Dry	Moist	Wet	Water under pressure	Remarks
Structural non-moving cracks for force transmitting applications	Epoxy: ✓ MC-Injekt 1264 compact ✓ MC-Injekt 1264 TF Cementitious suspension: ✓ Centricrete UF ✓ Centricrete HCS	Epoxy (moisture compatible) ✓ MC-Injekt 1264 compact Polyurethane (rigid): ✓ MC-Injekt 2700 / 2700 L Cementitious suspension: ✓ Centricrete UF ✓ Centricrete HCS	Epoxy (moisture compatible) ✓ MC-Injekt 1264 compact Polyurethane (rigid): ✓ MC-Injekt 2700 / 2700 L with MC-Additive ST Cementitious suspension: ✓ Centricrete UF ✓ Centricrete HCS	Polyurethane (rigid): ✓ MC-Injekt 2700 with MC-Additive ST	Reaction time: MC-Injekt 2700 30 sec. MC-Injekt 2700 L 45 min. Injectable crack width: Centricrete UF > 0.25 mm Centricrete HCS > 0.80 mm MC-Additive ST is an anti-foaming agent
Sealing of cracks and interstices with movement (> 0.3 mm)	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2133 flex ✓ MC-Injekt 2300 NV	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2133 flex ✓ MC-Injekt 2300 NV Acrylic gel (swellable & flexible): ✓ MC-Injekt 300 HPS	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2133 flex ✓ MC-Injekt 2300 NV Acrylic gel (swellable & flexible): ✓ MC-Injekt 300 HPS	Polyurethane (flexible): ✓ MC-Injekt 2033+ MC-Injekt 2300 top / 2300 rapid ✓ MC-Injekt 2133 flex (with up to 10% MC-KAT 20) ✓ MC-Injekt 2033 + MC-Injekt 2300 NV Acrylic gel (swellable and flexible) ✓ MC-Injekt 3000 HPS	MC-Injekt 2033 is an open-cell foam which is used as temporary water-stop MC-KAT 20 is used for acceleration of MC-Injekt 2133 flex. Start of foaming of MC-Injekt 2133 flex with MC-KAT 20: 5 % 20 sec. 10 % 10 sec.
Sealing of cracks and interstices with movement (> 0.2 mm)	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2300 NV	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2300 NV Acrylic gel (swellable & flexible): ✓ MC-Injekt 3000 HPS	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2300 NV Acrylic gel (swellable & flexible): ✓ MC-Injekt 3000 HPS	Polyurethane (flexible): ✓ MC-Injekt 2033 + MC-Injekt 2300 top / 2300 rapid MC-Injekt 2033 + MC-Injekt 2300 NV Acrylic gel (swellable and flexible) ✓ MC-Injekt 3000 HPS	MC-Injekt 2033 is an open-cell foam which is used as temporary water-stop
Sealing of cracks and interstices with movement (> 0.1 mm)	Polyurethane (flexible): ✓ MC-Injekt 2300 top	Polyurethane (flexible): ✓ MC-Injekt 2300 top Acrylic gel (swellable & flexible): ✓ MC-Injekt 3000 HPS	Polyurethane (flexible): ✓ MC-Injekt 2300 top / 2300 rapid Acrylic gel (swellable & flexible): ✓ MC-Injekt 3000 HPS	Polyurethane (flexible): ✓ MC-Injekt 2033 + MC-Injekt 2300 top / 2300 rapid Acrylic gel (swellable and flexible) ✓ MC-Injekt 3000 HPS	MC-Injekt 2033 is an open-cell foam which is used as temporary water-stop, Reaction time: MC-Injekt 2300 rapid 2 min. MC-Injekt 2300 top 35 min.
Expansion, movements joints & interstices		Acrylic gel (swellable & flexible): ✓ MC-Injekt GL-95 TX	Acrylic gel (swellable & flexible): ✓ MC-Injekt GL-95 TX	Acrylic gel (swellable & flexible): ✓ MC-Injekt GL-95 TX application after water-flow has been stopped with e.g. MC-Injekt 2033	MC-Injekt 2033 is an open-cell foam which is used as temporary water-stop Reaction time of acrylic gels can be varied site specific (e.g. to prevent wash-outs of the gel) MC-Injekt GL-95 TX can be injected between concrete and water-proofing membrane
Strengthening & sealing of cavities	Epoxy (up to 100 ml): ✓ MC-Injekt 1264 compact ✓ MC-Injekt 1264 KF-E ✓ MC-Injekt 1264 TF Cementitious suspension: ✓ Centricrete HCS ✓ Centricrete UF	Epoxy (up to 100 ml): ✓ MC-Injekt 1264 compact Cementitious suspension: ✓ Centricrete HCS ✓ Centricrete UF	Epoxy (up to 100 ml): ✓ MC-Injekt 1264 compact Cementitious suspension: ✓ Centricrete HCS ✓ Centricrete UF	Polyurethane (rigid): ✓ MC-Injekt 2700 / 2700 L (with or without anti-foaming additive MC-Additive ST)	Reaction time: MC-Injekt 2700 30 sec. MC-Injekt 2700 L 45 min. Injectable crack width: Centricrete UF > 0.25 mm Centricrete HCS > 0.80 mm
Sealing of cavities	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2300 NV	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2300 NV	Polyurethane (flexible): ✓ MC-Injekt 2300 top ✓ MC-Injekt 2300 NV	Polyurethane (flexible): ✓ MC-Injekt 2033 + MC-Injekt 2300 top ✓ MC-Injekt 2033 + MC-Injekt 2300 NV	MC-Injekt 2033 is an open-cell foam which is used as temporary water-stop
Curtain injection		Acrylic gel (swellable & flexible): ✓ MC-Injekt GL-95 ✓ MC-Injekt 3000 HPS (without comp. B1)	Acrylic gel (swellable & flexible): ✓ MC-Injekt GL-95 ✓ MC-Injekt 3000 HPS	Acrylic gel (swellable & flexible): ✓ MC-Injekt GL-95 ✓ MC-Injekt 3000 HPS	Reaction time of acrylic gels can be varied site specific (e.g. to prevent wash-outs of the gel)

❖ All the blue products are common used in the region.



Summary of injection products, injection pumps and packers

	MC-Injekt 2300 top/2300 rapid	MC-Fastpack 2300 top	MC-Injekt 2300 NV	MC-Injekt 2133 flex	MC-Injekt 1264 compact	MC-Fastpack 1264 compact	Centricete 1264 TF	Centricete HCS	Centricete UF	MC-Injekt 3000 HPS	MC-Injekt GL-95/GL-95 TX	MC-Fastpack 2700 L	MC-Fastpack PU solid
Injection pump													
MC-I 510 Single-component High-pressure piston pump Pressure range: up to 264 bar	■	-	■	■	■	-	■	-	-	-	□	-	-
MC-I 700 Two-component High-pressure piston pump Pressure range: up to 200 bar	■	-	-	-	-	-	-	-	■	■	■	-	-
MC-I 910 Single-component Low-pressure diaphragm pump Pressure range: up to 8 bar	-	-	-	-	-	-	■	■	-	-	-	-	-
MC-Fastpack Power-Tool Two-component Low-pressure piston pump Pressure range: up to 20 bar	-	■	-	-	-	■	-	-	-	-	-	■	■
Packers													
MC-Injektionspacker DS 14 Aluminium threaded packer for 14 mm bores with ball head Pressure range: approx. 10 to 200 bar	■	-	■	■	■	-	■	-	-	■	□	□	-
MC-Injektionspacker LS 18 Steel threaded packer for 18 mm bores (300 mm long) with flat head Pressure range: approx. 5 to 200 bar	■	-	■	■	-	-	-	□	□	■	■	■	-
MC-Klebepacker Steel adhesion packer with ball head Pressure range: approx. 10 to 60 bar	■	-	■	■	■	-	■	-	-	-	□	-	-
MC-Schlagpacker Plastics tap-in packer for 16-18 mm bores with fast-release connector Pressure range: approx. 1 to 30 bar	□	□	□	□	-	-	-	■	■	■	■	■	-
MC-Hammerpacker LP 12 Plastics tap-in packer for 12 mm bores with quick-release connector Pressure range: approx. 1 to 50 bar	■	■	■	□	□	■	■	■	■	■	■	■	-
MC-Surfacepacker LP Plastics adhesion packer with quick-release connector Pressure range: 0 to 30 bar	■	■	■	□	□	■	■	■	■	■	■	■	■

■ Well suited / □ Reasonably suitable / - Not recommended

Injection systems for structures

MC offers innovative solutions on the basis of a wide range of injection materials tailored to your application. Aside from the compounds, we also supply you with a complete injection system comprising packers, auxiliary materials and pumps on a single source basis.

- Duromer resins
- Elastomer resins
- Hydrostructural resins
- Mineral suspensions
- Injection pumps/Packer systems
- Training
- On-site service

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BE SURE. BUILD SURE.

