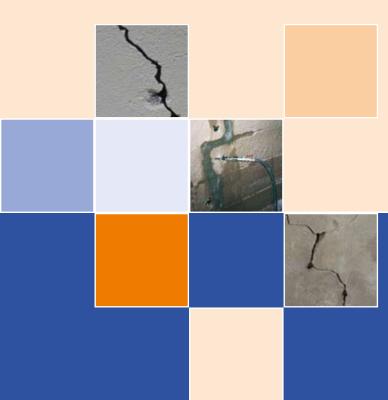
# **DOSOI**<sup>®</sup> Crack Injection with Mineral Material

**Injection with Cement Paste Injection with Cement Suspension** 

# **Crack Injection**







Made in Germany

# Crack Injection with Mineral Material









#### **Preliminary Notes**

- · The erection of structures without any cracks cannot be guaranteed
- Cracks are typical depending on the construction type
- Cracks are considered to be a defect when the load-bearing capacity is at risk and the usage restricted

#### Aim

- Tightness, particularly water tightness
- Reinforcement corrosion protection by preventing aggressive media from penetration
- Increasing the load-bearing capacity of concrete by frictional connection of crack edges

#### **Possible Causes**

- Incomplete or wrong static calculation
- Shrinkage of concrete
- Influence of outside temperatures (frost)
- Reinforcement corrosion

#### **Technical Standards**

- European Norm DIN EN 1504 "Products and Systems for the Protection and Repair of Concrete Structures", part 5 "Treatment of Cracks"
- DAfStb guideline "Protection and Repair of Concrete Structures, part 2"
- ZTV-ING (part 3, massive type of construction) "Additional Technical Terms of Contract for Civil Engineering Structure" section 5
- STUVA ABI Leaflet "Waterproofing of Structures by Injection"
- WTA E-2-04-07/D Assessment and Repair of Cracked Rendering on Facades

#### Information

- Prior to the injection works the building has to be checked and an injection concept must be made up accordingly.
- The cause of the leaks must be ascertained according to the state of the art and the current technical standards.

#### **Crack Repair with Adhesive Packers**

- Adhesive (insulating material) is applied on the adherend of the packer, then the packer is pushed over the steel pin and pressed on the crack
- The adhesive bonding joint between packer and building component is decisive
- Injection pressure: low pressure method up to about 10 bar (depending on the building component)

# **Crack Injection with Mineral Material**

#### Information

The information on the methods are recommendations and not binding. If required, please, contact us for professional advice.



#### **Crack Repair with Packers**

- As a rule drill holes are made at an angle of 45° in order to meet the crack at the half of its depth
- · The drill holes also cross the cracks to form the injection canals
- The packers are tightly clamped in the drill holes
- Injection pressure: low pressure method up to about 10 bar ٠ (depending on the building component)

#### Information on Working with Suspensions

- · Mixing with dissolver disc
- · Infinitely variable delivery pressures in low pressures range
- Packer with free passage must be used

#### **Demands on the Injection Devices**

- · Easy operation and testing of the operability
- · Low susceptibility to failure and high dosing accuracy
- · Pressure can be controlled or limited depending on the injection material
- · Robust for reliable service on site
- Resistance of all elements against injection materials and cleansing agents

#### **Demands on the Injection Packers**

- The material of the packers must be appropriate for the injection material
- Safe fixation in the building component
- Corrosion resistance of the parts remaining in the building
- · Possibility to close the packers
- · High pressure stability

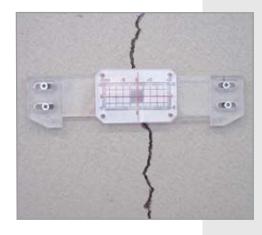
#### **DESOI-Service**

- 24-hours-service
- · Competent and experienced application engineers
- Online shop
- Tender specifications (recommendations)

#### Advantage for Planners and Users

- · 30 years of practical experience in cooperation with universities, technical universities, material testing institutes, experts, engineers, users
- · Constant further development of the injection technique according to specific demands on site









# Injection – Packer Technique

## Order number

	<b>Drive-in packer</b> with external thread R ¼", internal thread M6 and free passage Ø 3 mm	
31610	Ø 6 x 45 mm	
31780	<b>Lamella drive-in packer</b> with external thread R ¼" and free passage Ø 7 mm Ø 14 x 95 mm	
31790	<b>Lamella drive-in packer</b> with external thread R ¼" and free passage Ø 7 mm Ø 18 x 105 mm	
32091	<b>Plastic wedge packer for a width of crack from 2.5 – 5 mm</b> 60 mm long , with external thread R ¼" and free passage Ø 2 mm	
32093	<b>Plastic wedge packer for a width of crack from 5 – 10 mm</b> 82 mm long , with external thread R ¼" and free passage Ø 4 mm	
35101	<b>Mounting tool</b> 130 mm long	Accessory for Packer Technique
20340	<b>Steel combi packer</b> with external thread R ¼", internal thread M6, plastic thrust piece R ¼" for pressure up to 60 bar and free passage Ø 4 mm Ø 13 x 130 mm – thrust piece 75 mm, clamping rubber 40 mm	
32040	<b>Universal transparent adhesive packer</b> with external thread R ¼", internal thread M8, safety groove, adherend Ø 50 mm, height 40 mm	
31810	<b>Angle adhesive packer</b> with external thread R ¼", internal thread M6, adherend 2 x 50 x 35 mm, height 35 mm	

# Injection – Packer Technique

Accessory for packer technique – page 4		Order number	
	<b>Locking tappet</b> with internal thread R ¼" and free passage Ø 7 mm	33000	
	SSP packer with sealing lip valve for quick snap	01700	
Ø 16 x 95 mm	Ø 16 x 95 mm Ø 18 x 120 mm	31789 31791	
Ø 18 x 120 mm	]		
Detail: sealing lip valve			
	<b>Steel packer</b> with external thread M10x1 and free passage Ø 6 mm		
	Ø 18 x 170 mm	20380	
	Ø 18 x 300 mm	20381	
	<sup>⊿</sup> Ø 18 x 550 mm Ø 18 x 800 mm	20382 20383	
Accessories for steel packer			
	Quick acting tommy nut – galvanized with internal thread M10x1	20610	
	<b>Locking tappet</b> with internal thread M10x1 and free passage Ø 7 mm	33010	
	-		



Accumulator with manometer



Quick snap with ball valve

Ball valve with mouth piece



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## Manual Reciprocating Pump HP-60ZD

## Order number: 10752

The handy and compact manual reciprocating pump HP-60ZD is efficient and suitable for quick service on site. The ready-mixed material is sucked directly out of the mixing container.

#### **Technical data**

Working pressure - acc. to compressive for	ce 0 – 20 bar
Delivery	150 ml/stroke
Grain size – material	0.3 mm
Weight	20 kg
Height / width / length - working position	(cm) 75/40/90
Height / width / length - transport	(cm) 50 / 40 / 80

### Delivery range

**HP-60ZD:** accumulator with manometer 0 – 25 bar, 3 m material hose Ø 13 mm with ball valve R  $\frac{1}{2}$ " and quick snap, ball valve with external thread R  $\frac{1}{2}$ " and mouth piece, suction system

#### Advantages

- Accumulator with manometer for pressure control and constant material output
- Big material passages high flow rate
- Space-saving transport collapsible

- Injection mortar –
- grain size ≤ 0.3 mm • Cement paste
- Cement suspension
- Aqueous solution,
- e.g. micro emulsion





Accumulator with manometer



Suction system with filter

Ball valve with mouth piece



## Pedal Controlled Membrane Pump MB-1F

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#### Order number: 10760

The handy and compact manual membrane pump MB-1F is efficient and suitable for quick service on site. The ready-mixed material is sucked directly out of the mixing container.

#### **Technical data**

Working pressure - acc. to compressive for	ce 0 - 20 bar
Delivery	150 ml/stroke
Grain size – material	0.3 mm
Weight	13 kg
Height / width / length - working position	(cm) 47 / 20 / 60

#### **Delivery range**

MB-1F: accumulator with manometer 0 – 40 bar,

3 m material hose Ø 13 mm with ball valve R  $1\!\!\!/2$  and quick snap, ball valve with external thread R  $1\!\!\!/2$  and mouth piece, suction system

### Advantages

- Accumulator with manometer for pressure control and constant material output
- Big material passages high flow rate
- Easy operation and cleaning

- Injection mortar –
- grain size ≤ 0.3 mm
- Cement paste
- Cement suspension
- Aqueous solution,
- e.g. micro emulsion



Pressure reducer with manometer



Quick snap with ball valve



Ball valve with mouth piece



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## **Double Membrane Pump L-1**

The compact pneumatic double membrane pump L-1 is suitable for works with high demand on the flow rate in the low pressure range. The delivery pressure is set by the pressure reducer.

#### Technical data

Working pressure – infinitely variable	1 – 8 bar
Delivery	max. 21 l/min
Grain size – material	max. 0.5 mm
Pressure ratio	1:1
Air pressure	max. 8 bar
Compressor output - required	min. 120 l/min
Weight	10 kg
Height / width / length - working position	(cm) 30 / 30 / 36

#### **Delivery range**

L-1: 5 m material hose Ø 13 mm with ball valve R  $\frac{1}{2}$  and quick suction system, pressure reducer

Order number: 10688

#### Advantages

- Big material passages high flow rate
- Compact design
- · Exact pressure adjustment
- Easy operation and cleaning

- Injection mortar grain size ≤ 0.5 mm
- Cement paste
- Cement suspension
- Aqueous solution, e.g. micro emulsion
- Wood preservative





Suction system a) Liquid material b) Mineral-based injection material



Quick snap with ball valve and pressure gauge unit with manometer



Ball valve with mouth piece and pressure gauge unit with manometer

## Membrane Pump MB-E

### Order number: 10440

The compact and powerful membrane pump MB-E can be used for refilling of voids, creation of horizontal water barriers, masonry stabilisation, and crack injection. The working pressure is infinitely variable from 2 to 20 bar. The ready-mixed material is sucked directly out of the mixing container.

#### **Technical data**

230 V
1.5 kW
2 – 20 bar
max. 8 l/min
max. 0.3 mm
55 kg
(cm) 68 / 60 / 60

#### **Delivery range**

**MB-E:** moving device, 2 x suction system, 5 m material hose  $\emptyset$  13 mm with shoulder nipple R  $\frac{1}{2}$ ", pressure gauge unit with manometer 0 – 40 bar, ball valve R  $\frac{1}{2}$ " and quick snap, ball valve with external thread R  $\frac{1}{2}$ " and mouth piece

#### Advantages

- Pressure control infinitely variable
- Exchangeable suction systems
- Big material passages high flow rate
- Easy operation and cleaning

- Injection mortar grain size ≤ 0.3 mm
- Cement paste
- Cement suspension
- Aqueous solution,
- e.g. micro emulsion

# Injection – Mixing Technique



Mixing device tilted



Dissolver disc with safety grid for perfect mixing



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## **Mixing Device ZS-U**

The powerful mixing device ZS-U has been designed for cement suspensions. The motor is located below the mixing container to allow safe and easy filling. As the mixing container can be tilted there is no loss when pouring the material into another container.

#### Technical data

Supply	230 V
Motor power	1.5 kW
Speed	2 700 rpm
Weight	42 kg
Height / width / length - working position	(cm) 115 / 58.5 / 59

#### **Delivery range**

**ZS-U:** moving device, motor, dissolver disc, 40 litre plastic material container, safety grid and sack opener

#### Advantages

• Safety grid and sack opener on the material container

Order number: 12071

- Quick and efficient mixing tool
- Can be combined with mixing time control (optional)

#### Material to be used

Cement suspension

# Injection – Mixing Technique





Mixing device tilted



Mixing head

## **Mixing Device AKM-150D**

#### Order number: 12612

The mixing device AKM-150D is especially suitable for cement suspension which have to be mixed up at high speed. Due to the big mixing head and the high speed the material is optimally mixed up. For the mixing process a 60 litre material container can be used in which the mixing tool is submerged.

#### **Technical data**

Supply	230 V
Motor power	1.5 kW
Speed	2 800 rpm
Mixing volume	35 litre
Weight	15 kg
Height / width / length - working position	(cm) 75/40/90

#### **Delivery range**

AKM-150D: frame, motor and mixing unit

#### Advantages

- Mixing volume 35 I
- Powerful motor
- Easy operation and cleaning

#### Material to be used

Cement suspension



Injection technique Mixing technique Spraying technique

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