

Static consolidation of walls by injections



A few hints on how to work.

The procedure entails injecting a cement mix into a wall at a pressure which varies according to case. The mix replaces the degraded mortar by filling the wall's fractures and gaps. The greater the penetration, the more efficient the result.

Preparing the wall.

After ensuring the building site is safe, the tapping test technique is used to find which zones need consolidating. Next the holes are made (3-4 m²) by rotation coring machines, to thus avoid dangerous vibrations. The next step is to wash the structure adequately, pumping water as much water as it can take. Then, any existing fractures are stuccoed, and, finally, the mixture can be injected, starting from the bottom, and fitting an appropriate expansion nozzle in the holes.

Preparing the mixture and adjusting pressure.

After the mixture has been prepared at a ratio of approximately 0.5 – 0.8, injecting pressure should be adjusted with either the pressure-switch or the pressure gauge supplied with the pump. This adjustment is particularly important if crumbling structures are involved – pressure must be in the range from 0.5 to 1.5 bar. When pumping heights are considerable, loss load must be considered, by verifying pressure at the highest point with the in line pressure gauge.

With all accessories supplied



As BUNKER pumps are equipped as standard with hose, expansion nozzle for injections, in line pressure gauge for pressure control, cleaning kit, use manual and the generously equipped box containing essential tools and spare parts, they are ready to start work.



BUNKER ING 0702 - 200464

| Technical characteristics | double-cylinder | | | single-cylinder | | | | | | | | |
|---------------------------|--------------------------------|-------------|--------------------------------|---------------------------------|-------------|-----------------------------------|------------------------------------|---------------|----------------------------------|-----------------------------------|-------------|--------------|
| | B3 three-phase 400V 50Hz | B3 A air | B2 three-phase 400V 50Hz | B2 single-phase 230V 50Hz | B2 A air | B1 E3 three-phase 400V 50Hz | B1 E3 single-phase 230V 50Hz | B1 E3A air | B1 E three-phase 400V 50Hz | B1 E single-phase 230V 50Hz | B1 E air | B1 manual |
| Conveying distance | | | | | | | | | | | | |
| horizontal** | m | 60 | 60 | 60 | 40 | 60 | 60 | 40 | 60 | 40 | 40 | 40 |
| vertical** | m | 30 | 30 | 30 | 15 | 30 | 30 | 15 | 30 | 15 | 15 | 15 |
| Theoretical output* | l/min. | 24 | 24 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 6 | 6 |
| Theoretical pressure* | bar | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Pumping motor | kW | 1.1 | 3.0 | 1.1 | 1.5 | 3.0 | 1.1 | 1.5 | 3.0 | | | |
| Mixing motor | kW | 1.1 | 1.5 | 1.1 | 1.1 | 1.5 | 1.1 | 1.1 | 1.5 | 1.1 | 1.1 | 1.5 |
| Mixer | l | 90 | 90 | 90 | 90 | 90 | 120 | 120 | 120 | 120 | 120 | 120 |
| Agitator | l | 120 | 120 | 120 | 120 | 120 | | | | | | |
| Loading height | mm | 1480 | 1480 | 1480 | 1480 | 1480 | 620 | 620 | 620 | 570 | 570 | 570 |
| Dimensions | | | | | | | | | | | | |
| length | mm | 1360 | 1360 | 1360 | 1360 | 1200 | 1200 | 1200 | 1200 | 1700 | 1700 | 1700 |
| width | mm | 680 | 680 | 680 | 680 | 610 | 610 | 610 | 610 | 600 | 600 | 600 |
| height | mm | 1480 | 1480 | 1480 | 1480 | 1220 | 1220 | 1220 | 1220 | 770 | 770 | 770 |
| Weight | Kg | 250 | 230 | 225 | 225 | 180 | 180 | 180 | 150 | 110 | 110 | 80 |

* The output rate and maximum pressure values cannot be reached simultaneously.
** Depending on material, consistency and hose diameter.

The data contained in this catalogue are purely indicative, not binding, and may be varied without prior notice

The BUNKER range

- screw mixing pumps and pistons for plaster, mortar, and fluid cement mixes.
- screw pumps for concrete
- systems and machines for spritz-beton
- mixers – conveyors for floor screed
- accessories



Pumping technologies

Injection Unit B3



In step with technological progress, more and more repair consolidation - and products have been developed. Injections are one of the most versatile technologies in terms of their application possibilities. With its comprehensive range of mixers - injectors, BUNKER has what it takes to meet the multiplicity of use requirements.



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CONSOLIDATE



On the national and international markets for dozens of years, the BUNKER company has acquired a technolog know-how in the production and marketing of pumping systems, which puts it among the sector's leaders. Bunker has always been proactive in terms of market requirements and changes, offering the most innovative solutions.



B2 Motorized pumping and mixing
Single-cylinder with mixer and agitator
12l/min – 15 bar

INJECT



Designed for particularly high wear resistance BUNKER pumps guarantee hundreds of m³ injected mortar.

That's thanks to tried-and-tested cast iron pumping unit, with pistons and valves chrome-plated to the right thickness. The alternate movement is provided by a motor coupled to a maintenance-free gearbox. Tightness is ensured by a special gasket in abrasion resistant polyurethane. So we have high reliability and wear resistance, but not only that – BUNKER is also easy to dismantle, enabling quicker cleaning and maintenance whenever necessary.

With its very long-range remote control pressure-switch and pressure gauge for pressure control, BUNKER pumps are highly recommended for injecting cement micropiles in damaged or dangerous structures, and also for injecting micro-poles, and pre-compressed structures. Use it for consolidating or weatherproofing walls, rocks, dams, and tunnels. Use it for pumping special products for anchoring, and seals. Use it



B3 Motorized pumping and mixing
Double-cylinder with mixer and agitator
24l/min – 15 bar

PUMP



for running hydraulic tests and all jobs requiring more than 15 Bar pressures and more than 24 l/min output.

A generously wide range of injectors in different versions, with single-phase or three-phase drives or by air.

Developed to satisfy a multiplicity of use needs, the B2 and B3 models differ in their output – respectively 12 and 24l/min. Thanks to their double, large capacity mixer, they ensure a continuous mixing and pumping cycle, generating the highest injected volume in the whole range.

Its low height facilitates loading, its low weight and large castor wheels, make it easier to move in old town sites. With their 12 l/min output, the B1E – B1E3 models differ in the type of drive their use. They offer the right compromise of low-cost use and good performance, helping potential buying firms make their choice. The B1 model is completely manual, and is generally used for small jobs – its compact size enables it to be used in difficult to access places.

WITH SAFETY AND RELIABILITY

The electric panel, protected against impact and water sprays, conforms to European directives. Made with highly reliable components, it supports the many ON/OFF activations typical of pressure control pumps. It is equipped with a thermal cut-out for the electric motors, a handy phase inverter and an emergency push-button. The hour counter (standard supply) helps you plan both work and maintenance.

All pumps with the electronic pumping facility are supplied with a button-board with 20 metre cable. This means the operator can activate it directly from the injection point. A great advantage!

The pumping unit – easy to dismantle and clean – with pistons chrome-plated to the right thickness, assures hundreds of m³ of injected volume. All done worry-free and with no clogging.

The pressure-switch (standard supply) enables you to adjust pressure to the value you require, automatically stopping the pump when that value is reached.

The pressure gauge – in glycerine bath – makes for easy to read pressure values.

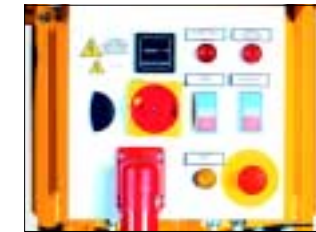
A handy valve allows the mixture to be discharged into the lower agitator before the pumping cycle begins. It operates by squashing a rubber tube, which ensures long life and no maintenance because no metal parts come into contact with cement.

The upper mixer is supplied with a safety grid allowing easy passage of material but not access by the operator's hands.

The agitating blades themselves, as well as their shape and number, are designed to guarantee perfect mixing.

A boll cock, directly connected to the mixer, facilitates loading water needed for the mixture.

On request, the whole injection pump range can be equipped with an air motor to allow use on sites without electrical energy or with an explosion risk.



Control panel



Remote control



Pumping unit



Pressure control unit



Discharge valve



Mixer



Water loading cock



A range of drive units

A COMPLETE RANGE OF INJECTORS FOR SURE SELECTION



B1E3 Motorized pumping and mixing
Single-cylinder with mixer
12 l/min



B1E Manual pumping - motorized mixing
6 l/min



B1 Manual pumping and mixing
6 l/min

We know that even the tiniest details are important in pump production, that's why it's quite natural for us to focus on the whole production process.

Responsibility is the bedrock of our philosophy.