



Geopro S.A.

BIMBAR INFLATABLE PACKERS AND ACCESSORIES



24 Boulevard Initialis - 7000 Mons - BELGIUM

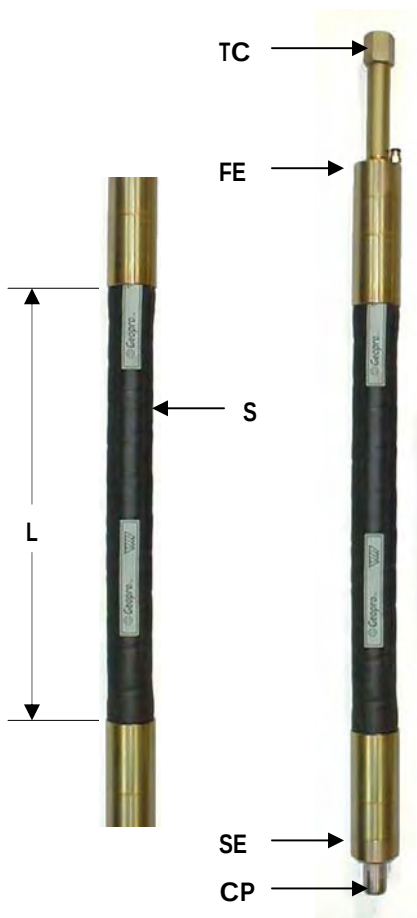
Tél. : +32 (0)65 346000 - Fax : +32 (0)65 346020

E-mail : info@geopro.be - Website : www.geopro.be

Geopro supplies a complete range of inflatable packers in nine different diameters from 28 up to 170mm. All our packers made of BIMBAR rubber technology are reinforced with two layers of steel cables embedded into natural rubber.

Geopro Bimbar inflatable packers are frequently used for grout injection and other geotechnical applications for structural reinforcement and/or water sealing of deep foundations, tunnels, dams and mines. Thanks to their modular design, all packers offer reliable and easy operation. Inflatable elements can be replaced in the field and single packers are easily transformed into double packers.

Single and Double Packers

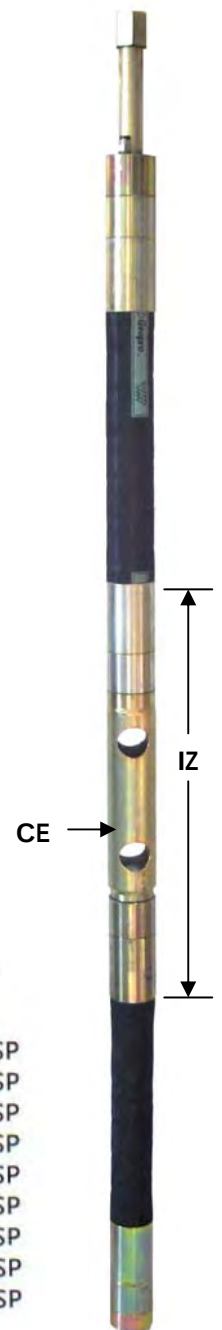


The basic components of the packers are:

- The upper Fixed End **FE** with one or two inflation ports
- The center pipe **CP** made of stainless steel
- The dilatable element **S** mounted with steel fittings on both sides
- The sliding end **SE** with a scraper seal

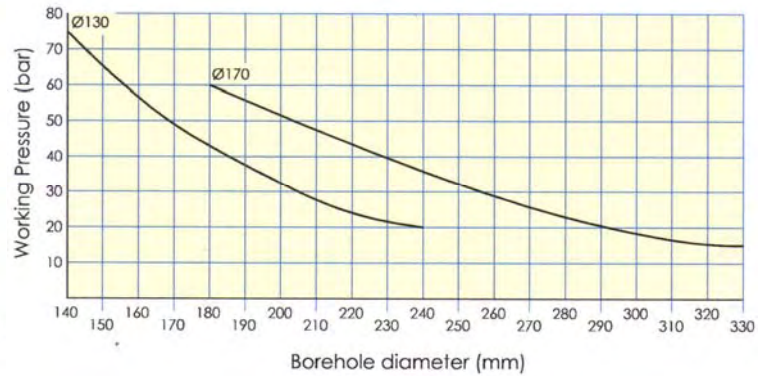
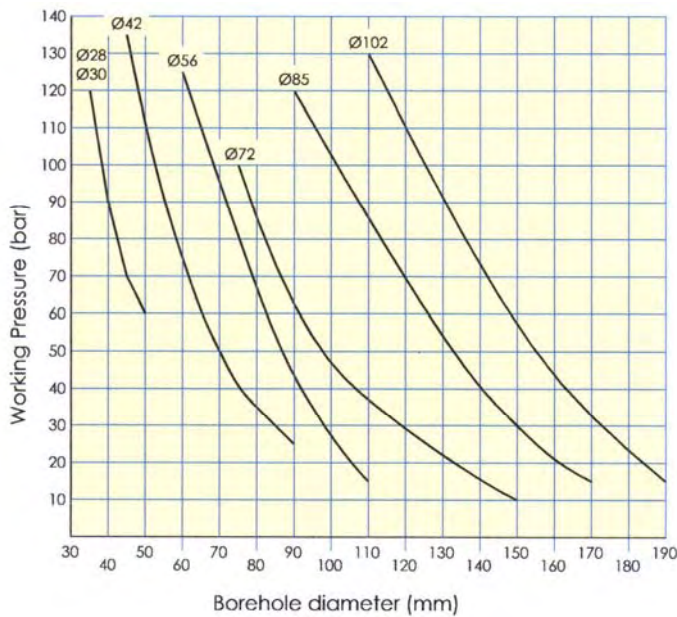
Each single packer from Ø28mm to Ø102mm can easily be transformed into a double packer assembly by adding a specific element : the central element **CE**. Just unscrew and remove the sliding end from the single packer and replace it with the CE element. Complete the installation with a standard dilatable element **S** (sleeve) and a plug **PL** on the lower part of the packer.

The perforated CE central element from Ø56mm to Ø102mm consists of a compact and perforated tube, with a diameter identical to the whole packer assembly. This design makes the double packer **ZI** extremely robust and the external flush O.D. is particularly well adapted for micropiles grouting.



Nominal diameter (mm)	Connection upper "TC"	Central tube "CP" Inner diameter (mm)	Expansion max. Diameter (mm)	Bore-hole max. diameter (mm)	Inflation Inlet(s)
28	3/8" BSP *	8	55	50	1X 1/8" BSP
30	3/8" BSP	8	55	50	1X 1/8" BSP
42	1/2" BSP	17	98	90	2X 1/8" BSP
56	3/4" BSP	20	125	110	2X 1/8" BSP
72	1" 1/4 BSP	35	160	150	2X 1/8" BSP
85	1" 1/4 BSP	35	185	170	2X 1/8" BSP
102	2" BSP	53	200	190	2X 1/8" BSP
130	3" BSP	83	270	240	2X 1/4" BSP
170	3" BSP	83	350	330	2X 1/4" BSP

Working Pressure in relation with Borehole Diameter



Recommendations – Safety - Guarantee

Inflation

As an inflation fluid, and whenever it is possible, water will always be preferred to neutral gas (nitrogen). **Other fluids (oxygen, oil ,...) are prohibited.** Water provides a greater safety margin since it does not produce the explosive effect of compressed gas. Moreover, when the packer is inflated with gas for long periods of time, gas pockets may appear on the outer cover of the packer. This is a natural phenomenon caused by the diffusion of gas through the micro-pores of the natural rubber. When inflating with water in vertical bore-holes, the hydrostatic pressure of the water column inside the inflation line should also be taken into account. (10m of water = 1bar or 14.5psi).

This static pressure can sometimes complicate the deflation of the packer. Never inflate the packer in open air.

Working pressure – injection

Inflation pressure must always be greater than injection pressure especially when using neutral gas as inflation fluid. This is to ensure a good sealing in the borehole and anchor the packer so that it won't be pumped out of place. Cement slurry or water column weight are also important to consider.

Deflation

Do not move the packer before its complete deflation. A few minutes are needed when water has been used to inflate the packer. **Carefully clean the packer with water** after each use, especially when the application requires the use of cement and/or bentonite. For deep and dry vertical boreholes applications, we recommend to use an additional deflation line with the Geopro deflation valve.

Test

Each inflatable element is tested with water in a test bench. After the assembling, the tightness of each complete packer is also controlled. A test certificate is supplied with each order.

Storage

Packers should be stored away from light. Since natural rubber is very sensitive to UV rays, packers should not be exposed to sunlight.

Temperature

The extremes of temperature not to be exceeded are -45°C and $+65^{\circ}\text{C}$.

Diameters of use

Never use a packer at its limit of maximum expansion

Safety and guarantee

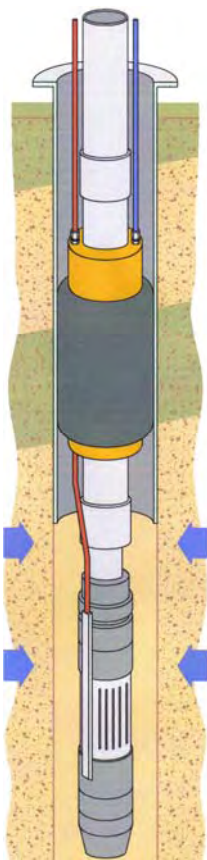
Our packers are guaranteed free from any defect in material and workmanship. Our guarantee is limited to the repair or replacement of any defective product or parts thereof. This guarantee is void if the products are used in other circumstances than those described in our technical sheets. The decision of our technical department is final.

Please contact us for any further information requested.

Considering the nature of equipment working under pressure, users should be aware of the dangers and take the necessary precautions relating to the safety of their employees. Our responsibility ends with our guarantee of good manufacture for the material designed and made according to engineering rules and techniques available at the time of manufacture.

Inflatable packers for water wells applications

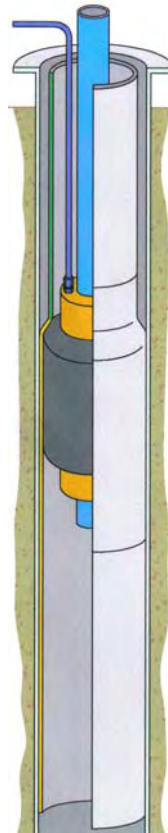
PUMPING



- ↳ Efficient protection against bacterial contamination.
- ↳ Long term protection against casing corrosion.
- ↳ Selective pumping.



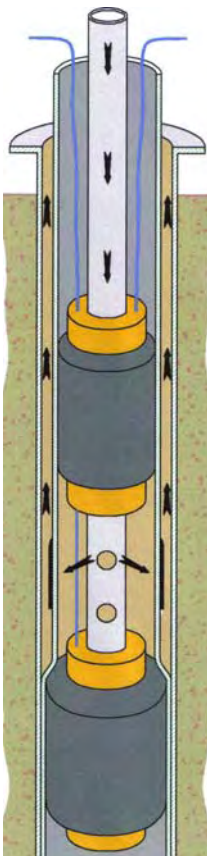
REPAIR With « Swage Packer » system



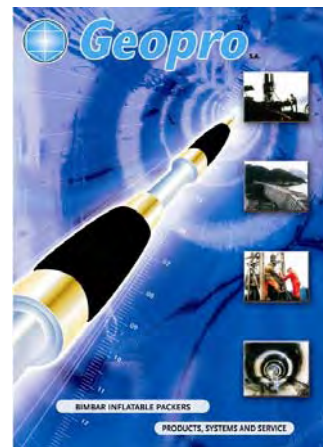
- ↳ Fast repair with light equipment.
- ↳ Initial diameter of the well preserved.
- ↳ Permanent mechanical sealing.



CEMENTATION



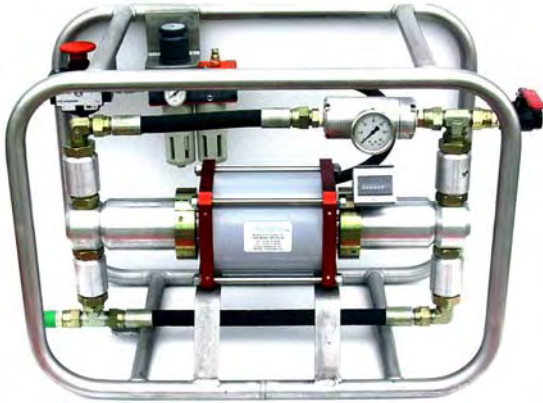
- ↳ Fast set-up.
- ↳ Many possibilities of assemblies and suitable tools for each dimension and configuration of well.
- ↳ No restriction regarding the depth.



The "Bimbar Inflatable Packers" catalogue is available on our website.

Injection & Inflation Accessories

PGP35-5 PORTABLE GROUT PUMP



TECHNICAL DATA

Grout pressure	0-35 bar (0-500psi) *
Inlet air pressure	0-7 bar
Flow rate	0-45 l/min
Air cylinder diameter	160mm
Fluid cylinder diameter	70mm
Suitable fluids	water, bentonite mud, cement...
Valves	ball type
Dimensions	700 x 500 x 400mm
Pump skid assembly weight	38 kg
Air inlet connection	½" BSP
Fluid inlet connection	¾" BSP
Fluid outlet connection	¾" BSP
Air consumption	1,5 m³/min
Pumped volume per cycle	0,4 litre

*Portable Grout Pump PGP 70-10 is available on request:
Max. outlet pressure: 70bar
Max. Flow rate: 23 l/min.

PRESSURE WATER TEST MEASUREMENT LINE



This line is used for "Lugeon" pressures water test for measuring the water permeability through geological formations. The capacities and specifications of this line are in conformity with the Lugeon test standard.

Flow meter	DN25, Max. flow 110l/mn, P. Max. 16bar
Resetting device	Easy reading display in litres, battery of 10 years life
Pressure gauge	Ø63, 0-25bar class 1.6
Control valves	2 control valves, 1 shutting valve
Connection	1" BSPT at both ends
Dimensions	950x500x200mm
Weight	8Kg

ACCESSORIES



Mechanical Pressure
Disk Recorder



Gauge Protector



Cone Marsh



Mud Balance

Injection & Inflation Accessories

VHP 100 HAND PUMP



The VHP100 pump is particularly well adapted to the inflation of our packers or to any other application requiring a setting under water pressure.

The design of the pump VHP 100 allows the assembly of the option "feeding" which facilitates the filling of large volumes without actuating the pump and a fast pressurization.

Entirely made of plastic materials and aluminium, the VHP100 pump does not require any specific maintenance and it is not sensitive to the problem of corrosion which are usual on job sites.

TECHNICAL DATA

Piston Ø	10mm
Piston stroke	325mm
Displacement	25cm ³
Maximum Pressure	100bar
Weight	9.5Kg
Tank volume	6 l
Pressurized fluid	water
Pressure gauge	0-100bar
Outlet thread	¼" BSP

INFLATION HOSES



Low pressure inflation hose 3/6 – Ref number : IH36

Material : polyamid 12
Inner diameter : 3mm

Max. working pressure : 45bar (640PSI)
Outer diameter : 6mm

High pressure inflation hose 4/8 – Ref number : RIH48

Tube : polyamid 12
Braiding : polyester fiber
Cover : polyamide

Max. working pressure : 215bar (3000PSI)
Inner diameter : 4mm
Outer diameter : 8mm

INJECTION HOSES



Our injection hoses are made of synthetic rubber reinforced with one or two layers of steel cables. They are supplied with swaged couplings and adapters upon request.

ELECTRIC CONTACT METER FOR WATER LEVEL MEASUREMENT



Measuring tape : Bifilar stripline made of white polyethylene. Conductor made of highly rust resistant and acid proof flexible steel wire.

Sonde : made of stainless steel, brass-nickel plated, diam 15mm.
Working temperature range : -30°C up to +75°C

Measuring range : 80,100,150,200,250,300 AND 500m.