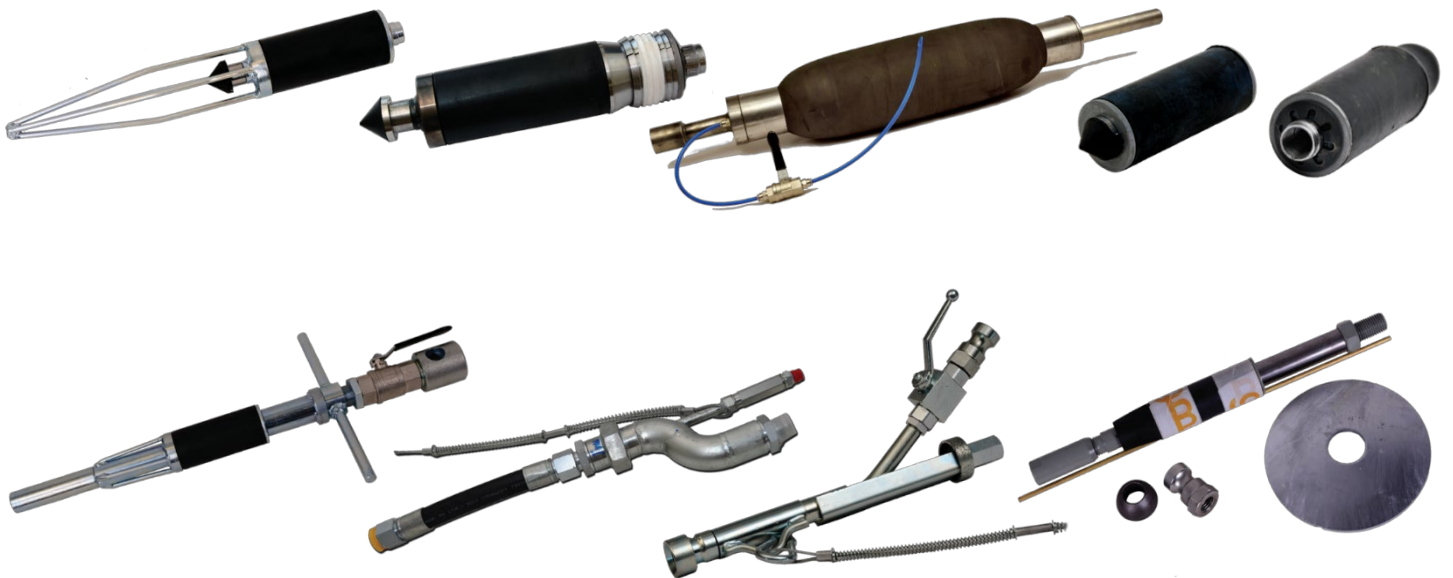




Manufacturing & supplier of packers and grouting equipment



GMA AB

Ground Machinery Applications AB

Different types of packers

Introduction

A packer is a device for sealing off a drill hole when you want to examine or inject a formation, either in the total length or in a part of the hole.

When sealing off the hole it is possible to pump in a liquid under pressure (concrete paste or water) into any cracks

The hole is sealed off by a sleeve being expanded against the wall of the hole. The liquid is pressed down into the hole through a piping in the packer. The piping is provided with either a check valve or a stop valve.

The packer's efficiency depends on its construction and the appearance of the formation in which the packer is placed.

There are of two kinds of packers: compressible and inflatable.

There are single-use packers and reusable packers and there are single packers and double packers.

GMA AB is a leading supplier of packers for grouting-injection, bolting and rock investigations.

We even produce special items after customer needs and desires

Packers can be divided into two main groups:

1. Compressible packers

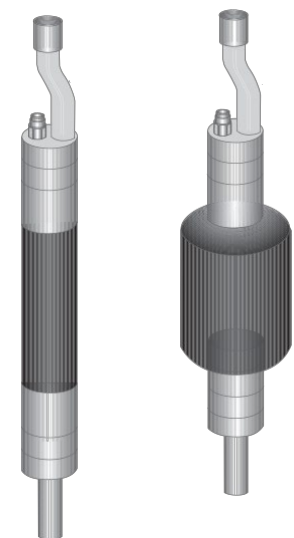
This packer is expanded by axial compression of the rubber sleeve.



Compressible packers

2. Inflatable packers

This packer is expanded by inflation of a sleeve with liquid or gas.

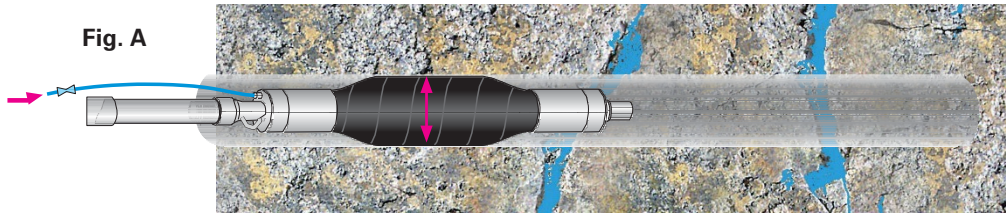


Inflatable packers

Inflatable packers

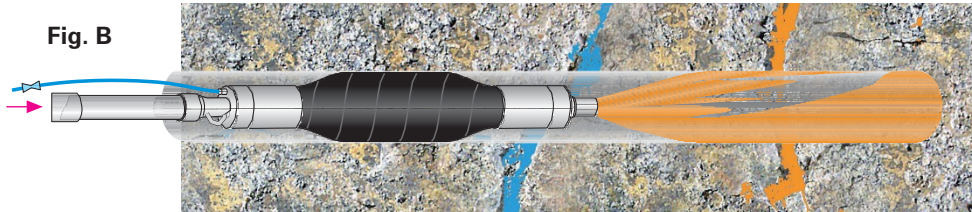
Reusable packers

Fig. A



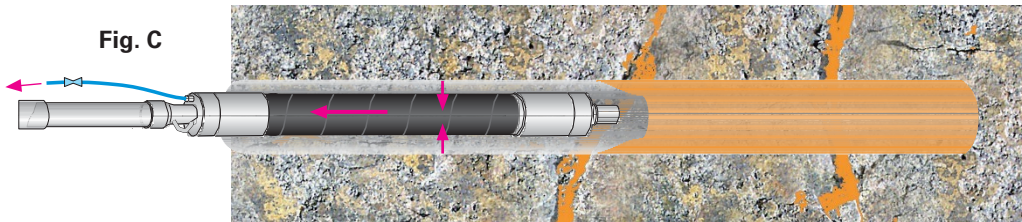
The sleeve is expanded by expansion medium so that it tightens against the rock.

Fig. B



The grouting-injection compound is injected through the injection pipe and fills the drill hole and the system of cracks.

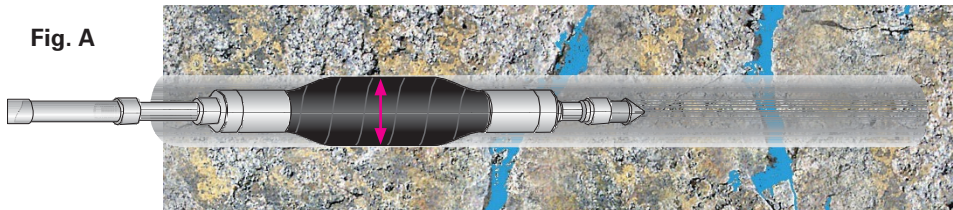
Fig. C



After finished grouting-injection the valve on the expansion hose is opened. The sleeve returns to rest position and the packer can be removed and reused.

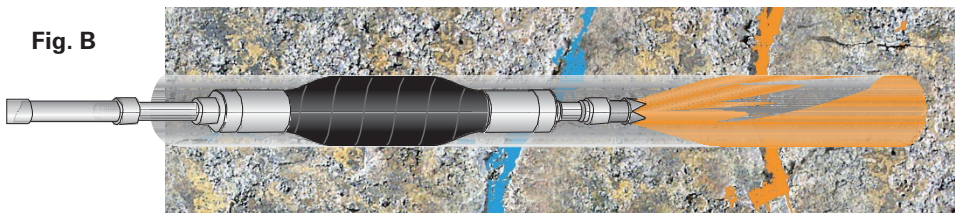
Single-use packers

Fig. A



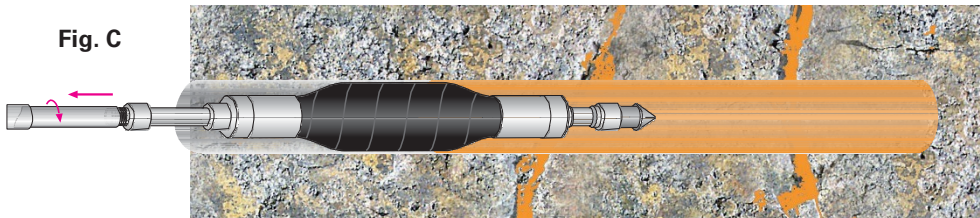
The welch plug seals and the sleeve is expanded by the increased pressure so that it tightens against the rock.

Fig. B



When the welch plug has broken you inject the drill hole and the system of cracks.

Fig. C



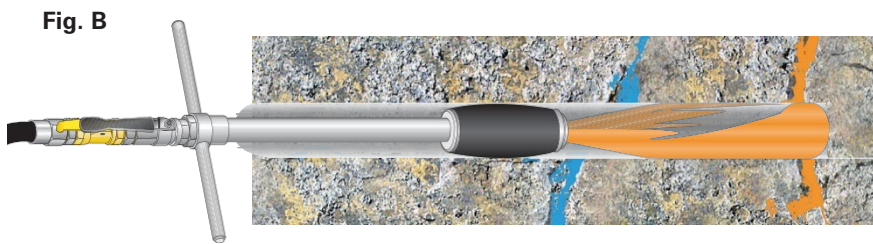
After finished grouting-injection the check valve closes automatically and prevents that the injected compounds leak.

Reusable & single-use packers - main design

Reusable packers



Insert the packer and expand the rubber sleeve in the hole either mechanically or with a hydraulic fixing device.



Pump the grouting medium through the packer, when stop criteria has been reached, close the valve.



When the grouting medium has stabilized/hardened, remove the pipe and packer for cleaning and reuse.

Single-use packers



Insert the packer and expand the rubber sleeve in the hole either mechanically or with a hydraulic fixing device.



Pump the grouting medium through the packer. When stop criteria has been reached, release the pressure. The check valve at the front of the packer will keep the grouting medium in the drill hole.



After grouting-injection remove the injection pipe for cleaning and reuse.

Delivered in several dimensions and lengths

Types of compressible packers



GX (CX) – packer

Art.no: 80008XX

GX HD (CSX) – packer

Art.no: 80008XX HD



G (C) – packer

Art.no: 80007XX

CS – packer

Art.no: 80007XX HD



GU (CU) – packer

Art.no: 80005XX



C-Open – packer

Art.no: 80007XX - Open



High Pressure Packer (HD)

Low Pressure Packer



Plug /Blind – packer

Art.no: 80008XX-Plugg

Delivered in several dimensions

gma.se

Types of tubes

Packers Disposable / Reusable

Example to order

Art. No: 8000YXX Y= Model, XX = Drillhole

XX			ART NO	ART NO	ART NO
			80007XX = G/C*	80008XXHD	80005XX
			80008XX = GX/CX		
			80008XX-Plugg		
Drill diameter	Dim. Tube	Sealing aperture	Disposable	Disposable	Reusable
mm	Inch #	mm	G/GX - low pressure	GX - high pressure	GU
28*	3/8"	27-29	X		X
30*	3/8"	29-31	X		X
32*	3/8"	31-33	X		X
34*	3/8"	33-36	X		X
36*	3/8"	35-38	X		X
38*	1/2"	37-40	X		X
41*	1/2"	40-43	X		X
45	1/2"	44-47	X		X
48	1/2"	47-50	X	X	X
51	1/2"	50-53	X	X	X
54	1/2"	53-56	X	X	X
57	1/2"	56-59	X	X	X
60	1/2"	59-62	X	X	X
63	1/2"	62-65	X	X	X
66	1/2"	65-69	X	X	X
70	1/2"	69-73	X	X	X
75	1/2"	74-78	X		X
80	1/2"	79-84	X		X
90	1/2"	89-94	X		X
100	1/2"	99-104	X		X
102	1/2"	101-106	X		X
105	1/2"	104-108	X		X
110	1/2"	109-114	X		X
115	1/2"	114-119	X		X
120	1/2"	119-124	X		X
125	1/2"	124-130	X		X

Other dimensions on request

Ø of Packer = Drill diameter -2,5 mm

Packer for injection in all types of rock and gravel.

Dimensions from 27 mm and larger.

Packers for 1" inner tube also available from drill hole diam 54mm.

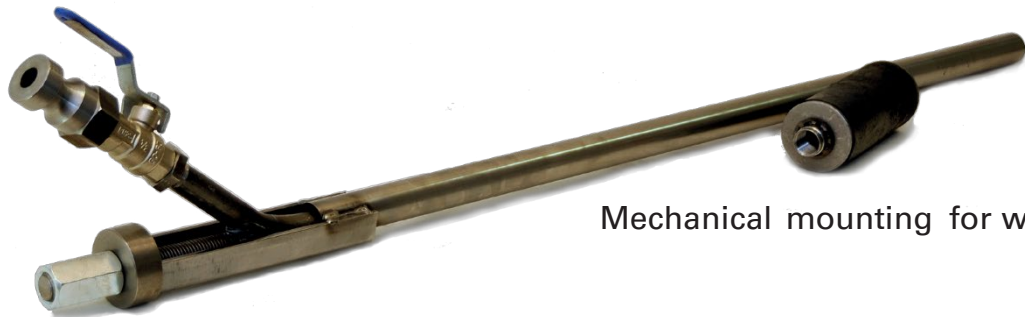
Ø=Drill hole
-2,5mm



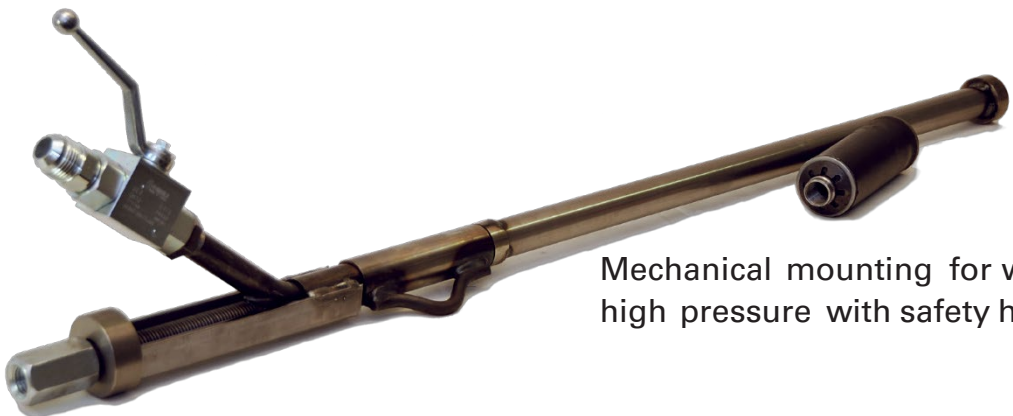
Types of tubes



Manual mounting with handle



Mechanical mounting for wrench



Mechanical mounting for wrench
high pressure with safety hook



Complete pipe for wrench with
safety hook. Packer and injector
mounted,

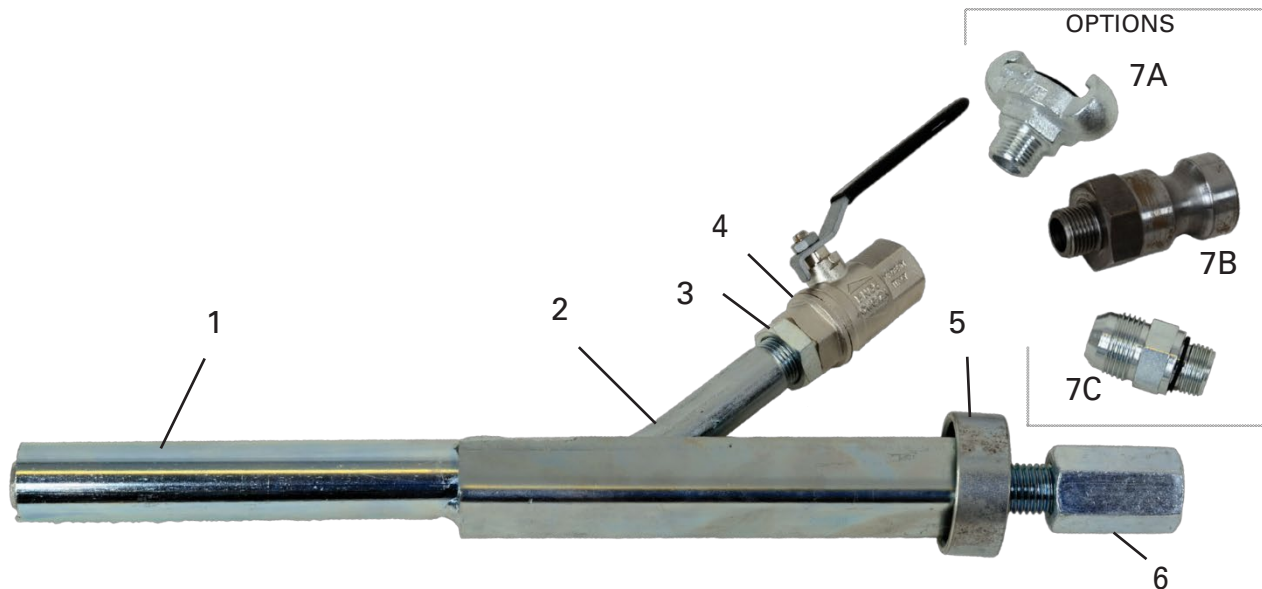
Standard length 0,6 - 6 m
Other lengths on request

1/2" Injection tube for mechanical mounting "Low" Pressure

Stand. Injection tube for mechanical mounting for wrench with coupling and ball valve

Art. No 80010XX XX = length 15=1,5m Complete with item 1-7

To be used together with reusable or low pressure disposable packers C/G/GX



#	Item	Art #	Notes
1	External tube	80010XXY	XX=Length
2	Inner tube	80010XXI	
3	Nut 1/2"	8000051	
4	Ball valve 1/2" PN65	8000033	
5	Sleeve	80000511	
6	Nut M20	800021L	
7A	Claw Coupling	8000036	Options
7B	Quick Coupling 1/2"	8000032	Options
7C	JIC Coupling 1 1/16"	HYJGE-12-08ED	Options
7D	NPT 1/2"	HY139-08-08	Options, not in picture

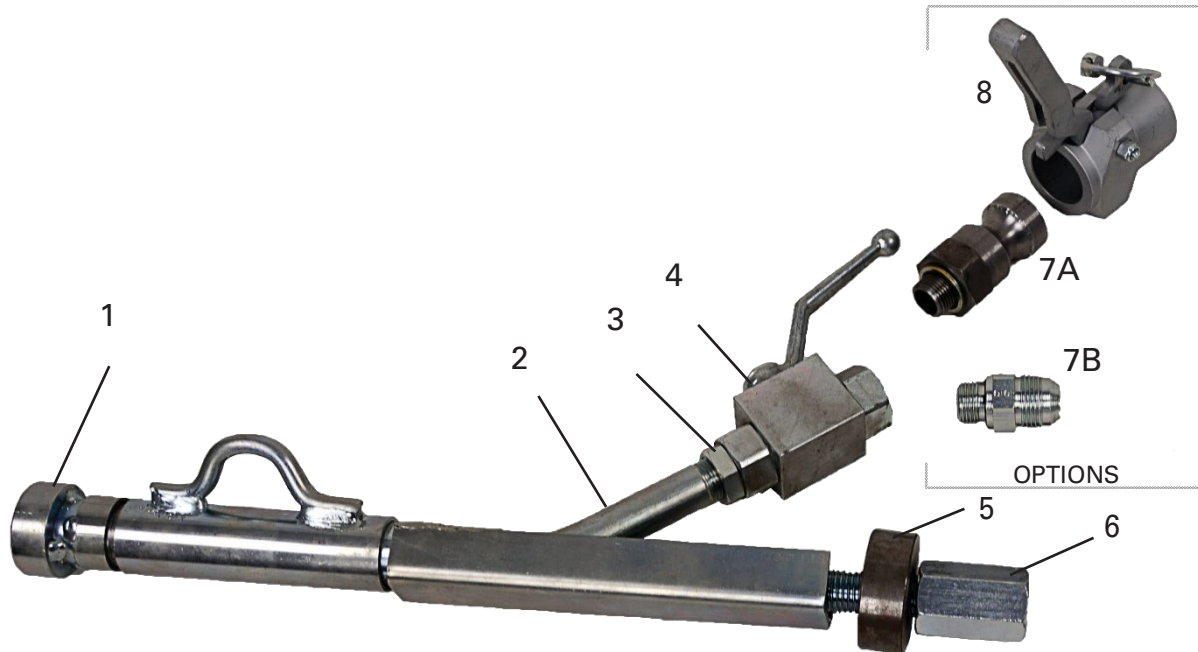
Standard length 0,6 - 6 m
Other lengths on request

1/2" Injection tube for mechanical mounting "High" Pressure

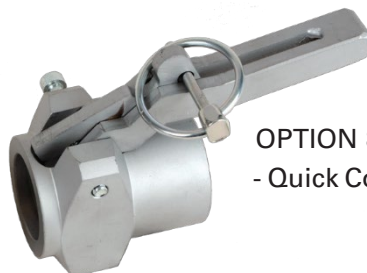
1/2" Injection tube for mechanical mounting for wrench with coupling and ball valve

Art. No 80010XXHD XX = length 15=1,5m Complete with item 1-7

To be used together with reusable or high pressure disposable packers CS/GXHD



#	Item	Art #	Notes
1	External tube with safety hook	80010XXYHD	XX=Length
2	Inner tube	80010XXI	
3	Nut 1/2"	8000051	
4	Ball valve 1/2" PN500	8000035	
5	Sleeve	80000511	
6	Nut M20	800021L	
7A	Quick Coupling 1/2"	8000032	Options
7B	JIC Coupling 1 1/16"	HYJGE-12-08ED	Options
7C	NPT 1/2"	HY139-08-08	Options, not in picture
8	Quick Coupling Female High pressure	8000031-G	Options



OPTION 8
- Quick Coupling Female High Pressure PN300

Standard length 0,6 - 6 m
Other lengths on request

1/2" Injection tube for manual mounting

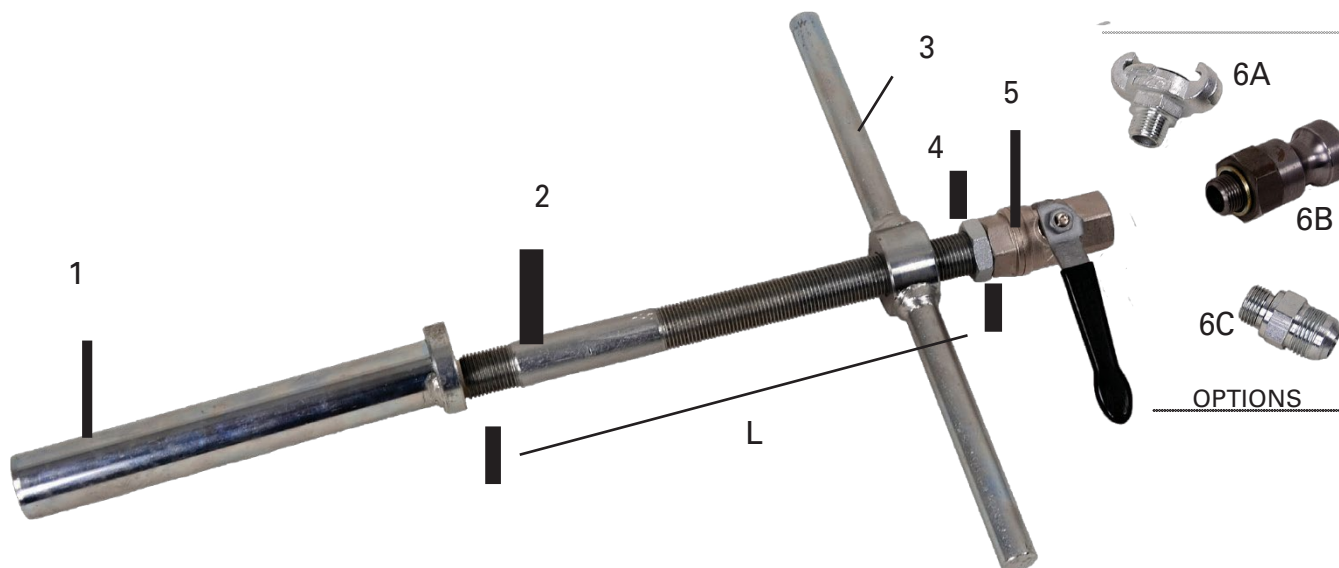
1/2" Injection tube for manual mounting with coupling, ball valve and handle

Art. No 80020XX

XX = length 15=1,5m

Complete with item 1-6

To be used together with reusable or disposable low pressure packers CU/C/G/GX



#	Item	Art #	Notes
1	External tube	80020XXY	XX=Length
2	Inner tube	80020XXI	
3	Handle	8002000	
4	Nut 1/2"	8000051	
5	Ball valve PN65	8000033	
6A	Claw Coupling 1/2"	8000036	Options
6B	Quick Coupling 1/2"	8000032	Options
6C	JIC Coupling 1 1/16"	HYJGE-12-08ED	Options
6D	NPT 1/2"	HY139-08-08	Options, not in picture

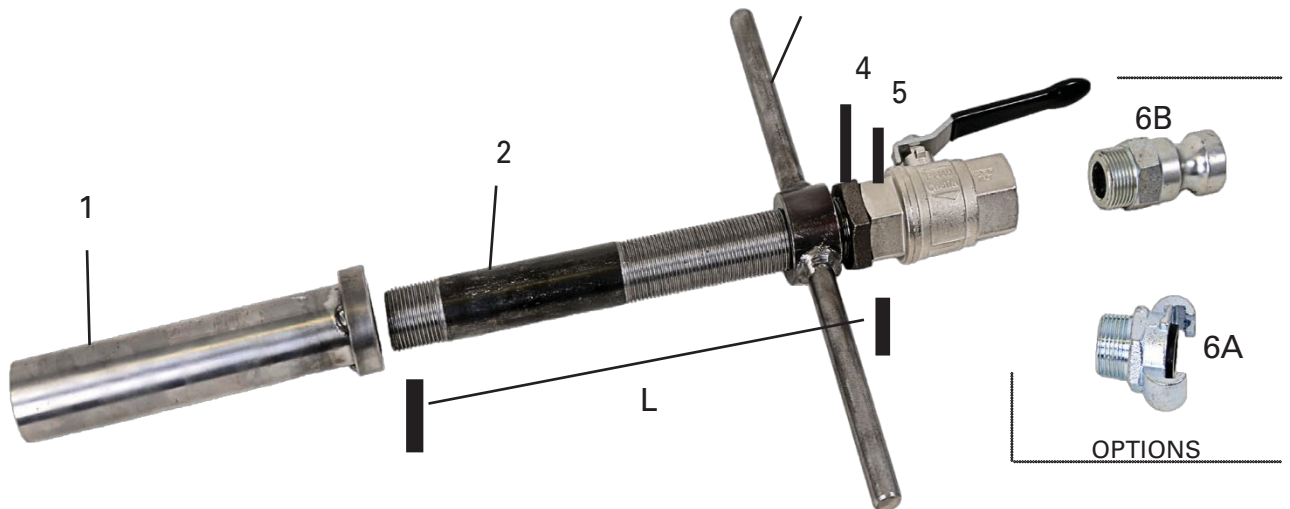
Delivered in several dimensions and lengths

1" Injection tube for manual mounting

1" Injection tube for manual mounting with coupling, ball valve and handle

Art. No 80020XX1" XX = length 15 = 1,5m Complete with item 1-6

To be used together with reusable packer 1"



#	Item	Art #	Notes
1	External tube	80020XX1"Y	XX=Length
2	Inner tube	80020XX1"I	XX=Length
3	Handle	80020001"	
4	Nut 1"	80000512	
5	Valve PN40	8000033-1"	
6A	Claw Coupling 1"	8000036-1"	Options
6B	Quick Coupling 1"	8000044	Options

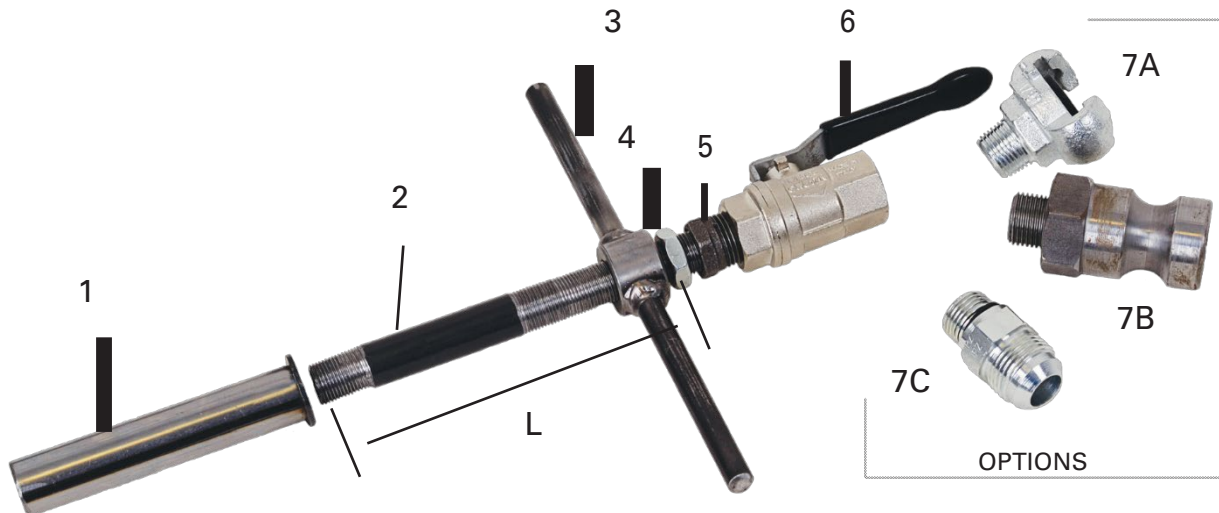
Delivered in several dimensions and lengths

3/8" Injection tube for manual mounting

3/8" injection tube for manual mounting with coupling, ball valve and handle to be used for packer -36 and smaller

Art. No 80020XX-3/8 XX = length 15 = 1,5m Complete with item 1-7

To be used together with reusable and disposable packers 3/8"



#	Item	Art #	Notes
1	External tube	80020XX-3/8Y	XX=Length
2	Inner tube	80020XX-3/8I	XX=Length
3	Handle	80020003/8	
4	Nut 3/8"	8000050	
5	Adapter 3/8-1/2"	80000501	
6	Ball valve 1/2" PN65	8000033	
7A	Clow Coupling 1/2"	8000036	Options
7B	Quick Coupling 1/2"	8000032	Options
7C	JIC Coupling 1 1/16"	HYJGE-12-08ED	Options
7D	NPT 1/2"	HY139-08-08	Options, not in picture

Delivered in several dimensions and lengths

Other Parts

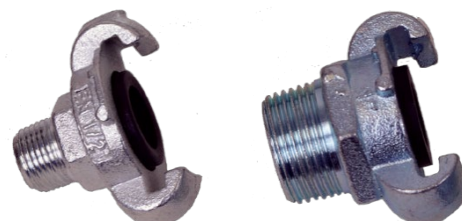
Ball valve

Art #	Item
8000033-1/4"	Ball valve 1/4" PN65
8000033	Ball valve 1/2" PN65
8000033-1"	Ball valve 1" PN40
8000035	Ball valve 1/2" PN500
8000035-1"	Ball valve 1" PN500



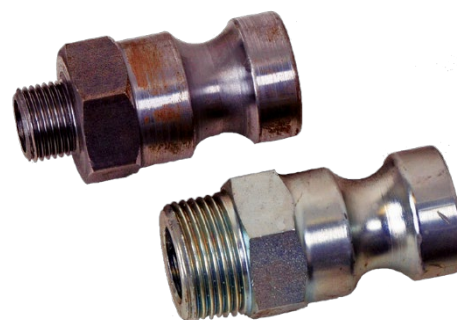
Claw coupling

Art #	Item
8000036	Claw coupling 1/2" external thread
8000036-1"	Claw coupling 1" external thread

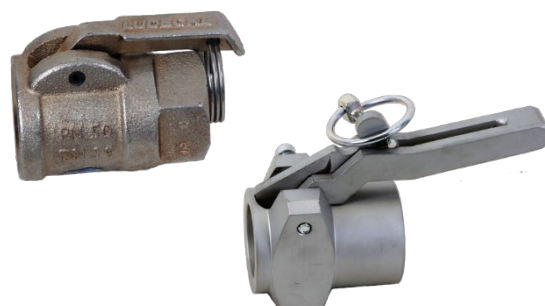


Quick coupling PN 50-300

Art #	Item
800011	Quick coupling male M24 internal thread
8000032	Quick coupling male 1/2" external thread
8000032-1	Quick coupling male 1/2" internal thread
8000043	Quick coupling male 1" internal thread
8000044	Quick coupling male 1" external thread



Art #	Item
8000031	Quick coupling Female 1" PN50
8000031-G"	Quick coupling Female 1" PN300



Other Parts

Seal

Art #	Item
8000032-T	Seal for Female Quick coupling

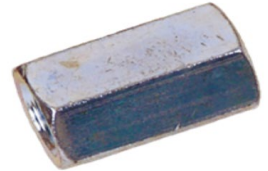


Nuts

Art #	Item
8000050	Nut 3/8"
8000051	Nut 1/2"
80000512	Nut 1"



Art #	Item
80000511	End washer
8000021L	Nut M20x50 (Long)



Handle

Art #	Item
80020003/8"	Handle 3/8"
80020001"	Handle 1"
8002000	Handle 1/2"



Other Parts

Hose

Art #	Item
853-slang6	Plastic hose 6 mm
853-slang8	Plastic hose 8 mm



Pump

Art #	Item
81501	Manual pump, 50 Bar for inflatable packer, lightweight (plastic bowl)
81501-1	Manual pump, 60 Bar for inflatable packer (steel bowl)
81502-60	Electrical pump 60 bar for inflatable packer



About us @ GMA AB



GMA is a company that has successfully developed and produced packers and injection equipment during the last 30 years. All production lines are to be found under one roof which enhances our flexibility to make and deliver the exact products needed by our customers.

GMA has gained both knowledge and experience during the past 30 years as a leading supplier to a majority of projects both in Scandinavia and throughout the world. Together with other partners within this sector, we have developed and improved well known and approved high-pressure packers and accessories.

We instruct and inform our customers of safety precautions when using our products. Emphasis on safety is often a deep concern and a demand from our customers

