



POLSAFE®
Technical specifications



DUCTILE PVC

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Introduction

1. INTRODUCTION

1.1 general information

This instruction manual is meant for the installation of the POLSAFE gas system.

The POLSAFE gas system is a product of Pipelife Nederland BV. Pipelife Nederland BV is part of the Pipelife International Holding, a joint venture between Solvay and Wienerberger.

In this manual you will find the installation instructions for the various products of the POLSAFE gas system. Similar documentation for other products of Pipelife Nederland B.V. is available. In case of any questions please contact Pipelife Nederland BV.

The information in this manual has been compiled according to the latest available Technical Data and to the best of our knowledge. We reserve the right to make technical changes, including dimension, weight and construction.

1.2 quality

Pipelife Nederland BV is certified to operate a quality assurance system in accordance with ISO 9001.

The quality assurance system imposes stringent standards of control throughout design, development and subsequent production and inspection processes. After sales services, including complaints, are also included in ISO 9001.

1.3 Field of application

The POLSAFE gas system is designed for distribution networks with operating pressures of 25 up to 200 mbar. The pipes and fittings are produced in the colour yellow (RAL 1024).

1.4 Classification

The pipe classification is given by the SDR number. The SDR (Standard Dimension Ratio) can be expressed as an equation:

$$\text{SDR} = \frac{\text{nominal (minium) outside diameter}}{\text{Minimum wall thickness}}$$

1.5 Dimensions

All dimensions are given in millimetres, unless otherwise stated.

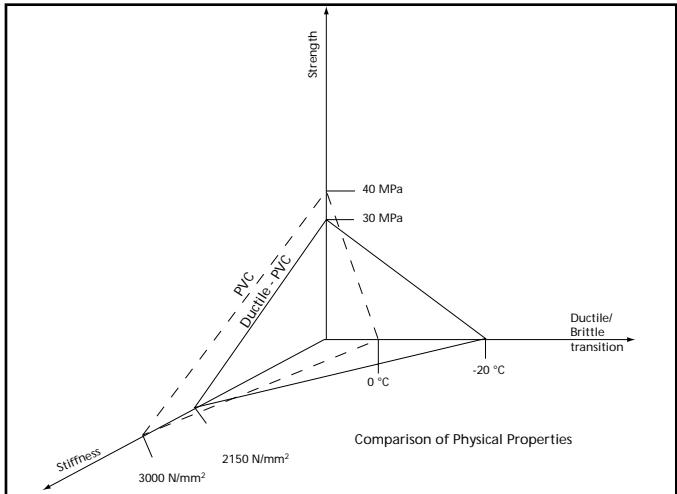
2 MATERIAL DESCRIPTION

The POLSAFE pipes and fittings are made from Ductile PVC.

Ductile PVC is an improved PVC material in which an amount of chlorinated polyethylene is introduced into the PVC molecular matrix. The

introduction of chlorinated polyethylene into the PVC brings a considerable change of properties. The ductility is substantially improved, the brittle-ductile transition temperature is lowered and the resistance to stress cracking is increased.

Figure: stiffness, strength, ductility



DUCTILE PVC

Properties

3 PROPERTIES

3.1 Mechanical properties

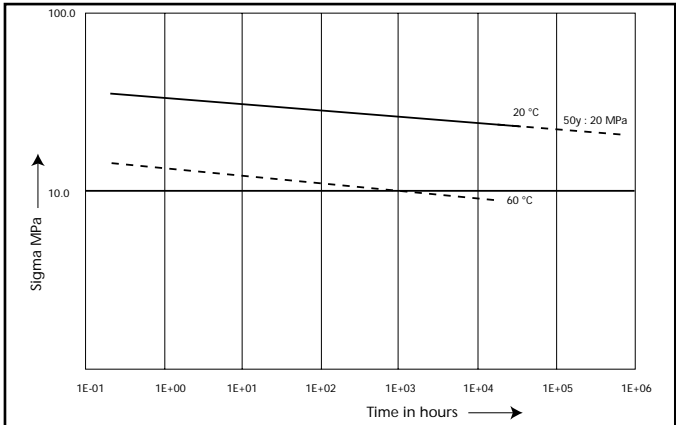
Figure: stiffness, strength, ductility

Bij 20°C	Unit	Method	DUCTILE PVC Pipes	DUCTILE PVC Fittings	PE 80 yellow
Strength (short term, 1 hour)	Mpa	NEN-EN 921 ISO 1167	30	30	12
Strength (long term, 50 years)	Mpa	NEN-EN 921 ISO 1167	15	15	8,0
Resistance to external blows	-	ISO 3127 NEN 7230	No break	-	No break
Elongation at break	%	ISO 527-2	>120	>60	>600
Elasticity Modulus	N/mm ²	DIN 53 457-B3	2150	2150	1000
Brittle-ductile Transition temperature	°C		-20	-20	<-100
Shore D hardness	Shore D	NEN-EN-ISO 868	81	81	62

3.2 Physical Properties

Bij 20°C	Unit	Method	DUCTILE PVC Pipes	DUCTILE PVC Fittings	PE 80 yellow
Density	g/cm ³	ISO 1183 DIN 53 479	1,4	1,4	0,945
Vicat Softening point	°C	ISO 306	>80	>74	121
Specific heat		KJ/(kg.K)	1,01	1,01	1,9
Thermal conductivity	W/(m.K)	DIN 52 612	0,15	0,15	0,38
Coefficient of linear expansion		K-1	6 x 10 ⁻⁵	6 x 10 ⁻⁵	13 x 10 ⁻⁵

3.3 Long Term Strength



4 RESISTANCE TO SOIL AND TRAFFIC LOADS

4.1 general

The underground behaviour of plastic pipes and the resistance to soil and traffic loads are based on the flexibility of the pipes. Plastic pipes can deflect under the influence of loads without collapsing.

Various installation aspects influence the final deflection of the pipe. To get a better picture of the influence of the various aspects a complete project concerning the behaviour of buried pipe has been carried out by TEPPFA (The European Plastics Pipe and Fitting Association).

4.2 Teppfa project

The following aspects will influence the underground behaviour of the pipe:

- 1SDR of the pipe
- 1Pipe material
- 1Compacting of the ground
- 1Traffic load
- 1Installation depth
- 1Type of soil

Pipes were laid under different circumstances and were monitored over a long period of time. This project has given a lot of valuable information.

DUCTILE PVC

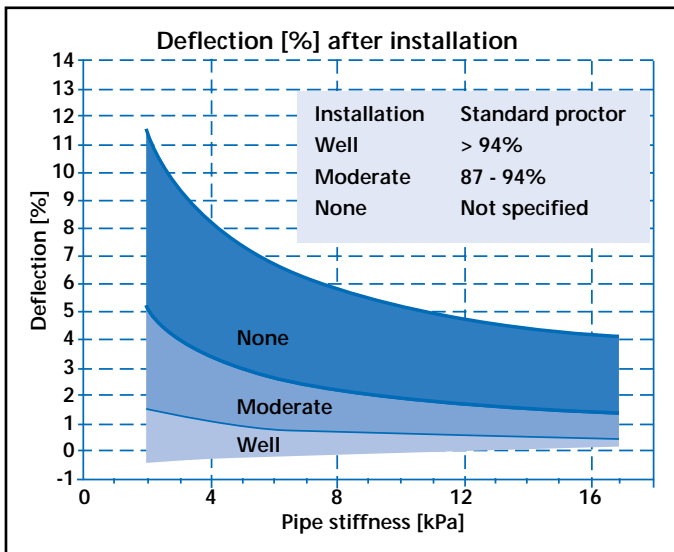
Resistance to soil and traffic loads

One of the most important conclusions was that the deflection of the pipe was determined by the compacting of the ground around the pipe.

The greatest part of the deflection of the pipe will occur during the installation. This initial deflection is measured for pipes of different stiffnesses under different circumstances (good, average and bad installation). This leads to the following figure:

After a certain period of time, in the setting phase, the pipe will deflect no more. The duration of this setting period is dependant upon the circumstances and can differ from a few days to two years.

The additional deflection in the setting phase depends on the method of installation. When the installation is very good the additional deflection will be maximum 1 %. With an average installation the additional deflection will be maximum 2 %.



With bad installation the additional deflection depends of the type of soil. With a granular soil this will be maximum 3% and with a cohesive soil this will be maximum 4%.

5 CHEMICAL RESISTANCE

5.1 General

PVC as a material has a good chemical resistance against the corrosive nature of the ground conditions. With the exploitation of natural gas the problem of stress cracking occurred and there was a need for a raw material which could withstand this stress cracking.

5.2 Stress cracking

Natural gas contains a certain amount of aromatic and aliphatic constituents. These constituents, under given conditions of concentration and stress in the PVC material, could lead to stress cracking. For this reason the Dutch Gas Institute started an extensive research programme in cooperation with the suppliers of raw materials and pipes and fittings producers, to establish the requirements of the materials. DUCTILE PVC was tested and proved to satisfy the requirements completely. This led to the specification for DUCTILE PVC including a stress cracking test.

5.3 Rubber rings

After the requirements were established, the rubber ring joints were

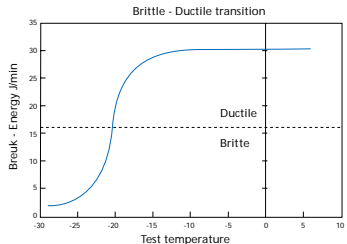
investigated and approved. Specifications were drafted for a rubber quality Nitrile Butadiene Rubber (NBR), which was developed for the use with natural gas and natural gas condensate.

6 IMPACT RESISTANCE

The higher ductility of DUCTILE PVC is clearly shown by a higher impact resistance. Test results exceed the demands. Also at lower temperatures the high impact resistance remains good.

By performing the test at different temperatures the transition brittle/ductile has been determined.

7 INSTALLATION AT LOW TEMPERATURES



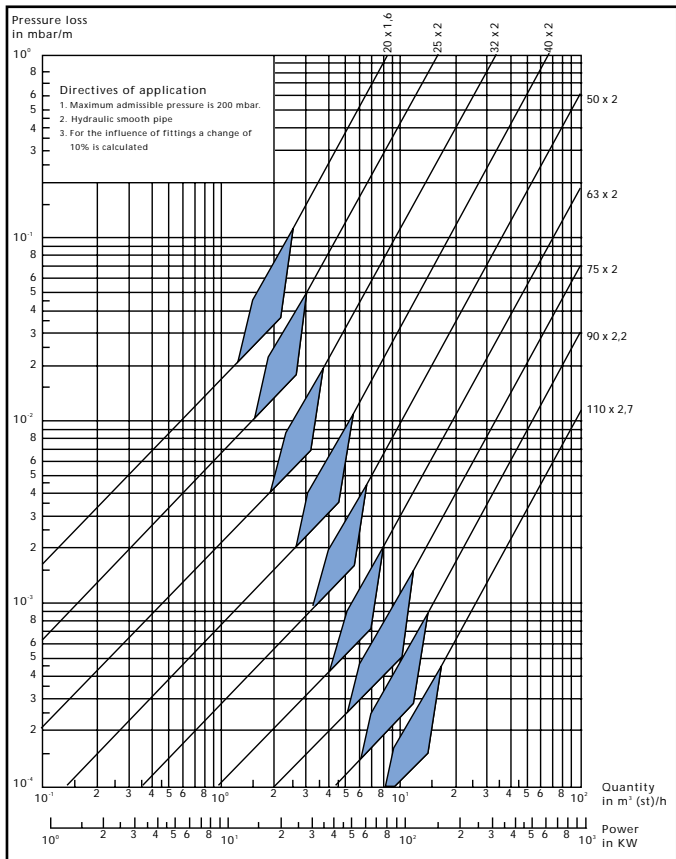
The brittle – ductile transition temperature is -20°C . This means that DUCTILE PVC pipes and fittings can be installed at low temperatures without difficulty.

DUCTILE PVC

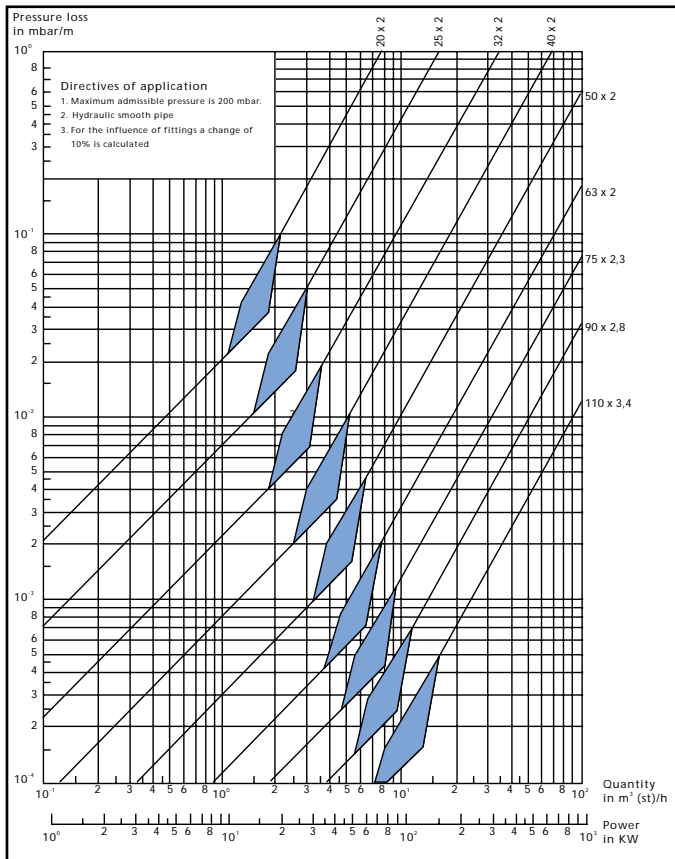
Flow capacity

8 FLOW CAPACITY

8.1 Flow capacity sdr 41



8.2 Flow capacity sdr 33



Bending

9 BENDING

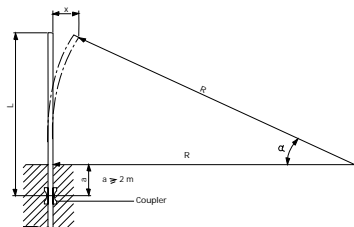
9.1 General

The flexibility of DUCTILE PVC allows the pipes to be installed in the trench in bends. For these bends a minimum bend radius has to be respected. The minimum bend radius for DUCTILE PVC pipes are:

63 up to 200 mm : $R_{\min} = 300 \times D$

200 mm and up : $R_{\min} = 400 \times D$

For shorter bends, the prefabricated Polsafe bends shall be applied.



9.2 Bending main pipes

The bending of main pipes can be done after the pipe is connected to the previous pipe and the trench is filled and compacted over a distance of 2 metres from the last coupler.

From the length L of the pipe a length of $L-2$ is available for bending. The maximum admissible bend and distance x are:

Pipe length L					
Pipe Diameter In mm	Bending radius in degrees	6 m		10 m	
		bend in metres	x in degrees	bend in metres	x in metres
63	18,9	12,0	0,41	24,0	1,65
75	22,5	10,0	0,34	20,0	1,40
90	27,0	8,5	0,30	17,0	1,15
110	33,0	7,0	0,24	14,0	0,95
125	37,5	6,0	0,20	12,0	0,85
160	48,0	5,0	0,18	10,0	0,65
200	80,0	2,5	0,08	5,5	0,40
250	100,0	2,0	0,06	4,5	0,30
315	126,0	1,5	0,04	3,5	0,25

9.3 Bending house connections

The minimum bending radius for PE 80 house connections are:

PipeBending Diameter In mm	radius R in metres PE 80
25	0,50
32	0,75
40	1,20
50	2,00
63	3,15

DUCTILE PVC

Programme

10 POLSAFE PIPE



Nominal outside Diameter	SDR 41		SDR 33	
	wall thickness	internal diameter	wall thickness	internal diameter
20	1,6	16,8	-	-
25	2,0	21,0	-	-
32	2,0	28,0	-	-
40	2,0	36,0	-	-
50	2,0	46,0	-	-
63	2,0	59,0	-	-
75	2,0	71,0	-	-
90	2,2	85,6	-	-
110	2,7	104,6	3,4	103,2
160	3,9	152,2	4,9	150,2
200	4,9	190,2	6,2	187,6
250	6,1	237,8	7,7	234,6
315	7,7	299,6	9,7	295,6

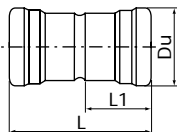
11 POLVALENE PE 80 PIPE, COLOUR YELLOW



Nominal outside Diameter	SDR 17,6		SDR 11	
	wall thickness	internal diameter	wall thickness	internal diameter
25	2,0	21,0	2,3	20,4
32	2,0	28,0	3,0	26,0
40	2,3	35,4	3,7	32,6

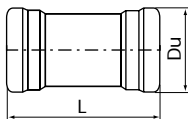
12.1 POLSAFE COUPLER

Nominal Diameter	Du	L	L1
50	72	165	70
63	85	170	72
75	95	180	75
90	112	190	81
110	135	210	89
160	192	235	104
200	245	295	125
250	295	340	150
315	370	360	164

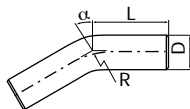


12.2 POLSAFE REPAIR COUPLER

Nominal Diameter	Du	L
50	72	200
63	85	210
75	95	215
90	112	225
110	135	235
160	192	280
200	245	340
250	295	370
315	370	374



12.3 POLSAFE BEND

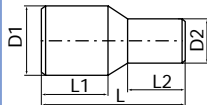


Nominal Diameter	Radius (R=3,5 D)	L		
		a=11,25°	a=22,5°	a=30°
50	175	-	-	-
63	220	225	225	225
75	265	275	275	275
90	315	275	275	280
110	385	325	325	345
160	560	450	450	480
200	700	500	555	580
250	875	525	630	680
315	1105	725	800	800

Nominal Diameter	Radius (R=3,5 D)	L	
		a=45°	a=90°
50	175	250	360
63	220	275	390
75	265	355	480
90	315	360	520
110	385	385	635
160	560	550	875
200	700	690	1100
250	875	820	1315
315	1105	1025	1690

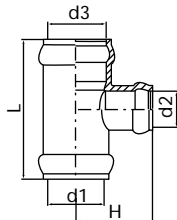
12.4 POLSAFE REDUCER

D1	D2	L1	L2	L
63	50	110	70	195
75	63	120	80	220
75	50	120	70	240
90	63	135	80	260
90	50	135	70	315
90	75	135	90	250
110	63	160	80	360
110	75	160	90	315
110	90	160	105	310
160	110	205	130	430
200	160	230	165	455
250	200	240	200	520

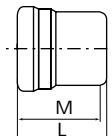


12.5 POLSAFE TEE

D1	D2	D3	L	H
63	63	63	274	137
75	75	75	300	150
90	90	90	330	165
110	63	110	336	168
110	75	110	336	168
110	90	110	352	175
110	110	110	368	184
160	110	160	414	210
160	160	160	462	231
200	110	200	526	230
200	160	200	526	248
200	200	200	526	263

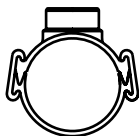


12.6 POLSAFE END CAP



Nominal Diameter	L	M
63	90	80
75	93	83
90	100	86
110	108	92
160	130	110
200	165	135
250*	400	157
315*	472	172

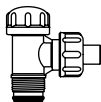
12.7 POLSAFE GAS SADDLE 1 1/2"



Nominal Diameter	Nominal Diameter
63 x 1 1/2"	160 x 1 1/2"
75 x 1 1/2"	200 x 1 1/2"
63 x 1 1/2"	250 x 1 1/2"
90 x 1 1/2"	315* x 1 1/2"
110 x 1 1/2"	

**Different model*

12.8 POLSAFE SADDLE TEE PIECE WITH END THRUST CONNECTOR FOR PE SDR 17,6



Nominal Diameter
25 x 1 1/2"
32 x 1 1/2"
40 x 1 1/2"

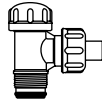
12.9 POLSAFE SADDLE TEE PIECE WITH END THRUST CONNECTOR FOR PE SDR 11

Nominal Diameter

25 x 1 ½"

32* x 1 ½"

* Non standard model in colour grey



12.10 POLSAFE BALLOON ENTRY SADDLE

Nominal Diameter

63 x 1 ½"

75 x 1 ½"

90 x 1 ½"

110 x 1 ½"

160 x 2 "

200 x 2 "

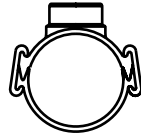
250 x 2 "

250* x 2 ½"

315* x 2 "

315* x 2 ½"

*Different model



12.11 POLSAFE SADDLE TEE PIECE BG for gasfree positioning of balloons and bypasses

Nominal Diameter

1 ½" For balloons 63 to 110 mm

2" For balloons 160 to 315 mm

2 ½" For balloons 250 and 315 mm



12.12 POLASFE CUT-OFF PLUG (FOR SADDLE)



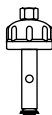
Nominal Diameter	Nominal Diameter
1½"	2"

12.13 POLSAFE CUT-OFF PLUG FOR SADDLE TEE PIECE (TEMPORARY DISCONNECTION)



Nominal Diameter	Nominal Diameter
1½"	2"

12.14 POLSAFE TESTING PLUG FOR SADDLE TEE PIECE FOR TESTING THE SERVICE PIPELINE AFTER DRILLING



Nominal Diameter	Nominal Diameter
1½"	2"

12.15 POLSAFE TESTING CAP* FOR SADDLE TEE PIECE AB

Nominal Diameter	Nominal Diameter
1½"	2"
<i>*complete with connection nipple with ¼" female thread</i>	



12.16 POLSAFE TESTING CAP* FOR SADDLE TEE PIECE BG

Nominal Diameter	Nominal Diameter
1½"	2"
	2½"
<i>*complete with connection nipple with ¼" female thread</i>	



13 INSTALLATION INSTRUCTION POLSAFE FITTINGS

13.1 Installation instruction polsafe couplers

- Place the pipes 15 cm above the ground and align the pipes.
- Clean the pipe ends.
- Inspect the coupler for dirt or grit specially behind the seal and clean these if necessary.
- Apply Pipelife lubricant to the seal and pipe end.
- Push the coupler over the pipe up to the register.
- The other end of the coupler should be handled in the same way.

- Push the other pipe end in the coupler up to the register.

For installing the coupler a crowbar can be used. A piece of wood should be used between the crowbar and the coupler or pipe end.

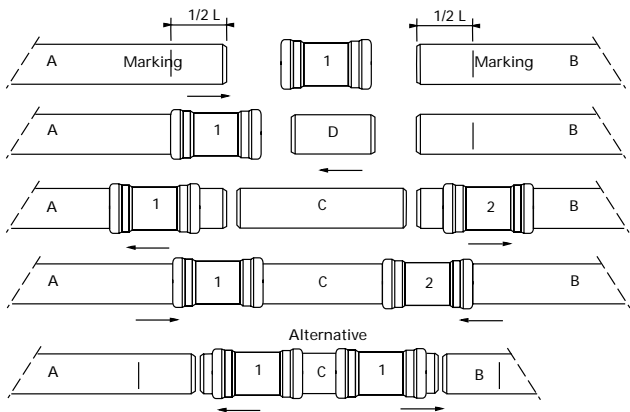
13.2 Installation polsafe repair couplers

- Place the pipes 15 cm above the ground and align the pipes.
- Clean the pipe ends.
- Inspect the coupler for dirt or grit specially behind the seal and clean these if necessary.

Installation instruction polsafe fittings

- 1 The pipe end (A) should be marked with the insertion depth of the coupler.
- 1 Apply lubricant to the pipe end (A) and the seal of the coupler.
- 1 Push the coupler over pipe (A) until the insertion depth.
- 1 Push inside the other end of the coupler a small piece of pipe (D) of the same diameter up to pipe (A).
- 1 Push the coupler completely on pipe (A).
- 1 Repeat this on the other pipe end (B) with another coupler (2).
- 1 Measure the pipe length between the pipe ends and cut a pipe end equal to the measured distance.
- 1 Push the couplers 1 and 2 back over pipe (C) until the marking $_L$.
- 1 As an alternative the couplers can be pushed on pipe (C).
- 1 When pipe (C) is placed the couplers can be pushed back up to the marking $_L$ on pipe A and B.

For installing the coupler a crowbar can be used. A piece of wood should be used between the crowbar and the coupler or pipe end.



Installation instruction polsafe fittings

13.3 Installation polsafe tee

- 1 Place the pipes 15 cm above the ground.
- 1 Clean the pipe ends and apply lubricant.
- 1 Inspect the tee for dirt or grit specially behind the seal and clean these if necessary.
- 1 Apply lubricant to the pipe ends and the seals of the tee.
- 1 Push the pipe ends in the tee.

13.4 Installation polsafe end cap

- 1 Place the pipes 15 cm above the ground.
- 1 Clean the pipe end and apply lubricant.
- 1 Inspect the end cap for dirt or grit specially behind the seal and clean these if necessary.
- 1 Push the end cap on the pipe end.

For installing the end cap a crowbar can be used. A piece of wood should be used between the crowbar and the coupler or pipe end.

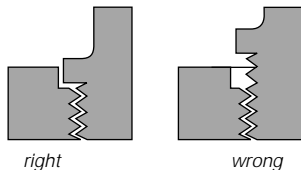
13.5 Installation polsafe saddle

- 1 Clear the main pipeline by digging to a depth of about 15 cm below the pipe.
- 1 Carefully clean that section of the main pipeline where the saddle is to be installed.
- 1 Click the lower saddle onto the main pipeline.

- 1 Install the upper saddle on the main pipeline.
- 1 Place the wedges. Tighten the wedges by steadily pushing them on simultaneously (with both hands).
- 1 Lightly tap on the wedges with a plastic hammer to further secure them. This should be done by tapping on the one wedge and the other in turn. Continue tapping until the wedges are level with the lower and upper saddle.

13.6 Installation saddle tee piece

- 1 Turn the saddle tee piece into the saddle by hand until the flange of the saddle is level with the upper part of the saddle. It is not necessary to use lubricant as the rubber ring is self-lubricating.
- 1 Turn back the saddle piece to the desired position (no more than 1 turn).
- 1 The underside of the flange must never be higher than the top of the saddle.



Tools

13.7 Installation end thrust connector

- 1 Check to see if the coupling and the PE 80 service pipeline are of the same category.
- 1 Saw the pipe off straight and trim off the burrs.
- 1 Unscrew the coupling screw by 2 turns and push the pipe into the connector up to the safety register (3,5 to 4 cm).
- 1 Firmly fasten the screw cap by hand.
- 1 Do not use any grease or lubricant.

13.8 Installation saddle tee bg

- 1 Screw the saddle tee piece BG in the saddle by hand until the flange of the clamped saddle tee piece touches the upper side of the saddle.
- 1 If necessary, use a wrench or a spanner in the final phase of tightening.
No. 50 for saddle tee piece BG 1½"
No. 65 for saddle tee piece BG 2"
No. 80 for saddle tee piece BG 2½"

13.9 Testing

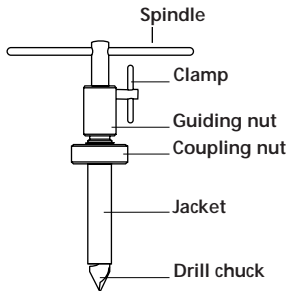
To see if the gas saddle and the service pipeline are closed off properly, various test caps are available. There are test caps available for the saddle tee piece as well as for the saddle tee piece BG.

14 TOOLS

14.1 Polsafe tapping set

14.1.1 polsafe tapping set ab/bg

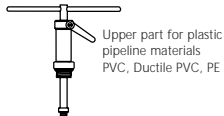
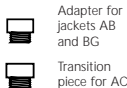
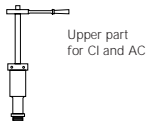
The Polsafe tapping set AB/BG can be used when boring plastic pipes, both for saddle tee pieces with end thrust connectors and the saddle tee pieces BG. The tapping set consists of a universal top part, three adapters with rotating stainless steel cases and three drill chucks. After choosing the correct parts, the tapping set can be assembled very quickly. Before boring cast iron or asbestos cement pipelines, it is necessary to put on a different upper part, an adapter (with a transition piece for AC) and special drills. The jackets AB and BG must be combined with these pieces. 14.1.2 boring a pipe



14.1.2 boring a pipe

- 1 Use a POLSAFE tapping set type AB or BG
- 1 Remove the cap from the saddle tee piece.
- 1 Unscrew the guiding nut sufficiently, about 30 mm, between the underside of the bolt and the upper side of the jacket.
- 1 Pull back the drill chuck into the jacket completely.

- 1 Make a hole by turning the spindle clockwise.
- 1 Continue turning until the guiding nut cannot be turned any further when it has reached the upper part of the jacket.
- 1 Unfasten the clamp of the guiding nut and pull the spindle upward to the stop. Then the drill chuck will be in the jacket.
- 1 Fasten the clamp.



DRILL AB 1½"
DRILL BG 1½"
DRILL BG 2"
DRILL BG 2½"



jacket AB 1½"
jacket BG 1½"
jacket BG 2"
jacket BG 2½"



drill chuck AB 1½"
drill chuck BG 1½"
drill chuck BG 2"
drill chuck BG 2½"

- 1 Fasten the clamp.
- 1 Push the jacket down through the gas valve in the saddle tee piece.
- 1 Tighten the adapter sleeve onto the saddle tee piece. Always ensure that the drill chuck remains in the jacket during the insertion. This prevents damage to the gas valve.
- 1 Unfasten the clamp of the guiding nut and push the spindle down until the drill chuck touches the pipe.
- 1 Fasten the clamp.

- 1 Loosen the coupling screw and pull the drill out of the saddle tee piece.
- 1 Screw the cap on the saddle tee piece.
- 1 Unfasten the clamp of the guiding nut, push the drill chuck out of the jacket and remove the coupon.
- 1 Pull back the drill chuck into the jacket (this prevents damage during transport).

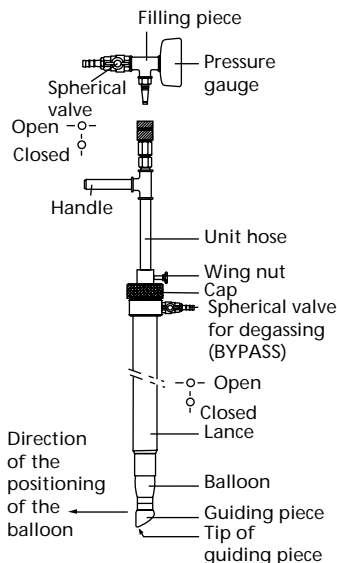
Tools

14.2 POLSAFE BALLOON POSITIONING EQUIPMENT

14.2.1 general

The POLSAFE saddle tee piece BG was specially developed for the very simple and controlled positioning or removing of balloons.

A POLSAFE tapping set BG must be used when boring the pipes. The self-sealing gas valve prevents the escape of gas during the execution of the work.



14.2.2 positioning of a balloon

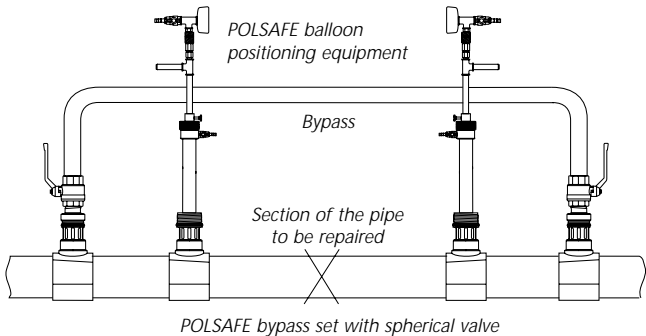
- 1 Check the unit hose for impurities, clean and rub in some silicone grease,
- 1 Put the correct balloon diameter on the unit hose (hand tight).
- 1 Turn the guiding piece of the balloon with the tip in the direction of the grip on the unit hose.
- 1 Push the balloon with the unit hose in the lance and turn the cap of the unit hand tight on the lance.
- 1 Vacuum-seal the balloon with the help of the filling piece and the balloon pump.
- 1 Pull the unit hose out of the lance to such an extent that the balloon is completely inside the lance and secure the unit hose on the cap with the wing nut.
- 1 Check whether the spherical valve is turned off for degassing.
- 1 Carefully push the lance through the gas valve of the saddle tee piece BG, in such a way that the grip is in the desired direction in which the balloon needs to be positioned.
- 1 Unscrew the securing wing nut
- 1 Push the unit hose downwards to the lowest position.
- 1 Using the filling piece and the balloon pump, pump up the balloon to the right pressure, as indicated on the pressure gauge, on which the red scale division indicates the diameter of the balloon.

14.2.3 Removal of a balloon

- 1 Vacuum seal the balloon until totally sealed with the help of the balloon pump and then close off the spherical valve on the fitting piece.
- 1 Pull the unit hose upwards out of the lance, whereby the lance must be kept in place in the saddle tee piece BG (if necessary the unit hose can be turned clockwise while pulling up the unit hose, this makes the balloon coil up).
- 1 Secure the unit hose in the highest position with the wing nut.
- 1 Carefully pull the lance out of the saddle tee pipe BG.

14.3 Polsafe bypassing set

With the POLSAFE system it is very easy to make a bypass. For this purpose a Polsafe bypass set with spherical valves is available. This bypass set can be turned in the saddle tee piece BG. By closing the valves before pushing them through the gas valves of the saddle tee pieces BG, the installation can be carried out without the escape of gas. After connecting the spherical valves with a PE-pipe and opening the valves, the bypass is created.



DUCTILE PVC

Fittings for PE Pipes

15 POLSAFE FITTINGS FOR PE PIPES

15.1 STRAIGHT END THRUST COUPLER PE - PE TYPE KR



Diameter PE-pipe	PE Pipe classification	
25	SDR 17,6	SDR 11
32	SDR 17,6	
40	SDR 17,6	

The KR coupler is connected to the PE-pipe by a rubber ring and a conical split ring

15.2 TRANSITION COUPLER PE - COATED STEEL PIPE



Diameter PE-pipe	Diameter Steel pipe	PE pipe Classification	
25	¾"	SDR 17,6	SDR 11
32	¾"	SDR 17,6	
32	1 "	SDR 17,6	SDR 11*
40	1 "	SDR 17,6	
40	1 ¼"	SDR 17,6	

*grey

Connection to the PE-pipe with a KR-coupling.
Connection to the coated steel pipe by a rubber ring and a conical split ring.
Only suited for a steel pipe with a PE-coating of 1,8 mm.

15.3 TRANSITION COUPLER PE-COPPER PIPE WITH PE DUCT



House connection

Diameter PE-pipe	PE-pipe classification	Diameter copper pipe
25	SDR 17,6	15
25	SDR 11	15
32	SDR 17,6	22
40	SDR 17,6	28
40	SDR 17,6	35

PE duct for Copper pipe

Diameter PE-pipe	PE-pipe classification
25	SDR 17,6
25	SDR 11
32	SDR 17,6
40	SDR 17,6
40	SDR 17,6

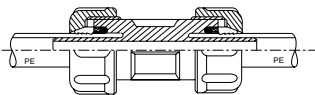
Connection to the PE-house connection with a KR coupling.

Connection to the copper pipe with two rubber rings.

Connection to the PE-duct with a KR coupling.

The end of the copper pipe is expanded to make it pull tight.

16 INSTALLATION INSTRUCTION POLSAFE FITTINGS FOR PE PIPES



- 1 Check the pipe end for damage.
- 1 Saw the pipe off straight and trim off the burrs.
- 1 Unscrew the coupling screw by 2 turns and push the pipe into the connector up to the safety register (3,5 to 4 cm).
- 1 Firmly fasten the screw cap by hand.

16.1 Installation straight end thrust coupler type KR

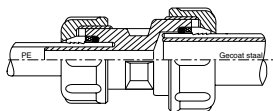
1 Check to see if the coupling and the service pipeline are of the same category.

Remark:

Do not use any grease, lubricant or wrench.

Installation instruction Polsafe fittings for PE pipes

16.2 INSTALLATION TRANSITION COUPLER PE – COATED STEEL PIPE



The installation of this coupler is done in the same way as the coupler type KR.

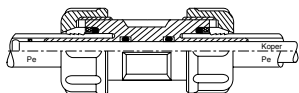
The transition coupler has no support sleeve at the steel side.

The screw caps on the steel side are marked as follows:

For ¾ " :	32 mm
For 1 " :	40 mm
For 1¼" :	50 mm

This transition coupler can only be used for steel pipes with a PE coating of 1,8 mm.

16.3 Installation transition coupler PE – copper



With this transition coupler a PE-pipe is connected to a copper pipe which enters the house. The copper pipe has a PE duct which also is connected to the coupler.

- 1 Saw the PE-pipe and the copper pipe off straight and trim off the burrs.
- 1 Chamfer the copper pipe
- 1 Put the PE duct over the copper pipe.
- 1 Put a thin layer of lubricant on the end of the copper pipe.
- 1 Push the copper pipe through the POLSAFE coupler.
- 1 Place a brass ring over the end of the copper pipe.
- 1 Expand the end of the copper pipe and check the outer diameter;
For pipe 15 mm : 16,0-18,0 mm
For pipe 22 mm : 23,0-25,0 mm
For pipe 28 mm : 29,5-33,0 mm
- 1 Unscrew the coupling screw by 2 turns.
- 1 Push the PE-pipes into the connector up to the safety register (lubricant is not necessary).
- 1 Firmly fasten the screw cap by hand.

Advised tools:

Rotherberger expander wrench.

Model K, 8-42 mm.

Rotherberger Sicken expander heads

15 x 1,5 mm art. Nr. 1.1955

22 x 1,5 mm art. Nr. 1.1962

28 x 1,5 mm art. Nr. 1.1968

Installation instruction Polsafe fittings for PE pipes

17 STANDARDS

NEN 7230

Plastic piping systems for gas supply
– Pipes of high impact PVC –
Requirements and test methods.

NEN 7231

Plastic piping systems for gas supply
– Fittings of high impact PVC –
Requirements and test methods.

NEN 7232

Plastic piping systems for gas supply
– Saddles with clamp connection of
high impact PVC – Requirements
and test methods.

NEN 7240

Plastic piping systems for gas supply
– End thrust couplings of high
impact PVC - Requirements and test
methods.

NEN 7212

Rubber seals in distribution systems
for natural gas.

PREN 1555

Plastic piping systems for the supply
o Gaseous fuels – Polyethylene (PE).

KIWA BRL 2051

Lubricant for rubber ring seals.

ISO 6993

Pipes (high impact polyvinyl
chloride) (PVC-HI), pipes for the
supply of gaseous fuels – fuels –
Specification.

The specifications are available from:

Nederlandse Normalisatie instituut
P.O. Box 5059
2600 GB DELFT
The Netherlands

Pipelife Nederland B.V.

Flevolaan 7, 1601 MA Enkhuizen, The Netherlands

P.O. Box 380, 1600 AJ Enkhuizen, The Netherlands

Tel.: +31(0)228.355555

Fax: +31(0)228.355666

info@pipelife.nl

<http://www.pipelife.nl>

