

The TwinPipe system Overview

Introduction This section describes the technical specifications for TwinPipes and the aids and accessories which are used when installing preinsulated TwinPipes.

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TwinPipes

Preinsulated TwinPipes

Application

The TwinPipe system is a complete transmission and distribution system, consisting of straight TwinPipes and TwinFlex-pipes, for district heating.

All specifications in section 6 of this manual are based on:

Max. operating pressure = 25 bar

Fixing bars for preinsulated TwinPipes and fittings are dimensioned for a temperature difference between the flow and return pipeline of 90 K.

Continuous operating temperature = 140°C

Max. temperature (short-term) = 150°C

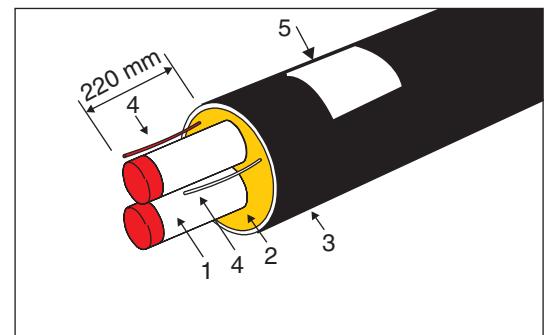
Max. outside temperature load (outer casings) = 50°C

In case of other conditions contact LOGSTOR's technical department.

Description

A preinsulated TwinPipe consists of:

Pos.	Part	Material
1	Service pipe	Steel
2	Insulation	Polyurethane foam
3	Outer casing	Polyethylene, PE-HD
4	Alarm wire for surveillance	Copper (one is tinned)
5	Pipe label	



Production methods

TwinPipes are produced after one of the following two methods:

1. Traditional process
2. Axial conti process

See page 2.0.1.1.

Steel pipe

Dimensions and tolerances:	According to ISO 4200
Standard pipes:	Longitudinally welded, P235TR1 according to EN 10217-1 or P235GH according to EN 10217-2
Melt analysis (max. %):	C _{max} 0.16; P _{max} 0.025; S _{max} 0.020; Mn _{max} 1.20; Si _{max} 0.35
Yield stress:	Min. 235 N/mm ²
Ultimate stress:	360-500 N/mm ²
Elongation at break:	Min. 23%
Weld factor:	V = 1.0
Works test certificate:	EN 10204 - 3.1
Bevelling:	EN ISO 9692-1 (30° with a 1.6 rootnose)
Surface quality:	All pipes are centrifugally cleaned with steel sand in order to ensure an optimum adhesion between pipe and insulation.
Welding method:	Autogenous welding is recommended.

TwinPipes

Preinsulated TwinPipes

Insulation	Polyurethane foam:	<p>Properties: Minimum as required in EN 253</p> <p>Max. continuous operating temperature: 140°C for 30 years</p> <p>Max. short-term operating temperature: 150°C</p>
	Blowing agent:	Cyclopentane
	Thermal conductivity:	<p>- Traditionally manufactured pipes (50°C): 0.027 W/m K.</p> <p>- Axial conti pipes (50°C): 0.023 W/m K.</p> <p>The lambda values are based on an average of the continuous measurements.</p> <p>The updated values are always included in the calculation program "Calculator". See www.logstor.com/Calculator.</p>
Outer casing	Polyethylene:	<p>PE-HD bimodal (min. PE 80, ISO 12162)</p> <p>Properties: Minimum as required in EN 253</p> <p>All parts are fully weldable within the melt flow index: MFR variation ≤ 0.5 g/10 min</p>
	Thermal stability:	<p>Calculated continuous surface temperature: 50° C for 30 years.</p> <p>Oxydation induction time (OIT): > 30 min at 210° C</p>
	Resistance against crack formation:	<p>Slow crack formation (notch sensitivity): > 300 h (notch, 4 MPa, 80°C, NCLT according to EN 253)</p> <p>Rapid crack propagation (RCP - cold sensitivity) > 5 bar (0° C, ISO 13377)</p>
	Internal surface treatment:	<p>All traditionally manufactured outer casings are corona-treated during production. This ensures an optimum adhesion between outer casing and insulation.</p> <p>As for conti pipes the adhesion takes place automatically during the production process.</p>
Finished pipes	<p>All pipes are produced on comparable parameters minimum according to EN 15698-1, but with a wider field of application:</p> <p>The calculated continuous operating temperature is 140° C for 30 years.</p> <p>The maximum short peak operating temperature is 150° C.</p> <p>The calculated continuous surface temperature is 50° C for 30 years.</p>	
	Free service pipe end:	220 mm \pm 10 mm
	Lengths, delivered:	6, 12 and 16 m

TwinPipes Preinsulated TwinPipes

Surveillance system

The TwinPipes are delivered with 2 copper wires, embedded in insulation.

Wires: 1.5 mm² copper wires (one is tinned)

Distance to steel pipe: 15 mm

Position in top: ± 3-20 cm from 12 o'clock position

The embedded copper wires are the backbone of the electronic surveillance systems which are available for most of our pipelines.

See description in section 16 of this manual.

TwinPipes

Preinsulated TwinPipes, series 1, 2, and 3

Application

Preinsulated TwinPipes are used for all common construction works and for systems with reduced trench width.

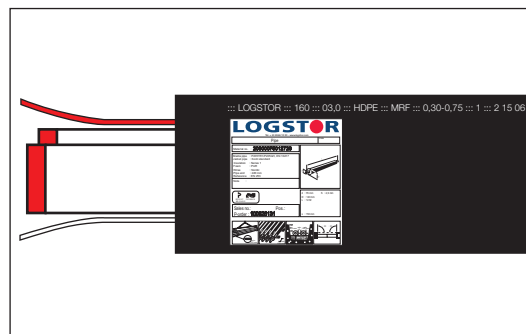
Applicable for installation methods: Preheating or high axial stress installation.

Description

A preinsulated TwinPipe series 1, 2 or 3 can be identified by its label, from which other data also appear. See page 1.3.0.2.

In all preinsulated TwinPipes copper wires for surveillance are embedded.

The dimensions ø 125-315 mm in series 1, ø 140-280 mm in series 2, and ø 160-315 in series 3 are available with diffusion barrier, see page 2.0.1.1.



Materials

TwinPipes are manufactured according to the same specifications as for other straight pipes.

Component overview/Data Series 1

Component No. 2090.

Steel pipe			Outer casing		Distance between steel pipes	Delivered length			Weight kg/m	Water content l/m
ø nom mm	ø out. mm	Wall th. mm	ø out. mm	Wall th. mm		6 m	12 m	16 m		
20	26.9	2.6	125	3.0	19	x	x		5.2	0.7
25	33.7	2.6	140	3.0	19	x	x		6.5	1.3
32	42.4	2.6	160	3.0	19	x	x		8.1	2.1
40	48.3	2.6	160	3.0	19	x	x		8.8	2.9
50	60.3	2.9	200	3.2	20	x	x		12.4	4.7
65	76.1	2.9	225	3.4	20	x	x		15.4	7.8
80	88.9	3.2	250	3.6	25	x	x		19.5	10.7
100	114.3	3.6	315	4.1	25	x	x	x	28.4	18.0
125	139.7	3.6	400	4.8	30	x	x	x	38.2	27.6
150	168.3	4.0	450	5.2	40	x	x	x	49.4	40.4
200	219.1	4.5	560	6.0	45		x	x	72.5	69.3

TwinPipes**Preinsulated TwinPipes, series 1, 2, and 3****Component overview/Data Series 2**

Steel pipe			Outer casing		Distance between steel pipes	Delivered length			Weight kg/m	Water content l/m
ø nom mm	ø out. mm	Wall th. mm	ø out. mm	Wall th. mm		6 m	12 m	16 m		
20	26.9	2.6	140	3.0	19	x	x		5.7	0.7
25	33.7	2.6	160	3.0	19	x	x		7.1	1.3
32	42.4	2.6	180	3.0	19	x	x		8.7	2.1
40	48.3	2.6	180	3.0	19	x	x		9.4	2.9
50	60.3	2.9	225	3.4	20	x	x		13.4	4.7
65	76.1	2.9	250	3.6	20	x	x		16.7	7.8
80	88.9	3.2	280	3.9	25	x	x		21.0	10.7
100	114.3	3.6	355	4.5	25	x	x	x	31.2	18.0
125	139.7	3.6	450	5.2	30	x	x	x	42.2	27.6
150	168.3	4.0	500	5.6	40	x	x	x	53.8	40.4
200	219.1	4.5	630	6.6	45		x	x	80.4	69.3

Component overview/Data Series 3

Steel pipe			Outer casing		Distance between steel pipes	Delivered length			Weight kg/m	Water content l/m
ø nom mm	ø out. mm	Wall th. mm	ø out. mm	Wall th. mm		6 m	12 m	16 m		
20	26.9	2.6	160	3.0	19	x	x		6.2	0.7
25	33.7	2.6	180	3.0	19	x	x		7.6	1.3
32	42.4	2.6	200	3.0	19	x	x		9.4	2.1
40	48.3	2.6	200	3.0	19	x	x		10.1	2.9
50	60.3	2.9	250	3.4	20	x	x		14.6	4.7
65	76.1	2.9	280	3.6	20	x	x		18.1	7.8
80	88.9	3.2	315	3.9	25	x	x		22.7	10.7
100	114.3	3.6	400	4.5	25	x	x	x	34.1	18.0
125	139.7	3.6	500	5.2	30	x	x	x	46.2	27.6
150	168.3	4.0	560	5.6	40	x	x	x	59.1	40.4
200	219.1	4.5	710	6.6	45		x	x	89.6	69.3

TwinPipes

Overview, TwinFlex-pipes

Application

Together with the straight TwinPipes the different TwinFlex-pipes form an optimum solution financially as well as economically.

Description of TwinFlex-pipe types

All TwinFlex pipes are available in 50 or 100 m lengths.

PexFlex TwinPipe, PN 6
Component No. 2190
See section 3.2.

PEX service pipe ø out. mm	Outer casing, ø out. mm	
	Series 1	Series 2
16/16*	90	110
20/20	90	110
25/25	110	125
32/32	110	125
40/40	125	140
50/50	160**	180**
63/63	180**	

* PN 10

** Only PexFlextra Twin

AluFlex TwinPipe
Component No. 2190
See section 3.3

AluPEX ø out. mm	Outer casing, ø out. mm		
	Series 1	Series 2	Series 3
16/16	90	110	125
20/20	90	110	125
26/26	110	125	
32/32	110	125	

AluFlextra TwinPipe
Component No. 2190

CuFlex-TwinPipe
Component No. 2190
See section 3.4

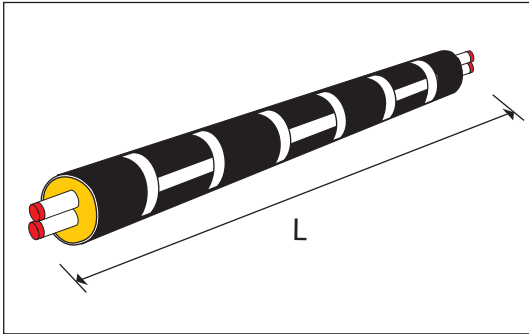
Cu-pipe ø out. mm	Outer casing, ø out. mm	
	Series 1	Series 2
15/15	90	110
18/18	90	110
22/22	90	110
28/28	110	

Alternative

If required or wanted, branching from straight TwinPipe to Flex single pipe, e.g. to SteelFlex, is also possible.

TwinPipes

Zebra pipe

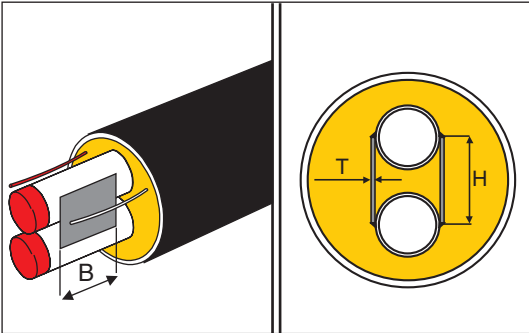
Application	Zebra pipes are used to facilitate the removal of insulation when adjusting pipe lengths.	
Description	<p>The zebra pipe is divided into sections of 0.5-1.5 m, marked with transverse tape.</p> <p>Every second section has no adhesion between the insulation and the service pipe. These sections are marked with longitudinal tape.</p>	
Materials	Zebra pipes are produced according to the same specifications as other traditionally produced straight pipes.	
Component No./ data	<p>Component No. 2496.</p> <p>The pipes are available in 12 and 16 m lengths.</p> <p>The dimensions of insulation series 1, 2 and 3 are the same as for straight TwinPipes.</p>	

TwinPipes
Fixing bars

Application Place fixing bars at the end of straight pipelines when preinsulated fittings with bars are not used.

Description The fixing bar is a rectangular steel sheet, welded onto the sides of the pipe end.

Fixing bars are delivered in bags, containing 2 pcs. each.



Materials Fixing bars are made of weldable steel quality.

Component No./ data Fixing bars
Component No. 1998

Dim. ø out mm	Measures, mm		
	B	H	T
26.9	50	46	4
33.7	50	53	4
42.4	50	61	4
48.3	50	67	4
60.3	70	80	4
76.1	90	96	4
88.9	110	114	6
114.3	140	139	6
139.7	170	170	6
168.3	200	208	6
219.1	260	264	8

TwinPipes

Straight casing joints

Casing joint types

All LOGSTOR casing joints for foaming can be used for the TwinPipe system, see section 2.2.

In addition the BXJoint can be delivered with special TwinPipe insulation shells, see section 2.2.7.1

However, a supplementary set of accessories must be used for BandJoints:

- BandJoint ø 125 - 200, see section 2.2.2
- BandJoint ø 225 - 710, see section 2.2.3

The foam pack numbers differ from those for single pipes, see section 15.3.

TwinPipes
Horizontal bends, curved pipes

Application

Curved pipes are curved pipe elements which are used instead of traditional bends. This results in system optimization and improved project economy.

Curved pipes for TwinPipes can be used for installation methods: Preheating and high axial stress installation.

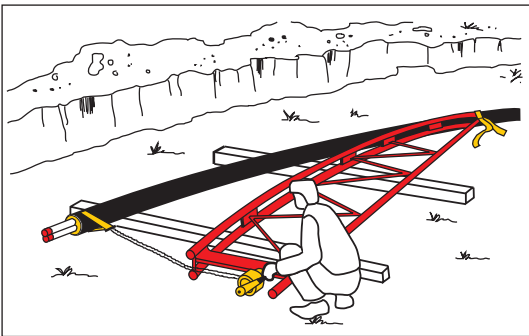
Description

Curved pipes for TwinPipes are delivered for operating pressure 25 bar.

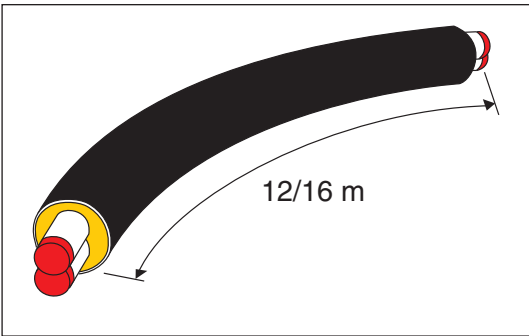
All curved pipes are delivered with embedded copper wires for surveillance.

Curved pipes are divided into 2 dimensional ranges:

- On-site curved pipes \varnothing 26.9 - 48.3 mm, series 1 and 2.
Pipes in these dimensions are common straight pipes which are bent on site with special tools.
However, max. casing pipe diameter is \varnothing 180 mm.



- Machine curved pipes \varnothing 76.1 - 219.1 mm, series 1, 2, and 3 .
Machine curved pipes are made by bending 12 and 16 m TwinPipes in our specially designed production plant.



Max. angular displacement per pipe length.
Other values, see Design Manual.

Steel pipe \varnothing out. mm	12 m v°	16 m v°
76.1	25	-
88.9	30	10
114.3	38	16
139.7	40	20
168.3	41	24
219.1	45	25

Materials

All materials are the same as those for straight TwinPipes: Steel/PUR/PE-HD.

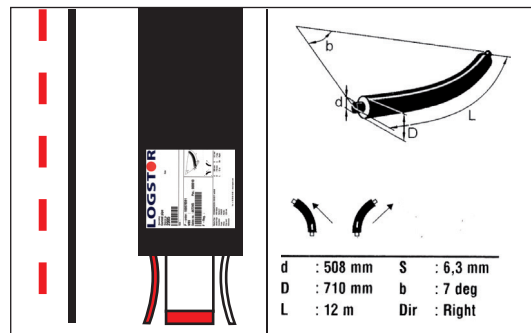
TwinPipes

Horizontal bends, curved pipes

Component No. On-site curved pipes: No independent component Nos.
Machine curved pipes: Component No. 2095.

Definition
Alarm wire position

Machine curved pipes are delivered with embedded copper wires for surveillance.
If they are to be used, state in which direction the pipes should be bent: Right or left. The direction is defined by the position of the pipe where tinned wire is always to the right and blank copper wire to the left. This refers to the symbols of the surveillance diagram; full-drawn and dotted line respectively.



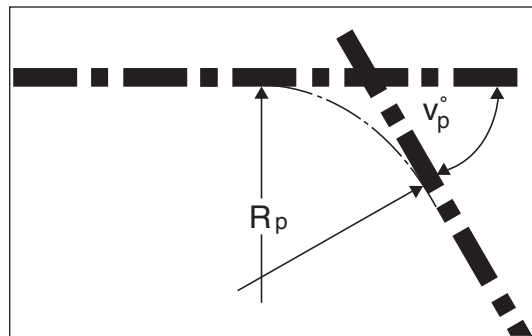
Definition
Angles

When ordering, please state required angle in whole degrees on the basis of the centre lines of the trenches.

Tolerances may occur dependent on the dimension of the steel pipes and the variation in yield stress. However, this has no practical significance for the use, as the pipes also have a certain elasticity.

V_p = Design angle
 R_p = Design radius

Max. bending angle = min. bending radius appears from the table in the Design Manual.



TwinPipes

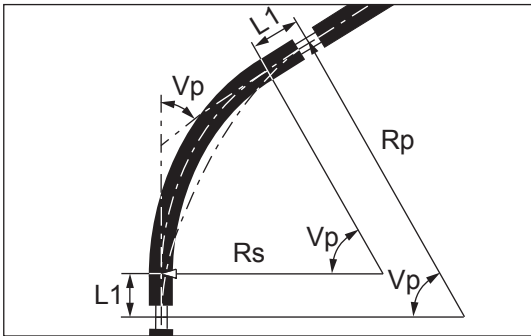
Horizontal bends, curved pipes

Component
overview/data

From the table the maximum bending angle, v°_p , for curved pipes in 12 m and 16 m length respectively appears.

In addition, the max. bending angle, v°_p is to be set in relation to the stress level, at which the curved pipe is installed.

- v°_p = Maximal bending angle
- R_s = Segment radius (the bent section)
- R_p = Design radius
- L_1 = Length of straight pipe run
- Tol = Tolerance of angle +/-



For further information about curved pipes, see the Design manual, section 4.

Steel pipe ø out. mm	12 m pipe					16 m pipe				
	v°_p	R_s m	R_p min. m	L_1 m	Tol V°	v°_p	R_s m	R_p min. m	L_1 m	Tol V°
2 x 76.1	24	25.9	28.6	0.57	6.0	-	-	-	-	-
2 x 88.9	32	19.4	21.5	0.58	5.2	-	-	-	-	-
2 x 114.3	38	16.4	18.1	0.56	3.8	14	45.5	65.6	2.45	5.1
2 x 139.7	42	14.7	16.4	0.63	3.1	20	31.9	45.9	2.44	4.1
2 x 168.3	45	13.6	15.4	0.67	2.6	23	27.8	40.0	2.43	3.5
2 x 219.1	45	13.0	15.3	0.89	2.0	24	26.8	33.6	2.39	2.7

For larger dimensions contact LOGSTOR Technical Sales Support.

TwinPipes

Horizontal bend fittings

Joint types

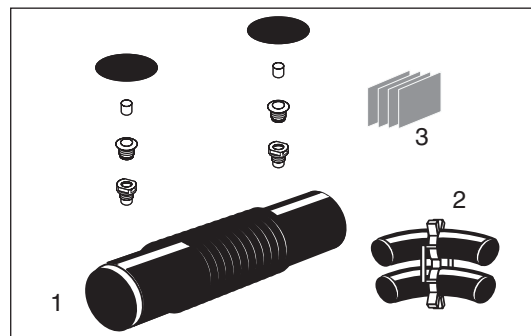
As an alternative to preinsulated bends in the smallest dimensions SXBJoint dimension \varnothing 125-315 mm is recommended.

When using bend fittings with other angles than 90°, it must be ensured through calculation that no harmful bending impacts arises.

SXBJoints

The solution with the SXBJoint consists of:

1. Joint with flexible bending zone
Venting, expansion, wedge plugs, and patches
2. 2 SXB steel bends with spacers
3. 4 fixing bars (2 sets)



Component overview

SXBJoint set (1)

Component No. 5208, see page 2.3.2.1.

SXB steel bends (special) (2)

Component No. 5252, see page 2.3.2.2.

Fixing bar (3)

Component No. 1998, see page 6.2.0.1.

In addition installation requires foam packs, see section 15.3.

TwinPipes

Horizontal preinsulated bends, 90°

Application

Preinsulated horizontal bends for TwinPipes are used for 90° horizontal changes of direction.

Horizontal bends are applicable for installation methods: Preheating and high axial stress installation.

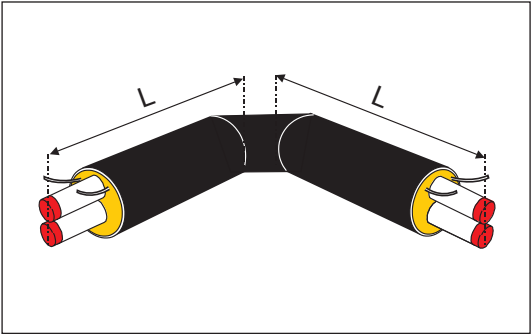
When using preinsulated bends with other angles than 90°, it must be ensured through calculation that no harmful bending impacts arises.

Description

Preinsulated horizontal bends are delivered for operating pressure 25 bar.

All bends are delivered with fixing bars at both ends.

All bends have embedded copper wires for surveillance.



Materials

All materials are the same as those for straight TwinPipes: Steel/PUR/PE-HD.

Produced on all comparable parameters minimum according to EN 448.

Cold-bent steel pipes are used.

Component No./measures

Component No. 2590.

Other angles with offsets of 5° are available to order.

Steel pipe ø out. mm	Dimension			L mm
	Outer casing			
	Series 1	Series 2	Series 3	
26.9	125	140	160	1000
33.7	140	160	180	1000
42.4	160	180	200	1000
48.3	160	180	200	1000
60.3	200	225	250	1000
76.1	225	250	280	1000
88.9	250	280	315	1000
114.3	315	355	400	1000
139.7	400	450	500	1000
168.3	450	500	560	1500
219.1	560	630	710	1500

TwinPipes

Vertical bends

Application

There are two types of preinsulated vertical bends for TwinPipes:

- Vertical bends for directional changes between 5° and 90° at intervals of 5°.
- 90° house entry pipes.

Vertical bends are applicable for installation methods: Preheating and high axial stress installation (see precautions for vertical bends below).

Description

Preinsulated vertical bends are available for operating pressure: 25 bar.

All bends are delivered with fixing bars. However, in case of house entry pipes only on the horizontal part.

All bends have embedded copper wires for surveillance.

In house entry pipes the vertical pipes run parallel with the wall.

Materials

All materials are the same as those for straight TwinPipes: Steel/PUR/PE-HD.

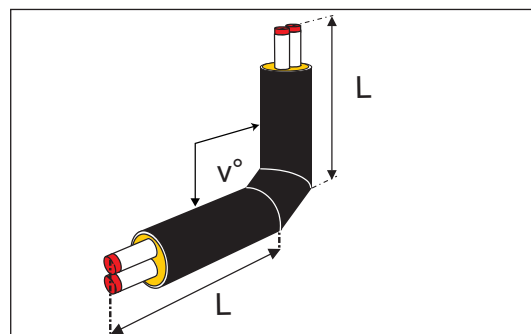
Produced on all comparable parameters minimum according to EN 448.

Dependent on dimension and angle, cold-bent steel pipes or weld elbows are used.

Vertical bends

Vertical bends in other angles than 90° are available to order.

However, when using other angles than 90° it must be ensured through calculation that no harmful bending impact arises.



Vertical bends, component No. 2591.

Steel pipe ø out. mm	Outer casing, ø out. mm			L mm
	Series 1	Series 2	Series 3	
26.9	125	140	160	1000
33.7	140	160	180	1000
42.4	160	180	200	1000
48.3	160	180	200	1000
60.3	200	225	250	1000
76.1	225	250	280	1000
88.9	250	280	315	1000
114.3	315	355	400	1000
139.7	400	450	500	1000
168.3	450	500	560	1500
219.1	560	630	710	1500

TwinPipes
Vertical bends

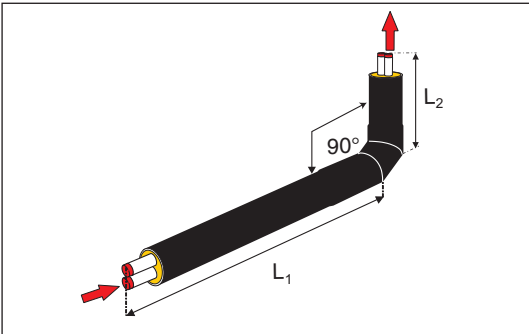
House entry
pipes

House entry pipes are as a standard available with the pipe run shown in the illustration, called type 1. Here the lower horizontal pipe corresponds to the vertical right pipe, see arrows.

As a special product a type 2 is available. Here the lower horizontal pipe corresponds to the vertical left pipe.

Corresponding pipe ends are marked with the same colour code.

House entry pipe, component No. 2592.
Larger dimensions are available to order.



Steel pipe ø out. mm	Dimension			H x L 1500 x 2500 mm	
	Series 1	Series 2	Series 3	Type 1	Type 2*)
26,9	125	140	160	x	x
33,7	140	160	180	x	x
42,4	160	180	200	x	x
48,3	160	180	200	x	x
60,3	200	225	250	x	x
76,1	225	250	280	x	x
88,9	250	280	315	x	x

*) Type 2 is not a standard product

TwinPipes

Overview, branches

Branch types

For the TwinPipe system LOGSTOR can deliver a number of different branch types and combinations dependent on dimension, kind of project, and the customer's actual wishes:

- From TwinPipe to TwinPipe:
 - Straight BandJoint branch
 - Straight branch, TXJoints
 - Straight branch, SXTJoints
 - Preinsulated branches

From TwinPipe to two single pipes (primarily FlexPipes)

- Straight branches with BandJoint branch
- Straight branches with T- shrink joints

Straight BandJoint branch

Straight BandJoint branch (Twin - Twin).

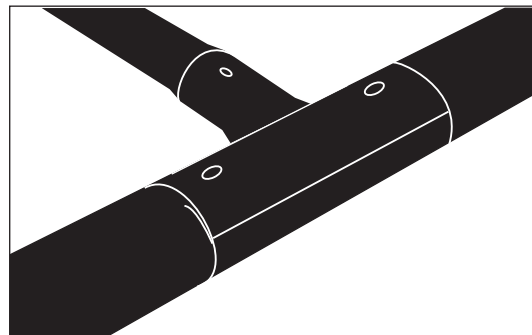
Main pipe (outer casing):

ø 125 - 710 mm

Branch (outer casing):

ø 90 - 225 mm

Component No. 5640.



Straight branch with TXJoint

Straight shrink branch (Twin - Twin).

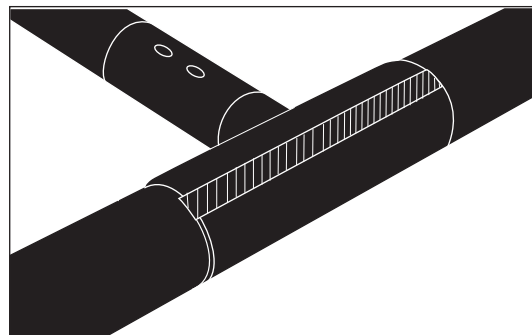
Main pipe (outer casing):

ø 125 - 710 mm

Branch (outer casing):

ø 90 - 450 mm

Component No. 5191.



Straight branch with SXTJoint

Straight shrink joint (Twin - Twin).

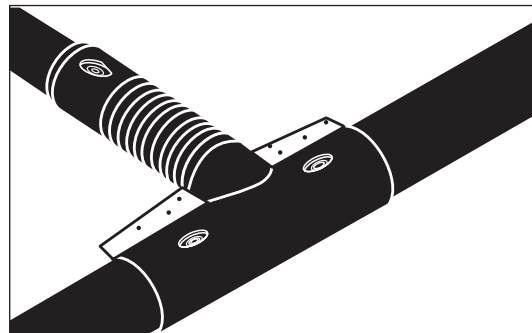
Main pipe (outer casing):

ø 125 - 315 mm

Branch (outer casing):

ø 90 - 200 mm

Component No. 5209/5207.



TwinPipes

Overview, branches

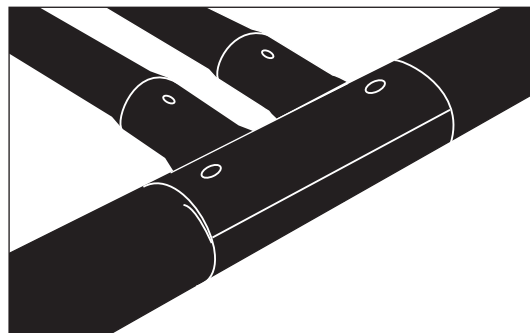
Straight branch with BandJoint branch

Straight BandJoint branch
(Twin - single pipe):

Main pipe (outer casing):
ø 125 - 710 mm

Branch (outer casing):
ø 77 - 110 mm

Component No. 5640.



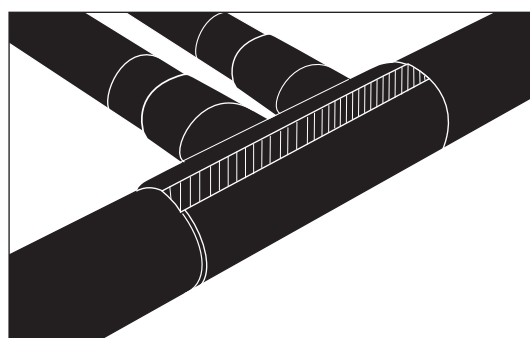
Straight branch with T-joints double

Straight T-joint
(Twin - single pipe):

Main pipe (outer casing):
ø 125 - 710 mm

Branch (outer casing):
ø 77 - 90 mm

Component No. 5190

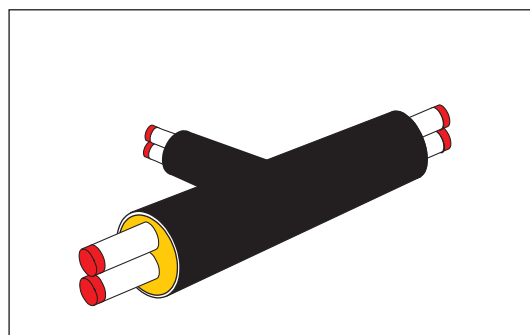


Preinsulated branch

Preinsulated T-branch for TwinPipes:

- Main pipe: ø 26.9 - 219.1 mm
- Branch: ø 26.9 - 219.1 mm
- In both series 1, 2, and 3

Component No. 3490.



TwinPipes**Overview, branches - hot tapping****General**

All types of branch fittings can be used in connection with hot tapping.

A few joint types require that the connecting piece is oversized or another length in order to make room for the hot tapping valve.

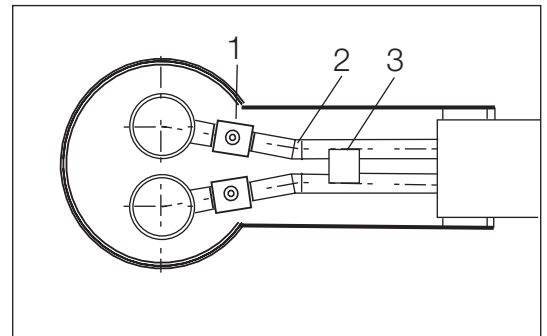
**Hot tapping
TwinPipe -
TwinPipe**

Hot tapping, carried out with:

1. Hot tapping valve
2. Weld elbow
3. Fixing bars

Primarily used in connection with:

- BandJoints

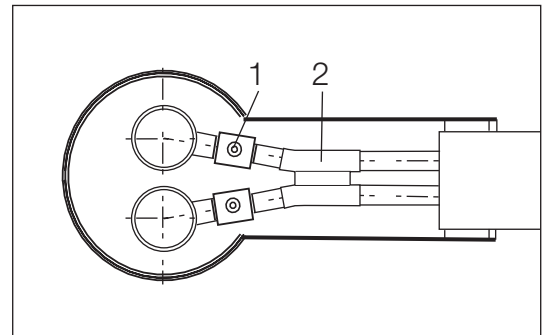


Hot tapping, carried out with:

1. Hot tapping valve
2. Connecting pipe with fixation

Primarily used in connection with:

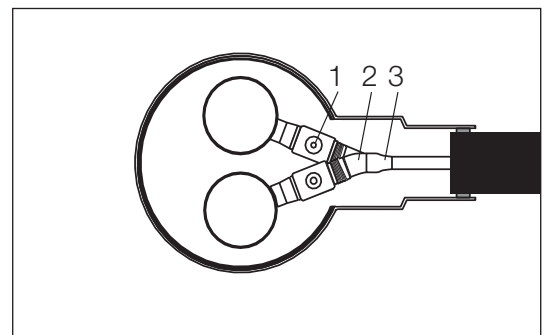
- shrink joints

**Hot tapping
TwinPipe - single
pipe**

Hot tapping, carried out with:

1. Hot tapping valve
2. Weld elbow
3. Weld reduction

Used for all joint types with two connecting branches.

**Choosing branch
type**

See advantages and application fields for each branch type on page 2.4.1.4.

In general TwinPipe solutions are carried out on the same level as the main pipe without level change.

TwinPipes
Straight BandJoint branch

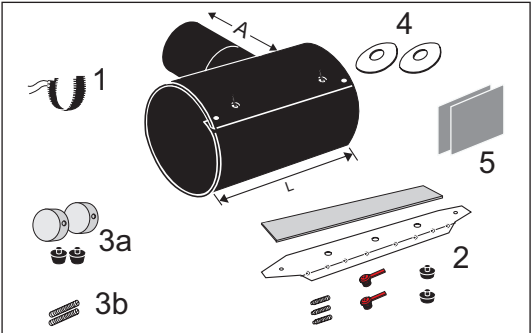
Application Straight branch with BandJoint branch is used in connection with branching from TwinPipe to TwinPipe.

Casing joint dimension: Main pipe ø 125-710 mm
Branch ø 90 - 225 mm

Description A complete branch set consists of:

- 1. - Branch joint with fixed connecting piece
 - Welding strips for the connecting piece
- 2. Accessories set:
 - Depth guard
 - Felt pad
 - Venting plugs
 - Welding plugs
 - Adjusting bolts
- 3. Additional accessories set:
 - a - Supporting chocks
 - Additional welding plugs
 - b - Extra long bolts
 (only in dimensions ø 450-710 mm)
- 4. 2 reinforcement plates (If any. See table p. 2.4.2.1)
- 5. Fixing bars (set with 2 pcs.)
 To be used for steel Twin branches

The components under items 1-5 are delivered separately in plastic bags.



The BandJoint branch is available in two versions:

- a standard version, STD, for normal joint installation
- an extra long version, L, for special installation and repair.

Main pipe Outer casing ø mm	STD		L	
	L mm	A mm	L mm	A mm
125-200	570	350	700	415
225-560	590	350	720	415
630-710	660	350	790	415

Materials The BandJoint branch is made of polyethylene, PE, with embedded welding wires of copper in the welding zone of the main pipe.

The welding strips which are inserted into the branch are also made of PE with embedded welding wires on both sides.

- Steel depth guard and reinforcement plates: Weldable steel quality
- Venting plugs and supporting chocks: Polypropylene
- Welding plugs: PE-HD

TwinPipes

Straight BandJoint branch

Component overview, branch joints Standard length, STD

Component No. 5640.

Welding strips are included.

Main pipe Outer casing ø mm	Branch, outer casing, ø mm							
	90	110	125	140	160	180	200	225
125	x	x						
140	x	x	x					
160	x	x	x	x				
180	x	x	x	x	x			
200	x	x	x	x	x	x		
225	x	x	x	x	x	x	x	
250	x	x	x	x	x	x	x	x
280	x	x	x	x	x	x	x	x
315	x	x	x	x	x	x	x	x
355	x	x	x	x	x	x	x	x
400	x	x	x	x	x	x	x	x
450	x	x	x	x	x	x	x	x
560	x	x	x	x	x	x	x	x
630	x	x	x	x	x	x	x	x
710	x	x	x	x	x	x	x	x

Component overview Other components

Standard accessories:

- Component No. 5557

Additional accessories:

a. Welding plugs and supporting chokes set

Component No. 5606.

b. Extra long bolts

Component No. 1995.

Order **2** pcs. per casing joint.

Main pipe Outer casing ø mm	Standard	Accessories	
		Additional a Support. chock ød mm	b l mm
125	x	x 35	
140	x	x 35	
160	x	x 35	
180	x	x 35	
200	x	x 50	
225	x	x 50	
250	x	x 50	
280	x	x 70	
315	x	x 70	
355	x	x 70	
400	x	x 70	
450	x	x 70	150
500	x	x 70	220
560	x	x 70	220
630	x	x 70	250
710	x	x 70	250

Accessories

Foam packs are used for foaming. Foam pack size, see the table in section 15.3.

Remember possible components for installation of alarm wires.

TwinPipes

Straight BandJoint branch

Component overview, branch joints Extra long, L

Component No. 5640.

Welding strips are included.

Main pipe Outer casing ø mm	Branch, outer casing, ø mm							
	90	110	125	140	160	180	200	225
125	x	x						
140	x	x	x					
160	x	x	x	x				
180	x	x	x	x	x			
200	x	x	x	x	x	x		
225	x	x	x	x	x	x	x	
250	x	x	x	x	x	x	x	x
280	x	x	x	x	x	x	x	x
315	x	x	x	x	x	x	x	x
355	x	x	x	x	x	x	x	x
400	x	x	x	x	x	x	x	x
450	x	x	x	x	x	x	x	x
560	x	x	x	x	x	x	x	x
630	x	x	x	x	x	x	x	x
710	x	x	x	x	x	x	x	x

Component overview Other components

Standard accessories:

- Component No. 5606

Additional accessories:

a. Welding plugs and supporting chokes set
Component No. 5606.

Order **1.5** sets per casing joint.

b. Extra long bolts

Component No. 1995.

Order **3** pcs. per casing joint.

Main pipe Outer casing ø mm	Accessories Standard	Additional	
		a Sup. chock ød mm	b l mm
125	x	x 35	
140	x	x 35	
160	x	x 35	
180	x	x 35	
200	x	x 50	
225	x	x 50	
250	x	x 50	
280	x	x 70	
315	x	x 70	
355	x	x 70	
400	x	x 70	
450	x	x 70	150
500	x	x 70	220
560	x	x 70	220
630	x	x 70	250
710	x	x 70	280

Accessories

Foam packs are used for foaming. Foam pack size, see the table in section 15.3.

Remember possible components for installation of alarm wires.

TwinPipes

Straight branches, TXJoint

Application

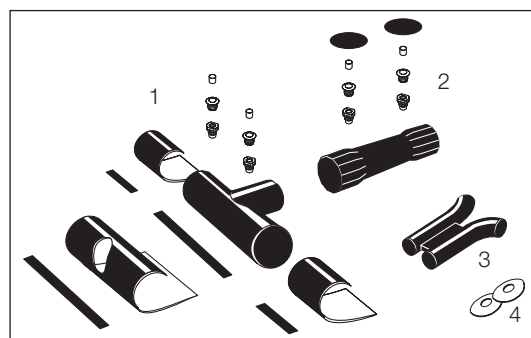
The straight TX-branch is used when branching from TwinPipe to TwinPipe.
If used in connection with hot tapping state this when ordering.

Casing joint dimension, main pipe: \varnothing 125 - 710 mm
branch: \varnothing 125 - 280 mm

Description

A complete branch set consists of:

1. T-joint
 - Shrink sleeves, shrink wrap and closure strips
2. Shrink joint (SX)
 - Venting, expansion and wedge plugs
 - Patches
3. Connecting pipe (If any)
4. Reinforcement plates (If any. See table p. 2.4.2.1)



Materials

The following materials are part of a TX-branch set:

- T-joint and shrink joint	Cross-linked PE (PEX)
- Closure strips	Cross-linked with glass fibre-reinforcement
- Shrink sleeves	PEX with mastic
- Venting plugs	LDPE
- Expansion plugs	PEX with butyl mastic ring
- Wedge plugs	PEX
- Patches	PEX with water-resistant hotmelt adhesive
- Shrink wrap	PEX with mastic
- Connecting pipe	Steel quality in accordance with EN 448

Twin Pipes

Straight branches, TXJoint

Component overview, TXJoint

Component No. 5191

Main pipe Outer casing ø mm	Branch, outer casing, ø mm									
	90	110	125	140	160	180	200	225	250	280
125	x	x								
140	x	x	x							
160	x	x	x	x						
180	x	x	x	x	x					
200	x	x	x	x	x	x				
225	x	x	x	x	x	x	x			
250	x	x	x	x	x	x	x	x		
280	x	x	x	x	x	x	x	x	x	
315	x	x	x	x	x	x	x	x	x	x
355	x	x	x	x	x	x	x	x	x	x
400	x	x	x	x	x	x	x	x	x	x
450	x	x	x	x	x	x	x	x	x	x
500	x	x	x	x	x	x	x	x	x	x
560	x	x	x	x	x	x	x	x	x	x
630	x	x	x	x	x	x	x	x	x	x
710	x	x	x	x	x	x	x	x	x	x

Component overview, Connecting pipe

Component No. 0262

Main pipe Steel pipe ø mm	Branch, steel pipe. ø mm						
	26.9	33.7	42.4	48.3	60.3	76.1	88.9
42.4	x	x					
48.3	x	x	x				
60.3	x	x	x	x			
76.1	x	x	x	x	x		
88.9	x	x	x	x	x	x	
114.3	x	x	x	x	x	x	x
139.7	x	x	x	x	x	x	x
168.3	x	x	x	x	x	x	x
219.1	x	x	x	x	x	x	x

Accessories

Foam packs are used for foaming. Foam pack size, see the table in section 15.3.

Remember possible components for installation of alarm wires.

TwinPipes

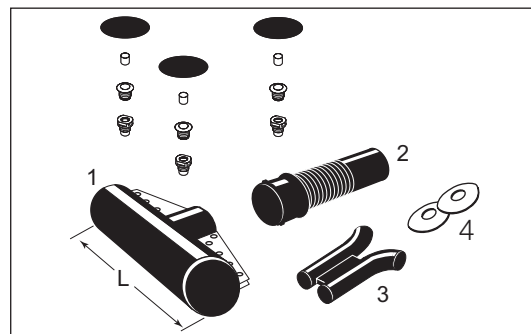
Straight branches, SXTJoint

Application SXT-branches are used when branching from TwinPipe to TwinPipe.

Casing joint dimension, main pipe: \varnothing 125-315 mm
branch: \varnothing 90-200 mm

Description A complete branch set consists of:

1. Main pipe joint, open
2. Branch pipe joint, flexible
Both with venting, expansion and wedge plugs as well as patches
3. Connecting pipe (if any)
4. Reinforcement plates (If any. See table p. 2.4.2.1)



Materials The following materials form part of a SXT-branch set:

- Main pipe joint: Cross-linked PE (PEX)
Flanges and bolts in acid-resisting steel AISI 316 L/A4
- Branch pipe joint: PEX
- Venting plugs: LDPE
- Expansion plugs: PEX with mastic
- Wedge plugs: PEX
- Patches: PEX with water-resistant hotmelt adhesive
- Connecting pipe: Steel quality in accordance with EN 448

Measurements SXT main pipe joint:

Main pipe \varnothing mm	Branch pipe \varnothing mm	Length L, mm
125	90-125	690
140	90-140	690
160	90-160	690
180	90-160	690
200	90-180	690
225	90-200	690
250	90-140	690
250	160-200	700
280	90-140	690
280	160-200	730
315	90-200	730

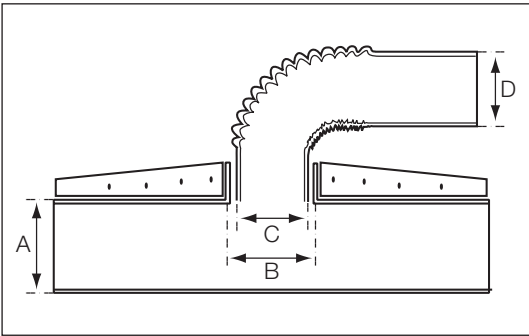
TwinPipes
Straight branches, SXTJoint

Example of joint combinations

A main pipe joint has a connecting piece (B) which fits several branch pipe joints.

Likewise, the end of the branch pipe joint (D), which is shrunk on to the branch fits one or more dimensions.

(The illustration shows a 90° branch bend, but is of course straight for TwinPipes).



Component overview

Component numbers:	Main pipe joint	5207
	Branch pipe joint	5209
	Connecting piece	0262

Combinations of main pipe joint and branch pipe joint:

Main pipe A, mm	B measure, mm	C measure, mm	Branch pipe interval, D mm			
125	155	144	77-90	110-125		140-160
140	170	160	77-90	110-125	125-140	
160	170	160	77-90	110-125	125-140	
180	190	180	77-90	110-125	125-140	
200	170	160	77-90	110-125	125-140	
200	230	220	140-160	180-200		
225	170	160	77-90	110-125	125-140	
225	230	220	140-160	180-200		
250	170	160	77-90	110-125	125-140	
250	230	220	140-160	180-200		
280	170	160	77-90	110-125	125-140	
280	230	220	140-160	180-200		
315	170	160	77-90	110-125	125-140	
315	230	220	140-160	180-200		

Connecting piece

Main pipe Steel pipe ø mm	Branch, steel pipe, ø mm						
	26.9	33.7	42.4	48.3	60.3	76.1	88.9
42.4	x	x					
48.3	x	x	x				
60.3	x	x	x	x			
76.1	x	x	x	x	x		
88.9	x	x	x	x	x	x	
114.3	x	x	x	x	x	x	x

TwinPipes

Straight BandJoint branch

Application

Straight branch with BandJoint branch is used in connection with branching from TwinPipe to single pipe.

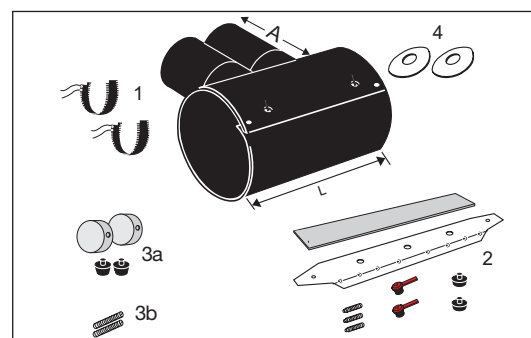
Casing joint dimension: Main pipe \varnothing 125-710 mm
Branch \varnothing 77 - 110 mm

Description

A complete branch set consists of:

1. - Branch joint with two connecting pieces
 - Welding strips for the connecting pieces
2. Accessories set:
 - Depth guard
 - Felt pad
 - Venting plugs
 - Welding plugs
 - Adjusting bolts
3. Additional accessories set:
 - A - Supporting chock
 - Extra welding plugs
 - B - Special adjusting bolts
4. 2 reinforcement plates (option; only for SteelFlex)

The components under items 1-3 are delivered separately in plastic bags.



The BandJoint branch is available in two versions:

- a standard version, STD, for normal joint installation
- an extra long version, L, for special installation and repair.

Main pipe Outer casing \varnothing mm	STD		L	
	L mm	A mm	L mm	A mm
125-200	700	350	830	415
225-450	720	350	850	415
500-710	720	350	980	415

Materials

The BandJoint branch is made of polyethylene, PE, with embedded welding wires of copper in the welding zone of the main pipe.

The welding wires which are inserted into the outlets are also made of PE with embedded welding wires on both sides.

- Steel depth guard and reinforcement plates: Weldable steel quality
- Venting plugs and supporting chokes: Polypropylene
- Welding plugs: PE-HD

TwinPipes

Straight BandJoint branch

Component overview, joints Standard length, STD

Component No. 5640.
Welding strips are included.

Main pipe Outer casing ø mm	Branch, outer casing, ø mm		
	77	90	110
125	x	x	x
140	x	x	x
160	x	x	x
180	x	x	x
200	x	x	x
225	x	x	x
250	x	x	x
280	x	x	x
315	x	x	x
355	x	x	x
400	x	x	x
450	x	x	x
560	x	x	x
630	x	x	x
710	x	x	x

Component overview, other parts

Reinforcement plates.
Only in connection with SteelFlex.
Component No. 5426.
Order 2 pcs. per branch.

TwinPipe ø mm	Steel pipe	
	SteelFlex ø mm	
26.9	20	
33.7	20 - 28	
42.4	20 - 28	
48.3	20 - 28	
60.3	20 - 28	
76.1	20 - 28	
88.9	20 - 28	
114.3	20 - 28	
139.7	20 - 28	
168.3	20 - 28	
219.1	20 - 28	

TwinPipes

Straight BandJoint branch

Component overview, other parts, *continued*

Accessories:

- Standard accessories
Component No. 5557
- Additional accessories:
 - a: Supporting chocks and welding plugs,
Component No. 5606
 - b: Extra long bolts,
Component No. 1995
Order **2** pcs. per joint.

Main pipe Outer casing ø mm	Accessories		
	Standard	Additional	
		a Sup. chock ød mm	b l mm
125	x	x 35	
140	x	x 35	
160	x	x 35	
180	x	x 35	
200	x	x 50	
225	x	x 50	
250	x	x 50	
280	x	x 70	
315	x	x 70	
355	x	x 70	
400	x	x 70	
450	x	x 70	150
500	x	x 70	220
560	x	x 70	220
630	x	x 70	250
710	x	x 70	250

Accessories

Foam packs are used for foaming. Foam pack size, see the table in section 15.3.

Remember possible components for installation of alarm wires.

Component overview, joint Extra long, L

Component No.: 5640.

Welding strips for branch are included.

Main pipe Outer casing ø mm	Branch, outer casing ø mm		
	77	90	110
125	x	x	x
140	x	x	x
160	x	x	x
180	x	x	x
200	x	x	x
225	x	x	x
250	x	x	x
280	x	x	x
315	x	x	x
355	x	x	x
400	x	x	x
450	x	x	x
560	x	x	x
630	x	x	x
710	x	x	x

TwinPipes

Straight BandJoint branch

Component overview, other parts

Reinforcement plates.
Only in connection with SteelFlex.
Component No. 5426.
Order 2 pcs. per branch.

Steel pipe	
TwinPipes ø mm	SteelFlex ø mm
26.9	20
33.7	20 - 28
42.4	20 - 28
48.3	20 - 28
60.3	20 - 28
76.1	20 - 28
88.9	20 - 28
114.3	20 - 28
139.7	20 - 28
168.3	20 - 28
219.1	20 - 28

Accessories:

- Standard accessoires
Component No. 5557
- Additional accessories:
 - a: Supporting chocks and welding plugs,
Component No. 5606
 - b: Extra long bolts,
Component No. 1995
 Order **3** pcs. per joint.

Main pipe Outer casing ø mm	Accessories			
	Standard	Additional		b l mm
		a Sup. chock ød mm		
125	x	x	35	
140	x	x	35	
160	x	x	35	
180	x	x	35	
200	x	x	50	
225	x	x	50	
250	x	x	50	
280	x	x	70	
315	x	x	70	
355	x	x	70	
400	x	x	70	
450	x	x	70	150
500	x	x	70	220
560	x	x	70	220
630	x	x	70	250
710	x	x	70	250

Accessories

Foam packs are used for foaming. Foam pack size, see the table in section 15.3..
Remember possible components for installation of alarm wires.

TwinPipes

Straight branch, T-joints, double

Application

Straight T-joint with two connecting pipes used to branch from TwinPipe to single pipe, primarily FlexPipes.

May also be used for hot tapping.

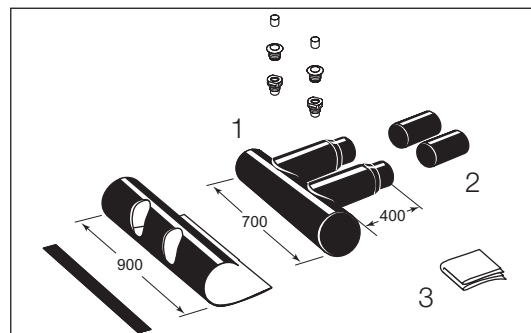
Joint dimension, main pipe: \varnothing 125 - 710 mm

branch: \varnothing 77 - 110 mm

Description

A complete branch set consists of:

1. Branch tee coupling (T-shoe), shrink wrap, closure patch, plug set
2. Shrink sleeves
3. Cleaning cloth



Materials

The following materials form part of a T-joint, double branch set:

- T-branch tee coupling: PE
- Shrink wrap and sleeves: PE with mastic
- Closure patch: Cross-linked polyolefin wit glass fibre reinforcement
- Venting plugs: LDPE
- Expansion plugs: PEX with mastic
- Wedge plugs: PEX

Component overview

Component No. 5190

Main pipe Outer casing \varnothing mm	Branch - outer casing \varnothing mm		
	77	90	110
140	x	x	x
160	x	x	x
180	x	x	x
200	x	x	x
225	x	x	x
250	x	x	x
280	x	x	x
315	x	x	x
355	x	x	x
400	x	x	x
450	x	x	x
500	x	x	x
560	x	x	x
630	x	x	x
710	x	x	x

TwinPipes

Straight branch, T-joints, double

Accessories

Foam packs are used for foaming. Foam pack size, see the table in section 15.3.

Remember possible components for installation of alarm wires.

Check whether reinforcement plates are necessary or not, section 2.4.2.

TwinPipes

Hot tapping, TwinPipe -TwinPipe

Application On TwinPipe systems in operation branching with TwinPipes is carried out with a combination of special hot tapping valves and straight branches:

- BandJoint branch, see page 6.6.1.1
- TXJoint, see page 6.6.2.1
- SXTJoint, see page 6.6.3.1

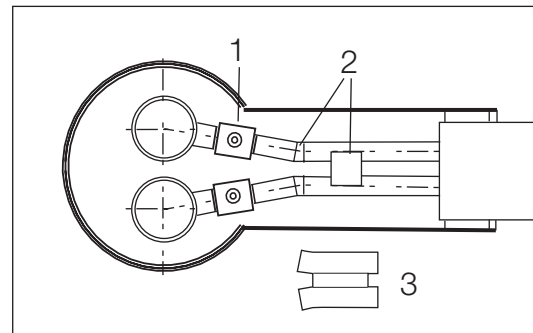
Description

For hot tapping the following are used:

1. Hot tapping valves
2. Fixing bar and possibly weld elbows (dependent on dimension)
Primarily in connection with BandJoints.

Alternative to 2:

3. Connecting pipe with fixation
Primarily in connection with shrink joints.

**Materials****Hot tapping valve**

The hot tapping valve is adjusted to LOGSTOR joints:

Valve chamber: Steel
Valve ball: Stainless steel
Sealing: PTFE (Teflon)

Max. operating pressure: 25 bar

Component overview, general

Component numbers:

- Hot tapping valve 4280 2 pcs. per hot tapping
- Fixing bars 1998 1 set (2 pcs.)
- Weld elbow 1005 1 pc. (90° for shortening)
- Connecting pipe 5192 1 pc.

Dim. steel pipe Branch ø mm	Hot tapping valve	Fixing bars	Weld elbow	Alternative Connecting pipe
33.7	x	x	x	x
42.4	x	x	x	x
48.3	x	x	x	x
60.3	x	x	x	x
76.1	x	x	x	x
88.9	x	x	x	x

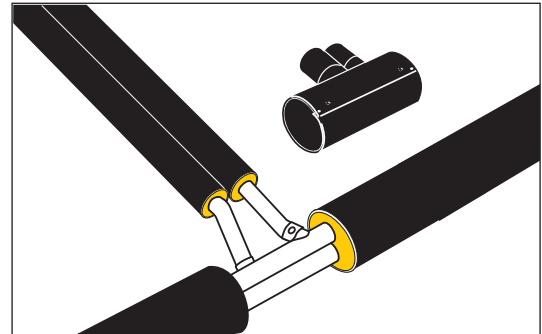
TwinPipes

Hot tapping, TwinPipe - FlexPipe

Application

On TwinPipe systems in operation branching to FlexPipes can be carried out with a combination of special hot tapping valves and branch tee couplings with two connecting branches:

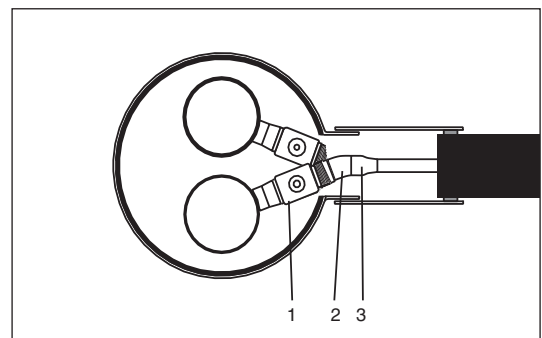
- Straight BandJoint branch, see page 6.6.4.1
- Straight branch, T-shrink joint, see page 6.6.5.1



Description

The following components are used for hot tapping:

1. Hot tapping valve
2. Weld elbow
- 3 a. Weld reduction (for SteelFlex)
b. Press coupling (for Pex- and AluFlex)
c. Steel/Cu connection (for CuFlex)



Not all joint types can be used for all FlexPipe hot tapplings.
However, some are available with extra long branch tee coupling/connecting branch.

Materials

The hot tapping valve is adjusted to LOGSTOR joints:

Valve chamber:	Steel
Valve ball:	Stainless steel
Sealing:	PTFE (Teflon)

Max. operating pressure: 25 bar

TwinPipes**Hot tapping, TwinPipe - FlexPipe****Component
overview**

Component numbers:

- Hot tapping valve	4280	2 pcs. per hot tapping
- Weld elbow	1005	1 pc. (90° for shortening)
- Weld reduction (SteelFlex)	1006	2 pcs. per hot tapping
- Press coupling (PexFlex)	6000	2 pcs. per hot tapping
- Press coupling (AluFlex)	6001	2 pcs. per hot tapping
- Steel/Cu connection (CuFlex)	6880	2 pcs. per hot tapping

Hot tapping valve and weld elbow:

Dim. hot tapping valve ø mm	Fits dim. FlexPipes ø mm				Weld elbow ø mm
	SteelFlex	PexFlex	AluFlex	CuFlex	
26.9	20	16, 20, 22	16, 20, 26	15, 18, 22	26.9
33.7	25, 28	25, 28, 32	32	28	33.7
42.4		40		35	42.4
48.3		50			48.3

Weld reduction, SteelFlex

Steel pipe, ø out. mm	
From	To
26.9	20
33.7	25
33.7	28

Press couplings, PexFlex

Steel, ø out. mm	PexFlex
From	To
26.9	16
26.9	20
26.9	22
33.7	25
33.7	28
33.7	32
42.4	40
48.3	50

Press couplings, AluFlex

Steel, ø out. mm	AluFlex
From	To
26.9	16
26.9	20
26.9	26
33.7	32

TwinPipes
Hot tapping, TwinPipe - FlexPipe

Component overview, <i>continued</i>	Steel/Cu connection, CuFlex	Steel, ø out. mm		CuFlex	
		From		To	
		26.9		15	
		26.9		18	
		26.9		22	
		33.7		28	
		42.4		35	

Accessories

For the installation use foam pack.

Order foam pack according to the tables in section 15.3.

Remember possible components for the installation of alarm wires.

TwinPipes Preinsulated branches

Application

Preinsulated branches are used when branching from TwinPipe to TwinPipe in all TwinPipe dimensions, \varnothing 26.9 - 219.1 mm in insulation series 1, 2, and 3.

The preinsulated branches are reinforced and applicable for installation methods: Preheating and high axial stress installation.

Description

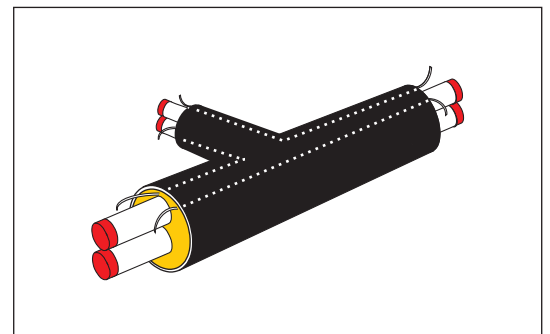
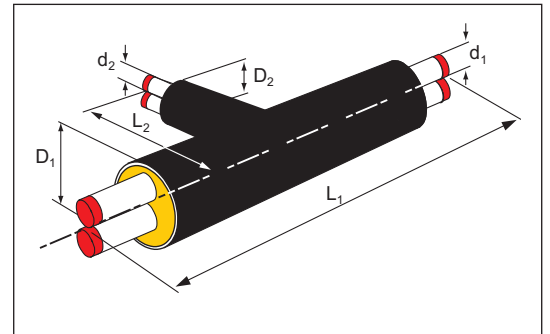
All TwinPipe combinations can be carried out with preinsulated branches.

Additional measurements appear from subsequent tables.

Note! Only the branch pipes are delivered with fixing bars.

If a branch is built in at the end of a pipe run without e.g. prefabricated bend, fixing bars must be welded on to the main pipe of the branch.

All preinsulated TwinPipe branches are delivered with embedded wires for surveillance as shown in the illustration.



Materials

All materials are the same as for straight TwinPipes: Steel/PUR/PE-HD.

Preinsulated branches comply with all comparable requirements in EN 448.

TwinPipes

Preinsulated branches

Preinsulated branch TwinPipe, series 1

Component No. 3490.

Branch			d ₂	26.9	33.7	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	219.1
Main pipe			D ₂	125	140	160	160	200	225	250	315	400	450	560
d ₁	D ₁	L ₁	L ₂	700	700	700	700	700	700	700	700	750	800	1000
26.9	125	1100	x											
33.7	140	1100	x x											
42.4	160	1100	x x x											
48.3	160	1100	x x x x											
60.3	200	1200	x x x x x											
76.1	225	1200	x x x x x x											
88.9	250	1300	x x x x x x x											
114.3	315	1300	x x x x x x x x											
139.7	400	1500	x x x x x x x x x											
168.3	450	1600	x x x x x x x x x x											
219.1	560	1700	x x x x x x x x x x x											

Preinsulated branch TwinPipe, series 2

Component No. 3490.

Branch			d ₂	26.9	33.7	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	219.1
Main pipe			D ₂	140	160	180	180	225	250	280	355	450	500	630
d ₁	D ₁	L ₁	L ₂	700	700	700	700	700	700	700	700	750	800	1000
26.9	140	1100	x											
33.7	160	1100	x x											
42.4	180	1100	x x x											
48.3	180	1100	x x x x											
60.3	225	1200	x x x x x											
76.1	250	1200	x x x x x x											
88.9	280	1300	x x x x x x x											
114.3	355	1300	x x x x x x x x											
139.7	450	1500	x x x x x x x x x											
168.3	500	1600	x x x x x x x x x x											
219.1	630	1700	x x x x x x x x x x x											

TwinPipes

Preinsulated branches

Preinsulated
branch
TwinPipe,
series 3

Component No. 3490.

Branch			d ₂	26.9	33.7	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	219.1
Main pipe			D ₂	160	180	200	200	250	280	315	400	500	560	710
d ₁	D ₁	L ₁	L ₂	700	700	700	700	700	700	700	700	750	800	1000
26.9	160	1100		x										
33.7	180	1100		x	x									
42.4	200	1100		x	x	x								
48.3	200	1100		x	x	x	x							
60.3	250	1200		x	x	x	x	x						
76.1	280	1200		x	x	x	x	x	x					
88.9	315	1300		x	x	x	x	x	x	x				
114.3	400	1300		x	x	x	x	x	x	x	x			
139.7	500	1500		x	x	x	x	x	x	x	x	x		
168.3	560	1600		x	x	x	x	x	x	x	x	x	x	
219.1	710	1700		x	x	x	x	x	x	x	x	x	x	x

TwinPipes Isolation valves

Application

Preinsulated isolation valves for TwinPipes are applicable for pipe sections, which have been installed by preheating and relieved of axial stresses, see Design Manual.

Operating pressure: 25 bar.

Description

All LOGSTOR preinsulated isolation valves for the TwinPipe system have a stainless steel top which the spindles are welded onto.

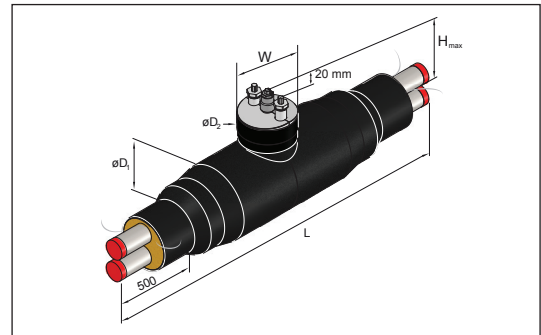
They are delivered with embedded copper wires for surveillance. These alarm wires are led out through the stainless steel top to a fixed reference point. For the screw cover of the reference point spanner size 27 mm can be used. Alternatively, spanner size 55 mm can be used.

Return spindles and service valves are approx. 20 mm higher than flow spindles and service valves.

The isolation valves have welded fixing bars.

Isolation valves in series 1 and 2 with solid PUR foam as seal at spindles will still be part of LOGSTOR's product assortment in 2014.

The stated measurements are for a TwinPipe isolation valve with stainless steel top.



Materials

Preinsulated isolation valves comply with comparable requirements in EN 488.

Ball valves: Stainless steel.

Note! The valves are not of high yield stress material.

Stainless steel top: AISI 316

Sealing between stainless steel top and PE-part: Cross-linked shrink sleeve with mastic as a seal.

Other materials as for straight TwinPipes.

TwinPipes

Isolation valves

Component overview; measurements

Component No. 4290.

Dimension, ø out. mm			L	øD ₁	øD ₂	H _{max}	NW spindle	NW backstop
Series 1	Series 2	Series 3	mm	mm	mm	mm	mm	mm
26.9/125	26.9/140	26.9/160	1500	225	225	490	19	
33.7/140	33.7/160	33.7/180	1500	225	225	490	19	
42.4/160	42.4/180	42.4/200	1800	225	225	495	19	
48.3/160	48.3/180	48.3/200	1680	225	225	505	19	
60.3/200	60.3/225	60.3/250	1900	250	225	510	19	
76.1/225	76.1/250	76.1/280	2080	315	225	515	19	
88.9/250	88.9/280	88.9/315	2050	355	250	525	19	
114.3/315	114.3/355	114.3/400	2285	450	315	535	27	70
139.7/400	139.7/450	139.7/500	2665	500	355	555	27	70
168.3/450	168.3/500	168.3/560	2970	560	400	575	27	70
219.1/560	219.1/630	219.1/710	2980	710	450	675	50	90

TwinPipes**Isolation valve with 1 service valve****Application**

Isolation valves with 1 service valve are used, when venting or drainage is required on one side of the valve.

They are applicable for pipe sections, which have been installed by preheating and relieved of axial stresses, see Design Manual.

Operating pressure: 25 bar.

Description

All LOGSTOR preinsulated isolation valves with 1 service valve for the TwinPipe system have a stainless steel top which the spindles are welded onto.

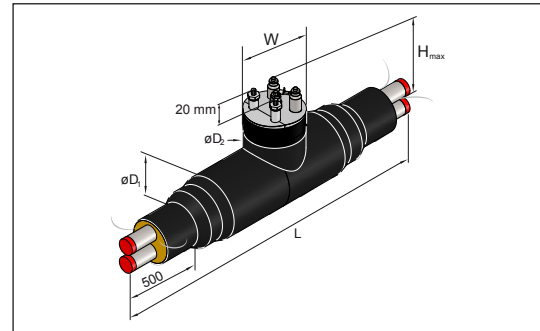
They are delivered with embedded copper wires for surveillance. These alarm wires are led out through the stainless steel top to a fixed reference point. For the screw cover of the reference point spanner size 27 mm can be used. Alternatively, spanner size 55 mm can be used.

Return spindles and service valves are approx. 20 mm higher than flow spindles and service valves.

The isolation valves have welded fixing bars.

Isolation valves in series 1 and 2 with solid PUR foam as seal at spindles will still be part of LOGSTOR's product assortment in 2014.

The stated measurements are for a TwinPipe isolation valve with stainless steel top.

**Materials**

Preinsulated isolation valves comply with comparable requirements in EN 488.

Ball valves: Stainless steel.

Note! The valves are not of high yield stress material.

Stainless steel top: AISI 316

Sealing between stainless steel top and PE-part: Cross-linked shrink sleeve with mastic as a seal.

Service valves outside the insulation: Stainless steel.

Other materials as for straight TwinPipes.

TwinPipes**Isolation valve with 1 service valve****Component
overview;
measurements**

Component No. 4291

Dimension, ø out. mm			L	øD ₁	øD ₂	Service valve	H _{max}	NW spindle	NW backstop
Series 1	Series 2	Series 3	mm	mm	mm	ø mm	mm	mm	mm
26.9/125	26.9/140	26.9/160	1550	280	280	26.9	485	19	
33.7/140	33.7/160	33.7/180	1600	280	280	26.9	490	19	
42.4/160	42.4/180	42.4/200	1900	280	280	33.7	495	19	
48.3/160	48.3/180	48.3/200	1800	315	315	42.4	505	19	
60.3/200	60.3/225	60.3/250	2000	315	315	42.4	510	19	
76.1/225	76.1/250	76.1/280	2200	315	315	42.4	515	19	
88.9/250	88.9/280	88.9/315	2200	355	315	42.4	525	19	
114.3/315	114.3/355	114.3/400	2500	450	400	48.3	645	27	70
139.7/400	139.7/450	139.7/500	2900	500	450	48.3	655	27	70
168.3/450	168.3/500	168.3/560	3200	560	450	48.3	665	27	70
219.1/560	219.1/630	219.1/710	3200	710	450	60.3	792	50	90

TwinPipes**Isolation valve with 2 service valves****Application**

Isolation valves with 2 service valves are used, when venting or drainage is required on both sides of the valve.

They are applicable for pipe sections, which have been installed by preheating and relieved of axial stresses, see Design Manual.

Operating pressure: 25 bar.

Description

All LOGSTOR preinsulated isolation valves with 2 service valves for the TwinPipe system have a stainless steel top which the spindles are welded onto.

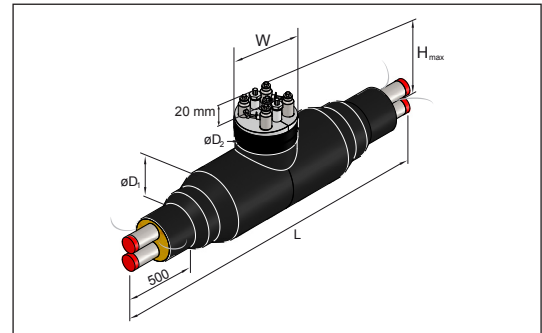
They are delivered with embedded copper wires for surveillance. These alarm wires are led out through the stainless steel top to a fixed reference point. For the screw cover of the reference point spanner size 27 mm can be used. Alternatively, spanner size 55 mm can be used.

Return spindles and service valves are approx. 20 mm higher than flow spindles and service valves.

The isolation valves have welded fixing bars.

Isolation valves in serie 1 and 2 with solid PUR foam as seal at spindles will also be part of LOGSTOR's product assortment in 2014.

The stated measurements are for a TwinPipe isolation valve with stainless steel top.

**Materials**

Preinsulated isolation valves comply with comparable requirements in EN 488.

Ball valves: Stainless steel.

Note! The valves are not of high yield stress material.

Stainless steel top: AISI 316

Sealing between stainless steel top and PE-part: Cross-linked shrink sleeve with mastic as a seal.

Service valves outside the insulation: Stainless steel.

Other materials as for straight TwinPipes.

TwinPipes**Isolation valve with 2 service valves****Component
overview;
measurements**

Component No. 4292

Dimension, ø out. mm			L	øD ₁	øD ₂	Service valve	H _{max}	NW spindle	NW backstop
Series 1	Series 2	Series 3	mm	mm	mm	ø mm	mm	mm	mm
26.9/125	26.9/140	26.9/160	1550	280	280	26.9	485	19	
33.7/140	33.7/160	33.7/180	1600	280	280	26.9	490	19	
42.4/160	42.4/180	42.4/200	1900	280	280	33.7	495	19	
48.3/160	48.3/180	48.3/200	1800	315	315	42.4	505	19	
60.3/200	60.3/225	60.3/250	2000	315	315	42.4	510	19	
76.1/225	76.1/250	76.1/280	2200	355	355	42.4	515	19	
88.9/250	88.9/280	88.9/315	2200	400	355	42.4	525	19	
114.3/315	114.3/355	114.3/400	2500	500	400	48.3	645	27	70
139.7/400	139.7/450	139.7/500	2900	560	450	48.3	655	27	70
168.3/450	168.3/500	168.3/560	3200	560	450	48.3	665	27	70
219.1/560	219.1/630	219.1/710	3200	800	450	60.3	792	50	90

TwinPipes
Service valves

Application

Preinsulated service valves are used for venting or drainage in wanted areas of the pipe section.

They are applicable for installation methods: Preheating and high axial stress installation.

Operating pressure: 25 bar.

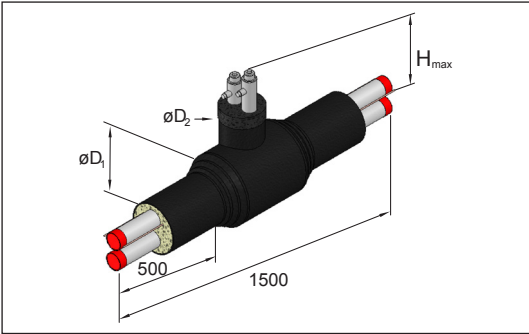
Description

All preinsulated isolation valves have embedded copper wires for surveillance.

Note! There are no welded fixing bars.

If components are installed at the end of a pipe section without e.g. a preinsulated bend, fixing bars must be welded on.

Service valves are available in series 1 and 2.



Materials

Service valves comply with comparable requirements in EN 488.

Ball valves: Stainless steel.

Other materials as for straight TwinPipes.

Component
overview;
measurements

Component No. 3790

Dimension. \varnothing out. mm		L mm	$\varnothing D_1$ mm	$\varnothing D_2$ mm	Service valve \varnothing mm	H_{max} mm
Series 1	Series 2					
26.9/125	26.9/140	1500	225	140	26.9	460
33.7/140	33.7/160	1500	225	140	26.9	445
42.4/160	42.4/180	1500	250	160	33.7	455
48.3/160	48.3/180	1500	280	180	42.4	455
60.3/200	60.3/225	1500	280	180	42.4	470
76.1/225	76.1/250	1500	315	180	42.4	490
88.9/250	88.9/280	1500	315	180	42.4	505
114.3/315	114.3/355	1500	400	225	48.3	530
139.7/400	139.7/450	1500	500	225	48.3	560
168.3/450	168.3/500	1500	560	250	48.3	595
219.1/560	219.1/630	1500	630	280	60.3	735

TwinPipes

Drainage valves

Application Preinsulated drainage valves are used where a permanent draining possibility is wanted, e.g. for an inspection chamber.

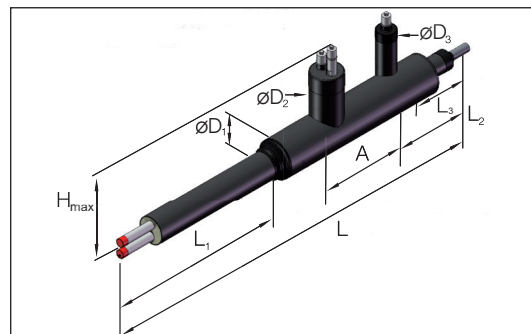
They are usually installed on a short house connection.

Operating pressure: 25 bar.

Description All preinsulated drainage valves have embedded copper wires for surveillance.

In the TwinPipe-part there are welded fixing bars.

Drainage valves are available in series 1 and 2.



Materials Drainage valves comply with comparable requirements in EN 488.

Ball valves: Stainless steel.

The single pipe end is sealed against water ingress in the isolation foam. The steel pipe is made of stainless steel (L_3). It is sealed against water ingress in the ball valve.

Component overview; measurements

Component No. 4295

Dimension. ø out. mm		L	L ₁	L ₂	L ₃	A	øD ₁	øD ₂	øD ₃	H _{max}
Series 1	Series 2	mm	mm	mm	mm	mm	mm	mm	mm	mm
26.9/125	26.9/140	2500	1020	644	350	460	180	160	110	480
33.7/140	33.7/160	2500	1020	665	350	450	180	160	110	480
42.4/160	42.4/180	2500	1020	570	350	460	225	180	110	485
48.3/160	48.3/180	2500	1020	569	350	460	225	180	110	495
60.3/200	60.3/225	2650	1030	687	350	480	250	180	110	500
76.1/225	76.1/250	2700	1030	713	350	470	315	200	110	505
88.9/250	88.9/280	2700	1030	546	350	570	355	200	110	515
114.3/315	114.3/355	2800	1030	517	350	610	450	250	140	595

TwinPipes

Preinsulated reductions

Application

Preinsulated reductions for TwinPipes are used for reduction with one or two dimensional offsets.

Operating pressure: 25 bar.

1 dimensional offset: max. axial stress 300 N/mm²
applicable to installation methods: Preheating and high axial stress installation

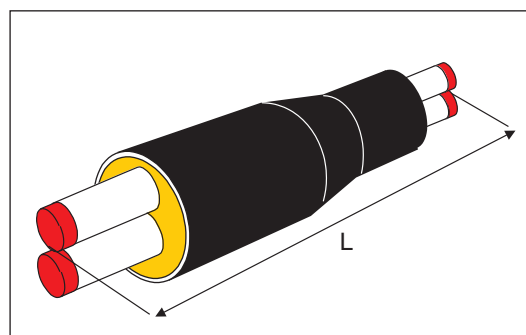
2 dimensional offsets: max. axial stress 150 N/mm²
applicable to the installation method preheating

See principles for single pipes: Design Manual.

Description

All preinsulated TwinPipe reductions are supplied with embedded copper wires for surveillance.

There are also welded fixing bars.



Materials

Preinsulated reductions comply with comparable requirements in EN 448.

Weld reduction: Steel quality in accordance with EN 10253-2.

Other materials as for straight TwinPipes.

Component overview; measurements

Component No. 4990

1 reductional offset

Series 1

From dimension ø out. mm	To dimension ø out. mm	L mm
33.7/140	26.9/125	1100
42.4/160	33.7/140	1100
48.3/160	42.4/160	1100
60.3/200	48.3/160	1200
76.1/225	60.3/200	1200
88.9/250	76.1/225	1200
114.3/315	88.9/250	1200
139.7/400	114.3/315	1500
168.3/450	139.7/400	1500
219.1/560	168.3/450	1500

Series 2

From dimension ø out. mm	To dimension ø out. mm	L mm
33.7/160	26.9/140	1100
42.4/180	33.7/160	1100
48.3/180	42.4/180	1100
60.3/225	48.3/180	1200
76.1/250	60.3/225	1200
88.9/280	76.1/250	1200
114.3/355	88.9/280	1200
139.7/450	114.3/355	1500
168.3/500	139.7/450	1500
219.1/630	168.3/500	1500

TwinPipes

Preinsulated reductions

Component overview; measurements *continued*

Series 3

From dimension ø out. mm	To dimension ø out. mm	L mm
33.7/180	26.9/160	1100
42.4/200	33.7/180	1100
48.3/200	42.4/200	1100
60.3/250	48.3/200	1200
76.1/280	60.3/250	1200
88.9/315	76.1/280	1200
114.3/400	88.9/315	1200
139.7/500	114.3/400	1500
168.3/560	139.7/500	1500
219.1/710	168.3/560	1500

2 reductional offsets

Series 1

From dimension ø out. mm	To dimension ø out. mm	L mm
42.4/160	26.9/125	1100
48.3/160	33.7/140	1100
60.3/200	42.4/160	1200
76.1/225	48.3/160	1200
88.9/250	60.3/200	1200
114.3/315	76.1/225	1200
139.7/400	88.9/250	1500
168.3/450	114.3/315	1500
219.1/560	139.7/400	1500

Series 2

From dimension ø out. mm	To dimension ø out. mm	L mm
42.4/180	26.9/140	1100
48.3/180	33.7/160	1100
60.3/225	42.4/180	1200
76.1/250	48.3/180	1200
88.9/280	60.3/225	1200
114.3/355	76.1/250	1200
139.7/450	88.9/280	1500
168.3/500	114.3/355	1500
219.1/630	139.7/450	1500

Series 3

From dimension ø out. mm	To dimension ø out. mm	L mm
42.4/200	26.9/160	1100
48.3/200	33.7/180	1100
60.3/250	42.4/200	1200
76.1/280	48.3/200	1200
88.9/315	60.3/250	1200
114.3/400	76.1/280	1200
139.7/500	88.9/315	1500
168.3/560	114.3/400	1500
219.1/710	139.7/500	1500

TwinPipes

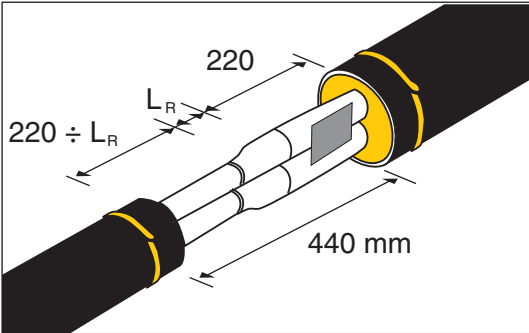
Alternative reduction solutions

Application For minor TwinPipe dimensions solutions with LOGSTOR casing joints are available e.g.:

- SXJoint for reduction
- BXJoint for reduction (for foaming in wrap)
- B2SJoint for reduction
- EWJoint

The possible combinations are however subject to limitations, see the tables section 2.6.

Description When making reductions with casing joints eccentric weld reductions must be used and fixing bars welded onto the largest dimension.



Materials Weld reduction: Steel quality according to EN 10253-2.
Fixing bars: Weldable steel quality.

Component overview Fixing bars, component No. 1998, see page 6.2.0.1.
Weld reduction, eccentric, component No. 1006

1 dimensional offset		2 dimensional offset	
From ø mm	To ø mm	From ø mm	To ø mm
33.7	26.9	-	-
42.4	33.7	42.4	26.9
48.3	42.4	48.3	33.7
60.3	48.3	60.3	42.4
76.1	60.3	76.1	48.3
88.9	76.1	88.9	60.3
114.3	88.9	114.3	76.1
139.7	114.3	139.7	88.9
168.3	139.7	168.3	114.3
219.1	168.3	219.1	139.7

TwinPipes

Transition pipe, Twin - single pipe

Application

Preinsulated transition pipes are used in connection with straight transition from a single pipe system of insulation series 2 to a TwinPipe system of insulation series 1, 2 or 3.

As the flow pipe is always placed at the bottom, the transition is available in a "type 1" as well as a "type 2" version.

They are applicable for the installation methods preheating and high axial stress installation, but must be placed on a relieved section.

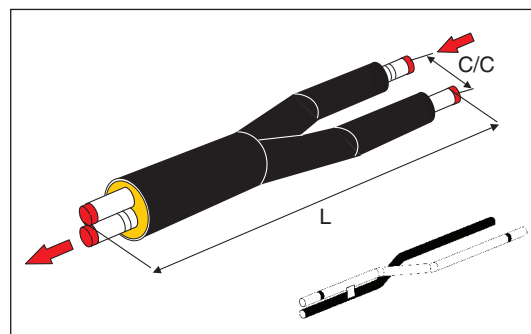
Max. operating pressure: 25 bar.

Description

Preinsulated straight transition pipes are delivered with welded fixing bars.

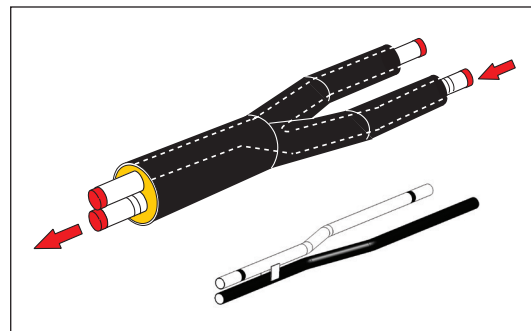
Type 1 and type 2 are defined by viewing the transition pipe from the single pipe end perspective.

The illustration shows the "type 2" model.



All preinsulated transition pipes have 3 embedded copper wires for surveillance.

From the illustration the "type 1" model and the wire position appear.



Materials

The materials of preinsulated straight transition pipes comply with comparable requirements in EN 448.

All materials are as for straight TwinPipes.

TwinPipes

Transition pipe, Twin - single pipe

Component
overview;
measurements

Component No. 3071

Type 1

Series 1		Series 2		Series 3		L mm	C/C mm
Twin ø out. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm		
26.9/125	26.9/110	26.9/140	26.9/110	26.9/160	26.9/110	2000	265
33.7/140	33.7/110	33.7/160	33.7/110	33.7/180	33.7/110	2000	265
42.4/160	42.4/125	42.4/180	42.4/125	42.4/200	42.4/125	2000	280
48.3/160	48.3/125	48.3/180	48.3/125	48.3/200	48.3/125	2000	280
60.3/200	60.3/140	60.3/225	60.3/140	60.3/250	60.3/140	2000	305
76.1/225	76.1/160	76.1/250	76.1/160	76.1/280	76.1/160	2000	330
88.9/250	88.9/180	88.9/280	88.9/180	88.9/315	88.9/180	2000	360
114.3/315	114.3/225	114.3/355	114.3/225	114.3/400	114.3/225	2000	435
139.7/400	139.7/250	139.7/450	139.7/250	139.7/500	139.7/250	2500	530
168.3/450	168.3/280	168.3/500	168.3/280	168.3/560	168.3/280	2500	580
219.1/560	219.1/355	219.1/630	219.1/355	219.1/710	219.1/355	2500	710

Type 2

Series 1		Series 2		Series 3		L mm	C/C mm
Twin ø out. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm		
26.9/125	26.9/110	26.9/140	26.9/110	26.9/160	26.9/110	2000	265
33.7/140	33.7/110	33.7/160	33.7/110	33.7/180	33.7/110	2000	265
42.4/160	42.4/125	42.4/180	42.4/125	42.4/200	42.4/125	2000	280
48.3/160	48.3/125	48.3/180	48.3/125	48.3/200	48.3/125	2000	280
60.3/200	60.3/140	60.3/225	60.3/140	60.3/250	60.3/140	2000	305
76.1/225	76.1/160	76.1/250	76.1/160	76.1/280	76.1/160	2000	330
88.9/250	88.9/180	88.9/280	88.9/180	88.9/315	88.9/180	2000	360
114.3/315	114.3/225	114.3/355	114.3/225	114.3/400	114.3/225	2000	435
139.7/400	139.7/250	139.7/450	139.7/250	139.7/500	139.7/250	2500	530
168.3/450	168.3/280	168.3/500	168.3/280	168.3/560	168.3/280	2500	580
219.1/560	219.1/355	219.1/630	219.1/355	219.1/710	219.1/355	2500	710

TwinPipes**90° transition pipe, Twin - single pipe****Application**

Preinsulated 90° transition pipe is used for perpendicular transition from a single pipe system of insulation series 2 to a TwinPipe system of insulation series 1, 2 or 3.

As the flow pipe is always placed at the bottom, the transition pipe is available in a "type 1" as well as a "type 2" version.

They are applicable for the installation methods preheating and high axial stress installation, but must be placed on a relieved section.

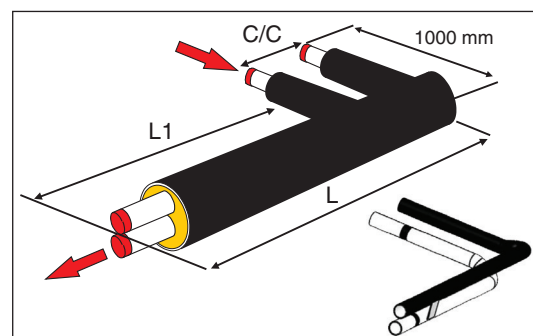
Max. operating pressure: 25 bar.

Description

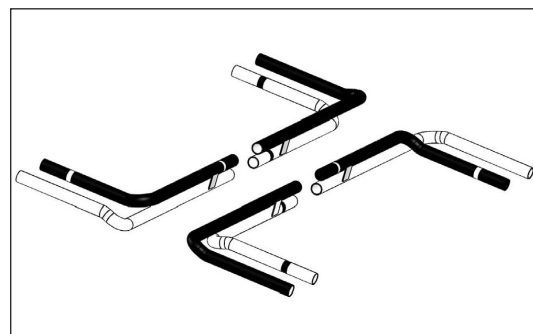
Preinsulated 90° transition pipes are delivered with welded fixing bars.

"Type 1" and "type 2" are defined by viewing it from the single pipe end perspective.

The illustration shows the "type 2" model.

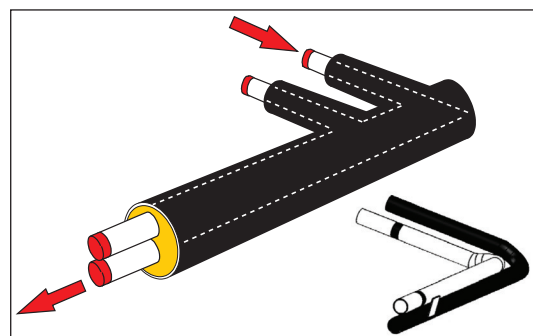


Other possible applications for "type 2".

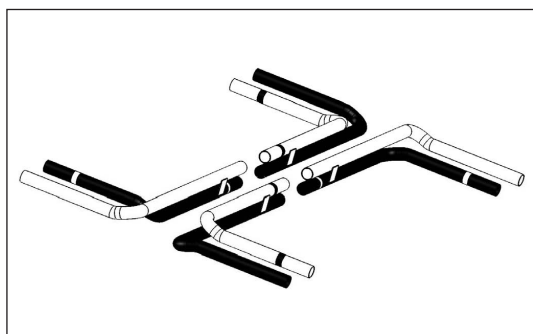


All preinsulated transition pipes have 3 embedded copper wires for surveillance.

From the illustration the "type 1" model and the wire position appear.



Other possible applications for "type 1".



TwinPipes

90° transition pipe, Twin - single pipe

Materials

Preinsulated 90° transition pipes comply with comparable requirements in EN 448.

All materials are as for straight TwinPipes.

Component overview; measurements

Component No. 3072

Type 1

Series 1		Series 2		Series 3		L mm	L ₁ , mm		C/C mm
Twin ø out. mm	Single ø out. mm	Twin ø udv. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm		Series 1	Series 2	
26.9/125	26.9/110	26.9/140	26.9/110	26.9/160	26.9/110	1500	1020	1020	265
33.7/140	33.7/110	33.7/160	33.7/110	33.7/180	33.7/110	1500	1020	1020	265
42.4/160	42.4/125	42.4/180	42.4/125	42.4/200	42.4/125	1500	990	990	280
48.3/160	48.3/125	48.3/180	48.3/125	48.3/200	48.3/125	1500	990	990	280
60.3/200	60.3/140	60.3/225	60.3/140	60.3/250	60.3/140	1500	960	960	295
76.1/225	76.1/160	76.1/250	76.1/160	76.1/280	76.1/160	1500	920	920	315
88.9/250	88.9/180	88.9/280	88.9/180	88.9/315	88.9/180	1500	880	880	335
114.3/315	114.3/225	114.3/355	114.3/225	114.3/400	114.3/225	1500	740	740	430
139.7/400	139.7/250	139.7/450	139.7/250	139.7/500	139.7/250	1500	680	680	460
168.3/450	168.3/280	168.3/500	168.3/280	168.3/560	168.3/280	2000	1060	1080	535
219.1/560	219.1/355	219.1/630	219.1/355	219.1/710	219.1/355	2000	870	900	615

Type 2

Series 1		Series 2		Series 3		L mm	L ₁ , mm		C/C mm
Twin ø out. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm	Twin ø out. mm	Single ø out. mm		Series 1	Series 2	
26.9/125	26.9/110	26.9/140	26.9/110	26.9/160	26.9/110	1500	1020	1020	265
33.7/140	33.7/110	33.7/160	33.7/110	33.7/180	33.7/110	1500	1020	1020	265
42.4/160	42.4/125	42.4/180	42.4/125	42.4/200	42.4/125	1500	990	990	280
48.3/160	48.3/125	48.3/180	48.3/125	48.3/200	48.3/125	1500	990	990	280
60.3/200	60.3/140	60.3/225	60.3/140	60.3/250	60.3/140	1500	960	960	295
76.1/225	76.1/160	76.1/250	76.1/160	76.1/280	76.1/160	1500	920	920	315
88.9/250	88.9/180	88.9/280	88.9/180	88.9/315	88.9/180	1500	880	880	335
114.3/315	114.3/225	114.3/355	114.3/225	114.3/400	114.3/225	1500	740	740	430
139.7/400	139.7/250	139.7/450	139.7/250	139.7/500	139.7/250	1500	680	680	460
168.3/450	168.3/280	168.3/500	168.3/280	168.3/560	168.3/280	2000	1060	1080	535
219.1/560	219.1/355	219.1/630	219.1/355	219.1/710	219.1/355	2000	870	900	615

TwinPipes

Other components

General

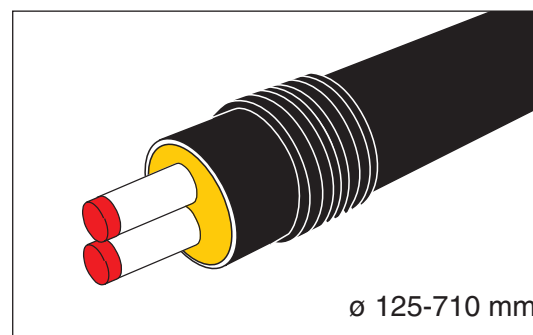
For the TwinPipe system a number of other products which are described in this section are offered.

For further information about application fields, technical specifications, ordering etc. contact LOGSTOR.

Wall entry sleeves

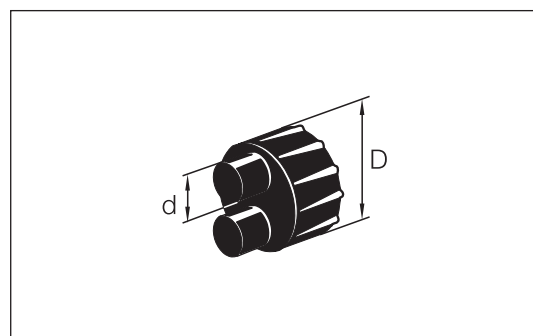
For sealing between outer casing and the surrounding concrete in connection with termination in wall, wall entry sleeves for all TwinPipe dimensions are available.
(Also see section 2.7.3)

Component No. 5800.



End cap

End caps are used to protect the foam ends against moisture ingress. Applicable for a max. service pipe temperature of 100°C.



Component No. 5600

Steel pipe ø mm	Outer casing ø mm	No.
26.9 - 33.7	125 - 140	DHEC 3280
33.7 - 42.4	160 - 180	DHEC 3350-02
42.4 - 48.3	180	DHEC 3350-03
60.3 - 76.1	200 - 225	C SS 2-90
76.1 - 88.9	225 - 250	C SS 2-100

TwinPipes
Other components

End fittings

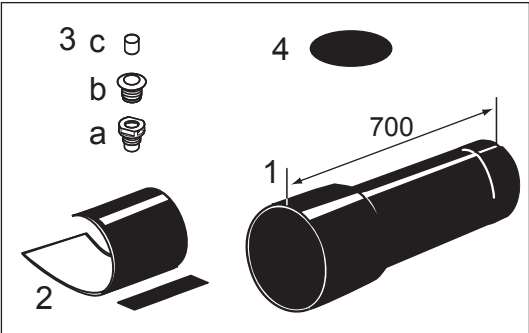
To terminate TwinPipe-sections end fittings for foaming are available.

The uttermost part of the fitting is shrinkable.

An end fittings set consists of:

- 1. End fitting
- 2. Shrink sleeve, PEX with mastic and closure patch
- 3. Venting, expansion and wedge plugs (If 1000 mm length, order 2 sets for two venting holes)
- 4. Patch

Specifications, see 2.7.5.2.



Component No. 5700

L = 1000 mm is required for the marked dimensions, if a disposable valve is used.

Outer casing ø mm	L, mm	
	700	1000
125	x	
140	x	
160	x	
180	x	
200	x	x
225	x	x
250	x	x
280	x	x
315	x	x
355	x	x
400	x	x
450	x	x
500	x	x
560	x	x
630	x	x
710	x	x

Accessories

In connection with termination with end fittings use weld-on ends, see table page 2.7.5.3.

Foam packs for foaming, see page 15.3.7.1.