

PRODUCT CATALOGUE

## Durotan Steel Pre-insulated Pipe System



**durotan**  
Pre-insulated pipe systems



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## 1. About Durotan

Durotan are specialist suppliers and installers of pre-insulated heating and cooling distribution pipes. **We recognise that there is a no 'one size fits all' solution to a project.** Established in 1978, we are the oldest and most experienced specialist in plastic cased medium and low temperature system in the UK and Ireland. We have been involved in more than 2000 projects across a broad spectrum of clients in both public and private sectors. Our experience has taught us that success lies in offering a **tailored service to suit each client and each project.** Our dedicated team is constantly on hand to provide the most cost effective, best value and pragmatic solution to any project, ensuring client expectations are met and exceeded. Read more about **our services, work and achievements** at [www.durotan.ltd.uk](http://www.durotan.ltd.uk)

## 2. System Description

The Durotan Steel Pre-insulated Pipe system is a "bonded" system comprising a steel carrier pipe, polyurethane foam insulation and High Density Polyethylene outer casing.

Pipes are manufactured in lengths of 6 and 12m and the construction of all associated components such as elbows, tees, valves and anchors etc are prefabricated in the factory.

The system is available in three insulation thicknesses; Series 1 (Standard), Series 2 (Plus) and Series 3 (Plus Plus) to suit your heat loss requirements.

Field welds are protected and sealed by waterproof site joints. We can supply various options of site joints to suit your particular requirements. eg heat shrink, fusion etc.

The pre-insulated pipes and fittings can be supplied with a moisture detection system that can be used to detect possible leaks caused by damaged or defective materials.

The system will be capable of operating temperatures to 152 Deg C and the maximum operating pressure is 25 Bar, making the system suitable for the following applications:

- Low Temperature Hot Water Heating (LTHW)
- Medium Temperature Hot Water Heating (MTHW)
- Primary Hot Water Service
- Chilled Water (CHW)
- Condensate
- Other industrial and commercial fluids

## 3. Standards and Specification

Durotan Steel Pre-insulated Pipes and fittings are manufactured in accordance with the following standards:

EN 253 - Pipe assembly of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.

EN 448 - Fitting assembly of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.

EN 488 - Steel valve assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.

EN 489 - Joint assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.

EN14419 Pre-insulated bonded pipe systems for directly buried hot water networks - Surveillance System.

Materials are manufactured within an ISO 9001 accredited environment.

## CARRIER PIPE

SEAMED PIPE (longitudinally and spirally welded)

Quality: EN 10217-1 grade P235TR1 and P235TR2, EN 10217-2/A1 and EN 10217-5/A1 grade P235GH, DIN 1626 grade St 37,0,

## SEAMLESS PIPE

Quality: EN 10216-1/A1 grade P235TR1 and P235TR2EN, 10216-2+A2 grade P235GH, DIN 1629 grade St 37,0,

## GALVANISED PIPE

Quality: EN 10217-1 grade P235TR1 and P235TR2, EN 10217-2/A1 and EN 10217-5/A1, grade St 37,0

- upper yield stress 235 MPa
- tensile strength 360÷500 MPa
- density 7850 kg/m<sup>3</sup>
- guaranteed tightness 5 MPa

To increase the adhesion of the rigid polyurethane foam (PUR) to steel pipe, the external surface of the steel pipe is shot blasted to grade cleanliness Sa 2 according to EN ISO 8501-1

Pipe ends are bevelled and ready to be welded.

## THERMAL INSULATION

Material: The insulation is CFC free polyurethane foam (PUR) manufactured from 3 components; polyol, isocyanate and cyclopentane (pentane blown) and in accordance with standard EN 253, The insulation homogenously fills the space between the pipes over the total length.

- Thermal Conductivity 0.024 W/mK Max.
- Minimum core mass density 60 kg/m<sup>3</sup>
- Compression Strength 0,30 MPa
- Maximum operating temperature 152 Deg C

Insulation performing at higher temperatures can be provided upon request.

## CASING PIPE

Material: High Density Polyethylene (hdpe) manufactured in accordance with standard EN 253

- density 950 kg/m<sup>3</sup>
- upper yield stress 19 MPa
- elongation at break Min 350%
- Oxidation Induction Time (OIT) at least 20 min
- Melt Flow Rate (MFR) T 003

The casing pipe is Corona treated to ensure maximum adhesion to the insulation material thus forming a fully bonded system.

For above ground applications pipes can be supplied with a spirally wound galvanised casing manufactured in accordance with EN 10346 or aluminium casing manufactured in accordance with EN485-1, EN485-2, EN485-4.

## 4. Surveillance System (Moisture Detection)

Pre-insulated pipes and fittings can be equipped with any system detecting PUR insulation moisture, eg. Nordic pulse system, resistance system (BRANDES), HDW system or other indicated by the customer. Such a system comprises wires embedded in the insulation layer .The system monitors moisture ingress in the pipe insulation.

## 5. Cross-sections of Jacket and Carrier Pipes

Pre-insulated pipes and fittings are manufactured from jacket and carrier pipes of the following diameters:

Steel Carrier Pipe				PEHD Jacket Pipe		PEHD Jacket Pipe	
DN	D <sub>ext</sub>	welded	seamless	Standard insulation		Insulation Plus	
		g	g	D <sub>ext</sub>	gp	D <sub>ext</sub>	gp
mm	mm	mm	mm	mm	mm	mm	mm
20	26,9	2,6	2,9	75	3,0	90	3,0
25	33,7	2,6	2,9	90	3,0	110	3,0
32	42,4	2,6	2,9	110	3,0	125	3,0
40	48,3	2,6	2,9	110	3,0	125	3,0
50	60,3	2,9	3,2	125	3,0	140	3,0
65	76,1	2,9	3,2	140	3,0	160	3,0
80	88,9	3,2	3,6	160	3,0	200	3,2
100	114,3	3,6	4,0	200	3,2	225	3,4
125	139,7	3,6	4,0	225	3,4	250	3,6
150	168,3	4,0	4,5	250	3,6	315	4,1
200	219,1	4,5	6,3	315	4,1	355	4,5
250	273,0	5,0	7,1	400	4,8	450	5,2
300	323,9	5,6	7,1	450	5,2	500	5,6
350	355,6	5,6	8,0	500	5,6	560	6,0
400	406,4	6,3	8,8	560	6,0	630	6,6
450	457,0	6,3	10,0	560	6,0	630	6,6
500	508,0	6,3	11,0	630	6,6	710	7,2
600	610,0	7,1	-	800	7,9	900	8,7
700	711,0	8,0	-	900	8,7	1000	9,4
800	813,0	8,8	-	1000	9,4	1100	10,2
900	914,0	10,0	-	1100	10,2	1200	11,00
1000	1016,0	11,0	-	1200	11,0	-	-
1200	1219,0	12,5	-	1400	12,5	-	-

DN - steel pipe nominal diameter;

D<sub>ext</sub> - external diameter,

gp - wall thickness

Recommended diameters of pre-insulated jacket pipes and fittings are given on further pages of the catalogue.

Tables show pipe and fitting geometric dimensions up to a diameter of DN 600.

Geometric dimensions of products exceeding nominal diameters of DN 600 are ordered individually. Specifications of ordered pre-insulated products should state carrier pipe steel grade (St 37.0, and P235GH seamless or seamed), type of thermal insulation, type of moisture detection embedded system or its lack, and for pipes their length and quote symbols used throughout the catalogue.

## 6. Quality Assurance System

Durotan Pre-insulated materials and products manufactured presently are based on the integrated Quality Management System \* Environment, compliant with PN -ISO-9001:2009 and PN-EN ISO 14001:2005 - Certificate No JS - 124/5/2013 issued by the Polish Centre for Research and Certification (Polskie Centrum Badań i Certyfikacji), Warsaw.

The quality management and environment management system covers; design, development, manufacturing, supplies, service and installation of pre-insulated pipes and fittings with due attention paid to environmental regulations.

## 7. Information on Other Products

Durotan also supply:

- polyethylene pipes grade PE 100 - navy blue, to be used in water mains, in diameters between Ø25 and 1200 mm, in the following diameter ranges: SDR 7,4; SDR 9; SDR 11; SDR 13,6; SDR 17; SDR 21; SDR 26; SDR 33; SDR 41; supplied as straight units 12m. long (standard) and customer's request - 15 m. (for diameters between 75 and 1200 mm), and coiled in lengths up to 200 m. (for diameters between 25 and 110 mm), or in any other length as agreed with the customer;
- polyethylene pipes grade PE 100 - black, to be used in gravity sewer systems, in diameters between Ø 32 and 1200 mm, in the following diameter ranges: SDR 7,4; SDR 9; SDR 11; SDR 13,6; SDR 17; SDR 21; SDR 26; SDR 33; SDR 41; supplied as straight units 12 m. long (standard) and on customer's request - 15 m. (for diameters between 75 and 1000 mm), and coiled in lengths up to 200 m. (for diameters between 32 and 119 mm), or in any other length as agreed with the customer;
- pre-insulated flex units to be used in hot water buried utilities in PEX carrier pipes;
- PE jacket pipes in diameters between 75 and 1200 mm;
- sleeves in diameters between 83 and 472 mm;
- heat shrinkable sleeves, radiation and chemically cross-linked heat shrinkable sleeves, DX welding couplings (to set up a coupling unit thermal insulation);
- pre-insulated pipes featuring polyethylene carrier pipe (diameters agreed with the customer);
- pre-insulated corrugated pipes (as per SPIRO catalogue);
- pre-insulated pipes to be used in water steam pipelines;
- SPIRO pipes and fittings for mining working;
- pre-insulated elbows bent by the machine with diameter from Ø 20 mm up to Ø 300 mm;
- pre-insulated flexible system DAR-FLEX for buried heat district pipelines with carrier steel pipe Ø 20, 25 and 28 mm.

## 8. Pre-insulated pipes

### 8.1 Straight pre-insulated pipes

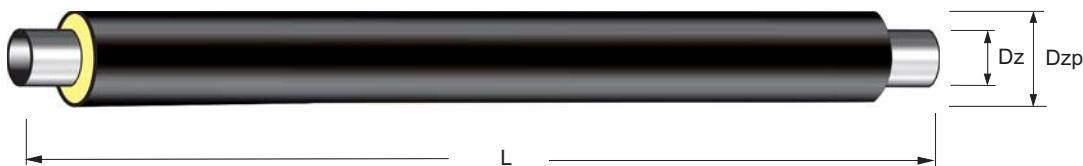


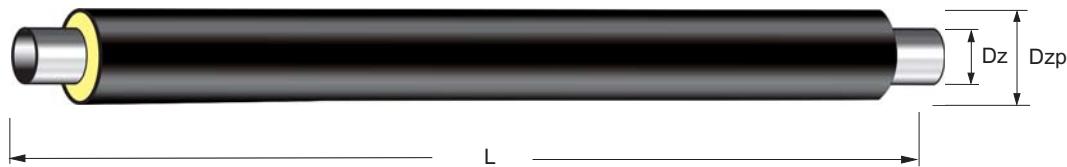
Table 1 - Series 1 (Standard Insulation Thickness)

Steel carrier pipe		Jacket pipe	Length	Weight		Catalogue reference number
Nominal diameter	External diameter	External diameter		seamless	welded	
DN	Dz	Dzp	L	1m	1m	
mm	mm	mm	m	kg	kg	
20	26,9	75	6	2,7	2,5	R-20/75
25	33,7	90	6	3,2	3,0	R-25/90
32	42,4	110	6;12	4,2	3,9	R-32/110
40	48,3	110	6;12	4,6	4,3	R-40/110
50	60,3	125	6;12	6,7	5,7	R-50/125
65	76,1	140	6;12	7,7	7,2	R-65/140
80	88,9	160	6;12	10,0	9,8	R-80/160
100	114,3	200	6;12	14,3	13,2	R-100/200
125	139,7	225	6;12	17,5	16,2	R-125/225
150	168,3	250	6;12;16*	22,9	21,0	R-150/250
200	219,1	315	6;12;16*	40,4	31,2	R-200/315
250	273,0	400	6;12;16*	58,7	45,2	R-250/400
300	323,9	450	6;12;16*	70,1	58,6	R-300/450
350	355,6	500	6;12;16*	86,8	66,6	R-350/500
400	406,4	560	6;12;16*	108,0	83,9	R-400/560
450	457,0	560	6;12;16*	130,6	90,6	R-450/560
500	508,0	630	6;12;16*	161,3	104,2	R-500/630
600	610,0	800	6;12;16*	-	149,3	R-600/800
700	711,0	900	6;12;16*	-	180,4	R-700/900
800	813,0	1000	6;12;16*	-	222,9	R-800/1000
900	914,0	1100	6;12;16*	-	276,9	R-900/1100
1000	1016,0	1200	6;12;16*	-	335,8	R-1000/1200
1200	1219,0	1400	6;12;16*	-	448,1	R-1200/1400

Note: When ordering specify steel grade (reference number St 37.0 or P235GH). Pre-insulated pipes of diameters exceeding DN 600 - DN 1200 are manufactured if their length and filling diameter (insulation thickness) have been agreed with the customer.

\*Pipes with length L=16 m are manufactured on individual customer's request.

## 8.1 a Straight pre-insulated pipes - plus insulation



**Table 1a Series 2 (Plus Insulation Thickness)**

Steel carrier pipe		Jacket pipe	Length	Weight		Catalogue reference number
Nominal diameter	External diameter	External diameter		seamless	welded	
DN	Dz	Dzp	L	1m	1m	
mm	mm	mm	m	kg	kg	
20	26,9	90	6	2,7	2,7	R-20/90
25	33,7	110	6;12	3,8	3,6	R-25/110
32	42,4	125	6;12	4,7	4,4	R-32/125
40	48,3	125	6;12	5,1	5,8	R-40/125
50	60,3	140	6;12	7,0	6,4	R-50/140
65	76,1	160	6;12	8,3	7,8	R-100/160
80	88,9	180	6;12	10,6	9,8	R-100/180
100	114,3	225	6;12	15,3	14,3	R-100/225
125	139,7	250	6;12	18,5	17,2	R-125/250
150	168,3	280	6;12	24,3	22,3	R-150/280
200	219,1	355	6;12	42,3	33,1	R-200/355
250	273,0	450	6;12	61,0	44,2	R-250/450
300	323,9	500	6;12	72,2	60,7	R-300/500
350	355,6	560	6;12	89,4	69,1	R-350/560
400	406,4	630	6;12	112,1	88,0	R-400/630
450	457,0	630	6;12	133,6	93,1	R-450/630
500	508,0	710	6;12	164,3	107,2	R-500/710
600	610,0	900	6;12	-	154,7	R-600/900
700	711,0	1000	6;12	-	195,5	R-700/1000
800	813,0	1100	6;12	-	239,9	R-800/1100
900	914,0	1200	6;12	-	296,7	R-900/1200

## 8.1 b Straight pre-insulated pipes - plus plus insulation

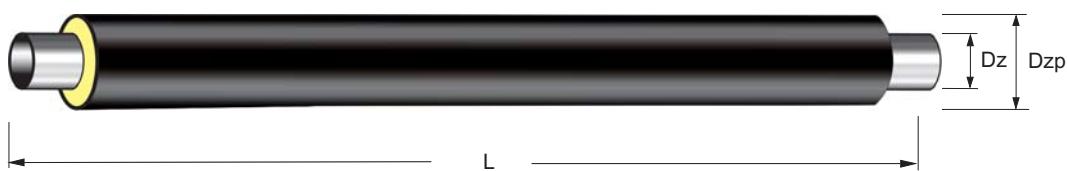


Table 1b Series 3 (Plus Plus Insulation Thickness)

Steel carrier pipe		Jacket pipe	Length	Weight		Catalogue reference number
Nominal diameter	External diameter	External diameter		seamless	welded	
DN	Dz	Dzp	L	1m	1m	
mm	mm	mm	m	kg	kg	
20	26,9	110	6	3,3	3,2	R-20/110
25	33,7	125	6	4,1	3,9	R-25/125
32	42,4	140	6;12	5,1	4,8	R-32/140
40	48,3	140	6;12	5,5	5,1	R-40/140
50	60,3	160	6;12	7,2	6,8	R-50/160
65	76,1	200(*180)	6;12	9,62(*8,9)	9,11(*8,4)	R-65/200(*180)
80	88,9	225(*200)	6;12	12,3(*11,3)	11,5(*10,5)	
100	114,3	250	6;12	16,4	15,4	R-100/250
125	139,7	315(*280)	6;12	21,9(*20,0)	20,6(*18,8)	
150	168,3	315	6;12	26,1	24,1	R-150/315
200	219,1	400	6;12	45,3	36,0	R-200/400
250	273,0	500	6;12	65,2	51,6	R-250/500
300	323,9	560	6;12	77,7	66,2	R-300/560

## 8.2 Pre-insulated Bent Pipes

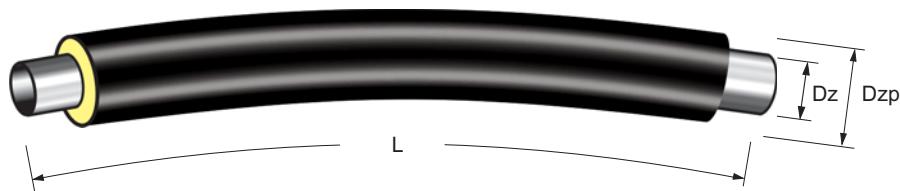


Table 2

Steel carrier pipe		Jacket pipe	Length	Weight		Catalogue reference number
Nominal diameter	External diameter	External diameter		seamless	welded	
DN	Dz	Dzp	L	1m	1m	
mm	mm	mm	m	kg	kg	
20	26,9	75	6	2,7	2,5	RG-20/75
25	33,7	90	6	3,2	3,0	RG-25/90
32	42,4	110	12	4,2	3,9	RG-32/110
40	48,3	110	12	4,6	4,3	RG-40/110
50	60,3	125	12	6,7	5,7	RG-50/125
65	76,1	140	12	7,7	7,2	RG-65/140
80	88,9	160	12	10,0	9,8	RG-80/160
100	114,3	200	12	14,3	13,2	RG-100/200
125	139,7	225	12	17,5	16,2	RG-125/225
150	168,3	250	12	22,9	21,0	RG-150/250
200	219,1	315	12	40,4	31,2	RG-200/315
250	273,0	400	12	58,7	45,2	RG-250/400
300	323,9	450	12	70,1	58,6	RG-300/450
350	355,6	500	12	86,8	66,6	RG-350/500
400	406,4	560	12	108,0	83,9	RG-400/560
450	457,0	560	12	130,6	90,6	RG-450/560
500	508,0	630	12	161,3	104,2	RG-500/630

Note: When ordering specify steel grade (reference number St 37.0 or P235GH) and angle and bent direction. Pre-insulated pipes of diameters exceeding DN 600 are manufactured if their length and filling diameter (insulation thickness) have been agreed with the customer.

## 9 Pre-insulated Fittings

### 9.1 90° Elbow

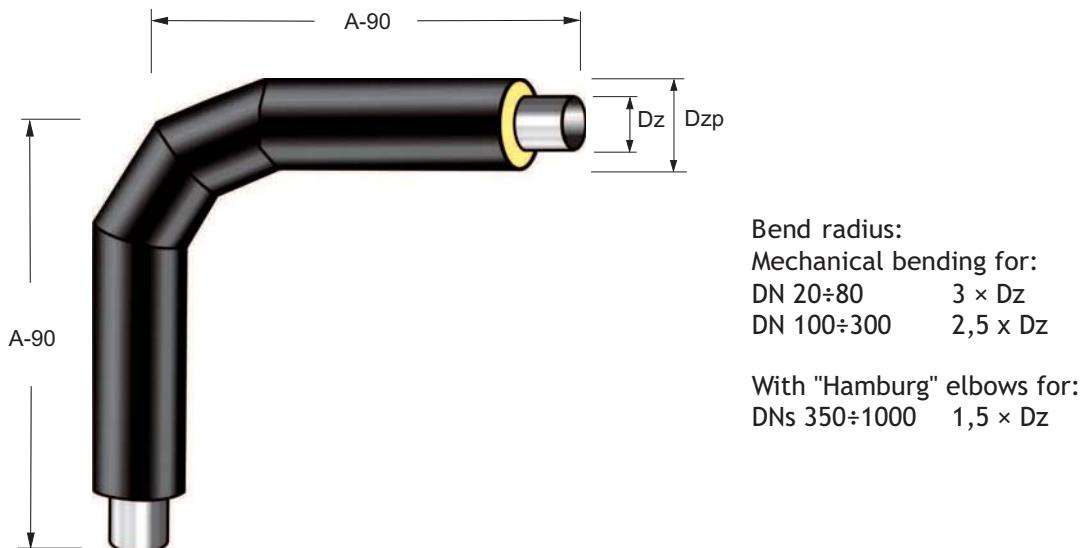


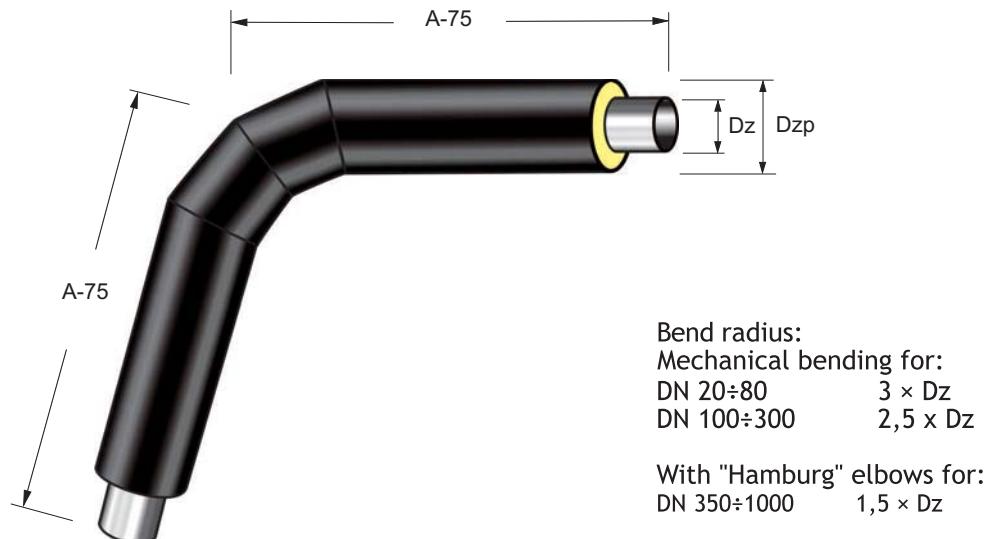
Table 3

Steel carrier pipe		Jacket pipe	Dimension	Weight of pre-insulated elbow	Catalogue reference number
Nominal diameter	External diameter	External diameter			
DN	Dz	Dzp	A 90	1 pcs	
mm	mm	mm	mm		
20	26,9	75	1000	5,0	K-20/90
25	33,7	90	1000	6,4	K-25/90
32	42,4	110	1000	8,0	K-32/90
40	48,3	110	1000	10,6	K-40/90
50	60,3	125	1000	13,0	K-50/90
65	76,1	140	1000	14,5	K-65/90
80	88,9	160	1000	17,5	K-80/90
100	114,3	200	1000	27,5	K-100/90
125	139,7	225	1000	33,0	K-125/90
150	168,3	250	1000	39,0	K-150/90
200	219,1	315	1000	50,0	K-200/90
250	273,0	400	1200	82,8	K-250/90
300	323,9	450	1500	151,0	K-300/90
350	355,6	500	1500	172,0	K-350/90
400	406,4	560	1500	218,0	K-400/90
450	457,0	560	1500	263,0	K-450/90
500	508,0	630	1500	307,0	K-500/90
600	610,0	800	1500	376,0	K-600/90

Note: \* Pre-insulated units of diameters exceeding DN 600 are tailor-made.

\* For Customer's request bends for diameters DN 100÷300 will made with the  $1,5 \times Dz$  "Hamburg" elbows.

## 9.2 75° Elbow

**Table 4**

Steel carrier pipe		Jacket pipe	Dimension	Weight of pre-insulated elbow	Catalogue reference number
Nominal diameter	External diameter	External diameter			
DN	Dz	Dzp			
mm	mm	mm	mm	unit	
20	26,9	75	1000	5,0	K-20/75
25	33,7	90	1000	6,4	K-25/75
32	42,4	110	1000	8,0	K-32/75
40	48,3	110	1000	10,6	K-40/75
50	60,3	125	1000	12,0	K-50/75
65	76,1	140	1000	14,5	K-65/75
80	88,9	160	1000	18,5	K-80/75
100	114,3	200	1000	27,5	K-100/75
125	139,7	225	1000	35,5	K-125/75
150	168,3	250	1000	41,5	K-150/75
200	219,1	315	1000	56,0	K-200/75
250	273,0	400	1200	94,8	K-250/75
300	323,9	450	1500	163,0	K-300/75
350	355,6	500	1500	186,0	K-350/75
400	406,4	560	1500	237,0	K-400/75
450	457,0	560	1500	279,0	K-450/75
500	508,0	630	1500	325,0	K-500/75
600	610,0	800	1500	404,0	K-600/75

Note: \* Pre-insulated units of diameters exceeding DN 600 are tailor-made.

\* For Customer's request bends for diameters DN 100÷300 will made with the 1,5xDz "Hamburg" elbows.

### 9.3 60° Elbow

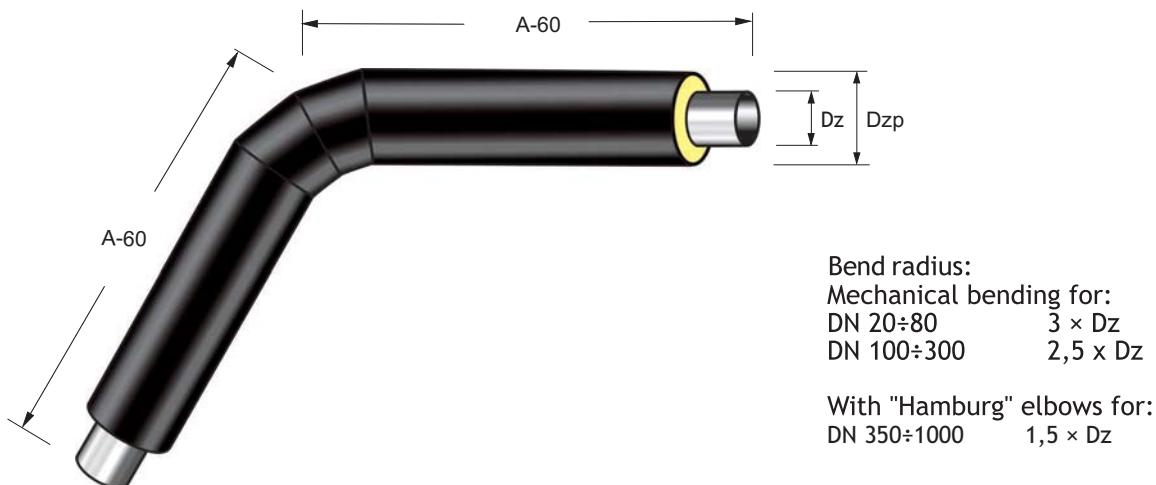


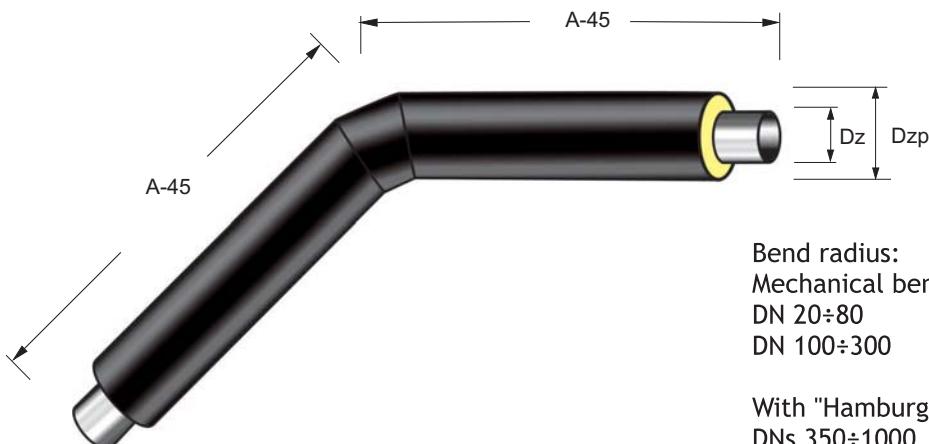
Table 5

Steel carrier pipe		Jacket pipe	Dimension	Weight of pre-insulated elbow	Catalogue reference number
Nominal diameter	External diameter	External diameter			
DN	Dz	Dzp	A 60	unit	
mm	mm	mm	mm		
20	26,9	75	1000	5,0	K-20/60
25	33,7	90	1000	6,4	K-25/60
32	42,4	110	1000	8,0	K-32/60
40	48,3	110	1000	8,5	K-40/60
50	60,3	125	1000	12,0	K-50/60
65	76,1	140	1000	14,5	K-65/60
80	88,9	160	1000	19,5	K-80/60
100	114,3	200	1000	27,5	K-100/60
125	139,7	225	1000	35,5	K-125/60
150	168,3	250	1000	41,5	K-150/60
200	219,1	315	1000	69,5	K-200/60
250	273,0	400	1200	102,0	K-250/60
300	323,9	450	1500	174,0	K-300/60
350	355,6	500	1500	194,0	K-350/60
400	406,4	560	1500	247,0	K-400/60
450	457,0	560	1500	289,0	K-450/60
500	508,0	630	1500	337,0	K-500/60
600	610,0	800	1500	420,0	K-600/60

Note: \* Pre-insulated units of diameters exceeding DN 600 are tailor-made.

\* For Customer's request bends for diameters DN 100÷300 will made with the  $1,5 \times Dz$  "Hamburg" elbows.

## 9.4 45° Elbow



**Table 6**

Steel carrier pipe		Jacket pipe	Dimension	Weight of pre-insulated elbow	Catalogue reference number
Nominal diameter	External diameter	External diameter			
DN	Dz	Dzp			
mm	mm	mm	mm	unit	
20	26,9	75	1000	5,0	K-20/45
25	33,7	90	1000	6,4	K-25/45
32	42,4	110	1000	8,0	K-32/45
40	48,3	110	1000	8,5	K-40/45
50	60,3	125	1000	12,0	K-50/45
65	76,1	140	1000	14,5	K-65/45
80	88,9	160	1000	19,5	K-80/45
100	114,3	200	1000	28,5	K-100/45
125	139,7	225	1000	36,5	K-125/45
150	168,3	250	1000	43,5	K-150/45
200	219,1	315	1000	70,5	K-200/45
250	273,0	400	1200	104,4	K-250/45
300	323,9	450	1500	177,0	K-300/45
350	355,6	500	1500	199,0	K-350/45
400	406,4	560	1500	253,0	K-400/45
450	457,0	560	1500	294,0	K-450/45
500	508,0	630	1500	343,0	K-500/45
600	610,0	800	1500	429,0	K-600/45

Note: \* Pre-insulated units of diameters exceeding DN 600 are tailor-made.

\* For Customer's request bends for diameters DN 100÷300 will made with the  $1,5 \times Dz$  "Hamburg" elbows.

## 9.5 30° Elbow

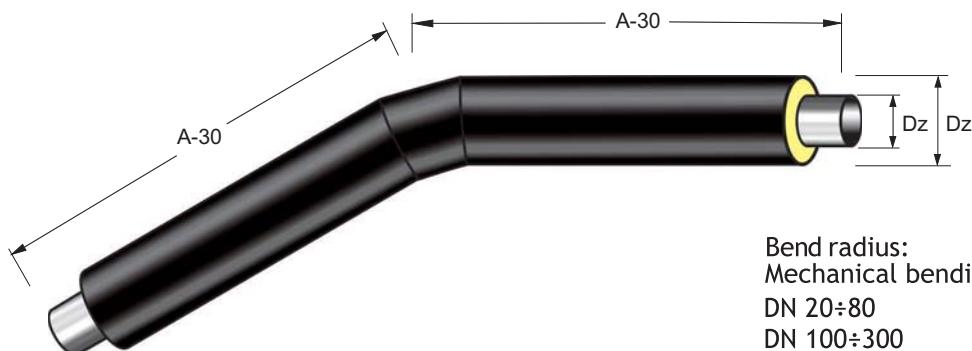


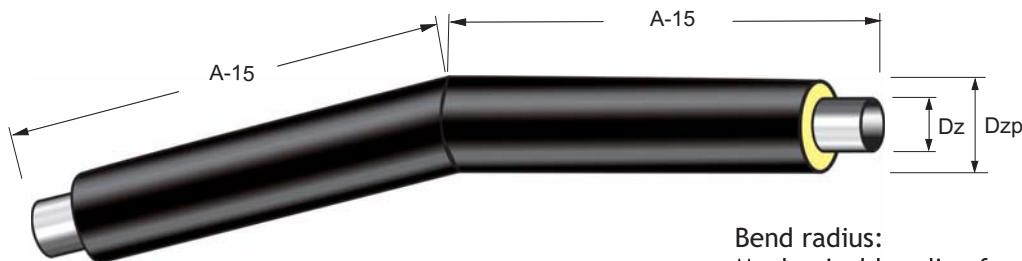
Table 7

Steel carrier pipe		Jacket pipe	Dimension	Weight of pre-insulated elbow	Catalogue reference number
Nominal diameter	External diameter	External diameter			
DN	Dz	Dzp	A 30	unit	
mm	mm	mm	mm		
20	26,9	75	1000	5,0	K-20/30
25	33,7	90	1000	6,4	K-25/30
32	42,4	110	1000	8,5	K-32/30
40	48,3	110	1000	9,5	K-40/30
50	60,3	125	1000	12,0	K-50/30
65	76,1	140	1000	14,5	K-65/30
80	88,9	160	1000	19,5	K-80/30
100	114,3	200	1000	28,5	K-100/30
125	139,7	225	1000	35,5	K-125/30
150	168,3	250	1000	43,5	K-150/30
200	219,1	315	1000	70,5	K-200/30
250	273,0	400	1200	106,8	K-250/30
300	323,9	450	1500	179,0	K-300/30
350	355,6	500	1500	201,0	K-350/30
400	406,4	560	1500	256,0	K-400/30
450	457,0	560	1500	297,0	K-450/30
500	508,0	630	1500	346,0	K-500/30
600	610,0	800	1500	433,0	K-600/30

Note: \* Pre-insulated units of diameters exceeding DN 600 are tailor-made.

\* For Customer's request bends for diameters DN 100÷300 will made with the  $1,5 \times Dz$  "Hamburg" elbows.

## 9.6 15° Elbow



Bend radius:  
 Mechanical bending for:  
 DN 20÷80       $3 \times Dz$   
 DN 100÷300     $2,5 \times Dz$

With "Hamburg" elbows for:  
 DNs 350÷1000     $1,5 \times Dz$

**Table 8**

Steel carrier pipe		Jacket pipe	Dimension	Weight of pre-insulated elbow	Catalogue reference number
Nominal diameter	External diameter	External diameter			
DN	Dz	Dzp			
mm	mm	mm	mm	unit	
20	26,9	75	1000	5,0	K-20/15
25	33,7	90	1000	6,4	K-25/15
32	42,4	110	1000	8,0	K-32/15
40	48,3	110	1000	9,5	K-40/15
50	60,3	125	1000	12,0	K-50/15
65	76,1	140	1000	14,5	K-65/15
80	88,9	160	1000	19,5	K-80/15
100	114,3	200	1000	29,5	K-100/15
125	139,7	225	1000	37,5	K-125/15
150	168,3	250	1000	44,5	K-150/15
200	219,1	315	1000	61,5	K-200/15
250	273,0	400	1200	106,8	K-250/15
300	323,9	450	1500	181,0	K-350/15
350	355,6	500	1500	202,0	K-350/15
400	406,4	560	1500	257,0	K-400/15
450	457,0	560	1500	298,0	K-150/15
500	508,0	630	1500	347,0	K-500/15
600	610,0	800	1500	434,0	K-600/15

Note: \* Pre-insulated units of diameters exceeding DN 600 are tailor-made.

\* For Customer's request bends for diameters DN 100÷300 will made with the  $1,5 \times Dz$  "Hamburg" elbows.

## 9.7 Elevated Tee

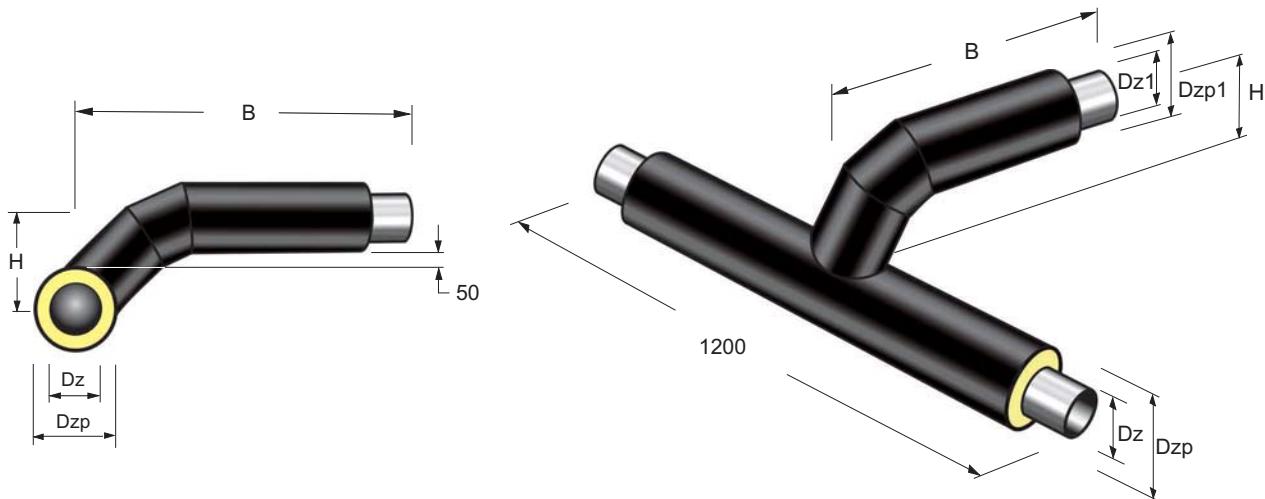


Table 9

Nominal diameter	Straight Section		Vertical Section		H	B	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1			
mm	mm	mm	mm	mm	mm	mm	
20	26,9	75	26,9	75	140	700	TW-20/20
25	33,7	90	26,9	75	140	700	TW-25/20
32	42,4	110	33,7	90	150	700	TW-32/25
40	48,3	110	42,4	110	160	700	TW-40/32
50	60,3	125	48,3	110	170	700	TW-50/40
65	76,1	140	60,3	125	185	900	TW-65/50
80	88,9	160	76,1	140	200	900	TW-80/65
100	114,3	200	88,9	160	230	900	TW-100/80
125	139,7	225	114,3	200	265	900	TW-125/100
150	168,3	250	139,7	225	285	900	TW-150/125
200	219,1	315	168,3	250	335	900	TW-200/150
250	273,0	400	219,1	315	410	1100	TW-250/200
300	323,9	450	273,0	400	475	1100	TW-300/250

Note: 1.Tees are fabricated in full selection of diameters.

2.The H dimension changes along with branching off pipe diameter

3. Pre-insulated units of diameters exceeding DN 300 are tailor-made.

### 9.7.1 Reducing Elevated Tee

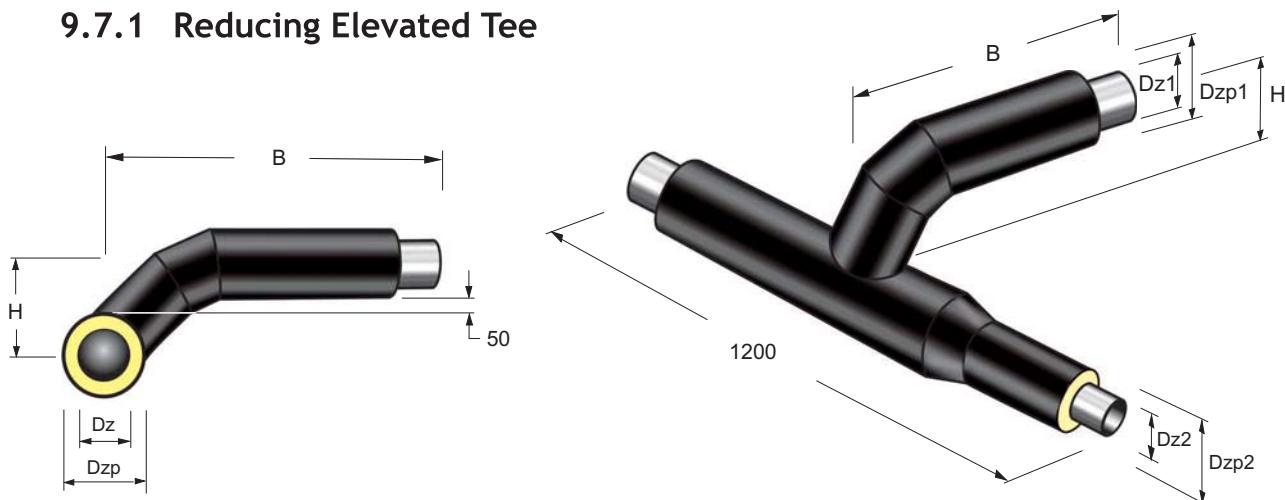


Table 10

Straight Section			Vertical section		Reduced pipe		H	B	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1	Dz2	Dzp2	mm	mm	
mm	mm	mm	mm	mm	mm	mm	mm	mm	
25	33,7	90	26,9	75	26,9	75	140	700	TWR-25/20/20
32	42,4	110	26,9	75	26,9	75	140	700	TWR-32/20/20
32	42,4	110	33,7	90	33,7	90	150	700	TWR-32/25/25
40	48,3	110	33,7	90	33,7	90	150	700	TWR-40/25/25
40	48,3	110	42,4	110	42,4	110	160	700	TWR-40/32/32
50	60,3	125	42,4	110	42,4	110	160	700	TWR-50/32/32
50	60,3	125	48,3	110	48,3	110	170	700	TWR-50/40/40
65	76,1	140	48,3	110	48,3	110	170	700	TWR-65/40/40
65	76,1	140	60,3	125	60,3	125	185	900	TWR-65/50/50
80	88,9	160	60,3	125	60,3	125	185	900	TWR-80/50/50
80	88,9	160	76,1	140	76,1	140	200	900	TWR-80/65/65
100	114,3	200	76,1	140	76,1	140	200	900	TWR-100/65/65
100	114,3	200	88,9	160	88,9	160	230	900	TWR-100/80/80
125	139,7	225	88,9	160	88,9	160	230	900	TWR-125/80/80
125	139,7	225	114,3	200	114,3	200	265	900	TWR-125/100/100
150	168,3	250	114,3	200	114,3	200	265	900	TWR-150/100/100
150	168,3	250	139,7	225	139,7	225	285	900	TWR-150/125/125
200	219,1	315	139,7	225	139,7	225	285	900	TWR-200/125/125
200	219,1	315	168,3	250	168,3	250	335	900	TWR-200/150/150
250	273,0	400	168,3	250	168,3	250	335	900	TWR-250/150/150
250	273,0	400	219,1	315	219,1	315	410	1100	TWR-250/200/200
300	323,9	450	219,1	315	219,1	315	475	1100	TWR-300/200/200
300	323,9	450	273,0	400	273,0	400	475	1100	TWR-300/250/250

Note : 1. Reducing tees are fabricated in full selection of diameters.

2. The H dimension changes along with branching off pipe diameter

3. Pre-insulated units of diameters exceeding DN 300 are tailor-made.

## 9.7.2 Elevated Tee - Mk. 2

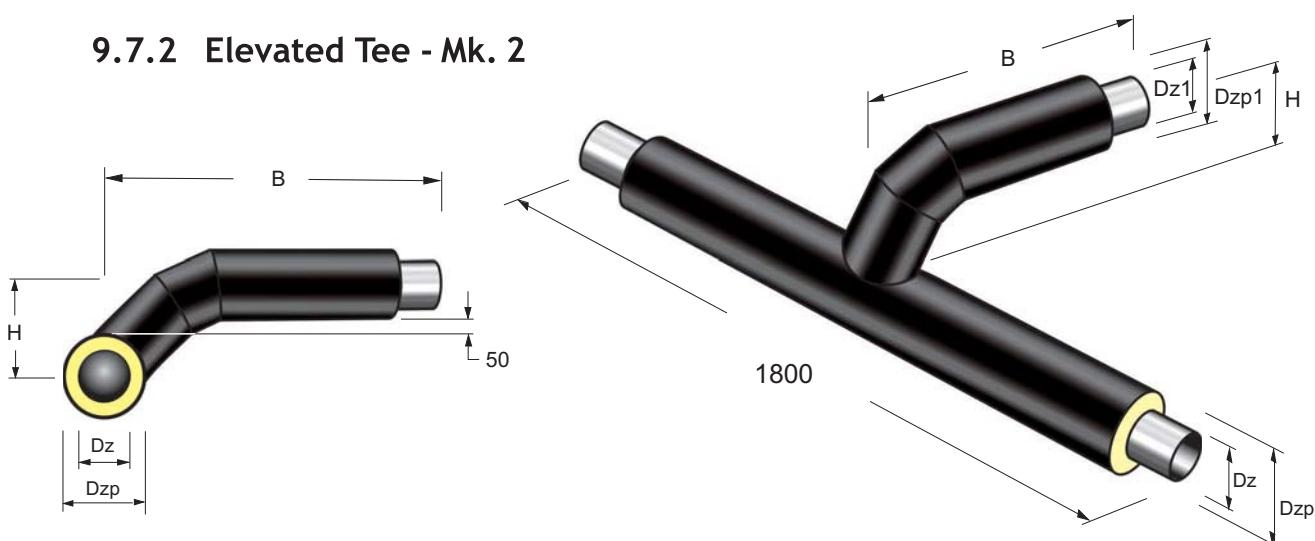
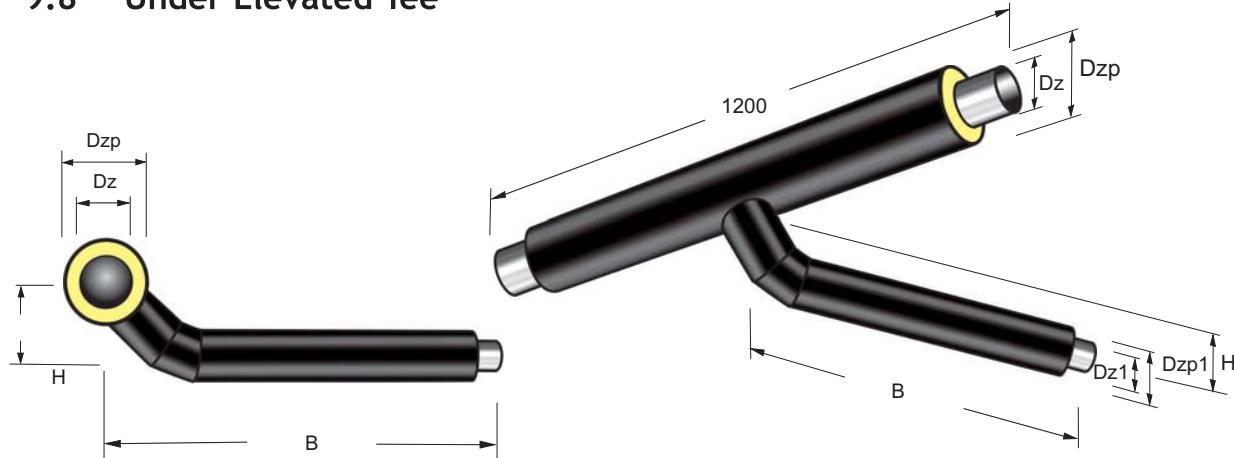


Table 11

Nominal diameter	Straight section		Vertical section		H	B	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1			
mm	mm	mm	mm	mm	mm	mm	
20	26,9	75	26,9	75	140	700	TW2-20/20
25	33,7	90	26,9	75	140	700	TW2-25/20
32	42,4	110	33,7	90	150	700	TW2-32/25
40	48,3	110	42,4	110	160	700	TW2-40/32
50	60,3	125	48,3	110	170	700	TW2-50/40
65	76,1	140	60,3	125	185	900	TW2-65/50
80	88,9	160	76,1	140	200	900	TW2-80/65
100	114,3	200	88,9	160	230	900	TW2-100/80
125	139,7	225	114,3	200	265	900	TW2-125/100
150	168,3	250	139,7	225	285	900	TW2-150/125
200	219,1	315	168,3	250	335	900	TW2-200/150
250	273,0	400	219,1	315	410	1100	TW2-250/200
300	323,9	450	273,0	400	475	1100	TW2-300/250
350	355,6	500	323,9	450	525	1300	TW2-350/300
400	406,4	560	355,6	500	580	1300	TW2-400/350
450	457,0	560	406,4	560	645	1500	TW2-450/400
500	508,0	630	457,0	630	720	1500	TW2-500/450
600	610,0	800	508,0	710	805	1700	TW2-600/500

Note: 1. Tees are fabricated in full selection of diameters  
 2. They can also be fabricated as reducing tees in any diameters  
 3. The H dimension changes along with branching off pipe diameter  
 4. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

## 9.8 Under Elevated Tee



**Table 12**

Nominal diameter	Straight section			Vertical section		H	B	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter				
	DN	Dz	Dzp	Dz1	Dzp1			
mm	mm	mm	mm	mm	mm	mm	mm	
25	33,7	90	33,7	90	160	900		TO-25/25
32	42,4	110	33,7	90	160	900		TO-32/25
40	48,3	110	33,7	90	160	900		TO-40/25
50	60,3	125	33,7	90	167	900		TO-50/25
65	76,1	140	48,3	110	175	900		TO-65/40
80	88,9	160	48,3	110	185	1200		TO-80/40
100	114,3	200	48,3	110	205	1200		TO-100/40
125	139,7	225	48,3	110	218	1200		TO-125/40
150	168,3	250	48,3	110	230	1200		TO-150/40
200	219,1	315	60,3	125	270	1200		TO-200/50
250	273,0	400	60,3	125	313	1200		TO-250/50
300	323,9	450	60,3	125	340	1200		TO-300/50

Note: 1. Tees are fabricated in full selection of diameters  
 2. They can also be fabricated as reducing tees in any diameters  
 3. The H dimension changes along with branching off pipe diameter  
 4. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

### 9.8.1 Under Elevated Tee - Mk. 2



Table 13

Nominal diameter	Straight section		Vertical section		H	B	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
	DN	Dz	Dzp	Dz1	Dzp1		
mm	mm	mm	mm	mm	mm	mm	
25	33,7	90	33,7	90	160	900	TO2-25/25
32	42,4	110	33,7	90	160	900	TO2-32/25
40	48,3	110	33,7	90	160	900	TO2-40/25
50	60,3	125	33,7	90	167	900	TO2-50/25
65	76,1	140	48,3	110	175	900	TO2-65/40
80	88,9	160	48,3	110	185	1200	TO2-80/40
100	114,3	200	48,3	110	205	1200	TO2-100/40
125	139,7	225	48,3	110	218	1200	TO2-125/40
150	168,3	250	48,3	110	230	1200	TO2-150/40
200	219,1	315	60,3	125	270	1200	TO2-200/50
250	273,0	400	60,3	125	313	1200	TO2-250/50
300	323,9	450	60,3	125	340	1200	TO2-300/50
350	355,6	500	88,9	160	380	1200	TO2-350/80
400	406,4	560	88,9	160	410	1200	TO2-400/80
450	457,0	560	114,3	200	465	1200	TO2-450/100
500	508,0	630	114,3	200	505	1200	TO2-500/100
600	610,0	800	114,3	200	550	1200	TO2-600/100

- Note:
1. Tees are fabricated in full selection of diameters
  2. They can also be fabricated as reducing tees in any diameters
  3. The H dimension changes along with branching off pipe diameter
  4. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

## 9.9 Vent Tee

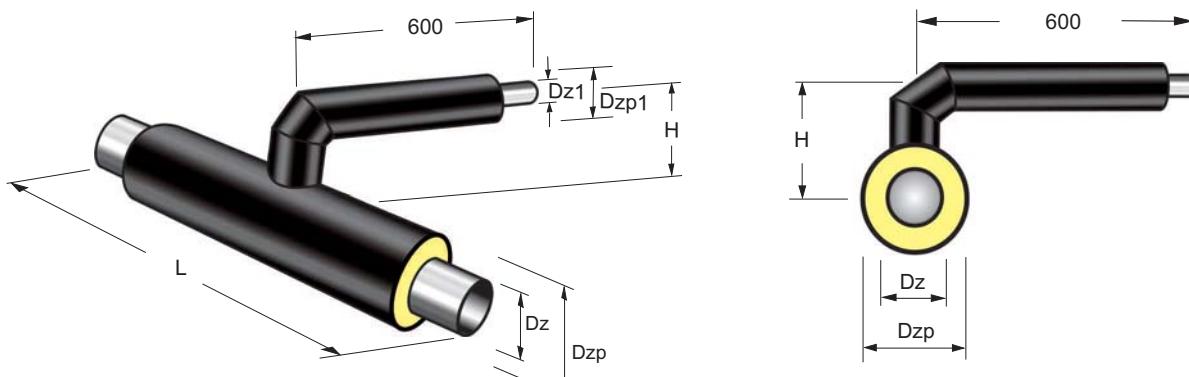


Table 14

Straight section			Vertical section		L	H	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1	mm	mm	mm
65	76,1	140	33,7	90	900	210	TD-65
80	88,9	160	33,7	90	900	220	TD-80
100	114,3	200	33,7	90	900	240	TD-100
125	139,7	225	33,7	90	900	250	TD-125
150	168,3	250	33,7	90	900	260	TD-150
200	219,1	315	33,7	90	1200	300	TD-200
250	273,0	400	33,7	90	1200	340	TD-250
300	323,9	450	33,7	90	1500	360	TD-300

Note:

1. Vents are fabricated in full selection of diameters
2. They can also be fabricated as reducing tees in any diameters
3. The H dimension changes along with branching off pipe diameter
4. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

## 9.9.1 Vent Tee - Mk. 2

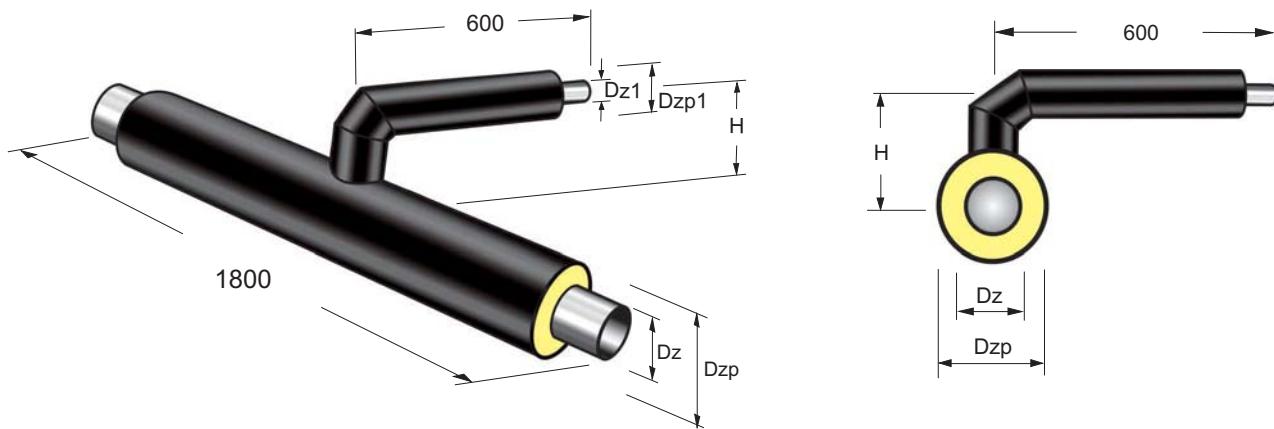


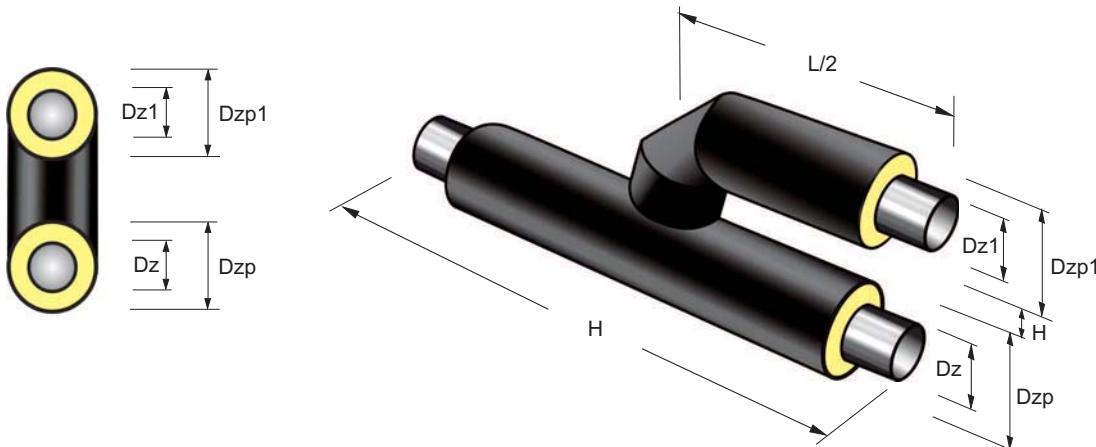
Table 15

Nominal diameter	Straight section		Vertical section		H	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter		
DN	Dz	Dzp	Dz1	Dzp1		
mm	mm	mm	mm	mm	mm	
65	76,1	140	33,7	90	210	TD2-65
80	88,9	160	33,7	90	220	TD2-80
100	114,3	200	33,7	90	240	TD2-100
125	139,7	225	33,7	90	250	TD2-125
150	168,3	250	33,7	90	260	TD2-150
200	219,1	315	33,7	90	300	TD2-200
250	273,0	400	33,7	90	340	TD2-250
300	323,9	450	33,7	90	360	TD2-300
350	355,6	500	48,3	110	400	TD2-350
400	406,4	560	48,3	110	430	TD2-400
450	457,0	560	48,3	110	460	TD2-450
500	508,0	630	48,3	110	500	TD2-500
600	610,0	800	48,3	110	550	TD2-600

Note:

1. Vents are fabricated in full selection of diameters
2. They can also be fabricated as reducing tees in any diameters
3. The H dimension changes along with branching off pipe diameter
4. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

## 9.10 Parallel Tee

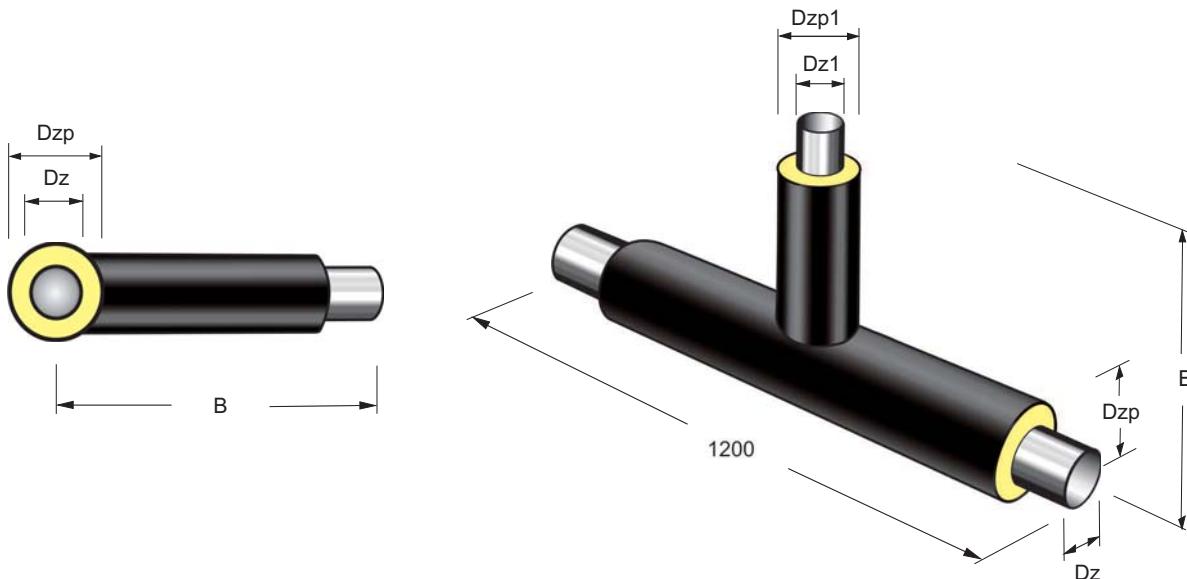


**Table 16**

Straight section			Branching off section		H	L	Catalogue reference number
Nominal diameter	Carrier pipe external diameter		Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1	mm	mm	
mm	mm	mm	mm	mm	mm	mm	
20	26,9	75	26,9	75	100	900	TR-20/20
25	33,7	90	26,9	75	100	900	TR-25/20
32	42,4	110	33,7	90	100	900	TR-32/25
40	48,3	110	42,4	110	100	900	TR-40/32
50	60,3	125	48,3	110	100	900	TR-50/40
65	76,1	140	60,3	125	120	1200	TR-65/50
80	88,9	160	76,1	140	120	1200	TR-80/65
100	114,3	200	88,9	160	120	1200	TR-100/8 0
125	139,7	225	114,3	200	150	1200	TR-125/100
150	168,3	250	139,7	225	150	1200	TR-150/125
200	219,1	315	168,3	250	200	1500	TR-200/150
250	273,0	400	219,1	315	200	1500	TR-250/200
300	323,9	450	273,0	400	250	1800	TR-300/250

- Note:
1. Tees are fabricated in full selection of diameters
  2. They can also be fabricated as reducing tees in any diameters
  3. The H dimension changes along with branching off pipe diameter
  4. Pre-insulated units of diameters exceeding DN 300 are tailor-made.

## 9.11 Flat Tee



**Table 17**

Straight section			Branching off section		B	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter		
DN	Dz	Dzp	Dz1	Dzp1		
mm	mm	mm	mm	mm	mm	mm
20	26,9	75	26,9	75	600	<b>TP-20/20</b>
25	33,7	90	26,9	75	600	<b>TP-25/20</b>
32	42,4	110	33,7	90	600	<b>TP-32/25</b>
40	48,3	110	42,4	110	600	<b>TP-40/32</b>
50	60,3	125	48,3	110	600	<b>TP-50/40</b>
65	76,1	140	60,3	125	600	<b>TP-65/50</b>
80	88,9	160	76,1	140	600	<b>TP-80/65</b>
100	114,3	200	88,9	160	600	<b>TP-100/80</b>
125	139,7	225	114,3	200	700	<b>TP-125/100</b>
150	168,3	250	139,7	225	700	<b>TP-150/125</b>
200	219,1	315	168,3	250	700	<b>TP-200/150</b>
250	273,0	400	219,1	315	900	<b>TP-250/200</b>
300	323,9	450	273,0	400	900	<b>TP-300/250</b>

Note: 1. Tees are fabricated in full selection of diameters  
 2. They can also be fabricated as reducing tees in any diameters  
 3. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

## 9.11.1 Flat Tee Mk. 2

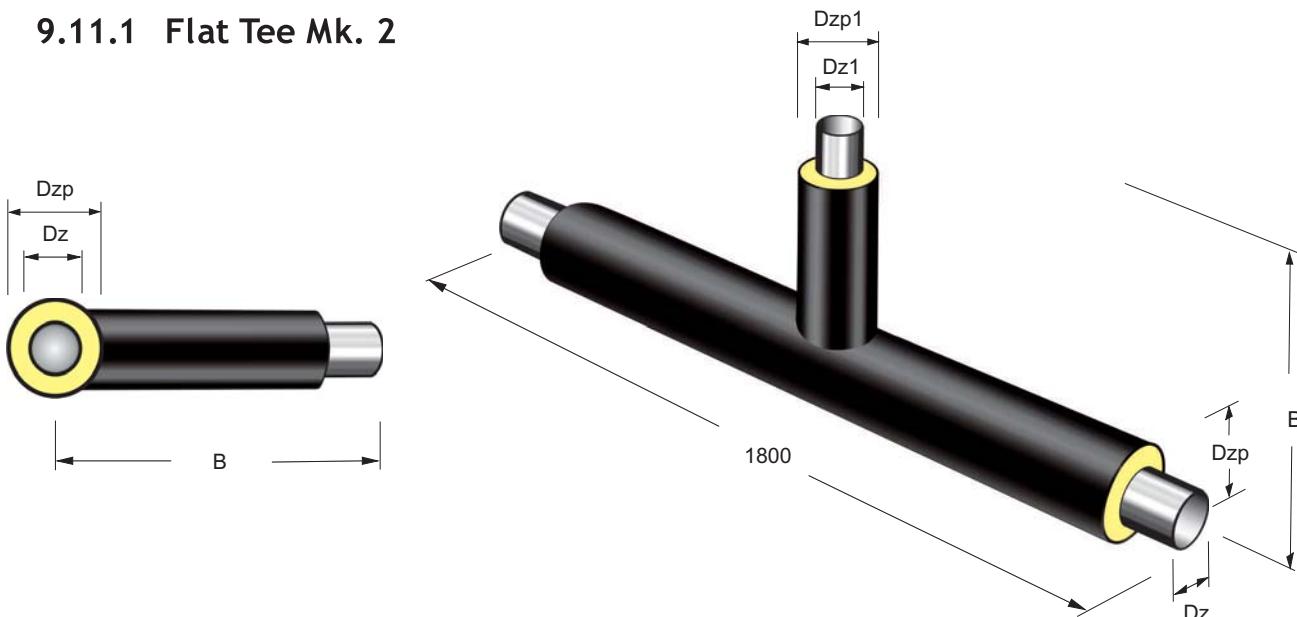


Table 18

Nominal diameter	Straight section		Branching off section		B	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter		
	DN	Dz	Dzp	Dz1	Dzp1	
mm	mm	mm	mm	mm	mm	
20	26,9	75	26,9	75	600	TP2-20/20
25	33,7	90	26,9	75	600	TP2-25/20
32	42,4	110	33,7	90	600	TP2-32/25
40	48,3	110	42,4	110	600	TP2-40/32
50	60,3	125	48,3	110	600	TP2-50/40
65	76,1	140	60,3	125	600	TP2-65/50
80	88,9	160	76,1	140	600	TP2-80/65
100	114,3	200	88,9	160	600	TP2-100/80
125	139,7	225	114,3	200	700	TP2-125/100
150	168,3	250	139,7	225	700	TP2-150/125
200	219,1	315	168,3	250	700	TP2-200/150
250	273,0	400	219,1	315	900	TP2-250/200
300	323,9	450	273,0	400	900	TP2-300/250
350	355,6	500	323,9	450	900	TP2-350/300
400	406,4	560	355,6	500	900	TP2-400/350
450	457,0	560	406,4	560	1100	TP2-450/400
500	508,0	630	457,0	630	1100	TP2-500/450
600	610,0	800	508,0	710	1100	TP2-600/500

Note: 1. Tees are fabricated in full selection of diameters.

2. The H dimension changes along with branching off pipe diameter

3. Pre-insulated units of diameters exceeding DN 600 are tailor-made.

### 9.11.2 Elevated Tee for DAR-FLEX system

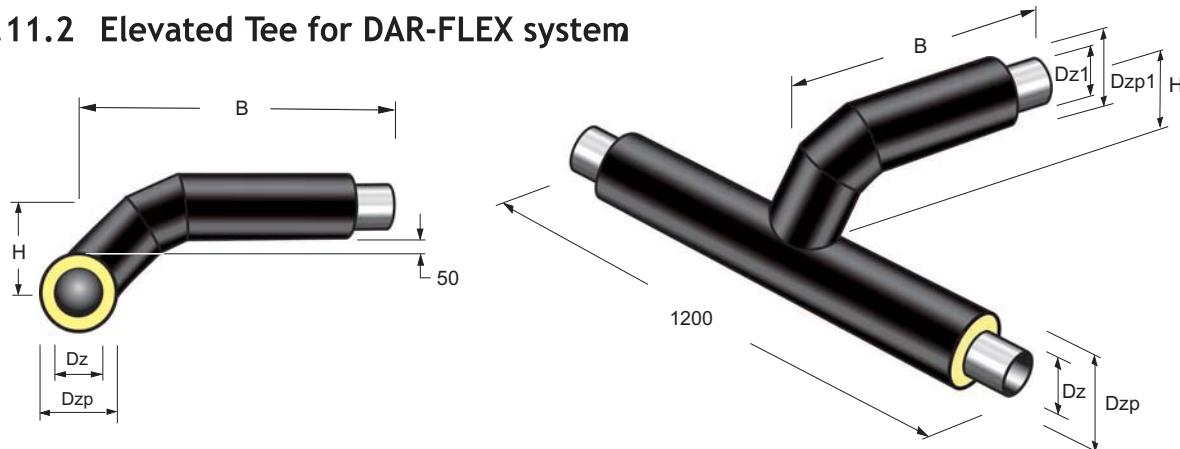


Table 18a

Nominal diameter	Straight section		Branching off section		H	B	Catalogue reference number
	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1			
mm	mm	mm	mm	mm	mm	mm	
20	26,9	75(90)	20	75(90)	140	700	TW/DF-20/20
25	33,7	90	20	75(90)	140	700	TW/DF-25/20
25	33,7	90	25	75(90)	140	700	TW/DF-25/25
25	33,7	90	28	75(90)	140	700	TW/DF-25/28
32	42,4	110	20	75(90)	150	700	TW/DF-32/20
32	42,4	110	25	75(90)	150	700	TW/DF-32/25
32	42,4	110	28	75(90)	150	700	TW/DF-32/28
40	48,3	110	20	75(90)	160	700	TW/DF-40/20
40	48,3	110	25	75(90)	160	700	TW/DF-40/25
40	48,3	110	28	75(90)	160	700	TW/DF-40/28
50	60,3	125	20	75(90)	170	700	TW/DF-50/20
50	60,3	125	25	75(90)	170	700	TW/DF-50/25
50	60,3	125	28	75(90)	170	700	TW/DF-50/28
65	76,1	140	20	75(90)	185	700	TW/DF-65/20
65	76,1	140	25	75(90)	185	700	TW/DF-65/25
65	76,1	140	28	75(90)	185	700	TW/DF-65/28
80	88,9	160	20	75(90)	200	700	TW/DF-80/20
80	88,9	160	25	75(90)	200	700	TW/DF-80/25
80	88,9	160	28	75(90)	200	700	TW/DF-80/25
100	114,3	200	20	75(90)	230	700	TW/DF-100/20
100	114,3	200	25	75(90)	230	700	TW/DF-100/25
100	114,3	200	28	75(90)	230	700	TW/DF-100/28
125	139,7	225	20	75(90)	265	700	TW/DF-125/20
125	139,7	225	25	75(90)	265	700	TW/DF-125/25
125	139,7	225	28	75(90)	265	700	TW/DF-125/28
150	168,3	250	20	75(90)	285	700	TW/DF-150/20
150	168,3	250	25	75(90)	285	700	TW/DF-150/25
150	168,3	250	28	75(90)	285	700	TW/DF-150/28

Note: 1. If DAR-FLEX pipes are fabricated in PLUS insulation then jacket pipe diameter is Dzp1=90mm  
 2. Tees are fabricated in full selection of diameters.

### 9.11.3 Parallel Tee for DAR-FLEX system



D<sub>z1</sub>  
D<sub>zp1</sub>

D<sub>z</sub>  
D<sub>zp</sub>

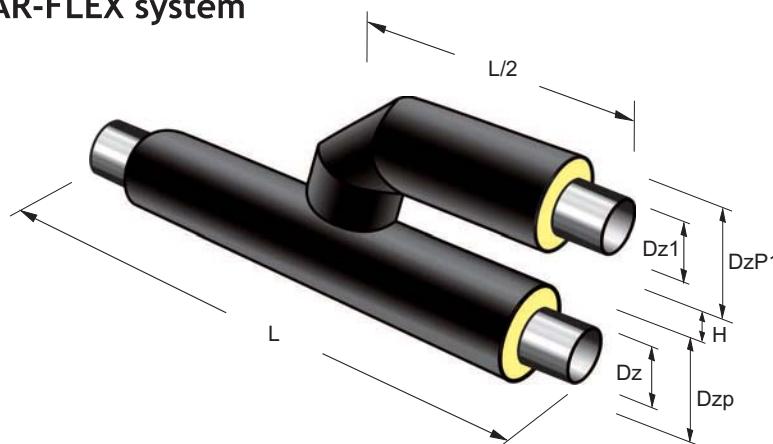


Table 18b

Straight section			Branching off section		H	B	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	Dz1	Dzp1	mm	mm	mm
mm	mm	mm	mm	mm	mm	mm	mm
20	26,9	75(90)	20	75(90)	100	900	TR/DF-20/20
25	33,7	90	20	75(90)	100	900	TR/DF-25/20
25	33,7	90	25	75(90)	100	900	TR/DF-25/25
25	33,7	90	28	75(90)	100	900	TR/DF-25/28
32	42,4	110	20	75(90)	100	900	TR/DF-32/20
32	42,4	110	25	75(90)	100	900	TR/DF-32/25
32	42,4	110	28	75(90)	100	900	TR/DF-32/28
40	48,3	110	20	75(90)	100	900	TR/DF-40/20
40	48,3	110	25	75(90)	100	900	TR/DF-40/25
40	48,3	110	28	75(90)	100	900	TR/DF-40/28
50	60,3	125	20	75(90)	100	900	TR/DF-50/20
50	60,3	125	25	75(90)	100	900	TR/DF-50/25
50	60,3	125	28	75(90)	100	900	TR/DF-50/28
65	76,1	140	20	75(90)	120	900	TR/DF-65/20
65	76,1	140	25	75(90)	120	900	TR/DF-65/25
65	76,1	140	28	75(90)	120	900	TR/DF-65/28
80	88,9	160	20	75(90)	120	900	TR/DF-80/20
80	88,9	160	25	75(90)	120	900	TR/DF-80/25
80	88,9	160	28	75(90)	120	900	TR/DF-80/25
100	114,3	200	20	75(90)	120	900	TR/DF-100/20
100	114,3	200	25	75(90)	120	900	TR/DF-100/25
100	114,3	200	28	75(90)	120	900	TR/DF-100/28
125	139,7	225	20	75(90)	150	900	TR/DF-125/20
125	139,7	225	25	75(90)	150	900	TR/DF-125/25
125	139,7	225	28	75(90)	150	900	TR/DF-125/28
150	168,3	250	20	75(90)	150	900	TR/DF-150/20
150	168,3	250	25	75(90)	150	900	TR/DF-150/25
150	168,3	250	28	75(90)	150	900	TR/DF-150/28

Note: 1. If DAR-FLEX pipes are fabricated in PLUS insulation then jacket pipe diameter is Dzp1=90mm  
 2. Tees are fabricated in full selection of diameters.

## 9.12 Reducing Pipe

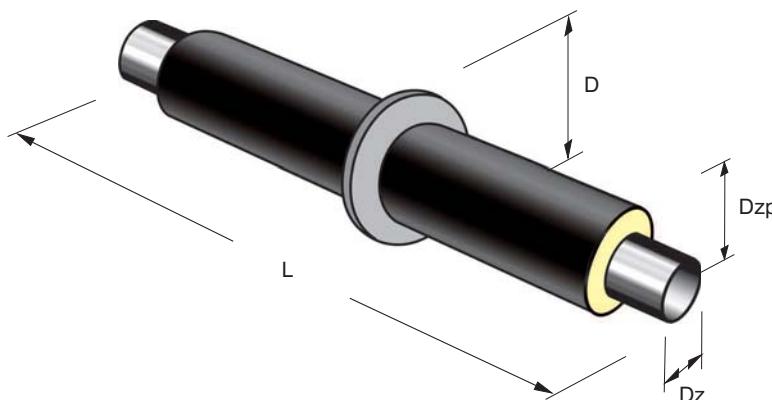


**Table 19**

Nominal diameter DN/DN1 <i>mm</i>	Straight segment		Reduced segment		Length <i>L</i> <i>mm</i>	Catalogue reference number
	Dz <i>mm</i>	Dzp <i>mm</i>	Dz1 <i>mm</i>	Dzp1 <i>mm</i>		
25/20	33,7	90	26,9	75	1000	Z-25/20
32/20	42,4	110	26,9	75	1000	Z-32/20
32/25	42,4	110	33,7	90	1000	Z-32/25
40/25	48,3	110	33,7	90	1000	Z-40/25
40/32	48,3	110	42,4	110	1000	Z-40/32
50/32	60,3	125	42,4	110	1000	Z-50/32
50/40	60,3	125	48,3	110	1000	Z-50/40
65/40	76,1	140	48,3	110	1000	Z-65/40
65/50	76,1	140	60,3	125	1000	Z-65/50
80/50	88,9	160	60,3	125	1000	Z-80/50
80/65	88,9	160	76,1	140	1000	Z-80/65
100/65	114,3	200	76,1	140	1000	Z-100/65
100/80	114,3	200	88,9	160	1000	Z-100/80
125/80	139,7	225	88,9	160	1000	Z-125/80
125/100	139,7	225	114,3	200	1000	Z-125/100
150/100	168,3	250	114,3	200	1000	Z-150/100
150/125	168,3	250	139,7	225	1000	Z-150/125
200/125	219,1	315	139,7	225	1200	Z-200/125
200/150	219,1	315	168,3	250	1200	Z-200/150
250/150	273,0	400	168,3	250	1200	Z-250/150
250/200	273,0	400	219,1	315	1200	Z-250/200
300/200	323,9	450	219,1	315	1200	Z-300/200
300/250	323,9	450	273,0	400	1200	Z-300/250
350/250	355,6	500	273,0	400	1200	Z-350/250
350/300	355,6	500	323,9	450	1200	Z-350/300
400/300	406,4	560	323,9	450	1200	Z-400/300
400/350	406,4	560	355,6	500	1200	Z-400/350
450/350	457,0	560	355,6	500	1200	Z-450/350
450/400	457,0	560	406,4	560	1200	Z-450/400
500/400	508,0	630	406,4	560	1200	Z-500/400
500/450	508,0	630	457,0	560	1200	Z-500/450
600/450	610,0	800	457,0	560	1200	Z-600/450
600/500	610,0	800	508,0	630	1200	Z-600/500

Note: 1. Reducing pipes are fabricated in full selection of diameters  
 2. Units of diameters exceeding DN 600 are tailor-made.

## 9.13 Anchor



**Table 20**

Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Length	External flange diameter	Catalogue reference number
DN	Dz	Dzp	L	D	
mm	mm	mm	mm	mm	
20	26,9	75	2000	125	<b>PS-20</b>
25	33,7	90	2000	140	<b>PS-25</b>
32	42,4	110	2000	140	<b>PS-32</b>
40	48,3	110	2000	140	<b>PS-40</b>
50	60,3	125	2000	170	<b>PS-50</b>
65	76,1	140	2000	200	<b>PS-65</b>
80	88,9	160	2000	220	<b>PS-80</b>
100	114,3	200	2500	260	<b>PS-100</b>
125	139,7	225	2500	300	<b>PS-125</b>
150	168,3	250	2500	320	<b>PS-150</b>
200	219,1	315	2500	400	<b>PS-200</b>
250	273,0	400	2500	500	<b>PS-250</b>
300	323,9	450	2500	560	<b>PS-300</b>

Note: 1. Units of diameters exceeding DN 300 are tailor-made  
 2. Fixed point concrete block diameters are specified in the Manual "Static and Designed Calculations", see p. 28.

## 9.14 Wall Mounted Anchor

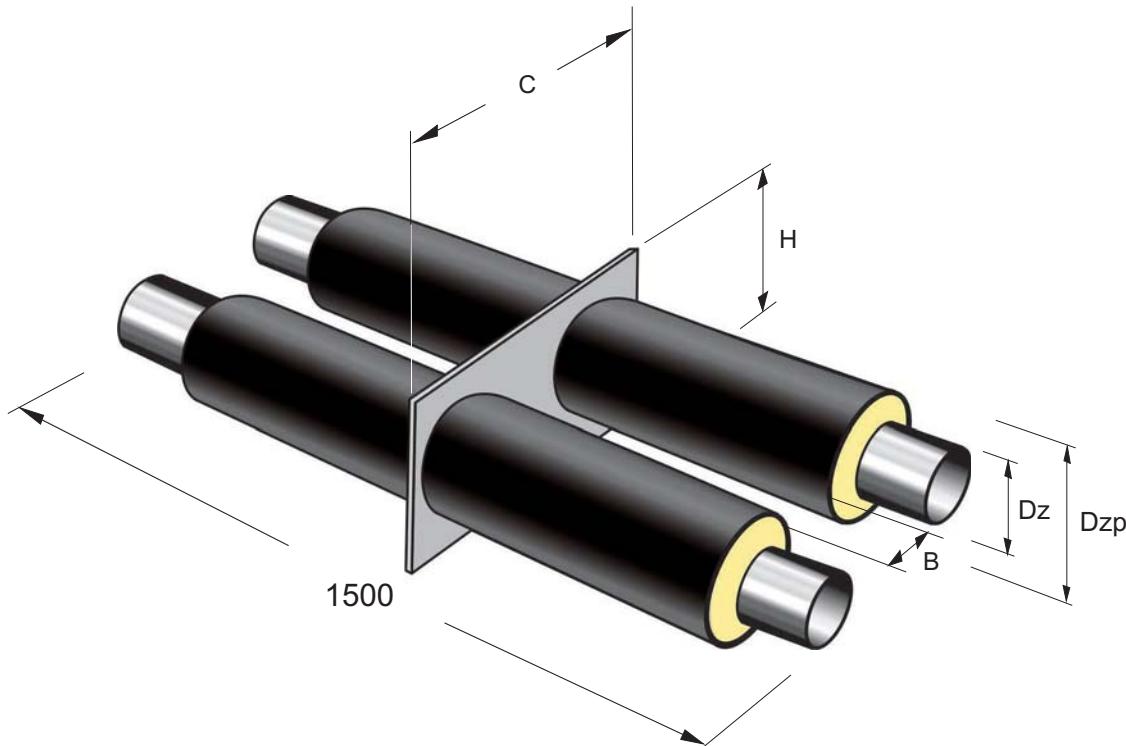


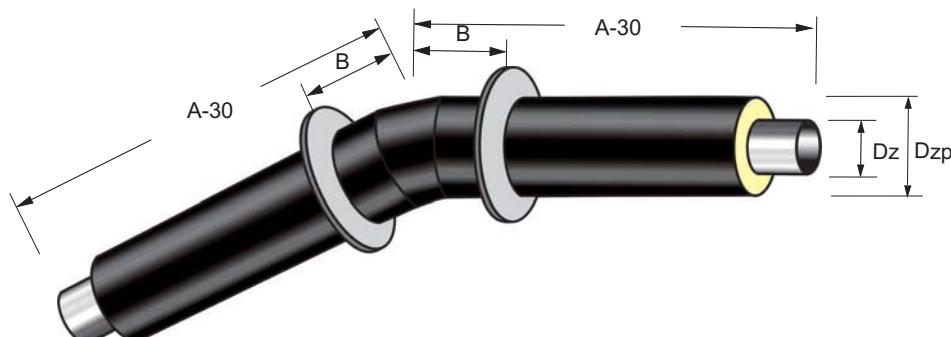
Table 21

Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	H	B	C	Catalogue reference number
DN	Dz	Dzp	mm	mm	mm	
mm	mm	mm				
20	26,9	75	110	150	350	PSS-20
25	33,7	90	110	150	350	PSS-25
32	42,4	110	130	150	390	PSS-32
40	48,3	110	130	150	390	PSS-40
50	60,3	125	145	150	420	PSS-50
65	76,1	140	160	150	450	PSS-65
80	88,9	160	180	150	490	PSS-80
100	114,3	200	220	150	570	PSS-100
125	139,7	225	245	150	620	PSS-125
150	168,3	250	270	150	670	PSS-150
200	219,1	315	335	150	800	PSS-200
250	273,0	400	440	200	1010	PSS-250
300	323,9	450	490	200	1140	PSS-300

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 9.15 Angle Anchor

### 9.15.1 30° Anchor



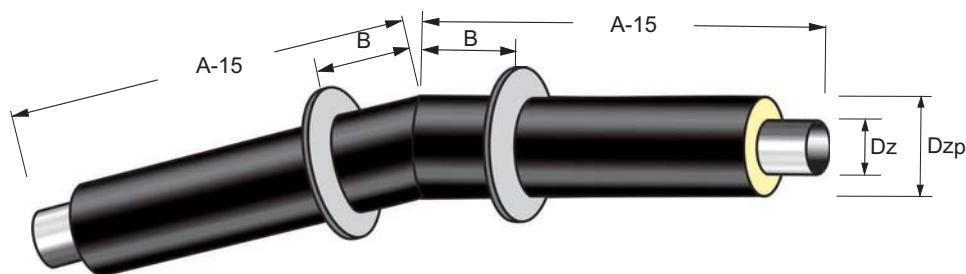
Bending angle:  
 $3 \times D_z$  DN 20÷80;  
 $1,5 \times D_z$  DN 100÷600

**Table 22**

Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Length	Diameter	Distance	Catalogue reference number
DN	Dz	Dzp	A-30	D	B	
mm	mm	mm	mm	mm	mm	
20	26,9	75	1000	125	220	<b>PSK-20/30</b>
25	33,7	90	1000	140	230	<b>PSK-25/30</b>
32	42,4	110	1000	140	230	<b>PSK-32/30</b>
40	48,3	110	1000	140	240	<b>PSK-40/30</b>
50	60,3	125	1000	170	250	<b>PSK-50/30</b>
65	76,1	140	1000	200	260	<b>PSK-65/30</b>
80	88,9	160	1500	220	270	<b>PSK-80/30</b>
100	114,3	200	1500	260	270	<b>PSK-100/30</b>
125	139,7	225	1500	300	270	<b>PSK-125/30</b>
150	168,3	250	1500	320	270	<b>PSK-150/30</b>
200	219,1	315	1500	400	380	<b>PSK-200/30</b>
250	273,0	400	1500	500	400	<b>PSK-250/30</b>
300	323,9	450	2000	560	420	<b>PSK-300/30</b>

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

### 9.15.2 15° Anchor



Bending angle:  
 $3 \times Dz$  DN 20÷80;  
 $1,5 \times Dz$  DN 100÷600

**Table 23**

Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Length	Diameter	Distance	Catalogue reference number
DN	Dz	Dzp	A-15	D	B	
mm	mm	mm	mm	mm	mm	
20	26,9	75	1000	125	210	<b>PSK-20/15</b>
25	33,7	90	1000	140	210	<b>PSK-25/15</b>
32	42,4	110	1000	140	220	<b>PSK-32/15</b>
40	48,3	110	1000	140	220	<b>PSK-40/15</b>
50	60,3	125	1000	170	220	<b>PSK-50/15</b>
65	76,1	140	1000	200	230	<b>PSK-65/15</b>
80	88,9	160	1500	220	240	<b>PSK-80/15</b>
100	114,3	200	1500	260	240	<b>PSK-100/15</b>
125	139,7	225	1500	300	240	<b>PSK-125/15</b>
150	168,3	250	1500	320	240	<b>PSK-150/15</b>
200	219,1	315	1500	400	340	<b>PSK-200/15</b>
250	273,0	400	1500	500	350	<b>PSK-250/15</b>
300	323,9	450	2000	560	360	<b>PSK-300/15</b>

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 9.16 Longitudinal Compensator

### 9.16.1 Single bellow longitudinal compensator operating under a nominal pressure of 1.6 MPa



Table 24

Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Diameter	Length	Compensation increment	Catalogue reference number
DN	Dz	Dzp	D	L	$\Delta L_k$	
mm	mm	mm	mm	mm	mm	
40	48,3	110	160	2000	100	KP-40-100
50	60,3	125	200	2000	100	KP-50-100
65	76,1	140	200	2000	100	KP-65-100
80	88,9	160	225	2000	100	KP-80-100
80	88,9	160	225	2000	150	KP-80-150
100	114,3	200	250	2500	125	KP-100-125
100	114,3	200	250	2500	155	KP-100-155
125	139,7	225	315	2500	125	KP-125-125
125	139,7	225	315	2500	160	KP-125-160
150	168,3	250	400	2500	125	KP-150-125
150	168,3	250	400	2500	165	KP-150-165
200	219,1	315	450	2500	125	KP-200-125
200	219,1	315	450	2500	170	KP-200-170
250	273,0	400	500	2500	125	KP-250-125
250	273,0	400	500	2500	170	KP-250-170
300	323,9	450	560	2500	125	KP-300-125
300	323,9	450	560	2500	190	KP-300-190
350	355,6	500	630	3000	125	KP-350-125
350	355,6	500	630	3000	190	KP-350-190
400	406,4	560	710	3000	125	KP-400-125
400	406,4	560	710	3000	200	KP-400-200
450	457,0	560	710	3000	125	KP-450-125
450	457,0	560	710	3000	200	KP-450-200
500	508,0	630	800	3000	125	KP-500-125
500	508,0	630	800	3000	200	KP-500-200
600	610,0	800	900	3000	125	KP-600-125
600	610,0	800	900	3000	200	KP-600-200

Note: Units of diameters exceeding DN 600 are tailor-made to geometric configurations agreed with the customer.

### 9.16.2 Single bellow longitudinal compensator operating under a nominal pressure of 2.5 MPa



Table 25

Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter	Diameter	Length	Compensation increment	Catalogue reference number
DN	Dz	Dzp	D	L	$\Delta L_k$	
mm	mm	mm	mm	mm	mm	
80	88,9	160	225	2000	90	KP-80-90
100	114,3	200	250	2500	90	KP-100-90
125	139,7	225	315	2500	90	KP-125-90
150	168,3	250	315	2500	90	KP-150-90
200	219,1	315	450	2500	90	KP-200-90
250	273,0	400	500	2500	90	KP-250-90
300	323,9	450	560	2500	90	KP-300-90
350	355,6	500	630	3000	90	KP-350-90
400	406,4	560	710	3000	90	KP-400-90
450	457,0	560	710	3000	90	KP-450-90
500	508,0	630	800	3000	90	KP-500-90
600	610,0	800	900	3000	90	KP-600-90

Note: Units of diameters exceeding DN 600 are tailor-made to geometric configurations agreed with the customer.

## 10 Pre-insulated Valves

### 10.1 Isolating Ball Valve

A pre-insulated isolating ball valve is supplied together with its fittings, which comprise:  
a wrench to open and shutoff the valve, a street box and a jacket pipe connecting the spindle and street box.

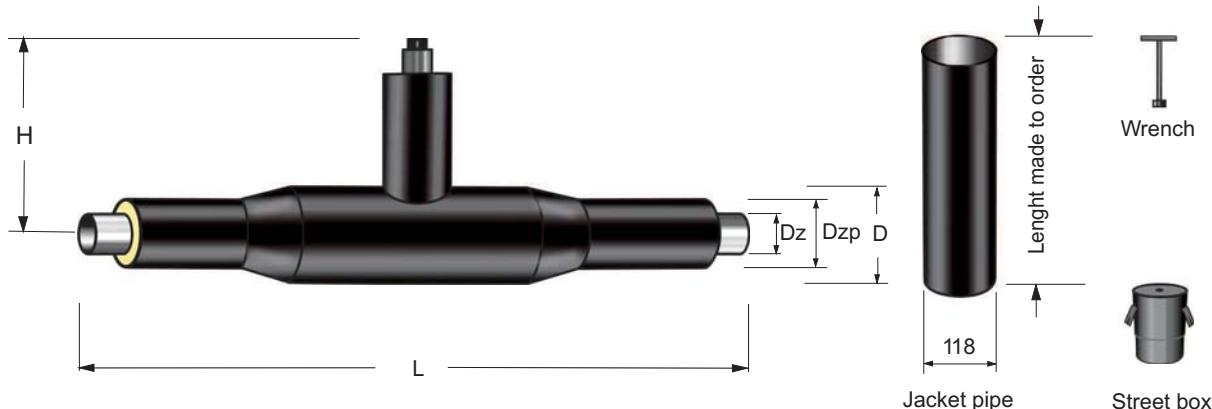


Table 26

Straight pipe			D	H	L	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter				
DN	Dz	Dzp	mm	mm	mm	
mm	mm	mm	mm	mm	mm	
20	26,9	75	90	380	1200	ZK-20
25	33,7	90	110	384	1200	ZK-25
32	42,4	110	110	388	1200	ZK-32
40	48,3	110	125	403	1200	ZK-40
50	60,3	125	140	410	1200	ZK-50
65	76,1	140	160	414	1200	ZK-65
80	88,9	160	200	427	1200	ZK-80
100	114,3	200	225	450	1500	ZK-100
125	139,7	225	315	455	1500	ZK-125
150	168,3	250	400	457	1500	ZK-150
200	219,1	315	450	515	1800	ZK-200
250	273,0	400	450	560	1800	ZK-250
300	323,9	450	560	756	1800	ZK-300
Jacket pipe Dzn			118 mm			ZKN-100
Wrench			36 mm			ZKK-36
			50 mm			ZKK-50
Street box type						ZKS-100

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 10.2 Vent ball valve

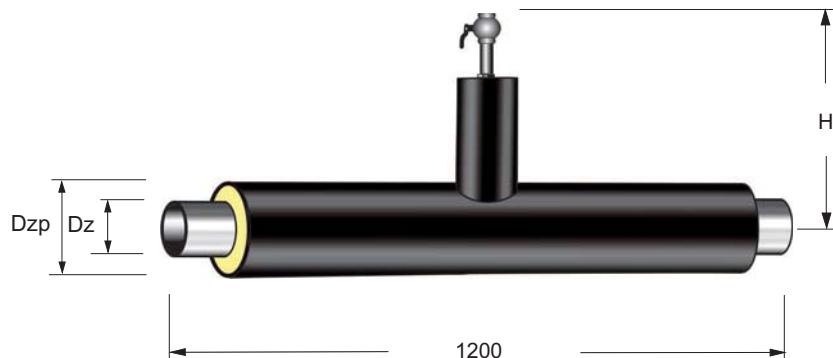


Table 27

Straight pipe			Diameter of vent valve	H	Catalogue reference number
Nominal diameter	Carrier pipe external diameter				
DN	Dz	Dzp	mm	mm	
mm	mm	mm	mm	mm	
25	33,7	90	33,7	384	ZD-25
32	42,4	110	33,7	388	ZD-32
40	48,3	110	33,7	403	ZD-40
50	60,3	125	33,7	410	ZD-50
65	76,1	140	33,7	414	ZD-65
80	88,9	160	33,7	427	ZD-80
100	114,3	200	33,7	450	ZD-100
125	139,7	225	33,7	455	ZD-125
150	168,3	250	33,7	457	ZD-150
200	219,1	315	33,7	515	ZD-200
250	273,0	400	33,7	560	ZD-250
300	323,9	450	33,7	756	ZD-300

Option: Threaded end vent valves

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 10.3 Drain Ball Valve

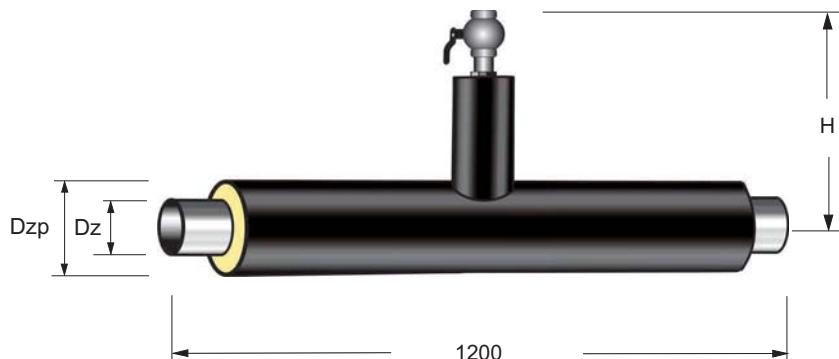


Table 28

Straight pipe			Diameter of strain valve	H	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp			
mm	mm	mm	mm	mm	
40	48,3	110	48,3	403	ZO-40
50	60,3	125	48,3	410	ZO-50
65	76,1	140	48,3	414	ZO-65
80	88,9	160	48,3	427	ZO-80
100	114,3	200	48,3	450	ZO-100
125	139,7	225	48,3	455	ZO-125
150	168,3	250	48,3	457	ZO-150
200	219,1	315	60,3	515	ZO-200
250	273,0	400	60,3	560	ZO-250
300	323,9	450	60,3	756	ZO-300

Option: Threaded end drain valves

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 10.4 Isolating Ball Valve and Vent Ball Valve Assembly

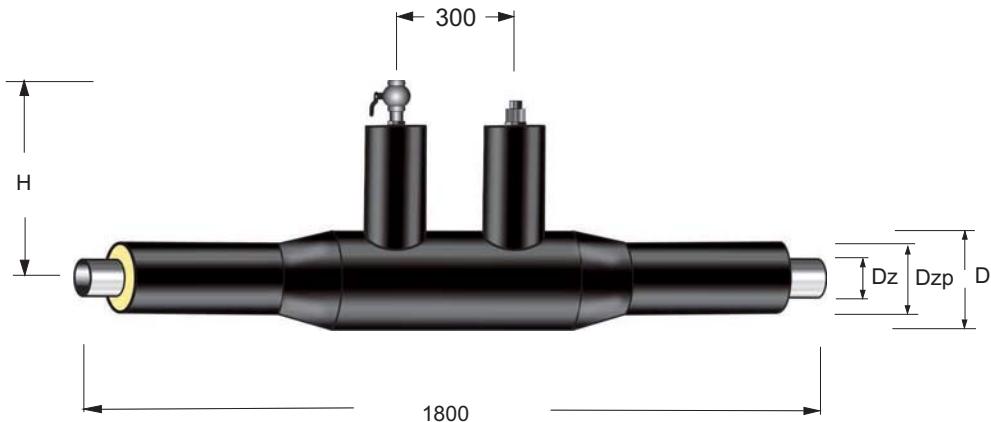


Table 29

Straight pipe			D	H	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	mm	mm	
mm	mm	mm	mm	mm	
32	42,4	110	110	388	ZKD -32
40	48,3	110	125	403	ZKD -40
50	60,3	125	140	410	ZKD -50
65	76,1	140	160	414	ZKD -65
80	88,9	160	200	427	ZKD -80
100	114,3	200	225	450	ZKD - 100
125	139,7	225	250	455	ZKD - 125
150	168,3	250	315	457	ZKD - 150
200	219,1	315	400	515	ZKD - 200
250	273,0	400	450	560	ZKD - 250
300	323,9	450	560	756	ZKD - 300

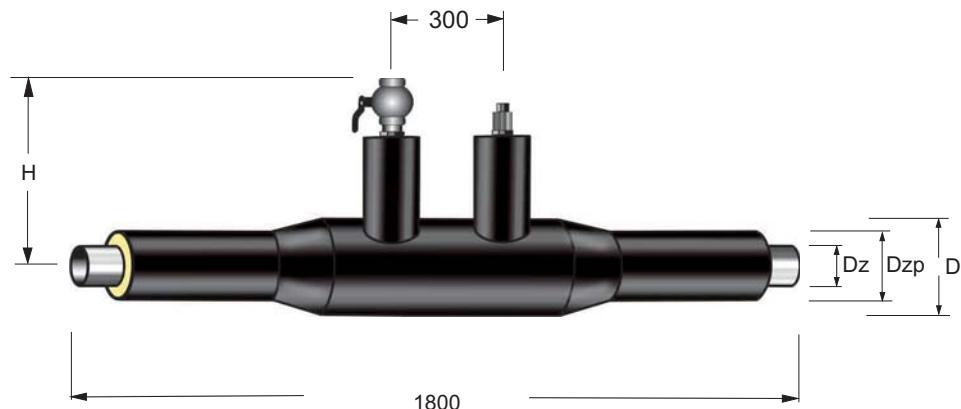
Vent valve diameter:

for pipe of nominal diameters up to 300 mm                            33,7 mm  
 nominal diameters up to 600 mm                                        48,3 mm

Option: Threaded end vent valves

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 10.5 Isolating Ball Valve and Drain Valve Assembly



**Table 30**

Straight pipe			D	H	Catalogue reference number
Nominal diameter	Carrier pipe external diameter				
DN	Dz	Dzp	mm	mm	
mm	mm	mm	mm	mm	
40	48,3	110	125	403	ZKO-40
50	60,3	125	140	410	ZKO-50
65	76,1	140	160	414	ZKO-65
80	88,9	160	200	427	ZKO-80
100	114,3	200	225	450	ZKO-100
125	139,7	225	250	455	ZKO-125
150	168,3	250	315	457	ZKO-150
200	219,1	315	400	515	ZKO-200
250	273,0	400	450	560	ZKO-250
300	323,9	450	560	756	ZKO-300

Drain valve diameter:

for pipe of nominal diameters up to	150 mm	48,3 mm
nominal diameters up to	300 mm	60,3 mm
nominal diameters up to	400 mm	88,9 mm
nominal diameters up to	600 mm	114,3 mm

Option: Threaded end drain valves

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 10.6 Isolating Ball Valve and Vent Ball Valve and Drain Ball Valve Assembly

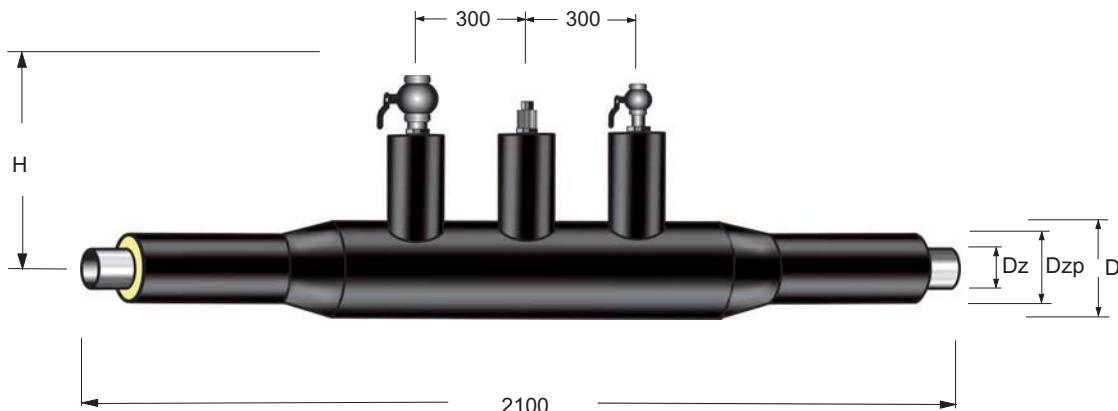


Table 31

Straight pipe			D	H	Catalogue reference number
Nominal diameter	Carrier pipe external diameter	Jacket pipe external diameter			
DN	Dz	Dzp	mm	mm	
mm	mm	mm	mm	mm	
40	48,3	110	125	403	ZKOD-40
50	60,3	125	140	410	ZKOD-50
65	76,1	140	160	414	ZKOD-65
80	88,9	160	200	427	ZKOD-80
100	114,3	200	225	450	ZKOD-100
125	139,7	225	250	455	ZKOD-125
150	168,3	250	315	457	ZKOD-150
200	219,1	315	400	515	ZKOD-200
250	273,0	400	450	560	ZKOD-250
300	323,9	450	560	756	ZKOD-300

Drain/vent valve diameter:

for pipe of nominal diameters up to 150 mm	48,3 mm
nominal diameters up to 300 mm	60,3 mm
nominal diameters up to 400 mm	88,9 mm
nominal diameters up to 600 mm	114,3 mm

Option: Threaded end drain valves

Note: Units of diameters exceeding DN 300 are tailor-made to geometric configurations agreed with the customer.

## 11 Coupling Unit

### 11.1 Common coupling N

(HPDE sleeve sealed with heat shrinkable tape)

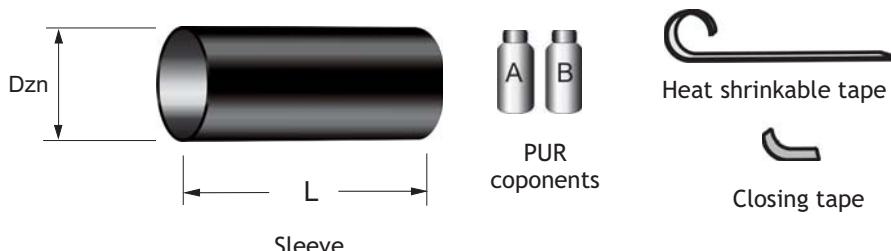


Table 32

Nominal diameter	Carrier pipe external diameter	Sleeve external diameter	Length	Components		Heat shrinkable tape	Closing tape	Catalogue reference number
DN	Dzp	Dzn	L	A	B	cm	cm	
mm	mm	mm	mm	g	g			
20	75	83	600	60	101	72	30	N-20/83
25	90	100	600	85	143	83	30	N-25/100
32	110	121	600	126	212	95	30	N-32/120
40	110	121	600	120	201	95	30	N-40/120
50	125	136	600	147	247	105	30	N-50/135
65	140	153	600	170	285	114	30	N-65/150
80	160	174	600	218	366	129	30	N-80/173
100	200	216	600	331	557	155	30	N-100/214
125	225	243	600	384	645	171	30	N-125/240
150	250	269	600	423	711	187	30	N-150/265
200	315	338	600	636	1068	233	45	N-200/333
250	400	428	700	1402	2357	288	45	N-250/420
300	450	472	700	1607	2701	320	45	N-300/472

PLUS Insulation

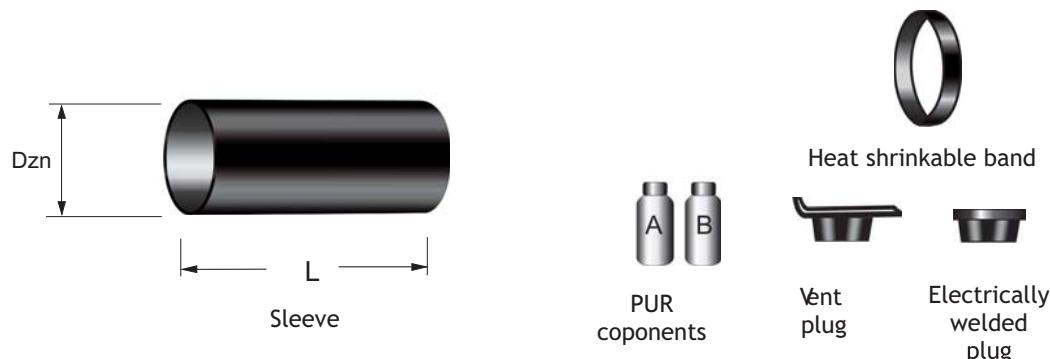
Table 32a

DN	Dzp	Dzn	L	A	B	Heat shrinkable tape	Closing tape	Catalogue reference number
mm	mm	mm	mm	g	g	cm	cm	
20	90	100	600	90	151	83	30	N-20/100
25	110	121	600	134	225	95	30	N-25/120
32	125	136	600	169	284	105	30	N-32/135
40	125	136	600	163	273	105	30	N-40/135
50	140	153	600	195	328	114	30	N-50/150
65	160	174	600	243	408	129	30	N-65/173
80	200	216	600	393	661	155	30	N-80/214
100	225	243	600	461	775	171	30	N-100/240
125	250	269	600	528	888	187	30	N-125/265
150	315	338	600	871	2313	233	45	N-150/333
200	355	380	600	1376	1346	288	45	N-200/380
250	450	472	700	2087	3509	320	45	N-250/472

Note: Durotan can deliver N joints with shrinkable band on special customer's request.

## 11.2 Heat Shrinkable Coupling NT

(HPDE sleeve sealed with heat shrinkable band)



**Table 33**

Nominal diameter	Jacket pipe external diameter	Sleeve external diameter	Length	Components		Heat shrinkable band	Vent plug and electrically welded plug	Catalogue reference number
	DN	Dzp	Dzn	L	A	B	pcs.	set
mm	mm	mm	mm	mm	g	g		
20	75	83	600	60	101		2	2
25	90	107	600	85	143		2	2
32	110	129	600	126	212		2	2
40	110	129	600	120	201		2	2
50	125	143	600	147	247		2	2
65	140	156	600	170	285		2	2
80	160	178	600	218	366		2	2
100	200	224	600	331	557		2	2
125	225	255	600	384	645		2	2
150	250	278	600	423	711		2	2
200	315	341	600	636	1068		2	2
250	400	430	700	1402	2357		2	2
300	450	480	700	1607	2701		2	2

*PLUSinsulation*

**Table 33a**

DN	Dzp	Dzn	L	A	B	Heat shrinkable band	Vent plug and electrically welded plug	Catalogue reference number
mm	mm	mm	mm	g	g	pcs	set	
20	90	107	600	90	151	2	2	NT-20/107
25	110	129	600	134	225	2	2	NT-25/129
32	125	143	600	169	284	2	2	NT-32/143
40	125	143	600	163	273	2	2	NT-40/143
50	140	156	600	195	328	2	2	NT-50/156
65	160	178	600	243	408	2	2	NT-65/178
80	200	224	600	393	661	2	2	NT-80/224
100	225	255	600	461	775	2	2	NT-100/255
125	250	278	600	528	888	2	2	NT-125/278
150	315	341	600	871	1464	2	2	NT-150/341
200	355	383	600	962	1617	2	2	NT-200/383
250	450	480	700	2087	3509	2	2	NT-250/480

Note: Durotan can deliver NT joints with shrinkable band on special customer's request.

### 11.3 Electrically Welded Heat Shrinkable Coupling DT

(HPDE sleeve sealed with heat shrinkable band)

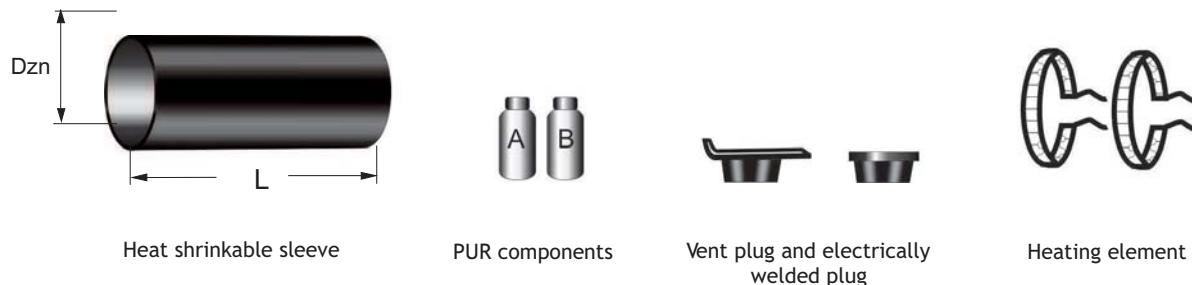


Table 33b

Nominal diameter	Jacket pipe external diameter	Sleeve external diameter	Length	Components		Heating element	Vent plug and electrically welded plug	Catalogue reference number
	DN	Dzp	Dzn	L	A			
mm	mm	mm	mm	mm	g	g	pcs	set
20	75	83	600	60	101	2	2	DT-20/83
25	90	107	600	85	143	2	2	DT-25/107
32	110	129	600	126	212	2	2	DT-32/129
40	110	129	600	120	201	2	2	DT-40/129
50	125	143	600	147	247	2	2	DT-50/143
65	140	156	600	170	285	2	2	DT-65/156
80	160	178	600	218	366	2	2	DT-80/178
100	200	224	600	331	557	2	2	DT-100/224
125	225	255	600	384	645	2	2	DT-125/255
150	250	278	600	423	711	2	2	DT-150/278
200	315	341	600	636	1068	2	2	DT-200/341
250	400	430	700	1402	2357	2	2	DT-250/430
300	450	480	700	1607	2701	2	2	DT-300/480
350	500	530	700	2033	3417	2	2	DT-350/530
400	560	590	700	1816	2960	2	2	DT-400/590
450	560	590	700	1755	2951	2	2	DT-450/590
500	630	660	700	2321	3901	2	2	DT-500/660
600	800	838	700	4438	7461	2	2	DT-600/838
700	900	949	700	5070	8523	2	2	DT-700/949
800	1000	1060	700	5677	9543	2	2	DT-800/1060

## 11.4 Crosslinked Heat Shrinkable Coupling - TS

(Crosslinked HPDE sleeve)

**Table 33c**

Nominal diameter	Jacket pipe external diameter	Sleeve external diameter	Length	Components		Vent plug and electrically welded plug	Catalogue reference number
				A	B		
	mm	mm	mm	g	g	set	
20	75	83	600	60	101	1	TS-20/83
25	90	107	600	85	143	1	TS-25/107
32	110	129	600	126	212	1	TS-32/129
40	110	129	600	120	201	1	TS-40/129
50	125	143	600	147	247	1	TS-50/143
65	140	156	600	170	285	1	TS-65/156
80	160	178	600	218	366	1	TS-80/178
100	200	224	600	331	557	1	TS-100/224
125	225	255	600	384	645	2	TS-125/255
150	250	278	600	423	711	2	TS-150/278
200	315	341	600	636	1068	2	TS-200/341
250	400	430	700	1402	2357	2	TS-250/430
300	450	480	700	1607	2701	2	TS-300/480

*PLUSinsulation***Table 33d**

DN	Dzp	Dzn	L	Components		Vent plug and electrically welded plug	Catalogue reference number
				A	B		
	mm	mm	mm	g	g	set	
20	90	107	600	90	151	1	TS-20/107
25	110	129	600	134	225	1	TS-25/129
32	125	143	600	169	284	1	TS-32/143
40	125	143	600	163	273	1	TS-40/143
50	140	156	600	195	328	1	TS-50/156
65	160	178	600	243	408	1	TS-65/178
80	200	224	600	393	661	1	TS-80/224
100	225	255	600	461	775	2	TS-100/255
125	250	278	600	528	888	2	TS-125/278
150	315	341	600	871	1464	2	TS-150/341
200	355	383	600	962	1617	2	TS-200/383
250	450	480	700	2087	3509	2	TS-250/480

### 11.4.1 Radiation crosslinked heat shrinkable coupling - NTX

(Heat shrinkable PeXc sleeve)

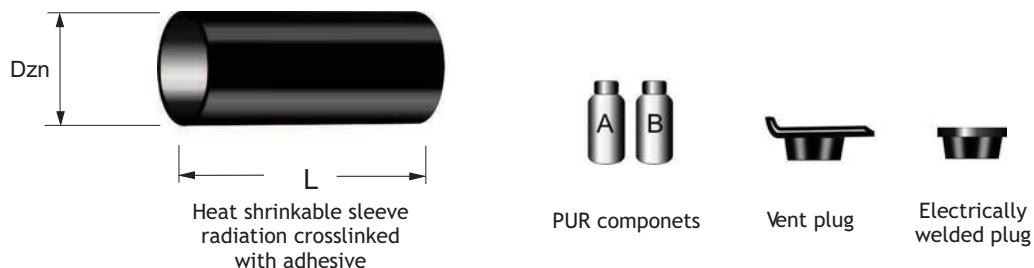


Table 33e

Nominal diameter	Jacket pipe external diameter	Sleeve external diameter	Length	PUR Components		Vent plug and electrically welded plug	Catalogue reference number
	DN	Dzp	Dzn	L	A	B	set
mm	mm	mm	mm	mm	g	g	
20	75	83	600	60	101	2	NTX-20/83
25	90	107	600	85	143	2	NTX-25/107
32	110	129	600	126	212	2	NTX-32/129
40	110	129	600	120	201	2	NTX-40/129
50	125	143	600	147	247	2	NTX-50/143
65	140	156	600	170	285	2	NTX-65/156
80	160	178	600	218	366	2	NTX-80/178
100	200	224	600	331	557	2	NTX-100/224
125	225	255	600	384	645	2	NTX-125/255
150	250	278	600	423	711	2	NTX-150/278
200	315	341	600	636	1068	2	NTX-200/341
250	400	430	700	1402	2357	2	NTX-250/430
300	450	480	700	1607	2701	2	NTX-300/480

PLUSinsulation

Table 33f

DN	Jacket pipe external diameter	Sleeve external diameter	Length	PUR Components		Vent plug and electrically welded plug	Catalogue reference number
	DN	Dzp	Dzn	L	A	B	set
mm	mm	mm	mm	mm	g	g	
20	90	107	600	90	151	2	NTX-20/107
25	110	129	600	134	225	2	NTX-25/129
32	125	143	600	169	284	2	NTX-32/143
40	125	143	600	163	273	2	NTX-40/143
50	140	156	600	195	328	2	NTX-50/156
65	160	178	600	243	408	2	NTX-65/178
80	200	224	600	393	661	2	NTX-80/224
100	225	255	600	461	775	2	NTX-100/255
125	250	278	600	528	888	2	NTX-125/278
150	315	341	600	871	1464	2	NTX-150/341
200	355	383	600	962	1617	2	NTX-200/383
250	450	480	700	2087	3509	2	NTX-250/480

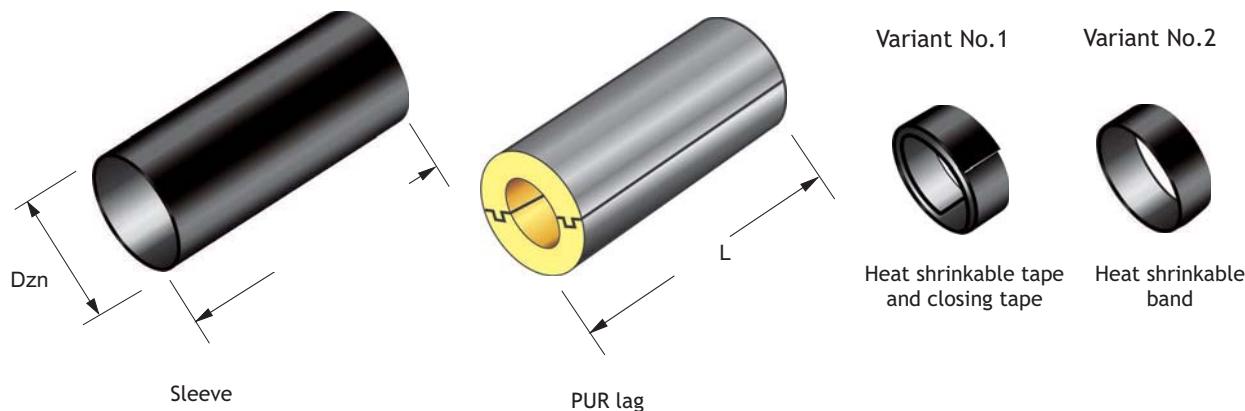
Note: 1. Quantities /number of components for diameters exceeding DN 300 will be agreed individually with the customer.

2. By client wishes, sleeve canbe manufactured with adhesive or adhesive and mastic.

3. Radiational cross-linked heat shrinkable sleeves length (L) tolerance  $^{+10}_{-20}$  mm

## 11.5 Dry heat shrinkable coupling NTS

(HDPE heat shrinkable sleeve, PUR lag, heat shrinkable band)



**Table 34/1**

Pipe unit		Sleeve		Coupling assembly parts				Catalogue reference number
Nominal diameter	Jacket pipe diameter	External diameter	Length	PUR lag	Variant No.1		Variant No.2	
					Heat shrinkable tape	Closing tape	Heat shrinkable band	
DN	Dzp	Dzn	L	L	cm	pcs	pcs	
mm	mm	mm	mm	mm				
20	75	83	600	350	35	2	2	NTS-20/83
25	90	107	600	350	45	2	2	NTS-25/107
32	110	129	600	350	50	2	2	NTS-32/129
40	110	129	600	350	50	2	2	NTS-40/129
50	125	143	600	350	55	2	2	NTS-50/143
65	140	156	600	350	60	2	2	NTS-65/156
80	160	178	600	350	65	2	2	NTS-80/178
100	200	224	600	350	80	2	2	NTS-100/224
125	225	255	600	350	90	2	2	NTS-125/255
150	250	278	600	350	95	2	2	NTS-150/278
200	315	341	600	350	120	2	2	NTS-200/341
250	400	430	700	450	145	2	2	NTS-250/430
300	450	480	700	450	160	2	2	NTS-300/480

## 11.6 Crosslinked dry heat shrinkable coupling – TS-PS

(Crosslinked heat shrinkable PEX sleeve, PUR lag, heat shrinkable band with RFS bitumen)

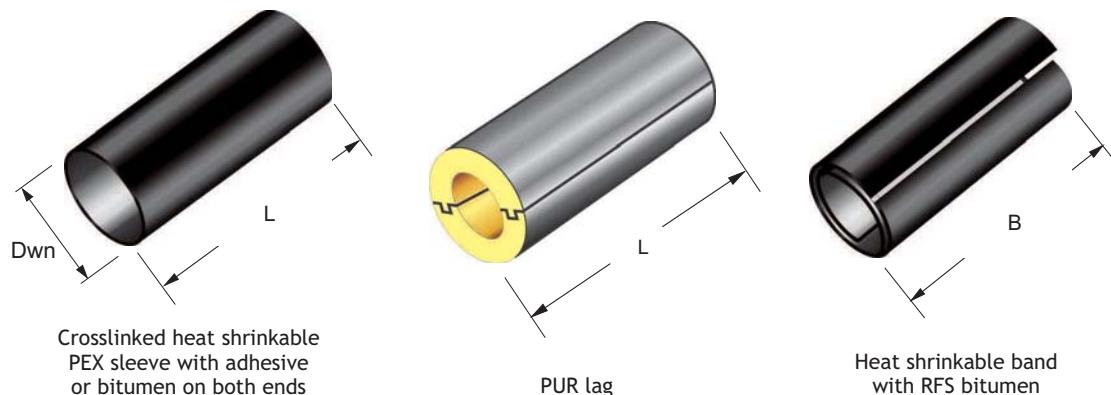


Table 34/2

Pipe unit		Sleeve		Coupling assembly parts			Catalogue reference number	
Nominal diameter	Jacket pipe diameter	External diameter	Length	PUR lag	Heat shrinkable band with RFS bitumen			
DN	Dzp	Dzn	L	L	Length $L_t$	Width B		
mm	mm	mm	mm	mm	mm	mm		
20	75	83	600	350	290	400	TS-PS-20/83	
25	90	107	600	350	330	400	TS-PS-25/107	
32	110	129	600	350	400	400	TS-PS-32/129	
40	110	129	600	350	400	400	TS-PS-40/129	
50	125	143	600	350	440	400	TS-PS-50/143	
65	140	156	600	350	490	400	TS-PS-65/156	
80	160	178	600	350	550	400	TS-PS-80/178	
100	200	224	600	350	680	400	TS-PS-100/224	
125	225	255	600	350	760	400	TS-PS-125/255	
150	250	278	600	350	840	400	TS-PS-150/278	
200	315	341	600	350	1040	500	TS-PS-200/341	
250	400	430	700	450	1310	500	TS-PS-250/430	
300	450	480	700	450	1460	500	TS-PS-300/480	

## 11.7 Heat shrinkable bend coupling – NSRK

(Heat shrinkable bend sleeve)

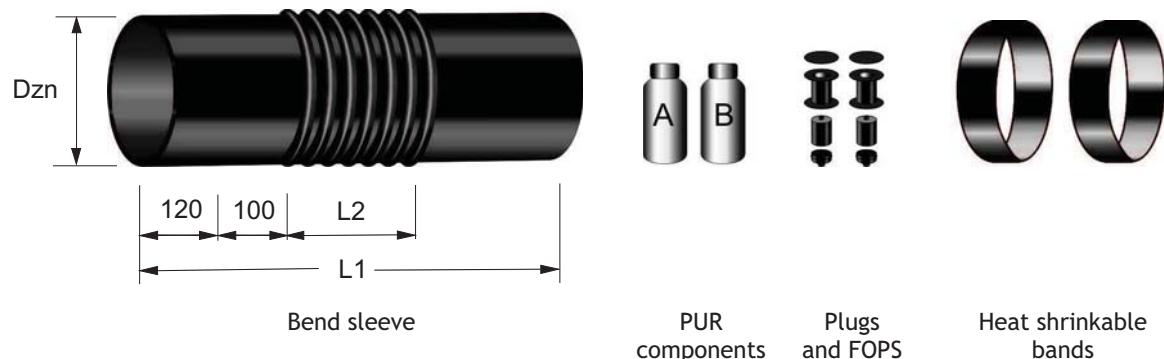


Table 34/3

Nominal diameter	Jacket pipe external diameter	Sleeve external diameter	Length of bend sleeve		PUR components		Centring element	Heat shrinkable band	Plugs and FOPS	Catalogue reference number
	DN	Dzp	Dzn	mm	mm	g	g	psc	pcs	set
25	90	103	980	560	212	356	1	2	1	NSRK-25/103
32	110	125	980	560	268	451	1	2	1	NSRK-32/125
40	110	125	980	560	259	435	1	2	1	NSRK-40/125
50	125	140	1050	630	340	572	1	2	1	NSRK-50/140
65	140	156	1050	630	425	714	1	2	1	NSRK-65/156
80	160	177	1050	630	526	885	1	2	1	NSRK-80/177
100	200	218	1120	700	876	1473	1	2	1	NSRK-100/218
125	225	244	1220	800	1122	1885	1	2	1	NSRK-125/244
150	250	269	1340	920	1475	2479	1	2	1	NSRK-150/269

## 11.8 DX Butt Welded Coupling (Standard Insulation)

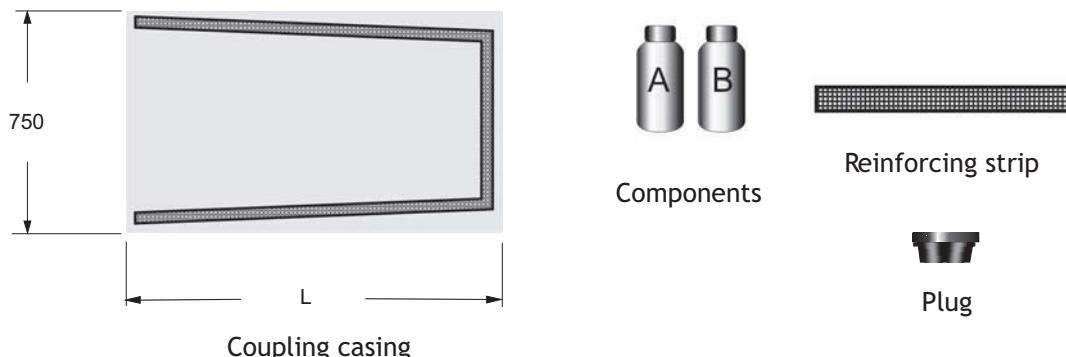


Table 35

Nominal diameter	Jacket pipe external diameter	Plate length	Components		Plug	Catalogue reference number
			A	B		
DN mm	Dzp mm	Dzn mm	A g	B g	pcs	
32	110	535	126	212	2	DX-110/750
40	110	535	120	201	2	DX-110/750
50	125	583	147	247	2	DX-125/750
65	140	630	170	285	2	DX-140/750
80	160	690	218	366	2	DX-160/750
100	200	820	331	557	2	DX-200/750
125	225	900	384	645	2	DX-225/750
150	250	990	423	711	2	DX-250/750
200	315	1230	636	1068	2	DX-315/750
250	400	1500	1402	2357	2	DX-400/750
300	450	1660	1607	2701	2	DX-450/750
350	500	1820	2033	3417	2	DX-500/750
400	560	2000	1816	2960	2	DX-560/750
450	560	2000	1755	2951	2	DX-560/750
500	630	2250	2321	3901	2	DX-630/750
600	800	2870	4438	7461	2	DX-800/750
700	900	3180	5070	8523	2	DX-900/750
800	1000	3500	5677	9543	2	DX-1000/750
1000	1200	4128	6902	11603	2	DX-1200/750
1200	1400	4756	8285	13925	2	DX-1400/750

Note: Option available only if a coupling unit is made by Durotan.

### 11.8.1 DX+ butt welded coupling (PLUS insulation)

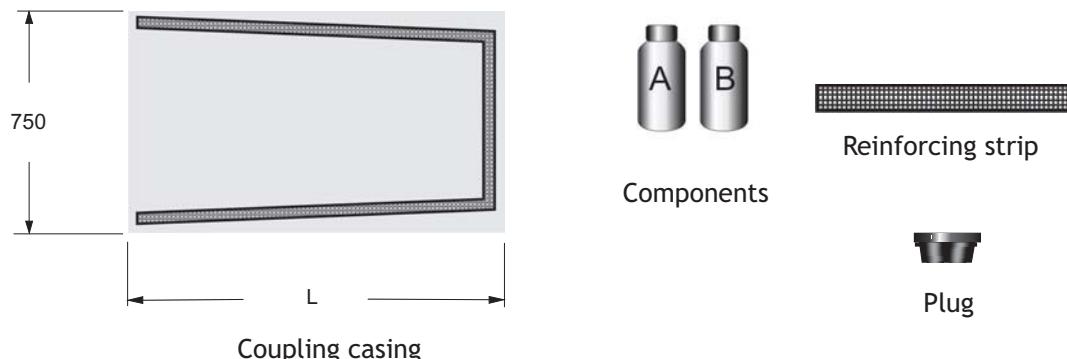


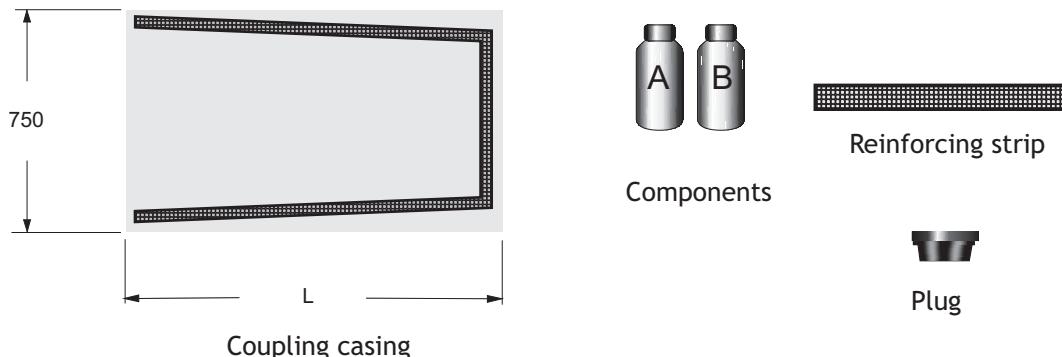
Table 35a

PLUS insulation

Nominal diameter	Jacket pipe external diameter	Plate length	Components		Plug	Catalogue reference number
DN	Dzp	Dzn	A	B		
mm	mm	mm	g	g	pcs	
25	110	535	134	225	2	DX+110/750
32	125	583	169	284	2	DX+125/750
40	125	583	163	273	2	DX+125/750
50	140	630	195	328	2	DX+140/750
65	160	693	243	408	2	DX+160/750
80	200	820	393	661	2	DX+200/750
100	225	900	461	775	2	DX+225/750
125	250	990	528	888	2	DX+250/750
150	315	1230	871	1464	2	DX+315/750
200	400	1500	1376	2313	2	DX+400/750
250	450	1660	2087	3509	2	DX+450/750
300	500	1820	2373	3989	2	DX+500/750
350	560	2000	2362	3970	2	DX+560/750
400	630	2000	2893	4716	2	DX+630/750
450	630	2250	3099	5209	2	DX+630/750
500	710	2530	4050	6807	2	DX+710/750
600	900	3180	7180	12069	2	DX+900/750
700	1000	3500	8135	13674	2	DX+1000/750
800	1100	3814	9064	15236	2	DX+1100/750
900	1200	4128	10015	16835	2	DX+1200/750
1000	1300	4442	10821	18192	2	DX+1300/750

Note: Option available only if a coupling unit is made by Durotan.

### 11.8.2 DX II Butt Welded Coupling (Standard Insulation)

**Table 35b**

Nominal diameter	Jacket pipe external diameter	Plate length	Components		Plug	Catalogue reference number			
			DN	Dzp	Dzn	A	B	pcs	
mm	mm	mm	g	g					
32	110	535	126	212	2	DX II -110/750			
40	110	535	120	201	2	DX II -110/750			
50	125	583	147	247	2	DX II -125/750			
65	140	630	170	285	2	DX II -140/750			
80	160	690	218	366	2	DX II -160/750			
100	200	820	331	557	2	DX II -200/750			
125	225	900	384	645	2	DX II -225/750			
150	250	990	423	711	2	DX II -250/750			
200	315	1230	636	1068	2	DX II -315/750			
250	400	1500	1402	2357	2	DX II -400/750			
300	450	1660	1607	2701	2	DX II -450/750			
350	500	1820	2033	3417	2	DX II -500/750			
400	560	2000	1816	2960	2	DX II -560/750			
450	560	2000	1755	2951	2	DX II -560/750			
500	630	2250	2321	3901	2	DX II -630/750			
600	800	2870	4438	7461	2	DX II -800/750			
700	900	3180	5070	8523	2	DX II -900/750			
800	1000	3500	5677	9543	2	DX II -1000/750			
1000	1200	4128	6902	11603	2	DX II -1200/750			
1200	1400	4756	8285	13925	2	DX II -1400/750			

Note: Option available only if a coupling unit is made by Durotan.

### 11.8.3 DX II + Butt Welded Coupling (PLUS insulation)

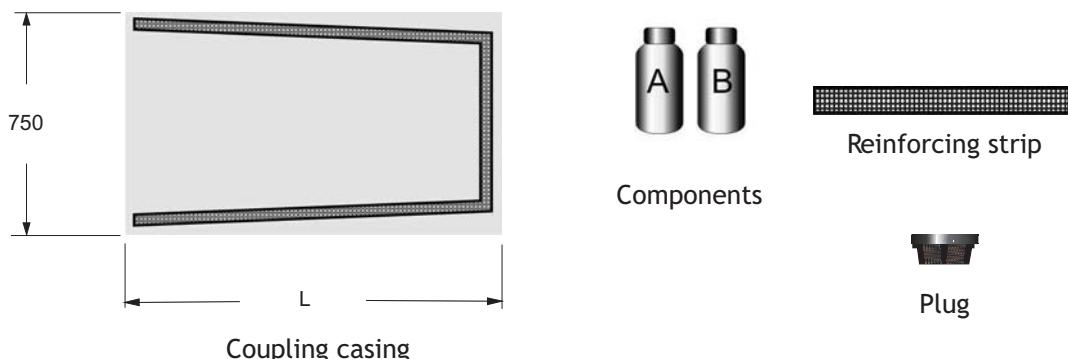


Table 35c

**PLUS** insulation

Nominal diameter	Jacket pipe external diameter	Plate length	Components		Plug	Catalogue reference number			
			DN	Dzp	Dzn	A	B	pcs	
mm	mm	mm	g	g	g				
25	110	535	134	225	2	DX II +110/750			
32	125	583	169	284	2	DX II +125/750			
40	125	583	163	273	2	DX II +125/750			
50	140	630	195	328	2	DX II +140/750			
65	160	693	243	408	2	DX II +160/750			
80	200	820	393	661	2	DX II +200/750			
100	225	900	461	775	2	DX II +225/750			
125	250	990	528	888	2	DX II +250/750			
150	315	1230	871	1464	2	DX II +315/750			
200	400	1500	1376	2313	2	DX II +400/750			
250	450	1660	2087	3509	2	DX II +450/750			
300	500	1820	2373	3989	2	DX II +500/750			
350	560	2000	2362	3970	2	DX II +560/750			
400	630	2000	2893	4716	2	DX II +630/750			
450	630	2250	3099	5209	2	DX II +630/750			
500	710	2530	4050	6807	2	DX II +710/750			
600	900	3180	7180	12069	2	DX II +900/750			
700	1000	3500	8135	13674	2	DX II +1000/750			
800	1100	3814	9064	15236	2	DX II +1100/750			
900	1200	4128	10015	16835	2	DX II +1200/750			
1000	1300	4442	10821	18192	2	DX II +1300/750			

Note: Option available only if a coupling unit is made by Durotan.

## 12 Insulation and Pipeline Closing

### 12.1 Pipeline Closing - End Sleeve



Table 36

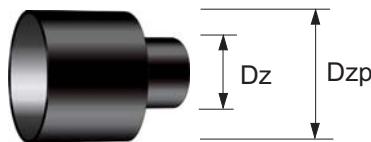
Nominal diameter	Jacket pipe external diameter		Sleeve external diameter		Components		Heat shrinkable tape	Closing tape	Catalogue reference number
	DN	Dzp	Dzn	A	B				
mm	mm	mm	mm	g	g	cm	cm	cm	
20	75	83	40	66	40	15			NK-20/83
25	90	100	56	94	40	15			NK-25/100
32	110	121	83	140	47	15			NK-32/120
40	110	121	79	133	47	15			NK-40/120
50	125	136	97	163	52	15			NK-50/135
65	140	153	112	188	56	15			NK-65/150
80	160	174	144	241	64	15			NK-80/173
100	200	216	219	368	76	15			NK-100/214
125	225	243	253	426	86	15			NK-125/240
150	250	269	279	470	94	15			NK-150/265
200	315	338	420	705	115	22			NK-200/333
250	400	429	1234	2074	145	22			NK-250/420
300	450	472	1414	2377	161	22			NK-300/472

PLUS insulation

Table 36a

DN	Jacket pipe external diameter		Sleeve external diameter		A	B	Heat shrinkable tape	Closing tape	Catalogue reference number
	DN	Dzp	Dzn	A					
mm	mm	mm	mm	g	g	cm	cm	cm	
20	90	100	59	100	47	15			NK-20/100
25	110	121	88	149	47	15			NK-25/120
32	125	136	111	187	52	15			NK-32/135
40	125	136	107	180	52	15			NK-40/135
50	140	153	129	217	56	15			NK-50/150
65	160	174	160	269	64	15			NK-65/173
80	200	216	259	436	76	15			NK-80/214
100	225	243	304	511	86	15			NK-100/240
125	250	269	349	586	94	15			NK-125/265
150	315	338	575	966	115	22			NK-150/333
200	355	380	908	1527	145	22			NK-200/380
250	450	472	1837	3088	161	22			NK-250/472

## 12.2 Shrink End Cap



**Table 37**

Jacket pipe external diameter	Catalogue reference number
75	E-75
90	E-90
110	E-110
125	E-125
140	E-140
160	E-160
200	E-200
225	E-225
250	E-250
315	E-315
400	E-400
450	E-450
500	E-500
560	E-560
630	E-630
710	E-710
800	E-800

## 13 Warning Tape

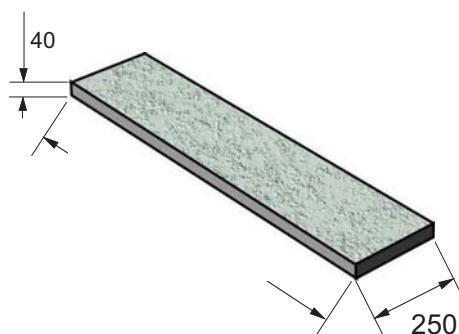
To be placed above a pipeline. Supplied in coils in 100 m multiple lengths. Carries a wording.  
"WARNING! HEAT TRANSMITTING PIPE"



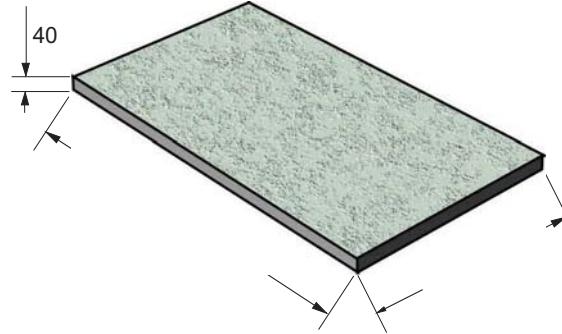
**Table 38**

	Colour	Width [mm]	Catalogue reference number
Warning tape	yellow	150	T-150

## 14 PUR Expansion Cushion(made from soft polyurethane)



Type 1000×250×40mm



Type 1000×500×40 mm

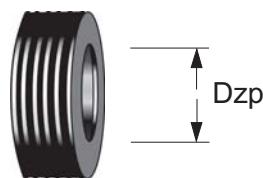
Table 39

Nominal diameter	Jacket pipe external diameter	Expansion cushions dimensions			Expansion cushions type	
		DN	Dzp	Length	Width	
mm	mm	mm	mm	mm	mm	
20	75	1000	250	40	1000×250×40	
25	90	1000	250	40	1000×250×40	
32	110	1000	250	40	1000×250×40	
40	110	1000	250	40	1000×250×40	
50	125	1000	250	40	1000×250×40	
65	140	1000	250	40	1000×250×40	
80	160	1000	250	40	1000×250×40	
100	200	1000	250	40	1000×250×40	
125	225	1000	500	40	1000×500×40	
150	250	1000	500	40	1000×500×40	
200	315	1000	500	40	1000×500×40	
250	400	1000	500	40	1000×500×40	
300	450	1000	500	40	1000×500×40	

Notice: Expansion cushions for pre-insulated pipes with diameters DN 300 mm must be the type of 1000×500×40 mm. Their quantity will be calculated individually depending on casing pipe diameter.

## 15 Wall Transition

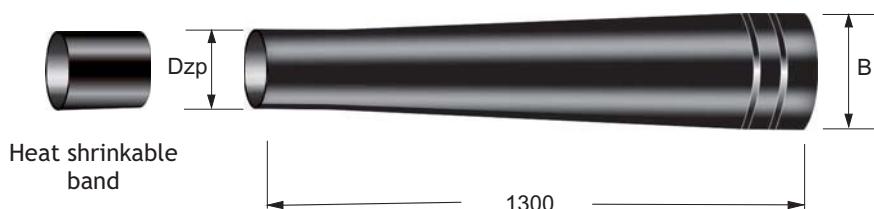
### 15.1 Rubber Ring



**Table 40**

Jacket pipe external diameter	Catalogue reference number
Dzp	
75	P-75
90	P-90
110	P-110
125	P-125
140	P-140
160	P-160
200	P-200
225	P-225
250	P-250
315	P-315
400	P-400
450	P-450
500	P-500
560	P-560
630	P-630
710	P-710
800	P-800

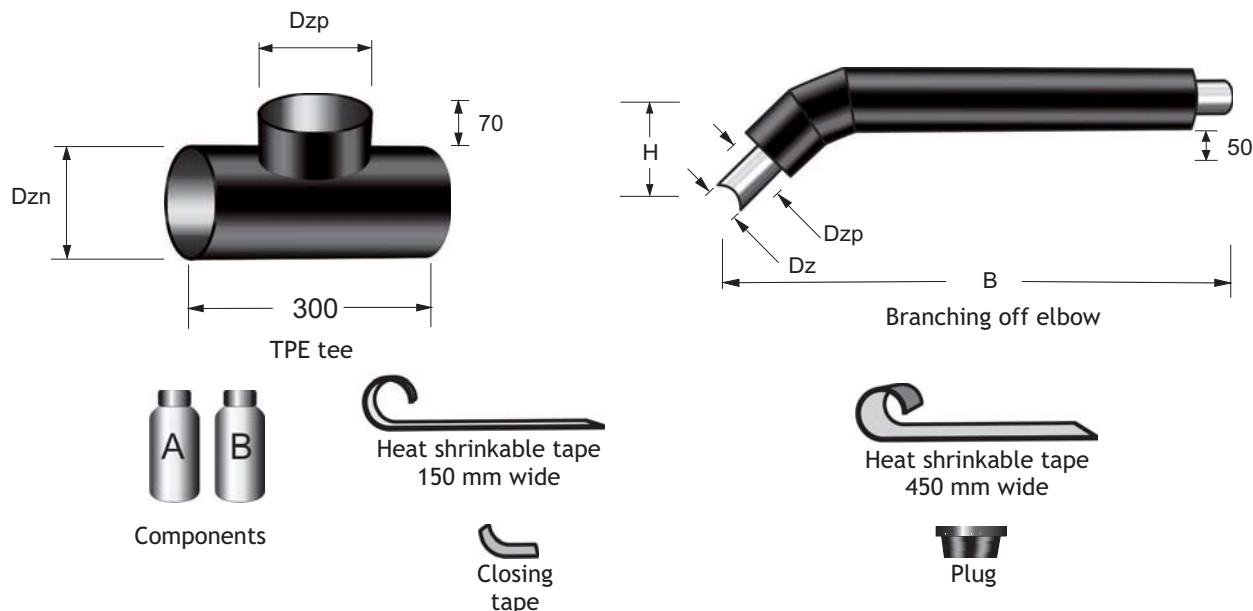
### 15.2 Branch-Off Protective Tube - Joint Adapter



**Table 41**

Jacket pipe	Dimension	Catalogue reference number
Dzp	B	
mm	mm	
75	175	A-75
90	185	A-90
110	195	A-110
125	220	A-125
140	250	A-140
160	280	A-160

## 16 Mains Branching Off 45° Elbow Cold Inset



**Table 42**

Mains		Branching off		Branching off elbow		TPE tee		Catalogue reference number
Nominal diameter	Jacket pipe external diameter	Nominal diameter	Jacket pipe external diameter	Branching off elbow	TPE tee	Mains external diameter	Branching off external diameter	
DN	Dzp	DN	Dzp	mm	mm	mm	mm	
mm	mm	mm	mm					
25	90	20	75	140	900	110	90	TPE-25/20
32	110	25	90	150	900	125	110	TPE-32/25
40	110	32	110	160	900	125	125	TPE-40/32
50	125	40	110	168	900	140	125	TPE-50/40
65	140	50	125	183	1200	160	140	TPE-65/50
80	160	65	140	200	1200	200	160	TPE-80/65
100	200	65	140	220	1200	225	160	TPE-100/65

Note: TPE tees are fabricated to accommodate any mains diameter and branching off pipe diameter up to DN 200.

## 17 Mains Branching Off 45° Elbow Hot Inset

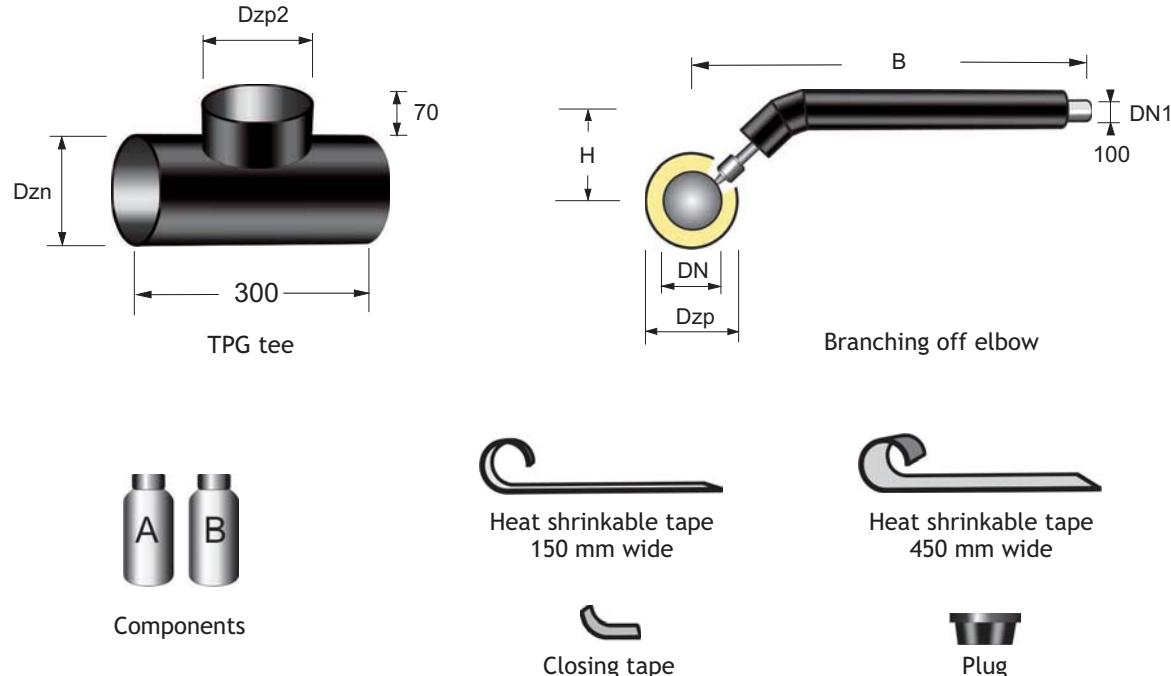


Table 43

Mains		Branching off		Branching off elbow		TPG tee		Catalogue reference number
Nominal diameter	Jacket pipe external diameter	Nominal diameter	Jacket pipe external diameter	$H$	$B$	Mains external diameter	Branching off external diameter	
DN	$D_{zp}$	DN	$D_{zp1}$			$D_{zn}$	$D_{zp2}$	
mm	mm	mm	mm	mm	mm	mm	mm	
25	90	20	75	191	900	110	110	TPG-25/20
32	110	25	90	205	900	125	125	TPG-32/25
40	110	32	110	220	900	125	125	TPG-40/32
50	125	40	110	250	900	140	140	TPG-50/40
65	140	50	125	278	1200	160	160	TPG-65/50
80	160	65	140	305	1200	200	200	TPG-80/65
100	200	65	140	310	1200	225	200	TPG-100/65
125	225	80	160	330	1200	250	225	TPG-125/80
150	250	100	200	335	1200	315	250	TPG-150/100

Note: TPE tees are fabricated to accommodate any mains diameter and branching off pipe diameter up to DN 150.