Drainage

BluePower®

BluePower®

BluePower® is the new drainage system from Coes designed to meet the most stringent demands for strength and mechanical stress in modern plant engineering, even at low temperatures; resist the spread of fire and give sound absorbency to the system.

The outstanding characteristics of the raw material and Coes' know-how give BluePower® the following properties:

- Outstanding strength and resistance to impact, even at low temperatures
- Resistance to the spread of fire. BluePower® is classified under B1 according to the ÖNORM B 3800-1 standard
- Excellent sound-absorption of drain noise
- Excellent chemical resistance to the transport of liquids
- Perfect hydraulic seal, guaranteed by the "double-lip" gasket seal, even under back-flow conditions
- Recyclability. BluePower® is manufactured with fully recyclable materials

BluePower® is available in diameters from 32 to 200 mm. with special and exclusive elements such as the double-connector pipe up to a diameter of 125 mm. and the swept-entry branch.

The programme consists of a multi-layer pipe designed to give outstanding strength, good sound-absorption and self-extinguishing power to a single product.
The fittings feature a very innovative design.

BluePower®'s technological innovation is represented by 2 European patents:

- Industrial design of the fittings
- "Double-lip" gasket connection system.

The dimensions of the BluePower® pipes and fittings comply with the UNI EN 1451-1 standard.

INNOVATION AND PATENTS

- **OUTSTANDING STRENGTH, EVEN AT LOW TEMPERATURES**
- **B1 CLASSIFICATION TO ÖNORM B 3800-1 STANDARD**
- **EXCELLENT SOUND ABSORPTION**
- "DOUBLE-LIP" GASKET CONNECTION SYSTEM
- UNIQUE AND INNOVATIVE FITTINGS DESIGN
- NUMBER OF SYSTEM PATENTS
- WIDE PRODUCT RANGE

BLUEPOWER® IS 100% RECYCLABLE

TECHNOLOGICAL INNOVATION

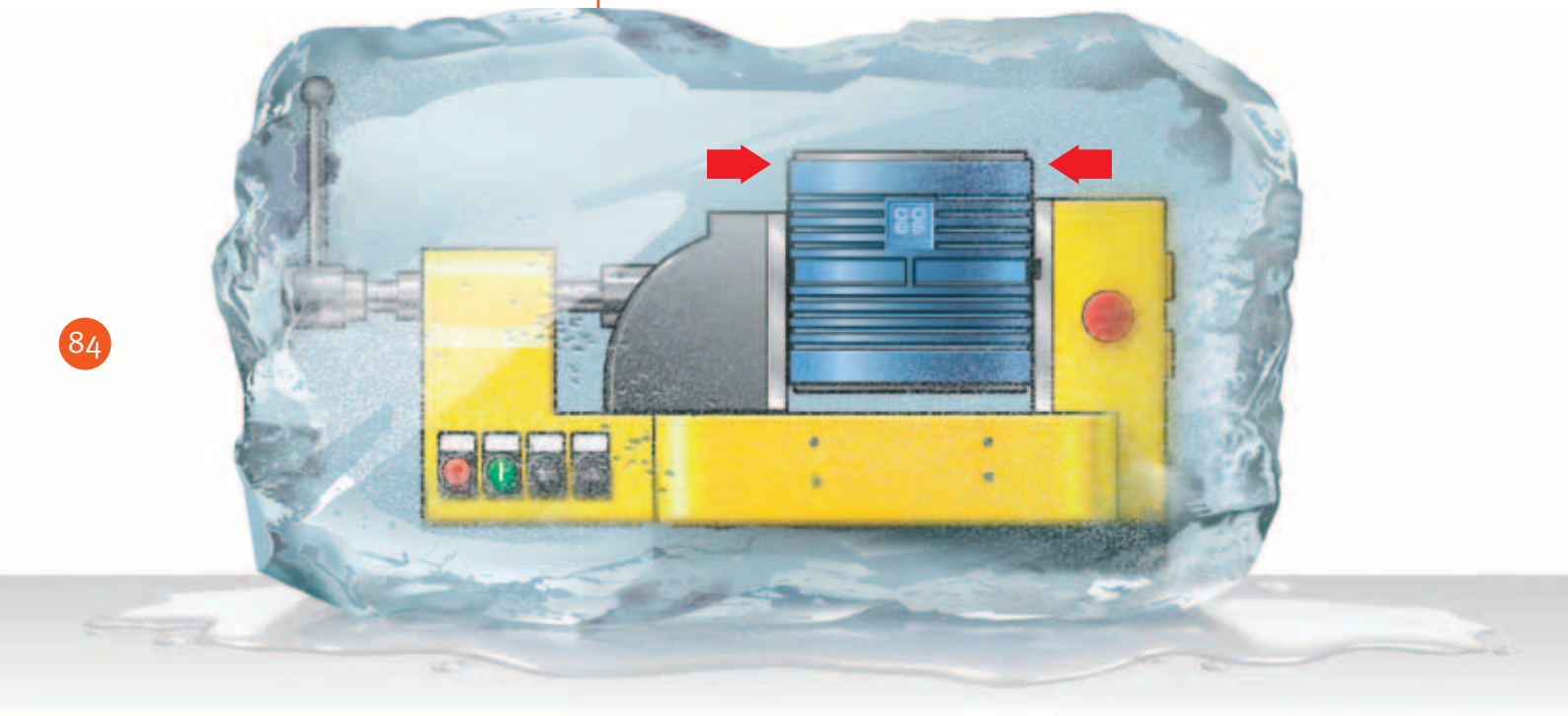
BluePower® has obtained 2 international patents:

- ORNAMENTAL, FOR THE INDUSTRIAL DESIGN OF THE FITTINGS
- THE GASKET CONNECTION SYSTEM ON THE RING WHICH IS MECHANICALLY INSERTED INTO THE FITTING

DESIGN PLUS 2005
AWARD

OUTSTANDING MECHANICAL RESISTANCE AND STRENGTH AT THE LOWEST TEMPERATURE

BluePower® is the strongest drainage system and the most resistant to mechanical stress in the field of new generation (blue), reinforced sound-absorbing products.
Furthermore it is designed to meet the most severe requirements of **resistance to the lowest temperature**, as shown by the results of the numerous tests made.

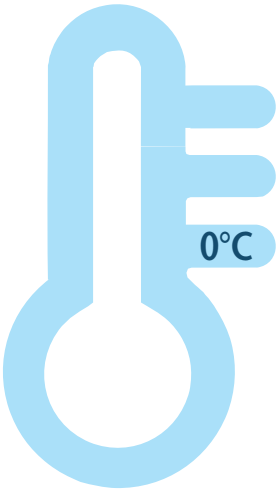


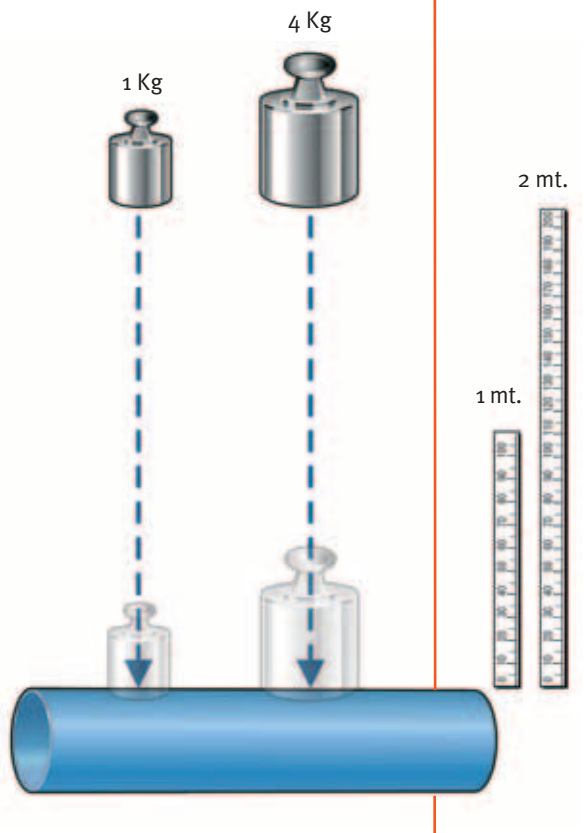
STRENGTH TEST: CONDITIONS AND RESULTS

Ball-drop and Charpy tests were carried out in order to prove the outstanding strength of the BluePower® system. The samples examined were conditioned at a temperature of 0°C for 24 hours.

BALL-DROP TEST

This involves exposing the product samples to an impact of variable weight (minimum 0.5 Kg - maximum 4 Kg.) from a height of 1- 2 metres.





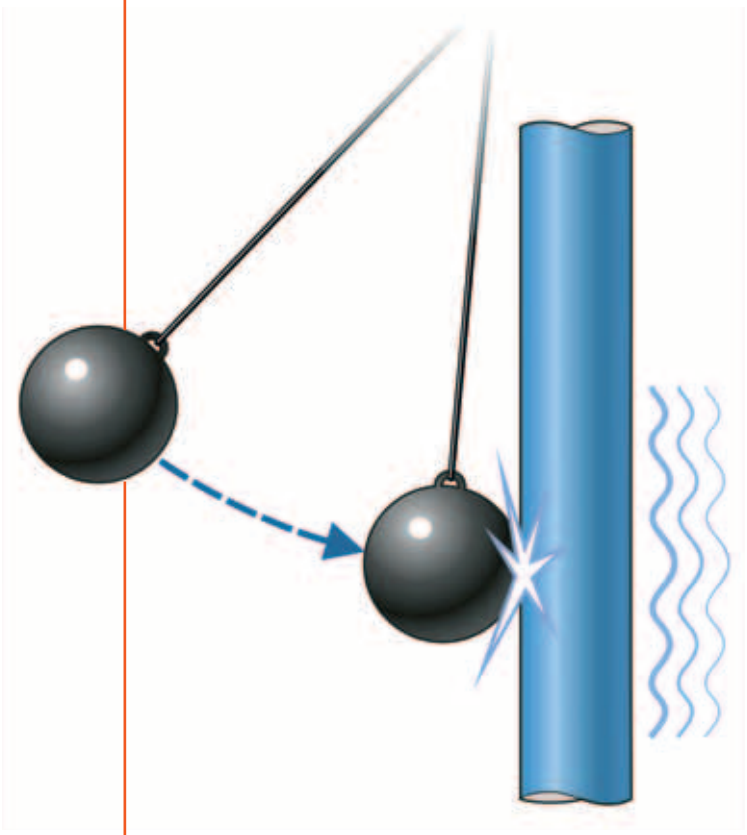
The results

All BluePower® samples passed the strength test; 2 samples out of 3 by the best competitor produced cracks in the 4 Kg test at a height of 2 metres.

		BluePower®	Best competitor
0,5 Kg 1 m	Sample 1	ok	ok
	Sample 2	ok	ok
1 Kg 1 m	Sample 1	ok	ok
	Sample 2	ok	ok
2 Kg 1 m	Sample 1	ok	ok
	Sample 2	ok	ok
4 Kg 1 m	Sample 1	ok	ok
	Sample 2	ok	ok
1 Kg 2 m	Sample 1	ok	ok
	Sample 2	ok	ok
2 Kg 2 m	Sample 1	ok	ok
	Sample 2	ok	ok
4 Kg 2 m	Sample 1	**ok**	**broken**
	Sample 2	**ok**	ok
	Sample 3	**ok**	**broken**

CHARPY TEST

This involves measuring the ability to absorb impact energy of 10 product samples. The greater the energy absorbed, expressed in Joules, the greater is the resistance to impact.



Joules

	BluePower®	Best competitor
	Absorbed Joules (F)	Absorbed Joules (F)
Sample 1	0,550	0,134
Sample 2	0,399	0,960
Sample 3	0,750	0,134
Sample 4	0,750	0,130
Sample 5	0,654	0,103
Sample 6	0,400	0,134
Sample 7	0,626	0,880
Sample 8	0,460	0,134
Sample 9	0,505	0,960
Sample 10	0,589	0,880
Average Value	**0,568**	**0,445**

The results

The results of the comparative tests show BluePower®'s increased capacity to absorb impact, or to resist mechanical stress.

RESISTANCE TO THE SPREAD OF FIRERESISTANCE TO THE SPREAD OF FIRE

FIRE-RESISTANCE TEST: CERTIFICATION

BluePower® is the first and only drainage system in the segment of new generation reinforced products (blue) to be classified B1, **that means highly resistant to fire,** under the ÖNORM B 3800-1 standard, on the reaction to fire.

TGM Versuchsanstalt

STAATLICHE VERSUCHSANSTALT – TGM
KUNSTSTOFF- UND UMWELTTECHNIK
Federal Institute of Technology –TGM – Plastics and Environment Technology

TEST REPORT

TGM - VA KU 20 931

about the burning behaviour of sewage pipes named "BluePower" produced by CO.E.S with regard to the feature hardly combustible ("schwerbrennbar")

Client: CO.E.S. Compagnia Edil Sanitaria S.p.A.
Address: I-20096 Pioltello (Mi), Via Genova 13

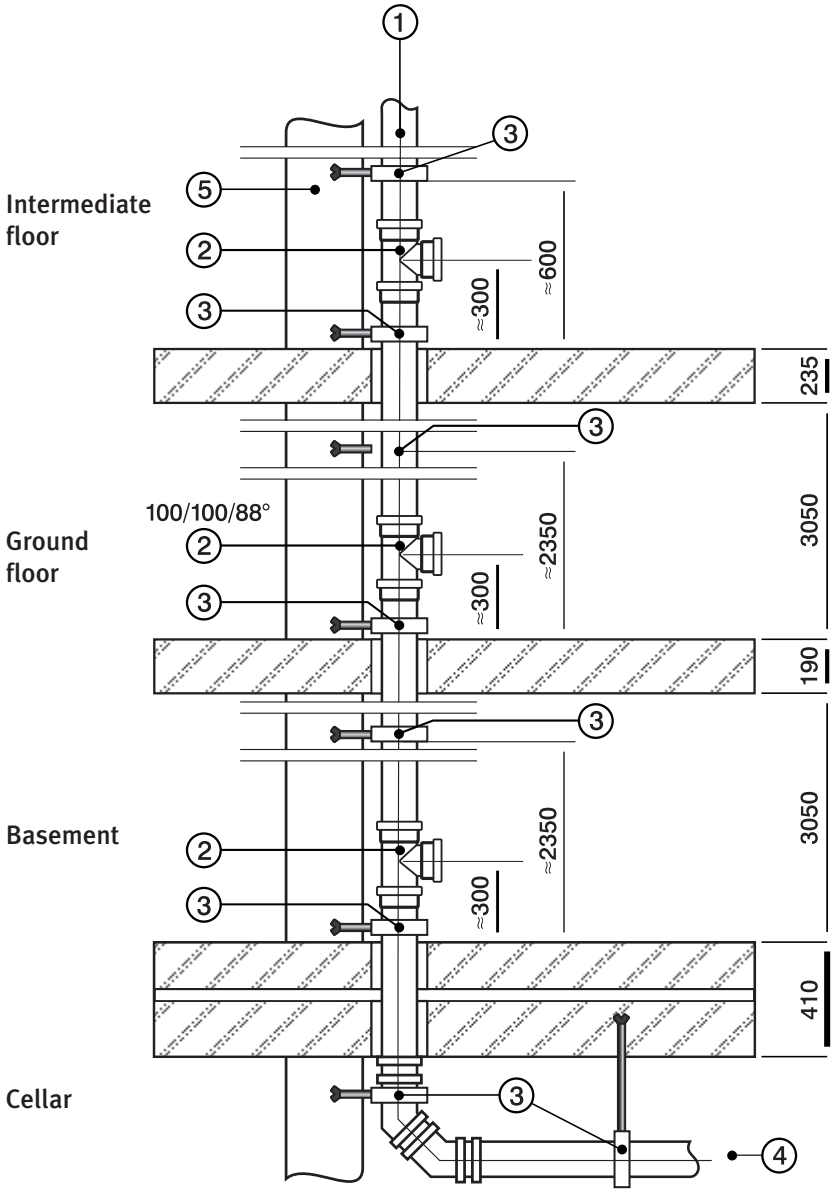
HIGH SOUND-ABSORPTION

BluePower® system considerably reduces the noise produced by water drainage.

SOUND-ABSORPTION TEST: CONDITIONS AND RESULTS

Sound insulation tests were carried out at the Institute of Building Physics "Frauhofer" in Stuttgart, in accordance with the DIN 4109 plant engineering scheme .

Plant scheme



① Drain pipe
② 87° branch
③ Collars for wall attachment
④ Drain
⑤ Concrete partition wall

Caratteristiche dell'impianto di prova

1. BluePower® is installed on a concrete wall with a mass equal to 220 Kg/sq. m.
2. Pipes and fittings used have a diameter of 110 mm.
3. The column stretches from the mezzanine floor to the cellar via the ground floor. The connections are installed in the basement.
4. The system is sized with a flow rate of 0,5 - 1,0 - 2,0 - 4,0 litres/second.

The results achieved and certified are shown in the table below:

Measurements by the Institute of Building Physics "Fraunhofer" in Stuttgart - Germany		BluePower® drainage system (manufactured by Coes) with fastening collars "Mupro 110, 108-112"			
		Flow rate [l/s]			
		0,5	**1**	**2**	**4**
Acoustic level dB(A)	Sound level L_{in} [dB(A)] measured at the base of the system	48	50	51	53
	Sound level L_{in} [dB(A)] measured at the base of the system, behind a wall with a mass equal to 220 Kg/sqm (1)	18	20	22	26
	Sound level L_{in} [dB(A)] measured at the base of the system, behind a wall with a mass equal to 220 Kg/sqm, without fastening collars	3	6	9	15

(1) Valutazione in base alla DIN 4109

TECHNICAL SPECIFICATIONS OF THE SYSTEM

PRODUCT RANGE

From DN 32 mm to DN 200 mm.
Pipes are available in the double socket version up to a diameter of 125 mm.
The programme is equipped with special and exclusive elements, such as the swept-entry branch, diameters 110/90 and 110/110 mm.

SELF-EXTINGUISHING CLASS

BluePower® complies with the **B1 class of the ÖNORM B 3800-1 standard.**

COLOUR

Blue RAL 5007. The internal layer of the pipes is white

PIPE MARKING AND NOMENCLATURE

Coes, BluePower®, Multilayer Pipe, DN x thickness, Certificates, DIN or reference standards, self-extinguishing class, batch, date of manufacture, bar code

E.g.: Coes - BluePower - Multilayer Pipe,
110x3,4mm. - DWGV - no. 100 - 20/01/2005

CHEMICAL RESISTANCE

BluePower® BluePower guarantees great resistance to a very large number of chemical agents, particularly surfactants, even at high temperatures, according to ISO TR7471.

THE “AESTHETIC VALUE" OF BluePower®

Drainage systems are normally designed to be functional and practical.
Coes, on the other hand, has conceived a product which is not just aesthetically “good”.
The attention paid to the design of the details is aimed at achieving new quality standards for transport, storage, installation of the system.

PIPES

- Marking
- Socket protection
- Marking on strapping

FITTINGS

- Industrial Design and compactness of parts
- Blocks with Logotype and product info
- Adhesive label with bar code and article description
- New packaging

obtained the Design Plus 2005 award **run by the Frankfurt Trade Fair in collaboration with the German Design Council,** for its product concept and innovative industrial design.

MULTI-LAYER PIPE

MULTI-LAYER PIPE

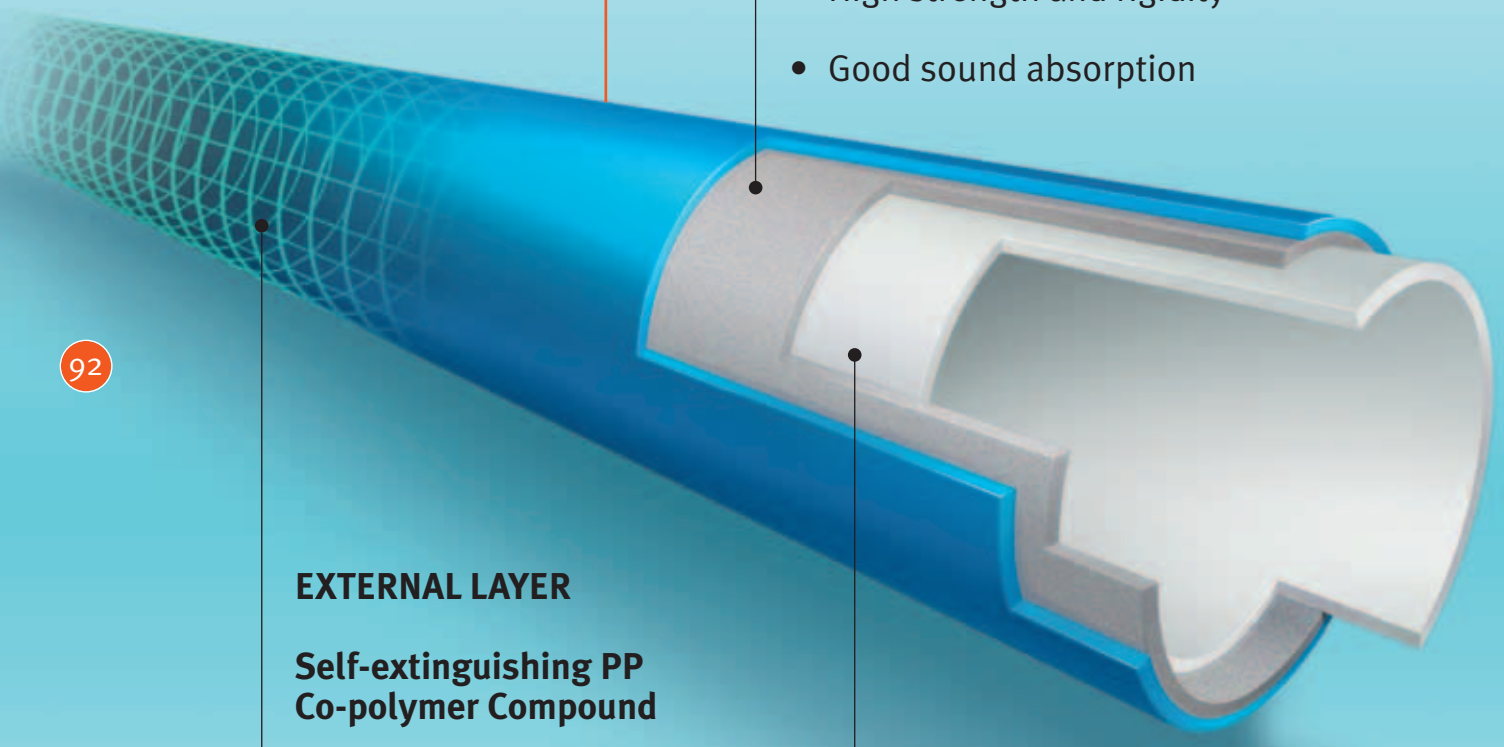
The pipe consists of three layers:

Strength • Self-extinguishing • Sound-absorption

INTERMEDIATE LAYER

Self-extinguishing PP Co-polymer Compound + mineral fillers

- High strength and rigidity
- Good sound absorption



EXTERNAL LAYER

Self-extinguishing PP Co-polymer Compound

- Class B1 fire resistance (ÖNORM B 3800-1)
- High resistance against impacts and atmospheric agents

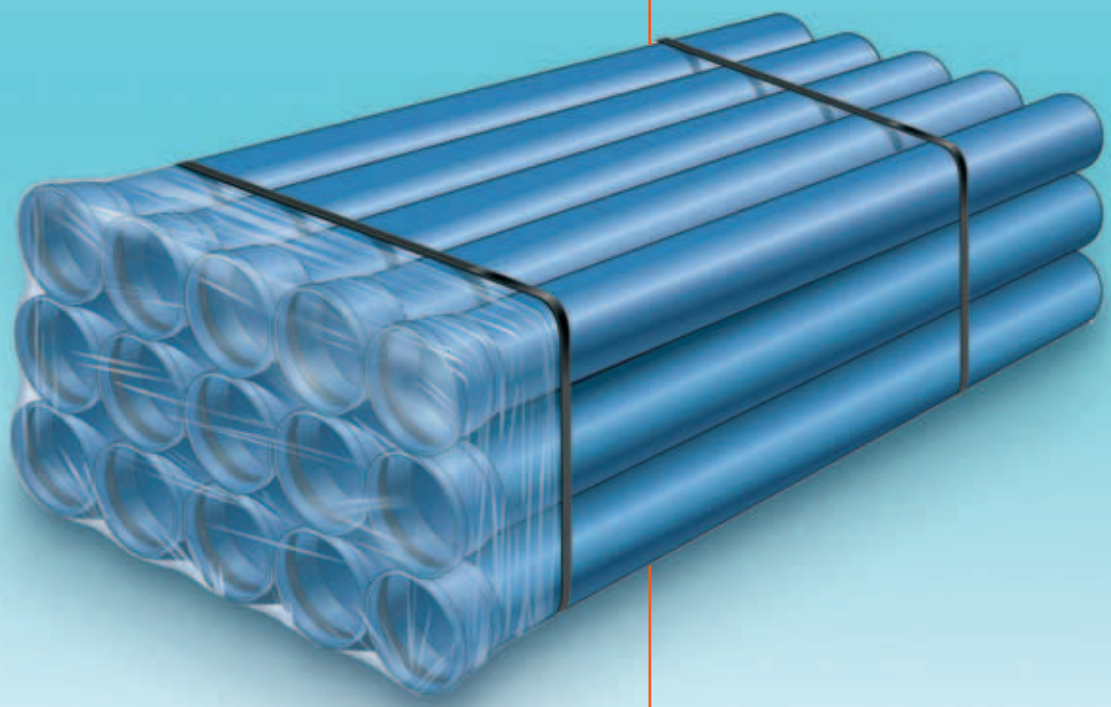
INTERNAL LAYER

White self-extinguishing PP Co-polymer Compound

- Strength even at the lowest temperature; liquids flow freely without leaving deposits; resistance to chemical agents
- The white colour makes for easy internal inspection

Pipe socket protection

The pipe sockets are protected by a special thermoformed plastic sheath for safer transport and storage.



FITTINGS

They are made from a self-extinguishing co-polymer PP compound and mineral fillers.

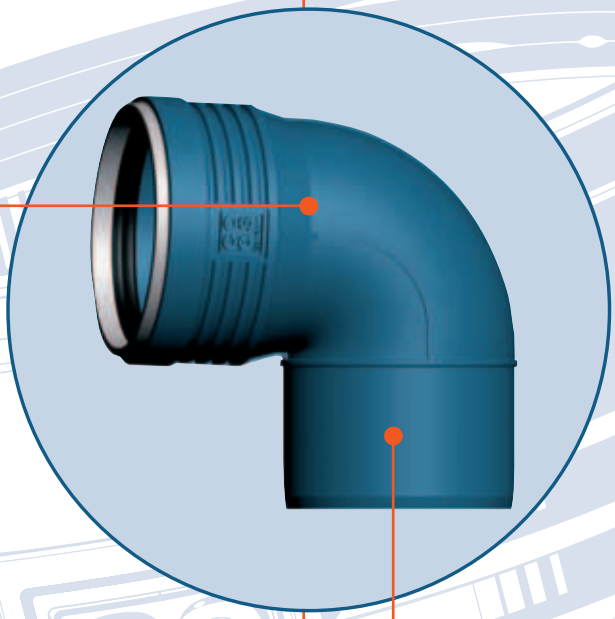
The "double-lip" sealing gasket is co-moulded onto a polypropylene ring which is mechanically inserted into the socket of the fitting.

The gasket is non-removable to guarantee a perfect hydraulic seal, even under back-flow conditions, and total safety during installation.

The fittings' design is technological and innovative. BluePower® obtained the Design Plus 2005 award from the Frankfurt Trade Fair in collaboration with the German Design Council for its industrial design.

The inserts moulded on the socket of the fitting display the following information:

Insert 1: Company brand



All fittings are supplied with an adhesive label showing the barcode, article code and description of the part.

FIELDS OF USE

Thanks to its outstanding strength and sound-absorption characteristics BluePower® is particularly suitable for the following fields of use:

- Drainage for sanitary fittings, washing machines and dishwashers
- Prolonged drainage of waste waters (Large residential developments)
- Ventilation and drain pipes
- Drainage of aggressive fluids

MOUNTING THE SYSTEMS

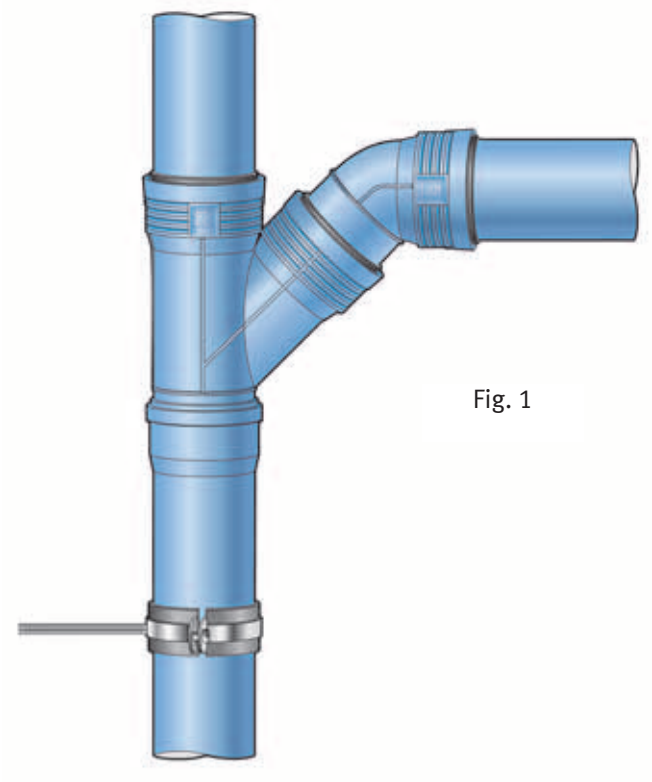


Fig. 1

Immediately after installation, the vertical systems must be secured with brackets, placed below the sleeve to prevent them from slipping.
(Fig. 1).

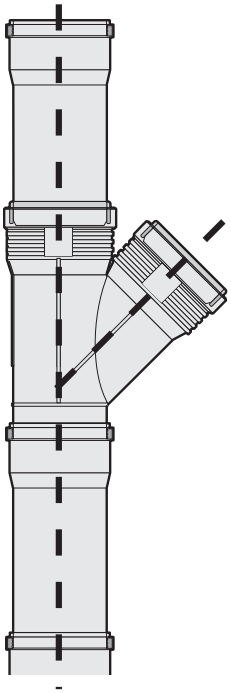


Fig. 2

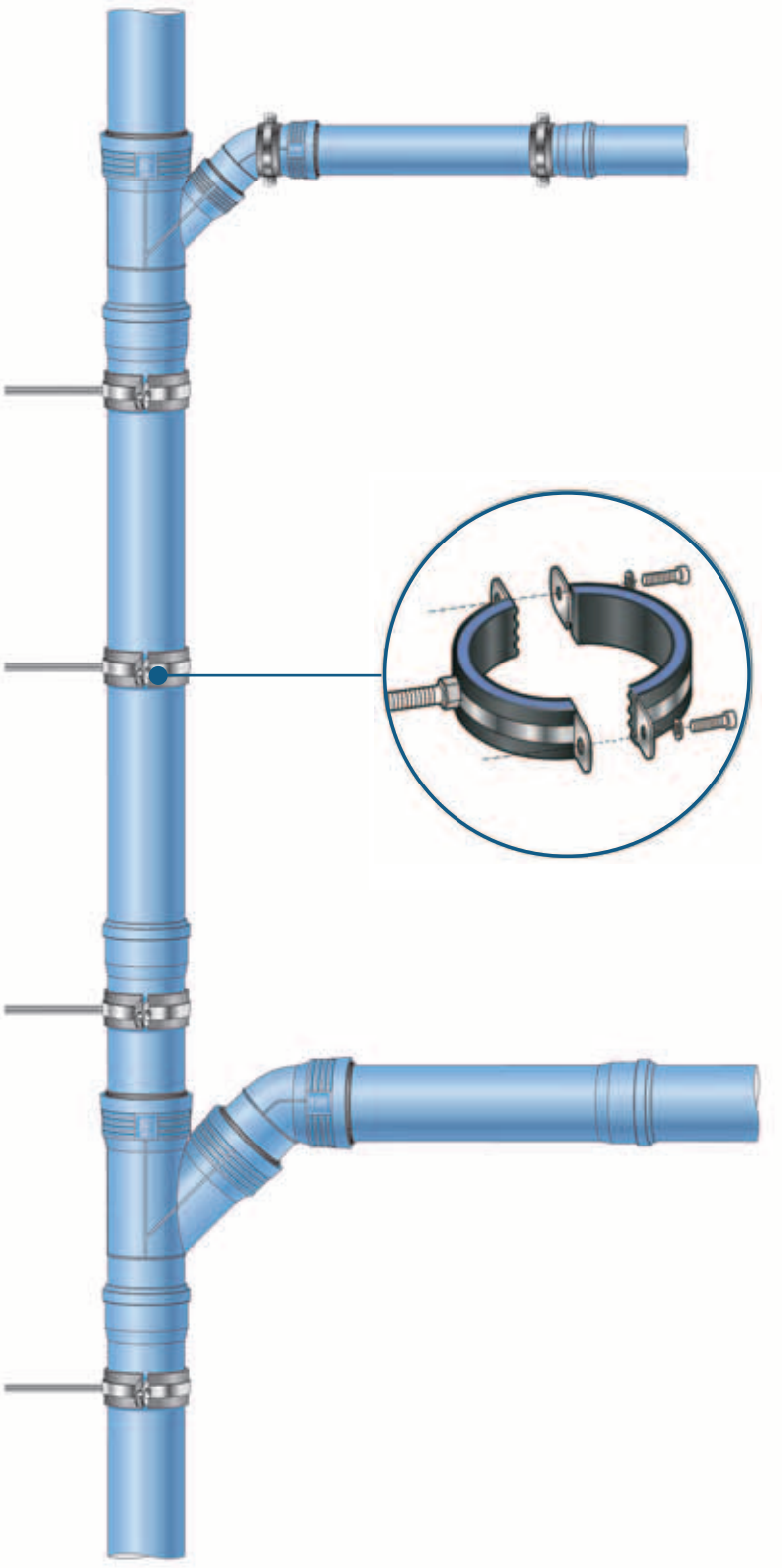
A three-way sleeve is used to insert a branch onto an existing pipe.
This is achieved by cutting a portion of the pipe, equal to the length of the branch to be inserted plus the depth of the sleeve insertion. The sleeve is inserted in the upper part up to the strike plate and the branch is inserted in the part below with an HTU sleeve. Finally the end of the sleeve is inserted on the branch socket (Fig. 2).

The length of the insertion socket has been calculated to absorb thermal expansion of the pipes to a maximum of 2 metres.
Thermal expansion is usually estimated by 5 mm per metre in the wastewater drain and by 2 mm per metre in the rainwater pipes.
Thermal expansion must be calculated when the system is constructed. To achieve this, a fixed point must be installed below the sleeve to block that part of the system and leave the remaining part free to expand.

Fixed point
Suitable brackets with a smooth internal surface and rounded edges are used to install a fixed point.

Movable point
Brackets for movable points are used to keep the system aligned and allow free expansion. For soundproofing reasons, we recommend the exclusive use of brackets with internal protective bands.
The recommended distance between each bracket is:

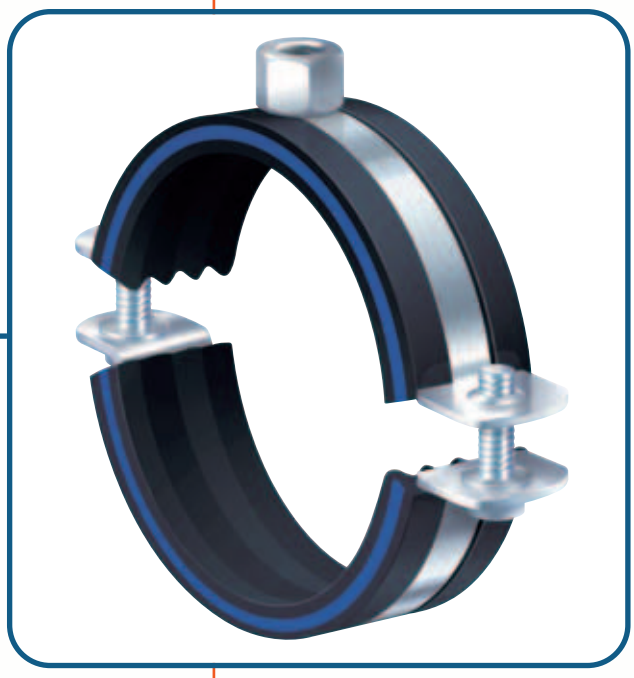
- For horizontal pipes: every 10 times the diameter of the pipe.
- For vertical pipes: every 15 times the diameter of the pipe.



N.B. When installing and using the BluePower® system, any national laws and regulations must be taken into consideration. The socket connection system guarantees hydraulic seal. Any mechanical stress must be considered during the design phase so that the hydraulic seal is not affected.

COLLARS FOR PIPE ATTACHMENTCOLLARS FOR PIPE ATTACHMENT

The BluePower® system is equipped with special collars for pipe attachment, in order to obtain optimal sound-absorption.



The main characteristics are the following:

- the collar is made of two parts
- the two fixing screws enable correct installation, even with pipes of different tolerances
- the blue sound-proofing gasket DÄMMGULAST® meets class B1 fire-resistance requirements, in accordance with the ÖNORM B 3800-1 standard (no flaming droplets in the presence of flame)
- phonometric tests have shown average sound insulation of 16.5 dB(A)
- By removing the spacers, the collar can be used as a fixed anchor point

“SOCKET” CONNECTION

”Socket” connection is easy and quick:

1 Clean the pipe and sleeve ends

2 Check the integrity of the gasket in the socket (Fig. 1)

3 Lubricate the part to be connected (Fig. 2)

4 Insert the pipe as far as the socket strike plate; then back-up by 10 mm (Fig. 3)

5 The BluePower pipes and fittings have a perfectly bevelled edge to facilitate connection. If pieces of pipe are used, make a precise, perpendicular cut (Fig. 4)
Then, bevel using suitable equipment, to avoid damaging the gasket during connection (Fig. 5)

Fig. 1

Fig. 2

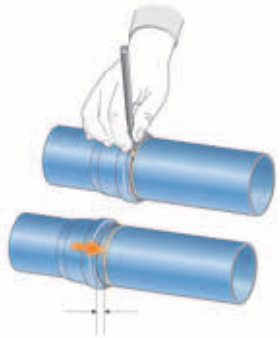


Fig. 3

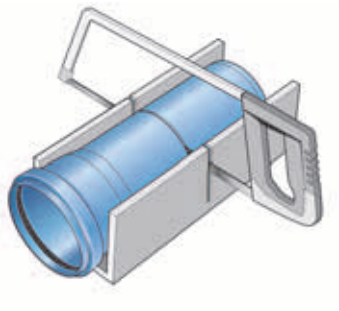


Fig. 4

Fig. 5

CONNECTION WITH OTHER MATERIALS

The BluePower programme includes a series of sleeves for connection with other existing materials, to make any type of installation easier.

NO **YES**

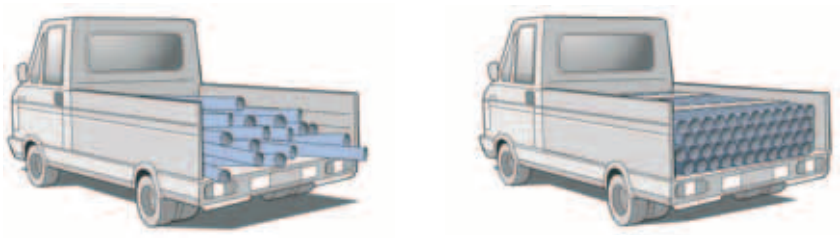


Fig. 1

NO **YES**

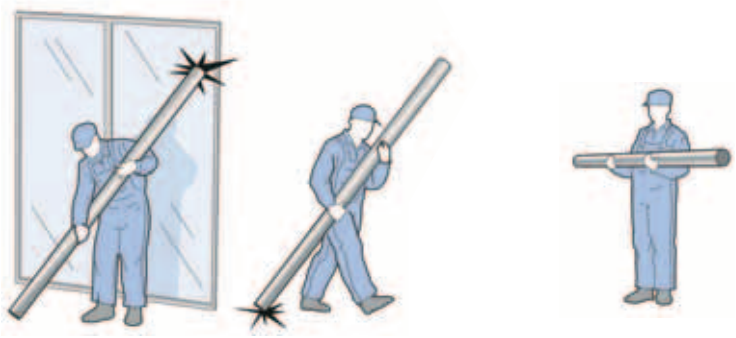


Fig. 2

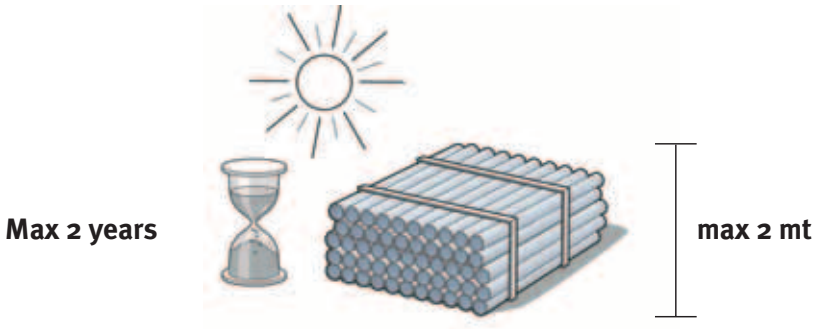


Fig. 3

Here are a few tips to help you maintain the optimal performance of BluePower pipes over time:

1 Avoid disorderly transport, if pipes have been removed from their original factory packaging (Fig. 1)

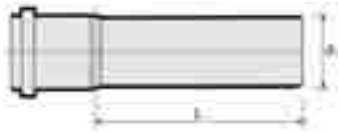
2 Avoid dragging along the ground or against the walls of the vehicle (Fig. 2)

3 To avoid deformation over time, the maximum stacking height must not exceed 2 m., regardless of diameter (Fig. 3)

4 Outdoor storage must be limited to a maximum of 2 years (Fig. 3)

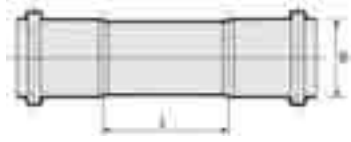
5 Pipes should be rested on even surfaces with no rough spots.

Pipe with one socket HTEM



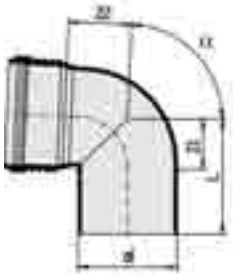
CODE	d	L
100301B	32	150
100302B	32	250
100305B	32	500
100310B	32	1000
100315B	32	1500
100320B	32	2000
100330B	32	3000
100401B	40	150
100402B	40	250
100405B	40	500
100410B	40	1000
100415B	40	1500
100420B	40	2000
100430B	40	3000
100501B	50	150
100502B	50	250
100505B	50	500
100507B	50	750
100510B	50	1000
100515B	50	1500
100520B	50	2000
100530B	50	3000
100701B	75	150
100702B	75	250
100705B	75	500
100707B	75	750
100710B	75	1000
100715B	75	1500
100720B	75	2000
100730B	75	3000
100901B	90	150
100902B	90	250
100905B	90	500
100910B	90	1000
100915B	90	1500
100920B	90	2000
100930B	90	3000
101101B	110	150
101102B	110	250
101105B	110	500
101107B	110	750
101110B	110	1000
101115B	110	1500
101120B	110	2000
101130B	110	3000
101201B	125	150
101202B	125	250
101205B	125	500
101207B	125	750
101210B	125	1000
101215B	125	1500
101220B	125	2000
101230B	125	3000
101601B	160	150
101602B	160	250
101605B	160	500
101610B	160	1000
101615B	160	1500
101620B	160	2000
101630B	160	3000
102002B	200	250
102005B	200	500
102010B	200	1000
102015B	200	1500
102020B	200	2000
102030B	200	3000

Pipe with two sockets HTDM



CODE	d	L
090315B	32	1500
090320B	32	2000
090330B	32	3000
090415B	40	1500
090420B	40	2000
090430B	40	3000
090515B	50	1500
090520B	50	2000
090530B	50	3000
090715B	75	1500
090720B	75	2000
090730B	75	3000
090915B	90	1500
090920B	90	2000
090930B	90	3000
091115B	110	1500
091120B	110	2000
091130B	110	3000
091215B	125	1500
091220B	125	2000
091230B	125	3000

Bend HTB

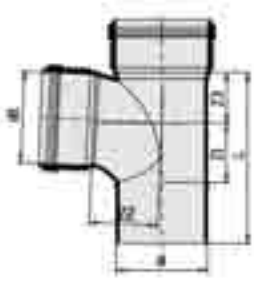


CODE	d	α	z1	z2	L
110315B	32	15°	3	7	54
110330B	32	30°	6	7	52
110345B	32	45°	8	10	55
110367B	32	67°30'	13	15	60
110387B	32	87°30'	14	16	62
110415B	40	15°	4	10	60
110430B	40	30°	7	13	60
110445B	40	45°	11	17	65
110467B	40	67°30'	18	24	70
110487B	40	87°30'	26	32	80
110515B	50	15°	5	11	62
110530B	50	30°	8	14	65
110545B	50	45°	13	19	67
110567B	50	67°30'	21	27	76
110587B	50	87°30'	31	37	86
110715B	75	15°	7	12	70
110730B	75	30°	12	18	74
110745B	75	45°	18	25	81
110767B	75	67°30'	29	35	90
110787B	75	87°30'	43	49	106
110915B	90	15°	8	15	75
110930B	90	30°	14	20	85
110945B	90	45°	21	28	88
110967B	90	67°30'	34	40	100
110987B	90	87°30'	50	56	117
111115B	110	15°	9	20	88
111130B	110	30°	16	28	93
111145B	110	45°	25	35	100
111167B	110	67°30'	41	47	116
111187B	110	87°30'	60	70	128
111215B	125	15°	10	20	93
111230B	125	30°	18	25	108
111245B	125	45°	29	36	114
111267B	125	67°30'	46	52	132
111287B	125	87°30'	67	73	150
111615B	160	15°	12	20	103
111630B	160	30°	23	30	117
111645B	160	45°	36	45	128
111667B	160	67°30'	58	64	151
111687B	160	87°30'	84	90	176
112045B	200	45°	43	54	135
112087B	200	87°30'	96	103	190

Branch HTEA

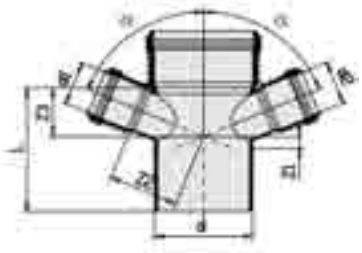
CODE	d-d1	α	z1	z2	z3	L
200303B	32-32	45°	9	40	40	95
200404B	40-40	45°	11	49	49	118
250404B	40-40	67°30'	11	33	33	105
300404B	40-40	87°30'	26	25	25	105
200504B	50-40	45°	6	56	54	120
250504B	50-40	67°30'	16	39	36	106
300504B	50-40	87°30'	26	30	25	106
200505B	50-50	45°	13	61	61	133
250505B	50-50	67°30'	21	41	41	116
300505B	50-50	87°30'	31	30	30	116
200705B	75-50	45°	1	80	73	137
250705B	75-50	67°30'	16	56	47	122
300705B	75-50	87°30'	30	31	43	122
200707B	75-75	45°	18	91	91	172
250707B	75-75	67°30'	29	49	49	147
300707B	75-75	87°30'	43	43	43	147
200905B	90-50	45°	-7	91	81	149
300905B	90-50	87°30'	30	50	31	129
200909B	90-90	45°	21	109	109	197
300909B	90-90	87°30'	50	51	51	169
201105B	110-50	45°	-17	107	92	166
251105B	110-50	67°30'	9	79	55	139
301105B	110-50	87°30'	30	67	34	135
201107B	110-75	45°	1	119	109	183
251107B	110-75	67°30'	22	81	67	163
301107B	110-75	87°30’	42	64	46	160
201111B	110-110	45°	25	134	134	232
251111B	110-110	67°30'	42	89	89	201
301111B	110-110	87°30'	60	66	66	200
201207B	125-75	45°	-7	132	118	198
301207B	125-75	87°30'	42	47	68	167
201211B	125-110	45°	18	146	141	239
251211B	125-110	67°30'	38	96	89	208
301211B	125-110	87°30'	60	69	63	200
201212B	125-125	45°	29	151	151	261
251212B	125-125	67°30'	46	97	97	221
301212B	125-125	87°30'	67	69	69	219
201611B	160-110	45°	0	176	160	255
251611B	160-110	67°30'	31	124	100	222
301611B	160-110	87°30'	59	93	64	214
201616B	160-160	45°	36	193	193	322
301616B	160-160	87°30'	84	89	89	265
202016B	200-160	45°	6	198	198	340
202020B	200-200	45°	12	203	203	345

Swept-entry branch



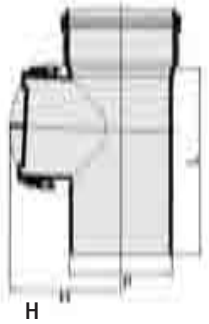
CODE	d-d1	z1	z2	z3	L
221111B	110-110	73	61	82	207
221190B	110-90	57	57	82	188

Double branch HTDA



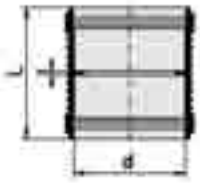
CODE	d-d1-d2	α	z1	z2	z3	L
361105B	110-50-50	67°30'	10	79	55	140
361111B	110-110-110	67°30'	50	89	89	200
361211B	125-110-110	67°30'	40	96	89	208
361212B	125-125-125	67°30'	46	97	97	221
361611B	160-110-110	67°30'	35	124	100	222

Linear inspection HTRE



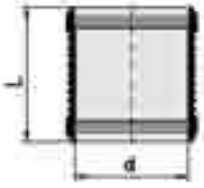
CODE	d	H	L
320505B	50	70	115
320707B	75	80	142
320909B	90	86	157
321111B	110	95	195
321212B	125	105	214
321616B	160	126	238

Coupling with shutter HTMM



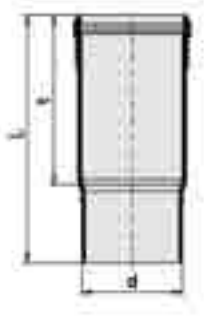
CODE	d	α	L
400320B	32	3	108
400420B	40	2	110
400520B	50	2	115
400720B	75	3	125
400920B	90	4	132
401120B	110	4	132
401220B	125	4	162
401620B	160	5	180

Coupling HTU



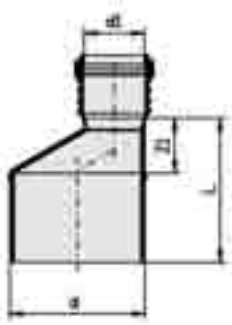
CODE	d	L
400410B	40	110
400510B	50	115
400710B	75	125
400910B	90	132
401110B	110	132
401210B	125	162
401610B	160	180
402010B	200	202

Triple-depth socket HTLL



CODE	d	t	L
400430B	40	114	174
400530B	50	115	178
400730B	75	130	199
400930B	90	173	250
401130B	110	180	266
401230B	125	216	309
401630B	160	238	340

Increase HTR



CODE	d1-d	z1	L
150304B	32-40	10	53
150305B	32-50	16	66
150405B	40-50	14	74
150409B	40-90	30	99
150507B	50-75	22	86
150509B	50-90	31	99
150511B	50-110	43	118
150711B	75-110	28	102
150911B	90-110	20	95
151112B	110-125	17	101
151116B	110-160	43	138
151216B	125-160	30	125
151620B	160-200	30	135

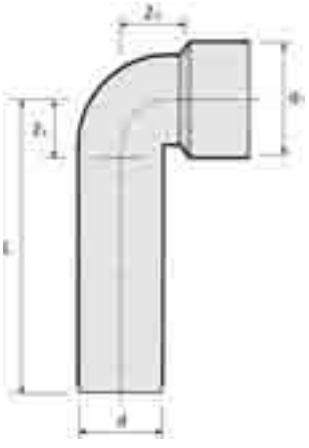
Closing plug HTM

CODE	d	L
390400B	40	35
390500B	50	35
390700B	75	45
390900B	90	50
391100B	110	50
391200B	125	55
391600B	160	70

Technical bend HTSW

CODE	d - d1	z1	z2	L
430346B	32-46	23,5	24	76
430446B	40-46	23,5	24	76
430405B	40-50	23,5	24	76
430505B	50-50	28,5	29	82

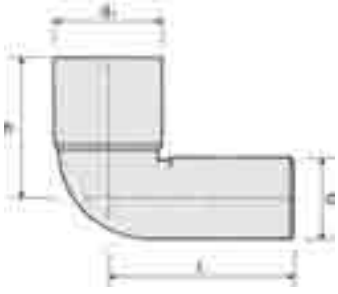
Extended technical bend HTSWL



CODE	d - d1	z1	z2	L
470446B	40-46	23,5	20	152
470405B	40-50	28,5	20	152

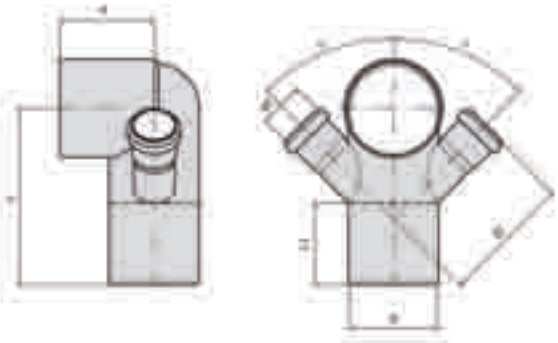
For the seals see Coestilen price list page 16 and Coesprene price list page 30

Extended WC bend HTSBL



CODE	d - d1	L	H
490900B	90-120	230	175
491100B	110-120	230	185

Extended WC bend with 2 couplings HTSBL



CODE	d - d1	α	z1	H	L1	L
481124B	110-40	45°	105	185	105	230
481125B	110-50	45°	105	185	100	230

For the whole WC connections range see Coesprene price list pages 30-33

Soundproof band with M10 threaded nut

CODE	d
560300	32
560400	40
560500	50
560700	75
560900	90
561100	110
561200	125
561600	160
562000	200

Soundproof band with 1/2” gas-threaded nut

CODE	d
570300	32
570400	40
570500	50
570700	75
570900	90
571100	110
571200	125
571600	160
572000	200