



Series: TECHNICAL APPROVAL

TECHNICAL APPROVAL by ITB AT-15-9406/2014

Pursuant to the regulation by the Minister of Infrastructure of 8th November 2004 on technical approvals and organisational units authorised to issue such approvals (consolidated text: Journal of Laws of 2014, item 1040) and as a result of the proceedings taken in the Building Research Institute in Warsaw at the request of the company:

Magnaplast Sp. z o.o.
Sieniawa Żarska 69, 68-213 Lipinki Łużyckie, Poland

we hereby state suitability for construction of the product under the name:

**Ultra dB pipes and fittings
made of polypropylene for indoor low-noise
sewerage installations**

to the extent and on rules specified in the Attachment which is an integral part of this ITB Technical Approval.

Validity date:
17th November, 2019



[Official stamp of Building
Research Institute]

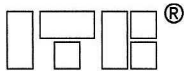
Zastępca Dyrektora
ds. Współpracy z Gospodarką

Marek Kaproń

[Stamp and illegible signature
of the Deputy Director for
Economic Cooperation, Mr.
Marek Kaproń]

Attachment:
General and Technical Provisions

Warsaw, 17th November, 2014



ATTACHMENT

GENERAL AND TECHNICAL PROVISIONS

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1. SUBJECT OF APPROVAL

The subject of this ITB Technical Approval are polypropylene (PP) pipes and fittings of the Ultra dB system, with nominal diameters between DN 50 and up to DN 160 for use in in-door low-noise sewage systems.

Ultra dB pipes and fittings are manufactured by Magnaplast Sp. z o.o., Sieniawa Źarska 69, 68-213 Lipinki Łużyckie and the following other companies: Magnaplast GmbH, Wilhelm-Bunsen Str.6, 49685 Emstek, Niemcy and Gebr. Ostendorf Kunststoffe GmbH & Co. KG, Rudolf- Diesel-Strasse 6-8, 49377 Vechta, Niemcy, and Magnaplast Sp. z o.o., Sieniawa Źarska 69, 68-213 Lipinki Łużyckie is their authorised representative for the territory of Poland.

The Approval covers layered spigot and socket pipes manufactured by co-extrusion method and solid wall fittings manufactured by injection.

The pipe external wall is made blue polypropylene (PP) while the internal white layer is made of polypropylene (PP) with mineral filler. The fittings subject to this Approval are of the blue color.

Spigot and socket pipes (dwg.1) are manufactured with the nominal diameter of DN 50, 75, 110 and 160 in the lengths of 150, 250, 500, 1000, 1500, 2000, 3000 and 5000 mm.

This Approval covers pipes with the nominal circumferential rigidity of SN4 class and DN 110 and DN 160 fittings of SN8 nominal circumferential rigidity. Ultra dB pipes and fittings are equipped with elastomer lip seals at manufacture.

The Approval covers the following Ultra dB fittings:

- elbows 15, 30, 45, 87° (dwg. 2),
- reducers (dwg. 3),
- tees 45, 87° (dwg. 4),
- sliding coupling (dwg. 5)
- caps (dwg. 6),
- double socket couplings (dwg. 7),
- clean-outs (dwg. 8).

Technical properties for products under this Approval are provided in point 3.

2. PURPOSE, SCOPE AND CONDITIONS OF USE

Ultra dB pipes and fittings under this Approval are to be used for transport of sewerage without pressure and at max. temp. up to 90°C (for short periods up to 95°C) in in-door sewerage systems.

System designing shall conform to PN-EN 12056-1, 2:2002 and assembly shall be compliant with installation manual by the Manufacturer.

Ultra dB sewerage pipes and fittings are fit for use in "B" area, i.e. in the in-door systems and mounted outside on building walls or "BD" i.e. inside buildings and underground systems buried under a building structure within its boundaries or covered with concrete.

Piping sections shall have spigot and socket joints with elastomer lip seals.

The system may be mounted with traditional steel clamps or with plastic clamps.

Mounting of Ultra dB pipes and fittings with BISMAT 1000 clamps with elastomer acoustic lining allows the obtention of acoustic characteristics as provided in point 3.2.2.

In-door sewerage system made of Ultra dB pipes and fittings, due to the raw material formula and mounting technique is characterised by lower noise level in comparison with classic in-door sewerage made of polypropylene pipes and fittings as per PN-EN 1451-1:2001.

3. TECHNICAL PROPERTIES REQUIREMENTS

3.1. Materials and raw materials

Polypropylene (PP) granulate shall be used as the material for production of the external layer while the inner layer shall be made of polypropylene (PP) granulate with mineral filler.

Polypropylene (PP) used for the manufacture of Ultra dB pipes shall conform to PN-EN 1451-1:2001.

Polypropylene (PP) granulate modified with minerals shall be used for the manufacture of Ultra dB fittings as per PN-EN 14758-1:2012.

Raw material in original manufacturer's packaging and manufacturer's certificate shall be used production of Ultra dB pipes and fittings. Recycled material of the same type, obtained from reworking of the own pipes and fittings may be added, provided that its properties are not inferior to the primary raw material.

Lip seals with which the Ultra dB pipes and fitting are provided at manufacture and made of thermo-plastic elastomer shall meet the requirements of PN-EN 681-1:2002.

3.2. Products

3.2.1. Technical properties of Ultra dB pipes and fittings

The required Technical properties of Ultra dB pipes and fittings are provided in Table 1.

Table 1

No.	Technical properties	Requirements	Test procedure
1	Dimensions	as per PN-EN 1451-1:2001 and PN-EN 14758-1:2012 and dwgs. 1 ÷ 8	PN-EN ISO 3126:2006
2	External appearance and colour	the inner and outer surfaces of pipes and fittings shall be smooth and free of such defects as heterogeneity, bubbles and foreign bodies; the colour of pipes and fittings shall uniform over the entire surface;	visual inspection with naked eye
3	longitudinal shrinkage of pipes, %	≤2 free of such damage as bubbles, delayering and cracks	PN-EN ISO 2505:2006 (150°C; 60 min.; method B; air)
4	Mass Flow Rate MFR (230 °C/2, 16 kg), g/10 min.	MFR change due to material processing shall not exceed 0.2	PN-EN ISO 1133-1:2011
5	Changes due to heating of fittings	as per PN-EN 1451-1:2001	PN-EN ISO 580:2006 (150°C, 30 min., method A, air)
6	Pipe impact strength, %	TIR ≤10	PN-EN 744:1997 -temp. 23 ± 1°C - conditioning time ≥ 60 min. type, mass and height of weight drop as per PN-EN 1451-1:2001
7	Tightness of joints tested with water	free of leaks	PN-EN ISO 1053:1998
8	Tightness of joints tested with air	free of leaks	PN-EN ISO 1054:1998
9	Tightness of spigot and socket joints with elastomer sealing ring	as per PN-EN 1451-1:2001	PN-EN 1277:2005 (method 4, condition B and C)
10	Resistance to cyclic exposure to increased temperature	as per PN-EN 1451-1:2001	PN-EN ISO 1055:1998
11	Circumferential rigidity of pipes	SN 4 ≥ 4 kN/m ²	PN-EN ISO 9969:2008
12	Circumferential rigidity of DN ≥ 110 fittings	SN 8 ≥ 8 kN/m ²	PN-EN ISO 13967:2011
13	Resistance of fittings to external impact (weight drop method)	free of damage	test parameters as per ISO 13263 PN-EN 14758-1:2012

3.2.2. Ultra dB acoustic properties Optimum acoustic characteristics of the Ultra dB low-noise sewerage system under this approval, including the accompanying mounting system shall conform with the parameters presented in table 2.

Table 2

Measured value	Ultra dB system 110 x 3.4 with „BISMAT 1000” type of clamps			
	0.5	1.0	2.0	4.0
Flow volume	0.5	1.0	2.0	4.0
Level A for sound of air, $L_{a,A}$, dB(A) ^{1/}	44	48	52	54
Level A for sound of material $L_{sc,A}$, dB(A) ^{1/}	< 10	< 10	13	16

^{1/} determined as per PN-EN 14366:2006

3.3. Marking

Marking on Ultra dB pipes shall be permanently printed at intervals not longer than 1 m. The colour of markings on Ultra dB pipes and fittings shall differ from the colour of the product.

Marking on Ultra dB pipes shall include as minimum:

- system name Ultra dB
- material symbol PP-M or PP
- application area B or BD
- nominal diameter e.g. DN/OD 110
- production date e.g. 10/14

Marking on fittings shall include as minimum:

- system name Ultra dB
- application area B or BD
- material symbol PP-M or PP
- nominal diameter and angle e.g. DN/OD 110/45
- production date e.g. 10/14

4. PACKAGING, STORAGE AND TRANSPORTATION

4.1. Packaging

Pipes up to 500 mm long and fittings shall be packed in cardboard boxes. Pipes of 750 mm and longer shall be placed in wooden frames.

Information including at least the information listed below shall be attached to each packaging piece:

- product name and symbol
- Manufacturer's name and address
- number of fitting piece or pipe length inside the packaging,
- Number of ITB Technical Approval AT-15-9406/2014,

- date and number of the national declaration of conformity,
- "B" mark

The manner of "B" mark application shall be compliant with the regulation by the Minister of Infrastructure of 11th August 2004 on methods of declaring the conformity of construction products and method of marking them with construction mark (Journal of Laws No. 198/2004, item 2041, as amended).

4.2. Storage

Ultra dB pipes and fitting, packed as per point 4.1, shall be protected from moisture, dirt and direct operation of sun rays. Storage shall not cause deformations of sockets and pipe endings.

4.3. Transport

Products, packed as per point 4.1, shall be transported in the manner that protects them from damage and destruction, defined in the instructions for transport developed by the Manufacturer.

5. CONFORMITY ASSESSMENT

5.1. General terms

Pursuant to art. 4, art. 5 item 1 p. 3 and art. 8 item 1 of the act of 16 April 2004 on construction products (Journal of Laws No. 92/2004, item 881, as amended), products under this Technical Approval may be introduced into the market and used for construction within the scope corresponding to their properties and destination, if the manufacturer performed conformity assessment, issued the national declaration of conformity with the ITB Technical Approval AT-15-9406/2014 and marked them with the construction mark, as per applicable regulations in force.

As per the regulation by the Minister of Infrastructure of 11th August, 2004 on methods of declaring the conformity of construction products and method of marking them with construction mark (Journal of Laws No. 198/2004, item 2041, as amended) assessment of conformity of Ultra dB system with the ITB Technical Approval AT- 15-9406/2014 is performed by the Manufacturer (or the Manufacturer's authorised representative) with its head office in the territory of the Republic of Poland, using system 4.

In the case of system 4 for conformity assessment, the Manufacturer may issue the national declaration of conformity with ITB Technical Approval AT-15-9406/2014 on the basis of:

- a) preliminary type test performed by the manufacturer or by the manufacturer's order,
- b) production control at the plant,

5.2. Preliminary type test

The preliminary type test is a test confirming the required technical and application properties that is performed before the product is introduced into the market.

The preliminary type test of the Ultra dB pipes and fittings encompasses:

- dimensions
- Mass Flow Rate,
- longitudinal shrinkage,
- changes due to heating of fittings,
- pipe impact strength,
- tightness of joints tested with water and air,
- tightness of spigot and socket joints with elastomer sealing ring,
- resistance to cyclic exposure to increased temperature,
- circumferential rigidity of pipes and fittings
- resistance of fittings to external impact

Tests, which in the approval proceedings were the basis for establishing technical and application properties of products under this Approval, constitute the preliminary type test in the conformity assessment.

5.3. Production control at the plant

Production control at the plant includes:

- 1) specification and control of materials and raw-materials,
- 2) control and testing in the production process as well as testing of the finished products (p. 5.4), performed by the Manufacturer as per the established action plan and in line with rules and procedures established in the company production control, adjusted to the production technology and aiming at obtention of products with the required properties.

Production control shall ensure that products conform to the ITB Technical Approval AT-15-9406/2014. Results of production control shall be recorded systematically. Records in the register shall confirm that the products meet the criteria of the conformity assessment. Individual products or product batches and their related production detailed shall be fully traceable.

5.4. Testing of finished products

5.4.1. Test plan. The test plan includes:

- a) continuous testing,
- b) periodic testing.

5.4.2. Continuous testing. Continuous testing includes checking:

- a) external appearance and colour
- b) dimensions,
- c) longitudinal shrinkage,
- d) Mass Flow Rate,
- e) changes due to heating of fittings
- f) pipe impact strength,
- g) circumferential rigidity of pipes and fittings

5.4.3. Periodic testing. Periodic testing includes checking:

- a) tightness of spigot and socket joints,
- b) resistance to cyclic exposure to increased temperature.

5.5. Testing frequency

Continuous testing shall be performed as per the established test plan, but not less frequently than per each product batch. Product batch volume shall be defined in the production control documentation at the plant.

Periodic testing shall be performed not less frequently than every 3 years.

5.6. Test methods

Testing shall be performed as per methods and standards listed in Table 1.

5.7. Taking test samples

Samples for testing shall be taken at random, as per PN-83/N-03010 requirements.

5.8. Assessment of test results

Manufactured products shall be considered compliant with the requirements ITB Technical Approval if the results of all tests are positive.

6. FORMAL AND LEGAL ARRANGEMENTS

6.1. The ITB Technical Approval AT-15-9406/2014 is a document stating suitability of Ultra dB pipes and fittings made of polypropylene (PP) for low-noise indoor sewerage systems for application in construction within the scope as stated in the Approval statement.

Pursuant to art. 4, art. 5 item 1 p. 3 and art. 8 item 1 of the act of 16 April 2004 on construction products (Journal of Laws No. 92/2004, item 881, as amended), products under this Technical Approval may be introduced into the market and used for construction within the scope corresponding to their properties and destination, if the manufacturer performed conformity assessment, issued the national declaration of conformity with the ITB Technical Approval AT-15-9406/2014 and marked them with the construction mark, as per applicable regulations in force.

6.2. The ITB Technical Approval does not infringe upon rights deriving from regulations on industrial property rights, in particular with the respect to the act of 30th June 2000 - Industrial property rights (consolidated text: Journal of Laws of 2013, item 1410, as amended). The power to ensure these rights is the responsibility of the users of this ITB Technical Approval.

6.3. Having issued this Technical Recommendation, ITB shall not bear any responsibility for possible breach of exclusive and acquired rights.

6.4. The ITB Technical Approval does not relieve the manufacturers from the responsibility for appropriate quality of finished products, neither does it absolve the contractors of construction works from the responsibility for appropriate application of these products and correct performance of the installation works.

6.5. The contents of issued brochures, announcements, and other documents related to launching the sales of Ultra dB pipes and fittings shall include information about the ITB Technical Approval AT-15-9406/2014 granted for these products.

7. VALIDITY DATE

The ITB Technical Approval AT-15-9406/2014 is valid until 17th, November, 2019.

The validity of The ITB Technical Approval may be extended for consecutive periods if the Applicant, or the Applicant's formal successor, applies with regard to this matter by appropriate request to the Building Research Institute (ITB) not later than 3 months before the expiration of this document's validity date.

END

ADDITIONAL INFORMATION

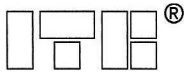
Related standards and documents

PN-83/N-03010	<i>Statistical Quality Control. Random selection of individual products for testing</i>
PN-EN ISO 3126:2006	<i>Plastics piping systems - Plastics components - Determination of dimensions</i>
PN-EN 1451-1:2001	<i>Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - part 1: Specifications for pipes, fittings and the system</i>
PN-EN ISO 2505:2006	<i>Thermoplastics pipes - Longitudinal reversion - Test method and parameters</i>
PN-EN 12056- 1 and 2:2002	<i>Gravity drainage systems inside buildings - Part 1: General and performance requirements, Part 2: Sanitary pipework, layout and calculation</i>
PN-EN ISO 1133-1:2011	<i>Plastics - determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics</i>
PN-EN 14366:2006	<i>Laboratory measurement of noise from waste water installations</i>
PN-EN 681-1:2002	
and	<i>Elastomeric seals - Materials requirements for</i>
PN-EN 681-2:2003	<i>pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber, Part 2: Thermoplastic elastomers</i>
PN-EN ISO 580:2006	<i>Plastics piping and ducting systems - Injection-moulded thermoplastics fittings - Methods for visually assessing the effects of heating</i>
PN-EN ISO 744:1997	<i>Plastics piping and ducting systems - Thermoplastics pipes - Test method for resistance to external blows by the round-the-clock method</i>

- PN-EN ISO 1053:1998 *Plastics piping systems - Thermoplastics piping systems for non-pressure applications - Test method for watertightness*
- PN-EN ISO 1054:1998 *Plastics piping systems - Thermoplastics piping systems for soil and waste discharge - Test method for airtightness of joints*
- PN-EN ISO 1055:1998 *Plastics piping systems - Thermoplastics piping systems for soil and waste discharge inside buildings - Test method for resistance to elevated temperature cycling*
- PN-EN ISO 727:1998 *Plastics piping and ducting systems - thermoplastics pipes and fittings - Determination of Vicat softening temperature (VST)*
- PN-EN ISO 1277:2005 *Plastic piping systems. Thermoplastics piping systems for buried non-pressure applications. Test methods for leaktightness of elastomeric sealing ring type joints):*
- PN-EN ISO 9969:2008 *Thermoplastics pipes - Determination of ring stiffness*
- PN-EN ISO
13967:2011 *Thermoplastics fittings - Determination of ring stiffness*
- PN-EN 14758-1:2012 *Plastics piping systems for non-pressure underground drainage and sewerage - Polypropylene with mineral modifiers (pp-md) - Part 1: Specifications for pipes, fittings and the system*
- ISO 13263 *Thermoplastics piping systems for non-pressure underground drainage and sewerage - Thermoplastics fittings - Test method for impact strength*

Test reports, assessments

1. Prüfbericht P-BA 165/2014. Report on acoustic testing of Ultra dB sewerage system. Laboratory: Fraunhofer-Institut für Bauphysik, Stuttgart, Germany, June 2014
2. NA/05012/JN/14. Expert opinion on the possibility to assume in the ITB Technical Approval the acoustic properties of the Ultra dB low-noise in-door PP pipe and fitting system on the basis of test report No. P-BA 165/2014. ITB Acoustics Department, October 2014.
3. Test Report No. 151/14/SM1 Control test of Ultra dB PP pipes and fittings as per PN-EN 1451-1:2001. Central Laboratory of Plastic Pipes Research Material Engineering Department of the Central Mining Institute (GIG), Katowice, June 2014.
4. Test Report No. 169/14/SM1 Control test of Ultra dB PP-MD fittings as per PN-EN 4758-1:2012. Central Laboratory of Plastic Pipes Research Material Engineering Department of the Central Mining Institute (GIG), Katowice, July 2014.



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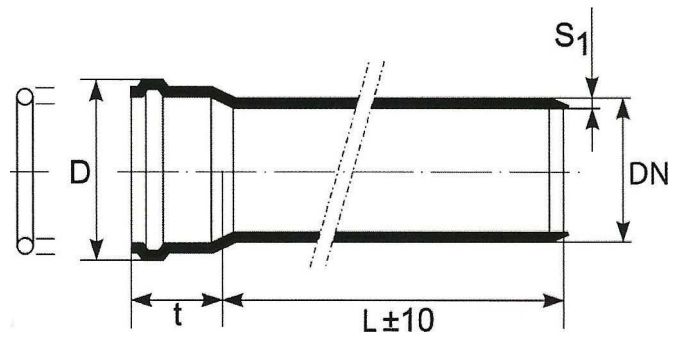
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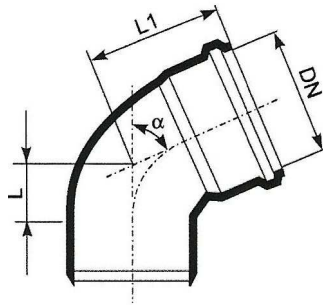
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Dwg. 8 Ultra dB clean-out dimensions.....17



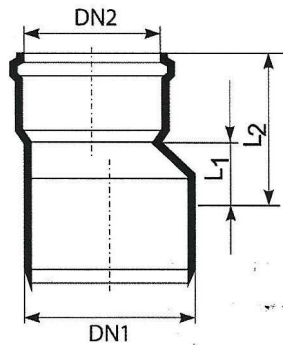
DN	S ₁ , mm	D, mm	t, mm	L, mm
50	2.0	64	56	150
50	2.0	64	56	250
50	2.0	64	56	500
50	2.0	64	56	1000
50	2.0	64	56	1500
50	2.0	64	56	2000
50	2.0	64	56	3000
50	2.0	64	56	5000
75	2.3	89	61	150
75	2.3	89	61	250
75	2.3	89	61	500
75	2.3	89	61	1000
75	2.3	89	61	1500
75	2.3	89	61	2000
75	2.3	89	61	3000
75	2.3	89	61	5000
110	3.4	128	72	250
110	3.4	128	72	500
110	3.4	128	72	1000
110	3.4	128	72	1500
110	3.4	128	72	2000
110	3.4	128	72	3000
110	3.4	128	72	5000
160	4.9	186.6	95	500
160	4.9	186.6	95	1000
160	4.9	186.6	95	1500
160	4.9	186.6	95	2000
160	4.9	186.6	95	3000
160	4.9	186.6	95	5000

Dwg. 1 Ultra dB pipe dimensions



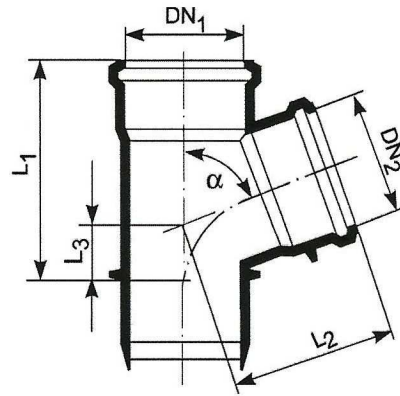
DN	angle	L, mm	L1, mm
50	15	10	70
50	30	9	68
50	45	17	77
50	87	28	84
75	15	23	91
75	30	11	80
75	45	18	92
75	87	42	92
110	15	9	15
110	30	17	21
110	45	26	29
110	87	59	65
160	15	24	19
160	30	24	30
160	45	37	42
160	87	84	91

Dwg. 2 Ultra dB elbow dimensions



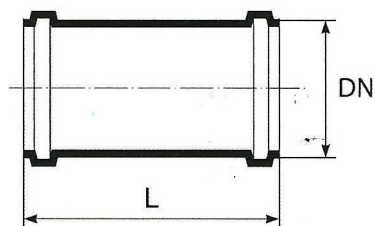
DN1/DN2	L ₁ , mm	L ₂ , mm
75/50	19	73
110/50	37	93
110/75	22	87
160/110	34	135

Dwg. 3 Ultra dB reduction dimensions



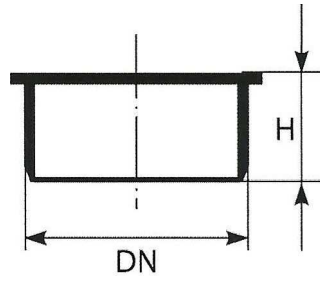
DN ₁ /DN ₂	angle	L ₁ , mm	L ₂ , mm	L ₃ , mm
50/50	45	133	116	12
75/50	45	147	145	1
75/75	45	183	159	18
110/50	45	150	158	17
110/75	45	186	186	50
110/110	45	134	134	26
160/110	45	162	168	2
160/160	45	194	194	37
50/50	87	117	91	28
75/50	87	119	99	27
75/75	87	158	115	40
110/50	87	150	125	23
110/75	87	186	126	36
110/110	87	64	62	59
160/110	87	140	141	15
160/160	87	91	91	81

Dwg. 4 Ultra dB tee dimensions



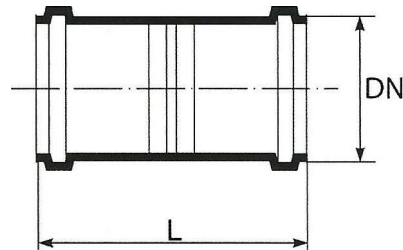
DN	L, mm
50	103
75	109
110	136
160	185

Dwg. 5. Ultra dB slide coupling dimensions



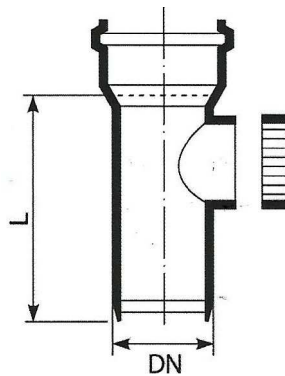
DN	H, mm
50	39
75	39
110	46
160	70

Dwg. 6 Ultra dB cap dimensions



DN	L, mm
50	112
75	118
110	136
160	185

Dwg. 7 Ultra dB double socket dimensions



DN	L, mm
110	308
160	380

Dwg. 8 Ultra dB clean-out dimensions