



ADVANCED FLOW
SYSTEMS™



HULIOT
GROUP

ULTRA SILENT™
Soundproof Drainage Piping System | Technical Catalogue

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Description of the Ultra Silent™ System

Soundproof, triple layer, push-fit system made of pipes and fittings for soil and waste discharge, at low and high temperatures, both within the building structure (application area code "B") as well as buried in the ground (application area "BD").

Pipes have a three-layer wall structure with external and internal layers of polypropylene (PP) and a middle layer of mineral-filled polypropylene (PP-MD). Fittings are made of mineral filled Polypropylene (PP-MD). Materials are halogen and cadmium free.

Joints are made with push-fit sockets and elastomer seals.

Suitable for the drainage of fluids, in compliance with DIN 8078, with pH between 2 and 12 at atmospheric pressure and at maximum operating temperature between 95°C and 98°C for short periods.

Suitable for the construction of ventilation, rainwater and drainage systems. Can be used at environmental temperatures no lower than -25°C.

The system has a sound level L_{sc,A} of 15dB(A) at a flow rate of 2 l/s, measured in compliance with EN 14366 and certified by the Fraunhofer Institut Für Bauphysik of Stuttgart number P-BA 20/2019e. The test was conducted using Huliote acoustic clamps.

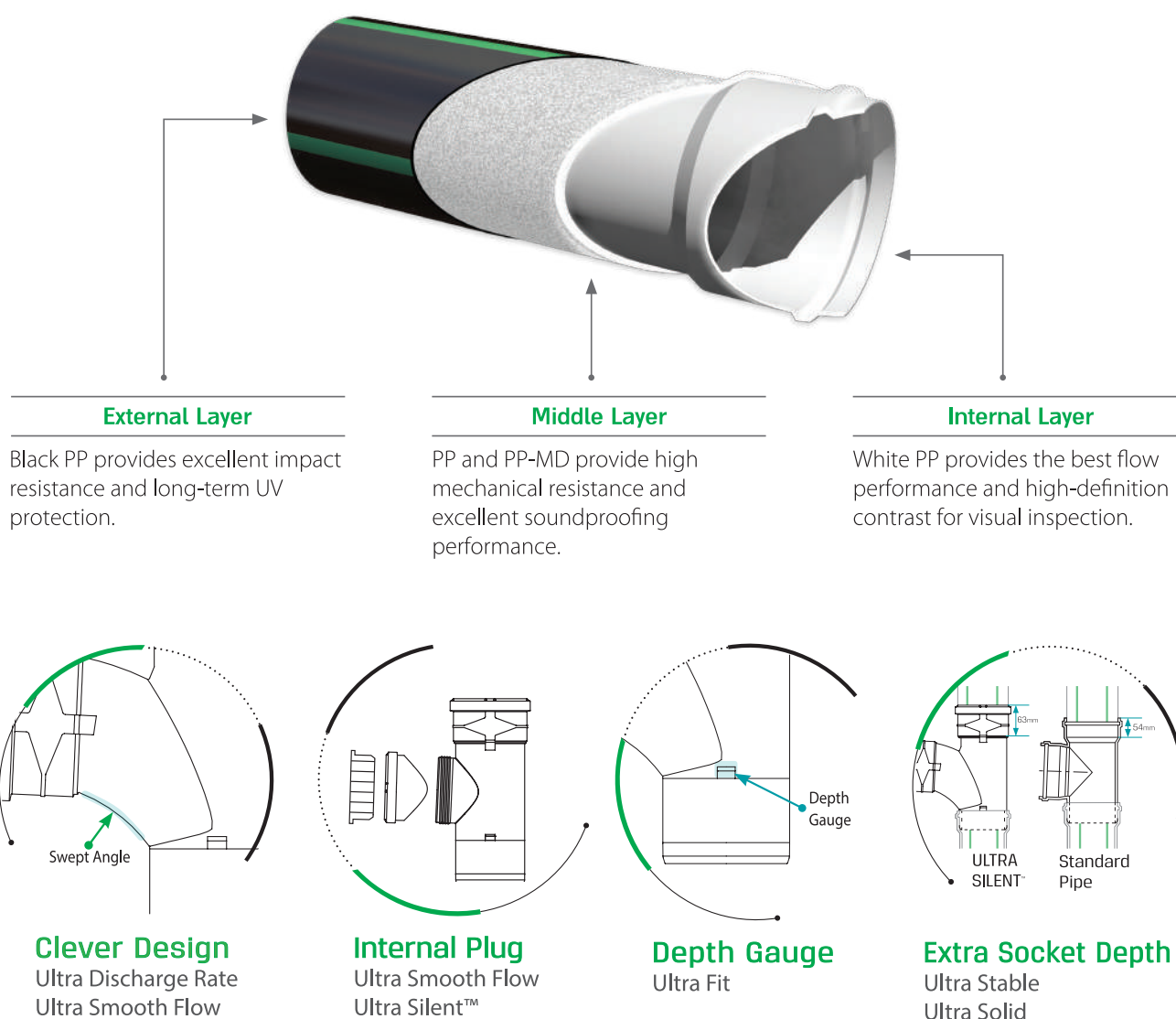
Fire performance rating is D-s2,d2 in compliance with EN 13501-1.

The Ultra Silent™ System is certified by: SKZ, DiBt - Germany, DTI-Denmark, AENOR - Spain and SII - Israel. In compliance with HR 3.43, EN 14759, UNE EN 1451-1, IS 958 "Plastics piping system for soil and waste discharge (low and high temperature) within the building structure".



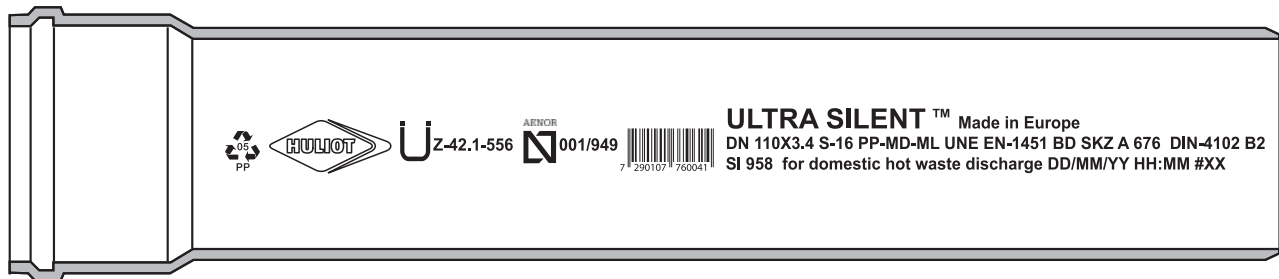
Main features

- Excellent acoustic performance: 15dB(A) at a flow rate of 2 l/s, in compliance with EN 14366 using Hulirot clamps
- High impact resistance even at low temperature (-25°)
- Excellent resistance to high temperatures: 95°C continuous, 98°C discontinuous
- High chemical resistance
- Increased depth of socket for stable assembly
- Branches with swept angle and optimized design for smoother and increased flow
- Wide range of diameters: DN 32mm to DN 200mm
- High UV resistance due to black color of external layer
- Recyclability: Ultra Silent™ products have the Green Label mark for environmentally-friendly products
- All materials comply with RoHS directive and are Halogen and Cadmium free
- 10-year guarantee



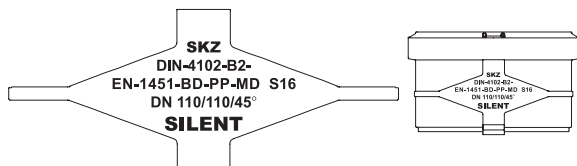
Marking

Marking of Pipes



PP	Recyclable product
Huliot Logo	Manufacturer logo
dibt Z-42.1-556	DIBT approval
AENOR 001/949	AENOR product certificate
Barcode	Product barcode
Ultra Silent™	System brand name
DN 110X3.4	Diameter and wall thickness
PP-MD-ML	Material
S-16	Pipe series
UNE EN-1451	Construction standard
BD	Application area
SKZ A 676	Certificate number
DIN 4102 B2	Fire resistance classification
SI 958	SI Standard
for domestic hot waste discharge	Pipe application
DD/MM/YY	Production date
HH:MM #XX	Production time and place

Marking of Fittings

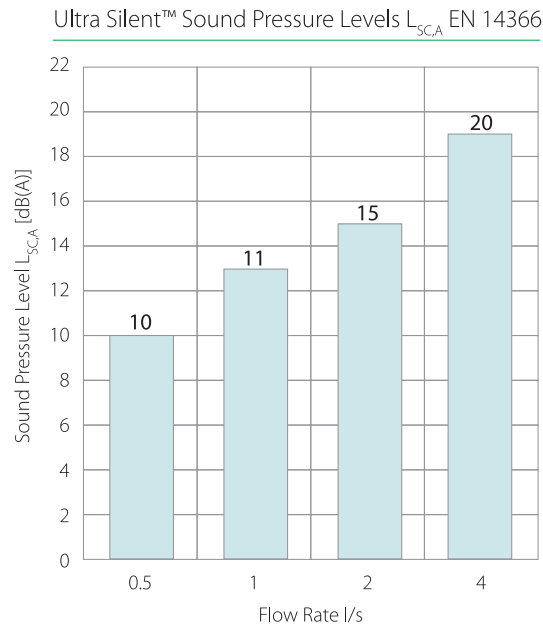


SKZ	Approval
DIN 4102 B2	Fire resistance classification
EN 1451 BD PP-MD S16	construction standard and application area, material, series
DN 110/110/87.5°	Type of product, diameters, angle
ULTRA SILENT	System brand name

Datasheet

Property	Value	Test Method
System Brand Name	Ultra Silent™	
Application	Soil and waste discharge systems (low and high temperatures) within the building structure (application area code "B") as well as buried in the ground (application area "BD"); construction of ventilation, rainwater and drainage systems inside the building structure (application area code "B")	
Pipe Material	Co-polymer PP for the external (black) and the internal (white) layers. Compound of PP and PP-MD for the middle (white) layer.	
Fitting Material	PP and PP-MD	
Connection	Push-fit sockets with elastomer rubber seals	
Seal Material	SBR-NR, NBR, EPDM	
Colour	Black	
Diameter	32-200 mm	
Density	Pipes: 1.3-1.4 g/cm ³ Fittings: 1.18-1.25 g/cm ³	
Elasticity Modulus	2.300 - 3.000 N/mm ²	ISO 178
Elongation	0,09 mm/m • C°	
Ring Stiffness	SN6> (6.0 kN/m ²)	ISO 9969
Halogen & Cadmium Content	Free of halogen or cadmium	
Chemical Resistance	Discharge media between pH 2 and pH 12	DIN 8078
Minimum Working Temperature	-25°C	
Waste Water Temp. (Max.)	+95° (continuous) +98° (discontinuous)	
Fire Resistance	D-s2, d2 B2	EN 13501-1 DIN 4102-1
UV Resistance	Suitable for external installation when protected from exposure to direct sunlight (for instance, by means of special UV protective coating); can be stored outside up to two years	
Acoustic Performance	L _{sc,A} = 15 dB(A) at 2l/s, measured at ground level behind installation wall, with two Hurliot acoustic clamps per floor	EN 14366
Construction Standard	HR 3.43, EN 14759, UNE EN 1451-1, IS 958	

Acoustic Performance



Sound level diagram resulting from Fraunhofer Test P-BA 20/2019e, according to EN 14366. The test was conducted using Hulirot acoustic clamp.

Ultra Silent™ - Fraunhofer Test Report

Institution for testing, supervision and certification, officially recognized by the building supervisory authority. Approvals of new building materials, components and types of construction.

Director:
Prof. Dr. Philip Leistner
Prof. Dr. Klaus Peter Sedbauer

Test Report P-BA 20/2019e

Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory according to EN 14366

Client: HULIOT (A.C.S) LTD, Kibbutz Sde Nehemia, D.N. Galil Elyon 12145 ISRAEL

Test object: Wastewater system "ULTRA SILENT, DN 110x3.4, PP ML MD - S16, 16/11/18" (manufacturer: HULIOT (A.C.S) LTD.). The wastewater system consisted of straight plastic pipes and fittings "ULTRA SILENT, PP-MD S16" and pipe clamps with elastic inlay "Huliot 107-113, new inlay" (manufacturer: HULIOT (A.C.S) LTD.), mounted as sliding and fixing clamps.

Content: Results sheet 1: Summary of test results
 Figures 1 to 3: Detailed results
 Figures 4 and 5: Test set-up
 Annex A: Measurement set-up, noise excitation, acoustic parameters
 Annex F: Evaluation of measurements
 Annex P: Description of the test facility
 Annex V: Assessment according to VDI 4100

Test date: The measurement was carried out on February 12, 2019 in the test facilities of the Fraunhofer Institute for Building Physics in Stuttgart.

Stuttgart, April 15, 2019
 Responsible Test Engineer:
 Head of Laboratory:

Dipl.-Ing. (FH) J. Mohr M.BP. Dipl.-Ing. (FH) S. Ohler

The test was carried out in a laboratory, accredited according to DIN EN ISO/IEC 17025:2005 by DAkkS. The accreditation certificate is D-PL-11140-11-01.

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 www.prueflaboren-ibp.fraunhofer.de/de/akkreditierte-prueflabore.html

Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory according to EN 14366 P-BA 20/2019e
 Results sheet 1

Client: HULIOT (A.C.S) LTD, Kibbutz Sde Nehemia, D.N. Galil Elyon 12145, ISRAEL

Test specimen: Wastewater system "ULTRA SILENT, DN 110x3.4, PP ML MD - S16, 16/11/18" (manufacturer: HULIOT (A.C.S) LTD.). The wastewater system consisted of straight plastic pipes and fittings "ULTRA SILENT, PP-MD S16" and pipe clamps with elastic inlay "Huliot 107-113, new inlay" (manufacturer: HULIOT (A.C.S) LTD.), mounted as sliding and fixing clamps. Test object no.: 11359-01; see figure 4 and 5.

Test set-up:

- The pipe system was mounted according to figure 4 (see also Annex A).
- The system consisted of wastewater pipes (nominal size OD 110), three inlet tees (curved, 88°), two 45°-basement bends and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by lids supplied by the manufacturer.
- Pipe system: "ULTRA SILENT, DN 110x3.4, PP ML MD - S16, 16/11/18": Three-layer pipes: Material PP ML MD. Wall thickness 3.4 mm, weight 1.32 kg/m, density 1.15 g/cm³, values measured by IBP. One-layer fittings: Material PP-MD, wall thickness 3.6 mm, density 1.24 g/cm³, values measured by IBP. Plug connection of the pipes and fittings (shaped pipe sockets).
- Pipe clamps: Steel pipe clamp with new elastomer inlay and with one-sided closure, "HULIOT 107-113" (manufacturer: HULIOT), mounted as sliding and fixing clamps. In every storey (EG and UG) two pipe clamps were installed. In the upper wall area one clamp was mounted as a sliding clamp with 2 black spacers (15 mm) on one side of the clamp. In the lower wall area one clamp was mounted as a fixing clamp with 1 yellow spacer (5 mm) on one side of the clamp. The clamps were fixed to the installation wall with dowels and threaded rods (figure 5).

 The wastewater installation system was mounted by a technician under the authority of Fraunhofer IBP.

Test facility: Installation test facility P12, mass per unit area of the installation wall: 220 kg/m², mass per unit area of the ceiling: 440 kg/m². Installation rooms: sub-basement (KG), basement (UG) front, ground floor (EG) front and top floor (DG), measuring rooms: UG front, UG rear (details in Annex P and EN 14366: 2005-02).

Test method: The measurements were performed according to EN 14366:2005-02; noise excitation by steady water flow with 0.5 l/s, 1.0 l/s, 2.0 l/s and 4.0 l/s. Additional evaluation for comparison with requirements following German standards DIN 4109:2018-01 and VDI 4100:2012-10 (details in Annexes A, F and V).

Result:

Wastewater system "ULTRA SILENT, DN 110x3.4, PP ML MD - S16, 16/11/18" (manufacturer: HULIOT (A.C.S) LTD.). The wastewater system consisted of straight plastic pipes and fittings "ULTRA SILENT, PP-MD S16" and pipe clamps with elastic inlay "Huliot 107-113, new inlay" (manufacturer: HULIOT (A.C.S) LTD.), mounted as sliding and fixing clamps.	Flow rate [l/s]				
	0.5	1.0	2.0	4.0	
Airborne sound pressure level $L_{p,A}$ [dB(A)] according to EN 14366 for the basement test-room	UG front	43	49	52	54
Structure-borne sound characteristic level $L_{w,s}$ [dB(A)] according to EN 14366 for the basement test-room	UG rear	<10	11	15	20
Installation sound level $L_{w,inst}$ [dB(A)] following DIN 4109 in the basement test-room	UG front	43	49	52	54
	UG rear	<10	15	19	24
Installation sound level $L_{w,inst}$ [dB(A)] following VDI 4100 in the basement test-room	UG front	40	47	49	52
	UG rear	<10	12	16	21

Test date: February 12, 2019

Notes:

- For comparing test results with requirements see Annex A.
- Sound levels below 10 dB(A) are not mentioned in the official test report, since they are subject to an increased measurement uncertainty and moreover are not noticeable in a normal living environment.

The test was carried out in a laboratory, accredited according to DIN EN ISO/IEC 17025:2005 by DAkkS. The accreditation certificate is D-PL-11140-11-01.

Stuttgart, April 15, 2019
 Head of Laboratory:



Product Approvals and Certificates



ZERTIFIKAT **SKZ**


Certificate

SKZ - Testing GmbH awards the following company:

HULIOT A.C.S. Ltd.
Kibbutz Sde Nehemia
12145 D.N. GALIL ELYON
ISRAEL

Production site: HULIOT A.C.S. Ltd., IL-12145 D.N. GALIL ELYON

the right to use the SKZ testing and inspection mark



A 624

for the following plastic products

Waste water pipes made of polypropylene PP/PP-MD/PP and fittings made of polypropylene PP-MD within the building structure, group 1 and 2


Trade name: **ULTRA SILENT**

SKZ Specification for Tests and Inspection **HR 3.43**

Users of the SKZ mark are obliged to observe the required regulations for the production and testing of these products.

Date of initial certification: 20 February 2017

Date of expiry: 13 December 2022



Würzburg, 14 December 2017

The original language of this certificate is German. In case of doubt, the German version is obligatory.

ZERTIFIKAT **SKZ**

SKZ - Testing GmbH awards the following company:

HULIOT D.O.O.
Vrhniška cesta 3D
1354 HORJUL
SLOVENIA

Production site: HULIOT D.O.O., SI-1354 HORJUL

the right to use the SKZ testing and inspection mark



A 676

for the following plastic products

Waste water pipes made of PP with mineral filling within the building structure, group 1 and 2

Trade name: **ULTRA SILENT**

SKZ Specification for tests and inspection **HR 3.43:2016-14**

Users of the SKZ mark are obliged to observe the required regulations for the production and testing of these products.

Date of initial certification: 28 April 2016

Date of expiry: 27 April 2020



Würzburg, 28 April 2016

The original language of this certificate is German. In case of doubt, the German version is obligatory.

Deutsches Institut für Bautechnik **DIBt**

Allgemeine bauaufsichtliche Zulassung

Zulassungsbüro für Bauprodukte und Bauteile
Deutsches Institut für Bautechnik
Eine vom Bund und den Ländern gemeinsam getragene Anstalt des öffentlichen Rechts
Mitglied der EDTA, der UEAC und der WFATG

Datum: 20.09.2018
Geschäftszeichen: III 55-1.42-1-22/18


Zulassungsnummer: **Z-42.1-556**

Geltungsdauer
vom: 20. September 2018
bis: 17. Oktober 2022

Antragsteller:
Huliot A.C.S. Ltd.
Kibbutz Sde Nehemia
1214500 UPPER GALILEE
ISRAEL

Zulassunggegenstand:
Rohre und Formstücke aus PP-MD für Abwasserleitungen innerhalb der Gebäudestruktur mit der Bezeichnung "Ultra Silent"

Der oben genannte Zulassunggegenstand wird hiermit allgemein bauaufsichtlich zugelassen. Dieser Bescheid umfasst acht Seiten und zwölf Anlagen.
Diese allgemeine bauaufsichtliche Zulassung ersetzt die allgemeine bauaufsichtliche Zulassung Nr. Z-42.1-556 vom 14. Oktober 2017.



DIBt | Kolonnenstraße 30 B | D-10229 Berlin | Tel.: +49 30 78730-0 | Fax: +49 30 78730-320 | E-Mail: dibt@dibt.de | www.dibt.de

IBS - INSTITUT FÜR BRANDSCHUTZTECHNIK UND SICHERHEITSFORSCHUNG
GEGENSBART N. B. H.

Classification of Reaction to Fire Performance

Report on classification of the burning behaviour of the building product "Huliot Ultra Silent"

Report no.: 12112/03A
Date: 27.05.2013
Official in charge: H. Agnes-Pro DD 516

Applicant/manufacturer: Huliot
Kibbutz Sde Nehemia
IL-12145 D.N. Galil Elyon


Date of application: 01.02.2013

Specimen of classification: Plastic piping system "Huliot Ultra Silent"

Short evaluation: In accordance with EN 13501-1:2009 the above mentioned building product is ranked into the European Class **D - s2, d2** because of its fire behaviour. The classification of reaction to fire and the therefore valid practical range of application is obvious by the representational classification report.

This report contains: 5 text pages

The publisher of this classification report is authorized in any volume with written authorization from IBS.



Installation of the Ultra Silent™ System

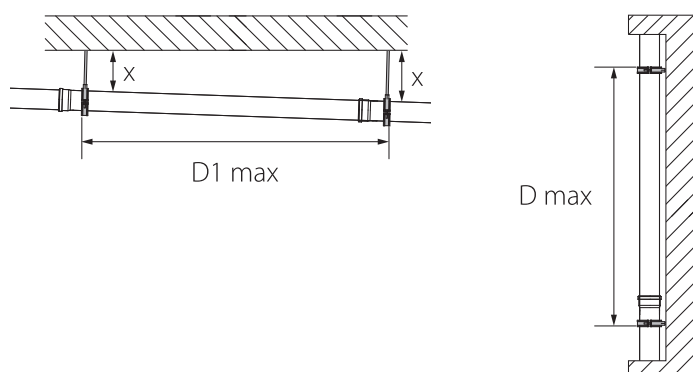
1.1 | Pipe preparation and assembly

- Pipes are produced in various lengths with one or two sockets and with plain pre-beveled ends. If cutting to length is needed, use only proper cutting tools for plastic pipes (manual or mechanical) and bevel the cut pipe end with an angle of approximately 15° with bevel length of about 5 mm
- Remove chips, shavings and sawdust before installing
- Check the position and integrity of the lip seal in the socket gasket slot. Clean the seal and the socket and apply a thin layer of lubricant around the plain pipe end
- Fittings should be inserted to maximum socket depth whereas pipes, after being pushed completely into the socket, have to be pulled back of approximately 10 mm
- For anchoring Ultra Silent™ system to walls and ceiling use steel brackets with rubber inserts approved for acoustic insulation systems
- Horizontal pipes should be installed with a slope of 1 to 5%. Unless differently prescribed by specific country regulation a 2% slope is a good compromise between a good flow and the space needed for the installation
- As a general rule straight lengths of pipe must be anchored by mean of fixed point brackets under each socket while the rest of the pipework and the fittings will be supported by sliding point brackets
- The Maximum distances between the brackets for horizontal and vertical installation are shown in the below table

Hanging distances

Pipe DN (External diameter)	Max. bracket distance for Horizontal installation - D1 max	Max. bracket distance for Vertical installation - D max
Ø 50	0.80	1.50
Ø 75	1.10	2.00
Ø 90	1.40	2.00
Ø 110	1.65	2.00
Ø 125	1.85	2.00
Ø 160	2.40	2.00
Ø 200	2.40	2.00

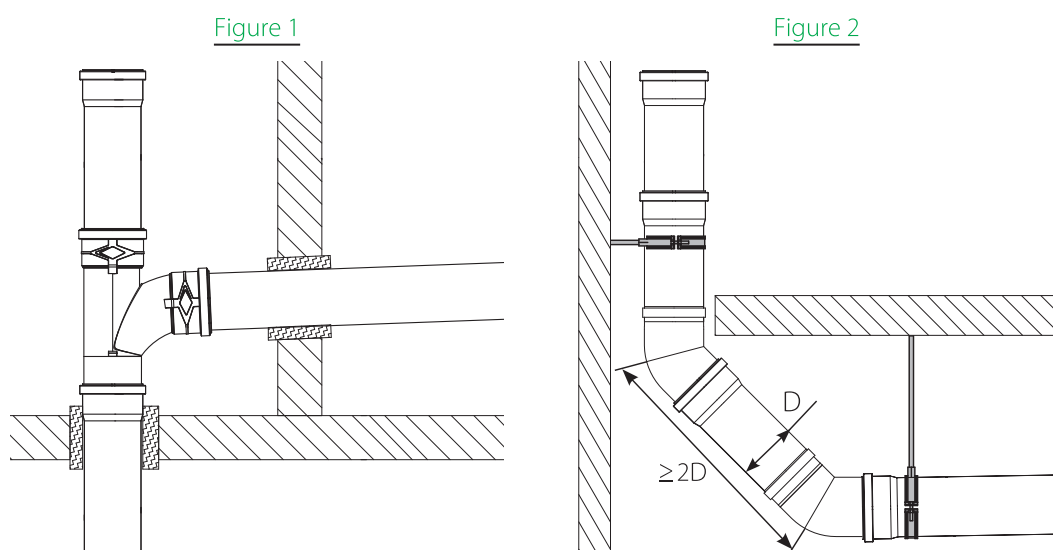
Pipe DN (External diameter)	Hanging distance from the ceiling (X)	Ceiling Rod diameter
110, 125, 160, 200	Up to 0.7 meters	3/8"
	Over 0.7 meters Up to 2.5 meters	1/2"
	Over 2.5 meters	3/4"



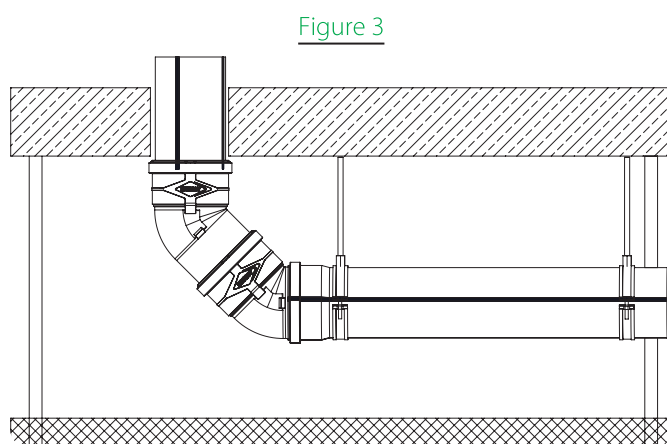
Installation of the Ultra Silent™ System

1.2 | Installation through ceilings, floors and walls

- It is important in acoustic insulated systems to avoid contact between system components and rigid elements, such as walls, ceilings, floors etc., in order to prevent structure-borne noise transmission.
- For pipes traversing walls and ceilings, a space of at least 30 mm should be maintained between the pipe and any rigid material.
- If the spaces around the pipes traversing walls and floors must be filled, use only soft construction materials such as foam or glass fiber (Figure 1).
- In case of pipes traversing floors where protection against humidity is needed we recommend to use Huliot Ultraseal (see description in following pages).
- For improved hydraulic flow and reduced noise, 87° bends are not recommended to be used for changing flow direction from vertical to horizontal. It is preferable to use two 45° bends, with 2D minimum length of connecting pipe between them (Figure 2).



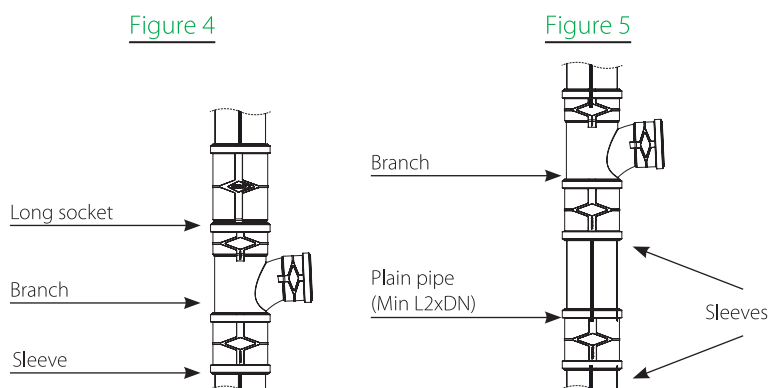
- When installing pipes in open spaces (such as basements, parking garages etc.), above suspended ceilings or behind screen walls, prevent any contact of other material (such as suspended ceiling, electrical, water, ventilation and air conditioning systems etc.) with the pipes (Figure 3).



Installation of the Ultra Silent™ System

1.3 | Repairs and installation

- To add a branch (USEA) to an existing pipe with long socket (USTL) and sleeve (USU), insert the long socket plain end into the branch socket, cut the equivalent of the socket length from the existing pipe piece. Insert the long socket into the upper pipe all the way. Fix the sleeve on the lower pipe and slide the branch and long socket down into the sleeve (Figure 4). An alternative possibility is to use two sleeves and plain pipe (the minimum plain pipe length must be more than double that of the external pipe diameter DN, as in Figure 5).
- To fix punctured or damaged pipe, the same methods can apply with one socket pipe (USEM) instead of the branch and for adding inspection pipe (USRE) or double branch (USDA).



Transportation, handling and storage

It is recommended to handle the pipes and fittings in their original sales packaging to protect them and prevent damage during loading and transporting.

Load and transport pipes in straight, horizontal position with the full length supported (note that the sockets are unencumbered all around), avoid extreme pressure on the pipes (straps or other heavy materials).

Unload and handle pipes carefully and lay them in a straight, horizontal position (pay attention to positioning of the sockets), on a smooth surface (Figure 6, Figure 7).

Figure 6

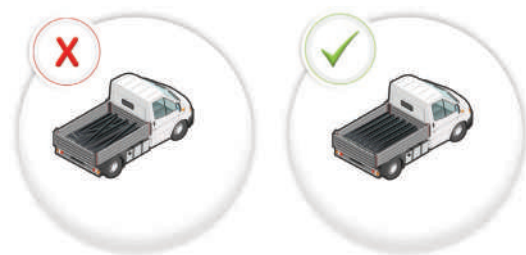


Figure 7



Some sizes of pipes and all fittings are packed in carton boxes. Protect them from rain and moisture and store them in a dry place. It is recommended to store the pipes and fittings in their original sales packaging to protect them from damages.

Ultra Silent™ pipes are UV protected and can be stored outdoor for up to 3 years (depending on geographical location). The gasket material can withstand outdoor storage for up to 3 years and after this period must be replaced before installing.

When using mechanical tools and machines (forklifts, cranes etc.) extra caution should be taken to prevent damages to the products. Optical defects (external scratches and pigment changes etc.) have no influence on the quality and/or functionality of the system.

ACOUSTICCLAMP™

New! Huliot Acoustic Clamp for perfect Ultra Silent™ installation

- Structured rubber profile with hollow sections for maximal pipe grip and minimal vibration intensity passed to the constructive elements
- Easy and simple clamp fastening by a single screw on only one side
- EPDM rubber body with air ducts for vibration prevention
- Rubber softness level: 25 ± 5 shore



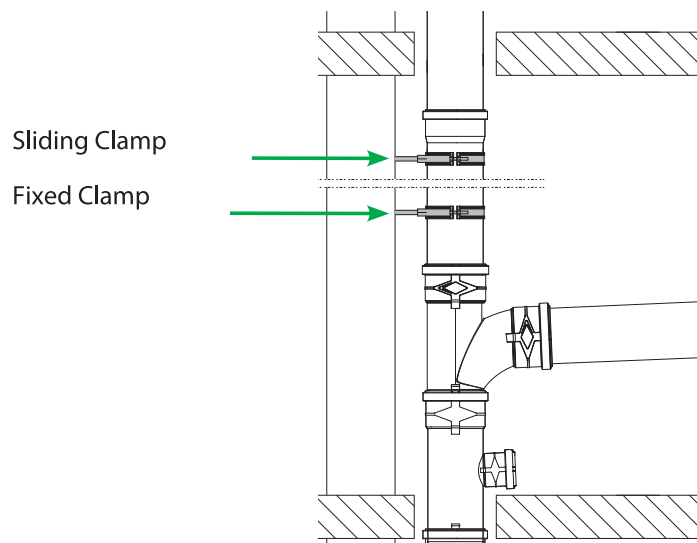
Acoustic Clamp™ Assembly instructions

- Use Huliot acoustic clamps or equivalent products only
- It is advisable to install the clamps on external walls only. Installation on interior walls will adversely affect acoustic performance
- It is recommended to install the clamps around the head of the connection for a better grip

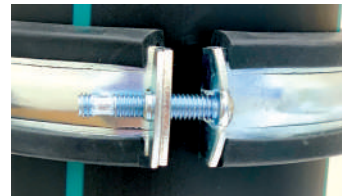
For vertical wall mounting, two Huliot Ultra Silent™ clamps should be assembled on every floor:

Fixed Clamp: The first of the two clamps should be installed at the lower third of the floor height of each floor, just below the pipe or fitting socket, and must be fully tightened.

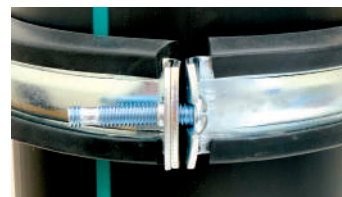
Sliding Clamp: Should be mounted at the upper third of the floor height of each floor. The clamp should lightly press the pipe against the rubber rather than be closed tightly, to reduce the vibration intensity passed to the constructive elements.



Upper sliding clamp tightening level



Lower Fixed clamp tightening level



PRESSURECLAMP™

Pressure Clamp™ connector for perfect ULTRA SILENT™ installation

- Pressure resistance up to 6 BAR
- Retrieval prevention

Pressure Clamp™ Applications

- Parking lot ceilings
- Exposed rainwater pipes
- Blind pipes for sewage drainage



ENDLOCK™

Pressure end cap for sealing pipeline end

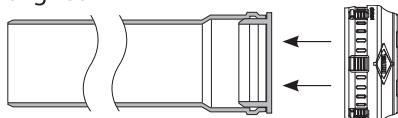
End Lock™ Assembly instructions

- Connect the end cap to the pipe or fitting opening to be plugged
Ensure the presence of a gasket on the pipe or fitting to which the end cap is to be connected

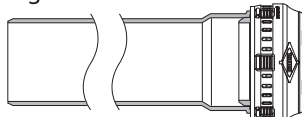


Connect the Endlock™ connector to the pipe or fitting end cap (Article 1)

- Make sure the clips are in place and that the Endlock™ is properly aligned



- Tighten the metal band



New upgraded and shortened Lock Seal™, for easy and simple installation.

Lock Seal™ Applications

When Installing pipes in concrete the use of Lock Seal™ :

- Protects the push-fit connections against vibrations generated during concrete pouring
- Protects the push-fit connections against lift forces generated during concrete drying
- Prevents the concrete slurry from infiltrating to the gasket and interfering with proper sealing



Lock Seal™ Advantages

- Easy and fast assembly
- Increased safety
- Tool-free installation

Lock Seal™ Assembly instructions



- 1**
- Assemble the narrow part of the Lock Seal™ socket to the extremity of the pipe or the socket



- * To facilitate the assembly, it is recommended to use Huliot's pipe lubricant.



- 2**
- Insert the plain end of the fitting or pipe into the socket (normal push-fit connection method)



- 3**
- Slide down the Lock Seal™ until it is properly aligned and the clips settle down in the socket to complete the installation



- * For disassembly, open the clips to pull the Lock Seal™ off

Lockseal™ is designed for use with PP pipes resilient to hydrostatic pressure and with annular strength suitable for concrete casting.

Ultra Seal™ System

Ultraseal provides the ideal solution for preventing the structure-borne noise created between wastewater pipes and solid construction.

Ultraseal prevents moisture transition between floors at the pipe borehole.

Ultraseal integrates a thin, highly flexible, waterproof geotextile membrane for perfect adherence to sealants and bituminous cement.



Ultra Seal™ Advantages

- Strong elastic gasket
- Fast, simple assembly
- No special tools or equipment required
- Elastic, flexible, durable
- Geotextile membrane meets European standards for wet rooms

Ultra Seal™ Assembly instructions



1

Assembled on the pipe and placed in the pipe borehole



3

Second insulating layer



2

Initial insulating layer (primer)



4

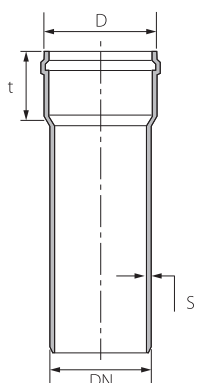
Final insulating layer



5

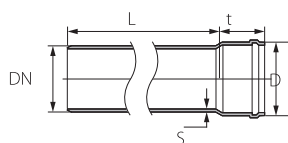
Filling and coating layer



Pipes



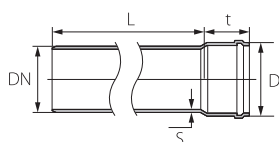
DN	D	S	t	S Class
32	45	1.8	42	S16
40	55	1.8	44	S16
50	65	1.8	46	S16
75	90	2.3	49	S16
90	107	2.8	54	S16
110	130	3.4	65	S16
125	149	3.9	72	S16
160	186	4.9	75	S16
200	228	6.2	108	S16



US Single Socket Pipe



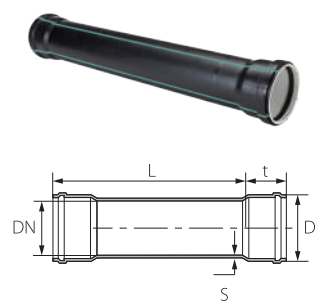
Code	DN	L	D	S	t		
5753200015	32	150	45	1.8	42	20	1440
5753200025	32	250	45	1.8	42	20	960
5753200050	32	500	45	1.8	42	20	480
5753200100	32	1000	45	1.8	42	15	300
5753200150	32	1500	45	1.8	42	15	300
5753200200	32	2000	45	1.8	42	15	300
5753200300	32	3000	45	1.8	42	15	300
5754000015	40	150	55	1.8	44	20	1440
5754000025	40	250	55	1.8	44	20	960
5754000050	40	500	55	1.8	44	20	480
5754000100	40	1000	55	1.8	44	15	420
5754000150	40	1500	55	1.8	44	15	420
5754000200	40	2000	55	1.8	44	15	420
5754000300	40	3000	55	1.8	44	15	420
5755000015	50	150	65	1.8	46	20	960
5755000025	50	250	65	1.8	46	20	540
5755000050	50	500	65	1.8	46	20	400
5755000100	50	1000	65	1.8	46	15	270
5755000150	50	1500	65	1.8	46	15	270
5755000200	50	2000	65	1.8	46	15	270
5755000300	50	3000	65	1.8	46	15	270



US Single Socket Pipe



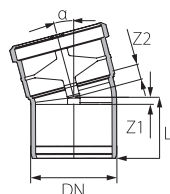
Code	DN	L	D	S	t		
5757500015	75	150	90	2.3	49	20	360
5757500025	75	250	90	2.3	49	20	240
5757500050	75	500	90	2.3	49	20	160
5757500100	75	1000	90	2.3	49	10	120
5757500150	75	1500	90	2.3	49	10	120
5757500200	75	2000	90	2.3	49	10	120
5757500300	75	3000	90	2.3	49	10	120
5759000015	90	150	107	2.8	54	20	240
5759000025	90	250	107	2.8	54	20	160
5759000050	90	500	107	2.8	54	10	120
5759000100	90	1000	107	2.8	54	10	100
5759000150	90	1500	107	2.8	54	10	100
5759000200	90	2000	107	2.8	54	10	100
5759000300	90	3000	107	2.8	54	10	100
5751100015	110	150	130	3.4	65	20	180
5751100025	110	250	130	3.4	65	20	180
5751100050	110	500	130	3.4	65	10	80
5751100100	110	1000	130	3.4	65	10	80
5751100150	110	1500	130	3.4	65	10	80
5751100200	110	2000	130	3.4	65	10	80
5751100300	110	3000	130	3.4	65	10	80
5751200015	125	150	149	3.9	72	10	120
5751200025	125	250	149	3.9	72	6	108
5751200050	125	500	149	3.9	72	6	72
5751200100	125	1000	149	3.9	72	8	80
5751200150	125	1500	149	3.9	72	8	80
5751200200	125	2000	149	3.9	72	8	80
5751200300	125	3000	149	3.9	72	8	80
5751600015	160	150	186	4.9	75	8	96
5751600025	160	250	186	4.9	75	8	48
5751600050	160	500	186	4.9	75	8	32
5751600100	160	1000	186	4.9	75	6	24
5751600150	160	1500	186	4.9	75	6	24
5751600200	160	2000	186	4.9	75	6	24
5751600300	160	3000	186	4.9	75	6	24
5752000100	200	1000	228	6.2	108	1	16
5752000300	200	3000	228	6.2	108	1	16



US Double Socket Pipe



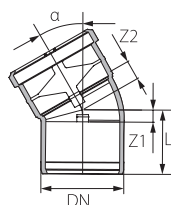
Code	DN	L	D	S	t		
5753232050	32	500	45	1.8	42	20	240
5753232100	32	1000	45	1.8	42	15	300
5753232150	32	1500	45	1.8	42	15	300
5753232200	32	2000	45	1.8	42	15	300
5753232300	32	3000	45	1.8	42	15	300
5754040050	40	500	55	1.8	44	20	240
5754040100	40	1000	55	1.8	44	15	420
5754040150	40	1500	55	1.8	44	15	420
5754040200	40	2000	55	1.8	44	15	420
5754040300	40	3000	55	1.8	44	15	420
5755050050	50	500	65	1.8	46	20	240
5755050100	50	1000	65	1.8	46	15	270
5755050150	50	1500	65	1.8	46	15	270
5755050200	50	2000	65	1.8	46	15	270
5755050300	50	3000	65	1.8	46	15	270
5757575050	75	500	90	2.2	49	20	120
5757575100	75	1000	90	2.2	49	10	120
5757575150	75	1500	90	2.2	49	10	120
5757575200	75	2000	90	2.2	49	10	120
5757575300	75	3000	90	2.2	49	10	120
5759090050	90	500	107	2.8	54	10	90
5759090100	90	1000	107	2.8	54	10	100
5759090150	90	1500	107	2.8	54	10	100
5759090200	90	2000	107	2.8	54	10	100
5759090300	90	3000	107	2.8	54	10	100
5751111050	110	500	130	3.4	65	10	60
5751111100	110	1000	130	3.4	65	10	80
5751111150	110	1500	130	3.4	65	10	80
5751111200	110	2000	130	3.4	65	10	80
5751111300	110	3000	130	3.4	65	10	80
5751212050	125	500	149	3.9	72	6	54
5751212100	125	1000	149	3.9	72	8	80
5751212150	125	1500	149	3.9	72	8	80
5751212200	125	2000	149	3.9	72	8	80
5751212300	125	3000	149	3.9	72	8	80



US Bend 15°



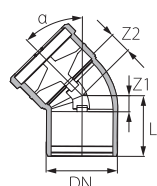
Code	DN	L	Z1	Z2		
7070000170	32	44.5	4	9.0	50	3000
7070010170	40	51.5	4	10.0	40	2400
7070020170	50	56.5	5	11.0	40	1200
7070030170	75	63.5	7	14.0	20	600
7070090170	90	68.0	8	16.0	20	480
7070040170	110	78.0	6	19.0	20	240
7070050170	125	87.0	12	21.9	10	160
7070060170	160	99.0	8	22.0	5	80



US Bend 30°



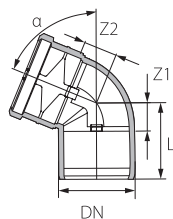
Code	DN	L	Z1	Z2		
7070000370	32	47.5	5	10.0	50	3000
7070010370	40	54.5	7	13.0	40	2400
7070020370	50	59.5	8	14.0	40	1200
7070030370	75	68.5	12	18.0	20	600
7070090370	90	74.0	14	20.5	20	320
7070040370	110	85.0	16	25.5	20	240
7070050370	125	104.0	29	30.0	10	160
7070060370	160	105.0	27	29.0	5	80



US Bend 45°



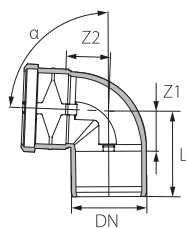
Code	DN	L	Z1	Z2		
7070000470	32	53.0	8	13.0	40	2400
7070010470	40	58.5	11	17.0	40	2400
7070020470	50	64.0	13	19.0	40	1200
7070030470	75	74.5	18	24.0	20	600
7070090470	90	81.0	21	27.5	20	320
7070040470	110	94.0	25	33.5	20	240
7070050470	125	104.0	29	38.0	10	120
7070060470	160	116.0	36	44.0	5	60
7070080470	200	148.0	49	63.0	3	36



US Bend 67.5°



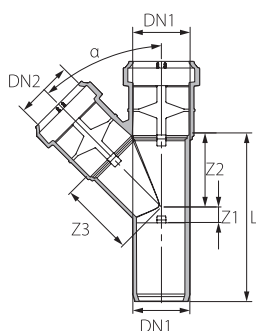
Code	DN	L	Z1	Z2		
7070000670	32	58.0	13	18	40	2400
7070010670	40	65.5	18	24	40	1600
7070020670	50	72.5	21	27	40	1200
7070030670	75	85.5	29	35	20	480
7070090670	90	94.0	34	40	20	320
7070040670	110	110.0	44	48	20	240



US Bend 87.5°



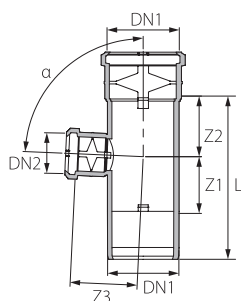
Code	DN	L	Z1	Z2		
7070000870	32	64.0	20.0	24	40	2400
7070010870	40	73.5	26.0	32	40	1600
7070020870	50	79.5	28.5	35	40	1200
7070030870	75	99.5	43.0	49	20	480
7070090870	90	110.0	50.0	56	20	320
7070040870	110	129.0	60.0	66	20	240
7070050870	125	142.0	67.0	73	10	120
7070060870	160	162.0	79.5	81	5	60



US Branch 45°



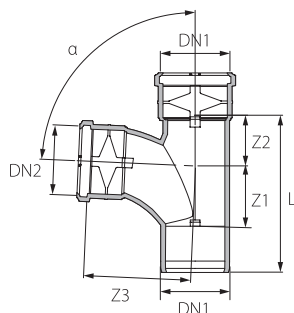
Code	DN1	DN2	Z1	Z2	Z3	L		
7070600470	32	32	9.0	42.0	42.0	95.0	20	1200
7070611470	40	40	11.0	52.0	52.0	111.0	20	800
7070621470	50	40	13.0	64.0	57.0	129.0	20	600
7070622470	50	50	13.0	64.0	64.0	129.0	20	600
7070632470	75	50	18.0	95.0	100.0	170.0	20	320
7070633470	75	75	18.0	95.0	95.0	170.0	20	320
7070691470	90	40	32.5	112.5	92.0	205.0	10	180
7070692470	90	50	32.5	112.5	89.0	205.0	10	180
7070699470	90	90	33.0	113.0	112.5	206.0	10	120
7070641470	110	40	17.0	112.0	96.5	148.5	10	160
7070642470	110	50	17.0	108.0	96.5	148.5	10	160
7070643470	110	75	2.0	121.0	113.5	184.5	10	120
7070649470	110	90	25.0	137.0	143.0	231.0	10	120
7070644470	110	110	25.0	137.0	137.0	231.0	8	96
7070654470	125	110	18.0	145.0	149.0	238.0	8	96
7070655470	125	125	31.0	152.0	152.0	258.0	6	72
7070664470	160	110	39.0	159.0	169.0	284.0	5	60
7070666470	160	160	39.0	194.0	194.0	319.0	3	36
7070686470	200	160	19.0	213.0	224.0	343.0	2	16
7070688470	200	200	25.0	219.0	226.0	399.0	4	16



US Branch 87.5°



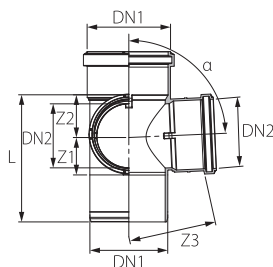
Code	DN1	DN2	Z1	Z2	Z3	L		
7070600870	32	32	9.0	42	40.0	94.0	20	1600
7070611870	40	40	13.0	64	64.0	64.5	20	1200
7070621870	50	40	32.3	31	62.0	112.5	20	600
7070622870	50	50	31.0	30	62.0	112.5	20	600
7070632870	75	50	58.0	55	60.0	170.0	20	320
7070633870	75	75	58.0	55	55.0	114.5	20	320
7070692870	90	50	69.0	76	83.0	205.0	10	180
7070642870	110	50	32.0	65	36.5	137.5	10	160
7070655870	125	125	78.0	73	72.0	225.0	6	72
7070666870	160	160	97.0	87	144.0	276.0	4	48



US Swept Branch 87.5°



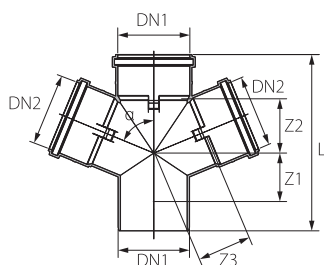
Code	DN1	DN2	Z1	Z2	Z3	L		
7070799870	90	90	79	66	97	205	10	120
7070743870	110	75	82	60	97	211	10	120
7070749870	110	90	82	60	97	211	10	120
7070744870	110	110	82	60	97	211	10	120
7070754870	125	110	100	65	117	240	6	72
7070764870	160	110	96	84	117	266	4	48



US Corner Branch 87.5°



Code	DN1	DN2	Z1	Z2	Z3	L		
7071244870	110	110	82	56	151	207	6	72
7071254870	125	110	58	75	140	207	5	60



US Double Branch 67.5°

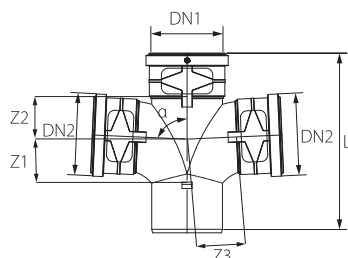


Code	DN1	DN2	Z1	Z2	Z3	L		
7071042670	110	50	17	54	73	207	9	108
7071044670	110	110	51	85	85	272	6	72

US Double Branch 87.5°





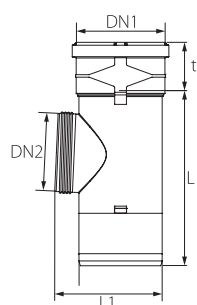
Code	DN1	DN2	Z1	Z2	Z3	L		
7071044870	110	110	82	56	151	207	6	72



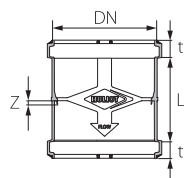
US Inspection Pipe





Code	DN1	DN2	t	L	L1		
7079120070	50	45.0	55	140	65.0	20	800
7079130070	75	45.0	71	140	98.0	20	320
7079190070	90	77.4	58	200	129.0	10	180
7079140070	110	97.0	64	231	140.0	10	120
7079150070	125	97.0	73	222	164.8	8	96
7079160070	160	97.0	85	236	198.4	6	72
7079180070	200	97.0	93	343	231.0	2	24

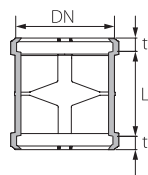




US Double Socket



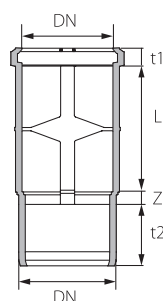
Code	DN	t	L	Z		
7071700270	32	14.3	56.6	2.0	50	4000
7071710270	40	14.0	60.0	2.0	30	1800
7071720275	50	16.0	64.0	4.0	20	1200
7071730275	75	16.4	73.0	6.0	20	800
7071790270	90	14.0	85.0	1.4	20	480
7071740275	110	17.0	97.0	9.0	20	320
7071750275	125	17.0	118.6	10.4	10	160
7071760275	160	23.0	119.0	10.6	12	144
7071780275	200	28.3	192.2	5.8	2	48



US Sleeve



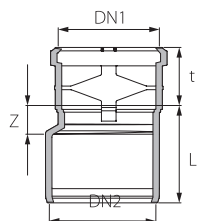
Code	DN	t	L		
7071700070	32	14.3	56.6	50	4000
7071710070	40	14.0	60.0	30	1800
7071720070	50	14.0	68.0	20	1200
7071730070	75	14.0	77.0	20	800
7071790070	90	14.0	85.0	20	480
7071740070	110	17.0	97.0	20	320
7071750070	125	16.8	118.6	10	160
7071760070	160	17.0	131.0	12	144
7071780070	200	28.3	192.2	2	48



US Long Socket



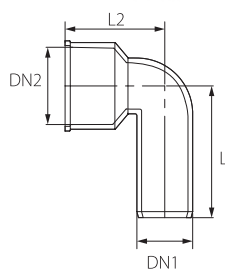
Code	DN	t1	t2	L	Z		
7072210070	40	14.1	47.55	81.26	4.74	30	1800
7072220070	50	14.1	51.55	101.00	6.74	20	800
7072230070	75	14.1	56.58	114.97	9.45	20	360
7072290070	90	14.1	60.00	133.90	13.10	20	320
7072240070	110	16.6	69.41	144.46	14.12	15	180
7072250070	125	19.1	75.00	188.94	15.63	12	144
7072260070	160	23.1	86.00	204.81	20.60	6	72



US Reducer



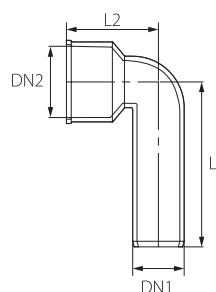
Code	DN1	DN2	L	t	Z		
7072110070	32	40	48.0	42.0	14	30	1800
7072120070	32	50	65.0	42.0	15	30	1800
7072121070	40	50	64.0	42.0	15	30	1800
7072191070	40	90	93.0	47.0	35	20	800
7072141070	40	110	122.5	43.0	51	20	480
7072132070	50	75	85.0	47.0	26	20	1200
7072192070	50	90	97.0	47.0	34	20	800
7072142070	50	110	118.0	47.0	46	20	480
7072193070	75	90	86.0	51.5	24	20	600
7072143070	75	110	106.0	52.0	34	20	360
7072149070	90	110	101.0	55.0	29	20	360
7072154070	110	125	106.0	64.0	29	10	240
7072164070	110	160	137.0	64.0	84	10	120
7072165070	125	160	140.0	55.0	74	12	144
7072186070	160	200	153.0	80.0	54	6	96



US Technical Bend / Siphon Connector



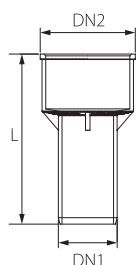
Code	DN1	DN2	L1	L2		
7074010970	32	46	76	58	40	2400
7074021970	40	50	82	56	20	1200
7074011970	40	46	76	56	20	1200
7074022970	50	50	82	60	20	1200



US Long Technical Bend / Siphon Connector



Code	DN1	DN2	L1	L2		
7074021971	40	50	140	56	20	1200
7074011971	40	46	140	57	20	1200



US Straight Fitting / Siphon Connector



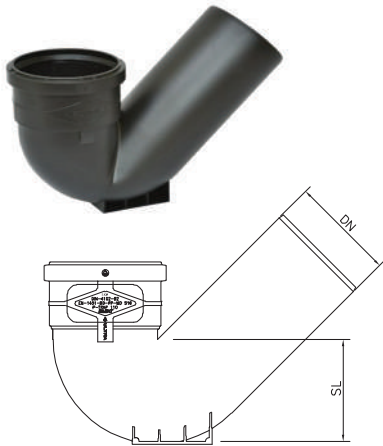
Code	DN1	DN2	L		
7141760070	32	46	93	40	2400
7141761070	40	46	93	40	2400
7141721070	40	50	93	40	2400

Rubber Gasket for US, USSW, USSWL



Code	DN	DN2		
T047T000000000	26/32	46	500	-
T046T000000000	40	46	1000	-
T050T000000032	26/32	50	500	-
T050T000000040	40	50	500	-

P - Trap With Risers



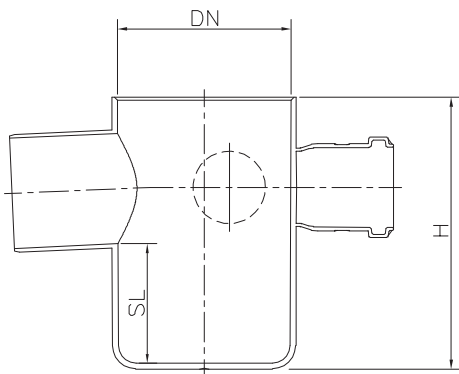
Code	Item Description	DN1	SL
49540750	P Trap	110	107
7071042877	DB Hopper	110x50x50	-
7071242877	Corner Hopper	110x50x50	-



Multi Trap With Risers And Gratings



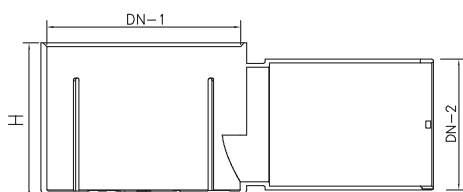
Code	Item Description	DN1	SL	H
69011750	Multitrap	110	76	173
69201551	Height Riser	110	-	150
69203551	Height Riser	110	-	350



Nahani Trap With Gratings

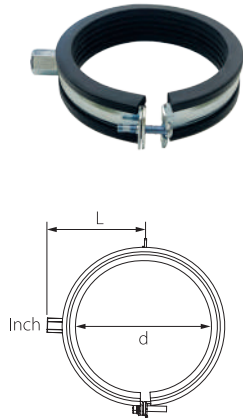


Code	Item Description	DN1	DN2	H
69111750	Nahani Trap	110	75	88



Accessories



Acoustic Clamp



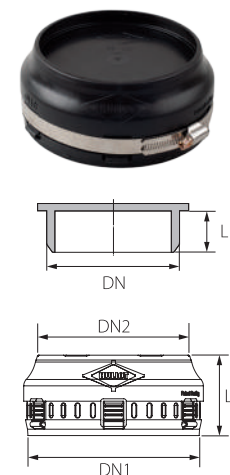
Art-Nr.	DN	M	Strip Size	Rubber Sleeve	Max Load (Kg)
7890004071	40	M8/M10	2x24	5 Ply EPDM	500
7890005071	50	M8/M10	2x24	5 Ply EPDM	500
7890007571	75	M8/M10	2x24	5 Ply EPDM	700
7890011071	110	M8/M10	2x24	5 Ply EPDM	700
7890012571	125	M8/M10	2x24	5 Ply EPDM	700
7890016071	160	M8/M10	2x24	5 Ply EPDM	700
7890020071	200	M8/M10	2x24	5 Ply EPDM	700



Lock Seal™



Code	DN	DN1	DN2	L		
7072330000	75	91.5	79.8	59.0	48	1152
7072340000	110	130.0	112.0	63.0	30	480
7072350000	125	149.0	126.6	94.0	18	288
7072360000	160	186.5	162.0	99.7	10	240
7072380000	200	233.5	210.0	114.0	5	90

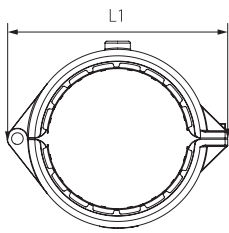
End Lock™





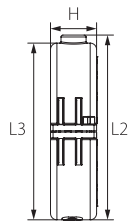
Code	DN	DN1	DN2	L	L1		
7078004000	110	130.0	112.0	63.0	62	30	480
7078005000	125	149.0	126.6	94.0	75	12	192
7078006000	160	186.5	162.0	99.7	86	12	192
7078008000	200	233.5	210.0	114.0	57	4	40

Accessories

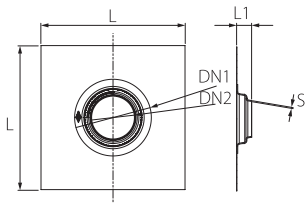
Pressure Clamp™





Code	DN	L1	L2	L3	H		
7073540070	110	170	144.28	138	36	20	800





Ultra Seal™



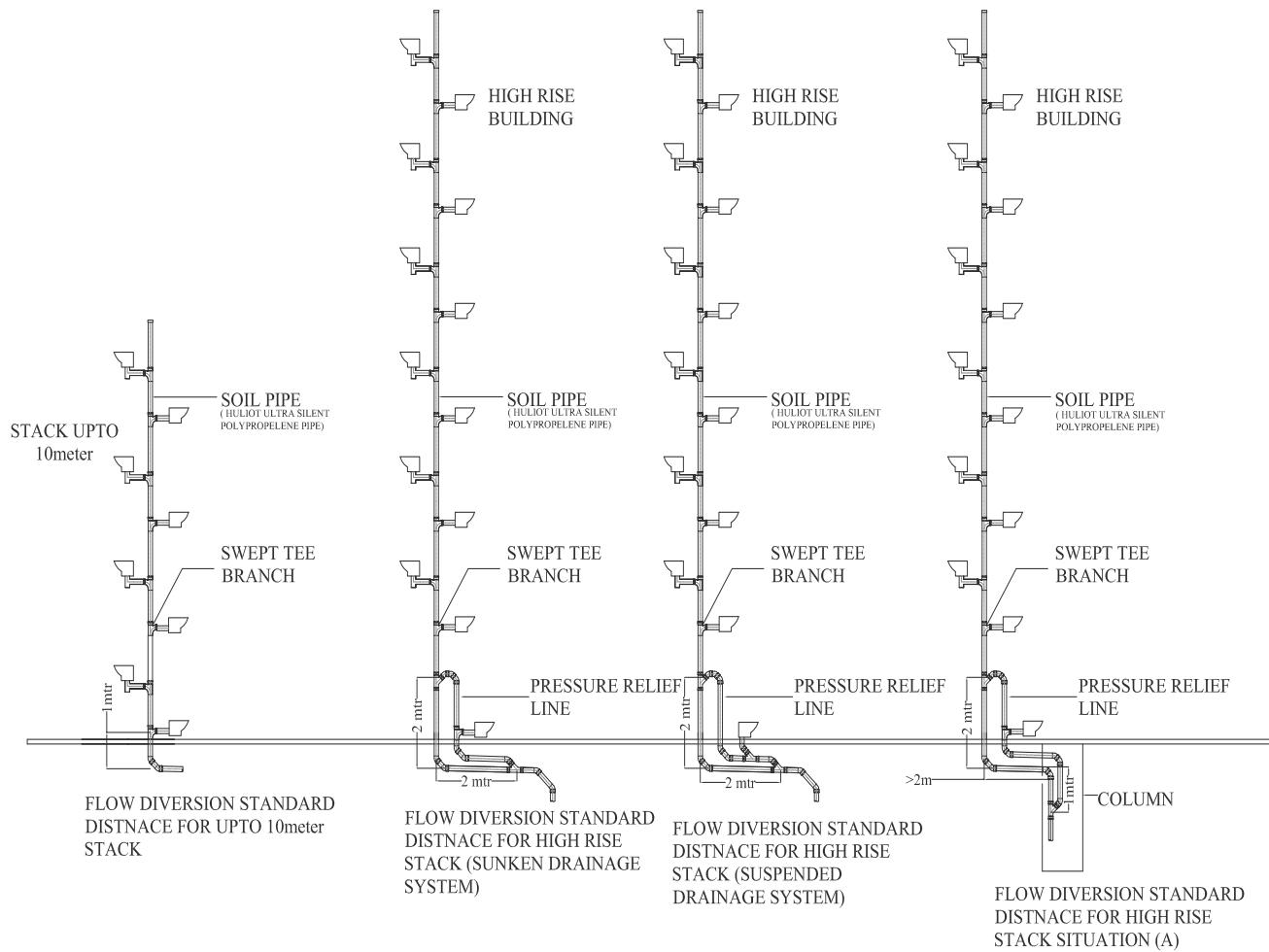
Code	DN	DN1	DN2	L	S	L1		
7981100000	110	220	102	340	3	52	30	480
7981250000	125	239	121	500	3	52	20	320
7981600000	160	266	149	500	3	52	20	320

Lubricant



Code	ml		
47700012	250	50	-
47700013	1000	12	1728

Huliot Ultra Silent PP Drainage Solution



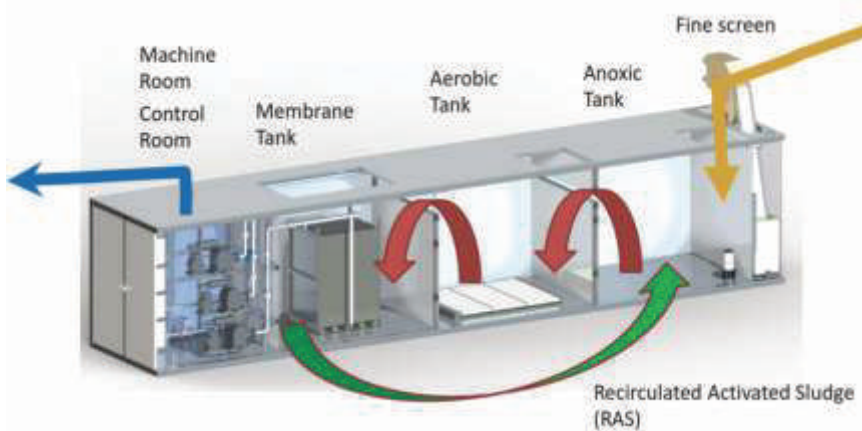
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