Acoustic Soundproof Drainage System
Acoustic Soundproof Drainage System

National Plastics produces a range of acoustic pipes suitable for above ground drainage systems that have been certified by the German Fraunhofer Institute IBP according to EN 14366.

The pipes are made from a special acoustic grade virgin uPVC material and consist of sizes from 40mm (1 1/4") upto 160mm (6"). Larger sizes are available on request. The pipes are metric/ISO dimensions (See Table 1) and fully compatible with the “Redi” Phono Line range of acoustic fittings. The drain pipes meet and exceed all the performance requirements of EN1329 (UPVC above ground drainage systems).

Table 1
UPVC Acoustic Pipes Drainage System
EN 14366, DIN 4109, ISO Dimensions

<table>
<thead>
<tr>
<th>Nominal Outside Diameter mm</th>
<th>Nominal (min) Wall Thickness mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>3.0</td>
</tr>
<tr>
<td>50</td>
<td>3.0</td>
</tr>
<tr>
<td>75</td>
<td>4.0</td>
</tr>
<tr>
<td>90</td>
<td>4.5</td>
</tr>
<tr>
<td>110</td>
<td>5.0</td>
</tr>
<tr>
<td>125</td>
<td>5.0</td>
</tr>
<tr>
<td>160</td>
<td>5.5</td>
</tr>
</tbody>
</table>

N.B. Pipes can be supplied in 3m or 6m lengths.

Sockets Solvent Weld or Rubber Ring from 75mm. Larger sizes available on request.

Pipes fully compatible with “Redi” phono line fittings.

Product Description
- Soundproof pipes and fittings for residential, commercial, drainage metric dimensions
- Thermoplastic mineral-reinforced material
- Ring jointed sockets fitted with certified elastomeric liprings
- 3 or 6 meters long pipes packed in wood frames and protected by film
- Other lengths available
- Pipe support: phonoline sound performances require noise-insulating support available from National Plastic.
- Certified by Fraunhofer IBP, Germany

Technical Data
- Density: 1.75 g/cm3
- Fire resistance: not flammable item complying to Class M1 NF P 92501
- Coefficient of thermal linear expansion: 0.04mm/m x °C
- Colour: RAL 9002 pearl white
- Lip rings certified EN681

Available Diameters
- 40-50-75-90-100-110-125-160

Installation
- Pipes and fittings cutting, chamfering, cleaning, pipes and jointing must be executed in full compliance with National Plastic instructions

General Features of the System
- Algae and Bacteria-proof
- Abrasion Proof
- Electrically Insulated
- Extremely High Internal Smoothness
- Shock Resistant
- Corrosion Resistant
- Unflammable M1
- Meet and Exceeds EN 1329
- Noise less than 35 dB

Performance of National Plastic Acoustic Pipes and Redi Fittings

<table>
<thead>
<tr>
<th>dB</th>
<th>WC</th>
<th>2.0 L/sec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Bath Tub</td>
<td>1.0 L/sec.</td>
</tr>
<tr>
<td>11</td>
<td>Sink</td>
<td>0.5 L/sec.</td>
</tr>
</tbody>
</table>
Determination of the installation sound level L_{in} in the laboratory

**Client:** National Plastic & Building Material Industries LLC, P.O.Box: 1943, SHARJAH, UAE

**Test specimen:** Wastewater installation system (test specimen S 10480-01) consisting of "Acoustic Pipe 110x5 mm" plastic pipes (manufacturer: National Plastic SHARJAH) and fittings "Redi Phonoline" (manufacturer: REDI s.p.a.) mounted with pipe clamps "Bismat 1000" (manufacturer: Walraven)

**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 (90°), 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. The pipe system was mounted by a technical firm.
- Pipe system "Acoustic Pipe 110x5 mm": size OD 110, 1-layer pipe, material PVC-U, total wall thickness 5.0 mm, weight 2.77 kg/m, density 1.75 g/cm³. One layer fittings "Redi Phonoline", material PVC-U, size OD 110, wall thickness 3.2 mm, density 1.75 g/cm³ (values are manufacturer’s information). Straight pipes without sockets. Connection of the straight pipes with double socket fittings.
- Acoustic pipe clamps "Bismat 1000" (figure 5). Structure born sound insulating support attachment consisting of supporting (SL) and fixing clips (SX). In each storey (EG and UG) respectively two pipe clamps were installed. A loose clamp in the upper wall area and a Bismat 1000 double clamp in the lower wall area. Two prevent contact to the pipe, the supporting clamp (SL) and the loose clamp were mounted with 15 mm space between the locking tabs of the clamp (two spaces on each side). The clamps were fixed to the installation wall with dowels and thread rods.

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

**Test method:**
The measurements were performed following German standard DIN 4109 and EN 14366; noise excitation by constant water flow with 0.5 l/s, 1.0 l/s, 2.0 l/s and 4.0 l/s (details in Annexes A and F).

**Results:**

<table>
<thead>
<tr>
<th>Waste water system &quot;Acoustic Pipe 110x5 mm&quot; with pipe clamps &quot;Bismat 1000&quot; (mounting details see test set-up)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate [l/s]</td>
</tr>
<tr>
<td>Installation sound level L_{in} [dB(A)] measured in the basement test-room EG front</td>
</tr>
<tr>
<td>Installation sound level L_{in} [dB(A)] measured in the basement test-room EG rear</td>
</tr>
<tr>
<td>Airborne sound pressure level L_{A, A} [dB(A)] 1)</td>
</tr>
<tr>
<td>Structure-borne sound characteristic level L_{A, A} [dB(A)] 1)</td>
</tr>
</tbody>
</table>

Date of tests: April 17, 2012

Comments:
- The requirements of DIN 4109 only apply for the test room EG rear.
- For the experimental setup investigated in the test facility the used supporting and fixing clips Bismat 1000 normally doesn’t guarantee a realistic load transmission. Consequently, in case of practical application in a real building significant higher levels of installation noise may be expected.

The tests were performed in a laboratory accredited by the German Accreditation System for Testing (DAP, file no. PL-3743.25) according to standard EN ISO/IEC 17025.

Stuttgart, June 19, 2012
Head of Laboratory: [Signature]
National Plastic products have been used in thousands of projects in four continents.

A FEW WORLDWIDE PROJECTS

AFGHANISTAN
• Water Distribution Network for relief project in Kabul
• uPVC well casing and screen for UN funded projects

ALBANIA
• Rural water distribution network

ALGERIA
• Water well projects

ANGOLA
• Rural water distribution

AUSTRALIA
• Environmental Monitoring System

AZERBAIJAN
• AGT Pipeline Facilities, Baku

BAHRAIN
• Irrigation Network System
• Municipal Water Supply

BANGLADESH
• Telecommunication Network Dhaka

CAMBODIA
• Village Water Supply System in Phnom Penh

CAPE VERDE
• Water Distribution Network

CHAD
• Water well projects

CHINA
• UN Funded Water well projects

COMOROS
• Water Distribution System

CONGO
• uPVC & CPVC Pipe System for 100 Villas Project, Kinshasa

CYPRUS
• Water Supply Distribution Network

DJIBOUTI
• Housing Drainage Network Djibouti

EGYPT
• Water Supply Distribution System Cairo

ERITREA
• Town Water Supply & Drainage Network, Asmara
• Drip Irrigation System Citrus Fruit Farm, Asmara
• UPVC Pipes & Fittings for Mealewya Water Development Project

ETHIOPIA
• Town Water Distribution Network Addis Ababa
• Town Sewerage & Drainage Addis Ababa

FRANCE
• Drip Irrigation System Paris

GAMBIA
• Rural Water Distribution

GEORGIA
• Water Supply Distribution Network

GERMANY
• Environmental Monitoring System

HONG KONG
• uPVC Pipe System for Government projects

INDIA
• Pilot Drip Irrigation System for Horticultural Project in Central India
• UPVC Pipes for Champion Reef Golf Course Project
• Boulder Hills, India
• DLF Golf and Country Club, India

IRAQ
• Irrigation equipments for Tehran Municipality projects

ITALY
• Pipe & Irrigation System

JAPAN
• Micro Irrigation System for Greenhouse Company

JORDAN
• Casing & Screen for rural water well projects
• uPVC Pipe System for supply water network

KENYA
• Water well projects
• Drip Irrigation System

KUWAIT
• uPVC Pipes for Kuwait Oilfield Installation
• LDPE pipes for Kuwait Oil Company

KYRGYZSTAN
• Housing complex Water Distribution Network, Bishkek

LAOS
• Water Supply Distribution Network

LEBANON
• Drainage Pipes for housing project in Beirut

LIBYA
• Water well Projects
• Catholic Protection System

MAURITANIA
• Tasiast Gold Mine, Mauritania

MAURITIUS
• uPVC Pipes for Water Supply & Irrigation, Port Louis

MADAGASCAR
• Water well Projects

MALAYSIA
• Water well Projects

MALAWI
• UPVC Pipes Water Supply Projects in Mzuzu Phase 3 and Kasungu

MOOREC
• Water Distribution Network Rabat

MYANMAR
• Community Water Supply System Yangoon
• Royal Myanmar Golf Course

NEPAL
• Water Distribution Networks Katmandu

NEW ZEALAND
• Micro Irrigation equipment for irrigation company
• Irrigation PVC pipes, New Zealand

NORTH KOREA
• Water Distribution Network

OMAN
• uPVC Well Casing and Screens for various agriculture projects
• Waterproothing Roof-coating Ministry of Agric., Inform & Health Muskat

PAKISTAN
• Telecommunication Network Karachi
• uPVC Pipe / Well casing and screen for UN funded projects
• Bahria Golf City, Pakistan

QATAR
• Central A/C Coating System, Sports Stadium, Doha
• uPVC Pipes for Ras Laffan Housing Project
• Casing and Screen project for Qatar International Airport

RWANDA
• Village Water Supply Network Kigali

SAUDI ARABIA
• Telephone duct for Saudi Arabia Telecom
• uPVC Pipes for various irrigation / landscape projects

SENEGAL
• Water Supply Network

SINGAPORE
• Water Supply System
• Laguna Golf Club, Singapore

SOMALIA
• Rural Water Supply System

SOUTH AFRICA
• uPVC Well Casing and Screens

SPAIN
• Heavy duty casing & screen for Power Generating Authority in Northern Spain

SRI LANKA
• Various Waterproofing Roof Coating projects

SUDAN
• Waterproofing Roof Coating Rep Palace & Airprt, Khartoum
• Water well projects, Khartoum

SYRIA
• Micro Irrigation System for various agricultural projects

TANZANIA
• Village Water Supply System Dar Es Salaam

THAILAND
• UPVC Well Casing & Screen Pipes
• Golf Course Irrigation Systems

TURKMENISTAN
• Residential Water Supply System, Ashgabat

UNITED ARAB EMIRATES
• International City, Dubai
• Festival City, Dubai
• International Airport Expansion, Dubai
• Buri Khalifa, Dubai
• Jumeirah Lake Towers, Dubai
• Madinat Jumeirah, Dubai
• Green Community, Dubai
• Palm Islands, Dubai
• Jumeirah Beach Residence, Dubai
• Arabian Ranches, Dubai
• Al Ruwaya Tiger Woods Golf Course, Dubai
• Conference Palace Hotel, Abu Dhabi
• Presidential Palace, Abu Dhabi
• Al Sowwah Island, Abu Dhabi
• City of Lights, Abu Dhabi
• Water Park Yas Island, Abu Dhabi
• Saadiyat Beach Apartment, Abu Dhabi
• Shams Al Reem Island, Abu Dhabi
• Khalifa Park, Abu Dhabi
• Rosewood Hotel, Abu Dhabi
• Mofrag Hospital, Abu Dhabi
• Al Raha Beach Resort
• Medical College, Al-Ain
• Marjan Island, Ras Al Khaimah

UGANDA
• Water Supply Distribution Network Kampala

UNITED KINGDOM
• uPVC & PE Casing/Screen pipes
• PVC pipes for water supply distribution

UGANDA
• Water Supply Distribution Network Kampala

UNITED KINGDOM
• uPVC & PE Casing/Screen pipes
• PVC pipes for water supply distribution

UZBEKISTAN
• Golf Course Irrigation Network System, Tashkent

VIETNAM
• uPVC Well Casing & Screen for Aid project
• uPVC pipes & fittings for town water supply
• uPVC Pipes for Long Bien Development
• Twin Doves Golf Course, Vietnam
• Ho Tram Golf Course, Vietnam

YEMEN
• uPVC pipes & fittings & irrigation System for World Bank funded projects

ZAMBIA
• Water well Projects
INTERNATIONAL CERTIFICATIONS

WRAS
Water Regulations Advisory Scheme

The reference relates solely to its effect on the quality of the water with which it may come into contact and does not indicate the approval of the mechanical or physical properties for any use.

PVC-UC/CPVC
National Fittings, Fittings, etc.
For use with water up to 12°C.

Approval Number: S3822-01
Approval Holder: WRAS

The reference relates solely to its effect on the quality of the water with which it may come into contact and does not indicate the approval of the mechanical or physical properties for any use.

Certificate of Compliance

Certificate Number: 28/01806/020
Report Reference: E384212009602
Issue Date: 2012-AUGUST-10

From:
NATIONAL PLASTIC & BUILDING MATERIAL INDUSTRIES LLC
INDUSTRIAL AREA NO. 1
SHARJAH, UNITED ARAB EMIRATES

This is to certify that the regulations samples of PVC/CPVC規定 Comm reducts PVC conduits in the 5, 10, 12, 3, 2, 1, 1/2, 3, 4, 6 and 8 trace sizes with integral couplings have been approved by UL in conformance with the standards indicated in the Certificate.

Standard(s) or Rate:
For Schedule 40 and K and Type CB and a rigid PVC Conduit and fittings, UL 661

Additional Information:
See the UL, Online Certifications Directory at www.ul.com/databank for additional information.

Only those products bearing the UL Listing Mark should be considered as being listed by UL’s Listing and Evaluation Department.

The UL Listing does not guarantee the product is suitable for use with the world’s largest and most diverse range of electrical applications. The UL Listing Mark is an indicator that the product is suitable for use in the building industry. The product is listed for use in the building industry and is suitable for use in the building industry.

Shari  Bhat
Manager, Assam & Inspections
Water Regulations Advisory Scheme
Worldwide Supplier of Quality Piping Solutions Since 1975

National Plastic & Building Material Industries L.L.C.
P.O. Box 1943, Sharjah, U.A.E., Tel : 00971-6-533 1830 / Fax : 533 5629
E-mail : npbmi@emirates.net.ae / Website : www.national-plastic.com