ABS SPECIFICATION SHEET:

Acrylonitrile Butadiene Styrene (ABS) Plastic Pipe and Fittings for Drainage, Waste and Vent Systems

Published by the
Plastic Pipe and Fittings Association (PPFA)
800 Roosevelt Road
Building C, Suite 312
Glen Ellyn, IL 60137
ppfahome.org

PPFA-04-24

© 2024 PPFA All Rights Reserved

PRODUCT NAME

Acrylonitrile Butadiene Styrene (ABS) Plastic Pipe and Fittings for Drainage, Waste and Vent System.

MANUFACTURER

For a list of member manufacturers, contact the Plastic Pipe and Fittings Association, 800 Roosevelt Road, Building C, Suite 312, Glen Ellyn, IL 60137; phone: (630) 858-6540; fax (630) 790-3095; www.ppfahome.org.

PRODUCT DESCRIPTION

Basic Use

Sanitary drainage, waste, and vent systems and storm drainage systems. ABS pipe can be used in residential, commercial, and industrial applications. Pipe and fittings are joined by solvent cementing. There is a full complement of ABS drainage pattern fittings available for **DWV** applications. Pipe and fittings are available in sizes 1-1/4 inch through 6 inches in diameter.

Composition and Materials

ABS is a thermoplastic material made with virgin ABS compounds meeting the ASTM requirements of Classification **4-2-2-2-2** (pipe) **3-2-2-2-2** (fittings) per **ASTM D3965**. Pipe is available in both solid wall and cellular core wall. These can be used interchangeably.

Grades

ABS pipe is identified as **Schedule 40** pipe. This indicates the wall thickness of the pipe. The pipe can also be installed above or below grade.

Limitations

ABS pipe is intended to be used in any conventional sanitary drainage or storm drainage system. Contact the pipe manufacturer for a detailed list of chemicals that can be satisfactorily discharged through ABS pipe.

Plastics are affected by ultraviolet (U/V) radiation. Pigments are added to the ABS to make pipe and fittings resistant to degradation. Pipe and fittings may be exposed to sunlight during construction; however, prolonged exposure is not advised. ABS pipe and fittings can withstand the normal temperatures encountered in a sanitary and storm drainage system. The recommended maximum temperature for continuous drainage applications is 140°F.

TECHNICAL DATA

Applicable Standards

ABS, for DWV applications, conforms to either **ASTM D2661**, **ASTM F628**, **ASTM F1488** or **CSA CAN/CSA B181.1**. **ASTM D2661** specifies requirements for solid wall pipe. **ASTM F628** specifies requirements for pipe having a cellular core. **ASTM F1488** specifies requirements for composite ABS pipe. Solid wall ABS fittings conform to **ASTM D2661** or **CSA CAN/CSAB181.1**. Dimensions for drainage pattern fittings up to 8 inches in size are shown in **ASTM D3311**.

As an alternative to ABS cellular core pipe, co-extruded composite pipe has been introduced. This product consists of ABS inner and outer layers with a cellular core made of PVC resin. Pipe consisting of this composition shall be certified and marked in accordance with **ASTM F1488**. **ASTM F1488** requires that co-extruded composite pipe be marked with **ASTM F1488**, size and description indicating the construction of the pipe such as ABS/PVC/ABS cellular core where the cellular core is made from PVC material.

Quality Control

ABS material, pipe and fittings meet or exceed the quality prescribed by nationally recognized standards. In addition to production quality controls, independent third party certifying agencies inspect and ensure standard conformity. Agencies that provide third party certification include the Canadian Standards Association (CSA), IAPMO−R&T Uniform Plumbing Code (UPC), NSF, and Underwriters Laboratories (UL).

Laying Lengths

ABS pipe is available in 10 and 20 foot lengths. Laying lengths for common fittings are identified in Tables 1 and 2.

In Canada, ABS pipe is also available in 12 foot lengths.

© 2024 PPFA All Rights Reserved

Expansion and Contraction

ABS pipe has a higher expansion and contraction rate than metallic pipe. The coefficient of linear expansion for ABS plastic is 0.0000560 in/in/°F. The rate translates into an expansion of 1.34 inches for every 20 feet with a temperature change of 100°F.

For composite pipes made to the **ASTM F1488** standard, the manufacturer of the pipe should be contacted for the linear expansion rate. Expansion and contraction rates can run 20% less than for core PVC and ABS pipe.

Where ABS pipe is subjected to severe temperature fluctuations, provisions for expansion and contraction must be provided. This can be accomplished with the use of expansion joints and offset piping arrangements or by making provisions at changes in direction.

Hangers and Supports

ABS pipe must be supported horizontally at 4 foot intervals or per the local code. Support vertical piping at every floor level. Install hangers and supports to allow for thermal expansion and contraction.

Fire Protection

ABS pipe and fittings are combustible materials; however, they may be installed in buildings that require non-combustible construction. In all cases the model building codes have determined that ABS piping must be protected at penetrations of fire resistance rated wall, floor, and ceiling, assemblies. The method of protecting the pipe penetration is by a through penetration protection assembly that has been tested and rated in accordance with **ASTM E814**.

The important rating is the "F" rating for the through penetration protection assembly. The "F" rating must be a minimum of the hourly rating of the fire resistance rated assembly that the ABS plastic pipe penetrates. Verify local code interpretations related to through penetrations with the jurisdiction having authority.

These companies manufacture fire-stop systems and materials:

3M Fire Protection Products
3M Center
Bldg. 207-1
St. Paul, MN 55144-1000
(800) 328-1687

Hilti Inc.
5400 S. 122nd E. Ave.
Tulsa, OK 74121
(800) 879-8000

PFP Partners (Fire-Stop Systems Inc.)
1412 Derwent Way
Delta, British Columbia
V3M6H9
(800) 810-1788

ProSet Systems
1355 Capital Circle
Lawrenceville, GA 30243
(800) 262-5355

RectorSeal®
2601 Spenwick Drive
Houston TX 77055
Tel: 713-263-8001 / 800-231-3345

Specified Technologies
200 Evans Way
Somerville, NJ 08876
(800) 992-1180

INSTALLATION

Preparatory Work

ABS pipe must be cut square with a wheeled cutter, miter saw, or power saw designed for that use. Pipe ends must be deburred and wiped clean and dry.

Methods

Solvent cement, conforming to **ASTM D2235**, is used per local jurisdiction.

Precautions

Joining of ABS pipe and fittings should be performed in well-ventilated locations. Contact of solvent cement with the skin must be avoided. Eye protection is recommended during solvent cementing. See **ASTM F402** for more safe handling details.

Protect pipe from coming in contact with sharp objects or building materials. Care must be exercised to avoid rough handling or abrasion of the pipe and fittings. ABS plastic pipe should not be installed in areas subject to high heat sources.

© 2024 PPFA All Rights Reserved

Plumbing Codes

ABS pipe is permitted to be used in any sanitary drainage, waste, and vent system and storm drainage system in the following model plumbing codes: IPC, UPC, and NSPC.

Verify acceptance and installation of ABS piping systems with local code enforcement authorities having jurisdiction.

AVAILABILITY & COST

Availability

ABS pipe and fittings are available through local plumbing supply wholesalers throughout the United States and Canada.

Cost

ABS plastic pipe is less expensive than metallic piping materials used in sanitary and storm drainage systems.

WARRANTY

ABS pipe and fittings manufacturers generally warrant that pipe and fittings are free from defects and conform to the designated standard. The warranty is only applicable to pipe and fittings installed in accordance with the manufacturer's installation instructions. The manufacturer of the pipe and fittings is not responsible for improper use, handling, or installation of the product.

MAINTENANCE

Standard drainage system chemicals and equipment can be used.

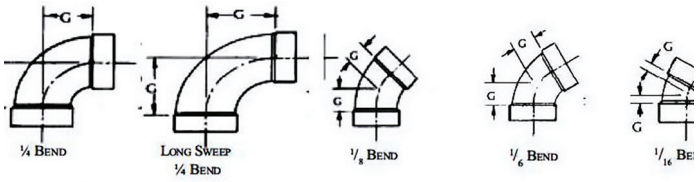
TECHNICAL SERVICES

The manufacturers of ABS plastic pipe and fittings will provide technical manuals and engineering data upon request.

MORE INFORMATION

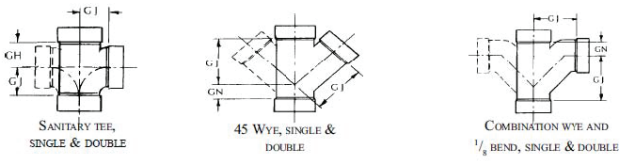
Additional product information is available upon request from the Plastic Pipe and Fittings Association, 800 Roosevelt Rd., Building C, Suite 312, Glen Ellyn, IL 60137 (630) 858-6540; fax (630) 790-3095; website: www.ppfahome.org.

TABLE 1: LAYING LENGTHS (IN.)



	¼ Bend	Long Sweep ¼ Bend	⅛ Bend	1/16 Bend	
Pipe size	G	G	G	G	G
1¼	1 9/16	2¼	1	⅞	7/16
1½	1¾	2¾	1-⅛	1	½
2	2 5/16	3¼	1½	1 5/16	11/16
3	3 1/16	4-1/16	1¾	1 11/16	13/16
4	3 7/8	4 15/16	2 3/16	2 1/16	1
6	5 (MIN)	9	2 (MIN)	3 3/8	1½

TABLE 2: LAYING LENGTHS (IN.)



	Sanitary tee, single & double		45 Wye, single & double		Combination wye and ⅛ bend, single & double	
Pipe size	GN	GJ	GN	GJ	GN	GJ
1¼	¾	1 9/16	1 3/16	2 9/16	7/16	2 15/16
1½	1	1¾	1 1/8	2 7/8	½	3 3/8
2	1 3/8	2 15/16	1 3/8	3 5/8	1	4 1/2
3	1 13/16	3 1/16	1 5/8	5	1 1/8	6 15/16
4	2 1/4	3 7/8	1 7/8	6 3/8	1 13/16	8 5/8
6	3 1/2	5	1¾	8 7/16	B	B

PPFA, Bldg. C, Suite 312, 800 Roosevelt Road, Glen Ellyn, IL 60137; (630) 858-6540; fax (630) 790-3095

The information herein has been prepared solely from publicly available sources or from consensus positions adopted by manufacturers of these products or other interested parties in the industry. PPFA disclaims warranties, expressed or implied, as to the fitness for any particular purpose or suitability for any specific installation. The information herein has been prepared solely from publicly available sources or from consensus positions adopted by manufacturers of these products or other interested parties in the industry. PPFA disclaims warranties, expressed or implied, as to the fitness for any particular purpose or suitability for any specific installation.

© 2024 PPFA All Rights Reserved