

## PVC Duct: Extruded Round

### Application:

Corrosion resistant duct, IPS sizes 6" through 24", for use in corrosive fume handling systems at temperatures up to and including 140° F. Positive and negative pressure ratings vary with duct diameter and temperature as stated in Harvel Plastics, Inc. PVC Duct product bulletin (bulletin HPB-109). Generally resistant to most acids, bases, salts, aliphatic solutions, oxidants, and halogens. Chemical resistance data is available and should be referenced for proper material selection. Typical applications include: chemical processing, plating, water and wastewater treatment, laboratory, and other industrial applications involving corrosive fume collection, transfer, and reclamation.

### Scope:

This specification outlines minimum manufacturing requirements for Polyvinyl Chloride (PVC) iron pipe size (IPS) seamless, extruded round duct. This duct is intended for use in industrial fume handling systems where temperatures encountered do not exceed 140° F.

### PVC Materials:

The material used in the manufacture of the duct shall be a virgin, rigid polyvinyl chloride (PVC) compound, with a Cell Classification of 12454 as defined in ASTM D1784. This compound shall be dark gray in color or as specified, and shall be domestically produced PVC material designated as Harvel H707 compound, PVC 1120.

### Dimensions:

All PVC extruded duct shall be manufactured in strict accordance to the requirements established by Harvel Plastics, Inc. for the production of extruded duct piping; including the physical dimensions and tolerances as stated on Page 2 of this specification.

### Marking:

Product marking shall include the manufacturer's name (or the manufacturer's trademark when privately labeled); the nominal duct size; material designation; and the date of manufacture.

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### Sample Specification:

All exhaust duct piping, sizes 6" through 24", shall be PVC seamless extruded type, as manufactured by Harvel® Plastics Inc. This duct pipe shall be extruded from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784, trade name H707 PVC. All extruded PVC duct shall have a maximum flame spread rating of 25 or less per ULC S102.2. All PVC extruded duct pipe shall meet Harvel Plastics Inc. published standards with regard to material and dimensions, and shall carry a maximum temperature rating of 140° F. All extruded duct pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer, and shall be stored indoors at the manufacturing site until shipped from the factory. All extruded PVC duct pipe shall be marked with the manufacturer's name or identifying symbol.



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## General Recommendations

### Joining

Thermal welding shall be performed by personnel adequately trained in the art of PVC welding utilizing the hot gas fusion welding method using virgin PVC filler welding rod as manufactured for this purpose.

When solvent cemented connections are utilized, the use of an extra heavy bodied PVC solvent cement and appropriate primer is recommended due to tolerance extremes that can be encountered when working with duct and fabricated duct fittings. Proper solvent cement joining procedures shall be followed.

### Hangers and Supports

Hangers selected shall have an adequate load-bearing surface free of rough or sharp edges and shall not cause damage to the duct during use. Hangers and hanger hardware shall be of a corrosive-resistant material suitable for use in the system environment.

Ductwork is to be supported independently of hoods, scrubbers, fans, tanks or other equipment wherever possible. Where flexible connections are provided as expansion joints, a suitable hanger or support shall be provided at each end of the flexible connection. Consideration shall be given to the possibility of solids accumulation; adequate system support shall be provided where required.

Drains shall be installed where accumulation of moisture is expected at low points in the system as indicated on the drawings.

### Handling and Storage

Care shall be used when transporting and storing duct to prevent physical distortion. Duct shall not be stored close to heat producing sources, subjected to external loads, or over stacked when stored. Damaged sections must be cut out and discarded.

### System Components

All duct fittings, fume hoods, fans, blast gates and other system components shall be fabricated from PVC sheet or PVC duct material of the same wall thickness. The use of Type I Grade I (Cell Classification 12454 per ASTM D1784) PVC material is recommended to maintain system compatibility.

Reference Harvel Plastics, Inc. Duct Bulletin HPB-109 and Product Bulletin 112/401 for information pertaining to chemical resistance, joining methods, hangers and supports, collapse pressure ratings, system components, and other installation related data.

The information provided herein is intended as a general guide based on common practice. This information may be considered as a basis for recommendation only, and not as a guarantee for its accuracy, suitability for particular applications, or the results to be obtained therefrom. Individual differences are a matter of design preference and shop practice.

### PVC Duct Physical Properties

| PROPERTY                                   | VALUE                  | TEST METHOD |
|--|------------------------|-------------|
| Cell Classification                        | 12454                  | ASTM D1784  |
| Specific Gravity (g/cu.cm @73°F)           | 1.40 +/- .02           | ASTM D792   |
| Tensile Strength, psi @73°F                | 7,450                  | ASTM D638   |
| Modulus of Elasticity, psi @ 73°F          | 420,000                | ASTM D638   |
| Izod Impact, notched ft-lbs/in @ 73°F      | .75                    | ASTM D256   |
| Coefficient of Linear Expansion (in/in/°F) | 2.9 x 10 <sup>-5</sup> | ASTM D696   |
| Flame Spread                               | 0-25                   | ULC         |
| Flammability                               | V-O                    | UL 94       |
| Hardness, Rockwell                         | 110-120                | ASTM D785   |

### PVC Duct Dimensions

| Size (in.) | AVG. O.D. | AVG. O.D.TOL. | O of R TOL. | MIN. Wall | AVG. Wall | MAX. Wall | WT(lbs.) Per Ft. |
|------------|-----------|---------------|-------------|-----------|-----------|-----------|------------------|
| 6 x 1/8    | 6.625     | +/- .020      | +/- .050    | 0.105     | 0.122     | 0.140     | 1.530            |
| 6          | 6.625     | +/- .020      | +/- .050    | 0.172     | 0.187     | 0.202     | 2.275            |
| * 7        | 7.375     | +/- .020      | +/- .050    | 0.172     | 0.187     | 0.202     | 2.534            |
| 8          | 8.625     | +/- .020      | +/- .075    | 0.172     | 0.187     | 0.202     | 2.982            |
| * 9        | 9.375     | +/- .025      | +/- .075    | 0.172     | 0.187     | 0.202     | 3.239            |
| 10         | 10.750    | +/- .025      | +/- .075    | 0.172     | 0.187     | 0.202     | 3.733            |
| * 11       | 11.375    | +/- .025      | +/- .075    | 0.172     | 0.187     | 0.202     | 3.944            |
| 12         | 12.750    | +/- .025      | +/- .075    | 0.172     | 0.18      | 0.202     | 4.440            |
| 14         | 14.000    | +/- .030      | +/- .075    | 0.172     | 0.187     | 0.202     | 4.884            |
| 16         | 16.000    | +/- .030      | +/- .075    | 0.172     | 0.187     | 0.202     | 5.586            |
| 18         | 18.000    | +/- .040      | +/- .080    | 0.172     | 0.187     | 0.202     | 6.750            |
| 20         | 20.000    | +/- .070      | +/- .140    | 0.199     | 0.219     | 0.239     | 8.144            |
| 24         | 24.000    | +/- .090      | +/- .180    | 0.230     | 0.250     | 0.270     | 11.163           |

O of R = Out of Roundness Factor at time of extrusion \*1.D. Sizes