



HMPTM10-2004

**HARRISON**

Machine & Plastic Corporation

**SUPERDUCT<sup>®</sup>**

**Fume Exhaust Systems**

**PVC Poly (Vinyl Chloride)**

**PP Polypropylene**

**CPVC Chlorinated Poly (Vinyl Chloride)**



**Manufacturing & Sales Office:**  
11614 State Route 88, Garrettsville, OH 44231  
Phone (330) 527-5641 FAX (330) 527-5640



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11614 State Route 88 Garrettsville, OH 44231

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**Special Note: The dimensions shown in this catalog are intended to be used for reference purposes and are subject to change without notice.**



## *An Introduction to*

# HARRISON

Harrison Machine and Plastic Corporation, currently has three major fabrication and distribution facilities: Garrettsville, OH, Hiram, OH and Clover SC.

At these manufacturing plants, plastic materials in the form of pipe, duct, sheet and profile are cut, bent, drilled, machined, heat-formed and welded into products for corrosion resistant fume and fluid handling systems. In the case of corrosive fume handling systems Harrison fabricates and supplies complete systems consisting of tanks, fume collection hoods, scrubbers, mist eliminators, fans and the duct and duct fittings required to interconnect these components.

For many years Harrison has also been a large supplier of fabricated fittings, both pressure and non-pressure for use in DWV (drain-waste-vent) water systems and in demanding chemical waste, service and process lines of industry. All Harrison facilities maintain significant inventories of PVC, CPVC and PP (Polypropylene) pipe and duct. Relative to PVC, Harrison specializes in furnishing immediate availability of large diameter pipe and fittings.

Harrison takes pride in its long term reputation as an innovator and service oriented manufacturer of quality plastic fabrications as well as its role as a distributor of plastic pipe, duct and fittings.

This catalog refers specifically to the Harrison SUPERDUCT® product line (duct and duct fittings).

# HARRISON SUPERDUCT®

Harrison Superduct® offers a complete range of fittings for the installation of venting and fume scrubbing systems. The product line is comprised of process tanks, fume collectors and scrubbers, mist eliminators, duct and associated duct fittings (available with either socket (belled) ends of plain end).

While Harrison is the fabricator of these fittings, the intent of this catalog is to provide a basic understanding of the methods by which items are selected and assembled to provide a controlled pathway from fume collection to processing at the scrubber and on through to the exhaust rain cap.

Harrison can also provide PVC & CPVC rectangular duct systems, as well as those fabricated in Polypropylene which are considered "custom" systems. Please contact us for specific details. Fittings conforming to SMACNA thermoplastic construction specifications are also available on a custom basis.

Harrison Superduct® is a time-proven system that requires fewer fittings and connections resulting in reduced installation cost and complexity. Most components are supplied from stock to speed delivery.



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## SUPERDUCT ®

### PVC DUCT SPECIFICATIONS

Standard specifications for Harrison rigid PVC duct, pipe, fittings and fabrication.

**PIPE/DUCT & FITTINGS:** PVC 1120, ASTM-D-1784, Type 1, Grade 1, Cell Class 12454-B

<u>PROPERTY</u>	<u>ASTM Test Method</u>	<u>VALUE</u>	<u>UNITS</u>
<b><u>MECHANICAL</u></b>			
Specific Gravity	D-792	1,426	g
Tensile Strength @ 73 °F (23 °C)	D-638	7,000	psi
Modulus of Elasticity in Tension @ 73 °F	D-638	400,000	psi
Flexural Strength @ 73 °F	D-790	14,500	psi
Izod Impact Strength notched @ 73 °F	D-256	.65	ft.lb./in.
Izod Impact Strength unnotched @ 73 °F	D-256	45	ft.lb./in.
Hardness (Shore "D") Durometer	D-785	78/82	
Hardness (Rockwell) R	D-785	110	
Compressive Strength	D-695	9,000	psi
Hydrostatic Design Stress		2,000	psi
<b><u>THERMAL</u></b>			
Coefficient of Linear Expansion	D-696	$2.78 \times 10^{-5}$	in./in./°F
Heat Distortion °F @ 264 psi (°C @ 1820 kPa)	D-648	173	°F
Coefficient of Thermal Conductivity	C-177	1.2	BTU/hr/sq.ft./°F/in.
Specific Heat		0.25	BTU/lb/°F
<b><u>FLAMMABILITY</u></b>			
Limiting Oxygen Index	D-2863	43	percent
Vicat Softening Point	D-1525	169	°F
Flame Spread Rating (U.L.C. Classified in accordance with standard CAN4-102.2)		10	
Smoke Developed		225	
Fuel Contributed		0	
Underwriters Lab Rating	UL-94	V-0	
<b><u>OTHER PROPERTIES</u></b>			
Material Cell Classification	D-1784	12454B	
Water Absorption ( 24 hrs.@ 25° C )	D-570	.07	°C
Color ( Standard )		Dark Grey	

**SHEET ( IF USED ) REFER TO REVERSE SIDE FOR SPECIFICATIONS.**

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HMPDUCTSPEC-0897



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# SUPERDUCT® PVC DUCT SPECIFICATIONS

Standard specifications for Harrison rigid PVC duct, pipe, fittings and fabrication.

FABRICATED DUCT & DUCT FITTINGS: PVC ASTM-D-1784, Type 1, Grade 1, CELL CLASS 12454-B.

APPLIES TO SHEET IF USED.

<u>PROPERTY</u>	<u>ASTM Test Method</u>	<u>VALUE</u>	<u>UNITS</u>
<b><u>MECHANICAL</u></b>			
Tensile Modulus	D-638	411,000	psi
Yield Strength	D-638	7,500	psi
Flexural Modulus	D-790	481,000	psi
Yield Strength	D-790	12,800	psi
Izod Impact (Notched)	D-256	1.0	ft-lb./in.
<b><u>THERMAL</u></b>			
Vicat Softening Point	D-1525	83/181	°C/°F
Heat Deflection Temp. @ 66 PSI	D-648	82/179	°C/°F
Heat Deflection Temp. @ 264 PSI	D-648	80/176	°C/°F
Linear Coefficient of Expansion	D-696	5.8x10 <sup>-5</sup>	in./in.°C
	D-696	3.2x10 <sup>-5</sup>	in./in.°F
<b><u>FLAMMABILITY RATINGS</u></b>			
Flammability	D-635	self-extinguishing	
Flammability	UL-94V	0	
Flame Spread	E-84	15	
<b><u>OTHER PROPERTIES</u></b>			
Density	D-792	1.42	g/cm <sup>3</sup>
Water Absorption	D-570	.06	%
Rockwell Hardness	D-785	115	R Scale
Shore Durometer	D-2240	89	D
Cell Class	D-1784	12454-B	
General Requirements ( 0.010 to 0.250 in.thickness )	D-1927		

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## SUPERDUCT®

### CPVC DUCT SPECIFICATIONS

CPVC duct is extruded from Corzan® CPVC compounds as provided by Noveon, Inc. (formerly the BFGoodrich Company). Fittings are fabricated from Corzan® CPVC duct and/or sheet stock material manufactured with Corzan® compounds.

Standard specifications for Harrison rigid CPVC duct, pipe, fittings and fabrication.

**PIPE/DUCT & FITTINGS:** CPVC 4120, ASTM-D-1784, Type IV, Grade 1, Cell Class 23437-B

<u>PROPERTY</u>	<u>ASTM Test Method</u>	<u>VALUE</u>	<u>UNITS</u>
<b><u>MECHANICAL</u></b>			
Specific Gravity	D-792	1.53	g/cu.cm
Tensile Strength @ 73 °F (23 °C)	D-638	7,960	psi
Modulus of Elasticity in Tension @ 73 °F	D-638	373,000	psi
Flexural Strength @ 73 °F	D-790	13,300	psi
Flexural Modulus @ 73 °F	D-790	348,000	psi
Izod Impact @ 73 °F	D-256	2.0	ft.lb./in.
Hardness (Rockwell) R	D-785	118	
Compressive Strength @ 73°F	D-695	6,000	psi
Compressive Modulus @ 73°F	D-695	120,000	psi
<b><u>THERMAL</u></b>			
Coefficient of Linear Expansion	D-696	3.9x10 <sup>-5</sup>	in./in./°F
Heat Distortion Temperature °F	D-256	225	° F
<b><u>FLAMMABILITY</u></b>			
Limiting Oxygen Index	D-2863	55	percent
Softening Starts (approx.)		295°	°F
Material becomes Viscous		395°	°F
Material Carbonizes		450°	°F
Flammability Rating	UL-94	V-0	
Flame Spread (ULC-S102.2M)	ULC	5	
Smoke Generation (ULC-S102.2M)	ULC	15-25	
Burning Rate		Self Ext.	in/min.
<b><u>OTHER PROPERTIES</u></b>			
Material Cell Classification	D-1784	23437-B	
Water Absorption (% increase 24 hrs.@ 25° C)	D-570	0.20	%
Color ( Standard )		Medium Grey	
Maximum Service Temperature		200°	°F

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HMPDUCTSPEC-0600



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## SUPERDUCT ® INSTALLATION ( PVC )

As fittings described in our catalog are built to Harrison specifications, Harrison can also provide systems to SMACNA specifications upon request. The SMACNA manual (Thermoplastics Duct (PVC) Construction Manual), is a good source of information for those involved in the specification and installation of PVC duct systems.

Another excellent information resource publication, used extensively by Harrison, is the "Industrial-Ventilation Manual of Recommended Practice". This book covers all phases of designing and sizing of an industrial ventilation system. It is an excellent educational tool.

Beyond these two resources, Harrison offers the following recommendations, relative to system installation, based on years of field experience.

Superduct ® duct systems are easily assembled since they basically consist of fittings that are bell-end to receive plain-end duct, or in the case of plain-end fittings and pipe they are assembled using sleeve couplings.

In the case of square and rectangular Superduct™ systems, these are always either welded together or connected by bolted flanges. Solvent cement is never used.

## GENERAL

In diameters thru 18", Harrison has found that Superduct ® systems can be readily joined via the solvent cement method. Beyond 18", the actual cementing and drying times become so protracted that sections of large duct cannot be maneuvered into position quickly enough to effect a good solvent fusion before the cement hardens and dries.

It is our experience that with systems above 18", they should be joined via the hot-air welding method, using PVC welding rod and welding guns available thru Harrison on either a rental or purchase basis.

## SOLVENT CEMENT WELDING

Solvent cement welding is by far the most widely used process for joining PVC pipe & duct. Properly assembled, it is certainly the easiest way to make quality sealed joints.

### Reference Material

Thermoplastic Duct Construction Manual, Published by the Sheet Metal & Air Conditioning National Association, Inc., 4201 Lafayette Center Drive, Chantilly, VA 22021

Industrial Ventilation Manual, Published by the American Conference of Governmental Industrial Hygienists, Cincinnati, OH

## SOLVENT CEMENT WELDING (CONTD)

To avoid the needless expense of repairing, perhaps back-welding a faulty joint, the following key points are emphasized to ensure quality joints:

1. Solvent cementing should not be attempted at temperatures below 40° F or much above 90° F. Joints should not be made in hot, direct sunlight.

2. Remove all burrs and chips from any duct that has been cut. With a clean, dry, cotton rag wipe away any surface contamination on the surfaces that are to be joined. If the surfaces are wet i.e. condensation, **DO NOT ATTEMPT TO JOIN THEM**- they will fail.

3. Using an applicator, approximately half the size of the duct diameter, apply **PRIMER**. The function of primer, in making quality joints, is to penetrate and soften the hard surfaces of extruded PVC duct. This must be done on **BOTH** surfaces to be joined. A simple rule of thumb, in checking the adequacy of surface priming, is the ability to scrape a few thousandths of the softened PVC surface.

4. **DO NOT ALLOW THE PRIMER TO DRY** before applying the solvent. Once the two surfaces to be joined have been fitted together, give the joint a quarter twist to thoroughly mix the two solvent reduced surfaces.

There are several sources of primer and PVC solvent cement on the market. Before starting an installation, consult with your supplier of primer and solvent cement for advice on the best product to use for your application and work environment.

## HOT AIR WELDING

Above 18" diameters, it is Harrison's experience that duct and fitting connections should be hot-air welded using PVC welding rod and welding guns that are available from Harrison.

Harrison usually welds each joint using three passes of 5/32" PVC welding rod.

Before welding, each joint should be prepared by cleaning the duct & fitting surfaces of any dirt, oil or other contaminant. This will ensure good fusion conditions.

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### HOT-AIR WELDING (CONTD.)

Once the duct and belled-end fitting or coupling are securely seated, the fit should be secured by "tacking" the joint with a hot-air welding gun. The process of "tacking" creates a PVC fusion between the two components, holding them in a position for the actual welding. Another benefit of "tacking" is that it seals the gap between the two components, so that during the actual hot-air welding, the PVC welding rod and the two surfaces being joined are adequately heated to the point of a strong weld. If the joint were not first tacked then the hot air from the welding gun would pass through the gap resulting in the surfaces to be welded receiving heat inadequate for fusion with the welding rod. This would result in "cold joints" that are brittle and subject to failure under stress.

### HANGERS AND SUPPORTS

Duct Diameter	Min. Clamp Material	Rod Dia.	Max. Center Spacing
18" and below	1¼ x 1/8"	¼"	8 feet
19" thru 32"	1½ x 3/16"	3/8"	8 feet
33" and above	2 x 3/16"	3/8"	5 feet

Maximum distance between vertical supports should be no more than 16 feet.

### APPLICATION GUIDELINES

The primary limitation of PVC material is the recommended environmental temperature limit of 140° F (60° C). This limit is not only a structural strength limitation but also a corrosion resistance limitation. Both can decrease rapidly as the temperature increases.

Based on laboratory testing results, Superduct™ systems thru 16", do not require reinforcement and are recommended for round duct systems operating at temperatures up to 100° F with internal static pressure of 10" W.G. (Positive) and 2" W.G. (Negative ) thru 10" W.G. (Negative).

Testing performed @ 120° F, indicates that the instantaneous collapsing pressure does not change significantly, however there is insufficient test data at this temperature.

Although Type I PVC can be satisfactorily used for many applications at temperatures of up to 140° F, its strength and creep characteristics are altered.

CPVC shall carry a maximum operating temperature of 200° F and has the same self-extinguishing and low conductivity features as PVC.

### SUGGESTED STANDARD PRODUCT SPECIFICATION FOR PVC and CPVC (CORZAN®) ROUND DUCTING

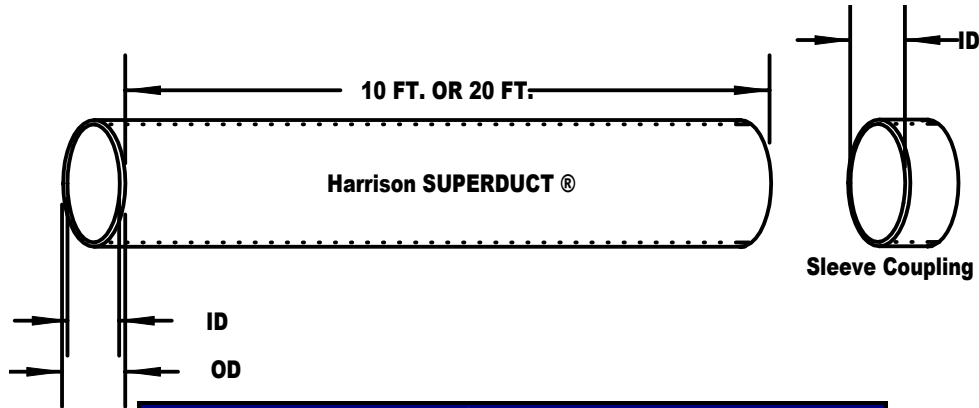
- PVC material compounds used in the manufacture of Superduct® pipe and the fabrication of Superduct® fittings shall conform to Type 1 Grade 1 PVC, Cell Class 12454B, as described in ASTM D-1784.
- CPVC (Corzan®) material compounds used in the manufacture of duct pipe and the fabrication of fittings shall conform to Type IV, Grade 1 CPVC, Cell Class 23447, as described in ASTM D-1784.
- Duct diameters thru 20" & 24" will be extruded and of seamless construction. Sizes thru 18" will have a .187" wall thickness. 20" diameter will be @ 0.219" and 24" @ 0.250" thickness.
- Fabricated (heat formed) duct diameters 22" and 26" thru 30" will have a 0.187" wall while 32", 34" and 36" & larger diameters will have a 0.250" wall. Fabricated duct shall consist of a singular butt-welded seam, thermally fused under computer controlled temperature and pressure, without the use of PVC welding/filler rod.
- All extruded duct shall be furnished in 10 or 20 foot lengths, plain end; fabricated duct will be furnished in standard 4 foot lengths with coupling attached on one end.
- Three piece 90° elbows and two piece 45° elbows are considered standard and are furnished with a centerline radius of approximately 1½ times the duct diameter. Five piece 90° elbows and 3 piece 45° elbows, per SMACNA specifications, can be provided, on specific project requirements.
- All couplings will be "Sleeve" type style having an over-all length of 4½".
- All belled end sockets (5" and above) shall have a minimum socket depth of 2" or more. 2", 3" & 4" belled socket depths will be @ 1¼".
- Branch fittings are designed to enter the main duct , at an angle not exceeding 45°. Branch 90° tees are available where systems allow.
- Transition fittings shall have formed corners where practical. They will be of concentric design (unless otherwise requested) with a tapered cone-type body.
- Reducer couplings, having a size reduction greater than "two-step", shall be formed with cone-type body having an over-all length generally calculated @ 4" per 1" size reduction, where space allows. One-step and two-step reducers will have a smooth-flow concentric design.
- Blastgate Dampers shall be furnished with a 3-position locking pin. (open, half-open, closed)
- Butterfly (Balancing ) Dampers shall be furnished with a locking quadrant, to permanently position. Motorized dampers are available on request.
- Rain Caps shall be of "Zero Pressure Loss" design, commonly known as Style "B". Style "A" Rain Caps are also available on request.



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Superduct						
(Duct/Pipe)						
Part No.	Size	(O.D.)	(I.D.)	Wall	Wt/Ft.	Std. Length
<b>Extruded</b>						
1033-PP-02	2"	2.375"	2.170"	0.091"	0.432	10 ft. or 20 ft.
1033-PP-03	3"	3.500"	3.210"	0.135"	0.915	10 ft. or 20 ft.
1033-PP-04	4"	4.500"	4.130"	0.173"	1.494	10 ft. or 20 ft.
1033-PP-05	5"	5.563"	5.110"	0.214"	2.288	10 ft. or 20 ft.
1033-PP-06	6"	6.625"	6.250"	0.187"	2.340	10 ft. or 20 ft.
1033-PP-07	7"	7.375"	7.000"	0.187"	2.534	10 ft. or 20 ft.
1033-PP-08	8"	8.625"	8.250"	0.187"	3.060	10 ft. or 20 ft.
1033-PP-09	9"	9.375"	9.000"	0.187"	3.239	10 ft. or 20 ft.
1033-PP-10	10"	10.750"	10.380"	0.187"	3.830	10 ft. or 20 ft.
1033-PP-11	11"	11.375"	11.000"	0.187"	3.944	10 ft. or 20 ft.
1033-PP-12	12"	12.750"	12.380"	0.187"	4.560	10 ft. or 20 ft.
1033-PP-14	14"	14.000"	13.630"	0.187"	5.010	10 ft. or 20 ft.
1033-PP-16	16"	16.000"	15.630"	0.187"	5.740	10 ft. or 20 ft.
1033-PP-18	18"	18.000"	17.630"	0.187"	6.460	10 ft. or 20 ft.
1033-PP-20	20"	20.000"	19.500"	0.219"	9.580	10 ft. or 20 ft.
1033-PP-24	24"	24.000"	23.500"	0.250"	11.520	10 ft. or 20 ft.
<b>Rolled</b>						
1033-PP-22	22"	22.000"	21.626"	.187"	8.550	4 ft. w/ Coupling
1033-PP-26	26"	26.000"	25.626"	.187"	10.070	4 ft. w/ Coupling
1033-PP-28	28"	28.000"	27.626"	.187"	10.850	4 ft. w/ Coupling
1033-PP-30	30"	30.000"	29.626"	.187"	11.640	4 ft. w/ Coupling
<i>Duct diameters thru 60" all available. Contact factory for details.</i>						

Note: The dimensions shown on the following pages of this catalog are essentially shown as "Center to End" dimensions, which apply to both belled end as well as plain end fittings. To determine "take-out" dimensions for belled end fittings, refer to the bell depths below to make appropriate calculations.

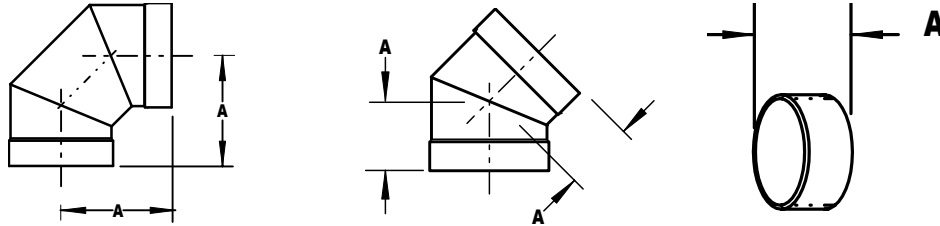
Bell (Socket)																
Dimensions																
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"



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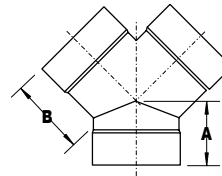
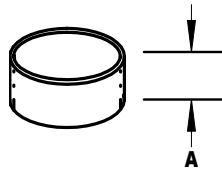
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90° Elbow		
Belled (3 piece)		
Part No.	Size	A
1034-90-02	2"	7.187"
1034-90-03	3"	9.000"
1034-90-04	4"	9.250"
1034-90-05	5"	9.937"
1034-90-06	6"	10.500"
1034-90-07	7"	10.875"
1034-90-08	8"	11.437"
1034-90-09	9"	11.875"
1034-90-10	10"	14.750"
1034-90-11	11"	14.937"
1034-90-12	12"	15.625"
1034-90-14	14"	15.750"
1034-90-16	16"	18.000"
1034-90-18	18"	19.062"
1034-90-20	20"	21.500"
1034-90-24	24"	23.500"

45° Elbow		
Belled (2 piece)		
Part No.	Size	A
1034-45-02	2"	3.000"
1034-45-03	3"	4.750"
1034-45-04	4"	4.937"
1034-45-05	5"	5.156"
1034-45-06	6"	5.375"
1034-45-07	7"	5.500"
1034-45-08	8"	5.812"
1034-45-09	9"	6.000"
1034-45-10	10"	6.250"
1034-45-11	11"	6.375"
1034-45-12	12"	6.625"
1034-45-14	14"	6.875"
1034-45-16	16"	7.562"
1034-45-18	18"	8.000"
1034-45-20	20"	9.125"
1034-45-24	24"	10.000"

Coupling		
Sleeved		
Part No.	Size	A
1034-CP-02	2"	4.000"
1034-CP-03	3"	4.000"
1034-CP-04	4"	4.000"
1034-CP-05	5"	4.500"
1034-CP-06	6"	4.500"
1034-CP-07	7"	4.500"
1034-CP-08	8"	4.500"
1034-CP-09	9"	4.500"
1034-CP-10	10"	4.500"
1034-CP-11	11"	4.500"
1034-CP-12	12"	4.500"
1034-CP-14	14"	4.500"
1034-CP-16	16"	4.500"
1034-CP-18	18"	4.500"
1034-CP-20	20"	4.500"
1034-CP-24	24"	4.500"



Cap		
(Belled)		
Part No.	Size	A
1034-CA-02	2"	3.000"
1034-CA-03	3"	3.000"
1034-CA-04	4"	3.000"
1034-CA-05	5"	3.000"
1034-CA-06	6"	3.000"
1034-CA-07	7"	3.000"
1034-CA-08	8"	3.000"
1034-CA-09	9"	3.000"
1034-CA-10	10"	3.000"
1034-CA-11	11"	3.000"
1034-CA-12	12"	3.000"
1034-CA-14	14"	3.000"
1034-CA-16	16"	3.000"
1034-CA-18	18"	3.000"
1034-CA-20	20"	3.000"
1034-CA-24	24"	3.000"

True Wye			
Belled			
Part No.	Size	A	B
1034-TY-02	2"	2.750"	2.375"
1034-TY-03	3"	3.250"	4.750"
1034-TY-04	4"	4.000"	5.250"
1034-TY-05	5"	4.375"	5.750"
1034-TY-06	6"	4.437"	6.250"
1034-TY-07	7"	4.562"	6.750"
1034-TY-08	8"	5.812"	8.375"
1034-TY-09	9"	6.000"	8.750"
1034-TY-10	10"	6.250"	9.500"
1034-TY-11	11"	6.437"	9.750"
1034-TY-12	12"	6.656"	10.250"
1034-TY-14	14"	6.875"	11.000"
1034-TY-16	16"	7.312"	12.000"
1034-TY-18	18"	7.750"	13.000"
1034-TY-20	20"	8.250"	13.750"
1034-TY-24	24"	10.750"	18.000"

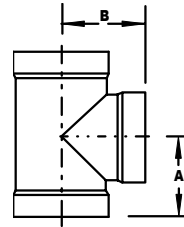
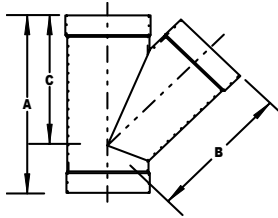
Bell (Socket)																		
Dimensions																		
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"		
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"		



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<b>45° Wye</b>				
<b>Belled</b>				
Part No.	Size	A	B	C
1034-Y-0604	6 X 6 X 4"	15.875"	10.750"	11.750"
1034-Y-06	6 X 6 X 6"	18.875"	13.250"	13.250"
1034-Y-07	7 X 7 X 7"	20.375"	14.375"	14.375"
1034-Y-0804	8 X 8 X 4"	16.375"	12.250"	13.062"
1034-Y-0806	8 X 8 X 6"	19.375"	13.312"	14.500"
1034-Y-08	8 X 8 X 8"	22.187"	15.875"	15.875"
1034-Y-09	9 X 9 X 9"	23.375"	16.875"	16.875"
1034-Y-1006	10 X 10 X 6"	20.375"	15.312"	16.250"
1034-Y-1008	10 X 10 X 8"	23.187"	16.312"	17.750"
1034-Y-10	10 X 10 X 10"	26.250"	19.312"	19.312"
1034-Y-11	11 X 11 X 11"	27.250"	20.000"	20.000"
1034-Y-1208	12 X 12 X 8"	23.312"	17.750"	18.750"
1034-Y-1210	12 X 12 X 10"	26.375"	18.750"	20.250"
1034-Y-12	12 X 12 X 12"	29.250"	21.687"	21.687"
1034-Y-1410	14 X 14 X 10"	26.250"	19.625"	20.875"
1034-Y-1412	14 X 14 X 12"	29.000"	20.750"	22.250"
1034-Y-14	14 X 14 X 14"	30.750"	23.125"	23.125"
1034-Y-1612	16 X 16 X 12"	29.000"	22.125"	23.375"
1034-Y-1614	16 X 16 X 14"	30.750"	22.750"	24.250"
1034-Y-16	16 X 16 X 16"	33.625"	25.625"	25.625"
1034-Y-1814	18 X 18 X 14"	31.250"	24.250"	25.375"
1034-Y-1816	18 X 18 X 16"	34.125"	25.375"	26.875"
1034-Y-18	18 X 18 X 18"	37.000"	28.250"	28.250"
1034-Y-20	20 X 20 X 20"	40.750"	31.125"	31.125"
1034-Y-2418	24 X 24 X 18"	38.000"	30.750"	31.750"
1034-Y-24	24 X 24 X 24"	46.500"	36.000"	36.000"

<b>Tee</b>			
<b>Belled</b>			
Part No.	Size	A	B
1034-T-0604	6 x 6 x 4"	7.312"	6.500"
1034-T-06	6 x 6 x 6"	7.562"	7.562"
1034-T-07	7 x 7 x 7"	8.187"	8.187"
1034-T-0804	8 x 8 x 4"	8.312"	6.750"
1034-T-0806	8 x 8 x 6"	8.562"	7.812"
1034-T-08	8 x 8 x 8"	8.812"	8.812"
1034-T-09	9 x 9 x 9"	9.187"	9.187"
1034-T-1006	10 x 10 x 6"	9.625"	8.062"
1034-T-1008	10 x 10 x 8"	9.875"	9.062"
1034-T-10	10 x 10 x 10"	10.125"	10.125"
1034-T-11	11 x 11 x 11"	10.437"	10.437"
1034-T-1206	12 x 12 x 6"	10.625"	8.062"
1034-T-1208	12 x 12 x 8"	10.875"	9.062"
1034-T-1210	12 x 12 x 10"	11.125"	10.125"
1034-T-12	12 x 12 x 12"	11.125"	11.125"
1034-T-1410	14 x 14 x 10"	11.750"	10.125"
1034-T-1412	14 x 14 x 12"	11.750"	11.125"
1034-T-14	14 x 14 x 14"	11.750"	11.750"
1034-T-1612	16 x 16 x 12"	12.750"	11.125"
1034-T-1614	16 x 16 x 14"	12.750"	11.750"
1034-T-16	16 x 16 x 16"	12.750"	12.750"
1034-T-1814	18 x 18 x 14"	13.750"	12.000"
1034-T-1816	18 x 18 x 16"	13.750"	13.000"
1034-T-18	18 x 18 x 18"	14.000"	14.000"
1034-T-20	20 x 20 x 20"	15.500"	15.500"
1034-T-2418	24 x 24 x 18"	17.000"	14.500"
1034-T-24	24 x 24 x 24"	17.500"	17.500"

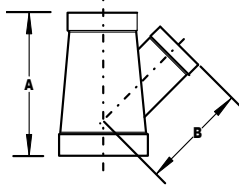
<b>Bell (Socket)</b>																
<b>Dimensions</b>																
<b>Size</b>	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
<b>Socket Depth</b>	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"



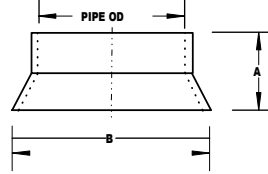
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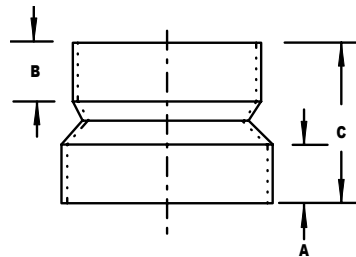
<b>Wye 45°</b>			
<b>Belled</b>			
Size	A	B	C
4 X 3 X 2"	15.000"	9.125"	10.875"
5 X 4 X 3"	15.250"	9.875"	11.625"
6 X 4 X 4"	15.250"	9.625"	11.250"
7 X 6 X 5"	17.750"	12.000"	13.375"
8 X 6 X 4"	22.000"	14.500"	17.000"
9 X 7 X 6"	22.000"	15.250"	17.750"
10 X 8 X 6"	22.250"	16.375"	18.625"
11 X 9 X 8"	28.250"	18.750"	21.625"
12 X 10 X 8"	24.625"	17.625"	19.250"
14 X 12 X 10"	28.875"	20.750"	22.750"
16 X 14 X 12"	28.750"	21.000"	22.375"
18 X 16 X 14"	34.625"	26.375"	29.125"
20 X 18 X 16"	34.375"	25.125"	26.000"
24 X 20 X 18"	46.000"	32.750"	36.000"



<b>Rainskirt</b>			
<b>(Belled)</b>			
Part No.	Size	A	B
1034-RS-02	2"	2.250"	4.500"
1034-RS-03	3"	2.625"	5.500"
1034-RS-04	4"	4.000"	6.875"
1034-RS-05	5"	4.000"	8.000"
1034-RS-06	6"	4.000"	8.875"
1034-RS-07	7"	4.000"	10.250"
1034-RS-08	8"	4.000"	11.375"
1034-RS-09	9"	4.000"	12.250"
1034-RS-10	10"	4.000"	13.625"
1034-RS-11	11"	4.000"	14.000"
1034-RS-12	12"	4.000"	16.250"
1034-RS-14	14"	4.000"	17.000"
1034-RS-16	16"	4.000"	19.000"
1034-RS-18	18"	6.000"	22.000"
1034-RS-20	20"	6.000"	23.625"
1034-RS-24	24"	8.000"	27.000"

<b>Reducer Coupling</b>				
<b>(One Step) Bell X Bell</b>				
Part No.	Size	A	B	C
1034-RC-0403	4 X 3"	1.750"	1.750"	7.000"
1034-RC-0604	6 X 4"	2.000"	1.750"	7.000"
1034-RC-0806	8 X 6"	2.250"	2.000"	8.000"
1034-RC-1008	10 X 8"	2.500"	2.000"	8.000"
1034-RC-1210	12 X 10"	2.500"	2.500"	8.000"
1034-RC-1412	14 X 12"	2.500"	2.500"	7.250"
1034-RC-1614	16 X 14"	2.500"	2.500"	9.000"
1034-RC-1816	18 X 16"	2.500"	2.500"	8.250"
1034-RC-2018	20 X 18"	3.000"	2.500"	8.750"
1034-RC-2420	24 X 20"	4.000"	3.000"	13.000"
<b>(Two Step) Bell X Bell</b>				
1034-RC-0804	8 X 4"	2.250"	1.750"	12.500"
1034-RC-1006	10 X 6"	2.500"	2.000"	12.750"
1034-RC-1208	12 X 8"	2.500"	2.250"	13.250"
1034-RC-1410	14 X 10"	2.500"	2.500"	12.500"
1034-RC-1612	16 X 12"	2.500"	2.500"	13.500"
1034-RC-1814	18 X 14"	2.500"	2.500"	14.500"
1034-RC-2016	20 X 16"	3.000"	2.500"	13.750"
1034-RC-2418	24 X 18"	4.000"	2.500"	18.000"

*Rolled reducers also available*



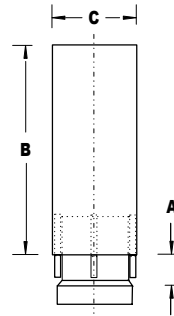
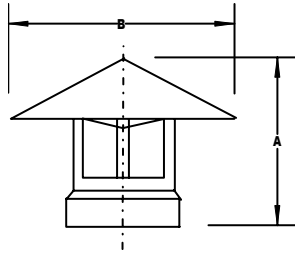
<b>Bell (Socket)</b>																
<b>Dimensions</b>																
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"



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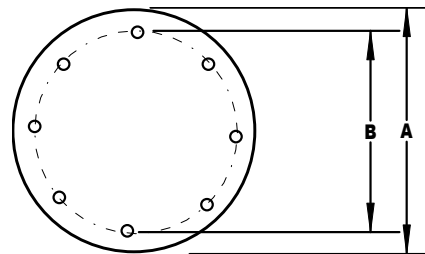
<b>Rain Cap (Style "A")</b>			
<b>(Belled)</b>			
Part No.	Size	A	B
1034-WCA-02	2"	8.000"	4.000"
1034-WCA-03	3"	8.500"	6.000"
1034-WCA-04	4"	9.000"	8.000"
1034-WCA-05	5"	9.500"	10.000"
1034-WCA-06	6"	10.500"	12.000"
1034-WCA-07	7"	11.000"	14.000"
1034-WCA-08	8"	12.250"	16.000"
1034-WCA-09	9"	13.000"	18.000"
1034-WCA-10	10"	13.500"	20.000"
1034-WCA-11	11"	14.000"	22.000"
1034-WCA-12	12"	15.250"	23.000"
1034-WCA-14	14"	16.000"	28.000"
1034-WCA-16	16"	16.750"	32.000"
1034-WCA-18	18"	17.500"	36.000"
1034-WCA-20	20"	18.500"	40.000"
1034-WCA-24	24"	19.000"	44.000"

<b>Rain Cap (Style "B")</b>				
<b>Zero Pressure Loss Feature</b>				
<b>(Belled)</b>				
Part No.	Size	A	B	C
1034-WCB-02	2"	6.000"	8.000"	3.500"
1034-WCB-03	3"	6.000"	12.000"	4.500"
1034-WCB-04	4"	6.000"	16.000"	6.625"
1034-WCB-05	5"	8.000"	18.000"	7.375"
1034-WCB-06	6"	8.000"	24.000"	8.625"
1034-WCB-07	7"	8.000"	28.000"	9.375"
1034-WCB-08	8"	8.000"	32.000"	10.750"
1034-WCB-09	9"	8.000"	36.000"	11.375"
1034-WCB-10	10"	8.000"	40.000"	12.750"
1034-WCB-11	11"	8.000"	44.000"	12.750"
1034-WCB-12	12"	8.000"	48.000"	14.000"
1034-WCB-14	14"	8.000"	56.000"	16.000"
1034-WCB-16	16"	8.000"	64.000"	18.000"
1034-WCB-18	18"	10.000"	72.000"	20.000"
1034-WCB-20	20"	10.000"	80.000"	22.000"
1034-WCB-24	24"	12.000"	96.000"	26.000"

### Blind Flange

Part No.	Size	A	B	# Bolt Holes
1034-BF-02	2"	6.000"	5.000"	4
1034-BF-03	3"	7.500"	6.000"	4
1034-BF-04	4"	8.000"	6.500"	6
1034-BF-05	5"	9.000"	7.500"	8
1034-BF-06	6"	10.000"	8.500"	8
1034-BF-07	7"	11.000"	9.500"	8
1034-BF-08	8"	12.000"	10.500"	10
1034-BF-09	9"	13.000"	11.500"	10
1034-BF-10	10"	14.000"	12.500"	12
1034-BF-11	11"	15.000"	13.500"	12
1034-BF-12	12"	16.000"	14.500"	14
1034-BF-14	14"	18.000"	16.500"	16
1034-BF-16	16"	20.000"	18.500"	18
1034-BF-18	18"	22.000"	20.500"	20
1034-BF-20	20"	24.000"	22.500"	22
1034-BF-24	24"	28.000"	26.500"	24

All flanges are 3/16" thick material  
All bolt holes are 5/16" diameter



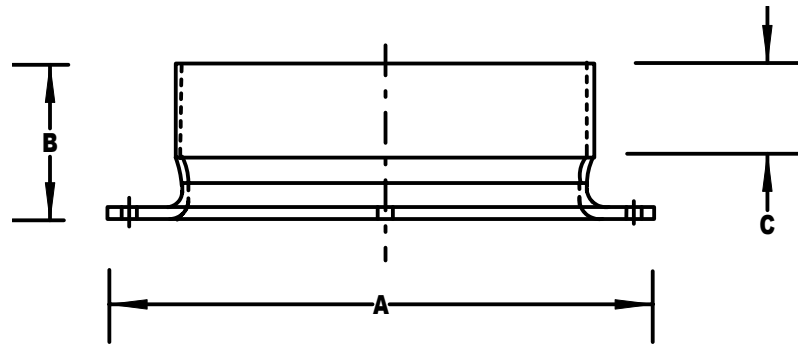
<b>Bell (Socket)</b>																
<b>Dimensions</b>																
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"



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**Flange**  
(Socket/Belled)

Part No.	Size	A	B	C	Bolt	# Bolt
					Circle	Holes
1034-SF-02	2"	6.000"	2.500"	1.500"	5.000"	4
1034-SF-03	3"	7.500"	2.500"	1.750"	6.000"	4
1034-SF-04	4"	8.000"	3.000"	1.750"	6.500"	6
1034-SF-05	5"	9.000"	3.500"	2.000"	7.500"	8
1034-SF-06	6"	10.000"	4.000"	2.000"	8.500"	8
1034-SF-07	7"	11.000"	4.000"	2.250"	9.500"	8
1034-SF-08	8"	12.000"	4.000"	2.250"	10.500"	10
1034-SF-09	9"	13.000"	4.000"	2.250"	11.500"	10
1034-SF-10	10"	14.000"	4.000"	2.500"	12.500"	12
1034-SF-11	11"	15.000"	4.000"	2.500"	13.500"	12
1034-SF-12	12"	16.000"	4.000"	2.500"	14.500"	14
1034-SF-14	14"	18.000"	4.000"	2.500"	16.500"	16
1034-SF-16	16"	20.000"	4.000"	2.500"	18.500"	18
1034-SF-18	18"	22.000"	4.000"	2.500"	20.500"	20
1034-SF-20	20"	24.000"	4.000"	3.000"	22.500"	22
1034-SF-24	24"	28.000"	4.000"	3.000"	26.500"	24

All flanges are 3/16" thick material  
All bolt holes are 5/16" diameter

**Note: Undrilled flanges also available**

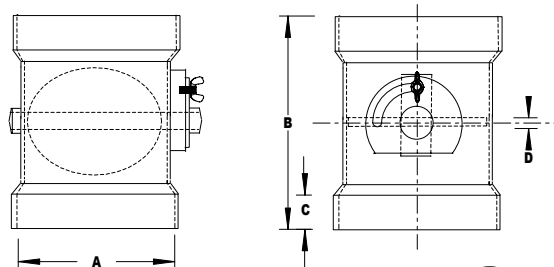
**Flanges with 150# drilling available on a custom basis**

Bell (Socket)																
Dimensions																
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"



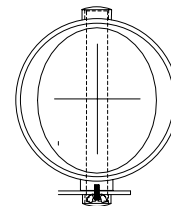
Butterfly Damper (Belled)	
Part No.	Size
1034-BD-02	2"
1034-BD-03	3"
1034-BD-04	4"
1034-BD-05	5"
1034-BD-06	6"
1034-BD-07	7"
1034-BD-08	8"
1034-BD-09	9"
1034-BD-10	10"
1034-BD-11	11"
1034-BD-12	12"
1034-BD-14	14"
1034-BD-16	16"
1034-BD-18	18"
1034-BD-20	20"
1034-BD-24	24"

**BUTTERFLY DAMPERS**



**Features and Benefits**

- Materials of Construction:  
Body, damper plate, shaft: PVC, CPVC, PP, HDPE  
Locking hardware; stainless steel
- All plastic internal parts
- Sizes Offered: 2" thru 24" including 3", 5", 7", 9" & 11"
- Available with belled socket, flanged or spigot ends
- Optional electric motor actuated
- Furnished with locking quadrant damper allowing for permanent position set
- Allows for less than 5% air-flow restriction
- Offers an approximate 95% seal
- Optional positive seal shaft & damper plate
- 90° damper plate operation
- Can be installed either vertically or horizontally



Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
A	2.375"	3.500"	4.500"	5.563"	6.625"	7.375"	8.625"	9.375"	10.750"	11.375"	12.750"	14.000"	16.000"	18.000"	20.000"	24.000"
B	6.750"	7.750"	8.500"	8.500"	9.500"	9.500"	10.500"	10.500"	11.750"	11.750"	12.750"	13.750"	15.750"	17.750"	19.750"	23.750"
C	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"
D	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.187"	.250"	.250"	.250"



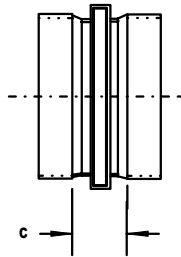
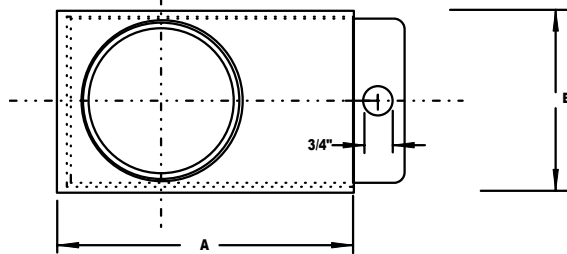
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<b>Blastgate</b>				
<i>(Belled)</i>				
Part No.	Size	A	B	C
1034-BG-02	2"	6.000"	3.750"	1.000"
1034-BG-03	3"	7.000"	4.880"	3.250"
1034-BG-04	4"	8.000"	5.560"	3.250"
1034-BG-05	5"	11.000"	8.880"	5.000"
1034-BG-06	6"	11.000"	8.880"	5.000"
1034-BG-07	7"	11.000"	8.880"	5.000"
1034-BG-08	8"	14.000"	10.250"	4.000"
1034-BG-09	9"	14.000"	10.250"	4.000"
1034-BG-10	10"	17.000"	12.380"	4.500"
1034-BG-11	11"	20.000"	12.380"	4.500"
1034-BG-12	12"	20.000"	13.880"	4.500"
1034-BG-14	14"	21.750"	15.500"	4.500"
1034-BG-16	16"	23.000"	17.500"	4.250"
1034-BG-18	18"	28.000"	19.500"	4.250"
1034-BG-20	20"	30.750"	21.500"	5.750"
1034-BG-24	24"	34.000"	25.500"	5.750"

Gate is 3/16" thick material



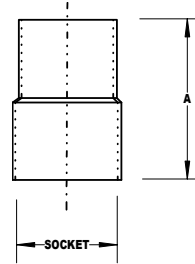
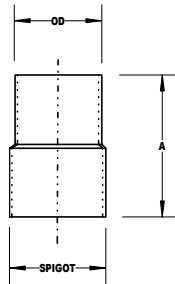
<b>Bell (Socket)</b>																		
<b>Dimensions</b>																		
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"		
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"		



# HARRISON

HARRISON MACHINE AND PLASTIC CORPORATION

11614 State Route 88 Garrettsville, OH 44231



**Flex Hose Adapter**  
Hose Spigot x Duct Spigot

Part No.	Size		Spigot	A
	O.D. (Hose)	P.E. (Duct)		
1033-FHA-02	2"	2.375"	5.500"	
1033-FHA-03	3"	3.500"	6.000"	
1033-FHA-04	4"	4.500"	7.000"	
1033-FHA-05	5"	5.563"	7.000"	
1033-FHA-06	6"	6.625"	7.500"	
1033-FHA-08	8"	8.625"	9.000"	
1033-FHA-10	10"	10.750"	9.000"	
1033-FHA-12	12"	12.750"	9.000"	
1033-FHA-14	14"	14.000"	8.000"	
1033-FHA-16	16"	16.000"	8.000"	
1033-FHA-18	18"	18.000"	8.000"	

**Flex Hose Adapter**  
Hose Spigot x Duct Bell

Part No.	Size		Bell	A
	O.D. (Hose)	(Socket) (Duct)		
1034-FHA-02	2"	2.375"	5.500"	
1034-FHA-03	3"	3.500"	6.000"	
1034-FHA-04	4"	4.500"	7.000"	
1034-FHA-05	5"	5.563"	7.000"	
1034-FHA-06	6"	6.625"	7.500"	
1034-FHA-08	8"	8.625"	9.000"	
1034-FHA-10	10"	10.750"	9.000"	
1034-FHA-12	12"	12.750"	9.000"	
1034-FHA-14	14"	14.000"	8.000"	
1034-FHA-16	16"	16.000"	8.000"	
1034-FHA-18	18"	18.000"	8.000"	

**Flexible Duct**  
(PVC)

Part No.	Size (I.D.)	Bare Wire Ga.	Wall	Standard Length
1033-FH-02	2"	0.045	0.024"	25 ft.
1033-FH-03	3"	0.045	0.032"	25 ft.
1033-FH-04	4"	0.045	0.032"	25 ft.
1033-FH-05	5"	0.045	0.032"	25 ft.
1033-FH-06	6"	0.064	0.032"	25 ft.
1033-FH-08	8"	0.064	0.032"	25 ft.
1033-FH-10	10"	0.064	0.024"	15 ft.
1033-FH-12	12"	0.064	0.024"	15 ft.
1033-FH-14	14"	0.064	0.024"	15 ft.
1033-FH-16	16"	0.064	0.024"	15 ft.
1033-FH-18	18"	0.064	0.024"	15 ft.

**Flexible Duct Coupling**

Part No.	Size	A
1034-FC-02	2"	6"
1034-FC-03	3"	6"
1034-FC-04	4"	6"
1034-FC-05	5"	6"
1034-FC-06	6"	6"
1034-FC-08	8"	6"
1034-FC-10	10"	6"
1034-FC-12	12"	6"
1034-FC-14	14"	6"
1034-FC-16	16"	6"
1034-FC-18	18"	6"

<b>Bell (Socket)</b>																
<b>Dimensions</b>																
Size	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"
Socket Depth	1.500"	1.750"	1.750"	2.000"	2.000"	2.250"	2.250"	2.250"	2.500"	2.500"	2.500"	2.500"	2.500"	2.500"	3.000"	3.000"



**HARRISON**

**HARRISON MACHINE AND PLASTIC CORPORATION**

11614 State Route 88    Garrettsville, OH 44231

Single and Double Lateral Hoods, as well as Rear Exhaust Hoods are also available, fabricated to Harrison standards or to customer requirements.

**Double Lateral Hood**

**Lengths from 24" to 96"  
Widths from 18" to 66"**

**Double Slot Rear Exhaust Hood**

**Widths from 18" to 72"**

**Single Lateral Hood**

**Lengths from 24" to 18 ft.**

**Single Slot Rear Exhaust Hood**

**Lengths from 18" to 72"**

**Transitions (square to round, rectangular to round) with socket or flanged connections available per customer specifications. Transitions to dis-similar materials also available. Please contact us for pricing.**