

Dust-Master

TWO-STAGE DUST COLLECTOR

engineering data
and specifications



CINCINNATI FAN 

DUST-MASTER, HIGH EFFICIENCY, TWO STAGE DUST COLLECTOR

STANDARD FEATURES, ALL MODELS

Dust Collector

- Much higher filtration efficiency than any single stage designs. See page 3.
- Powerful, self-cleaning, cast aluminum, radial blade blower wheels.
- 14 gauge, powder-coated, steel blower housing.
- Fabric filter bag, 5 feet of flexible inlet hose and square inlet nozzle are included.
- All dust bags are 99% efficient.
- Quiet operation.
- See accessories on pages 5, 6 and 7.
- Manufactured in the U.S.A.

33S - 50S - 75S Model Features

- Heavy duty, molded ABS drum lid. Fits any container with an 19 1/2" - 20 1/2" diameter such as 30 gallon galvanized trash can or 30-35 gallon steel or fire resistant fiber drum. Plastic drums are not recommended.

100S - 150S - 200S Model Features

- Heavy duty, molded, fiberglass reinforced epoxy drum lid. Fits any container with a 23"-24" diameter such as 55 gallon steel or foil lined fiber drum. Fiber drums should be able to support the unit weight. Plastic drums are not recommended.

300S Model Features

- Same lid as on 100S - 200S models.
- Shipped with inlet hose and filter bag connection kit. Oversized, after filter bag ordered separately. See pages 5 and 6 for filter bag sizes and fabric selection.

Motors

- All motors are 3450 RPM, TEFC enclosure, with sealed ball bearings, no lubrication required. All models are available in 115/230 volt, single phase (except 300S) or 230/460 volt, three phase.
- 300S model available with 230/460 volt, 3 phase, 60 cycle, TEFC motor only.
- All motors are continuous duty, industrial motors. Not duty rated.
- Switch, 8 foot cord and 115 volt, three prong, grounded plug are included on single phase, 60 Cycle, TEFC motors for models 33S, 50S, 75S and 100S.
- Most models are also available with explosion proof motors.
- 575 volt and 50 cycle motors also available for most models.



33S - 50S - 75S Model
Drums or cans not included



100S - 150S - 200S Model

SPECIFICATIONS

Model	Motor hp	Maximum CFM note 1	Maximum SP note 2	dBA @ 5'	Standard Dust Bag			Blower Wheel Diameter	Hose Size	Inlet Nozzle Size	Maximum Drum Diameter	Full Load Amps note 3		Approximate Shipping Weight lb note 2
					Fabric	Area sq ft	Micron note 3					115V 1 Ph	230/460 3 Ph	
33S	1/3	335	3"	76	Cotton Sateen	12.5	10	8"	3" x 60"	4" x 4"	20 1/2"	5.8	1.8	32
50S	1/2	450	7"	78		12.5	10	9 3/4"	4" x 60"	5" x 5"	20 1/2"	8.8	1.9	50
75S	3/4	580	7"	78		12.5	10	10 5/8"	4" x 60"	5" x 5"	20 1/2"	8.8	2.4	53
100S	1	700	4 1/2"	83	Knit Polyester	18	5	10 5/8"	5" x 60"	6" x 6"	24"	11.2	3.2	72
150S	1 1/2	875	6 1/2"	76		18	5	11"	6" x 60"	7" x 7"	24"	16	4.4	85
200S	2	1100	8 1/2"	85		18	5	12 1/4"	6" x 60"	7" x 7"	24"	20	5.6	97
300S	3	1300	10"	84	Select Oversize Bag pages 5 and 6			13"	6" x 60"	7" x 7"	24"		7.6	113

- 1 Maximum CFM at 0" S.P. (clean drum, dust bag and with 5 feet of inlet hose).
- 2 Maximum additional static pressure at which point there will be no air flow.
- 3 Minimum micron size that standard dust bag will capture.

- 4 See Model Features above.
- 5 Starting amps are approximately 6-7 times the full load amps. High voltage amps are half of low voltage amps. Amp loads shown above are approximate and vary with different motors.

TWO STAGE DUST COLLECTOR ADVANTAGES

COMPARED TO SINGLE STAGE UNITS

Dust-Master, Two Stage Dust Collectors are more Efficient:

Two-stage Dust-Masters separate out all the large, heavy, abrasive particles in the cyclonic separator first stage of the collector. Only the fine dust particles pass through the blower to the second stage filter bag. Single stage collectors draw all the large, heavy, abrasive dust into the blower which causes rapid wearing of the blower wheel and housing and can very quickly cause a very dangerous wheel unbalance problem.

See the two-stage Dust-Master filtration diagram below.

Dust-Master, Two Stage Dust Collectors are more Durable:

Dust-Masters are more durable since erosion of the wheel and housing by the heavy, abrasive particles in a single stage collector is eliminated in the first stage of a two-stage collector. There are many Cincinnati Fan Dust Master Dust Collectors still in operation in home work shops and factories for more than 20 years.

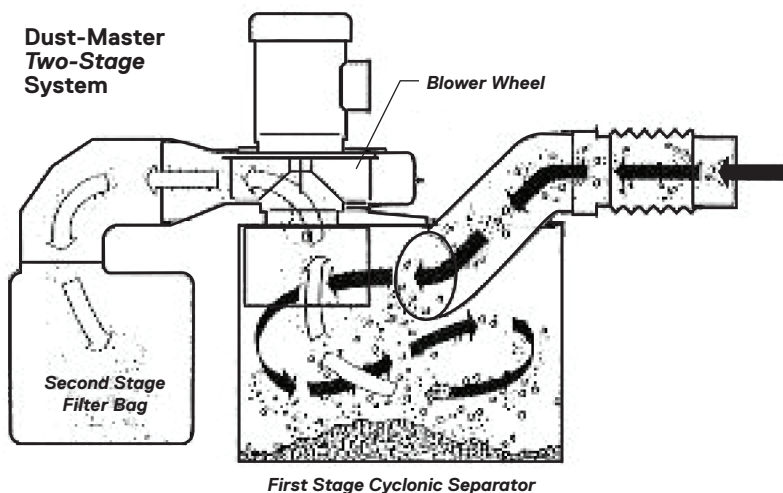
Dust-Master, Two Stage Dust Collectors provide a Safer Work Environment:

Collecting dust and grit at the source eliminates having to vacuum the floor. It is also much easier to see what you are working on without all the dust and debris clouding your view. The Models 33S, 50S and 75S come complete with 10 micron dust bags as standard. The Models 100S, 150S and 200S come complete with 5 micron dust bags as standard. By utilizing micron size dust bags in these low ranges, the operator breathes in much cleaner air. Some wood dust particles, when

breathed in over time, can cause severe damage to your lungs and even lead to death. Keeping the dust out of the air is just as important as wearing safety glasses. Your good health at home or at work is more important than the satisfaction and joy achieved by creating something in wood or metal. Cincinnati Fan also offers a wide variety of special dust bags that can filter out dust particles down to 1 micron and fire resistant materials for metal grinding applications. We also carry a wide variety of sheet metal nozzles, reducers, Y-connectors and other items to complete ductwork connections from your equipment to the dust collector. See available accessories on pages 5, 6 and 7.

Dust-Master, Two Stage Dust Collectors are manufactured in the U.S.A.:

In an era when small machinery manufacturing is continually going over-seas, we are proud that Cincinnati Fan Dust-Master Dust Collectors are still made and assembled in our factory in Mason, Ohio. You will find imported products, some of which are copies of our design. Your selection should not turn out to be a disappointment. Compare the features, benefits and component material. We feel confident you will be as proud to own a Cincinnati Fan Dust-Master dust collector as we are to build them. Two-stage Dust-Master dust collectors, made by Cincinnati Fan, are still being used today by the president of a leading wood working magazine in his shop at home and by certain popular woodworking shows seen on national TV. One show featured the benefits of our dust collectors in one of their episodes.



⚠ WARNING

Dust-masters are not designed to collect reactive metals such as aluminum, magnesium, tantalum, titanium and zirconium.

Collecting these materials can result in a severe explosion and/or fire resulting in death, severe personal injury and extensive property damage. Consult the National Fire Protection Association (NFPA) for all applicable standards.

⚠ WARNING

All fans and blowers shown have rotating parts and pinch points. Severe personal injury can result if operated without guards, elbow and dust bag supplied with units. High electrical voltage can cause severe injury or death.

Disconnect or lock out from power source and let motor come to a complete stop before inspecting, servicing or moving.

Read operating instructions before operating unit.

⚠ CAUTION

The National Fire Protection Association (NFPA), Standard 664, 2007 Edition, states that no dust collector can be used to collect BOTH wood dust or chips AND metal dust or chips. It also states that any flexible hose connections to a machine must be "as short as possible", and no PVC hose or pipe may be used in ANY dust collection system. Consult NFPA Standard 664 for additional specifications before installing a dust collection system that will be used in wood processing or woodworking facilities. Per the NFPA standard 664, the dust collectors listed in this catalog are classified as "Enclosureless" type.

EXHAUST VOLUMES REQUIRED FOR DIFFERENT APPLICATIONS note 1

Woodworking			
Equipment	Size		Min CFM Required note 2
Jointer	Knife Length	Up to 6"	350
		6" to 12"	440
		12" to 20"	550
		over 20"	800
Sander, Belt (horizontal)	Belt Width	Up to 6"	790 note 3
		6" to 9"	900 note 3
		9" to 14"	1240 note 3
Sander, Disc	Belt Diameter	Up to 12"	350
		12" to 18"	440
		18" to 26"	550
Sander, Drum	Drum Surface sq in	Up to 200	350
		201 to 400	550
		401 to 700	785
		701 to 1400	1100
Saw, Band	Blade Width	Up to 2"	700 note 3
		2" to 3"	900 note 3
		3" to 4"	1350 note 3
Saw, Radial	Hood behind blade =		430
	From port on blade guard =		70
	Total =		500
Saw, Swing	Blade Diameter	Up to 20"	350
		over 20"	440
Saw, Table	Blade Diameter	Up to 16"	350
		16" to 24"	440
		over 24"	550
		Variety with dado =	800
Planer, Single	Knife Length	Up to 20"	785
		20" to 26"	1100

1 The exhaust volume (CFM) requirements shown are "From American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation: A Manual of Recommended Practice, 19th Edition. Copyright 1986. Reprinted with permission." Consult manual for more detailed recommendations. Contact them at www.acgih.org.

Metal Working (except reactive metals)			
Equipment	Size		Min CFM Required note 4
Buffing, Belt	Belt Width	Up to 3"	220
		3" to 5"	300
		5" to 7"	390
		7" to 9"	500
		9" to 11"	610
Buffing, Wheel	Wheel Width note 5	11" to 13"	740
		2"	300
		3"	500
		4"	610
		5"	740
Grinding Wheel below 6500 sf/m (surface ft/min)	Wheel Width note 5	6"	1040
		1"	220
		1.5"	220
		2"	390
		3"	500
Grinding Wheel above 6500 sf/m (surface ft/min)	Wheel Width note 5	4"	610
		5"	880
		6"	1200
		1"	220
		1.5"	390
Grinding Wheel above 6500 sf/m (surface ft/min)	Wheel Width note 5	2"	610
		3"	740
		4"	880
		5"	1200

- CFMs required are minimums per each equipment type. Duct velocity should not be less than 3500 fpm to prevent wood dust from settling in duct work.
- Requires 2 nozzles or hoods. CFMs shown are total CFM for both nozzles or hoods.
- For all metalworking applications, duct velocity should be at least 3500 fpm for light grinding or buffing and at least 4500 fpm for heavy grinding or buffing to prevent dust from settling in duct work.
- The wheel hood should cover at least 75% of the wheel to be considered a good enclosure.

SELECTING THE CORRECT DUST-MASTER MODEL

Dust-Master dust collectors will give you excellent results in collecting wood chips, fine dust and metal shavings, they are not designed to work in large central system applications. These are portable units that can be moved from machine to machine. To select the proper size **Dust-Master**, use the following steps.

- Add the CFM required for each machine per the above table. This is your total CFM required.
- Select the **Dust-Master** model from page 2 with a maximum CFM greater than your total CFM required in step 1. If none of the models on page 2 have a maximum CFM greater than your total CFM required, you will need more than one unit. See note 7.
- If the unit will be in a fixed-installation, all ductwork should be sheet metal instead of flexible hose. The pressure drop through flexible hose is 2-3 times that of smooth wall pipe. **Do Not use PVC or plastic pipe. It can deliver a severe static electric shock caused by high velocity dust passing through it.**
- The **Dust-Master** should be located as close to the machine as possible and preferably no more than 10 feet.

- Use as few elbows as possible in your ductwork. The loss through one 90° elbow is equal to approximately 10 feet of straight, smooth wall pipe.
- If the **Dust-Master** will be used for more than one machine, you should install slide-gate dampers in the duct at each machine to close-off that section of duct when using another machine. This will allow the **Dust-Master** to pull from only one machine at a time and thus increase the dust collector efficiency.
- Typically**, a 150S model will work with up to 20 total feet of duct, a 200S model will work with up to 30 total feet of duct and a 300S model will work with up to 75 total feet of duct. These values are based on dampers installed at each machine connection (note 6) and all ducting smooth wall, sheet metal.

Note—The National Fire Protection Association (NFPA), Standard 664, 2007 Edition, states that no dust collector can be used to collect both wood dust or chips and metal dust or chips.

DUST-MASTER OVERSIZED AFTER-FILTER BAGS

FIVE MODELS AVAILABLE (See page 6 for fabric selection)

Oversized filter bags are designed for use on Dust-Master dust collectors to improve performance in three situations:

- 1 On the **300S** model, an oversized filter bag is required to provide sufficient bag filtration area.
- 2 Some operations generate mostly fine dust (e.g., sanding) or very light chips (e.g., thin planer cuts on soft wood). In many cases, the light-weight dust or chips will be carried over to the second stage of the dust collector and collected in the filter bag. This results in having to frequently remove the dust bag for emptying. Using an oversized filter bag will provide a much larger storage volume and thus reduce the frequency needed to clean the bag.
- 3 When the dust being collected is a very fine (smaller than 5 microns), a 1 micron filter bag fabric should be used. **These fabrics, however, significantly increase the air flow resistance through the filter bag walls.** This resistance creates a back pressure on the blower of the Dust-Master and thus reduces its dust collection capability.

By using an oversized filter bag, the filtration surface area is greatly increased thus reducing the back pressure back to the normal level. For more information on bag fabrics, see page 6.

24X80-HB - 48X80-HB Model Hanging Bag Assemblies

Complete with steel angle suspension ring and hooks to engage eyelets in bag. Large zipper in bottom of bag for removal of dust.

- **24X80-HB** 24" diameter x 80" high, 48 sq ft filter area
- **48X80-HB** 48" diameter x 80" high, 110 sq ft filter area

24X80-DB - 24X80-DB - 48X80-DB Drum Bags

Metal eyelets in top, center of bag for suspension and web belt with quick release buckle, holds bag onto drum.

- **24X40-DB** 24" diameter x 40" high, 24 sq ft filter area
- **24X80-DB** 24" diameter x 80" high, 45 sq ft filter area
- **48X80-DB** 48" diameter x 80" high, 100 sq ft filter area

Bag Connector Kit

For connecting oversized dust bags to Dust-Master. Includes 5 feet of PVC hose, hose-to-bag connector and 3 hose clamps

- **10-20** 4" hose for 50S and 75S models
- **10-30** 6" hose for 100S, 150S and 200S models (**10-30** included with 300S mode)



There are five oversized filter bag models comprised of three sizes and four material types:

The two HB type bags are designed to hang from an angle iron ring and they have a closed bottom with a zipper for removal of the dust.

The three DB type models are designed to mount onto a second open top 55 gallon drum and the fine dust falls into the drum. This is the bag type we recommend since it is much easier to empty the drum than to empty the HB type bags.

The 24X80 and 48X80 size models are normally used with Models 100S through 200S and required on Model 300S. The 24X40-DB filter bag is designed to be used on Models 50S and 75S. No oversized bags are needed for Model 33S.

The initial installation of an oversized filter bag will also require the use of a Bag Connector Kit as described below.



DB Model Bag Assembly
Drums not included

HB Model Bag Assembly
Drums not included

Dust-Master Dolly Base

Portable four wheel steel dolly

- **261301** 19" x 19" with 2" rubber casters for 33S, 50S and 75S models - 18 lb
- **261301** 24" x 24" with 2" rubber casters for 100S, 150S and 200S models - 23 lb

FILTER BAG FABRIC OPTIONS

COTTON SATEEN is an economical fabric for use with coarse (10 micron and larger) dust for 33S-75S models. Cotton Sateen is not resistant to most chemicals. **Temperature limit 200°F.**

KNIT POLYESTER has a three dimensional knit pattern which enables it to filter finer particles (5 micron and larger) with less air flow resistance than cotton sateen. Polyester fibers are resistant to most chemicals. **Temperature limit 275°F** - note 2.

ACRYLIC COATED POLYESTER FELT will remove dry dust particles (1 micron and larger) however, the CFM will be reduced by up to 40% unless the bag size is increased via an oversized bag (see page 5). The acrylic coating is not resistant to most chemicals. **Temperature limit 275°F** - note 2.

TEFLON® COATED POLYESTER FELT will remove particles (1 micron and larger) and should be used whenever the dust is "sticky" or chemically active - **see** note 1. Sticky dust includes oily buffing dust and certain mineral dusts such as marble. The fabric is resistant to most chemicals.

Temperature limit 275°F - note 2.

- 1 The Dust-Master's materials of construction have limited chemical resistance. Consult factory before using on chemically active dusts.
- 2 Some materials of construction used on the Dust-Master have limited resistance to heat and/or hot sparks. The inlet hose should be replaced with flexible metal hose. Even with this change, the air temperature drawn into the dust collector should not exceed 200°F, although the dust particles may be hotter.

DUST-MASTER OVERSIZE AND REPLACEMENT BAGS

DUST BAGS ARE 99% EFFICIENT AT MICRON SIZE SHOWN

Standard Dust Bag	Bag Inlet Diameter	Bag Surface Area sq ft	Part Number			
			Cotton Sateen	Knit Polyester	Acrylic Coated Polyester Felt	Teflon Coated Polyester Felt
			10 Micron lowest cost	5 Micron general purpose	1 Micron fine dust	1 Micron sticky fine dust
33S Model	4 3/4"	12.5	25035 (S)	25072		
50S Model	4 3/4"	12.5	25035 (S)	25072 note 1		
75S Model	4 3/4"	12.5	25035 (S)	25072 note 1		
100S - 150S - 200S Model	6 3/4"	18		25071 (S)	25149 (S) note 2	25191 (S) note 2
Optional Oversize Dust Bag For Use On 50S and 75S Model						
24X80-DB note 3	4 3/4"	24	25042	25073		
Optional Oversize Dust Bag For Use On 100S - 150S - 200S and 300S Model						
24X80-DB note 3	6 3/4"	45		25074	25101	25193
48X80-DB note 3	6 3/4"	100		25076	25102	25194
24X80-HB Bag Only note 3	6 3/4"	48		25075	25188	25195
24X80-HB Assembly note 4	6 3/4"	48		25078	25197	25199
48X80-HB Bag Only note 3	6 3/4"	110		25077	25189	25196
48X80-HB Assembly note 4	6 3/4"	110		25079	25200	25202

Part numbers with (S) behind them are the standard dust bag supplied with that model dust collector. All others are optional.

Part numbers in **bold italic** are non-stock with 2-3 week shipment.

- 1 A 24X40-DB bag is recommended to reduce resistance and increase efficiency.
- 2 A 45, 48, 100 or 110 square foot surface area bag is recommended to reduce resistance and increase efficiency.

3 Does not include the Bag Connector Kit listed on page 5.

4 Includes dust bag, steel ring and J-hooks. Does not include the Bag Connector Kit listed on page 5.

ACCESSORY PARTS

Inlet Suction Nozzle



Square



Side Intake



Flat

Part Number	Type	Hose Size	Nominal Opening
51014	Square	3"	4" x 4"
51015		4"	4" x 8"
51016		5"	6" x 6"
51017		6"	7" x 7"
51018	Side Intake	3"	3" x 5"
51019		4"	4" x 8"
51020		5"	5" x 8"
51021		6"	6" x 9"
51026	Flat	3"	7" x 1"
51027		4"	8" x 1 1/2"
51028		5"	10" x 2"
51029		6"	12" x 2 1/2"



Draw lug on large end.



Hose fits over small end only. Opposite end has draw lug.

Y Connector

Part Number	I.D x length
51007 note 1	4" to 3" x 3"
51004 note 3	6" to 3" x 3"
51005 note 3	6" to 4" x 4"

- 1 50S and 75S model
- 2 100S model
- 3 150S to 300S model

Tapered Reducer

Part Number	I.D x length
51045	6" to 3"
51043	6" to 4"
51110	6" to 5"

Fits inlet elbow on 100S to 300S model only.

Note—nozzles, Y connectors and tapered reducers are 26 gauge galvanized steel.

Flexible PVC Hose



Temperature range
20° to 160°F.
Polypropylene with
wire helix.

Part Number	I.D x length
31623PP	3" x 60"
31624PP	4" x 60"
31625PP	5" x 60"
31626PP	6" x 60"
31628PP	4" x 120"
31629PP	6" x 120"

Hose Kit

Part Number	Size
31053PP	3"
31054PP	4"
31055PP	5"
31056PP	6"



Two clamps, one sleeve and
one 60" hose

Hose Clamp



Carbon steel band
and screw

Part Number	Nominal Size	Adjustment Range
31013	3"	1 5/16" - 3 3/4"
31379	4"	2 5/8" - 4 1/2"
31016	5"	3 5/8" - 5 1/2"
31244	6"	4" - 7"

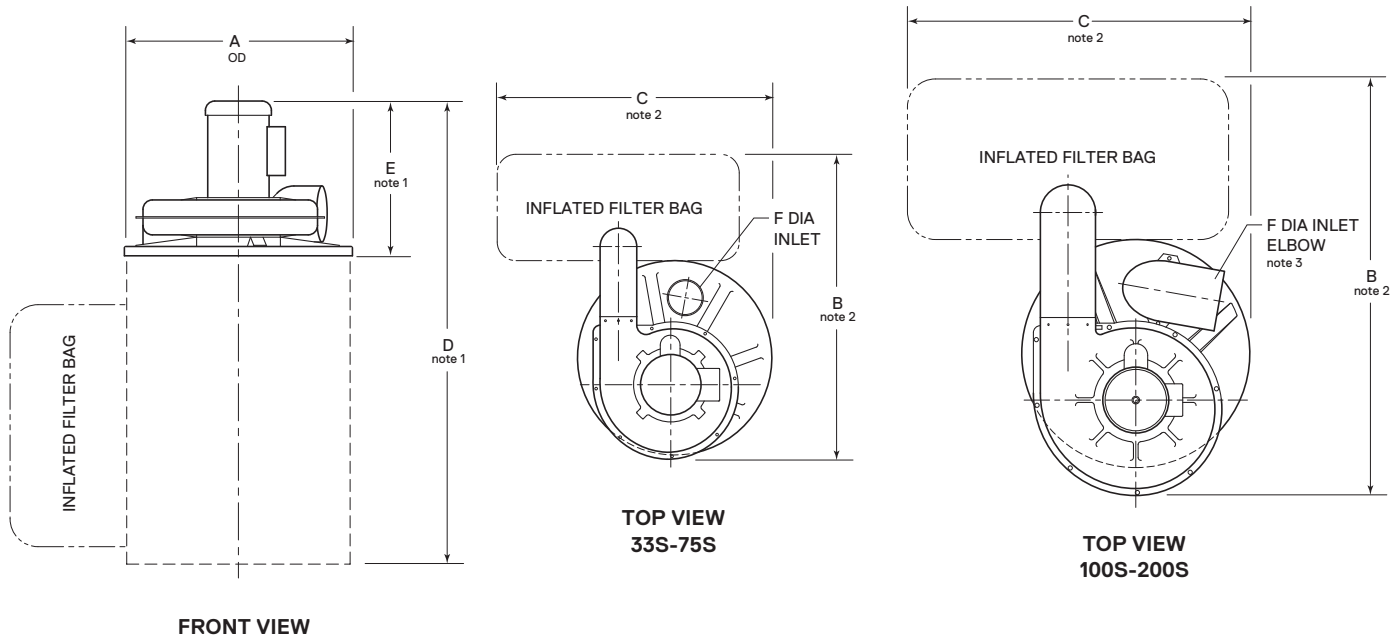


Two clamps and
one sleeve

Hardware Kit

Part Number	Size
31643	3"
31644	4"
31645	5"
31646	6"

DUST-MASTER SCHEMATIC



Model	A	B note 2	C note 2	D note 1	E note 1	F
33S - 75S	20 ⁷ / ₈ "	32 ³ / ₄ "	29 ¹ / ₂ "	40 ¹ / ₄ "	15"	4"
100S - 200S	24 ¹ / ₂ "	44 ³ / ₄ "	37"	52 ³ / ₄ "	18 ³ / ₄ "	6"

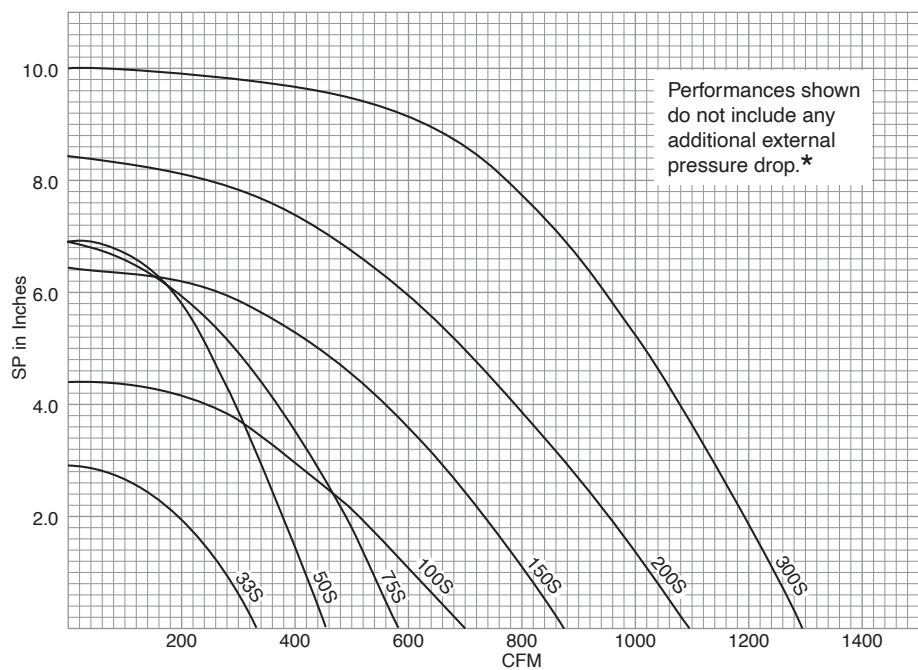
300S model dimensions similar to 200S except for dust bag.

1 Maximum normal dimensions shown, varies with motor

2 Approximate dimensions with standard inflated dust bag.

3 6" x 8" reducer provided for 100S model

DUST-MASTER PERFORMANCE CURVES



* 33S to 200S models tested with standard bags per page 6.

300S model tested with 48X80DB bag.

All models tested with 5 feet of hose and nozzle

SPX ENGINEERED AIR MOVEMENT

7697 SNIDER ROAD
MASON, OH 45040 USA

513 573 1000 | [spxairmovement.com](https://www.spxairmovement.com)

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