

# M3000/M30 Standard, HEPA and Adsorber Module



Manual for:

Installation • Operation • Maintenance

**TRION®**

## **SPECIFICATIONS**

### **Air Handling Capacity**

M3000: See Blower Curves - Pages 13-19

M30: 2000 CFM

(M3000 with arms and inlet plenum)

<b>Power Requirements</b>	<b>AMPS</b>	<b>WATTS</b>
2 HP, 120/230V, 1 PH	23.6/11.8	1610
2 HP, 208-230/460 V, 3 PH	5.8/2.9	1334
3 HP, 208-230/460 V, 3 PH	9.1/4.6	2093/2116

### **Controls**

Owner-supplied motor starter.

### **Cabinet Dimensions**

M3000: 68" Long x 25.0" Wide x 26.25" High

M30: 92" Long x 25.0" Wide x 26.25" High

### **Weight**

M3000: 260 Lbs.

M30: 425 Lbs.

## **FILTERS**

### **Pre-Filter Options:**

Fiberglass pleated 24"H x 24"W x 4"D-STD or

Aluminum mesh 24"H x 24"W x 2"D-STD

Impinger/2" aluminum mesh-OPT

Extended surface wrap-around with 10 sq. ft. of 2" thick polyester media-OPT

2" thick polyester pad in metal frame-OPT

### **Main Filter Options:**

65% efficiency filter bag

95% efficiency filter bag

Texwood bag: Polyester single pocket with fiberglass liner (cleanable)

65%, 75%, 85%, 95%, & 98% extended surface mini-pleat filter

### **HEPA Option Includes:**

95% DOP HEPA or 99.97% absolute HEPA filter

95% efficiency filter bag

HEPA mounts on the clean air side of primary filter

## **PRINCIPLES OF OPERATION**

The TRION M3000 consists of four basic components:

- 1) A cabinet for housing all components
- 2) A blower for moving the air

3) Electrical wiring (To external junction box)

4) Filter components

In addition, the TRION M30 also consists of:

5) Dual arm plenum

6) Pick-up arm assemblies (2 Req'd)

The air in any room contains millions of particles of dust. The composition of the dust will vary depending on the environment. The dust may be in the form of smoke, airborne dirt from outside, small particles of grease or moisture. The size of the particles (or particulate) will range from as little as .03 micron to anything large enough to remain airborne in the air. (A micron is one millionth of a meter).

When the unit is turned on, the blower begins moving the air through the pre-filter section. On the Model M30, this is accomplished by the plenum and arm assemblies. The pre-filter collects the large dust and lint particles. The air then enters the main filter where the dust or smoke is trapped in the millions of fibers of the bag. The cleaned air then passes through the unit and back into the room.

## **NEW UNIT INSPECTION**

Immediately upon receiving the unit, carefully examine the carton for damage during transit. If unit is damaged, contact the last carrier for filing a claim and contact your local TRION Distributor.

While unpacking the unit, look for concealed shipping damage. If there is damage, it should be reported to the last carrier for filing claim and contact your local TRION Distributor.

## **SUSPENSION MOUNTING**

### **CAUTION:**

THE MAXIMUM WEIGHT OF THE MODEL M3000/M30 IS 600 LBS. ANY MOUNTING ARRANGEMENT MUST BE ABLE TO SUPPORT THIS WEIGHT. FAILURE TO DETERMINE IF MOUNTING IS SUBSTANTIAL MAY RESULT IN DAMAGE OR INJURY WITHIN THE AREA.

The following are guidelines for installation, however, alternate methods may be equally adequate.

## **PREPARATION AND INSTALLATION**

This manual should be carefully read before starting the preparation and installation of the air cleaner.

The installation should conform to all local ordinances associated with building codes and electrical codes required for the unit. Authorities having jurisdiction should be consulted before installation is made. If there are no local codes, the installation should conform to the National Electrical Code.

For maximum air cleaning efficiency, your air cleaner should be located as specified by your local TRION Distributor.

### **MOUNTING OF PLENUM AND ARM ASSEMBLIES**

If you have purchased a Model M30 with the plenum assembly uninstalled, the Mounting Instructions are as follows:

1. Remove the two (2) end plates from the plenum assembly by loosening the four (4) screws that secure them.
2. Remove the plastic bag on the inside of the plenum containing gasket and screws.
3. Affix gasket to the flange on the intake end of the air cleaner.
4. Using the sixteen (16) #10 x ½" sheet metal screws, secure the plenum assembly to the intake of the air cleaner. The expanded metal diffuser may be removed to facilitate plenum mounting. If so, reinstall before unit operation.
5. Remove the two (2) support rails and the rail mounting hardware from the pick-up arm assembly carton.
6. Punch out the 5/16" dia. knockouts on the top of the unit and the plenum assembly.
7. Mount the support rails to the unit and the plenum assembly using the mounting hardware provided. The six (6) 2½" long bolts will be required to secure the rails to the unit, while the four (4) 1½" long bolts will be used to secure them to the plenum. Each screw will require one each of the flat washers, lock-washers, and hex nuts.
8. Remove the arm assemblies and mounting hardware from the carton.
9. Secure the arm assemblies to the bottom of the plenum using the pre-drilled holes and eight (8) ¼-20 bolts, nuts and washers furnished. Each bolt will require one each of the flat washers and lockwashers.
10. Reinstall the two (2) end panels to the plenum using the forty (40) #8 x ½" screws.

### **MOUNTING OF WRAPAROUND PRE-FILTER ASSEMBLY**

Secure the wraparound plenum to the intake of the Model M3000 using the mounting hardware supplied.

### **MOUNTING OF SOURCE CAPTURE PLENUM**

1. Remove bag containing mounting hardware (screws) from inside of plenum.
2. Adhere supplied gaskets to inside of flange on plenum.
3. Align the pre-drilled holes on the plenum flange to the pre-drilled holes on the intake flange of the unit and secure with the self drilling screws provided.

The unit can be either wall-mounted, chain-hung, or suspended from threaded rod. Eyebolts are supplied with the unit.

#### **NOTE:**

REMOVE THE FILTERS FROM THE CABINET TO EASE HANDLING.

### **SUSPENSION MOUNTING**

The following materials will be needed to suspend the unit from the ceiling:

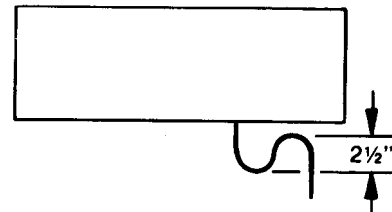
- A. 2/0 chain minimum rated at 205 lbs. working load.
- B. 18 lap links.
- C. 6 - ¾" diameter eye bolts with two nuts per bolt are supplied with the unit.
- D. 6 - 3" adjustable turnbuckles with eye bolts are frequently used.

#### **CAUTION:**

NO LESS THAN FOUR CHAINS MAY BE USED TO SUSPEND UNIT FROM CEILING. WHEN POSSIBLE CHAINS SHOULD NOT ANGLE FROM CEILING TO UNIT MORE THAN 15 DEGREES.

#### **NOTE:**

BLOWER END OF CABINET MUST BE A MINIMUM OF 1" HIGHER THAN DRAIN PLUG END TO ENSURE PROPER DRAINAGE WHEN COLLECTING MIST. AN "S" DRAIN TRAP IS ALSO REQUIRED. SEE SKETCH.



1. Remove the filter assemblies from the unit. This will reduce the weight to be lifted.

2. Drill 6 - 3/8" mounting holes, using the round indentations formed in the cabinet top panel for location. (Through cabinet panel only.)
3. Install the eye bolts using two nuts per bolt. The nuts should be tightened together to prevent loosening by vibration.
4. Secure the chain to the ceiling by wrapping chains around beam or joist and securing with a lap link (total of 6 chains).
5. Fasten the turnbuckles to the eye bolts at each corner of the unit using lap links. Fasten the remaining lap links to the free end of the turnbuckles.
6. Screw the turnbuckles out to approximately 1/2 full extension.
7. Raise unit up to chains and fasten lap links to chains. Adjust turnbuckles until unit is level. See note and diagram on Page 2 for mounting when collecting mist.
8. Reinstall the pre-filter and primary filter assemblies.

For alternate installation methods, contact your local TRION Distributor.

#### CAUTION:

DO NOT TAKE CHANCES. IF YOU ARE UNSURE ABOUT THE PRECEDING METHOD OR ANY OTHER METHOD, STOP THE INSTALLATION UNTIL YOU ARE SATISFIED THAT THE METHOD OR PROCEDURE IS CORRECT.

### WIRING

Models M3000 and M30 are equipped with an externally mounted junction box. See the enclosed Wiring Diagram on page 6 of this manual for connection. Switches and motor starters are not supplied with the unit. All Wiring must meet local National Electrical Codes.

### UNIT OPERATION

After all wiring has been completed, switch the unit on. Note the rotation of the blower wheel. If the rotation is backward, it must be changed to give the proper air flow.

Rotation can be changed on single-phase units by rewiring the internal motor hookup. Three-phase rotation can be changed by switching any two legs of the input voltage.

### MAINTENANCE

Precision equipment such as your TRION Air Cleaner will require a minimum amount of maintenance to keep in good operating condition. All normal preventa-

tive maintenance can be done by you, or your local TRION Distributor may offer a maintenance and cleaning contract at a nominal charge. Contact him for details.

#### CAUTION:

ALWAYS DISCONNECT THE POWER SOURCE BEFORE WORKING ON OR NEAR THE MOTOR OR ITS WIRING ASSEMBLY. IF THE POWER DISCONNECT POINT IS OUT OF SIGHT, LOCK IT IN THE PROPER POSITION AND TAG TO PREVENT UNEXPECTED APPLICATION OF POWER.

The pre-filter and main filter are accessible through the access door allowing simple, fast replacement.

If your air cleaner is equipped with an Impinger, it will need periodic inspection. It can be removed and checked easily each time the pre-filter is replaced.

Filters are changed according to the pressure across the filter. Filter change gauges are available from TRION. A U-tube or slant gauge with a range of 0-3" water column can also be used to read filter pressure. Install pressure tap in "lo" side of the gauge.

MAIN FILTER	BOTH FILTERS CLEAN	CHANGE PRE-FILTER	RECOMMENDED FINAL
95%	.63	.85	1.0
65%	.51	.85	1.0

NOTE: These readings will vary slightly due to altitude & temp.      Approx. 10% air flow reduction.      Approx. 20% air flow reduction.

Upon installation of the unit, note the initial pressure reading. Check daily and replace pre-filter at the reading shown in the Table. Pressure should return to near the initial pressure reading. When the pressure reading, with new pre-filter, shows little improvement (less than 0.1") allow unit to run until recommended final pressure is reached. At that point, both pre-filter and main filter should be replaced. Impinger models will have approximately 1.0" greater pressure initially than standard models.

Once a pattern has been established, the pre-filters can be replaced on a calendar basis with the main filter being replaced when the gauge reads as "Recommended Final" in the Table. For example, if the unit takes 6 weeks to go from 0.63 to 0.85, the pre-filter

would then be replaced every 6 weeks until no change occurred in the pressure reading when the pre-filter is replaced. At that point, the unit would be allowed to run until 1.0 and both filters replaced.

**NOTE:**

THE UNIT CAN CONTINUE TO RUN BEYOND THE 1.0 PRESSURE READING; HOWEVER, AIR FLOW WILL BE REDUCED FURTHER.

**CAUTION:**

TO CHECK INTERNAL COMPONENTS, TURN POWER TO UNIT OFF.

**HEPA Filter**

A diminished air flow signals that the HEPA filter is dirty.

IT CANNOT BE CLEANED. See your local TRION Distributor for all replacement filters.

Remove power to the unit. Open the door of the air cleaner. Observe the orientation of the filter and the air flow indicator. Remove the 6 screws securing the HEPA rail in place, remove the rail and then the HEPA filter.

**NOTE:**

THE HEPA FILTER WEIGHS 35 LBS. WHEN CLEAN. EXERCISE CAUTION.

Install the replacement filter in the same configuration as the dirty one. Close the door and restore power to the unit; the air flow should return to normal.

**Alumina/Charcoal Modules**

The Alumina/Charcoal Modules need changing when unpleasant odors are again noticed in the room. Remove power to the unit. Open the door of the air cleaner. Remove the 6 screws securing the module rail in place. Remove the rail and then the module.

**NOTE:**

THE ALUMINA/CHARCOAL MODULES WEIGH 25 LBS. EACH. EXERCISE CAUTION.

Place the module on the floor. Remove the cover plate. Empty the used alumina or charcoal from the module into a suitable waste dispenser. Refill with alumina/charcoal available from your local TRION Distributor. Repeat procedure for the second module.

**IMPORTANT:**

SHAKE MODULE TO PACK MEDIA TIGHTLY, USING AN AIR NOZZLE, BLOW THE DUST FROM THE MODULES BEFORE RE-INSTALLATION TO PREVENT CHARCOAL DUST FROM MOMENTARILY PASSING THROUGH THE UNIT.

Replace the cover plate and reinstall modules in the unit in reverse order of removal. Close the door and restore power; the air flow should return to normal.

**CLEANING AND INSPECTION OF CABINET**

After the dirty components have been removed, an inspection of the cabinet should be made. Remove all foreign debris and dirt accumulation inside the cabinet. Check for dirt accumulation on the blower wheel blades and clean if there is a buildup. Inspect all wiring for loose connections and cracked insulation.

Bearings on both blower and blower motor should be checked for sign of unusual wear.

Models having motors with oil cups require periodic inspection. Use SAE-20 non-detergent motor oil every six months. Motors with ball bearings do not require lubrication. Rubber gasketing should be checked twice a year. Aging occurs primarily due to ozone present in ambient air and eventually hardens the rubber and causes cracking and loss of seal. Contact your local TRION Distributor for replacement.

**TROUBLE-SHOOTING**

All TRION Air Cleaners are manufactured to give the user continued, trouble-free service. However, as with all mechanical equipment, breakdowns can occur.

Refer to the "Replacement Parts Schedule", pages 7-11, for replacement parts.

Before Troubleshooting the unit, refer to the Wiring Diagram, check for proper wiring connections, and the input line voltage.

**REPLACEMENT PARTS  
ORDERING INFORMATION**

The following pages contain Exploded Views and Bill of Material for the TRION Model M3000. A Bill of Material for additional parts for the Model M30 is also included. Use these pages to determine the part numbers of items which are needed.

To order repair parts, contact your local TRION Distributor, or

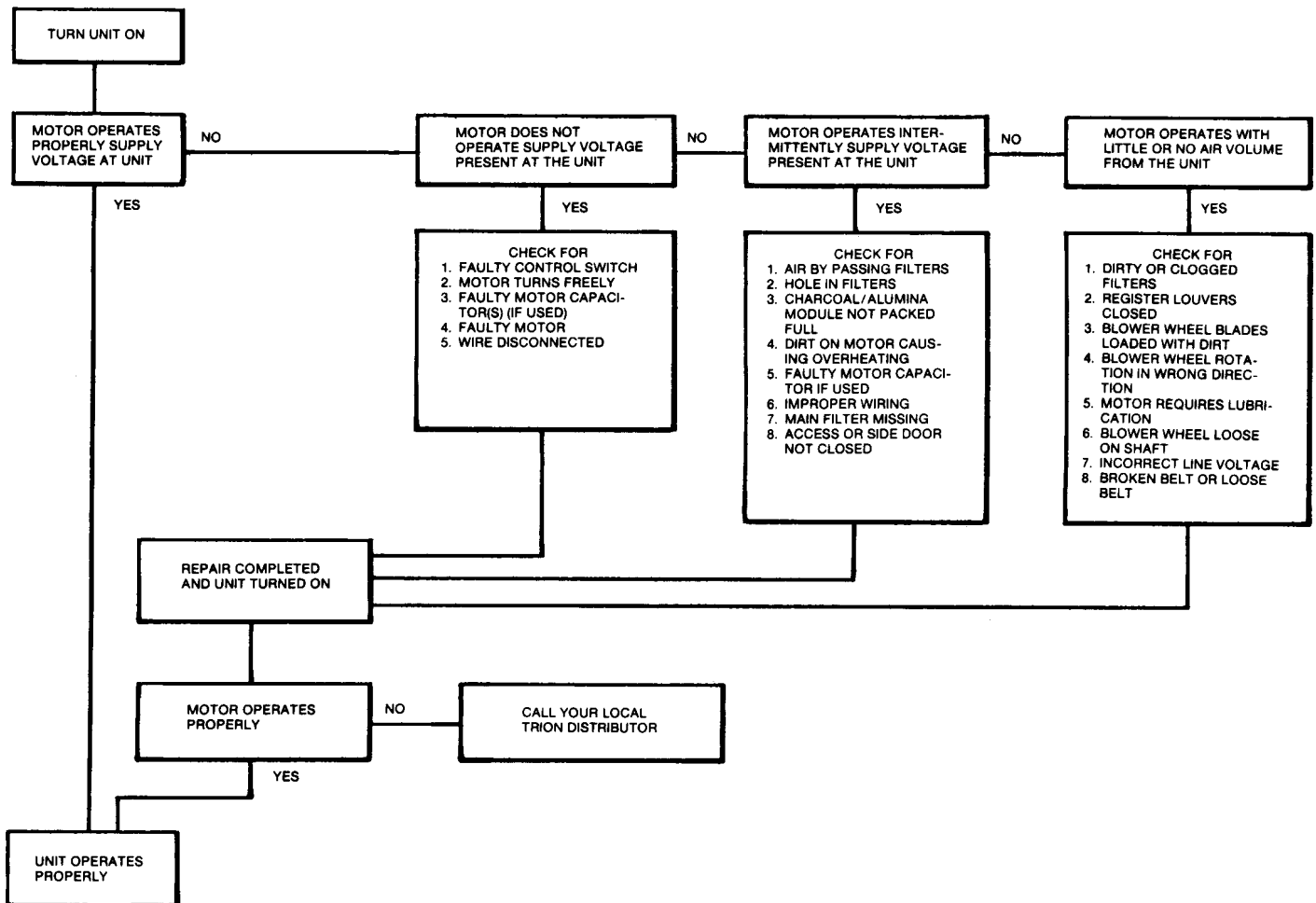
TRION, INC.  
P.O. Box 760  
Sanford, NC 27331-0760  
(919) 775-2201

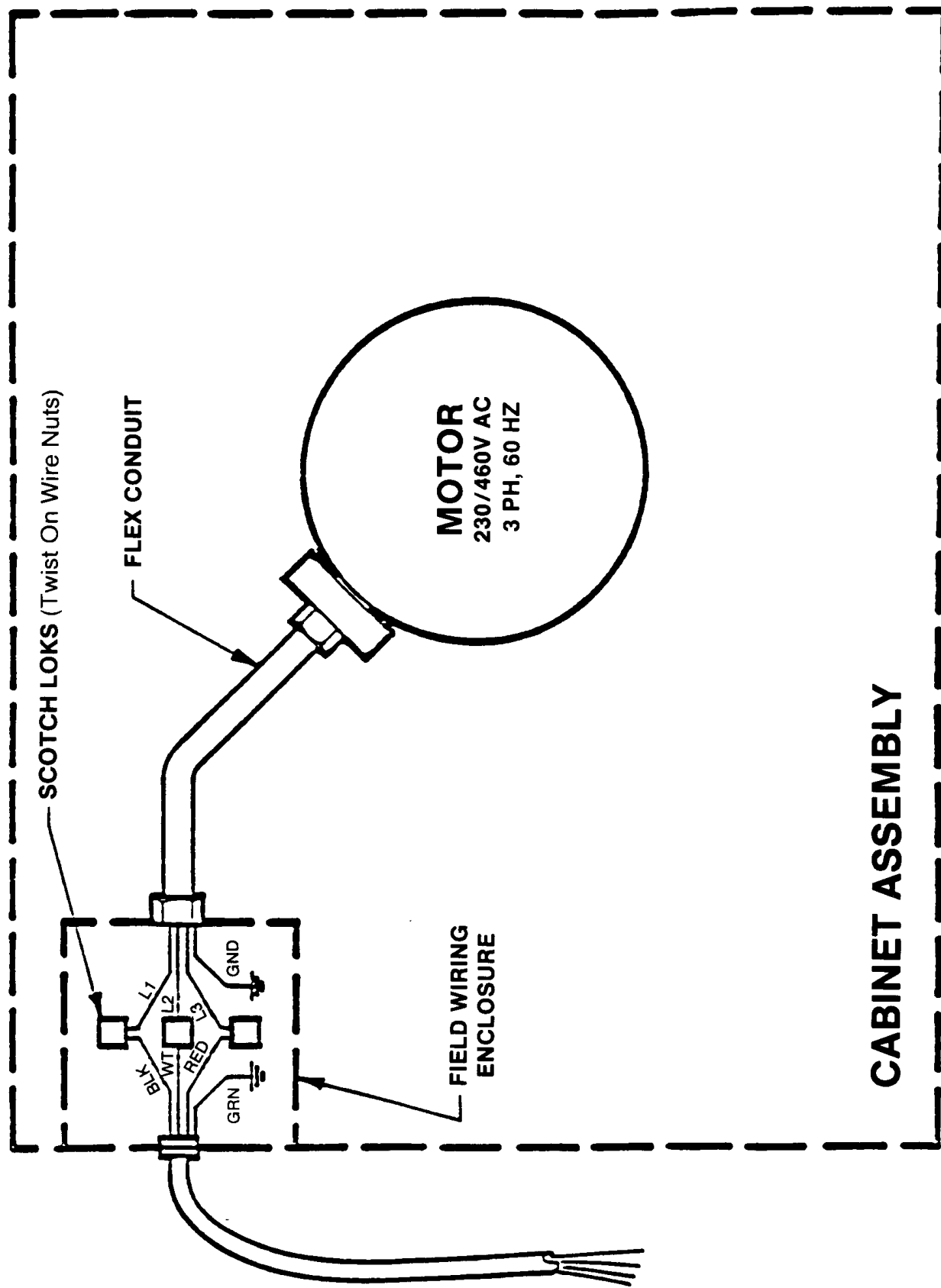
The following information will be required to insure accuracy in supplying your repair parts.

**Located**

- |                              |                                      |
|------------------------------|--------------------------------------|
| 1. Unit Model Number         | ID Plate Inside Door                 |
| 2. Unit Serial Number        | ID Plate Inside Door                 |
| 3. Part Number & Description | Exploded Views and Bills of Material |

**TROUBLE-SHOOTING PROCEDURE**





**NOTES:**

1. To reverse motor rotation, reverse any two (2) motor leads (L1, L2, L3).
2. Voltage may be changed by rewiring internal motor connections per manufacturer's instructions.

## M3000 CABINET ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY. REQ.
1	447575-001	Cabinet Assembly, Welded	1
2	347595-001	Access Door	1
3	347590-001	Blower Panel	1
4	347594-001	Panel, Front	1
5	247606-001	Outlet Grill or Register	1
5a	247607-001	Double Deflection Discharge Grill	1*
6	60000-0008-01	Box, Electrical Connection	1
7	60000-0008-02	Cover, Electrical Box	1
8	334562-003	Latch, "Lift & Turn"	1
9	224779-021	Gasket - 3/4 x 3/4	2'
10	224779-026	Gasket - 1/2 x 1/16	8'
11	224779-020	Gasket - 5/8 x 5/8	20'
12	224779-039	Gasket - 5/8 x 3/4	12'
13	222005-017	Screw	18
15	222005-020	Screw	8
16	236936-001	"TRION" Nameplate	1
17a	3000-3000-6031	Filter Bag, 65%	Std.
17b	3000-3000-9031	Filter Bag, 95%	1*
17c	3000-3002-0001	Texwood Bag	1*
17e	3000-3000-9020	Filter Bag, Short 95%	1*
17f	346618-001	Extended Surface Mini-Pleat Filter 65%	1*
17g	346618-004	Extended Surface Mini-Pleat Filter 95%	1*
18a	69000-0001-19	4" Pleated Pre-Filter	Std.
18b	224451-016	Aluminum Mesh Pre-Filter	1*
18c	1500-8000-00	2" Poly. Pre-Filter in Frame	1*
19a	69000-0001-69	HEPA Filter, 99.97%	1*
19b	69000-0001-89	HEPA Filter, 95%	1*
20		Adsorption Module, Charcoal (Note 1)	2*
21	21300-8000-0001	Adsorption Module, Charcoal (Note 1)	2*
22	224779-018	Gasket - Use with Module or HEPA	7**
23	247795-001	Impinger Rail	2*
24	3000-8003-00	Impinger	1*
25	137356-001	2" Poly. Wraparound (Replacement)	1*
26	137668-001	Pressure Gage Kit, Magnahelic	1*
27	3000-8001-0001	Plenum - Wraparound Pre-Filter	1*
28	3000-8000-00	Plenum - Source Capture	1*
30	121711-002	Connector - Straight	1
32	221235-307	Screw, 1/4 x 20 x 3/4 Long	4
33	120031-011	Washer, Flat	4
34	62000-0011-02	Grommet	4
35	55900-0004-01	Activated Charcoal (25 lb. / module)	*
36	55900-0004-02	Activated Aluminum (40 lb. / module)	

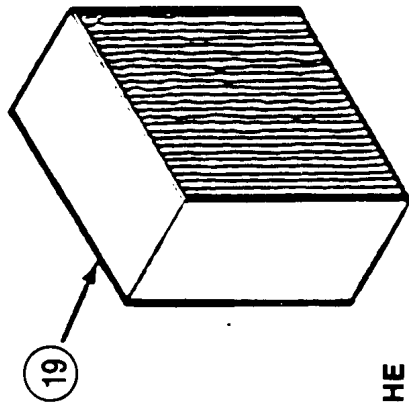
\* Options

Note 1: Unit Capacity: Charcoal - 50 lbs. / Alumina - 80 lbs.

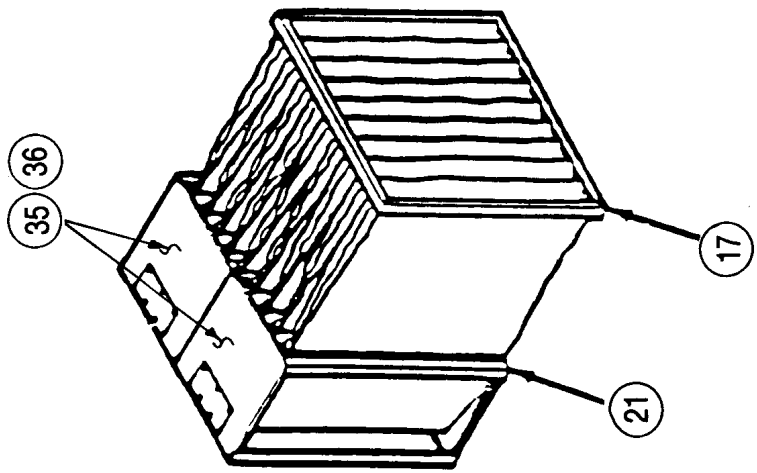
Mixture - 25 lbs. Charcoal & 40 lbs. Alumina

Note 2: Item 18a may be replaced with 23 & 24, 23 & 18b, 23 & 18c.

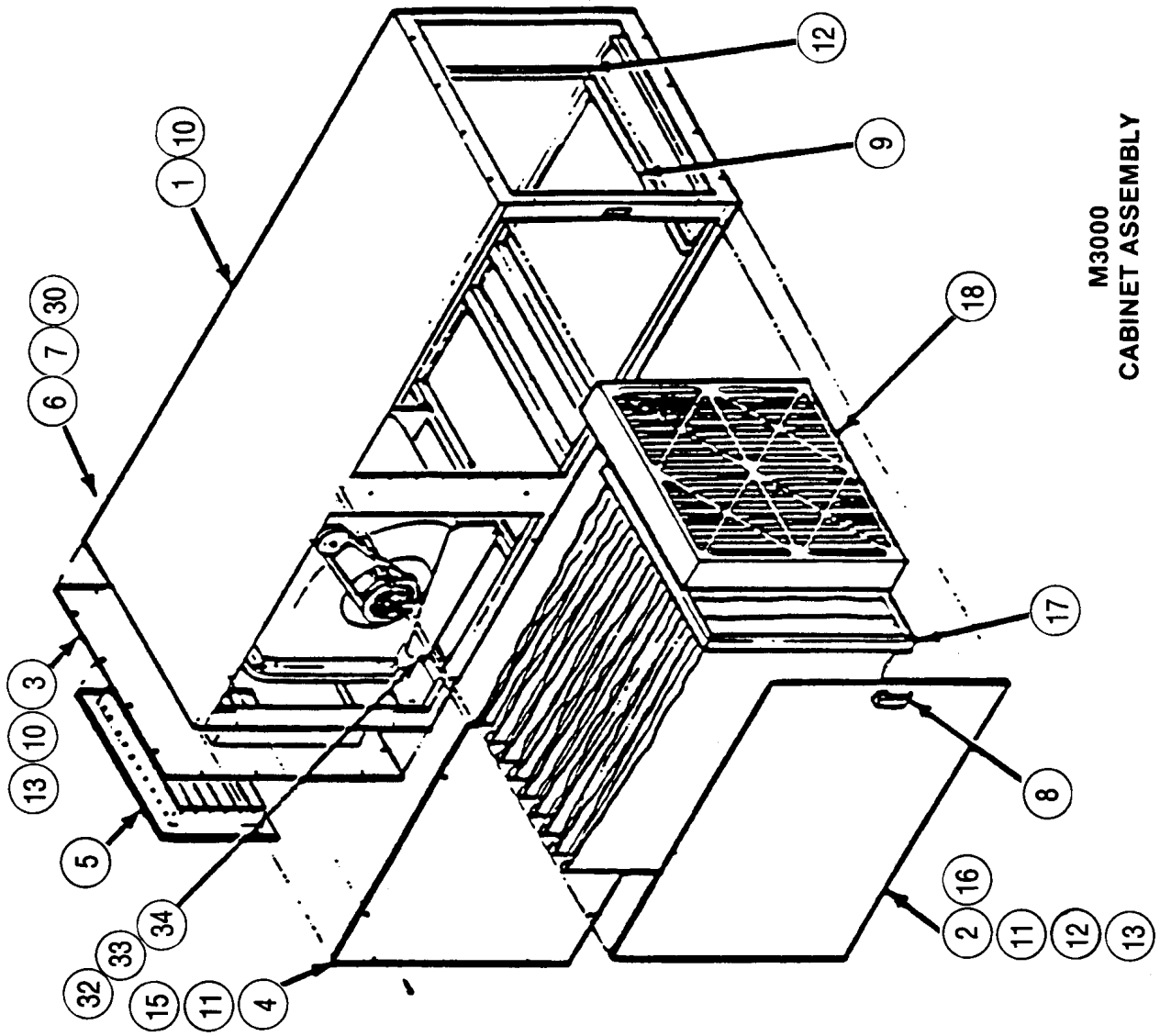




M3000-HE



M3000-AM



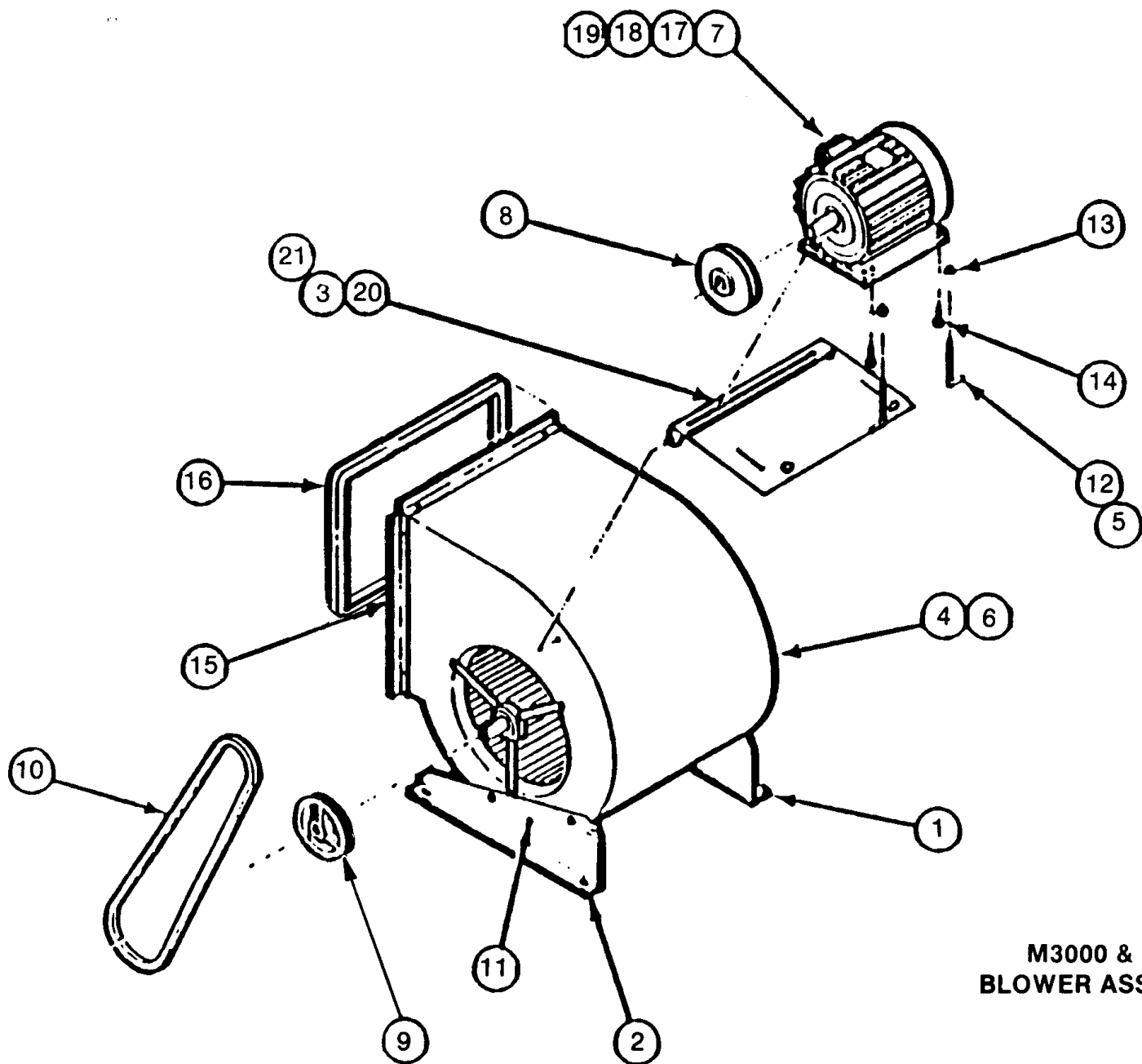
M3000  
CABINET ASSEMBLY

## M3000 BLOWER ASSEMBLY

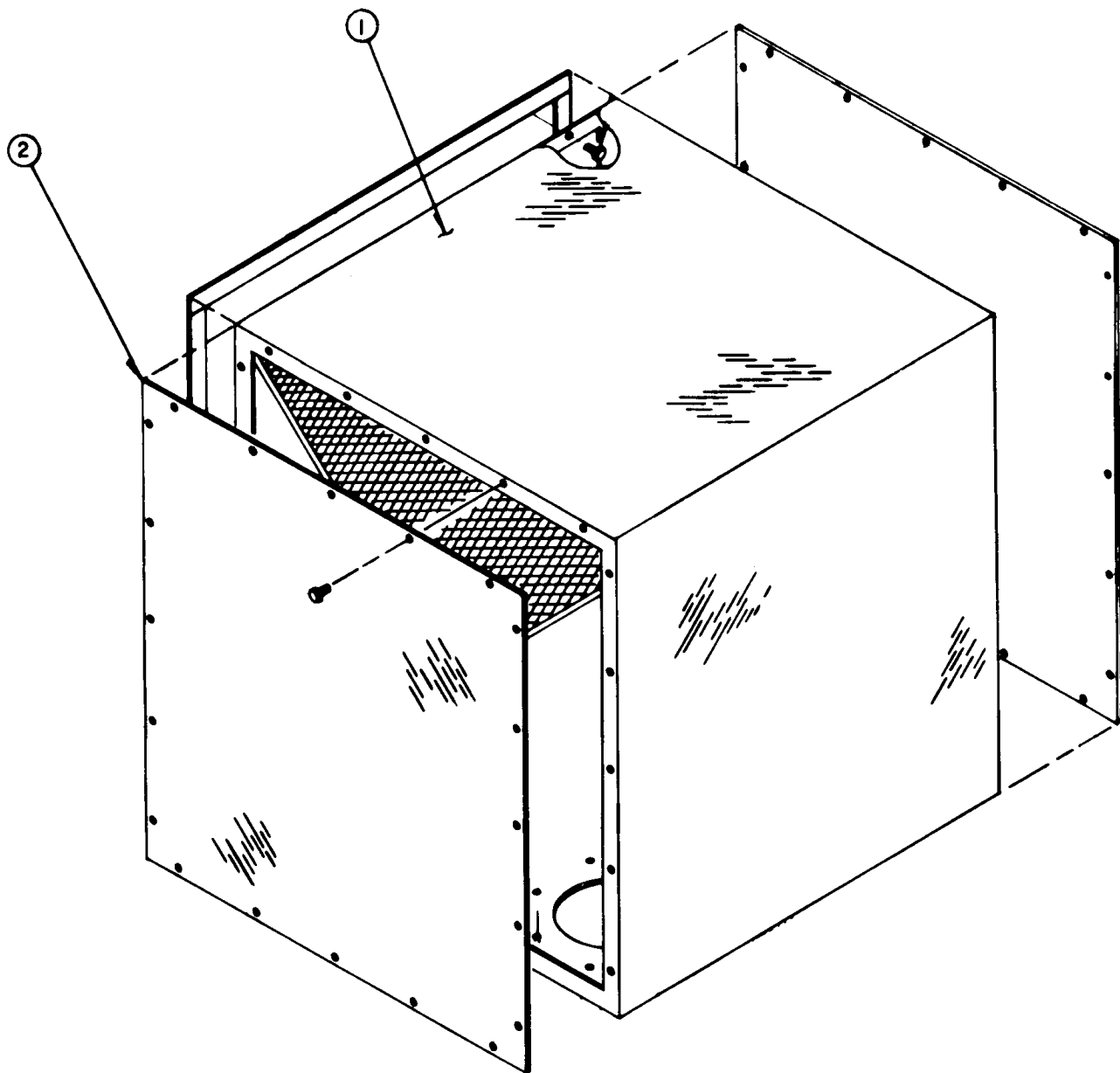
ITEM	PART NUMBER	DESCRIPTION	QTY. REQ.
1	347589-002	Blower Leg, Left	1
2	347589-001	Blower Leg, Right	1
3	233137-015	Blower Rod	1
4	1-2700-9023-00	Bracket, J-Bolt	2
5	2700-1200-04	Insulator	2
6	62000-0012-22	Blower & Wheel	1
7a	124885-008	Motor, 2 HP, 208-230/460V, 3 PH	Std.
7b	124885-008	Motor, 3 HP, 208-230/460V, 3 PH	*
7c	241094-001	Motor, 3 HP, 208-230/460V, 3 PH	*(A)
7d	142016-001	Motor, 3 HP, 575V, 3 PH, 3450 RPM	1*
7e	134559-018	Motor, 3 HP, 575V, 3 PH, 1750 RPM	1*
7f	124885-011	Motor, 2 HP, 575V, 3 PH, 1750 RPM	1*
8a	125699-007	Variable Pitch Sheave (3 HP, 1-1/8 Bore)	1*(A)
8b	125699-006	Variable Pitch Sheave (2 HP, 7/8 Bore)	1
8c	125699-005	Variable Pitch Sheave (2 HP, 5/8 Bore)	1
9a	124053-035	Pulley, Blower (3 HP, 4.7)	1*
9b	124053-040	Pulley, Blower (except 3 HP, 5.2)	1
9c	124053-016	Pulley, Blower (3 HP, 9.5)	1*(A)
10a	220926-032	Belt, 2 HP, 4L450	1
10b	220926-033	Belt, 3 HP, 4L460	1*
10c	234887-001	Belt, 3 HP, A50	1*(A)
11	137343-402	Screw, H.W.H. 1/4-20 x 1/2 Long	6
12	90000-0022-01	J-Bolt	2
13	90000-0003-01	Nut/Washer	8
14	137437-017	Bolt, Carriage 5/16-18 x 1 Long	4
15	222005-017	Screw, Self Tap	10
16	224779-020	Gasket, 5/8 x 5/8	5'
17	121711-002	Connector, 90°	1
18	121707-002	Conduit	30"
19	92090-1000-10	Reducing Washer	2
20	123149-001	Elastic Stop Nut	2
21	347604-001	Motor Mounting Bracket	1

\* Options

(A) Side-Discharge Unit



**M3000 & M30  
BLOWER ASSEMBLY**

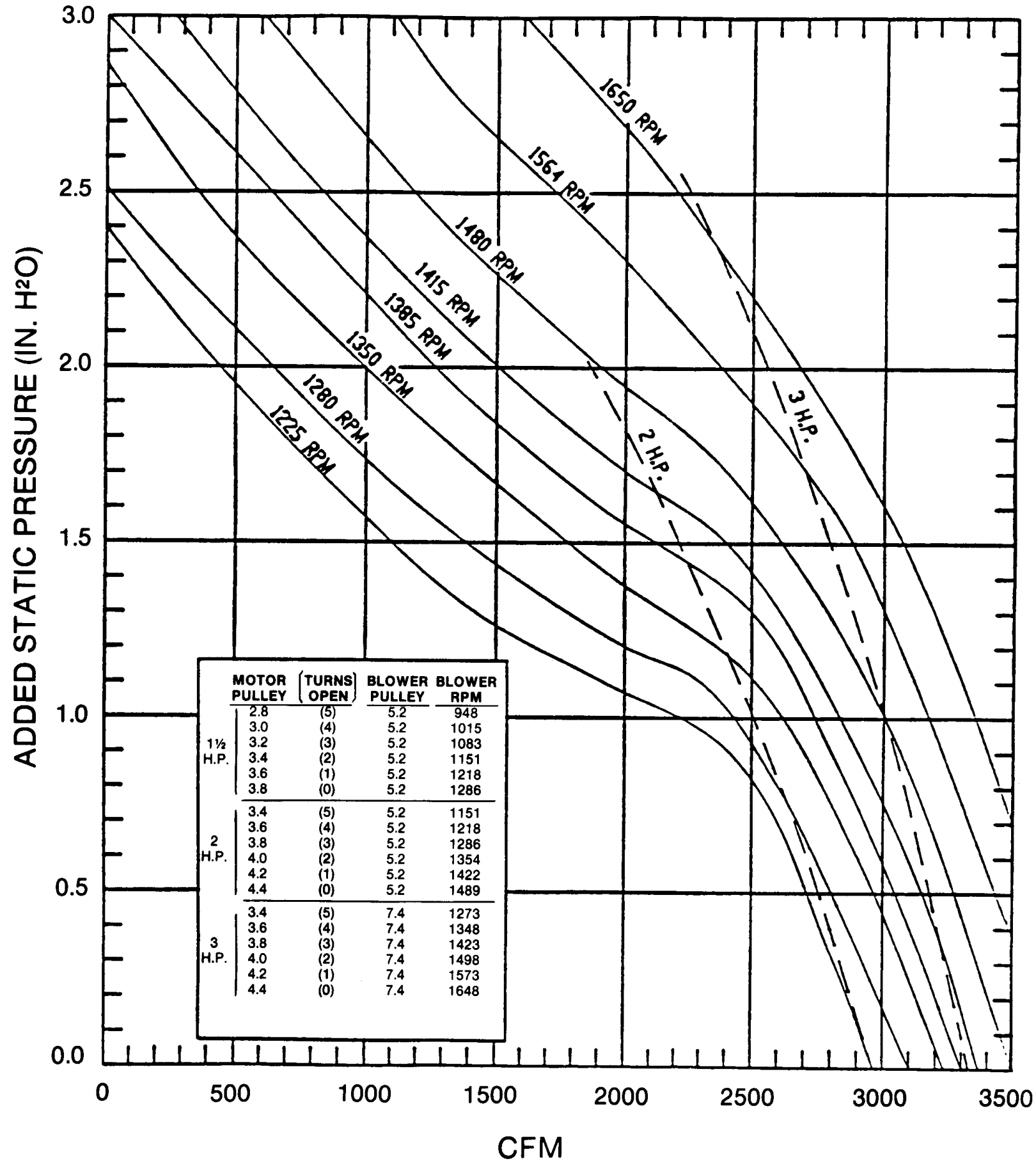


M3000 PLENUM ASSEMBLY			
ITEM	PART NO.	DESCRIPTION	QTY.
1	3000-9056-00	Plenum, Welded	1
2	237484-001	Side Panel	2

For details of arm, see Manual 145498-001.

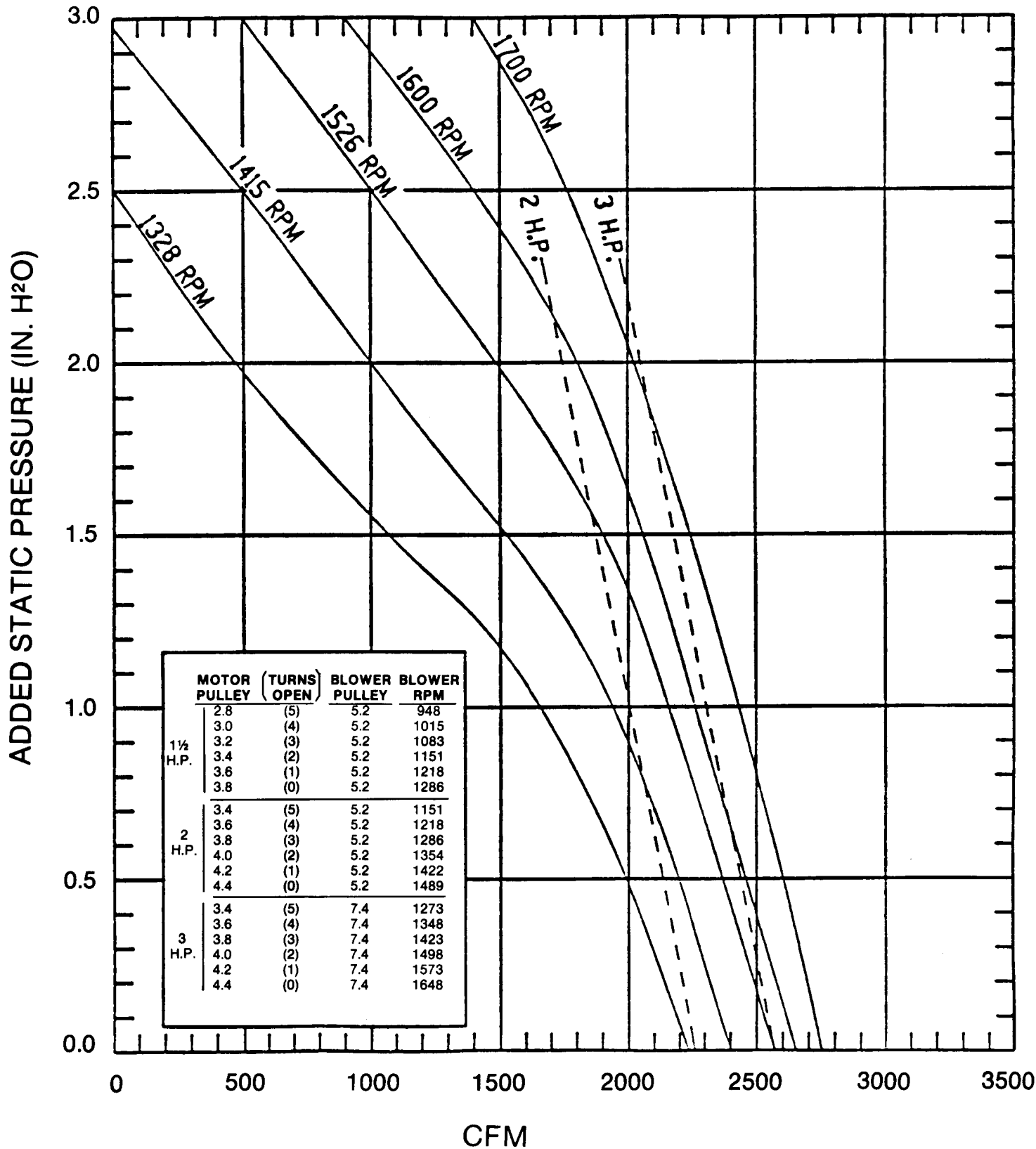
# M3000

PRE-FILTER: 4" PLEATED  
PRIMARY FILTER: 65% BAG



# M3000

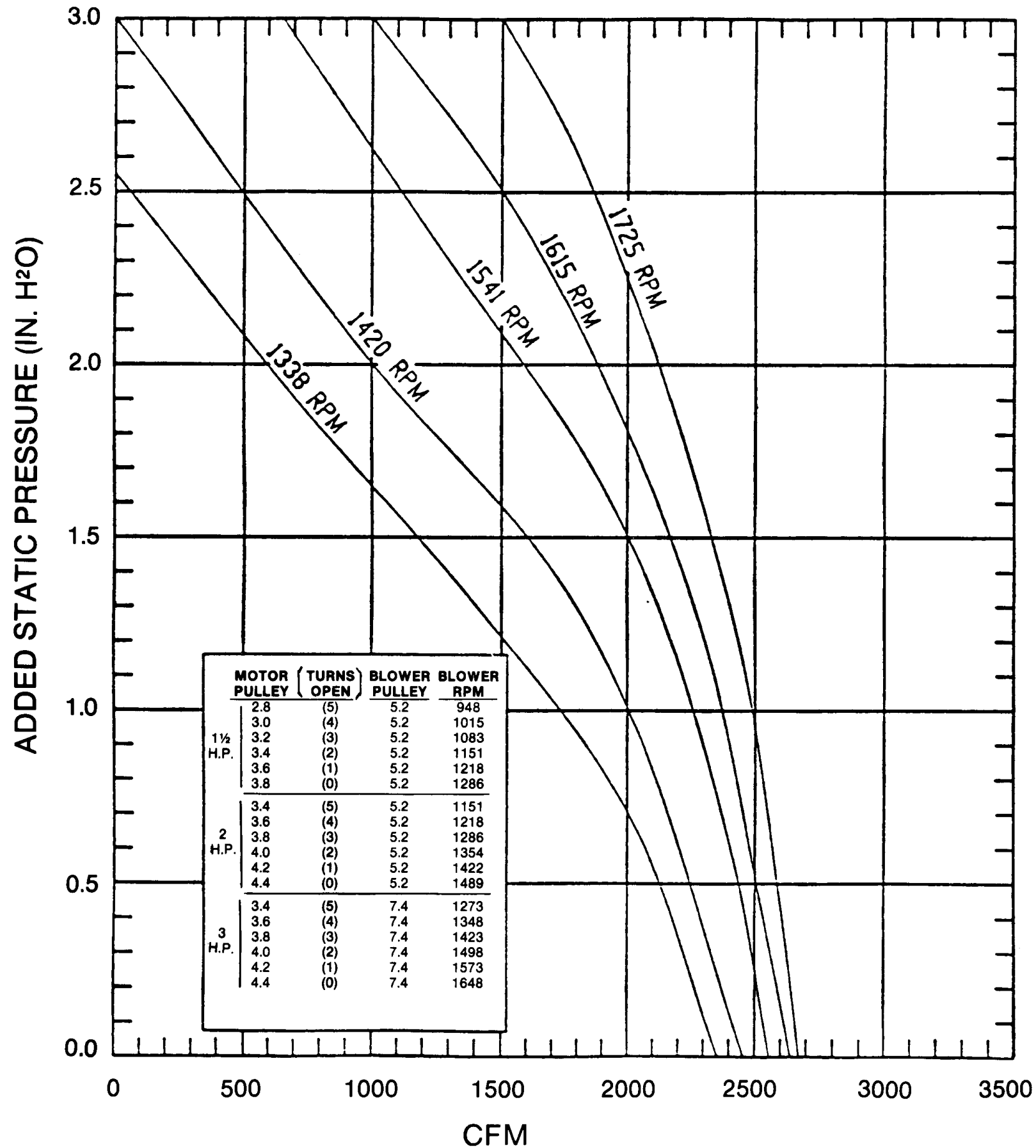
PRE-FILTER: 4" PLEATED  
PRIMARY FILTER: 95% BAG



# M3000

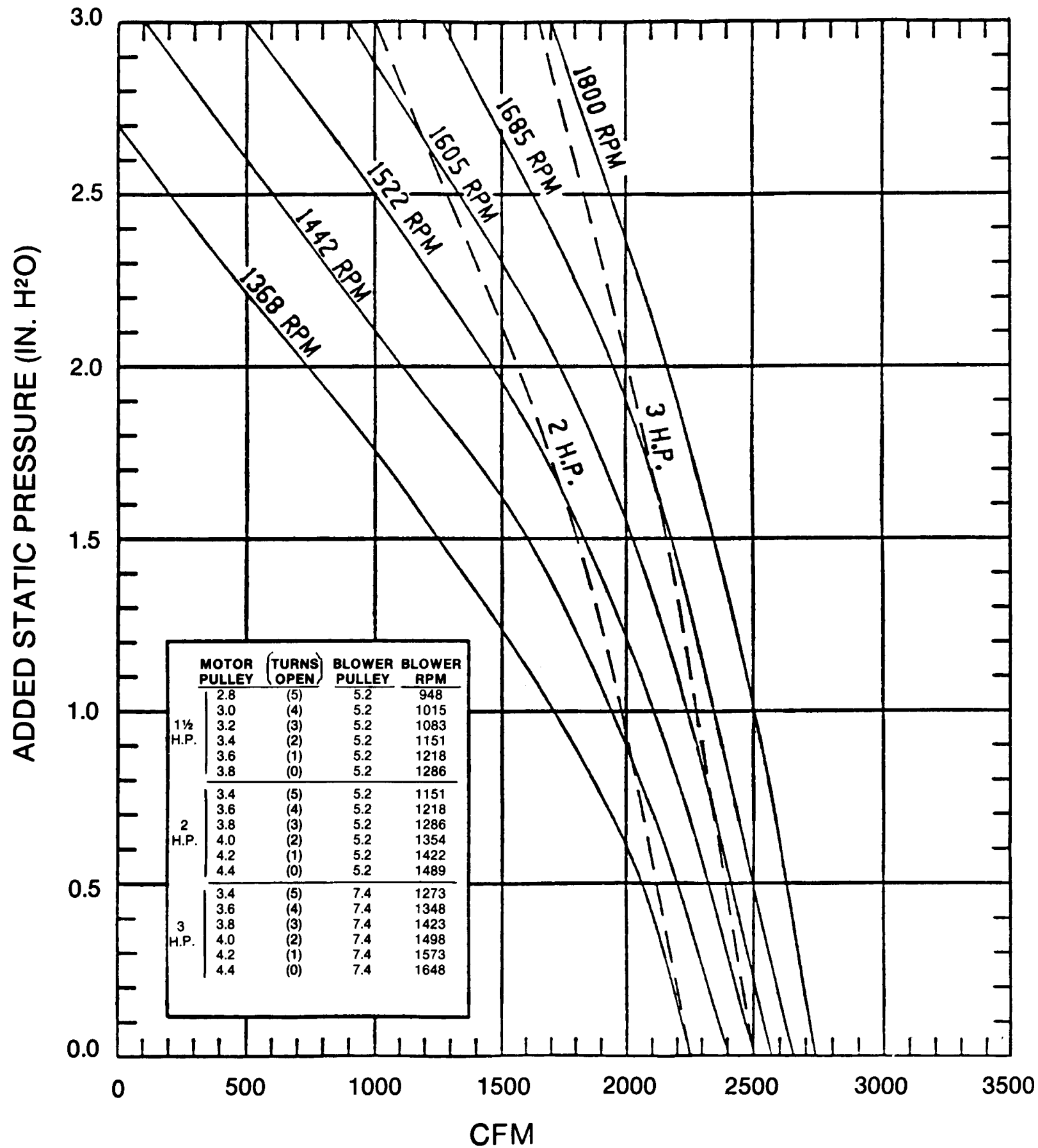
PRE-FILTER: 2" ALUMINUM

PRIMARY FILTER: 95% BAG



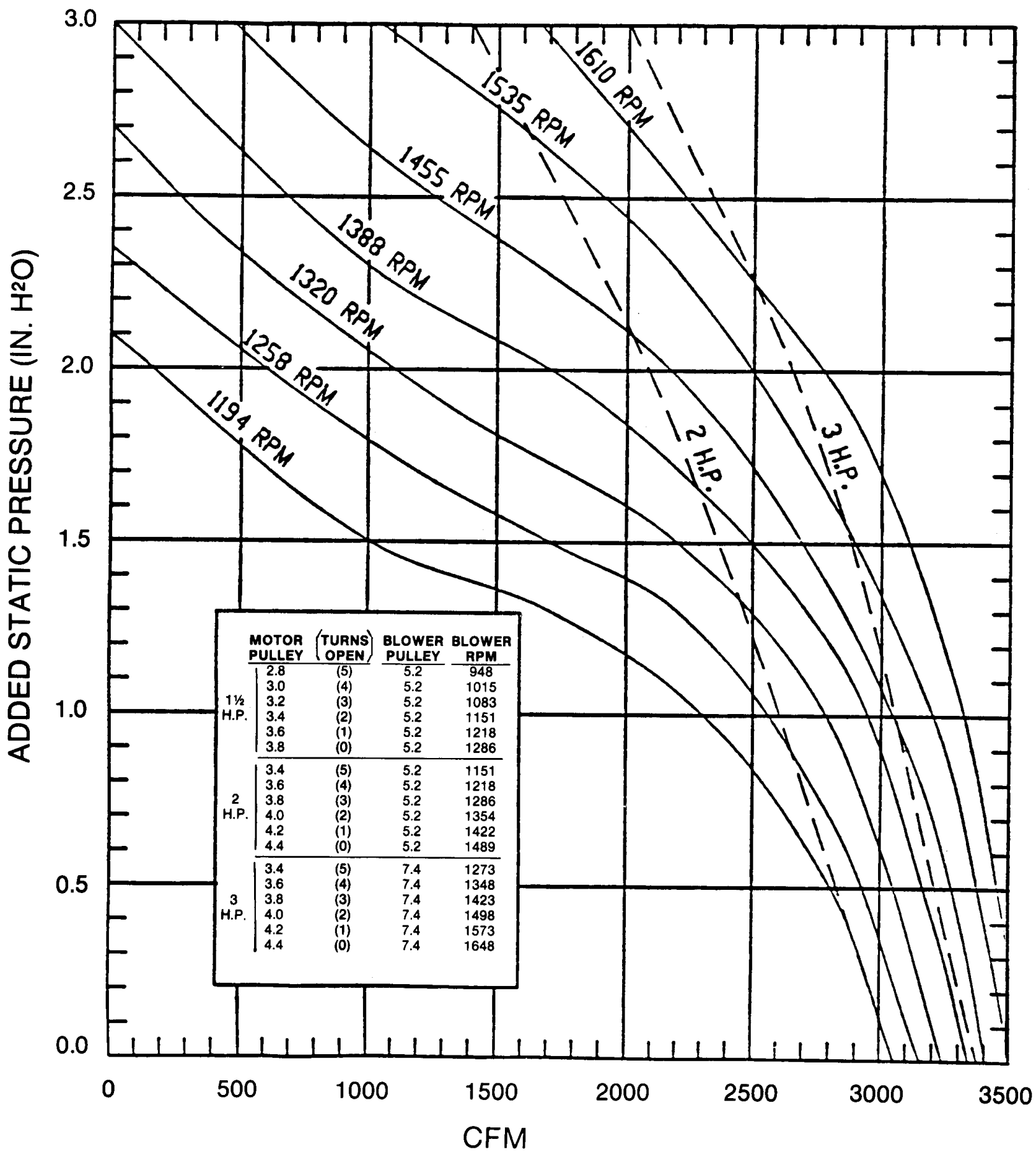
# M3000

PRE-FILTER: 2" POLY  
PRIMARY FILTER: 95% BAG





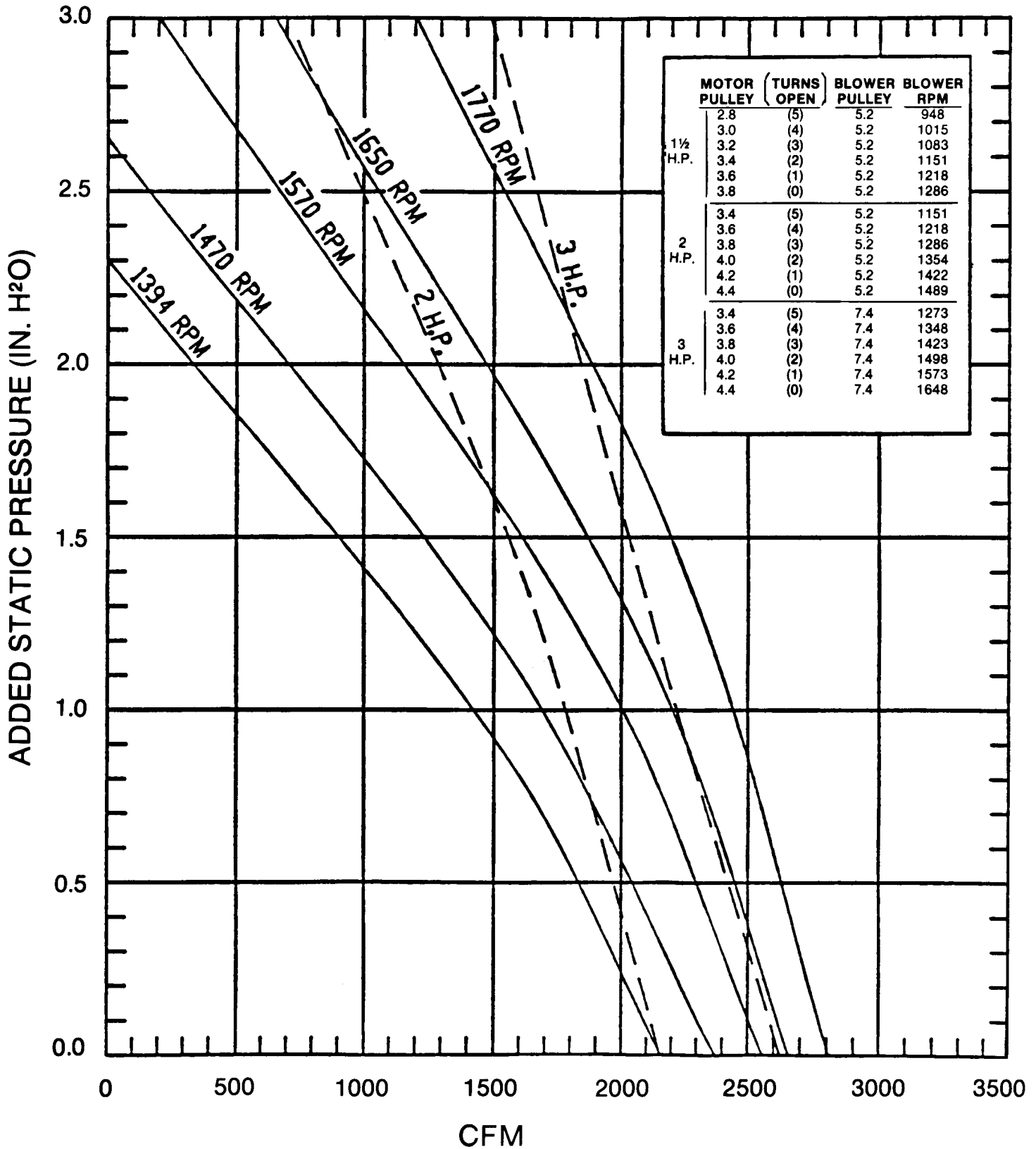
**M3000**  
**PRE-FILTER: 4" PLEATED**  
**PRIMARY FILTER: TEXWOOD**



# M3000

PRE-FILTER: 4" PLEATED

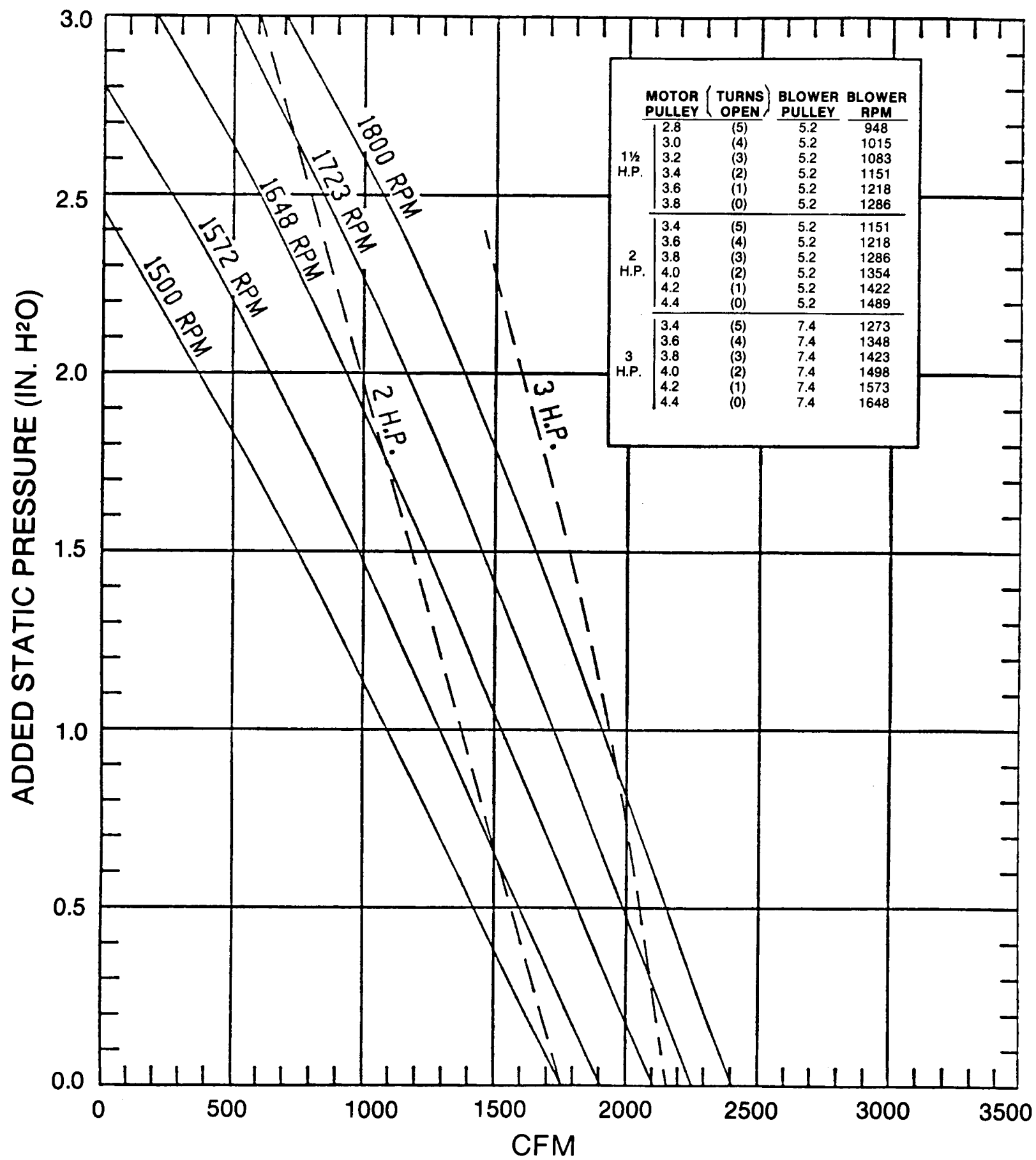
PRIMARY FILTER: 95% SHORT BAG/95% HEPA



# M3000

## PRE-FILTER: 4" PLEATED

### PRIMARY, FILTER: 95% SHORT BAG/99.96% HEPA



	MOTOR PULLEY	(TURNS OPEN)	BLOWER PULLEY	BLOWER RPM
1½ H.P.	2.8	(5)	5.2	948
	3.0	(4)	5.2	1015
	3.2	(3)	5.2	1083
	3.4	(2)	5.2	1151
	3.6	(1)	5.2	1218
	3.8	(0)	5.2	1286
2 H.P.	3.4	(5)	5.2	1151
	3.6	(4)	5.2	1218
	3.8	(3)	5.2	1286
	4.0	(2)	5.2	1354
	4.2	(1)	5.2	1422
	4.4	(0)	5.2	1489
3 H.P.	3.4	(5)	7.4	1273
	3.6	(4)	7.4	1348
	3.8	(3)	7.4	1423
	4.0	(2)	7.4	1498
	4.2	(1)	7.4	1573
	4.4	(0)	7.4	1648

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Manual Part No. 137488-001 6/95

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