

# H.S. MACHINERY RING COMPRESSORS

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## OPERATION & PARTS MANUAL



Thank you for purchasing an H.S Machinery Limited Regenerative Blower. This product is manufactured under strict ISO-9001-2000 quality control guidelines to ensure your satisfaction. The blower has been carefully packaged to prevent damage during its transportation, however, rough handling or dropping could result in damage. Before proceeding, check both the box and its contents for shipping damage. Report any damage immediately to the carrier. By

following proper installation and operation instructions, this blower will provide many years of trouble-free operation. Please read this manual prior to installation and operation of the blower.

for installation/operation inquiries, contact:

**AIR POWER PRODUCTS LIMITED**  
191 Shearson Crescent, Cambridge, Ontario  
Canada N1T 1J5

TEL: 519-622-2034

FAX: 519-622-1949

E-MAIL: [info@airpowerproducts.com](mailto:info@airpowerproducts.com)

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## INSTALLATION PRECAUTIONS

Install in clean dry locations only. Protect the unit from airborne contaminants and moisture.

Do not install in hazardous locations, or use with flammable or explosive gases or substances.

Operate in ambient temperatures between 0° to 40°C (32°F to 104°F).

Operate the blower within the proper pressure/vacuum limitations as determined by the performance curves/tables. Do not operate the blower for extended periods of time with the inlet or discharge blocked. Insufficient air flow through the blower may result in over-heating and pre-mature failure, or a motor overload condition. A pressure or vacuum relief valve is recommended to prevent excessive pressure/vacuum levels.

Exhaust and/or discharge piping may be very hot. Protect personnel and/or surrounding objects from burns and/or heat damage. Do not use plastic pipe at the blower discharge unless it is suitably rated for high temperature.

Protect the blower from ingestion of contaminants and water. The ingestion of solids may damage internal components. Ingestion of oil based contaminants or other liquids may cause over-heating. Protect the blower with an intake filter.

If using the blower at high elevations, or with higher than normal ambient inlet temperatures, contact Air Power Products Limited prior to use.

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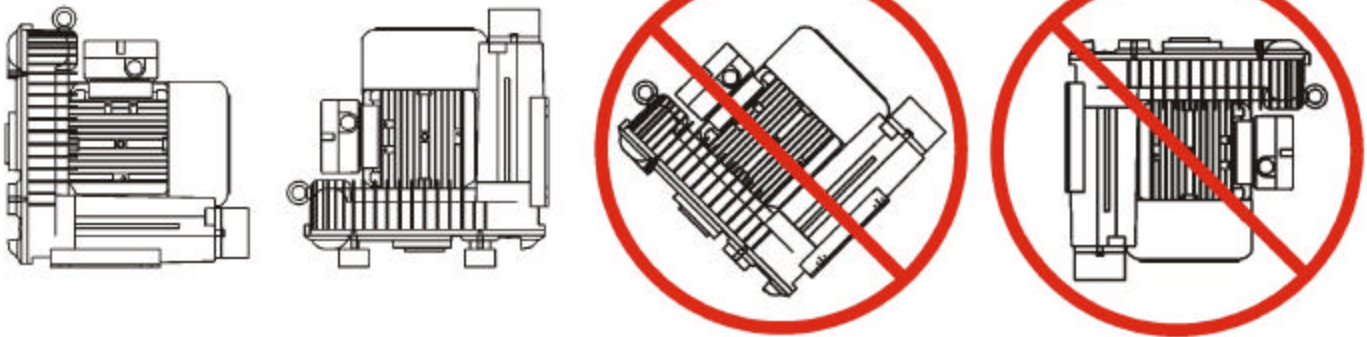
## INSTALLATION PRECAUTIONS - continued

Do not apply stress to the connections of the blower. Connections should be made with flexible hose or connectors, and the weight of any inlet or discharge piping, tubing, or ducting must be properly supported.

### MOUNTING

The blower may be installed in either a horizontal or vertical configuration. Mounting should be on a 90° plane only. When installing vertically, the impeller end must be facing downward only. Do not install the blower with the impeller housing facing up, or with the shaft angled off of a 90° plane.

#### Correct Installation



For horizontal mounting, the blower base contains suitable lag holes for securing the blower in place. For mounting vertically, threaded bosses are provided on models RB40 and larger in the impeller casing cover for three point mounting. It is recommended that rubber vibration isolators be used for vertical mounting. Rubber isolators or a mounting pad is recommended for horizontal mounting. Rubber isolators are available as optional equipment from your H.S. Regenerative Blower Distributor. Request a general arrangement drawing, or refer to the catalogue dimensional drawing for lag hole positions and size.

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## AIR LINE CONNECTIONS & ACCESSORIES

The blower normally operates with a minimal amount of vibration. However, it is important not to apply stress to the intake and discharge connections of the blower which could cause damage to the threaded flanges.

It is recommended that the system air line is not reduced to a smaller size than that of the blower connection size. By reducing system air line size, increased flow restriction will result, which will reduce volumetric capacity of the blower, and result in higher operating pressure or vacuum levels at the blower. This will result in higher power consumption by the blower, and higher operating temperatures. It is always best to size air lines as large as practically possible.

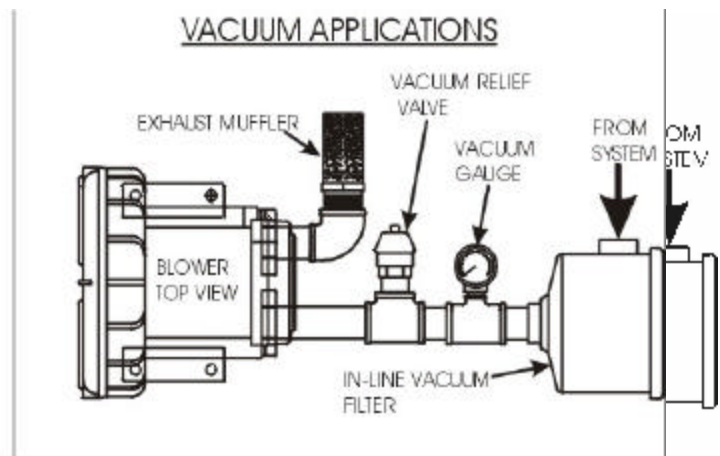
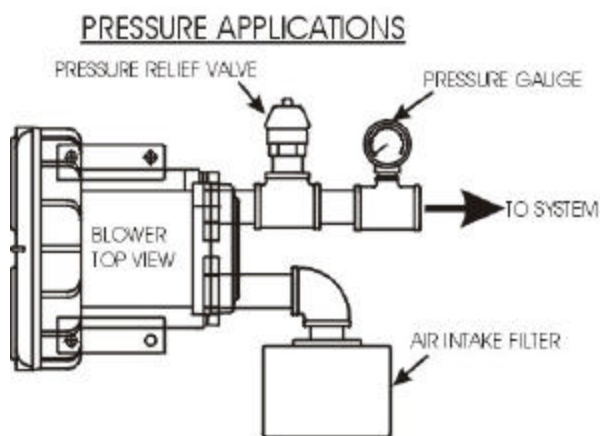
The following accessory components are recommended with the blower.

- 1) **Flexible hose or connector** at intake (vacuum applications) or at the discharge (pressure applications).
- 2) **Pressure Relief Valve** (Pressure Applications), located as close to the blower outlet connection as possible. Install a tee immediately off the blower discharge connection on which the relief valve will be mounted.
- 3) **Vacuum Relief Valve** (vacuum Applications), located as close to the blower inlet connection as possible. Install a tee immediately off the blower inlet connection on which the relief valve can be mounted.
- 4) **Pressure or Vacuum gauge** to monitor system pressure or vacuum levels.
- 5) **Intake air filter** to protect the blower from injection of contaminants in pressure applications. Filters may be supplied in the form of stainless steel wire mesh intake strainers to protect the blower, or as canisters with replaceable paper or polyester elements to ensure clean air for the air application. Intake filters are also available combination filter/silencers for assisting in reducing operation noise levels.

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## AIR LINE CONNECTIONS & ACCESSORIES - continued

- 6) **In-line filters** for vacuum applications. These filters can be supplied with suitably sized threaded inlet and outlet connections for in-line service.
- 7) **exhaust muffler** on the blower discharge connection in vacuum applications. Various styles of mufflers are available. It is important to ensure that the muffler does not create excessive restriction at the exhaust port of the blower. If a vent-style muffler is used, it is often a good idea to increase the connection size and muffler size to reduce restriction. If the application requires the exhaust air to be vented to a remote location, it may be advantageous to increase the pipe or duct size to reduce air flow restriction. This may depend upon the length of pipe or duct to be installed. When designing your system, it will always be advantageous to reduce the number of elbows to a minimum, and to use long radius elbows when possible to reduce flow restriction.



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## ELECTRICAL CONNECTION

- 1) All electrical connections should be made by qualified personnel.
- 2) All electrical wiring and equipment used should be compliant with the local regulatory codes.
- 3) Over-current protection in the form of fuse(s) or a circuit breaker is required.
- 4) A suitable grounding connection must be made to the ground terminal in the blower wiring box.
- 5) The Electrical connection to the blower should be with flexible conduit.
- 6) Thermal protection provided with Models RB20-51U, RB30-51U and RB40-51U may be wired for inline service. Thermal protection for all other models is suitable for pilot duty service only. See the wiring diagrams on page 13 and 14 for single phase wiring options.
- 7) All three phase models, and single phase models RB40-61U and RB50-51U must include magnetic motor starters. See wiring diagrams on page 14 for wiring of model RB40-61U and RB50-51U wiring. See Page 15 for wiring diagrams for all three phase models.
- 8) When using a magnetic motor starter, overload protection must be set for the maximum amperage rating shown on the blower nameplate, or lower. Overload tripping time delays may vary from one manufacturer to the next. It is the user's responsibility to ensure proper settings are used.

## START UP

- 1) **Rotation** of the blower must be checked once all wiring connection have been made. An arrow is located on the blower impeller casing which indicates rotation must be clockwise when viewed from the motor end. Momentarily apply power, and view the cooling fan through the shroud on the end of the motor. Single phase models should rotate in the proper direction regardless of wire connections of the hot/neutral leads. Three

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## START UP - continued

phase models may rotate backwards. If this is found to be the case, remove power from the blower, and interchange two of the three power feeds at the blower wire leads. This may also be done at the motor starter terminals if this is an more convenient solution.

- 2) **amperage** draw should be recorded with all air line connections in place, and the blower operating under normal conditions. Note that regenerative blowers operate under "Compressor Laws", not "Fan Laws". This dictates that the power consumption will increase as pressure or vacuum levels increase. Using an amp meter, check the amperage drawn to ensure that the level does not exceed the maximum amperage shown on the blower name plate. If the amps draw are too high, turn the blower off, and check for restrictions in the system on both inlet and discharge side. Check item #3 below. If there is potential in your system for pressure or vacuum levels to vary during operation, you must check the amperage drawn at the worst condition, which will be at the highest pressure or vacuum level. A pressure or vacuum relief valve should be used to prevent over-pressure or high vacuum conditions. If a pressure or vacuum relief valve has been installed, ensure that it is relieving at the a suitable pressure. See item #4 below.
  
- 3) **pressure or vacuum level** should be checked to ensure that the level does not exceed that allowable for the specific blower model being used. The following table shows maximum allowable pressure and vacuum levels for each blower model. If you have not installed a pressure or vacuum gauge, but amperage draw is well within the maximum amperage shown on the blower name plate, this is a good indication that the operating pressure or vacuum level is acceptable.

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## START UP - continued

- 4) **Pressure and Vacuum Relief Valve** are preset at the factory to allow the blower's full volumetric flow capacity to be relieved, in the event that the blower inlet or discharge is fully closed off (dead head condition). The relief valves are spring loaded devices. Greater spring tension results in a higher pressure or vacuum level relief setting. For pressure applications, simulate full closure of the discharge side of the blower to determine the relief setting for the pressure relief valve. Check the pressure gauge (if used), and the amperage draw under this condition to see that the blower is not over-pressured under this condition. If excessive pressure is indicated on the pressure gauge or amp meter, adjust the relief valve to reduce the pressure level. If it is found that the relief valve is relieving at too low a pressure, you may wish to adjust the valve to a higher setting. However, if higher operation levels are not required, it will be to your advantage to maintain lower levels using a lower setting on the relief valve, as this will result in lower power consumption for the blower, and lower operating temperatures. For vacuum applications, simulate full closure of the inlet side of the blower, and check the vacuum gauge (if used) and amp draw of the blower. If excessive vacuum levels are revealed, adjust the vacuum relief valve accordingly. Keep in mind that intake filters (in pressure applications) will create increasingly higher restriction (vacuum) levels at the blower inlet as they become restricted. This will increase amp draw and heat load of the blower. It is important that intake filters be checked frequently to ensure they have not created excessive restrictions at the blower intake. Clean or change filter elements when required. In vacuum applications, if a vent muffler is used, ensure that it does not become restricted, creating excessive discharge pressure. An amperage check with the muffler installed and with it removed will indicate its level of restriction.



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## MAXIMUM ALLOWABLE PRESSURE & VACUUM LEVELS

BLOWER MODEL	MAX. PRESSURE IN. W.C. / MBAR	MAX. VACUUM IN. W.C. / MBAR	MAX. AMPS 115V / 230V	MIN. AIR FLOW - CFM PRESS / VAC
SINGLE PHASE MODELS - 1/60/115/230V				
RB20-51U	34 / 85	31 / 78	3.2 / 1.6	4 / 4
RB30-51U	41 / 103	41 / 103	4.5 / 2.3	17 / 15
RB40-51U	64 / 160	64 / 160	13 / 6.5	49 / 37
RB40-61U	72 / 179	72 / 179	16.6 / 8.3	38 / 25
RB50-51U	66 / 165	66 / 165	20 / 10	85 / 63
3 PHASE MODELS 3/60/230/460V	MAX PRESSURE IN. W.C./ MBAR	MAX VACUUM IN. W.C./MBAR	MAX. AMPS 230V / 460V *575V	MIN. AIR FLOW - CFM PRESS / VAC
RB20-53U	34 / 85	31 / 78	1.2 / .6	4 / 4
RB30-53U	56 / 140	50 / 125	2 / 1	17 / 15
RB40-53U	72 / 180	72 / 180	4.8 / 2.4	44 / 30
RB40-63U	92 / 230	84 / 210	5.8 / 2.9	33 / 14
RB40-6AU	92 / 230	84 / 210	2.2	33 / 14
RB50-53U	80 / 200	84 / 200	5.4 / 2.9	75 / 54
RB50-63U	108 / 270	96 / 240	9.2 / 4.6	60 / 36
RB50-6AU	108 / 270	96 / 240	*3.63	60 / 36
RB60-53U	80 / 200	88 / 220	9 / 4.5	129 / 87
RB60-63U	92 / 227	92 / 227	10.5 / 5.6	115 / 57
RB60-73U	132 / 330	128 / 320	16 / 8	87 / 28
RB60-7AU	132 / 330	128 / 320	*5.9	87 / 28
RB80-4BU	92 / 229	100 / 249	21.3 / 12.1	239 / 165
RB80-4AU	92 / 229	100 / 249	*8.4	239 / 165
RB80-5BU	112 / 279	124 / 309	24.6 / 14.2	223 / 129
RB80-5AU	112 / 279	124 / 309	*9.7	223 / 129
RB80-6BU	180 / 448	140 / 349	36 / 21	170 / 90
RB80-6AU	180 / 448	140 / 349	*13.3	170 / 90

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## MAINTENANCE

Under normal operating conditions, your H.S. Regenerative Blower will perform for many years with little or no maintenance. Frequency of maintenance will be largely determined by the cleanliness of the environment in which the blower is operated, and the cleanliness of the air being processed. Check the following items periodically.

- 1) Remove and clean the motor cooling air fan shroud. Clean dirt from the cooling fan to avoid motor over-temperature conditions.
- 2) Silencer assemblies will deteriorate over an extended period of time. Allowing particulate, or dirty air to be processed through the blower will accelerate the rate of silencer material deterioration. Increased noise levels are indications of silencer failure. Silencer assembly repair kits consist of the noise attenuating foam material used in the silencer housings.
- 3) Aluminum Impellers are not normally subject to wear, however, if abrasive dust, or wet contaminants are allowed to enter the blower, it may be necessary to remove the impeller housing cover, clean the housing interior and impeller. If worn due to abrasive dust, or if damaged due to ingestion of foreign materials, the impeller must be replaced. The impeller is a precision casting which is dynamically balanced, and attempts to repair it should not be made.
- 4) Bearings and shaft seals must be replaced as required. These components will normally last for many years of operation.

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## TROUBLE-SHOOTING

FAULT	CAUSE	REMEDY
MOTOR WILL NOT RUN & THERE IS NO NOISE	<ol style="list-style-type: none"> <li>1) NO ELECTRICAL POWER</li> <li>2) POOR (LOOSE) WIRING TERMINATION</li> <li>3) LOSS OF PHASE</li> <li>4) TRIPPED BREAKER OR MOTOR OVERLOAD</li> <li>5) FAULTY MOTOR STARTER</li> <li>6) MOTOR WINDINGS BURNT OUT</li> </ol>	<ol style="list-style-type: none"> <li>1) APPLY POWER</li> <li>2) CHECK &amp; CORRECT WIRE TERMINATIONS</li> <li>3) CHECK &amp; CORRECT POWER ON ALL PHASES</li> <li>4) CHECK &amp; RESET BREAKER &amp; OVERLOAD</li> <li>5) REPAIR OR REPLACE</li> <li>6) REWIND OR REPLACE &amp; DETERMINE &amp; CORRECT CAUSE OF FAILURE</li> </ol>
MOTOR MAKES LABOURING NOISE ATTEMPTING TO START, BUT WILL NOT TURN OVER	<ol style="list-style-type: none"> <li>1) ONE PHASE LOST ON THREE PHASE UNITS</li> <li>2) DEFECTIVE MOTOR STARTER</li> <li>3) IMPELLER IS JAMMED WITH FOREIGN MATERIAL</li> <li>4) FAILED BEARINGS</li> <li>5) CAPACITOR FAILURE (SINGLE PHASE UNITS)</li> <li>6) LOW VOLTAGE</li> </ol>	<ol style="list-style-type: none"> <li>1) CHECK &amp; CORRECT WIRING TERMINATIONS</li> <li>2) REPAIR OR REPLACE</li> <li>3) INSPECT AND CLEAN</li> <li>4) REPLACE</li> <li>5) REPLACE</li> <li>6) CHECK VOLTAGE AND CORRECT</li> </ol>
EXCESSIVE NOISE OR VIBRATION	<ol style="list-style-type: none"> <li>1) SILENCER MATERIAL WORN OR DIRTY</li> <li>2) BEARING FAILURE</li> <li>3) IMPROPER VOLTAGE APPLIED, OR WIRING INCORRECT AT MOTOR LEADS</li> <li>4) DAMAGED IMPELLER</li> </ol>	<ol style="list-style-type: none"> <li>1) CLEAN OR REPLACE</li> <li>2) REPLACE BEARINGS</li> <li>3) CHECK VOLTAGE AND WIRE TERMINATIONS</li> <li>4) CHECK AND REPLACE</li> </ol>

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<p>BLOWER OVER-HEATS OR TRIPS BREAKER, OR BLOWS FUSES</p>	<ol style="list-style-type: none"> <li>1) MOTOR OVERLOADING</li> <li>2) MOTOR OVER-HEATING</li> <li>3) IMPELLER RESTRICTED</li> </ol>	<ol style="list-style-type: none"> <li>1) CHECK &amp; REDUCE PRESSURE OR VACUUM LEVELS. CHECK FOR DIRTY FILTERS, SILENCERS &amp; COOLING FAN.</li> <li>2) AMBIENT TEMPERATURE HIGH - CORRECT. MOTOR COOLING FAN DIRTY - CLEAN</li> <li>3) CHECK AND CLEAN OR CORRECT</li> </ol>
<p>WEAK VACUUM OR LOW PRESSURE</p>	<ol style="list-style-type: none"> <li>1) BLOWER IS UNDER-SIZED</li> <li>2) INCORRECT BLOWER ROTATION</li> <li>3) LEAKS IN SYSTEM</li> <li>4) FAULTY RELIEF VALVE SETTING</li> <li>5) DIRTY INTAKE FILTER OR IN-LINE VACUUM FILTER</li> <li>6) BLOWER DISCHARGE RESTRICTION ON VACUUM SYSTEMS</li> </ol>	<ol style="list-style-type: none"> <li>1) RE-EVALUATE SYSTEM REQUIREMENTS AND CORRECT</li> <li>2) CHECK ROTATION &amp; CORRECT</li> <li>3) CHECK &amp; CORRECT</li> <li>4) ADJUST RELIEF VALVE SETTING</li> <li>5) CHECK ELEMENTS &amp; CLEAN OR REPLACE</li> <li>6) CHECK EXHAUST MUFFLERS &amp; FOR AIR LINE RESTRICTIONS</li> </ol>

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## WIRING DIAGRAMS

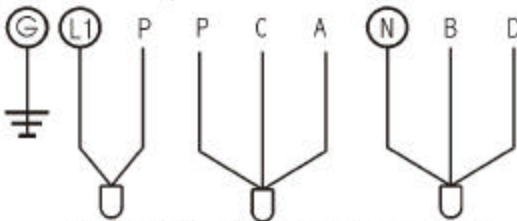
Thermal overload protection supplied in models RB20-51U RB30-51U and RB40-51U may be issued for in-line thermal protection, or for pilot duty service if a motor starter is being used. When used for in-line thermal protection use the terminations show in the following wiring diagram.

### SINGLE PHASE MODELS WIRING DIAGRAMS MODELS RB20-51U, RB30-51U, RB40-51U & RB50-51U

WIRE CONNECTIONS USING  
IN-LINE THERMAL PROTECTION

MODELS RB20-51U  
RB30-51U  
RB40-51U

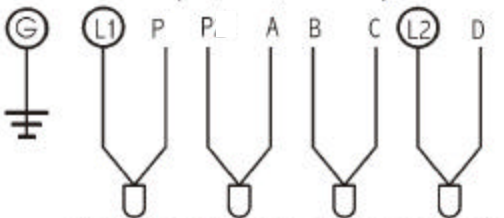
LOW VOLTAGE CONNECTIONS  
( 1 / 60 / 120V )



WIRE TERMINATIONS (MARRETTE OR SHIELDED LUGS)

L1 & N (NEUTRAL) ARE FROM POWER SOURCE

HIGH VOLTAGE CONNECTIONS  
( 1 / 60 / 230V )



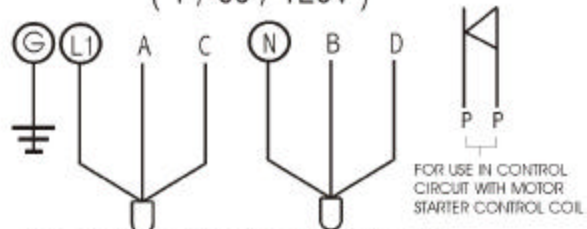
WIRE TERMINATIONS (MARRETTE OR SHIELDED LUGS)

L1 & L2 ARE FROM POWER SOURCE

WIRE CONNECTIONS USING  
PILOT DUTY THERMAL PROTECTION

MODELS RB20-51U  
RB30-51U  
RB40-51U  
RB50-51U

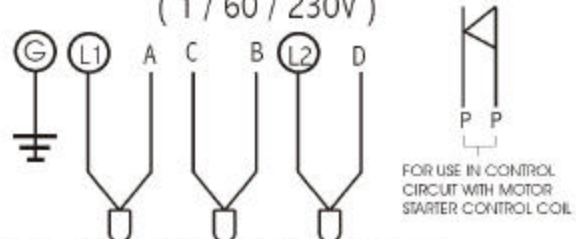
LOW VOLTAGE CONNECTIONS  
( 1 / 60 / 120V )



WIRE TERMINATIONS (MARRETTE OR SHIELDED LUGS)

L1 & N (NEUTRAL) ARE FROM POWER SOURCE

HIGH VOLTAGE CONNECTIONS  
( 1 / 60 / 230V )



WIRE TERMINATIONS (MARRETTE OR SHIELDED LUGS)

L1 & L2 ARE FROM POWER SOURCE

NOTES:

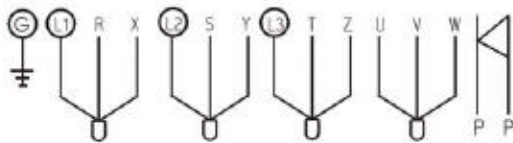
- 1) CIRCLED LEADS ARE CUSTOMER SUPPLIED. ALL OTHERS ARE BLOWER LEADS.
- 2) MODEL RB50-51 MAY NOT BE USED WITH IN-LINE THERMAL PROTECTION.

# H.S. MACHINERY RING COMPRESSORS

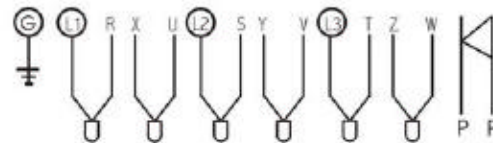
## 3- PHASE WIRING DIAGRAMS

**MODELS:** RB20-53U, RB30-53U, RB40-53U & 63U,  
RB50-53U & 63U, RB60-53U, 63U & 73U

LOW VOLTAGE CONNECTIONS  
( 3 / 60 / 208-230 )

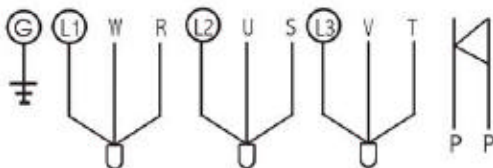


HIGH VOLTAGE CONNECTIONS  
( 3 / 60 / 460V )



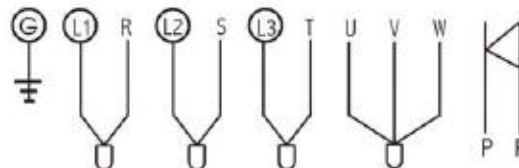
**MODELS:** RB80-4BU, 5BU & 6BU

LOW VOLTAGE CONNECTIONS  
( 3 / 60 / 208-230 )



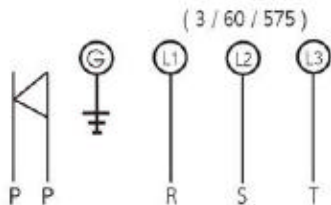
WIRE TERMINATIONS (MARRETTE OR SHIELDED LUGS)  
CIRCLED TERMINALS ARE CUSTOMER SUPPLIED.  
"P" LEADS (THERMISTORS) ARE FOR USE IN MOTOR  
STARTER CONTROL CIRCUIT  
(SEE TYPICAL CONTROL CIRCUIT BELOW)

HIGH VOLTAGE CONNECTIONS  
( 3 / 60 / 460V )



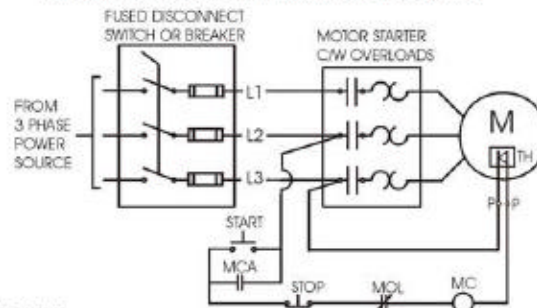
WIRE TERMINATIONS (MARRETTE OR SHIELDED LUGS)  
CIRCLED TERMINALS ARE CUSTOMER SUPPLIED.  
"P" LEADS (THERMISTORS) ARE FOR USE IN MOTOR  
STARTER CONTROL CIRCUIT  
(SEE TYPICAL CONTROL CIRCUIT BELOW)

**MODELS:** RB30-5AU  
RB40-5AU & 6AU  
RB50-5AU & 6AU  
RB60-6AU & 7AU  
RB80-4AU, 5AU & 6AU



"P" LEADS (THERMISTORS) ARE FOR USE  
IN MOTOR STARTER CONTROL CIRCUIT  
(SEE TYPICAL CONTROL CIRCUIT ON RIGHT)

### TYPICAL MOTOR STARTER WIRING DIAGRAM



COMPONENTS  
M - MOTOR  
MC - MOTOR CONTACTOR  
CONTROL COIL  
MCA - MOTOR CONTACTOR  
AUXILIARY CONTACTS  
(N.O. FOR INTERLOCK)  
MOL - MOTOR OVERLOAD RELAY  
CONTACTS  
TH - THERMISTORS - MOTOR  
WINDING EMBEDDED

NOTES  
1) CIRCUITS MAY REQUIRE CONTROL  
VOLTAGE TRANSFORMER & NECESSARY  
FUSING DEPENDING UPON OPERATOR  
VOLTAGE RATINGS & SPECIFIC PRODUCTS  
USED.  
2) WIRING MAY VARY TO INCLUDE OTHER  
OPTIONAL CONTROL DEVICES.

TYPICAL WIRING DIAGRAM IS FOR REFERENCE PURPOSES. ALL WIRING MUST BE IN COMPLIANCE WITH NATIONAL, STATE, OR PROVINCIAL CODES.

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## WARRANTY - NORTH AMERICA

H.S. REGENERATIVE BLOWERS ARE WARRANTED FOR A PERIOD OF ONE YEAR FROM DATE OF SHIPMENT TO THE END USER. WARRANTY COVERS THE REPAIR OR REPLACEMENT OF PARTS DETERMINED TO BE DEFECTIVE BY AIR POWER PRODUCTS LIMITED, OR ITS ASSIGNED REPRESENTATIVE. AIR POWER PRODUCTS LIMITED MAY, AT ITS DISCRETION, REPLACE THE PRODUCT F.O.B. THE ORIGINAL SUPPLY POINT. THE PRODUCT SUPPLY POINT AND WARRANTY SHALL BE FOB FLORENCE, KENTUCKY, U.S.A., OR CAMBRIDGE, ONTARIO, CANADA. AIR POWER PRODUCTS LIMITED MAY, AT ITS DISCRETION, AUTHORIZE A THIRD PARTY TO EVALUATE AND REPAIR THE PRODUCT WITHIN A CLOSER GEOGRAPHIC PROXIMITY TO THE USER. WARRANTY CLAIMS MUST BE SUBMITTED IN WRITING TO AIR POWER PRODUCTS LIMITED BY E-MAIL, FAX OR LETTER. AIR POWER PRODUCTS LIMITED SHALL NOT ACCEPT WARRANTY CHARGES WHICH ARE NOT PRE-AUTHORIZED.

WARRANTY DOES NOT COVER DAMAGE DUE TO THE INGESTION OF FOREIGN MATTER INTO THE BLOWER, DAMAGE DUE TO IMPROPER POWER SUPPLY TO, OR WIRING OF THE PRODUCT, DAMAGE DUE TO OPERATION AT PRESSURES OR VACUUM LEVELS HIGHER THAN ALLOWED BY THE PERFORMANCE CURVES, DAMAGE DUE TO MISHANDLING OR IMPROPER APPLICATION, DAMAGE DUE TO OPERATION IN EXCESSIVELY HIGH AMBIENT TEMPERATURES, OR DAMAGE DUE TO OPERATION IN CORROSIVE ATMOSPHERES.

WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT. NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED. WARRANTY DOES NOT COVER ANY CONTINGENT DAMAGES INCLUDING LOSS OF PRODUCTION, DAMAGE TO OTHER EQUIPMENT OR PRODUCTS, OR PERSONAL INJURY.

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## PARTS LIST

Fig. No.	Name of part	RB20		RB30	
		1 Phase	3 Phase	1 Phase	3 Phase
1-1	Bolt	6	6	6	6
1-2	Casing cover	1	1	1	1
2-1	Bolt	1	1	1	1
2-2	Washer	1	1	1	1
2-3	Plate retaining	1	1	1	1
2-4	Impeller	1	1	1	1
2-5	Shim assembly	1	1	1	1
2-6	Collar	1	1	1	1
3-1	Screw	2	2	2	2
3-2	Bearing cover	1	1	1	1
3-3	Shaft seal	1	1	1	1
3-4	Casing	1	1	1	1
4-1	Stator assembly	1	1	1	1
4-2	Bolt	4	4	4	4
4-3	End housing	1	1	1	1
4-4	Fan	1	1	1	1
4-5	Fan cover	1	1	1	1
4-6	Screw	3	3	3	3
4-7	Nut	4	4	4	4
4-8	Spring washer	4	4	4	4
4-9	Screw	5	6	5	6
4-10	Nut	5	6	5	6
5-1	Bearing	1	1	1	1
5-2	Key	1	1	1	1
5-3	Motor rotor	1	1	1	1
5-4	Bearing	1	1	1	1
5-5	Wave washer	1	1	1	1
6-1	Capacitor cover	1	N/A	1	N/A
6-2	Screw	2	N/A	2	N/A
6-3	Screw	2	N/A	2	N/A
6-4	Clip	1	N/A	1	N/A
6-5	Sleeve	2	N/A	2	N/A
6-6	Capacitor	1	N/A	1	N/A
6-7	Bushing	1	N/A	1	N/A



# H.S. MACHINERY RING COMPRESSORS

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7-1	Cover for terminal box	1	1	1	1
7-2	Gasket	1	1	1	1
7-3	Gasket	1	1	1	1
7-4	Under part of terminal box	1	1	1	1
7-5	Spring washer	1	1	1	1
7-6	Earthing screw	1	1	1	1
7-7	Bushing	1	1	1	1
7-8	Screw	1	1	1	1
7-9	Terminal board	1	1	1	1
7-10	Screw	2	2	2	2
7-11	Nut	12	12	12	12
7-12	Terminal plate	2	3	2	3
7-13	Terminal clip	4	6	4	6
7-14	Screw	1	1	1	1
8-1	Silencer assembly	2	2	2	2
8-2	Silencer retaining	2	2	2	2
8-3	End cover	1	1	1	1
8-4	Screw	6	6	6	6
8-5	Gasket	2	2	2	2
8-6	Threaded flange	2	2	2	2
8-7	Bolt	4	4	4	4
8-8	Hose flange	2	2	2	2

Order example : RB20-53U , Fig.No. 5-1 , Q'ty : 10

# H.S. MACHINERY RING COMPRESSORS

Fig. No.	Name of part	RB40		RB50		RB60	RB80
		1 Phase	3 Phase	1 Phase	3 Phase	3 Phase	3 Phase
1-1	Bolt	6	6	7	7	8	8
1-2	Casing cover	1	1	1	1	1	1
1-3	Screw	3	3	3	3	4	4
1-4	Washer	3	3	3	3	4	4
1-5	O-ring	3	3	3	3	4	N/A
1-6	O-ring for bearing housing	N/A	N/A	N/A	N/A	N/A	N/A
2-1	Bolt	1	1	1	1	1	1
2-2	Spring washer	1	1	1	1	1	1
2-3	Plate retaining	1	1	1	1	1	1
2-4	Bearing	1	1	1	1	1	1
2-5	Bearing cover	1	1	1	1	1	1
2-6	Impeller	1	1	1	1	1	1
2-7	Collar	N/A	N/A	1	1	1	N/A
3-1	Casing	1	1	1	1	1	1
3-2	Eyebolt	N/A	N/A	1	1	1	1
3-3	Felt ring	1	1	1	1	1	N/A
3-4	Shaft seal	1	1	1	1	1	1
3-5	Square nut	1	1	N/A	N/A	N/A	N/A
3-6	Sleeve	N/A	N/A	1	1	1	1
3-7	Foot	1	1	1	1	1	1
3-8	Square nut	2	2	2	2	2	N/A
3-9	Bolt	2	2	2	2	2	2
3-10	Spring washer	1	1	1	1	1	1
3-11	Bolt	1	1	1	1	1	1
4-1	Stator assembly	1	1	1	1	1	1
4-2	End housing	1	1	1	1	1	1
4-3	Bolt	3	3	4	4	4	4
4-4	Bolt	3	3	4	4	4	4
4-5	Fan	1	1	1	1	1	1
4-6	Fan cover	1	1	1	1	1	1
4-7	Screw	3	3	3	3	3	4
4-8	Nut	N/A	N/A	N/A	N/A	4	4
4-9	Nut	N/A	N/A	N/A	N/A	4	4
5-1	Key	1	1	1	1	1	1
5-2	Motor rotor	1	1	1	1	1	1
5-3	Bearing	1	1	1	1	1	1
5-4	Wave washer	1	1	1	1	1	1

# H.S. MACHINERY RING COMPRESSORS

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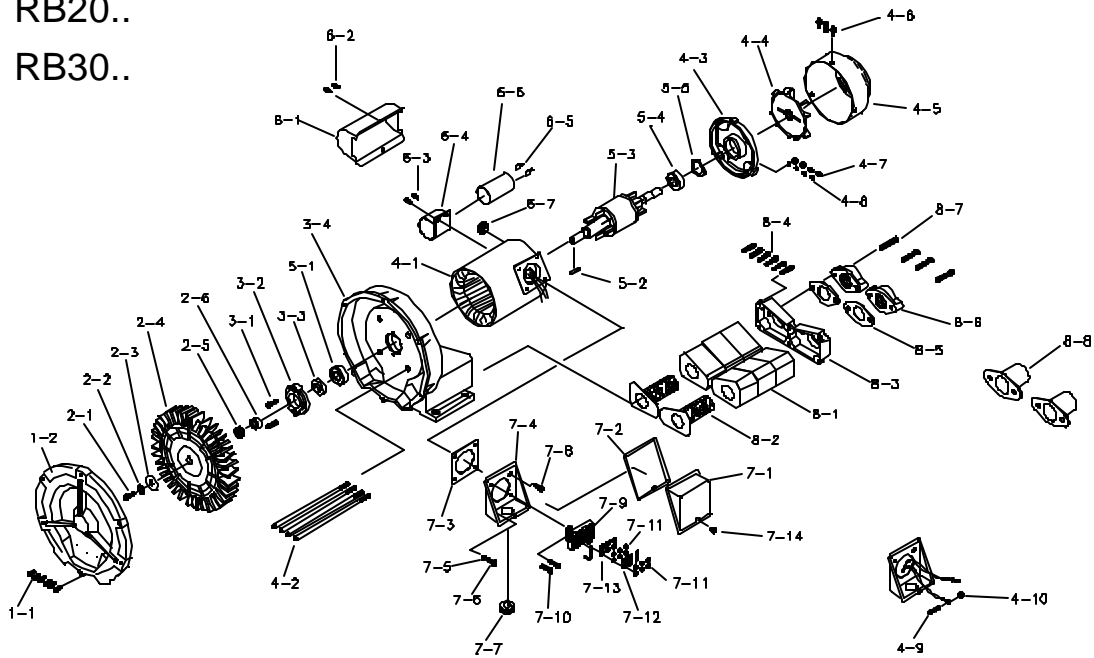
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6-1	Cable gland	1	N/A	1	N/A	N/A	N/A
6-2	Screw	2	N/A	2	N/A	N/A	N/A
6-4	Clip	2	N/A	2	N/A	N/A	N/A
6-6	Capacitor assembly	1	N/A	1	N/A	N/A	N/A
7-1	Cover for terminal box	1	1	1	1	1	1
7-2	Screw	2	2	2	2	4	4
7-3	Gasket	1	1	1	1	1	1
7-4	Terminal board	1	1	1	1	1	1
7-5	Nut	12	12	12	12	12	12
7-6	Terminal plate	3	3	3	3	3	3
7-7	Earthing screw	1	1	1	1	1	1
7-8	Spring washer	1	1	1	1	1	1
7-9	Screw	4	4	4	4	4	4
7-10	Under part of terminal box	1	1	1	1	1	1
7-11	Gasket	1	1	1	1	1	1
7-12	Screw	5	6	5	6	6	6
7-13	Nut	5	6	5	6	6	6
7-14	Terminal clip	6	6	6	6	6	6
7-15	Screw	2	2	2	2	2	2
7-16	Plug	0	1	0	1	1	1
8-1	Gasket	2	2	2	2	2	2
8-2	Silencer retaining	2	2	2	2	2	2
8-3	Silencer assembly	2	2	2	2	2	2
8-4	Silencer casing	2	2	2	2	2	2
8-5	Bolt	4	4	4	4	4	4
8-6	Bolt	4	4	4	4	4	6
8-7	Threaded flange	N/A	N/A	2	2	2	2
8-8	Hose flange	2	2	2	2	2	N/A
8-9	Gasket	2	2	2	2	2	2

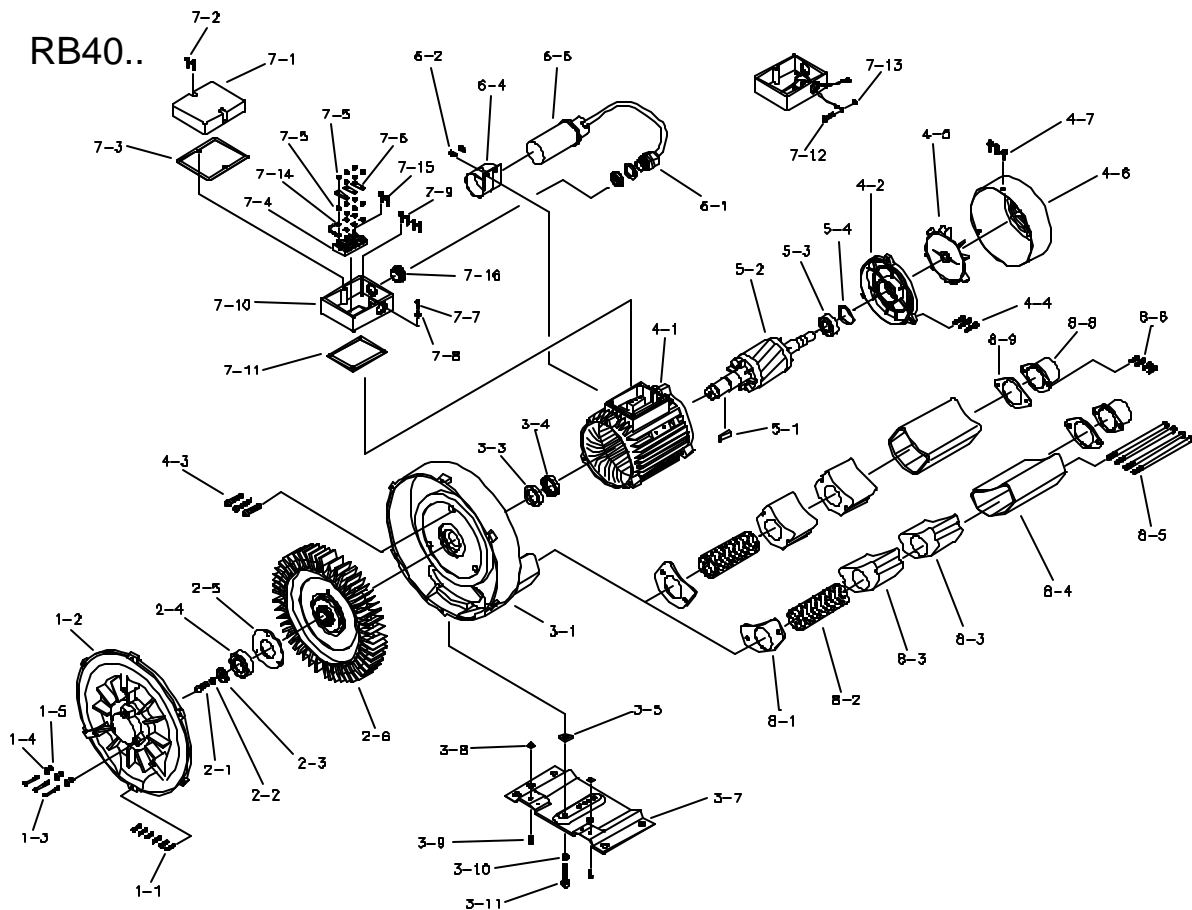
# H.S. MACHINERY RING COMPRESSORS

RB20..

RB30..



RB40..



# H.S. MACHINERY RING COMPRESSORS

RB50..  
RB60..  
RB80..

