

**Please read and save these instructions.** Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

# Dayton® Centrifugal Round In-Line Duct Blowers

## Description

Dayton tubular centrifugal blowers are designed to exhaust or supply air in general clean air or fume exhaust applications. Blowers are an ideal choice for installations with straight-through airflow in ducted systems. All blowers can be mounted vertically (ceiling hung or base mount) for either upward or downward airflow. For ease of installation, eight mounting brackets are welded on each blower. The eight brackets along with four mounting supports, provide a universal mounting system. Blower construction consists of welded painted (gray polyester urethane finish) steel housing with both inlet and outlet flanges for added strength and rigidity. Blower features a welded aluminum backward inclined wheel and an aluminum rub ring, qualifying it as AMCA Type B spark resistant. Includes motor cover that meets OSHA guidelines. Maximum inlet air temperature is 200°F. All blowers are UL/cUL Listed, Standard 705.

Optional inlet/outlet guards and/or companion inlet and outlet flanges are available for all blower sizes. Removable guards meet OSHA guidelines and protect personnel and equipment in non-ducted installations. Companion flanges are standard with pre-punched mounting holes.

## Optional Accessories

General or UL 705	
Description	Model No.
Inlet/Outlet Guards:	5TCN6-5TCN9, 5TCP0
Companion Flanges:	5TCN1-5TCN5
Hanging Vibration Isolators:	(By Others)
Base Mount Vibration Isolators:	(By Others)
Mounting Rails:	(By Others)

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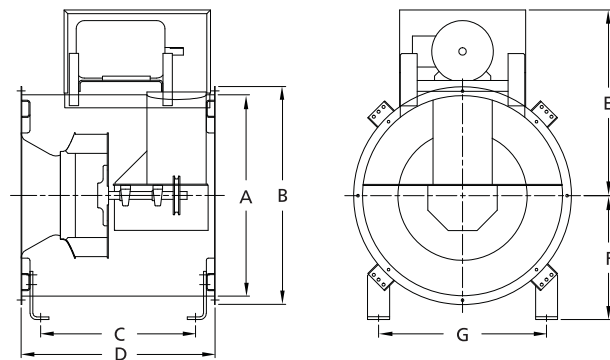


Figure 1 — Dimensions



**amca** CERTIFIED RATINGS  
SOUND and VIB PERFORMANCE  
FOR BLOWER and CONTROL EQUIPMENT INTERNATIONAL, INC.

Dayton Electric Mfg. Co. certifies that the blowers shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

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## Dimensions and Specifications (See Figure 1)

Model	Wheel Dia.	Shaft Dia.	Inlet/Outlet Dia. A	B	C	D	E	F	G
5TCL6	9"	1"	18 <sup>3</sup> / <sub>8</sub> "	21 <sup>5</sup> / <sub>8</sub> "	18 <sup>3</sup> / <sub>8</sub> "	23"	21 <sup>3</sup> / <sub>4</sub> "	13 <sup>1</sup> / <sub>4</sub> "	17 <sup>5</sup> / <sub>8</sub> "
5TCL7	13	1	20 <sup>3</sup> / <sub>8</sub> "	23 <sup>5</sup> / <sub>8</sub> "	19 <sup>7</sup> / <sub>8</sub> "	24 <sup>1</sup> / <sub>2</sub> "	23 <sup>1</sup> / <sub>4</sub> "	13 <sup>3</sup> / <sub>8</sub> "	19"
5TCL8	16	1	24 <sup>3</sup> / <sub>8</sub> "	27 <sup>5</sup> / <sub>8</sub> "	23 <sup>5</sup> / <sub>8</sub> "	28 <sup>1</sup> / <sub>2</sub> "	26"	16 <sup>5</sup> / <sub>8</sub> "	21 <sup>5</sup> / <sub>8</sub> "
5TCL9	18	1	30 <sup>3</sup> / <sub>8</sub> "	33 <sup>5</sup> / <sub>8</sub> "	26 <sup>3</sup> / <sub>8</sub> "	31"	29 <sup>1</sup> / <sub>4</sub> "	18 <sup>3</sup> / <sub>8</sub> "	26 <sup>5</sup> / <sub>8</sub> "
5TCN0	22	1 <sup>1</sup> / <sub>4</sub> "	36 <sup>3</sup> / <sub>8</sub> "	39 <sup>5</sup> / <sub>8</sub> "	28 <sup>3</sup> / <sub>8</sub> "	35 <sup>1</sup> / <sub>2</sub> "	33 <sup>3</sup> / <sub>4</sub> "	22 <sup>1</sup> / <sub>2</sub> "	30 <sup>1</sup> / <sub>2</sub> "

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# Dayton® Centrifugal Round In-Line Duct Blowers

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## Performance

Model	Wheel Dia.	Blower RPM	HP	Max BHP	Sones @										
					.125" SP @ 5 Ft.	CFM Air Delivery @ Static Pressure Shown									
						.000"	.125"	.250"	.500"	.750"	1.00"	1.25"	1.50"	2.00"	3.00"
5TCL6	9"	2058	1/4	0.24	14.5	901	873	843	773	681	559	—	—	—	—
		2493	1/2	0.42	18.6	1091	1068	1045	993	932	859	770	660	—	—
		2787	3/4	0.58	22	1220	1199	1178	1134	1086	1027	960	882	678	—
		2968	3/4	0.71	24	1299	1279	1260	1220	1175	1124	1066	1001	840	—
		3267	1	0.94	27	1430	1412	1394	1359	1319	1278	1229	1177	1050	680
		3739	1½	1.41	33	1636	1621	1605	1574	1543	1507	1471	1431	1340	1109
		3929	2	1.64	36	1720	1705	1690	1661	1631	1598	1564	1530	1446	1238
5TCL7	13	1458	1/2	0.43	12.4	2002	1926	1840	1655	1430	1146	—	—	—	—
		1739	3/4	0.73	15.3	2388	2324	2257	2109	1949	1760	1547	1233	—	—
		1913	1	0.97	18.3	2627	2569	2511	2377	2237	2081	1907	1714	—	—
		2190	1½	1.45	23	3007	2957	2906	2794	2676	2552	2418	2270	1934	—
		2411	2	1.94	27	3310	3265	3219	3121	3014	2907	2792	2670	2395	1526
		2760	3	2.91	35	3790	3750	3709	3629	3537	3444	3351	3251	3041	2548
5TCL8	16	1105	1/2	0.49	11.3	2792	2687	2565	2277	1852	—	—	—	—	
		1330	1	0.84	14.4	3361	3273	3186	2955	2710	2374	1886	—	—	
		1486	1½	1.18	16.9	3755	3677	3598	3408	3194	2958	2651	2235	—	
		1754	2	1.94	22	4432	4366	4300	4166	3984	3803	3622	3393	2773	
		2007	3	2.91	27	5072	5014	4956	4839	4707	4547	4389	4231	3853	2487
		2464	5	5.39	38	6227	6179	6132	6037	5943	5846	5716	5586	5328	4740
5TCL9	18	1021	3/4	0.57	14.5	3371	3243	3104	2799	2430	1953	—	—	—	
		1212	1	0.97	17.9	4002	3894	3787	3535	3276	2963	2607	2082	—	
		1338	1½	1.3	21	4418	4320	4223	4003	3770	3521	3232	2916	—	
		1527	2	1.94	26	5042	4956	4871	4690	4489	4284	4070	3824	3261	
		1747	3	2.91	29	5768	5694	5619	5470	5298	5122	4944	4763	4343	3222
		2072	5	4.85	37	6841	6778	6715	6590	6464	6316	6168	6020	5716	5003
5TCN0	22	818	3/4	0.71	12.9	4701	4492	4281	3836	3275	2421	—	—	—	
		1031	1½	1.45	17.5	5925	5759	5593	5257	4898	4501	4007	3380	—	
		1135	2	1.93	20	6523	6372	6221	5917	5600	5269	4898	4439	3108	
		1299	3	2.88	24	7466	7334	7202	6938	6670	6389	6104	5784	5020	
		1540	5	4.83	31	8851	8740	8628	8406	8182	7957	7724	7483	6975	5642
		1670	7½	6.16	36	9598	9495	9393	9188	8982	8775	8567	8349	7906	6846

Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: Free inlet hemispherical sone levels.

## Unpacking

1. Inspect for any damage that may have occurred during transit.
2. Shipping damage claim must be filed with carrier.
3. Check all bolts, screws, set-screws, etc. for looseness that may have occurred during transit. Retighten as required.

Rotate wheel by hand to be sure it turns freely in a clockwise rotation.

## General Safety Information

**⚠ DANGER** Do not depend on any switch as the sole means of disconnecting power when installing or servicing the blower. Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can

result in fire, shock or serious injury. Motor will restart without warning after thermal protector trips. Do not touch operating motor, it may be hot enough to cause injury.

**⚠ DANGER** Do not place any body parts or objects in blower, motor openings or drives while motor is connected to power source.

# Models 5TCL6 thru 5TCL9, 5TCN0

## General Safety Information (Continued)

**⚠ WARNING** *Do not use this equipment in explosive atmospheres!*

1. Read and follow all instructions and cautionary markings. Make sure electrical power source conforms to requirements of equipment and local codes.
2. Blowers should be assembled, installed and serviced by a qualified technician. Have all electrical work performed by a qualified electrician.
3. Follow all local electrical and safety codes in the United States and Canada, as well as the National Electrical Code (NEC), the Occupational Safety and Health Act (OSHA), and the National Fire Protection Association (NFPA) Bulletin 96 in the United States. Ground motor in accordance with NEC Article 250 (grounding). Follow the Canadian Electric Code (CEC) in Canada.

**⚠ CAUTION** *To reduce the risk of injury to persons, observe the following:*

**OSHA requires OSHA complying guards when blower is installed within 2.1 meters (7 feet) of floor or working level.**

**ULicUL Standards require OSHA complying guards when blower is installed within 2.5 meters (8 feet) of floor or working level.**

4. Do not kink power cable or allow it to come in contact with sharp objects, oil, grease, hot surfaces or chemicals. Replace damaged cords immediately.
5. Make certain that the power source conforms to the requirements for the equipment.

6. Never open access door to a duct with the blower running.
7. Motor must be securely and adequately grounded. Accomplish this by wiring with a grounded, metal-clad race way system by using a separate ground wire connected to the bare metal of the motor frame, or other suitable means.

## Installation

**⚠ WARNING** *Installation, troubleshooting and parts replacement is to be performed only by a qualified personnel.*

### INLET GUARD ASSEMBLY

1. Center guard with hand.
2. Use self-drilling screws provided with guard kit to attach guard to inlet cone of the blower.

### OUTLET GUARD ASSEMBLY

1. Line up the outlet guard with existing holes on outlet flange.
2. Attach outlet guard to outlet flange with fasteners provided with kit.

### DUCT MOUNTING

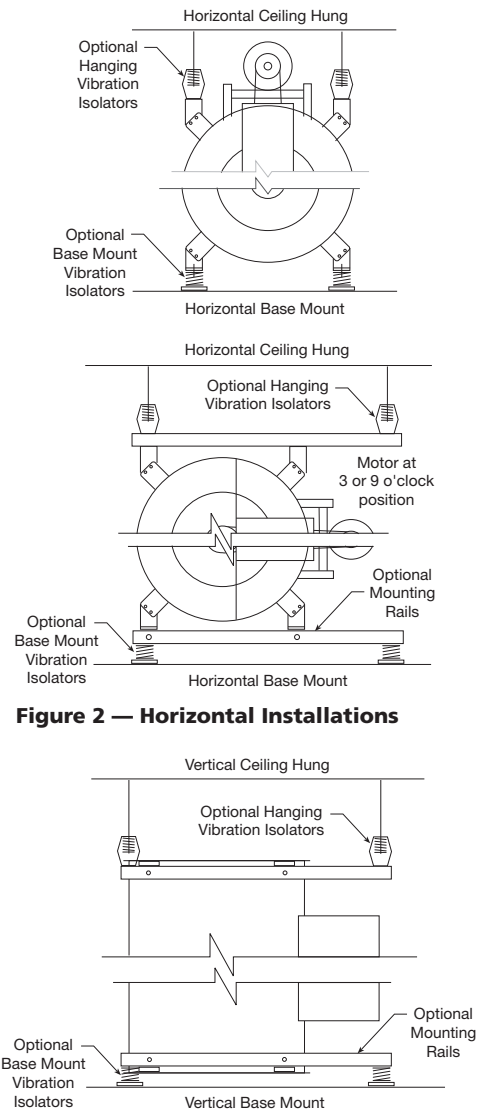
1. Blowers can be mounted horizontally or vertically. For ease of installation, eight mounting brackets are welded on each blower. The eight brackets along with four mounting supports, provide a universal mounting system.

**NOTE:** Four mounting supports ship fastened to base mounting brackets. Supports should be moved for hanging installations.

2. Floor or hanging vibration isolators (by others) are recommend in installation.

**NOTE:** Mounting rails (by others) are required for horizontal installations (ceiling hung or base mount) when the motor is located in the 3 or 9 o'clock

positions. Mounting rails (by others) are recommended for all vertical installations.



**Figure 2 — Horizontal Installations**

**Figure 3 — Vertical Installations**

3. Test the wheel movement before installing the unit. Wheel should rotate freely in a clockwise rotation when looking into the outlet side of the unit.

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# Dayton® Centrifugal Round In-Line Duct Blowers

## Installation (Continued)

**CAUTION** Do not raise blower by its shaft, housing or motor.

- Use mounting brackets provided and sling to lift the unit.
- Move the blower to the desired location and determine position of motor.

**IMPORTANT:** The venturi end is the inlet side of the unit. Position the unit to the desired airflow direction.

**IMPORTANT:** The inlet and outlet duct length should be approximately  $2\frac{1}{2}$  wheel diameter before the blower and 3 wheel diameters after the blower to achieve cataloged performance.

- After placing unit properly, connect it to the duct work. Flanged inlets and outlets with mounting holes are provided for duct connections. Duct on inlet and discharge should be the same as the dimensions of the blower.
- Use appropriate size fasteners to secure and tighten.

## MOTOR AND PULLEY MOUNTING

**NOTE:** For UL/cUL listed units, the motor used with this blower must be designated as such by Dayton®.

- Remove motor cover, replace when finished.

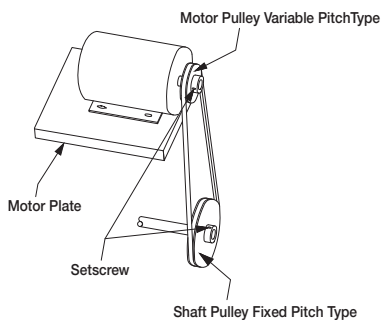


Figure 4 — Drive Package Diagram

- Secure motor to plate using hardware provided. Holes will align when the motor frame (shaft end) is flush with the edge of the motor plate.

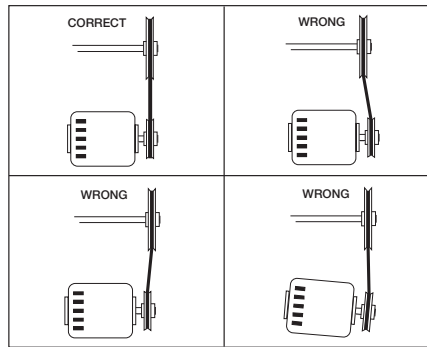


Figure 5 — Pulley Alignment

- Mount pulley on shaft securing to shaft with set screw. Check pulleys for proper alignment. Misaligned pulleys lead to excessive belt wear, vibration, noise and blower loss.

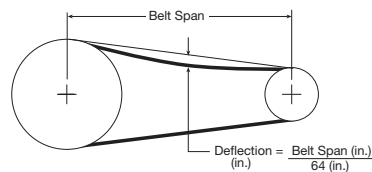


Figure 6 — Belt Tension

- Install the belt and adjust the tension to allow for  $1/64$ " of deflection per inch of span when moderate thumb pressure is applied to the belt. Too much tension will cause excess bearing wear and noise. Too little tension will cause slippage at startup and uneven wear.

**NOTE:** Adjust belt tension by raising or lowering the motor pivot plate.

- Adjust RPM to desired level using a variable pitch pulley. After adjustment, motor amperage should be checked to avoid overloading of the motor.

## ELECTRICAL CONNECTION

**NOTE:** Refer to motor nameplate for wiring procedures.

- Motor and blower must be securely grounded (bare metal) to a suitable electric ground, such as a grounded water pipe or ground wire system.

**NOTE:** Refer to wiring diagram located on the motor.

## Operation

- Before starting up or operating your new Dayton® blower, check all fasteners for tightness. In particular, check set screws in wheel hub (and sheaves, if applicable). While in the OFF position, or before connecting the blower to power, turn the blower wheel by hand to be sure it is not striking the venturi or any obstacle.
- Start the blower up and shut it off immediately to check rotation of the wheel with directional arrow on the housing. Blower wheel should rotate clockwise when viewed from the outlet.

**NOTE:** Rotation of the wheel is critical and incorrect rotation will result in reduced air performance, increased motor loading and possible motor burnout.

- When the blower is started, observe the operation and check for any unusual noises.
- Run the unit for a few minutes and allow the belts to seat properly. Adjust the belt tension by raising or lowering the motor pivot plate if needed.

# Models 5TCL6 thru 5TCL9, 5TCN0

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## Operation (Continued)

5. When in operation, the tight side of the belts should be in a straight line from sheave to sheave with a slight bow on the slack side. Adjust pulley mounting if needed.
6. With the system in full operation and all duct work attached, measure current (amps) input to the motor and compare with the nameplate rating (full-load amps) to determine if the motor is operating under safe load conditions.

**IMPORTANT:** Adjust (tighten) belt tension after the first 24 hours of operation.

7. Keep inlet and approaches to the blower clean and free from obstruction.

## Maintenance

**⚠ WARNING** *Disconnect and lockout power source before servicing.*

**⚠ WARNING** *The unit should be made non-functional when cleaning and/or maintaining.*

1. Keep inlets and approaches to blower clean and free from obstruction.
2. Depending on the usage a regularly scheduled inspection for cleaning the blower wheel, housing and surrounding areas should be established.
3. Check belts periodically for wear and tightness.
  - a. When replacing belts, use the same type as supplied with the unit.
  - b. Matched belts should always be used on units with multi-grooved pulleys.
  - c. For belt replacement, loosen the motor mounting hardware enough to allow removal of the belt by hand.

**⚠ WARNING** *Do not force belts on or off. This may cause cords to break, leading to premature belt failure.*

4. Periodically clean wheel, motor and accessories when excessive dirt and particulates accumulate. This will ensure smooth and safe operation.
5. Check for unusual noises when running.
6. All fasteners should be checked for tightness each time maintenance checks are performed prior to restarting unit. Periodically inspect welds remain sound.
7. Follow motor and bearing manufacturers instructions for lubrication.
8. For critical applications, a spare motor and belts should be available.

**IMPORTANT:** When making repairs, use only Dayton authorized repair parts.

## For Repair Parts, call 1-800-323-0620

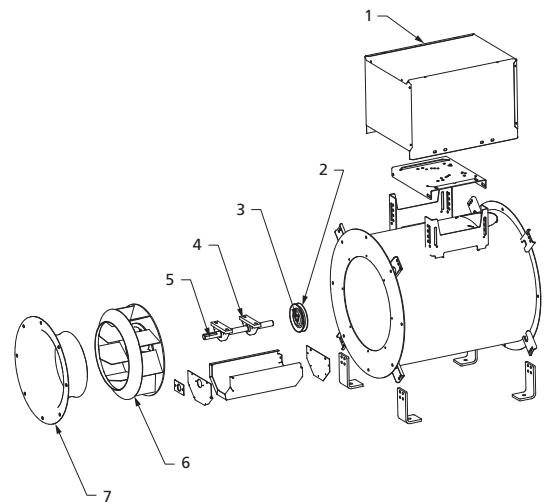
**24 hours a day – 365 days a year**

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

## Repair Parts List

Ref. No.	Description	Part Number For Models:					Qty.
		5TCL6	5TCL7	5TCL8	5TCL9	5TCN0	
1	Motor Cover	53J963	53J963	53J964	53J965	53J966	1
2	Driven Sheave	3X956	3X583	3X587	3X589	3X594	1
3	Drive Bushing	—	—	—	3X576	3X579	1
4	Bearings	50Z248	50Z248	50Z248	50Z248	53J917	2
5	Shaft	53J928	53J928	53J929	53J930	53J931	1
6	Wheel	53J986	53J987	53J988	53J989	53J990	1
7	Inlet Cone	53J939	53J938	53J937	53J932	53J933	1



**Figure 7 – Repair Parts Illustration for Centrifugal Round In-Line Duct Blowers**

# Dayton® Centrifugal Round In-Line Duct Blowers

## Trouble Shooting Chart

Symptom	Possible Cause(s)	Corrective Action
Blower Inoperative	<ol style="list-style-type: none"> <li>1. Blown fuse or breaker</li> <li>2. Defective motor</li> <li>3. Incorrectly wired</li> <li>4. Broken belts</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace or repair</li> <li>2. Replace or repair</li> <li>3. Shut power OFF and check wiring for proper connections</li> <li>4. Replace</li> </ol>
Insufficient airflow	<ol style="list-style-type: none"> <li>1. Blocked duct</li> <li>2. Speed too slow</li> <li>3. Belt slippage</li> <li>4. Incorrect wheel rotation</li> <li>5. Loose fitting duct sections permitting air loss</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace</li> <li>2. Check for correct drives</li> <li>3. Replace/adjust tension</li> <li>4. Check motor wiring</li> <li>5. Check for secure connection where duct sections are joined (suggest duct tape at seams for sealed closure)</li> </ol>
Excessive noise or vibration	<ol style="list-style-type: none"> <li>1. Belt(s) too loose/tight</li> <li>2. Loose or defective bearings</li> <li>3. Loose wheel or sheaves</li> <li>4. Accumulation of material on wheel</li> <li>5. Misaligned sheaves</li> <li>6. Wheel rubbing inlet</li> <li>7. Motor cover loose and rattling</li> <li>8. Blower wheel out of balance</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust tension</li> <li>2. Replace defective bearings, tighten collars and fasteners</li> <li>3. Tighten set screws</li> <li>4. Clean</li> <li>5. Re-align</li> <li>6. Adjust wheel and/or inlet cone, tighten wheel hub or bearing collars on shaft</li> <li>7. Tighten bolts</li> <li>8. Replace wheel</li> </ol>
Motor overloads or overheats	<ol style="list-style-type: none"> <li>1. Wheel RPM too high</li> <li>2. Shorted motor winding</li> <li>3. Incorrect wheel rotation</li> <li>4. Over/Under line voltage</li> <li>5. Belt slippage</li> </ol>	<ol style="list-style-type: none"> <li>1. Check drives</li> <li>2. Replace motor</li> <li>3. Check motor wiring</li> <li>4. Contact power company</li> <li>5. Tighten belt</li> </ol>

### LIMITED WARRANTY

**DAYTON ONE-YEAR LIMITED WARRANTY.** DAYTON® CENTRIFUGAL ROUND IN-LINE DUCT BLOWERS, MODELS COVERED IN THIS MANUAL, ARE WARRANTED BY DAYTON ELECTRIC MFG. CO. (DAYTON) TO THE ORIGINAL USER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE YEAR AFTER DATE OF PURCHASE. ANY PART WHICH IS DETERMINED TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO AN AUTHORIZED SERVICE LOCATION, AS DAYTON DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT DAYTON'S OPTION. FOR LIMITED WARRANTY CLAIM PROCEDURES, SEE "PROMPT DISPOSITION" BELOW. THIS LIMITED WARRANTY GIVES PURCHASERS SPECIFIC LEGAL RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION.

**LIMITATION OF LIABILITY.** TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, DAYTON'S LIABILITY FOR CONSEQUENTIAL AND INCIDENTAL DAMAGES IS EXPRESSLY DISCLAIMED. DAYTON'S LIABILITY IN ALL EVENTS IS LIMITED TO AND SHALL NOT EXCEED THE PURCHASE PRICE PAID.

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**Product Suitability.** Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While attempts are made to assure that Dayton products comply with such codes, Dayton cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

**Prompt Disposition.** A good faith effort will be made for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty, so the above limitation or exclusion may not apply to you; first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714-4014 U.S.A.

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Niles, Illinois 60714 U.S.A.

**Dayton®**