

Read and Save These Instructions

INSTALLATION & MAINTENANCE INSTRUCTIONS

Models XB and XD

FOR EC MOTOR WIRING ON MODELS XD

See form 613084 for wiring diagrams
on EC Motors supplied with fan or
online at www.acmefan.com



RECEIVING AND INSPECTION

Immediately upon receipt of a shipment, carefully inspect for damage and shortage. Turn the impeller by hand to see that it turns freely and does not bind. If any damage and/or shortage is detected or suspected, the carrier must be asked to conduct an inspection. The consignee's representative should not accept a shipment without a notation on the delivery receipt indicating items not delivered or the apparent extent of damage.

When a shipment is opened and damage is found which was not evident externally (concealed damage), it is mandatory that the consignee request an immediate inspection by the carrier. Report any damage to the carrier within 15 days. Failure to report damage within the above time limit will result in rejection of a claim.

HANDLING

When handling fans and their accessories, always use equipment and methods that will not cause damage. Fans should be lifted using slings and padding or spreaders to avoid damage.

CAUTION! Always make sure that all lifting and handling equipment and techniques conform to current safety standards.

Avoid lifting fans in a way that will bend or distort fan parts. Never pass slings or timbers through the orifices of fan.

CAUTION! Do not lift by the fan hood. Fans with special coatings or paints must be protected in handling to prevent damage.

STORAGE

Fans are protected against damage during shipment. If they cannot be installed and put into operation immediately upon receipt certain precautions are necessary to prevent deterioration during storage. Responsibility for integrity of fans and accessories during storage must be assumed by the user. The manufacturer will not be responsible for damage during storage. These suggestions are provided solely as a convenience to the user, who shall make his own decision as to whether to use any or all of them.

INDOOR: The ideal storage environment for fans and accessories is indoors, above grade, in a low humidity atmosphere which is sealed to prevent the entry of blowing dust, rain, or snow. Temperatures should be evenly maintained at between 70°F and 105°F (wide temperature swings may cause condensation and "sweating" of metal parts). Windows should be covered to prevent temperature variations caused by sunlight. Provide thermometers and humidity indicators at several points and maintain the atmosphere at 40% relative humidity, or lower.

It may be necessary to use trays of renewable desiccant or portable dehumidifier to remove moisture from the air in the storage enclosure.

Thermostatically controlled portable heaters (vented to outdoors) may be required to maintain even temperatures inside the enclosure.

CAUTION! Provide fire extinguishers, or fire alarms, or emergency response communication to protect building and equipment against fire damage. Be sure that building and storage practices meet all local, state and federal fire and safety codes.

The following fans or accessories must be stored indoors, in a clean dry atmosphere:

- Propeller wall fans not in wall housings.
- Any fan protected by a cardboard carton.
- Motors dismounted from fans.
- Spare wheels or propellers.
- Belts, sheaves, bushings and other parts when not mounted on fan.
- Boxes, bags or cartons of hardware.
- Curbs
- Dampers

Remove any accumulations of dirt, water, ice or snow and wipe dry before moving indoor storage. Allow cold parts to reach room temperature to avoid "sweating" of metal parts. Open boxes or cartons. Remove any accumulated moisture; if necessary use portable electric heaters to dry parts and packages. Leave coverings loose to permit air circulation and to permit periodic inspection.

Rotate wheels or propellers by hand to distribute bearing grease over the entire bearing surfaces.

Store at least 3 1/2" off the floor on wooden blocks covered with moisture proof paper or polyethylene sheathing. Provide aisles between parts and along all walls, to permit air circulation and space for inspection.

OUTDOOR: Fans designed for outdoor use may be stored outdoors, if absolutely necessary. The storage area should be reasonably level and drained or ditched to prevent accumulation of water. Fencing and lighting for security are desirable. Roads or aisles for portable cranes and hauling equipment are needed. Consider the use of drift fencing to minimize accumulation of blowing snow or dirt.

The following fans may be stored outdoors, if dry indoor storage space is not available:

- Fans intended for outdoor use that are crated in wood.
- Wall fans installed in wall housings.

All fans must be supported on wooden blocks or timbers above water or normal snow levels. Provide enough blocking to prevent settling into soft ground. Fans should be set in place using the directional arrow markings on the crate as a guide.

Locate pieces far enough apart to permit air circulation, sunlight, and space for periodic inspection. Place all parts on their supports so that rain water will run off, or to minimize water accumulation. **Do not** cover parts with plastic film or tarps - these cause condensation of moisture from the air passing through heating and cooling cycles.

Fan wheels and propellers should be blocked to prevent spinning caused by strong winds.

INSPECTION AND MAINTENANCE DURING STORAGE

Inspect fans and accessories at least once per month, while in storage. Log results of inspection and maintenance performed. A typical log entry should include the following:

- Date
- Inspector's Name
- Name of Fan
- Location
- Condition of Paint or Coating
- Is moisture present?
- Is dirt accumulated?
- Corrective steps taken?

If moisture or dirt accumulations are found on parts, the source should be located and eliminated. Fans should be rotated at each inspection by hand ten to fifteen revolutions to redistribute the motor and bearing lubricant.

If paint deterioration begins, consideration should be given to touch-up or repainting. Fans with special coatings may require special techniques for touch-up or repair.

Machined parts coated with rust preventive should be restored to good condition promptly if signs of rust occur. The most critical items are pulleys, shafts and bearing locking collars. At the first sign of rusting on any of the above parts, remove the original rust preventive coating with petroleum solvent and clean lint-free cloths. Polish any remaining rust from surfaces with crocus cloth or fine emery paper and oil. **Do not** destroy the continuity of the surfaces. Wipe clean with lint-free cloths and recoat surfaces evenly and thoroughly with Tectly 506 (Ashland Oil Company) or equal. For hard to reach internal surfaces or for occasional use, consider using Tectly 511M Rust Preventive or WD40 or equal.

REMOVING FROM STORAGE

As fans are removed from storage to be installed in their final location, they should be protected and maintained in similar fashion, until the fan equipment goes into operation.

INSTALLATION

- These units are not air tight and should not be used where escape of contaminated air would cause problems.

CAUTION! This unit has rotating parts and safety precautions should be exercised during installation, operation and maintenance.

- WARNING! Do not** use in hazardous environments where the fan's electrical system could provide ignition to combustible or flammable materials, unless the unit is specifically built for hazardous environments.
- Impeller Adjustment: Turn centrifugal impeller by hand to make sure it rotates freely. If impeller hits orifice, remove side panel (both sides are removable) and motor or drive enclosure panel as in shown Figure 1.

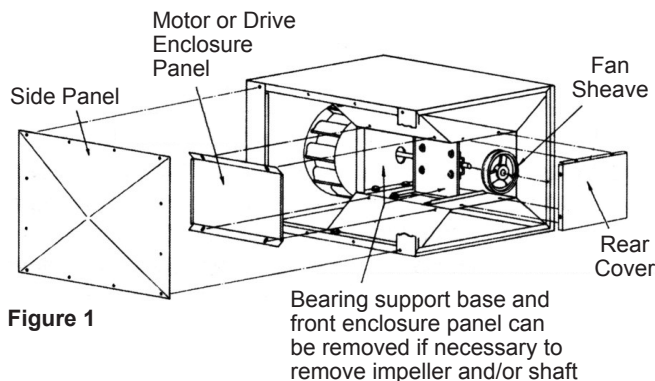


Figure 1

- Adjustment is made as follows:

Direct Driven Units

Loosen bolts holding the motor to the mounting frame. This will allow free movement of the impeller in all directions for adjustment. **Do not** loosen the set screws in the impeller hub since this will only allow movement in or out on the motor shaft. Tighten all bolts before operating the unit.

Belt Driven Unit

The bearing support base and the bearing lower housing are slotted for adjustment. Loosen the bolts indicated in Figure 2 and center the impeller over the orifice. Tighten all bolts before operating the unit.

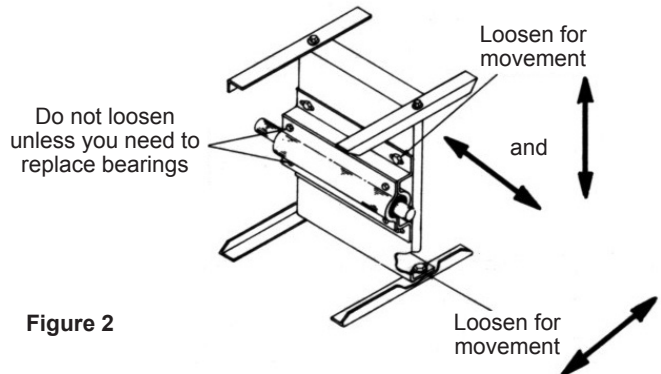


Figure 2

- Check the pulley alignment and belt tension. Adjust the belt tension using motor base jack screws. Belt should depress its width when pressed firmly inward at midway point between the pulleys. Replace all panels and tighten corresponding bolts.
- If unit is to be equipped with isolators and/or support brackets they should be attached at this time using the mounting instructions (Form 613101) included with them.
- Securely support the unit and attach the duct work.
- Units used outdoors should be installed to provide maximum weather protection. Direct driven units should be positioned so that the breather tube to the motor compartment will not let moisture enter. Belt driven units should include a motor cover to protect the motor and belt enclosure opening from moisture.
- CAUTION!** Before proceeding, make sure electrical service to the fan is locked in the "OFF" position.
- All wiring should be in accordance with local ordinances and the National Electric Code.
- WARNING!** Check the voltage at the fan to see if it corresponds with the motor nameplate. High or low voltage can seriously damage the motor. Extra care should be taken when wiring two speed motors since improper connections will damage the motor and void the motor warranty. On belt driven units, leave enough slack in wiring to allow for motor movement when adjusting belt tension.
- Apply power momentarily and compare the rotation of the impeller with the directional arrow on fan. **WARNING!** Operation in the wrong direction will deliver air but will overload the motor to the extent of blowing fuses and seriously damaging the motor. In the case of three phase motors, the direction can be changed by interchanging any two of the three motor leads. In the case of single phase motors, the reversing instructions will appear on the wiring diagram in the motor wiring compartment.
- CAUTION!** Guards must be installed when the fan is within reach of personnel or within eight (8) feet (2.5m) of working level or when deemed advisable for safety.

MAINTENANCE

1. Under normal usage, no spare parts are recommended for one year of operation. Recommended spare parts are shown on Pages 5 and 6.
2. **CAUTION!** Before proceeding, make sure electrical service to the fan is locked in the "OFF" position.

WINDMILLING: Even when the power supply is locked out, fans may cause injury or damage if the impeller is subject to "windmilling" which is the turning of the impeller and drive components due to a draft in the system. To guard against this hazard, the impeller should be secured to physically restrict rotational movement.

3. Acme Duplex Split pillow block bearings are prelubricated and do not require relubrication. Units with pillow block bearings have grease fittings and, under normal operating conditions, will need no relubrication for 3 to 5 years. If relubrication is required, use a grease conforming to NLGI No. 2. **CAUTION!** Lubricating bearings with a high pressure gun can blow bearing seals and overfill the bearing with grease. This condition can result in excessive churning and overheating. For normal operating conditions it is standard practice to fill only 30% of the bearing void with grease. **Do not** over lubricate.
4. Motor bearings are prelubricated. Consult information printed on the motor for lubrication instructions.
5. On belt driven units, check belt tension after the first 48 hours of operation and thereafter annually. Belt should depress its width when pressed firmly inward at midway point between the pulleys. Too much tension will damage the bearings. The belt should be tight enough to prevent slippage. When replacing a worn belt, replace the motor pulley if "shoulder" is worn in groove. **WARNING! Do not** replace the motor pulley with a larger diameter pulley. **Do not** replace the fan pulley with one smaller in diameter. The pulley ratios are set so that the motor will not be overloaded. **Do not** operate at higher speeds than that cataloged for this equipment.
6. If it should become necessary to remove the impeller, first remove the motor and impeller or shaft, bearing and impeller assembly (see Figure 1). On model sizes 120, 137 and 161 there is a sleeve which fits inside the impeller hub. To remove the impeller from the shaft, completely remove the two socket head cap screws that go through the sleeve. The impeller will then slide off the sleeve and the set screws attaching the sleeve can be loosened allowing its removal. The impellers on larger size units are attached with a roll pin. Remove the roll pin by driving it out with a drift pin.
7. On belt driven units: If impeller shaft bearings need replacement, replace with bearing comparable to the original equipment. If Acme Duplex Split pillow block bearings are used, install new bearings into neoprene rings, check correct position of impellers with orifice, position bearings in the die-formed recess and tighten the set screws. Replace the die-formed bearing cap and tighten the four bolts.

NOTE: If locking collar type bearing is used, collar must first be positioned against the inner race on the bearing nearest the impeller and turned in the direction of impeller rotation with a drift pin and hammer until it locks. Locking collars must be on the inboard (facing) sides of the bearings. Secure the bearing to the shaft with set screws. Lock and secure the other bearing to the shaft in the same manner.

NOTE: If pillow block type bearings are used, slide bearings onto shaft to desired location and bolt bearing block securely to support base. Slide shaft back and forth in secured bearing (**do not** drive with hammer) and rotate to make certain it turns freely. Check correct position of propeller with inlet orifice. Then secure bearings to shaft by tightening set screws.

SET SCREW TIGHTENING SCHEDULE

1. Before initial operation of the fan, tighten set screws according to the procedure outlined below.
2. After 500 operating hours or three months, whichever comes first, tighten set screws to the full recommended torque.
3. At least once a year, tighten set screws to the full recommended torque.

PROCEDURE FOR TIGHTENING SET SCREWS IN BEARINGS AND HUBS

One Set Screw Application

Using a torque wrench, tighten the set screw to the torque recommended in Table 1.

Two Set Screw Application

1. Using a torque wrench, tighten one set screw to half of the torque recommended in Table 1.
2. Tighten the second set screw to the full recommended torque.
3. Tighten the first set screw to the full recommended torque.

Table 1. Recommended Tightening Torque for Set Screws

Set Screw Diameter	Torque (in-lbs)
#10	35
1/4	80
5/16	126
3/8	240
7/16	384
1/2	744
9/16	1080
5/8	1500
3/4	2580
7/8	3600
1	5400

VARIABLE FREQUENCY DRIVES AND MOTORS

There are occasions when a Variable Frequency Drive (VFD) will cause poor motor performance and possible damage. To avoid these problems, the Company recommends the following:

1. Select compatible motor and VFD inverter; if possible, the motor and the inverter should be from the same manufacturer or at least the inverter selected should be recommended by the motor manufacturer.
2. A motor shaft grounding system should be used to prevent motor bearing damage from eddy currents.

NOTE: The Company will not honor motor warranty claims if the customer fails to follow these recommendations.

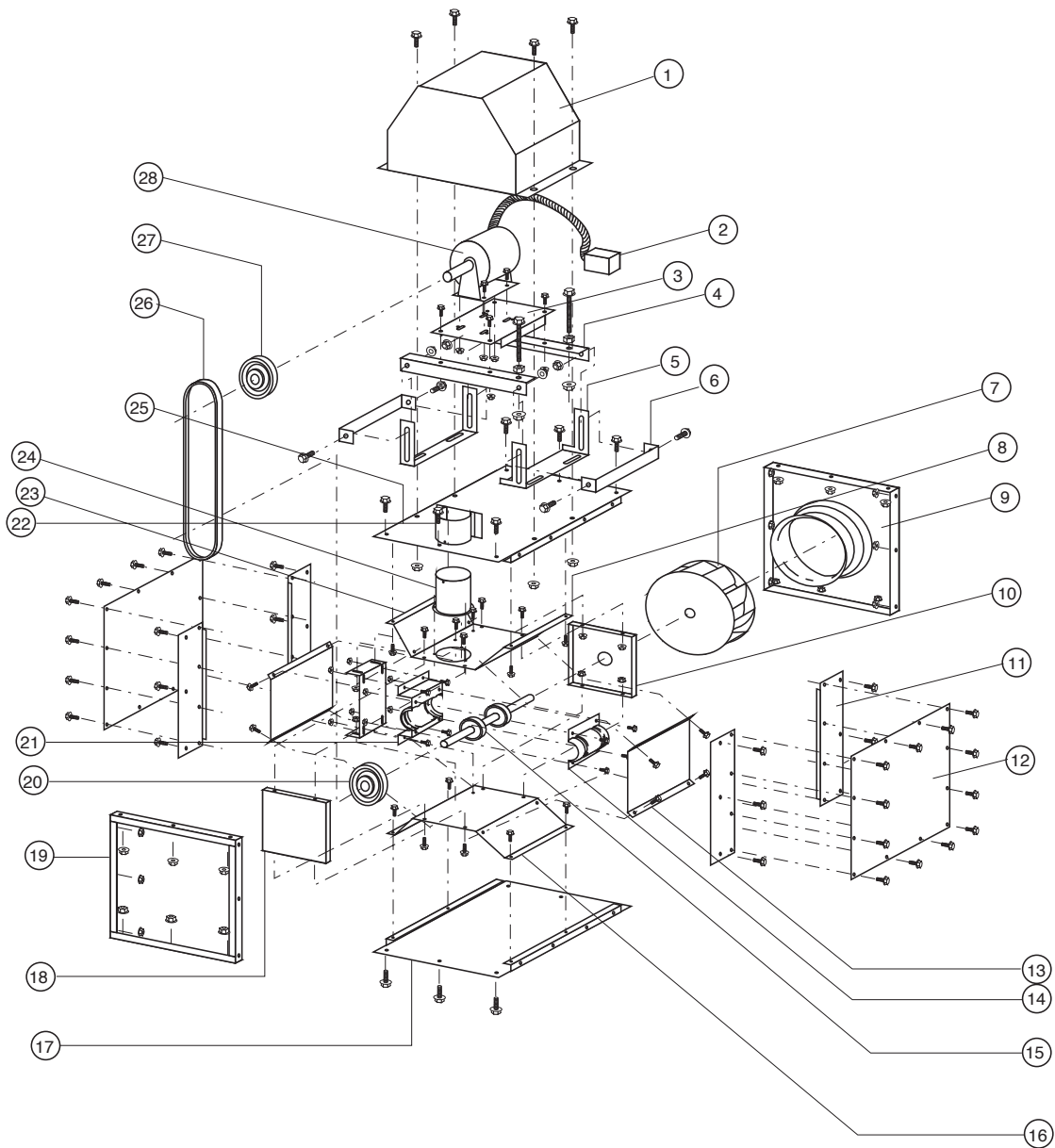
BELT DRIVE CENTRIFUGAL INLINE FAN RPM SELECTION TABLE

Model Size	Power	Fan RPM vs. Number of Turns from Full Closed										
	HP	0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
090E1	.25	2177	2118	2058	1999	1939	1880	1821	1761	1702	1642	1583
090E2	.25	2492	2428	2363	2299	2234	2170	2105	2041	1976	1912	1847
090F	.33	2717	2637	2558	2478	2398	2319	2239	2159	2079	2000	1920
090G	.50	3196	3110	3023	2937	2851	2765	2678	2592	2506	2419	2333
120E1	.25	1375	1317	1259	1201	1143	1084	1026	968	910	—	—
120E2	.25	1570	1520	1470	1420	1370	1320	1270	1220	1170	1120	1070
120F	.33	1725	1667	1608	1550	1491	1433	1374	1316	1257	1199	1140
120G	.50	2060	1994	1928	1862	1796	1730	1664	1598	1532	1466	1400
120H	.75	2335	2261	2186	2112	2037	1963	1888	1814	1739	1665	1590
120J	1.00	2570	2507	2443	2380	2316	2253	2189	2126	2062	1999	1935
137F	.33	1365	1322	1278	1235	1191	1148	1104	1061	1017	974	930
137G	.50	1605	1551	1496	1442	1387	1333	1278	1224	1169	1115	1060
137H	.75	1830	1780	1729	1679	1628	1578	1527	1477	1426	1376	1325
137J	1.00	2060	1994	1928	1862	1796	1730	1664	1598	1532	1466	1400
137K	1.50	2310	2247	2183	2120	2056	1993	1929	1866	1802	1739	1675
137L	2.00	2490	2437	2383	2330	2276	2223	2169	2116	2062	2009	1955
161F	.33	1055	1019	983	947	911	875	839	803	767	731	695
161G	.50	1210	1172	1133	1095	1056	1018	979	941	902	864	825
161H	.75	1365	1322	1278	1235	1191	1148	1104	1061	1017	974	930
161J	1.00	1570	1520	1470	1420	1370	1320	1270	1220	1170	1120	1070
161K	1.50	1710	1672	1634	1596	1558	1520	1482	1444	1406	1368	1330
161L	2.00	1865	1819	1773	1727	1681	1635	1589	1543	1497	1451	1405
161M	3.00	2210	2163	2115	2068	2020	1973	1925	1878	1830	1783	1735
200H	.75	985	954	922	891	859	828	796	765	733	702	670
200J	1.00	1055	1023	990	958	925	893	860	828	795	763	730
200K	1.50	1250	1211	1172	1133	1094	1055	1016	977	938	899	860
200L	2.00	1410	1371	1332	1293	1254	1215	1176	1137	1098	1059	1020
200M	3.00	1525	1492	1459	1426	1393	1360	1327	1294	1261	1228	1195
200N	5.00	1885	1854	1822	1791	1759	1728	1696	1665	1633	1602	1570
245H	.75	645	625	604	584	563	543	522	502	481	461	440
245J	1.00	735	712	688	665	641	618	594	571	547	524	500
245K	1.50	855	829	802	776	749	723	696	670	643	617	590
245L	2.00	965	935	905	875	845	815	785	755	725	695	665
245M	3.00	1100	1076	1052	1028	1004	980	956	932	908	884	860
245N	5.00	1295	1271	1246	1222	1197	1173	1148	1124	1099	1075	1050
300J	1.00	520	504	487	471	454	438	421	405	388	372	355
300K	1.50	595	577	558	540	521	503	484	466	447	429	410
300L	2.00	670	652	633	615	596	578	559	541	522	504	485
300M	3.00	775	759	742	726	709	693	676	660	643	627	610
300N	5.00	875	859	842	826	809	793	776	760	743	727	710
300P	7.50	1010	992	973	955	936	918	899	881	862	844	825
300R	10.00	1135	1114	1093	1072	1051	1030	1009	988	967	946	925
365K	1.50	450	436	422	408	394	380	366	352	338	324	310
365L	2.00	505	491	477	463	449	435	421	407	393	379	365
365M	3.00	555	543	531	519	507	495	483	471	459	447	435
365N	5.00	675	663	650	638	625	613	600	588	575	563	550
365P	7.50	760	746	732	718	704	690	676	662	648	634	620
365R	10.00	815	803	790	778	766	754	741	729	717	705	692
425K	1.50	380	369	359	348	338	328	318	307	296	285	255
425L	2.00	415	403	391	379	368	356	345	333	322	310	300
425M	3.00	475	463	451	439	427	415	403	391	379	367	355
425N	5.00	565	553	541	529	517	505	493	481	469	457	445
425P	7.50	645	633	621	609	597	585	573	561	549	537	525
425R	10.00	690	675	660	646	631	617	602	588	573	559	545

Actual speeds may vary as much as $\pm 5\%$.

Based on motor RPM of 1725.

Belt Drive

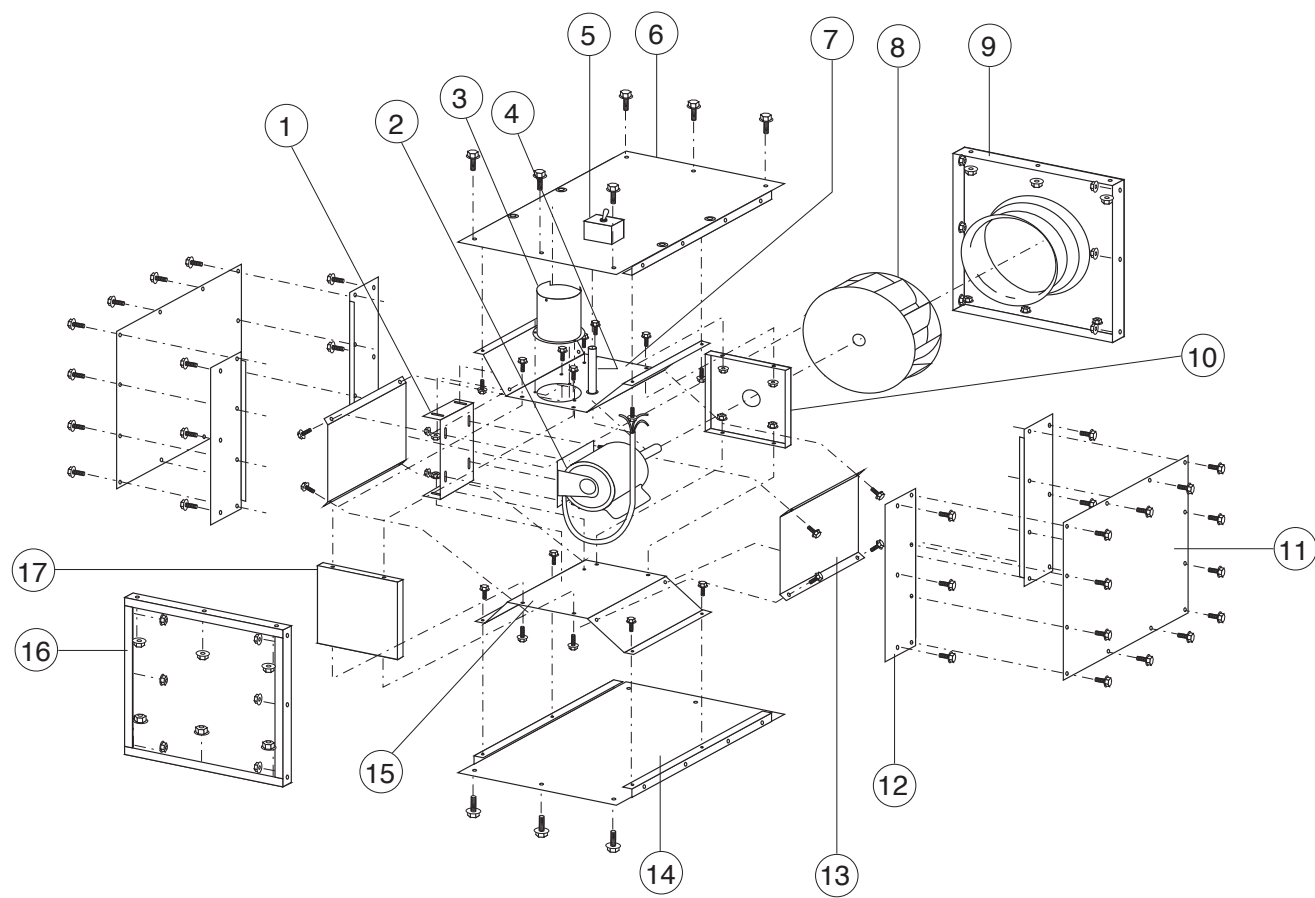


PARTS LIST LEGEND

No.	Description	Qty.	No.	Description	Qty.
1	Motor Cover	1	15	Shaft and Bearing Assembly*	1
2	Disconnect Switch	1	16	Bearing Compartment Bottom	1
3	Motor Base	1	17	Bottom Panel	1
4	Motor Base Rails	2	18	Motor Compartment Back	1
5	Motor Rail Supports	2	19	Outlet Frame	1
6	Motor Support Brackets	2	20	Fan Sheave*	1
7	Impeller*	1	21	Bearing Base	1
8	Bearing Compartment Top	1	22	Rain Shield	1
9	Inlet Orifice	1	23	Bearing Compartment Top	1
10	Bearing Compartment Front	1	24	Belt Tube	1
11	Side Panels	4	25	Top Panel	1
12	Access Panels	2	26	Belt*	1
13	Bearing Compartment Side	2	27	Motor Sheave*	1
14	Bearing Cap	1	28	Motor*	1

* Recommended Spare Parts

Direct Drive



PARTS LIST LEGEND					
No.	Description	Qty.	No.	Description	Qty.
1	Motor Base	1	10	Motor Compartment Front	1
2	Motor*	1	11	Access Panels	2
3	Breather Tube	1	12	Side Panels	4
4	Wiring Post	1	13	Motor Compartment Side	2
5	Disconnect Switch	1	14	Bottom Panel	1
6	Top Panel	1	15	Motor Compartment Bottom	1
7	Motor Compartment Top	1	16	Outlet Frame	1
8	Impeller*	1	17	Motor Compartment Back	1
9	Inlet Orifice	1			

* Recommended Spare Parts

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ACCEPTANCE All orders and sales are subject to written approval and acceptance by an executive officer of Acme Engineering & Manufacturing Corporation at Muskogee, Oklahoma, (the "Company") and are not binding on the Company until so approved.

DELIVERY All shipping and delivery dates are estimated only. No delays in delivery will subject the Company to any costs, damages or fees for late delivery. Delivery of the products herein specified shall be made F.O.B. point of shipment, unless otherwise stated. The Company shall not be liable for delay due to causes beyond its reasonable control, such as Acts of God, acts of the purchaser, acts of civil or military authorities, priorities, fires, strikes, floods, epidemics, war, riots, delays in transportation, car shortages, and inability, due to reasons beyond its reasonable control, to obtain necessary labor, material, or manufacturing facilities. In the event of such a delay, the date of delivery shall be extended for a period equal to the time lost by reason of the delay.

TERMS OF PAYMENT If, in the judgment of the Company, the financial condition of the purchaser at any time does not justify continuation of manufacture or shipment on the terms of payment specified, the Company may require full or partial payment in advance.

Pro rata payments shall become due as shipments are made. Each shipment or delivery shall constitute a separate sale, and the default of any shipment or delivery shall constitute a separate sale, and the default of any shipment or delivery shall not vitiate the contract as to other shipments or deliveries.

SALES AND SIMILAR TAXES The Company's prices do not include sales, use, excise, or similar taxes. Consequently, in addition to the price specified herein, the amount of any present or future sales, use, excise, or other similar tax applicable to the sale of the product

TERMS AND CONDITIONS OF SALE

herein shall be paid by the Purchaser, or in lieu thereof the Purchaser shall provide the Company with a tax exemption certificate acceptable to the taxing authorities.

CANCELLATION Any contract resulting from the Purchaser's order may be canceled by the Purchaser only by negotiations and upon payments of reasonable cancellation charges which will take into account expenses already incurred and commitments made by the Company.

DESIGN CHANGES The Company reserves the right to make changes in design, improvements and additions in and to its products any time without imposing any liability or obligations to itself to apply or install the same in any product manufactured by it.

TITLE The title and right of possession of the products sold herein shall remain with the Company and such products shall remain personal property until all payments herein (including deferred payments whether evidenced by notes or otherwise) shall have been made in full in cash and the Purchaser agrees to do all acts necessary to perfect and maintain such right and title in the Company.

PRICE ADJUSTMENTS Prices are subject to change upon notice by the Company. Prices on existing orders are subject to surcharges in the event of cost increases of metals and transportation. All complete component accessory material manufactured by others and furnished with the Company's products such as motors, drives, vibration equipment, controls or other completely assembled component structures, are subject to adjustment to the price at time of shipment regardless of the date of original order entry.

SAFETY ACCESSORIES The Company manufactures products designed to serve multiple applications and offers a wide range of safety equipment, including guards

and other devices, as may be required to meet customer specifications. Without exception, the Company recommends that all orders include applicable safety devices. Products ordered without applicable safety devices is clearly the responsibility of the Purchaser. Further, the Purchaser warrants that it has determined and acquired any and all safety devices required for products sold by the Company. Weather covers and guards for motor and V-belt drives, couplings, shafts and bearings, along with inlet and outlet screens, are optional accessories noted in the price list.

GOVERNING LAW The rights, obligations and remedies of Purchaser and the Company, the interpretation of these terms and conditions and the sale of products by the Company shall be governed by Oklahoma law, without regard to any principles of conflict of laws.

ARBITRATION Any dispute arising under or in connection with these terms and conditions or the sale of products shall be settled by binding arbitration administered by the American Arbitration Association under its Commercial Arbitration Rules, and judgment on the award rendered by the arbitrator may be entered in any court having jurisdiction thereof. The dispute shall be resolved by one neutral arbitrator who shall have no affiliation with either Purchaser or the Company and shall be selected by the American Arbitration Association office in Dallas, Texas. The arbitration proceedings shall be held in Muskogee, Oklahoma.

APPLICABLE DOCUMENTS The agreement between the Company and the Purchaser relating to the products includes these terms and conditions of sale, any applicable installation and maintenance instructions provided by the Company and any terms appearing on the Company's quotation, sales order acknowledgment and invoice.

WARNING Acme products are designed and manufactured to provide reliable performance but they are not guaranteed to be 100% free of defects. Even reliable products will experience occasional failures and this possibility should be recognized by the Purchaser and all End Users. If these products are used in a life support ventilation system where failure could result in loss or injury, the Purchaser and all End Users should provide adequate back-up ventilation, supplementary natural ventilation or failure alarm system, or acknowledge willingness to accept the risk of such loss or injury.

WARNING DO NOT use in HAZARDOUS ENVIRONMENTS where fan's electrical system could provide ignition to combustible or flammable materials unless unit is specifically built for hazardous environments. Comply with all local and national safety codes including the National Electrical Code (NEC) and National Fire Protection Act (NFPA).

CAUTION Guards must be installed when fan is within reach of personnel or within eight (8) feet (2.5 m) of working level or when deemed advisable for safety.

DISCLAIMER The Company has made a diligent effort to illustrate and describe the products accurately in all Company literature; however such illustrations and descriptions are for the sole purpose of identification and do not express or imply any warranty.

LIMITED WARRANTY

WARRANTY AND DISCLAIMER: the Company extends this limited warranty to the original purchaser and warrants that products supplied by the Company, shall be free from original defects in workmanship and materials for two years from date of shipment (except for the warranty periods noted for products listed below), provided same have been properly handled, stored, installed, serviced, maintained and operated. This warranty shall not apply to products which have been altered or repaired without the Company's express authorization, or altered or repaired in any way so as, in the Company's judgment, to affect its performance or reliability, nor which have been improperly installed or subjected to misuse, negligence, or accident, or incorrectly used in combination with other substances. The Purchaser assumes all risks and liability for results of use of all products.

Evaporative cooling pads are warranted to be free of defects in materials and workmanship for a period of two years from date of shipment provided same have been properly handled, stored, installed, serviced, maintained and operated; and further, not subjected to excessive heat, corrosive agents or chemicals, or mechanical abuse that may cause tearing, crushing or undue deterioration, nor used on a system or in a manner other than that for which it was designed as explained in the product literature.

The following products are warranted to be free of defects in materials and workmanship for the periods shown from date of shipment: Acme's exclusive duplex split pillow block bearings and shaft five years, belts one year, Polyethylene tubing 90 days, and DDP fan lifetime warranty on its stainless steel propeller, cone, and housing.

LIMITATION OF REMEDY AND DAMAGES: All claims under this warranty must be made in writing and delivered to P. O. Box 978, Muskogee, Oklahoma, 74402, within 15 days after discovery of the defect and prior to the expiration of two years from the date of shipment by the Company of the product claimed defective, and Pur-

chaser shall be barred from any remedy if Purchaser fails to make such claim within such period.

Within 30 days after receipt of a timely claim, the Company shall have the option either to inspect the product while in Purchaser's possession or to request Purchaser to return the product to the Company at Purchaser's expense for inspection by the Company. The Company shall replace, or at its option repair, free of charge, any product it determines to be defective, and it shall ship the repaired or replacement product to Purchaser F.O.B. point of shipment; provided, however, if circumstances are such as in the Company's judgment to prohibit repair or replacement to remedy the warranted defects, the Purchaser's sole and exclusive remedy shall be a refund to the Purchaser of any part of the invoice price, paid to the Company, for the defective product or part.

The Company is not responsible for the cost of removal of the defective product or part, damages due to removal, or any expenses incurred in shipping the product or part to or from the Company's plant, or the installation of the repaired or replaced product or part.

The warranties set forth above do not apply to any components, accessories, parts or attachments manufactured by other manufacturers; such being subject to the manufacturer's warranty, if any. To the extent not prohibited by the manufacturer's warranty, the Company shall pass through to Purchaser such manufacturer's warranty.

THE COMPANY'S WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND WAIVED. THIS WARRANTY CONSTITUTES THE COMPANY'S SOLE AND EXCLUSIVE WARRANTY FOR DEFECTIVE GOODS AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DEFECTIVE PRODUCTS.

No employee, agent, dealer, or other person is authorized to give any warranties on behalf of the Company or to assume for the Company any other liability in connection with any of its products except in writing and signed by an officer of the Company.

REPLACEMENT PARTS If replacement parts are ordered, purchaser warrants that the original components in which these replacement parts will be placed are in

satisfactory working condition, and when said replacement parts are installed, the resultant installation will operate in a safe manner, at speeds and temperatures for which the original product was purchased.

TECHNICAL ADVICE AND RECOMMENDATIONS, DISCLAIMER: Notwithstanding any past practice or dealings or any custom of the trade, sales shall not include the furnishing of technical advice or assistance or system design. Any such assistance shall be at the Company's sole option and may be subject to additional charge.

The Company assumes no obligation or liability on account of any recommendations, opinions or advice as to the choice, installation or use of products. Any such recommendations, opinions or advice are given and shall be accepted at Purchaser's and End User's risk and shall not constitute any warranty or guarantee of such products or their performance.

LIMITATION OF LIABILITY The cumulative liability of the Company to the Purchaser and any other persons for all claims in any way relating to or arising out of the products, including, but not limited to, any cause of action sounding in contract, tort, or strict liability, shall not exceed the total amount of the purchase price paid for those products which are the subject of any such claim. This limitation of liability is intended to apply without regard to whether other provisions of this agreement have been breached or have proven ineffective even if the Company has been advised of the possibility of such claims or demands. In no event shall the Company be liable to the Purchaser or any other person for any loss of profits or any incidental, special, exemplary, or consequential damages for any claims or demands brought by the Purchaser or such other persons.

INDEMNITY The Company's maximum liability to Purchaser and to any end user is as set forth above. The Company makes no warranty to anyone for any products not manufactured by the Company and shall have no liability for any use or installation of any products (whether manufactured by the Company or other manufacturers) not specifically authorized by this sale. Purchaser acknowledges various warnings by the Company regarding the products and its installation and use. If the Company incurs any claims, lawsuits, settlements, or expenses (including attorney fees) for any loss, injury, death or property damage including, but not limited to, claims arising out of the Purchaser's or any end user's installation or use of the products, the Purchaser shall indemnify and hold the Company harmless.



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