



Read and Save These Instructions

INSTALLATION & MAINTENANCE INSTRUCTIONS

Models PV and USPV

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 fan orifice.

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 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 dismantled 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 to 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 ½" 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

1. **CAUTION!** This unit has rotating parts and safety precautions should be exercised during installation, operation and maintenance.
2. **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.
3. If the fan manufacturers prefab curb is used, a flange is provided for mounting the damper. Damper should be installed before setting exhauster.
4. If damper box is being used, assemble box and mount in curb before setting exhauster. Damper may be installed at this time if desired. Damper should be fastened to the bottom of the damper box, curb flanges or nailing strips in curb.
5. Remove motor compartment cover and mount motor onto drive base. (Larger motors are shipped not mounted because of the possibility of shipping damage.)

Refer to Figure 1 for sizes 75-240. The motor is mounted directly to the slots on the drive base using the four motor mount bolts with their nuts. For sizes 75-135, motors with 1 1/2" (38mm) shaft length use upper set of slots on the drive base. For motors with shaft longer than 1 1/2" (38mm) use lower set of slots on the drive base. Belt tensioning is brought about by sliding the motor away from the fan pulley and then tightening the motor mount bolts and nuts.

Belt should depress its width when pressed firmly inward at midway point between the pulleys. Connect the wiring and conduit, if used, from the disconnect switch to the motor.

For fan sizes 260 through 543, refer to Figure 2. Motor adjustment rails are provided. Most motors for these sizes are shipped separately. The motor is to be bolted to the motor adjustment rails using the motor mount bolts, nuts and washers. Install belt(s) and check for tension. Belt tensioning is accomplished by loosening the motor adjustment rail bolts and nuts, and also the belt jack locknut. The two (2) belt jack bolts are then turned clockwise to tighten the belt. After proper belt tension is reached, the motor adjustment rail bolts and nuts and belt jack locknuts must be tightened. The proper belt

tension is described above. The electrical wiring connections can now be made and the flexible steel conduit (where used) may be connected to the motor.

6. Turn impeller by hand to make sure it rotates freely. If impeller hits orifice, adjust as follows:

For fans with duplex split pillow block bearings, 3-dimensional adjustment is provided. Horizontal movement for adjustment is allowed by four (4) bolts in the separator pan. Loosen the four nuts in the outer edge (one in each quadrant) of the separator pan for adjustment in all horizontal positions, re-tighten the four nuts. Vertical movement for adjustment is allowed by two (2) slots in the motor base bearing housing at the top and bottom. The set screws can be loosened and the shaft can be raised or lowered. Then the set screws must be re-tightened following the set screw tightening procedure in Table 1.

Fans with unitary pillow block bearings have the same adjustment capability and is accomplished in the same manner as described above with one exception. The vertical adjustment is carried out by loosening the bearing set screws and carefully sliding the fan shaft to a new location. Tighten all bearing set screws (see Table 1 for torque recommendations) into the fan shaft when complete.

WARNING! Do not damage the orifice when adjusting the wheel.

7. **CAUTION!** Guards must be installed when fan is within reach of personnel or within seven (7) feet (2.134m) of working level or when deemed advisable for safety.
8. **CAUTION!** Before proceeding, make sure electrical service to fan is locked in "OFF" position.
9. All wiring should be in accordance with local ordinances and the National Electric Code.
10. **WARNING!** Check 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 motor and void motor warranty. Leave enough slack in wiring to allow for motor movement when adjusting belt tension.
11. 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.
12. Using a minimum of eight (8) lag bolts - two (2) on each side near corners, securely fasten fan to curb. Fasten all bolts securely. The fan should rest on the curb as level as possible.

MAINTENANCE

1. Under normal usage, no spare parts are recommended for one year of operation. Recommended spare parts are shown on pages 4 and 5.

CAUTION! Before proceeding, make sure electrical service to fan is locked in "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.

2. Impeller shaft bearings on units with duplex split pillow block housing are permanently lubricated and **do not** require relubrication. Units with unitary pillow block bearing have grease fittings and, under normal operation 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 a standard practice to fill only 30% of the bearing void with grease. **Do not** over lubricate.
3. Motor bearings are prelubricated. Consult information printed on motor for lubrication instructions.
4. Check belt tension after 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 bearings. Belt should be tight enough to prevent slippage. When replacing worn belt, replace 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 speeds higher than that cataloged for this equipment.

5. If impeller shaft bearings need replacement, replace with bearings comparable to the original equipment. If duplex split pillow block bearings are used, install new bearings into neoprene rings, check correct position of impeller with orifice, position bearings in die-formed recess and tighten set screws. (Minimum/maximum torque settings shown in Table 1.) Replace die-formed bearing cap and tighten four bolts.

NOTE: If locking collar type bearing is used, collar must first be positioned against inner race on the bearing nearest the impeller and turned in the direction of impeller rotation with 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 torque set screw. 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 impeller 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 converter; if possible, the motor and the converter should be from the same manufacturer or at least the converter 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.

EXPLODED VIEW OF SIZES 75 THROUGH 240

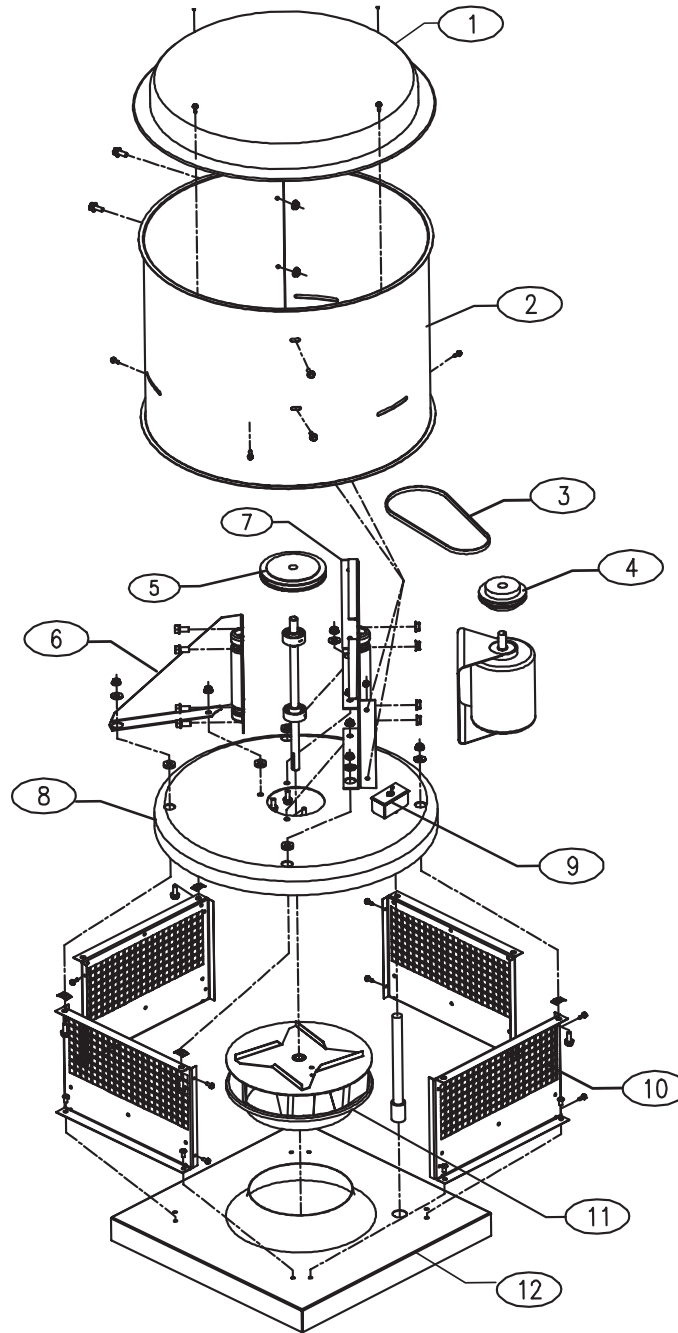


Figure 1

PARTS LIST LEGEND					
No.	Description	Qty	No.	Description	Qty
1	Hood	1	7	Motor Base	1
2	Windband	1	8	Separator Pan	1
3	Drive Belt*	1	9	Disconnect Switch	1
4	Motor Pulley*	1	10	Birdscreen	4
5	Fan Pulley*	1	11	Wheel Assembly*	1
6	Motor Base Support	1	12	Curb Cap	1

* Recommended Spare Parts

EXPLODED VIEW OF SIZES 260 THROUGH 543

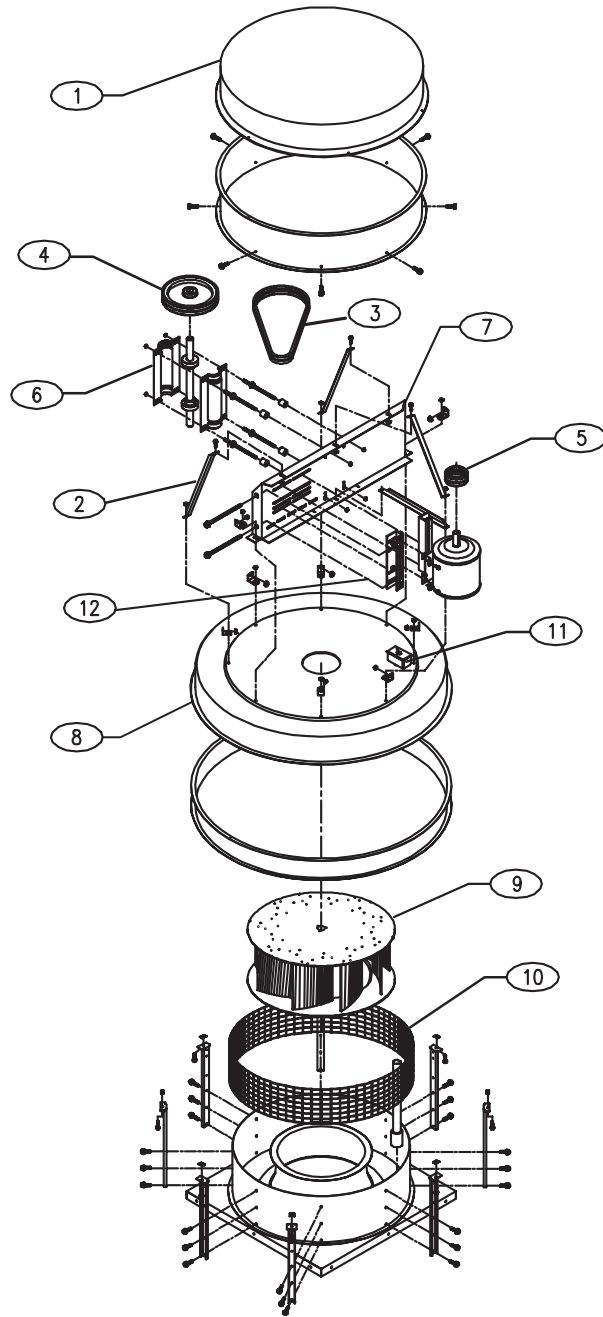


Figure 2

PARTS LIST LEGEND					
No.	Description	Qty	No.	Description	Qty
1	Upper Hood	1	7	Motor Base	1
2	Motor Support Strut	2	8	Lower Hood	1
3	Drive Belt*	1	9	Wheel Assembly*	1
4	Fan Pulley*	1	10	Birdscreen	1
5	Motor Pulley*	1	11	Disconnect Switch	1
6	Bearing Cap	2	12	Motor Adjustment Rails	2

* Recommended Spare Parts

FAN RPM SELECTION TABLE

MODEL SIZE	HP	FAN RPM VS NUMBER OF TURNS FROM FULL CLOSED										
		0	½	1	1 ½	2	2 ½	3	3 ½	4	4 ½	5
75E1	.25	437	419	401	383	366	348	330	312	294	—	—
75E2	.25	621	596	571	546	521	495	470	445	420	—	—
75E3	.25	833	802	770	739	707	676	644	613	581	—	—
75E4	.25	1039	998	956	915	873	832	790	749	707	—	—
75E5	.25	1228	1188	1149	1109	1070	1030	990	951	911	—	—
75E6	.25	1468	1407	1345	1284	1223	1161	1100	1038	977	—	—
75E7	.25	1681	1627	1573	1518	1464	1410	1356	1301	1247	—	—
75E8	.25	1915	1866	1816	1767	1717	1668	1619	1569	1520	1470	1421
85E1	.25	1039	998	956	915	873	832	790	749	707	—	—
85E2	.25	1228	1188	1149	1109	1070	1030	990	951	911	—	—
85E3	.25	1468	1407	1345	1284	1223	1161	1100	1038	977	—	—
85E4	.25	1681	1627	1573	1518	1464	1410	1356	1301	1247	—	—
85E5	.25	1915	1866	1816	1767	1717	1668	1619	1569	1520	1470	1421
100E1	.25	1039	998	956	915	873	832	790	749	707	—	—
100E2	.25	1228	1188	1149	1109	1070	1030	990	951	911	—	—
100E3	.25	1468	1407	1345	1284	1223	1161	1100	1038	977	—	—
100E4	.25	1681	1627	1573	1518	1464	1410	1356	1301	1247	—	—
100E5	.25	1915	1866	1816	1767	1717	1668	1619	1569	1520	1470	1421
100F	.33	2054	1968	1883	1797	1712	1626	1540	1455	1369	—	—
120E1	.25	770	738	706	674	642	609	577	545	513	—	—
120E2	.25	907	871	835	798	762	726	690	653	617	—	—
120E3	.25	1080	1037	994	950	907	864	821	777	734	—	—
120E4	.25	1304	1252	1200	1148	1096	1043	991	939	887	—	—
120E5	.25	1489	1447	1404	1362	1319	1277	1234	1192	1149	—	—
120E6	.25	1584	1556	1527	1499	1471	1443	1414	1386	1358	1329	1301
120F	.33	1753	1692	1631	1570	1509	1447	1386	1325	1264	—	—
135E1	.25	770	738	706	674	642	609	577	545	513	—	—
135E2	.25	907	871	835	798	762	726	690	653	617	—	—
135E3	.25	1080	1037	994	950	907	864	821	777	734	—	—
135E4	.25	1304	1252	1200	1148	1096	1043	991	939	887	—	—
135E5	.25	1489	1447	1404	1362	1319	1277	1234	1192	1149	—	—
135F	.33	1633	1586	1540	1493	1447	1400	1353	1307	1260	—	—
135G	.50	1875	1826	1776	1727	1678	1629	1579	1530	1481	1431	1382
150E1	.25	863	827	791	755	719	683	647	611	575	—	—
150E2	.25	998	958	918	878	839	799	759	719	679	—	—
150E3	.25	1088	1043	997	952	907	861	816	770	725	—	—
150F	.33	1187	1152	1117	1082	1047	1012	977	942	907	—	—
150G	.50	1363	1326	1289	1252	1215	1178	1141	1104	1067	1030	993
150H	.75	1557	1520	1484	1447	1411	1374	1337	1301	1264	1228	1191
165E1	.25	863	827	791	755	719	683	647	611	575	—	—
165E2	.25	998	958	918	878	839	799	759	719	679	—	—
165F	.33	1088	1043	997	952	907	861	816	770	725	—	—
165G	.50	1250	1213	1176	1140	1103	1066	1029	992	956	919	882
165H	.75	1428	1379	1330	1280	1231	1182	1133	1084	1034	985	936
165J	1.00	1584	1556	1527	1499	1471	1443	1414	1386	1358	1329	1301
180E	.25	657	632	607	582	557	531	506	481	456	—	—
180F	.33	728	711	695	678	661	645	628	611	594	578	561
180G	.50	830	806	782	757	733	709	685	661	636	612	588
180H	.75	951	921	891	861	831	801	770	740	710	680	650
180J	1.00	1050	1018	987	955	924	892	860	829	797	766	734
180K	1.50	1185	1151	1117	1084	1050	1016	982	948	915	881	847
180L	2.00	1316	1279	1241	1204	1166	1129	1091	1054	1016	979	941
200E1	.25	550	528	506	484	462	440	418	396	374	—	—
200E2	.25	632	612	591	571	551	530	510	489	469	—	—
200F	.33	689	660	632	603	574	545	517	488	459	—	—
200G	.50	805	777	749	722	694	666	638	610	583	555	527
200H	.75	907	876	844	813	782	751	719	688	657	625	594
200J	1.00	1006	976	947	917	888	858	828	799	769	740	710
200K	1.50	1140	1107	1073	1040	1006	973	939	906	872	839	805
200L	2.00	1255	1218	1181	1144	1107	1071	1034	997	960	923	886

Actual speeds may vary as much as ±5%.

Based on Motor RPM of 1725.

FAN RPM SELECTION TABLE

MODEL SIZE	HP	FAN RPM VS NUMBER OF TURNS FROM FULL CLOSED										
		0	½	1	1 ½	2	2 ½	3	3 ½	4	4 ½	5
220E	.25	514	498	483	467	452	436	420	405	389	374	358
220F	.33	573	556	538	521	503	486	468	451	433	416	398
220G	.50	669	649	628	608	587	567	547	526	506	485	465
220H	.75	773	749	725	701	677	653	628	604	580	556	532
220J	1.00	855	829	803	777	751	725	699	673	647	621	595
220K	1.50	966	937	907	878	848	819	790	760	731	701	672
220L	2.00	1050	1018	987	955	924	892	860	829	797	766	734
240E	.25	526	511	495	480	464	449	433	418	402	387	371
240F	.33	572	552	533	513	493	474	454	434	414	395	375
240G	.50	663	640	617	594	571	549	526	503	480	457	434
240H	.75	759	733	707	680	654	628	602	576	549	523	497
240J	1.00	820	792	763	735	707	679	650	622	594	565	537
240K	1.50	938	906	873	841	808	776	744	711	679	646	614
240L	2.00	1033	1003	972	942	911	881	851	820	790	759	729
260E	.25	419	406	392	379	366	353	339	326	313	299	286
260F	.33	456	442	428	414	400	387	373	359	345	331	317
260G	.50	526	509	492	475	458	441	424	407	390	373	356
260H	.75	607	593	578	564	549	535	520	506	491	477	462
260J	1.00	646	630	613	597	580	564	548	531	515	498	482
260K	1.50	738	716	694	672	650	628	606	584	562	540	518
260L	2.00	821	796	771	746	721	696	670	645	620	595	570
300F	.33	442	428	413	398	383	369	354	339	324	310	295
300G	.50	493	476	460	444	427	411	394	378	361	345	329
300H	.75	559	542	526	509	493	476	460	444	427	411	394
300J	1.00	605	587	569	551	534	516	498	480	462	445	427
300K	1.50	690	674	659	643	627	612	596	580	565	549	533
300L	2.00	759	742	725	707	690	673	656	638	621	604	587
300M	3.00	833	818	803	788	773	758	743	728	713	698	682
365G	.50	345	334	322	311	299	288	276	265	253	242	230
365H	.75	399	387	376	364	352	341	329	317	305	294	282
365J	1.00	428	415	403	390	378	365	352	340	327	315	302
365K	1.50	487	476	465	454	443	432	420	409	398	387	376
365L	2.00	542	530	518	505	493	481	468	456	444	431	419
365M	3.00	616	604	591	579	567	554	542	530	518	505	493
365N	5.00	732	719	706	693	680	667	653	640	627	614	601
425G	.50	265	257	248	239	230	221	212	203	195	186	177
425H	.75	301	292	283	274	265	257	248	239	230	221	212
425J	1.00	336	327	318	310	301	292	283	274	265	257	248
425K	1.50	384	375	365	356	347	338	328	319	310	300	291
425L	2.00	442	412	403	393	384	374	364	355	345	336	326
425M	3.00	479	470	460	450	441	431	421	412	402	393	383
425N	5.00	575	564	553	542	531	520	508	497	486	475	464
490H	.75	257	248	239	230	221	213	204	195	186	177	168
490J	1.00	276	269	262	255	248	242	235	228	221	214	207
490K	1.50	310	303	296	289	282	275	267	260	253	246	239
490L	2.00	345	335	326	316	307	297	287	278	268	259	249
490M	3.00	398	387	376	365	354	343	332	321	310	299	288
490N	5.00	474	465	457	448	440	431	423	414	405	397	388
490P	7.50	537	527	518	508	499	489	479	470	460	451	441
543J	1.00	221	214	207	200	194	187	180	173	166	—	—
543K	1.50	257	248	239	230	221	213	204	195	186	177	168
543L	2.00	283	276	269	262	255	249	242	235	228	221	214
543M	3.00	326	316	307	297	288	278	268	259	249	240	230
543N	5.00	380	373	366	359	352	345	339	332	325	318	311
543P	7.50	437	430	423	416	409	402	394	387	380	373	366
543R	10.00	483	476	469	462	455	448	442	435	428	421	414

Actual speeds may vary as much as ±5%.

Based on Motor RPM of 1725.

TERMS AND CONDITIONS OF SALE

ACCEPTANCE All orders and sales are subject to written approval and acceptance by an executive officer of the Company at Muskogee, Oklahoma, 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.

PRICE ADJUSTMENT Prices are subject to change until the Purchaser's order has been accepted by the Company.

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

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 AND PROTECTION Prices on products manufactured by the Company are firm for shipment up to four months from the date of the original order entry. Such prices are subject to adjustment if shipment is made after four months and up to ten months from the date of the original order entry, if products are shipped ten months from the date of the original order entry, prices will be adjusted to the price in effect at the time of shipment automatically. 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 The Company 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: the Company's exclusive duplex split pillow block bearings and shaft five years, belts one year, Polyethylene tubing 90 days, AIR40 Heater warranty one year, AIR40 Emitter warranty three years and DDP fan lifetime warranty on its 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 Purchaser 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 Pur-

chaser'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.