

SERIES 41
INDUSTRIAL DUTY
CENTRIFUGAL
FANS



*Backward Inclined
and Airfoil Wheels
Single and Double Width*

 **GREENHECK**
®

June 1995

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Refer to the Sound and Air Data Supplement for :

- **Engineering Data**
- **Air Performance**
- **Fan Curves**
- **Sound Performance**
- **Dimensional Data**

Greenheck, a leader in the air movement industry for over 40 years, offers SERIES 41 rugged all welded centrifugal fans in a wide range of sizes and arrangements. Greenheck industrial duty fans are an excellent choice for applications such as filtration systems, fume exhaust, fluid bed pressurization, combustion air and supply or return air.

Greenheck industrial duty centrifugal fans are designed and constructed for long, reliable service life. Heavy gauge steel, 316 stainless steel or aluminum housings feature continuously welded edge-to-edge seams between the scroll wrap and side plates. Premium quality bearings are selected for a basic rating fatigue life (L-10) per AFBMA Standards in excess of 80,000 hours.

Special attention to wheel balancing minimizes fan vibration. Every fan wheel is balanced and vibration is checked at the customer's specified speed. Maximum vibration allowed is 0.15 in./sec. peak vibration velocity.

Customers can be assured of accurate sound and air performance from Greenheck fans as a result of thorough testing in our laboratory.



AMCA licensed Sound and Air Performance can be found in Greenheck's Supplement:
Cent. Fan PM (Series 21/41)
June 1995





Cutting/Burning Table
Greenheck's DNC plasma cutter ensures cutting accuracy.



Welding
All Series 41 fans feature continuously welded heavy gauge steel housings.



Wheel Balancing
Each fan wheel is statically and dynamically balanced to grade G6.3 per ANSI S2.19.



Painting
Electrostatically applied powder based coatings ensure uniform coverage with excellent edge protection.



Final Assembly
Experienced assemblers and inspectors give careful attention to the final product.



Vibration Analysis
Each fan is test run at the factory. Vibration signatures are taken on each bearing in the horizontal, vertical and axial direction. The maximum allowable fan vibration is 0.15 in./sec peak velocity.



STANDARD CONSTRUCTION

Greenheck Series 41 centrifugal fans are designed for heavy duty air movement applications where heavy gauge edge-to-edge welded steel housing construction is preferred.

Fans are offered in sizes 7 through 73. These rugged, low maintenance fans are available in arrangements 1, 3 (single and double width), 9, 9 swing-out and 10 with Class I and II construction. For higher pressures, arrangements 1, 3 (single and double width) and 9 are available with Class III construction. Series 41 fans are available in any of the eight standard discharge positions. Fans sizes 30 and smaller in arrangements 1, 9 and 10 Class I and II have housings which are field rotatable.

All fans feature a **standard coating** consisting of a powder based thermosetting polyester urethane applied over a pressure washed and phosphatized surface. A wide variety of special coatings are available as options.

Wheels are fully welded and are available with non-overloading backward inclined or airfoil blades in either clockwise or counterclockwise rotation. All wheels are both statically and dynamically balanced.

Bearings are premium grease lubricated, self-aligning ball or roller pillow block type. They are selected for a basic rating fatigue life (L-10) per AFBMA Standards in excess of 80,000 hours at maximum operating speed for each pressure class.

Outlet flanges are standard on fan sizes 33 and larger and on all Class III fans. **Inlet collars** are standard on all single width fans.

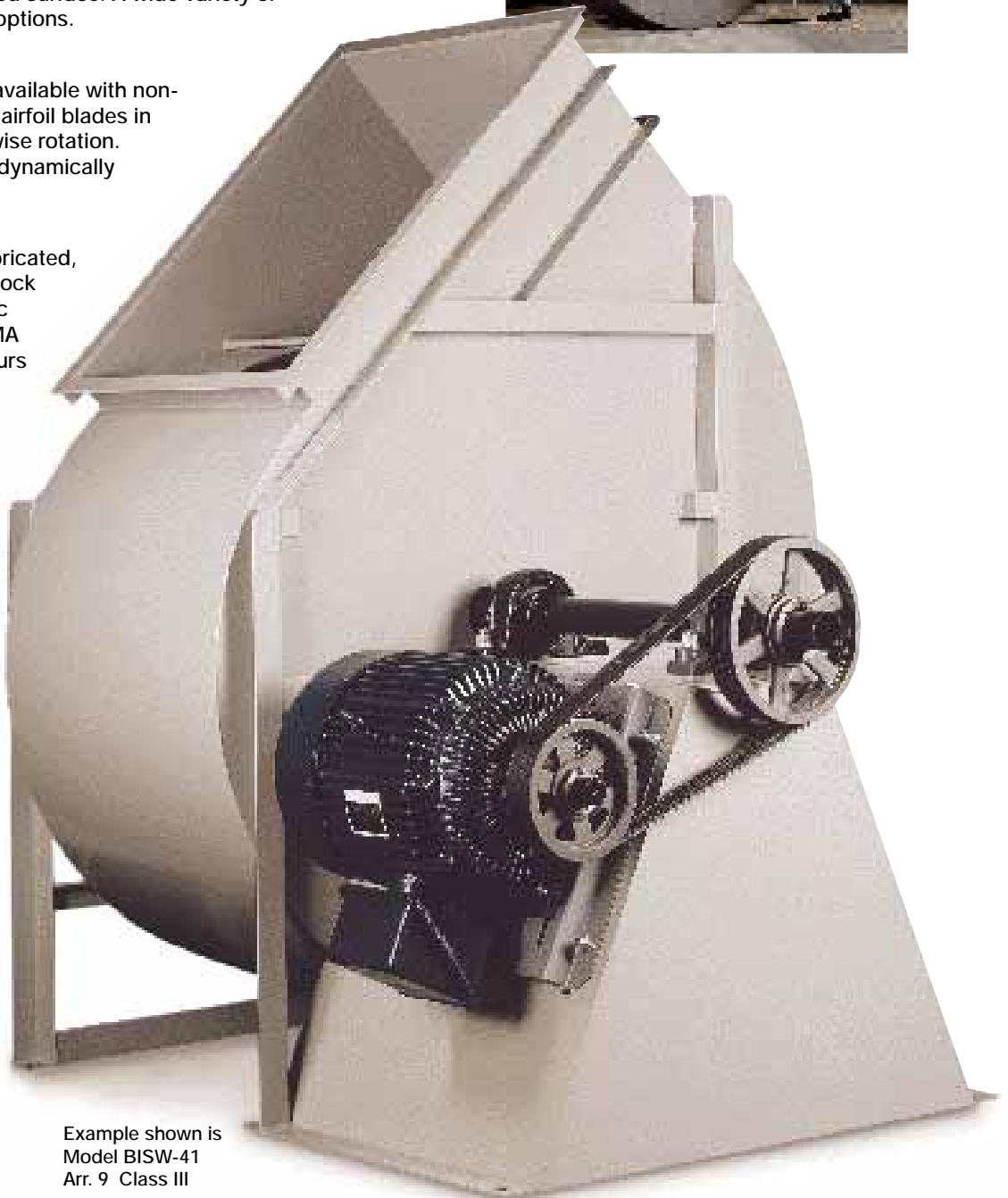
Fan shafts are turned, precision ground, polished and sized so that the first critical speed is at least 25% over the maximum operating speed.

The **drive frame** support structure for fan sizes 7 through 30 in arrangement 10 feature an open sided box design to accept large motor frames. Arrangement 1 and 9 fans and arrangement 10 fans in sizes 33 and larger feature a fully welded A-frame design.

Motor mounting plates on arrangements 9 and 10 are provided with convenient jack-screws for belt tensioning.

Welded Housings

All series 41 fans feature fully welded housings.



Example shown is
Model BISW-41
Arr. 9 Class III

OPTIONAL CONSTRUCTION

Aluminum Construction

Aluminum fans are an excellent choice for applications involving moisture, saturated steam vapors, or sea coast installations. Aluminum construction is available for the entire unit on Arr. 10 fans, sizes 7-30, Class I or II. Aluminum construction is available for parts in contact with the airstream on Arr. 1, 9, and 10 fans, sizes 7-49, Class I or II. The following parts are constructed of aluminum:

Entire Unit - All parts except the motor, fan shaft, drive, bearings, and fasteners.

Airstream Parts Only - Scroll housing, wheel, and inlet cone.

IMPORTANT: Aluminum fans or components are limited to a maximum temperature of 250°F. Fan speed limitations and required options and accessories must be considered prior to ordering. See the Engineering Data section of Greenheck's Centrifugal Fan Catalog Supplement to this catalog for fan RPM limitations.

Spark Resistant Construction

The following standards apply to fan applications which may involve the handling of potentially explosive or flammable particles, fumes, or vapors. Spark Resistant Construction is not available on Arr. 3 fans because of the bearing located in the airstream.

Type A - All parts in contact with the airstream are constructed of nonferrous material (aluminum). Type A is available on fan sizes 7-49, Class I, II, and III.

Type B - The fan wheel is constructed of nonferrous material (aluminum). A nonferrous (aluminum) rub ring surrounds the fan shaft where it passes through the fan housing. Type B is available on fan sizes 7-49, Class I, II, and III.

Type C - The inlet cone is constructed of nonferrous material (aluminum). A nonferrous (aluminum) rub ring surrounds the fan shaft where it passes through the fan housing. Type C is available on fan sizes 7-73, Class I, II, and III.

Split Housings

The split housing allows a large fan to be moved through a doorway or a restricted passageway. Split housings can solve many space limitation problems in both retrofit and new construction situations. The standard split is horizontal, through the centerline of the fan shaft. Single and double width fans sizes 33 and larger are available. Greenheck ships split housing fans assembled.

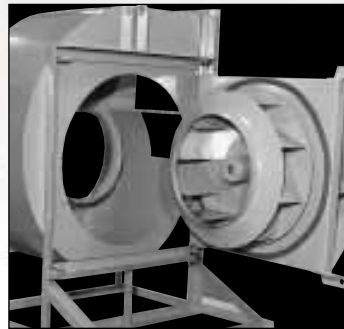


Stainless Steel Construction

Greenheck Series 41 Industrial Duty centrifugal fans are available in 316 stainless steel on the entire unit or the airstream parts only. Stainless steel is suited for environments subject to heat or corrosive fumes. Type 316 stainless steel has an advantage over 304 stainless in that it allows rotating parts to withstand temperatures up to 1000°F. Rotating parts constructed of mild steel or even 304 stainless are limited to 800°F. Greenheck 316 stainless steel fans are available with heat fan packages up to 1000°F. Stainless Steel construction is available for Arr. 1, 9, and 10 fans, sizes 7-49, Class I, II, and III.

Swing-Out Construction

Swing-out fans (SWO-9) are designed for frequent inspection and cleaning of the fan wheel and housing interior. The entire rotating assembly swings open for maximum accessibility. Swing-out fans are offered in



single width, backward inclined or airfoil sizes 22-49, in Class I or II construction. Discharge positions are limited to TH, BH, and UB and are non-rotatable.

High Temperature Fans

Greenheck Series 41 Industrial Duty centrifugal fans are available for high temperature applications. These Heat Fan options are available on Arr. 1, 9, SWO-9, and 10 fans, sizes 7-73, Class I, II, and III. The three temperature ranges are 201°-500°F, 501°-750°F, and 751°-1000°F. Arr. 3 fans are not available with the Heat Fan option because of the drive components and bearings in the airstream. The following table shows the temperature limits for specific materials.

<u>Material:</u>	<u>Maximum Temperature:</u>
Aluminum	250°F
Steel	750°F
316 Stainless Steel	1000°F

Fan speed limitations and required options and accessories must be considered prior to ordering. See the Engineering Data section of Greenheck's Centrifugal Fan Catalog Supplement to this catalog for fan RPM limitations.

ARRANGEMENTS

ARRANGEMENT 10

SINGLE WIDTH
*Backward Inclined or
Airfoil Wheel*

- Class I and II single width fans.
- Bearings are mounted out of the airstream.
- Motor is mounted beneath the drive frame.
- The only arrangement available with a weatherhood
- Moderate dirt and heat tolerance.
- Compact design.
- Available with heat fan packages.
- Available special coatings.

ARRANGEMENT 9

SINGLE WIDTH
*Backward Inclined or
Airfoil Wheel*

- Class I, II and III single width fans.
- Bearings are mounted out of the airstream.
- Easy access to large motors mounted on drive frame.
- Standard motor position is on the right side of the drive frame.
- Optional motor position is on the left side of the drive frame.
- A weatherhood is not available on this arrangement.
- Available heat fan packages to 1000° F.
- Available special coatings.
- Available with optional swing-out construction.

ARRANGEMENT 1

SINGLE WIDTH
*Backward Inclined or
Airfoil Wheel*

- Class I, II and III single width fans.
- Bearings are mounted out of the airstream.
- Unlimited motor size.
- Motor is mounted on a common isolation base with the fan.
- Choice of motor positions W, X, Y or Z.
- Weatherhood is not available on this arrangement.
- Recommended for high temperatures or contaminated air.
- Available heat fan packages to 1000° F.
- Available special coatings.

ARRANGEMENT 3

**SINGLE WIDTH AND
DOUBLE WIDTH**
*Backward Inclined or
Airfoil Wheel*

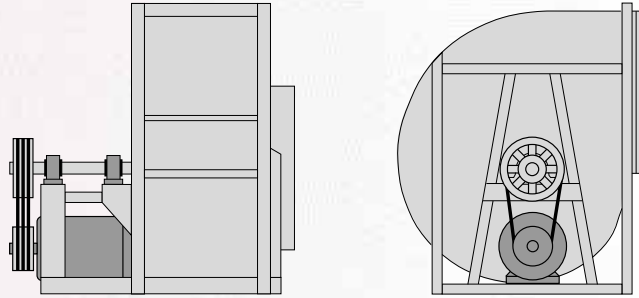
- Class I, II and III single and double width fans.
- Wheel is located between the bearings for maximum strength.
- Minimum of one bearing located in the airstream.
- Not recommended for high temperatures or contaminated air.
- Unlimited motor size.
- Motor is mounted on a common isolation base with the fan.
- Choice of motor positions W, X, Y or Z.
- Limited to clean air at a maximum of 180° F.
- Double width fans provide large volumes in a compact size.

DISCHARGE POSITIONS AND ROTATABLE HOUSINGS

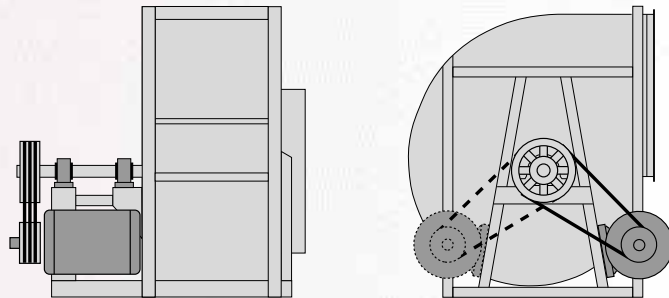
All centrifugal fans are available with CW or CCW rotation in all standard discharge positions. Rotatable housings are standard on fan sizes 30 and smaller in arrangement 1, 9 & 10 Class I and II.

*Top Angular Down (TAD) and Bottom Angular Down (BAD) discharge positions are only available with special construction to prevent interference between the drive frame and fan discharge.

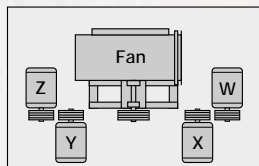
ARRANGEMENTS



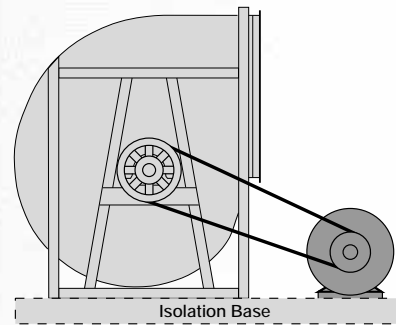
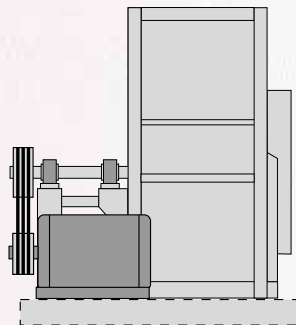
ARR. 10



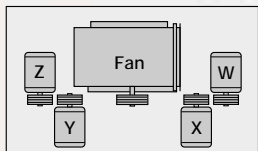
ARR. 9



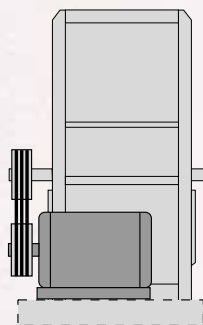
Motor position and fan rotation are determined from drive side



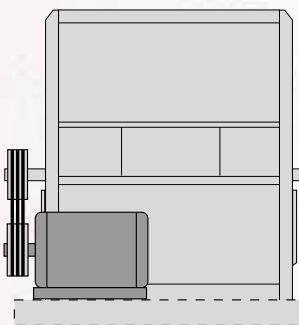
ARR. 1



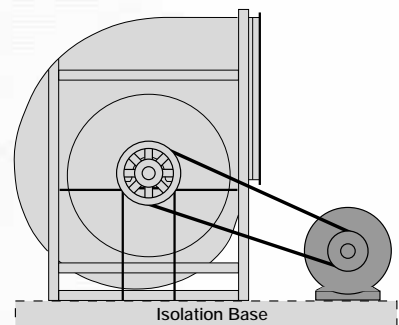
Motor position and fan rotation are determined from drive side



Single Width

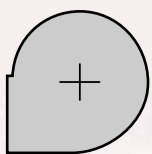


Double Width

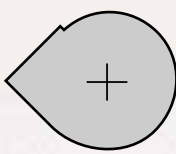


Isolation Base

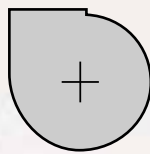
ARR. 3



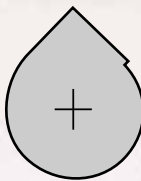
BH



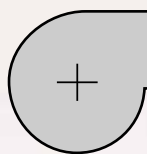
BAU



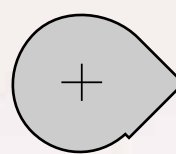
UB



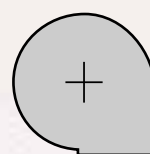
TAU



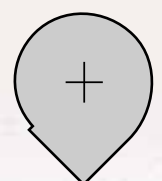
TH



TAD*



DB



BAD*

Discharges shown are for CW rotation. CCW rotation discharges are a mirror image.

ACCESSORIES

Weatherhoods for Arr. 10 and SWO-9 *

Vented steel weatherhoods protect the motor and drive components from rain, moisture, dust, and dirt. Weatherhoods are easily removed for service access.

Inlet and Outlet Guards *

Removable inlet and outlet guards provide protection for personnel and equipment in non-ducted installations. Inlet and outlet guards meet OSHA standards.

Nested Inlet Vanes

Nested inlet vanes provide variable inlet volume at reduced horsepower. Nested inlet vanes are built into the inlet cone and will reduce volume up to 30% of specified airflow. Electric or pneumatic actuators are available for fan sizes 12-73. The maximum operating temperature for inlet vanes is 200°F.

External Inlet Vanes

Inlet vanes are mounted externally on the fan inlet flange and are available for fan sizes 12-60. Electric or pneumatic actuators are available. The maximum operating temperature for inlet vanes is 200°F.

Inlet and Outlet Flanges *

Inlet flanges on all single width fans are pre-punched and welded to the inlet collar. Punched or unpunched outlet flanges are available on all fan sizes 7-30. Unpunched outlet flanges are standard on fan sizes 33-73, and fans with downblast discharges, and all Class III fans. Punched outlet flanges are optional on fan sizes 33-73.

Companion Flanges *

Punched companion inlet flanges are available for all single width fan sizes.

Access Doors *

Bolted or hinged (quick-opening) access doors provide access for cleaning or inspection. Access doors are standard on downblast discharge fans. Raised bolted access doors are also available to allow up to 4" of field-applied insulation on the fan housing.

Backdraft and Outlet Volume Dampers

Gravity or motorized backdraft dampers are available with a punched flange to match the fan outlet. Gravity dampers are not available on DB, TAD, or BAD discharge positions.

Outlet volume control dampers feature vertical opposed blades for maximum performance and are supplied with a quadrant lever for manual or motorized operation. The maximum operating temperature for dampers is 200°F.

Spring Isolation Bases and Spring Isolators

Greenheck offers a complete line of spring isolation bases with free standing or housed spring isolators. These bases are available with height saving brackets for minimal fan and base height. Inertia bases built to accept poured concrete are also available. Isolators are available for fan sizes 7-36.

Heat Slingers

The heat slinger is an aluminum cooling disc mounted on the fan shaft between the inboard bearing and the blower housing to dissipate heat conducted along the fan shaft. Heat slingers are not available for Arrangement 3 fans.

Shaft Seals

A felt shaft seal with an aluminum rub ring is available for operation at high temperatures, or for exhausting contaminated air. This seal is **NOT** gas-tight and is not available for Arrangement 3 fans.

Extended Life Bearings

Extended life bearings are selected for a basic rating fatigue life (L-10) per AFBMA Standards in excess of 200,000 hours at the maximum RPM for each pressure class. L-10 is the life associated with 90% reliability of a bearing.

Split Pillow Block Bearings

Split pillow block bearings feature double-row roller bearings and a 2-piece cast iron housing.

Extended Lubrication Lines

Single width fans are available with flexible nylon tubing extending from the bearings to conveniently located grease fittings mounted on the fan drive frame (or on the fan housing if a weatherhood is supplied). Double width fans can be provided with lube line kits containing 25 ft. of nylon tubing, grease fittings, and field installation hardware.

Drain Connection *

A 1" threaded drain connection is located at the bottom of the fan housing for draining any fluids that may accumulate in the fan.

Special Coatings

Special coatings for protecting the fan from corrosive environments are available. These coatings may be applied to either the airstream components only, or the entire unit. For a detailed description of special coatings, see the Greenheck Engineering Bulletin "Special Coatings for Centrifugal and Industrial Fans."

Disconnect Switches

Greenheck offers a wide selection of NEMA rated fusible or non-fusible disconnect switches.

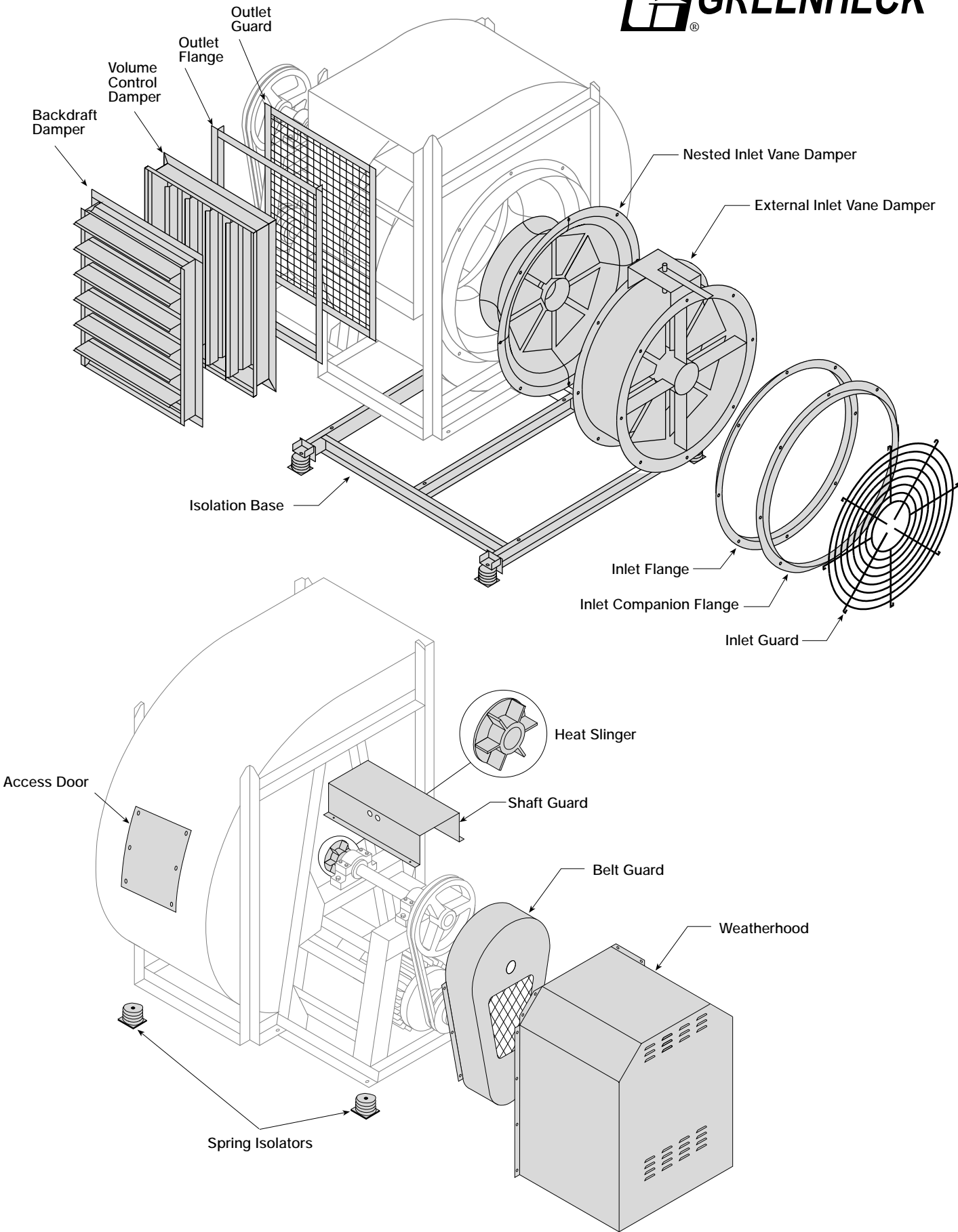
UL 705 or 762 Listing

The UL 705 electrical listing is available on BISW Arr. 10 fans with a weatherhood and specific motors 25HP and under. The UL 762 listing for restaurant exhaust is available on BISW Arr. 10 fans sizes 7-36 with a weatherhood. UL 762 fans are listed for a maximum operating temperature of 375° F and include a bolted access door and 1" drain connection. An outlet guard is strongly recommended where the fan discharge is accessible. An upblast discharge is recommended. The fan discharge must be a minimum of 40" above the roof line (per NFPA 96) to comply with the UL listing. Fans for interior mounting must have an all welded housing (Greenheck BISW Series 41).

Stainless Steel Shafts

Stainless steel fan shafts are available on fan sizes 7-49 for applications where standard carbon steel shafts may exhibit excessive corrosion or heat stress.

*These accessories are also available in Aluminum or Stainless Steel construction for fan sizes 7-49.



SERIES 41 SPECIFICATIONS

CLASS I

Fan Size	Scroll Gauge		Wheel Weight				Arr. 1, 9 & 10				Arr. 3 SW			Arr. 3 DW		
							Shaft Dia.	Bearing Support	Fan Weight		Shaft Dia.	Bearing Support	Fan Wt.	Shaft Dia.	Bearing Support	Fan Wt.
	Arr. 1,9	Arr. 10														
7-10	14	16	9	NA	NA	NA	1	10 ga.	116	100	NA	NA	NA	NA	NA	NA
12	14	14	16	20	NA	NA	1	10 ga.	135	135	1	1/4 x 2 1/2	111	13/16	3/8 x 2 1/2	138
13	14	14	18	23	NA	NA	1	10 ga.	143	143	1	1/4 x 2 1/2	123	13/16	3/8 x 2 1/2	156
15	14	14	22	29	NA	NA	1	10 ga.	157	158	1	1/4 x 2 1/2	143	17/16	3/8 x 2 1/2	192
16	14	14	33	41	NA	NA	1 3/16	10 ga.	214	221	13/16	1/4 x 2 1/2	174	17/16	3/8 x 3	226
18	14	14	40	50	43	58	1 3/16	10 ga.	283	288	13/16	3/8 x 3	223	11 1/16	3/8 x 3 1/2	288
20	14	14	45	56	47	66	1 3/16	10 ga.	302	307	13/16	3/8 x 3	252	11 1/16	3/8 x 3 1/2	326
22	12	14	68	85	71	98	1 7/16	10 ga.	452	462	1 7/16	3/8 x 3	339	1 15/16	3/8 x 3 1/2	437
24	12	14	77	95	79	111	1 7/16	10 ga.	490	501	1 7/16	3/8 x 3 1/2	396	2 3/16	3/8 x 4	528
27	12	14	87	112	92	130	1 11/16	10 ga.	620	645	1 11/16	3/8 x 3 1/2	512	2 3/16	3/8 x 4	662
30	10	12	130	162	137	176	1 15/16	10 ga.	784	809	1 15/16	3/8 x 3 1/2	695	2 7/16	3/8 x 4	893
33	10	12	146	186	154	203	1 15/16	1/4	864	864	1 15/16	3/8 x 3 1/2	790	2 7/16	1/2 x 4	1060
36	10	12	189	242	191	248	1 15/16	1/4	999	999	1 15/16	3/8 x 3 1/2	966	2 11/16	1/2 x 4	1250
40	10	12	249	325	251	328	2 3/16	1/4	1220	1220	1 15/16	1/2 x 3 1/2	1190	2 15/16	1/2 x 4	1510
44	10	12	287	379	285	377	2 7/16	1/4	1540	1540	1 15/16	1/2 x 4	1390	2 15/16	1/2 x 4	1870
49	10	12	373	486	403	547	2 11/16	1/4	1860	1860	2 3/16	1/2 x 4	1740	3 7/16	1/2 x 5	2350
54	10	12	477	704	479	708	2 15/16	1/4	2250	2250	2 7/16	1/2 x 4	2120	3 15/16	1/2 x 5	2930
60	10	12	697	929	757	1020	2 15/16	1/4	2780	2780	2 15/16	1/2 x 5	2750	3 15/16	5/8 x 5	3650
66	10	12	858	1200	852	1190	3 7/16	1/4	3520	3510	2 15/16	5/8 x 5 1/2	3320	4 7/16	5/8 x 5	4440
73	10	10	1020	1470	1007	1450	3 7/16	1/4	4240	4220	3 7/16	5/8 x 5 1/2	4110	4 15/16	5/8 x 5	5660

CLASS II

Fan Size	Scroll Gauge		Wheel Weight				Arr. 1, 9 & 10				Arr. 3 SW			Arr. 3 DW		
							Shaft Dia.	Bear. Suprt.	Fan Weight		Shaft Dia.	Bearing Support	Fan Wt.	Shaft Dia.	Bearing Support	Fan Wt.
	Arr. 1,9	Arr. 10														
7-10	14	16	9	NA	NA	NA	1	10 ga.	116	116	NA	NA	NA	NA	NA	NA
12	14	14	18	23	NA	NA	1	10 ga.	137	160	1	1/4 x 2 1/2	113	17/16	3/8 x 2 1/2	147
13	14	14	20	34	NA	NA	1	10 ga.	145	168	1	1/4 x 2 1/2	125	11 1/16	3/8 x 2 1/2	183
15	14	14	23	38	NA	NA	1 3/16	10 ga.	160	183	13/16	1/4 x 2 1/2	148	11 1/16	3/8 x 2 1/2	211
16	14	14	37	45	NA	NA	1 3/16	10 ga.	219	262	13/16	1/4 x 2 1/2	179	1 15/16	3/8 x 3	250
18	14	14	45	54	47	62	1 7/16	10 ga.	294	299	1 7/16	3/8 x 3	234	1 15/16	3/8 x 3 1/2	303
20	14	14	50	61	52	71	1 7/16	10 ga.	314	396	1 7/16	3/8 x 3	265	2 3/16	3/8 x 3 1/2	358
22	12	14	68	85	71	98	1 7/16	10 ga.	454	464	1 7/16	3/8 x 3	342	2 7/16	3/8 x 3 1/2	474
24	12	14	81	103	79	111	1 11/16	10 ga.	502	513	1 11/16	3/8 x 3 1/2	411	2 7/16	3/8 x 4	551
27	12	14	92	153	92	161	1 11/16	10 ga.	623	648	1 11/16	3/8 x 3 1/2	515	2 11/16	3/8 x 4	745
30	10	12	146	194	148	197	1 15/16	10 ga.	798	823	1 15/16	3/8 x 3 1/2	709	2 11/16	3/8 x 4	943
33	10	12	165	224	180	254	2 3/16	1/4	904	904	2 3/16	3/8 x 3 1/2	825	2 15/16	1/2 x 4	1140
36	10	12	204	272	224	312	2 7/16	1/4	1070	1070	2 7/16	3/8 x 3 1/2	1040	2 15/16	1/2 x 4	1310
40	10	12	268	363	291	408	2 7/16	1/4	1280	1280	2 7/16	1/2 x 3 1/2	1270	3 7/16	1/2 x 4	1630
44	10	12	337	504	331	493	2 11/16	1/4	1620	1620	2 11/16	1/2 x 4	1510	3 7/16	1/2 x 4	2020
49	10	12	434	647	432	643	2 15/16	1/4	1910	1910	2 11/16	1/2 x 4	1820	3 15/16	1/2 x 5	2510
54	10	12	552	820	549	813	3 7/16	1/4	2370	2370	2 15/16	1/2 x 4	2550	4 7/16	1/2 x 5	3170
60	10	12	778	1050	744	977	3 7/16	1/4	2880	2880	3 7/16	1/2 x 5	2850	4 15/16	5/8 x 5	3920
66	10	12	895	1230	852	1140	3 15/16	1/4	3640	3630	3 15/16	5/8 x 5 1/2	3520	5 1/4	5/8 x 5	4710
73	10	10	1060	1560	1007	1450	3 15/16	1/4	4370	4350	3 15/16	5/8 x 5 1/2	4250	5 3/4	5/8 x 5	6000

CLASS III

Fan Size	Scroll Gauge		Wheel Weight				Arr. 1 & 9			Arr. 3 SW			Arr. 3 DW		
							Shaft Dia.	Bear. Suprt.	Fan Weight	Shaft Dia.	Bearing Support	Fan Wt.	Shaft Dia.	Bear. Suprt.	Fan Wt.
12	10	10	21	34	NA	NA	1 7/16	3/16	186	17/16	1/4 x 3	155	1 15/16	3/8 x 3	208
13	10	10	24	40	NA	NA	1 7/16	3/16	209	1 7/16	1/4 x 3	178	1 15/16	3/8 x 3	237
15	10	10	36	45	NA	NA	1 11/16	3/16	260	1 11/16	1/4 x 3	222	1 15/16	3/8 x 3 1/2	291
16	10	10	39	50	NA	NA	1 11/16	3/16	294	1 11/16	1/4 x 3	253	1 15/16	3/8 x 3 1/2	330
18	10	10	52	76	57	90	1 11/16	3/16	347	1 11/16	3/8 x 3	319	2 7/16	3/8 x 3 1/2	446
20	10	3/16	64	126	64	133	1 11/16	3/16	416	1 11/16	3/8 x 3	384	2 11/16	3/8 x 3 1/2	596
22	10	3/16	86	145	86	154	1 15/16	3/16	524	1 15/16	3/8 x 3 1/2	528	2 15/16	3/8 x 4	751
24	3/16	3/16	99	161	96	172	2 3/16	3/16	682	1 15/16	3/8 x 3 1/2	639	3 7/16	1/2 x 4	918
27	3/16	3/16	109	176	123	218	2 3/16	3/16	828	1 15/16	3/8 x 3 1/2	742	3 7/16	1/2 x 4	1120
30	3/16	3/16	156	202	175	238	2 7/16	3/16	1020	2 3/16	3/8 x 4	913	3 7/16	1/2 x 4 1/2	1320
33	3/16	3/16	178	234	200	279	2 11/16	3/16	1210	2 7/16	3/8 x 4	1150	3 15/16	1/2 x 4 1/2	1520
36	3/16	3/16	244	353	255	376	2 11/16	3/16	1420	2 7/16	3/8 x 4	1350	3 15/16	1/2 x 4 1/2	1800
40	3/16	3/16	308	444	321	470	2 11/16	1/4	1770	2 11/16	1/2 x 4	1670	4 7/16	1/2 x 4 1/2	2320
44	3/16	3/16	359	523	368	540	3 7/16	1/4	2200	2 15/16	1/2 x 4 1/2	1950	4 7/16	5/8 x 4 1/2	2650
49	3/16	3/16	460	642	477	676	3 7/16	1/4	2580	2 15/16	1/2 x 4 1/2	2390	4 15/16	5/8 x 5	3430
54	3/16	3/16	603	831	647	919	3 15/16	1/4	3220	3 7/16	5/8 x 5 1/2	3010	5 1/4	5/8 x 6	4380
60	3/16	3/16	817	1100	814	1100	4 15/16	1/4	4500	3 15/16	5/8 x 6	3670	5 3/4	5/8 x 6	5260
66	3/16	3/16	945	1400	939	1390	4 15/16	1/4	5020	3 15/16	5/8 x 6	4410	5 15/16	5/8 x 6	6750
73	3/16	3/16	1120	1660	1110	1640	4 15/16	1/4	5790	4 7/16	5/8 x 7	5340	6 7/16	5/8 x 7	7930

Weights, shown in pounds, are for steel fans and do not include motors, drives or accessories.

Fan weights are shown with heaviest wheel and may vary up to 5% based on the discharge position.

SOUND AND AIR PERFORMANCE

for Electronic Selection use

CAPS Computer Aided Product Selection Software

Greenheck's computer software for electronic fan selection is considered the best in the industry. It is designed to make fan selection fast, easy and accurate. CAPS eliminates manual calculations and allows you to compare up to six possible selections that meet the job requirements. Air performance is displayed in tables or fan curves. Dimensional drawings and data are shown on screen and can be printed out. Sound performance tables include eight octave band sound power, LwA, and dBA for both inlet and outlet.

Once a fan is selected, it can be saved as part of a job, and the data can be stored on a disk and printed in the form of a fan schedule. Fan schedules may also be transferred directly to drawings with design packages such as AutoCAD.

How to Receive Your Copy of CAPS

To receive your copy of the CAPS software simply contact your nearest Greenheck representative and ask for the CAPS license agreement.

for Manual Selection use the

Centrifugal Fan Catalog Supplement

Greenheck's Sound and Air Data Supplement to this catalog contains all the technical and engineering information necessary for manual fan selection.

Data provided in this supplement include:

Engineering Data

Complete engineering data, including the effect of air density, the effect of installation on performance, inlet vane performance and actuator torque are shown.

Air Performance Data

Fan curves and tabulated air performance data are shown for Class I, II and III centrifugal fans. The fan curves are shown as a family of curves, with pressure/volume curves plotted for progressive fan speeds. Horsepower curves are also plotted for a range of motors appropriate for the plotted fan speed. Class I, II and III speed limitations are clearly shown on the fan curves and above the tabulated data.

Sound Data

Sound power levels for each of the eight octave bands for the inlet and outlet of Greenheck centrifugal fans are shown. This method of cataloging both the inlet and outlet sound power level is unique in the industry.

Dimensional Data

Dimensional information is shown for each fan size, class and arrangement.

Typical Specification (Series 41)

Supply, exhaust, or return air fans shall be of the centrifugal type with backward inclined or airfoil wheels.

The housings on all fan sizes shall be of continuously welded heavy gauge steel. The housing and bearing support shall be constructed of welded structural steel members to prevent vibration and rigidly support the shaft and bearings.

The fan wheel shall be of the non-overloading backward inclined or airfoil centrifugal type. Wheels shall be statically and dynamically balanced to balance grade G6.3 per ANSI S2.19. The wheel cone and fan inlet cone shall be carefully matched and shall have precise running tolerances for maximum performance and operating efficiency. Turned, precision ground and polished steel shafts shall be sized so the first critical speed is at least 25% over the maximum operating speed for each pressure class. Close tolerances shall be maintained where the shaft passes through the bearing.

Bearings shall be heavy duty grease lubricated, self aligning or roller pillow block type. Bearings shall be selected for a basic rating fatigue life (L-10) of 80,000 hours at maximum operating speed for each pressure class.

Each assembled fan shall be test run at the factory at the specified fan RPM and vibration signatures shall be taken on each bearing in the horizontal, vertical, and axial direction. The maximum allowable fan vibration shall be 0.15 in/sec peak velocity.

Fans shall be licensed to bear the AMCA Seal for sound and air performance.

Centrifugal fans shall be model BISW-41 or BIDW-41 (Backward Inclined) or model AFSW-41 or AFDW-41 (Airfoil) as manufactured by Greenheck Fan Corporation of Schofield, Wisconsin and shall be supplied as shown on the plans and in the fan schedule.

SPECIFICATION CHECKLIST

To ensure the correct selection and application, the fan schedule and specifications should include the following information:

1. Fan Size

2. Single or Double Width

3. Pressure Class I, II or III

4. Arrangement

5. Discharge Position

6. Wheel Rotation - CW or CCW

7. Motor Location:

Arrangement 9 - Left or Right (Right is standard)

Arrangement 1 or 3 - W, X, Y, or Z

8. Fan Performance:

- Volume (CFM)
- Static Pressure
- Fan RPM
- Brake Horsepower (Bhp)
- Airstream Temperature for Start up.
- Airstream Temperature for Operation
- Elevation

9. Motor Requirements

- Motor Horsepower
- Motor RPM
- Motor Enclosure Type
- Voltage, Hertz and Phase
- Check Minimum Starting Torque
- Check Maximum Motor Frame Size (Arrangements 9 and 10)

10. V-Belt Drive

- Constant or Variable Speed
- Service Factor

11. Accessories

- Inlet Vanes (Nested or External)
- Outlet Volume Dampers
- Backdraft Dampers (Gravity or Motorized)
- Access Doors (Bolted or Hinged, Flush or Raised, Specify Location)
- Inlet Flange
- Outlet Flange (Standard on Class III)
- Companion Inlet or Outlet Flange
- Inlet or Outlet Guards
- Belt Guard
- Shaft Guard
- Drain Connection (Not on Downblast)
- Extended Life Bearings (200,000 L10)
- Split Pillow Block Bearings (Size 18 and over)
- Extended Lubrication Lines
- Split Fan Housing
- Heat Slinger (Arrangements 1, 9 & 10)
- Heat Fan Package (Specify normal start-up temperature, operating temperature and maximum design temperature)
- Shaft Seal
- Optional Construction Material (airstream or entire unit) (Aluminum or 316 Stainless Steel)
- Special Protective Coating
- Spark Resistant Construction (Type A, B or C)

12. Vibration Isolation Equipment

- Neoprene Isolators
- Free Standing or Housed Spring Isolators
- Spring Isolation Rails
- Spring Isolation Base
- Inertia Base

WARRANTY

Greenheck warrants this equipment to be free from defects in material and construction for a period of one year from the purchase date.

Any units or parts which prove defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid.

Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any installation or removal costs.



Cent. Fan Series 41 R
June 1995