



INDUCTION THRUST FAN SPECIFICATION

Each fan will deliver the volume and thrust specified in the schedule. The fans shall be tested and comply with EN12101-3. The fan manufacturer shall be certified to ISO 9001 quality system standards.

The fan casing shall be constructed of galvanized steel and come equipped with an inlet bell, guard, outlet deflector and terminal box.

Each fan shall have low vertical dimensions and a wide discharge throat.

Each fan must be easy to install and connect (plug and play).

The centrifugal impeller shall directly mount to the motor, which is capable of operating in a hot gas environment.

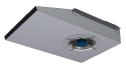
After assembly the fan shall be dynamically balanced and tested. The balance standard shall be in accordance to ISO procedure

The fan and motor assembly shall be direct drive, arrangement 4

The location and placement of the fans shall be determined by computational fluid dynamics (CFD), and a report supplied to the engineer at the time of quotation, for their review.

The motor shall have a cast iron frame, designed and suitable for vertical operation. All motors are totally enclosed air over design with a 1.15 service factor. Insulation shall be Class F with Class B rise. Bearings shall be ball or cylindrical roller type with a 100,000 hours L-10 life.

The fans shall be manufactured by the Howden American Fan,



Technical Data Sheet
Car Park - Induction Fan

7 #



Quotation Number	:	Fan Code	:	ITF-50
Project Name	:	Customer	:	
Item Reference:	:	Date:	:	Wednesday, February 11, 2015

@7



Fan Description 50 N
Flow Rate 1568 CFM
Thrust 2.7 lbf
Fan Speed 830 rpm

Fan Diameter / Size 266 mm
Silencer Type Induction
Form of Running B

Outline Drawing Number 303139-50

Absorbed Power 0.24 BHP

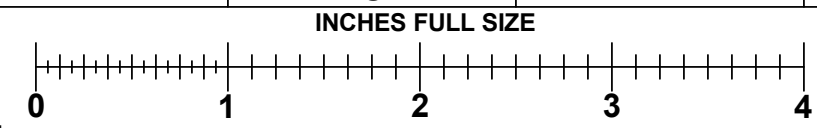
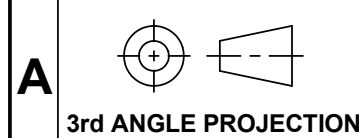
Motor Frame 90
Motor Rating 0.50 HP
Full Load Current 1.19 A

Electrical Supply 460 Volts 60 Hz 3 Phase
Start Type DOL
Control One Speed

Sound Spectrum (Hz)	63	125	250	500	1k	2k	4k	8k	dB (LwA)
Sound Power (Lw) at 830 rpm	89	88	84	80	77	73	70	64	83

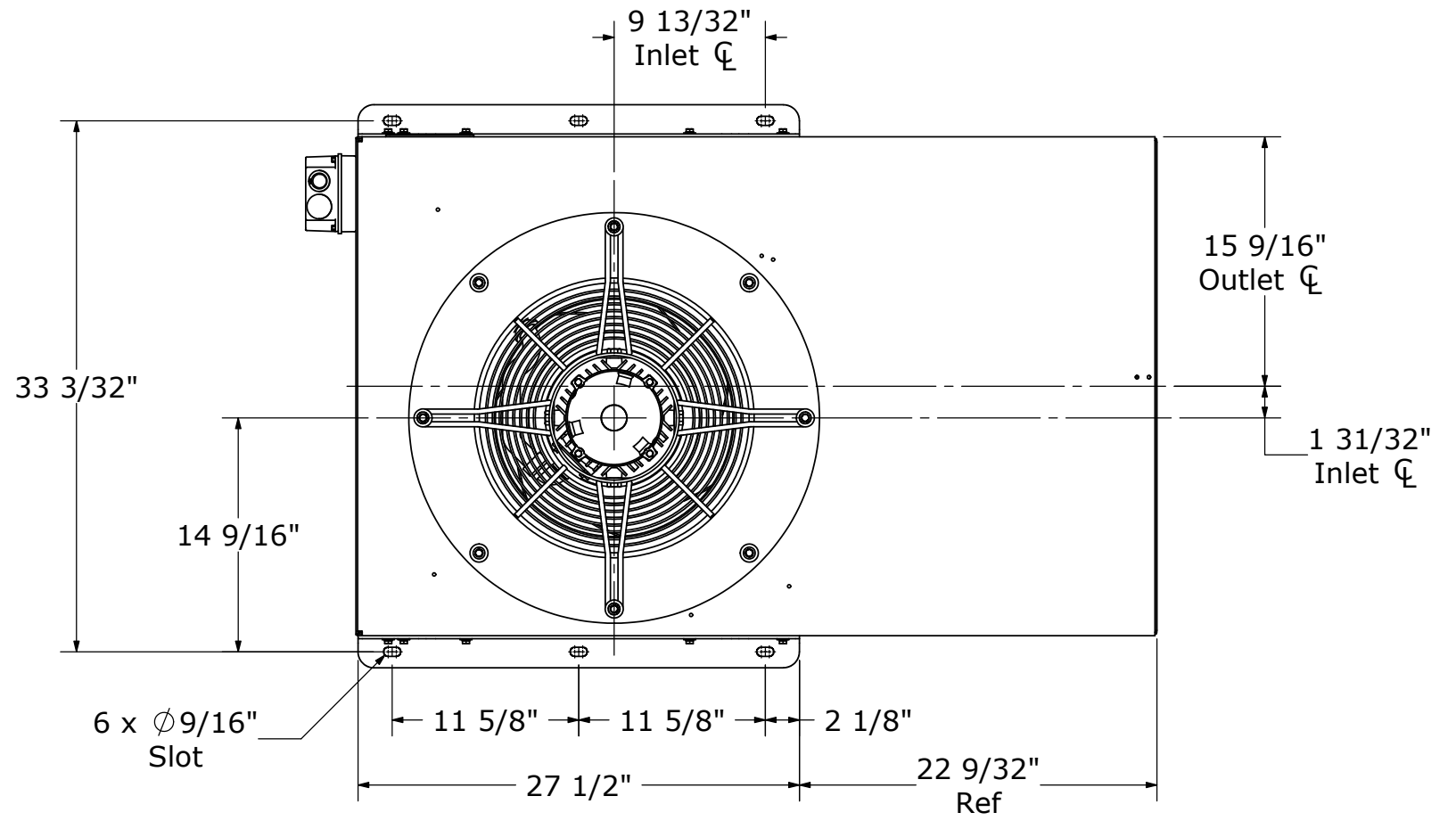
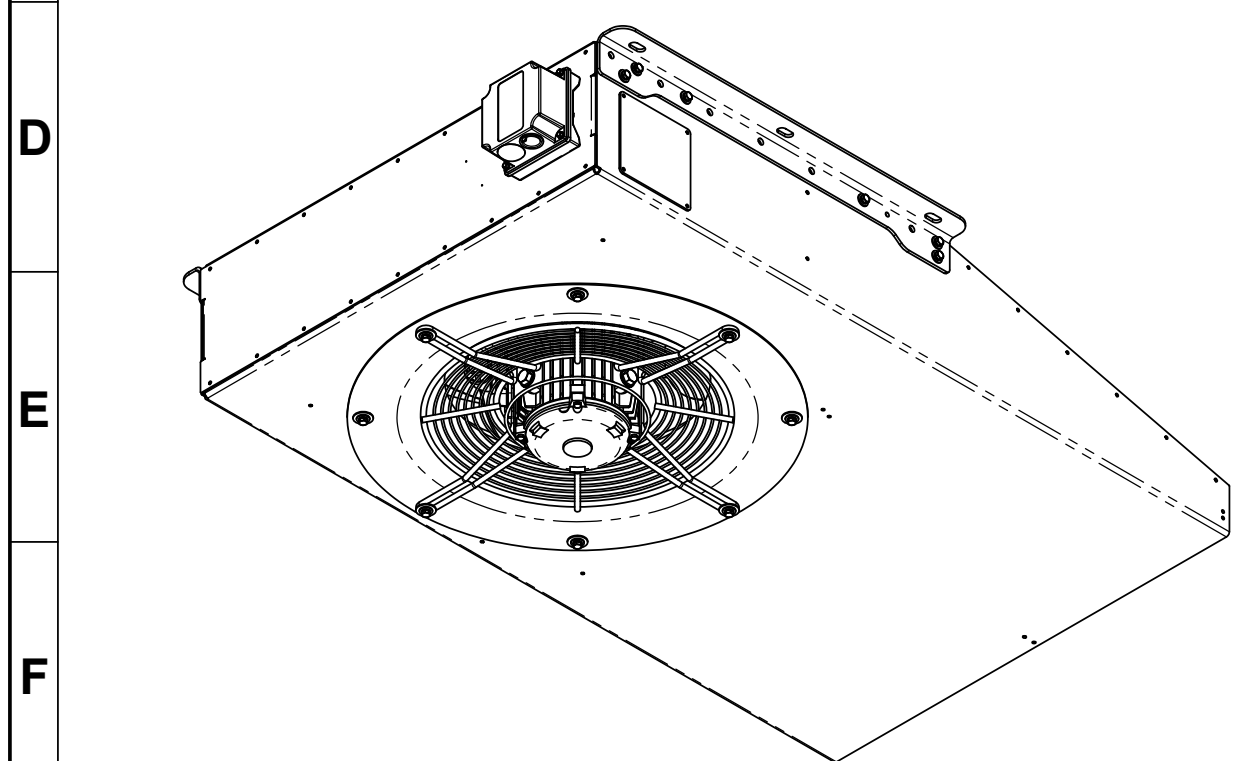
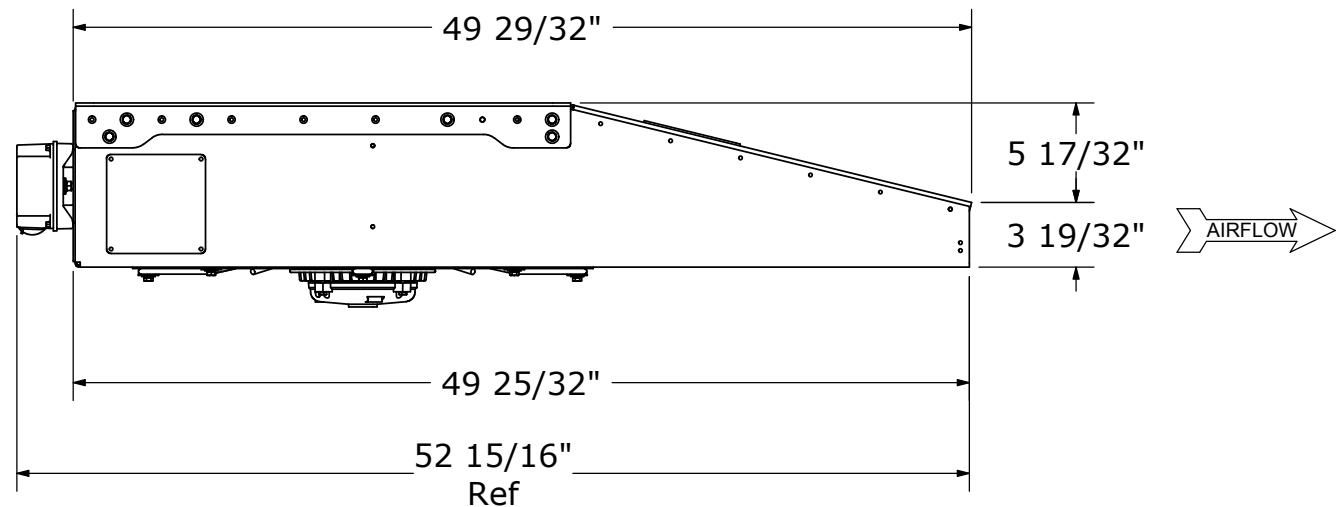
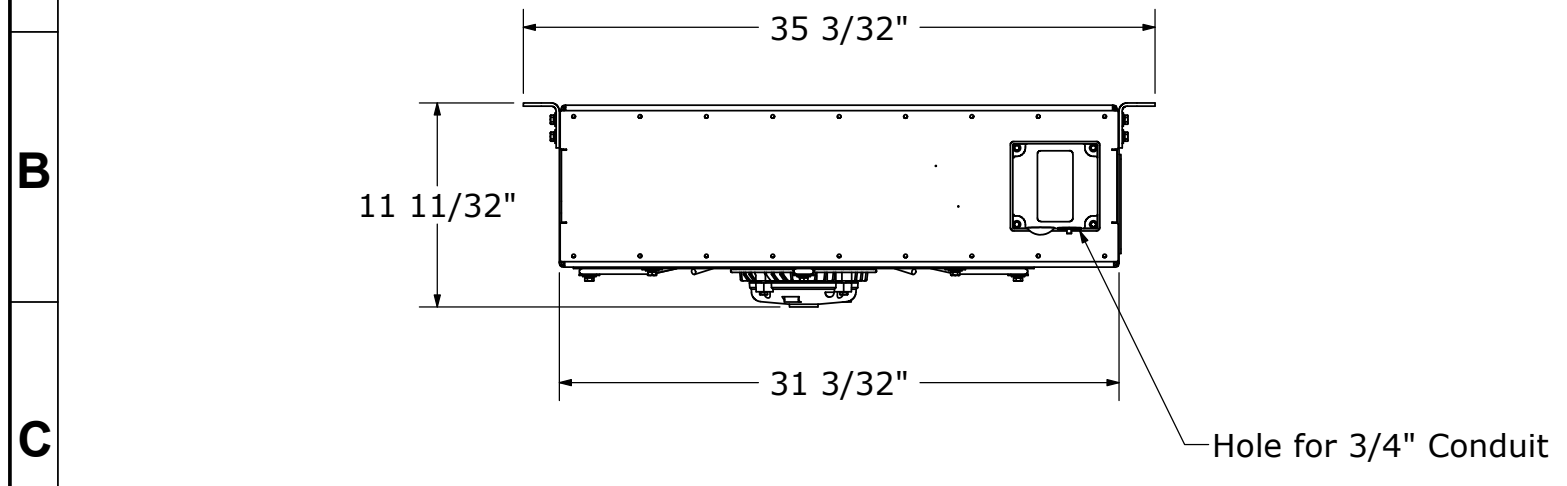
)	j		
7			
ITF-50	1		
Paint Finish	1		
UL-705	1		

1 2 3 4 5 6 7 8 9 10 11



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 ALL DIMENSIONS IN INCHES UNLESS SPECIFIED OTHERWISE. DUAL DIMENSIONS WILL BE INCHES [mm].

IF IN DOUBT ASK!



A14352 Press Brake Tooling Chart
 SLC694F Standard AFC Tolerances

Zone	Description	Revision Drawn By	Revision Approved By	Revision Date	Rev#
Varies	Added ϕ Dimensions. Revised Title Block.	CRM	CRM	08-Jul-2014	1

Howden American Fan Company
 2933 SYMMES ROAD
 FAIRFIELD, OHIO 45014
 PHONE: (513) 874-2400
 FAX: (513) 870-6249

TITLE: **ITF-50 Induction Fan**

WEIGHT-lbs: 253.29
 SCALE: 3:32
 kFactor:
 THICKNESS:
 DRAWING CREATED: 18 Nov 2013
 IBR:
 MATERIAL:

DESIGNER: C.Morrison
 DETAILED BY: C.Morrison
 APPROVED BY: C.Morrison

DRAWING/PART NUMBER:
303139-50
 SHEET 1 OF 1

REVISION LEVEL
1



CERTIFICATE OF REGISTRATION

This is to certify that

Howden American Fan Company

2933 Symmes Road, Fairfield, Ohio 45014 USA

operates a

Quality Management System

which complies with the requirements of

ISO 9001:2015

for the following scope of certification

Design, development, manufacture, service and distribution of industrial and commercial fans and blowers.

Certificate No.: CERT-0098555
File No.: 006695
Issue Date: October 17, 2016

Original Certification Date: August 17, 2004
Certification Effective Date: November 2, 2016
Certificate Expiry Date: November 1, 2019

Paul Simpson
Global Head of Policy, Risk and Compliance



ISO 9001



Registered by:
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To verify that this certificate is current, please refer to the SAI Global On-Line Certification Register: www.qmi-saiglobal.com/qmi_companies/





TERENCE DEAN
 AMERICAN FAN CO/WOODS USA
 2933 SYMMES RD
 FAIRFIELD OH 45014-2001

Date: 2016/04/29
 Subscriber: 880320001
 PartySite: 647894
 File No: E210939
 Project No: 4787401470
 PD No: 16M20742
 Type: R
 PO Number:

Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue

<u>Date</u>	<u>Vol</u>	<u>Sec</u>	<u>Pages</u>	<u>Revised Date</u>
	1		Revised Authorization Page(s)	2016/04/28
	1		Marking Data Page(s)	
	1		Revised Index Page(s) 1	2016/04/28
	1		Revised Section General Page(s) 6,7	2016/04/28
2002/05/07	1	1	Cert of Compliance	
2002/05/07	1	1	Revised Description Page(s) 1,2,3	2016/04/28
2002/05/07	1	1	New Test Record 4	2016/04/28

Inspections at your plant will be conducted under the supervision of SHERRIE MATTERNESS, AREA MANAGER, UL INSPECTION CENTER OHIO VALLEY AREA OFFICE, UL LLC, P.O. Box 14084, COLUMBUS, OH UNITED STATES 43214, PHONE: 717-405-1999, EMAIL: Sherrie.L.Matterness@UL.COM

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at <http://ul.com/aboutul/locations>.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above.

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NBK File

UL INSPECTION CENTER 326



File E210939

Vol 1

Auth. Page 1

Issued: 2002-05-07

Revised: 2016-04-29

FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

VENTILATORS, POWER
(ZACT,ZACT7)

Manufacturer: SEE ADDENDUM FOR MANUFACTURER LOCATIONS

647894 (Party Site)
Applicant: AMERICAN FAN CO/WOODS USA
(880320-001) 2933 Symmes Rd
Fairfield OH 45014-2001

647894 (Party Site)
Listee/Classified Co.: SAME AS APPLICANT
(880320-001)

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party and any applicable Service Terms. The UL Contracting Party for Follow-Up Services is listed on addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

UL further defines responsibilities, duties and requirements for both Manufacturers and UL representatives in the document titled, "UL Mark Surveillance Requirements" that can be located at the following web-site: <http://www.ul.com/fus> and in the document titled "UL and Subscriber Responsibilities" that can be located at the following website: <http://www.ul.com/responsibilities>. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the applicable Service Terms, please contact UL's Customer Service at <http://ul.com/aboutul/locations/>, select a location and enter your request, or call the number listed for that location.

The Applicant, the specified Manufacturer(s) and any Listee/Classified Co. in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable agreement is a Global Services Agreement ("GSA") with an effective date of January 1, 2012 or later and this Follow-Up Service Procedure is issued on or after that effective date, the Applicant, the specified Manufacturer(s) and any Listee/Classified Co. will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of use of the prescribed UL Mark, acceptance of the factory inspection, or payment of the Follow-Up Service fees which will incorporate such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking here: <http://www.ul.com/contracts/Terms-After-12-31-2011>. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

It is the responsibility of the Listee/Classified Co. to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

This Follow-Up Service Procedure contains information for the use of the above Manufacturer(s) and representatives of UL and is not to be used for any other purpose. It is provided to the Manufacturer with the understanding that it will be returned upon request and is not to be copied in whole or in part.

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the above named Manufacturer(s) and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

UL LLC has signed below solely in its capacity as the accredited entity to indicate that this Follow-Up Service Procedure is in compliance with the accreditation requirements.

Bruce A. Mahrenholz
Director
North American Certification Program

LOCATION

(880320-001) 647894 (Party Site)
AMERICAN FAN CO/WOODS USA
2933 Symmes Rd
Fairfield OH 45014-2001

Factory ID:
UL Contracting Party for above site is: UL LLC

(100579-199) 648068 (Party Site)
FLAKT WOODS LTD
Axial Way
Colchester
C04 5ZD UNITED KINGDOM

Factory ID: CO45ZD
UL Contracting Party for above site is: UL AG

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear on Listed products only. Minimum size is not specified, as long as the Listing Mark is legible. The following is suggested.



XXXX = The control number assigned by UL, 42ZN.

The minimum height of the registered trademark symbol ® shall be 3/64 of an inch. When the overall diameter of the UL Mark is less than 3/8 of an inch, the trademark symbol may be omitted if it is not legible to the naked eye.

The product identity is: "POWER VENTILATOR".

The product identity may be omitted if the Mark is directly and permanently applied to the product by stamping, molding, ink-stamping, silk screening or similar process. The product identity may appear elsewhere on the product if the other three elements are part of the nameplate which includes the rating or the catalog or model designation.

Separable Listing Mark (not part of a nameplate and in the form of decals, stickers or labels) will always include the four elements.

The manufacturer may reproduce the Mark or obtain it from a UL authorized supplier.

THIS PAGE IS TO BE REVISED BY FUS DEPARTMENT ONLY

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear of Listed products only. Minimum size is not specified, as long as the Listing Mark is legible. The following is suggested. (If only Canadian coverage is authorized, use only the C-UL Symbol).

UL Symbol to the left and the C-UL Symbol to the right.



Alternatively, the Canadian/US Mark may be used. The UL Symbol with "C" to the left and "US" to the right.



XXXX = The control number assigned by UL, 42ZN.

The minimum height of the registered trademark symbol ® shall be 3/64 of an inch. When the overall diameter of the UL Mark is less than 3/8 of an inch, the trademark symbol may be omitted if it is not legible to the naked eye.

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INDEX

Model	Section
JM, HG, JG or KG	1
ITF50	2

INTERNAL WIRING:

Labeled Type SO and or Recognized AWM **and CSA certified** in Listed or Recognized Component **and CSA certified** flexible metal conduit or Listed Liquid Tight Conduit or Recognized AWM when not in airstream. Listed fittings, and antishort bushing for use with flexible metal conduit or Recognized strain relief fittings for use with Type SO. Type SO cord includes a green lead for grounding. When Recognized AWM is used grounding is accomplished by grounding screw.

Recognized (YDRQ2) Heyco, Heyco Flex II, flexible nonmetallic tubing with nylon fittings may be employed inside the unit where it is not exposed to rain.

Note: Any flexible conduit which exits the unit and is exposed to the sun and rain should be Listed liquid tight conduit with Listed liquid tight fittings.

DIELECTRIC VOLTAGE WITHSTAND TEST:

General - Based on Engineering judgment, the production line Dielectric Withstand Test is not required to be performed on the models described below:

A power ventilator that has no electrical components other than a Recognized motor (PRGY2) with conduit openings and that is acceptable for permanent connection to the power supply, need not be dielectric withstand tested.

MOTORS:

See for details of motors covered.

Power ventilators shipped without motor or motor/drives attached to the ventilator shall be marked as indicated in A below:

- A. The motor (or shipping carton) shall be plainly marked with the catalog number or model designation of the ventilator(s) with which it is intended to be used. The shipping carton shall also be marked with the American Fan Woods USA name.

GENERAL (FOR ENGINEERING USE ONLY):

*This motor list contains a complete tabulation of motors which are employed in American Fan Company / Woods USA Division power ventilators. Description of the complete ventilators are in File E210939, Vol. 1, Sec. 1. Not all motors shown on these lists are employed in every ventilator.

References to this file are contained in Sec. 1. This Report serves to reduce redundant Procedure material only and provides a central location for all motors which may or may not be employed in a particular American Fan Company / Woods USA Division power ventilator.

Section A

All totally enclosed air over (TEAO) motors that are three phase, 60 Hz, insulation Class F, single speed and two speed. These motors are in the air stream.

These motors are used on the following power ventilators:

File	Vol.	Sec.
E210939	1	1

JM, KG, JG, HG

Alternate fan motors- For use on the JM series ventilators. R/C (PRGY2) **and CSA certified** WEG EQUIPAMENTOS ELETRICOS SA-MOTORES(file E104590) model series 1UTEI rated 208-230/460V, 3ph, 1/2 to 100 hp, with class F or H insulation and TEAO enclosures. Motors are provided with integral 125C wire leads.

HP	Vendor/MFR	Recognized Designation	Volt	Amps	RPM	Frame
1.5	Toshiba	AM4Y15A	208	5.6	1800	145TZ
3	Baldor	11F392W125G1	460	3.9	3450	182TZ
5	Baldor	06F392W359G1 (BM4005B)	460	6.5	1750	184TZ
5	Baldor	06F392W123G1	460	6/6.6	3450/1725	184TZ
7.5	Baldor	07H674W199G1	460	9.1	3450	215TZ
7.5	Baldor	07H674W076G2	460	10	1800	215TZ
7.5	Baldor	078674W076G1	460	10	1750	213TZ
10	Baldor	07H674W759G1 (AM4010B)	460	12.5	1750	215TZ
10	Toshiba	605010L1DPTD	575	10.4	1200	284TZ
10	Toshiba	07H674N100C1	460	13.5	1725	215TZ
10	Toshiba	BM6010BRB	460	13	1175	256TZ
25	Baldor	16L002W220G1	460	73	1160	404TYZ
25	Baldor	1ZR067W4881	460	31	1175	324TZ
25	Baldor	16L002W162G1	460	66	1175	404TYZ
25	Baldor	12R067W939G1	460	32	1180	324TZ
100	Toshiba	BM6100B	460	123	1200	444TZ
125	Toshiba	8N4125L1DPFFTD	460	193	887	447TCZ
200	Toshiba	BC6200BPW	460	250	1185	447TZ

Toshiba File E133052; Baldor File E46145 (PRGY2) (OBJY2)

Also, see Toshiba Table 1 and Baldor Table 2 tables below for additional motors to be used.

PRODUCT COVERED:

USL, CNL, Power ventilators, duct mounted or roof mounted, direct drive, Models 31, 35, 40, 45, 50, 56, 63, 71, 80, 90, 100, 112, 125, 140, 160, 180, 200, 224; followed by JM, HG, JG **or** KG; followed by 16, 20, 25, 31, 40, 50, 56, 71; may or may not be followed by A, followed by 2, 4, 6, 8; followed by 3 through 16; may or may not be followed by 8, 16 through 40.

JM models are labeled "roof ventilator" and include the following model upblast doors for the appropriate sizes: 315, 350, 400, 450, 500, 560, 630, 710, 800, 900, 1000, 1200, 1250, 1400, 1600, 1800, 2000, 2240; followed by -JM. See ILL. 8.

GENERAL -

These products have been evaluated in accordance with UL 705, 6th Edition, dated January 14, 2004, including revisions December 17, 2013 and are eligible for USL (United States Standards-Listed). These products were also evaluated to CSA Standard C22.2 No. 113-12 dated August 2012 and Update No. 1, dated October 2012 and are eligible for CNL (Canadian National Standards-Listed).

MODEL NOMENCLATURE:

Example: 63KG40A-6-6 or 63JM/16/6/5

<u>63</u>	<u>KG</u>	<u>40</u>	<u>A</u>	<u>6</u>	<u>6</u>
1	2	3	4	5	6

- 1 Fan diameter in centimeters
31 through 224
- 2 Model series
JM, HG, JG, KG (G models include Guide vanes) J, H, K indicate impeller type, and hub to tip ratio, see ILLS. 8 (J, M) or 9 (K, H, J).
- 3 Hub diameter in centimeters
16 through 71
- 4 Hub material
A or blank = aluminum
- 5 No. of Poles = speed RPM
2 = 3500
4 = 1770
6 = 1170
8 = 875
- 6 Number of blades
3 to 16

May be followed by additional digits indicating blade pitch angle in degrees 8, 16 through 40.

*

SPACINGS: See Sec. Gen.

DATE CODE MARKING:

See Sec. Gen.

PERMANENCY OF MARKING:

See Sec. Gen.

CATALOGS:

Catalogs, etc., included in this Report are for illustrative purposes only and are not to be constructed as Recognition of any construction, option, catalog number, or other feature not specifically described in the description portion of this section, except for horsepower ratings and accessories.

CONDUIT OPENING:

See Sec. Gen.

ENGINEERING CONSIDERATIONS:

These ventilators are intended for indoor and outdoor use.

See Sec. Gen. for field wiring.

ASSEMBLY:

The units are completely assembled. Refer to ILL. 4 for dimensions.

MARKING:

See Sec. Gen.

- A. "CAUTION - Mount with the lowest moving part at least 8 ft (2.4 m) above floor or grade level."

MOTORS:

- A. Motor horsepower must match the value shown in catalogs, ILLS. 8 or 9 for the ventilator being inspected.

- B. The following table applies to motor construction.

TABLE I

Motor Type (+)	Type of Inherent Protection Provided
Totally enclosed air over (TEAO)	Auto-reset, running & locked rotor (#) (##) or marked for remote motor-overload protection, see "Marking A"

*

(+) - All motors are Recognized (PRGY2) construction. Ventilator models covered and marked for CNL Canadian certification employ only Recognized (PRGY2) and CSA Certified WEG fan motors with Class F or H insulation and TEAO or TEFC enclosures.

(#) - Thermal protection, inherent overheating type (XEWR2).

(##)- For direct drive ventilator, locked rotor only required.

JM MODEL DIRECT DRIVE VENTILATOR:

General - The general design, shape and arrangement shall be as illustrated in Fig. 1. See illustrations for individual dimensions of roof mounted butterfly doors, windband and mounts.

*Motors - Refer to the "Motor Description" in the Section General of file E210939, Vol. 1, Sec. Gen. for a list of the motors used in the ventilator models described in this report. The motor is centered inside the the ventilator housing by L-shaped brackets as shown in figure 1. The brackets are secured to the motor and ventilator housing by bolts.

Alternate Fan Motor Mounting Method - Shown in Figure 7. - The motor is bolted to a foot/pad mounted painted steel bracket that is welded to the inside of the ventilator housing.

Field Wiring Compartment - Listed Type 3R or 4 enclosure with Listed general use switch, Listed motor controller with rating suitable for the motor controlled. Listed Type 1 enclosure may be used for indoor use applications.

Conduit - Listed or Recognized Component liquid tight, for use with alternate 3R or 4 enclosure field wiring compartment above.

Internal Wiring - Wiring is included with Recognized motor as received from motor manufacturer. Also see Sec. Gen. for grounding.

Ventilator Housing - Wind band and fan housing/casing are painted steel, stainless steel or aluminum. Minimum thickness is 12 gauge. An optional silencer assembly, formed from the same material as the housing, may be bolted to the discharge end of the ventilator. See Ill. 10 for details.

Corrosion Protection - Unit housings shall be galvanized R/C G60 or A60 where the whole unit is dipped prior to motor installation. Minimum thickness of coating is 0.00041 in. (0.010 mm) on each surface.

Blades - Cast aluminum or steel. See Ills. 3 and 3A.

Air Deflector Assembly - (Optional). See Ill. 11 for details. The air deflector is bolted to the discharge end of the ventilator housing or silencer assembly.

CERTIFICATE OF COMPLIANCE

Certificate Number 20160429-E210939
Report Reference E210939-20020507
Issue Date 2016-APRIL-29

Issued to: AMERICAN FAN CO/WOODS USA
2933 Symmes Rd
Fairfield OH 45014-2001

This is to certify that representative samples of VENTILATORS, POWER
See Addendum Page for Models/Product

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 705, Power Ventilators.
CSA C22.2 No. 113-12, Fans and Ventilators

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20160429-E210939
Report Reference E210939-20020507
Issue Date 2016-APRIL-29

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

USL, CNL, Power ventilators, duct mounted or roof mounted, direct drive, Models 31, 35, 40, 45, 50, 56, 63, 71, 80, 90, 100, 112, 125, 140, 160, 180, 200, 224; followed by JM, HG, JG or KG; followed by 16, 20, 25, 31, 40, 50, 56, 71; may or may not be followed by A, followed by 2, 4, 6, 8; followed by 3 through 16; may or may not be followed by 8, 16 through 40.

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Bruce Mahrenholz, Director North American Certification Program

UL LLC

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PRODUCT COVERED:

USL, CNL, Power ventilators, duct mounted or roof mounted, direct drive, Models 31, 35, 40, 45, 50, 56, 63, 71, 80, 90, 100, 112, 125, 140, 160, 180, 200, 224; followed by JM, HG, JG **or** KG; followed by 16, 20, 25, 31, 40, 50, 56, 71; may or may not be followed by A, followed by 2, 4, 6, 8; followed by 3 through 16; may or may not be followed by 8, 16 through 40.

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<u>63</u>	<u>KG</u>	<u>40</u>	<u>A</u>	<u>6</u>	<u>6</u>
1	2	3	4	5	6

- 1 Fan diameter in centimeters
31 through 224
- 2 Model series
JM, HG, JG, KG (G models include Guide vanes) J, H, K indicate impeller type, and hub to tip ratio, see ILLS. 8 (J, M) or 9 (K, H, J).
- 3 Hub diameter in centimeters
16 through 71
- 4 Hub material
A or blank = aluminum
- 5 No. of Poles = speed RPM
2 = 3500
4 = 1770
6 = 1170
8 = 875
- 6 Number of blades
3 to 16

May be followed by additional digits indicating blade pitch angle in degrees 8, 16 through 40.

*

SPACINGS: See Sec. Gen.

DATE CODE MARKING:

See Sec. Gen.

PERMANENCY OF MARKING:

See Sec. Gen.

CATALOGS:

Catalogs, etc., included in this Report are for illustrative purposes only and are not to be constructed as Recognition of any construction, option, catalog number, or other feature not specifically described in the description portion of this section, except for horsepower ratings and accessories.

CONDUIT OPENING:

See Sec. Gen.

ENGINEERING CONSIDERATIONS:

These ventilators are intended for indoor and outdoor use.

See Sec. Gen. for field wiring.

ASSEMBLY:

The units are completely assembled. Refer to ILL. 4 for dimensions.

MARKING:

See Sec. Gen.

- A. "CAUTION - Mount with the lowest moving part at least 8 ft (2.4 m) above floor or grade level."

MOTORS:

- A. Motor horsepower must match the value shown in catalogs, ILLS. 8 or 9 for the ventilator being inspected.

- B. The following table applies to motor construction.

TABLE I

Motor Type (+)	Type of Inherent Protection Provided
Totally enclosed air over (TEAO)	Auto-reset, running & locked rotor (#) (##) or marked for remote motor-overload protection, see "Marking A"

*

(+) - All motors are Recognized (PRGY2) construction. Ventilator models covered and marked for CNL Canadian certification employ only Recognized (PRGY2) and CSA Certified WEG fan motors with Class F or H insulation and TEAO or TEFC enclosures.

(#) - Thermal protection, inherent overheating type (XEWR2).

(##)- For direct drive ventilator, locked rotor only required.

JM MODEL DIRECT DRIVE VENTILATOR:

General - The general design, shape and arrangement shall be as illustrated in Fig. 1. See illustrations for individual dimensions of roof mounted butterfly doors, windband and mounts.

*Motors - Refer to the "Motor Description" in the Section General of file E210939, Vol. 1, Sec. Gen. for a list of the motors used in the ventilator models described in this report. The motor is centered inside the the ventilator housing by L-shaped brackets as shown in figure 1. The brackets are secured to the motor and ventilator housing by bolts.

Alternate Fan Motor Mounting Method - Shown in Figure 7. - The motor is bolted to a foot/pad mounted painted steel bracket that is welded to the inside of the ventilator housing.

Field Wiring Compartment - Listed Type 3R or 4 enclosure with Listed general use switch, Listed motor controller with rating suitable for the motor controlled. Listed Type 1 enclosure may be used for indoor use applications.

Conduit - Listed or Recognized Component liquid tight, for use with alternate 3R or 4 enclosure field wiring compartment above.

Internal Wiring - Wiring is included with Recognized motor as received from motor manufacturer. Also see Sec. Gen. for grounding.

Ventilator Housing - Wind band and fan housing/casing are painted steel, stainless steel or aluminum. Minimum thickness is 12 gauge. An optional silencer assembly, formed from the same material as the housing, may be bolted to the discharge end of the ventilator. See Ill. 10 for details.

Corrosion Protection - Unit housings shall be galvanized R/C G60 or A60 where the whole unit is dipped prior to motor installation. Minimum thickness of coating is 0.00041 in. (0.010 mm) on each surface.

Blades - Cast aluminum or steel. See Ills. 3 and 3A.

Air Deflector Assembly - (Optional). See Ill. 11 for details. The air deflector is bolted to the discharge end of the ventilator housing or silencer assembly.

TEST RECORD NO.

This test record covers the addition of Canadian Listing, CNL for models direct drive ventilator models 31, 35, 40, 45, 50, 56, 63, 71, 80, 90, 100, 112, 125, 140, 160; followed by JM, HG, JG, KG; followed by 16, 20, 25, 31, 40, 50; may or may not be followed by A, followed by 2, 4, 6, 8; followed by 3 through 12; may or may not be followed by 8, 16, or 24 through 36 employing only Recognized(PRGY2) and CSA certified WEG fan motors with Class F or H insulation systems and TEAO or TEFC enclosures.

GENERAL:

Test results relate only to the items tested.

Additional over and undervoltage temperature tests in accordance with CSA C22.2 No. 113-12 were waived in view of previous results. Refer to file MH46264, Report dated 2008-04-10, Test Record No. 2 for details.

Test Record Summary:

The results of this investigation indicate the products evaluated comply with the applicable requirements in UL 705, Sixth Edition, including revisions dated December 17, 2013, and CSA C22.2 No. 113-12, 9th edition, dated August 2012, including update No. 1 dated October 2012. Therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Test Record by:

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Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.