SHELDONS ENGINEERING Inc.

Sheldons Engineering Product Index www.sheldonsengineering.com

TYPICAL SPECIFICATION VANEAXIAL FANS –9600 Aluminum Wheel

GENERAL

The fans shall be (direct/belt) driven vaneaxial type as designed and manufactured by Sheldons Engineering to ensure smooth operation. Fan wheels shall be aluminum with airfoil cross-section blades in all sizes. Unless otherwise directed, fans shall have the arrangement, motor position and orientation as shown on the layout drawings. Wheels have fixed or adjustable pitch with stoppers. Wheels have fixed or adjustable pitch with stoppers.

PERFORMANCE

Fan ratings shall be based on tests made in accordance with AMCA Standard 210. Flow shall be actual volumetric flow at the fan inlet. Fan static pressure is defined as static pressure at fan outlet less total pressure at fan inlet. Standard inlet density is to be taken as 0.75 lb/ft^3 with corrections for temperature, elevation, inlet static pressure, gas composition and humidity as defined in the schedule. Fans shall be selected to operate to the right of the peak static pressure at the given speed to ensure stable performance. Fan brake horsepower shall be equal to or less than specified at the given flow and fan static pressure.

SOUND

Fan manufacturers shall provide sound power level ratings for fans tested and rated in accordance with AMCA Standards 300 and 301. Sound power ratings shall be in decibels (reference 10-12 watts) in eight octave bands. Sound power levels will be corrected for installation by the specifying engineer...dBA or sound pressure levels only are not acceptable.

CONSTRUCTION

Fan housings are to be heavy—min. 10 gauge, continuously welded construction with flanged and punched inlet and outlet. Housings with lock seams or spot welded construction are not acceptable. Aerodynamically designed straightening vanes are to be integral to the fan housing.

Adjustable pitch fans shall have individually adjustable blades will be adjustable when fan is at rest. Fan blades are to be cast aluminum alloy. Blades shall be airfoil shape for maximum efficiency. Blade shall have an index mark cast into the hub for setting position of blade. Hubs are to be cast aluminum alloy and machined to accept blades. Rotors shall be attached to motor shaft by use of split, taper-lock Q-D bushing.

BEARINGS (belt driven fans)

Bearings are to be heavy duty, grease lubricated, precision anti-friction deep grove ball or spherical roller, self-aligning design. Bearings shall be designed for a minimum L-10 life of 40,000 when rated at the fan's maximum cataloged operating speed. (L-10 equals 15,000 for Class I 12” to 30”).

SHAFT (belt driven fans)

Shafts are to be ASTM A-108 steel, grade 1040/1045, precision turned, ground and polished. Grade 1018 steel is not acceptable. The shaft's first critical speed shall be at least 143% of the fan's maximum operating speed.

SHELDONS ENGINEERING Inc.

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TYPICAL SPECIFICATION VANEAXIAL FANS –9600 Aluminum Wheel

PAINT

All fan surfaces are to be thoroughly prepared prior to painting using a combination of washing and hand and power tool cleaning as required in SSPC-SP-3. After cleaning, all surfaces (except wheel) are to be coated with industrial grade alkyd enamel. Surfaces of bolted components not accessible after assembly shall be coated and allowed to dry prior to final assembly. Primer only will not be accepted.

BALANCE & INSPECTION

All fans shall be precision balanced and have a final inspection by a qualified inspector prior to shipment. Inspection to include: scope of supply confirmation, balance, welding, dimensions, bearings, duct and base connection points, paint finish and overall workmanship.

ACCESSORIES

Accessories shall be provided as called for in the plans and specifications. Standard accessories include:

Motor to be NEMA Design B 3/60/460-575V-1800 rpm, high efficiency TEFC 1.15 SF
V-Belt Drives - Variable Speed/Constant Speed with min 1.5 SF
Belt Guard or weather cover required on belt driven fans
Extended lubrication lines (nylon, copper or stainless steel) with fittings terminating in an accessible area. (belt driven fans only)

Additional Features that may be required:

Access Door – bolted/quick opening or plug type with raised door
Drain – internal thread pipe coupling with plug if required
Companion Flange (angle companion flange bolted to the fan inlet or outlet flange)
Inlet or Outlet screen heavy gauge wire on 2” centres
Inlet Bell streamlined for smooth air flow, flanged and bolted to the fan inlet
Inlet or Outlet Cone suitable to support the fan weight in vertical or horizontal position and is bolted to the fan
Above 500°F, high temperature aluminum paint required
Vibration Isolation - Spring - Rubber-In-Shear
Horizontal mounting feet
Horizontal or vertical mounting lugs.
Accoustic cladding on fan or accoustic cones.
Spark Resistant Construction –
- AMCA “A” All parts of the fan in contact with the air stream non-ferrous material
- AMCA “B” Non-ferrous wheel and aluminum rubbing ring where shaft passes through housing
- AMCA “C” Aluminum inlet cone and aluminum rubbing ring

SHELDONS ENGINEERING Inc.

TYPICAL SPECIFICATION TUBEAXIAL FANS –9600 Aluminum Wheel

GENERAL

The fans shall be (direct/belt) driven tubeaxial type as designed and manufactured by Sheldons Engineering to ensure smooth operation. Fan wheels shall be aluminum with airfoil cross-section blades in all sizes. Unless otherwise directed, fans shall have the arrangement, motor position and orientation as shown on the layout drawings. Wheels have fixed or adjustable pitch with stoppers.

PERFORMANCE

Fan ratings shall be based on tests made in accordance with AMCA Standard 210. Flow shall be actual volumetric flow at the fan inlet. Fan static pressure is defined as static pressure at fan outlet less total pressure at fan inlet. Standard inlet density is to be taken as 0.75 lb/ft^3 with corrections for temperature, elevation, inlet static pressure, gas composition and humidity as defined in the schedule. Fans shall be selected to operate to the right of the peak static pressure at the given speed to ensure stable performance. Fan brake horsepower shall be equal to or less than specified at the given flow and fan static pressure.

SOUND

Fan manufacturers shall provide sound power level ratings for fans tested and rated in accordance with AMCA Standards 300 and 301. Sound power ratings shall be in decibels (reference 10-12 watts) in eight octave bands. Sound power levels will be corrected for installation by the specifying engineer...dBA or sound pressure levels only are not acceptable.

CONSTRUCTION

Fan housings are to be heavy – min 12 gauge, continuously welded construction with flanged and punched inlet and outlet. Housings with lock seams or spot welded construction are not acceptable.

Adjustable pitch fans shall have individually adjustable blades will be adjustable when fan is at rest. Fan blades are to be cast aluminum alloy. Blades shall be airfoil shape for maximum efficiency. Blade shall have an index mark cast into the hub for setting position of blade. Hubs are to be cast aluminum alloy and machined to accept blades. Rotors shall be attached to motor shaft by use of split, taper-lock Q-D bushing.

BEARINGS (belt driven fans)

Bearings are to be heavy duty, grease lubricated, precision anti-friction deep grove ball or spherical roller, self-aligning design. Bearings shall be designed for a minimum L-10 life of 100,000 when rated at the fan's maximum cataloged operating speed.

SHAFT (belt driven fans)

Shafts are to be ASTM A-108 steel, grade 1040/1045, precision turned, ground and polished. Grade 1018 steel is not acceptable. The shaft's first critical speed shall be at least 143% of the fan's maximum operating speed.

SHELDONS ENGINEERING Inc.

Sheldons Engineering Product Index www.sheldonsengineering.com

TYPICAL SPECIFICATION TUBEAXIAL FANS –9600 Aluminum Wheel

PAINT

All fan surfaces are to be thoroughly prepared prior to painting using a combination of washing and hand and power tool cleaning as required in SSPC-SP-3. After cleaning, all surfaces (except wheel) are to be coated with industrial grade alkyd enamel. Surfaces of bolted components not accessible after assembly shall be coated and allowed to dry prior to final assembly. Primer only will not be accepted.

BALANCE & INSPECTION

All fans shall be precision balanced to ISO quality grade 2.5, report to be submitted with the maintenance manual. A final inspection by a qualified inspector prior to shipment is required to include: scope of supply confirmation, balance, welding, dimensions, bearings, duct and base connection points, paint finish and overall workmanship.

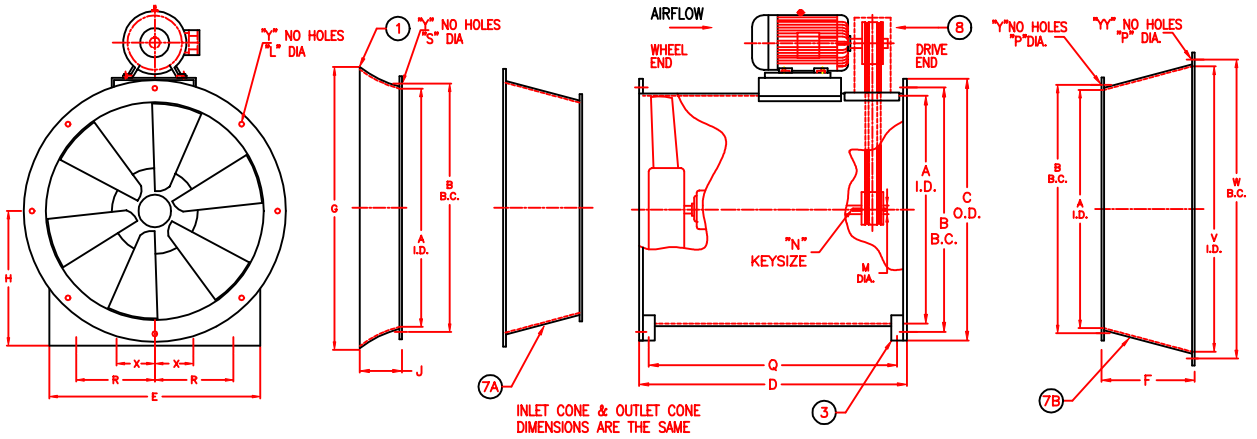
ACCESSORIES

Accessories shall be provided as called for in the plans and specifications. Standard accessories include:

Motor to be NEMA Design B 3/60/460-575V-1800 rpm, high efficiency TEFC 1.15 SF
V-Belt Drives - Variable Speed/Constant Speed with min 1.2 SF
Belt Guard or weather cover required on belt driven fans
Extended lubrication lines (nylon, copper or stainless steel) with fittings terminating in an accessible area. (belt driven fans only)

Additional Features that may be required:

Access Door – bolted/quick opening or plug type with raised door
Drain – internal thread pipe coupling with plug if required
Companion Flange (angle companion flange bolted to the fan inlet or outlet flange)
Inlet or Outlet screen heavy gauge wire on 2” centres
Inlet Bell streamlined for smooth air flow, flanged and bolted to the fan inlet
Inlet or Outlet Cone suitable to support the fan weight in vertical or horizontal position and is bolted to the fan
Above 500°F, high temperature aluminum paint required
Vibration Isolation - Spring - Rubber-In-Shear
Horizontal mounting feet/ Suspension lugs for horizontal or vertical mounting
Spark Resistant Construction –
- AMCA “A” All parts of the fan in contact with the air stream non-ferrous material
- AMCA “B” Non-ferrous wheel and aluminum rubbing ring where shaft passes through housing with shaft seal



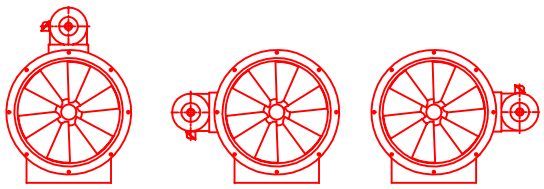
DIMENSION - INCHES

FAN SIZE	WHEEL DIA.	A	B	C	D	E	F	G	H	J	L	R	Q	V	W	X	Y	YY	Z
15	14 7/8	15	16 11/16	18	19	14	–	–	13	–	7/16	4	16	–	–	–	8	–	2
18 1/4	18 9/64	18 1/4	20	21 1/2	21	18	11 9/16	23 5/8	14	3 21/32	7/16	6	18	22 1/4	24 5/16	–	8	12	2
20	19 7/8	20	22	23 1/4	23	22 1/2	12 15/16	26 1/8	16	4	7/16	8 1/4	20	24 1/2	26 3/8	–	12	12	2
24 1/2	24 11/32	24 1/2	26 3/8	28	31 1/16	25	15 7/8	31 3/8	18	4 29/32	7/16	9 1/2	28 1/16	30	32	–	12	16	3
27	26 27/32	27	29	30 1/2	31 1/16	28	17 1/4	34 1/16	20	5 13/32	7/16	11	28 1/8	33	35	–	12	16	3
30	29 13/16	30	32	33 1/2	34 1/2	31	18 5/16	38 5/16	22	8	7/16	12 1/2	31 9/16	36 1/2	38 3/8	–	16	16	3
33	32 13/16	33	35	36 1/2	37 15/16	31	20 13/16	41 13/16	24	8	7/16	12 1/2	34 1/4	40 1/4	42 7/8	–	16	24	3
36 1/2	36 1/4	36 1/2	38 3/8	40 1/2	42	34	23 5/16	46 5/16	26	8	7/16	13	38 5/16	44 1/2	47 1/8	–	16	24	3
40 1/4	39 31/32	40 1/4	42 7/8	44 3/4	46 1/2	38	25 1/16	51 1/4	29	8	9/16	15	41 1/4	49	51 9/16	5	24	24	4
44 1/2	44 7/32	44 1/2	47 1/8	49	51 3/8	40	27 15/16	57 3/4	31	8 15/16	9/16	15 1/2	46 1/8	54 1/4	56 13/16	5 1/2	24	24	4
49	48 21/32	49	51 9/16	54	56 9/16	44	31 1/16	63 1/16	34	9 13/16	9/16	17	51 3/16	60	63 1/8	6	24	32	4
54 1/4	53 7/8	54 1/4	56 13/16	59 1/4	62 5/8	48	33 5/8	70 1/8	38	10 7/8	9/16	18 1/2	57 1/4	66	69 5/8	6 1/2	24	32	4

FAN SIZE	M-SHAFT DIA.		N-KEY SIZE		P	S
	CL I	CL II	CL I	CL II		
15	15/16	1 3/16	1/4 x 1/4 x 1 3/4	1/4 x 1/4 x 1 3/4	–	–
18 1/4	1 13/16	1 3/16	1/4 x 1/4 x 2	1/4 x 1/4 x 1 3/4	5/8	9/16
20	1 13/16	1 7/16	1/4 x 1/4 x 2	3/8 x 3/8 x 2 3/4	5/8	9/16
24 1/2	1 7/16	1 7/16	3/8 x 3/8 x 2 3/4	3/8 x 3/8 x 3 3/4	5/8	9/16
27	1 7/16	1 15/16	3/8 x 3/8 x 3 3/4	1/2 x 1/2 x 4 1/4	5/8	9/16
30	1 7/16	1 15/16	3/8 x 3/8 x 3 3/4	1/2 x 1/2 x 4 1/4	5/8	9/16
33	1 11/16	1 15/16	3/8 x 3/8 x 4 3/4	1/2 x 1/2 x 6	5/8	9/16
36 1/2	2 3/16	2 3/16	1/2 x 1/2 x 5 1/4	1/2 x 1/2 x 6	5/8	9/16
40 1/4	2 3/16	2 11/16	1/2 x 1/2 x 5 1/4	5/8 x 5/8 x 6 1/2	3/4	11/16
44 1/2	2 3/16	2 15/16	1/2 x 1/2 x 7 1/2	5/8 x 5/8 x 7 1/2	3/4	11/16
49	2 7/16	3 7/16	5/8 x 5/8 x 7 1/2	7/8 x 7/8 x 7 1/2	3/4	11/16
54 1/4	2 7/16	3 7/16	5/8 x 5/8 x 7 1/2	7/8 x 7/8 x 7 1/2	3/4	11/16

POSITION 1 FURNISHED AS STANDARD UNLESS OTHER-WISE NOTED

MOTOR POSITION LOOKING AT DRIVE END



ITEM NO.	IDENTIFICATION	FAN DATA		CLASS	PERFORMANCE						DRIVE DATA				MTR. POS.
		SIZE	MODEL		CFM	OV	SP	RPM	TEMP.	ELEV.	MOTOR PULLEY	FAN PULLEY	BELT	CENTER	

ITEM NO.	MOTOR DATA					SPECIAL FEATURES
	HP	RPM	CURRENT	FRAME	‡ ENCL.	

NOTES

SPECIAL FEATURES

1. STREAMLINED INLET
2. WIRE GUARDS
2A) CASING MOUNTED–INLET
2B) CASING MOUNTED–DISCHARGE
2C) ACCESSORY MOUNTED
3. MOUNTED FEET SPECIFY MOTOR POSITION BELOW
4. HORIZONTAL MOUNTING LUGS
5. SHAFT SEAL
6. WEATHER COVER
7. INSULATED & SEALED BELT TUNNEL
8. HEAT TRACING WIRE
9. ACCESS DOOR
9A) QUICK RELEASE
9B) SPRAY BOOTH
10. ALUMINUM WHEEL
11. CONE(S) (N/A SIZE 15)
11A) INLET
11B) DISCHARGE
12. EXTERNAL BELT GUARD
13. SPECIAL FINISH
14. MOUNT MOTOR(S) & (DRIVE(S)
15. VERTICAL MOUNTIG LUG
16. EXT. GREASE LINES

CUSTOMER _____

P.O.# _____

JOB NAME _____

LOCATION _____

SERIES 9600
VANE AXIAL AIRFOIL FAN ARR 9
CLASS I & II SIZES 15 - 54 1/4

SHELDONS ENGINEERING
www.sheldonsengineering.com
sales@sheldonsengineering.com

FURNISHED FOR SALES PURPOSES–DIMENSIONS NOT CERTIFIED BY S.E.	DATE	SUBMITTED BY	SALES OFFICE
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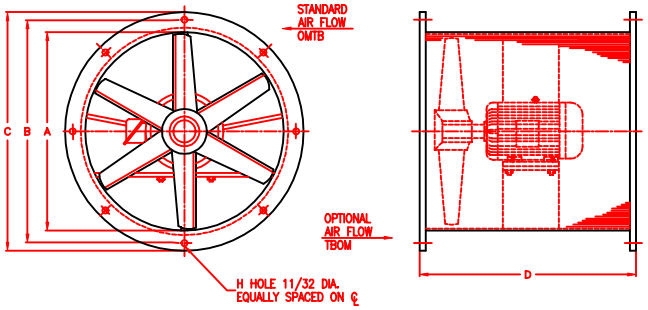
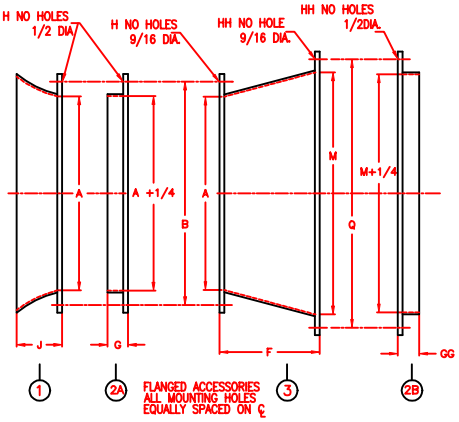
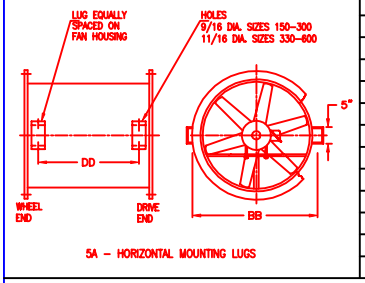
DRAWING CERTIFIED BY S.E. APPROVAL –NOT REQUIRED–RELEASED FOR PRODUCTION	DATE	ENGINEER	DWG#

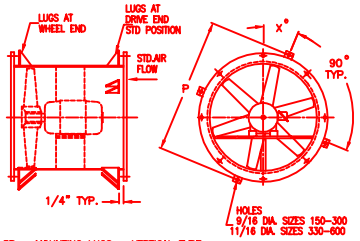




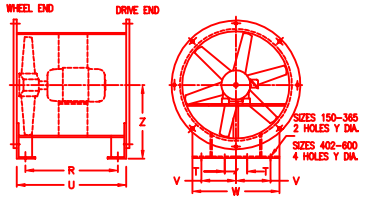


5A – HORIZONTAL MOUNTING LUGS

FAN SIZE	BB	DD
15	17 1/8	16 7/8
18 1/4	20 7/8	16 7/8
20	22 1/8	16 7/8
24 1/2	27 1/4	16 3/8
27	29 7/8	16 3/8
30	32 7/8	17 7/8
33	35 13/16	28 7/16
36 1/2	39 1/16	28 7/16
40 1/4	43 3/16	31 7/8
44 1/2	47 1/2	31 7/8
49	52	31 7/8
54 1/2	57 1/4	31 7/8
60	63 1/16	35 3/8



5B – MOUNTING LUGS – VERTICAL TYPE
SPECIFY POSITION IF NOT STANDARD



5C – MOUNTING FEET
SPECIFY O'CLOCK POSITION IF NOT STANDARD MUST BE CENTERED ON BOLT HOLE

STD.POSITION 6 O'CLOCK VIEWED FROM DRIVE END

DIMENSION - INCHES

FAN SIZE	WHEEL DIA.	MAX. FR.	A I.D.	B B.C.	C O.D.	D	F	G	GG	H	HH	J	M	P B.C.	Q B.C.	R	T	U	V	W	X DEG.	Y	Z
15	14 5/8	184	14 7/8	16 3/4	17 7/8	19	9 3/4	1 1/2	1 1/2	8	8	4 1/4	18 1/4	20 7/8	20 1/8	17 1/8		18 7/8	3 1/2	10	18	1/2	13 1/4
18 1/4	18	184	18 1/4	20 1/8	21 1/4	19	11 9/16	1 1/2	1 1/2	8	8	5 1/4	22 1/4	24 1/4	24 1/8	17 1/8		18 7/8	4 5/8	12 1/4	18	1/2	14 7/8
20	19 3/4	213	20	21 7/8	23	19	12 15/16	1 1/2	1 1/2	8	16	5 3/4	24 1/2	26	26 3/8	17 1/8		18 7/8	5 1/8	13 1/4	19	1/2	16 1/8
24 1/2	24 1/4	213	24 1/2	26 3/8	27 1/2	19	15 7/8	1 1/2	2	16	24	5 3/4	30	30 1/2	32	17 1/8		18 7/8	6 1/4	16 1/2	11 1/2	5/8	18 1/4
27	26 3/4	254	27	29	30	19	17 1/4	2	2	16	24	6 7/8	33	33	35	17 1/8		18 7/8	7	18	11 1/2	5/8	20 7/8
30	29 3/4	256	30	32	33	20 1/2	18 5/16	2	2	24	24	6 7/8	36 3/8	36	38 3/8	17 1/8		20 3/8	8	20	7 1/2	5/8	22 3/4
33	32 3/4	256	33	35	36	31 1/16	20 13/16	2	2	24	24	6 7/8	40 1/4	40 7/16	40 1/4	27 11/16		30 15/16	8 3/8	20 3/4	7 1/2	5/8	23 1/2
36 1/2	36	286	36 3/8	38 3/8	39 3/8	31 1/16	23 5/16	2	2	24	24	6 7/8	44 1/2	43 13/16	46 1/2	27 5/8		30 7/8	9	24	7 1/2	5/8	26
40 1/4	39 7/8	324	40 1/4	42 1/4	43 1/4	35	25 1/16	2	2	24	24	6 7/8	49	47 15/16	51	30 9/16	3 3/4	34 13/16	11 1/4	26 1/2	7 1/2	3/4	28 3/8
44 1/2	44 1/4	324	44 1/2	46 1/2	48 1/4	35	27 15/16	2	2	24	24	6 7/8	54 1/4	52 1/8	56 1/4	30 1/2	4	34 3/4	12	29 1/2	7 1/2	3/4	31
49	48 5/8	364	49	51	52 3/4	35	31 1/16	2	2 1/2	24	24	6 7/8	59 7/8	56 5/8	61 7/8	30 1/2	4 1/2	34 3/4	13 1/2	32	7 1/2	3/4	33 7/8
54 1/4	53 7/8	364	54 1/4	56 1/4	58	35	33 5/8	2	2 1/2	24	24	6 7/8	66	61 7/8	68 1/2	30 1/2	5	34 3/4	15	36	7 1/2	3/4	37 7/8
60	59 1/2	365	59 7/8	61 7/8	64 3/8	38 1/2	37 5/8	2 1/2	2 1/2	24	24	6 7/8	72 3/4	67 5/8	75 1/4	33 7/8	5 1/2	38 1/8	16 1/2	40	7 1/2	3/4	41 1/4

ITEM NO.	IDENTIFICATION	NO. REQ'D	FAN SIZE	NO. OF BLADES	AIR FLOW	CATALOGUE MODEL NO.	PERFORMANCE CFM	OV	SP	RPM	TEMP.	ELEV.

ITEM NO.	MOTOR DATA HP	RPM	CURRENT	FRAME	‡ ENCL.	SPECIAL FEATURES

NOTES

SPECIAL FEATURES

1. STREAMLINED INLET
2A COMPANION FLANGE'S) HOUSING (I) INLET (O) OUTLET
2B COMPANION FLANGE(S) CONE
3. CONE– (I) INLET (O) OUTLET
4. ACCESS OPENING–QUICK RELEASE
5A MOUNTING LUGS–HORIZONTAL TYPE
5B MOUNTING LUGS–VERTICAL TYPE (D) DRIVE END (W) WHEEL END
5C MOUNTING FEET
6. AUTOMATIC DISCHARGE SHUTTERS
   6A STANDARD DUTY
   6B HEAVY DUTY
   6C EXTRA HEAVY DUTY
7A WIRE GUARD – INLET
7B WIRE GUARD – DISCHARGE
8. ALUMINUM WHEEL
9. BLADE TIP RUBBING RING
10. EXTENDED GREASE LEADS
11. STRAIGHTENING VANES
12. SPECIAL FINISH – SEE NOTES

‡ MOTOR FRAME ENCLOSURE
ODP=OPEN DRIP PROOF
TEAO+TOTALLY ENCLOSED AIR OVER
XPAO=EXPLOSION PROOF AIR OVER

CUSTOMER _____

P.O.# _____

JOB NAME _____

LOCATION _____

SERIES 9600
TUBE AXIAL AIRFOIL FAN ARR 4
SIZES 15 - 60

SHELDONS ENGINEERING
1425 BISHOP STREET, UNIT 9
CAMBRIDGE, ONTARIO, CANADA N1R 6J9
PHONE (519)621-1800 FAX: (519) 622-3456

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DRAWING CERTIFIED BY S.E. APPROVAL –NOT REQUIRED–RELEASED FOR PRODUCTION	DATE	ENGINEER	DWG#


Standard-T