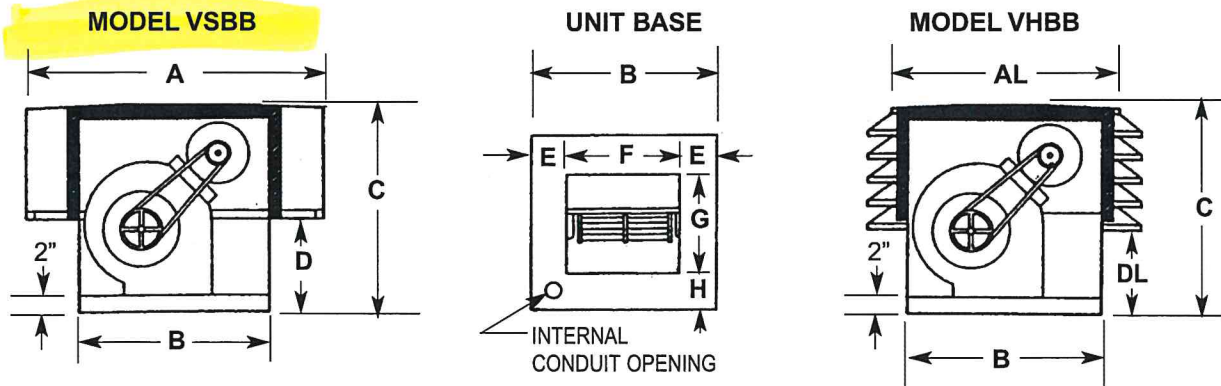


CARNES COMPANY, 448 S. Main St., P. O. Box 930040, Verona, WI 53593-0040 Phone (608) 845.6411 Fax: (608) 845.6470 carnes@carnes.com



DIMENSIONS LISTED IN INCHES

Unit Size	A Sq. Hood O. D.	AL Sq. Hood O. D.	B Sq. Cap I. D.	C Height	D Stack	DL Stack	Qty. Tiers VHBB	E	Roof Opening			Weight [Lbs.]		1" Filters Qty. Nominal Size
									F	G	H	VSBB	VHBB	
08	29	34	19-3/4	19	9	8	3	5	8-3/4	9-5/8	6-9/16	125	100	4 - 10x16
10	37	43	28-1/4	29	13	13	4	7-1/4	11-3/4	13-5/8	8-3/16	225	175	4 - 16x25
12	37	43	28-1/4	29	13	13	4	6	13-3/4	16-1/8	7-3/16	250	200	4 - 16x25
15	45	45	32-1/8	30	14	14	4	6-1/2	16-1/4	19	7-3/4	350	260	4 - 16 x25
18	45	50	36-1/8	38	18	18	5	6-7/8	19-1/4	22-1/4	7	425	300	4 - 20x25
20	69	69	50-1/2	49	29	29	5	12-3/4	25-1/8	25-1/8	13-7/8	700	500	8 - 20x20

STANDARD SPECIFICATIONS

- FORWARD CURVED DWDI STEEL BLOWER.
- PERMANENT WASHABLE 1" ALUMINUM FILTERS.
- L₅₀ = 200,000 HOURS BEARING LIFE.
- FACTORY MOUNTED NEMA 1 DISCONNECT.
- ADJUSTABLE MOTOR BASE.
- FACTORY MOUNTED MOTOR & DRIVES — RUN TESTED.

MODEL VSBB

- BOTTOM PAN — MINIMUM 12 GAUGE GALVANIZED.
- HOOD HOUSING — 18 GAUGE GALVANNEALED.
- LID — 18 GAUGE GALVANNEALED.
- STACK — 18 GAUGE GALVANNEALED.
- VIBRATION RAILS — 10 GAUGE GALVANIZED.

- PERMANENTLY LUBRICATED BALL BEARINGS.
- PRE-PUNCHED MOUNTING BASE.
- ADJUSTABLE DRIVES — 1.5 SERVICE FACTOR.
- INSULATED — EASY ACCESS LID.
- BLOWER STATICALLY & DYNAMICALLY BALANCED.
- INTERNAL RUBBER-IN-SHEAR VIBRATION RAILS.

MODEL VHBB

- BOTTOM PAN — MINIMUM 12 GAUGE GALVANIZED.
- LOUVERED HOUSING — ALUMINUM MITERED & WELDED.
- LID — .080 ALUMINUM.
- STACK — .080 ALUMINUM.
- VIBRATION RAILS — 10 GAUGE GALVANIZED.

FAN NO. LOCATION	QTY	MODEL/SIZE	CFM	SP	FAN RPM	SONES	MOTOR			ACCESSORIES
							HP	ELECTRICAL	TYPE	

NOTES:

PROJECT:	ARCHITECT:
CONTRACTOR:	ENGINEER
DATE:	SUBMITTED BY:

Page _____ of _____



COOK



MARK: KEF-7

PROJECT *Hard Rock Tower*

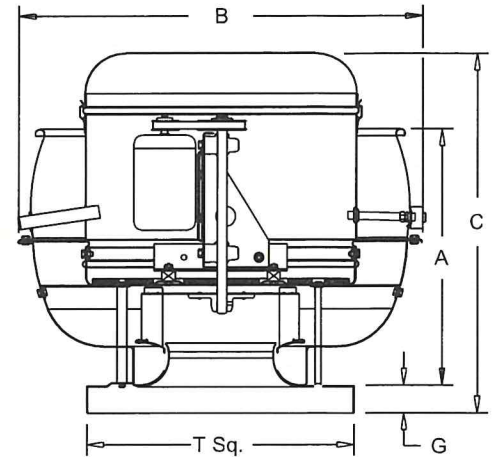
DATE: 3/6/2025

VCR-XP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance (*Bhp includes 4% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	365VX11B	6250	2.25	875	3.72	67	1.26

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
5	1725	460/3/60	TEFC -PE	7.6	Yes	Yes

NEMA Premium® efficiency motor per MG-1 (2014) Table 12-12
FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
84	87	85	80	77	76	72	66	84	72	22

- Distance from Sound source 5 ft

Accessories:

Premium Efficiency Motor (Min. 89.5%)
DRIVES (1.5 SF) @ 875 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 42T
KEYWAY GREASE TROUGH
BELT TENSIONER-ROTARY

Dimensions (inches)

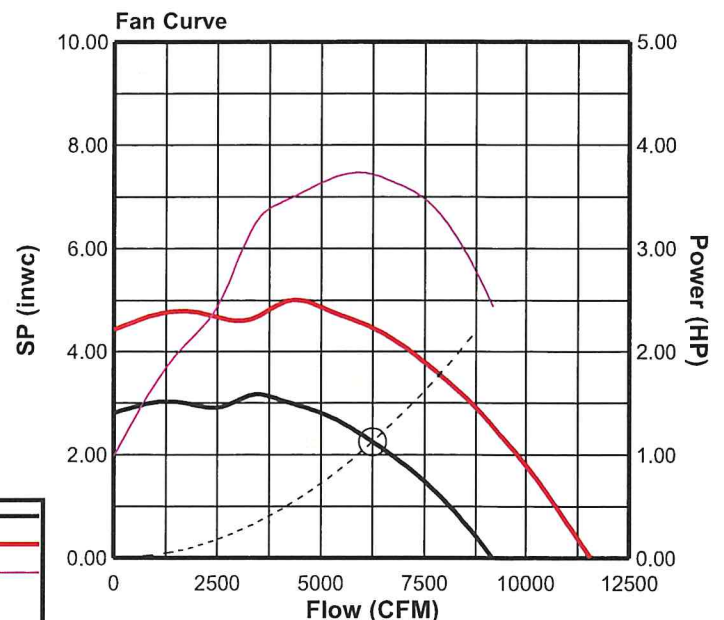
A	36-3/8
B	64-1/4
C	44-1/4
G	3
T Sq.	42
Roof Open. Sq.*	37-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	568	Unit	359
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*Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.





COOK



MARK: KEF-7

Hard Rock Tower

DATE: 3/6/2025

VCR-XP

Performance (*Bhp includes 4% drive loss)

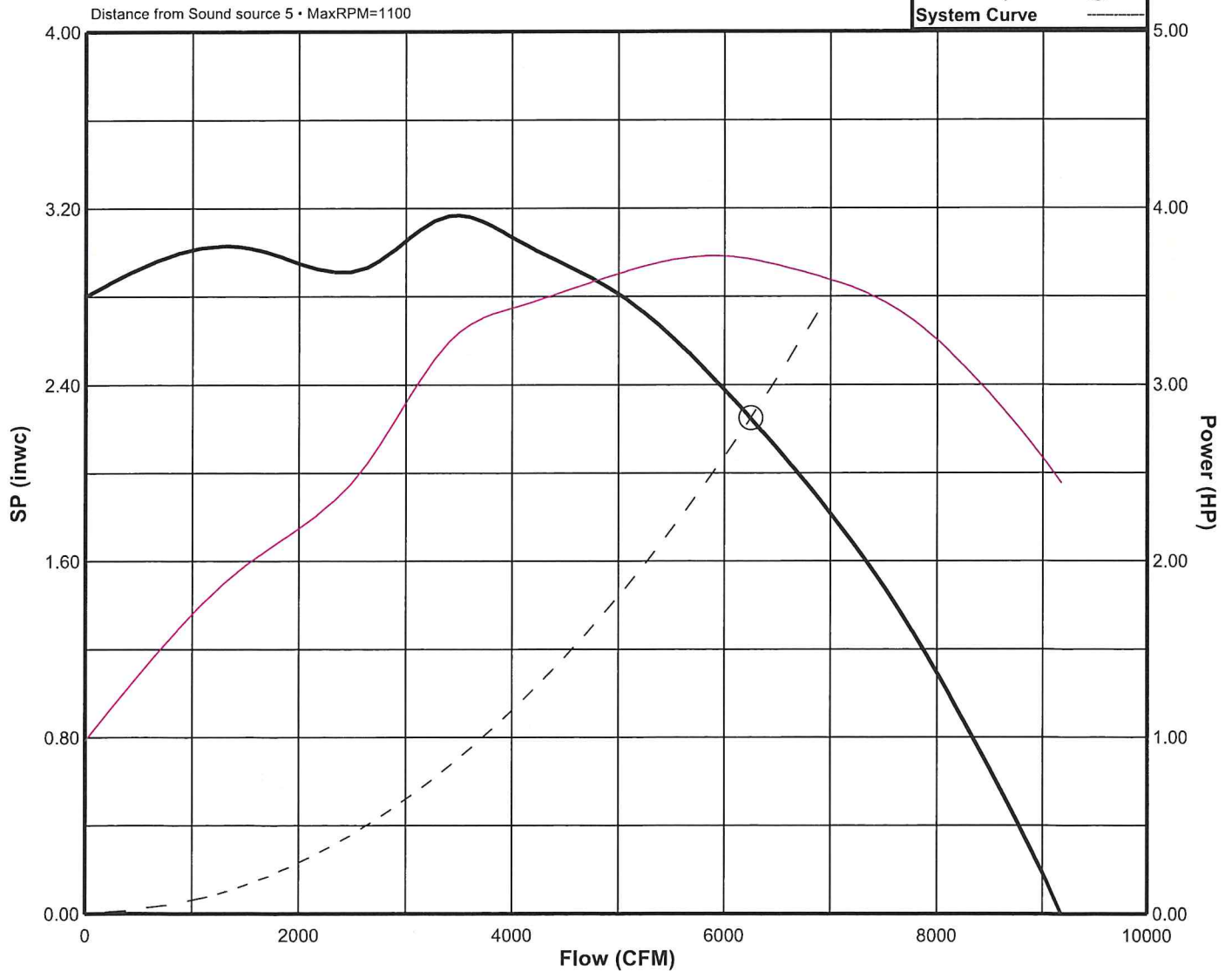
Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
365VX11B	6250	2.25	875	3.72	67	1.26	638	8361	62%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
84	87	85	80	77	76	72	66	84	72	22

Fan Curve Legend

CFM vs SP	—
CFM vs HP	—
Point of Operation	○
System Curve	- - -





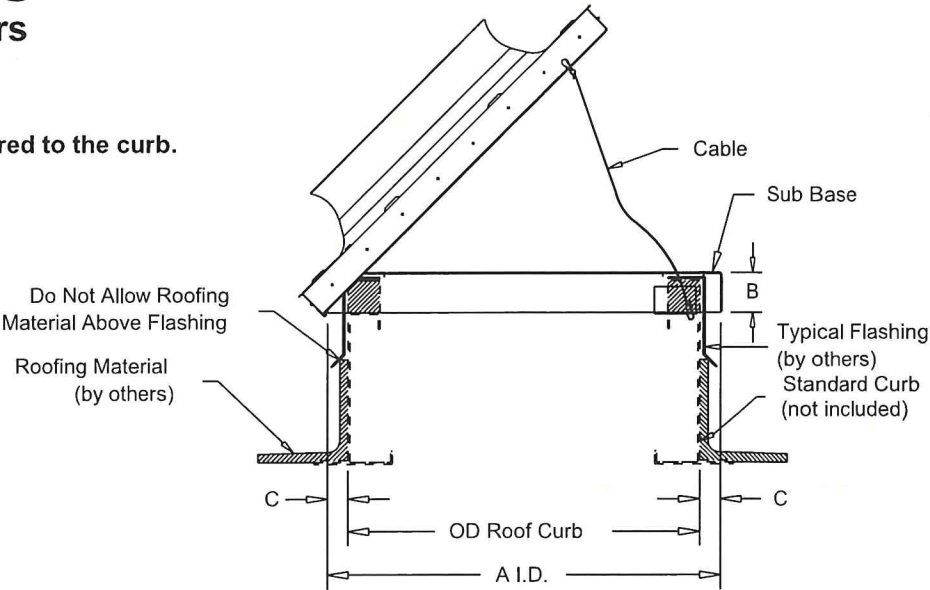
COOK

PROJECT: <i>Hard Rock Tower</i>
DATE: 3/6/2025

Heavy Duty Hinged Base

Centrifugal Roof Exhausters

Note:
To avoid injury, sub base must be secured to the curb.



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-7	1	HINGED SUB BASE 42T	41-3/8	3	7/16	63	40-1/2	42



COOK

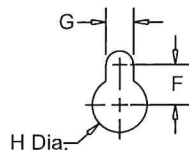
PROJECT: <i>Hard Rock Tower</i>
DATE: 3/6/2025

Grease Trough

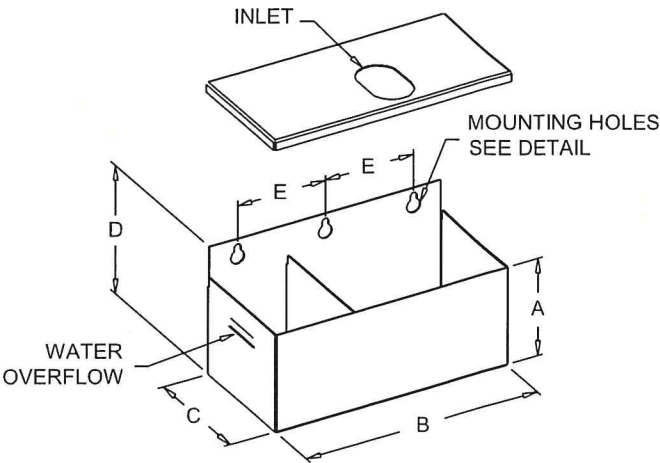
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-7	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16



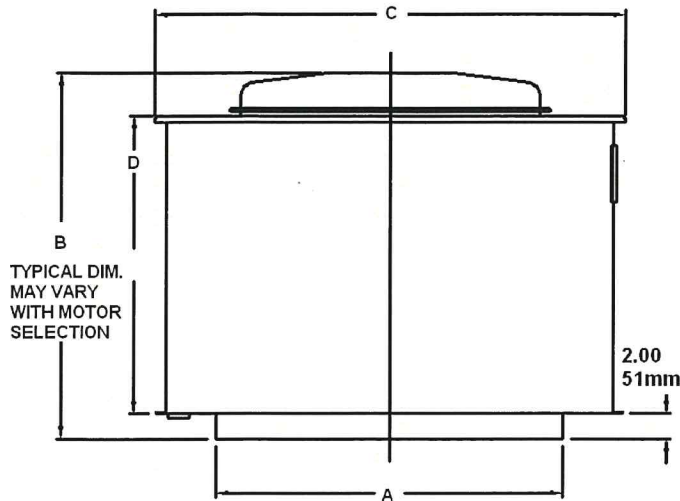
TAG: EF-1,3

Project: CNE Hard Rock Buffet Kitchen Fans
Location: Tulsa, OK

Acme Engineering and Manufacturing Corporation

P.O. Box 978, Muskogee, OK 74402

Print Date: 2/27/2025 1:23:14 PM



Elevation View

A	B	C	D
46.00	44.10	65.75	41.00

DIMENSIONS (inches)

Rough Opening: 41.50 X 41.50

PNU355RG 3 Hp 460/ Three Phase/ 60 Hz/ TEFC 1 Speed NEMA Premium Efficiency - Table 12-12 Motor RPM: 1750 -- Full Perimeter Hinged Base

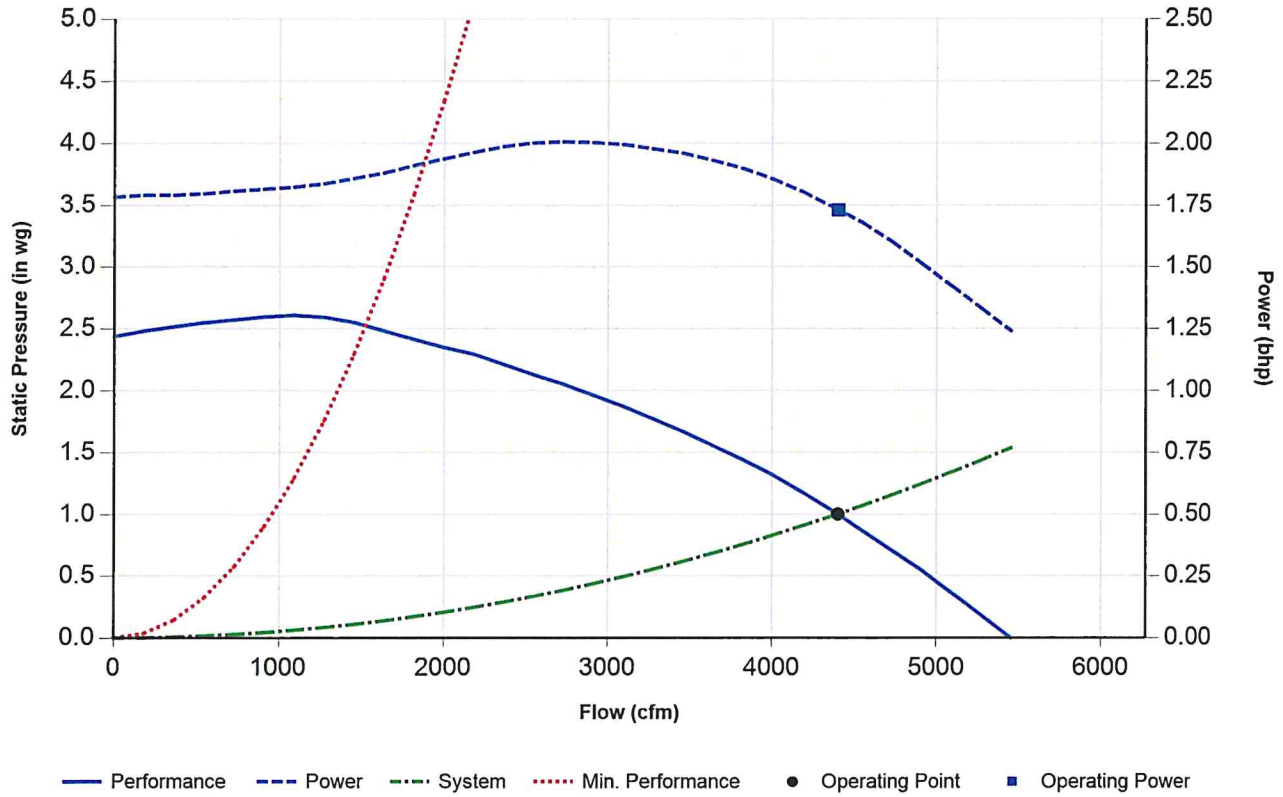
PN: PNU355RG0192, FEI: 1.01, HP: 3.000, CFM: 4400, SP: 1.000, MAX RPM: 696

PERFORMANCE (Altitude = 0 ft, Temp = 68 Degrees F, Density = 0.075 lb/ft³)

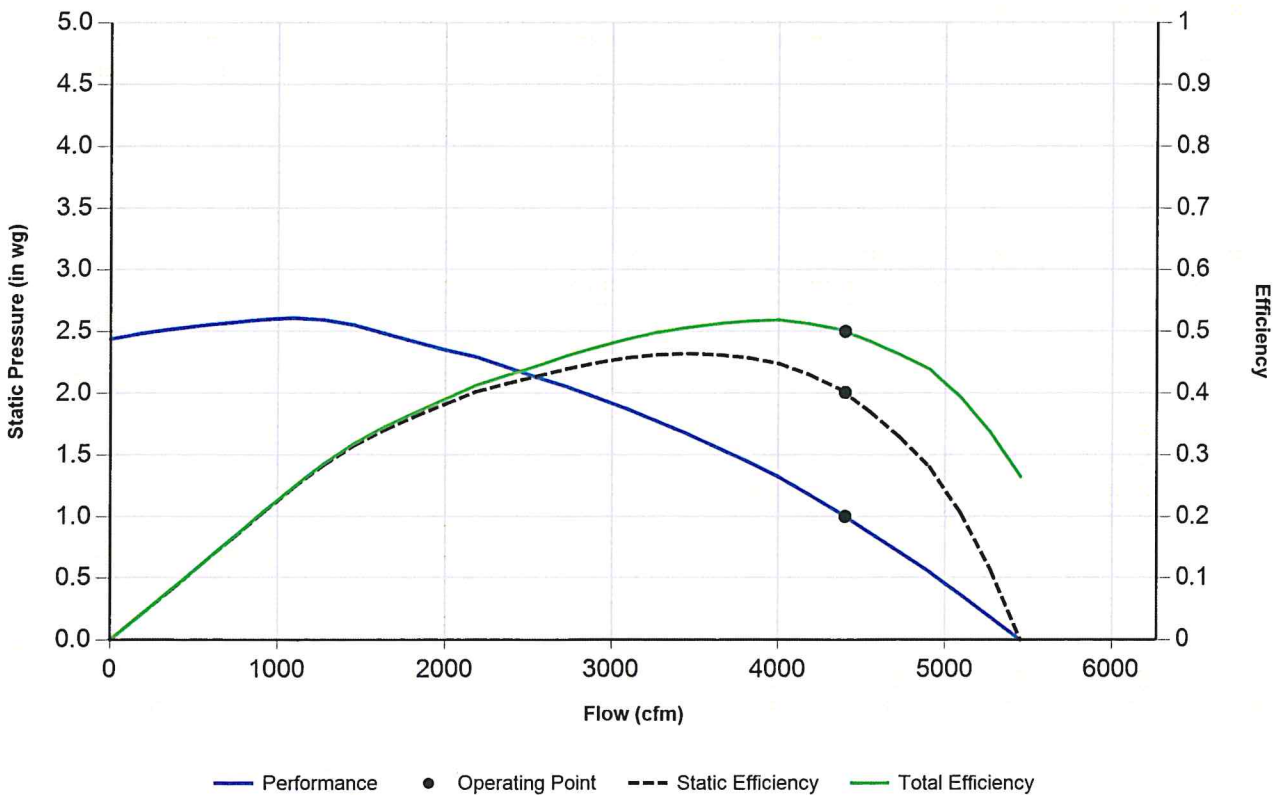
		Volume (cfm)	SP (in wg)	Power (bhp)	Speed (rpm)	TS (fpm)	OV (fpm)	Weight (lbs)	Motor Info.		Fan Rating: 762 762c						
Qty	Model Size								HP	Volts	Phase	Hz	Encl	RPM	Sp/Wdg		
2	PNU355RG	4400	1.000	1.731	786	7511	1995	584.00	3 Hp	460	3	60	TEFC	1750	1SPD		
Sound Pressure			Sound Power Octave Values								Static	Total	The sound ratings shown are loudness values in hemispherical sones at 1.5 m (5ft) in a hemispherical free field calculated per AMCA Standard 301. Values are shown for Installation Type A: free inlet hemispherical sone levels. The AMCA certified ratings seal applies to sone ratings only.				
Sones*	LwA	dBA*	1	2	3	4	5	6	7	8	Eff	Eff					
15.7	78.9	67.4	74.0	74.3	70.1	71.3	72.3	74.1	71.5	61.9	40.10	50.00					
*in free space @5 feet/1.5 Meters																	



Performance PNU355RG, Volume (cfm) 4400, SP (in wg) 1



Efficiency SE: 40.10 TE: 50.00



PREFERRED VENDOR MOTOR DATA SHEET

Motor Part Number: 925047

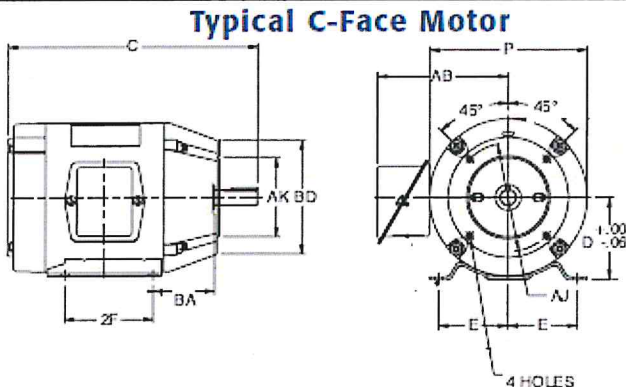
Nameplate Data

Horsepower: 3.0 (3 Hp) M	Motor Control VFD Compatibility:
Volts: 208, 230, 460	Efficiency: NEMA Premium Efficiency - Table 12-12
Amps: 9.0/8.4/4.2	Efficiency Percent: 89.50
Service Factor Amps: 10.4/9.7/4.8	Ambient Temperature: 40
Service Factor: 1.15	Frame: 182T
Hertz: 60/60/60	WR2: 71.00
Phase: 3	Nameplate RPM: 1760
Speed/Winding: 1SPD	Insulation Class: F
Enclosure: TEFC	Nominal RPM(60Hz): 1750/1750/1750
LRA: 32.00	Synch RPM(60Hz): 1800/1800/1800
Power Factor: 75.00	
Small Motor Rule: N/A	
SE Rating:	Class 1 Groups:
Class 2 Groups:	Division:
Temp Code:	

Features

Bearing Type: Ball	Motor Plug: No
Motor Rotation: Clockwise	Base: RIG
VSM: False	Duty: C
Thermal Overload: N	End Bell Drain: No
NEMA Code: B	F2: No

Dimensions and Weight



Ab: 6.870000	C: 16.550000	D: 4.500000
E: 3.750000	F: 2.250000	H: 0.468700
L: 8.300000	Sd: 1.125000	V: 2.750000

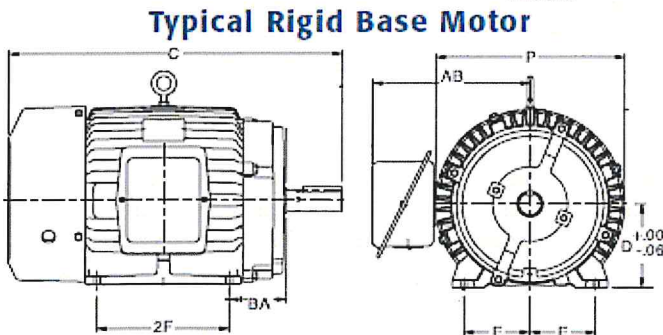
Unit Weight: 72

Keyway: 1/4x1/8x1 3/4

Shaft Diameter: 1.125000

Metric Keyway: .635x.318x4.445

Motor Notes





TAG: EF-1,3

Project: CNE Hard Rock Buffet Kitchen Fans
Location: Tulsa, OK

Acme Engineering and Manufacturing Corporation
P.O. Box 978, Muskogee, OK 74402

Print Date: 2/27/2025 1:23:16 PM

GTR

Grease Trough Roof

Standard Construction Features

Approximant Capacity 2.6 Gal.
Compartmentalized to separate grease/water
Mounted easily to roof type ventilators
Galvanized steel construction

699593 - PNU355-490 Roof Grease Trough With Adapter

PERFORMANCE (Altitude = 0 ft, Temp = 0 Degrees F, Density = 0.000 lb/ft³)

Qty	Model Size
2	PNU355-490

Weight (lbs)
26.00



COOK



MARK: KEF-1

PROJECT: HARD ROCK CASINO 124

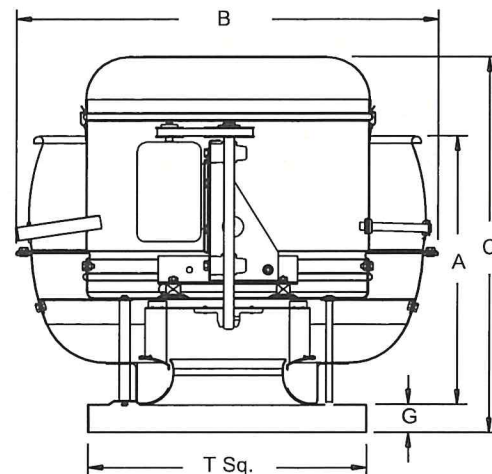
DATE: 2/26/2025

ACRU-HP

**Upblast Centrifugal
Exhaust Ventilator
Roof Mounted/Belt Drive**

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Birdscreen - Vibration isolators - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in a cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging. Standard motors ship factory installed.



Performance (*Bhp includes 9% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG
1	150RH5B	1000	1.00	1527	.394	n/a(<1HP)

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted
1/2	1725	115/1/60	TEFC -SE	9.8	Yes

FLA based on NEC (2017) Table 430.248

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
83	75	71	67	64	68	63	56	73	61	11.9

- Distance from Sound source 5 ft

Accessories:

DRIVES (1.5 SF) @ 1527 RPM
DISCONNECT NEMA 1 PRE-WIRED
BD-18 DAMPER
HINGED SUB BASE 24T
DRAIN TUBE (PLASTIC)
BELT TENSIONR-ROTARY

Dimensions (inches)

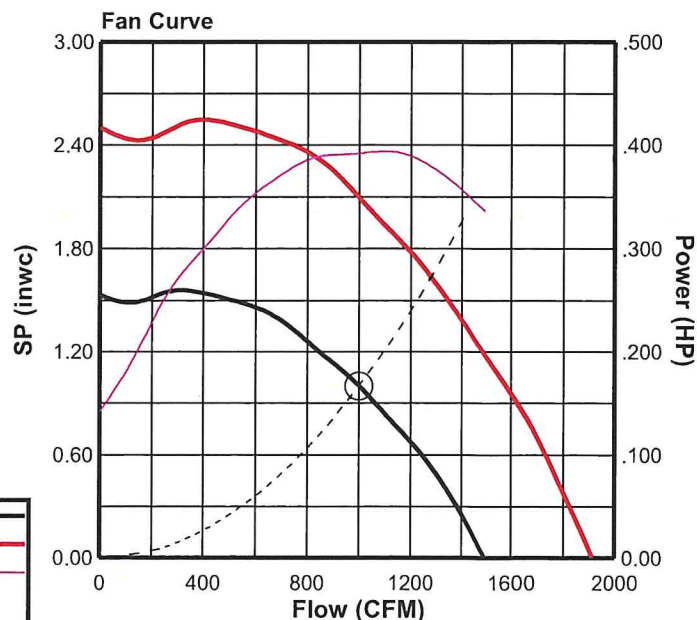
A	20-15/16
B	34-11/16
C	27-1/2
G	2
T Sq.	24
Roof Open. Sq.*	19-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	113	Unit	88
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.



Fan Curve Legend

CFM vs SP (1527)	—
MaxRPM(1952)	—
CFM vs HP	—
Point of Operation	○
System Curve	- - -



COOK



MARK: KEF-1

PROJECT: HARD ROCK CASINO 124

DATE: 2/26/2025

ACRU-HP

Performance (*Bhp includes 9% drive loss)

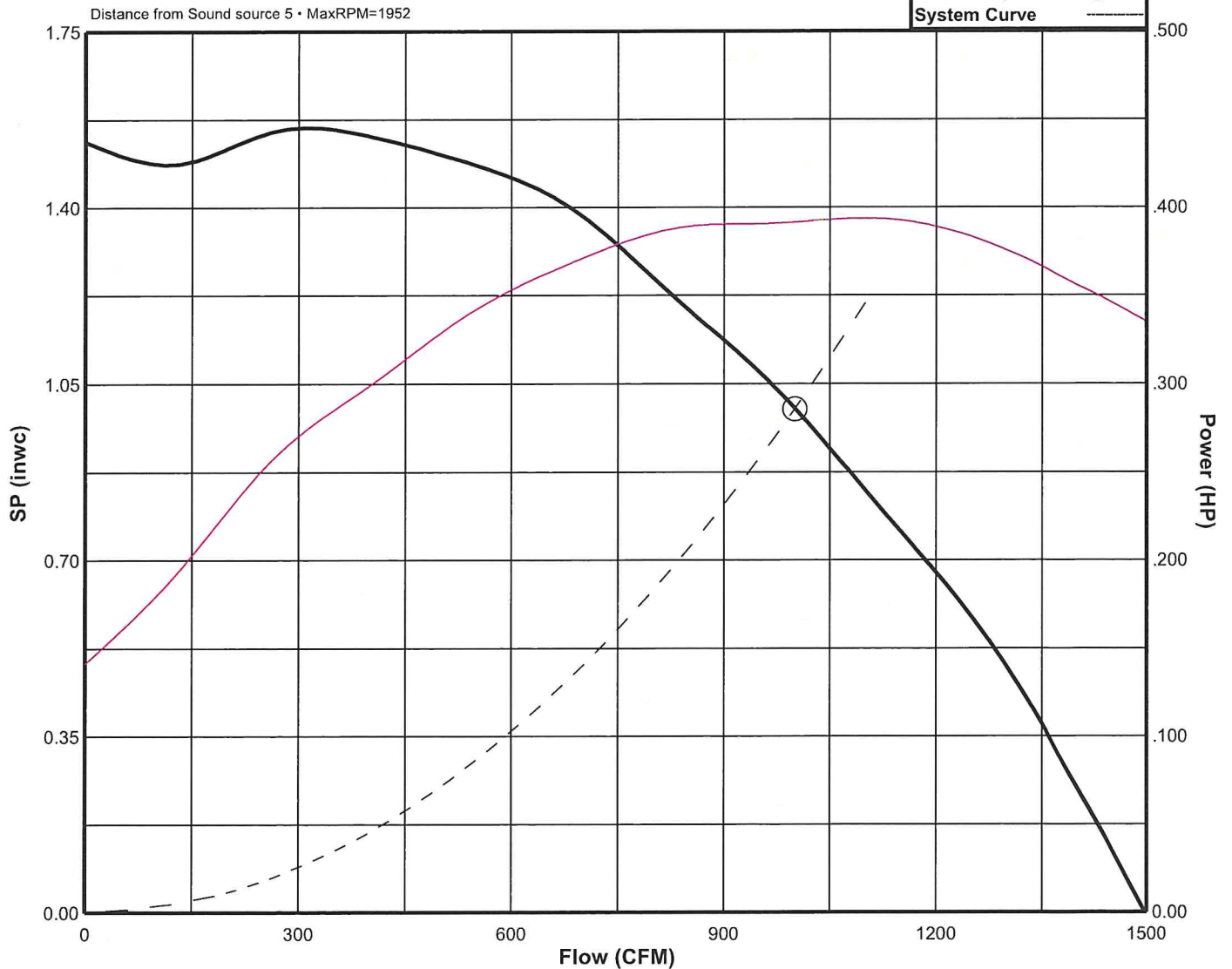
Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
150RH5B	1000	1.00	1527	.394	n/a(<1HP)	372	5996	44%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
83	75	71	67	64	68	63	56	73	61	11.9

Fan Curve Legend

CFM vs SP	—
CFM vs HP	—
Point of Operation	○
System Curve	- - -





COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

BD

Gravity Backdraft Damper

STANDARD CONSTRUCTION FEATURES:

.020 Aluminum blades - .060 aluminum frame -
Aluminum hinge pins - Nylon bushings.

Notes:

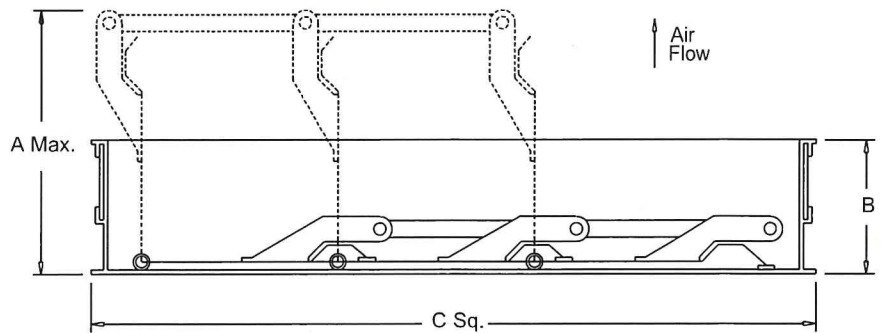
Max. operating temperature 200 Deg F (95 Deg C).

Max. discharge velocity 2000 fpm.

Sizes 36 thru 60 are shipped as 2 panels.

Sizes 66 and 78 are shipped as 6 panels.

These may require assembly.



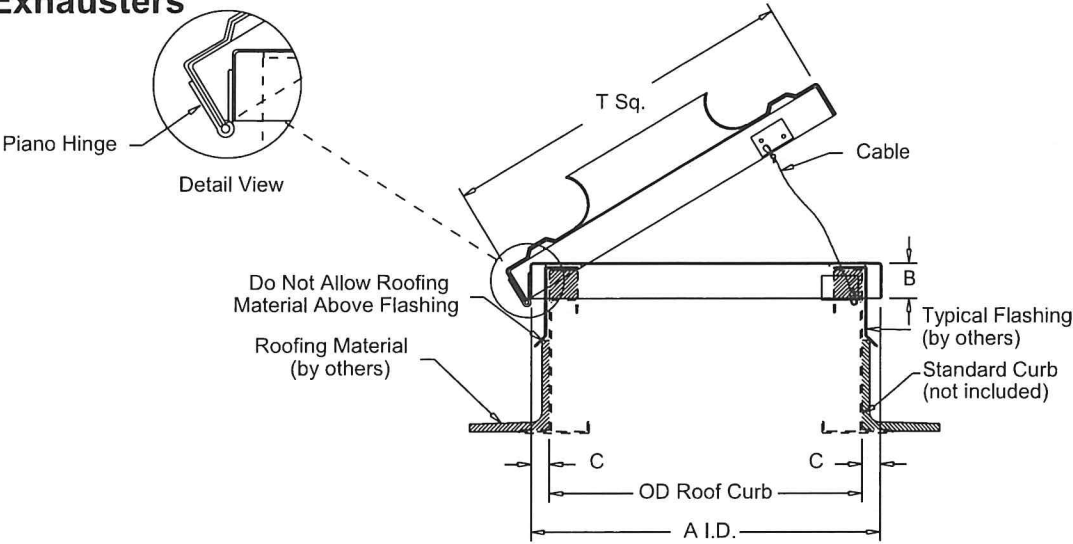
Dimensions (inches)

Mark	Qty	Description	A Max.	B	C Sq.	# Panels
KEF-1	1	BD-18 DAMPER	5-3/16	1-7/8	17-3/4	1



HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-1	1	HINGED SUB BASE 24T	23-3/8	2-1/4	7/16	37	22-1/2	24



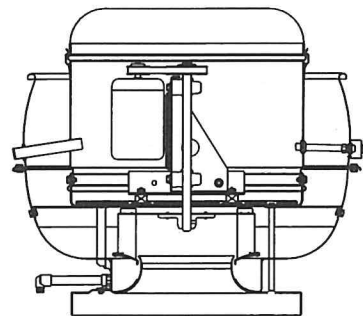
COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

Grease Tube

Plastic

Plastic Installation



Dimensions (inches)

Mark	Qty	Description
KEF-1	1	DRAIN TUBE (PLASTIC)



COOK



MARK: KEF-2

PROJECT: HARD ROCK CASINO 124

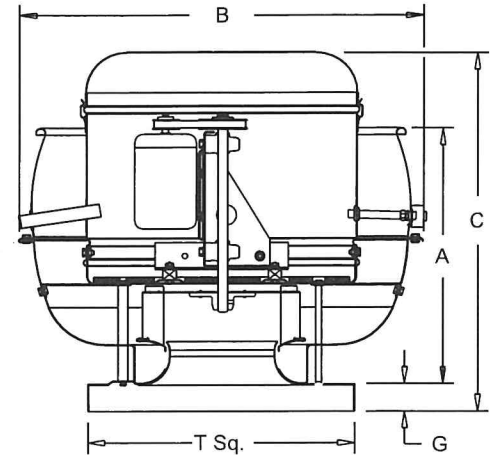
DATE: 2/26/2025

VCR-XP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance (*Bhp includes 6% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	165VX7B	1400	2.00	2132	.952	n/a(<1HP)	1.17

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted
1	1725	115/1/60	TEFC -SE	16	Yes

FLA based on NEC (2017) Table 430.248

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
75	82	85	82	76	73	71	68	83	72	20.0

- Distance from Sound source 5 ft

Accessories:

DRIVES (1.5 SF) @ 2132 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 24T
KEYWAY GREASE TROUGH
BELT TENSIONR-ROTARY

Dimensions (inches)

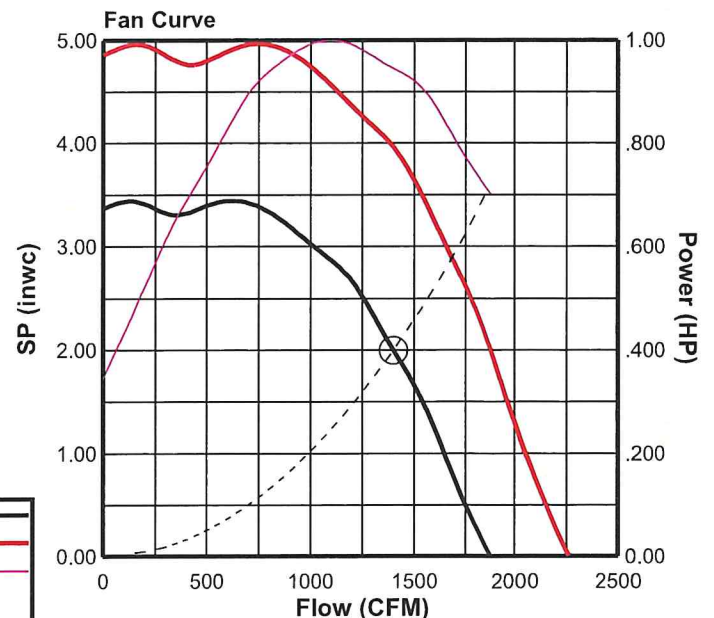
A	20-15/16
B	34-11/16
C	26-11/16
G	2
T Sq.	24
Roof Open. Sq.*	19-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	139	Unit	114
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.





COOK



MARK: KEF-2
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

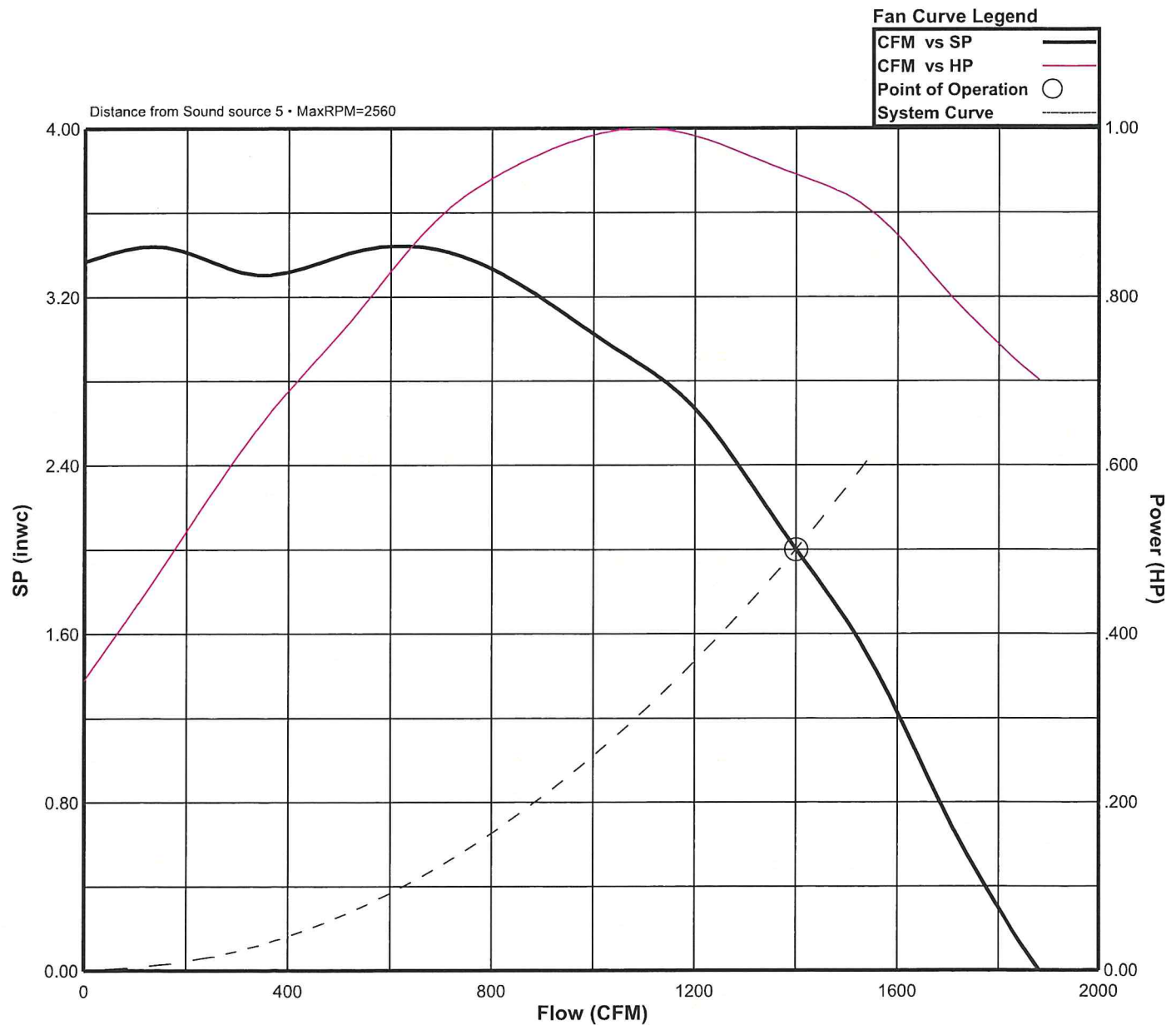
VCR-XP

Performance (*Bhp includes 6% drive loss)

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
165VX7B	1400	2.00	2132	.952	n/a(<1HP)	1.17	521	9209	50%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
75	82	85	82	76	73	71	68	83	72	20.0





COOK

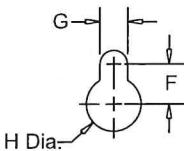
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

Grease Trough

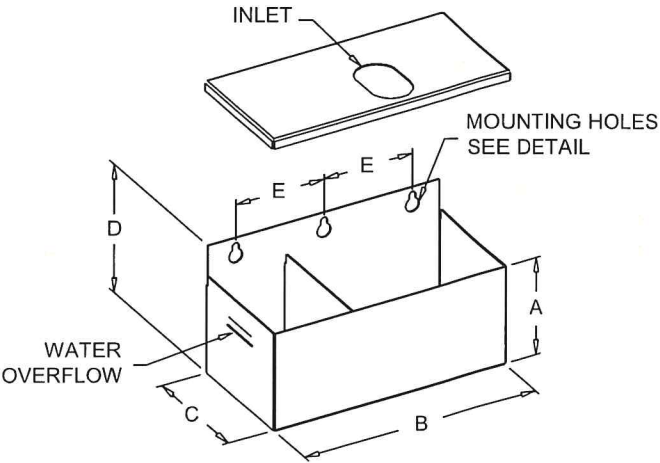
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-2	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16

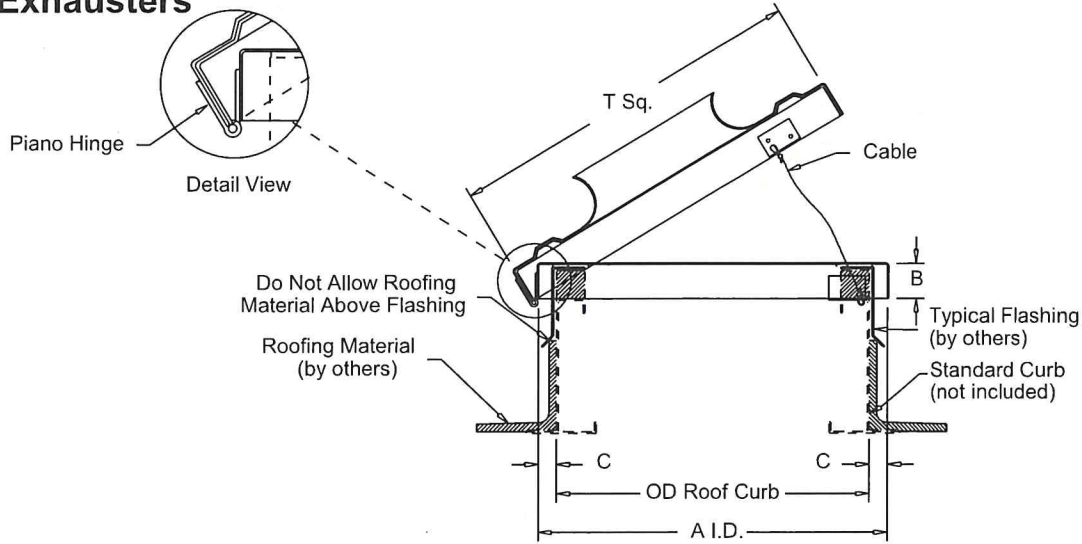


COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

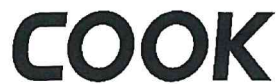
HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

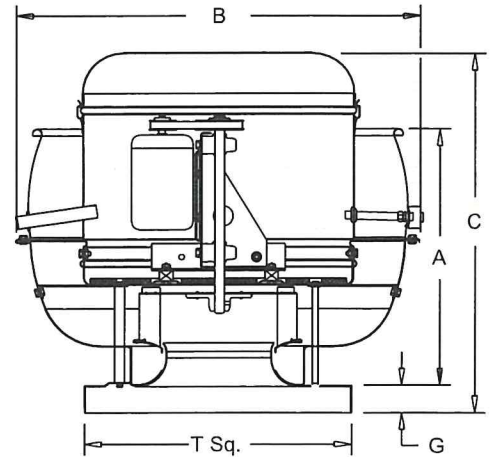
Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-2	1	HINGED SUB BASE 24T	23-3/8	2-1/4	7/16	37	22-1/2	24



DATE: 2/26/2025

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	165VX8B	1600	2.00	2300	1.17	60	1.07

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
1-1/2	1725	460/3/60	TEFC -PE	3	No	Yes

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
77	83	86	85	78	75	73	70	86	74	23

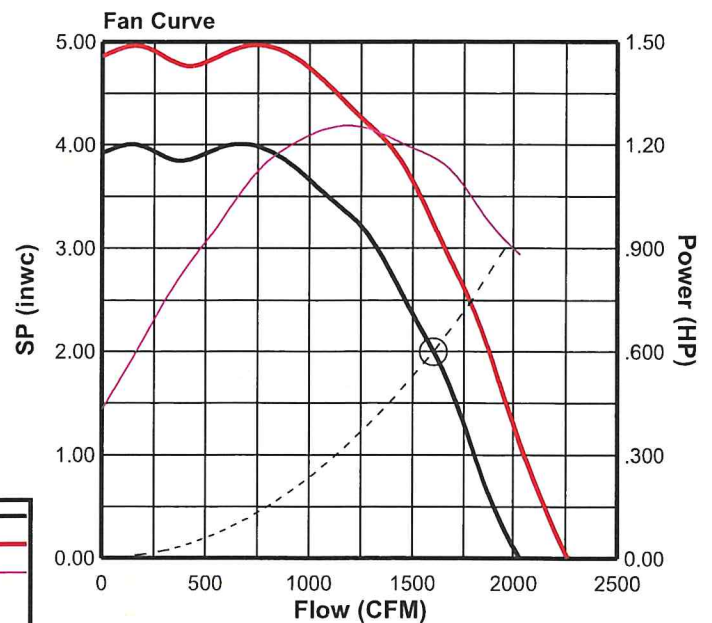
Accessories:

Premium Efficiency Motor (Min. 86.5%)
DRIVES (1.5 SF) @ 2300 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 24T
KEYWAY GREASE TROUGH
BELT TENSIONER-ROTARY

A	20-15/16
B	34-11/16
C	26-11/16
G	2
T Sq.	24
Roof Open. Sq.*	19-1/2

Weight(lbs)***	Shipping	157	Unit	132
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***Includes fan, motor & accessories





COOK



MARK: KEF-3
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

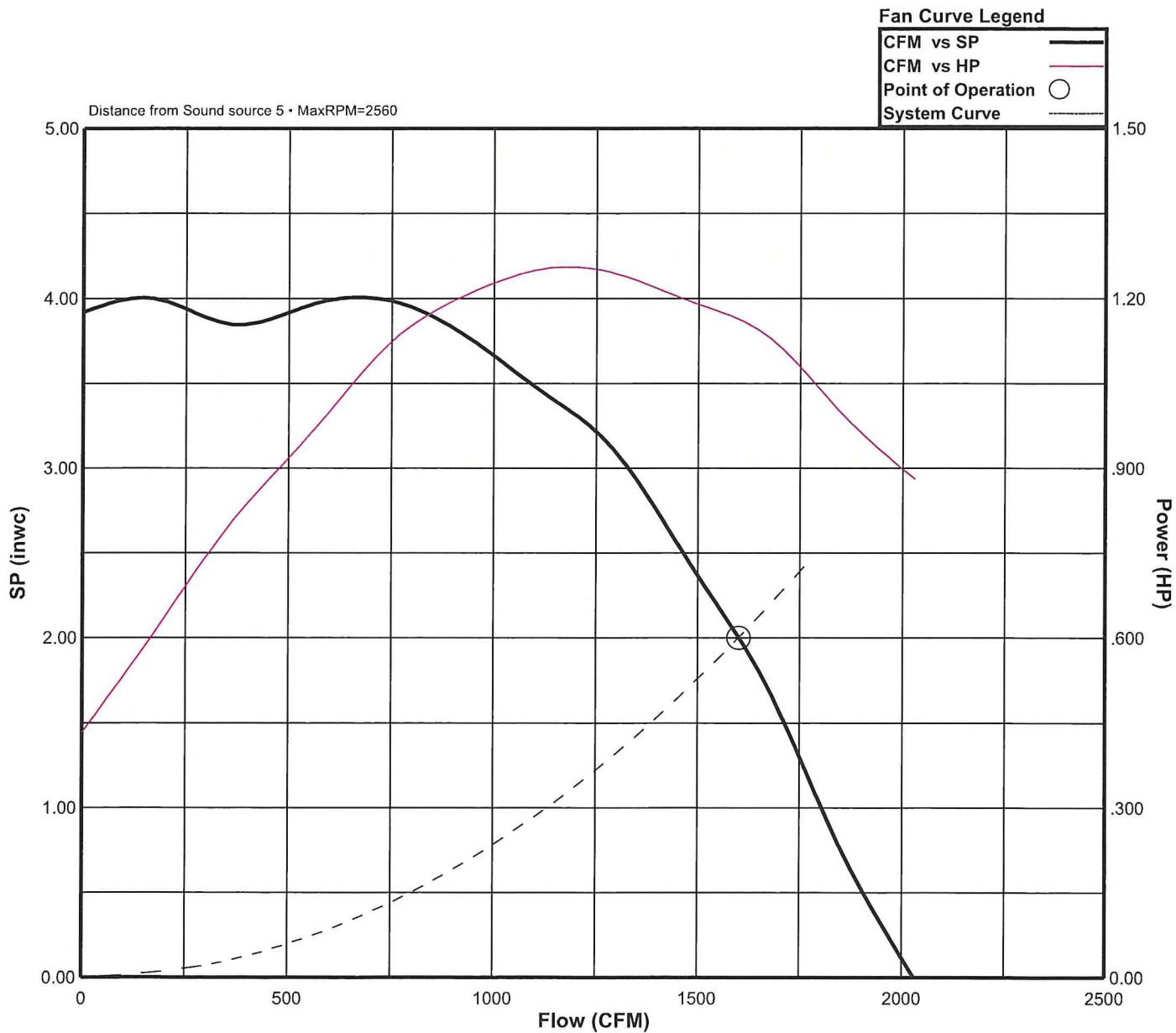
VCR-XP

Performance (*Bhp includes 6% drive loss)

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
165VX8B	1600	2.00	2300	1.17	60	1.07	596	9935	46%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
77	83	86	85	78	75	73	70	86	74	23





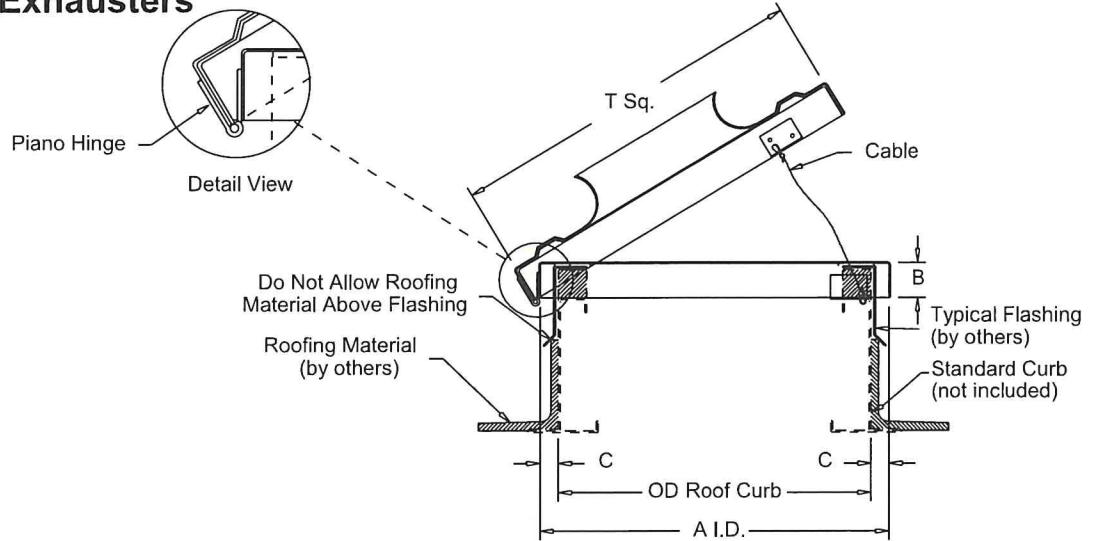
COOK

PROJECT: HARD ROCK CASINO 124

DATE: 2/26/2025

HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-3	1	HINGED SUB BASE 24T	23-3/8	2-1/4	7/16	37	22-1/2	24



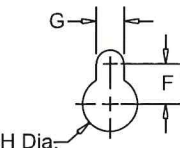
COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

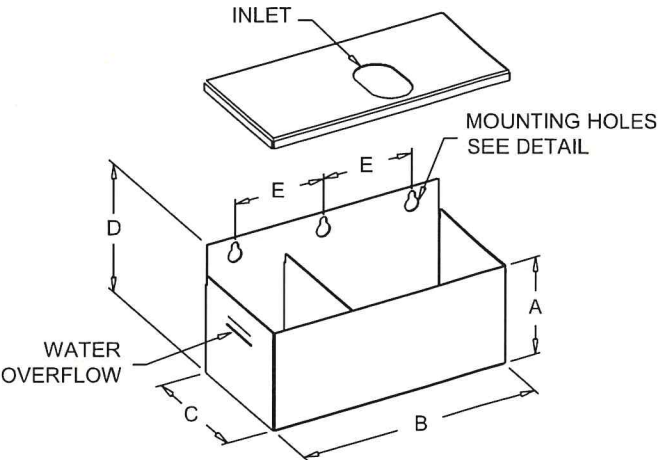
Grease Trough

Keyway Mount

STANDARD CONSTRUCTION FEATURES:
All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-3	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16



COOK



MARK: KEF-4

PROJECT: HARD ROCK CASINO 124

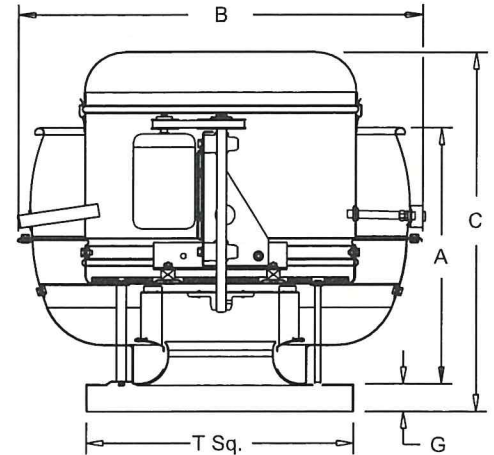
DATE: 2/26/2025

VCR-HP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance (*Bhp includes 5% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	180VH9B	2800	2.00	1636	1.55	67	1.27

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
2	1725	460/3/60	TEFC -PE	3.4	Yes	Yes

NEMA Premium® efficiency motor per MG-1 (2014) Table 12-12
FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
83	86	81	78	74	75	73	67	82	70	20

- Distance from Sound source 5 ft

Accessories:

Premium Efficiency Motor (Min. 86.5%)
DRIVES (1.5 SF) @ 1636 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 30T
KEYWAY GREASE TROUGH
BELT TENSIONR-ROTARY

Dimensions (inches)

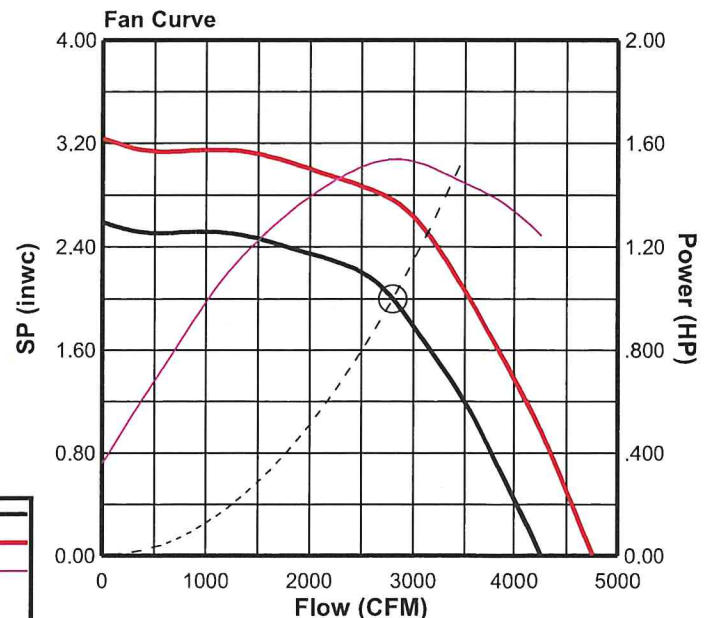
A	24-13/16
B	39-7/16
C	33-3/8
G	3
T Sq.	30
Roof Open. Sq.*	25-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	189	Unit	158
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.





COOK



MARK: KEF-4

PROJECT: HARD ROCK CASINO 124

DATE: 2/26/2025

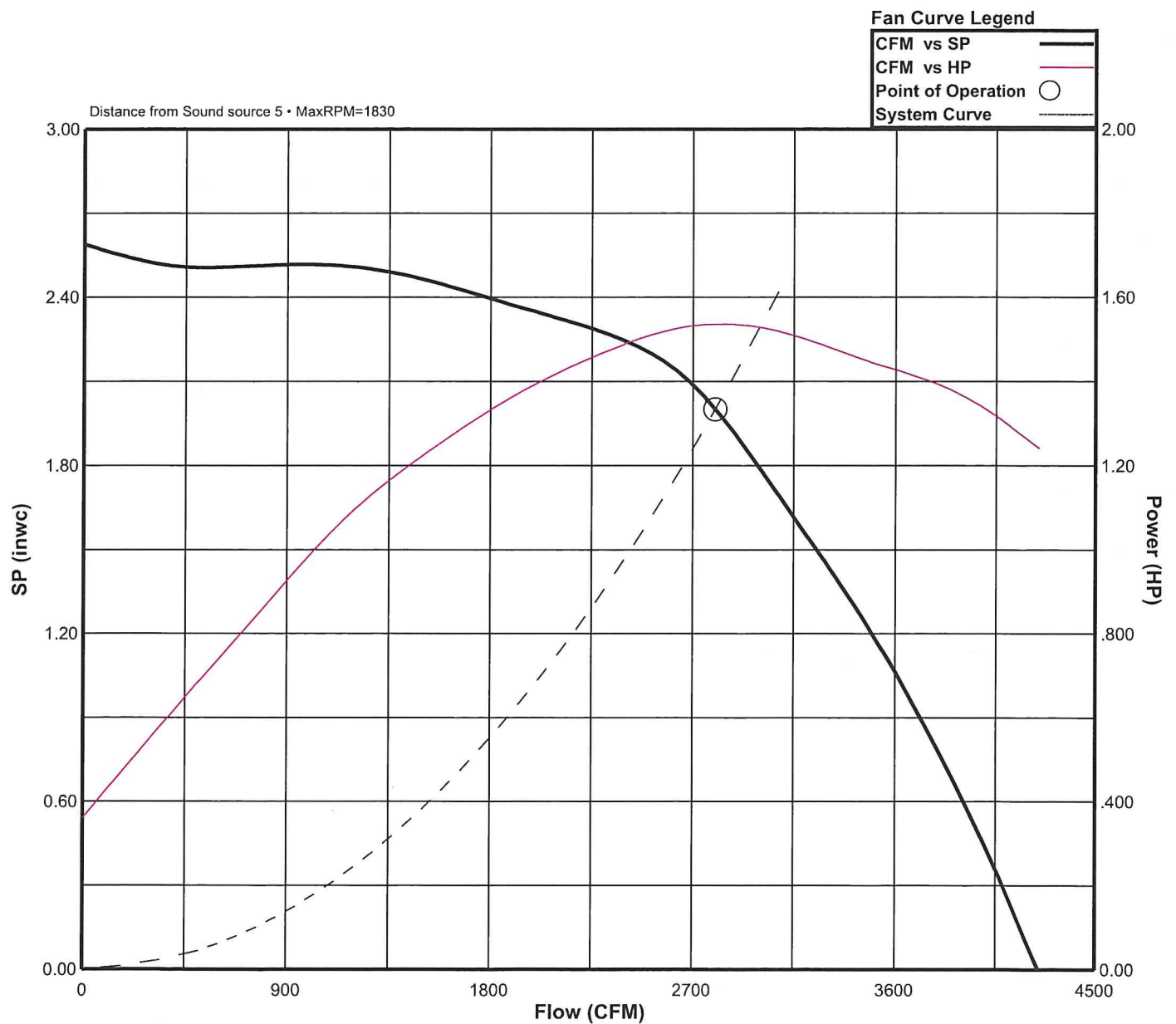
VCR-HP

Performance (*Bhp includes 5% drive loss)

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
180VH9B	2800	2.00	1636	1.55	67	1.27	725	7709	60%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
83	86	81	78	74	75	73	67	82	70	20



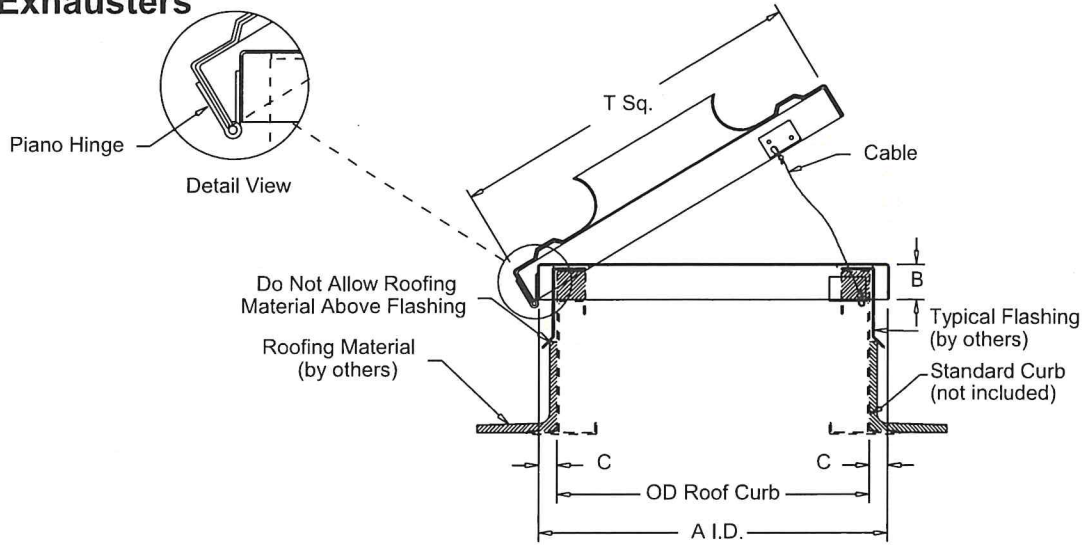


COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-4	1	HINGED SUB BASE 30T	29-3/8	3-1/4	7/16	46	28-1/2	30



COOK

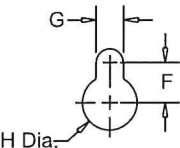
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

Grease Trough

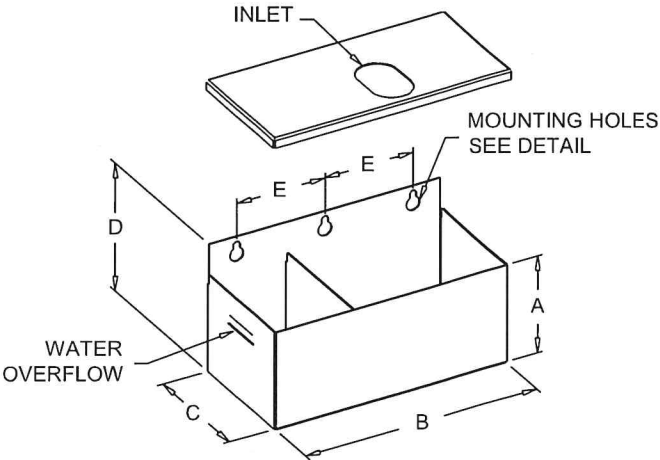
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-4	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16



COOK



MARK: KEF-5

PROJECT: HARD ROCK CASINO 124

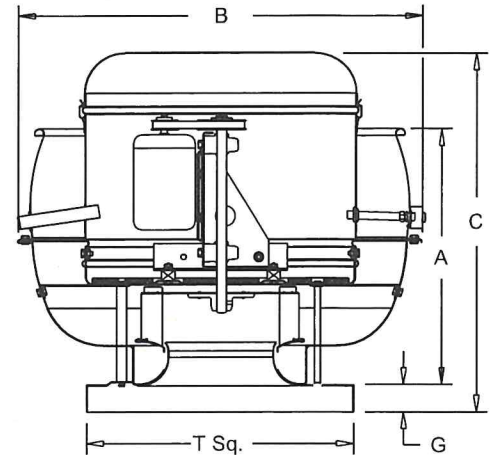
DATE: 2/26/2025

VCR-XP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance (*Bhp includes 6% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	165VX8B	1600	2.00	2300	1.17	60	1.07

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
1-1/2	1725	460/3/60	TEFC -PE	3	No	Yes

NEMA Premium® efficiency motor per MG-1 (2014) Table 12-12
FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
77	83	86	85	78	75	73	70	86	74	23

- Distance from Sound source 5 ft

Accessories:

Premium Efficiency Motor (Min. 86.5%)
DRIVES (1.5 SF) @ 2300 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 24T
KEYWAY GREASE TROUGH
BELT TENSIONR-ROTARY

Dimensions (inches)

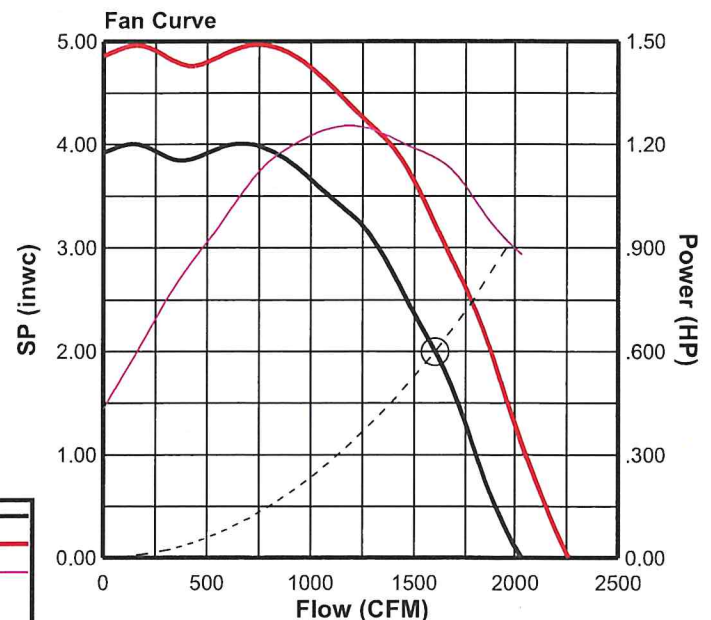
A	20-15/16
B	34-11/16
C	26-11/16
G	2
T Sq.	24
Roof Open. Sq.*	19-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	157	Unit	132
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.



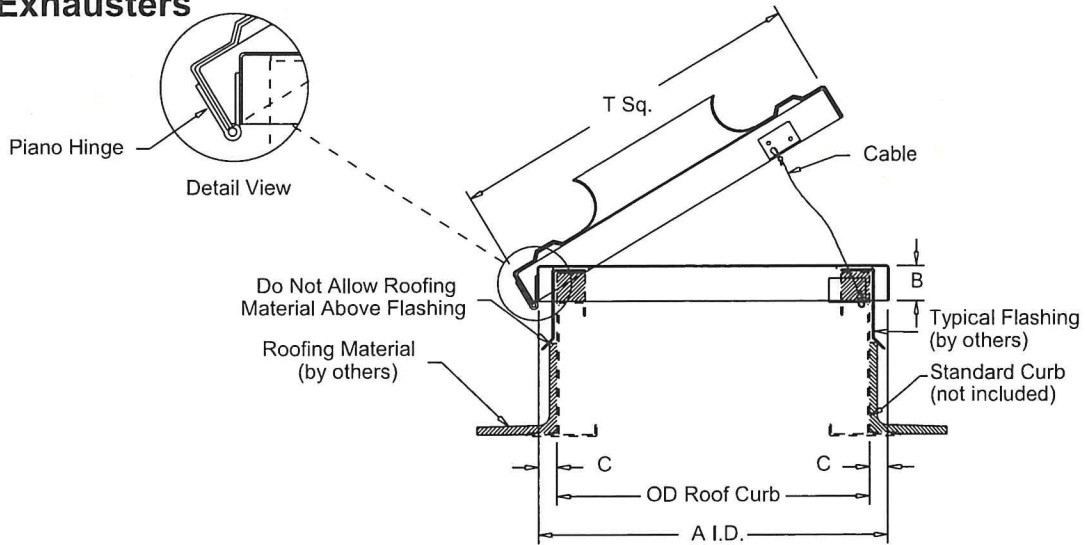


COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-5	1	HINGED SUB BASE 24T	23-3/8	2-1/4	7/16	37	22-1/2	24



COOK

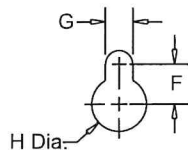
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

Grease Trough

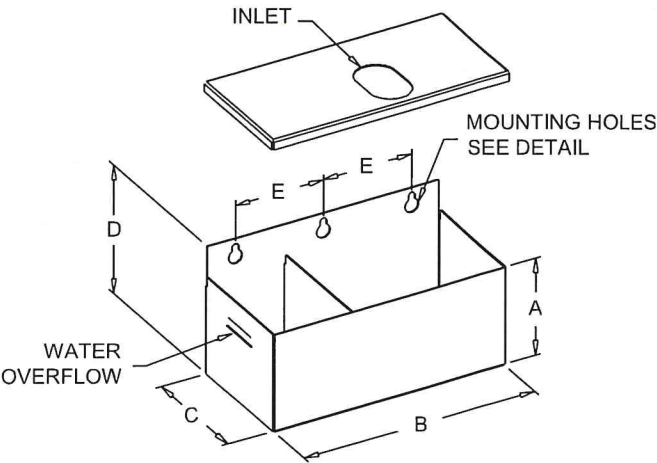
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-5	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16



COOK



MARK: KEF-6

PROJECT: HARD ROCK CASINO 124

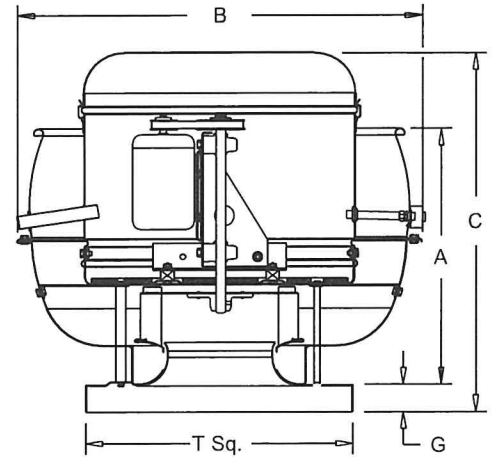
DATE: 2/26/2025

VCRR-XP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance (*Bhp includes 5% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	210VX9B	2560	2.00	1794	1.80	56	1.02

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
2	1725	460/3/60	TEFC -PE	3.4	Yes	Yes

NEMA Premium® efficiency motor per MG-1 (2014) Table 12-12
FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
77	86	86	81	77	75	76	71	85	73	23

- Distance from Sound source 5 ft

Accessories:

Premium Efficiency Motor (Min. 86.5%)
DRIVES (1.5 SF) @ 1794 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 30T
KEYWAY GREASE TROUGH
BELT TENSIONR-ROTARY

Dimensions (inches)

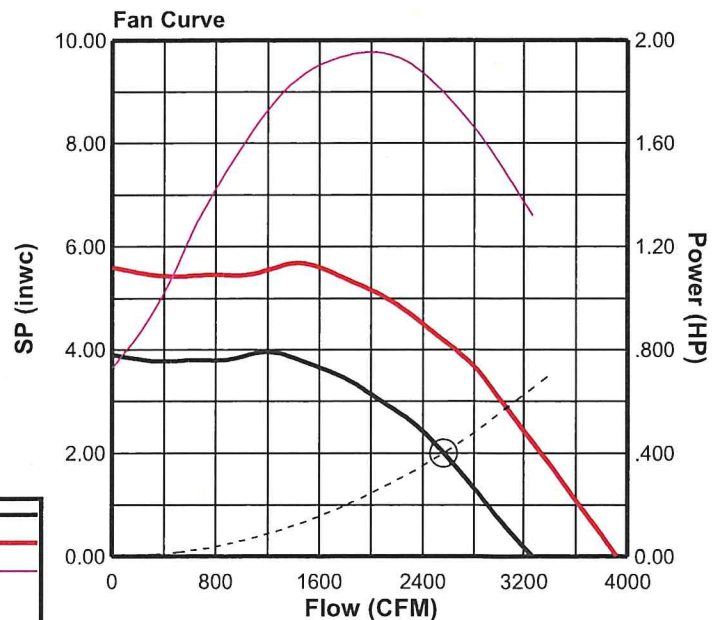
A	25-15/16
B	45-1/4
C	32-3/4
G	3
T Sq.	30
Roof Open. Sq.*	25-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	309	Unit	182
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.





COOK



MARK: KEF-6
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

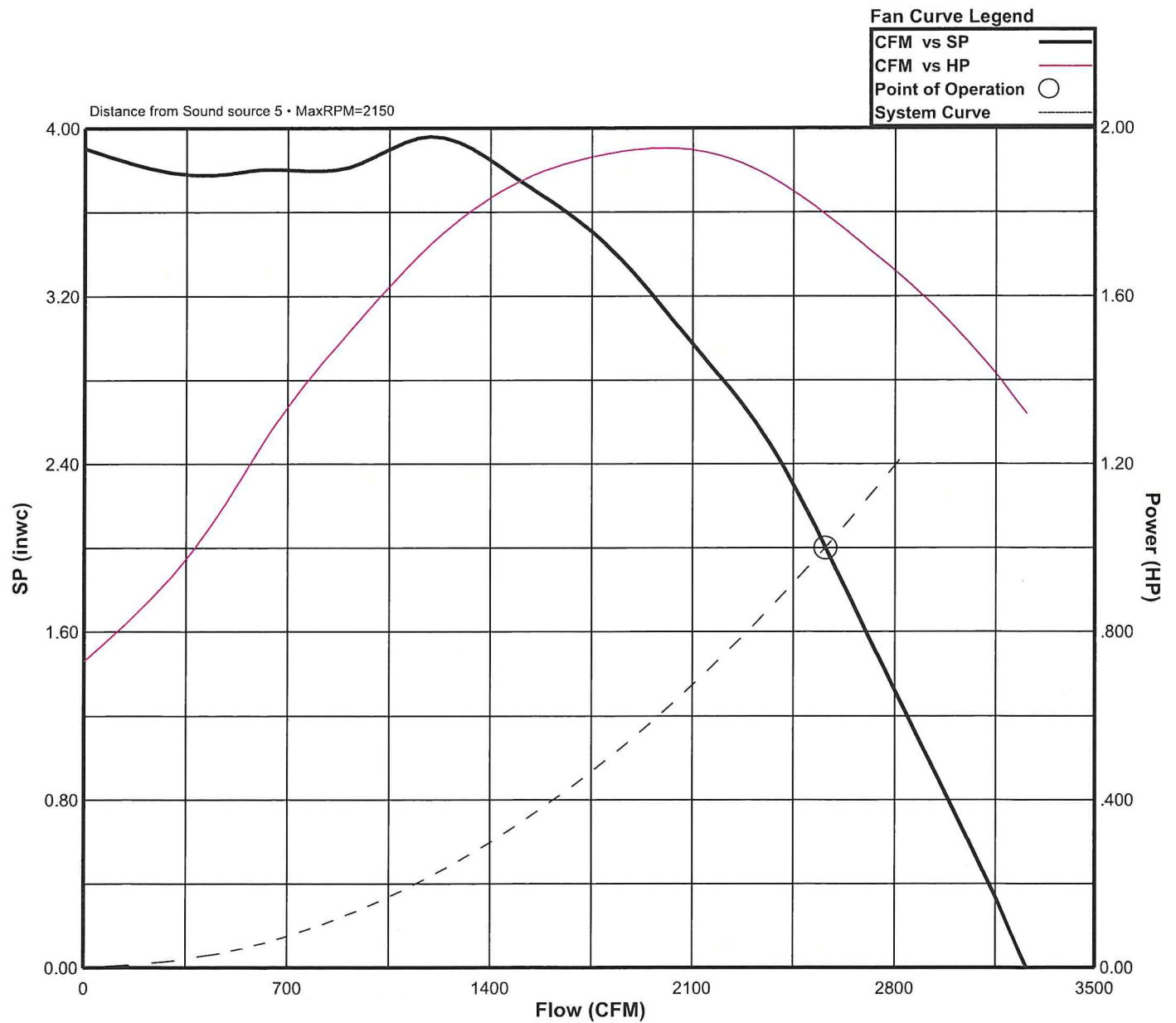
VCR-XP

Performance (*Bhp includes 5% drive loss)

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
210VX9B	2560	2.00	1794	1.80	56	1.02	489	9863	47%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
77	86	86	81	77	75	76	71	85	73	23



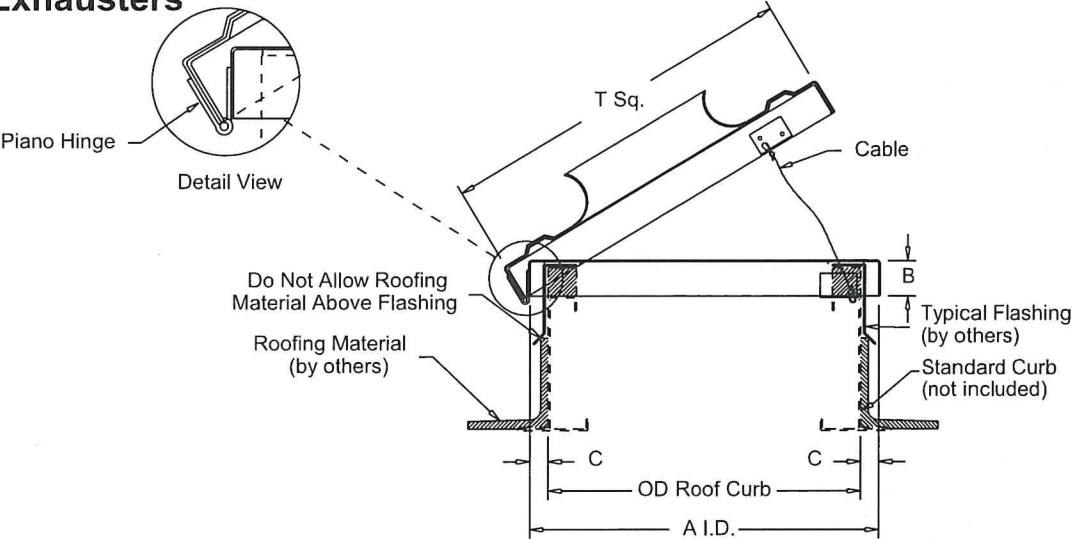


COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-6	1	HINGED SUB BASE 30T	29-3/8	3-1/4	7/16	46	28-1/2	30



COOK

PROJECT: HARD ROCK CASINO 124

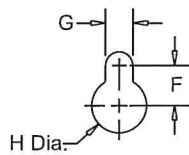
DATE: 2/26/2025

Grease Trough

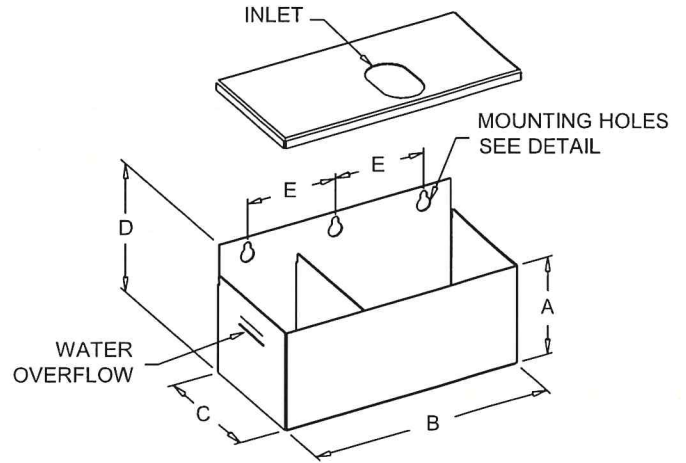
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-6	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16



COOK



MARK: KEF-7

PROJECT: HARD ROCK CASINO 124

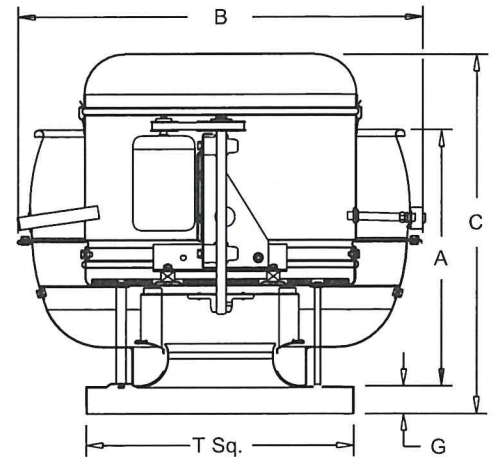
DATE: 2/26/2025

VC-R-XP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance (*Bhp includes 6% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
1	180VX8B	1920	2.00	2122	1.34	60	1.09

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
1-1/2	1725	460/3/60	TEFC -PE	3	Yes	Yes

NEMA Premium® efficiency motor per MG-1 (2014) Table 12-12
FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
80	87	89	84	79	76	74	71	86	75	25

- Distance from Sound source 5 ft

Accessories:

Premium Efficiency Motor (Min. 86.5%)
DRIVES (1.5 SF) @ 2122 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 30T
KEYWAY GREASE TROUGH
BELT TENSIONR-ROTARY

Dimensions (inches)

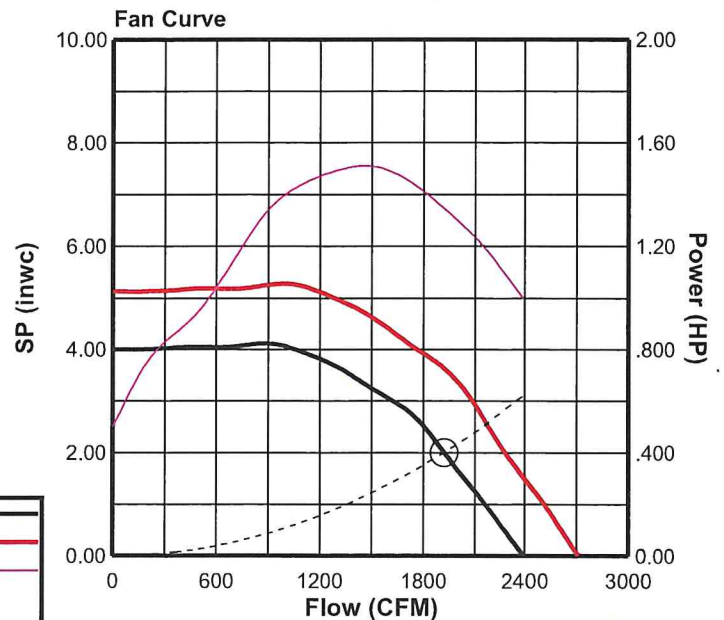
A	24-13-16
B	39-7-16
C	31-9-16
G	3
T Sq.	30
Roof Open. Sq.*	25-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	181	Unit	150
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.





COOK



MARK: KEF-7

PROJECT: HARD ROCK CASINO 124

DATE: 2/26/2025

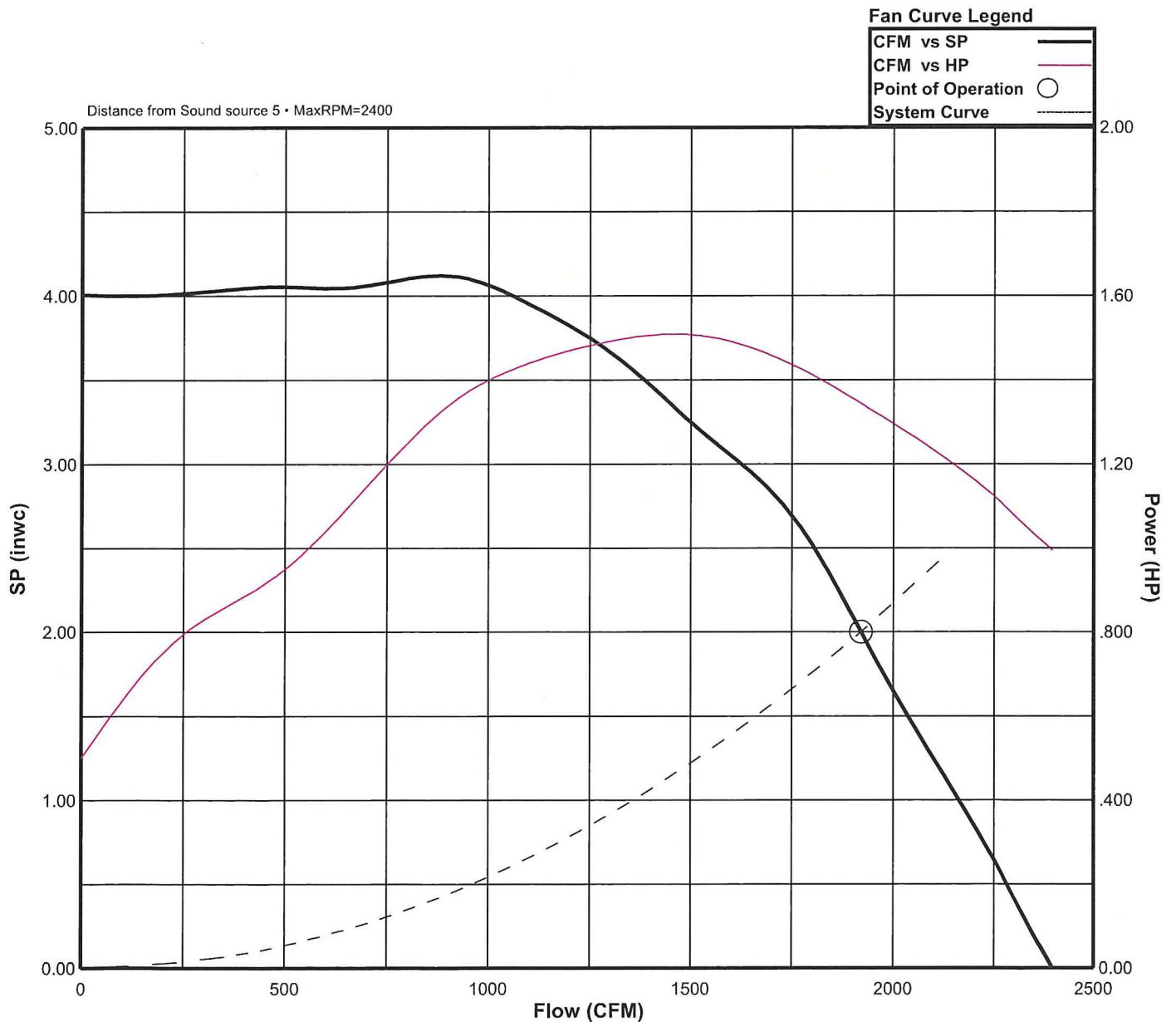
VCR-XP

Performance (*Bhp includes 6% drive loss)

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
180VX8B	1920	2.00	2122	1.34	60	1.09	497	9999	48%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
80	87	89	84	79	76	74	71	86	75	25



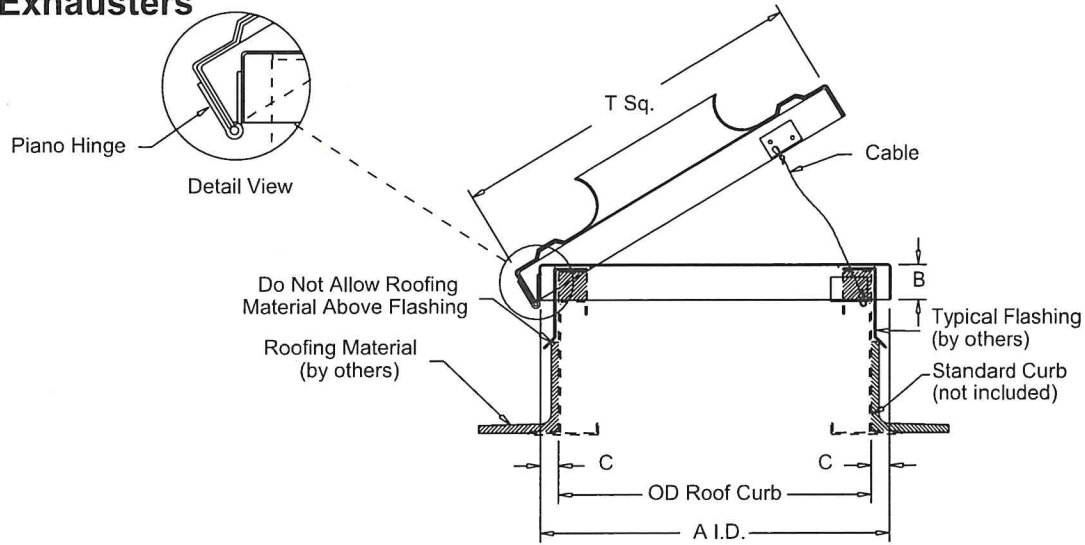


COOK

PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

HINGED SUB BASE

Centrifugal Roof Exhausters



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-7	1	HINGED SUB BASE 30T	29-3/8	3-1/4	7/16	46	28-1/2	30



COOK

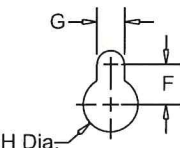
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

Grease Trough

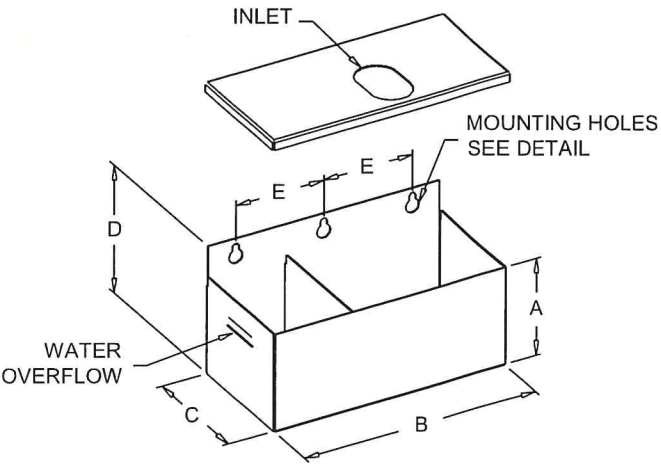
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-7	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16



COOK



MARK: KEF-8

PROJECT: HARD ROCK CASINO 124

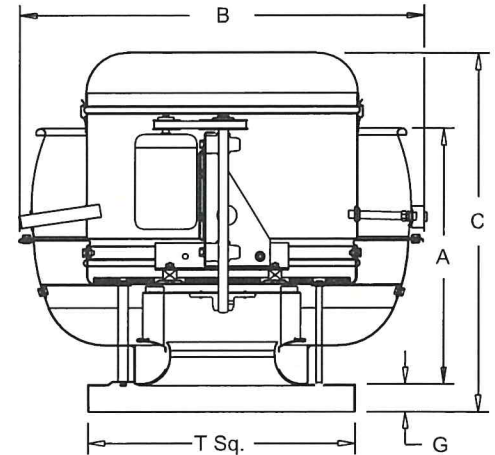
DATE: 2/26/2025

VCR-HP

Upblast Centrifugal Exhaust Ventilator Roof Mounted/Belt Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power (HP)	FEG	FEI
1	365VH12B	12440	2.25	858	7.38	63	1.19

Altitude (ft): 676 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
7-1/2	1725	460/3/60	TEFC -PE	11	Yes	Yes

NEMA Premium® efficiency motor per MG-1 (2014) Table 12-12
FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
88	91	91	88	83	79	75	70	90	78	29

- Distance from Sound source 5 ft

Accessories:

Premium Efficiency Motor (Min. 91.7%)
DRIVES (1.5 SF) @ 858 RPM
REINFORCED WHEEL
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
HINGED SUB BASE 42T
KEYWAY GREASE TROUGH
BELT TENSIONER-ROTARY

Dimensions (inches)

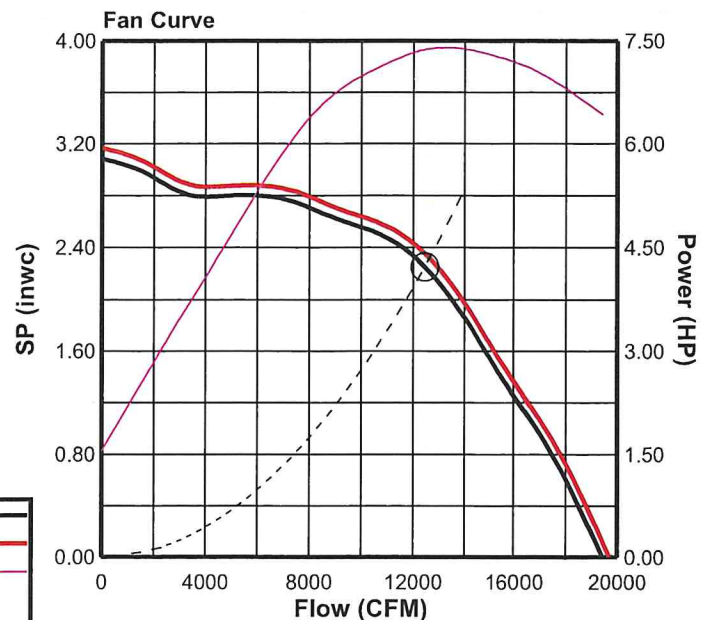
A	36-3/8
B	64-1/4
C	48-7/16
G	3
T Sq.	42
Roof Open. Sq.*	37-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	625	Unit	416
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* Roof opening size for curbs supplied by Cook only.

***Includes fan, motor & accessories.



Fan Curve Legend

CFM vs SP (858)	—
MaxRPM(870)	—
CFM vs HP	—
Point of Operation	○
System Curve	---



COOK



MARK: KEF-108
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

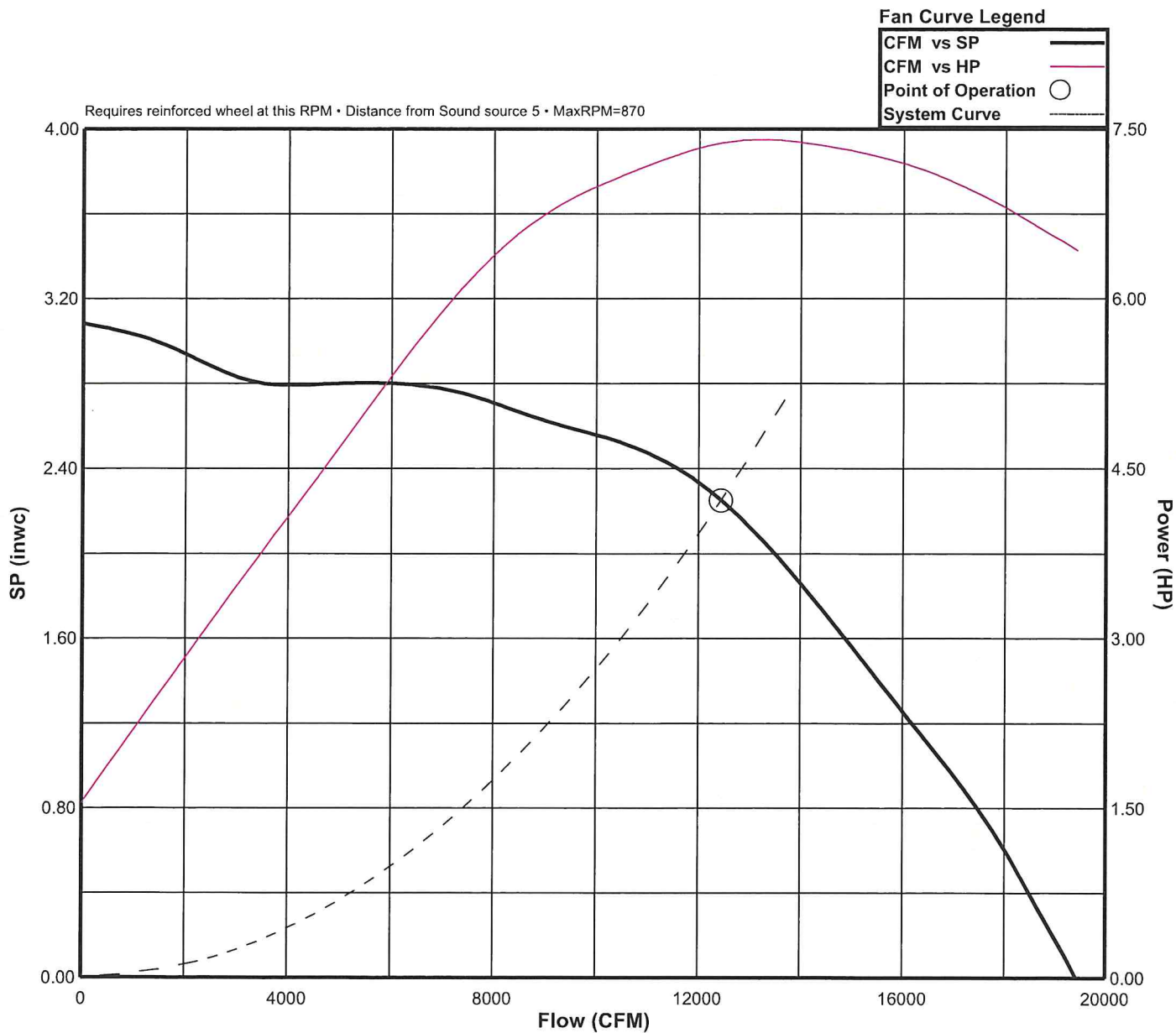
VCR-HP

Performance

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power (HP)	FEG	FEI	OVEL (fpm)	TSPD (fpm)	SE	Temp (°F)	ALT (ft)
365VH12B	12440	2.25	858	7.38	63	1.19	1271	8198	60%	70	676

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
88	91	91	88	83	79	75	70	90	78	29





COOK

PROJECT: HARD ROCK CASINO 124

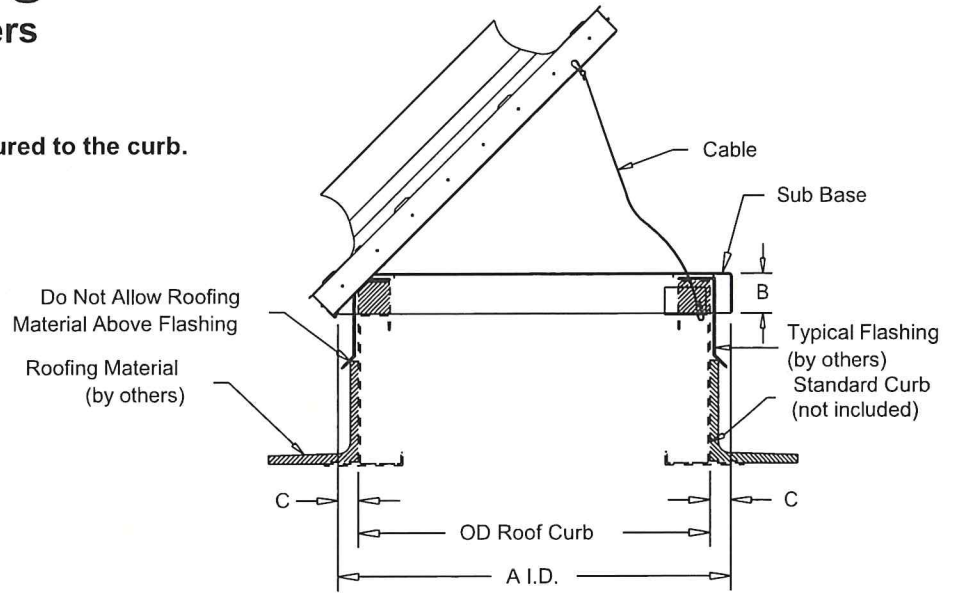
DATE: 2/26/2025

Heavy Duty Hinged Base

Centrifugal Roof Exhausters

Note:

To avoid injury, sub base must be secured to the curb.



Dimensions (inches)

Mark	Qty	Description	A I.D.	B	C	Cable	OD Curb	T.Sq.
KEF-1.	1	HINGED SUB BASE 42T	41-3/8	3	7/16	63	40-1/2	42



COOK

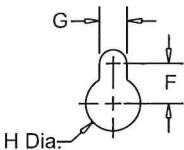
PROJECT: HARD ROCK CASINO 124
DATE: 2/26/2025

Grease Trough

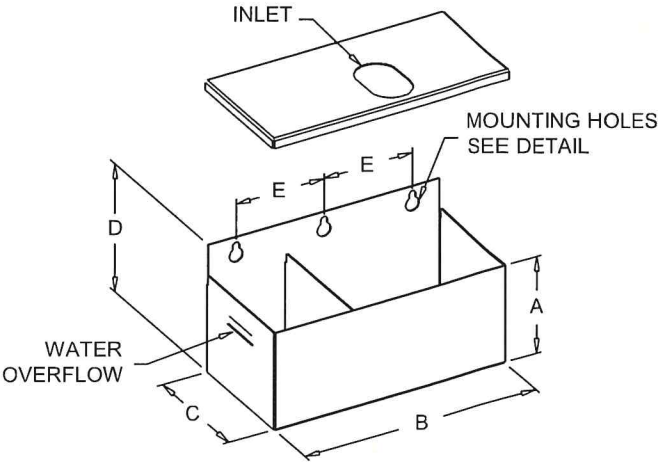
Keyway Mount

STANDARD CONSTRUCTION FEATURES:

All aluminum .063 construction - Continuously welded trough housing corners - Removable lid for servicing - Slotted mounting holes for easy removal - Baffled design for extended capacity.



MOUNTING HOLE DETAIL



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E	F	G	H Dia.
KEF-1.	1	KEYWAY GREASE TROUGH	5	12	6-1/16	6-1/2	4-1/2	1/2	3/8	11/16