

TECHNICAL GUIDE

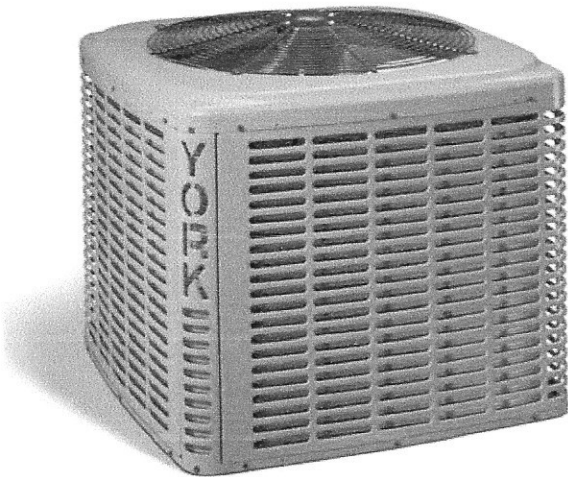
LX SERIES

SPLIT SYSTEM AIR CONDITIONERS

13 SEER – R-410A – 3 PHASE

2.5 THRU 6.3 NOMINAL TONS

MODELS: YCJD30 THRU 76 (3φ)



Due to continuous product improvement, specifications are subject to change without notice.

Visit us on the web at
www.upgnet.com and www.york.com

Additional rating information can be found at:
www.ahridirectory.org

WARRANTY SUMMARY*

Standard 1-Year limited parts warranty.
Standard 5-Years limited compressor warranty.

*Does not apply to R-22 models or internet sales.
See Limited Warranty certificate in User's Information Manual for details.

DESCRIPTION

The 13 SEER Series unit is the outdoor part of a versatile climate system. It is designed with a matching indoor coil component from Johnson Controls Unitary Products. Available for typical applications this climate system is supported with accessories and documents to serve specific functions.

FEATURES

- **Small Footprint** - Extremely lightweight with a compact footprint, it is a perfect fit for any application.
- **Quality Condenser Coils** - The coil is constructed of aluminum microchannel tubing and enhanced aluminum fins for reduced size and increased efficiency.
- **Coil Protection** - Coils are protected from damage by a slotted, stamped steel coil guard and secondary polymer mesh.
- **Optional Factory E-Coat** - Available coated coil on select models.
- **Protected Compressor** - Compressors are protected internally by a high pressure relief valve and a temperature sensor, and externally by the system high pressure switch. A factory installed liquid line filter-drier further protects the compressor against moisture and debris.
- **Environmentally Friendly Refrigerant** - The next generation refrigerant R-410A delivers environmentally friendly performance with zero ozone depletion.
- **Durable Finish** - The cabinet is made of G90-equivalent galvanized steel, finished in a durable champagne colored powdercoat. The coated steel wire fan guard and pre-treated, galvanized steel chassis components resist corrosion and rust creep.
- **Lower Installed Cost** - Installation time and costs are reduced by easy power and control wiring connections. The unit is factory charged for a 15-foot lineset. The small base dimension means less space is required on the ground or roof.
- **Top Discharge** - Warm air from the top mounted fan is blown up, away from the structure and any landscaping. This allows compact location on multi-unit applications.
- **Low Operating Sound Levels** - The upward air flow carries the normal operating noise away from the living area. The rigid top panel effectively isolates any motor sound. Isolator mounted compressor and the condenser coil muffle the normal fan motor and compressor operating sounds.
- **Low Maintenance** - Long life, permanently lubricated motor-bearings need no annual servicing.
- **Easy Service Access** - Fully exposed refrigerant connections and a single panel covering the electrical controls make for easy servicing of the unit.
- **Secured Service Valves** - Secured, re-usable service valves are provided on both the liquid and vapor sweat connections for ease of evacuating and charging.
- **Agency Listed** - Safety certified by CSA to UL 1995 / CSA 22.2. Performance certified to ANSI/AHRI Standard 210/240 in accordance with the Unitary Small Equipment certification program.

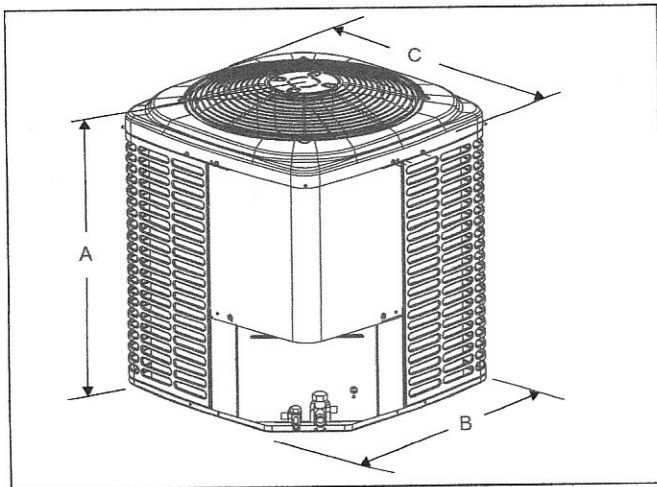
Physical and Electrical Data



MODEL	YCJD30 S43S3(E)	YCJD36 S43S3(E)	YCJD42 S43S4(E)	YCJD48 S43S3(E)	YCJD60 S43S4(E)	YCJD30 S44S3(E)	YCJD36 S44S3(E)	YCJD42 S44S4(E)	YCJD48 S44S3(E)	YCJD60 S44S4(E)	
Unit Supply Voltage	208-230V, 3 ϕ , 60Hz					460V, 3 ϕ , 60Hz					
Normal Voltage Range ¹	187 to 252					432 to 504					
Minimum Circuit Ampacity	11.6	12.3	15.4	15.5	21.5	6.0	6.4	7.3	7.2	10.5	
Max. Overcurrent Device Amps ²	15	20	25	25	35	15	15	15	15	15	
Min. Overcurrent Device Amps ³	15	15	20	20	25	15	15	15	15	15	
Compressor Type	Recip	Recip	Recip	Recip	Scroll	Recip	Recip	Recip	Recip	Scroll	
Compressor Amps	Rated Load	8.1	8.6	11.1	11.2	16.0	4.2	4.5	5.2	5.1	7.8
	Locked Rotor	65	68	68	83	110	30	34	34	44	52
Crankcase Heater	No	No	No	No	No	No	No	No	No	No	
Factory External Discharge Muffler	No	No	No	Yes	No	No	No	No	No	No	
Factory External Check Valve	No	No	No	No	No	No	No	No	No	No	
Fan Motor Amps	Rated Load	1.4	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8	
Fan Diameter Inches		17.5	22.0	22.0	22.0	24.0	17.5	22.0	22.0	24.0	
Fan Motor	Rated HP	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	
	Nominal RPM	1100	850	850	850	850	1100	850	850	850	
	Nominal CFM	2050	3200	3050	2950	3400	2050	3200	3050	3400	
Coil	Face Area Sq. Ft.	9.60	13.07	14.16	14.16	18.68	9.60	13.07	14.16	18.68	
	Rows Deep	1	1	1	1	1	1	1	1	1	
	Fins / Inch	23	23	23	23	23	23	23	23	23	
Liquid Line Set OD (Field Installed)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
Vapor Line Set OD (Field Installed)	3/4	3/4	7/8	7/8	7/8	3/4	3/4	7/8	7/8	7/8	
Unit Charge (Lbs. - Oz.) ⁴	3 - 14	4 - 9	4 - 10	4 - 9	5 - 8	3 - 14	4 - 9	4 - 10	4 - 9	5 - 8	
Charge Per Foot, Oz.	0.62	0.62	0.67	0.67	0.67	0.62	0.62	0.67	0.67	0.67	
Operating Weight Lbs.	131	145	164	173	220	131	145	164	173	220	

Models with "E" on the end of the model number have E-Coated coils.

1. Rated in accordance with AHRI Standard 110-2012, utilization range "A".
2. Dual element fuses or HACR circuit breaker. Maximum allowable overcurrent protection.
3. Dual element fuses or HACR circuit breaker. Minimum recommended overcurrent protection.
4. The Unit Charge is correct for the outdoor unit, smallest matched indoor unit, and 15 feet of refrigerant tubing. For tubing lengths other than 15 feet, add or subtract the amount of refrigerant, using the difference in actual lineset length (not equivalent length) multiplied by the per foot value.



Unit Model	Dimensions (Inches)			Refrigerant Connection Service Valve Size	
	A	B	C	Liquid	Vapor
30	28-1/4	24	24	3/8	3/4
36	28-1/4	29-1/2	29-1/2		
42	30-1/4	29-1/2	29-1/2		7/8
48	30-1/4	29-1/2	29-1/2		
60	32-1/4	34	34		

All dimensions are in inches and are subject to change without notice.
 Overall height is from bottom of base pan to top of fan guard.
 Overall length and width include screw heads.



Submittal Data Sheet

3.0-Ton Wall Mounted Unit

FTXS36LVJURXS36LVJU

FEATURES

- IR controller included
- Titanium apatite photo catalytic air purification filter
- Hot start technology
- Auto-restart (after power failure)
- Intelligent eye occupancy sensor

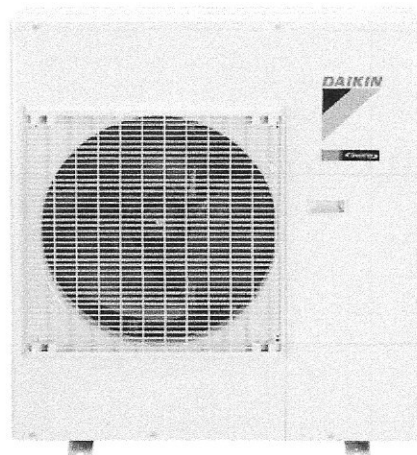
BENEFITS

- Quiet operation
- Low ambient cooling operation down to 0° F with field setting and wind baffle (KPW5E112)
- Operating Range - Cooling (14° - 114.8°)
- Operating Range - Heating (5° - 64.4°)
- 10 Year limited parts warranty for commercial or residential applications

INDOOR UNIT



OUTDOOR UNIT



GOOD FIRE HP-1



Submital Data Sheet

3.0-Ton Wall Mounted Unit

FTXS36LVJURXS36LVJU

SYSTEM PERFORMANCE

Indoor Unit Model No.	FTXS36LVJU	Indoor Unit Name:	SKYAIR WALL MOUNTED
Outdoor Unit Model No.	RXS36LVJU	Outdoor Unit Name:	RXS36LVJU
Rated Cooling Capacity (Btu/hr):	36,000	Rated Cooling Conditions:	Indoor (°F DB/WB): 80 / 67 Ambient (°F DB/WB): 95 / 75
Sensible Capacity (Btu/hr):	22,390	Rated Piping Length(ft):	25
Max/Min Cooling Capacity (Btu/hr):	36,000 / 10,200	Rated Height Difference (ft):	65.60
Cooling Input Power (kW):	4.000	Rated Heating Conditions:	Indoor (°F DB/WB): 70 / 70 Ambient (°F DB/WB): 47 / 43
SEER (Non-Ducted/Ducted):	17.90 /	HSPF (Non-Ducted/Ducted):	8.3 /
EER (Non-Ducted/Ducted):	8.37 /		
Rated Heating Capacity (Btu/hr):	38,000		
Max/Min Heating Capacity (Btu/hr):	38,000 / 10,200		
Heating Input Power (kW):	3.90		

SYSTEM DETAILS

Refrigerant Type:	R-410A	Cooling Operation Range (°F DB):	14 - 115
Holding Refrigerant Charge (lbs):	6.2	Heating Operation Range (°F WB):	5 - 75
Additional Charge (lb/ft):	0.03	Max. Pipe Length (Vertical) (ft):	66
Pre-charge Piping (Length) (ft):	33	Cooling Range w/Baffle (°F DB):	0 - 115
Max. Pipe Length (Total) (ft):	98	Heating Range w/Baffle (°F WB):	0 - 75
Max Height Separation (Ind to Ind ft):	66		

GOOD FIRE HPI



Submittal Data Sheet

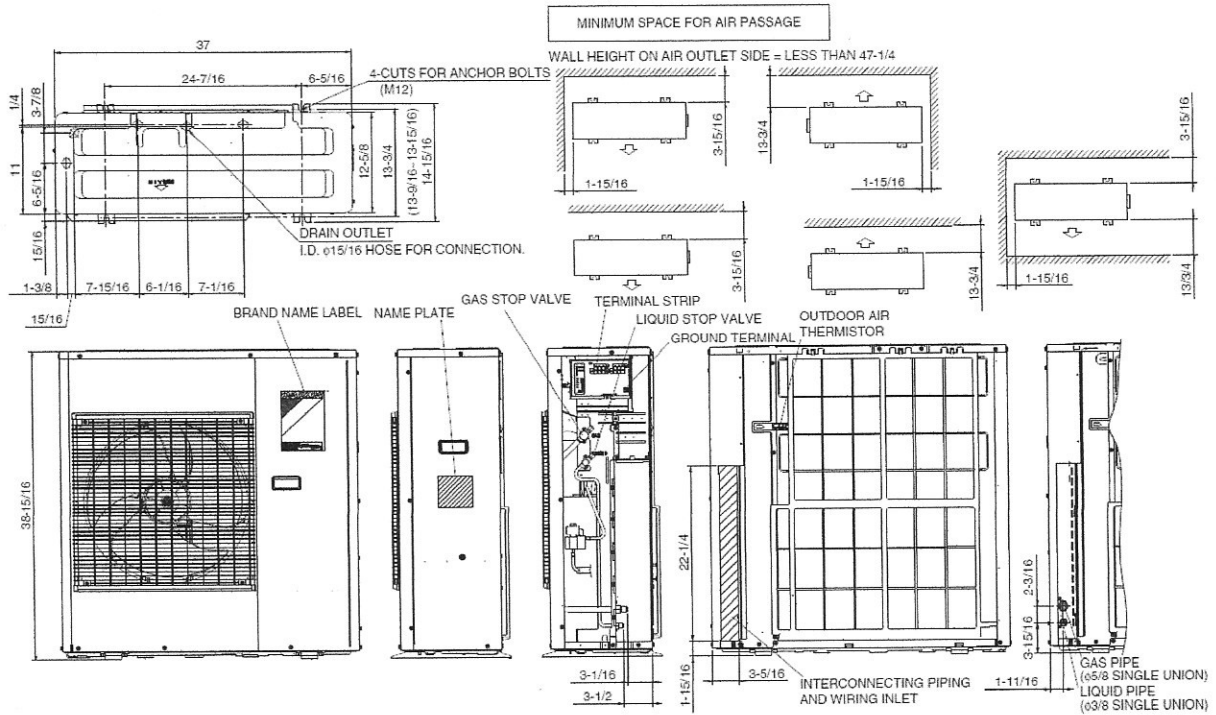
3.0-Ton Wall Mounted Unit
FTXS36LVJURXS36LVJU

OUTDOOR UNIT DETAILS

Power Supply (V/Hz/Ph):	208-230 / 60 / 1	Compressor Type:	Inverter
Power Supply Connections:	L1, L2, Ground	Capacity Control Range (%):	-
Min. Circuit Amps MCA (A):	19.50	Airflow Rate (H) (CFM):	2,627
Max Overcurrent Protection (MOP) (A):	20.00	Gas Pipe Connection (inch):	5/8
Max Starting Current MSC(A):		Liquid Pipe Connection (inch):	3/8
Rated Load Amps RLA(A):	20.3	Sound Pressure (H) (dBA):	54
Dimensions (HxWxD) (in):	38-15/16 x 37 x 12-5/8	Sound Power Level (dBA):	68
Net Weight (lb):	179		

DIMENSIONAL DRAWING - OUTDOOR UNIT

RKS30/36LVJU, RXS30/36LVJU





Submittal Data Sheet

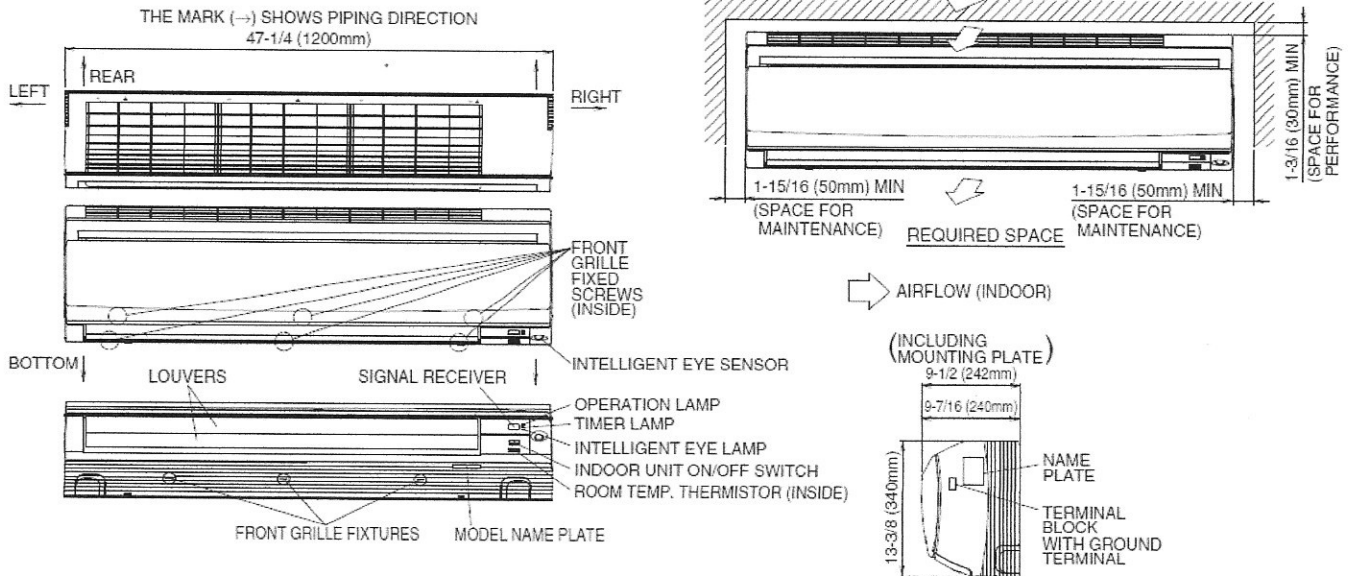
3.0-Ton Wall Mounted Unit

FTXS36LVJURXS36LVJU

INDOOR UNIT DETAILS			
Power Supply (V/Hz/Ph):	208-230 / 60 / 1	Airflow Rate (H/M/L/SL) (CFM):	770/635/519/473
Power Supply Connections:	See Outdoor Unit for Electrical Specs	Moisture Removal (Gal/hr):	
Min. Circuit Amps MCA (A):		Gas Pipe Connection (inch):	5/8
Max Overcurrent Protection (MOP) (A):		Liquid Pipe Connection (inch):	3/8
Dimensions (HxWxD) (in):	13-3/8 x 47-1/4 x 9-7/16	Condensate Connection (inch):	5/8
Panel (HxWxD) (in):		Sound Pressure (H/M/L/SL) (dBA):	49/45/40/37
Net Weight (lb):	38	Sound Power Level (dBA):	65
Panel Weight (lb):		Ext. Static Pressure (Rated/Max) (inWg):	/

DIMENSIONAL DRAWING - INDOOR UNIT

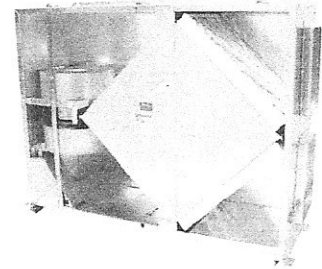
FTXS30/36LVJU



GOOD FIRE ERV-1



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Jacksonville, Florida 32217-2298
P: 800.961.7370 F: 800.961.7379
www.solerpalau-usa.com



MODEL TRC500

(Energy Recovery Ventilators (ERV))

Specifications

Ventilation Type: Static Plate, Heat and Humidity Transfer					
Typical Airflow Range: 200-540 CFM					
AHRI 1060 Certified Core: One L85					
Airflow Rating Points (for AHRI): 450 CFM and 338 CFM					
Motors: One, 0.6 hp (Single Phase)					
V	Hz	Phase	FLA	Min. Cir. Amps	Max. Overcurrent Protection Device
115	60	Single	7.0	8.8	15
208-230	60	Single	3.5	4.4	15
Standard Features: Non-Fused Disconnect 24 VAC Transformer/Relay Package					
Filters: Two total, MERV 8, 2" pleated, 14" x 20" nominal size					
Weight: 141 lbs (unit), 160 lbs (in carton) 200 lbs (on pallet), up to 3 units on 40 lb pallet					
Shipping Dimensions: 48" L x 41" W x 18" H (in carton) 55" L x 42" W x 22" H (on pallet)					

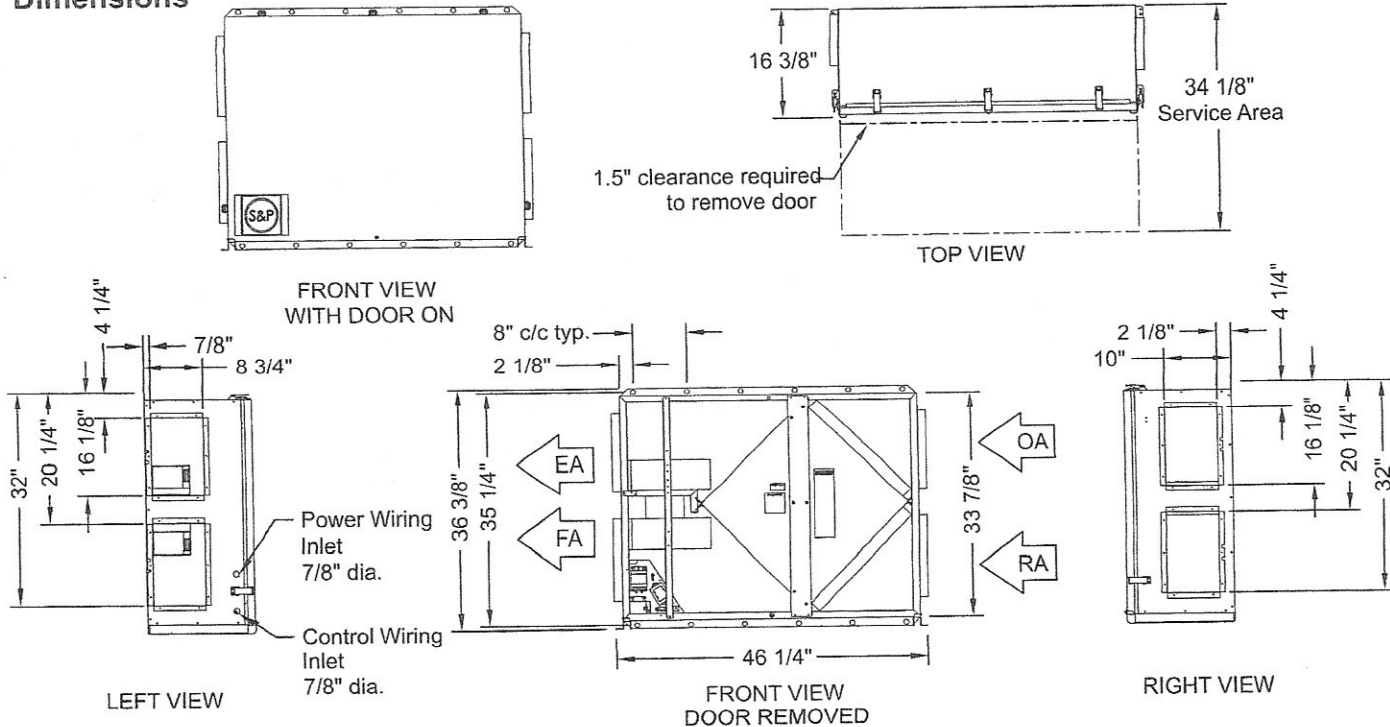
Core Performance

Airflow CFM	ESP in H ₂ O	Watts	Temp EFF%	Total EFF% Winter/Summer*
225	1.25	335	81	76/66
338	1.00	420	77	71/61
380	0.90	470	75	69/59
450	0.65	550	73	66/56
540	0.25	640	70	62/52
575	0.00	690	69	61/51
600	-0.25	735	68	60/50

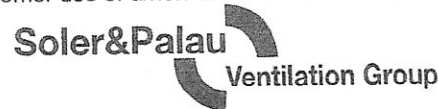
*At AHRI 1060 standard conditions
(Contact Factory for certified data for core components.)
Note: Watts is for the entire unit.

EA: Exhaust Air to outdoors
OA: Outdoor Air intake
RA: Room Air to be exhausted
FA: Fresh Air to inside

Dimensions



For more information contact us at www.solerpalau-usa.com or 1.800.961.7370 for additional submittal drawings.
Soler & Palau will not be responsible for fabrication changes or errors resulting from customer use of a non-current submittal drawing.



DIMENSIONS CF

Models ¹	Dimensions ²				Refrigerant Connections ^{3,4,5}	
	Height A	Width B	Opening Widths		Line Size	
			C	D	Liquid	Vapor
CF18A*A1	19-1/2	14-1/2	13-1/2	13-1/2	3/8	3/4
CF18BXA1	19	17-1/2	16-1/2	16-1/2		
CF24A*A1	19-1/2	14-1/2	13-1/2	13-1/2		
CF24BXA1	19	17-1/2	16-1/2	16-1/2		
CF24CXA1	21	21	20	20		
CF30AXA1	21-5/8	14-1/2	13-1/2	13-1/2		
CF30B*A1	23	17-1/2	16-1/2	16-1/2		
CF30CXA1	21	21	20	20		
CF30DXA1	25	24-1/2	23-1/2	23-1/2		
CF36AXA1	25-1/2	14-1/2	13-1/2	13-1/2		
CF36B*A1	25-5/8	17-1/2	16-1/2	16-1/2		
CF36CXA1	23	21	20	20		
CF36DXA1	25	24-1/2	23-1/2	23-1/2		
CF42BXA1	25	17-1/2	16-1/2	16-1/2		
CF42C*A1	25	21	20	20		
CF42DXA1	25	24-1/2	23-1/2	23-1/2		
CF48C*A1	27	21	20	20		
CF48DXA1	27	24-1/2	23-1/2	23-1/2		
CF60C*A1	33	21	20	20		
CF60DXA1	32-3/4	24-1/2	23-1/2	23-1/2		
CF64DXA1	32-3/4	24-1/2	23-1/2	23-1/2		

1. Asterisk (*) denotes coil model is available as a flex coil or with factory installed TXV.
2. All dimensions are in inches.
3. Refrigerant line sizes may require larger lines for extended line lengths. See Application Data part number 247077.
4. Adapter fitting must be field installed for other line set size.
5. See outdoor unit technical guide for proper line set size.

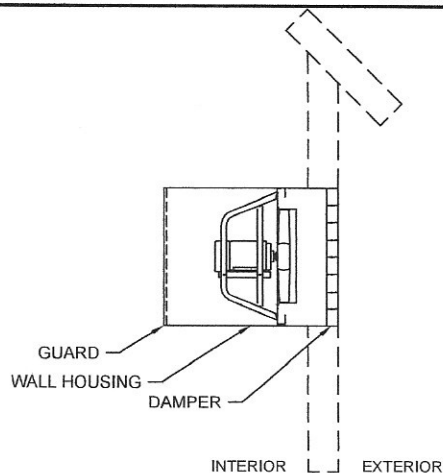
DIMENSIONS CM

Models ¹	Dimensions ²				Refrigerant Connections ^{3,4,5}	
	Height A	Width B	Opening Widths		Line Size	
			C	D	Liquid	Vapor
CM18A*A1	19-1/2	14-1/2	13-1/2	13-1/2	3/8	3/4
CM18BXA1	19	17-1/2	16-1/2	16-1/2		
CM24A*A1	19-1/2	14-1/2	13-1/2	13-1/2		
CM24B*A1	19	17-1/2	16-1/2	16-1/2		
CM24CXA1	21	21	20	20		
CM30A*A1	25-1/2	14-1/2	13-1/2	13-1/2		
CM30B*A1	23	17-1/2	16-1/2	16-1/2		
CM30CXA1	23	21	20	20		
CM30DXA1	25	24-1/2	23-1/2	23-1/2		
CM36AXA1	25-1/2	14-1/2	13-1/2	13-1/2		
CM36B*A1	25-5/8	17-1/2	16-1/2	16-1/2		
CM36C*A1	25	21	20	20		
CM36DXA1	25	24-1/2	23-1/2	23-1/2		
CM42C*A1	27	21	20	20		
CM42DXA1	27	24-1/2	23-1/2	23-1/2		
CM48C*A1	33	21	20	20		
CM48D*A1	32-3/4	24-1/2	23-1/2	23-1/2		
CM60C*A1	33	21	20	20		
CM60D*A1	32-3/4	24-1/2	23-1/2	23-1/2		
CM64DXA1	32-3/4	24-1/2	23-1/2	23-1/2		

1. Asterisk (*) denotes coil model is available as a flex coil or with factory installed TXV.
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Model: SE1-12-432-D

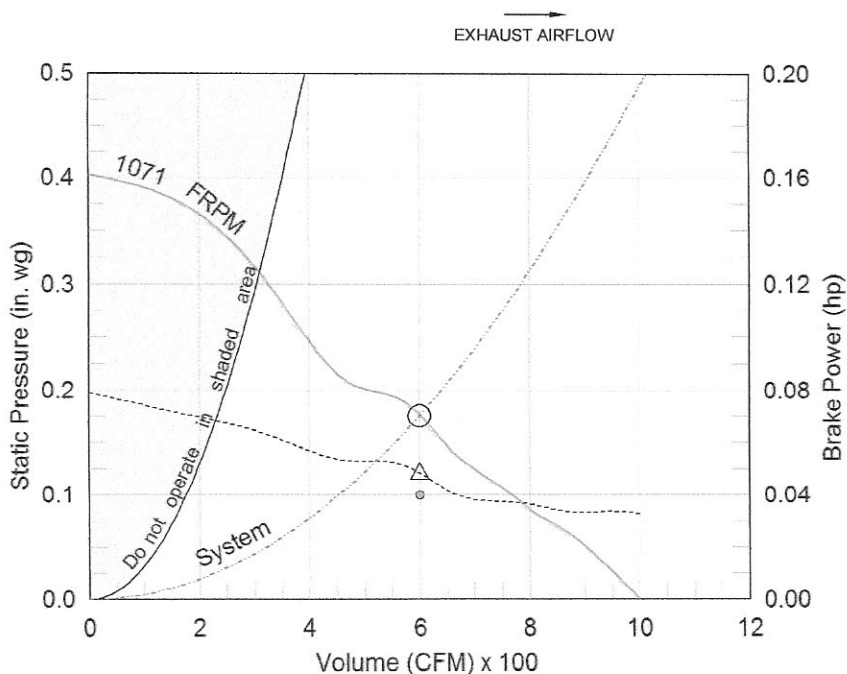
Sidewall Direct Drive Fan
Motor Access From Int. of Bldg.



Dimensional	
Quantity	2
Weight w/o Acc's (lb)	25
Weight w/ Acc's (lb)	72
Optional Damper (in.)	14 x 14
Wall Opening (in.)	19.25 x 19.25

Performance	
Requested Volume (CFM)	600
Actual Volume (CFM)	600
External SP (in. wg)	0.1
Total SP (in. wg)	0.175
Fan RPM	1071
Operating Power (hp)	0.05
Elevation (ft)	62
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Tip Speed (ft/min)	3,363
Static Eff. (%)	34

Motor	
Motor Mounted	Yes
Size (hp)	1/8 (or greater)
Voltage/Cycle/Phase	230/60/1
Enclosure	TEAO
Motor RPM	1550
Windings	1



△ Operating Bhp point	External SP	0.1 in. wg
○ Operating point at Total SP	Damper	0.012 in. wg
◦ Operating point at External SP	Wall Housing	0.063 in. wg
— Fan curve	Total SP	0.175 in. wg
----- System curve		
----- Brake horsepower curve		

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	72	67	52	51	52	49	43	36	57	46	4.3

Notes:

All dimensions shown are in units of in.
*Please consult factory for actual motor amp draw
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB
attenuation per Octave band at 5 ft - dBA levels are not
licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SE1-12-432-D

Sidewall Direct Drive Fan

Tag: EF

Standard Construction Features:

- Fan panels of galvanized steel - Aluminum blade propeller - Heavy gauge welded wire motor supports and fan guard that is Zinc plated - Motor mounted to support guard with neoprene isolators - Corrosion resistant fasteners

Selected Options & Accessories:

Motor with Thermal Overload

UL/cUL 705 Listed - "Power Ventilators"

Airflow Direction: Exhaust

Damper Mounted, WD-320-PB-14X14, Gravity Operated, Not Coated

Short Wall Hsg, Flush Exterior, w/ OSHA Grd.

Motor Access: From Int. of Bldg.

Switch, NEMA-1, Toggle, Shipped with Unit

Junction Box Mounted & Wired

Closure Angles

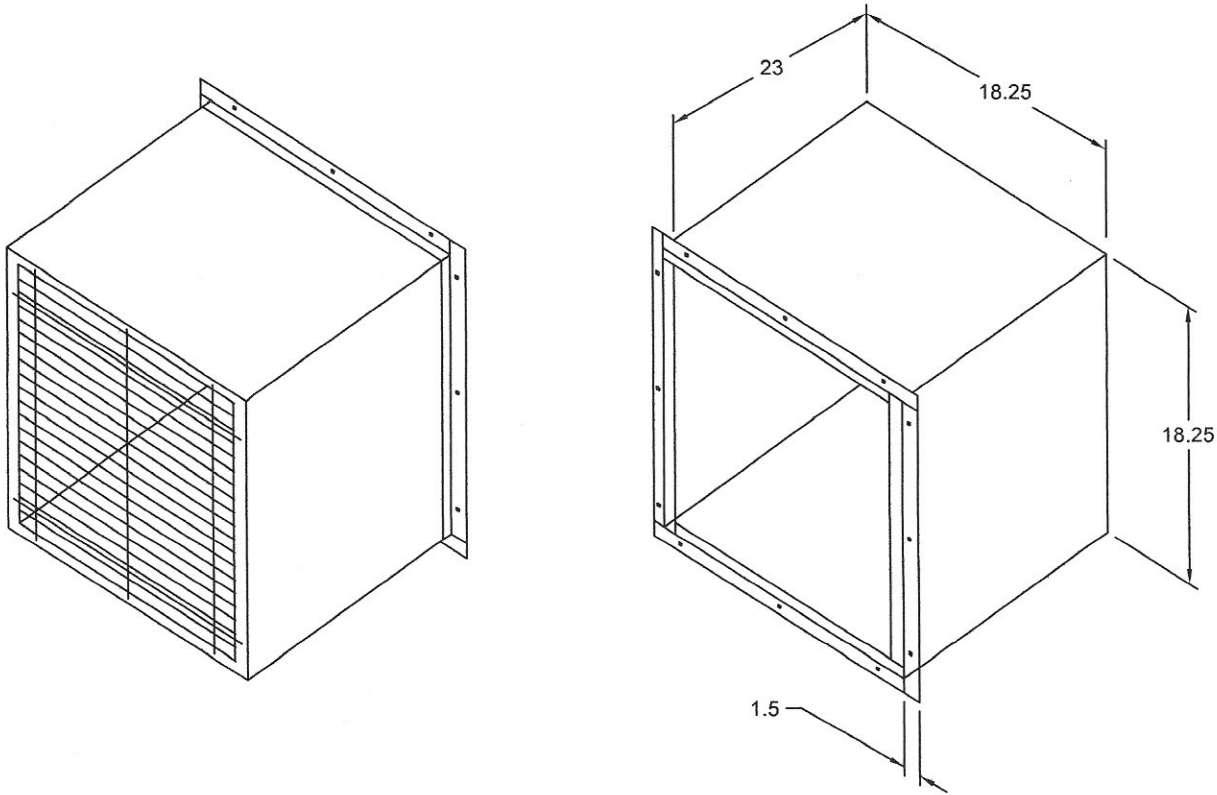
Solid State Speed Control, 6 Amp, Shipped Loose

Unit Warranty: 1 Yr (Standard)

Short Wall Housing

Standard Construction Features:

- Galvanized steel construction - Heavy gauge mounting flanges - Pre-punched mounting holes - Inside flanges allow damper to be mounted - Overlapping weatherhood flange keeps rain out - OSHA Protective guard of welded steel wire completely protects the drive side of the wall housing.



Notes: All dimensions shown are in units of in.

ESD-435 4 in. Frame, 35 deg Blade

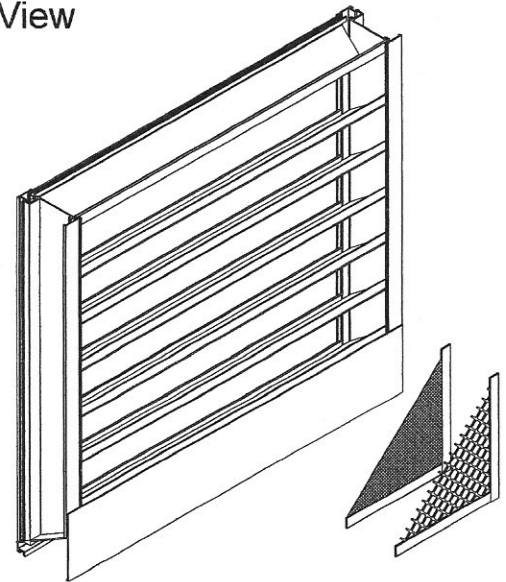
APPLICATION & DESIGN

ESD-435 is a weather louver designed to protect air intake and exhaust openings in building exterior walls. Design incorporates drain gutters in the head member and horizontal blades to channel water to the jambs where water is further channeled through vertical downspouts and out at the sloped sill. The ESD-435 is an extremely efficient louver with AMCA LICENSED PERFORMANCE DATA enabling designers to select and apply with confidence.

PRODUCT DETAILS

Frame: 4 in. x 0.081 in. Frame Thickness
Frame Type: Channel
Blades: 0.081 in. Fixed Blade Thickness
Material: Aluminum
Sizing: Nominal
Shape: Rectangular
Construction: Mechanically Fastened

Internal View



OPTIONS & ACCESSORIES

Finish: Mill
Bird Screen: 0.5 in. x 0.063 in., Mesh Aluminum, Internal, Mill Finish
Insect Screen: Aluminum, Internal
Warranty: 1 Yr (Standard) Product Warranty

Width and Height furnished approximately 0.250 in. under size.

SUMMARY

ID #	TAG	QTY.	W (in.)	H (in.)	FREE AREA (ft2)	FREE AREA (%)	SECT. WIDE	SECT. HIGH	SHIP SECT.
5-1		1	24	24	1.81	46.3	1	1	1

PERFORMANCE

ID #	TAG	APPLICATION	VOLUME (CFM)	PRESSURE DROP (in. wg)	FREE AREA VELOCITY (ft/min)	BPWP (ft/min)
5-1		Intake	1,200	0.07	662	989

**Calculated pressure drop does not include the effects of screens, filters or other accessories

Total Louver Qty: 1 **Total Weight (lb):** 14 **Louver Area (ft2):** 4
Total Ship Sect.: 1

**Weight shown is an estimate only based on the default base product configuration without options or accessories.

Larger openings may require field assembly of multiple louver panels to make up the overall opening size. Individual louver panels are designed to withstand windloads up to a maximum of 25 PSF (size and configuration dependent). Design, materials and installation of structural reinforcement required to adequately support large sections or multiple section assemblies within a large opening are not provided by Greenheck. Unless specifically indicated, the following are NOT included in the quote provided: structural steel, installation hardware (anchors, angle clips, continuous angles, shims, fasteners, inserts, backer rod and sealant), field measuring and/or installation, miscellaneous flashing, trim or enclosures, blank off panels, mullion covers or mullion hardware, hinged frames or removable subframes, custom bird/insect screen, 3-coat, metallic and/or exotic paint finishes, bituminous paints for unlike metals, any applicable taxes, stamped and sealed structural calculations seismic calculations or job specific engineered submittal drawings.

Louvers Product Limited Warranty

Thank you for purchasing Greenheck louvers. Greenheck warrants this equipment to be free from defect in material and workmanship for a period of **1 year** from the date of product shipment. Any units or parts, which prove defective during the warranty period, will be repaired or replaced at our option when returned to our factory, transportation prepaid. Unless agreed upon otherwise Greenheck will not be held responsible for costs associated with removal or installation of product(s).

The legal remedies described in this Limited Warranty are the sole exclusive remedy of Customer. This limited warranty will be void if payment from Customer is not received within a commercially reasonable time frame. GREENHECK MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This limited warranty is extended solely to the Customer. It is nontransferable and non-assignable, and the Customer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Customer.

In the event of material breach by the Customer of any of the conditions of this warranty, Greenheck shall have no liability for and product failure claims.

Failure to pay Greenheck in full for original services will automatically make this warranty null and void.

Greenheck will not be held liable for incidental or consequential damages of any kind. The limited warranty of product(s) replaced or repaired under this limited warranty shall be limited to the remainder of the original warranty period. Greenheck reserves the right to reasonable field access to diagnose and repair any product alleged to be defective. This limited warranty may not be modified by anyone and may not be changed by such things as purchase order forms or acceptance forms, unless otherwise agreed upon by Greenheck.

This limited warranty is provided in lieu of any other warranty requirements or obligations, including, but not limited to, those within project specifications.

All notices and claims given under or pursuant to this agreement shall be in writing and sent by certified or registered mail, postage prepaid, return receipt requested to: Greenheck, Attn: Louver Sales, 525 Western Road, Schofield, WI 54476.

By proceeding to use our products and services on your project, you accept the terms of these limited warranties.

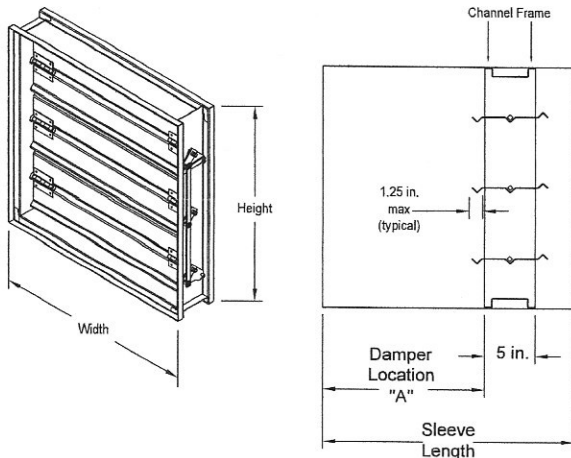
Model: VCD-23

Ratings and General Construction

Blade Action:	Opposed	Axle Bearings:	Synthetic	Frame Type:	Channel
Axle/Linkage Material:	Steel	Jackshifting:	No Preference	Material:	Galvanized
Blade Seal:	TPE	Clean Wrap:	No	Frame Thickness (ga):	16
Jamb Seal:	304 SS	Sizing:	Actual	Transition:	None
Blade Indicator:	None	Temp. Rating (°F):	180	Actuator Sizing:	Default SqFt

Actuator

Actuator Type:	120 VAC	Actuator Operation:	Spring Return	Fail Position:	Closed
Actuator Mfr.:	All	Actuator Mounting:	Internal	NEMA Enclosure:	Least Cost
Operating Mode:	Two Position	Actuator Location:	Left Side	Auxiliary Switch:	Yes



Application & Design

The VCD-23 is a ruggedly built low leakage control damper intended for application in low to medium pressure and velocity systems. A wide range of electric and pneumatic actuators are available.

Ratings

Pressure:	Up to 5 in. wg pressure differential
Velocity:	3,000 ft/min
Leakage:	Class 1A @ 1 in. wg, Class 1 @ up to 5 in. wg
Temperature:	Up to 250°F

Greenheck Fan Corporation certifies that the model VCD-23 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.



Notes: All dimensions shown are in units of inches.

Add sleeve thickness for overall sleeved damper dimension.
Installation instructions available at www.greenheck.com.

Selected Accessories

- Retaining Angles: Mounting - Single-Side Loose For UL Sizes, 2 Sets for Larger Sizes, Wood Stud, Size - 1.5 in. x 1.25 in. Angle(s)

Row ID	Tag	Qty	Opening W (in.)	Opening H (in.)	Drive Arrangement	Actuator Model	Act. Qty.	Sleeve Length (in.)	Sleeve Gauge (ga)	Damper Location (in.)
6-1		1	24.000	24.000	Drive-CC-11-1FIL-0	MS4104F1210	1	24.000	20	3.500

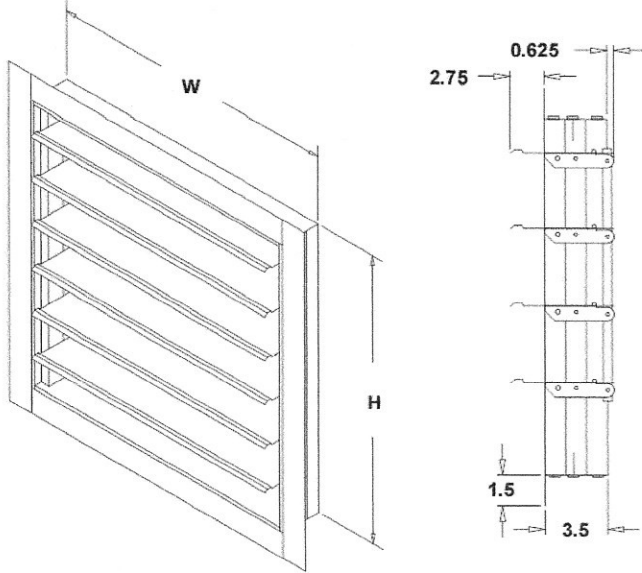
Total Qty: 1
Total Number of Actuators: 1

Vertical Mount Exhaust Damper

Model: WD-320

Standard Construction Features:

- Model WD-320 is a vertical mount exhaust damper and is constructed of 18 ga galvanized steel with pre-punched mounting holes and a flanged frame - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge - Steel axles are 0.188 in. diameter zinc plated mounted steel in acetal bushings - Synthetic axle bearings



Damper Configuration:

ID #:	Tag:	Quantity:	W (in.):	H (in.):	Act Qty:	Actuator Model:
6	EF	2	14	14	0	

Notes: All dimensions shown are in units of in.
Width And height furnished approximately 0.125 in. undersize

Damper Drive Arrangements Job Summary -Start-

Drive Arrangement: Drive-CC-11-1FIL-0



Damper Drive Arrangements Job Summary -End-

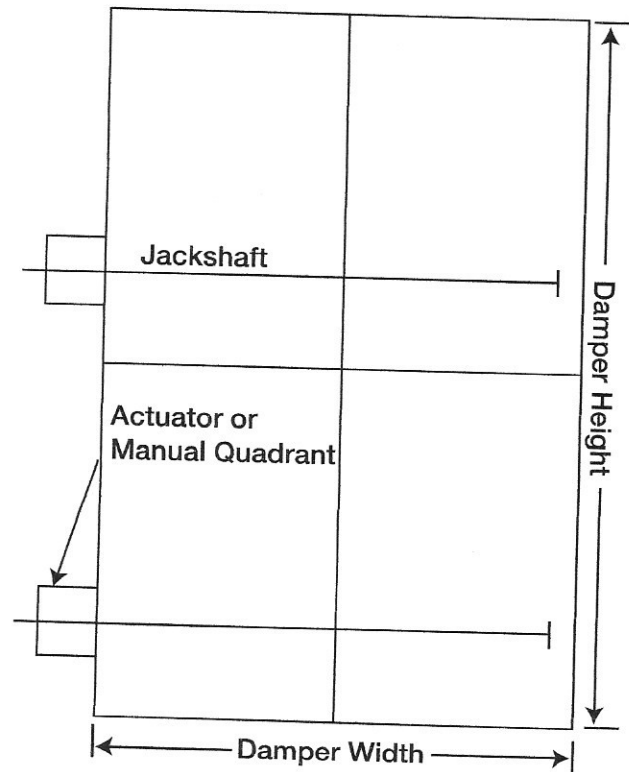
Drive Arrangement Definition

On multi-blade dampers (except vertical blade and Face & Bypass), they are given a drive arrangement code that helps describe the construction of the damper. The following breaks down what each number and letter represents.

22-2FEL-2

① ② ③ ④ ⑤ ⑥ ⑦

- ① Number of sections wide
- ② Number of sections high
- ③ Number of actuators or manual quadrants
- ④ Who supplies the actuators or manual quadrants
F - Factory
C - Customer Supplied (field mounted)
- ⑤ Actuator or manual quadrant mounting
E - External
I - Internal
B - Both internal and external
- ⑥ Actuator or manual quadrant location
L - Left hand drive
R - Right hand drive
B - Both right and left
- ⑦ Number of jackshafts



Vertical blade and face & bypass dampers are given a configuration ID number that helps describe the construction of the damper. See the following examples:

Model	Drive Arrangement Prefix
AMD-23, 33, 42	AMD
AMD-42V	VB
DFD-210, 230; DFDAF-310; DFDAF-330; SEDFD-210	MLS
FBH & FBV	FB
FSD, OFSD, CFSD, SMD, SEFSD, SSFSD, SESMD, SSSMD series (except vertical blade models)	MLS
FSD-311V, SMD-301V	VB
GFSD series	GFSD
ICD series	CC
IMO series	MLS
MBD-15 & VCD series (except vertical blade models)	CC
VCD-xxV (vertical blade models)	VB

POC RETAINING ANGLE

Greenheck's one piece retaining angle, the POC (literally named for being a "Piece of Cake") makes damper installation a breeze. The POC angle is designed by fastening four pieces together to form one piece. When installed the angles simply wraps around the sleeve of the damper and is fastened in place.

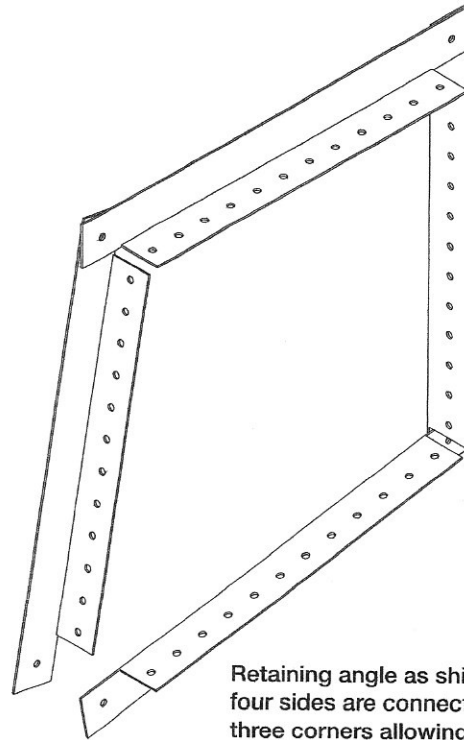
Construction

20 ga. (1mm) or 16 ga. (1.5mm) galvanized steel.

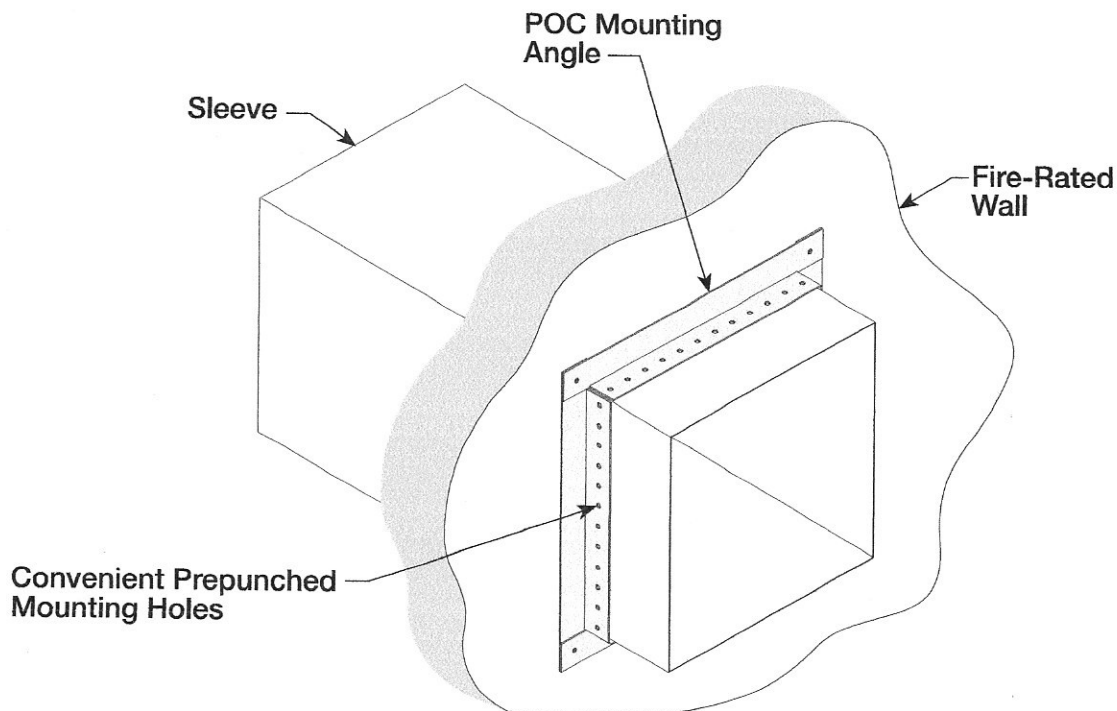
1 1/2 in. x 1 1/4 in. (38mm x 32mm) or
2 1/2 in. x 1 1/4 in. (64mm x 32mm) for sizes greater
than 48 inches (1219mm)

Retaining angles for 1 1/2 hour rated fire and combination fire smoke dampers with a width and height 48 in. (1219mm) or less must be a minimum of 20 ga. (1mm) steel. Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than 48 in. (1219mm) must be a minimum of 16 ga. (1.5mm). If damper width plus damper height is less than or equal to 44 in. (1117mm) then the POC angles ships in one piece. If damper width plus damper height is greater than 44 in. (1117mm) then the POC angles ships in two pieces.

Meets requirements of UL 555 and UL 555S.



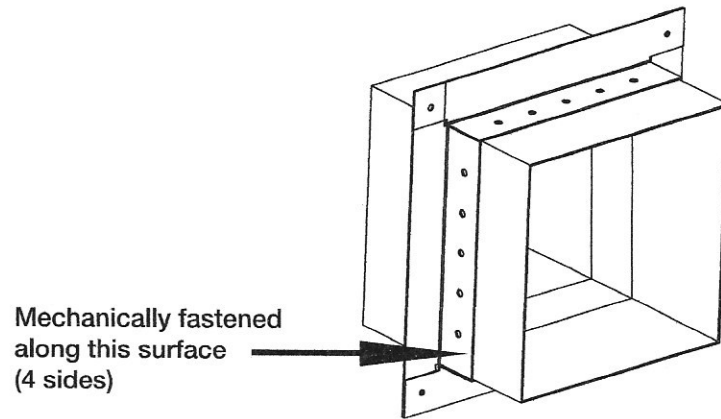
Retaining angle as shipped from factory. The four sides are connected together by rivets in three corners allowing for easy installation.



Retaining angle as mounted in the field. The POC angle wraps around the sleeve. The factory provides prepunched mounting holes to further simplify installation.

Available retaining angle option:

- **Loose** - Angle/s ships unattached to the damper.
- **Single-Fastened** -Angles ships mechanically fastened to the damper sleeve at a specified location.



- **Wrapped** - Angle is wrapped around the damper sleeve and tied together.

