

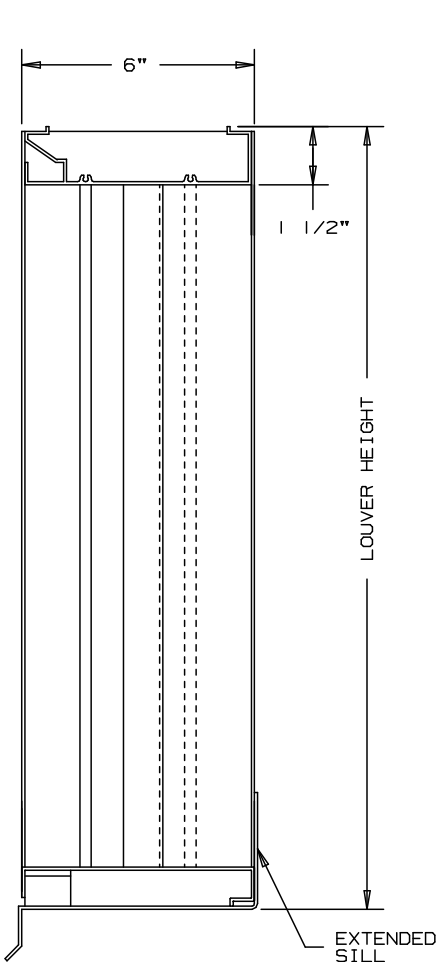
# ARROW

EXTRUDED ALUMINUM LOUVERS  
STATIONARY VERTICAL, 6" DEEP

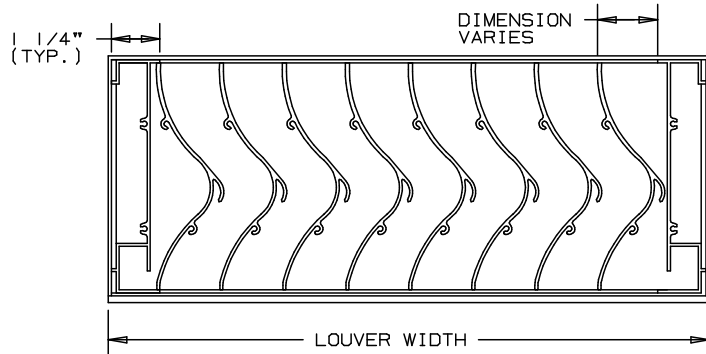
# TYPE

# EA-662-VSL

## RAIN RESISTANT STORM LOUVER



NOT TO SCALE



### SPECIFICATIONS

FRAME AND BLADE: EXTRUDED ALUMINUM 6063-T6/T52 ALLOY, .080" THK. NOMINAL.  
FACE OF LOUVER: HEAD AND BLADES ARE CONTAINED WITHIN JAMBS. SILL CONTAINS JAMBS. APPROXIMATE VERTICAL BLADE CENTERS 1.6" NOMINAL.  
SCREENS: WHEN INDICATED, IN A REMOVABLE FRAME.  
BIRD SCREEN - 1/2" FLATTENED ALUMINUM, .051" THK.  
OR - 1/2" SQ. MESH, INTERMEDIATE DOUBLE-CRIMPED ALUMINUM WIRE, .063 DIA.  
OR - 18/16 MESH, .011" DIA. ALUMINUM WIRE, INSECT SCREEN.  
EXTENDED SILL: .060" THK. FORMED ALUMINUM.

FINISH: \_\_\_\_\_

LOUVER SIZES: 12" x 12" MINIMUM PANEL SIZE.  
30 SQUARE FEET IS THE MAXIMUM SECTION SIZE.  
LOUVERS LARGER THAN THE MAXIMUM FACTORY ASSEMBLED SIZE WILL REQUIRE FIELD ASSEMBLY OF SMALLER LOUVER SECTIONS.

### LOUVER PERFORMANCE STATEMENT

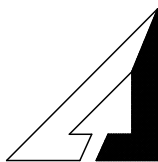
LOUVER MODEL EA-662-VSL SHALL BE FABRICATED TO PROVIDE A MINIMUM OF (53%) 8.51 SQUARE FEET OF FREE AREA FOR A SIZE 48"x48" LOUVER AND BEAR THE AMCA CERTIFIED RATINGS SEAL FOR AIR PERFORMANCE, WATER PENETRATION AND WIND DRIVEN RAIN. THE RATINGS SHALL SHOW A BEGINNING POINT OF WATER PENETRATION AT .01 OUNCES PER SQUARE FOOT OF FREE AREA TO BE ABOVE 1250 FPM (10,638) WITH .103 INCHES WATER GAUGE PRESSURE DROP AT 1000 FPM AIR INTAKE.

IN ADDITION THIS LOUVER IS TESTED TO AMCA 500-L-99 WIND DRIVEN RAIN TEST STANDARD WHERE THE LOUVER IS SUBJECTED TO SIMULATED WIND DRIVEN RAIN. THE RESULT OF THIS TEST SHALL SHOW A CLASS "A" RATING HAVING (100%) EFFICIENCY AT 3 INCHES OF RAIN FALL AT AN INTAKE VELOCITY OF 1,785 FPM (15,190 CFM) AT A WIND SPEED OF 29 MPH.

AND (100%) EFFICIENCY AT 8 INCHES OF RAINFALL AT AN INTAKE VELOCITY OF 1,708 FPM (14,535 CFM) AT A WIND SPEED OF 50 MPH FOR A SIZE 48"x48" LOUVER.

NOMINAL DEDUCTIONS WILL BE MADE TO THE OPENING SIZE GIVEN.

												 UNION MADE
ITEM	QTY.	WIDTH	HEIGHT	WIDTH	HEIGHT	MULL	TYPE	LOC				
		OPENING SIZE		LOUVER SIZE					SCREENS			



**ARROW UNITED INDUSTRIES**  
A DIVISION OF MESTEK, INC.

450 RIVERSIDE DRIVE  
WYALUSING, PA 18853

TEL: (570) 746-1888 FAX: (570) 746-9286  
WEB ADDRESS: WWW.ARROWUNITED.COM

AGENT: \_\_\_\_\_

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# LOUVER MODEL EA-662-VSL

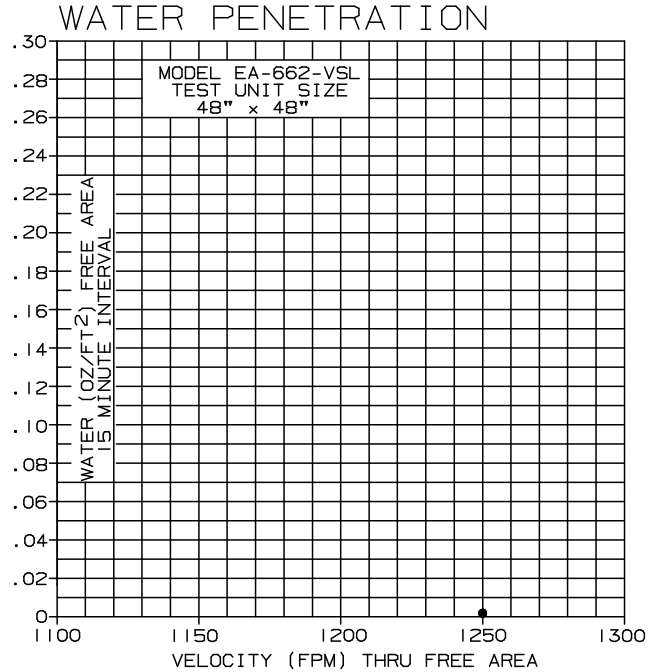
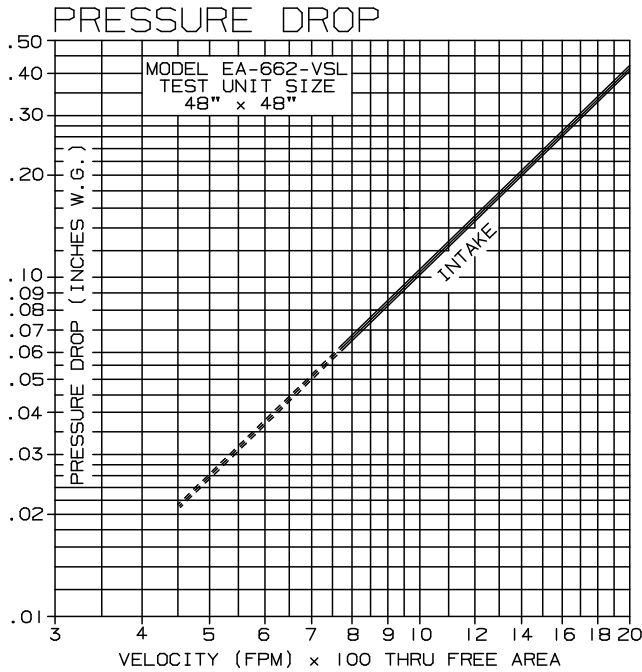
## VERTICAL STORM LOUVERS

### EXTRUDED ALUMINUM - STATIONARY

## PERFORMANCE DATA

TESTS OF A 48" x 48" SAMPLE ACCORDING TO AMCA STANDARD 500-L SHOWS THE BEGINNING POINT OF WATER PENETRATION IS ABOVE 1250 FPM THROUGH THE FREE AREA OF THE LOUVER, WITH LESS THAN .10" W.G. PRESSURE DROP AT 950 FPM (INTAKE).

RATINGS DO NOT INCLUDE EFFECTS OF BIRDSCREEN.



\* THE BEGINNING POINT OF WATER PENETRATION IS ABOVE 1250 FPM THROUGH THE FREE AREA OF THE LOUVER.

\* AMCA STANDARD 500-L LIMITS TESTING OF WATER PENETRATION TO EITHER A MAXIMUM VELOCITY OF 1250 FPM OR 2.5 OUNCES OF WATER PER SQUARE FOOT OF LOUVER FREE AREA.

## FREE AREA

		FREE AREA ( SQ. FT. )									
		WIDTH									
		12"	24"	36"	48"	60"	72"	84"	96"	108"	120"
HEIGHT	12"	.25	.76	1.20	1.71	2.15	2.60	3.10	3.55	3.99	4.50
	24"	.58	1.73	2.73	3.88	4.89	5.90	7.05	8.05	9.06	10.21
	36"	.90	2.69	4.26	6.06	7.63	9.20	10.99	12.56	14.13	15.93
	48"	1.22	3.66	5.79	8.51	10.36	12.50	14.94	17.07	19.20	21.64
	60"	1.54	4.62	7.32	10.40	13.10	15.80	18.88	21.58	24.28	27.36
	72"	1.86	5.59	8.85	12.58	15.84	19.10	22.83	26.09	29.35	33.07
	84"	2.19	6.56	10.38	14.75	18.58	22.40	26.77	30.59	34.42	38.79
	96"	2.51	7.52	11.91	16.92	21.31	25.70	30.71	35.10	39.49	44.50
	108"	2.83	8.49	13.44	19.10	24.05	29.00	34.66	39.61	44.56	50.22
	120"	3.15	9.45	14.97	21.27	26.79	32.30	38.60	44.12	49.63	55.94

# LOUVER MODEL EA-662-VSL

## PERFORMANCE DATA

### WIND DRIVEN RAINWATER PENETRATION TEST CONDUCTED TO AMCA STANDARD 500-L

TEST SIZE 1M x 1M (39.37" x 39.37") CORE AREA, 41.88" x 41.75" NOMINAL.  
LOUVER FREE AREA 6.0 SQUARE FEET

CORE VENTILATION (M/S)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	RAIN FALL / MPH
FPM	0	98	197	295	394	492	591	689	787	886	985	3 IN. / HR. RAIN FALL AND 29 MPH VELOCITY
FREE AREA VENTILATION (CFM)											10.710	
FREE AREA VELOCITY (FPM)											1785	
EFFECTIVE RATING CLASS	A	A	A	A	A	A	A	A	A	A	A	
EFFECTIVENESS RATIO %											100	
FPM											952	8 IN. / HR. RAIN FALL AND 50 MPH VELOCITY
FREE AREA VENTILATION (CFM)											10.248	
FREE AREA VELOCITY (FPM)											1708	
EFFECTIVE RATING CLASS	A	A	A	A	A	A	A	A	A	A	A	
EFFECTIVENESS RATIO %											100	

#### DISCHARGE COEFFICIENT

INTAKE  $C_d = 0.46$  (CLASS 1)

WIND DRIVEN RAIN PENETRATION CLASSIFICATIONS	
CLASS	EFFECTIVENESS %
A	1 TO 0.99%
B	0.989 TO 0.95%
C	0.959 TO 0.80%
D	BELOW 0.80%

#### DISCHARGE LOSS COEFFICIENT CLASSIFICATIONS

CLASS	DISCHARGE LOSS COEFFICIENT
1	0.4 AND ABOVE
2	0.3 TO 0.399
3	0.2 TO 0.299
4	0.199 AND BELOW

CLASS 1 LOSS COEFFICIENT HAS THE LEAST RESISTANCE TO AIRFLOW.

1. CORE AREA IS THE FRONT OPENING OF A LOUVER ASSEMBLY WITH THE BLADES REMOVED.
2. CORE AREA VELOCITY IS THE AIRFLOW RATE THROUGH THE LOUVER DIVIDED BY THE CORE AREA (39.37"x39.37").
3. FREE AREA IS THE MINIMUM AREA THROUGH WHICH AIR CAN PASS. IT IS DETERMINED BY MULTIPLYING THE SUM OF THE MINIMUM DISTANCES BETWEEN INTERMEDIATE BLADES, TOP BLADE AND HEAD, BOTTOM BLADE AND SILL, BY THE MINIMUM DISTANCE BETWEEN JAMBS.
4. DISCHARGE LOSS COEFFICIENT IS CALCULATED BY DIVIDING A LOUVER ACTUAL AIRFLOW RATE vs. A THEORETICAL AIRFLOW FOR THE OPENING. PROVIDING AN INDICATION OF THE LOUVER AIR FLOW CHARACTERISTICS.



ARROW UNITED CERTIFIES THAT THE LOUVER 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 PROGRAM. THE AMCA CERTIFIED RATINGS SEAL APPLIES TO AIR PERFORMANCE, WATER PENETRATION, AND WIND DRIVEN RAIN RATINGS ONLY.

# LOUVER MODEL EA-662-VSL

## PERFORMANCE DATA

THIS IS TO CERTIFY THAT THE "BUILDING SERVICES RESEARCH AND INFORMATION ASSOCIATION" (BSRIA) HAVE TYPE TESTED THE PRODUCT DESCRIBED BELOW TO THE REQUIREMENTS CONTAINED IN THE 5TH EDITION OF THE HEVAC TECHNICAL SPECIFICATIONS "LABORATORY TESTING AND RATINGS OF WEATHER LOUVERS WHEN SUBJECTED TO SIMULATED WIND DRIVEN RAIN".

### TEST RESULTS

BASED ON CALIBRATION PLATE AND LOUVER CORE SIZE 10.76 SQ. FT. (1m<sup>2</sup>).

	CFM (M <sup>3</sup> /S)							
VENTILATION RATE AIR FLOW RATE (CFM)	0	1059 CFM (0.5)	2119 CFM (1.0)	3178 CFM (1.5)	4238 CFM (2.0)	5297 CFM (2.5)	6357 CFM (3.0)	7416 CFM (3.5)
RATING ACHIEVED	A	A	A	A	A	A	A	A

COEFFICIENT OF DISCHARGE OR ENTRY: 0.419, CLASS 1

WIND SPEED: 30.2 mph (13.5 m/s) RAINFALL: 2.95 in/hr (75 mm/hr)

EXAMPLE:  $\frac{7416 \text{ CFM (3.5 m}^3\text{/s)}}{10.76 \text{ SQ. FT. (1m}^2\text{)}} = 689 \text{ FPM FACE VELOCITY} \div \left( \frac{\text{SAMPLE LOUVER FREE AREA } 48\%}{\text{PERCENTAGE}} \right) = 1435 \text{ FPM FREE AREA VELOCITY.}$

## CLASSIFICATIONS OF WEATHER LOUVERS

EXTRACT TAKEN FROM THE HEVAC TECHNICAL SPECIFICATION FOR REFERENCE PURPOSES ONLY.

### CLASSIFICATION FOR RAIN PENETRATION

CLASS	EFFECTIVENESS (%)	MAXIMUM ALLOWED PENETRATION OF SIMULATED RAIN .oz/ft <sup>2</sup> /hr (l/m <sup>2</sup> /hr)
A	1 TO 0.99	2.4 (0.75)
B	0.989 TO 0.95	11.8 (3.75)
C	0.949 TO 0.80	47.1 (15.0)
D	BELOW 0.8	GREATER THAN 15.0

### CLASSIFICATION FOR COEFFICIENT OF DISCHARGE OR ENTRY

CLASS	DISCHARGE OR ENTRY LOSS COEFFICIENT (%)
1	0.4 AND ABOVE
2	0.3 TO 0.399
3	0.2 TO 0.299
4	0.199 AND BELOW

THIS TEST, (HEVAC), RESULT WITH THE LOUVER OBTAINING THE HIGHEST PERFORMANCE CLASSIFICATIONS FOR THIS TEST METHOD.

### HEVAC TESTING AT OTHER WINDSPEEDS AND RAINFALL RATES:

30 MPH AT 4.72" RAINFALL AT 1517 FPM (12,910 CFM) VENTILATION RATE THRU FREE AREA IS 100% EFFECTIVE.

55 MPH AT 2.95" RAINFALL AT 1517 FPM (12,910 CFM) VENTILATION RATE THRU FREE AREA IS 100% EFFECTIVE.

55 MPH AT 4.72" RAINFALL AT 1600 FPM (13,616 CFM) VENTILATION RATE THRU FREE AREA IS 99.99% EFFECTIVE.