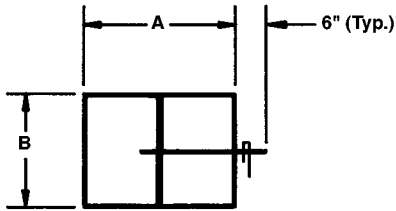


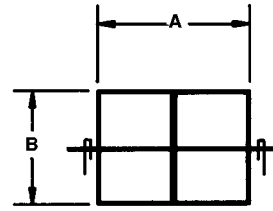
## STANDARD MULTIPLE SECTION CONTROL DAMPER DETAILS

- I. Dampers larger than the maximum single section size are fabricated in multiple section assemblies. These assemblies consist of sections of equal size which are coupled together with a jackshaft. The jackshaft runs parallel to the "A" dimension.
- A. 1/2" Diameter Jackshaft:
1. Used on two sections wide with a maximum of 12 1/2 square feet with blade and jamb seals; or a maximum of 25 square feet without seals.
- B. 1" Diameter Jackshaft:
1. Used on dampers with exposed (in the airstream) linkage, regardless of area. Jackshafts are full length on dampers with exposed linkage.
  2. For dampers with concealed linkage:
    - Used on two sections wide with over 12 1/2 square feet with blade and jamb seals or 25 square feet without seals.
    - Used on assemblies with more than two sections wide, regardless of area.
- II. Use the details shown on pages 2 and 3 to determine how Ruskin multiple blade dampers with standard construction and sizes up to 240" wide by 144" high will be assembled and manufactured. Details shown do NOT APPLY if your control damper has any of the following features:
1. Unequal section sizes.
  2. Face and by-pass arrangement.
  3. Any variations from standard construction. (Refer to the appropriate spec. sheet for specific damper model.)
  4. Sizes larger than 240" wide by 144" high.
- Control dampers are classified into two groups based on blade construction:
- A. Single-skin Blades – include Models CD35, CD36, CD355, CD356, IL35, RCD44, RCD45, and RCD46  
Maximum Single Section Size: 48" wide x 72" high
- B. Airfoil Blades – include Models CD40, CD50, CD60, and CD504  
Maximum Single Section Size: 60" wide x 72" high
- III. How to determine your damper configuration:
- A. Calculate the damper area, in square feet (sq. ft.)
- $$\text{Area} = \frac{(A \text{ in. wide} \times B \text{ in. high})}{144} = \text{_____ sq. ft.}$$
- B. Based on the A and B dimensions, and the area of your damper, determine the appropriate assembly detail using the chart on page 2.  
Example: CD35 (no seals), 100" wide x 96" high
- $$\text{Area} = \frac{(100 \times 96)}{144} = 67 \text{ sq. ft. (rounded)}$$
- From chart and drawings, damper configuration is per DETAIL 32-X.
- C. Your damper will be built this way.
- D. BLADE ACTION: (specify "PB" or "OB" on order)  
PB – Parallel Blades  
OB – Opposed Blades
- E. LINKAGE STYLE: (specify "C" or "E" option on order when available)  
C – Concealed  
E – Exposed
- IV. **MULTIPLE SECTION ASSEMBLIES REQUIRE BRACING TO SUPPORT THE WEIGHT OF THE ASSEMBLY AND TO HOLD AGAINST SYSTEM PRESSURE. APPROPRIATE BRACING MUST SUPPORT THE DAMPER HORIZONTALLY AT LEAST ONCE FOR EVERY 8 FEET OF DAMPER WIDTH. VERTICAL ASSEMBLIES AND HIGHER SYSTEM PRESSURES REQUIRE MORE BRACING.**

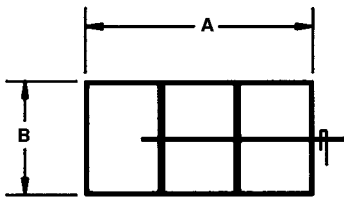
		DIMENSION "A" (WIDTH IN INCHES)					
DIMENSION "B" (HEIGHT IN INCHES)	48" AND UNDER	SINGLE SKIN BLADES ONLY	AIRFOIL BLADES ONLY		OVER 96" THRU 144"	OVER 144" THRU 192"	OVER 192" THRU 240"
		OVER 48" THRU 96"	OVER 48" THRU 60"	OVER 60" THRU 96"			
72" and Under	–	Detail 21 X or Y	–	Detail 21 X or Y	Detail 31 X or Y	Detail 41 X or Y	Detail 51 X or Y
Over 72" Thru 144"	Detail 12 X or Y	Detail 22 X, Y or Z	Detail 22 X, Y or Z		Detail 32 X or Y	Detail 42 X or Y	Detail 52 X or Y



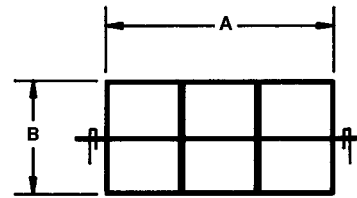
**DETAIL 21-X**  
25 sq. ft. and under with seals  
48 sq. ft. and under no seals



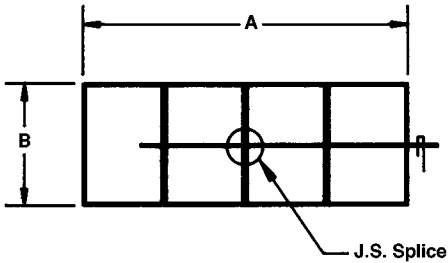
**DETAIL 21-Y**  
Over 25 thru 48 sq. ft. with seals



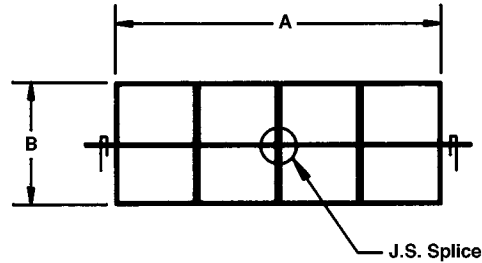
**DETAIL 31-X**  
25 sq. ft. and under with seals  
50 sq. ft. and under no seals



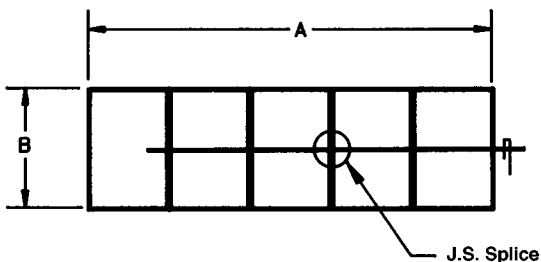
**DETAIL 31-Y**  
Over 25 thru 50 sq. ft. with seals  
Over 50 thru 72 sq. ft. no seals



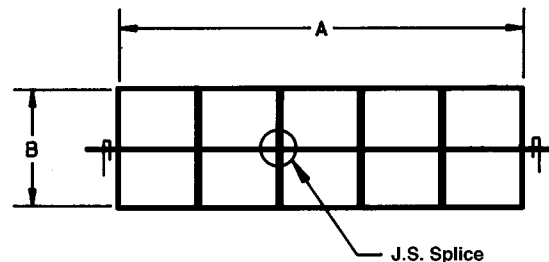
**DETAIL 41-X**  
25 sq. ft. and under with seals  
50 sq. ft. and under no seals



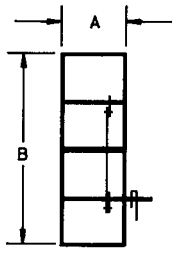
**DETAIL 41-Y**  
Over 25 thru 96 sq. ft. with seals  
Over 50 thru 96 sq. ft. no seals



**DETAIL 51-X**  
25 sq. ft. and under with seals  
50 sq. ft. and under no seals

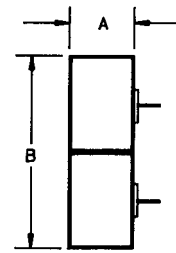


**DETAIL 51-Y**  
Over 25 thru 120 sq. ft. with seals  
Over 50 thru 120 sq. ft. no seals



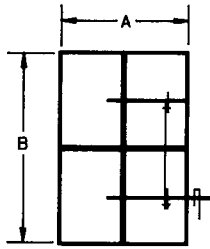
**DETAIL 12-X**

25 sq. ft. and under with seals  
 48 sq. ft. and under no seals  
 (with jackshaft crossover)



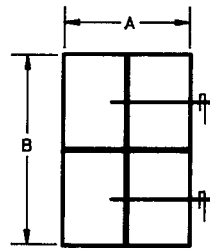
**DETAIL 12-Y**

Over 25 thru 48 sq. ft. with seals  
 (with 1/2" dia. x 6" long extended shafts – no crankarms)



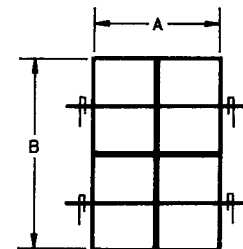
**DETAIL 22-X**

Over 24 thru 25 sq. ft. with seals  
 Over 24 thru 50 sq. ft. no seals  
 (with jackshaft crossover)



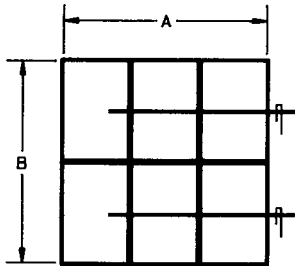
**DETAIL 22-Y**

Over 25 thru 50 sq. ft. with seals  
 Over 50 thru 96 sq. ft. no seals



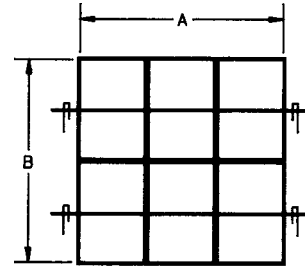
**DETAIL 22-Z**

Over 50 thru 96 sq. ft. with seals



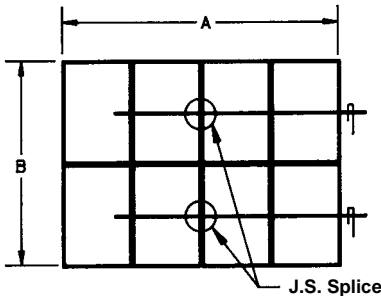
**DETAIL 32-X**

Over 48 thru 50 sq. ft. with seals  
 Over 48 thru 100 sq. ft. no seals



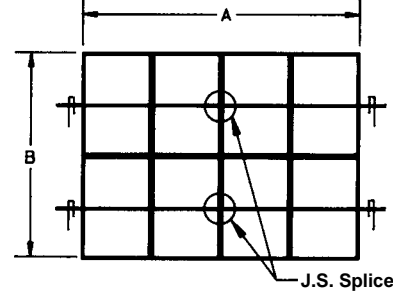
**DETAIL 32-Y**

Over 50 thru 144 sq. ft. with seals  
 Over 100 thru 144 sq. ft. no seals



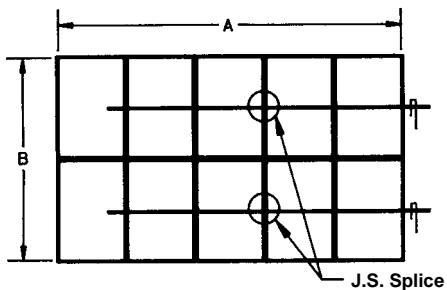
**DETAIL 42-X**

Over 72 thru 100 sq. ft. no seals



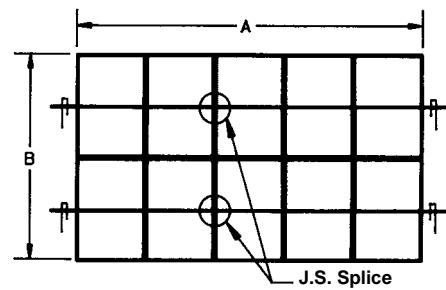
**DETAIL 42-Y**

Over 72 thru 192 sq. ft. with seals  
 Over 100 thru 192 sq. ft. no seals



**DETAIL 52-X**

Over 96 thru 100 sq. ft. no seals

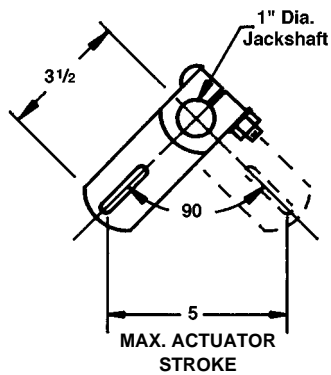


**DETAIL 52-Y**

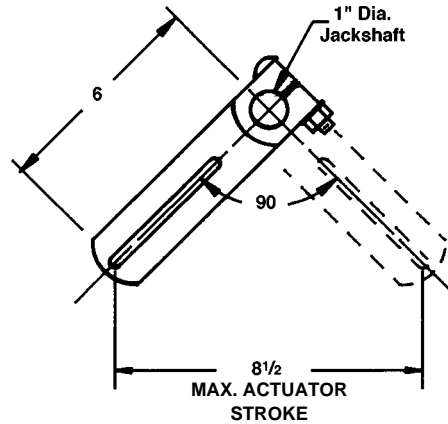
Over 96 thru 240 sq. ft. with seals  
 Over 100 thru 240 sq. ft. no seals

- V. The standard crankarm furnished with 1" dia. jackshaft is shown in FIG. 1. A longer crankarm is available to accommodate actuators with longer stroke. FIG. 2.

If needed, order extra standard crankarms or the longer crankarms (both at additional cost) by part number.



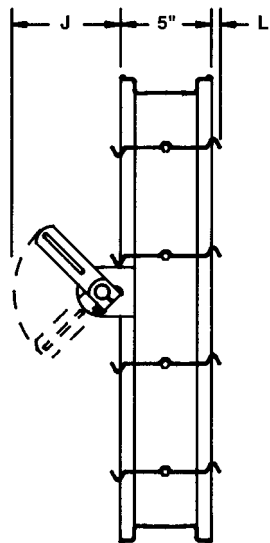
**STANDARD CRANKARM**  
PART NO. 82-003130-00B  
FIG. 1



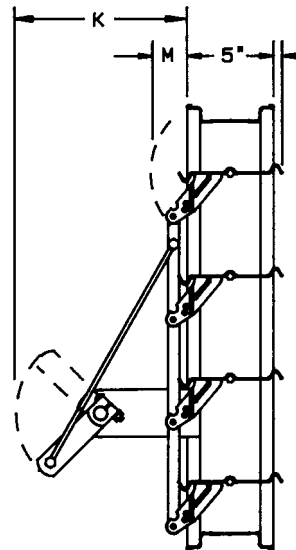
**OPTIONAL CRANKARM**  
PART NO. 82-008234-00B  
FIG. 2

- VI. Installation clearance requirements:

CLEARANCE (INCHES)	6" WIDE BLADE	8" WIDE BLADE
"J" with standard crankarm	6"	7 <sup>3</sup> / <sub>4</sub> "
"J" with optional crankarm	8"	9 <sup>3</sup> / <sub>4</sub> "
"K" with standard or optional crankarm	12"	12"
"L"	Models CD35, CD36, CD355, CD356, CD50, IL35 = 3/4"	
	Models RCD44, RCD45, RCD46 = 1 <sup>3</sup> / <sub>4</sub> "	
	Model CD60 = 2 <sup>3</sup> / <sub>4</sub> "	
"M"	2 <sup>1</sup> / <sub>8</sub> "	3 <sup>1</sup> / <sub>8</sub> "



**CONCEALED LINKAGE**



**EXPOSED LINKAGE**

- VII. The maximum shipping size is 144" x 72". Larger units are shipped in sections for field assembly. Refer to the Control Damper Installation Instructions for joining multiple sections.