

# ARROW

# MODELS

ECONO-MOTOR ASSEMBLY  
DAMPER ACTUATORS

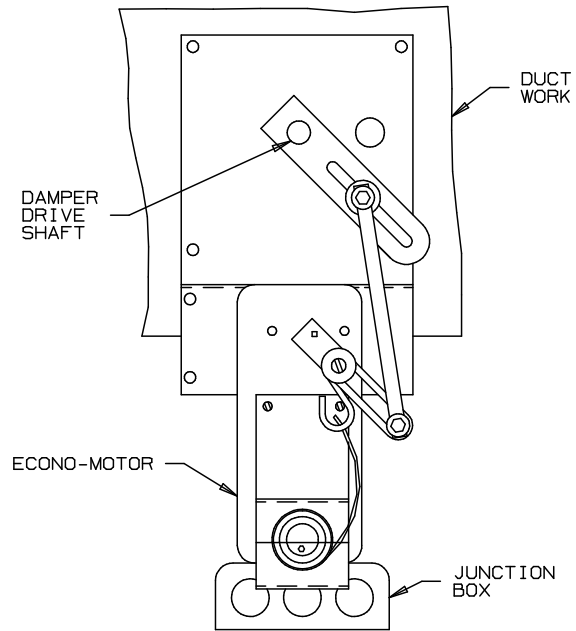
235-115  
735-115

235-24  
735-24

## ELECTRIC - TWO POSITION - SPRING RETURN FOR EXTERNAL DRIVE

THE "ECONO-MOTOR" WAS DEVELOPED BY ARROW FOR APPLICATION ON SMALL DAMPERS AND SHUTTERS WHICH WILL BE OPERATED IN A TWO-POSITION (OPEN-CLOSED) MODE. THE UNITS ARE OFFERED IN MODELS PROVIDING TWO DIFFERENT TORQUE CAPACITIES, EACH AVAILABLE WITH 115 VAC OR 24 VAC SINGLE PHASE MOTORS.

THE MODELS CAN BE PURCHASED SEPERATELY OR WITH ARROW DAMPERS. THE ASSEMBLIES ARE SHIPPED COMPLETE, READY FOR EASY INSTALLATION.



SEE INSTALLATION INSTRUCTIONS,  
CATALOG SHEET #661

### SUGGESTED MAXIMUM APPLICATIONS

MODELS 735-115 AND 735-24  
13 IN.-LB. MAXIMUM TWO-POSITION TORQUE OUTPUT

MULTI-BLADE DAMPERS	ONE BLADE OR 3 SQ. FT.
SB-28 DAMPERS	2 SQ. FT.
ROUND DAMPERS (MODELS 70,75, & 80)	18"Ø MAX
SERIES 500 SHUTTER	5 SQ. FT.

MODELS 235-115 AND 235-24  
17 IN.-LB. MAXIMUM TWO-POSITION TORQUE OUTPUT

MULTI-BLADE DAMPERS	THREE BLADE OR 5 SQ. FT.
SB-28 DAMPERS	4 SQ. FT.
ROUND DAMPERS (MODELS 70,75, & 80)	24"Ø MAX
SERIES 500 SHUTTER	8 SQ. FT.

\*NOT TO BE USED WHEN LOW-LEAKAGE (TIGHT SEALING) IS A FACTOR.

A SHADED POLE INDUCTION MOTOR IS INCORPORATED IN AN ASSEMBLY WHICH INCLUDES MOUNTING BRACKET, RETURN SPRING, AND LINKAGE WITH CRANK ARM FOR ATTACHMENT TO A 1/2" DIA. DRIVE SHAFT. WHEN POWER IS APPLIED, THE "ECONO-MOTOR" DRIVES INTO POSITION WHERE IT REMAINS STALLED (BY THE ROTATION LIMITS OF THE DAMPERS) UNTIL POWER IS REMOVED. UPON REMOVAL OF POWER, THE SPRING-FORCE RETURNS THE MOTOR AND DAMPER TO THEIR NORMAL POSITION.

BY SIMPLE ALTERATION OF INSTALLATION PROCEDURES, THE UNITS CAN BE ARRANGED FOR EITHER "NORMALLY OPEN" OR "NORMALLY CLOSED" ACTUATION, REGARDLESS OF DAMPER SHAFT ROTATION.

A JUNCTION BOX IS PROVIDED FOR ELECTRICAL CONNECTIONS TO THREE WIRE LEADS (TWO, PLUS GROUND). THE MOTORS ON THE 115VAC MODELS ARE U.L. APPROVED.

### OPTIONS AVAILABLE

(CHECK WITH FACTORY FOR LEAD-TIME AND PRICES)

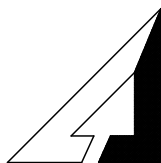
- \* VOLTAGE - 207,220, OR 440 VAC, 1 PHASE, 60 HZ
- \* 50 HZ UNITS AVAILABLE ON SPECIAL ORDER
- \* SUPPLIED WITH CORD AND PLUG, U.L. APPROVED

SHIPPING WEIGHT: APPROX. 6 1/2" LBS.

### ELECTRICAL RATINGS

MOTOR	VOLTAGE/PHASE/CYCLES	STALL POWER
235-115	115VAC/1/60	0.29A (35 WATTS)
735-115	115VAC/1/60	0.24A (29 WATTS)
235-24	24VAC/1/60	2.00A (48 WATTS)
735-24	24VAC/1/60	2.00A (48 WATTS)

MOTORS ON 115 VAC MODELS ARE U.L. APPROVED



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# ARROW ECONO-MOTOR FOR EXTERNAL DRIVE

# INSTALLATION INSTRUCTIONS

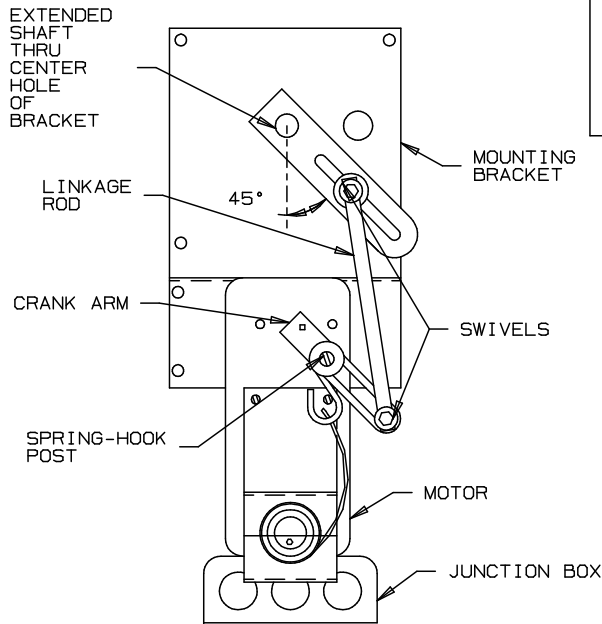
FOR MODELS: 235-115 235-24  
735-115 735-24

THESE UNITS UTILIZE A SHADED POLE INDUCTION MOTOR. THEY TRAVEL TO A STALL-POSITION WHERE THEY HOLD UNTIL POWER IS REMOVED. UPON POWER REMOVAL THEY ARE RETURNED TO A NORMAL POSITION BY A SPRING.

SEE CATALOG SHEET #660 FOR APPLICATION

## INSTALLATION PROCEDURE:

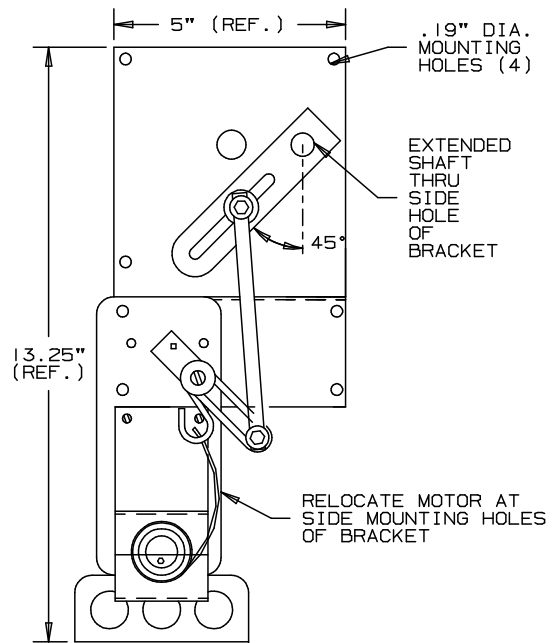
AFTER THE DAMPER SHAFT HAS BEEN EXTENDED THROUGH THE DUCT, DETERMINE THE ROTATION, (CW OR CCW) OF THE DAMPER BLADE AS IT TRAVELS TO THE OPEN POSITION. USING THE DIAGRAMS BELOW DETERMINE THE INSTALLATION TYPE (1 OR 2) REQUIRED TO ACHIEVE THE DESIRED NORMAL (CLOSED OR OPEN) "POWER-OFF" POSITION.



### TYPE 1 INSTALLATION

- FOR: NORMALLY CLOSED WHEN ROTATION TO OPEN IS COUNTER-CLOCKWISE (CCW)
- FOR: NORMALLY OPEN WHEN ROTATION TO OPEN IS CLOCKWISE (CW)

NOTE:  
REQUIRED  
MINIMUM  
CLEARANCE  
FROM  
DUCT  
SURFACE  
IS 5"



### TYPE 2 INSTALLATION

- FOR: NORMALLY CLOSED WHEN ROTATION TO OPEN IS CLOCKWISE (CW)
- FOR: NORMALLY OPEN WHEN ROTATION TO OPEN IS COUNTER-CLOCKWISE (CCW)

- A. AFTER DETERMINING INSTALLATION TYPE REQUIRED, POSITION THE MOUNTING BRACKET OVER THE EXTENDED SHAFT ACCORDINGLY. IN CASES WHERE THE DAMPER HAS LINKAGE WITHIN THE JAMB (ON OPERATOR SIDE), ALIGN THE OPERATOR BRACKET EITHER PARALLEL OR PERPENDICULAR TO THE DAMPER JAMB AND FASTEN WITH REQUIRED FASTENERS.
- B. WITH DAMPER BLADES IN THE DESIRED NORMAL "POWER OFF" POSITION ATTACH DRIVE ARM TO THE EXTENDED SHAFT AT THE 45° ANGLE INDICATED IN THE RELATED INSTALLATION VIEW ABOVE, AND TIGHTEN.
- C. INSERT LINKAGE ROD IN BOTH SWIVELS UNTIL ROD-ENDS ARE FLUSH WITH THE SWIVEL BODIES AND TIGHTEN.
- D. MAKE ELECTRICAL CONNECTIONS AT THE JUNCTION BOX CONNECTING 3 WIRE LEADS. (GREEN LEAD IS GROUND). MAKE ALL CONNECTIONS IN ACCORDANCE WITH STATE AND LOCAL CODES AND PRACTICES.
- E. APPLY POWER UNTIL DAMPER REACHES FULL DRIVEN POSITION. REMOVE POWER AND CHECK TO ASSURE DAMPER RETURNS TO FULL RETURN POSITION. IF IT DOES NOT, ADJUSTMENT TO THE LOCATION OF THE SPRING HOOK POST MAY BE NECESSARY. THIS POST IS LOCATED ON THE CRANK-ARM WHICH IS SECURED TO THE MOTOR SHAFT. MOVING THE POST AWAY FROM MOTOR SHAFT WILL INCREASE RETURN STROKE POWER WHILE DECREASING DRIVE STROKE POWER. MOVING THE POST CLOSER TO THE MOTOR SHAFT RESULTS IN REVERSE CHANGE.

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