

DAMPER MOTORS

Motor Sizing and Selection for 3000P and 3000 OBD Series Air Control Dampers

Damper Series	Torque Loading	Load Multiplier		
		Under 2 in. W.C. static or less than 1000 FPM velocity	2-3 in. W.C. static or 1000-2500 FPM Velocity	3-4 in. W.C. static or 2500-3000 FPM velocity
3000 OBD – Opposed Blade, without edge seals, for non-tight close-off applications	3 in-lb/sq. ft.	1	1.5	2
3000P – Parallel blade, without edge seals, for non-tight close-off applications	4 in-lb/sq. ft.	1	1.5	2
3000 OBDLL – Opposed Blade Low Leak, with edge seals, for tight close-off applications	5 in-lb/sq. ft.	1	1.5	2
3000 PLL – Parallel Blade Low Leak, with edge seals, for tight close-off applications	7 in-lb/sq. ft.	1	1.5	2

Motor Sizing Calculations:

$$\left(\frac{\text{Torque Loading}}{\text{Load Multiplier}} \right) \times \text{Damper Area} = \text{Required Motor Torque}$$

Example: Opposed Blade Low Leak damper with tight close-off (3000 OBDLL) and an area of 14 sq. ft. Velocity through the damper is 2200 FPM. Use chart above to find the required Torque Loading and Load Multiplier. Calculate the Required Motor Torque and use chart below to find the appropriate sized motor.

Example calculation shown below:

$$\left(\frac{5 \text{ in-lb/sq. ft.}}{1.5} \right) \times 14 \text{ sq. ft.} = 105 \text{ in-lb}$$

Motor Series	Torque (maximum damper area*)	Spring Return	Power	Control Signal
SAFBUP	180 in-lb (45 sq. ft.)	Yes	24-240V	on/off
SAF24	180 in-lb (45 sq. ft.)	Yes	24V	on/off
SAF24-SR	180 in-lb (45 sq. ft.)	Yes	24V	2-10VDC
SAF24-SR95	180 in-lb (45 sq. ft.)	Yes	24V	0-035ohm
SNF120	90 in-lb (22 sq. ft.)	Yes	24-240V	on/off
SNF24	90 in-lb (22 sq. ft.)	Yes	24V	on/off
SNF24-SR	90 in-lb (22 sq. ft.)	Yes	24V	2-10VDC
SLF120	35 in-lb (8 sq. ft.)	Yes	120V	on/off
SLF24	35 in-lb (8 sq. ft.)	Yes	24V	on/off
SLF24-SR	35 in-lb (8 sq. ft.)	Yes	24V	2-10VDC
SGM24	360 in-lb (90 sq. ft.)	No	24V	on/off, floating
SGM24-SR	360 in-lb (90 sq. ft.)	No	24V	2-10VDC
SAM24	180 in-lb (45 sq. ft.)	No	24V	on/off, floating
SAM24-SR	180 in-lb (45 sq. ft.)	No	24V	2-10VDC
SLM24	45 in-lb (11 sq. ft.)	No	24V	on/off, floating
SLM24-SR	45 in-lb (11 sq. ft.)	No	24V	2-10VDC

* Maximum damper area based on 3000P Series at less than 1000 FPM velocity or under 2 in. W.C. static.