



WHAT IS DUTY CYCLE?

Duty cycle is the ratio of actuator on time to off time and is used to determine the proper actuator for a specific application. It is also used to determine an acceptable operating time so that the thermal over load in the motor is not exceeded during valve or damper automation. Actuator inefficiencies cause the motor temperature to rise and at a critical temperature the thermal over load is activated and the actuator is shut down. The actuator is inoperative (undesirable in most applications) for a period of time allowing the motor to cool and the thermal over load to reset.

Duty Cycle = DC, On Time = ON and Off Time = OFF

DC = (ON/ON + OFF) x 100

For example: ICI's standard model SD has a 5 second cycle time and is rated at 25% duty cycle. This means that the off time must be at least 15 seconds, hence:

ON = 5, OFF = 15

DC = (5/5+15) x 100

DC = (5/20) x 100

DC = 0.25 x 100

DC = 25%

Model SD with an extended duty motor has a 10 second cycle time and is rated at 75% duty cycle. This means that the off time must be at least 3.333 seconds, hence:

ON = 10, OFF = 13.333

DC = (10/10+3.333) x 100

DC = (10/13.333) x 100

DC = 0.75 x 100

DC = 75%

This formula can be used to determine the off time of an actuator if the cycle time and duty cycle are known.

OFF = (ON/DC)-ON