

# EMERGENCY SHUT-DOWN SYSTEM (ESD)



## Short response time

A short response time is essential for valves operating in Emergency Shut Down (ESD) systems such as in refineries, power stations, mining and other applications where safety regulations call for such.

The values in the table below indicate the closing time (seconds) of an unloaded actuator and a loaded actuator with torque values simulating real-life situations. The stroke time measures the actual movement of the actuator without a solenoid or any other accessory delay.

## COMPACT actuator stroking time (sec.)

1/4" NAMUR solenoid valve

Compact actuator closing time (sec.)					
Compact Actuator for Emergency Shut-Down (ESD) Systems		Normal		Improved	Fast
		1/4" Namur solenoid valve Cv = 0.9		1/4" Namur solenoid valve Cv = 0.9, & Breather Block	1/4" Non-Namur Solenoid valve Cv = 1, & 1/4" quick exhaust
Size	Load	3/2	5/2	3/2	3/2
C20-2C	0	0.09	0.08	0.05	0.05
	10 Nm / 89 lbf-in	0.14	0.09	0.07	0.07
C25-2C	0	0.17	0.12	0.07	0.06
	22 Nm / 195 lbf-in	0.35	0.15	0.17	0.15
C30-2C	0	0.26	0.20	0.12	0.10
	36 Nm / 319 lbf-in	0.49	0.23	0.25	0.20
C35-2C	0	0.39	0.29	0.26	0.17
	60 Nm / 531 lbf-in	0.58	0.35	0.41	0.27
C45-2C	0	0.71	0.52	0.43	0.30
	116 Nm / 1027 lbf-in	1.23	0.64	0.76	0.57
C60-2C	0	1.79	1.30	1.21	0.73
	260 Nm / 2300 lbf-in	2.36	1.38	1.73	1.13
C75-2C	0	2.78	2.00	1.86	1.08
	460 Nm / 4071 lbf-in	3.90	2.42	2.91	1.75

Compact actuator closing time (sec.)				
Compact Actuator for Emergency Shut-Down (ESD) Systems		Normal		Fast
		1/2" Namur solenoid valve Cv = 3.5		1/2" Non-Namur Solenoid valve Cv = 3.5, & 1/2" quick exhaust
Size	Load	3/2	5/2	3/2
C60-2C	0	0.71	0.49	0.53
	260 Nm / 2300 lbf-in	1.22	0.60	0.80
C75-2C	0	1.12	-	1.04
	460 Nm / 4071 lbf-in	1.79	-	1.52
C90-2C	0	1.4	-	1.2
	770 Nm / 6815 lbf-in	2.7	-	2.4