

Title: METHOD FOR CALCULATING Cv FOR SOLENOID VALVE GIVEN REQUIREMENT TORQUE & STROKE TIME

ACTUATOR MODEL	Factor for Cv (X)
05	0.07
07	0.18
08	0.24
09	0.38
10	0.60
12	1.23
14	3.1
15	5.2
16	6.7
18	16
20	32
30	48
60	106

NOTES: T = Stroke time secs. for 90° travel (No load condition)
 Cv given in US. Gals/Min/psi
 Supply pressure = 80 psi

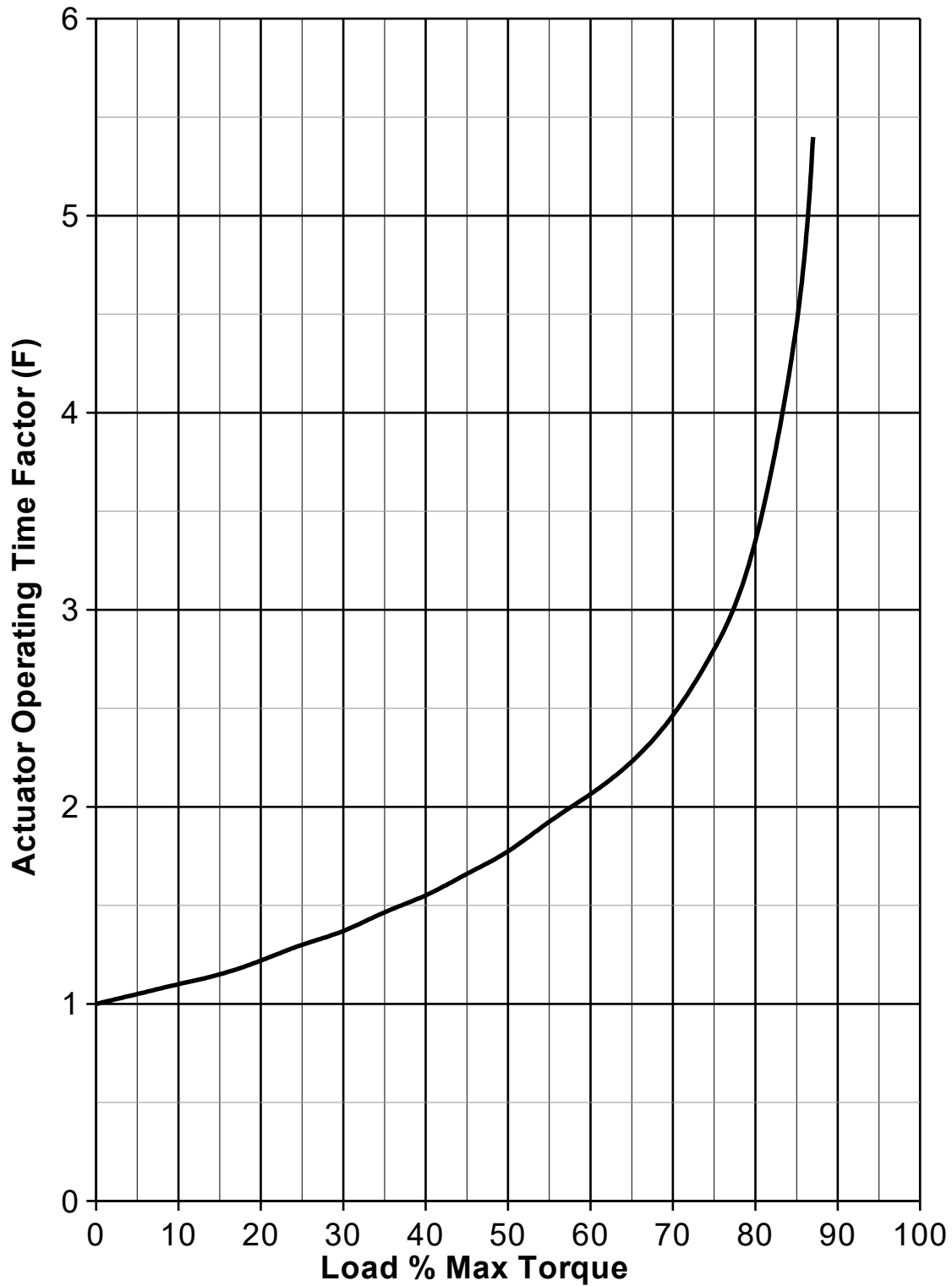
METHOD: Given Load torque Nm (L) and operating time required in seconds (t),
 Refer to Kinetrol catalogue for max actuator torque (A).
 Load % max torque = L / A
 Refer to graph on sheet 2 for Actuator operating time factor (F)
 No load time (T) = t / F
 Cv = X / T (X from table above)

EXAMPLES: Torque required is 90 Nm (797 lbf.in), operating time required is 1.8 seconds.
 094-100 actuator used, from catalogue max torque = 199Nm
 Load % max torque = L / A = 90/199 = 45% max torque
 Using graph on sheet 2, load factor is 1.6.
 No load time T = 1.8/1.6 = 1.125 seconds
 Cv = X (09 actuator) / T = 0.38/1.125 = 0.34 US Gals/Min/psi

Torque required is 47 Nm (415 lbf.in), operating time is 3.6 seconds.
 094-120 actuator used, from catalogue max torque = 93.8Nm
 Load % max torque = L / A = 47/93.8 = 50% max torque
 Using graph on sheet 2, load factor is 1.8.
 No load time T = 3.6/1.8 = 2 seconds
 Cv = X (09 actuator) / T = 0.38/2 = 0.19 US Gals/Min/psi

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Actuator Operating Time Factor
Against % Load Max Torque



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