

DO YOU KNOW...?

SIZING OF PNEUM. ACTUATORS:

Nominal diameter DN	Differential pressure (bar)										
	0	5	10	16	20	25	30	40	50	63	100
Inch mm	Torque (Nm)										
3/8" 10	5.4	5.6	5.8	6	6.1	6.3	6.5	6.4	7.2	7.7	9
1/2" 15	5.4	5.6	5.8	6	6.1	6.3	6.5	6.4	7.2	7.7	9
3/4" 20	10.8	11.1	11.4	11.8	12.1	12.4	12.7	13.3	14	14.8	17.1
1" 25	12.6	13.5	14.5	15.6	16.3	17.2	18.2	20	21.9	24.3	
1 1/4" 32	15.3	16.6	17.9	19.4	20.4	21.7	23	25.6	28.2	31.5	
1 1/2" 40	21.3	23.6	26	28.8	30.7	33.1	35.4	40.1	44.9	51	
2" 50	30.3	33.3	36.3	39.9	42.2	45.2	48.2	54.1			
2 1/2" 65	51	56.3	61.6	68	72.3	77.6	82.9	93.5			
3" 80	72	85.5	99	115.2	126	139.5	153	180			
4" 100	120	137.8	155.6	177	191.3	209.1	226.9	262.5			
5" 125	202.5	238.1	273.8	316.5	345	380.6	416.3	487.5			
6" 150	202.5	238.1	273.8	316.5							

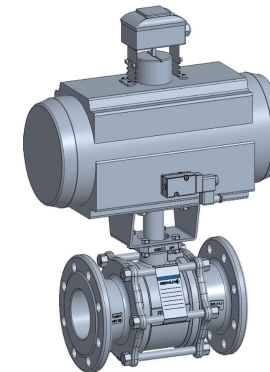
Valve torque table:

- » The determining value for a pneumatic actuator sizing is the operating torque and line size of the valve at the existing differential pressure (working pressure).
- » The most valve manufacturers provide torque tables where the operating torque at various differential pressures are stated.
- » Metal seated valves usually have a higher operating torque compared to soft seated (PTFE, reinforced PTFE, VITON etc..)



Safety factor:

- » To size an actuator, first the operating torque at the expected differential pressure has to be selected out of the valve torque table and multiplied with a safety factor. The working differential pressure should be known by the end user.
- » The safety factor ensures, when the valve has an unexpected higher torque due to different reasons, that the actuator still has enough force reserve to open or close the valve.
- » Safety factors can be different and are media related but usually a factor 1,5 is used.



Pneumatic actuator:

- » An pneumatic actuator can be selected by matching the calculated value (operating torque at a certain differential pressure multiply with safety factor) with the torque range tables of different actuator manufacturers.
- » If the iso top flange dimension acc. EN ISO 5211 of the valve is matching the actuator connection, a pneumatic actuator can be mounted directly on the valve.
- » At higher media temperatures (above 80°C), a bracket and coupling is recommended to avoid a temperature influence on the actuator.