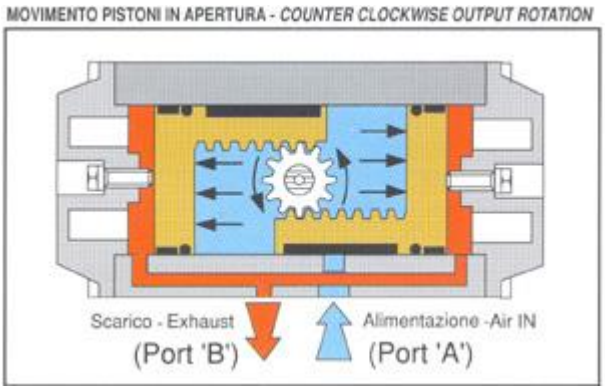
With Complete Installation of Actuators

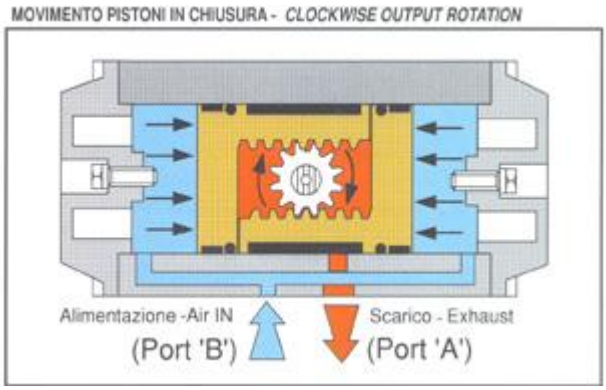
- with S/S Mounting Bracket
- with Extension Shaft (Stem)
- with **Double Acting Pneumatic Actuator**
- with **Spring Return Pneumatic Actuator**
- with Electric Actuator (3 Phase, 240V)
- Worm-Gear Operation

Double Acting Actuator (DA):

Counter-clockwise output operation is achieved by inserting

pressure into **Port 'A'**, to force the pistons apart thus rotating the actuator pinion counter clockwise. During its operation, air from the outer chamber is exhausted through **Port 'B'**. Clockwise output operation is achieved by reverse of the above and inserting pressure into **Port 'B'**.





Data Required for Actuator Sizing:

1. Valve torque min. 25% Safety recommended
2. Double acting or Spring-return operation
3. Minimum available operating pressure

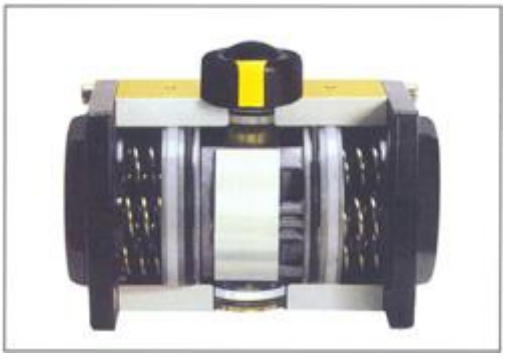
Selection of Double Acting Actuators (DA):

- Determine the requirement valve torque, this should include 25% safety margin and the minimum. Operating pressure available. Refer to the pressure/torque table and select the minimum pressure column applicable.
- Follow this column down until a value not less than that required is found. Next read across to the left hand column and read the model number to be ordered.
- Example: valve torque 80Nm plus 25% =100Nm, Minimum operating pressure 5 bar. By reading down the 5-bar column afigure. Below 119Nm is 123Nm the model number therefore shown in the left hand column is **AP4DA**.

Remarks: the chosen torque valve, which fixes the type of actuator, has never to be lower than the requested torque of the valve.

MOMENTO TORCENTE - ATTUATORI A DOPPIO EFFETTO (DA) Nm - *TORQUE OUTPUT DOUBLE ACTING ACTUATORS (DA)*

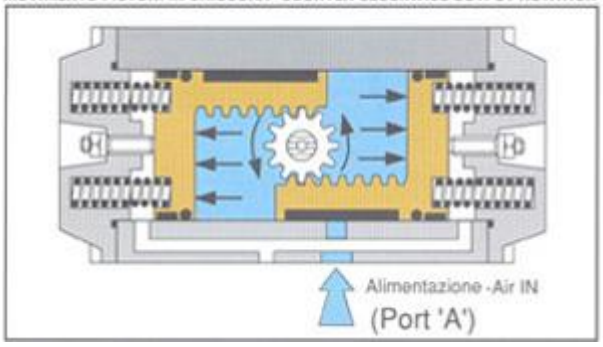
		PRESSIONE DI ALIMENTAZIONE - *OPERATING PRESSURE*						
MODELLO / MODEL	bar	2	3	4	5	6	7	8
	PSI	30	44	58	73	87	102	116
AP1 DA	Nm	5.9	8.9	11.8	14.8	17.7	21.7	24.8
	lbf.in	*52.6*	*79.3*	*105.2*	*132*	*157.8*	*193.5*	*221.1*
AP2 DA	Nm	9.4	14.1	18.8	23.5	28.2	32.9	37.6
	lbf.in	*83.8*	*125.7*	*167.7*	*209.6*	*251.5*	*293.5*	*335.4*
AP3 DA	Nm	20	30	40	50	60	70	80
	lbf.in	*178.4*	*267.6*	*356.8*	*446*	*535.2*	*624.4*	*713.6*
AP3,5 DA	Nm	34	51	68	85	102	119	136
	lbf.in	*303.3*	*454.9*	*606.5*	*758.2*	*909*	*1061.5*	*1213.2*
AP4 DA	Nm	48	71	95	119	142	168	192
	lbf.in	*428.2*	*633.3*	*847.4*	*1061*	*1266.6*	*1498.5*	*1712.6*
AP4,5 DA	Nm	87.2	130.8	174.4	218	261.6	305.2	348.8
	lbf.in	*777.8*	*1166.7*	*1555.6*	*1944.5*	*2333.4*	*2722.3*	*3111.2*
AP5 DA	Nm	111	167	222	278	333	388.5	444
	lbf.in	*990.1*	*1489.6*	*1980.2*	*2479.7*	*2970.4*	*3465.4*	*3960.5*
AP5,5 DA	Nm	157.6	236.4	315.3	394.1	473	551.8	630.6
	lbf.in	*1405.7*	*2108.6*	*2812.4*	*3515.3*	*4219.1*	*4922*	*5624.9*
AP6 DA	Nm	227	340	454	567	680	794.5	908
	lbf.in	*2024.8*	*3032.8*	*4049.6*	*5057.6*	*6065.6*	*7087*	*8099.4*
AP8 DA	Nm	426	638	851	1064	1276	1491	1704
	lbf.in	*3800*	*5691*	*7591*	*9491*	*11382*	*13299*	*15200*



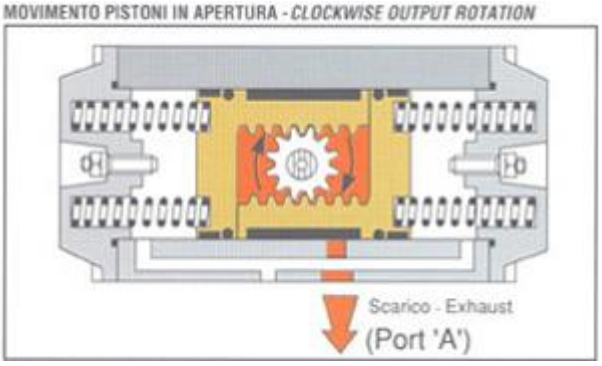
Spring Return Actuators (SR):

Pressure applied to Port 'A' will cause the inner chambers to be pressurized, forcing the pistons outward to compress the springs. The pinion is rotated counter-clockwise. Upon release of pressure through Port 'A' the springs will exert pressure to closed the pistons and rotate the pinion clockwise rapidly. This action will often be used to close a 90 deg. turn valve in shutdown mode.

MOVIMENTO PISTONI IN CHIUSURA - *COUNTER CLOCKWISE OUTPUT ROTATION*



MOVIMENTO PISTONI IN APERTURA - *CLOCKWISE OUTPUT ROTATION*



Determine the required valve torque (this shoudl include 25% safety margin), and the minimum operating pressure available. Select from the **"Spring Stroke/"0 deg."** table a value that is not less than the required valve torque (including safety margin). Next refer to the pressure table and select under your min.

pressure and **"0 deg."** torque column a figure not les than that required. (including **Safety Margin**)

Example: Valve torque 60 Nm plus 25% = 75Nm. Checking the **"Spring Stroke/"0 deg."** column, it will be noted the nearest value is 108 Nm. By following the line across to the vertical 5 bar **"0 deg."** torque column , a figure of 109 Nm is shown therefore, the suitable actuator is AP5SR5. In a normal valve shut-down situation the actuator would operate the valve to break out a less than 108 Nm. If **"0 deg."** torque at operating pressure is at operating pressure is too low, continue down the column until an acceptable value is found, compare with the corresponding **"Spring Stroke/"0 deg."** column to ensure that this also is adequate. This model may be used.

PESI - *WEIGHTS*

MODELLO *MODEL*	AP1 SR	AP2 SR	AP3 SR	AP3.5 SR	AP4 SR	AP4.5 SR	AP5 SR	AP5.5 SR	AP6 SR	AP8 SR
Kg.	1.08	1.74	3.16	4.66	6.34	9.8	13.1	18.8	24.6	54.5
lbs	*2.38*	*3.84*	*6.97*	*10.28*	*13.98*	*21.61*	*28.89*	*41.45*	*54.2*	*120.2*

NOTA: I suddetti valori si riferiscono al peso del comando pneumatico, comprese n°6 molle per ciascun lato del pistone.

NOTE: The above mentioned values refer to the weight of pneumatic actuator with 6 (six) springs on each side of piston.

TEMPO DI APERTURA/CHIUSURA (SECONDI) 5.6 BAR / 80 P.S.I.

OPENING CLOSING TIME (SECONDS) AT 5.6 BAR/ 80 P.S.I.

MODELLO *MODEL*	AP 1	AP 2	AP 3	AP 3.5	AP 4	AP 4.5	AP 5	AP 5.5	AP 6	AP 8
DOPPIO EFFETTO *DOUBLE ACTING*	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1.25 SECS	Meno di *Less than* 1.5 SECS	1.5 ÷ 2 SECS	3 ÷ 4 SECS
SEMPLICE EFFETTO *SPRING RETURN*	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1 SEC	Meno di *Less than* 1.5 SECS	Meno di *Less than* 1.5 SECS	Meno di *Less than* 1 SEC	1.5 ÷ 2 SECS	Meno di *Less than* 2 SECS	2 ÷ 3 SECS	4 ÷ 6 SECS

DISPOSIZIONE CORRETTA DELLE MOLLE / *RIGHT ARRANGEMENT OF SPRINGS*