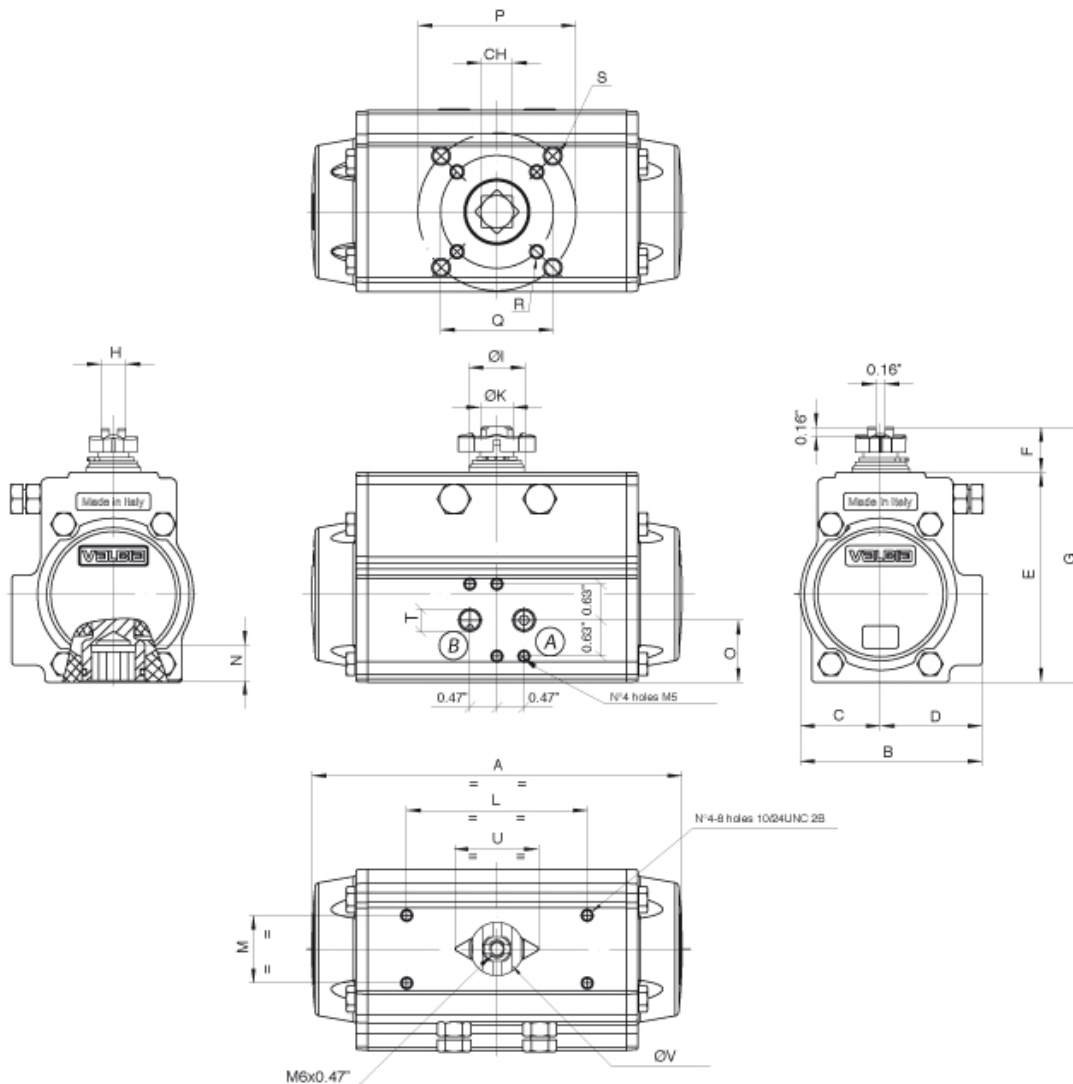


ITEM	DESCRIPTION	MATERIAL	TREATMENT	Q.TA' DA	Q.TA' SR
1	Body	Extruded aluminium	Hard anodized	1	1
2	Anti-blowout pinion	Steel	Nickel plated	1	1
• 3	O-ring	NBR		1	1
• 4	spacer ring	POM		1	1
• 5	O-ring	NBR		1	1
• 6	O-ring	NBR		1	1
7	Cam	Stainless steel		1	1
8	Spacer	POM		1	1
• 9	Spacer	POM		1	1
10	Washer	Stainless steel		1	1
** 11	Snap ring	Steel	Nickel plated	1	1
12	Piston	Die cast aluminium		2	2
• 13	O-ring	NBR		2	2
• 14	Antifriction ring	POM		2	2
• 15	Thrust block	POM		2 [4]	2 [4]
16	Stop bolt retaining nut	Stainless steel		2	2
17	Stop bolt	Stainless steel		2	2
18	External spring	Steel	Painted	0	
*** 19	central spring	Steel	Painted	0	See spring
20	internal spring	Steel	Painted	0	
21	Left end cap	Die cast aluminium	Painted	1	1
22	Right end cap	Die cast aluminium	Painted	1	1
23	End cap seats	NBR		2	2
24	O-ring	NBR		2	2
25	End cap fixing screw	Stainless steel		8	8
26	Position indicator	Thermoplastic rubber TPE		1	1

\* Parts subject to wear

\*\* Reinforced series DIN 471 - UNI 7436

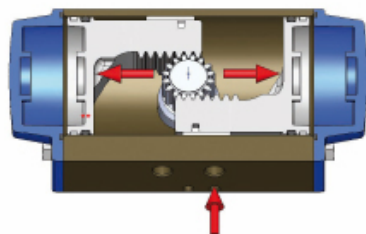


- F04 upon request

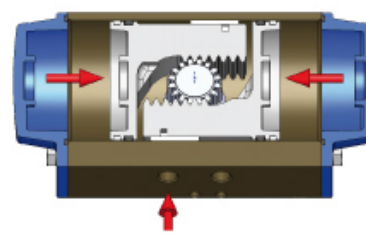
(A) CCW rotation

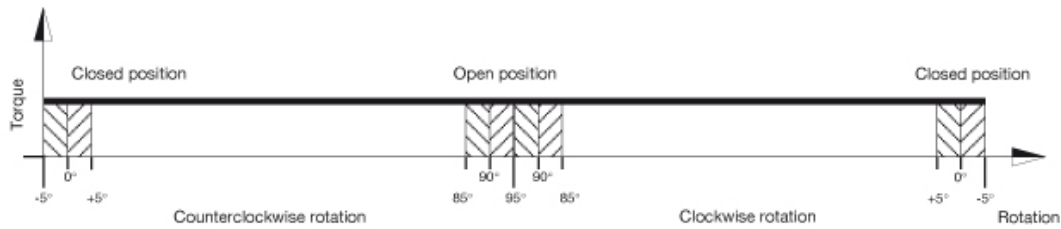
(B) CW rotation

MOD.	DRILLING ISO 5211	CH	A	B	C	D	E	F	G	H	ØI	ØK	L	M	N	O	P	Q	R	S	T NPT	U	ØV
180	F10 - F14	1.42	19.41	8.38	3.86	4.53	9.96	1.18	11.14	1.42	2.44	1.77	3.15/5.12	1.18	1.69	3.90	5.51	4.02	3/8-16 UNC 25x0.59"	5/8-11 UNC 25x0.98"	1/4"	3.17	2.36



Top view

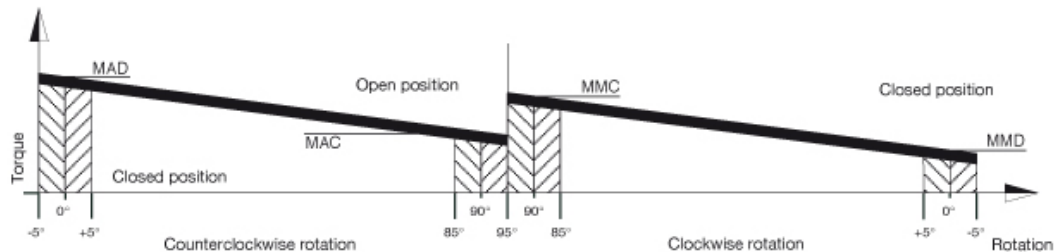
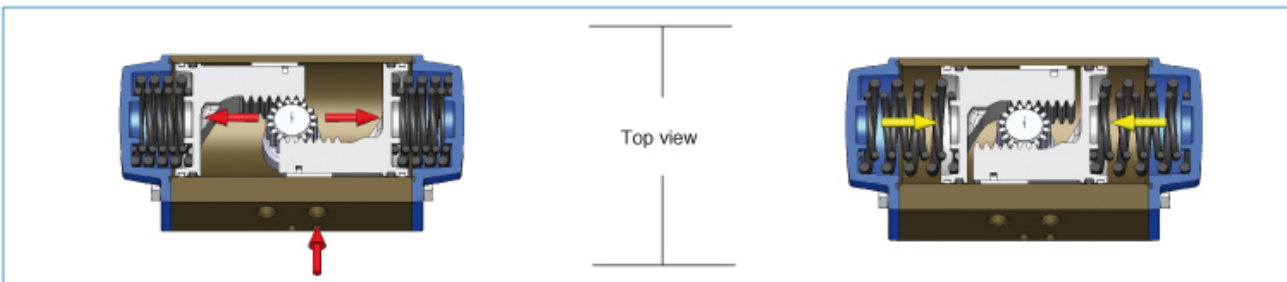




With reference to the above diagram it can be noted that the torque of a double acting actuator remains constant through-out the complete action. The user can decide on which model to choose according to his/her own specific requirements, using the following guidelines:

1. Define the maximum torque of the valve to automate.
2. To obtain a safety factor increase the torque value chosen by 25-50% (subject to the type of valve and working conditions).
3. Once the torque value suggested is obtained consult the torque chart and in relation to the corresponding air pressure find a torque value exact to or exceeding the one obtained.
4. Once the torque value is determined move horizontally to the column "model" to find the actuator model required.

TYPE	AIR SUPPLY PRESSURE (psi)							
	40	50	60	70	80	90	100	115
TORQUE OUTPUT DOUBLE ACTING ACTUATORS (in-Lbs)								
DA 180	3860	4825	5790	6746	7711	8661	9627	11081



With reference to the above diagram the torque of a spring return actuator is not constant but decreasing. This is due to the action of the springs that when compressed during air actuation counteract the piston movement and accumulate energy which will be available in a decreasing way during the rotation inversion. The torque given by the actuator is defined by four fundamental values.

**Opening rotation**

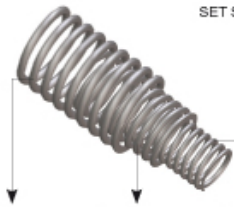
MAD = Actuator torque with unfolded springs  
 MAC = Actuator torque with compressed springs.

**Closing rotation**

MMC = Torque with compressed springs.  
 MMD = Torque with unfolded springs

The user can decide on which model to choose according to his/her own specific requirements, using the following guidelines:

1. Define the maximum torque of the valve to automate.
2. To obtain a safety factor increase the torque value chosen by 25-50% (subject to the type of valve and working conditions).
3. Once the torque value suggested is obtained consult the torque chart and in relation to the corresponding air pressure find the torque value exact to or exceeding the one obtained, taking account of the lower value between the MMD and MAC values.
4. Once the torque value is determined move horizontally to the column "model" to find the actuator model required.

SPRING SETTING			
			
SET STANDARD 06			
SET	EXTERNAL SPRING	CENTRAL SPRING	INTERNAL SPRING
01	-	2	-
02	2	-	-
03	1	2	-
04	2	-	2
05	2	2	-
06	2	2	2

MOD	SET	SPRING TORQUE (Nm)		AIR SUPPLY PRESSURE (psi)																
				40		50		60		70		80		70		100		115		
		0° MMD	90° MMC	TORQUE OUTPUT SPRING RETURN ACTUATORS (in-Lbs)																
		0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	
SR180	1	903	1487	2540	1921	3239	2620													
	2	1416	2230			2691	1823	4089	3222											
	3	1611	2602			2487	1434	3885	2832	5275	4222									
	4	2319	3664					3133	1735	4523	3124	5222	3824							
	5	2319	3717							4523	3036	5222	3735	5921	4434					
	6	3222	5151										4266	2248	4965	2947	6364	4346	7762	5744

WORKING TIME (SEC)		
COUNTERCLOCKWISE ROTATION (DA)	CCW	1,99
CLOCKWISE ROTATION (DA)	CW	1,80
COUNTERCLOCKWISE ROTATION (SR)	CCW	3,08
CLOCKWISE ROTATION (SR)	CW	2,38

WEIGHT CHART (Lbs)	
DOUBLE ACTING	63,95
SPRING RETURN	87,98

ACTUATOR AIR CONSUMPTION CHART		
Litres: 1 Litre = 1000 cm <sup>3</sup>		
COUNTERCLOCKWISE ROTATION (DA/SR)	CCW	282,54
CLOCKWISE ROTATION (DA)	CW	402,75

To obtain the air consumption in NI/min multiply the value in the chart for the correct parameters. That is to say for the supplied absolute pressure and the number of strokes in a minute.