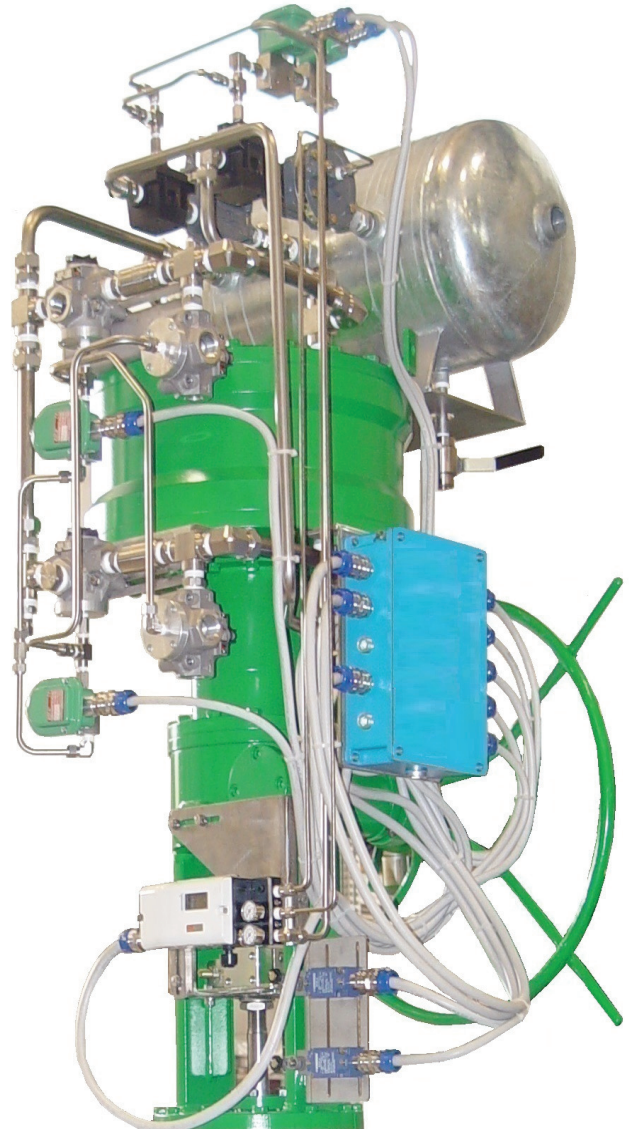


## Tecnoil Valve Pneumatic Actuator



## Tecnoil Valve Diaphragm Actuator Series

### Application

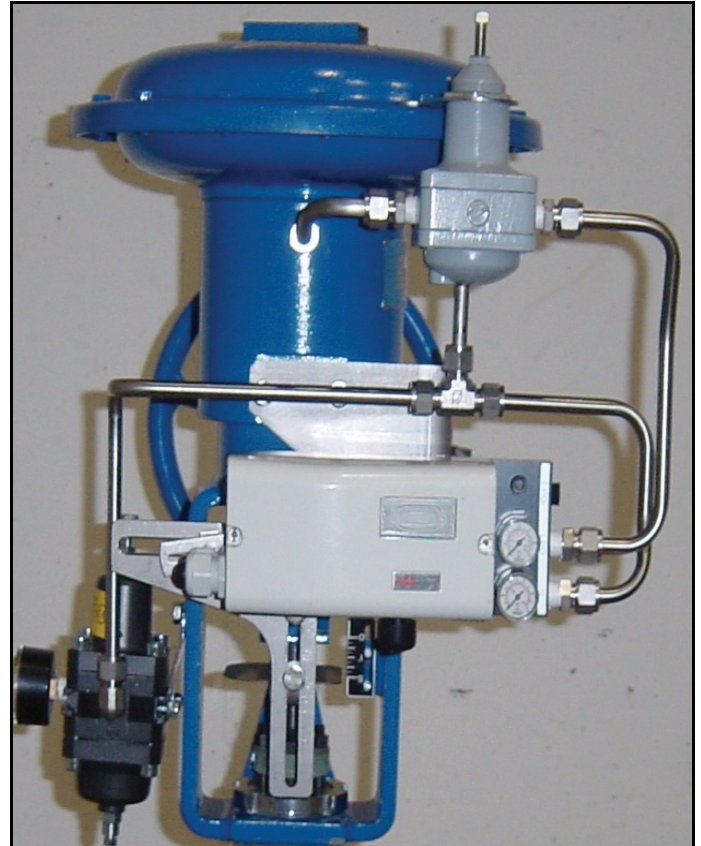
Tecnoil Valve S.p.A. Diaphragm Actuator has been designed to be used on control valves in the field of energy and oil&gas. It can be equipped with a long series of accessories like volume booster, positioner, solenoid valve and air filter regulator.

### Design Features

- Yoke and casing in forged steel
- Stem material in 400 series Stainless steel
- Maximum allowable supply pressure 3.5 bar
- High availability of springs for different spring ranges.

### Benefits

- Smooth sliding stroke.
- Reduced inspection and maintenance costs.
- Excellent stability of the actuator stems
- Very low friction.
- Direct and reverse action.



Tecnoil Valve Pneumatic Diaphragm Actuator.

## ENGINEERING DATA – DIAPHRAGM ACTUATOR SERIES.

### General

The Series diaphragm actuators have been designed to provide cost effective, reliable and easily maintained actuators capable of working in rigorous environments. Easy disassembly of the cases makes it easy to access the diaphragm, which means minimising the time for replacing the parts like stem guide, diaphragm and seals.

### Developed Force:

- Type 11 = 323 N/psi (33 kgf/psi)
- Type 13 = 461 N/psi (47 kgf/psi)
- Type 18 = 902 N/psi (92 kgf/psi)
- Type 18L = 902 N/psi (92 kgf/psi)
- Type 24 = 1295 N/psi (132 kgf/psi)

### Spring Range Available:

For all type of the actuators and for direct and reverse action are available the following spring range:

- 3 ÷ 15 psi
- 6 ÷ 30 psi
- 15 ÷ 30 psi

### Stroke

Type	Available Stroke (mm)					
	13	20	25	60	80	100
<b>11</b>	13	20	25			
<b>13</b>	20	25	40			
<b>18</b>	25	40	50	60		
<b>18L</b>					80	
<b>24</b>			40	60	80	100

### Type:

- Pneumatic Diaphragm Actuator.

### Action:

- Direct (Air Close Action)
- Reverse (Air Open Action)

### Handwheel:

- The actuators can be equipped with handwheel side mounted.

### Materials:

Employed material are:

- Yoke:
  - ASTM A105
  - ASTM A350 LF2
- Diaphragm:
  - Neoprene
  - Silicon Rubber
- Screw:
  - Carbon Steel
  - Stainless Steel

### Paint:

A wide range of paint finishes are available.

### Inspection and Testing:

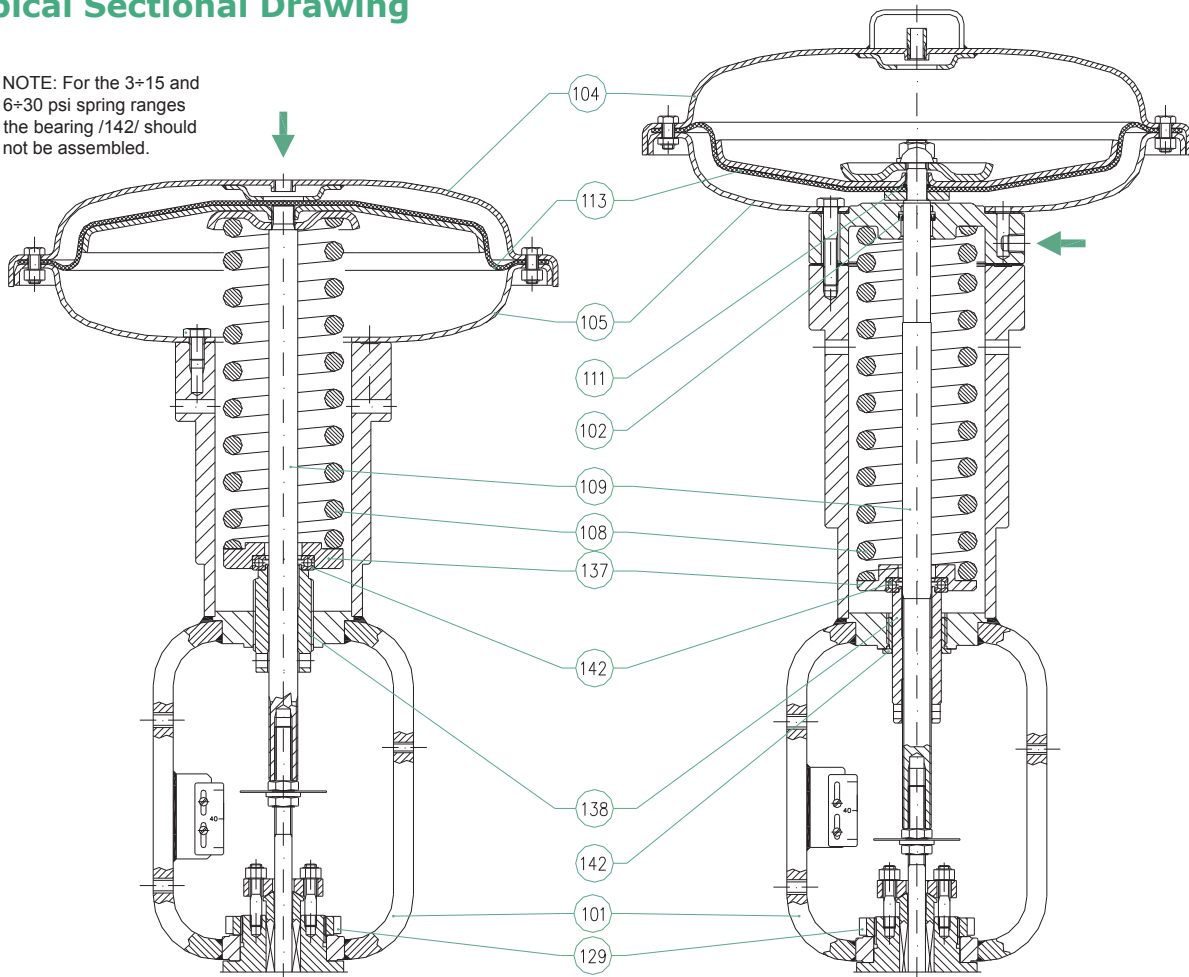
Inspection & Testing to Tecnoil Valve's standard.

### Instruments:

A wide range of control instruments are available, including: Positioners, Air-filter Regulators, Volume Boosters, Lock-up valves, etc

## Typical Sectional Drawing

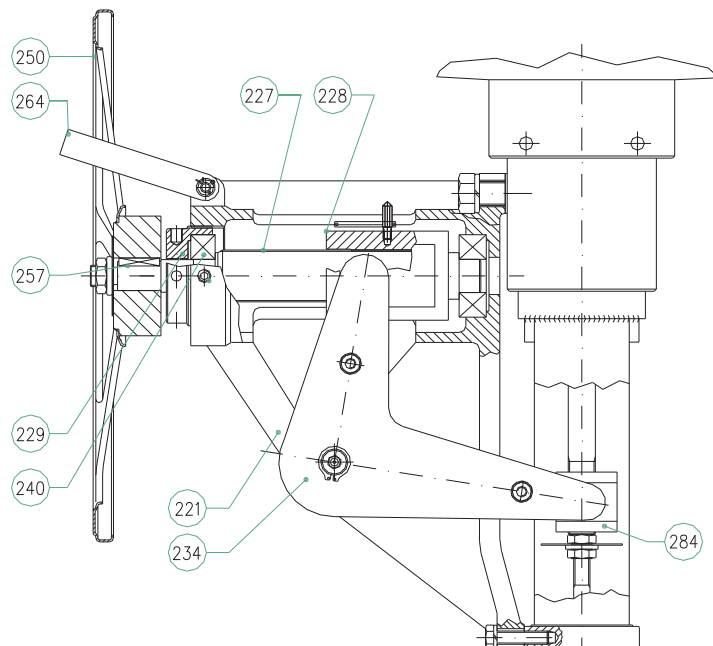
NOTE: For the 3+15 and 6+30 psi spring ranges the bearing /142/ should not be assembled.



Typical Diaphragm Direct  
(Air Close Action)

Typical Diaphragm Reverse  
(Air Open Action)!

ACTUATOR PARTS LIST		HANDWHEEL PARTS LIST	
No.	DESCRIPTION	No.	DESCRIPTION
101	YOKE	221	BODY
102	LIP RING	227	LEAD SCREW
103	GASKET	228	LEAD NUT
104	UPPER DIAPHRAGM CASE	229	BEARING SUPPORT
105	LOWER DIAPHRAGM CASE	234	LEVER
108	SPRING	240	BEARING
109	MOTOR STEM	250	HANDWHEEL
111	O-RING	257	STOP FEATHER
113	DIAPHRAGM	264	FORK
119	SCREW	284	LEAD NUT
129	CLAMP NUT YOKE STOP		
137	SPRING BOTTOM		
138	ADJUSTING SCREW		
142	BEARING		
146	SCREW BUSHING		



Typical Side Handwheel!

## Tecnoil Valve Model F380, F460 and F600 Single Acting and Double Acting Piston Actuator

### Application

Tecnoil Valve Single Acting and Double Acting Piston Actuator has been designed to be used on control valves in the field of energy and oil&gas. It can be equipped with a long series of accessories like volume booster, positioner, solenoid valve and air filter regulator.

### Design Features

- Yoke and casing in cast and forged steel
- Stem material in 400 series Stainless steel
- Maximum allowable supply pressure = 15 bar
- High availability of springs for different spring ranges.

### Benefits

- Smooth sliding stroke.
- Reduced inspection and maintenance costs.
- Excellent axially of the actuator stem
- Very low friction.
- Direct, Reverse and double acting.



**Piston F460 Reverse with Handwheel**

## ENGINEERING DATA – PISTON ACTUATOR SERIES.

### General

The actuators Models F380, F460 and F600 have been designed to provide cost effective, reliable and easily maintained actuators capable of working in rigorous environments.

Easy disassembly of the cases makes it easy to access the piston and piston's components, which means minimising the time for replacing the parts like stem guide, piston rings and guide strips.

### Developed Force:

- Type F380 = 775 N/psi (79 kgf/psi)
- Type F460 = 1134 N/psi (116 kgf/psi)
- Type F600 = 1942 N/psi (198 kgf/psi)

### Stroke

- Type F380 = 25÷80 mm
- Type F460 = 40÷200 mm
- Type F600 = 100÷300 mm

### Type and Action:

- Pneumatic Single Acting Piston Actuator with Return Spring:
  - Direct (Air Close Action)
  - Reverse (Air Open Action)
- Pneumatic Double Acting Piston Actuator (without spring).

### Handwheel:

All type of piston actuators can be equipped with handwheel side mounted.

### Materials:

Employed material are:

- Yoke: - ASTM A216 WCB  
- ASTM A105  
- ASTM A350 LF2
- Piston Ring: - P.T.F.E .
- Screw: - Carbon Steel  
- Stainless Steel

### Paint:

A wide range of paint finishes are available.

### Inspection and Testing:

Inspection & Testing to Tecnoil Valve's standard.

### Instruments:

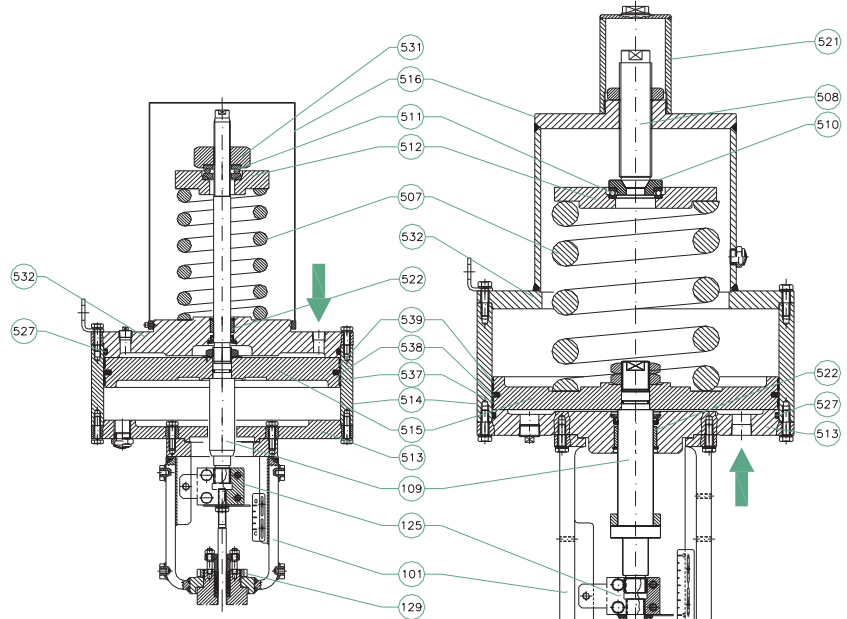
A wide range of control instruments are available, including: Positioners, Air-filter Regulators, Volume Boosters, Lock-up valves, etc.

## Typical Sectional Drawing

ACTUATOR PARTS LIST	
No.	DESCRIPTION
101	YOKE
109	MOTOR STEM
125	ANTI SPIN COUPLING SLEEVE
129	CLAMP NUT YOKE STOP
507	SPRING
508	ADJUSTING SCREW
511	BEARING
512	PLATE
514	PISTON CYLINDER
515	PISTON
516	SPRING CASE
517	INTERMEDIATE BODY
521	CAP
522	GUIDE BUSHING
527	O-RING
531	ADJUSTING PLATE
532	UPPER PLATE
537	GUIDE RING N=1
538	SEAL RING
539	GUIDE RING N=2

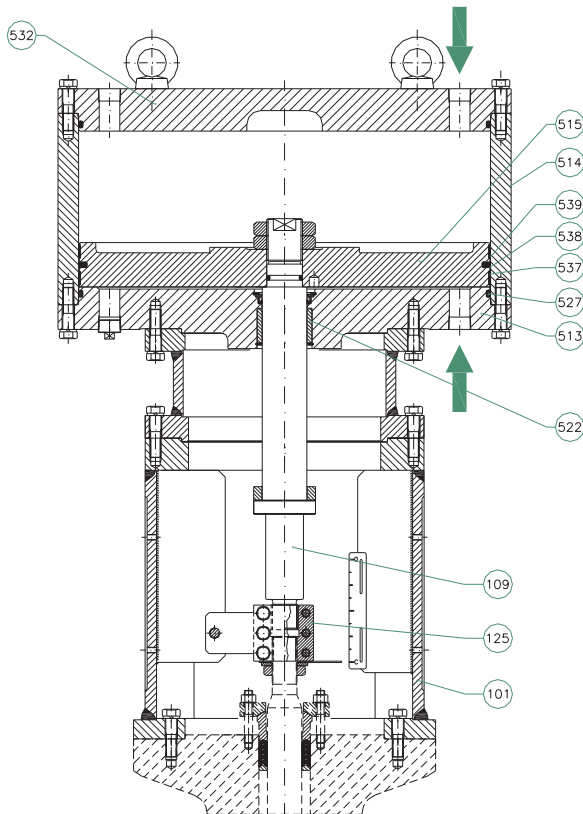
  

HANDWHEEL PARTS LIST	
No.	DESCRIPTION
250	HANDWHEEL
600	HANDWHEEL BODY
607	FEATHER KEY
608	SLEEVE THREAD
609	WORM WHEEL
610	HANDLING SCREW
629	BEARING
630	BEARING

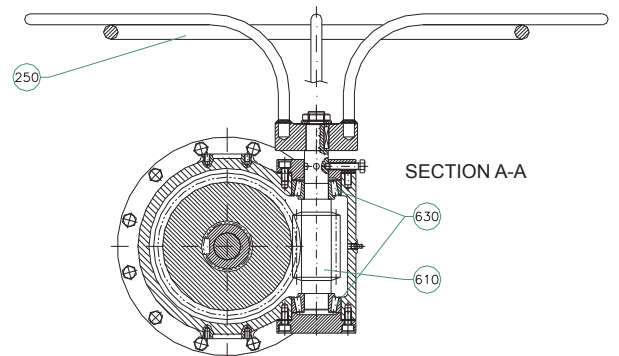
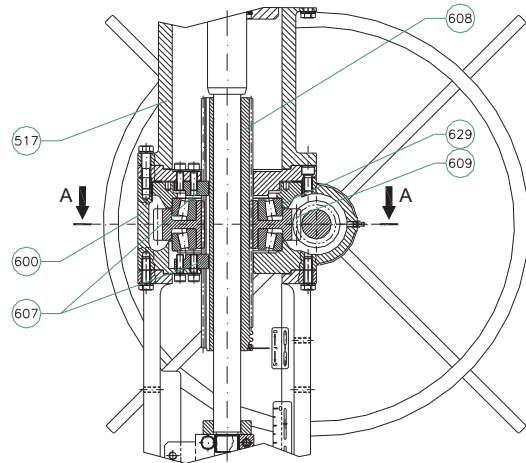


Piston F380 Direct  
(Air Close Action)

Piston F460 Reverse  
(Air Open Action)



Piston F600 Double Acting



Typical Side Handwheel Detail

## Spring Range Available:

For all type of the actuators and for direct and reverse action are available the following spring range:

### Actuator F380

Spring Length (mm)	Spring Costant (N/cm)	STROKE (mm)				
		25	40	50	60	80
		Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)
260	2840	20,6÷28,5	15÷28,5	11,2÷28,5	7,5÷28,5	
370	4740	25÷40	16÷40	10÷40	4÷40	
	2270	27÷34	23÷34	20÷34	17÷34	11÷34

### Actuator F460

Spring Length (mm)	Spring Costant (N/cm)	STROKE (mm)								
		40	50	60	80	100	130	150	170	200
		Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)
370	5072	32÷50	28÷50	23÷50	14÷50	5÷50				
	3869	36÷50	33÷50	29÷50	23÷50	16÷50				
550	1707		28÷35	26÷35	23÷35	20÷35	15÷35	12÷35		
650	1746				35÷48	32÷48	28÷48	25÷48	22÷48	17÷48
920	1668						36÷55	33÷55	30÷55	26÷55

### Actuator F600

Spring Length (mm)	Spring Costant (N/cm)	STROKE (mm)							
		100	170	200	230	250	260	280	300
		Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)	Spring Range (psi)
1050	3300	43,6÷60,4	32÷60,4	27÷60,4	22÷60,4	18,7÷60,4	17÷60,4	13,7÷60,4	10,3÷60,4

Different springs can be produced for the specific job.



