

# Masoneilan 81/82 Series Actuators

## Pneumatic Spring Diaphragm Actuators



# Forward

Pneumatic diaphragm actuators are the source of driving force to operated control valves. The actuators can be applied to all the reciprocating action valves we manufacture.

## The Diaphragm Actuators

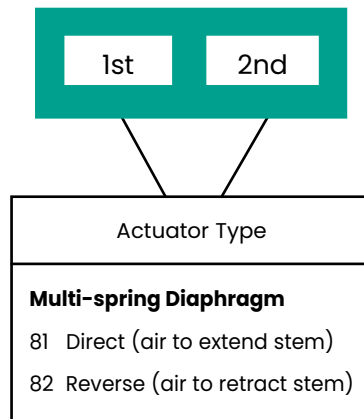
The direct actuator is so designed that an increase in operating air pressure above the initial spring setting, on top of the diaphragm, produces a downward motion of actuator stem. This motion or force is opposed by the compression of the spring. Actuator characteristics produce a liner relationship between stroke and air

pressure. The resulting valve action is described as Air-to-Close when the plug is moved toward the seat and Air-to-Open when the plug is moved away from the seat.

Either action is obtained by means of the direct actuator where design permits inverting the valve body and plug. The reverse actuator is used for Air-to-Open valve action where design does not permit inverting the valve body and plug.

The spring, diaphragm and diaphragm plate are inverted so that an increase in operating air pressure (above the initial spring setting) in the lower diaphragm case produces an upward motion of the actuator stem.

# Numbering System



# Spring Diaphragm Actuators

## General Specifications

<b>Size:</b>	11M, 13M, 15M and 18M (Multi spring type)
<b>Ambient Temperature Range:</b>	-45°C up to +100°C
<b>Maximum Supply Pressure:</b>	350kPa (Multi spring type) Below 280kPa (Single spring type)

## Standard Spring Range (kPa)

Travel Act. Size	Multi type				Single type
	20.32mm	38.1mm	50.8mm	63.5mm	101.6mm
11M	20 - 100	-	-	-	-
	40 - 200	-	-	-	-
	60 - 160 <sup>(1)</sup>	-	-	-	-
	80 - 240 <sup>(1)</sup>	-	-	-	-
13M	20 - 100	20 - 100	20 - 100 <sup>(2)</sup>	-	-
	40 - 200	40 - 200	40 - 200 <sup>(2)</sup>	-	-
	80 - 170 <sup>(1)</sup>	80 - 240 <sup>(1)</sup>	-	-	-
	100 - 200 <sup>(1)</sup>	-	-	-	-
15M	20 - 100	20 - 100	20 - 100	-	-
	40 - 200	40 - 200	40 - 200	-	-
	90 - 170 <sup>(1)</sup>	70 - 200 <sup>(1)</sup>	60 - 240 <sup>(1)</sup>	-	-
	100 - 200 <sup>(1)</sup>	90 - 240 <sup>(1)</sup>	-	-	-
18M	-	20 - 100	20 - 100	20 - 100	-
	40 - 130 <sup>(3)</sup>	40 - 200	40 - 200	40 - 200	-
	100 - 200 <sup>(1)</sup>	80 - 220 <sup>(1)</sup>	100 - 240 <sup>(1)</sup>	80 - 240 <sup>(1)</sup>	-
	120 - 200 <sup>(1)</sup>	120 - 230 <sup>(1)</sup>	-	-	-

<sup>(1)</sup>Available only for Reverse Actuators.

<sup>(2)</sup>Available only for Butterfly Valves.

<sup>(3)</sup>Available only for Direct Actuators.

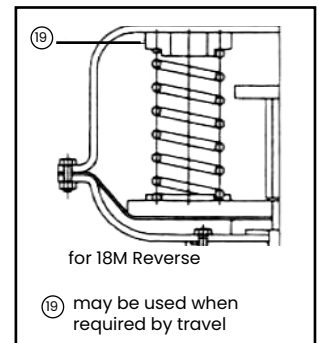
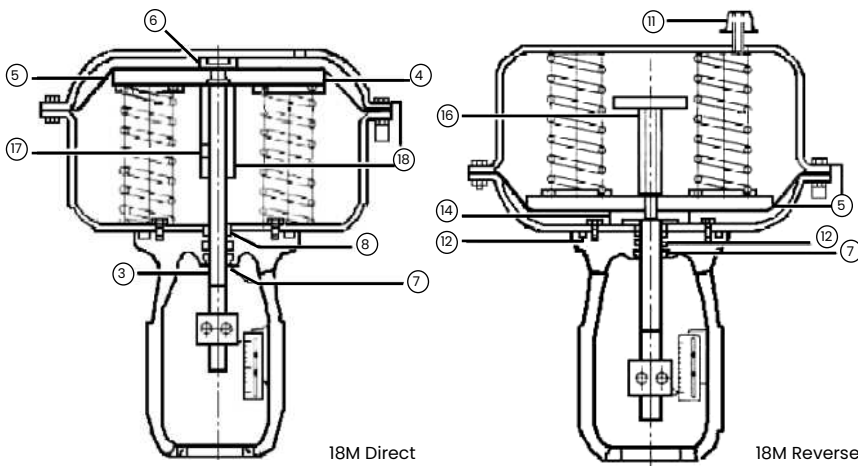
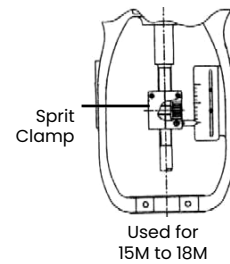
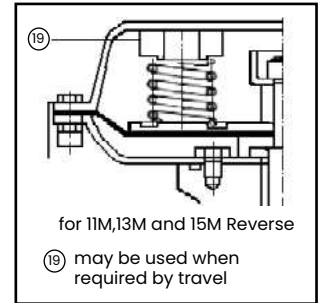
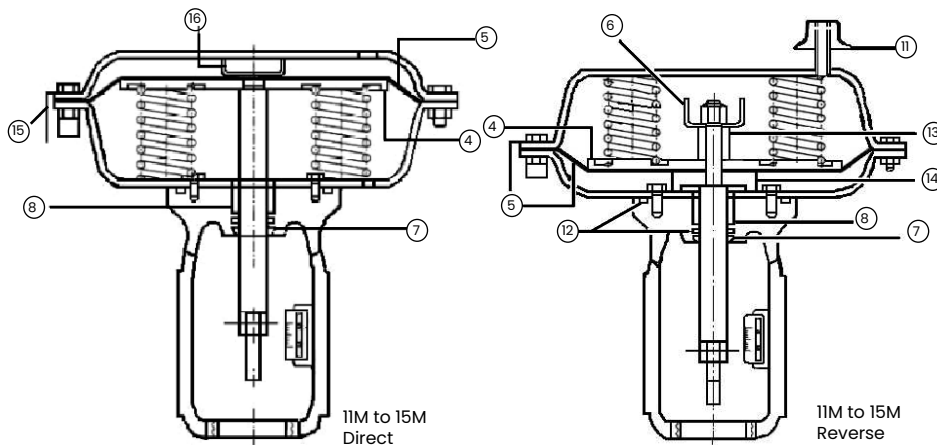
## Maximum Travel

Act. Size	Travel (in mm)	Type
11M	20.32	Multi spring
13M	38.1	
15M	50.8	
18M	63.5	

## Handwheels (Option)

Side Mounted	
Actuator Size	Handwheel Type
11M	6M1
13M	6M2
15M	6M3 or 6M4
18M	6M5 or 6M6

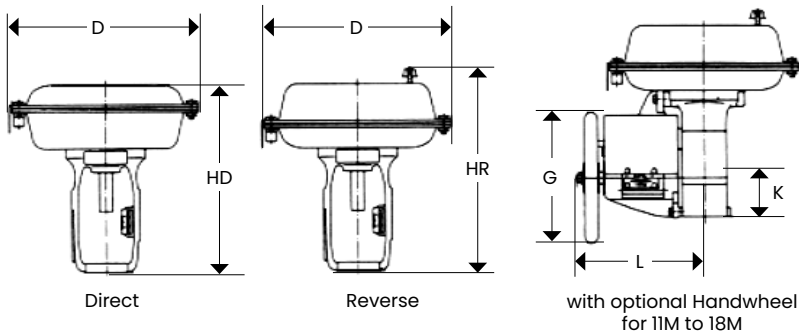
# Constructions for Multi-spring Diaphragm Actuators



Ref. No. / Description			
1	Upper Diaphragm Case	11	Vent Cap
2	Lower Diaphragm Case	12	O-Ring
3	Actuator Stem	13	Spacer
4	Diaphragm Plate	14	Collar
5	Diaphragm	15	Caution Plate
6	Stop Cup	16	Stop Nut
7	Scraper Ring	17	Set Screw
8	Guide Bushing	18	Travel Stop
9	Spring	19	Spring Spacer
10	Spring Guide		

# Dimensions for Diaphragm Actuators

**Actuator Size: 11M, 13M, 15M & 18M**



## Dimensions (in mm)

Actuator Size	D	without Handwheel		with Handwheel					
		Direct HD	Reverse HR	Handwheel Type	Direct HD	Reverse HR	G	K	L
11M	330	326	378	6M1	326	378	223	65	225
				2-11M	514	-	223	-	-
				9-11M	-	524	223	-	-
13M	381	401	453	6M2	401	453	280	60	285
				2-13M	620	-	223	-	-
				9-13M	-	635	223	-	-
15M	445	495	547	3-15M	-	-	-	-	-
				6M3	495	547	457	80	360
				6M4	495	547	609	80	360
18M	527	623	675	6M5	623	675	457	80	383
				6M6	623	675	609	80	383

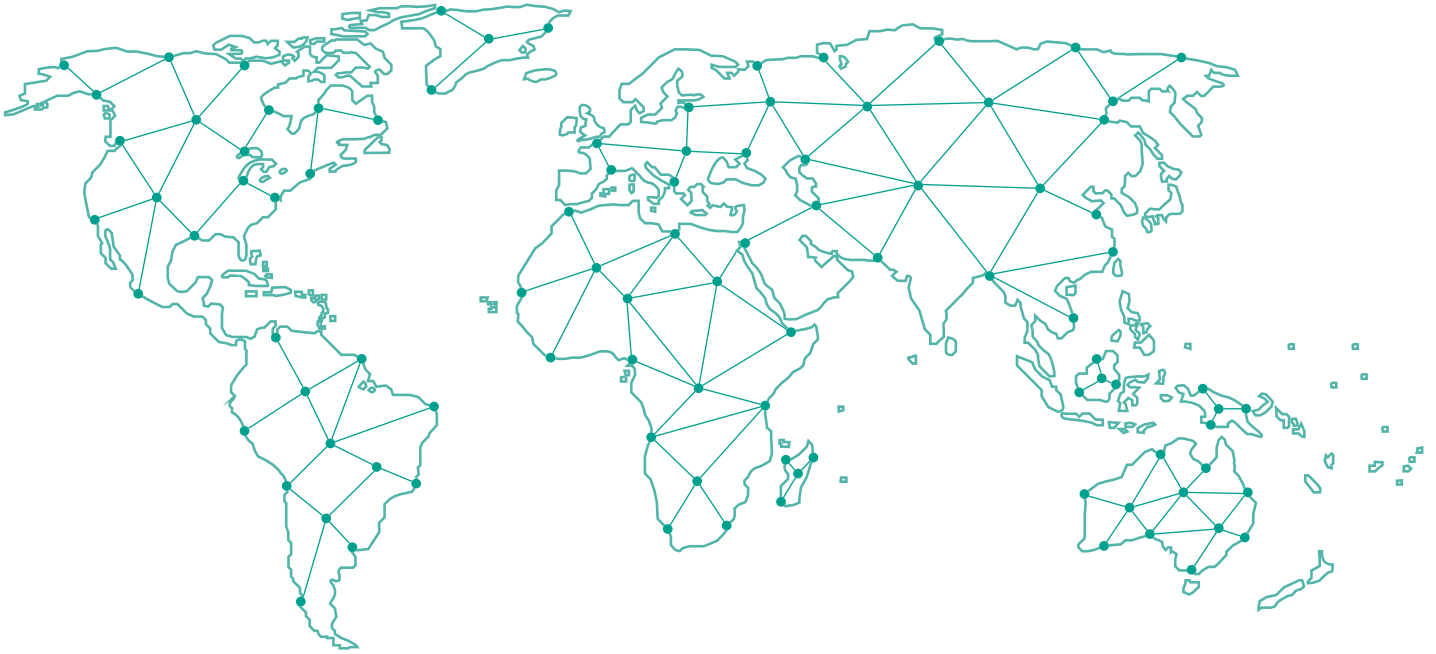
Note:  
Actuator sub-assembly and weights are available on request.  
Contact Baker Hughes for dimensions.





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