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Delan 德兰调节阀
DELAN 957/967 SERIES

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957/967 SERIES

PNEUMATIC DIAPHRAGM ACTUATOR

Energy Fluid Technology Solution

DELAN ENERGY
SCIENCE&TECHNOLOGY
CORPORATION

PNEUMATIC DIAPHRAGM ACTUATOR

INTRODUCTION

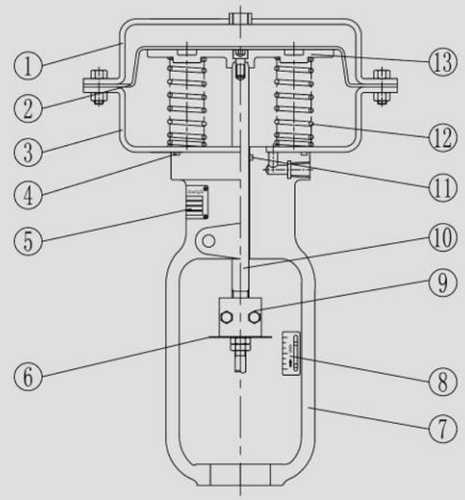
This series is a kind of direct travel pneumatic diaphragm actuator with multi-spring structure, light weight, small volume,large output driving force and high performance.Its working principle is that the air pressure converted from the electrical or pneumatic signal of the regulating instrument through the locator is input into the diaphragm chamber, which acts on the diaphragm to generate thrust, causing the output shaft to move. At the same time, the spring is compressed until it is balanced with the reaction force of the spring, so that the output shaft reaches the predetermined position. Position control can also be achieved by directly applying an air signal to the diaphragm.

This series of actuators are divided into two types: direct action (957) and reverse action (967). The design of this actuator allows the control valve to be reliably opened or adjusted for control.

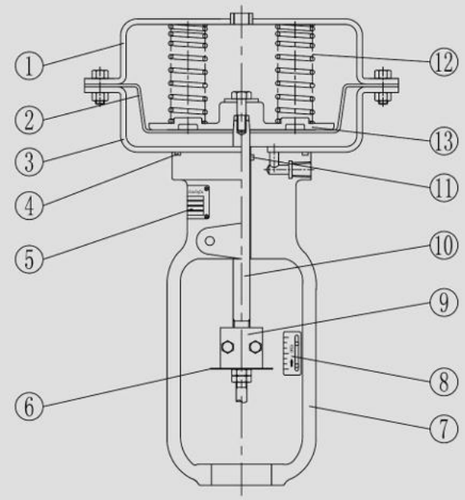
Delan®
德兰调节阀

STANDARD SPECIFICATION

Series		957、967
Form		Multi-spring construction
Specification		20、30、34、40、45、50、70
Action		1.Direct action - air close type 2.Reverse action - air open type
Maximum Output Thrust		See table 1
Stroke		See table 2
Air Supply Pressure		320Kpa
Spring Range		Direct action:20~100Kpa, 40~200Kpa Reverse action:80~200Kpa, 120~240Kpa
Environment Temperature		Standard type: -40°C~82°C Special type (optional): -18°C~149°C, -54°C~149°C
Material of Main Parts	Standard type	Diaphragm shell: steel Support: cast iron Guide rod of actuator: stainless steel Clamping block: galvanized steel surface Diaphragm: nitrile rubber Stroke sign: stainless steel O-ring: nitrile rubber Pointer: stainless steel Actuator spring: steel Hand wheel: ductile iron Diaphragm plate: steel
	Special type	Diaphragm: fluorine rubber(-18°C~149°C)、Silicone synthetic rubber(-54°C~149°C) O-ring: silicone synthetic rubber Connection bolt: stainless steel
Coating Color		Orange
Attachments		Positioner, air filter regulator, limit switch, solenoid valve, blocking valve, amplifier, etc
Optional Devices		Manual operation mechanism, special air piping and special gas joint, high temperature environment use, low temperature environment use, salt corrosion prevention type, designated coating color, etc



Direct action - air close type



Reverse action - air open type

STRUCTURE

Actuator Parts List

1	Upper diaphragm shell
2	Diaphragm
3	Lower diaphragm shell
4	O-ring
5	Nameplate
6	Pointer
7	Support
8	Stroke sign
9	Clamping block
10	Actuator guide rod
11	O-ring
12	Actuator spring
13	Diaphragm plate

Top/side mounted handwheel

To meet manual operation in emergency situations, the 957 and 967 pneumatic diaphragm actuators can be equipped with a top mounted or side mounted handwheel assembly.

The top mounted handwheel on the 957/967 actuator can be used to set the travel limit in the upward direction. The handwheel of the 957 actuator rotates clockwise to cause the actuator push rod to move downward and compress the spring;When the handwheel rotates counterclockwise, the action of the spring pushes the push rod back. For the 967 actuator, counterclockwise rotation will move the push rod upwards; When rotating clockwise, theaction of the spring pushes the push rod back down.

The side mounted handwheel on the 957/967 actuator positions the handwheel on one side of the bracket. Through worm gear transmission, handwheel drive can also be used as a travel limiter.

Type specification

Actuator code	Standard type	957(Direct) 967(Reverse)
	Lengthened type	957L(Direct) 967L(Reverse)
Actuator specification		20 / 30 / 34 / 40 / 45 / 50 / 70
Handle mechanism	S	Handle mechanism S Top handwheel
	C	C Side handwheel
	NO	No Without handwheel
Spring pressure range	Standard type	20~100kpa(Direct)
		80~200kpa(Reverse)
	Special type	40~200kpa(Direct)
		120~240kpa(Reverse)

Example 1: Model number: 957-30-S
Direct acting actuator, 30 actuator, with top handwheel, spring pressure range 20 ~ 100Kpa.

Example 2: Model number: 967L-40-C-T
Lengthened reverse acting actuator, 40 actuator, with side handwheel, spring pressure range 120 ~ 240Kpa.

Table1 Maximum Output Thrust

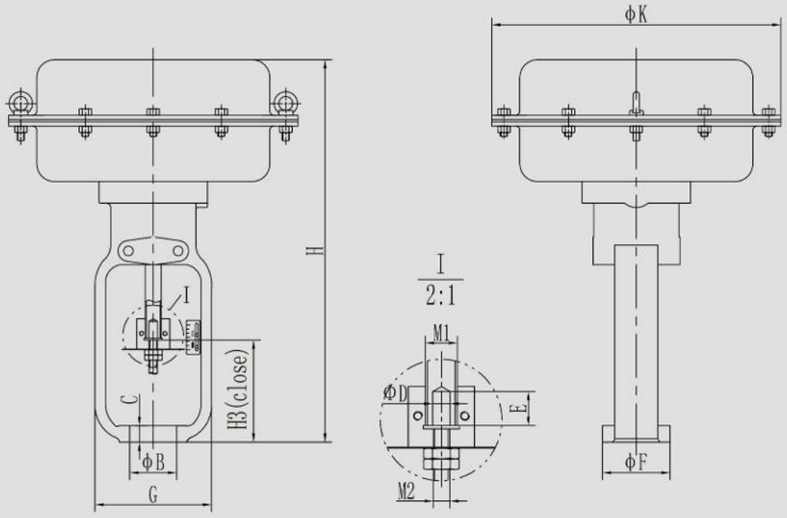
Actuator Series	Spring Range Kpa	Air Pressure Kpa	Maximum Output Thrust Kgf						
			Actuator Specification						
			20	30	34	40	45	50	70
957	20 ~ 100	320	440	770	1232	1232	1980	1980	3080
	40 ~ 200		240	420	672	672	1080	1080	1680
967	80 ~ 200		160	280	448	448	720	720	1120
	120 ~ 240		240	420	672	672	1080	1080	-

Table2 Effective Area and Stroke of Diaphragm

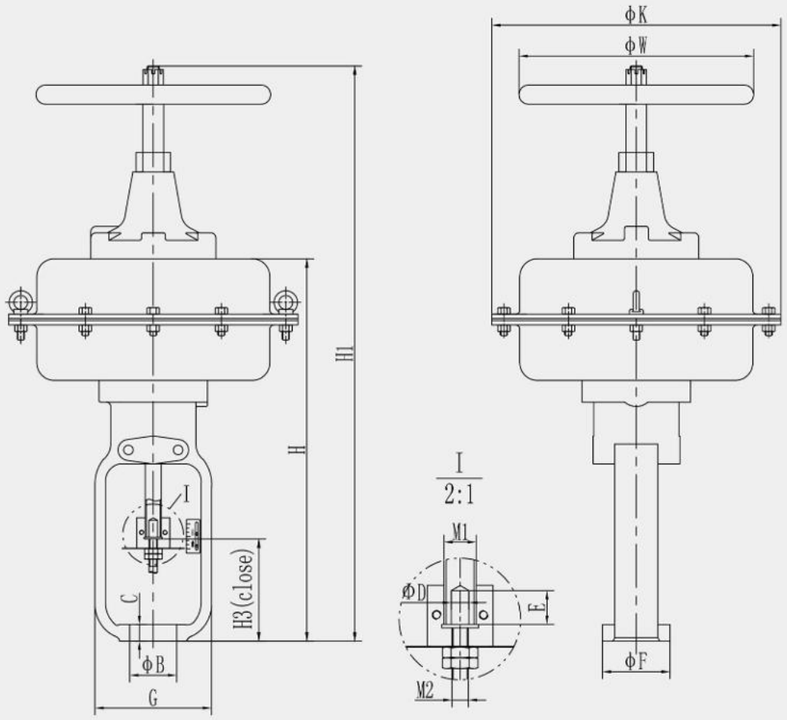
Actuator Specification	20	30	34	40	45	50	70
Diaphragm Shell Diameter (mm)	240	280	340	340	470	470	560
Support	20	30	30	40	40	50	70
Effective Area of Diaphragm cm^2	200	350	560	560	900	900	1400
Standard Type Stroke (mm)	19	19	29	38	51	51	76
Lengthened Type Stroke (mm)	-	29	38	51	76	76	102

Table3 Weight of Actuator without Attachments

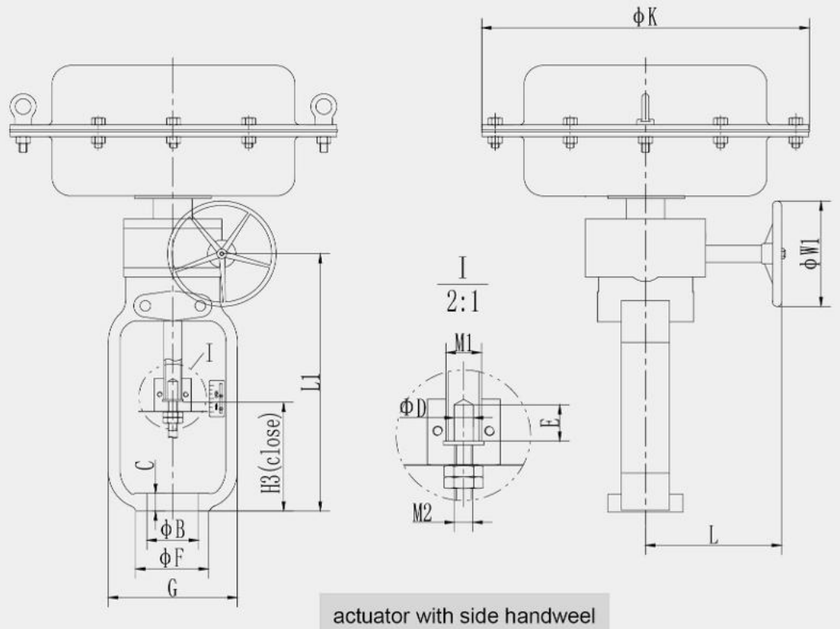
Actuator Specification	Weight Kg		
	without handweel	top handweel	side handweel
20	10	20	-
30	19	29	38
34	28	45	65
40	38	55	75
45	71	122	155
50	81	132	165
70	126	180	190



actuator without handweel



actuator with top handweel



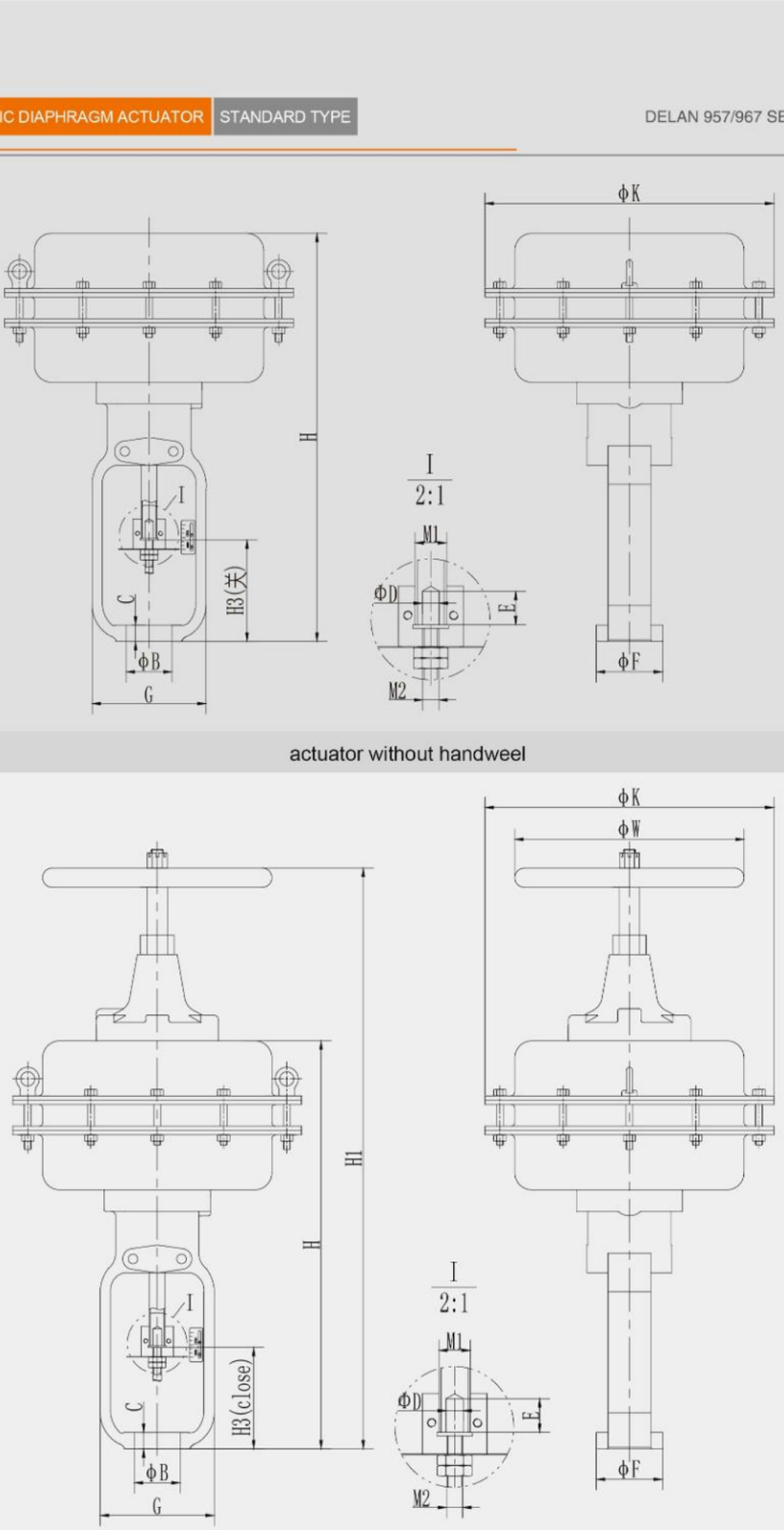
actuator with side handweel

Dimension Unit:mm

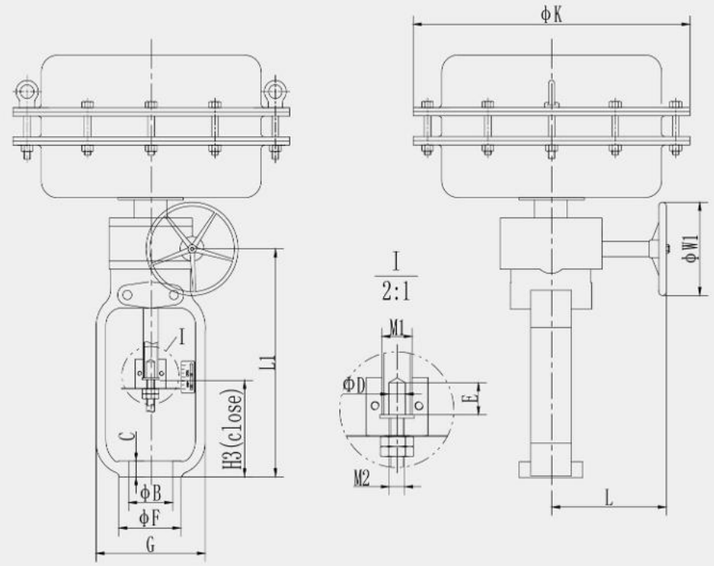
Specification	20	30	34	40	45	50	70
φB	54	54	54	71	71	90	90
C	19	19	19	24	24	35	35
φD	10	10	10	13.5	13.5	20	20
E	15	15	15	15	15	15	15
φF	78	78	78	98	98	140	140
G	134	134	134	162	162	216	216
H	298	420	440	514	574	631	804
H1	458	579	660	734	862	919	1147
H3(close)	97	97	94	123	127	172	186
φK	240	280	340	340	470	470	560
L	-	200	200	200	200	220	220
L1	-	370	370	445	445	508	585
M1	5/8"-18UNF	5/8"-18UNF	3/4"-16UNF	3/4"-16UNF	1-1/8"-12UNF	1-1/8"-12UNF	1-1/8"-12UNF
M2	3/8"-24UNF	3/8"-24UNF	3/8"-24UNF	1/2"-20UNF	1/2"-20UNF	3/4"-16UNF	3/4"-16UNF
φW	200	200	280	280	320	320	400
φW1	-	200	200	200	300	300	300
Stroke	19	19	29	38	51	51	76
Tracheal joint	1/4NPT	1/4NPT	1/4NPT	1/4NPT	1/4NPT	1/2NPT	1/2NPT

Note: The maximum size of tracheal joint for actuator 50 is 1/2NPT

actuator without handweel



actuator with top handweel



actuator with side handweel

Dimension Unit:mm

Specification	30	34	40	45	50	70
φB	54	54	71	71	90	90
C	19	19	24	24	35	35
φD	10	10	13.5	13.5	20	20
E	15	15	15	15	15	15
φF	78	78	98	98	140	140
G	134	134	162	162	216	216
H	456	480	554	614	685	804
H1	615	700	774	902	973	1147
H3(close)	97	94	123	127	172	186
φK	280	340	340	470	470	560
L	200	200	200	200	220	220
L1	370	370	445	445	508	585
M1	5/8"-18UNF	3/4"-16UNF	3/4"-16UNF	1-1/8"-12UNF	1-1/8"-12UNF	1-1/8"-12UNF
M2	3/8"-24UNF	3/8"-24UNF	1/2"-20UNF	1/2"-20UNF	3/4"-16UNF	3/4"-16UNF
φW	200	280	280	320	320	400
φW1	200	200	200	300	300	300
Stroke	29	38	51	76	76	102
Tracheal joint	1/4NPT	1/4NPT	1/4NPT	1/4NPT	1/2NPT	1/2NPT

Note: The maximum size of tracheal joint for actuator 50 is 1/2NPT