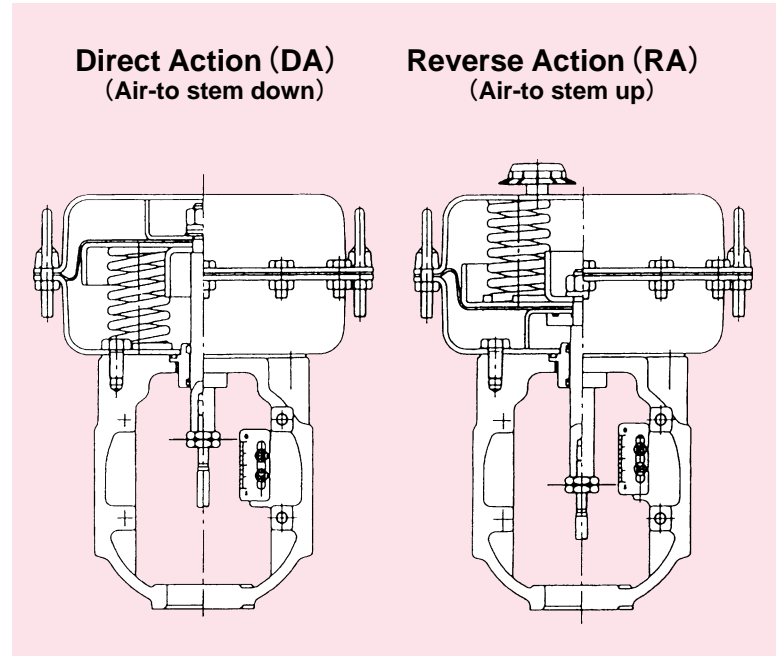


Model 3800

MULTI-SPRING TYPE DIAPHRAGM ACTUATORS

Model 3800 diaphragm actuator is capable of controlling valve travel precisely by adjusting input air pressure resulting in balance of the diaphragm force and the spring force.

Model 3800 diaphragm actuator is new-type actuator which is designed to be compact and light weight by adopting multi-spring structure.



1. SPECIFICATIONS

Type	Model 3800 Pneumatic single action diaphragm actuator			
Action	Direct action (DA), Reverse action (RA)			
Actuator Sizes	N24	N28	N33S	N40 ⁽³⁾
Max Stroke (mm)	25	38	38	65
Power thrust N (kgf) at off-balance 80kPa (0.8kgf/cm ² G)	2120 (216)	2750 (280)	4040 (412)	5690 (580)
Hysteresis Error (With positioner)	Max. 1% F.S. ... PTFE V Ring		Max. 2% F.S. Other Gland Packing	
Linearity (With positioner)	Max. ± 1% F.S. ... PTFE V Ring		Max. ± 2% F.S. Other Gland Packing	
Materials	Diaphragm	Cloth reinforced chloroprene rubber (※ Ethylene propylene rubber)		
	Yoke	FC200 (※ SCPH2)		
Supply Air Pressure kPa (kgf/cm ² G)	140 (1.4), 240 (2.4), 280 (2.8), 300 (3.0), ⁽⁵⁾ ※ 400 (4.0)			
Spring Range kPa (kgf/cm ² G)	20~100 (0.2~1.0), 40~200 (0.4~2.0), 80~200 (0.8~2.0), ⁽⁵⁾ ※ 120~280 (1.2~2.8), ※ 40~120 (0.4~1.2)			
Air Connection	Rc 1/4 (※ NPT 1/4)			
Ambient Temperature	- 20 °C ~ + 70 °C (※ - 50 °C ~ - 20 °C, + 70 °C ~ + 100 °C) ⁽⁴⁾			
Dimensions, Mass	See page 2 Table 1.			
Painting Color	Silver			
Options ※	Additional Mechanisms	Top-mounted handwheel, Side-mounted handwheel, Travel stop.		
	Accessories	Pneumatic positioner (PA92A), Electro-pneumatic positioner (EA91A, EA90A), Air Filter regulator (MR2000), Limit switch, Solenoid valve, Booster relay, Speed controller, Lock up valve, Position Transmitter		

[Notes] (1) ※ Manufactured and attached as option by customer's request.

(2) Material designation is represented by new JIS (SI unit). Please consent in advance that approval drawings and other documents may represent with old material designation.

(3) The actuator for size N40, stroke 65 mm and spring range 80 ~ 200kPa (0.8 ~ 2.0kgf/cm²G) is not available.

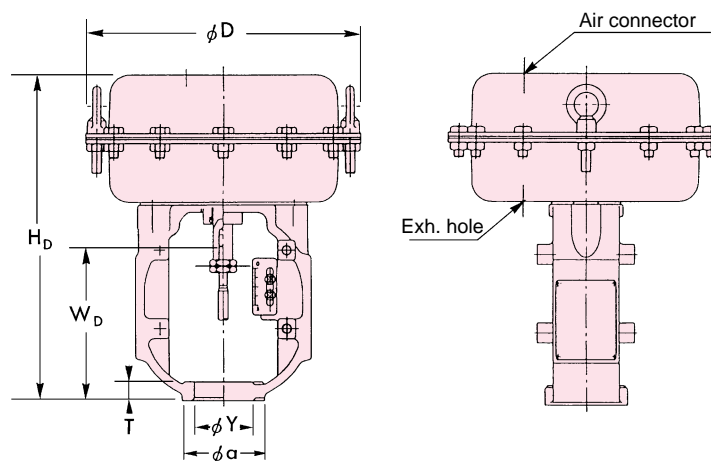
(4) For ambient temperature, denoted the extended temperature range as option.

(5) Supply Air Pressure 400kPa (4.0kgf/cm²G) & Spring Range 120 ~ 280kPa (1.2 ~ 2.8kgf/cm²G) are available for only Actuator Size N33S & N40.

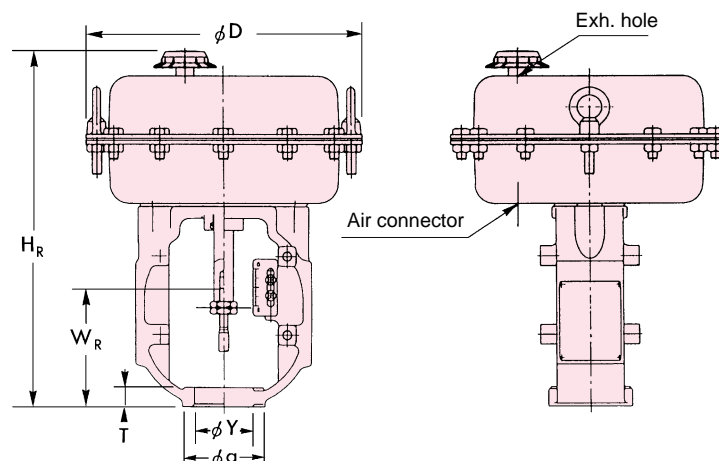
Table 1. Dimensions and Mass

Actuator Size		N 24	N 28	N 33 S	N 40
Effective Diaphragm Area (cm ²)		270	350	515	725
Max. Diaphragm Chamber Volume (DA, RA) (cm ³)		1550	2820	4510	9090
Outside Dia. of Diaphragm Casing ϕ D		240	280	330	400
	Height	DA ; H _D	297	336	391
RA ; H _R		321	360	415	539
Stem Length	DA ; W _D	158	171	183	272
	RA ; W _R	133	133	145	207
Thread of valve stem		M 9 × 1.25		M 12 × 1.75	M 18 × 2.0
Yoke Insertion Dia. ϕ Y		60			100
Yoke Thickness T		20			40
Yoke Mounted by		Yoke nut			Yoke bolt 6- ϕ 19 PCD 135
Yoke Seat Dia. ϕ a		85	85	85	170
Approximate Mass (kg)		12	15	24	51

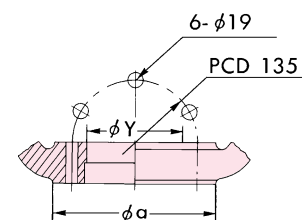
DA



RA



Actuator Size N40



2. ADDITIONAL MECHANISMS

1 Top-mounted Handwheels

Table 2. Dimensions and Mass for DA type with Top-mounted Handwheel

Unit : mm

Actuator Size	N24	N28	N33S	N40
Handwheel Dia. ϕB	200		250	300
Max. Height H_D	469	535	626	795
Max. Stroke	25	38	38	65
Turns for Max. Stroke	17	25	25	43
Approximate Mass (kg)	16	20	31	65

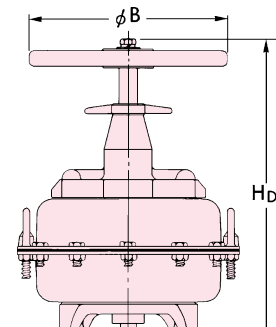
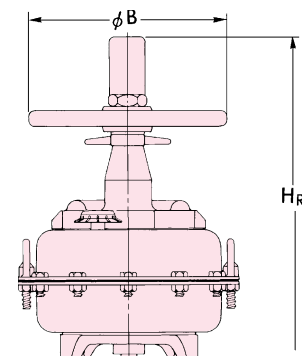


Table 3. Dimensions and Mass for RA type with Top-mounted Handwheel

Unit : mm

Actuator Size	N24	N28	N33S	N40
Handwheel Dia. ϕB	250		300	400
Max. Height H_R	562	628	706	922
Max. Stroke	25	38	38	65
Turns for Max. Stroke	8	13	13	22
Approximate Mass (kg)	18	22	34	71

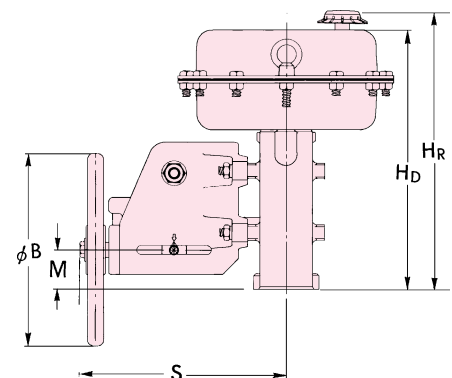


2 Side-mounted Handwheels

Table 4. Dimensions and Mass for units with Side-mounted Handwheel

Unit : mm

Actuator Size	N24	N28	N33S	N40	
Handwheel Dia. ϕB	250	300		400	
Handwheel Projection S	235	271	271	402	
Stem Length	DA ; W_D ⁽²⁾	138	151	163	235
	RA ; W_R ⁽²⁾	113		125	170
Center-to-center distance M	63	51	59	65	
Max. Stroke	25	38	38	65	
Turns for Max. Stroke	4.7	8.7	8.7	19	
Approximate Mass (kg)	21	28	37	77	



[Notes] (1) Height H_D and H_R is coincident with the standard actuator.
 (2) Symbol W_D and W_R denote the same dimension of attached figure on table 1.

3 Travel Stops

Travel stops are used to limit the valve travel if necessary.

< Example >

Actuator size N24, direct action, push-down close, to limit full open

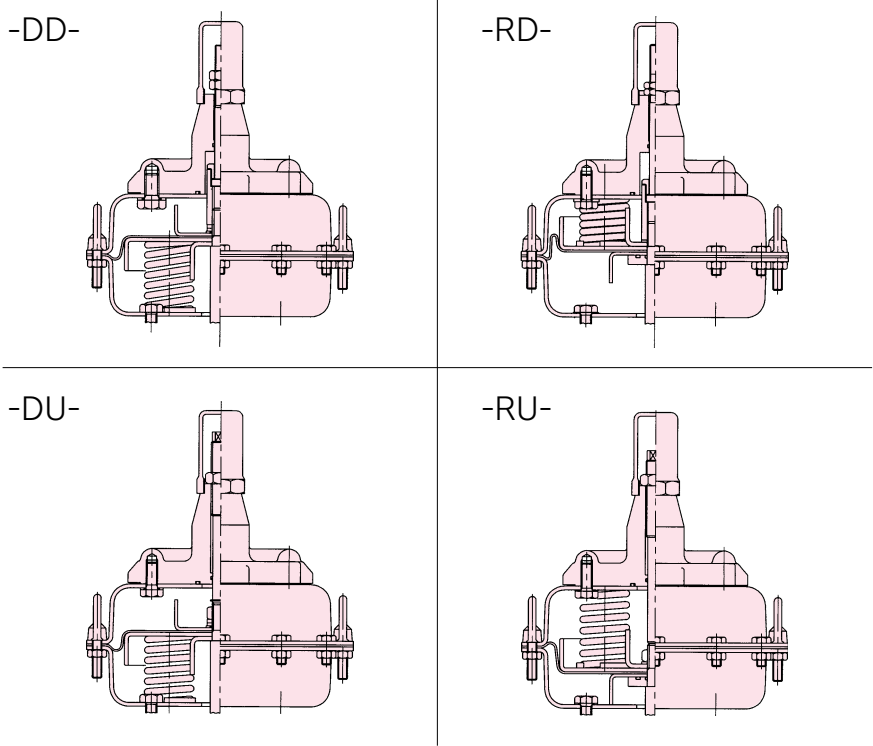
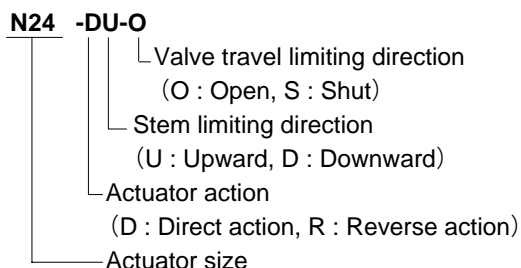


Table 5. Classification of Travel Stop and Heights

Unit : mm

Actuator Action	Stem Limiting Direction	Symbol	Valve Travel Limiting Direction	Application	Height	Actuator Size			
						N24	N28	N33S	N40
Direct Action (DA)	Downward-D	-DD	Shut-S	Travel limit of push-down close	H _D	478	531	609	778
			Open-O	Travel limit of push-down open					
	Upward -U	-DU	Shut-S	Travel limit of push-down open					
			Open-O	Travel limit of push-down close					
Reverse Action (RA)	Downward-D	-RD	Shut-S	Travel limit of push-down close	H _R	478	531	609	778
	Upward -U	-RU	Open-O	Travel limit of push-down open					

3. POSITIONER MOUNTING DIMENSIONS

1 Pneumatic Positioner Model PA92A

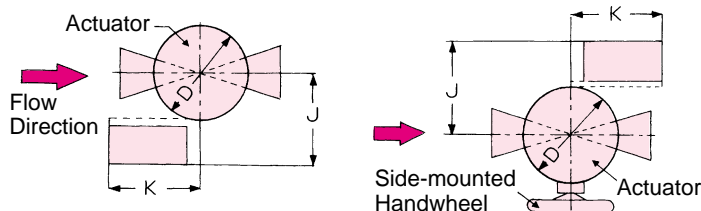


Table 6. Mounting Dimensions for Model PA92A

Unit : mm

Actuator Size	N24		N28		N33S		N40	
Actuator outside Dia. ϕD	240		280		330		400	
Action	DA	RA	DA	RA	DA	RA	DA	RA
J	210						250	
K	330						270	

[Note] The mounting dimensions for other positioner may be different from the above mentioned.

2 Electro-pneumatic Positioner Model EA91A, EA90A

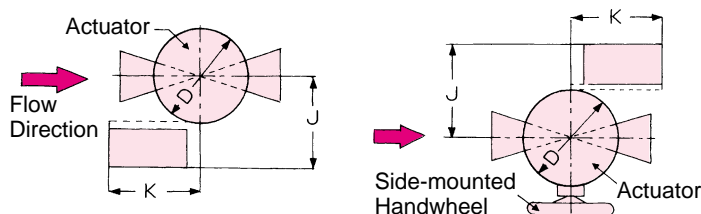


Table 7. Mounting Dimensions for Model EA91A and EA90A

Unit : mm

Actuator Size	N24		N28		N33S		N40	
Actuator outside Dia. ϕD	240		280		330		400	
Action	DA	RA	DA	RA	DA	RA	DA	RA
J	220						230	
K	320						360	



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