

## Valve Linkage

### Models Q455C, Q455D, Q455F

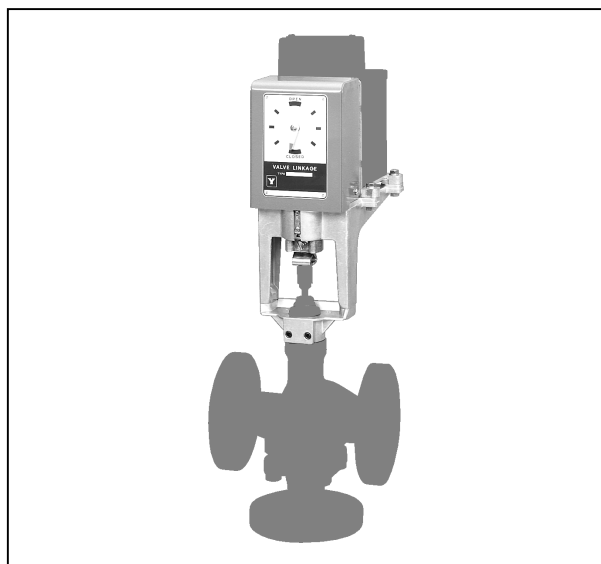
#### General

Model Q455C / Q455D / Q455F valve linkage series is used to connect the control motor Model MY3000 to a control valve. The crank mechanism of the valve link-age converts the rotary motion of the control motor into the reciprocating motion of the valve to open/close.

Model Q455C (C-type) is used for a low or middle-capacity valve; Model Q455D (D-type) is for a high- capacity valve; and Model Q455F (F-type), connected to a low-torque type control motor such as spring-return, is for a low-capacity valve.

#### Features

- Easy-to-read indicator of the valve position.
- Strain relief. It prevents excessive forces from being imposed on the control motor when the valve is completely closed.
- Easy adjustment and installation.



#### Model Numbers

Model number	Max. thrust of the valve stem	Adjustable range of the valve lift
Q455C	715 N	9.5 mm to 19 mm
Q455D	715 N	9.5 mm to 38 mm
Q455F	352 N	9.5 mm to 19 mm

#### Specifications

Item	Specification	
Finish	Cover: Gray enamel Frame: Aluminium die casting (primary coat)	
Accessories	Bolts, nuts, washers (four for each) and a 4-mm Allen wrench (for mounting the control motor)	
Replacement parts (Separate order is required.)	Cover assembly	Part No. 170110A
	Bracket assembly (for Model Q455C/Q455F)	Part No. 81404199-001
	Bracket assembly (for Model Q455D)	Part No. 81404199-002
	Guide tube assembly for Model Q455C/Q455D	Part No. 81404200-001
	Guide tube assembly for Model Q455F	Part No. 81404200-002
	Crank arm	Part No. 186511
	Stem clamp	Part No. 81446017-001
	Attachment parts set	Part No. N-3033
Stopper	Part No. N-5014	
Requirement for ordering	Model number / part number	

## Valve/Control Motor/Linkage Selection

Valve		Single-seated two-way valve		Double-seated two-way valve		Three-way mixing valve		
		Model V5011A	Model V5063A	Model V5064A		Model V5013A	Model V5065A	
		DN15 to 25	DN15 to 80	DN40 to 80	DN100 to 150	DN20, 25	DN25 to 80	DN100 to 150
Rotation angle	Control motor	Model Q455F		Not available		Model Q455F		Not available
160°	Models M9185A1075, M6285A1047 (Spring-return model) Production and sales stopped. For maintenance service only.							
160°	Model MY3000F0400*							
160°	Models MY3000D0200, MY3000E0200, MY3000F0200, MY3000G0200, MY3000V0200, MY3000G9200	Model Q455C		Model Q455D		Model Q455C		Model Q455D

\* Note: Model Q455D cannot be used with a low torque (less than 12.5 N·m) actuator (Model 9185A1075 / M6285A1047 / MY3000F0400).








## Safety Instructions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.

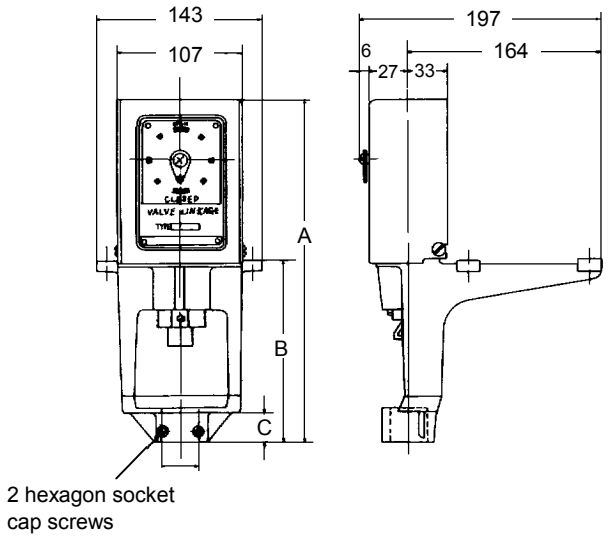
## Usage Restrictions

This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact Yamatake's sales representative. Yamatake Corporation will not bear any responsibility for the results produced by the operators.

## CAUTION

-  • Installation must be performed by qualified personnel in accordance with all applicable safety standards.
-  • This product must be operated within its operating ranges specified in this manual. Failure to comply will cause equipment damages.
-  • Installation must be carried out under the operating conditions specified in this manual to prevent equipment damages.
-  • Refer to the instruction manuals of the control motor and the valve combined with this product.
-  • Avoid an instrumentation that keeps equipment operating cycle excessively frequent so as not to shorten the product operating life.
-  • Do not put heavy load on this product. Its component may be damaged.
-  • Do not disassemble at any time except when connecting a valve and the control motor, adjusting the strain relief, and replacing a part. Equipment damages may occur.

## Dimensions



Model number	A	B	C	D
Q455C	289	153	25	φ34.9
Q455D	347	211	83	φ47.7
Q455F	289	153	25	φ34.9

Figure 1. Dimensions (mm)

## Close-Off Rating / Maximum Pressure Drop

For the single-seated valves and three-way valves, close-off rating is shown in the table below. For the double-seated valves, maximum pressure drop is shown in the table below.

Valve			Close-off rating / Max. pressure drop (kPa)		
Model number	Size (DN)	Cv	Q455 valve linkage		
			C type	D type	F type
V5011A single-seated	15 × 6	0.6	980	/	980
	15 × 8	1.0	980	/	980
	15 × 10	2.5	980	/	980
	15 × 15	4.0	980	/	980
	20 × 20	6.3	980	/	842
V5063A single-seated	25 × 25	10.0	980	/	735
	15 × 6	0.6	980	/	980
	15 × 8	1.0	980	/	980
	15 × 10	2.5	980	/	980
	15 × 15	4.0	980	/	980
	25 × 20	6.3	980	/	980
	25 × 25	11	980	/	539
	40 × 32	17	470	/	225
	40 × 40	25	470	/	225
V5064A double-seated	50 × 50	44	313	/	137
	65 × 65	68	186	/	88
	80 × 80	99	127	/	58
	40 × 32	20	980	/	862
	40 × 40	28	980	/	862
	50 × 50	50	980	/	637
	65 × 65	78	882	/	441
V5013A three-way mixing	80 × 80	112	686	/	343
	100 × 100	200	/	490	/
	125 × 125	260	/	294	/
	150 × 150	380	/	245	/
V5065A three-way mixing	20 × 15	4.0	980	/	980
	20 × 20	6.3	980	/	823
	25 × 25	10.0	980	/	480
	25 × 20	6.3	980	/	539
	25 × 25	11	980	/	539
	40 × 32	18	470	/	225
	40 × 40	28	470	/	225
	50 × 50	50	313	/	137
V5065A three-way mixing	65 × 65	72	186	/	84
	80 × 80	102	127	/	55
	100 × 100	188	/	81	/
	125 × 125	280	/	47	/
	150 × 150	360	/	33	/

## Precautions for Installation

### (Assembling a Valve and a Control Motor with the Valve Linkage)

- 1) Check to see that the combination of valve, control motor, and valve linkage is correct.
- 2) Install the valve and control motor with the valve linkage in a location where the max. pressure difference is lower than the rated as shown in the table above.
- 3) To prevent condensed water from splashing over the valve linkage and control motor, place the valve linkage above the valve. Position the valve so that the motor shaft is always horizontal.

## Connecting Valve Linkage to the Control Motor

- 1) Tighten the setscrews with the linkage frame attached to the valve bonnet.

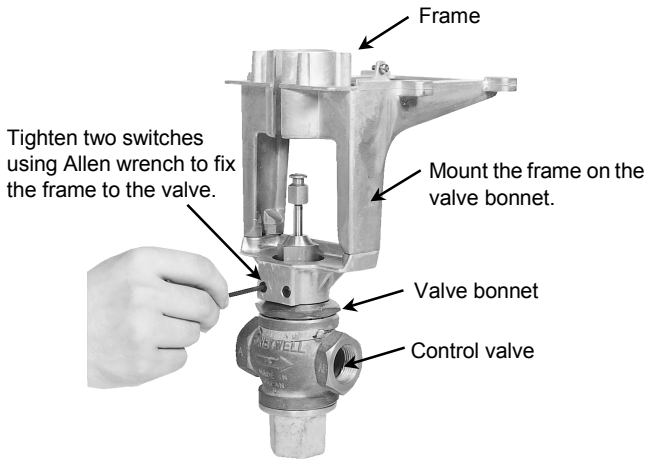


Figure 2. Frame mounting

- 2) Place guide tube in frame cylinder.
- 3) Place clamp on stem button neck and connect guide tube to the stem.

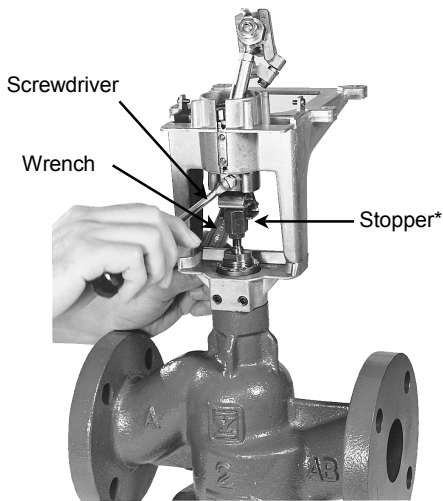
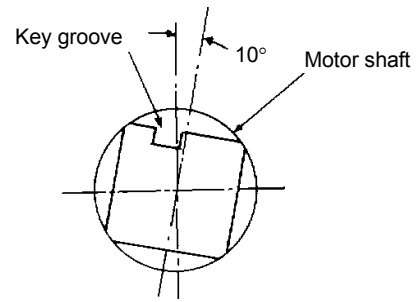


Figure 3. Valve stem mounting

\* Note: When connecting the valve linkage to double-seated valve, use the stopper (Part No. N-5014) requiring separate order.

- 4) Place the control motor on the linkage frame and connect them tightly with the accessory bolts, nuts and washers.
- 5) Make sure that the control motor is in closed position by checking the key groove of the motor shaft.



Control motor Model MY3000  
(viewed from the flange end of the motor)

Figure 4. Closed position of the control motor

- 6) To connect the valve linkage to the control motor, insert crank arm in the motor shaft. Be sure to align the raised part of the crank arm with the key groove.

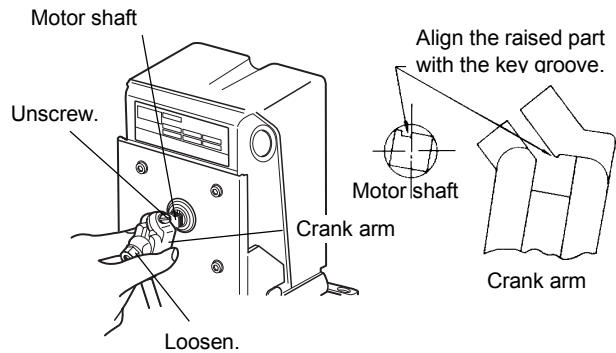
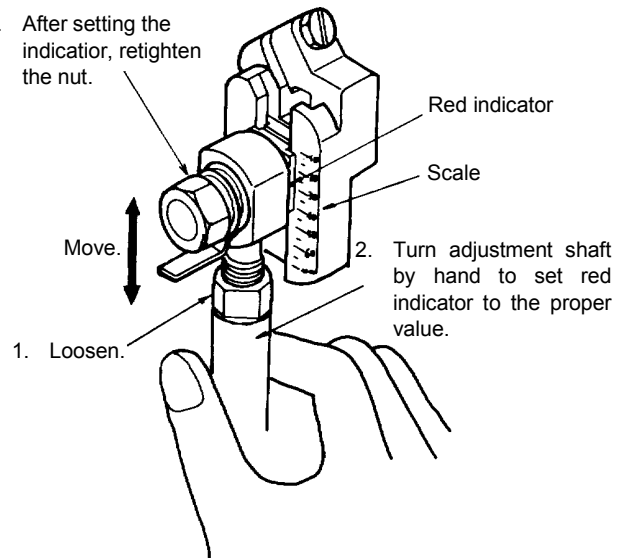


Figure 5. Connecting the valve to the control motor

- 7) Turn the adjustment shaft by hand to set the red indicator to the proper graduation on the scale:

3. After setting the indicator, retighten the nut.



For two-way valves: (lift distance) + (approx. 3.5 mm)  
(e.g., for a 19 mm lift, set to approx. 22.5 mm of the scale.)

For three-way valves: (lift distance) + (approx. 6 mm)  
(e.g., for a 19 mm lift, set to approx. 25 mm of the scale.)

Figure 6. Setting the valve lift distance

8) To adjust strain relief, turn the adjustment shaft using a wrench as shown in Fig. 7, so that the positions of the washers shift a half or one graduation. (See Figs. 8 and 9.) Be sure to adjust the shaft. Excessive washer movement may cause damages to the strain relief mechanism and other components.

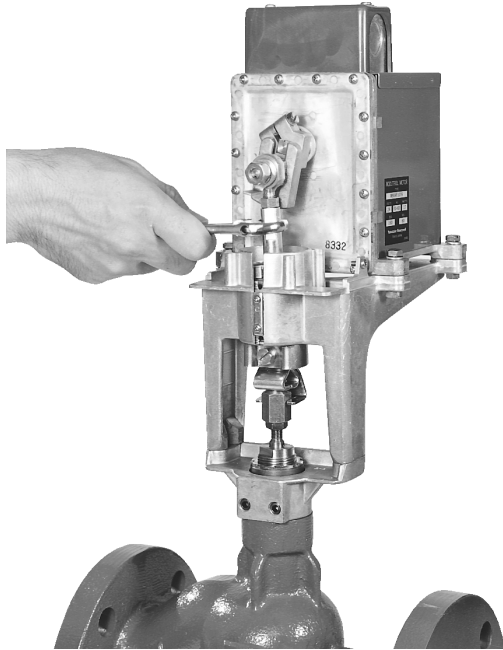


Figure 7. Strain relief adjustment

<For two-way valve>

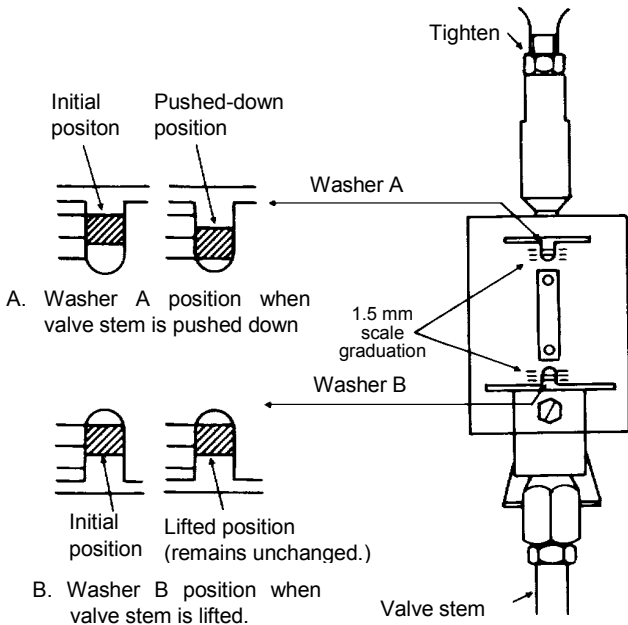


Figure 8. Strain relief adjustment for two-way valve

Note: Washer B position remains unchanged. If the position is above the initial position, return to 7) and readjust the setting by slightly reducing the stroke

<For three-way valve>

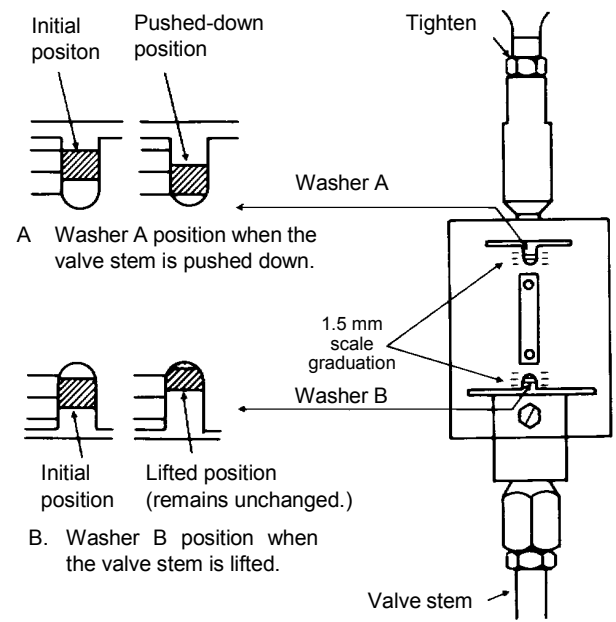


Figure 9. Strain relief adjustment for three-way valve

Note: Make sure that washers A and B shift slightly (half or one graduation of the scale). If washers A and B shift less than a half graduation, return to 7) and readjust the setting by slightly increasing the stroke. If washers A and B shift more than one graduation, return to 7) and readjust the setting by slightly reducing the stroke.

9) Tighten the locknut.

10) Insert the pin in the guide slot at the rear side of the front cover.

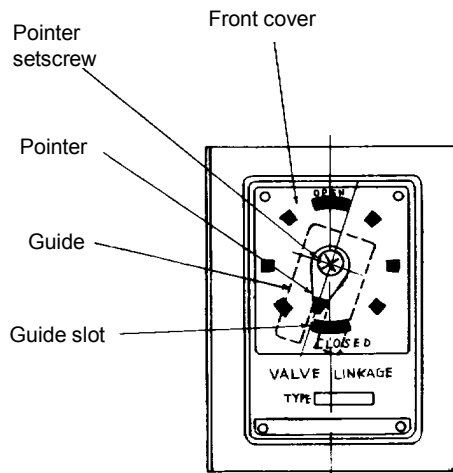


Figure 10. Front cover mounting

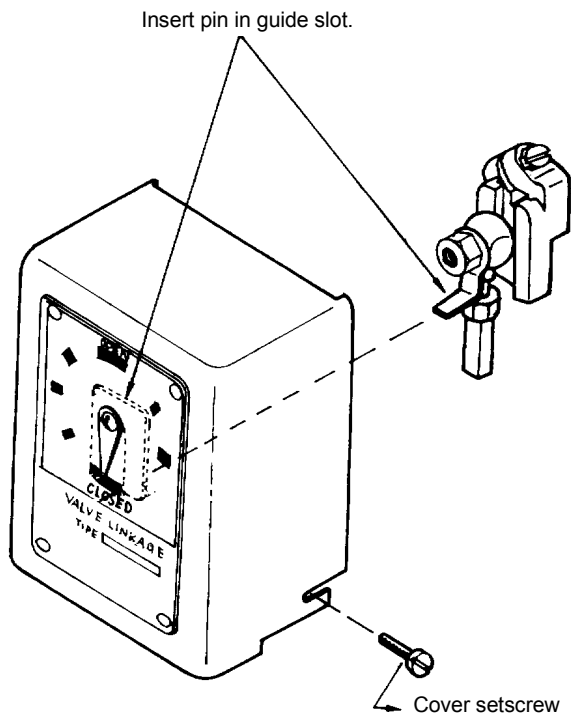


Figure 11. Pin insertion in the guide slot

Note: To switch the pointer position for the reverse open/close indication of the valve, remove the pointer setscrew and pointer, and set the pointer to the opposite side (open → close / close → open), then tighten the pointer setscrew again.

## Maintenance

Inspect that there is no screw or no deteriorated part once every six month. If an abnormal condition is found, replace the corresponding part or the product if necessary.





*Specifications are subject to change without notice.*

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**Yamatake Corporation**  
**Building Systems Company**

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