GENERAL SPECIFICATIONS

FLOW CONTROL VALVE (two-stage regulating type)

TOKICO

GS-F5090E-01

Overview

FLOW CONTROL VALVE of two-step regulating type is a compact flow regulating stop valve that integrates the flow controller by which controls flow rate under the predetermined value however much pressure within a flow passage varies with the two-step regulating ball valve having double cylinders. This is the optimal regulating stop valve that is required to be space saving and of high accuracy for firmly taking the specified amount, especially in a tanker, tank truck or steel drum for shipment of petrochemicals.

Features

• Unfailing and Stable Operation

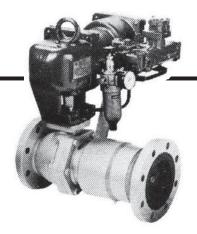
As its actuator has a mechanism with double cylinders, our valve operates more unfailingly than the ball valve with positioner and the consequent valve opening angle is free from variation.

• Optimal for Flow Regulating Stop Valve

Since the flow controller always keeps flow rate constant however much pressure within the flow passage varies, this valve is optimal for a stop valve for a quantity meter that needs restraint of excessive flow rate and fluid hammer as well as measures against static electricity.

• Compact Structure

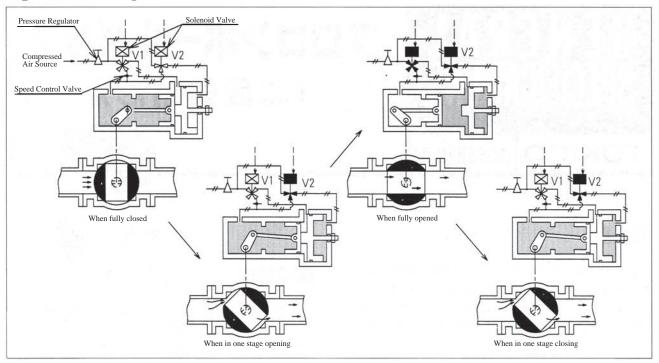
Since its ball valve section is made to be compact by using the dedicated solenoid valve and its flow controlling section is structured as the self-regulating axial flow type, this valve is maintenance free and needs no auxiliary power source.



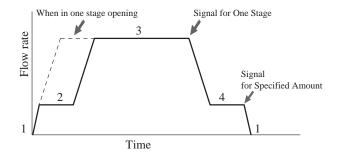
Standard Specification

Applicable Fluid Gasoline, Kerosene, Light Oil, Heavy Oil, Lubricant Fluid Temperature MAX. 80°C Fluid Pressure MAX.1.0MPa Connection Size 100mm (4B) JIS 10K FF (In case of FC250) JIS 10K RF (In case of SCPH2) ASME • JPI150RF (In case of SCPH2) Ball SUS304 Seat Teflon O-ring Fluoro Rubber (Viton) Cylinder Structure Multiple Operation (Double Cylinder Mechanism) Opening and Closing Operation Operating Pneumatic Pressure Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source 100V AC ± 10% 50/60 Hz Electric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) MBF1013 80m³/h (MAX. 125m³/h) Control Accuracy ±10% (Form Set Flow Rate) Differential Pressure Range Ambient Temperature -20 ~ 60°C Piping Installation Horizontal or Vertical Piping Paint Color	Dia	IIIU	ara spec	Circation				
Fluid Pressure Connection Size Fluid Pressure I00mm (4B)		Appl	icable Fluid	Gasoline, Kerosene, Light Oil, Heavy Oil, Lubricant				
Connection Size 100mm (4B) JIS 10K FF		Fluid	l Temperature	MAX. 80℃				
Flange Rating Flange Flange Rating Flange Rating Flange Rating Flange Rating Flange Rating Flange Flange Flange Flange Flange Flange Flange Flange Rating Flange Flange Flange		Fluid	l Pressure	MAX.1.0MPa				
Flange Rating JIS 10K RF (In case of SCPH2) ASME • JPI150RF (In case of SCPH2) Main Body FC250, SCPH2 Ball SUS304 Seat Teflon O-ring Fluoro Rubber (Viton) Multiple Operation (Double Cylinder Mechanism) Opening and Closing Operation Operating Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source Flectric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) Wiring Port G1/2 (PT 1/2 internal thread) Main Body FC250, SS400, SUS420 MBF1010 MBF1013 Som³/h (MAX. 125m³/h) Control Accuracy #IDM MBF1013 #IDM MBF1013 #IDM MBF1014 #IDM MBF1015 #IDM MBF1016 #IDM MBF1016 #IDM MBF1017 #IDM MBF1018 #IDM MBF1018 #IDM MBF1019 #IDM MBF1019 #IDM MBF1010 #IDM MBF1013 #IDM MBF1013 #IDM MBF1013 #IDM MBF1013 #IDM MBF1013 #IDM MBF1013 #IDM MBF1014 #IDM MBF1015 #IDM MBF1015 #IDM MBF1016 #IDM MBF1016 #IDM MBF1017 #IDM MBF1018 #IDM MBF1018 #IDM MBF1018 #IDM MBF1018 #IDM MBF1018 #IDM MBF1019 #IDM MBF1019 #IDM MBF1013 #IDM MBF1013 #IDM MBF1013 #IDM MBF1014 #IDM MBF1015 #IDM MBF1015 #IDM MBF1016 #IDM MBF1016 #IDM MBF1016 #IDM MBF1017 #IDM MBF1018 #IDM MBF1		Conn	ection Size	100mm (4B)				
Main Body FC250, SCPH2 Ball SUS304 Seat Teflon O-ring Fluoro Rubber (Viton) Cylinder Structure Multiple Operation (Double Cylinder Mechanism) Operating Operation Operating Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source 100V AC ± 10% 50/60 Hz Electric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) Main Body FC250, SCPH2 Trim FC250, SS400, SUS420 MBF1010 80m³/h (MAX. 100m³/h) MBF1013 80m³/h (MAX. 125m³/h) Control Accuracy ±10% (Form Set Flow Rate) Differential Pressure Range Ambient Temperature -20 ~ 60°C Piping Installation Horizontal or Vertical Piping	dy			JIS 10K FF (In case of FC250)				
Main Body FC250, SCPH2 Ball SUS304 Seat Teflon O-ring Fluoro Rubber (Viton) Cylinder Structure Multiple Operation (Double Cylinder Mechanism) Operating Operation Operating Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source 100V AC ± 10% 50/60 Hz Electric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) Main Body FC250, SCPH2 Trim FC250, SS400, SUS420 MBF1010 80m³/h (MAX. 100m³/h) MBF1013 80m³/h (MAX. 125m³/h) Control Accuracy ±10% (Form Set Flow Rate) Differential Pressure Range Ambient Temperature -20 ~ 60°C Piping Installation Horizontal or Vertical Piping	n Bo	Flang	ge Rating	JIS 10K RF (In case of SCPH2)				
Ball SUS304	Mai			ASME • JPI150RF (In case of SCPH2)				
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Cylinder Structure Opening and Closing Operation Operating Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source 100V AC ± 10% 50/60 Hz Electric Power Consumption Wiring Port Wiring Port Owing Pressure Trim FC250 or SCPH2 Trim FC250, SS400, SUS420 MBF1013 S0m³/h (MAX. 100m³/h) MBF1013 S0m³/h (MAX. 125m³/h) Control Accuracy Differential Pressure Range Ambient Temperature Poping Installation Multiple Operation (Double Cylinder Mechanism) Two-stage Opening and Closing 0.4MPa RC1/4 (PT 1/4 Internal Thread) RC1/2 (PT 1/2 internal thread) FEQUATION FC250 or SCPH2 Trim FC250, SS400, SUS420 Differential Pressure Range Only AC ± 10% 50/60 Hz Electric Power Consumption FC250 or SCPH2 Trim FC250, SS400, SUS420 Differential Pressure Range Only AC ± 10% Form Set Flow Rate) Only AC ± 10% Form Set Flow Rate Only AC ± 10% Form Set Flow Rate Only AC ± 10% Form Set Flow Rate Only AC ± 10% Form Se		Mat	Seat	Teflon				
Opening and Closing Operation Operating Pneumatic Pressure Connection Port to Compressed Air Source Structure Power Source Electric Power Consumption Wiring Port Garage Main Body FC250 or SCPH2 Trim FC250, SS400, SUS420 MBF1010 MBF1013 S0m³/h (MAX. 100m³/h) MBF1013 MBF1013 S0m³/h (MAX. 125m³/h) Control Accuracy Differential Pressure Range Ambient Temperature Piping Installation Two-stage Opening and Closing 0.4MPa RC1/4 (PT 1/4 Internal Thread) FELOWARD RC1/4 (PT 1/4 Internal Thread) FC250 or SCPH2 FIGURE Air Source RC1/4 (PT 1/4 Internal Thread) FC250, S0/60 Hz Electric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) FC250, SS400, SUS420 S0m³/h (MAX. 100m³/h) MBF1013 ROMPa(Capacity-10 type) O.07 ~ 1.0MPa(Capacity-13 type) Ambient Temperature -20 ~ 60°C Piping Installation Horizontal or Vertical Piping			O-ring	Fluoro Rubber (Viton)				
Closing Operation Operating Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source Flectric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) Main Body FC250 or SCPH2 Trim FC250, SS400, SUS420 MBF1010 MBF1013 S0m³/h (MAX. 100m³/h) MBF1013 S0m³/h (MAX. 125m³/h) Control Accuracy Differential Pressure Range Ambient Temperature Piping Installation FWO-Stage Opening and Closing 0.4MPa 0.4MPa RC1/4 (PT 1/4 Internal Thread) RC1/2 (PT 1/2 internal thread) FC250 or SCPH2 Trim FC250, SS400, SUS420 S0m³/h (MAX. 100m³/h) MBF1013 S0m³/h (MAX. 125m³/h) Control Accuracy Differential Pressure Range O.1 ~ 1.0MPa(Capacity-10 type) O.7 ~ 1.0MPa(Capacity-13 type) Ambient Temperature Piping Installation Horizontal or Vertical Piping		Cylino	der Structure	Multiple Operation (Double Cylinder Mechanism)				
Pneumatic Pressure Connection Port to Compressed Air Source Structure Explosion-proof (d2G4) Power Source 100V AC ± 10% 50/60 Hz Electric Power Consumption Wiring Port G1/2 (PT 1/2 internal thread) Main Body FC250 or SCPH2 Trim FC250, SS400, SUS420 MBF1010 80m³/h (MAX. 100m³/h) MBF1013 80m³/h (MAX. 125m³/h) Control Accuracy Differential Pressure Range Differential Pressure Range Ambient Temperature Power Source 100V AC ± 10% 50/60 Hz Electric Power Consumption 60 VA 80 WA Main Body FC250 or SCPH2 Trim FC250, SS400, SUS420 20 MBF1013 80m³/h (MAX. 125m³/h) Control Accuracy 10% (Form Set Flow Rate) 0.1 ~ 1.0MPa(Capacity-10 type) 0.07 ~ 1.0MPa(Capacity-13 type) Ambient Temperature -20 ~ 60°C Piping Installation Horizontal or Vertical Piping				Two-stage Opening and Closing				
Compressed Air Source RC1/4 (PT 1/4 Internal Thread)		1 *		0.4MPa				
Consumption Wiring Port G1/2 (PT 1/2 internal thread)	ction	I		RC1/4 (PT 1/4 Internal Thread)				
Consumption Wiring Port G1/2 (PT 1/2 internal thread)	g Se		Structure	Explosion-proof (d2G4)				
Consumption Wiring Port G1/2 (PT 1/2 internal thread)	rivin	Solenoid Valve	Power Source	100V AC ± 10% 50/60 Hz				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Ā			60 VA				
$ \begin{array}{c c} & & & & & \\ \hline & & \\ \hline & & & \\ \hline & $			Wiring Port	G1/2 (PT 1/2 internal thread)				
$ \begin{array}{c c} & & & & & \\ \hline & & \\ \hline & & & \\ \hline & $	n n	erial	Main Body	FC250 or SCPH2				
Ambient Temperature $0.07 \sim 1.0 \text{MPa}(\text{Capacity-13 type})$ Piping Installation $-20 \sim 60 \text{°C}$ Piping Installation Horizontal or Vertical Piping	ectic	Mat	Trim	FC250, SS400, SUS420				
Ambient Temperature $0.07 \sim 1.0 \text{MPa}(\text{Capacity-13 type})$ Piping Installation $-20 \sim 60 \text{°C}$ Piping Installation Horizontal or Vertical Piping	ng S	flow	MBF1010	80m³/h (MAX. 100m³/h)				
Ambient Temperature $0.07 \sim 1.0 \text{MPa}(\text{Capacity-13 type})$ Piping Installation $-20 \sim 60 \text{°C}$ Piping Installation Horizontal or Vertical Piping	low Controlli	Set	MBF1013	80m³/h (MAX. 125m³/h)				
Ambient Temperature $0.07 \sim 1.0 \text{MPa}(\text{Capacity-13 type})$ Piping Installation $-20 \sim 60 \text{°C}$ Piping Installation Horizontal or Vertical Piping		Cont	rol Accuracy	±10%(Form Set Flow Rate)				
Ambient Temperature $0.07 \sim 1.0 \text{MPa}(\text{Capacity-13 type})$ Piping Installation $-20 \sim 60 \text{°C}$ Piping Installation Horizontal or Vertical Piping		Diffe	erential	0.1 ~ 1.0MPa(Capacity-10 type)				
Piping Installation Horizontal or Vertical Piping	压	Press	sure Range	$0.07 \sim 1.0 \text{MPa}(\text{Capacity-}13 \text{ type})$				
	Amb	oient T	emperature	-20 ∼ 60°C				
Paint Color Silver	Pipir	ng Inst	allation	Horizontal or Vertical Piping				
	Pain	t Colo	r	Silver				

Operation Diagram



Operation Program



Operational Sequence of Solenoid Valve

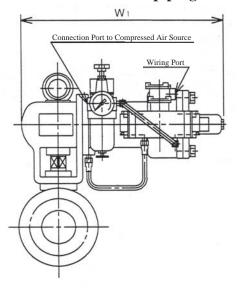
Solenoid Valve Stroke	V1	V2
1 (Full Closing)	OFF	OFF
2 (One-stage Open)	OFF	ON
3 (Full Open)	ON	ON
4 (One-stage Closing)	OFF	ON

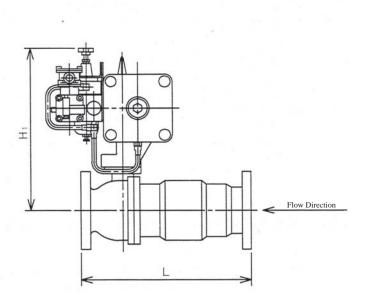
Specification Code

1	2	3	4	5	6	7	8	9	10	Contents							
M	В	F									FLOW CONTROL VALVE (two-stage regulating type)						
Co	nn.Si	ze	1	0						4B (100mm)							
										Ball Size	Ball Size Controller Size Fitting Diameter Differential Pressure						
Caj	pacity	y Moo	del		1	0				3B	100mm	100mm	0.1 ∼ 1.0MPa				
	1 3						ЭБ	125mm	100mm	$0.07 \sim 1.0 MPa$							
											ximum	Testing Pressure	Applicabl	Applicable Flange Standard			
Pre	ssure	;									g Pressure MPa	MPa	JIS	ASME • JPI			
В					В				1.0	1.5	10K	150					
Material								Main Body			Seat/O-ring						
						Α	R		FC25	0	GI IGOO 4	Teflon					
					N	R	SCPH2			SUS304	/Fluoro rubber						

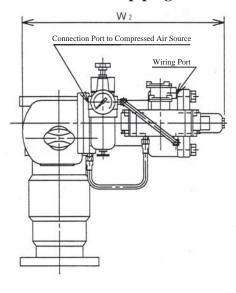
External Dimensions

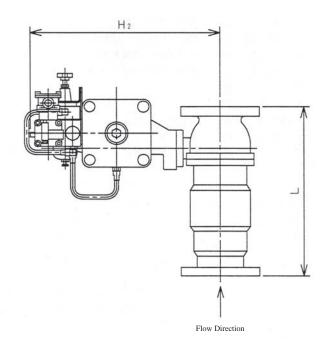
In case of horizontal piping





In case of vertical piping





Capacity	Conn.Size (mm)		Dime	Cylinder	Estimated			
Model		Flange-to-flange Dimension	Horizont	al Piping	Vertical Piping		Volume (L)	Weight (kg)
		L	W_1	H ₁	W ₂	H ₂		
10	100	400	499	418	499	486	3.2	76
13	100	400	499	418	499	486	3.2	93



⚠ Note in use

- Please take care not to let foreign matter including scale and dust in when you fit to piping. In particular, newly installed pipe may sometimes contain a lot of fine scale inside of its conduit so that you need to conduct sufficient flashing.
- Please set the valve downstream of the flow meter.
- Please prepare clean and dehumidified air under pressure between 0.4 and 0.7MP as the air source.
- Although the higher pressure to the ball valve with soft seat increases, the more its sealability is improved but the degree of fatigue at the seat surface grows high. Please take leak under low pressure after its use for a long time into account when you design piping.

Please specify your detailed usage conditions below when you inquire of us

No.	Item	Contents					
1	Applications	For process control, Business Transaction, Receiving, Shipment or such					
2	Applicable Fluid	Name, Composition, Presence of Impurity and Corrosiveness					
3	Flow Rate	Maximum, Regularly Used and Minimum (Operating time per day)	$(L/h \text{ or } \overset{3}{m}/h)$				
4	Fluid Temperature	Maximum, Regularly Used and Minimum	(degrees Celsius)				
5	Fluid Pressure	Maximum, Regularly Used and Minimum	(MPa)				
6	Connection Standard	Diameter, Flange Standards, so on					
7	Piping Installation	Horizontal or Vertical Piping					
8	Applicable Laws and Regulations	Name of Law or Regulation					
9	Power Source						
10	Compressed Air Source						
11	Operation Valve Method	Pneumatic Type or Electric Type					
12	Specified Material	Material of Main Body and Ball					
13	Others	Please contact us to discuss other specifications than standard one					

^{*}Note that the contents may be subject to change without notice.



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^{*}Be sure to read the instruction manual carefully before you use this meter to ensure you use it correctly.