Warnings and Cautions for Model MQV (For installation and use of this device, refer to the warnings and cautions in the user's manual.)

Flow Controllers

Never allow gases that are within explosive limits to pass through this device. Doing so might result in an explosion accidents.

• Never use a device for oxygen gas if it is not a special oil-free oxygen gas model. Doing so could cause the gas to ignite. Even if gas-contacting sections have been treated to be oil-free,

they cannot be used for oxygen if they have previously been used for some other gas • If the device is used for burner air-fuel ratio control, take the

necessary countermeasures with the equipment to prevent the occurrence of backfire and to avoid any influence to the device even if backfire occurs. Pressure increase or fire in the pipes caused by the backfire of the burner could damage the controller.

• Prevent foreign matter from entering the device. If rust, water droplet, oil mist, or dust in the pipes enters the device, measurement or control error or damage might occur.

If there is a possibility of foreign matter entering the device, provide a filter, strainer or mist trap capable of eliminating foreign matter 0.1 μm or greater in diameter at the upstream. Be sure to inspect and replace the filter at regular intervals.

• Use the device within the operating differential pressure range. Also, do not subject it to pressure beyond the rated pressure resistance range. Doing so might damage it.

Do not subject this device to pressure beyond its rated pressure resistance. Doing so might result in damage.

Be sure to use within the flow rate range stated in the product specifications. To prevent excessive flow rate, design instrumentation that includes, as appropriate, supply pressure management, a throttle valve, etc. Exceeding the upper limit of the range may result in display and output values that are considerably lower than the actual flow rate

If a problem with this device could result in damage, include appropriate redundancy in the system design.

The value on this device cannot completely shut a flow off. If complete shutoff is required, provide a shutoff valve separately. When the external valve is closed, it is necessary also to fully close the valve of the device using either of the following methods:

Set the flow rate setpoint to zero.

Make the valve operation mode to fully closed

If this valve remains in normal control status when the external shutoff valve is closed (zero flow rate), there will be an excessively large flow as soon as the external shutoff valve is opened. For the model MQV0050(J,K)/0200(J,K)/0500(J,K), if the external shutoff valve is closed continuously for 5 minutes or more in control mode or with the valve forced fully open, the valve overheating limit (AL71) will be activated and the current to the valve will be forcibly limited.

 Before connecting pipes with Swagelok or VCR connections, check the precautions in the instruction provided by the connecting joint manufacturer. When separately purchasing a connecting joint, use the following made by Swagelok Co., Ltd:

1/4" Swagelok: SS-400-1-6ST (standard)

- SS-400-1-6STSC11 (oil-inhibited) 1/2" Swagelok: SS-810-1-8ST (standard)
- SS-810-1-8STSC11 (oil-inhibited) 1/4" VCR: SS-4-VCR-1-00032SC11
- 3/8" VCR: SS-8-VCR-1-8STSC11 or equivalent

Observe the following when using the device (oil-free model) for

- oxvgen gas:
- · Piping should be carried out by a specialist skilled in handling oxygen gas.
- Use oil-free pipes and parts
- · Be sure to remove foreign matter, burrs,
- etc. from the pipes before connecting the device.
- Install a filter upstream of the device.

Mount securely in order to prevent vibration. Otherwise, equipment failure could result.

• Mount the device horizontally. Do not mount it with the display facing down. Doing so might cause measurement error or equipment failure.

For the model MQV0050(J,K)/0200(J,K)/0500(J,K)/1000(J,K), to keep pressure loss in the piping as low as possible, use as large a diameter pipe as possible. If the pressure loss in the piping is high, the gas supply pressure to this device (operating differential pressure) may fluctuate greatly, resulting in unstable control.

• When using a relay for external contact input and/or external 3-way switching input always use a relay designed for micro-current use (with gold contacts). Failure to do so could cause faulty contact, resulting in malfunction.

lf there is a risk of a power surge caused by lightning, use Azbil Corporation's SurgeNon to prevent possible fire or equipment failure. Gas type switching by external contact input, flow rate switching. and analog input/output voltage range switching by external 3-way input switching should be done only after setting the operation mode to fully closed. Switching while controlling could cause large fluctuations

Do not use a semi-standard gas model with gases other than those below. Doing so may degrade the O-ring seal.

· Compatible gases: Nitrogen (N2), air, argon (Ar), carbon dioxide (CO₂), ammonia (NH₃), and acetylene (C₂H₂),

If a semi-standard gas model is used for a gas with an ammonia component, be sure the gas is dry, with a dew point of -20°C or less. Otherwise the sensor may be damaged.

Please read "Terms and Conditions" from the following URL before ordering and use https://www.azbil.com/products/factory/order.html

is a trademark of Azbil Corporation. Swagelok, VCR are trademarks of Swagelok Company. Other product names, model numbers and company names may be trademarks of the respective company

Azbil Corporation Advanced Automation Company

1-12-2 Kawana, Fujisawa Kanagawa 251-8522 Japan URL: https://www.azbil.com

1st Edition : Mar. 2006-ST 11th Edition : Jun. 2024-SK [Notice] Specifications are subject to change without notice. No part of this publication may be reproduced or duplicated without the prior written permission of Azbil Corporation.



CE

Digital Mass Flow Controller

2001:



New advances in finely honed control capability! **Superior high-speed control** (300ms) with an enhanced variety of functions.

azbil

Azbil Corporation

OK ALM EVI EV2

20.01

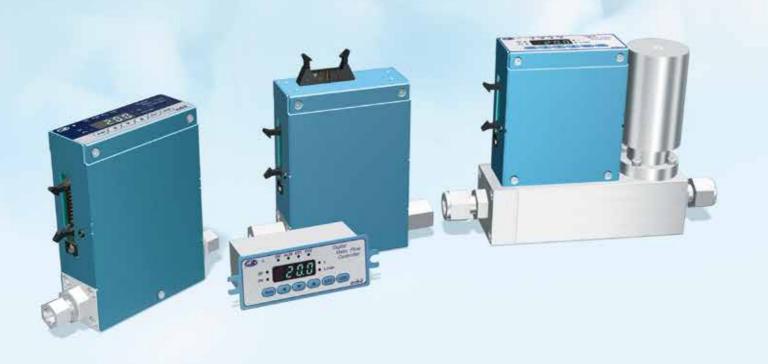
Digital Mass Flow Controlle

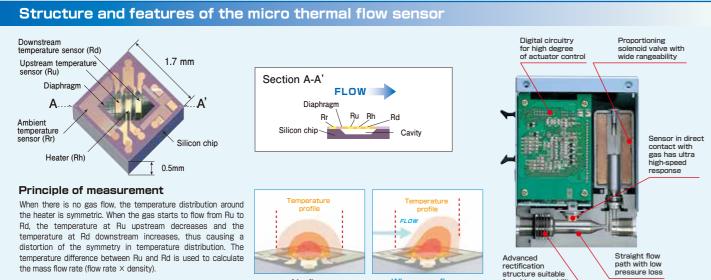
1000 .

The Ultra Fast Micro Thermal Flow Sensor, Combined with Advanced **Actuator Control Technology**

300ms* high-speed control can be used for low differential pressure work. Selectable control range, power circuit isolation, and emphasis on usability (* 500ms for the model MQV9005/9200/9050B and C, 700ms for the model MQV0050/0200/0500/1000J and K)

The model MQV features high performance digital mass flow controllers that incorporate the micro thermal flow sensor developed by Azbil Corporation, a pioneer in MEMS flow sensors. uses advanced PID control technology to drive a proportional actuator. The model MQV





No flow

When gas flows

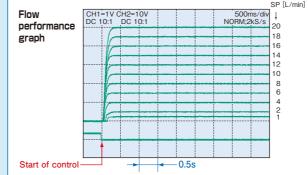
for wide rangeab



12 advantages

Advanced 300ms Advantage high-speed controllability

Achieves 300ms high-speed control (700ms for the model MQV0050/0200/0500/1000J and K). The model MQV____ offers exceptionally fast response from no flow to the stable setpoint flow rate, and after setpoint changes. This high-speed response to changes in primary gas pressure can minimize the effects on secondary flow.



Advantage 3 Broad lineup of models

The lineup includes models with or without integrated display, and models for standard gas, for hydrogen/helium, and for special gases. Select the optimum model for your application needs.



Advantage 5 Wide range of standard functions

The model MQV____ comes with a multitude of standard functions such as flow rate indication and totalizing. Without the need to process software like a PLC, the model MQV handles a wide range of applications with ease

Maior functions

- Flow rate indication
 Flow rate totalizing
 Valve open/close indication
- OK flow rate indication/output
 Indication of amperage to valve
 Flow rate unit and decimal point location change
 Up to 8 preset setpoints
- Valve forced open/closed Automatic valve shut-off Gas type changeover
- Gas type selection (freely change gas conversion factor)
 Selectable control range
- SP ramp setting Slow start option Control dead zone setting External switch input (for SP change, gas type changeover and range changeover)
- Event output (abnormal flow rate, operation mode)
 Alarm output

Six easy-to-operate buttons, superior indication function, and SP change even in control run mode.

> -----:: 288 -----

(Control and display unit)

Advantage 2 Reliable control

Standard model Accuracy: $\pm 0.5\%$ FS / $\pm 1.0\%$ FS Repeatability: ±0.25% FS / ±0.5% FS

High accuracy model (standard gas model only) Accuracy: ±1.0% SP Repeatability: ±0.5% SP

Control range: 1 to 100% FS Note: For detailed specifications, refer to page 3. % SP refers to deviation from the setpoint

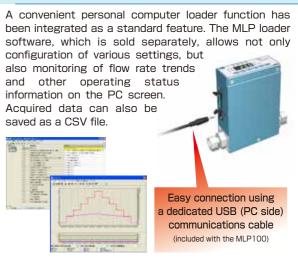
Operation at low differential Advantage **4** pressure is a standard feature

The model MQV____ does not use capillaries that have large pressure loss. So the model MQV____ can control in the low pressure difference. Optimum for low pressure gas control application Ex. : Brazing, production of fluorescent lamps, etc.

Structure of conventional massflow products

Structure of the model MQV

PC loader Advantage O communications functions



Sample applications

Advantage **7** A variety of available input and output signals



Advantage **9** Engineered for flexible installation

On models with an integrated display, the display direction can be changed 180 degrees.



Advantage 8 Can be connected to a regular 24Vdc power supply

The internal power supply circuit of this device is isolated from its analog circuits. When multiple model MQVs are controlled by PLC analog input/output, even if the analog module of the PLC is not isolated between channels, a common power supply can be used. Even without individual power supplies, there is no negative effect from surrounding circuits. An AC adapter is also available.



Advantage 10 Wide temperature range

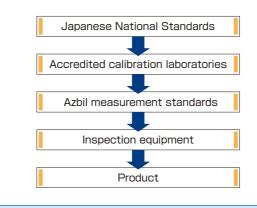
As a product developed for general industrial markets, the model MQV____ can be used from -10 to $+60^{\circ}$ C (ambient temperature and gas temperature).





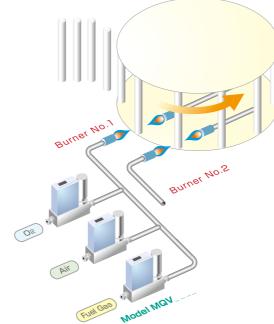
Advantage 12 JCSS traceability

The model MQV_____ offers Japan Calibration Service System (JCSS) traceability, based on Japanese National Standards and Japanese measurement law, and in conjunction with Advanced Industrial Science and Technology (AISS).



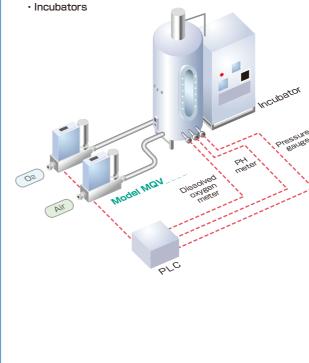
Air/fuel ratio control for burner

Manufacturing of backlights
 Halogen lamps
 Glass-forming
 Brazing



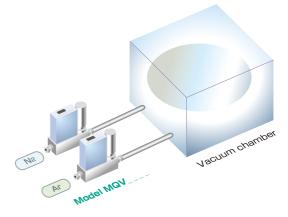
Evaluation equipment Gas analyzers

Various test equipment



Gas flow rate control for vacuum

- Sputtering
- Plasma cleaning



Control of furnace internal atmosphere

- Baking furnaces for electronics parts
- Gas carburizing furnaces
- Baking and annealing furnaces catouriting formaces catouriting formaces catouriting formaces catouriting formation catouriting catouriting

Specifications

Model No. Maye Sol Sol Maye Sol Sol Sol Sol Maye Sol Sol Maye Sol Sol Maye Sol Maye Sol Maye Sol Maye Sol	Standard ga	s model / Small-f	ю туре									
Value operation Normally closed when de-energized (N.C.) Standard full-scale flow rate (web 1) 5mU/min (standard) 20mU/min (standard) 60U/min (standard) 60U/min (standard) </th <th>Model No.</th> <th></th> <th>MQV9005</th> <th>MQV9020</th> <th>MQV9200</th> <th>MQV9500</th> <th>MQV0002</th> <th>MQV0005</th> <th>MQV0020</th> <th>MQV0050 (B,C)</th> <th>MQV0100</th>	Model No.		MQV9005	MQV9020	MQV9200	MQV9500	MQV0002	MQV0005	MQV0020	MQV0050 (B,C)	MQV0100	
Standard full-scale flow rate (Nete 1) SnL/min (standard) SOM//min (standard) SOM//m	Valve type						Proportiona	al solenoid v	valve			
flow rate (note 1) (standard) (standard) <t< th=""><th></th><th></th><th></th><th></th><th>F</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>					F							
Air/introgen (Ne), oxgen (De), argon (Ar). The gas must be dy, without corrosive components (CHNS: 45MJ/m ²), city gas 13A (LNS: 45MJ/m ²), city gas 13A (LNS												
Control Response(at std. 0.5s for SP ±2% FS (typ.) 0.3s for SP ±2% FS (typ.) Accuracy (Note 4) (at standard temperature and differential pressure; Q is flow rate) ±1% FS Standard model: ±0.5% FS (0% FS ≤Q ≤50% FS) ±1% FS (50% FS <q fs)<="" td="" ≤100%=""> Std. modet ±1% FS Pressure Required differential pressure; Q is flow rate) 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Operating differential pressure range 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Max. Inlet pressure 0.5MPa (gauge) (Note 6] </q>	Gas types		(O2), arg	gon (Ar).	c meth	city gas 13A hane 100% ((LNG: 45MJ/r CH4), propane	m ³), city gas e 100% (C3H	13A (LNG: 46 8), butane 100	MJ/m ³), 0% (C4H10).	(O2), argon (Ar), carbon dioxide (CO2)	
differential pressure Accuracy (Nove 4) (at standard temperature and differential pressure; Q is flow rate) When control is started from fully closed condition, and when the setpoint is changed while control is performed.) Std. model: ±1% FS (0% FS<20≤50% FS) ±1% FS (0% FS<20≤100% FS) Pressure flow rate) 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Pressure flow rate) 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Pressure flow rate) 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Max. inde pressure flow rate) 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Max. inde pressure flow rate) 5kPa 30kPa 50kPa 5kPa 50kPa 100kPa 250kPa Max. inde pressure flow rate 0perating temp. -10 to +60°C -10 to +60°C -10 to +20°C -10												
Accuracy (note 4) (at standard differential pressure; 0 is flow rate) ±1% FS Standard model: ±0.5% FS (0% FS≤0≤50% FS) ±1% FS (50% FS<0±100% FS) Stit, model ±1% FS (0% FS<0±00% FS) Pressure; flow rate) 0 skPa 30 kPa 50 kPa 50 kPa 50 kPa 50 kPa 100 kPa 250 kPa Pressure; flow rate) 0 perating differential pressure range messure; Max, inlet pressure; Max, inlet pressure; max. 50 kPa 50 kPa 50 kPa 50 kPa 100 kPa 250 kPa Temp. 0 perating temp. max. - 10 to 90% RH (no condensation allowed) 400 kPa max. 400 kPa max. Alam/event output 0 utput range - 10 to 90% RH (no condensation allowed) - - Alam/event output Number of outputs - 5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) - Alam/event output Number of outputs - External 3-way switching inputs: 1. input type, number of inputs - - Reting System (1) Dedicated PC loader connection [Note g] (2) RS-485 communications (3-wire system) [Note g] - Power Rating SUS316, fluoresin, fluoroubber, boresitet giss, slion - SUS316, fluoresin, fluoroubber, boresitet giss, slion SUS316, fluoresin, fluoroubber, boresitet giss, slion SUS316, fluoresin, fluoroubber, bore	Control											
$ \begin{array}{ c c c } \hline \mbox{Iffermental} \\ Iffermen$			(When co	ntrol is star	ted from ful	lly closed c	ondition, and	d when the	setpoint is c	hanged while con	trol is performed.)	
pressure (Note 5) 5KPa 30kPa 50kPa 400kPa 400kPa Max. inlet pressure		(at standard temperature and differential pressure; Q is	±19	6 FS	St							
differential pressure range 300kPa max. 400kPa max. Max. inlet pressure 0.5MPa (gauge) (Note 6) max. Temp. Operating temp. -10 to +60°C Humidity Operating humidity 10 to 90% RH (no condensation allowed) Analog output Output range 0-5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Alarn/event input Number of outputs -10 to 460°C Max. Mumber of outputs -10 to 90% RH (no condensation allowed) Alarn/event input Number of outputs -5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Alarn/event input Number of outputs -5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) System 0.10 to 10 to 90% RH (no condensation allowed) -5Vdc / 1-5Vdc / 0-20mAdc (selectable) Max. Number of inputs -5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Input Number of inputs -5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) System Input type, number of inputs -5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Rating 24Vdc, current consumption 300mA max. -5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Rating 24Vdc, current consumption 300mA max. -5Vdc / 0-20mAdc / 4-20mAdc / 4-	Pressure		5kPa	30kPa	50kPa	5kPa	50kPa	5kPa	50kPa	100kPa	250kPa	
Temp. Operating temp. -10 to +60°C Humidity Operating humidity 10 to 90% RH (no condensation allowed) Analog output Output range 0-5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Alarm/event output Number of outputs Alarm: 1. Event: 2. External switching input type, number of inputs External 3-way switching inputs: 1. External Contact inputs (2-way switching): 3. Communications System (1) Dedicated PC loader connection [Note 9] (2) RS-485 communications (3-wire system) [Note 9] Power Rating 24Vdc, current consumption 300mA max. Isolation Power circuit is isolated from input/output circuit. Matl. of gas-contacting parts SUS316, fluororesin, fluoroubber, brosslicate glass, silicon Matl. of gas-contacting parts SUS316, fluororesin, fluoroubber, brosslicate glass, silicon Mounting orientation 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Approx. 1.1kg Approx. 1.2kg Approx. 1.2kg		differential	300kPa max.									
Humidity Operating humidity 10 to 90% RH (no condensation allowed) Analog output Output range 0-5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Alarm/event output Number of outputs Alarm/revent output Alarm/revent output Input Input type, number of inputs External 3-way switching inputs: 1. External 3-way switching): 3. External 3-way switching): 3. Communications System (1) Dedicated PC loader connection (Note 9) (2) RS-485 communications (3-wire system) (Note 9) Power Rating 24Vdc, current consumption 300mA max. Isolation Power Nutl. of gas-contacting parts SUS316, fluororesin, fluoroubber, borosilicate glass, silicon SUS316, fluororesin, fluoroubber, borosilicate glass, silicon SUS316, fluororesin, fluoroubber Matl. of gas-contacting parts SUS316, fluorourber, borosilicate glass, silicon SUS316, fluororesin, fluoroubber, borosilicate glass, silicon SUS316, fluororesin, fluoroubber Mounting orientario 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientario Approx. 1.1kg Approx. 1.2kg Approx. 1.2kg		Max. inlet pressure										
Analog output output Output range O-5Vdc / 1-5Vdc / 0-20mAdc / 4-20mAdc (selectable) Alarm/event output Number of outputs Alarm: 1. Event: 2. External switching input Input type, number of inputs External 3-way switching inputs: 1. External contact inputs (2-way switching): 3. Communications System (1) Dedicated PC loader connection [Note 9] (2) RS-485 communications (3-wire system) [Note 9] Power Rating 24Vdc, current consumption 300mA max. Isolation Power circuit is isolated from input/output circuit. Matl. of gas-contacting parts SUS316, fluororesin, fluoroubber, borosilicate glass, silicon SUS316, fluororesin, fluoroubber, borosilicate glass, silicon SUS316, fluororesin, fluoroubber Connection method 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientarion Approx. 1.1kg Approx. 1.2kg Approx. 1.2kg												
Alarm/event output Number of outputs Alarm: 1. Event: 2. External switching input Input type, number of inputs External 3-way switching inputs: 1. External 2-way switching): 3. Communications System (1) Dedicated PC loader connection [Note 8] (2) RS-485 communications (3-wire system) [Note 9] Power Rating 24Vdc, current consumption 300mA max. Isolation Input circuit is isolated from input/output circuit. Matl. of gas-contacting parts SUS316, fluororesin, fluororubber, borosilicate glass, silicon SUS316, fluororesin, fluororubber Connection method 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Approx. 1.1kg Approx. 1.2kg												
output Aiarm: 1. Event: 2. Description Input type, number of inputs External 3-way switching inputs: 1. External 3-way switching): 3. Communications System (1) Dedicated PC loader connection (Note a) (2) RS-485 communications (3-wire system) (Note a) Power Rating					0-5	Vdc / 1-5	/dc / 0-20r	mAdc / 4-2	20mAdc (sele	ectable)		
input number of inputs External contact inputs (2-way switching): 3. Communications System (1) Dedicated PC loader connection [Note 8] (2) RS-485 communications (3-wire system) [Note 9] Power Rating 24Vdc, current consumption 300mA max. Isolation Power circuit is isolated from input/output circuit. Matl. of gas-current SUS316, fluororesin, fluoroubber borosilicate gass, silicon borosilicate gass, silicon SUS316, fluororesin, fluoroubber 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Approx. 1.1kg Approx. 1.2kg Approx. 1.2kg Approx.	output						Alarm:	1. Event: 2				
Power Rating Isolation 24Vdc, current consumption 300mA max. Matl. of gas-contacting parts SUS316, fluororesin, fluororubber, borosilicate glass, silicon Power circuit is isolated from input/output circuit. Connection method 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Horizontal. Note that the display panel must not face down. Approx. 1.1kg	External switching input	Input type, number of inputs								3.		
Isolation Power circuit is isolated from input/output circuit. Matl. of gas-contacting parts SUS316, fluororesin, fluororubber, borosilicate glass, silicon SUS316, fluororesin, fluororubber 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Horizontal. Note that the display panel must not face down. 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Weight Approx. 1.1kg Approx. 1.2kg Approx. 1.2kg	Communications	System		Dedicat	ed PC loade	er connectio	ON [Note 8] (2	2) RS-485 (communicati	ons (3-wire syster	N) [Note 9]	
Matl. of gas-contacting parts SUS316, fluororesin, fluororubber, borosilicate glass, silicon SUS316, fluororesin, fluororubber Connection method 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Horizontal. Note that the display panel must not face down. 4000000000000000000000000000000000000	Power											
Connection method 1/4" Swl, 1/4" VCR Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF 9/16-18 UNF, Rc 1/4", 3/8" Swl, 1/2" VCR Mounting orientation Horizontal. Note that the display panel must not face down. Horizontal. Note that the display panel must not face down. Weight Approx. 1.1kg Approx. 1.2kg						Power circu	uit is isolate	ed from inpu	it/output circ	cuit.		
Mounting orientation Horizontal. Note that the display panel must not face down. Weight Approx. 1.1kg Approx. 1.2kg	Matl. of gas-co	ntacting parts					SU	S316, fluor	roresin, fluoro	orubber		
Weight Approx. 1.1kg Approx. 1.2kg	Connection m	lethod	1/4" Swl,	1/4" VCR		Rc 1/4	4", 1/4" Swl	, 1/4" VCR,	, 9/16-18 UI	NF		
	Mounting orie	ntation			Horiz	ontal. Note	e that the di	splay panel	l must not fa	ce down.		
Certifications CE marking	Weight		Approx	. 1.1kg					ox. 1.2kg			
	Certifications						CE	marking				

Standard gas model / Medium-flow type

Stanuaru ga									
Model No.		MQV0050 (J,K)	MQV0200	MQV0500					
Valve type			Proportional solenoid valve						
Valve operation	on		Normally closed when de-energized (N.C.						
Standard full- flow rate [Note		50.0L/min (standard)	200L/min (standard)	500L/min (standard)					
Gas types		city gas methane 10	gen (N2), oxygen (O2), argon (Ar), carbon dioxid 13A (LNG: 45MJ/m ³), city gas 13A (LNG: 46) 10% (CH4), propane 100% (C3H8), butane 100 pmponents (chlorine, sulfur, acid). It must also	MJ/m ³), D% (C4H10).					
Control	Response(at std.		0.7s for SP ±2% FS (typ.)						
	differential pressure)	(When control is started from fully clo	sed condition, and when the setpoint is	changed while control is performed.)					
	Accuracy [Note 4] (at standard temperature and differential pressure; Q is flow rate)	Standard model:±0.5% FS (0% FS≤Q≤40% FS) ±1% FS (40% FS <q≤80% fs)<br="">±1.5% FS (80% FS<q≤100% fs)<="" th=""></q≤100%></q≤80%>							
Pressure	Required differential pressure [Note 5]	10kPa	100kPa	150kPa					
	Operating differential pressure range	100kPa max.	300kPa max. (−10℃≤T≤40℃) 180kPa max. (40℃ <t≤60℃)< th=""><th>300kPa max. (−10℃≤T≤35℃) 240kPa max. (35℃<t≤50℃)< th=""></t≤50℃)<></th></t≤60℃)<>	300kPa max. (−10℃≤T≤35℃) 240kPa max. (35℃ <t≤50℃)< th=""></t≤50℃)<>					
		(Condition: power supply voltage = 24.0V) [Note 7]							
-	Max. inlet pressure		0.5MPa (gauge)						
Temp.	Operating temp.		+60°C	-10 to +50°C					
Humidity	Operating humidity		0 to 90% RH (no condensation allowed						
Analog output	Output range	U-5Vac /	(1-5Vdc / 0-20mAdc / 4-20mAdc (se	electable)					
Alarm/event output	Number of outputs		Alarm: 1. Event: 2.						
External switching input	Input type, number of inputs	Ex	External 3-way switching inputs: 1. ternal contact inputs (2-way switching):	: 3.					
Communications	System	(1) Dedicated PC loader con	nection [Note 8] (2) RS-485 communica	tions (3-wire system) [Note 9]					
Power	Rating		t consumption A max.	24Vdc, current consumption 500mA max.					
	Isolation	Powe	er circuit is isolated from input/output ci	ircuit.					
Matl. of gas-co	ntacting parts	Standard gas model to SUS316, fluororesin, fluororubber							
Connection m			c 1/2", 1/2" Swl, 1/2" VCR, 3/4-16 UN						
Mounting orie	ntation		Note that the display panel must not						
Weight			Approx. 3.5kg						
Certifications			CE marking						

Model No.		MQV9200	MQV9500	MQV0002	MQVOO		
Valve type							
Valve operation	on				Nori		
Standard full- flow rate [Note		200mL/min (standard)	0.500L/min (standard)	2.00L/min (standard)			
Gas types		lt r		trogen (N2), The gas i clean, withou	must be d		
Control	Response (at std.	0.0.0		0.3s for			
	differential pressure)	(when co	ntroi is star	ted from fu	lly closed		
	Accuracy [Note 4] (at standard tempe- rature and differential pressure; Q is flow rate)			±0.5% F ±1% FS (
Pressure	Required differential pressure [Note 5]	50kPa	5kPa	50kPa	5kPa		
	Operating differential pressure range			30)OkPa m		
	Max. inlet pressure						
Temp.	Operating temp.						
Humidity	Operating humidity				10 t		
Analog output	Output range			0-5	Vdc / 1-		
Alarm/event output	Number of outputs						
External switching input	Input type, number of inputs				E Exteri		
Communications	System		(1) Dedicat	ed PC loade	er conne		
Power	Rating		24Vo	dc, current	consum		
	Isolation				Power c		
Matl. of gas-cor		Standard					
Connection m	ethod	Rc 1/4", 1/4" Swl					
Mounting orie	ntation	Horizontal. N					
Weight		Approx. 1.1					

Model No.		MQV9020	MQV9050	MQV			
Valve type							
Valve operation	on			Nor			
Standard full- flow rate [Note		20.0mL/min (standard)	50.0mL/min (standard)	0.500 (star			
Gas types		The gas must be dry and r It must also					
Control	Response(at std.	500ms for SP	±2% FS (typ.)				
	differential pressure)		ol is started from	fully clo			
	Accuracy (at standard temperature and differential pressure; Q is flow rate)	$\pm 1.0\%FS$ (50%FS <q≤100%fs) $\pm 0.5\%FS$ (0%FS≤Q≤50%FS)</q≤100%fs) 	±1.0%FS (0%FS≤Q≤100%FS)				
Pressure	Required differential pressure [Note 5]	Hydrogen∶2.5kPa Helium∶5kPa	Hydrogen:10kPa Helium:20kPa				
	differential pressure range						
	Max. inlet pressure						
Temp.	a						
	Operating temp.						
Humidity	Operating temp. Operating humidity						
Analog output	Operating humidity Output range		0-5				
Analog output Alarm/event output	Operating humidity Output range Number of outputs		0-5				
Analog output	Operating humidity Output range Number of outputs		0-5	Vdc / 1			
Analog output Alarm/event output External switching	Operating humidity Output range Number of outputs Input type,	(1) Dedic	0-5 ated PC loader co	Vdc / 1 Exter			
Analog output Alarm/event output External switching input	Operating humidity Output range Number of outputs Input type, number of inputs System Rating	(1) Dedic	ated PC loader co	Vdc / 1 Exter onnectio 24V			
Analog output Alarm/event output External switching input Communications Power	Operating humidity Output range Number of outputs Input type, number of inputs System Rating Isolation		ated PC loader co	Exter			
Analog output Alarm/event output External switching input Communications	Operating humidity Output range Number of outputs Input type, number of inputs System Rating Isolation	SUS316, fluorore	ated PC loader co I ssin, fluororubber, glass, silicon	Vdc / 1 Exter onnectio 24V			
Analog output Alarm/event output External switching input Communications Power	Operating humidity Output range Number of outputs Input type, number of inputs System Rating Isolation ntacting parts	SUS316, fluorore	ated PC loader co l esin, fluororubber,	Vdc / 1 Exter onnectio 24V			
Analog output Alarm/event output External switching input Communications Power Matl. of gas-co Connection m Mounting orie	Operating humidity Output range Number of outputs Input type, number of inputs System Rating Isolation ntacting parts ethod	SUS316, fluorore	ated PC loader co ssin, fluororubber, glass, silicon 1/4" VCR	10 Vdc / 1 Exter pnnectio 24V Power ci			
Analog output Alarm/event output External switching input Communications Power Matl. of gas-co Connection m	Operating humidity Output range Number of outputs Input type, number of inputs System Rating Isolation ntacting parts ethod ntation	SUS316, fluorore borosilicate 1/4" Swl,	ated PC loader co ssin, fluororubber, glass, silicon 1/4" VCR	Exter Donnectio 24V Power ci			

Notes for pages 05-06 **[Notes**] *L*/min (standard) indicates the volumetric flow rate (L/min) converted to 20°C, one atmosphere (1 atm). The reference temperature can be changed to 0°C, 25°C, or 35°C. The controllable flow rate range varies according to the gas type. See Table 1. **[Note 2]** When used with ammonia, or acetylene, select a Semi-standard gas model (with EPDM seal). For ammonia, be sure to use under dry conditions with a dewpoint of -20°C or less. In addition, do not use a Semi-standard gas model with gases other than the above gases. Doing so may degrade the 0-ring sealing characteristics. The Semi-standard gas model is set for air/nitrogen use before factory shipment. Before using the model, set the gas type conversion factor (C.F.). **[Note 3]** Prevent foreign matter from entring the device. If rust, water doplets, oil insk, or dust in the piping enters the device, measurement error or damage to the device might result. If there is a possibility of foreign matter entering the device, provide an upstream filter, strainer or mist trap capable of eliminating foreign matter 0.1 µm or greater in diameter, and be sure to periodically inspect and replace the filter. **[Note 4]** Accuracy information applies to air/nitrogen or oxygen gas model]. **[Note 5]** Differential pressure, required to control the full-scale flow rate. (Conditions: outlet pressure = 0 kPa (gauge)). Operation is possible even below the required differential pressure, but the controllable flow rate range is narrower. For details on the relationship between differential pressure and flow rate when the valve is fully open, refer to the user's manual, CP-SP-1204E (standard gas model) or CP-SP-1205E (hydrogen/helium gas model). **[Note 6]** For use at inlet pressures higher than 0.5 MPa (gauge), contact Azbil Corporation. **[Note 7]** Maximum operating differential varies according to power supply voltage. **[Note 8]** A dedicated PC loader package (sold separately) is required. **[Note 9]** Applies only to models with the optional RS-485 communica

005	MQV0020	MQV005	0 (B,C)	MC	200200	MQV0500				
		al solenoid								
		hen de-ene		<u>C.)</u>						
	20.0L/min (standard)				OL/min andard)		500L/min (standard)			
dry, 1	without corro	osive compor	nents (chlo	rine, sulfu	nia (NH3) [Note ur, acid). st be -20° or b		[Note 3]			
% FS	G (typ.)			(0.7s for SP ±	-2%	FS (tvp.)			
		d when the	setpoint				is performed.)			
	Q≤50% FS 2≤100% FS	,	·	±1%	- 6 FS (0% FS FS (40% FS∙ 6 FS (80% F	<q≤< td=""><td></td></q≤<>				
а	50kPa	100	kPa	1	DOkPa		150kPa			
nax.		1		(-10°C 18 (40°C)OkPa max. C≤T≤40°C) 3OkPa max. <t≤60°c) n: power supply v</t≤60°c) 	` (З	300kPa max. 10℃≤T≤35℃) 240kPa max. 5℃ <t≤50℃) a = 24.0V)[Note7]</t≤50℃) 			
	0.5MPa ((gauge) [Not	:e 6]							
		to +60℃				_	10 to +50℃			
		o condensa		/						
-51		mAdc / 4-2		selecta	ble)					
		1. Event: 2								
rnal	contact inp	switching outs (2-way	switching							
ectic) [Note 8] (2	2) RS-485	communia	cations	(3-wire syste	m) [r	lote 9]			
nptic	on 300mA	max.			rrent consumption OmA max.	24Vd	c, current consumption 500mA max.			
circu	it is isolate	ed from inpl	ut/output	circuit.						
d ga	s model to	SUS316, f	luororesir	n, EPDM						
	4" VCR				1/2"	Swl,				
		isplay pane	l must no	t face d						
.2kg		and the second			Approx	. 3.5	kg			
	CE	marking								
/950		QV0005	MQVO	010	MQV0050)	MQV0200			
		al solenoid								
	-	hen de-ene	<u> </u>							
OL/n	nin 5.0	DOL/min	10.00L	/min	50.0L/mir	ן ו	200L/min			

ndard)	(standard)	(standard)	(standard)	(standard)						
ot contair	n (H2), helium (He n corrosive comp without dust or c	onents(chlorine, s	sulfur, acid).							
	0.3s	for SP $\pm 2\%$ FS	(typ.)							
osed con	dition, and when	setting is change	d while control is	s performed.)						
±0.5% FS(0% FS≤Q≤40% FS) ±1.0% FS(40% FS <q≤80% fs)<br="">±2.0% FS(80% FS<q≤100% fs)<="" td=""></q≤100%></q≤80%>										
	i : 20kPa : 40kPa	Hydrogen: 80kPa Helium: 150kPa	Hydrogen:20kPa Helium:40kPa	Hydrogen:100kPa Helium:180kPa						
	300kPa max. (−10℃≤T≤60℃)									
0.5	MPa (gauge) [Not	te 6]								
	-10 to +60℃									
to 90% F	RH (no condensa	tion allowed)								
		20mAdc (selecta	ble)							
	larm: 1. Event: 2									
	3-way switching act inputs (2-way									
0N [Note 8]	(2) RS-485 cor	mmunications (3-	wire system) [Not	e 9]						
	ent consumption									
ircuit is is	solated from inpu	t / output circuit								
SUS316, fluororesin, fluororubber										
Rc 1/4", 1/4" Swl, 1/4" VCR, 9/16-18 UNF										
Note the	Note that display panel must not face down.									
		Approx. 1.2kg								
	CE marking									

Specifications

Table 1.

Standard gas model Control flow rate range and setting/display resolutions (factory settings) (Units: mL/min (standard) for 9005,9020,9200, L/min (standard) for other models)

		MQVS	9005	MQV9020		MQV	MQV9200		MQV9500		0002	MQV0005	
		Control flow rate range	Setting/display resolution [Note 2]										
Ģ	Air, nitrogen	0.10 to 5.00	0.02	0.2 to 20.0	0.1	2 to 200	1	0.004 to 0.500	0.002	0.02 to 2.00	0.01	0.04 to 5.00	0.02
ß	Oxygen	0.10 to 5.00	0.02	0.2 to 20.0	0.1	2 to 200	1	0.004 to 0.500	0.002	0.02 to 2.00	0.01	0.04 to 5.00	0.02
type	Argon	0.10 to 5.00	0.02	0.2 to 20.0	0.1	2 to 200	1	0.004 to 0.500	0.002	0.02 to 2.00	0.01	0.04 to 5.00	0.02
ā	Carbon dioxide	-	-	-	-	1.0 to 120.0	0.5	0.003 to 0.300	0.001	0.010 to 1.200	0.005	0.03 to 3.00	0.01
	City gas 13A (LNG: 45MJ/m ³)	-	-	-	-	2 to 200	1	0.004 to 0.500	0.002	0.02 to 2.00	0.01	0.04 to 5.00	0.02
	City gas 13A (LNG: 46MJ/m ³)	-	-	-	-	2 to 200	1	0.004 to 0.500	0.002	0.02 to 1.60	0.01	0.04 to 5.00	0.02
	Methane 100%	-	-	-	-	2 to 200	1	0.004 to 0.500	0.002	0.02 to 2.00	0.01	0.04 to 5.00	0.02
	Propane 100%	-	-	-	-	0.6 to 60.0	0.2	0.002 to 0.160	0.001	0.006 to 0.600	0.002	0.02 to 1.60	0.01
	Butane 100%	-	-	-	-	0.4 to 50.0	0.2	1.0 to 120.0 [Note 1]	0.5 [Note 1]	0.004 to 0.400	0.002	0.010 to 1.200	0.005

		MQV	0020	MQV005	O (B, C)	MQV	0100	MQV0050 (J, K)		MQV	0200	MQV	0500
		Control flow rate range	Setting/display resolution [Note 2]										
Ga	Air, nitrogen	0.2 to 20.0	0.1	0.4 to 50.0	0.2	1.0 to 100.0	0.5	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2
S	Oxygen	0.2 to 20.0	0.1	0.4 to 50.0	0.2	1.0 to 100.0	0.5	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2
type	Argon	0.2 to 20.0	0.1	0.4 to 50.0	0.2	1.0 to 100.0	0.5	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2
ā	Carbon dioxide	0.10 to 12.00	0.05	0.3 to 30.0	0.1	1.0 to 80.0	0.5	0.3 to 30.0	0.1	1.0 to 120.0	0.5	4 to 400	2
	City gas 13A (LNG: 45MJ/m ³)	0.2 to 20.0	0.1	0.4 to 50.0	0.2	-	-	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2
	City gas 13A (LNG: 46MJ/m ³)	0.2 to 20.0	0.1	0.4 to 50.0	0.2	-	-	0.4 to 50.0	0.2	2 to 200	1	4 to 400	2
	Methane 100%	0.2 to 20.0	0.1	0.4 to 50.0	0.2	-	-	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2
	Propane 100%	0.06 to 6.00	0.02	0.2 to 16.0	0.1	-	-	0.2 to 16.0	0.1	0.6 to 60.0	0.2	2 to 200	1
	Butane 100%	0.04 to 4.00	0.02	0.10 to 10.00	0.05	-	-	0.10 to 12.00	0.05	0.4 to 40.0	0.2	2 to 160	1

Table	2.
-------	----

Semi-standard model Control flow rate range and setting/display resolutions (factory settings)

(Units: mL/min (standard) for 9200, L/min (standard) for other models)

		MQV9200		MQVS	MQV9500		MQV0002		MQV0005		020	MQV0050 (B, C)	
		Control flow rate range	Setting/display resolution [Note 2]										
Ģ	Acetylene (C ₂ H ₂)	1.0~120.0	0.5	0.003~0.300	0.001	0.010~1.200	0.005	0.03~3.00	0.01	0.10~12.00	0.05	0.3~30.0	0.1
as t	Ammonia (NH ₃)	2~160	1	0.004~0.400	0.002	0.02~1.60	0.01	0.04~4.00	0.02	0.2~16.00	0.1	0.4~40.0	0.2
:ype	Air, nitrogen	2~200	1	0.004~0.500	0.002	0.02~2.00	0.01	0.04~5.00	0.02	0.2~20.0	0.1	0.4~50.0	0.2
Ű	Argon	2~200	1	0.004~0.500	0.002	0.02~2.00	0.01	0.04~5.00	0.02	0.2~20.0	0.1	0.4~50.0	0.2
	Carbon dioxide	1.0~120.0	0.5	0.003~0.300	0.001	0.010~1.200	0.005	0.03~3.00	0.01	0.10~12.00	0.05	0.3~30.0	0.1

		MQV	0200	MQV	0500
		Control flow rate range	Setting/display resolution [Note 2]	Control flow rate range	Setting/display resolution [Note 2]
Ga	Acetylene (C ₂ H ₂)	1.0~120.0	0.5	4~400	2
S	Ammonia (NH3)	2~160	1	4~400	2
type	Air, nitrogen	2~200	1	4~500	2
	Argon	2~200	1	4~500	2
	Carbon dioxide	1.0~120.0	0.5	4~400	2

Table 3.

Hydrogen gas model Control flow rate range and setting/display resolutions (factory settings) (Units: mL/min (standard) for MQV9020/9050, L/min (standard) for other models)

			MQV9020		MQV9050		MQV9500		MQV0005		MQV0010		MQV0050	
			Control flow rate range	Setting/display resolution [Note 2]	Control flow rate range	Setting/display resolution [Note 2]	Control flow rate range	Setting/display resolution [Note 2]						
	Gas	Hydrogen	0.2 to 20.0	0.1	0.4 to 50.0	0.2	0.004 to 0.500	0.002	0.04 to 5.00	0.02	0.10 to 10.00	0.05	0.4 to 50.0	0.2
19 pc	type	Helium	0.2 to 20.0	0.1	0.4 to 50.0	0.2	0.004 to 0.500	0.002	0.04 to 5.00	0.02	0.10 to 10.00	0.05	0.4 to 50.0	0.2

		MQV0200					
		Control flow rate range	Setting/display resolution [Note 2]				
Gas type	Hydrogen	2 to 200	1				
type	Helium	2 to 200	1				

[Note 1] When the gas type of model MQV9500 is set to butane 100%, the flow rate display unit is mL/min. [Note 2] If an analog signal is applied to the setting input and the flow rate output, the resolution will increase greatly. Contact Azbil Corporation for more information

Compatible gases for each model

Compatible	e gases for e	each model	\bigcirc : recommended, \bigcirc : usable								
	O-ring material	Sensor	Air, Nitrogen	Oxygen	Argon	Carbon dioxide	City gas 13A	Methane 100%	Propane 100%		
Standard gas model	Fluororubber	Standard	0	0	0	0	0	0	0		
Special gas model	Ethylene-propylene	Standard	0		0	0					
Hydrogen/helium gas model	Fluororubber	Dedicated hydrogen/ helium use									

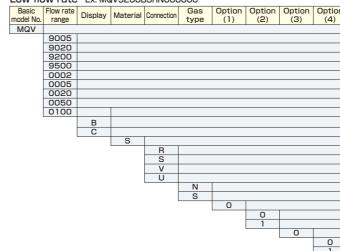
			Gas type								
	O-ring material	Sensor	Butane 100%	Ammonia	Acetylene	Ethylene, oxide gas	Hydrogen	Helium			
Standard gas model	Fluororubber	Standard	0								
Special gas model	Ethylene-propylene	Standard		0	0	0					
Hydrogen/helium gas model	Fluororubber	Dedicated hydrogen/ helium use					0	0			

Note: For use with gases other than the above, contact Azbil Corporation.

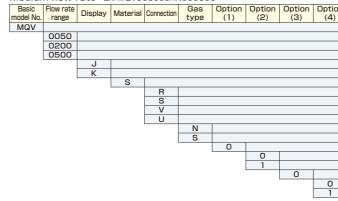
Selection Guide

Standard gas model

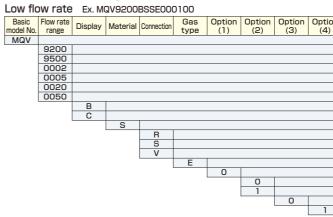




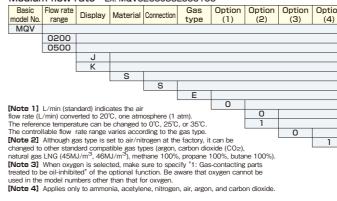
Medium flow rate Ex. MQV0050JSRN000000



Semi-standard gas model



Medium flow rate Ex. MQV0200JSSE000100



	Oution											
n	Option (5)	Design code	Description									
			Digital mass flow controller 0.10 to 5.00mL/min (standard) [Note 1]									
			0.2 to 20.0mL/min (standard) [Note 1]									
			2 to 200mL/min (standard) [Note 1] 0.004 to 0.500L/min (standard) [Note 1]									
			0.02 to 2.00L/min (standard) [Note 1]									
			0.04 to 5.00L/min (standard) [Note 1]									
			0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1]									
			1.0~100.0L/min (standard) Integrated display (side-to-side dimension 90mm)									
			Separate display (side-to-side dimension 90mm)									
			SUS316, Teflon, Viton									
			Rc 1/4" (except 9005, 9020) 1/4" Swagelok (In use of 0100 change to 3/8" Swagelok)									
			1/4" VCR(In use of 0100 change to 1/2" VCR)									
			9/16-18 UNF(except 9005, 9020) Air/nitrogen (changeable to standard gases) [Note 2]									
			Oxygen [Note 3]									
			(None) (None)									
			RS-485 (CPL) communications									
			(None) (None)									
_			Gas-contacting parts treated to be oil-inhibited									
	0 D		(None) Inspection certificate provided									
	Ŷ		Traceability certificate provided									
		0	Product version									
n	Option (5)	Design code	Description									
_	(3)	Coue	Digital mass flow controller									
			0.4 to 50.0L/min (standard) [Note 1]									
			2 to 200L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1]									
			Integrated display (side-to-side dimension 150mm)									
_			Separate display (included) (side-to-side dimension 150mm) SUS316, Teflon, Viton									
			Rc 1/2"									
			1/2" Swagelok 1/2" VCR									
			3/4-16 UNF									
			Air/nitrogen (changeable to standard gases) [Note 2] Oxygen [Note 3]									
			(None)									
			(None) RS-485 (CPL) communications									
_			(None)									
_			(None) Gas-contacting parts treated to be oil-inhibited									
	0		(None)									
	D Y		Inspection certificate provided Traceability certificate provided									
		0	Product version									
n	Option		Description									
_	(6)	code	Digital mass flow controller									
	(5)											
	(5)		2 to 200mL/min (standard) [Note 1]									
	(5)		2 to 200mL/min (standard) [Note 1] 0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1]									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1]									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1]									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm)									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm)									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4"									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4"									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.1tegrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None)									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4]									
			0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.1tegrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function Without optional functions									
	(5)		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Re 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function									
	0 D		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.100000000000000000000000000000000000									
	0	0	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.100000000000000000000000000000000000									
	0 D Y		0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.100000000000000000000000000000000000									
	0 D	0 Design code	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.100000000000000000000000000000000000									
	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) Substantiation [Substantiation [Substantiation] Substantiation [Substantiation] Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL) function Without optional functions Oil-inhibiting treatment for gas-contacting parts (None) With traceability certificate With traceability certificate Product version Description									
	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 2.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) (None) With RS-485 communications (CPL) function Within spection certificate With inspection certificate With inspection certificate Product version Description Digital mass flow controller 2 to 200L/min (standard) [Note 1]									
on	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) Support 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function Without optional functions 0Ii-inhibiting treatment for gas-contacting parts (None) With traceability certificate Product version Description Digital mass flow controller 2 to 200L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1] Integrated display model (body length 150mm)									
pn	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 2.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) Substantiation [Note 1] 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) (None) (None) With RS-485 communications (CPL) function With up optional functions 0il-inhibiting treatment for gas-contacting parts (None) With traceability certificate Product version Digital mass flow controller 2 to 200L/min (standard) [Note 1] Integrated display model (body length 150mm) Separate display model (body length 150mm)									
DDD	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.4 to 50.0L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) Support 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function Without optional functions 0Ii-inhibiting treatment for gas-contacting parts (None) With traceability certificate Product version Description Digital mass flow controller 2 to 200L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1] Integrated display model (body length 150mm)									
Dn	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 2.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.1 0.4 to 50.0L/min (standard) [Note 1] 1.4" Swagelok 1.1/4" 1.4" VCR Semi-standard gas [Note 4] (None) (None) (None) (None) (None) (None) (None) (None) With Inspection certificate With traceability certificate Product version Digital mass flow controller 2 to 200L/min (standard) [Note 1] 1 Integrated display model (body length 150mm) Separate display model (body length 150mm)									
	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.04 to 5.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 0.4 to 50.0L/min (standard) [Note 1] 1.1 0.2 to 20.0L/min (standard) [Note 1] 1.1 0.2 to 50.0L/min (standard) [Note 1] 1.1 0.2 to 50.0L/min (standard) [Note 1] 1.1 0.2 to 50.0L/min (standard) [Note 1] 1.1 </td									
DU	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 5.00L/min (standard) [Note 1] 0.2 to 5.00L/min (standard) [Note 1] 0.4 to 5.00L/min (standard) [Note 1] 0.4 to 5.00L/min (standard) [Note 1] 1.1 to 5.01 min (standard) [Note 1] <									
	0 D Y Option	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 2.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.4 to 5.00L/min (standard) [Note 1] 0.4 to 5.00L/min (standard) [Note 1] 0.4 to 5.00L/min (standard) [Note 1] Integrated display model(body length 90mm) Separate display model(body length 90mm) Substantiation [Substantiation [Substantis]]] Notel mass flow contro									
DDD	0 D Y Option (5)	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 2.00L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 1.1tegrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function Without optional functions 0ii-inhibiting treatment for gas-contacting parts (None) Description Digital mass flow controller 2 to 200L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1] 1/2" Swagelok Semi-standard gas [Note 4] (None) Digital mass flow controller 2 to 200L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1] 1.1tegrated display model (body length 150mm) Separate display model (body length 150mm) Sus316 1/2" Swagelok Semi-standard gas [Note 4] (None) Model with RS-485 communications (CPL)function Model with RS-485 communications (CPL)function 0 [I-inhibiting treatment for gas-contacting parts (None) Model with RS-485 communications (CPL)function (None) Model with RS-485 communications (CPL)function (None) Model with RS-485 communications (CPL)function (None) 0 [I-inhibiting treatment for gas-contacting parts (None)									
	0 0 7 9 0 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 0.2 to 20.0L/min (standard) [Note 1] 1.1 tograted display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function Without optional functions Oil-inhibiting treatment for gas-contacting parts (None) With inspection certificate Product version Digital mass flow controller 2 to 200L/min (standard) [Note 1] Integrated display model (body length 150mm) SUS316 1/2" Swagelok Semi-standard gas [Note 4] (None) Model with RS-485 communications (CPL)function With ut aceability certificate Product version Digital mass flow controller 2 to 200L/min (standard) [Note 1] Integrated display model (body length 150mm) SUS316 1/2" Swagelok Semi-standard gas [Note 4] (None) (None) (None) Model with RS-485 communications(CPL)function With inspection certificate With inspection certificate 9 to 200L/min (standard) [Note 1] 1 lntegrated display model (body length 150mm) SUS316 1/2" Swagelok Semi-standard gas [Note 4] (None) (None) With inspection certificate									
	0 D Y Option (5)	Design	0.004 to 0.500L/min (standard) [Note 1] 0.02 to 2.00L/min (standard) [Note 1] 0.2 to 2.00L/min (standard) [Note 1] 0.2 to 50.0L/min (standard) [Note 1] 1.1tegrated display model(body length 90mm) Separate display model(body length 90mm) SUS316 Rc 1/4" 1/4" Swagelok 1/4" VCR Semi-standard gas [Note 4] (None) (None) Model with RS-485 communications (CPL)function Without optional functions Oil-inhibiting treatment for gas-contacting parts (None) Description Digital mass flow controller 2 to 200L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1] 4 to 500L/min (standard) [Note 1] 1/2" Swagelok Semi-standard gas [Note 4] (None) Notel with RS-485 communications (CPL)function With traceability certificate Product version Digital mass flow controller 2 to 200L/min (standard) [Note 1] 1 Integrated display model (body length 150mm) Separate display model (body length 150mm) Sugarate display model (body length 150mm) Model with RS-485 communications (CPL)function Model with RS-485 communications (CPL)function (None) Model with RS-485 communications (CPL)function Model with RS-485 communications (CPL)function (None) Model with RS-485 communications (CPL)function (None)									

Selection Guide

Hydrogen / Helium gas model

Low flow rate Ex. MQV9500BSRH0000100

Basic model No.	Flow rate range	Display	Material	Connection	Gas type	Option (1)	Option (2)	Option (3)	Option (4)	Option (5)	Design code	Description			
MQV	MQV						Digital mass flow controller								
9020										0.2 to 20.0mL/min (standard) [Note 1]					
9050										0.4 to 50.0mL/min (standard) [Note 1]					
9500								0.004 to 0.500L/min (standard) [Note 1]							
	0005											0.04 to 5.00L/min (standard) [Note 1]			
	0010								0.10 to 10.00L/min (standard) [Note 1]						
	0050											0.4 to 50.0L/min (standard) [Note 1]			
	0200											2 to 200L/min (standard) [Note 1]			
	В								Integrated display						
C								Separate display							
S								SUS316, Teflon, Viton							
R									Rc 1/4"						
				S								1/4" Swagelok			
				V								1/4" VCR			
				U								9/16-18 UNF			
					Н							Hydrogen/helium [Note 2]			
						0						(None)			
							0					(None)			
							1					RS-485 (CPL) communications			
								0				(None)			
									1			Gas-contacting parts treated to be oil-inhibited			
				/drogen flow						0		(None)			
				tmosphere to 0°C, 25°C						D		Inspection certificate provided			
				rding to gas						Y		Traceability certificate provided			
						it can be c	hanged to	helium.			0	Product version			
	Note 2] Although the gas type is set to hydrogen at the factory, it can be changed to helium.														

■ Table 3. Optional parts (sold separately)

Item	Model No.	Appearance	Application				
Cable with dedicated connector (2m 20-core flat cable)	81446881-001						
Cable with dedicated connector (5m 20-core shielded cable)	81446951-001		 For power and signal connection 				
Mounting bracket for low flow rate model	F9Y4QB1		Bracket for installing a controller for low flow rate model				
Mounting bracket for medium flow rate model	F9Y4QB2		Bracket for installing a controller for medium flow rate model				
PC loader	MLP100A100		This allow you to operate, monitor and datalog of model MQV from your PC.				
Network Instrumentaion MIdule Smart Device Gateway*	NX-SVG		You can build communication between model MQV and various devices without programing. Please see CP-PC-1597E for details.				

*A communication gateway that allows the interchange of information between various kind of control device without programming, enabling smater development work.

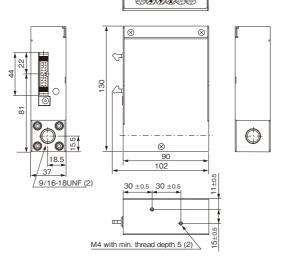
External Dimensions (Unit: m

Standard gas model/semi-standard gas model: MQV9005/9020/9200/9500/0002/0005/0020/0050B,C Hydrogen/helium gas model: MQV9020/9050/9500/0005/0010/0050/0200B,C

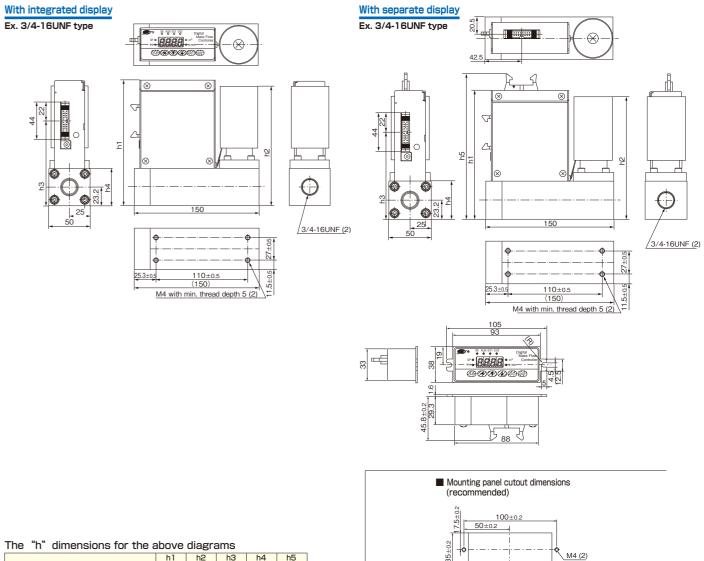
With integrated display

Ex.: 9/16-18UNF type

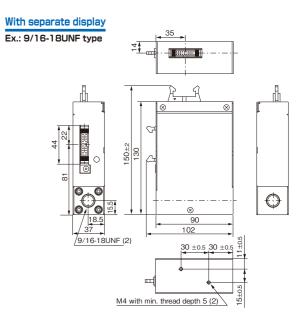
Digital Mass Flow Controller » • • • • • • • • • • • • • • • • • • • Щ **®ØØØ**®®



Standard gas model/semi-standard gas model: MQV0050/0200/0500J,K



The "h" dimensions for the above diagrams										
	h1	h2	h3	h4	h5					
MQV0050J,K/MQV0200J,K	151	145	102	45	172					
MQV0500J,K	152	146	103	46	173					



45±0.2 90±0.2