

AVFCS2

スラリー用流量コントローラー Flow Controller for Slurry

Specialty Valves and Control Products **FALCONICS™**



Stress free

A straight flow path is achieved by combining an electric pinch valve and straight type ultrasonic flow meter. Reduces stress on CMP slurry, agglomeration and wafer scratching.

Excellent air bubble resistance

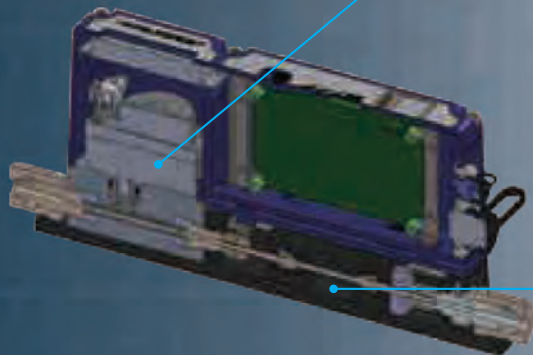
A straight flow path results in fewer air bubbles, thereby reducing the possibility of abnormal air bubble formations that could halt equipment.



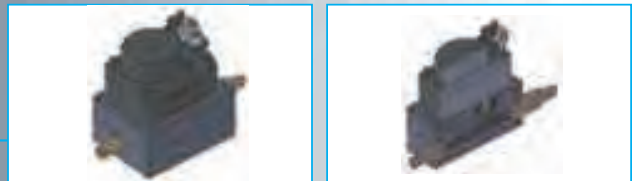
Wide range of functions available

- Autopurge function: On detecting that air bubbles have become mixed, the valve is opened fully to allow them to pass through.
- LCD indication: Current operating status and error conditions can be seen at a glance.
- Error log: Maintains error logs in memory for easy checking of any abnormal conditions.
- Self-diagnosis function: By monitoring ultrasonic reception and flow rate measurement statuses, measurement deviations are detected.
- Temperature correction function: Measures fluid temperatures and automatically corrects the effects of adverse temperature ranges.

Our one-of-a-kind flow controller for slurry combining AVFCS's unique straight type flow meter with a pinch valve is now available in a downsized format.



Electric pinch valve



This control valve takes advantage of a pinch valve with a straight passage structure, which is based on ample experience and excellent durability in terms of slurry solutions.

Straight type ultrasonic flow meter



A straight passage structure makes it possible to reduce the amount of any internal residues of slurry solutions and/or air bubbles.

Granted patents]
(Patent No. 4233445 in Japan; patents granted in the US and China; patents pending in Korea and Taiwan)

Specifications

Category		Unit	Specifications
Operating environment	作 動 Actuation	—	—
	流 体 温 度 ^{※1} Fluid temperature	℃	15 ~ 35
	構 造 耐 圧 Proof pressure	MPa	1.0 145psi
	使 用 圧 力 範 囲 Working pressure range	MPa	0.1 ~ 0.3 14.5psi ~ 43.5psi
	使 用 差 圧 範 囲 Working differential pressure range	MPa	0.1 ~ 0.3 14.5psi ~ 43.5psi
	周 囲 温 度 ^{※1} Ambient temperature	℃	20 ~ 30
	開 閉 頻 度 Frequency of opening & closing	回 /min times/min	< 10
	取 付 姿 勢 ^{※2} Installation direction	—	With restrictions
	接 続 Connection	—	Super 300 type pillar fitting, Flare type
	接 続 口 径 Connection tubing size	mm	6.35 × 3.95 (6 × 4), 6.35 × 4.35
	オ リ フ ィ ス ^{※4} _{※6} Orifice diameter	mm	1.6
	重 量 Weight	kg	0.9
	電 源 Power supply	V	24VDC ± 10%
消 費 電 流 Consumption current	A	≤ 0.4A	
Performance	流 量 範 囲 Flow range	mL/min	25 ~ 250, 50 ~ 500
	精 度 ^{※3} Accuracy	—	1%R.D (> 50mL/min) / 0.75mL/min (≤ 50mL/min)
	再 現 性 ^{※3} Repeatability	—	0.5%R.D (> 50mL/min) / 0.5mL/min (≤ 50mL/min)
	弁 座 漏 れ 量 Valve seat leakage	—	0 cm ³ /min at hydraulic pressure of 23℃)
	C v 値 ^{※4} _{※6} Cv value	—	0.05 (Typical)
	応 答 時 間 ^{※5} Response time	Sec	≤ 1 (Typical)
	閉 止 時 間 ^{※5} Closing time	Sec	≤ 1 (Typical)
Storage environment	周 囲 温 度 Ambient temperature	℃	10 ~ 40
	湿 度 Ambient humidity	%	30 ~ 80% RH () (Non-condensing)

※1. This product is calibrated with pure water at 25 degrees Celsius with an ambient temperature of 25 degrees Celsius. If using a different type of fluid and/or at any other temperature, it is recommended to calibrate the product in an actual environment.

※2. Please refer to separate "Instruction Manual."

※3. Performance in the case of pure water at 25 degrees Celsius.

※4. Typical value.

※5. Performance with differential pressure of 0.13 MPa or over.

※6. It is reference value.

Selection of model

AVFCS 2	—	A	0	2	5	0	N	F	I	—	0	0	0	0	0
Flow range			0	2	5	0									
			0	5	0	0									
Chemical resistancespecifications							N				Standard specifications ^{※1}				
Fitting type								F			Flare type fitting: 6.35×4.35mm				
								3			Super 300 type pillar fitting: 6.35×3.95mm / 6×4mm				
Standard									I		inch				
									M		millimeter				
Special product code ^{※2}											0	0	0	0	0

※1. Products with standard specifications are made up of the following materials: Materials that come in contact with fluid: Silicon based rubber, PFA and PTFE; other sealing materials: FKM

※2. Special product codes are used when given in the separate Instruction Manual. This information will be released by the ASAHI YUKIZAI CORPORATION.

AVPV3
AVPVM
AVPVS
AVSDV
AVSDVM
AVSDVM
AVSDVT
AVSAS
AVMPV
AVDIV
AVVM
AVHRL
AVHRLM
AVHPRS
AVBPR
AVCFV
HDV12R
HDVM
AVQDV
AVBVX
AVPJX
AVSIV
AVFCS2
AVFCN
OTHER

Functions

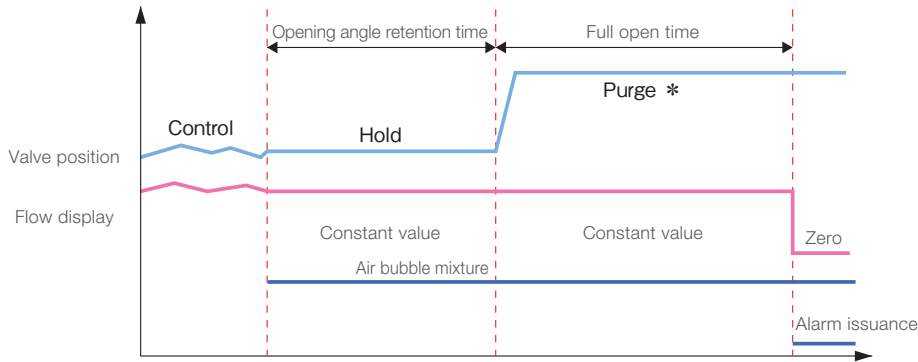
Auto purge function

- When air bubbles have become mixed, the device will automatically take the following action:

※ Purge : Fully opens valve position(as shown in example below).

It is possible to choose to open the valve to a specified position or retain the opening angle.

※ Immediately after air bubbles have been expelled, the controller will resume to normal control operations.

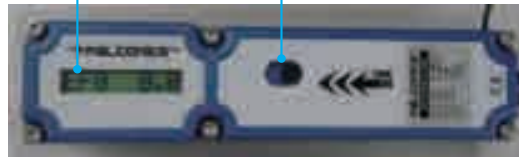


LCD indication

- Can monitor error information, operational status and current flow rates in real time.

[EFO xxx.x]

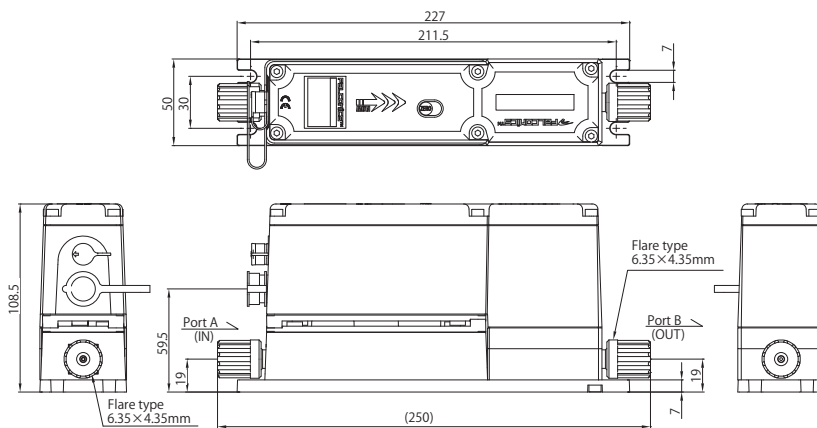
[EFO xxx.x]
EFO: air bubble mixture error;
xxx.x: current flow rate



Re-zero adjustment button

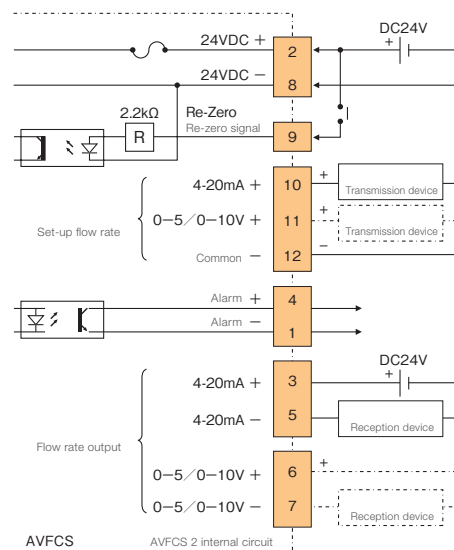
- This adjustment button enables usage to correct zero flow rate.

Dimensions

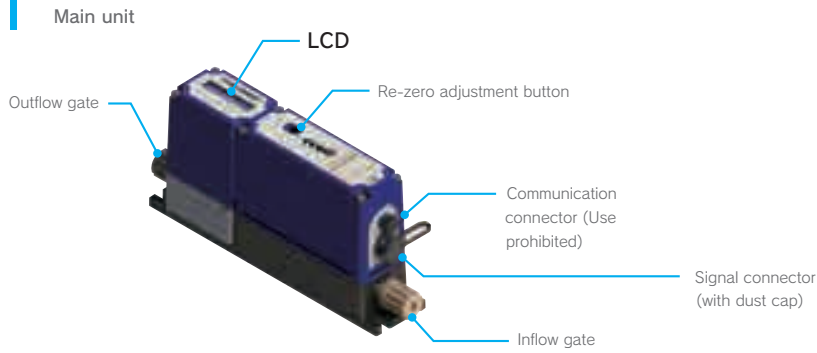


※ It is reference value.

Internal circuit and example of connections (4-20mA)



Component parts



Special signal cable

Option : AVFCS2-CBL0-00000

Length: 5 m



Signal connector cable

Special calibration kit (Option)

- Model: AVFCS2-CBL0-00000

<Contents>

- CD-ROM (Special software, Instruction Manual)
- Special signal cable
- RS-485 converter (with USB cable and device driver)



Note

- Use optional signal cable (AVFCS2-CBL0-00000) to connect with signal connector.
- Purchase of a special calibration kit is required only with the purchase of a first unit, as it can be commonly used across the series.