



Optical Fiber Type Hot Phosphoric Acid Concentration Monitor CS-620F

Capable of “High Concentration Hot Phosphoric Acid” and “Direct Measurement”



This monitor is useful for chemical concentration control during the SiN-layer etching process in 3D NAND manufacturing process.

Key features

High concentration phosphoric acid up to 92% can be measured

No cooling mechanism and cooling time is needed.

Direct measurement is possible without cooling high-temperature phosphoric acid (140 to 170°C) in the circulation line.

PFA is used in the sample **wetted area to reduce contamination risk.**

Contributes to significant reduction in equipment downtime by adopting semi-annual background correction cycles.

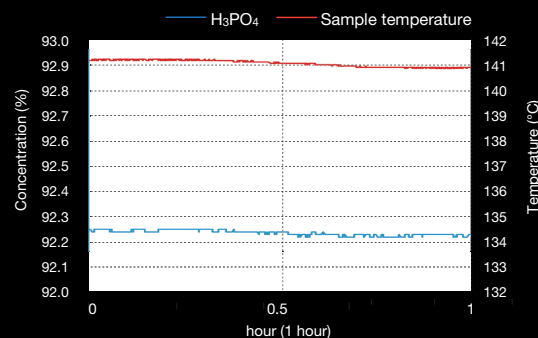
Contributes to faster concentration feedback control by updating measured data every 3 seconds

Stability

► Measurement results

The sample (actual solution) measured for 1 hour shows excellent stability.

	H ₃ PO ₄ (mass%)	H ₂ O (mass%)	Sample Temp. (°C)
Max.	92.25	7.92	141.2
Min.	92.21	7.72	140.8
Average	92.228	7.823	140.97
SD.	0.010	0.057	0.10
Max. error from Av.	0.022	0.103	0.22



► Measurement conditions

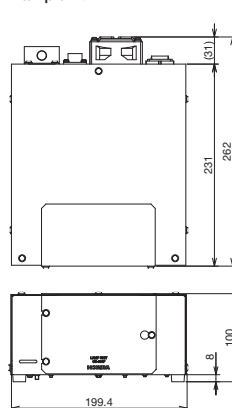
Measurement Cycle: every 3 seconds Measurement time: 1 hour Moving average: 16 times
Sample concentration (Initial Sample Concentration) H₃PO₄: 92.2% H₂O: 7.8% Sample temperature: 141°C

Specification

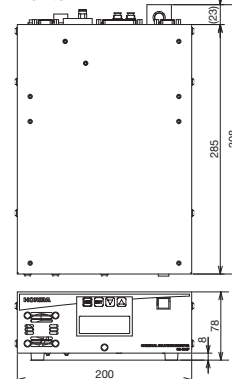
Product name	CHEMICAL SOLUTION MONITOR				
Model	CS-620F				
Measurement principle	Absorption spectroscopic method				
Calculation principle	Temperature compensation type multivariate analysis				
Sample	H ₃ PO ₄ /H ₂ O				
Measurable range Repeatability		Component	Measurable range (mass%)	Repeatability (mass%)	Analog output range (mass%)
	1st solution	H ₃ PO ₄	85.00-92.00	+/-0.10	85.00-100.00
		H ₂ O	8.0-15.0	+/-0.3	0.0-15.0
	· Repeatability is defined by maximum error from average (1 hour). · In the case of low temperature measurement (140°C) and high temperature measurement (170°C) with the same chemical, there is possibility of discrepancy (Maximum +/- 0.30%).				
Conditions of Measurement	1) Measurement interval: Approx. 3 sec. (minimum)				
	2) Moving average: 16 times				
Connection fitting size	1 inch or 3/4 inch				
Sample condition	Sample temperature: 140 to 170°C				
	Atmospheric temperature, Chemical temperature fluctuation: within +/- 1°C (period of time : 1 hour)				
	Input pressure: 0.2 MPa or less				
	Pressure fluctuation: 0.02 MPa or less				
Air (for operation and purge)	Flow rate: 1 to 30 L/min				
	Connection port: 4 mm O.D. quick joint				
	Pressure: 0.2 MPa ± 0.02 MPa				
Power source	100 to 230 V AC (Single-Phase), 50/60 Hz				
Power consumption	Approx.85 VA (Transient electric current at the time of the start is excluded)				
Communication	Parallel I/O, RS-232C, Analog output				
Dimension	(Monitor) 200 (W) × 308 (D) × 78 (H) mm				
	(Lamp unit) 200 (W) × 262 (D) × 100 (H) mm				
	(Sample cell) 240 (W) × 209 (D) × 205 (H) mm				
Weight	(Monitor) Approx.3.6 kg				
	(Lamp unit) Approx.2.8 kg				
	(Sample cell) Approx.3.0 kg				
Ambient temperature	(Monitor, Lamp unit) 20 to 30°C				
	(Optical fiber, Sample cell) 20 to 100°C				
	* Sudden temperature change should be avoided, within +/- 1°C/1hour				
Ambient humidity	(Monitor, Lamp unit) 40 to 70% (Should be no dew condensation)				
Slanting angle of installation	(Monitor, Lamp unit) Within +/-1 degree				
	(Sample cell) Please install so that air bubbles do not stay up.				
Optical fiber	Length: 5 m, Bend radius: R150 mm				

Dimensions (Unit: mm)

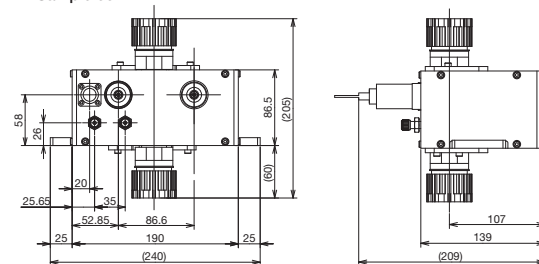
Lamp unit



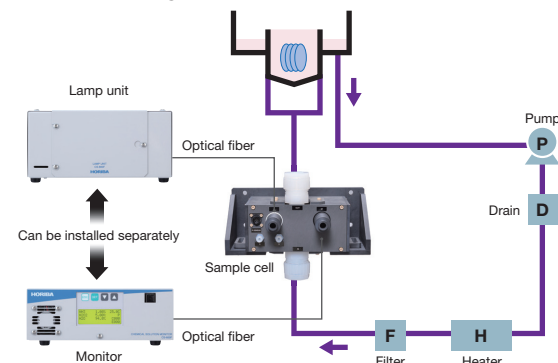
Monitor



Sample cell



Installation image Batch system is assumed



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