HORIBA
Semiconductor

Back side wafer cooling system

GR-300 Series

Pressure control with high stability and accuracy

A high precision piezo valve is used to control pressure even with very low differential pressure. A highly accurate pressure sensor is installed to measure the outlet pressure within <1% F.S.

Using mass flow sensor (Option)

By applying the well established fluid control technology from HORIBA STEC's mass flow products, the product enables minute differential pressure control with the addition of gas flow monitoring (with mass flow sensor) for self diagnostic capability.

RoHS compliance

The GR-300 Series uses parts that do not damage the environment and comply with the latest RoHS regulations.

System configuration example

When using GR-300 for back side wafer cooling, accurate pressure control of helium gas for both the wafer center and wafer edge is possible. Moreover, the gas flow can be monitored accurately with the integrated mass flow sensor.

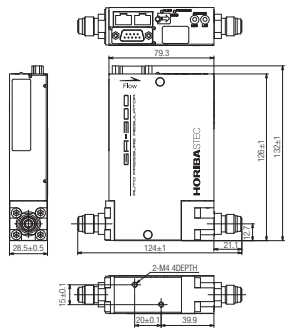
■ Product specifications

Model	GR-312	GR-312F	GR-314	GR-314F	GR-317	GR-317F
Valve Type	C : Nomally close					
Pressure control range	1-100% F.S.					
Pressure accuracy	0.5% F.S.					
Operating temperature	5-50℃ (Recommended temperature : 15-40℃)					
Response	≤ 1 second (in an adjustment condition)					
The maximum operating pressure	250 kPa(A)					
Pressure resistance	300 kPa(A)					
Leak integrity	≤ 5×10^{-12} Pa·m³/s(He)					
Pressure rate output signal	0-10VDC		0-100%			
Power supply	+15V±5% 150mA -15V±5% 150mA		Applicable for ODVA standard, DC24V 4.0VA		24VDC±4V 6.6VA	
Digital Interface	RS-485 F-Net Protocol		DeviceNet™ Protocol		EtherCAT® Protocol	
Gas *1	–	He, Ar, N_2	–	He, Ar, N_2	–	He, Ar, N_2
Presure full scale	13.33kPa (A) (100Torr)					
Flow full scale	–	20, 50, 100 SCCM	–	20, 50, 100 SCCM	–	20, 50, 100 SCCM
Flow rate measurement range	–	0-100% F.S.	–	0-100% F.S.	–	0-100% F.S.
Flow accuracy *2	–	±1.0 %R.S. (Flow rate>25% F.S.) ±0.25 %F.S. (Flow rate≤ 25% F.S.)	–	±1.0 %R.S. (Flow rate>25% F.S.) ±0.25 %F.S. (Flow rate≤ 25% F.S.)	–	±1.0 %R.S. (Flow rate>25% F.S.) ±0.25 %F.S. (Flow rate≤ 25% F.S.)
Flow rate output signal	–	0-5VDC	–	0-100%	–	0-100%
Standard fittings	1/4 inch VCR equivalent					
Mounting orientation	Free					

*1 Please consult about other specifications.
*2 Flow accuracy is guaranteed only for calibration gas and flow rate of full scale.
Temperature range in which "accuracy" is guaranteed is in accordance with SEMI.
SCCM denote gas flow rate in ml/min, respectively.
F.S. : Full scale, R.S. : Reading scale, (A) : Absolute Pressure

■ External dimensions

GR-312 / 312F



Please consult about other models.

IMS The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System OHSAS18001.
We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.

RoHS COMPLIANT

Applying to the EU RoHS Directive : This products is compliant with the restriction of the designated 6 hazardous substances(*).
(*) lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)

Using lead-free soldering : Lead-free soldering is used for mounting components of printed circuit boards.
- Many countries consider the reinforcement of regulations concerning the risk caused by lead to human body and the environment

HORIBA STEC

HORIBA STEC, Co., Ltd. http://www.horiba.com/horiba-stec/

Please read the operation manual before using this product to ensure safe and proper handling of the product.

HEAD OFFICE
11-5, Hokodate-cho, Kamitoba, Minami-ku, Kyoto, 601-8116 Japan
PHONE: (81)75-693-2312 FAX: (81)75-693-2331

U.S.A.
HORIBA Instruments Incorporated
Sunnyvale Head Office (Technology Center)
PHONE: (1)408-730-4772 FAX: (1)408-730-8975
Austin Office
PHONE: (1)512-836-9560 FAX: (1)512-836-8054
Portland Office
PHONE: (1)503-624-9767 FAX: (1)503-968-3236
Reno Office (R&D Center)
PHONE: (1)775-358-2332 FAX: (1)775-358-0434
Albany Office
PHONE: (1)518-331-1371

SINGAPORE
HORIBA Instruments (Singapore) Pte Ltd.
PHONE: (65)6-745-8300 FAX: (65)6-745-8155

KOREA
HORIBA STEC KOREA, Ltd.
PHONE:(82)31-8025-6500 FAX: (82)31-8025-6599

TAIWAN
HORIBA Taiwan, Inc.
PHONE: (886)3-560-0606 FAX: (886)3-560-0550
Tainan Office
PHONE: (886)6-583-4592 FAX: (886)6-583-2409

CHINA
HORIBA (China) Trading Co., Ltd.
Beijing office
PHONE: (86)10 85679966 FAX: (86)10 85679066
Shanghai office
PHONE: (86)21 62896060 FAX: (86)21 62895553
Shanghai service center
PHONE: (86)21 51317150 FAX: (86)21 51317660
Chengdu office
PHONE: (86)18583234999
Xi'an office
PHONE: (86)029 88868480 FAX: (86)029 88868481
Shenzhen office
PHONE: (86)13602530661

U.K.
HORIBA UK Ltd. Northampton office
PHONE: (44)1604 542600 FAX: (44)1604 542696

FRANCE
HORIBA UK Ltd. Grenoble office
PHONE: (33)4 76 42 07 58

THE NETHERLANDS
HORIBA UK Ltd. Nijmegen office
PHONE: (31)24 301 0235

GERMANY
HORIBA Europe GmbH
PHONE: (49)351/889 68 07

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