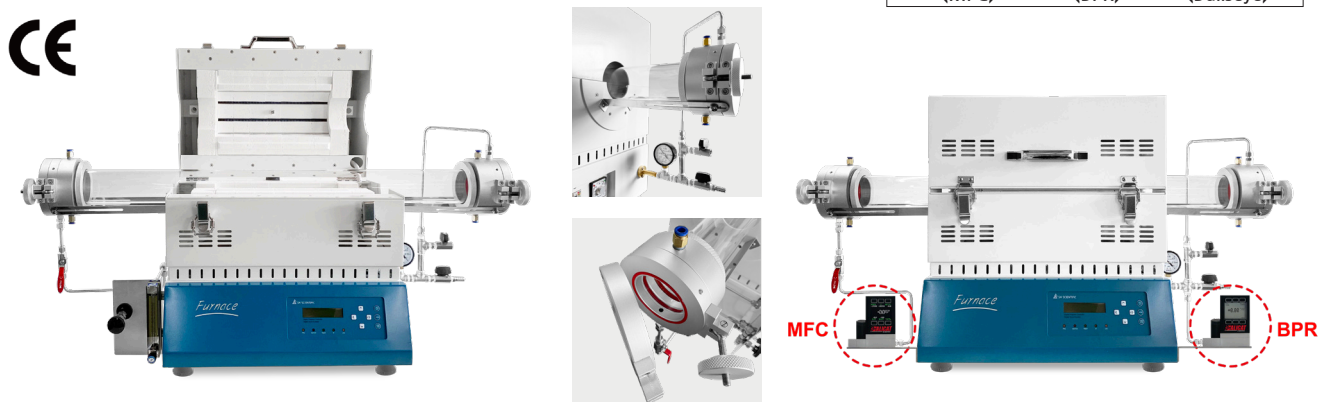


300mm Length Hot Zone 1200°C Gas Flow Package



Model	SH-FU-50STG-WG	SH-FU-80STG-WG	SH-FU-100STG-WG	SH-FU-120STG-WG	
Furnace	SH-FU-50STG	SH-FU-80STG	SH-FU-100STG	SH-FU-120STG	
Components	Gas Flowmeter 1EA				
	Stainless Steel Pipe & Connector				
	Gas Sealing Mask				
	Quartz Tube (Length 1000 mm)				
Cat. No.	120 V	FU50STG120	FU80STG120	FU100STG120	FU120STG120
	230 V	FU50STG230	FU80STG230	FU100STG230	FU120STG230

• Safety Device

- Automatic reset function incoming power cut
- Buzzer on when set time arrived
- Over temperature controller

• Option

- Gas inlet module
- MFC, BPR



Standard



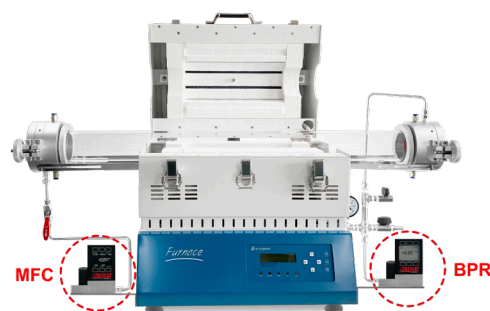
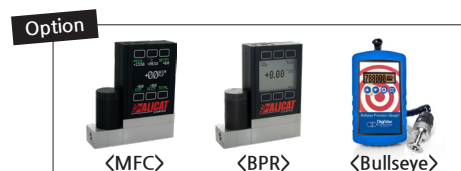
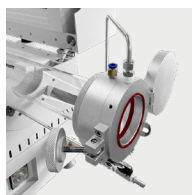
Option (additional 1pc of gas module)

1200°C Tube Furnace



Model	SH-FU-50STG	SH-FU-80STG	SH-FU-100STG	SH-FU-120STG
Max Temp	1200°C (2192°F)			
Temp Controller	Programmable Controller(FC-1000)			
Sensor	K type			
Applicable Tube Diameter	50 φ	80 φ	100 φ	120 φ
Heater Capa	2200 W	2600 W	3700 W	4000 W
Dimension Hot Zone	Length 300 mm			
Dimension External (W×D×H)	502x357x517mm 19.76x14.06x20.35"	502x365x537mm 19.76x14.37x21.14"	502x397x557mm 19.76x15.63x21.93"	502x455x630mm 19.76x17.91x24.80"
Weight	27 Kg	32 Kg	48 Kg	70 Kg
Heater Element	Kanthal A-1			
Insulation	Ceramic Board & Wool			
Electrical Requirements 120V ,50/60Hz, 1φ	18.3 A	21.6A	30.8 A	33.3 A
Cat. No.	FU50STG120	FU80STG120	FU100STG120	FU120STG120
Electrical Requirements 230V ,50/60Hz, 1φ	9.5 A	11.3 A	16.0 A	17.3 A
Cat. No.	FU50STG230	FU80STG230	FU100STG230	FU120STG230

600mm Length Hot Zone 1200°C Gas Flow Package



Model	SH-FU-50LTG-WG	SH-FU-80LTG-WG	SH-FU-100LTG-WG	SH-FU-120LTG-WG	
Furnace	SH-FU-50LTG	SH-FU-80LTG	SH-FU-100LTG	SH-FU-120LTG	
Components	Gas Flowmeter 1EA				
	Stainless Steel Pipe & Connector				
	Gas Sealing Mask				
	Quartz Tube (Length 1200 mm)				
Cat. No.	120 V	FU50LTGWG120	FU80LTGWG120	FU100LTGWG120	FU120LTGWG120
	230 V	FU50LTGWG230	FU80LTGWG230	FU100LTGWG230	FU120LTGWG230

. Safety Device

- Automatic reset function incoming power cut
- Buzzer on when set time arrived
- Over temperature controller

. Option

- Gas inlet module
- MFC, BPR

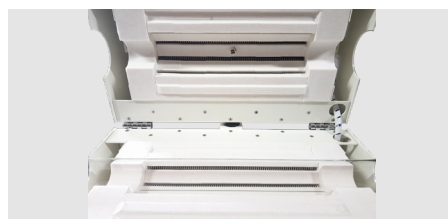


Standard



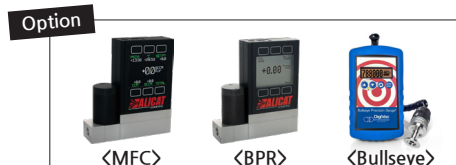
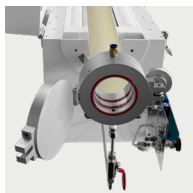
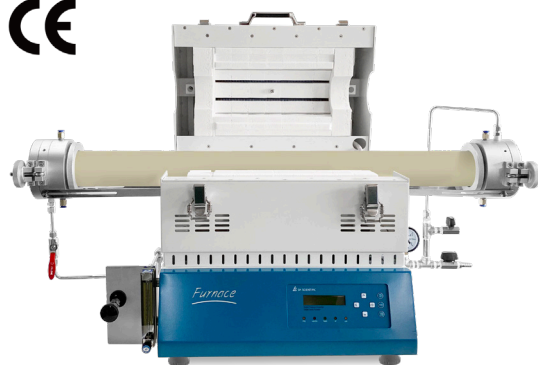
Option
(additional 1pc of gas module)

1200°C Tube Furnace



Model	SH-FU-50LTG	SH-FU-80LTG	SH-FU-100LTG	SH-FU-120LTG
Max Temp	1200°C (2192°F)			
Temp Controller	Programmable Controller(FC-1000)			
Sensor	K type			
Applicable Tube Diameter	50 Φ	80 Φ	100 Φ	120 Φ
Heater Capa	3700 W	5300 W	6000 W	6900 W
Dimension Hot Zone	Length 600 mm			
Dimension External (W×D×H)	802x357x517mm	802x365x537mm	802x397x557mm	802x455x630mm
	31.57x14.06x20.35"	31.57x14.37x21.14"	31.57x15.63x21.93"	31.57x17.91x24.80"
Weight	52 Kg	56 Kg	68 Kg	105 Kg
Heater Element	Kanthal A-1			
Insulation	Ceramic Board & Wool			
Electrical Requirements 120V ,50/60Hz, 1Φ	30.8 A	44.1 A	N/A	
Cat. No. 50Hz(60Hz)	FU50LTG120	FU80LTG120	N/A	
Electrical Requirements 230V ,50/60Hz, 1Φ	16 A	23 A	26 A	30 A
Cat. No. 50Hz(60Hz)	FU50LTG230	FU80LTG230	FU100LTG230	FU120LTG230
Electrical Requirements 230V ,50/60Hz, 3Φ	N/A		15.1 A	18.1 A
Cat. No. 50Hz(60Hz)	N/A		FU100LTG230-3	FU120LTG230-3
Electrical Requirements 380V ,50/60Hz, 3Φ	N/A		9.1 A	10.9 A
Cat. No. 50Hz(60Hz)	N/A		FU100LTG380-3	FU120LTG380-3

1500°C Gas Flow Package



Model	SH-FU-50TH-WG	SH-FU-80TH-WG	SH-FU-100TH-WG	SH-FU-120TH-WG	
Furnace	SH-FU-50TH	SH-FU-80TH	SH-FU-100TH	SH-FU-120TH	
Components	Gas Flowmeter 1EA				
	Stainless Steel Pipe & Connector				
	Gas Sealing Mask				
	Alumina Tube (Length 1000 mm)				
Cat. No.	230 V, 1Φ	FU50THWG230	FU80THWG230	FU100THWG230	FU120THWG230

• Safety Device

- Automatic reset function incoming power cut
- Buzzer on when set time arrived
- Over temperature alarm

• Option

- Gas inlet module
- MFC, BPR



Standard

Option
(additional 1pc of
gas module)

1500°C Tube Furnace



Model	SH-FU-50TH	SH-FU-80TH	SH-FU-100TH	SH-FU-120TH
Max Temp	1500°C (2732°F)			
Temp Controller	Programmable Controller(FC-1000)			
Sensor	R type			
Applicable Tube Diameter	50 Φ	80 Φ	100 Φ	120 Φ
Heater Capa	5.2 KW	6 KW	6.4 KW	7.2 KW
Dimension Hot Zone	Length 300 mm			
Dimension External (W×D×H)	682x487x580mm	682x517x610mm	682x547x640mm	682x570x730mm
	26.85x19.17x22.83"	26.85x20.35x24.02"	26.85x21.53x25.19"	26.85x22.44x28.74"
Weight	67 Kg	72 Kg	114 Kg	145 Kg
Heater Element	SIC			
Insulation	Ceramic Board & Wool			
Electrical Requirements 230V ,50/60Hz, 1Φ	22.6 A	26 A	27.8 A	31.3 A
Cat. No. 50Hz(60Hz)	FU50TH230	FU80TH230	FU100TH230	FU120TH230

1700°C / 1800°C Gas Flow Package



Option



<MFC>



<BPR>



<Bullseye>



MFC

BPR

Model	SH-FU-50TS-WG	SH-FU-80TS-WG	SH-FU-100TS-WG	SH-FU-120TS-WG	
Furnace	SH-FU-50TS	SH-FU-80TS	SH-FU-100TS	SH-FU-120TS	
Components	Gas Flowmeter 1EA				
	Stainless Steel Pipe & Connector				
	Gas Sealing Mask				
	Alumina Tube (Length 1000 mm)				
Cat. No.	Max1700°C	FU50TS-17WG230	FU80TS-17WG230	FU100TS-17WG230	FU120TS-17WG230
	Max1800°C	FU50TS-18WG230	FU80TS-18WG230	FU100TS-18WG230	FU120TS-18WG230

• Safety Device

- Automatic reset function incoming power cut
- Over temperature alarm

• Option

- Gas inlet module
- MFC, BPR



Standard

Option
(additional 1pc of
gas module)

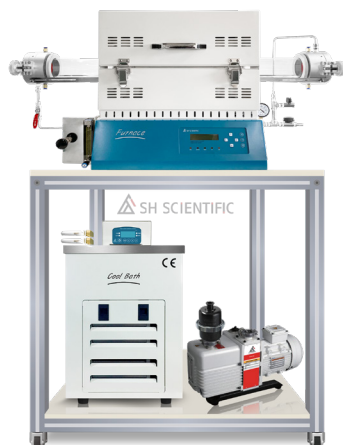
1700°C / 1800°C Tube Furnace



Model (1700°C / 1800°C)	SH-FU-50TS	SH-FU-80TS	SH-FU-100TS	SH-FU-120TS	
Max Temp	1700°C (3092°F) / 1800°C (3272°F)				
Temp Controller	Programmable Controller(SP590)				
Sensor	R type (1700°C) / B type (1800°C)				
Applicable Tube Diameter	50 φ	80 φ	100 φ	120 φ	
Heater Capa	4.9 KW / 3.4 KW	5.9 KW / 4.3 KW	6.9 KW / 4.9 KW	7.6 KW / 5.4 KW	
Dimension Hot Zone	Length 300 mm				
Dimension External (W×D×H)	690x550x980mm	690x580x1010mm	690x600x1030mm	690x640x1110mm	
	27.17x21.65x38.58"	27.17x22.83x39.76"	27.17x23.62x40.55"	27.17x25.20x43.70"	
Weight	75 Kg	83 Kg	131 Kg	160 Kg	
Heater Element	MoSi 2				
Insulation	Ceramic Board & Wool				
Electrical Requirements 230V ,50/60Hz, 1φ	21.3 A / 14.7 A	25.6 A / 18.7 A	30 A / 21.3 A	33 A / 23.5 A	
Cat. No. 50Hz(60Hz)	Max 1700°C	FU50TS230-17	FU80TS230-17	FU100TS230-17	FU120TS230-17
	Max 1800°C	FU50TS230-18	FU80TS230-18	FU100TS230-18	FU120TS230-18

Tube Furnace Package

1200°C Furnace



<FU-PK-STG>



<FU-PK-LTG>



Package Model		FU-PK-G1	FU-PK-G2	FU-PK-G3	FU-PK-G4
Furnace Model		SH-FU-50(S,L)TG-WG	SH-FU-80(S,L)TG-WG	SH-FU-100(S,L)TG-WG	SH-FU-120(S,L)TG-WG
Chiller		SH-WB-7CDR	SH-WB-7CDR	SH-WB-13CDR	SH-WB-13CDR
Vacuum Pump		SH-V10	SH-V10	SH-V10	SH-V10
Oil Mist Trap		VOT-1020	VOT-1020	VOT-1020	VOT-1020
Dimension	300mm Hot Zone	1265x725x1420mm 49.80x28.54x55.90"	1265x725x1440mm 49.80x28.54x56.69"	1265x800x1495mm 49.80x31.49x58.85"	1265x800x1570mm 49.80x31.49x61.81"
	600mm Hot Zone	1465x725x1420mm 57.67x28.54x55.90"	1465x725x1440mm 57.67x28.54x56.69"	1465x800x1495mm 57.67x31.49x58.85"	1465x800x1570mm 57.67x31.49x61.81"
Cat.NO	300mm Hot Zone	FUPKG1300	FUPKG2300	FUPKG3300	FUPKG4300
	600mm Hot Zone	FUPKG1600	FUPKG2600	FUPKG3600	FUPKG4600

1500°C Furnace



Package Model		FU-PK-H1	FU-PK-H2	FU-PK-H3	FU-PK-H4
Furnace Model		SH-FU-50TH-WG	SH-FU-80TH-WG	SH-FU-100TH-WG	SH-FU-120TH-WG
Chiller		SH-WB-13CDR	SH-WB-13CDR	SH-WB-5CDR(-30)	SH-WB-5CDR(-30)
Vacuum Pump		SH-V10	SH-V10	SH-V10	SH-V10
Oil Mist Trap		VOT-1020	VOT-1020	VOT-1020	VOT-1020
Dimension		1265x725x1485mm 49.80x28.54x58.46"	1265x725x1515mm 49.80x28.54x59.64"	1265x800x1580mm 49.80x31.49x62.20"	1265x800x1670mm 49.80x31.49x65.74"
	Cat.NO	FUPKH1300	FUPKH2300	FUPKH3300	FUPKH4300

1700°C / 1800°C Furnace



Package Model		FU-PK-S1	FU-PK-S2	FU-PK-S3	FU-PK-S4
Furnace Model		SH-FU-50TS-WG	SH-FU-80TS-WG	SH-FU-100TS-WG	SH-FU-120TS-WG
Chiller		SH-WB-13CDR	SH-WB-13CDR	SH-WB-5CDR(-30)	SH-WB-12CDR
Vacuum Pump		SH-V10	SH-V10	SH-V10	SH-V10
Oil Mist Trap		VOT-1020	VOT-1020	VOT-1020	VOT-1020
Dimension (Frame)		1265x725x1885mm	1265x725x1915mm	1265x800x1970mm	1265x800x2050mm
		49.80x28.54x74.21"	49.80x28.54x75.39"	49.80x31.49x77.56"	49.80x31.49x80.71"
Cat.NO	Max 1700°C	FUPKS1300-17	FUPKS2300-17	FUPKS3300-17	FUPKS4300-17
	Max 1800°C	FUPKS1300-18	FUPKS2300-18	FUPKS3300-18	FUPKS4300-18

Cooling Chiller



This is unit to supply coolant to cooling line.

Model	Bath Capacity	Temp Range
SH-WB-7CDR	7 L	-20°C~150°C
SH-WB-13CDR	13 L	
SH-WB-22CDR	22 L	

Vacuum pump

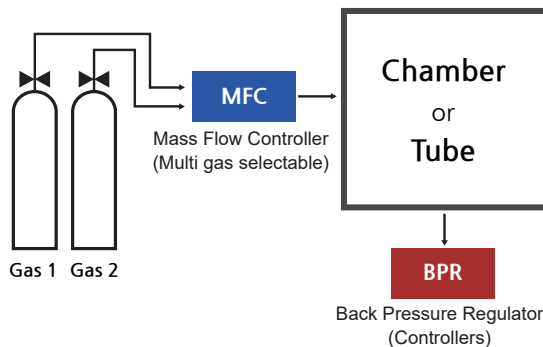


Oil rotary and head direct connection type. Feature of this type is convenient to operate and move because of its small size and light weight.

Model	Pump Speed
SH-V10	78L/Min
SH-V20	156L/Min
SH-V40	312L/Min
SH-V60	474L/Min

Mass Flow Controller(Multi gas selectable)

- Accessible PID valve tuning for best speed and stability.
- Custom valve orifice sizes: yields full-range stability.
- Control mass flow, vol. flow or pressure with one device.
- No warm-up: ready to control process flows in one second.



MC Series

One Unit with 98 Gas



MCV Series

Model	MC Series	MCS Series	MCV Series
Type	General	For Toxi Gas	For Vacuum
Flow Range	0 ~ 1 slpm / 0 ~ 5 slpm		
Mass Flow Accuracy at calibration conditions	±0.6% of reading or ±0.1% of full scale	±0.8% of reading or ±0.2% of full scale	
Operating Temperature Range	-10 to +60°C		
Temperature Accuracy	±0.75°C		
Operating Pressure full scale	145 PSIG		
Pressure Accuracy	Above 1 atm: ±0.5% of reading		
Typical Indication Response Time	< 10 ms	< 100 ms	
Typical Warm-Up Time	<1 Second		
Monochrome LCD	Simultaneously displays mass Flow, pressure and temperature	Simultaneously displays mass Flow, Volumetric Flow, pressure and temperature	
Mechanical Dimensions (HxWxD)	104.14x91.44x27.94mm / 4.1x3.6x1.1"		121.92x172.72x38.1mm /4.8x6.8x1.5"
Gas Selectable	98 Gas	128 Gas	98 Gas
Communication	RS-232		

Gas Select™ Preloaded Gases

PURE NON-CORROSIVE GASES		
Gas Number	Short Name	Long Name
14	C2H2	Acetylene
0	Air	Air
1	Ar	Argon
16	i-C4H10	i-Butane
13	n-C4H10	n-Butane
4	CO2	Carbon Dioxide
3	CO	Carbon Monoxide
60	D2	Deuterium
5	C2H6	Ethane
15	C2H4	Ethylene (Ethene)
7	He	Helium
6	H2	Hydrogen
17	Kr	Krypton
2	CH4	Methane
10	Ne	Neon
8	N2	Nitrogen
9	N2O	Nitrous Oxide
11	O2	Oxygen
12	C3H8	Propane
19	SF6	Sulfur Hexafluoride
18	Xe	Xenon

BREATHING GASES		
Gas Number	Short Name	Long Name
164	EAN-32	32% O2 / 68% N2
165	EAN	36% O2 / 64% N2
166	EAN-40	40% O2 / 60% N2
167	HeOx-20	20% O2 / 80% He
168	HeOx-21	21% O2 / 79% He
169	HeOx-30	30% O2 / 70% He
170	HeOx-40	40% O2 / 60% He
171	HeOx-50	50% O2 / 50% He
172	HeOx-60	60% O2 / 40% He
173	HeOx-80	80% O2 / 20% He
174	HeOx-99	99% O2 / 1% He
175	EA-40	Enriched Air-40% O2
176	EA-60	Enriched Air-60% O2
177	EA-80	Enriched Air-80% O2
178	Metabol	Metabolic Exhalant (16% O2 / 78.04% N2 / 5% CO2 / 0.96% Ar)

CHROMATOGRAPHY GASES		
Gas Number	Short Name	Long Name
29	P-5	5% CH4 / 95% Ar
206	P-10	10% CH4 90% Ar

WELDING GASES		
Gas Number	Short Name	Long Name
23	C-2	2% CO2 / 98% Ar
22	C-8	8% CO2 / 92% Ar
21	C-10	10% CO2 / 90% Ar
140	C-15	15% CO2 / 85% Ar
141	C-20	20% CO2 / 80% Ar
20	C-25	25% CO2 / 75% Ar
142	C-50	50% CO2 / 50% Ar
24	C-75	75% CO2 / 25% Ar
25	He-25	25% He / 75% Ar
143	He-50	50% He / 50% Ar
26	He-75	75% He / 25% Ar
144	He-90	90% He / 10% Ar
27	A1025	90%He/75%Ar/25%CO2
28	Star29	Stargon CS 90% Ar / 8% CO2 / 2% O2

PURE CORROSIVES*			MCS Series
Gas Number	Short Name	Long Name	
32	NH3	Ammonia	
80	1Butene	Butylene (1-Butene)	
81	cButene	Cis-Butene (cis-2-butene)	
82	iButene	Iso-Butene	
83	tButene	Trans-Butene	
84	COS	Carbonyl Sulfide	
33	Cl2	Chlorine	
85	CH3OCH3	Dimethylether	
34	H2S	Hydrogen Sulfide (H2S)	
31	NF3	NF3 (Nitrogen Trifluoride)	
30	NO	NO (Nitric Oxide)	
36	C3H6	Propylene (Propylene)	
86	SiH4	Silane (SiH4)	
35	SO2	Sulfur Dioxide	

***Pure Corrosive gases are only available on MCS-Series instruments that are compatible with these gases.**
Gas numbers 33 and 35 require special valves on controllers. Request at time of order.

BIOREACTOR GASES		
Gas Number	Short Name	Long Name
145	Bio-5M	5% CH4 / 95% CO2
146	Bio-10M	10% CH4 / 90% CO2
147	Bio-15M	15% CH4 / 85% CO2
148	Bio-20M	20% CH4 / 80% CO2
149	Bio-25M	25% CH4 / 75% CO2
150	Bio-30M	30% CH4 / 70% CO2
151	Bio-35M	35% CH4 / 65% CO2
152	Bio-40M	40% CH4 / 60% CO2
153	Bio-45M	45% CH4 / 55% CO2
154	Bio-50M	50% CH4 / 50% CO2
155	Bio-55M	55% CH4 / 45% CO2
156	Bio-60M	60% CH4 / 40% CO2
157	Bio-65M	65% CH4 / 35% CO2
158	Bio-70M	70% CH4 / 30% CO2
159	Bio-75M	75% CH4 / 25% CO2
160	Bio-80M	80% CH4 / 20% CO2
161	Bio-85M	85% CH4 / 15% CO2
162	Bio-90M	90% CH4 / 10% CO2
163	Bio-95M	95% CH4 / 5% CO2

LASER GASES		
Gas Number	Short Name	Long Name
179	LG-4.5	4.5% CO2 / 13.5% N2 / 82% He
180	LG-6	6% CO2 / 14% N2 / 80% He
181	LG-7	7% CO2 / 14% N2 / 79% He
182	LG-9	9% CO2 / 15% N2 / 76% He
183	HeNe-9	9% Ne / 91% He
184	LG-9.4	9.4% CO2 / 19.25% N2 / 71.35% He

O2 CONCENTRATOR GASES		
Gas Number	Short Name	Long Name
197	OCG-89	89% O2 / 7% N2 / 4% Ar
198	OCG-93	93% O2 / 3% N2 / 4% Ar
199	OCG-95	95% O2 / 1% N2 / 4% Ar

REFRIGERANTS*			MCS Series
Gas Number	Short Name	Long Name	
100	R-11	Trichlorofluoromethane	
101	R-115	Chloropentafluoroethane	
102	R-116	Hexafluoroethane	
103	R-124	Chlorotetrafluoroethane	
104	R-125	Pentafluoroethane	
105	R-134A	Tetrafluoroethane	
106	R-14	Tetrafluoromethane	
107	R-142b	Chlorodifluoroethane	
108	R-143a	Trifluoroethane	
109	R-152a	Difluoroethane	
110	R-22	Difluoromonochloromethane	
111	R-23	Trifluoromethane	
112	R-32	Difluoromethane	
113	RC-318	Octafluorocyclobutane	
114	R-404A	44% R-125 / 4% R-134A / 52% R-143A	
115	R-407C	23% R-32 / 25% R-125 / 52% R-134A	
116	R-410A	50% R-32 / 50% R-125	
117	R-507A	50% R-125 / 50% R-143A	

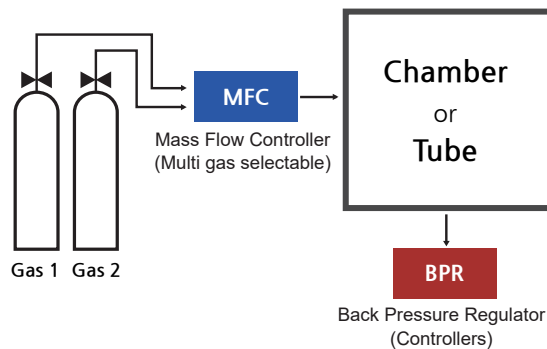
***Refrigerant gases are only available on MCS-Series instruments that are compatible with these gases.**

FUEL GASES		
Gas Number	Short Name	Long Name
185	Syn Gas-1	40% H2 + 29% CO + 20% CO2 + 11% CH4
186	Syn Gas-2	64% H2 + 28% CO + 1% CO2 + 7% CH4
187	Syn Gas-3	70% H2 + 4% CO + 25% CO2 + 1% CH4
188	Syn Gas-4	83% H2 + 14% CO + 3% CH4
189	Nat Gas-1	93% CH4 / 3% C2H6 / 1% C3H8 / 2% N2 / 1% CO2
190	Nat Gas-2	95% CH4 / 3% C2H6 / 1% N2 / 1% CO2
191	Nat Gas-3	95.2% CH4 / 2.5% C2H6 / 0.2% C3H8 / 0.1% C4H10 / 1.3% N2 / 0.7% CO2
192	Coal Gas	50% H2 / 35% CH4 / 10% CO / 5% C2H4
193	Endo	75% H2 + 25% N2
194	HHO	66.67% H2 / 33.33% O2
195	HD-5	LPG 96.1% C3H8 / 1.5% C2H6 / 0.4% C3H6 / 1.9% n-C4H10
196	HD-10	LPG 85% C3H8 / 10% C3H6 / 5% n-C4H10

STACK GASES		
Gas Number	Short Name	Long Name
200	FG-1	2.5% O2 / 10.8% CO2 / 85.7% N2 / 1% Ar
201	FG-2	2.9% O2 / 14% CO2 / 82.1% N2 / 1% Ar
202	FG-3	3.7% O2 / 15% CO2 / 80.3% N2 / 1% Ar
203	FG-4	7% O2 / 12% CO2 / 80% N2 / 1% Ar
204	FG-5	10% O2 / 9.5% CO2 / 79.5% N2 / 1% Ar
205	FG-6	13% O2 / 7% CO2 / 79% N2 / 1% Ar

Back Pressure Regulator(Controllers)

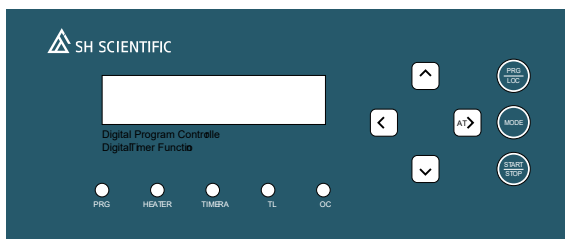
- Tunable PID control loop
- Control pressure at any point in system with remote sense port
- Customizable valves
- Control at variable flow rates



BPR Series

Model	BPR Series	BPRS Series
Type	General	For Toxi Gas
Pressure Range	1PSIG ~ 15PSIG	
Standard Accuracy	± 0.25% (≥ 1 psi)	
Repeatability	± 0.08% Full Scale	
Typical Response Time	< 100 ms	
Warm-up Time	< 1 Second	
Operating Temperature	-10 to +60°C	
Monochrome LCD	Displays Pressure	
Mechanical Dimensions (HxWxD)	104.14x91.4x27.94mm / 4.1x3.6x1.1"	
Communication	RS-232	

Programmable Controller (FC-1000)



- LCD Display
- Program mode, Standard Mode Selectable.
- Parameter setting
- Auto tune function
- Timer function
- PV,SV can be displayed together

Display	Size(WxH)	190x75mm / 7.48x2.95"
	PV/SP Display	4 Digit
Operation Mode		Program / Standard
Control Mode		1CH Control
Max Channel		-
Features	Patterns & Segments	5 patterns, 9 Segments / pattern, Total 45 Segments
	Cycles	1 ~ 999
Input	TC	K

Programmable Controller (SP-590)



- High Accuracy($\pm 0.1\%$) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 4 Points
- Easy parameter and value setting
- Function to protect over shoot
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function(Max 4 zone)
- Automatic PID Parameter Calculation
- Variety of communication Protocols
- Reliable quality(CE, CUL, ISO applied)

Display	Size(WxHxL)	96x96x68mm(3.8x3.8x2.68") / 72x72x68mm(2.83x2.83x2.68")
	PV/SP Display	4 Digit
Operation Mode		Program / Reset, 2 Zone PID
Control Mode		1CH Control
Max Channel		-
Pattern & Segments		2 Pattern / Max 30 segments
Input	TC	K, J, E, T, R, B, S, L, N, U, W, C, Platinel II
	RTD	Pt100 Ω , JPt100 Ω
	Analog Voltage Input	-10~20mV, 0~100mV, 0.4~2.0V DC, 1~5V DC, 0~10V DC
Communication	Interface	RS485
	Protocol	PC-Link, MODBUS(ASCII, RTU), SYNC(Master, Slave)
	Speed	Max 115,200 bps
Power	Power	100 ~ 240V AC, 50 ~ 60Hz
	Power Consumption	Max 10W

Hybrid Recorder Options

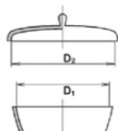


- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100mm / 3.78x3.78x3.94"), light weight

Record accuracy	±0.5%F.S.	
Alarm output	CH1 (AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a)	
Alarm output hysteresis	ON/OFF interval setting for alarm output: 1 to 999digit variable	
Communication output	RS485 communication output(Modbus RTU protocol)	
Set method	Setting by front keys	
Sampling cycle	500 ms/channel x 2 channels = 1000 ms	
Dielectric strength	2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity)	
Vibration	0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour	
Relay life cycle	Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations	
Insulation resistance	Over 100 MΩ (at 500 VDC megger)	
Noise resistance	Square shaped noise by noise simulator (pulse width 1 μs)±2 kV	
Print	Method	Direct thermal line print
	Resolution	8 dot/mm
	Dots	384 dot/Line
	Life cycle	50 km
Record	Graphic mode	<ul style="list-style-type: none"> • Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h
	Digital mode	TEXT mode record cycle: 00 m 05 s to 99 m 59 s
	Paper	Thermal Direct Receipt Paper (57 mm x 16 m)
	Paper supply method	Clamshell Type
	Language	Korean, English
Environment	Ambient temperature	0 to 50 °C, storage: -20 to 60 °C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval	CE	
Unit weight	Approx. 700 g	

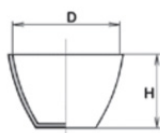
Ceramic consumable & Furnace accessory

Lid for crucible



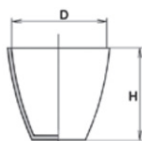
Model	D1xD2(mm)
641 321 000 301 (D/30)	30x34
641 321 000 351 (D/35)	35x39
641 321 000 401 (D/40)	40x44
641 321 000 451 (D/45)	45x49
641 321 000 501 (D/50)	50x54
641 321 000 601 (D/60)	60x64
641 321 000 701 (D/70)	70x74
641 321 000 801 (D/80)	80x84

Crucible (Low form)



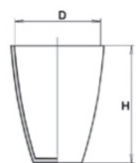
Model	DxH(mm)	V/ml approx.
641 321 100 301 (1/30)	30x19	5
641 321 100 351 (1/35)	35x22	10
641 321 100 401 (1/40)	40x25	17
641 321 100 451 (1/45)	45x28	21
641 321 100 601 (1/60)	60x38	62
641 321 100 701 (1/70)	70x44	91

Crucible (Middle form)



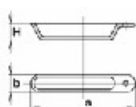
Model	DxH(mm)	V/ml approx.
641 321 200 301 (2/30)	30x25	10
641 321 200 351 (2/35)	35x28	12
641 321 200 401 (2/40)	40x32	20
641 321 200 451 (2/45)	45x36	30
641 321 200 501 (2/50)	50x40	45
641 321 200 601 (2/60)	60x48	80
641 321 200 701 (2/70)	70x56	120
641 321 200 801 (2/80)	80x62	200

Crucible (High form)



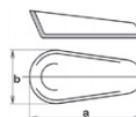
Model	DxH(mm)	V/ml approx.
641 321 300 301 (3/30)	30x38	15
641 321 300 351 (3/35)	35x44	26
641 321 300 401 (3/40)	40x50	35
641 321 300 451 (3/45)	45x56	50
641 321 300 501 (3/50)	50x62	72
641 321 300 601 (3/60)	60x75	120

Combustion boat



Model	axbH(mm)
641 312 214 200 (214/2)	75x13x8
641 312 214 300 (214/3)	105x14x9
641 312 214 400 (214/4)	85x13x8
641 312 214 800 (214/8)	90x13x8

Weighing boat



Model	axb(mm)
641 329 252 001 (252/0)	37x17
641 329 252 101 (252/1)	53x23
641 329 252 201 (252/2)	64x29

Crucible with lid



43(D)x27(H), 19ml

Gooch crucible



30(D)x36(H), 17ml / 35(D)x43(H), 25ml
39(D)x49(H), 35ml / 60(D)x71(H), 120ml

Annealing dish



40(D)x20(H), 21ml / 50(D)x25(H), 35ml
60(D)x30(H), 64ml / 70(D)x35(H), 103ml

Annealing dish



50(a)x35(b)x12(H), 6ml / 62(a)x40(b)x12(H), 13ml
74(a)x49(b)x14(H), 14ml / 95(a)x65(b)x14(H), 40ml

Evaporating dish



50(D)x20(H), 20ml / 63(D)x25(H), 30ml
80(D)x32(H), 60ml / 81(D)x38(H), 107ml
94(D)x42(H), 140ml / 100(D)x40(H), 150ml
125(D)x50(H), 285ml

Evaporating dish



96(D)x30(H), 110ml / 110(D)x37(H), 160ml

Evaporating dish



60(D)x14(H), 20ml / 80(D)x20(H), 55ml
100(D)x25(H), 110ml / 130(D)x30(H), 250ml

Evaporating dish



54(D)x22(H), 22ml / 70(D)x30(H), 62ml
86(D)x33(H), 93ml / 98(D)x40(H), 154ml
112(D)x50(H), 265ml

Unglazed, Mortar rough



56(D)x36(H), 30ml / 63(D)x41(H), 70ml
90(D)x56(H), 160ml / 125(D)x71(H), 400ml

Pestle unglazed



20(D)x88(L)

Pestle unglazed



14(D)x54(L) / 24(D)x115(L)
30(D)x135(L) / 36(D)x150(L)
42(D)x175(L) / 55(D)x210(L)

Pestle glazed



30(D)x135(L) / 36(D)x150(L)



Funnel Buechner

48(D1)x38(D2)x1(D3)x24(H1)x43(H2), 35ml
 62(D1)x45(D2)x1(D3)x30(H1)x64(H2), 70ml
 77(D1)x58(D2)x1(D3)x35(H1)x64(H2), 120ml
 97(D1)x70(D2)x2(D3)x40(H1)x71(H2), 240ml
 116(D1)x95(D2)x2(D3)x49(H1)x83(H2), 400ml
 130(D1)x110(D2)x2(D3)x52(H1)x85(H2), 600ml



Plate for desiccator DIN

140(D) / 190(D) / 235(D) / 280(D)



Plate for desiccator CSN

189(D) / 241(D) / 290(D)



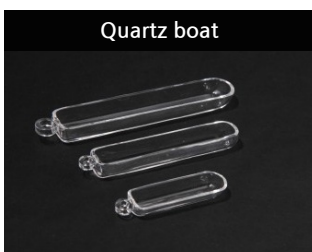
Plate with cavities

112(a)x81(b)x25(c), 6Qty
 115(a)x91(b)x17(c), 12Qty



Stirring spatula+scoop

103(L) / 148(L) / 164(L) / 187(L)
 200(L) / 250(L)



Quartz boat

Model No.	Size (ml.LxWxH)	Temp-Limit
SH-QB-2	2ml, 15x48x8mm / 0.59x1.89x0.31"	Operation Temp 1100°C Max Temp 1250°C
SH-QB-3	3ml, 16x77x11mm / 0.63x3.03x0.43"	
SH-QB-5	5ml, 20x77x11mm / 0.79x3.03x0.43"	
SH-QB-8	8ml, 20x92x11mm / 0.79x3.62x0.43"	
SH-QB-10	10ml, 20x102x11mm / 0.79x4.02x0.43"	
SH-QB-15	15ml, 27x105x11mm / 1.06x4.13x0.43"	



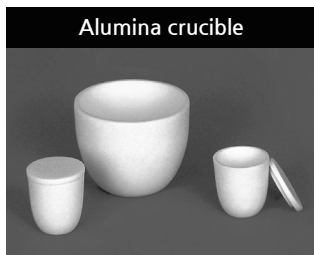
Quartz crucible with lid

Model No.	Capa(ml)	Size	Temp-Limit
SH-QC-30	30 ml	ø47, ø25xh36mm	Operation Temp 1100°C Max Temp 1250°C
SH-QC-50	50 ml	ø54, ø34xh42mm	
SH-QC-100	100 ml	ø70, ø34xh55mm	
SH-QC-250	250 ml	ø110, ø50xh80mm	
SH-QC-500	500 ml	ø130, ø70xh100mm	

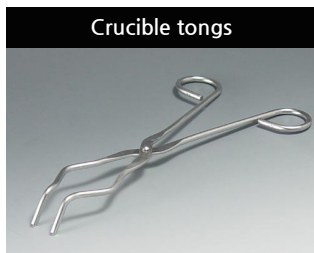


Nickel crucible with lid

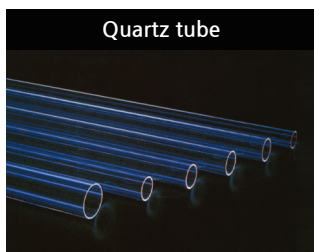
Model No.	Capa(ml)	Size	Temp-Limit
SH-NC-30	30 ml	ø38xh38mm	Operation Temp 600~1000°C
SH-NC-50	50 ml	ø48xh48mm	
SH-NC-100	100 ml	ø55xh55mm	



Model No.	Capa(ml)	Size	Max Temp	Lid	
				Model No.	Capa(mm)
SH-ALC-10B	10 ml	ø29xh30mm	1700℃	SH-ALC-10L	10 ml
SH-ALC-20B	20 ml	ø39xh29mm		SH-ALC-20L	20 ml
SH-ALC-30B	30 ml	ø52xh39mm		SH-ALC-30L	30 ml
SH-ALC-50B	50 ml	ø61xh49mm		SH-ALC-50L	50 ml
SH-ALC-100B	100 ml	ø72xh58mm		SH-ALC-100L	100 ml
SH-ALC-150B	150 ml	ø81xh67mm		SH-ALC-150L	150 ml
SH-ALC-200B	200 ml	ø86xh70mm		SH-ALC-200L	200 ml
SH-ALC-250B	250 ml	ø92xh75mm		SH-ALC-250L	250 ml
SH-ALC-500B	500 ml	ø110xh105mm		SH-ALC-500L	500 ml



Model No.	Opening Size(φ)	Length
SH-CT-300	2~30 φ	300mm / 11.81"
SH-CT-400	2~30 φ	400mm / 15.75"
SH-CT-500	2~30 φ	500mm / 19.69"



Model No.	Size(I.D/O.D×L)	Model No.	Size(I.D/O.D×L)
SH-QT-50	46/50×1000mm/1.81/1.97x39.37"	SH-QT-50(1200)	46/50×1000mm/1.81/1.97x39.37"
SH-QT-60	55/60×1000mm/2.17/2.36x39.37"	SH-QT-60(1200)	55/60×1000mm/2.17/2.36x39.37"
SH-QT-80	74/80×1000mm/2.91/3.15x39.37"	SH-QT-80(1200)	74/80×1000mm/2.91/3.15x39.37"
SH-QT-100	94/100×1000mm/3.70/3.94x39.37"	SH-QT-100(1200)	94/100×1000mm/3.70/3.94x39.37"
SH-QT-120	114/120×1000mm/4.49/4.72x39.37"	SH-QT-120(1200)	114/120×1000mm/4.49/4.72x39.37"
SH-QT-150	144/150×1000mm/4.49/5.91x39.37"	SH-QT-150(1200)	144/150×1000mm/4.49/5.91x39.37"
SH-QT-180	174/180×1000mm/6.85/7.08x39.37"	SH-QT-180(1200)	174/180×1000mm/6.85/7.08x39.37"
SH-QT-200	193/200×1000mm/7.60/7.87x39.37"	SH-QT-200(1200)	193/200×1000mm/7.60/7.87x39.37"



Model No.	Temp-Limit
SH-SG-500	Max 500℃
SH-SG-900	Max 900℃



Model No.	Size(I.D/O.D×L)	Alumina Purity : OVER 98%
SH-AT-25	20/25x1000mm / 0.79/0.98x39.37"	
SH-AT-30	24/30x1000mm / 0.94/1.18x39.37"	
SH-AT-35	28/35x1000mm / 1.10/1.38x39.37"	
SH-AT-50	42/50x1000mm / 1.65/1.97x39.37"	
SH-AT-60	50/60x1000mm / 1.97/2.36x39.37"	
SH-AT-70	60/70x1000mm / 2.36/2.76x39.37"	
SH-AT-80	70/80x1000mm / 2.76/3.15x39.37"	
SH-AT-90	80/90x1000mm / 3.15/3.54x39.37"	
SH-AT-100	88/100x1000mm / 3.46/3.94x39.37"	
SH-AT-120	110/120x1000mm / 4.33/4.72x39.37"	



Model No.	Material
SH-SM-50	50φ TUBE용, Aluminum(OPTION: SUS), 2ea/pack
SH-SM-60	60φ TUBE용, Aluminum(OPTION: SUS), 2ea/pack
SH-SM-80	80φ TUBE용, Aluminum(OPTION: SUS), 2ea/pack
SH-SM-100	100φ TUBE용, Aluminum(OPTION: SUS), 2ea/pack
SH-SM-120	120φ TUBE용, Aluminum(OPTION: SUS), 2ea/pack