

Muffle Furnaces
FP102/302/312/412



Temperature Range
100deg.C to 1,150deg.C
Temperature Control Accuracy
±1.0deg.C (at 1,150deg.C)
Internal Capacity
1.5 to 11.3 L

- Contamination of samples is prevented due to high quality alumina ceramic hot plate and heater is not exposed in the furnace.
- Automatic start/stop, and program operation are available.
- Self diagnosis function, independent overheating prevention device, key lock function equipped.
- Variegated options are available, including a N2 gas inlet, a predetermined elapsed time output terminal, an external alarm terminal, and an independent superheating preservation circuit.

■ Specifications

Model	FP102	FP302	FP312	FP412
Performance				
Operating temperature range	100 to 1,150deg.C			
Temp. control accuracy (JTM K05)	±1.0deg.C(at 1,150deg.C)			
Temp. fluctuation (JIS)	±1.0deg.C(at 1,150deg.C)			
Temp. distribution accuracy (JTM K05)	±4.0deg.C(at 1,150deg.C)			
Temp. gradient (JIS)	14deg.C(at 1,150deg.C)			
Max. temp. reaching time	Approx.90min.		Approx.80min.	
Components				
Exterior material	Cold rolled steel plate with baked-on melamine resin finish			
Furnace material	Ceramic fiber			
Sensor	R-thermocouple			
Heater	Iron-chrome wire heater			
	1.1 kW	2.4 kW		3.25 kW
Exhaust port	20 mm I.D. (upper part)			
Cooling fan	19/16W (50/60Hz)			
Controller				
Temp. controller	PID control by microprocessor			
Temp. and timer setting method	Digital setting with up/down key			
Temp display method	Setting temp. display: Digital display by orange LED			
	Chamber temp. display: Digital display by green LED			
Operation function	Fixed temperature operation, Automatic-start, Automatic-stop,			
	Program operation (Max.99 steps, 99 patterns, repeat operation)			
Additional function	Actual time (max. 24 Hrs.), Integration time (max. 65535Hrs.),			
	Clock, Calibration off-set, Power consumption/ CO2 discharge/Heater operation amount monitor display			
	Power failure recovery mode, User setting information save and recall			
Timer	0 min. to 99 Hrs. 59 min.			
Heater circuit control	Triac zero cross method			
Safe Device				
	Self diagnosis functions (Temp. sensor, Heater, Triac, Relay, Automatic overheating prevention), Key lock function, Independent over heating prevention, Electric leakage breaker.			
Standard				
Internal dimensions (mm)	100×150×100	200×250×150		300×250×150
External dimensions (W×D×Hmm)	376×404×515	446×504×567		506×504×625
Internal capacity	1.5L	7.5L		11.3L
Power source	AC 100V	AC 100V	Single phase AC 200V	Single phase AC200V
	11.5A (15A)	24.5A (30A)	12.5A(15A)	16.5A (20A)
Weight	Approx.29kg	Approx.43kg		Approx.51kg
Accessories	Exhaust port cap, Temperature fuse, Hearth plate			

■ Control Panel



■ Interior

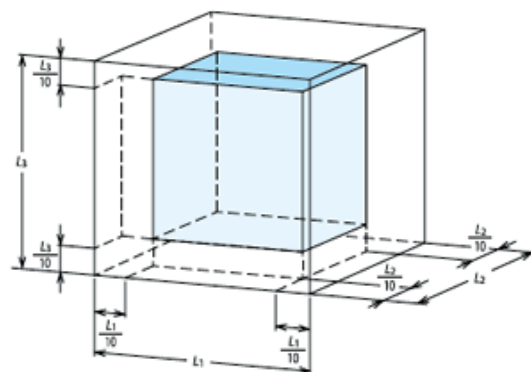


■ 9 Points distribution reference data

Measure Points	1	2	3	4	5	6	7	8	9
Temperature	1150.0	1150.4	1147.0	1147.6	1145.2	1146.2	1144.4	1145.7	1146.6

Conditions

1. Measure points are the points at 1/10 distance (minimum 50mm) from the wall and the center point
2. Room. Temp 23deg.C, AC200V, 50Hz, Temp. setting 1150deg.C at stable condition
3. No load



■ Optional Items

Description	Model No.	Code
Exhaust unit, 100V	FP102, 302	214160
Exhaust unit, 200V	FP312, 412	214161
Time up output terminal	FP Series	214168
External alarm terminal (Record/Monitor Inner chamber temp.)	FP Series	214167
Temp. output terminal (4-20mA, Record/Monitor Inner chamber temp.)	FP Series	214166
N2 gas inlet system with flow meter	FP102	214162
	FP302, 312	214163
	FP412	214164
Sample tray	FP Series	281310
External Communication Adapter (RC485)	FP Series	211880
Hearth plate 90 x 145mm 5pcs	FP102	214157
Hearth plate 190 x 245mm 5pcs	FP302, 312	214158
Hearth plate 290 x 245mm 5pcs	FP412	214159
External communication terminal (RS485)	FP Series	214165
Operation signal output terminal	FP Series	214169
Event output terminal	FP Series	214170

■ Exhaust unit (option)

Gas which generated due to the increase of temperature in the furnace will be quickly exhausted

Duct: Flexible duct, aluminum type

Length: 1.5m

50mm diameter

Power of exhaust device :

AC100V 0.27A Single phase AC200V 0.15A



■ Sample Tray



■ Dimension drawing (mm)

