SPLIT TUBE FURNACE UP TO 1300°C - FST/FZS

The FST, single zone, and FZS, 3-zone, split tube furnaces can be used either vertically or horizontally and have a maximum operating temperature of 1300 °C.

The split heating module allows either easy positioning of the work tube or positioning around reactors which have fixed end flanges. The split design may also allow faster cooling of the sample. Cooling channels are engineered into the housing to aid with convection cooling of the outer case. A handle is attached to the upper half of the split tube furnace with two quick-release clamps to safely unlock and lock the furnace.

The two furnace halves are ceramic fibre modules with high quality APM wire heating elements mounted in the insulation, held in position by a ceramic holding ridge. A safety switch protects the operator by switching off the heating elements once the furnace is opened.

Customized versions and a comprehensive range of tube furnace accessories complete the available options.

APPLICATION EXAMPLES

CIM, CVD, MIM, ageing, annealing, brazing, calcination, catalyst research, coating, degassing, drying, fuel cell testing, hardening, miniplants, pyrolysis, sintering, soldering, sublimation, synthesis, tempering, thermocouple calibration

STANDARD FEATURES

- 1300 °C maximum operating temperature
- Programmable temperature controller with 24 segments: FST fitted with EPC3016P1, FZS fitted with CC-T1
- Over-temperature protection
- Accepts work tubes with outer diameter up to 150 mm
- Single-zone heated lengths of 200, 500 or 1000 mm
- 3-zone heated lengths of 500 or 1000 mm
- Split design allows work tubes or reactors with fixed flanges to be accommodate
- For horizontal or vertical use
- Exceptionally long life time and temperature stability
- High grade type S thermocouple
- Low thermal mass ceramic fibre insulation
- High quality 5 mm APM wire heating elements
- Supplied with separate control box with 3 m cable, plug and socket
- Ethernet communications

OPTIONS (*SPECIFY THESE AT TIME OF ORDER*)

- A range of sophisticated digital controllers, multisegment programmers and data loggers with digital communication options is available - more information about controllers
- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- Wide choice of tube diameters and materials is available

- For split tube furnaces, robustly shaped ceramic half tubes are available to protect the heating elements and for sample holding
- 'L'stand for vertical and/or horizontal use
- Insulation plugs & radiation shields to prevent heat loss & improve uniformity
- Modified atmosphere and vacuum assemblies are available - more information
- Vacuum packages with a choice of rotary vane pump or turbomolecular pump are available
- Larger tube diameters
- Longer heated lengths
- Automated opening mechanism
- Flanges for inert gas counter flow
- Oxygen sensor for inert gas packages
- 6 m length of cable between furnace body and control box with plug and socket
- Gas packages with manual valve
- Laboratory Gas Safety System for safe use with hydrogen above 750 °C
- Gas packages with electrically operated valve for up to 3 gases

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MOUNTING CONFIGURATIONS

FURNACE BODY AND SEPARATE CONTROL BOX

OPTION: VERTICAL STAND

EXAMPLES

FZS 13/100/1000 with metallic APM tube

Custom designed 3-zone FZS 13/100/4500 with 4500 mm heated length, automated opening and APM work tube

FZS 13/70/500 inert gas package for Ar and reactive gas O2 equipped with double stage rotary vane pump

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TECHNICAL DATA

	FST 13/40/200	FST 13/70/500	FST 13/100/500
Number of heated zones	1	1	1
Max temp (°C)	1300	1300	1300
Furnace Ø (mm)	40	70	100
Heated length (mm)	200	500	500
Furnace dimensions H x W x D (mm)	530 x 460 x 560	530 x 680 x 560	530 x 680 x 560
Furnace weight (kg)	35	50	75
Tube length for use in air (mm)	450	670	670
Tube length for use with modified atmosphere (mm)	985	1205	1205
Control module dimensions H x W x D (mm)	500 x 550 x 700	500 x 550 x 700	850 x 550 x 700
Control module weight (kg)	50	50	60
Uniform length ±5°C (mm)	100	250	250
Power (kW)	1.5	3.0	4.0

	FST 13/100/1000	FST 13/150/1000	FZS 13/70/500
Number of heated zones	1	1	3
Max temp (°C)	1300	1300	1300
Furnace Ø (mm)	100	150	70
Heated length (mm)	1000	1000	500
Furnace dimensions H x W x D (mm)	530 x 1200 x 560	590 x 1200 x 560	530 x 680 x 560
Furnace weight (kg)	80	100	50
Tube length for use in air (mm)	1190	1190	670
Tube length for use with modified atmosphere (mm)	1725	1725	1205
Control module dimensions H x W x D (mm)	850 x 550 x 700	850 x 550 x 700	500 x 550 x 700
Control module weight (kg)	90	90	50
Uniform length ±5°C (mm)	500	500	350
Power (kW)	10.4	12.0	3.0

	FZS 13/100/500	FZS 13/100/1000	FZS 13/150/1000
Number of heated zones	3	3	3
Max temp (°C)	1300	1300	1300
Furnace Ø (mm)	100	100	150
Heated length (mm)	500	1000	1000
Furnace dimensions H x W x D (mm)	530 x 680 x 560	530 x 1200 x 560	590 x 1200 x 560
Furnace weight (kg)	75	80	100
Tube length for use in air (mm)	670	1190	1190
Tube length for use with modified atmosphere (mm)	1205	1725	1725
Control module dimensions H x W x D (mm)	850 x 550 x 700	1100 x 1200 x 700	1100 x 1200 x 700
Control module weight (kg)	60	90	90
Uniform length ±5°C (mm)	300	800	600
Power (kW)	4.0	10.4	12.0

	FZS 13/200/1000	FZS 13/100/1500	FZS 13/150/1500
Number of heated zones	3	3	3
Max temp (°C)	1300	1300	1300
Furnace Ø (mm)	200	100	150
Heated length (mm)	1000	1500	1500
Furnace dimensions H x W x D (mm)	690 x 1200 x 620	530 x 1700 x 560	590 x 1700 x 560
Furnace weight (kg)	150	120	150
Tube length for use in air (mm)	1190	1690	1690
Tube length for use with modified atmosphere (mm)	1725	2252	2225
Control module dimensions H x W x D (mm)	1100 x 1200 x 700	1100 x 1200 x 700	1100 x 1200 x 700
Control module weight (kg)	120	120	120
Uniform length ±5°C (mm)	-	-	-
Power (kW)	16.0	14.0	18.0

	FZS 13/200/1500	FZS 13/100/4500	FZS 13/150/4500
Number of heated zones	3	3	3
Max temp (°C)	1300	1300	1300
Furnace Ø (mm)	200	100	150
Heated length (mm)	1500	4500	4500
Furnace dimensions H x W x D (mm)	690 x 1700 x 620	2200 x 4700 x 1100	2200 x 4700 x 1200
Furnace weight (kg)	200	800	950
Tube length for use in air (mm)	1690	on request	on request
Tube length for use with modified atmosphere (mm)	2225	on request	on request
Control module dimensions H x W x D (mm)	1100 x 1200 x 700	inside frame	inside frame
Control module weight (kg)	160	-	-
Uniform length ±5°C (mm)	-	-	-
Power (kW)	22.0	45.0	60.0

Please note

- Heat up rate when using an optional ceramic work tube must be limited to 5 °C/min
- The power supply is based on 200 – 240 V for 1 phase and 380 – 415 V for 3 phase power
- Minimum uniform length in horizontal furnace with insulation plugs fi tted at 100 °C below max. temperature
- Power supply: a = 3 phase 380 - 415 V / b = 3 phase 480 V / c = 3 phase 200 - 210 V / d = 3 phase 220 - 240 V / e = 1 phase 220 - 240 V

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