



SPLIT TUBE FURNACE UP TO 1300 °C

FST / FZS

www.carbolite.com/products/tube-furnace-range/split-tube-furnaces/fst-fzs/

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SPLIT TUBE FURNACE UP TO 1300 °C

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.

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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.

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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

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MOUNTING CONFIGURATIONS



Furnace body and separate control box



Option: Vertical stand

FST / FZS**OPTIONS**

Specify these at time of order.

- | A range of sophisticated digital controllers, multisegment programmers and data loggers with digital communication options is available
- | 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
- | 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

FST / FZS**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 single-zone and FZS three-zone models · 1300 °C maximum temperature.

OPERATING CHARACTERISTICS · MODELS 1-8

Model	Zones	Max °C	Furnace Ø mm	Heated length mm	Uniform ±5 °C mm	Power kW
FST 13/40/200	1	1300	40	200	100	1.5
FST 13/70/500	1	1300	70	500	250	3.0
FST 13/100/500	1	1300	100	500	250	4.0
FST 13/100/1000	1	1300	100	1000	500	10.4
FST 13/150/1000	1	1300	150	1000	500	12.0
FZS 13/70/500	3	1300	70	500	350	3.0
FZS 13/100/500	3	1300	100	500	300	4.0
FZS 13/100/1000	3	1300	100	1000	800	10.4

DIMENSIONS AND TUBE LENGTHS · MODELS 1-8

Model	Furnace H × W × D mm	Furnace kg	Tube in air mm	Modified atmosphere mm	Control H × W × D mm	Control kg
FST 13/40/200	530 × 460 × 560	35	450	985	500 × 550 × 700	50
FST 13/70/500	530 × 680 × 560	50	670	1205	500 × 550 × 700	50
FST 13/100/500	530 × 680 × 560	75	670	1205	850 × 550 × 700	60
FST 13/100/1000	530 × 1200 × 560	80	1190	1725	850 × 550 × 700	90
FST 13/150/1000	590 × 1200 × 560	100	1190	1725	850 × 550 × 700	90
FZS 13/70/500	530 × 680 × 560	50	670	1205	500 × 550 × 700	50
FZS 13/100/500	530 × 680 × 560	75	670	1205	850 × 550 × 700	60
FZS 13/100/1000	530 × 1200 × 560	80	1190	1725	1100 × 1200 × 700	90

Power supply for every model: a / b / c / d / e (source designation).

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TECHNICAL DATA • CONTINUED

OPERATING CHARACTERISTICS • MODELS 9–15

Model	Zones	Max °C	Furnace Ø mm	Heated length mm	Uniform ±5 °C mm	Power kW
FZS 13/150/1000	3	1300	150	1000	600	12.0
FZS 13/200/1000	3	1300	200	1000	–	16.0
FZS 13/100/1500	3	1300	100	1500	–	14.0
FZS 13/150/1500	3	1300	150	1500	–	18.0
FZS 13/200/1500	3	1300	200	1500	–	22.0
FZS 13/100/4500	3	1300	100	4500	–	45.0
FZS 13/150/4500	3	1300	150	4500	–	60.0

DIMENSIONS AND TUBE LENGTHS • MODELS 9–15

Model	Furnace H × W × D mm	Furnace kg	Tube in air mm	Modified atmosphere mm	Control H × W × D mm	Control kg
FZS 13/150/1000	590 × 1200 × 560	100	1190	1725	1100 × 1200 × 700	90
FZS 13/200/1000	690 × 1200 × 620	150	1190	1725	1100 × 1200 × 700	120
FZS 13/100/1500	530 × 1700 × 560	120	1690	2252	1100 × 1200 × 700	120
FZS 13/150/1500	590 × 1700 × 560	150	1690	2225	1100 × 1200 × 700	120
FZS 13/200/1500	690 × 1700 × 620	200	1690	2225	1100 × 1200 × 700	160
FZS 13/100/4500	2200 × 4700 × 1100	800	on request	on request	inside frame	–
FZS 13/150/4500	2200 × 4700 × 1200	950	on request	on request	inside frame	–

Power supply for every model: a / b / c / d / e (source designation).

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DOWNLOADS

PRODUCT DATA SHEET → www.carbolite.com/files/450675/product-data-sheet-fst-fzs.pdf

Tube furnace accessories: for use in air, vacuum, inert atmosphere and hydrogen atmosphere.

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