

SNOL 1300°C Laboratory Furnaces

The Fibre Muffle 1300 series from AML Instruments are precision laboratory electric muffle furnaces, for use up to 1300°C.

Designed for materials testing, heat treatment, ceramic samples firing and ashing/burn-off. Used in laboratories, educational institutions, workshops and in industry for thermal processing.

The chamber is made of high thermal efficiency vacuum-formed ceramic fibre, with heating elements exposed on ceramic tubes on both sides and a ceramic tile to protect the fibre base from wear.

An Omron E5CC digital PID temperature controller is fitted as standard and provides precise temperature control with good stability and minimal over-shoot. Other options are available (see page 3).

AML offers these furnaces complete with independent over-temperature protection fitted as standard, which prevents it exceeding its maximum safe temperature. This feature is recommended if the furnace will be run while unattended (e.g. overnight); to meet Health & Safety and some insurers' requirements. Optional adjustable over-temperature protection (OTP2) is also offered and can be set to a temperature to protect load placed in the chamber, in addition to the furnace itself.

A natural-convection chimney, fitted as standard, at the rear of the furnace is useful for processes producing fumes or giving off carbon (e.g. ashing or burn-off operations).

The sustainable design means all parts are accessible, serviceable and replaceable should the need arise. AML Instruments has offered long-term product support on SNOL furnaces for over 15 years, stocking a wide range of spares and accessories at our factory in the UK.

Our furnaces are available with optional UKAS (ISO 17025) calibration of the temperature control system, and we also offer multi-point thermal surveys of the chamber volume.

AML Instruments offers models customised to meet AMS 2750G (aerospace & automotive heat treatment specification), complete with UKAS (ISO 17025) calibration and thermal survey meeting NADCAP requirements. For customisation to this specification or others please contact us.



» 10/1300 model (above) has a lift-up door for efficient use of workspace and greater safety.

» 6.7/1300 model has a side traverse door for a lower price.

- *Over-Temperature Protection as standard by AML for greater safety.*
- *Chimney as standard by AML.*
- *Good stability and uniformity.*
- *Fast heating and cooling time due to low thermal mass construction.*
- *Low power consumption for reduced running costs and energy savings.*
- *Serviceable design and long-term support & repairs from AML Instruments.*
- *Many customisations and options by AML on short lead-times.*
- *Available from AML's UK stock for fast delivery.*



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SNOL /1300 Fibre Muffle series

(Relative model sizes between images are approximate.)



Model Door Style <i>AML Stock Code</i>	Capacity <i>(WxDxH in mm)</i>	External Size <i>(WxDxH in mm)</i>	Voltage / Power / Connector	Price Availability
SNOL 6.7/1300 LSM01 <i>Side Traverse Door</i> <i>FCESNOL6.7/1300LSM01</i>	4.6 Litres 135 x 285 x 120	445 x 575 x 525	230Vac / 2.4kW / UK 13A style Plug	£ 3,380 UK stocked
SNOL 10/1300 LHM01 <i>Lift-up Door</i> <i>FCESNOL10/1300LHM01</i>	8.6 Litres 180 x 310 x 155	510 x 750 x 640	230Vac / 2.4kW / UK 13A style Plug	£ 4,180 UK stocked
SNOL 30/1300 LSF01 <i>Side Hinged Door</i> <i>FCESNOL30/1300L</i>	25.5 Litres 200 x 440 290	640 x 870 x 840	230Vac / 4.6kW / Blue 32A Plug	£ 5,980 Built to-order

Note: At least 1/10th of the chamber dimensions should be left unused on each side and the load (especially metal parts) must never touch the exposed elements. Capacity Width excludes heating elements. External Size includes chimney. If used below 300°C these units may over-shoot the set temperature, depending on load. WxDxH = Width (Left-right) x Depth (Front-back) x Height (Top-bottom).

'UK stocked' models are normally available from AML's UK stock for fast delivery, options normally take longer, <1 week for most, but up to 2 weeks for some. 'Built to-order' models are also available to-order with typical availability of 5 – 8 weeks delivery. Please contact us for a quote with current lead-times.

Further Specification	6.7/1300	10/1300	30/1300
Heating Time : <i>(To 1300°C, no load, no options. Approx.)</i>	75 min	75 min	150 min
Height with Door Open :	N/A	900 mm	N/A
Ceramic Tile Dimensions :		200 x 300 mm	
Base Unit Weight :	35 kg	39 kg	120 kg
Packaged Transport Weight :	42 kg	61 kg	140 kg



These units are manufactured in the EU by SnoItherm (Umega Group, AB) to AML Instruments Ltd's specification. Final manufacturing, testing, localisation, customisations, addition of options and after-sale service are performed in the UK by AML Instruments Ltd.



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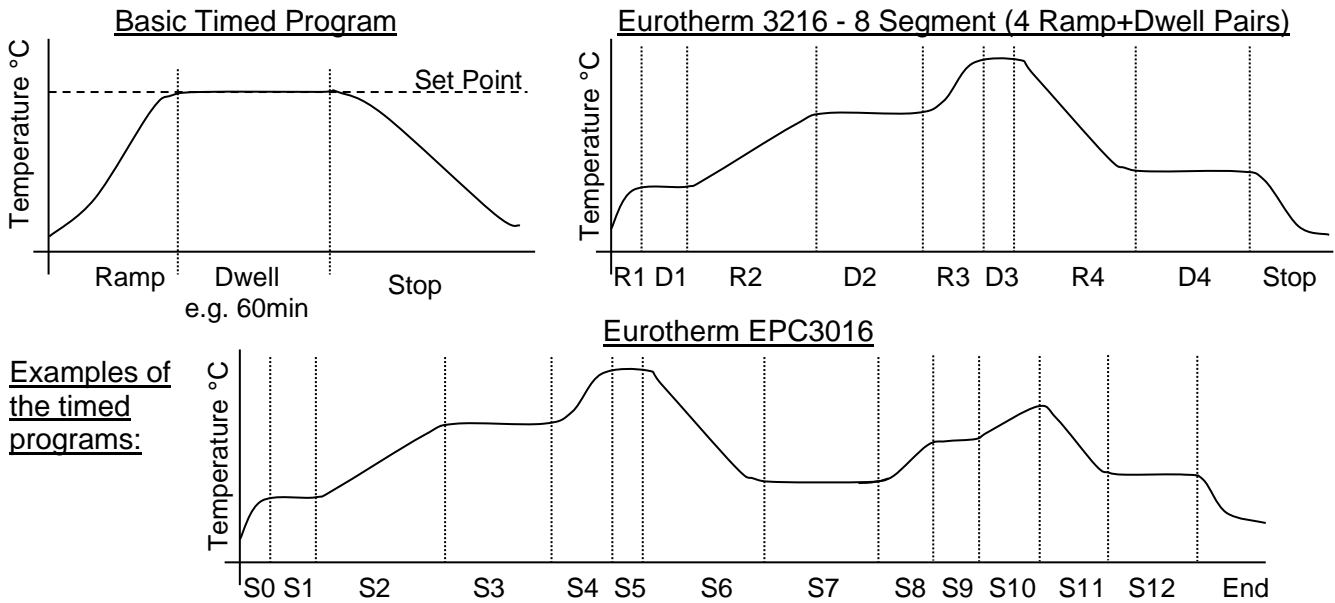
Temperature Controller Options for Furnaces

1/16 DIN size (~48x48mm) digital PID temperature controllers, with Run/Stop (Auto/Off) modes and settable heating ramp rate. With 1°C display resolution and featuring Autotune which can be used to optimise the control terms for the load, but which is not necessary for most applications. Optional Programmer models allow advanced timed programs (profiles) to be configured.

Other instruments can also be fitted to order, providing additional options, such as audible alarms, remote communications (RS-485 etc) and data logging / recording. Please contact us for further details.

		<p>Eurotherm 3216 Programmer, 1 Program, 8 Segments</p> <p>Optional at extra cost. +£290 (Segments as Ramp+Dwell pairs)</p>
<p>Omron E5CC (Fitted as standard) Basic Timed Program: Ramp, Dwell, Stop.</p>	<p>Eurotherm 3216 Optional at extra cost. +£190 Basic Timed Program: Ramp, Dwell, Stop.</p>	<p>Eurotherm 3216 Programmer, 5 Program, 8 Segments each</p> <p>Optional at extra cost. +£390 (Segments as Ramp+Dwell pairs)</p>
		<p>Eurotherm EPC3016 Programmer, 1 Program, 8 Segments</p> <p>Optional at extra cost. +£290</p> <p>Eurotherm EPC3016 Programmer, 10 Program, 24 Segments each</p> <p>Optional at extra cost. +£390</p> <p>Eurotherm EPC3016 Programmer, with RJ45 Ethernet PC Network Port,</p> <p>Optional (when OTP is also fitted) at extra cost: 1 Program, 8 Segments +£490 10 Program, 24 Segments each +£590</p> <p>Connection to a laptop or PC network via Ethernet RJ45 port on front panel. Includes PC software for easier creation, editing and backup of timed programs.</p>
<p>Eurotherm EPC3016 Programmer, 1 Program, 8 Segments</p> <p>Optional at extra cost. +£290</p> <p>Eurotherm EPC3016 Programmer, 10 Program, 24 Segments each</p> <p>Optional at extra cost. +£390</p>	<p>Eurotherm EPC3016 Programmer, with RJ45 Ethernet PC Network Port,</p> <p>Optional (when OTP is also fitted) at extra cost: 1 Program, 8 Segments +£490 10 Program, 24 Segments each +£590</p> <p>Connection to a laptop or PC network via Ethernet RJ45 port on front panel. Includes PC software for easier creation, editing and backup of timed programs.</p>	
	     	<p>Watlow PM Plus Programmer, 4 Programs, 10 Segments each, with Bluetooth for wireless phone app connection</p> <p>Optional (when OTP is also fitted) at extra cost. +£590 Contact us for full details.</p>
<p>Eurotherm nanodac Recorder, 1/4 DIN, with RJ45 Ethernet PC Network Port, USB data transfer, Programmer option</p> <p>Contact us for full details and pricing.</p>	<p>Watlow PM Plus Programmer, 4 Programs, 10 Segments each, with Bluetooth for wireless phone app connection</p> <p>Optional (when OTP is also fitted) at extra cost. +£590 Contact us for full details.</p>	

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Examples of the timed programs:

Over-temperature Protection Options for Furnaces

AML offers these furnaces complete with over-temperature protection as standard, preventing it exceeding its maximum temperature. It therefore meets the Health and Safety Directive, which mandates that where units are left unattended they must have over-temperature protection fitted. Additionally we also offer over-temperature protection that can have the maximum temperature set by the operator.

<p>OTP 1 Fitted as standard by AML.</p>	<p>An internally fitted temperature limit controller, which users cannot access or change the temperature setting. Protects the furnace from exceeding its maximum safe temperature.</p>
<p>OTP 2 +£100</p>	<p>A digital temperature limit controller mounted in the front panel. Displays its temperature reading and can be set by the user to protect their load from exceeding their desired temperature. If the furnace temperature exceeds the temperature set on the over-temperature protection controller, the furnace will be prevented from heating until the user resets the over-temperature protection controller, by pressing a button.</p>

Chimney

Highly recommend for any process giving off vapour, fumes or carbon.
Fitted at the rear.

<p>Natural Convection Chimney</p>	<p>Fitted as standard by AML. Air is drawn through chamber, out through a ceramic tube and up the stainless-steel chimney casing by natural convection.</p>
<p>Fan-assisted Chimney +£190</p>	<p>A greater amount of air is drawn through chamber, out through a ceramic tube and up the stainless-steel chimney casing. Air is forced up the chimney casing by a fan blower at the base, increasing the air draw.</p>
<p>None -£20</p>	



A suitable fume extraction system or fume cupboard is also required. The cross section of the chimney casing is up to 80x60mm. If using a small extraction hood or tube directly above the chimney, we recommend a few inches of space are left to allow a mixture of ambient air and chimney air to be drawing into the extractor. Also consider some fumes may escape around the door or if it is opened while hot. If the chimney is no longer needed, it can be blocked with suitable high temperature insulation wool (a small amount is supplied).

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Cable Entry Port +£200

A 15mm inside diameter ceramic tube at the rear into the chamber for putting in thermocouples* or other sensor cables.

Suitable high temperature rated material is provided to block the Entry Port. Flanges and objects passing through the Entry Port may get hot and conduct heat outside the chamber. Excessive thermal loading or insufficient insulation in the entry port can have a negative effect on thermal uniformity in the chamber. Ceramic dimensions may vary slightly.

**Thermocouples and metal objects must be suitably earthed and should be fitted by a suitably qualified person. Precautions must be taken to prevent contact with the exposed electric heating elements.*



Accessible Thermocouple Connections +£60

We can fit accessible thermocouple connections (at the rear) to save time with regular calibrations.

Consisting of inline miniature size thermocouple connectors. For use by a suitably qualified person, allowing direct electrical injection onto the instrument(s) sensor input. Units with OTP 2 will have connections for both systems when this option is ordered.

Other options

The range is also available with stainless steel exterior (pictured). The lead time is typically 6 – 8 weeks and the price of the unit and some options are higher. Please contact us for a quote.

We may be able to assist with other bespoke requirements, please contact us for further details.

We also stock a /1100 series of 5 sizes for use up to 1100°C.

A large 1200°C model is also available.



Model Door Style	Maximum Temperature	Capacity (WxDxH in mm)	External Size (WxDxH in mm)	Voltage / Power
SNOL 40/1200 LSF01 Side Hinged Door	1200 °C	40 Litres 295 x 420 x 295	645 x 870 x 835	230Vac / 3.4kW



We manufacture an enhanced range of furnaces meeting AMS 2750G and Nadcap compliant. Complete with calibration, under our ISO 17025 (UKAS) accreditation, and thermally surveyed before leaving our factory. With thermal uniformity Furnace Class 2, or better, and Instrumentation Types up to 'A'.

AML typically holds 14 standard builds of SNOL furnaces and ovens, ready to ship or finalised within a week, in stock at our factory and warehouse (near Sheffield, UK).

With additional customisations and options within 2 weeks.

Viewing and demonstration is available by arrangement.



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Calibration of Furnace Systems

UKAS calibration of instrument(s) and thermocouple(s), as a system, at your choice of temperature(s) between 300 and 1300°C. A calibration certificate is issued reporting the tested system's measurement at each temperature. The typical lead-time is 5 - 15 working days.

<u>No. of Specified Temperature Points</u>	<u>Control System Only</u>	<u>Control & OTP 2 Systems</u>
1	£290	£330
2	£340	£380
3	£375	£415
4	£395	£435
5	£430	£470

Delivery & Shipping

These units are shipped as a palletised wooden crate, on a courier service which is normally next-day for much of the UK.

<u>Destination</u>	<u>Price</u>	<u>Typical Transit Time</u>
UK Mainland (England, Wales, Scottish Lowlands)	£95	1-2 days
UK Scottish Highlands, Ilse of Wight	£130	1-3 days
UK Northern Ireland & Republic of Ireland	£175	1-3 days
Other destinations (including other UK coastal islands)	Please contact us for a quote.	
Collection from our factory (Derbyshire, UK)	£30 (Weekdays, by arrangement.)	

Operation & Preparation Notes

- Heating is stopped whilst the door is opened (for safety).
- Before first use of the new furnace a 'burn-off' procedure must be performed which takes 5-8 hours to cure the fibre insulation.
- The low thermal mass insulation fibre of the muffle chamber provides excellent energy efficiency, but it can be worn away if repeatedly rubbed by abrasive items or dented by pointed objects or excessive force. The ceramic hearth tile is intended to stay in the chamber to protect the base against wear. So it shouldn't be regularly slid in and out like a tray, as this may wear the fibre.
- Precautions for SNOL 6.7/1300 LSM01, with Side Traverse Door: The door opens sideways and traverses to the left with door plug retaining its orientation. Consideration should be given to positioning and operating procedures. The door opening to the side could block access to adjacent equipment and will be a hot surface hazard if opened whilst still hot, so cannot be positioned at the end of a bench or where people or material may come into contact with it. AML fits a warning label accordingly, but additional precautions may still be needed.



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After Sales Service & Warranty

AML Instruments has been stocking and selling the SNOL range since 2008. We hold UK stock of a wide range of spares and accessories and can offer service and repairs at our factory if required at a later date. On-site service and repairs may be available subject to location and the nature of the repair. We also offer a range of on-site calibration services, see our website or contact us for more details.

Each unit has a 1 year return to base warranty from the date of purchase from AML Instruments and covers normal use of the unit in accordance with its instruction manual. It does not cover excessive 'wear and tear' to the soft fibre muffle or damage caused by careless use of the spring assisted door.

On receipt of the unit it is important to check for any transport damage and report it to AML Instruments and note it on the carrier's paperwork. It is recommended to keep the original wooden packaging in case the unit ever needs returning.

Under the warranty any manufacturing defects will be rectified by AML Instruments as the agent of the manufacturer at no charge. 'Return to base' means the customer is responsible for return of the unit to AML Instruments' site (Lincolnshire, UK) for assessment with a view to repairing under warranty. Or, if necessary, we can provide collection at a cost, provided the unit is suitably packaged. For any work performed that is solely covered by the warranty AML Instruments will provide return shipment of the unit within the UK and Republic of Ireland at no charge. Whilst AML Instruments stocks a range of spares and aims to resolve any warranty repairs quickly, typically within 3 – 8 working days, the warranty does not guarantee this or any provision of a loan unit while the customer's unit is with us.



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