# *Thermal processing equipment for laboratories*

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SNOL

*Customized for your hot innovations*

SNOL department has been producing heat treatment equipment for laboratory and industrial applications since 1960. SNOL department belongs to JSC Umega group which is the largest metal processing company in Baltic States, having more than 700 employees. The company pays particular attention to the product development by using advanced technologies and scientific progresses in order to meet individual user needs. Highly qualified personnel and premium materials result in high quality, reliability, and durability of our manufactured products.

SNOL exports 90% of its production. Nowadays, our customers' satisfaction resulted the grow of sales and SNOL brand awareness in more than 40 countries, not only in European markets but also in our new regions like Asia, Middle East, Africa, North and South America.

## *Main products lines:*

- Laboratory Furnaces
- Laboratory Ovens
- Industrial Furnaces
- Industrial Ovens
- Custom-built Furnaces and Ovens
- Thermal insulation materials
- Storage constructions (Shelving systems and Pallet racks)

## *SNOL advantages:*

- Made by European standards – SNOL products bear CE mark and company's Quality Management System is certified by Bureau Veritas Quality International in compliance with ISO 9001:2008 / LST EN ISO 9001:2008 standards.
- One of the biggest manufacturer in the world reaching more than 4000 units per year
- Reliability - we pay specific attention to products functionality and features
- Our professional engineers team are ready to offer solutions for your Hot innovations
- Short lead time - we keep our most popular in stock and 90% of our production is built in house
- Durability – Customers have been using SNOL products for more than 50 years

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# 1. High temperature electric furnaces

## 1.1 Muffle furnaces with fiber-insulated chambers

High accuracy laboratory electric furnaces with ber-insulated chambers, that are designed for hardening, loosening, normalising and other thermal processing up to a temperature of 1100 °C or 1300 °C. The furnaces include ceramic hearth plates. To eliminate gasses or smoke that are released during thermal processing, ventilation hole and an exhaust system may be additionally installed in the products. The furnaces are an excellent t for scientic laboratories, educational institutions, medicine and industry.

**SNOL 8,2/1100 LZM01**

**SNOL 6,7/1300 LSM01**

**SNOL 8,2/1100 LHM01**

**Basic model**

- One-piece chamber made of vacuumed ceramic fiber
- Heating elements are embedded in vacuum formed fiber (on models up to 1100 °C)
- Heating elements exposed on ceramic tubes (on models up to 1300 °C)
- Microprocessor-controlled thermoregulator (see page 14)
- Ceramic hearth plates
- High-quality, ecological thermal insulation material
- Low electric power comsumption
- Short heating up/cooling down period
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee

**Options**

- Process observation window (Ø 35 mm) up to 1100 °C
- Fan-assisted chimney for air extraction
- Additional ceramic hearth plates
- Buzzer
- Digital timer
- Protection against overheating
- Data recorder
- RS232/RS-485/USB interface and PC software
- Calibration of temperature measurement system
- Table for supporting the furnace
- Protective gas atmosphere
- Gas box up to 1100 °C
- Metal tray
- Additional 1 year guarantee

| Model | Vol., l | Tmax, °C | Chamber dimentions, mm | | | Overall dimension, mm | | | Power, kW | Voltage, V | Weight, kg | Door opening | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width | Lenght | Height | Width | Lenght | Height | | | | upwards | sideways | downwards |
| **Up to 1100°C** | | | | | | | | | | | | | | |
| **SNOL 3/1100 LHM01** | 3 | 1100 | 125 | 200 | 115 | 340 | 470 | 430 | 1,7 | 230 | 18 | ● | ○ | ○ |
| **SNOL 8,2/1100 LHM01** | 8,2 | 1100 | 200 | 300 | 133 | 440 | 620 | 510 | 1,8 | 230 | 28 | ● | ○ | ○ |
| **SNOL 8,2/1100 LSM01** | 8,2 | 1100 | 200 | 300 | 133 | 440 | 560 | 510 | 1,8 | 230 | 28 | ○ | ● | ○ |
| **SNOL 8,2/1100 LZM01** | 8,2 | 1100 | 200 | 300 | 133 | 440 | 560 | 510 | 1,8 | 230 | 28 | ○ | ○ | ● |
| **SNOL 13/1100 LHM01** | 13 | 1100 | 225 | 360 | 180 | 500 | 700 | 550 | 1,8 | 230 | 38 | ● | ○ | ○ |
| **SNOL 22/1100 LHM01** | 22 | 1100 | 275 | 500 | 155 | 600 | 890 | 610 | 3 | 230 | 58 | ● | ○ | ○ |
| **SNOL 39/1100 LHM01** | 39 | 1100 | 315 | 515 | 225 | 649 | 899 | 739 | 6 | 300 | 74 | ● | ○ | ○ |
| **Up to 1300°C** | | | | | | | | | | | | | | |
| **SNOL 6,7/1300 LSM01** | 6,7 | 1300 | 160 | 295 | 133 | 440 | 550 | 540 | 2,4 | 230 | 35 | ○ | ● | ○ |
| **SNOL 6,7/1300 LHM01** | 6,7 | 1300 | 160 | 295 | 133 | 440 | 550 | 540 | 2,4 | 230 | 35 | ● | ○ | ○ |
| **SNOL 9/1300 LHM01** | 9 | 1300 | 170 | 300 | 160 | 500 | 700 | 550 | 2,4 | 230 | 38 | ● | ○ | ○ |

# 1. High temperature electric furnaces

## 1.2 Chamber furnaces with fiber-insulated chambers

Highly accurate laboratory electric furnaces with chambers made of thermal insulation fiber plates. The products are designed for hardening, loosening, normalising and other thermal processing up to temperature of 1600 °C. To eliminate gasses or smoke that are released during thermal processing, ventilation hole and an exhaust system may be supplementally installed in the products. The furnaces are an excellent fit for scientific laboratories, educational institutions, medicine and industry.

**Basic model**

- Chamber made of ceramic fiber thermal insulation plates
- Vacuumized heating elements (up to 1100 °C)
- Heating elements in grooves (up to 1200 °C)
- Heating elements on tubes (up to 1300 °C)
- Exposed heat strips (up to 1600 °C)
- Microprocessor-controlled thermoregulator (see page 14)
- Ceramic hearth plates
- High-quality, ecological thermal insulation material
- Low electric power comsumption
- Short heating up period
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee

**Options**

- Process observation window (Ø 35 mm) up to 1100 °C
- Fan-assisted chimney for forced air extraction
- Additional ceramic bottom plates
- Buzzer
- Digital timer
- Protection against overheating
- Data recorder
- RS232/RS-485/USB interface
- Calibration of temperature measurement system
- Table for supporting the furnace
- Protective gas atmosphere
- Gas box up to 1100 °C
- Metal tray

**SNOL 30/1300 LSF01**

**SNOL 40/1200 LSF01**

**SNOL 30/1100 LSF01**

**SNOL 80/1100 LSF01**

**SNOL 8/1600 LSF01**

| Model | Vol., l | Tmax, °C | Chamber dimentions, mm | | | Overall dimension, mm | | | Power, kW | Voltage, V | Weight, kg | Door opening | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width | Lenght | Height | Width | Lenght | Height | | | | upwards | sideways | downwards |
| **Up to 1100°C** | | | | | | | | | | | | | | |
| **SNOL 30/1100 LSF01** | 30 | 1100 | 300 | 450 | 300 | 640 | 800 | 830 | 3,4 | 230 | 100 | ○ | ● | ○ |
| **SNOL 80/1100 LSF01** | 80 | 1100 | 300 | 450 | 600 | 740 | 880 | 1250 | 5,4 | 400 | 135 | ○ | ● | ○ |
| **Up to 1200°C** | | | | | | | | | | | | | | |
| **SNOL 40/1200 LSF01** | 40 | 1200 | 290 | 420 | 290 | 640 | 800 | 830 | 3,4 | 230 | 100 | ○ | ● | ○ |
| **Up to 1300°C** | | | | | | | | | | | | | | |
| **SNOL 30/1300 LSF01** | 30 | 1300 | 200 | 450 | 290 | 640 | 870 | 830 | 4,6 | 230 | 120 | ○ | ● | ○ |
| **Up to 1600°C** | | | | | | | | | | | | | | |
| **SNOL 8/1600 LSF01** | 8 | 1600 | 150 | 300 | 150 | 620 | 620 | 1420 | 8 | 400 | 170 | ○ | ● | ○ |

## 1.3 Furnaces with ceramic chambers

Highly accurate laboratory electric furnaces with solid ceramic chambers. The products are designed for hardening, loosening, normalising and other thermal processing to a temperature of 1300 °C. The furnaces include ceramic bottom plates. To eliminate gasses or smoke that are released during thermal processing, ventilation hole and an exhaust system may be supplementally installed in the products. The furmaces are an exellent fit for scientific laboratories, educational institutions, medicine and industry.

**LSC01 SNOL 7,2/1100**

**SNOL 7,2/900 LSC01**

### Basic model

- Solid ceramic chamber
- Partially exposed heating elements (in 1100 °C max. and 1300 °C max. models)
- Enclosed heating elements (in 900 °C max and 1200 °C max. models)
- Microprocessor-controlled thermoregulator (see page 14)
- Ceramic hearth plates
- High-quality, ecological thermal insulation material
- Low electric power comsumption
- High temperature inertness
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee

### Options

- Process observation window (Ø 35 mm) up to 1100 °C
- Fan-assisted chimney for forced air extraction
- Additional ceramic hearth plates
- Buzzer
- Digital timer
- Protection against overheating
- Data recorder
- RS232/RS-485/USB interface
- Calibration of temperature measurement system
- Table for supporting the furnace
- Additional 1 year guarantee

| Model | Vol., l | Tmax, °C | Chamber dimentions, mm | | | Overall dimension, mm | | | Power, kW | Voltage, V | Weight, kg | Door opening | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width | Lenght | Height | Width | Lenght | Height | | | | upwards | sideways | downwards |
| **Up to 900°C** | | | | | | | | | | | | | | |
| **SNOL 4/900 LSC01** | 4 | 900 | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 | ○ | ● | ○ |
| **SNOL 7,2/900 LSC01** | 7,2 | 900 | 200 | 300 | 130 | 440 | 575 | 540 | 3,3 | 230 | 50 | ○ | ● | ○ |
| **SNOL 12/900 LSC01** | 12 | 900 | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 | ○ | ● | ○ |
| **SNOL 15/900 LSC01** | 15 | 900 | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 | ○ | ● | ○ |
| **Up to 1100°C** | | | | | | | | | | | | | | |
| **SNOL 4/1100 LSC01** | 4 | 1100 | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 | ○ | ● | ○ |
| **SNOL 7,2/1100 LSC01** | 7,2 | 1100 | 200 | 300 | 130 | 440 | 575 | 540 | 3,3 | 230 | 50 | ○ | ● | ○ |
| **SNOL 12/1100 LSC01** | 12 | 1100 | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 | ○ | ● | ○ |
| **SNOL 15/1100 LSC01** | 15 | 1100 | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 | ○ | ● | ○ |
| **Up to 1200°C** | | | | | | | | | | | | | | |
| **SNOL 4/1200 LSC01** | 4 | 1200 | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 | ○ | ● | ○ |
| **SNOL 7,2/1200 LSC01** | 7,2 | 1200 | 200 | 300 | 130 | 580 | 750 | 690 | 3,5 | 230 | 104 | ○ | ● | ○ |
| **SNOL 12/1200 LSC01** | 12 | 1200 | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 | ○ | ● | ○ |
| **SNOL 15/1200 LSC 01** | 15 | 1200 | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 | ○ | ● | ○ |
| **Up to 1300°C** | | | | | | | | | | | | | | |
| **SNOL 4/1300 LSC01** | 4 | 1300 | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 | ○ | ● | ○ |
| **SNOL 7,2/1300 LSC01** | 7,2 | 1300 | 200 | 300 | 130 | 580 | 750 | 690 | 3,5 | 230 | 104 | ○ | ● | ○ |
| **SNOL 12/1300 LSC01** | 12 | 1300 | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 | ○ | ● | ○ |
| **SNOL 15/1300 LSC01** | 15 | 1300 | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 | ○ | ● | ○ |

# 2. Other thermal processing equipment

## 2.1 Ashing furnaces

SNOL ashing furnaces are designed for ashing and burn off processes. Fan-assisted chimney permits to eliminate smokes from chamber during process time. Ashing process is possible with several types of furnaces: muffle furnace, fiber-insulated chamber furnaces and ceramic chamber furnaces. Ashing process is available in temperature scale of 900-1300°C. Chamber capacities various from 3 to 40 litters.

**Basic model**

- Fan-assisted chimney for smoke and humidity extraction
- Continuous air change in the chamber
- Microprocessor – controlled thermoregulator (see page 14)
- High quality, ecological thermal insulation material
- Low electric power comsumption
- Short heating up/cooling down period
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee.

**Options**

- Process observation window (Ø35mm) up to 1100 °C
- Additional ceramic hearth plates
- Buzzer
- Protection against overheating
- Data recorder
- RS232/RS-485/USB interface
- Calibration of temperature measurement system
- Additional 1 year guarantee

| Model | Tmax, °C | Chamber | Chamber dimention, mm | | | Overall dimention, mm | | | Power, kW | Voltage, V | Weight, kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width | Depth | Heigh | Width | Lenght | Height | | | |
| **Up to 900°C** | | | | | | | | | | | |
| **SNOL 4/900 LSC21** | 900 | ceramic | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 |
| **SNOL 7,2/900 LSC21** | 900 | ceramic | 200 | 300 | 130 | 440 | 575 | 540 | 3,3 | 230 | 50 |
| **SNOL 12/900 LSC21** | 900 | ceramic | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 |
| **SNOL 15/900 LSC21** | 900 | ceramic | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 |
| **Up to 1100°C** | | | | | | | | | | | |
| **SNOL 3/1100 LHM21** | 1100 | muffle | 125 | 200 | 115 | 340 | 470 | 430 | 1,7 | 230 | 18 |
| **SNOL 4/1100 LSC21** | 1100 | ceramic | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 |
| **SNOL 7,2/1100 LSC21** | 1100 | ceramic | 200 | 300 | 130 | 440 | 575 | 540 | 3,3 | 230 | 50 |
| **SNOL 8,2/1100 LHM21** | 1100 | muffle | 200 | 300 | 133 | 440 | 560 | 510 | 1,8 | 230 | 28 |
| **SNOL 12/1100 LSC21** | 1100 | ceramic | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 |
| **SNOL 13/1100 LHM21** | 1100 | muffle | 225 | 360 | 180 | 500 | 700 | 550 | 1,8 | 230 | 38 |
| **SNOL 15/1100 LSC21** | 1100 | ceramic | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 |
| **SNOL 22/1100 LHM21** | 1100 | muffle | 275 | 500 | 155 | 600 | 890 | 610 | 3 | 230 | 58 |
| **SNOL 30/1100 LSF21** | 1100 | muffle | 300 | 450 | 300 | 640 | 800 | 830 | 3,4 | 230 | 100 |
| **SNOL 39/1100 LHM21** | 1100 | muffle | 315 | 515 | 225 | 649 | 899 | 739 | 6 | 300 | 74 |
| **Up to 1200°C** | | | | | | | | | | | |
| **SNOL 4/1200 LSC21** | 1200 | ceramic | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 |
| **SNOL 7,2/1200 LSC21** | 1200 | ceramic | 200 | 300 | 130 | 580 | 750 | 690 | 4 | 230 | 104 |
| **SNOL 12/1200 LSC21** | 1200 | ceramic | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 |
| **SNOL 15/1200 LSC21** | 1200 | ceramic | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 |
| **SNOL 40/1200 LSF21** | 1200 | muffle | 290 | 420 | 290 | 640 | 800 | 830 | 3,4 | 230 | 100 |
| **Up to 1300°C** | | | | | | | | | | | |
| **SNOL 6,7/1300 LSM21** | 1300 | muffle | 160 | 295 | 133 | 440 | 550 | 540 | 2,4 | 230 | 35 |
| **SNOL 4/1300 LSC21** | 1300 | ceramic | 120 | 295 | 100 | 440 | 560 | 500 | 3,7 | 230 | 55 |
| **SNOL 7,2/1300 LSC21** | 1300 | ceramic | 200 | 300 | 130 | 580 | 750 | 690 | 4 | 230 | 104 |
| **SNOL 12/1300 LSC21** | 1300 | ceramic | 210 | 300 | 180 | 560 | 700 | 740 | 4,5 | 230 | 120 |
| **SNOL 15/1300 LSC21** | 1300 | ceramic | 210 | 410 | 160 | 560 | 800 | 740 | 6 | 400 | 130 |
| **SNOL 30/1300 LSF21** | 1300 | muffle | 200 | 450 | 290 | 640 | 870 | 830 | 4,6 | 230 | 120 |

# 2. Other thermal processing equipment

## 2.2 Tube ovens

High temperature horizontal tube furnaces designed for thermal procesing up to a temperature of 1250 °C. The products can be used in scientific laboratories, educational institutions, medicine and industry.

**Basic model**

- Ceramic tube chamber
- Microprocessor-controlled thermoregulator (see page 14)
- High-quality, ecological thermal insulation material
- Low electric power comsumption
- Short heating up/cooling down period
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee

**Options**

- Buzzer
- Digital timer
- Protection against overheating
- Data recorder
- RS232/RS-485/USB interface
- Calibration of temperature measurement system
- Table for supporting the furnace
- Additional 1 year guarantee

**SNOL 0.2/1250LXC04**

| Model | Vol., l | Tmax, °C | Chamber dimention, mm | | Overall dimention, mm | | | Power, kW | Voltage, V | Weight, kg |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Diameter | Length | W | L | H | | | |
| **SNOL 0,2/1250 LXC04** | 0,2 | 1250 | 35 | 190 | 500 | 550 | 525 | 3,7 | 230 | 38 |
| **SNOL 0,3/1250 LXC04** | 0,25 | 1250 | 40 | 190 | 500 | 550 | 525 | 3,7 | 230 | 38 |
| **SNOL 0,4/1250 LXC04** | 0,35 | 1250 | 48 | 190 | 500 | 550 | 525 | 3,7 | 230 | 38 |
| **SNOL 0,5/1250 LXC04** | 0,5 | 1250 | 58 | 190 | 500 | 550 | 525 | 3,7 | 230 | 38 |

## 2.3 Protective atmosphere ovens

SNOL 78/300-1 is protective atmosphere oven, designed for protection of occidation process of various metals in up to 300°C temperature. The product can be used in scientific laboratories, educational institutions, medicine and industry.

**Basic model**

- Hermetic chamber
- Chamber made of stainlees steel
- Available gas: nitrogen, argon.
- Flow-meter installed
- Reducer
- Microprocessor-controlled thermoregulator (see page 14)
- High-quality, ecological thermal insulation material
- Low electric power comsumption
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee.

**SNOL 78/300-1 LSN01**

| Model | Vol., l | Tmax, °C | Chamber dimention, mm | | | Overall dimention, mm | | | Power, kW | Voltage, V | Weight, kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width | Depth | Heigh | Width | Lenght | Height | | | |
| **SNOL 78/300-1** | 78 | 300 | 410 | 390 | 420 | 720 | 765 | 720 | 2,0 | 230 | 52 |

# 2. Other thermal processing equipment

## 2.4 Shaft furnaces

Top- loading (shaft) low and high temperature electric laboratory furnaces are designed for drying, preliminary heating, hardening, loosening, normalising and other thermal processing up to temperature of 900 °C. The furnaces are an excellent fit for scientific laboratories, educational institutions, medicine and industry.

**Basic model**

- Chamber made of stainless steel (SNOL 75/600 LHN02)
- Solid ceramic chamber (SNOL 10/900 LC02)
- Enclosed heating elements
- Doors open from the top
- 14)Microprocessor – controlled thermoregulator (see page
- Ceramic hearth plates
- High quality, ecological thermal insulation material
- Low electric power comsumption
- High temperature inertness
- High degree of accuracy
- Exterior painted with powder coating (RAL 7035)
- 1 year guarantee

**Options**

- Reinforced bottom (SNOL 75/600 LHN02)
- Additional ceramic hearth plates (SNOL 10/900 LC02)
- Buzzer
- Digital timer
- Protection against overheating
- Data recorder
- RS232/RS-485/USB interface
- Calibration of temperature measurement system
- Table for supporting the furnace
- Additional 1 year guarantee

**SNOL 10/900 LXC02**

**SNOL 75/600 LHN02**

| Model | Vol., l | Tmax, °C | Chamber dimention, mm | | | Overall dimention, mm | | | Power, kW | Voltage, V | Weight, kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width | Depth | Heigh | Width | Lenght | Height | | | |
| **SNOL 10/900 LXC02** | 10 | 900 | 150 | 150 | 450 | 860 | 750 | 800 | 4,5 | 230 | 120 |
| **SNOL 75/600 LHN02** | 75 | 550 | 340 | 390 | 550 | 870 | 660 | 850 | 6 | 400 | 100 |

# 4. Control devices

## 4.1 Temperature controllers

SNOL products are equipped with high-precision digital microprocessor Omron or Eurotherm temperature controllers fitted with self-tuning and manual PID settings. Temperature measurement is supported by thermocouple. The customer can select a basic or programmable temperature controller, which offers up to 32 programming segments (rate of temperature rise or decrease control, maintenance of preset temperature, automatic shutdown). A wide range of devices allows to select the most appropriate controller for your process.

**Omron E5CC**

**Eurotherm 3216**

**Eurotherm 3504**

**Omron E5CC-T**

**Eurotherm 3208**

**Eurotherm Nanodac**

| Model | Programmable | Number of programs | Number of steps in program | Computer port | Control metod | | Control signal | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | PID | ON/OF | Type | | Nubers of auxiliary outputs |
| | | | | | | | Relay | Voltage | |
| **Omron E5CC** | ○ | 1 | 2 | ● | ● | ● | ● | ● | 3 |
| **Omron E5CC-T** | ● | 8 | 32 | ● | ● | ● | ● | ● | 3 |
| **Omron E5CN-H** | ○ | 1 | 2 | ● | ● | ● | ● | ● | 2 |
| **Omron E5CN-HT** | ● | 8 | 32 | ● | ● | ● | ● | ● | 2 |
| **Eurotherm 3216** | ○ | 1 | 8 | ● | ● | ● | ● | ● | 2 |
| **Eurotherm 3208** | ● | 5 | 8 | ● | ● | ● | ● | ● | 3 |
| **Eurotherm 3508** | ● | 50 | 50 | ● | ● | ● | ● | ● | 2 |
| **Eurotherm 3504** | ● | 50 | 50 | ● | ● | ● | ● | ● | 5 |
| **Eurotherm Nanodac** | ● | 100 | 25 | ● | ● | ● | ● | ● | 5 |
| **Eurotherm E+PLC100 *** | ● | - | - | ● | ● | ● | ● | ● | 4 |

* PId controller, recorder and PLC in one – designed for elaborate control algorythms.

## 4.2 Touch screen Omron E5CN-HTV1.1_EN

Omron E5CN-HT V1.1_EN is touch screen panel for programming and controlling processes of furnaces. The main purpose of the device is to relieve, simplify and broaden control of the furnaces. This device also has representation of process data in graphics – text format on the display. The main window shows necessary data of working parameters, auxiliary windows are for observing processes in graphic format in live or remote data.

**Main features:**

- Full and clear controlling of temperature controller
- Controlling mode choice: programmable task graph or main work with constant temperature
- Multiple language entry (ability to install necessary language)
- Data collection and export to computer via USB (e.g. Microsoft Excel format).

# 4.3 Over temperature protection

This is an optional protection, which as the name implies, will shut down the power supply if the temperature inside the chamber reaches a certain/ set temperature level.

**Options:**

- Protection of the unit -Temperature monitoring relay - works as over temperature detector and shuts down the power as set temperature is reached. Non-adjustable (max. temperature is preset)
- Protection of the charge - Indicator and alarm unit Eurotherm 3216 - offers accurate indication and alarming of temperature and process measurements. Over temperature furnace limits, are implemented using relay output channels. Maximum temperature can be adjusted.

# 4.4 Data recorder Eurotherm 6100E

Data recorder Eurotherm 6100 E is ideal for basic visualisation and recording requirements. The 6100E has a full color display and utilises touch screen technology for clear and intuitive configuration and operation. It further supports a USB port as standard to enable the use of a mouse, keyboard or bar code scanner. Data can be moved manually or automatically archived to multiple locations: removable media, network servers or the Eurotherm Review database on a PC. The recorder can easily be integrated into a larger system and data files can be transferred across the network.

**Main features:**

Advanced data security and archiving
5.5, 1/4 VGA, Color touch screen display
Designed for network and stand alone use
FTP client and server
Live, remote data viewing and configuration
125ms parallel sampling.

# 4.5 Computer software SNOL 12 V.1

SNOL 12 V.1 is computer software for data recording, viewing and configuring the temperature controller running your thermal treatment process. The software is designed for Windows operating system. Computer software allows simply run, review and display charts on thermal process temperatures and other settings.

**Main features:**

Up to 128 controllers connection
Supports up to 4 computer ports
Control of device parameters and programs via computer
Live, remote data viewing and configuration
Graphical representation of the data
Data export to Microsoft Excel format
Ability to observe the process in a distance by internet
Connections RS-232 and RS-485.
Multiple language entry (ability to install necessary language).

# 4.6 Timer Galaxy

The main function of the timer is remote start of the furnace. The timer works in real-time. During the operation, the output contact of the timer is operated according to the settings of the dial-switches. However, at all time it is possible to manually override this operation for each channel individually.

**Main features:**

Start and stop 24 hour / 7 day oven operation
Stores up to 20 programs with up to 10 ON and 10 OFF events/day
Manual 3-way override
16 Amp, 277 VAC resistive SPDT output contacts
Reserve carryover: 3 years (Non-replaceable battery)
Manual Daylight Time Changeover
3 languages option
Available only with Omron devices.

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