

The logo for SNOL, featuring the letters 'S', 'N', and 'O' in a bold, black, sans-serif font. The letter 'O' is stylized with a red and white graphic element inside it, resembling a flame or a drop. The letter 'L' is also in a bold, black, sans-serif font.

# **SNOL**

*Customized for your hot innovations*

*Thermal processing equipment  
for laboratories*

*2017 Vilnius, Lietuva*

The background of the slide features a large, abstract geometric design on the right side. It consists of several overlapping, semi-transparent shapes in various shades of gray, creating a sense of depth and movement. The shapes are angular and layered, with some appearing to be in front of others, set against a plain white background.

# 1 *What we do?*

*Standard and unique solutions for various heat treatment processes.*

***Furnaces and Ovens up to 1600 ° C for laboratories and industry.***

- ✓ *Relevant international standards;*
- ✓ *Excellent quality and reliability;*
- ✓ *Individual solutions for each needs at an affordable price.*

## 2 History & Present

### FOUNDATION

of a laboratory electric furnace factory  
in Utena.



1960

1961

### MERGING

With JCS Umeqa -the largest  
metal processing company in  
the Baltic States.

1980

1990

### PRODUCING

First product:  
Muffle furnace MP-2M



### DEVELOPMENT

New serial model 420/300 for polymerisation;  
Our first customized order.

2004

2010

### WINNING

"Lithuanian product of the year  
2013" nomination for a development  
of a new furnace **SNOL 8,2/1100**



2013

2015



### NEW LINE

New drying ovens line up to 300°C with forced  
air flow and excellent uniformity.



### WINNING

"Lithuanian product of the year 2015"  
nomination for a development of a new  
oven **SNOL 2x6405/150**

4

# Laboratory heat treatment equipment

*High temperature  
electric furnaces*



- Muffle furnaces*
- Chamber furnaces*
- Ceramic chamber furnaces*
- Ashing furnaces*

*Low temperature  
electric ovens*



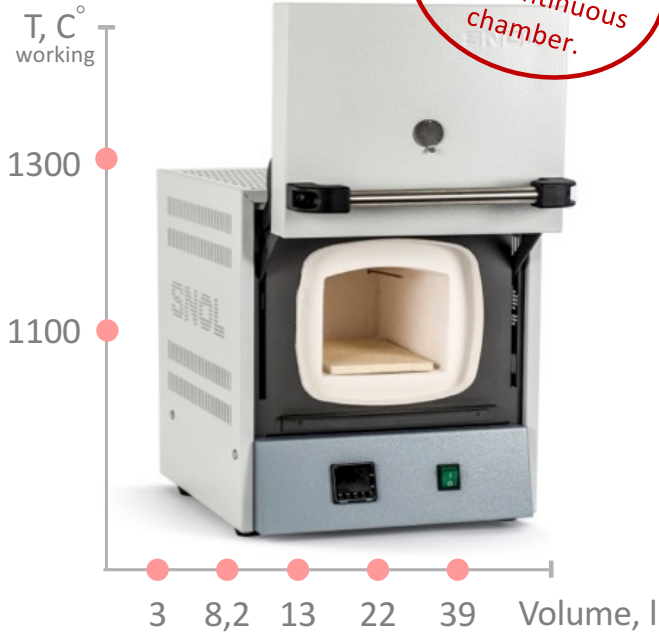
- Chamber ovens up to 200 C°*
- Chamber ovens up to 350 C°*
- Multi-chamber ovens*

*Other thermall  
processing equipment*



- Tube furnaces*
- Shaft furnaces*
- Protective atmosphere ovens*

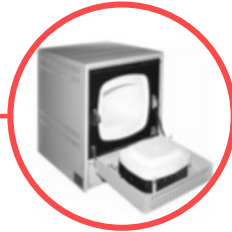
# 4 High temperature: *Muffle furnaces*



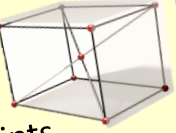
Classic muffle furnace!  
One continuous chamber.

**Door opening optional:**

- ✓ Top
- ✓ Bottom
- ✓ Sided



- ✓ Fast heating time
- ✓ Low power consumption
- ✓ Good stability  $\pm 1^\circ\text{C}$
- ✓ Thermal shock - resistant
- ✓ Uniformity  $\pm 10^\circ\text{C}$  temperature measured in 9 points



**Chamber:**

- ✓ Heating elements vacuumed in to high quality ceramic fiber
- ✓ Heating from 4 directions
- ✓ Ceramic bottom plate



For 1300°C Heating elements exposed

**Control:**

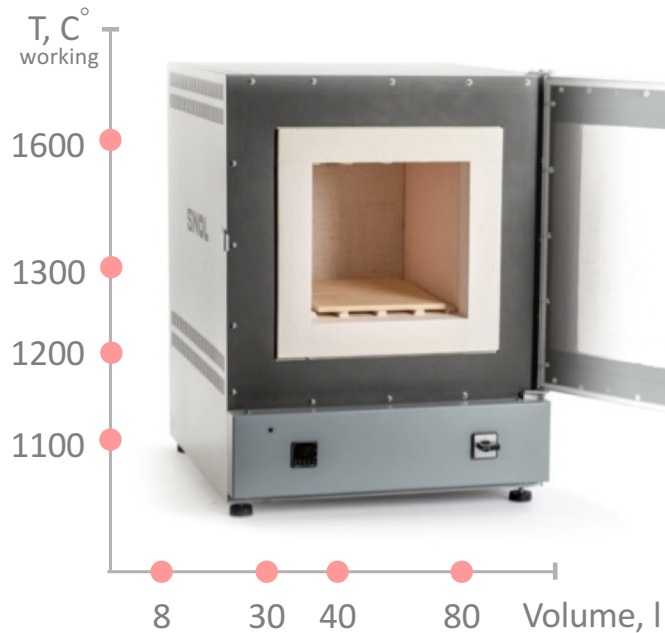
- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm



With program set to save energy – you can save up to 20%

**APPLICATION: METAL CERAMICS GLASS PROCESS: SINTERING TEMPERING SOLDERING BRAZING FUSING**

## 4 High temperature: **Chamber furnaces**



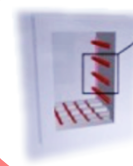
### Door opening optional:

- ✓ To the right



### Chamber:

- ✓ Fiber plates with heating elements:
  - 1100 C° vacuumized in fiber
  - 1300C° in groves
  - 1300C° on tubes
- ✓ Ceramic bottom plate



Heating from 2 to 6 sides!

### Control:

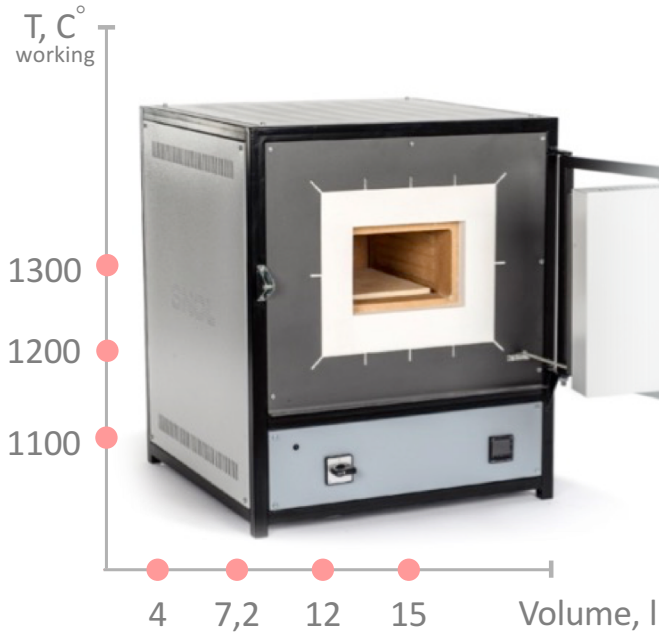
- ✓ PID electronic regulator double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm



- ✓ Fast heating time
- ✓ Low power consumption
- ✓ Uniformity  $\pm 10^{\circ}\text{C}$
- ✓ Heating elements are in blocs and easy to change
- ✓ Thermal shock - resistant

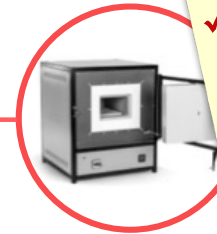
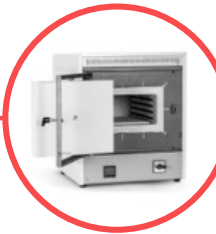
**PROCESS: SINTERING TEMPERING**

# 4 High temperature: Ceramic chamber furnaces



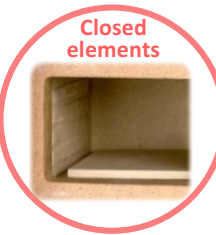
## Door opening optional:

- ✓ To the right
- ✓ To the left

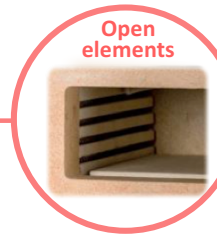


## Chamber:

- ✓ Solid ceramic chamber with heating elements :  
900, 1200 C° enclosed  
1100, 1300C° exposed
- ✓ Ceramic bottom plate



Closed elements



Open elements

For 1300C°  
Heating elements exposed

## Control:

- ✓ PID electronic regulator  
double digital display
- ✓ Microprocessor temperature controller  
Omron/ Eurotherm

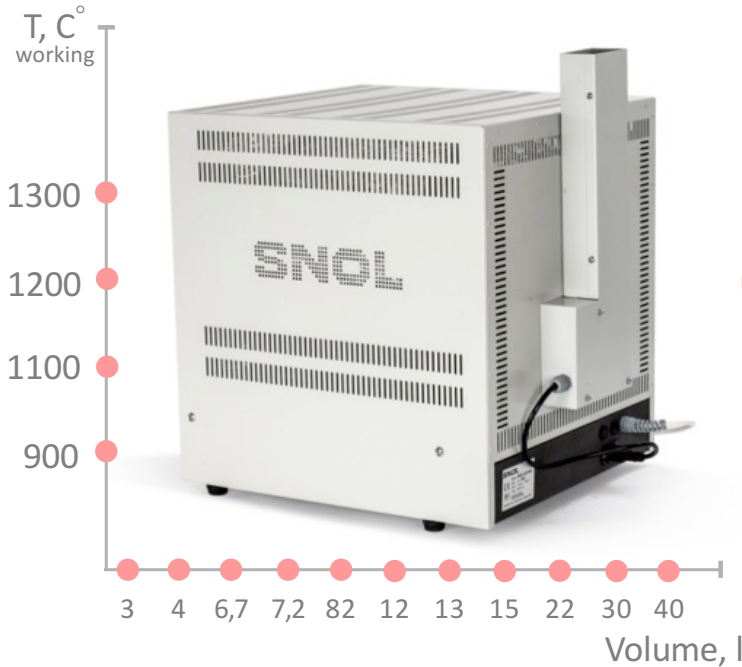


- ✓ Low power consumption
- ✓ Uniformity  $\pm 10^{\circ}\text{C}$
- ✓ Robust construction – strong and durable
- ✓ Perfect for aggressive environment

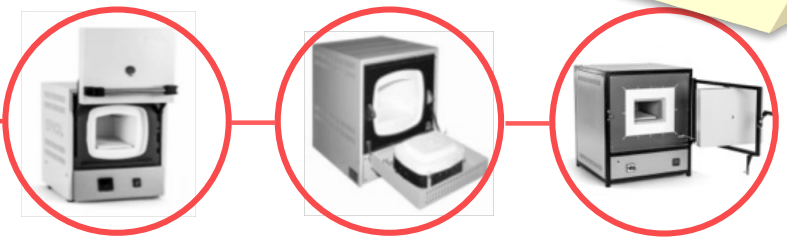
**PROCESS: ANNEALING HARDENING CUPPELLATION SINTERING TEMPERING**

# 4 High temperature: *Ashing furnaces*

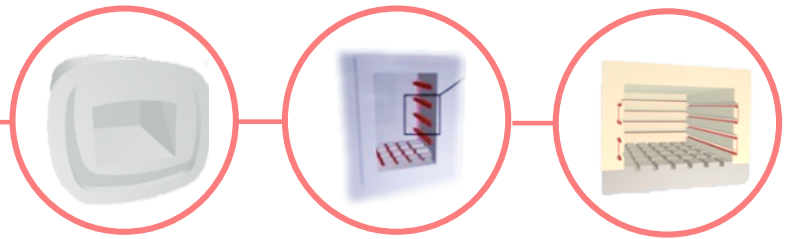
✓ Continuous air change in the chamber!



- Door opening optional:**
- ✓ Top
  - ✓ Bottom
  - ✓ Sided



- Chamber:**
- ✓ Solid ceramic, muffle or fiber chamber
  - ✓ Fan-assisted chimney for smoke and humidity extraction



- Control:**
- ✓ PID electronic regulator double digital display
  - ✓ Microprocessor temperature controller Omron/ Eurotherm



**PROCESS: ASHING BURN-OFF**



4

# Low temperature: Chamber ovens 300°C



### Door opening optional:

- ✓ To the right/ two doors
- ✓ Hermetically closed
- ✓ Double mechanical door lock



### Chamber:

- ✓ Stainless steel (AISI 304)
- ✓ Horizontal air circulation
- ✓ 2 standard shelves or more



The air is drawn in in the back and blown out at the front.

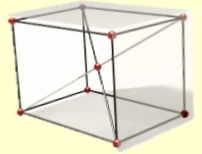
Adjustable valve in the back of the oven.

### Control:

- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm



- ✓ OTP and buzzer
- ✓ Fan speed controller
- ✓ Uniformity  $\pm 1 - \pm 5$  C<sup>o</sup> temperature measured in 9 points



PROCESS: **DRYING**

4

# Low temperature: Chamber ovens 350°C



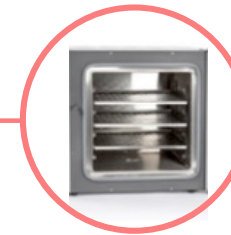
### Door opening optional:

- ✓ To the right
- ✓ Hermetically closed



### Chamber:

- ✓ Stainless steel (AISI 304)
- ✓ Economical version with mild steel
- ✓ Forced/ natural air circulation
- ✓ 3 standard shelves



### Control:

- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm

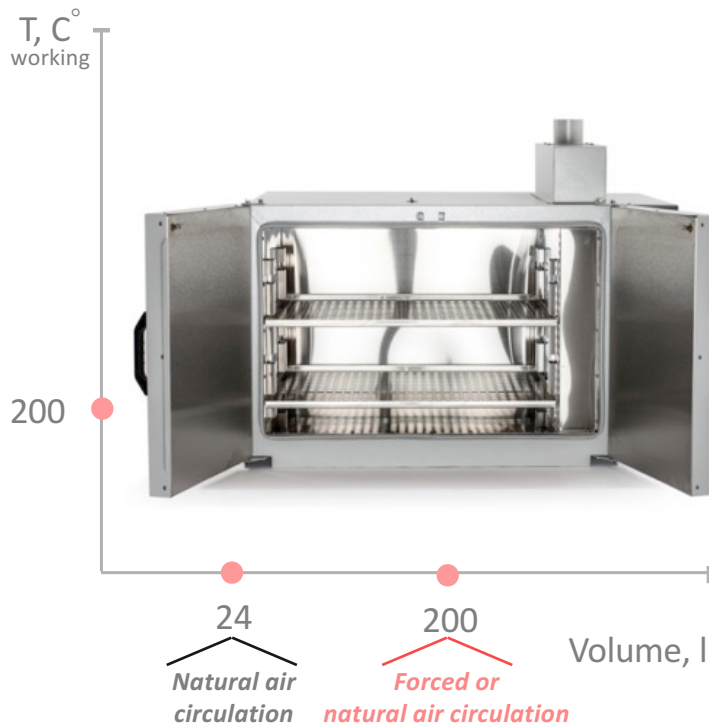


- ✓ Fast heating time
- ✓ Low power consumption
- ✓ Economical low-cost version with mild steel!

PROCESS: **DRYING**

4

## Low temperature: Chamber ovens 200°C



### Door opening optional:

- ✓ To the right/ two doors
- ✓ Hermetically sealed



### Chamber:

- ✓ Stainless (AISI 304)
- ✓ Economical version with mild steel
- ✓ Forced/natural air circulation
- ✓ 2 standard shelves or more



### Control:

- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm



- ✓ Fast heating time
- ✓ Low power consumption
- ✓ Economical version with mild steel!

PROCESS: **DRYING**

## 4 Low temperature: **Multi-chamber ovens**



### Door opening optional:

- ✓ 2 or 4 doors;
- ✓ Hermetically sealed.



### Chamber:

- ✓ Stainless/ mild steel;
- ✓ Forced/ natural air circulation;
- ✓ 4 standard shelves.



### Control:

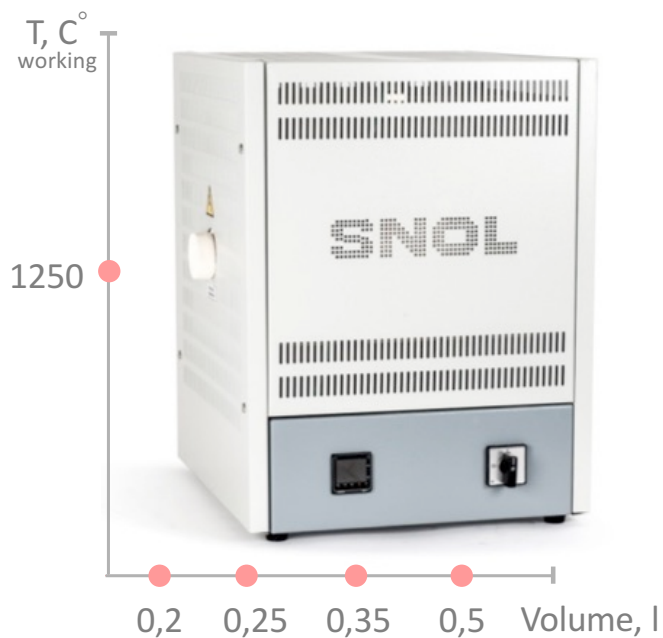
- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm



- ✓ Fast heating time
  - ✓ Low power consumption
  - ✓ Customization according to clients needs:
- 2, 3, 4... Separate chambers with a individual controllers!

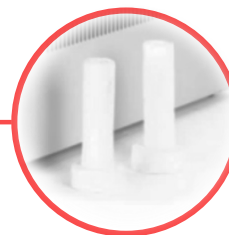
**PROCESS: DRYING**

## 4 Other: *Tube furnaces*



### Closure:

- ✓ 2 plugs for both sides



### Tubes:

#### Diameters:

- ✓ 35 mm
- ✓ 40 mm
- ✓ 48 mm
- ✓ 58mm



### Control:

- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm

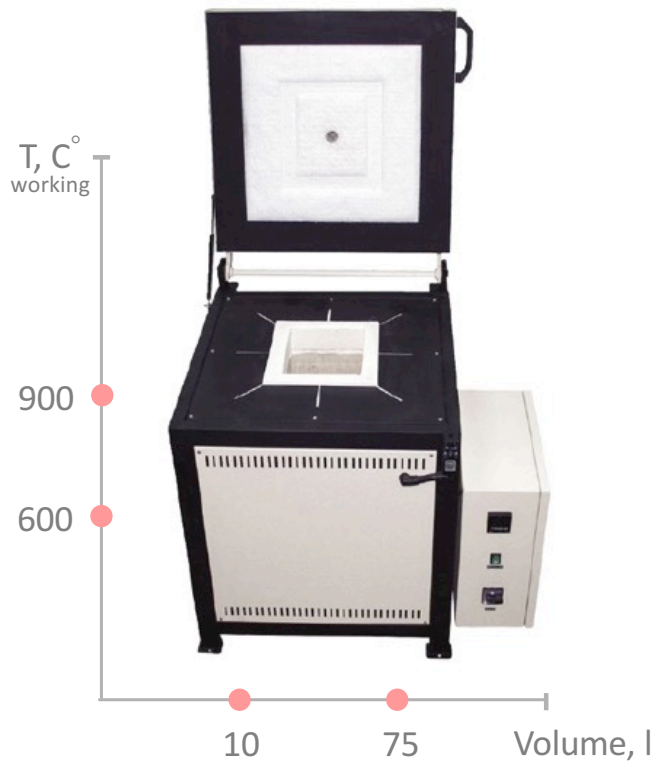


- ✓ Fast heating time
- ✓ Low power consumption
- ✓ High degree of accuracy



**APPLICATION: DETERMINATION OF CARBON**

## 4 Other: Shaft furnaces



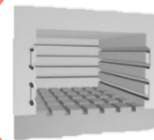
### Door opening optional:

- ✓ From the top.



### Chamber:

- ✓ Solid ceramic or stainless steel chamber;
- ✓ Heating elements – enclosed;
- ✓ Ceramic heat plates.



- ✓ Fast heating time
- ✓ Low power consumption
- ✓ High degree of accuracy



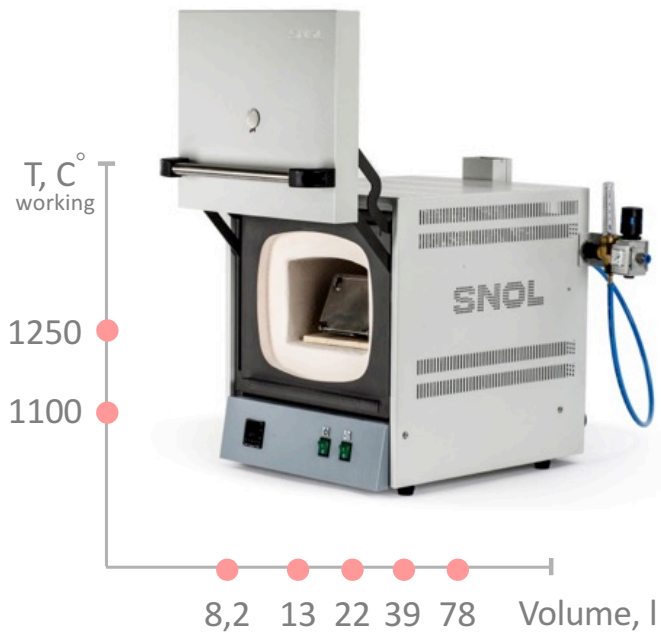
### Control:

- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm



**APPLICATION: TEMPERING ANEALING MELTING**

## 4 Other: **Protective atmosphere ovens**

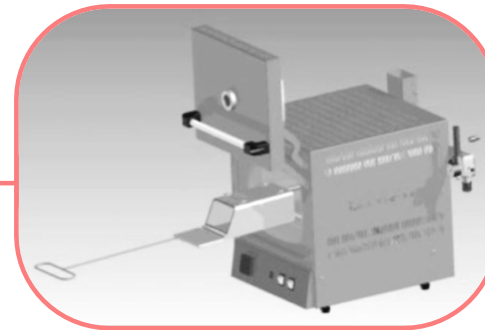


### Door opening:

- ✓ Optional

### Chamber:

- ✓ Protective gas box & equipment for gas inlet ;
- ✓ Gas: Nitrogen or argon.



### Control:

- ✓ PID electronic regulator, double digital display
- ✓ Microprocessor temperature controller Omron/ Eurotherm

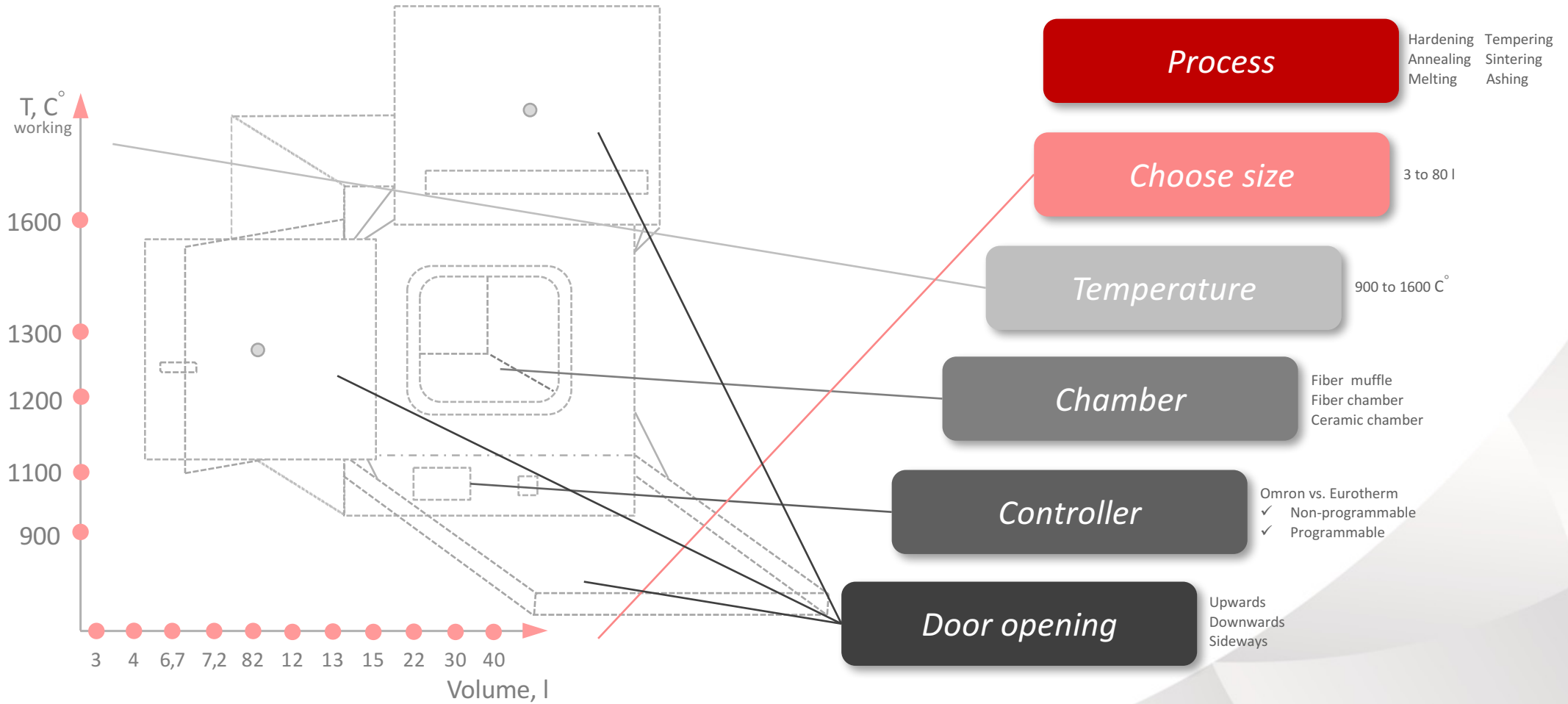


- ✓ Fast heating time
- ✓ Low power consumption
- ✓ High degree of accuracy

**APPLICATION: PROTECTIVE ATMOSPHERE**

# 4 Customized for YOU!

Choose:





## 4 Model names decryption:

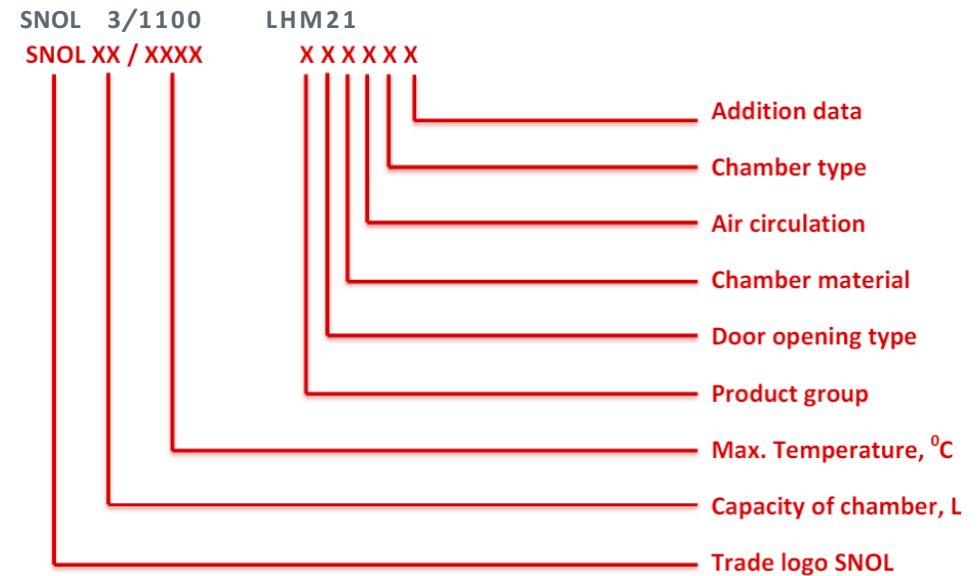


**SNOL 3/1100 LHM21** - capacity 4 l, max. working temperature 1100 °C, for laboratory, door opens upwards, vacuumed muffle chamber with chimney.

**SNOL 20/300 LSN11** - capacity 20 l, max. working temperature 300 °C, for laboratory, door opens sideways, stainless steel chamber with forcer air circulation.



Product group		Door opening type	
Notation	Group	Notation	Type
L	Laboratory	H	Upwards
P	Industrial	S	Sideways
E	Electrodes	Z	Downwards
		I	Extract
		D	Two doors
Chamber material		Air circulation	
Notation	Type	Notation	Type
N	Stainless steel	0	Natural air circulation
P	Carbon steel	1	Forced air circulation
M	Vacuum muffle	2	Chimney
F	KTM block		
C	Ceramic		
B	Brick		
K	Composite		
Chamber type		Additional data	
Notation	Type	Notation	Economic version
1	Chamber	Ec	
2	Shaft		
3	Chamber with removable hearth		
4	Tube		
5	Conveyor		
6	Tunnel		
7	Bell type		



# 4 Application

**SNOL**

Customized for your hot innovations

Product model	Sintering	Melting	Annealing	Ashing	Tempering	Drying	Determination of carbon
SNOL 0,2/1250 LXC04							✓
SNOL 0,3/1250 LXC04							✓
SNOL 0,4/1250 LXC04							✓
SNOL 0,5/1250 LXC04							✓
SNOL 10/900 LXC02		✓					
SNOL 12/1100 LSC01	✓				✓		
SNOL 12/1100 LSC21	✓				✓		
SNOL 12/1200 LSC01	✓				✓		
SNOL 12/1200 LSC21	✓				✓		
SNOL 12/1300 LSC01	✓				✓		
SNOL 12/1300 LSC21	✓				✓		
SNOL 12/900 LSC01				✓	✓		
SNOL 12/900 LSC21				✓	✓		
SNOL 120/300 LSN11						✓	
SNOL 13/1100 LHM01	✓				✓		
SNOL 13/1100 LHM21	✓				✓		
SNOL 15/1100 LSC01	✓				✓		
SNOL 15/1100 LSC21	✓				✓		
SNOL 15/1200 LSC01	✓				✓		
SNOL 15/1200 LSC21	✓				✓		
SNOL 15/1300 LSC01	✓				✓		
SNOL 15/1300 LSC21	✓				✓		
SNOL 15/900 LSC01	✓				✓		

# 4 Application

Product model	Sintering	Melting	Annealing	Ashing	Tempering	Drying	Determination of carbon
SNOL 15/900 LSC21	✓				✓		
SNOL 20/300 LSN11						✓	
SNOL 200/200 LSN11						✓	
SNOL 200/200 LSP11						✓	
SNOL 22/1100 LHM01	✓				✓		
SNOL 22/1100 LHM21	✓						
SNOL 220/300 LSN11						✓	
SNOL 24/200 LSP01						✓	
SNOL 2×240/200 LSN11						✓	
SNOL 2×240/200 LSP11						✓	
SNOL 3/1100 LHM01	✓			✓			
SNOL 3/1100 LHM21	✓			✓			
SNOL 30/1100 LSF01	✓						
SNOL 30/1100 LSF21	✓						
SNOL 30/1300 LSF01	✓						
SNOL 30/1300 LSF21	✓						
SNOL 39/1100 LHM01	✓						
SNOL 39/1100 LHM21	✓						
SNOL 4/1100 LSC01	✓			✓			
SNOL 4/1100 LSC21	✓			✓			
SNOL 4/1200 LSC01	✓			✓			
SNOL 4/1200 LSC21	✓			✓			
SNOL 4/1300 LSC01	✓						

# 4 Application

Product model	Sintering	Melting	Annealing	Ashing	Tempering	Drying	Determination of carbon
SNOL 4/1300 LSC21	✓						
SNOL 4/900 LSC01	✓			✓			
SNOL 4/900 LSC21	✓			✓			
SNOL 40/1200 LSF01	✓						
SNOL 40/1200 LSF21	✓						
SNOL 420/300 LSN11						✓	
SNOL 45/1200 LSF01	✓						
SNOL 4x80/200 LSN18						✓	
SNOL 4x80/200 LSP18						✓	
SNOL 58/350 LSN11						✓	
SNOL 58/350 LSP11						✓	
SNOL 6,7/1300 LSM01	✓				✓		
SNOL 6,7/1300 LSM21	✓				✓		
SNOL 60/300 LSN11						✓	
SNOL 67/350 LSN01						✓	
SNOL 67/350 LSP01						✓	
SNOL 7,2/1100 LSC01	✓			✓	✓		
SNOL 7,2/1100 LSC21	✓			✓	✓		
SNOL 7,2/1200 LSC01	✓			✓	✓		
SNOL 7,2/1200 LSC21	✓			✓	✓		
SNOL 7,2/1300 LSC01	✓				✓		
SNOL 7,2/1300 LSC21	✓				✓		
SNOL 7,2/900 LSC01	✓			✓	✓		

## 4 Application

**SNOL**  
Customized for your hot innovations

Product model	Sintering	Melting	Annealing	Ashing	Tempering	Drying	Determination of carbon
SNOL 7,2/900 LSC21	✓			✓	✓		
SNOL 75/600 LXC02			✓	✓	✓		
SNOL 8,2/1100 LHM01	✓			✓	✓		
SNOL 8,2/1100 LHM21	✓			✓	✓		
SNOL 8,2/1100 LSM01	✓			✓	✓		
SNOL 8,2/1100 LSM21	✓			✓	✓		
SNOL 8,2/1100 LZM01	✓			✓	✓		
SNOL 8,2/1100 LZM21	✓			✓	✓		
SNOL 80/1100 LSF01	✓						
SNOL 8/1600 LSF01	✓						

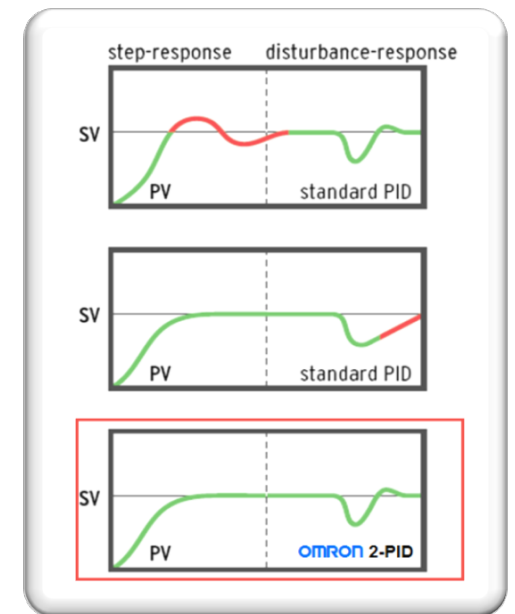
## 4 Controllers:

### *why we use Omron E5CC as our basic controller?*

- ✓ It's a **worldwide** model. It doesn't matter in which country of the world, the product is totally same and it's available worldwide
- ✓ **Fast control period** 50ms – customer will benefit with accurate temperature control and **energy saving** at the same time ( precise control = no overshooting = no waste of energy)
- ✓ **High contrast big digits** – very good visibility from bigger distance, easier operation by customer personal (see Your picture above)
- ✓ Brilliant **auto-tuning** function – customer don't need to know anything about the temperature control basic's – PID. If oven is behaving not good enough – just let customer run auto-tuning. After that problem will be solved.
- ✓ **2PID feature** – very good temperature control with no overshooting during temperature raise and during disturbance. Oven load will be not overheated during all heat treatment process



**OMRON**



# 6 Standards

Acquired

May be obtained

✓ ISO

✓ CE

✓ AMS 2075 E



## 6 *Maintenance and repair*



Wide range of spare parts



Easy to change



Inexpensive



Fast delivery from stock



Training movies and help  
via E-mail /Skype



SANDVIK

Kanthal





## 7 Packing & shipping

***Our packing allows our products to travel far distances with no risk and is included in the price:***

✓ Product is accompanied by its manual and other documents (Euro 1, ATR, IQ & OQ);

✓ Furnace is wrapped in elastic fil to protect the surface;

packed in a wooden box – by screwing the bottom of the furnace to the floor of the box.

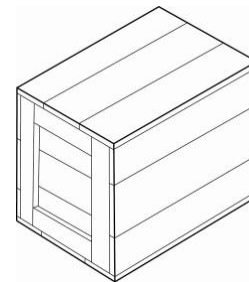
with stickers and shock sensors.



Then eve



✓



arked



**Product**

**Manuals**

**Elastic film**

**Wooden box**

**Handling labels**

**Shock sensors**

## 7 *Packing & shipping*

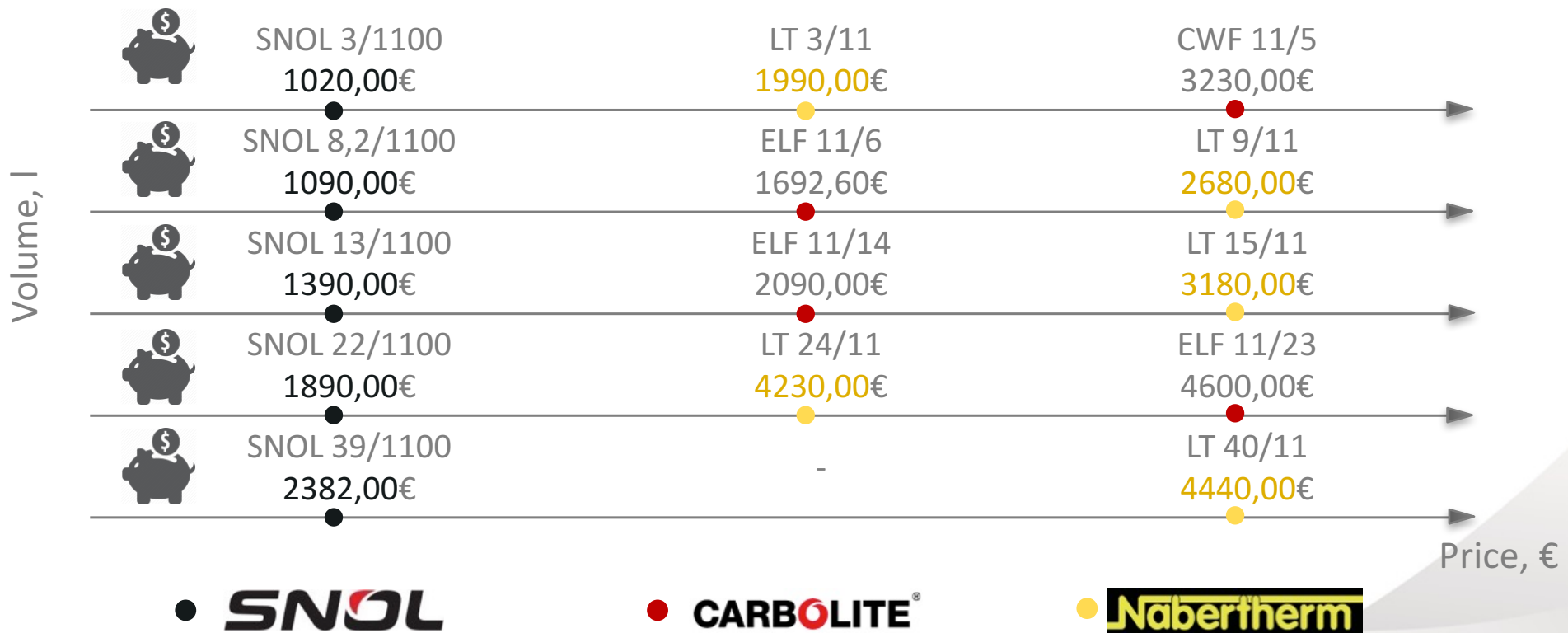
### *Shipping all around the world:*

- ✓ *Air freight, land cargo, ocean freight;*
- ✓ *Door to door, EXW, CPT, CIP, etc.;*
- ✓ *Our partners:*



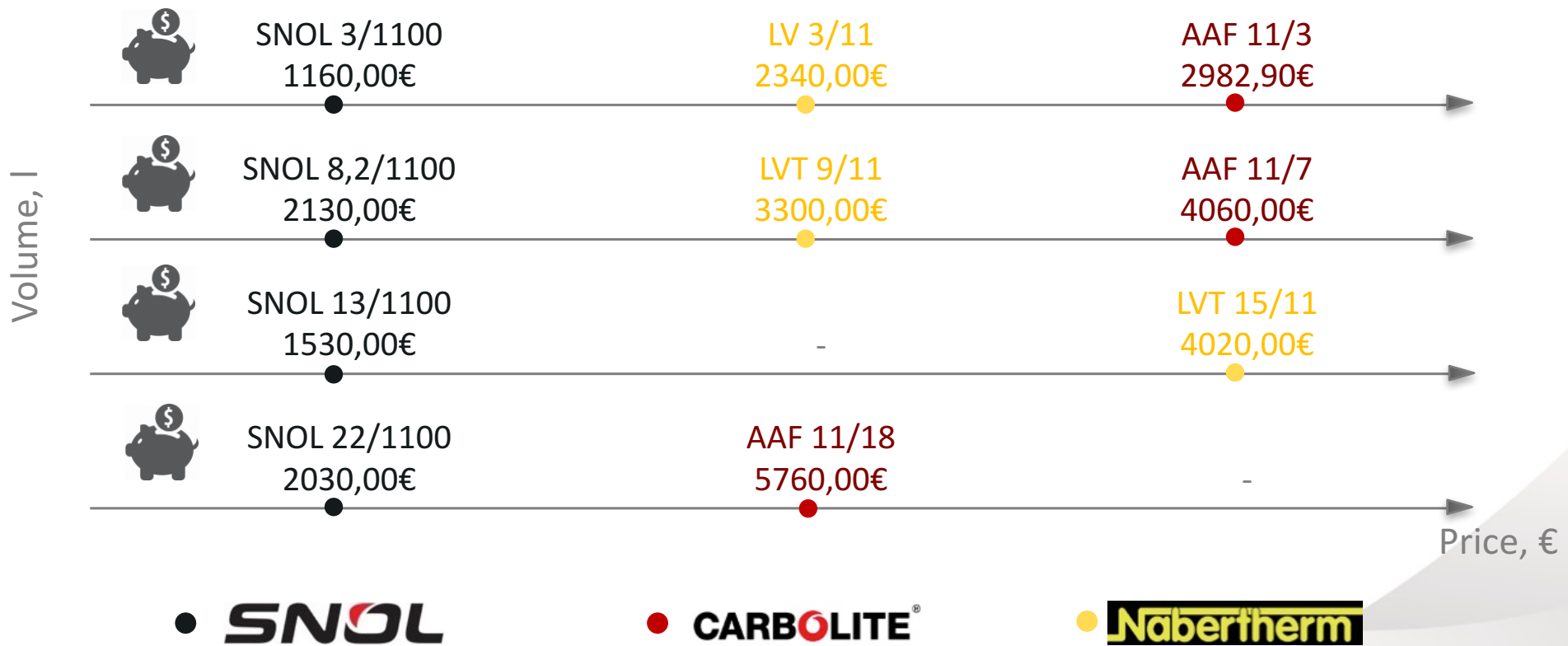
8

## Competition - Where do we fit in? Muffle furnace 1100°C



8

## Competition - Where do we fit in? Ashing furnace 1100°C



9

## Clients satisfaction survey 2015 02 **SNOL**

Positive! Good.  
Very good!  
Pleasure doing  
business with you.

Prompt in response.  
We like the quick  
answers we get.

Good value  
for money.

*Innovative in  
LHM furnaces,  
with a  
competitive  
range of  
products.*

Perfect and  
efficient

Good product,  
poor after  
sales and  
technical  
support.

The logo for SNOL, featuring the letters 'S', 'N', and 'O' in a bold, black, sans-serif font. The letter 'O' is stylized with a red and white graphic element inside it, resembling a stylized 'G' or a circular arrow. The letter 'L' is also in a bold, black, sans-serif font.

# SNOL

*Customized for your hot innovations*

*Contact us!*

[sales@snol.com](mailto:sales@snol.com)