

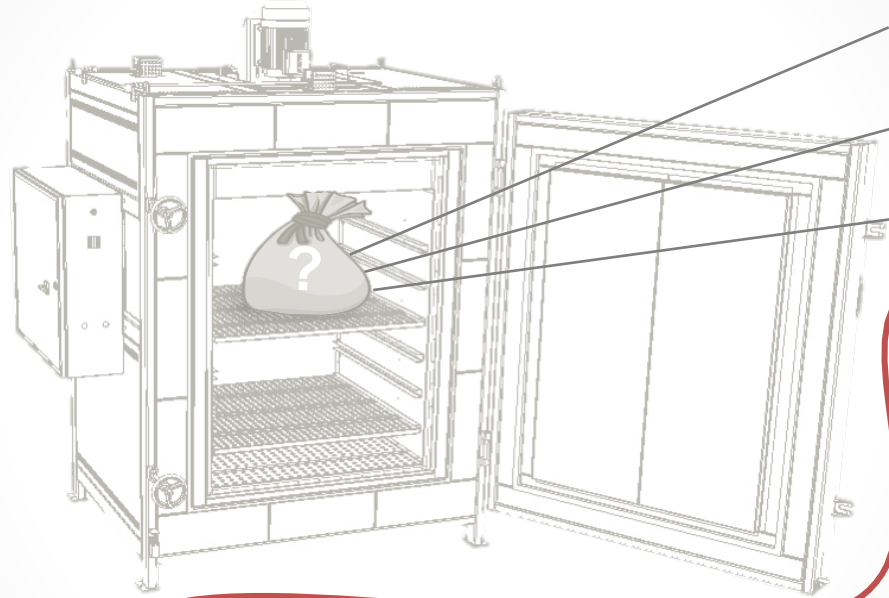


*Customized for your hot innovations*

**Thermal processing equipment *design* and  
*craft*  
for laboratories and *industry***

2016 Vilnius, Lietuva

# FIRST THINGS FIRST: WHY THE CHARGE IS IMPORTANT

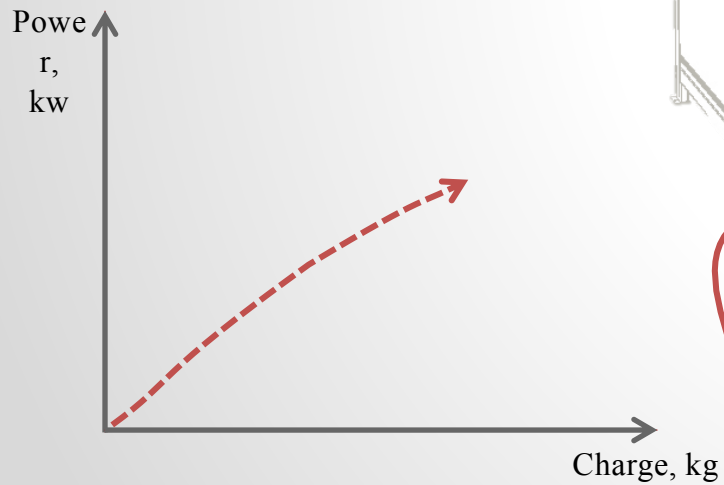


**Charge:**

Material?

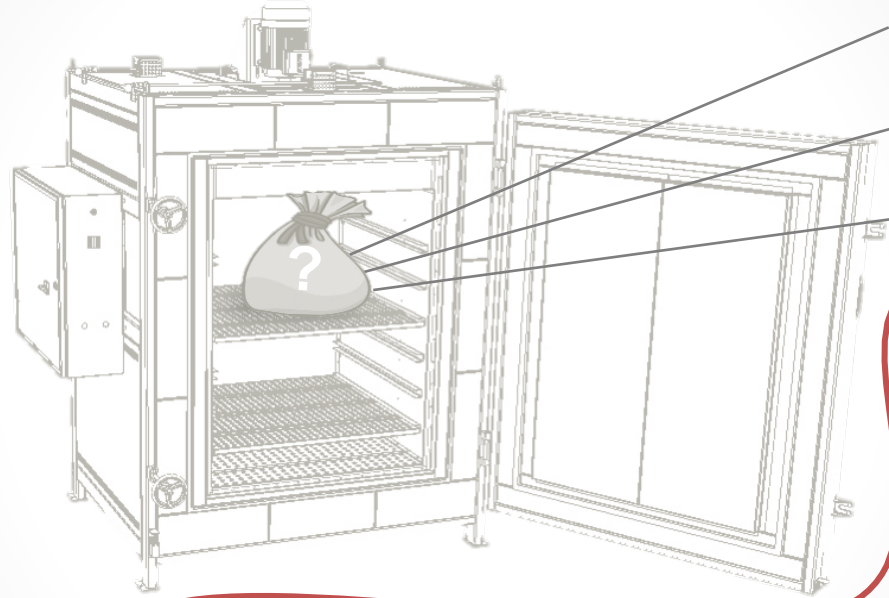
Weight (kg)?

Process?



**1 Ensuring process**

# FIRST THINGS FIRST: WHY THE CHARGE IS IMPORTANT

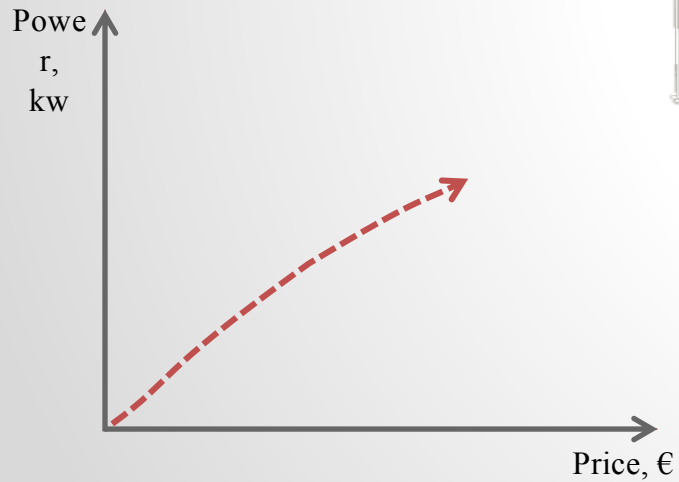


## Charge:

Material?

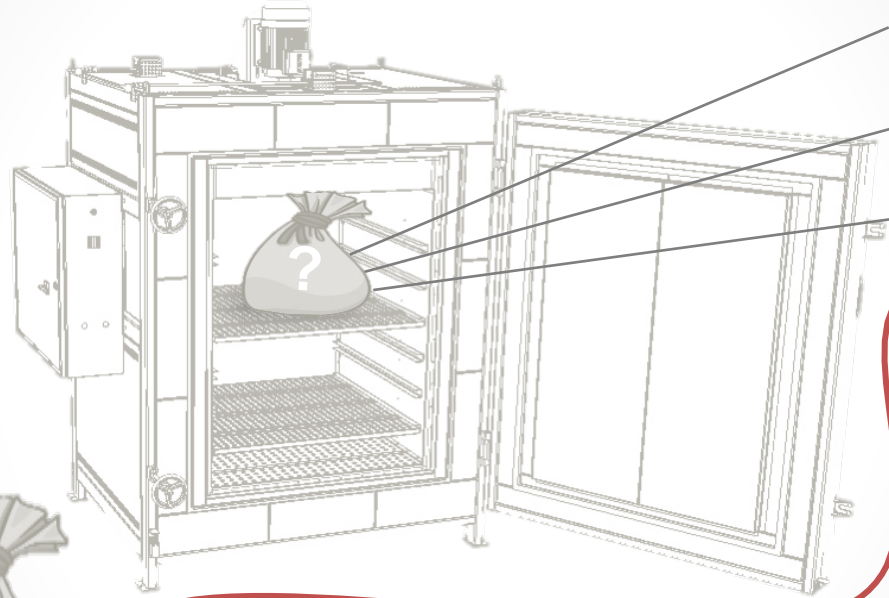
Weight (kg)?

Process?



**2 Saving money and  
energy!**

# FIRST THINGS FIRST: WHY THE CHARGE IS IMPORTANT

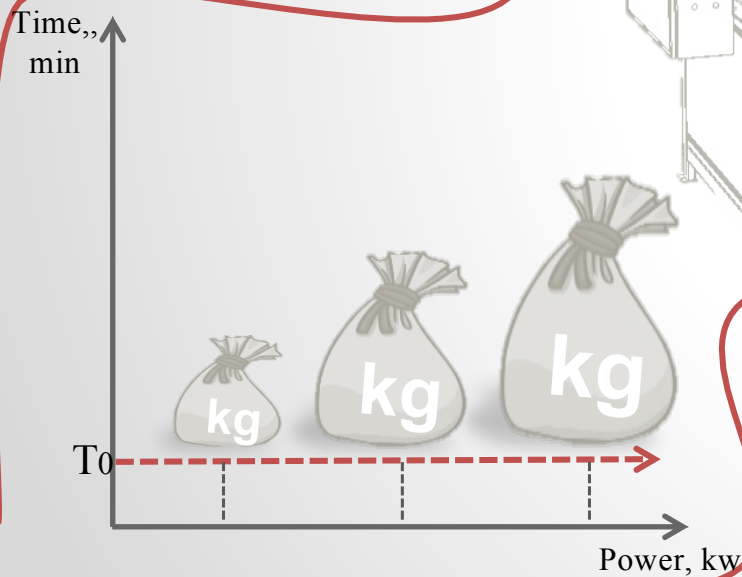


## Charge:

Material?

Weight (kg)?

Process?



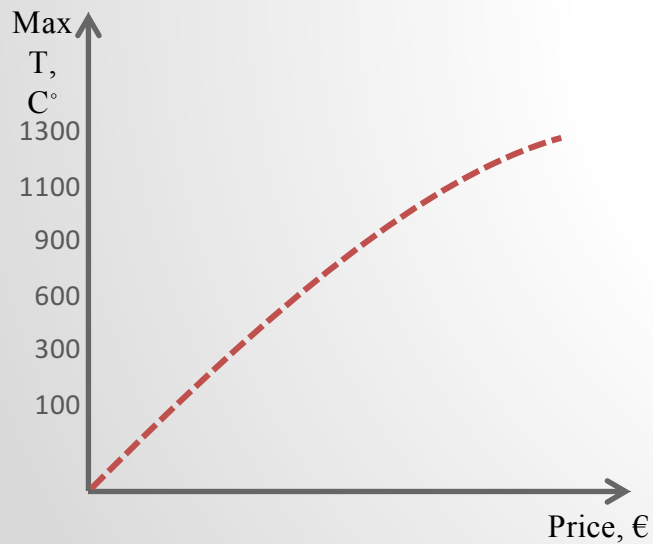
## 3 The significance of heat-up time?

# HOW HOT CAN IT GET?

## WORKING TEMPERATURE

### Continuous working

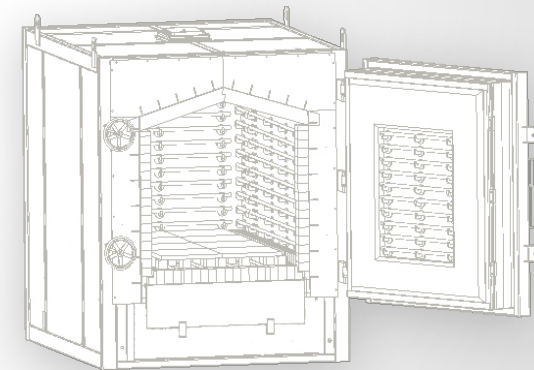
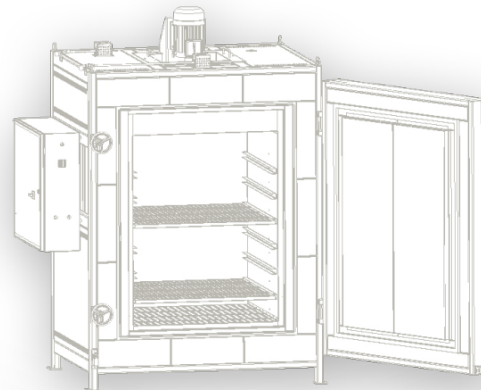
temperature from 50°C up to 1600°C



## Chamber material:

Low temperature up to 600°C High temperature up to 1600°C :

- Mild steel up to 300°C
- Stainless steel (AISI 316) <sup>ACID RESISTANT</sup>
- Stainless steel (AISI 304).
- Heat resistant stainless steel up to 1150 °C
- Ceramic fiber;
- Refractory bricks.

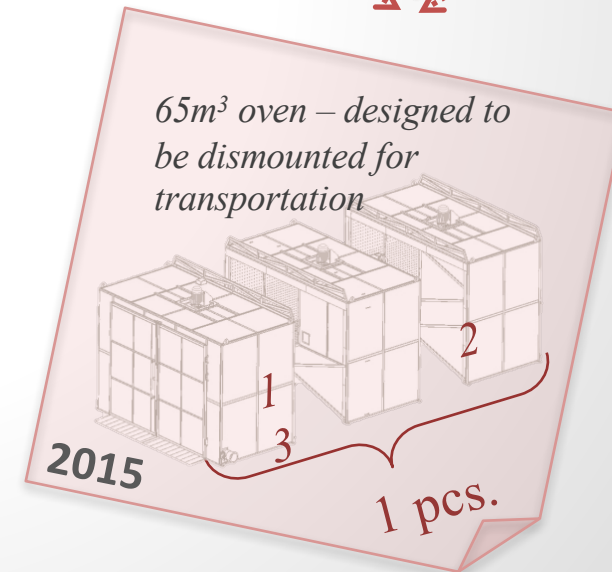
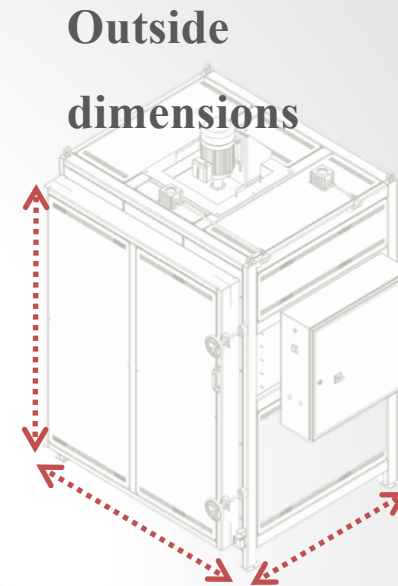
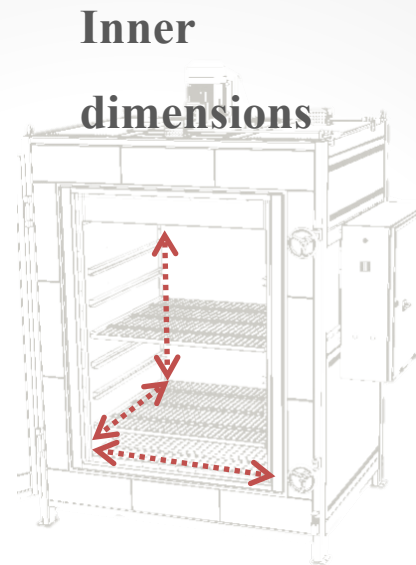
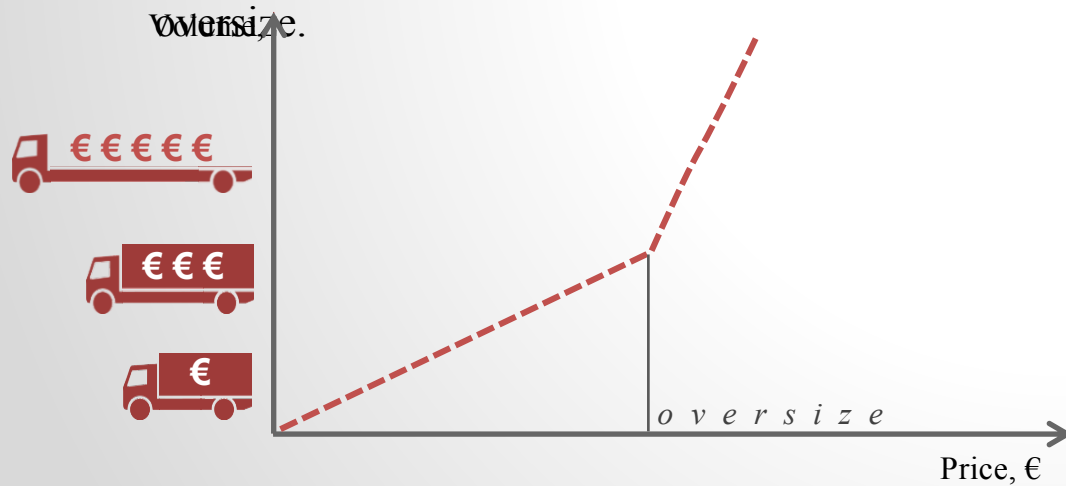


Heating elements: on 2, 3, 4 or 5 sides!

# BIGGER THAN BIG: SIZE RESTRICTIONS

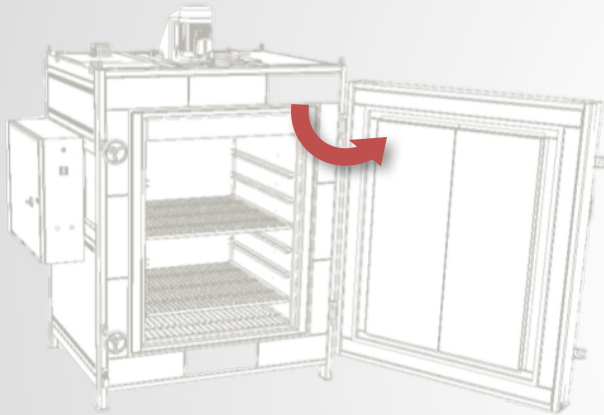
We can develop - any size you need:

- ✓ We might need to dismount some parts to fit transportation restrictions;
- ✓ Note – transportation costs for

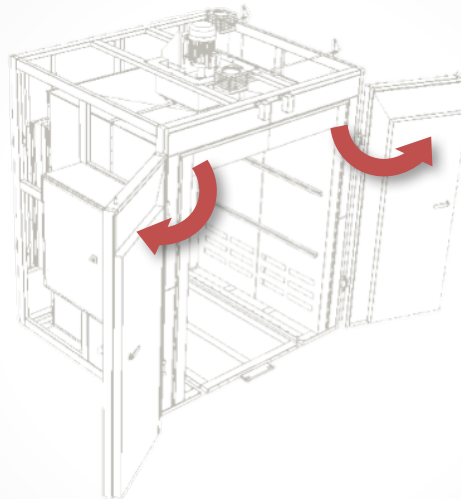


# SNOL'S DOOR IS ALWAYS OPEN:

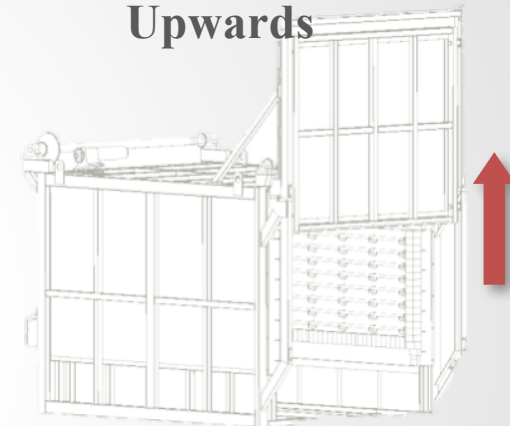
To the side



Two doors



Upwards



Manually  
or



Electromechanically  
or



Pneumatically

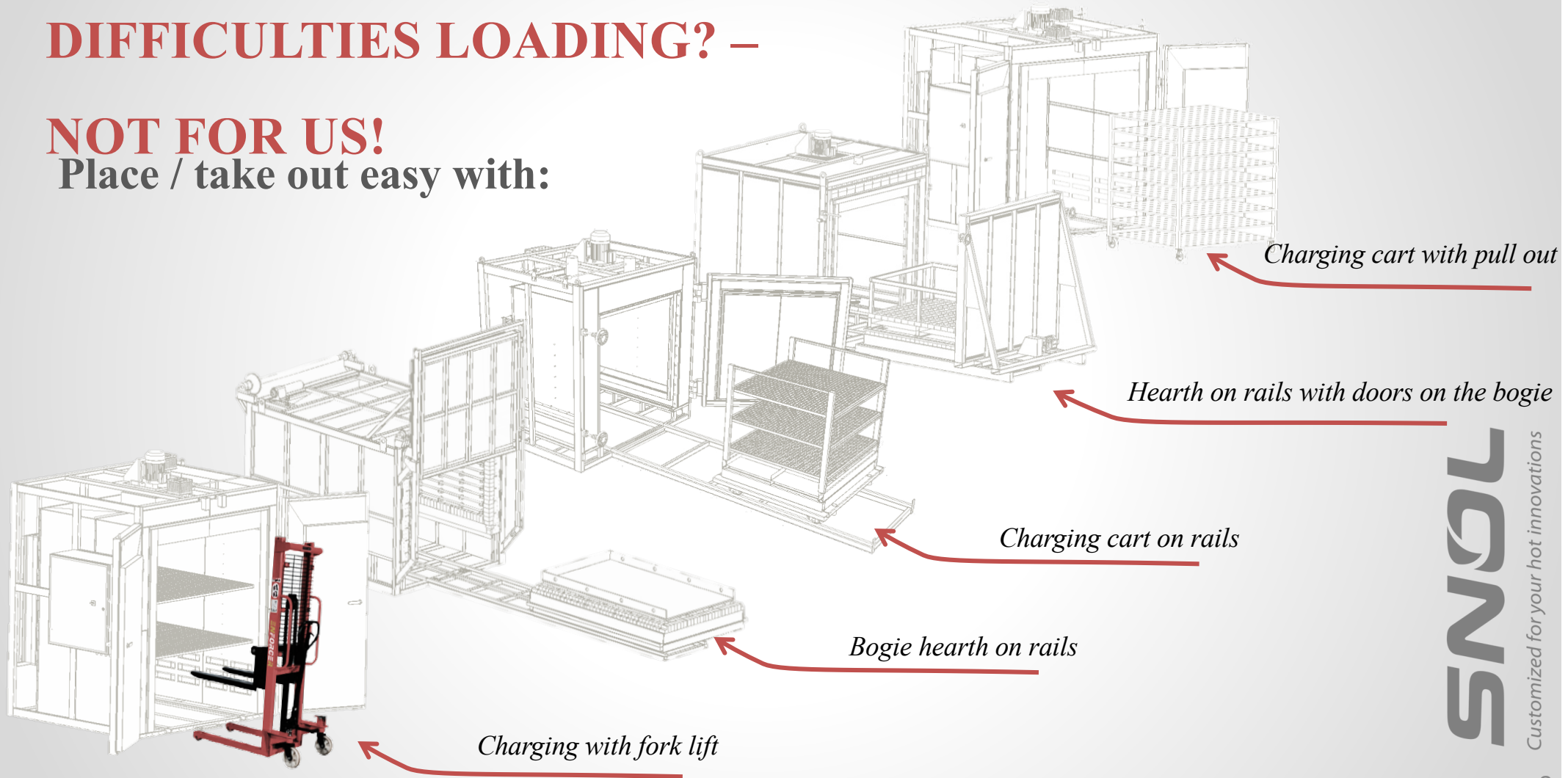
*All can be programmed to open – at the end of the process.*



## DIFFICULTIES LOADING? –

**NOT FOR US!**

Place / take out easy with:





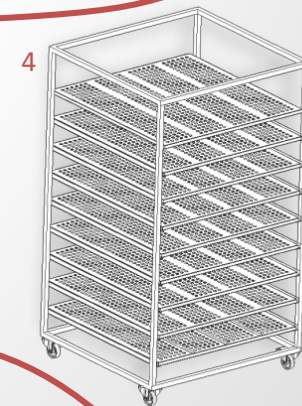
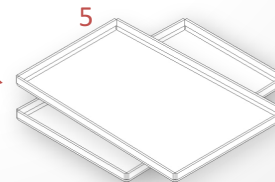
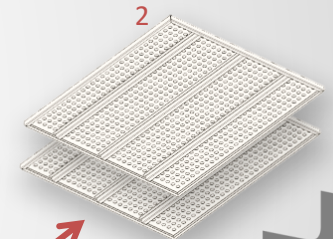
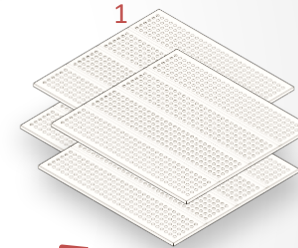
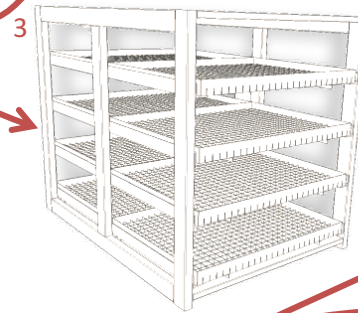
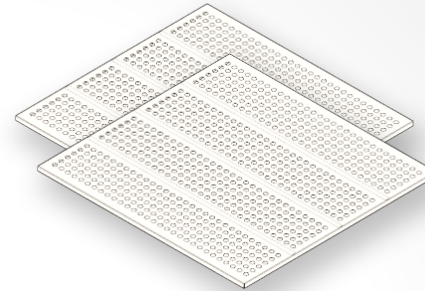
# FIND A SHELF OF YOUR

## CHOICE:

- 2 shelves mild or stainless steel
- Spaces between shelves and shelf positioning – **according to your needs**

## Optional:

1. *Additional shelves mild or stainless steel*
2. *Reinforced shelves for heavier load*
3. *Rack with shelves*
4. *Charging cart with shelves*
5. *Tray(pan)*



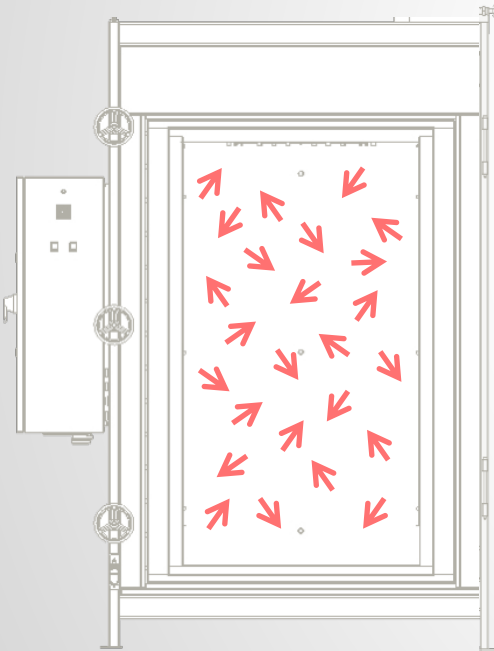
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# HEAT IS IN THE AIR:

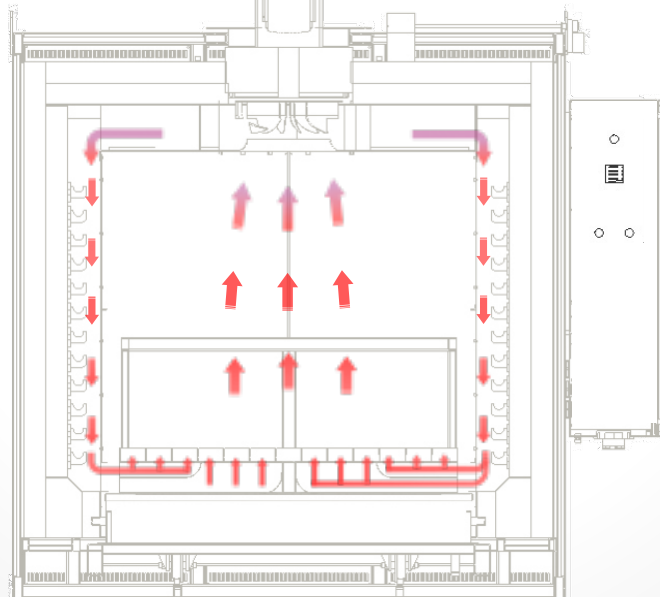
## AIR CIRCULATION

### Natural



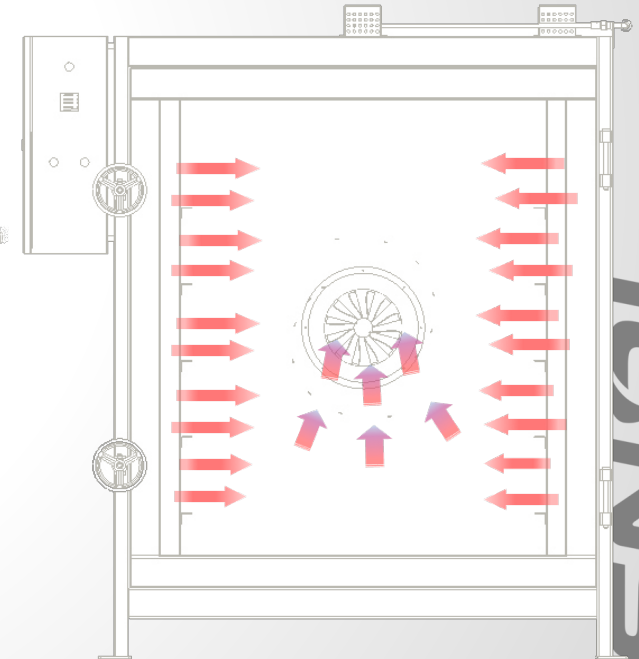
### Forced vertical:

*Motor on the top takes air in and blows out through the bottom.*



### Forced horizontal

*Motor on the back wall takes air in and blows out through the side walls.*



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# KEEP IT UNDER

## CONTROL: Temperature:

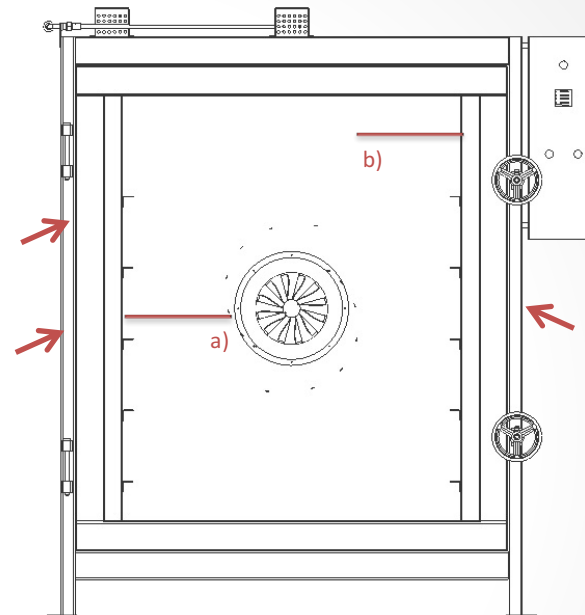
**Standard:** 2 thermocouples:

- a) For temperature control
- b) For over-temperature control

**Optional:**

- ✓ Additional thermocouples as you need;
- ✓ Holes with plugs for checking the temperature in different places;
- ✓ Thermocouple calibration certificate;
- ✓ Separate heating zone control;
- ✓ Thermocouples and controllers are calibrated in ISO certified laboratory ->

[www.vmc.lt](http://www.vmc.lt)



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# KEEP IT UNDER

## CONTROL:

Over temperature:

### Standard

- ✓ OTP - shuts down the oven in case it reaches set over-temperature.



Can be adjusted manually.

### Optional

- ✓ Eurotherm 3216i – shuts down the oven in case of over-temperature.



Can be adjusted electronically.

## Safety door switch:

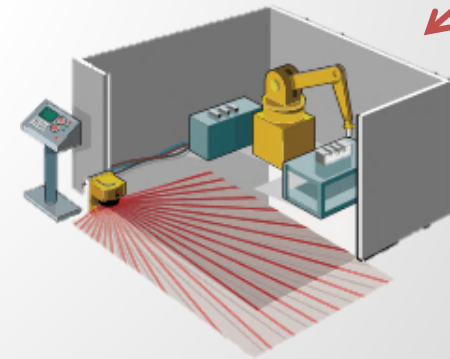
### Standard

### Additional options:

- ✓ Buzzer (audible signal)
- ✓ Safety mats
- ✓ Safety laser scanners
- ✓ Safety bumper for removable hearth
- ✓ Safety light curtains

*Protects the oven*

According to  
DIN 12880:2007-05



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# KEEP IT UNDER

## CONTROL: E5CC

*Non- programmable  
temperature controller.*



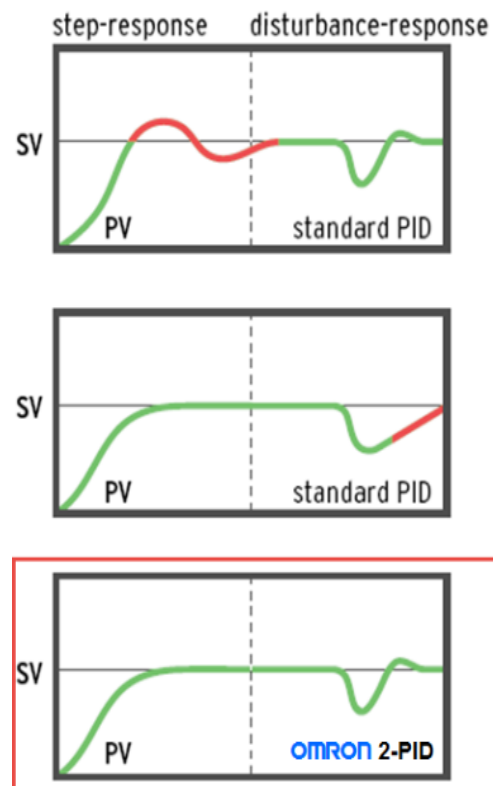
## E5CC-T

*Programmable  
temperature controller up  
to 32 steps, 8 programs.*



## E5CN-HT V1.1 EN

*Touch screen panel for  
programming and  
controlling processes.*



## 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

# KEEP IT UNDER

## CONTROL:

### Eurotherm 3216

*Non-programmable temperature controller.*



### Eurotherm 3208

*Programmable temperature controller up to 8 steps, 5 programs.*



### Eurotherm Nanodac

*Programmable controller and recorder 2 in 1.*



### Eurotherm 6100E data

*recorder Advanced data security and archiving -unit is ideal for basic visualisation and recording requirements.*



### Eurotherm E+PLC100

*PID controller, recorder and PLC all in a compact, single box instrument with a 3.5" TFT colour touchscreen.*



**Eurotherm®**

by **Schneider Electric**

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**KEEP IT UNDER**

**CONTROL:**

Any other brand – you name it...

**OMRON**

**Eurotherm®**

by **Schneider** Electric

**YOKOGAWA** ◆

**JUMO**

**SAMSUNG**

**GEFRAN**

# KEEP IT UNDER CONTROL: Time:

**a)** Delayed oven start

X5CH (countdown)



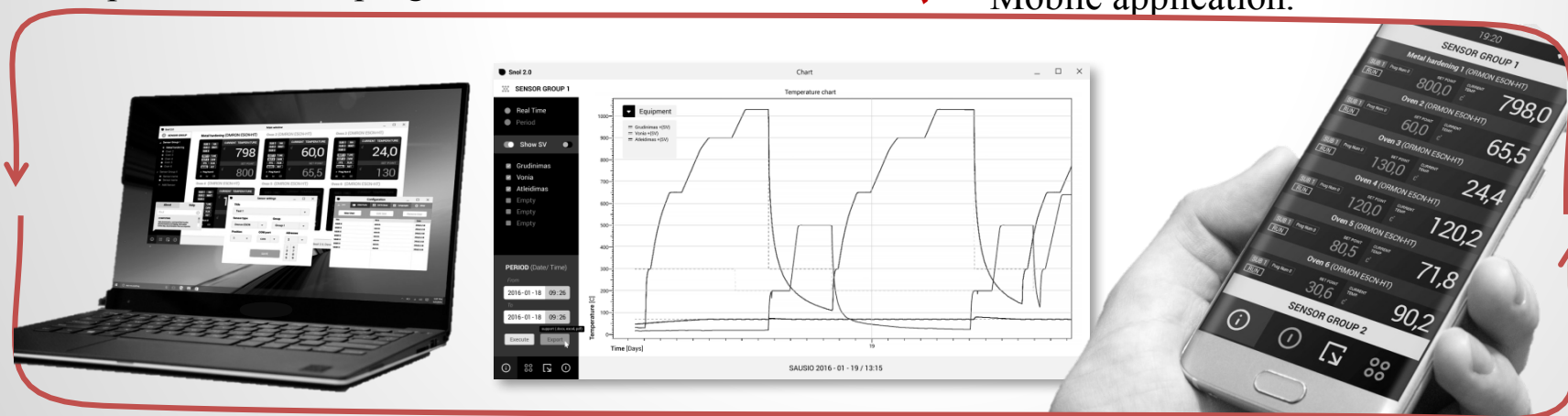
**b)** Digital timer Omron



# KEEP IT UNDER CONTROL:

## DATA

- ✓ Support - most popular OMRON (E5CN, E5CN-H, E5CN-HT, E5CC, E5CC QX-T) and the EUROTHERM (3208, 3206) temperature controllers;
- ✓ Ability to use RS-232 and RS-485 interfaces;
- ✓ Setting of temperature controller operating parameters and programs;
- ✓ Real time process modelling or review during the selected time interval;
- ✓ Data display in graphs and export to Microsoft Excel;
- ✓ Updated user interface;
- ✓ Option to create a new user interface language;
- ✓ Mobile application.



# OXYGEN FRIEND OR FOE?

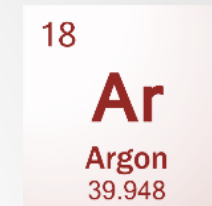
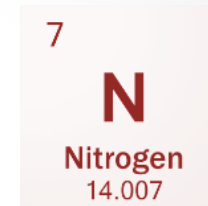
## SOLUTION FOR PROCESS WITH GAS Purpose:

- ✓ To avoid oxidation during thermal process;
- ✓ To avoid open flame and/or explosion when heating explosive materials.

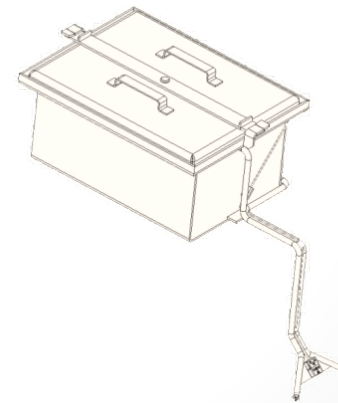
## System:

- ✓ Gas inlet system depends on the type of gas to be used, on the size of the chamber.
- ✓ It can be automatic, half automatic or manual;
- ✓ Gas can be supplied to the gas box or directly to chamber.
- ✓ Gas box can be equipped with separate

Gas:



Gas box



Tighter – reduced gas costs

Reduced chamber capacity



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# BOTTOMLESS OPTION

## LIST:

### Construction

- ✓ Stainless steel exterior
- ✓ Electric door lock system
- ✓ Reinforced bottom
- ✓ Removable hearth
- ✓ Electromechanically removable hearth rails
- ✓ Legs (height can be customized)
- ✓ Casters (with/without brakes)
- ✓ Heat resistant metal hearth plate up to 1150°C
- ✓ Ceramic hearth plate
- ✓ Observation window up to 600°C
- ✓ Hole for thermocouple
- ✓ Light bulb inside chamber
- ✓ Air in/outlet system
- ✓ Fan speed controller
- ✓ Exhaust system
- ✓ Automatically opening air outlet valves
- ✓ Hepa filter for chimney
- ✓ Fast cooling system

### Control

- Separate heating zone control
- ✓ Connection to computer via RS-232/RS-485/USB
- ✓ PC connection and software SNOL V1.12
- ✓ Signal lights

### Additional accessories

- ✓ Power cable (20 kw and up)
- ✓ Hood (for collecting steam and fumes)
- ✓ Fork lifter

### Services

- ✓ Calibration of temperature measurement system in 1 point
- ✓ Test certificate
- ✓ Packing - included
- ✓ Transportation
- ✓ Installation service

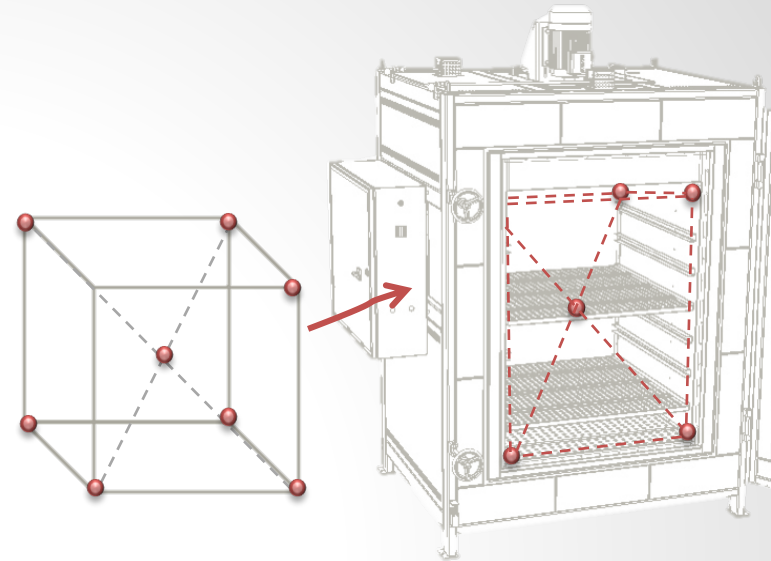


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## TESTS AND

### ✓ MEASUREMENTS:

- ✓ System Accuracy Test (SAT)
- ✓ Temperature Uniformity Survey (TUS)
- ✓ Heat up, cool down times
- ✓ Stability
- ✓ EN60204-1 electrical machinery safety:
- ✓ Testing the Integrity of the Ground Grid
- ✓ Measuring according to AMS2750E



Typical thermocouple rack arrangement

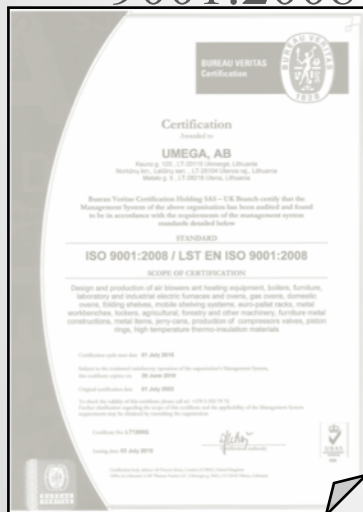




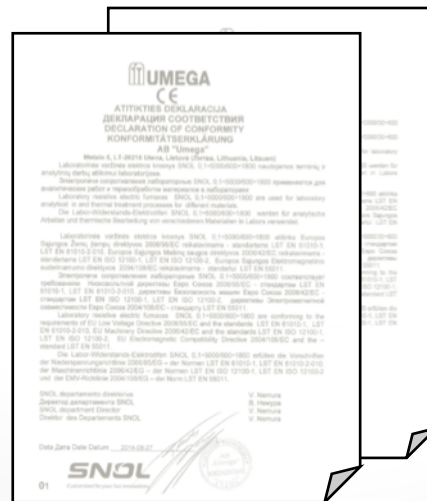
# STANDARDS:

## Acquired

✓ ISO  
9001:2008



✓ CE



## May be obtained

✓ AMS 2750 E

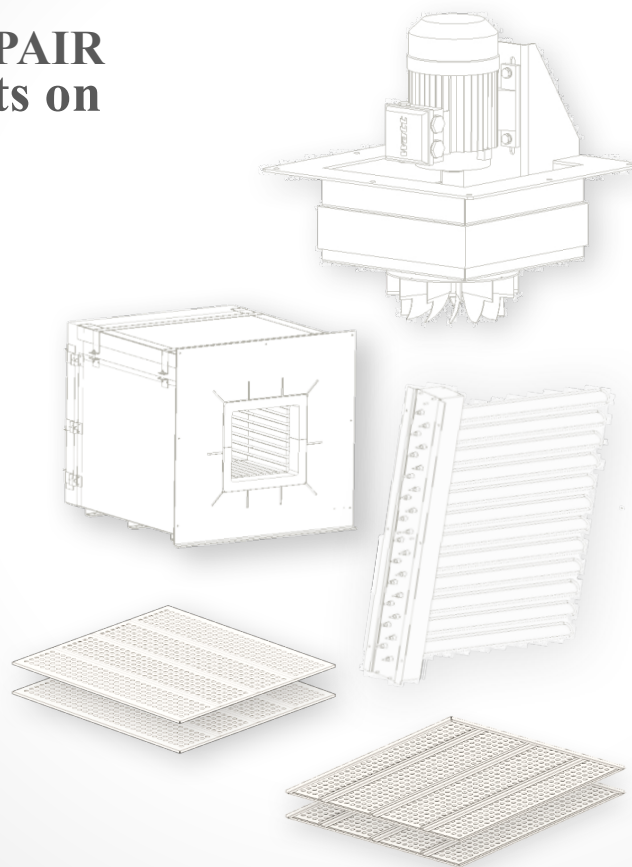
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# IN CASE SOMETHING GOES WRONG:

## MAINTENANCE AND REPAIR Wide range of spare parts on

### stock:

- ✓ Motors
- ✓ Heating elements
- ✓ Chambers
- ✓ Shelves
- ✓ Ceramic tubes and hooks
- ✓ Hearth plates
- ✓ Insulation materials
- ✓ Thermocouples



### Authorised service centres:

- ✓ Lithuania
- ✓ Germany
- ✓ UK



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*Contact us!*

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