



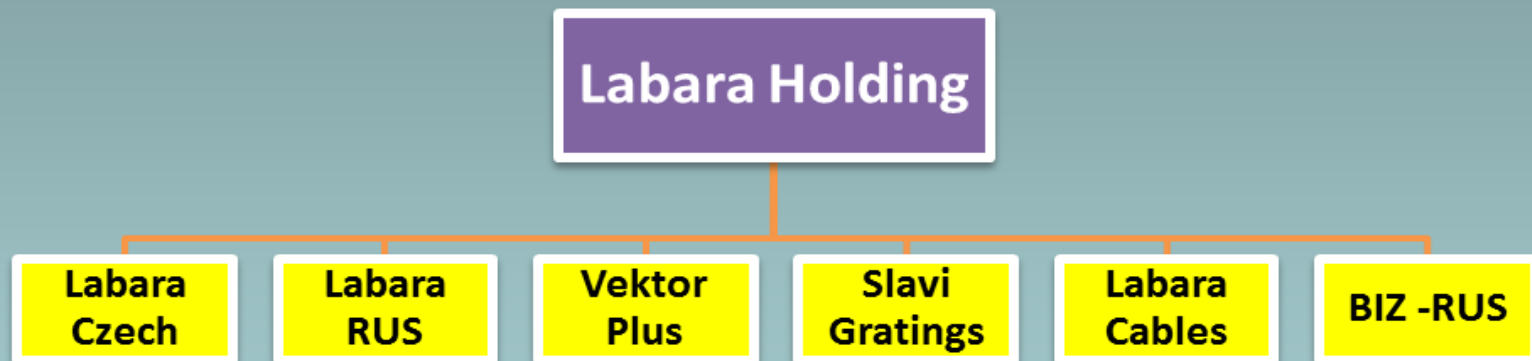
## LABARA group presentation

16.10.2017

# Labara holding activities



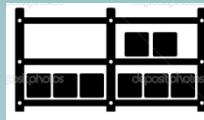
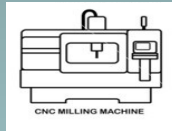
LABARA is private company



- Labara Czech – business with insulation material in Europe
- Labara RUS – business with insulation material in Russia
- Vektor Plus – business with Cu and Al winding wire
- Slavia Gratings – business with Glass-fiber reinforced plastics – GRP
- Labara Cables – business with cables for all applications
- BIZ – RUS – new acquisition on the Russia market

## Potential of LABARA Czech

- **21** years on the market
- **35** CNC milling machines
- **186** employs
- **500** Tons of insulation material in the stock
- **3.000** m2 of stock area
- **5.000** m2 of production area
- **26.000.000,-** EUR annual turnover



## Potential of LABARA Czech

Labara business stay on the 3 based pilots:

- CNC Machining of plastics and laminates
- CNC Machining of NON-ferrous metal
- Trading activities with wide range of electroinsulation material

Labara supply parts in 6 base applications

- Transformers
- Railway
- Generators
- Wind power
- Aircraft
- Medical



## Potential of LABARA Czech

Labara is active on 2 main markets:

- European market
  - Czech market
  - Slovak market
  - Poland market
  - Hungary market
  - German market
  - Austria market
  - Sweden and Finland market
- Russia market

Labara buy material worldwide:

- Europa
- Belarus + Moldavia + Russia + Ukraine
- US
- India
- China



## Transformer application

Labara supply many parts to the Transformer producers

- Cutted and machined parts from laminates – polyester and epoxyd (G10,G11,GPO3,UPM, HP,...)
- Dogbones – Temperature class: F, H, SG200
- Corner profile- Temperature class: F, H, SG200
- Insulating sleeveings
- Adhesive tapes
- Glass banding tape - polyglass
- Non-adhesive glass tapes
- Winding wires – CU+AL – with UL
- Flat insulation material – Mylar A, DMD, NMN, Kapton, Polyimid, ...
- Cables
- Temperature sensors – pt100, pt100

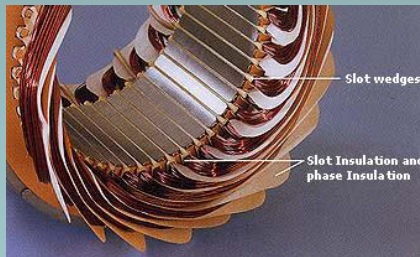




## Traction motors+Generators

Labara supply many parts to the traction motors and generators producers

- Labara has 2 special Machines for stator slot wedges production from polyester and epoxid sheets (G10,G11,GPO3,UPM)



- Insulating sleeveings
- Adhesive tapes
- Non-adhesive glass tapes
- Rectangular Winding wires – CU
- Flat insulation material – NKN, Kapton, Polyimid, ...
- Temperature sensors – pt100, pt100



# TEMPERATURE MEASUREMENT



The new product in Labara material portfolio are Temperature sensors mostly for motor, transformer and generator applications.

## Temperature probes with PTFE shrink insulation

- Sensing element: Pt 100, Pt 1000 - TKR 3850 ppm (others upon request)
- Working temperature range: temperature class H  
-20°C to +180 °C
- Conductors: stranded, multi core cable with outer jacket
- Insulation: silicone, FEP, PFA
- Connection conductors: CuAg, CuNi
- Conductors cross section: 0.09 to 0.56 mm<sup>2</sup>  
(AWG 20 to AWG28)
- Dielectric strength: 2.5 kV
- Connection: 2-wire, 3-wire, or 4-wire
- Applications: temperature protection of windings of electric motors and transformers



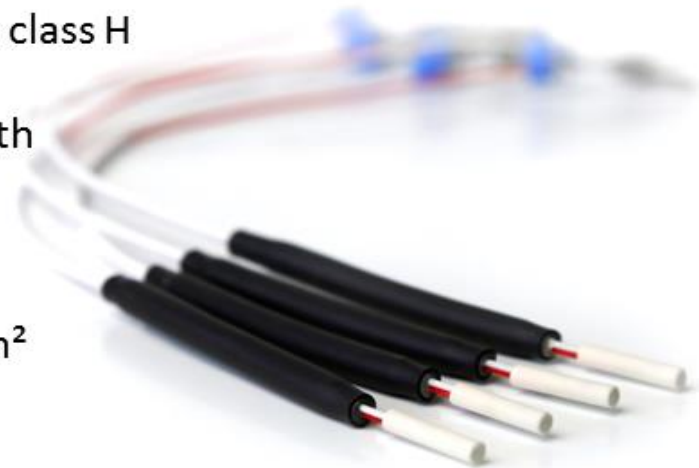


# TEMPERATURE MEASUREMENT

The new product in Labara material portfolio are Temperature sensors mostly for motor, transformer and generator applications.

## Temperature probes with ceramic housing

- Sensing element: Pt 100, Pt 1000 - TKR 3850 ppm (others upon request)
- Working temperature range: temperature class H  
-20°C to +180 °C
- Conductors: stranded, multi core cable with outer jacket
- Insulation: silicone, FEP, PFA
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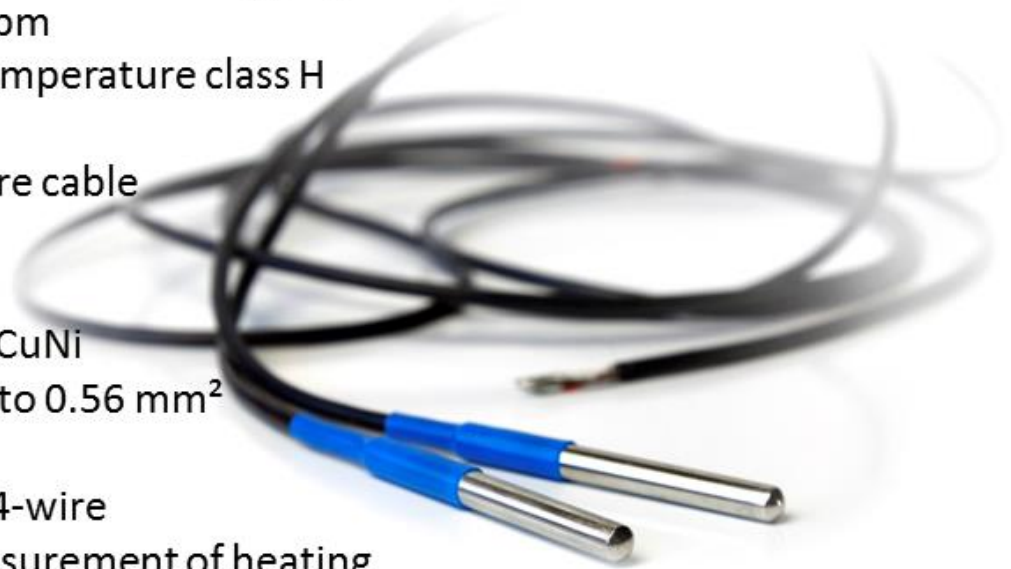
# TEMPERATURE MEASUREMENT

**Labara**

The new product in Labara material portfolio are Temperature sensors mostly for motor, transformer and generator applications.

## Temperature probes with smooth metal housing

- Sensing element: Pt 100, Pt 1000 - TKR 3850 ppm, Ni 1000 - TKR 5000 and 6180 ppm
- Working temperature range: temperature class H  
-20°C to +180 °C
- Conductors: stranded, multi core cable with outer jacket
- Insulation: silicone, FEP, PFA
- Connection conductors: CuAg, CuNi
- Conductors cross section: 0.09 to 0.56 mm<sup>2</sup>  
(AWG 20 to AWG28)
- Connection: 2-wire, 3-wire, or 4-wire
- Applications: temperature measurement of heating circuits and Air-conditioning units



# TEMPERATURE MEASUREMENT



The new product in Labara material portfolio are Temperature sensors mostly for motor, transformer and generator applications.

## Temperature probes with thread and metal housing

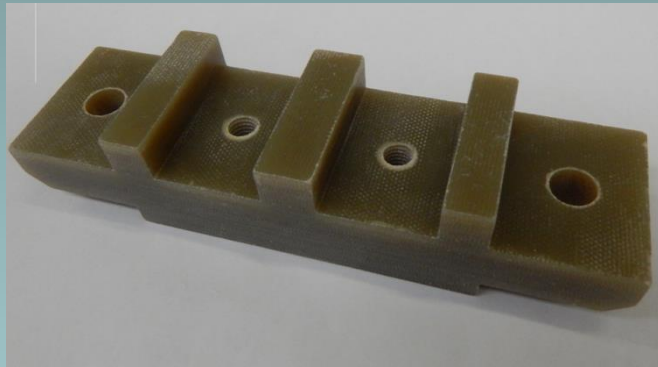
- Sensing element: Pt 100, Pt 1000 - TKR 3850 ppm, Ni 1000 - TKR 5000 and 6180 ppm
- Working temperature range: temperature class H -20°C to +180 °C
- Conductors: stranded, multi core cable with outer jacket
- Insulation: silicone, FEP, PFA
- Connection conductors: CuAg, CuNi
- Conductors cross section: 0.09 to 0.56 mm<sup>2</sup> (AWG 20 to AWG28)
- Connection: 2-wire, 3-wire, or 4-wire
- Applications: temperature measurement in industrial applications



# Labara products and applications

**Labara**

Labara supply many parts to the traction motors and generators producers

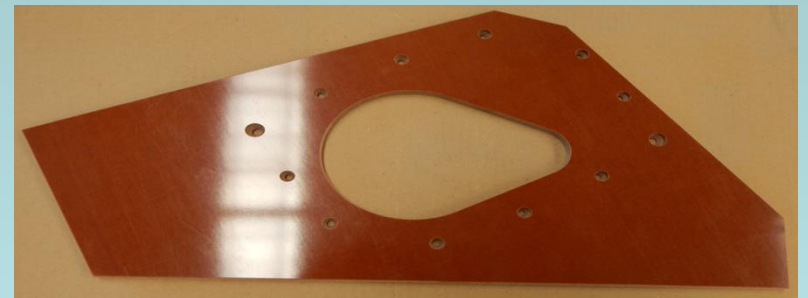
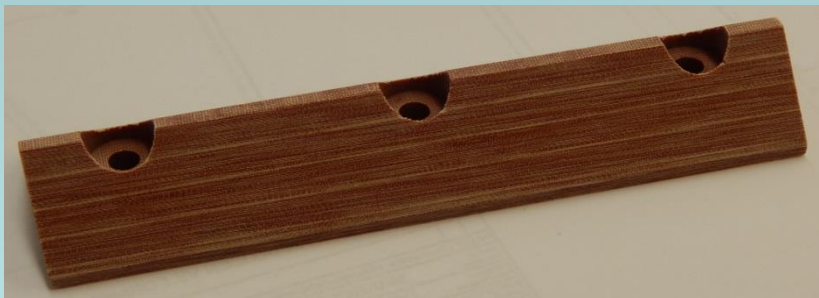




# Labara products and applications

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# Labara

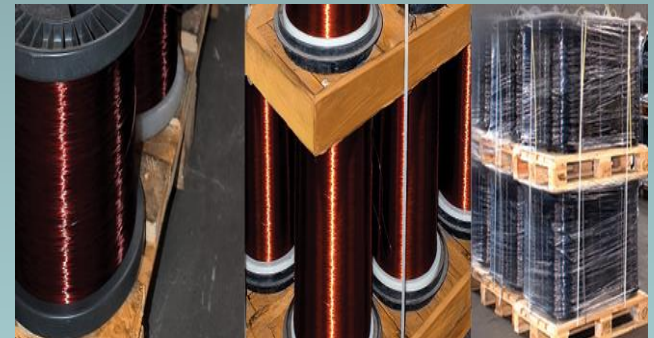


## Vektor Plus potential

Vektor Plus is the distributor of **Copper and aluminum wires for winding**  
Vektor Plus is the exclusive representative for the producer from Belarus – GOMEL KABEL.

### Varnished copper + aluminum round wires

Produced according to norm	Produced dimensions
IEC 60317-13 GR1 a GR2	od 0,14 mm do 5,00 mm
IEC 60317-20 GR1 a GR2	od 0,20 mm do 2,00 mm
IEC 60317-38 GR1 a GR2	od 0,20 mm do 1,25 mm



### Rectangular copper + aluminum wires

#### Insulated with:

- Varnish
- Nomex
- Kapton
- Kapton CR
- Mica
- Polyester foil
- Glass fiber



## Labara Cables potential

Labara cables is exclusive cables distributors to producers SMOLKABEL and ENERGOKOMPLEKT.

We supply:

- Power cables and wires
- Medium and high voltage cable
- Flexible Cables
- Non halogen cables and wires
- Coaxial cables
- Rubber cables and wires
- Silicon cables and wires
- Data cables





## LABARA – RUS potential

Labara RUS is copy of Labara Czech + something more  
Labara RUS offer complete range of insulation materials for Russia customers



## BIZ – RUS potential

Bobrovski Insulation Factory was founded in 1933

- Production of different insulation materials:
  - Chemical-electrical resistant glass fiber filtering pipes
  - Electrotechnical Glass Fiber Pipes
  - Electrotechnical sheet getinaks (Micarta)
  - Electrotechnical sheet textolite
  - Film Containing Materials
  - Foiled dielectrics
  - Foiled heat resistant glass fiber textolite
  - Foiled heat resistant glass fiber textolite (2)
  - Impregnated materials
  - Insulating enamels
  - Insulating varnishes
  - Pedestal polymer insulators
  - Profiled glass fiber plastic
  - Round electrotechnical textolite bars
  - Varnishes





## LABARA reference list

**SIEMENS**

**ABB**

***JULI***



Thank you

