

## **Foundry division**

- PetrozavodskMash Foundry Ltd
- Tver Foundry Ltd

**Holding 'Transport Components' / KSC Group**

September, 2020

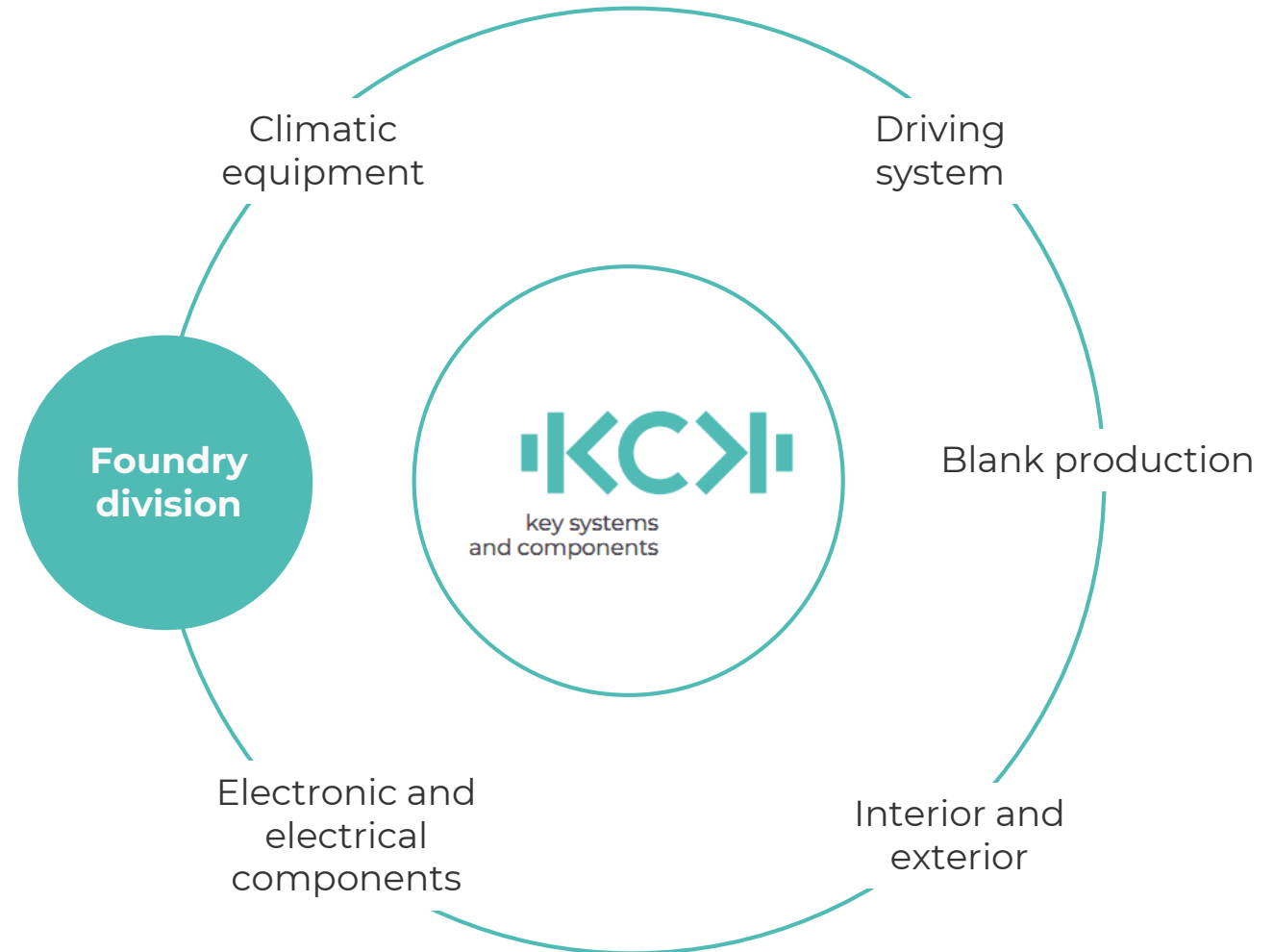
# Holding 'Transport Components' / KSC Group



▶ The Transport Components Holding is a group of manufacturing, trading and service companies engaged in the development, production and implementation of various products in the transport engineering, information technology and energy sectors.

▶ The holding unites 40 enterprises of various types in 8 regions of Russia with a headcount of 7165 people and an annual revenue of 78 billion rubles.

▶ Key Systems and Components is the management company of the Transport Components Holding Group.



# Foundry division

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## PetrozavodskMash Foundry Ltd



- ▶ The production capacity – 60.000 tons per year
- ▶ Casting part weight range - from 10 kg to 140 tons
- ▶ Headcount: 489 employees
- ▶ Production area: 105.102 m<sup>2</sup>

- <https://kscgroup.ru/catalog/pzm>

## Tver Foundry Ltd



- ▶ The production capacity – 9.000 tons per year
- ▶ Casting part weight range - from 0.1 kg to 5 tons
- ▶ Headcounts: 158 employees
- ▶ Production area: 6.920 m<sup>2</sup>



# KSC Tver Foundry, LLC



Production capacity – 9.000 tons per year

Rods production technology is Cold Box Amin-process. Rods are produced at automatically rods production complex on the bases of Laempe LL10(15) machine – 7<sup>th</sup> accuracy grade.

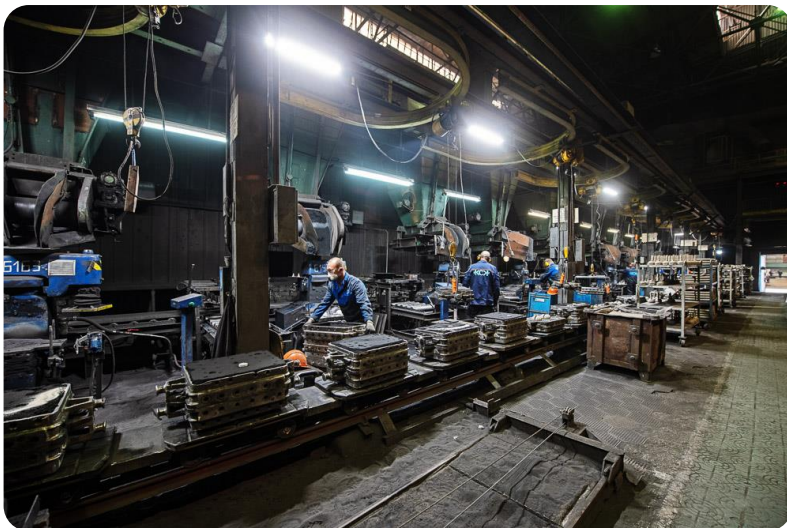
Sand forms are produced at semiautomatic production line (8 machines) Foromat 10-2

Cast iron material:

- › Gray cast iron with lamellar graphite grades from GG-15 to GG-25 according to DIN EN 1561
- › High-strength cast iron with spheroidal graphite grades from GGG-40 to GGG-50 according to EN 1563
- › Special cast iron for molds, Heat-resistant cast irons, Wear-resistant cast irons and others

Weight and dimensions of casting parts:

- › conveyor - from 0,1 to 20 kg with casting-box dimensions up to 500x400x300mm;
- › at molding workshop up to 5 tons;
- › Possibility of simultaneous melting up to 4 tons of liquid metal (induction furnaces by Otto Junker)

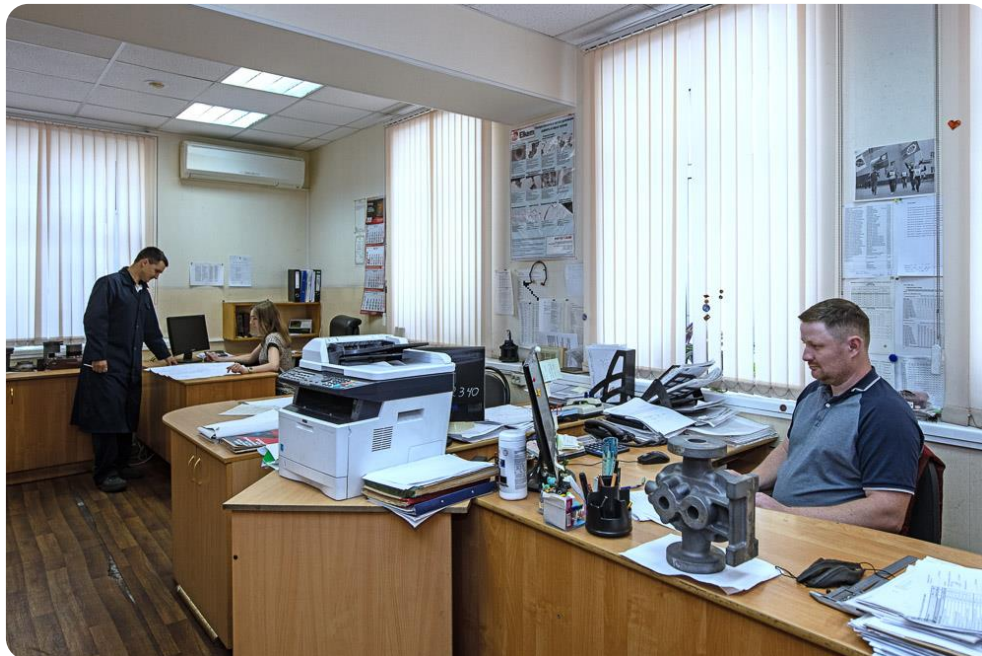


# KSC Tver Foundry, LLC

## Pattern workshop



- ▶ Tver Foundry uses metal patterns for casting parts production. Patterns lifetime is 200.000 shots and more.
- ▶ Pattern workshop can maintain and repair patterns in use.
- ▶ New patterns are produced at sub-suppliers. Tver Foundry can develop patterns, CAD data and drawings, develop casting technology. There are 6 technologists and 2 design engineers.





# KSC Tver Foundry, LLC

## Development strategy



### Sales area:

Russian Federation

Strategical sales area: EU countries and North America

there is a planning to get an export share on 20% of turnover

### Strategical markets:

Components for brake systems of vessels for Railways

Other vessels and locomotive parts

Housings of pumps and valves, pipes

Automotive parts and parts for agricultural machines

### Other markets:

General engineering parts

Art casting parts

Diesel engines parts



# KSC Tver Foundry, LLC

## Development strategy

### **Mastering the manufacture of products for the diesel engine and automotive industry is one of the key tasks**

This will allow localizing the production of diesel engine components and components for the automotive industry in the Russian Federation.

Modernization is planned for:

- Melting area
- Molding area

Expansion of the parts in production:

- Mastering the production of brake discs
- Expansion of the range of production of brake systems
- Mastering the components of agricultural machinery and automotive industry

» ISO 9001: 2015 certification planned for October 2020

» Ongoing certification according to IATF 16949: 2016 (roadmap, initial audit from certification agency)



# PetrozavodskMash Foundry Ltd

Designed capacity - 60,000 tons per year

Cast iron material:

- › Gray cast iron with lamellar graphite grades from GG-10 to GG-35 according to DIN EN 1561
- › High-strength cast iron with spheroidal graphite grades from GGG-40 to GGG-80 according to EN 1563
- › Special cast iron for molds
- › Heat-resistant cast irons
- › Wear-resistant cast irons
- › Special non-magnetic cast iron GGG-Ni22

Weight and dimensions range of casting parts:

- › conveyor - from 10 to 150 kg with casting-box dimensions up to 1000x1200x400mm;
- › at moulding workshop up to 20 tons
- › up to 140 tons in a concrete caisson with dimensions up to 30x5x6 meters;
- › Possibility of simultaneous melting up to 160 tons of liquid metal (induction furnaces by ASEA and INDUCTOTHERM);





# PetrozavodskMash Foundry Ltd

## Pattern making workshop

- ▶ 5-axis CNC milling center Belotti (Italy) high-precision production of complex-shaped patterns made of wood and plastic – one CNC
- ▶ 3-axis CNC milling centers Isel (Germany) for wooden and plastic patterns production – five CNCs



# PetrozavodskMash Foundry Ltd

## Development vision

**<= 2013 г.**

**From simple products**



**2013 - 2020 гг.**

**To the complicated products and core customers:  
market leaders with world-wide known brands**





# PetrozavodskMash Foundry Ltd

## Development vision



### Sales territory

- › EU countries and North America (share of export orders up to 43% of revenue)
- › Russian Federation

### Strategical markets

- › Diesel engines parts (cylinder block of multi-megawatt engines and parts for diesel engines)
- › Axisymmetric bodies / rolls (shafts of paper machines and food production equipment, centrifugal molds and ironing die)
- › Wind-powered generators parts (HUB, wind turbine components)
- › Machine tool parts (components of turning and milling machines)
- › Parts for mining equipment (pumps, mill linings)
- › Nuclear power engineering (containers for radioactive waste)
- › Electricity (gas turbine components)
- › Road construction parts and agricultural machinery parts

### Other markets

- › Automotive parts
- › General engineering parts
- › Metallurgical equipment parts
- › Art casting
- › Port equipment casting parts





## Cylinder blocks and diesel frames with rough machining

### Project target

Creation a center of competence for castings and rough machining of diesel engines main components with weights more than 50 kg.

### Major project data

- › Project status - approved in 2019, implementation phase
- › 195 sets for delivery 2020
- › Reaching designed capacity - Q1 2021



## Diesel engine cylinder castings with rough machining

### Project target

Re-equipment of one of the workshops for production diesel engine cylinder to ensure production needs of the intercompany and commercial markets.

### Major project data

- › Project status - approved in June 2020, implementation phase
- › 1400 pcs for delivery 2020
- › Reaching designed capacity - Q4 2020



# PetrozavodskMash Foundry Ltd



Petrozavodskmash Foundry Ltd. is the only company in Russia which is capable to produce castings parts with weight up to 120 tons.

The capabilities of the company allow us to produce 60.000 tons of castings parts per year for the diesel industry, the paper industry, machine tools production, transport engineering, the energy industry and other sectors of the economy.



**2019**

- › Fact: 3.900 tons
- › **In the 4Q 2019, company included in the KSC Group**
- › Headcount: 348 empl.
- › Revenue US\$ 8 million



**2020**

- › Forecast: 10.000 tons
- › Production development for diesel engine parts
- › Headcount: 400 empl.
- › Revenue US\$ 13,4 million



**2023**

- › Forecast: production volume increasing up to 20.000 tons
- › Market share increasing
- › Headcount: 600 empl.
- › Revenue US\$ 28,9 million



**2030**

- › Forecast: production volume increasing up to 30.000 tons
- › Headcount: 1000 empl.
- › Revenue US\$ 56,6 million

**Mastering the production for diesel engines parts and machine tools parts is one of the key targets**

This will **allow to localize** the production of diesel engines parts and machine tools parts **in the Russian Federation.**

# Certificates and licenses

- › Quality Management ISO 9001:2015  
(certified by DNV, last recertification – Aug. 2020)
- › Manufacturing license  
for nuclear power plants equipment
- › Quality Management Certificate by  
quality assurance directive 97/23EC  
for pressure vessels;
- › Permission for iron casting  
poises production according to  
Technical requirements 26-0401-725-2006
- › Certificate of conformity for  
poises production





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