



**KAMAZ**  
PUBLICLY TRADED COMPANY

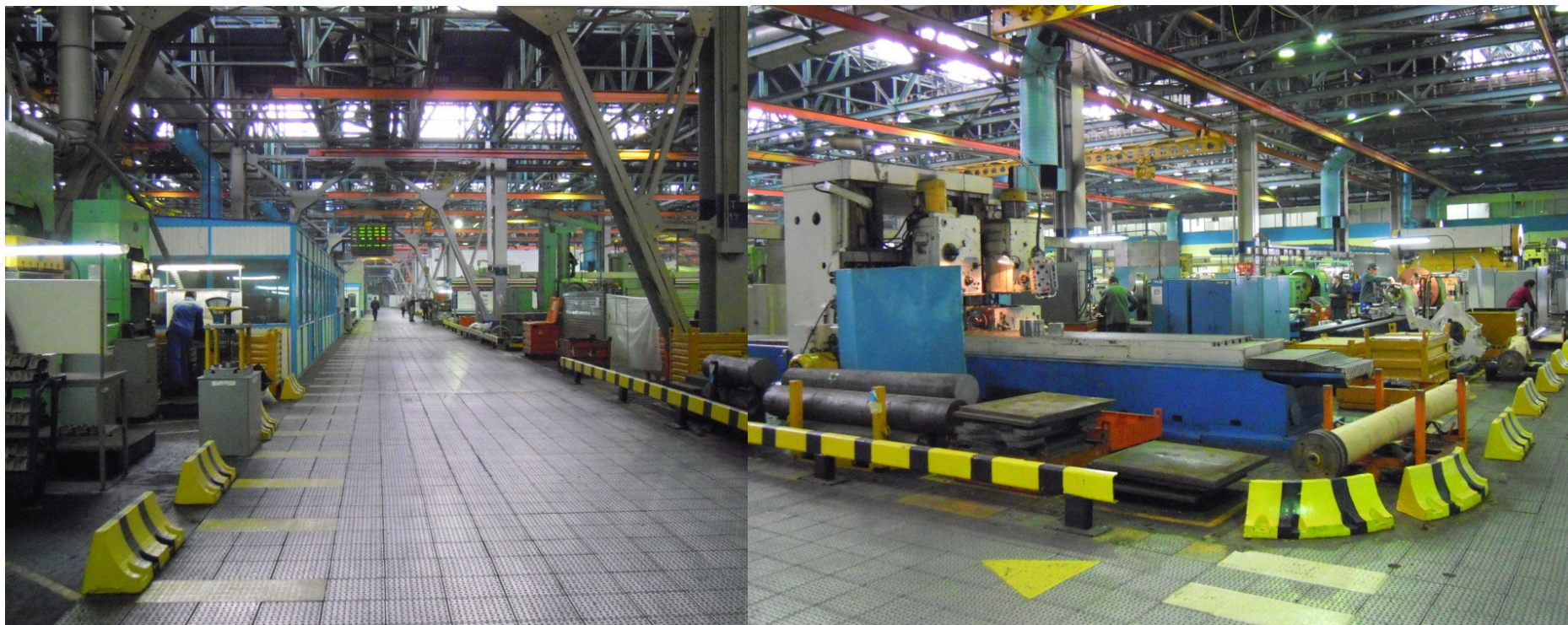
# **REPAIR AND TOOL MAKING PLANT**

## **Equipment repair**

2020

## PRODUCTION RANGE OF THE REPAIR DEPARTMENT

- Electromechanic shop
- Hydraulic and pneumatic lubrication equipment repair shop



### **Production equipment repair and maintenance shop**

1. Grinding of machine frames and guideways.
2. Repair of electric machinery and apparatus.
3. Repair of hydraulic and pneumatic lubrication equipment.

### **Electromechanic shop**

1. Motor repair: direct-current and asynchronous motors; micromotors.
2. Repair of electromagnetic clutches, coils, transformers, high-frequency transducers, etc.
3. Manufacturing of large-size coils, water-cooled tyres, etc.

### **Hydraulic and pneumatic lubrication equipment repair shop**

1. Repair of domestic and imported hydraulic equipment, including vane-type, axial- and radial piston hydraulic pumps; hydraulic machine systems.

**Services and products for production equipment repair and maintenance performed by KAMAZ Repair and tool making plant**

**REPAIR OF ELECTRIC MACHINERY AND EQUIPMENT:**

- direct-current motors,
- asynchronous motors,
- micromotors,
- electromagnetic clutches,
- coils,
- transformers,
- high-frequency transducers,
- other products.

**Direct-current motors**

<ul style="list-style-type: none"> <li>- all types and designs</li> <li>- produced by domestic and leading foreign companies (Bosch, Siemens, Lenze, Baldor)</li> <li>- stepped motors, generators and tachometric generators</li> </ul>	<ul style="list-style-type: none"> <li>- within the power range of 0,027...50 kW</li> <li>- speed up to 8000 rpm</li> <li>- voltage 12...440B</li> <li>- within the current range of 0,005...240A</li> </ul>	<ul style="list-style-type: none"> <li>- armature repair with a shaft recovery</li> <li>- stator rewinding</li> <li>- manifold replacement</li> <li>- brush clamping mechanism replacement and adjustment</li> <li>- brake repair and replacement</li> <li>- bearing replacement</li> <li>- balancing</li> <li>- magnetization of permanent magnets</li> </ul>
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**Asynchronous motors**

<ul style="list-style-type: none"> <li>- with short-circuit and phase-wound rotor</li> <li>- produced by domestic and leading foreign companies</li> </ul>	<ul style="list-style-type: none"> <li>- within the range of 0,6...400 kW</li> <li>- 2-,3- and 4-speed</li> <li>- rated current of 760 A</li> </ul>	<ul style="list-style-type: none"> <li>- stator repair</li> <li>- phase-wound rotor repair with a shaft recovery</li> <li>- bearing replacement</li> <li>- balancing</li> </ul>
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**Micromotors**

<ul style="list-style-type: none"> <li>- all types, configurations and manufacturers</li> <li>- electric motors for household appliances (washing machines, fans, coffee grinders, vacuum cleaners, drills, grinders, etc. )</li> </ul>	<ul style="list-style-type: none"> <li>- asynchronous and direct-current motors</li> <li>- stepped motors</li> <li>Power up to 0,6 kW</li> <li>- tachometric generators up to 3 kW</li> </ul>	<ul style="list-style-type: none"> <li>- armature repair</li> <li>- inductor repair</li> <li>- brush replacement</li> <li>- bearing replacement</li> </ul>
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**Electromagnetic clutches**

<ul style="list-style-type: none"> <li>- contact and contactless</li> <li>- brake</li> <li>- domestic and foreign</li> <li>- vibrating chute up to 380 V</li> </ul>	<ul style="list-style-type: none"> <li>- within the voltage range of 24..240 V</li> <li>- rated current of 0,5...6 A</li> <li>- overall dimensions up to 200 mm</li> </ul>	<ul style="list-style-type: none"> <li>- coil rewinding</li> </ul>
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**Coils**

<ul style="list-style-type: none"> <li>- hardware</li> <li>- for solenoid valves</li> <li>- filler and non-filler</li> </ul>	<ul style="list-style-type: none"> <li>- different types and overall dimensions</li> </ul>	<ul style="list-style-type: none"> <li>- winding replacement</li> </ul>
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**Transformers**

<ul style="list-style-type: none"> <li>- high-frequency</li> <li>- water-cooled</li> <li>- furnace</li> <li>- welding</li> </ul>	<ul style="list-style-type: none"> <li>- single- and three-phase</li> <li>- power up to 50 kW</li> </ul>	<ul style="list-style-type: none"> <li>- major overhaul</li> </ul>
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**High-frequency transducers**

	<ul style="list-style-type: none"> <li>- power range of 50...300 kW</li> <li>- primary voltage up to 380 V</li> <li>- secondary voltage up to 800 V</li> <li>- frequency up to 800 Hz</li> </ul>	<ul style="list-style-type: none"> <li>- winding replacement</li> <li>- end shield repair</li> <li>- rotor winding replacement</li> <li>- water-cooling system repair</li> </ul>
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**Water-cooled tyres BZ, MTP**

Water-cooled tyres are used for spot-welding machines, MTPG-75 type and others.

**Main technical data:**

1. Operation voltage, V..... 380
2. Operating current rate, A.....4000 to 10000
3. Cooled water flow rate, m<sup>3</sup>/min.....0,34....0,9
4. Effective section, mm.....150
5. Operating temperature range, degrees C..... 0 to +70

**Services and products for production equipment repair and maintenance  
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**REPAIR OF DOMESTIC AND IMPORTED HYDRAULIC SYSTEMS AND EQUIPMENT :**

1. Vane-type, axial- and radial- piston hydraulic pumps and hydraulic motors;
2. Hydraulic equipment;
3. Hydraulic machine systems;
4. Hydraulic crane systems (equipment, pumps, hydraulic cylinders).

- *Manufacturing of hydraulic seals using a CIP JET CNC lathe.*
- *Rendering services on coordinate boring, grinding, turning and milling operations.*

<b><u>Piston pumps and hydraulic pumps:</u></b> - axial-piston, - radial-piston, - produced by domestic and leading foreign companies (Vickers, Kawasaki, Rexroth).	<b>Within the range:</b> <b>p = 0–210 kgf/cm<sup>2</sup>,</b> <b>V up to 500 A/min.</b>	 - <i>Repair and manufacturing of piston blocks</i> - <i>Repair and manufacturing of piston components</i> - <i>Repair of valve plates</i> - <i>Bearing replacement</i> - <i>Rubber goods replacement</i> - <i>Bench testing</i>
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<u><b>Vane-type pumps</b></u> - produced by domestic and leading foreign companies.	Within the range of: $p = 0\text{--}210 \text{ kgf/cm}^2$ , $V \text{ до } 500 \text{ A/min.}$	- <i>Pumping unit repair / grinding of blades, rotor, stator and valve plate (with account of clearances)</i> - <i>Bearing replacement</i> - <i>Rubber goods replacement</i> - <i>Bench testing</i>
<u><b>Pressure rate control hydraulic equipment</b></u> - produced by domestic and leading foreign companies.	Within the range of: $p = 160 \text{ kgf/cm}^2$ , $dy = 6\text{--}32\text{mm.}$	- <i>Housing repair</i> - <i>Repair and manufacturing of spool valves</i> - <i>Rubber goods replacement</i> - <i>Bench testing</i>
<u><b>Pressure control equipment</b></u> - produced by domestic and leading foreign companies.	Within the range of: $p = 160 \text{ kgf/cm}^2$ , $dy = 6\text{--}32\text{mm.}$	- <i>Repair</i> - <i>Inspection</i>
<u><b>Switch gear</b></u> - produced by domestic and leading foreign companies.	Within the range of: $p = 160 \text{ kgf/cm}^2$ , $dy = 6\text{--}32\text{mm.}$	- <i>Housing repair</i> - <i>Repair and manufacturing of spool valves</i> - <i>Rubber goods replacement</i> - <i>Bench testing</i>



## Repair and tool making plant

<u><b>Filters</b></u> - Produced by domestic and leading foreign companies	$\varnothing = 0-100$ mm, L = 0-400 mm	- Washing in ultrasonic unit
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Repair quality is confirmed by testing on specialized benches.



**Contact details:**

**Head of marketing and contracts department**

Alexandra Yu. Gays

Phone: (8552)37-15-55, fax: (8552) 37-24-15

E-mail: [GaysAYu@kamaz.ru](mailto:GaysAYu@kamaz.ru); [marketing\\_riz@kamaz.ru](mailto:marketing_riz@kamaz.ru)