

**Production cooperation.
Mechanical assembly operations.**

Turret lathe and turning works::

■ parts production, such as, screws , nuts, washers, bushes, wheels, spindles, shafts etc., with diameter up to 4000 mm, length up to 25000 mm and weight up to 300 t.

Vertical turning works:

■ machining of the parts with diameter from 500 up to 14200 mm, height up to 5000 mm, and weight up to 300 t.

Grinding works:

■ cylindrical grinding with minimum grinding diameter - 5 mm, maximum diameter - 2300 mm, maximum grinding length - 15000 mm, minimum radial runout - 0,005 micron per 600 mm diameter, roughness Ra - 0,4 micron;

■ internal grinding of the holes with diameter from 40 up to 300 mm, depth up to 1000 mm, accuracy according to 7th quality class.

Honing works:

■ honing of the parts with diameter from 60..to 700 mm, minimum honing length 90 mm and maximum honing length 7000 mm.

■ Super finish grinding and fine diamond grinding of rotary bodies external surfaces with provided accuracy of Ra 0,05 micron.

Deep hole drilling and boring works :

■ deep hole drilling of rotary bodies with workpiece length - 600...25000 mm (length - 25000 mm with drilling diameter - 20...250 mm), drilling diameter - 40...250 mm and maximum weight of the blank — 250 t;

■ deep hole boring works with bore hole diameter - 250...2200 mm and workpiece length up to 25000 mm (L=25000 mm with bore hole diameter 80...1000 mm, L=22000 mm with diameter 1000...2200 mm);

■ drilling-and-boring works for box-shaped and flange-like parts with weight up to 100 t, minimum hole diameter - 5 mm and maximum hole diameter - 1100 mm.

■ gun drilling of the holes with diameter from 10 up to 36 mm and maximum depth -1300 and 2300 mm correspondently, in box-shaped parts with weight up to 40 tonnes.

■ Multitask geometrically-complex machining of box-shaped parts according to CNC control data by means of «machining center» units.

Vertical turning and grinding works:

■ machining of rotary bodies complex shapes with diameter 200...3200 mm and height up to 2000 mm according to CNC control data.

EDM works:

■ high-performance EDM machining of tough and hard-tempered parts by vertical turning lathe within diameter range from 500 to 3800 mm and height up to 850 mm.

Assembly and metal works:

■ assembly and testing of hydraulic systems, individual cylinders and other vessels under pressure up to 1000 atmospheres and different types of gearboxes with load up to 100 kNm.

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CYLINDRICAL GEARING

Straight spur, helical, herring-bone open gearing

- maximum machined diameter is 12000 mm – accuracy grade is 8.
- maximum machined diameter is 2000 mm – accuracy grade is 6.

Herring-bone closed gearings

- maximum machined diameter is 5000 mm – accuracy grade is 9.
- maximum machined module 50 mm.
- width of face 1000 mm.

Pinion shafts

- maximum machined diameter is 1600 mm – accuracy grade is 9.
- maximum machined module 75 mm.
- pinion shaft length 8000 mm.

Rack gearings

- maximum machined length 11000 mm – accuracy grade is 9.

With internal tooth

- maximum machined diameter is 2600 mm – accuracy grade is 7...9.
- maximum machined module 24 mm.
- width of face 600mm.

Bevel gearings

- maximum machined diameter is 2200 mm.
- accuracy grade is 6...10.
- maximum machined module 30 mm.
- types of teeth to be cut – straight spur and spiral (engagement with circular teeth, engagement with spiral teeth, engagement of "gleason" and "Klingelnberg" type).

Worm-type gearings

- maximum machined diameter is 5000 mm – accuracy grade is 8...9.