

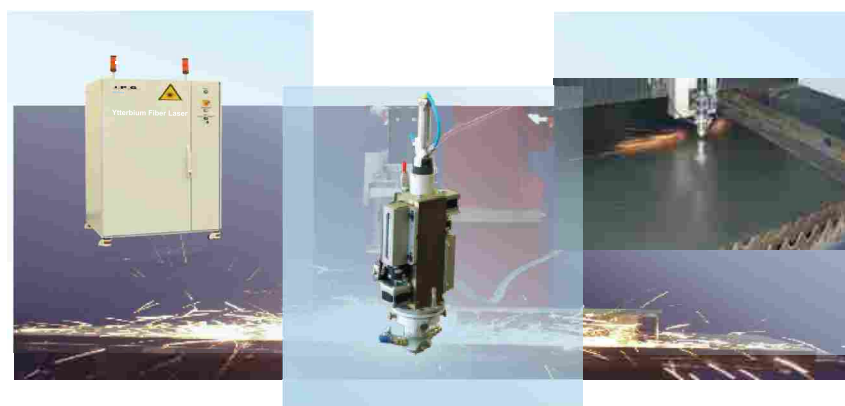
LASERCUT-2000 based on direct drives and fiber laser



The laser cutting machine LaserCUT-2000 is used for a wide spectrum of technological operations including cutting and welding of a sheet material, and also for hardening of separate contours of details with constructional and stainless steel and constructed on the basis of the most advanced innovative decisions both regarding laser technologies, and regarding co-ordinate and hardware-software systems. Fiber-optical lasers of firm IRE-POLUS(IPG Photonics) perfectly proved the in systems of industrial welding and cutting, and advantages 3-coordinate systems on the basis of a direct drive firm Ruchservomotor give the guaranteed reserve on all accuracy and dynamic characteristic, providing reliable long-term operation of the equipment in workshop conditions.

Main advantages:

- Supporting the technology laser cutting, welding and hardenings of a sheet material.;
- Absence of the optical channel for a transmission of energy – laser radiation is transferred on a flexible optical fiber directly in a processing zone;
- Profitability of technological processes of processing because off high EFFICIENCY fiber laser (4 times more economic than CO₂ systems);
- High accuracy, repeatability of movement and durability of the machine, high speed of feeding and acceleration because of using a direct drive;
- Telescopic protective cabin for protection against radiation - reduction of the occupied area;
- Low working costs on system service as a whole at the expense of high reliability of co-ordinate system and fiber laser, and also absence of requirement in high clearing gases for service of optical paths of the laser.



Brief technical description:

LaserCUT-2000 in its basic assembly consists of gantry system 3x1.5m, Z-axis, controller, one palette table for workpiece loading and a sensor for tracking the sheet surface. Options: ytterbium fibre laser with power from 0,4kW to 1,5kW, cooled optical head with collimator and exchangeable nozzles for supplying cutting gas, protecting cabin.

In the capacity of feeding devices linear synchronous servomotors made by "Ruchservomotor Ltd." are used. The motors are built in aluminium profile with linear feedback sensors and precision linear guideways, which are protected from sparks and drops of smelt by heat-resistant bellows. High peak force of linear drive and rigidity ensure required accelerations, which are necessary for improvement of the productivity of the machine during the cutting parts with small bending radius and acute angles.

The used software, CNC and controllers manufactured are characterized by completely digital control a drive, compatibility with widespread programs CAD-CAM of optimization sheet cutting, interpretation of standard formats of commands of moving in a G-code, and also the spline-interpolation, allowing to carry out cutting any curvilinear trajectories without a time-lapse stop, that essentially raises productivity of the machine tool.

The absence of reducers and mechanical gears, which are typical for direct drive, prevents runout and backlash appearance, simplifies maintenance, ensures saving of high accuracy during the whole operation life.

While in service laser machine LaserCUT made by Ruchservomotor have proved as the exact, high-efficiency and reliable equipment completely corresponding to requirements of modern manufacture.

Technical specification

Maximum travel X, m	3
Maximum travel Y, m	1,5
Maximum travel Z, mm	70
Position accuracy, mm	±0.01
Resolution, mm	0.001
Maximum speed X,Y, m/min	120
Maximum acceleration, m/s ²	10
Controller type	LSMC-4
Controller interface	RS-232, USB
Recommended laser power, kW	0.6-2.0
Maximal thickness of steel/stainless steel, mm	20/10
Laser wave length, micron	1.065
Maximal weight of processing details, kg	800
Overall dimensions of machine, mm(without PC, laser and chiller),mm	5020 x 2950 x 1700
Industry standard codes DIN/ISO-6983 support	

* The accuracy of the details depends on the material properties and degree of its heating. Measurements accordingly to VDI/DGQ 3441 standards, measurement length 1m.

Suggested options:

1. Laser cutting system based on the LK-x ytterbium laser with power 0,6..2 kW and IPG optical head;
2. CncKAD software for cutting (importing *.dxf, *.dwg files, auto-nesting);
3. Optical vario-head VF001 for welding of sheets and pipes (scientific and technological centre Electroresource, the Russian Federation),
4. Screw compressor VK10-15-500D,
5. SYSTEM AIR CLEARING FILTERCUBE-2N-3500,
6. Voltage stabilizer.