28708BMM

arnold
RAVENSBURG

YOUR PARTNER FOR LASER SYSTEM TECHNOLOGY

LASER PROCESSING CELL FOR SOLID-STATE LASERS

SYSTEM PRINCIPLE

The 3D laser cell by Arnold Ravensburg is available with 3 NC axes in the entry-level version, and is manufactured especially for use with solids in the multi-kilowatt range. The system can be extended to up to 5 axes and is delivered with an in-house developed welding lens as standard. Other laser material processes such as:

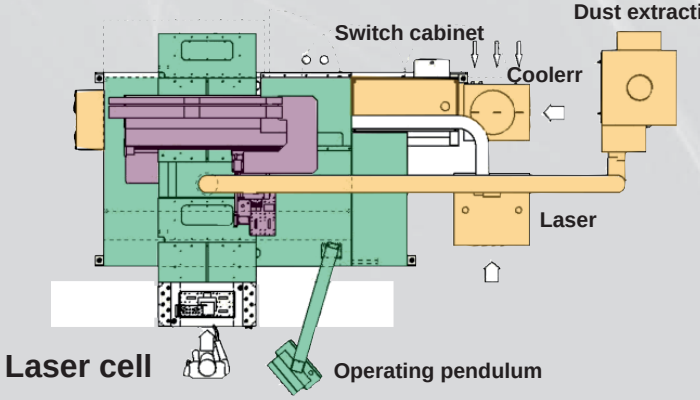
- Laser cutting
- Powder-coating welding, hardening

can also be integrated.

Scanner lens with cross-jet nozzles

Welding nozzle

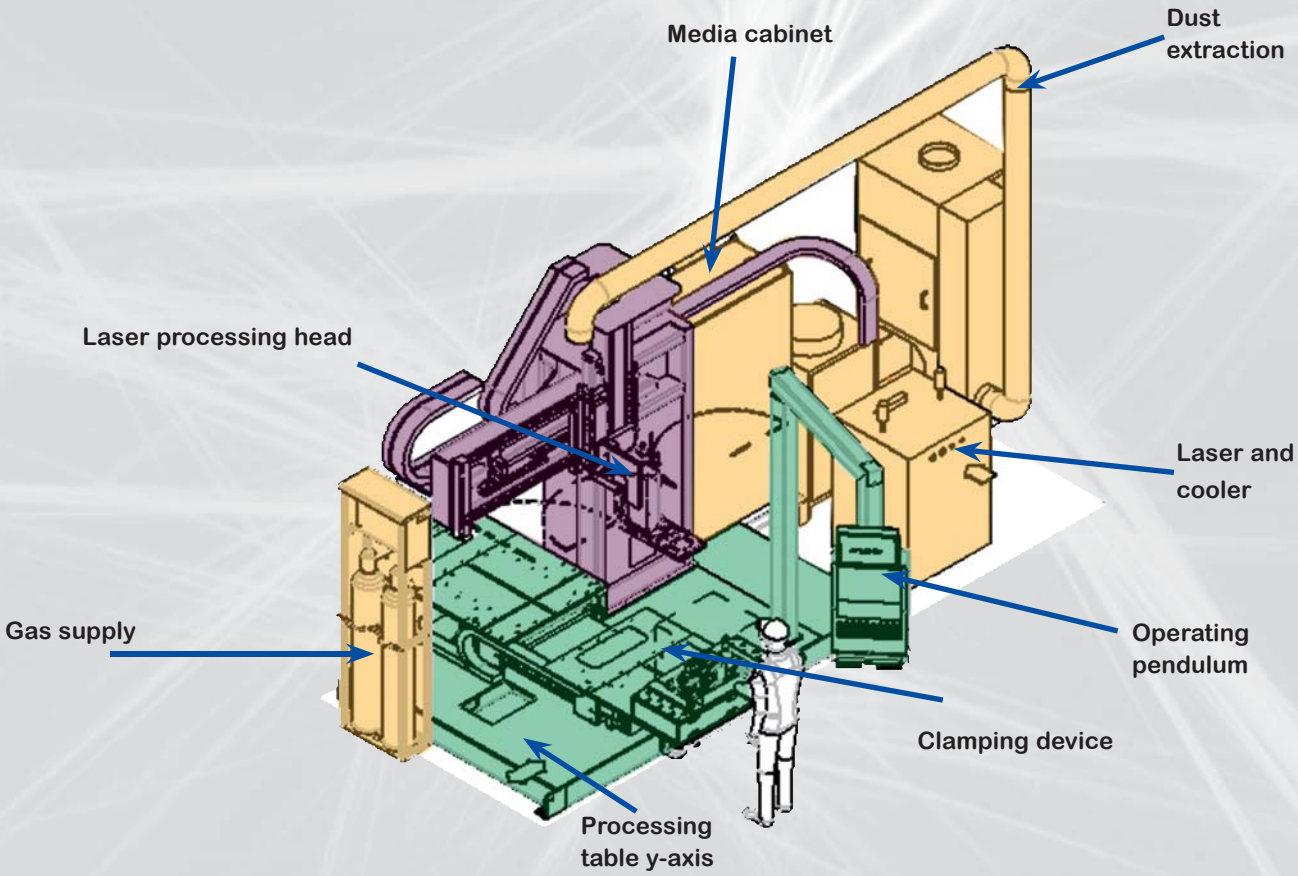
Layout, top view



The basic version of the machine has 3 moving NC axes. A swivelling axis at the processing head or a rotary axis on the table axis also allow full 3D functionality. The laser system is designed as a jib system with mobile NC worktable. The worktable moves out of the working range for charging, and is available to the operator for charging and discharging from 3 sides thanks to the generously designed charging doors.

The beam guide and protective cabin was specially developed for solid-state high-power lasers and can be delivered with double walls if required. Alternatively, safety walls can be used or retrofitted. Our moving axes are all NC axes and delivered with pre-fitted ball bearing spindles which meet the increased precision requirements.

Scanner lenses have also often been integrated and we convert common CAD formats into machining contours using adapted software.
Thanks to the automatic doors, variants for automatic system charging can also be supplied. You can see one such example on the following page (welding of battery cells).



Technical data:

Travel X = 1000
Y = 1000
Z = 500

A axis (table axis option)
n x 360°

B axis (processing head option)
B = +/- 100°

Precision according to VDI/DGQ 3441

Position tolerance X, Y, Z axes
Mean position scatter

Axis speeds optional:
Rotary-swivelling axes::

Control Siemens 840 SL

Laser capacities from 1-10 kW

Dimensions without accessoires
4200 x 2800 x 3250 mm

Dimensions with accessories
3,60 m x 6,80 m

Accessories depending on application case:

- Set-up camera
- 2-D/3-D scanner
- CAD/CAM integration
- Process monitoring
- Dust extraction

LASER CELL WITH ADAPTED AUTOMATION FOR WELDING BATTERY CELLS

Here, the laser cell is used for the welding of battery models with add-on parts. The system should be suitable for batch size 1 and is used initially for prototypes and small series, but is also suitable for a series system later with a greater degree of automation:

To generate small welding geometries in the required dynamics, a 2D scanner with integrated camera system was used as a processing lens. The geometries to be welded are transmitted directly from the CAD system to the control unit and converted to welding contours by our own post processor.

CHARGING AND DISCHARGING

Either individual workpieces or jigs containing several components are loaded. Heavier jigs are fed to the processing table via lowerable roller conveyers and positioned using a centring feature. Alternatively, continuous manufacturing is possible, i.e. pushing in of components on the system side and pushing out on the other side. The working area is secured by a laser class 1 protective cabin.

A data matrix reader has been installed on the system for purposes of data acquisition. It is linked to the control unit and enables the welding data to be assigned to the data matrix code and stored.

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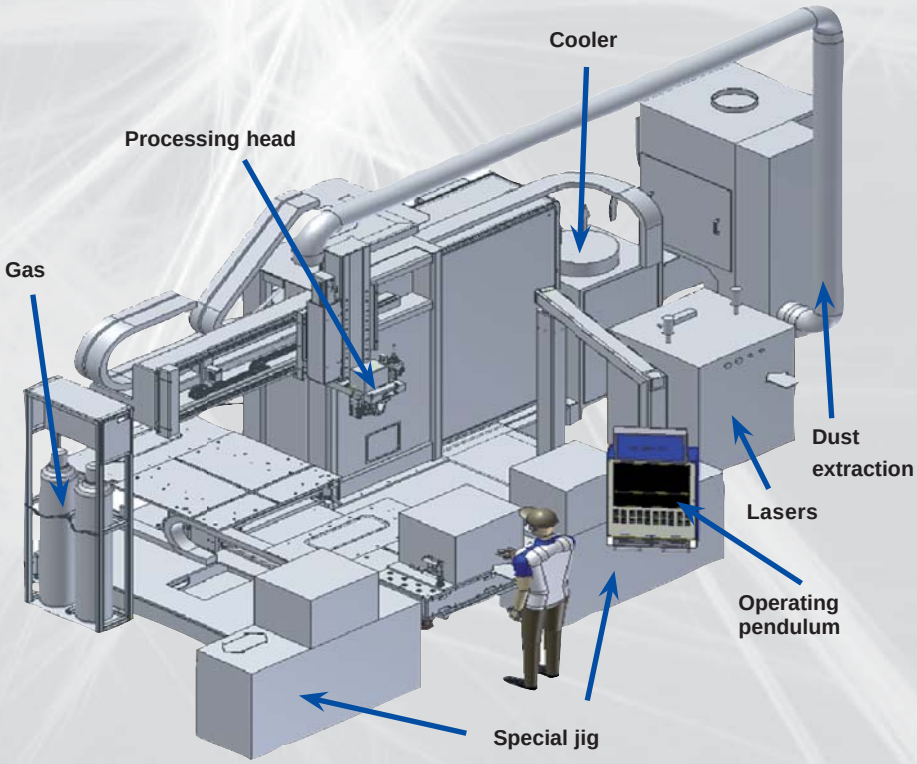

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