

## cleanCELL- TURNKEY COMPACT SYSTEM FOR LASER BEAM CLEANING



### The cleanCELL is a highly efficient production cell with modular automation technology

The laser-safe machine enables highly precise and reproducible component surface processing. Due to the solid steel base frame construction the cleanCELL keeps its track unflinching even at a high dynamic.

Thanks to the platform strategy in three width classes, complete and extremely economic automation machines for surface processing can be implemented. The dimensions can be selected modularly, so that both small components as well as working areas up to 1,500 x 700 mm, when using the largest product series, can be processed. The generous front doors allow comfortable loading of complete workpiece carriers.



Modular laser machine cleanCELL with manually opening front door

#### BASIC CONFIGURATION

- Paint stripping and decoating
- Solid steel base frame in compact design
- Servo drives and controllers with Siemens technology
- 3-axis linear system in H-portal arrangement with optional extension axes
- Touch screen and keyboard operation
- PC-based graphical control software cleanSTUDIO
- Laser-safe housing with manually opening front door
- Application-specific integrated suction nozzles and pipes
- Integrated air-conditioned switch cabinet for storage of the control technology and the laser system

## cleanCELL - AVAILABLE IN THREE SIZES



cleanCELL 3220 with conveyor belt system



cleanCELL with rotation table for main cycle time parallel (un-)loading

## One compact system - versatile application possibilities

Solid, dust-protected linear axis systems with ball circulation spindle driven by powerful Siemens servo drives with absolute value encoders ensure optimum positioning precision and a long service life. All cleanCELLs are designed for unlimited 3-shift operation in industrial production environment.

### TECHNICAL DATA OVERVIEW

	cleanCELL 1170	cleanCELL 2220	cleanCELL 3220
<b>Dimensions of the machine body with manual front door, without attachments (width x length x height) [mm<sup>3</sup>]</b>	835 x 1.700 x 2.215	1.435 x 2.200 x 2.215	2.035 x 2.200 x 2.215
<b>Weight (without laser) approx.</b>	900 kg	1.200 kg	1.450 kg
<b>Laser equipment</b>	Low Power	Low, Mid or High Power	Low, Mid or High Power
<b>Axes</b>	Spindle, H-Portal Linear motor, H-Portal	Spindle or optional Linear motor, H-Portal	3-axes linear system in H-Portal machine
<b>Number of axes</b>	max. 4	5	6
<b>Nominal movement area of the portal (without axes) [mm<sup>3</sup>]</b>	400 x 200 x 225	800 x 540 x 300	1.400 x 540 x 300
<b>Accessible work space [mm<sup>3</sup>]*</b>	580 x 360 x 225	910 x 710 x 280	1.510 x 710 x 280
<b>Maximum movement speed of the 3 portal axes [mm/s]</b>	300 / 300 / 200	350 / 400 / 250	400 / 450 / 350
<b>Acceleration [m/s<sup>2</sup>] &gt; 1,5</b>	> 1,5	> 1,5	> 1,5
<b>Positioning accuracy +/- [µm] at 20°C</b>	250 / 150 / 150	350 / 360 / 200	450 / 360 / 250
<b>Repeatability accuracy +/- [µm] at 20°C</b>	20 µm	20 µm	30 µm

\*When equipping with Stamp 10 optic, 90° Feed-in and f= 254 mm focal width as well as vertical beam direction. Depending on the optic equipment and focal width, the work areas may deviate.



cleanCELL as continuous flow system



cleanCELL with double drawer mechanism

## Setup and loading

The machine can be comfortably loaded manually or automatically from the frontside. Alternatively, customer-specific lateral opening of the machine is possible. This allows loading and processing with a single or double conveyor belt or loading with alternating drawers for full-time processing.

## Benefits

- Maximum efficiency and direct interlinking of the cleaning tasks at the highest possible capacity
- Numerous expansion possibilities of the system for individual configuration, e. g. pneumatic person-safe front door, additional equipment with further axes, software extensions with a complete NC function, including CAD/CAM interfaces

## Suitable optics

In fact, all automated usable optics with 1D and 2D scanners from the IPG | cleanLASER product range can be integrated into the cleanCELL. The most optimal are:

- Stamp Series (2D-Scanner)
- Optics of the MOTION series for single or bilateral vertical processing or for internal pipe processing
- Polyoptical

## The cleanCELL - flexible and highly efficient

### OPTIONS AND VARIATIONS

- Pneumatic front door
- Automatic loading by gripper/robot loading
- Also suitable as a throughput system for belt transfer systems
- Extension by numerous axes
- Process monitoring
- Integration of further process
- technology such as adhesive dosing
- Extension of the control on PLC or NC basis
- Water cooling
- Height adjustment
- Modification and adaptation to customer-specific design guidelines and operating equipment regulations possible

## SOFTWARE AND APPLICATIONS



cleanCELL 3220, e.g. for paint stripping of housings – precise and reproducible

## CONTROL, SOFTWARE AND PROGRAMMING

The cleanCELL machine is controlled by the integrated laser and control software.

The graphics-based control software cleanSTUDIO is operated via touch screen or keyboard. It coordinates not only the laser parameters and the movement of the linear portal, but also the synchronous motion control of the laser scanner system.

Within a very short time the intuitive and efficient operation of the system can be learned by script or graphic commands.

### SOFTWARE HIGHLIGHTS

- Multitasking software for axis, laser and scanner control
- Axis control based on script commands or automatical by means of virtual image fields
- Processing pattern based on graphics or flexibly generated by DXF import
- Free parameter setting of the processing objects
- Automatic monitoring of area limits and laser functions
- Optional CAD/CAM interface with post-processor
- Available in over 10 languages

## cleanCELL IN ACTION

- Precise, reproducible results
- Easy to operate
- Highly efficient
- Maximum possible workload
- Modular automation technology for Low, Mid or High Power Laser Systems

## APPLICATION EXAMPLES

- Adhesive pre-treatment
- Welding pre- and posttreatment
- Partial paint stripping and decoating
- Surface modification



cleanCELL 2220 with lifting door and pick&place-robot, e. g. for adhesive pre-treatment – available with manual or automated loading

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