ArcMan P1800

ArcMan P Series

Productivity-based Intelligent Manufacturing Unit for Ded-arc

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NANJING ENIGMA AUTOMATION CO., LTD.

High-quality additive manufacturing (AM) for large complex components

Full digital process quality monitoring and tracing

Patented Q-Ark quality ark system and self-developed CAM software lungoPNTV4.0 Premium for arc can be selected, which integrates real-time process quality monitoring functions such as AM path generation, process parameter and environmental parameter collection, 3D morphology detection, dynamic path planning, molten pool morphology and interlayer temperature field monitoring.

Real-time sensing of process defects, dynamic correction of AM program, control of AM profile accuracy≤ 2.5mm, height accuracy ≤ 1mm, can realize full digital process quality monitoring closed loop.

The process quality monitoring data is stored by the local server mounted on the equipment, with a storage space of 16T, which supports the storage, review and export of production process data within one month, and can be expanded and upgraded according to actual needs.

The control software is lungoPNT V4.0 Premium, a special CAM software developed by ourselves, which provides a more suitable slicing and planning path filling mode for ded-arc.

According to the process characteristics, the software can intelligently optimize the AM program for the whole workpiece and special characteristic position, so as to reduce the defects of AM.

Equipped with eight-axis linkage function, it is more suitable for AM to large and complex components.

Equipped with zero positioning system, the working platform can be quickly separated from the positioner or automatically locked again, without additional positioning reference, and the machining process can be conveniently connected in the process of AM, thus meeting the composite processing requirements of increasing and decreasing materials for large and complex components.

Combined with WeldWand Series PlusMIG welding torch designed independently, it can ensure the stability of AM and improve the accuracy of AM.

Automatic environmental dehumidification, heating, control the internal ambient temperature and humidity of the equipment to ensure a good AM manufacturing environment

Continuous and stable production guarantee

User-friendly humanized design

01

Software operation is simple and easy to use, the production process is highly intelligent, and operators who do not need rich experience in AM can get started quickly.

02

Through-top electric sliding door design, which is convenient for loading and unloading large workpieces.

03

Configure tool storage drawer, which is convenient for daily management of tools.
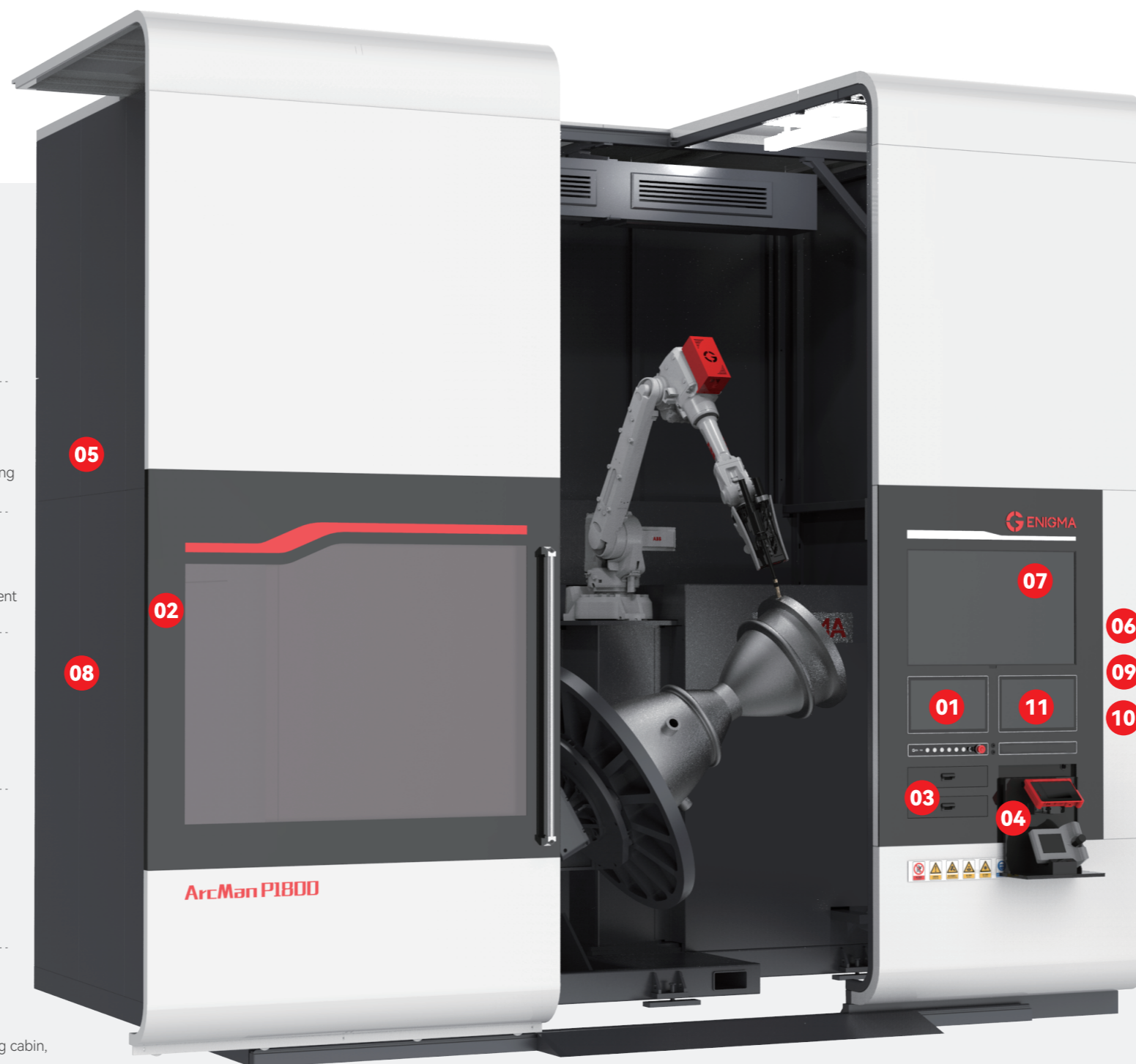
04

Flip controller bracket drawer, which can operate inside and outside the equipment in different scenes.

05

Configuration of environmental filtration system, the overall smoking dust filtration, to prevent smoke damage to human respiratory health.

06

Equipped with self-developed MaxFeed digital large-plate wire feeding cabin, which supports the use of 70-200kg large-plate wire (compatible with traditional small-plate wire) and reduces the frequency of wire replacement in the process of AM.

07

Real-time monitoring of internal environmental temperature, humidity and oxygen content of equipment to ensure the safety of operation in equipment.

08

Preset safe storage position of protective gas, supporting external centralized gas supply.

09

Equipped with wire allowance monitoring and alarm function to ensure the continuity of AM process,
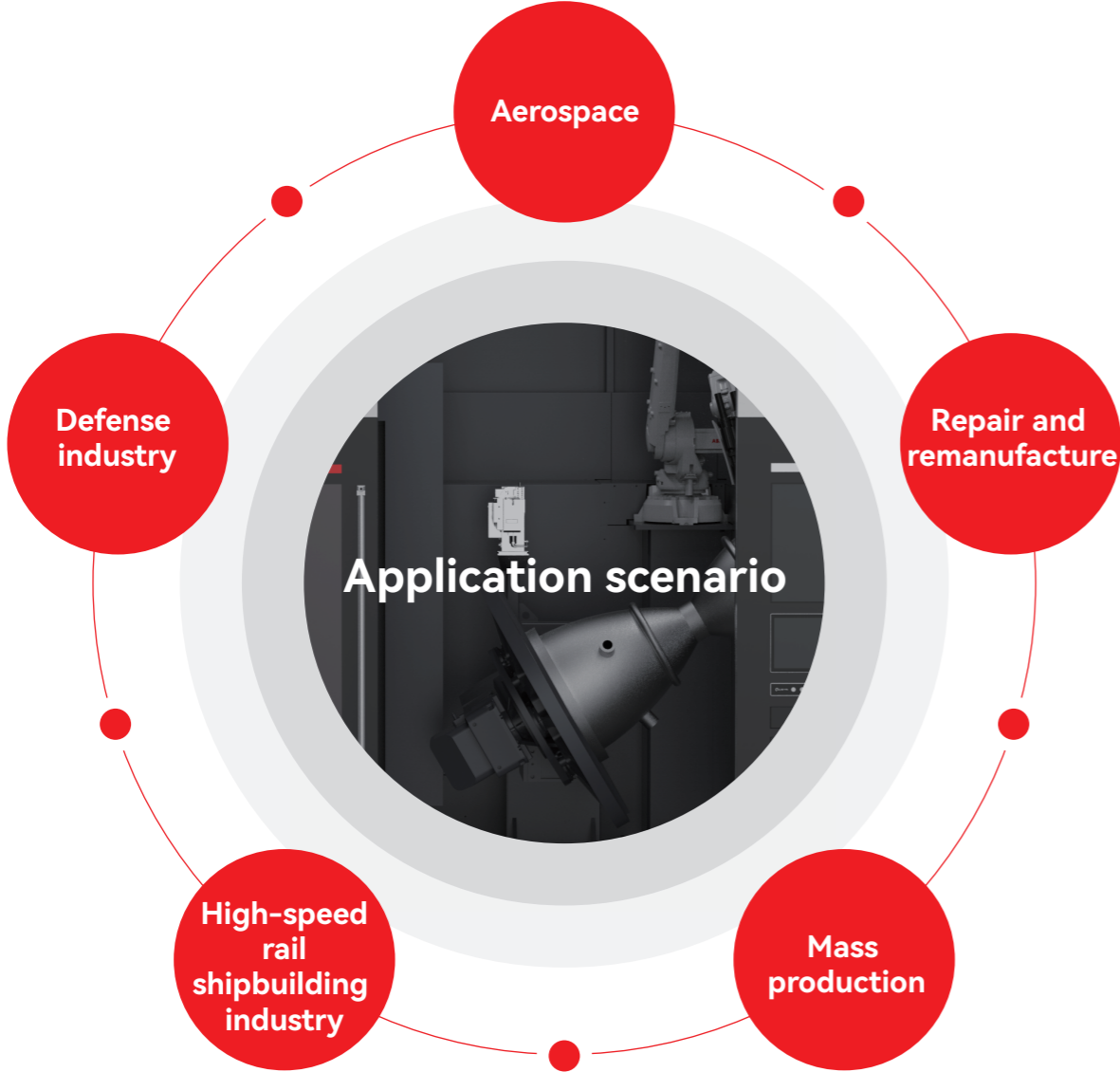
10

Heating and dehumidifying systems are provided in the cabin to ensure the drying of welding wire and reduce the defects such as air holes in the process of AM.

11

Configure IungoMC equipment management billboard, production managers can preview equipment details,equipment twins, employee information, task information, energy consumption data, wearing parts replacement reminders and other information at any time, providing guarantee for users to realize effective management of the whole process of personnel, factories and equipment.

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Application scenario

- Aerospace
- Repair and remanufacture
- Mass production
- High-speed rail shipbuilding industry
- Defense industry

ArcMan P series is a production-oriented intelligent manufacturing unit for realizing digital process quality monitoring in the true sense, which is widely used in mass production of large and complex components, product repair and other scenarios in national defense, aerospace, shipbuilding and other application fields. Under the control of lungoPNT, a special CAM for ded-arc, Q-Ark quality ark system and lungoBOX are used to collect, analyze, store and trace the AM path, process parameters, environmental parameters, workpiece morphology, molten pool and interlayer temperature information in the production process, sense the process defects in real time, dynamically modify the AM program, and realize the closed-loop of full-digital process quality monitoring.

Help users to better grasp the production status and information of equipment and products, realize the whole process management of personnel, factories and equipment, and realize intelligent ded-arc manufacturing to meet the needs of stable and continuous production. Variety of AM materials, such as aluminum alloy, magnesium alloy, nickel-based alloy, copper alloy, stainless steel, carbon steel, superalloy, cemented carbide, etc.

Product parameters and configuration information

Model	ArcMan P1200	ArcMan P1800
Equipment dimensions	4600*3600*4000mm	4600*3600*4600mm
Molding range	φ 1200mm*H1500mm (Simplified)	φ 1200mm*H1800mm (Simplified)
Molding efficiency	50-1085cm3/h (determined by welding wire material characteristics and process)	
Path accuracy	Software planning accuracy: 0.25 mm, robot absolute accuracy: 0.5-0.8 mm	
Forming accuracy	It is determined by the material characteristics and process of welding wire	
AM material	Aluminum alloy/copper alloy/stainless steel/magnesium alloy/carbon steel (weldable materials-welding wire)	
	Wire diameter: 0.8/0.9/1.0/1.2/1.6mm	
Rated power	About 38Kw	
AM process	CMT, Pulse, C + P, CMT Adv, etc	
Working environment	Power supply: 380V±10%, 50Hz±2%	
	Ambient temperature: 0-45℃; Relative humidity ≤ 85%	
Safety protection	Integrated protection (electric sliding door/safety access door/anti-arc observation window)	
Actuator	Two-axis positioner for six-axis robot	
Working platform	Cast aluminum platform (optional zero positioning system)	Zero positioning system + cast aluminum platform
Dust removal system	Integrated heating, dehumidification and smoke filtration system	
Gun clearing system	Standard	
Software version	lungoPNT V4.0 Premium	
Fuse power supply	TPS 4000 CMT Adv	
Operation panel	Large screen display +2*McCat.HMI185 (including function buttons + RFID card swiping area) + operation area	
Server	High performance computer	Tower server
MaxFeed large plate wire feeding system	Selection	Standard
Temperature field monitoring	Selection	Standard
Point temperature measurement system	Selection（molten pool camera accessories）	Standard
Temperature field monitoring	Selection(used with molten pool camera of point temperature measurement system)	Standard
3D line laser	Selection	Standard
lungoMC	Selection	Standard