

Laser meister LM300A Lasermeister SB100

Revolutionizing Nikon's latest DED **Series** Your Nikon Nikon Repair **Process**

DED : Direct Energy Deposition



Automated tool path generation using Nikon 3D Scanner (Lasermeister SB100) and software algorithm

3 Main Value Proposition

Near-Net Shape



Achieve a tight tolerance processing accuracy and minimize post-processing XY : -0mm / +0.5mm Z : +0.5 / +1.5mm

Customer Benefits





Print with **Diverse Material**



Nikon's Global Support Network



Semi-Automating repair process

Reduced Cost of Operation

Reduced Lead Time

High Quality Build



Stabilize process quality via real-time meltpool feedback and achieve crack-free, high quality build

Applications



Turbine Blade Repair



Mold / Die / Tool Repair



Surface Repair

Case Study : Turbine Blade Repair

In the world today, turbine blades are used in a variety of areas including aircraft engines and power generators. Those blades are often damaged due to consistent contact with hot gas, and need to be repaired for long-term use.

Challenge As of today, manual hand welding is a common solution to repair blades, but it presents numerous challenges.



Solution Nikon's latest additive manufacturing technology presents a seamless, semi-automated repair workflow to overcome the challenges from the conventional method (reduce lead time up to 65% of the conventional welding process).



Result

As a result, in addition to a drastic improvement in productivity, customers can also repair the turbine blades with high quality and precision.



Lasermeister LM300A -

Machine specifications

Item	Specification
External dimensions	1,800 mm (W) x 1,350 mm (D) x 2,085 mm (H)
Machine weight	1,350 kg

Power supply specifications

Item	Specification
Rated voltage	200 to 230 VAC, single-phase two-wire with protective grounding (available in the US)
Rated frequency	50 or 60 Hz ±5%
Power consumption	3.6 kVA
Overvoltage category	Category II

Inert gas (nitrogen gas or argon gas) specifications

Item	Specification
Purity	99.99% or higher
Supply pressure range	0.50 to 0.65 MPa
Amount used	When injecting inert gas: 550 L/min or more During build : 20 L/min or more

Compressed air specifications

Compressed air must be supplied to operate this machine. Confirm that compressed air that meets the following specifications can be supplied to the installation location of the machine.

Item	Specification
Connection method	Tightening fitting type / Inner diameter of tube Ø11 mm / Outer diameter of tube Ø16 mm
Supply pressure range	Supply pressure range 0.5 to 0.65 MPa
Amount used	Amount used 30 L/min or more

Processing Specifications

Item	Specification
Processing range	297 mm (W) x 210 mm (D) x 400 mm (H)
Material	Ask Nikon for details.
Powder capacity	Up to 7 kg

* For information on the model number, contact your local Nikon representative.

* The available fault current shall not be greater than the short circuit current rating 5 kA. (NFPA79)

 * When nickel based alloy powder is used for the build, Nikon recommends using argon gas.

Internal computer

Item	Specification
Operating system	Windows 10 Embedded Enterprise Alternatively, Windows 10 Pro 64-bit Japanese
Display	Display 12.1 inch (Resolution: 1,024 x 768)
Interface	Interface 1000Base-T Ethernet port (1 port, bottom center on the back of the machine)
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Installation environment

Item	Specification
Elevation	0 to 1,000 m
Environment temperature	10 to 30°C
Rate of temperature change	±10°C/h
Humidity	20 to 80%RH * No condensation
Amount of airborne dust	0.3 mg/m3 or less * Twice the amount of dust specified by the Ordinance on Health Standards in the Office, Ministry of Health, Labour and Welfare, Japan
Floor conditions	Concrete strength Fc = 21 N/mm2 * General design strength value M12 anchor bolts required at four locations

Lasermeister SB100

Machine specifications

Item	Specification	Remarks
Measurement accuracy	±40 µm	±2σ value
Generating Path accuracy	±25 µm	
Measurement time	7 min	Reference value of 4 pcs x 2nd blades For the initial data: 18 min
Generating Path time	8 min	Reference value of 4 pcs x 2nd blades For the initial data: 13 min
Item		Specification
External dimensions	1040 mm (W) >	× 1350 mm (D) × 2080 mm (H)
Machine weight	730 kg	

Power supply specifications

Item	Specification
Rated voltage	200-230 VAC, single-phase two-wire with protective grounding
Rated frequency	50 or 60 Hz ±5%
Power consumption	2.2 kVA
Overvoltage category	Category II
	* The available fault current shall not be greater than the short circuit current rating 5 kA. (NFPA79)

Installation environment

Item	Specification
Elevation	0 to 1,000 m
Environment temperature	10 to 30°C
Rate of temperature change	±0.3°C/min
Humidity	20 to 80%RH * No condensation
Amount of airborne dust	0.3 mg/m3 or less * Twice the amount of dust specified by the Ordinance on Health Standards in the Office, Ministry of Health, Labour and Welfare, Japan
Floor conditions	Concrete strength Fc = 21 N/mm2 * General design strength value M12 anchor bolts required at four locations



*The specification is subject to change *The dimensions are in millimeters (mm)





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