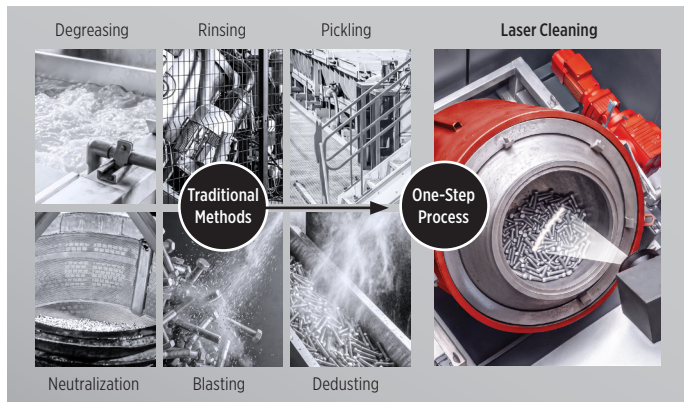


LAMA® BULK PARTS LASER CLEANING MACHINE

LAMA® stands for **LA**ser-based preparation of **MA**ss bulk parts for subsequent coating. LAMA® is a fully automated laser system engineered to clean bulk metal components, such as fasteners, prior to zinc flake coating or electroplating. Next-generation laser technology precisely removes surface impurities and residues, delivering a clean, coating-ready surface. Designed for seamless integration into new or existing dip-spin lines, it operates in semi or fully automated configurations to meet the needs of any production environment. The LAMA® coating surface pre-treatment process is already qualified by a major automotive OEM and leading zinc flake coating manufacturers.



Drive Down Your Operating Costs

LAMA® eliminates chemicals, blasting media, and water treatment from your pre-treatment process, while cutting energy consumption and CO₂ emissions. Operating costs drop, cleaning consistency improves, and part quality becomes more predictable. For fastener manufacturers under pressure on both cost and compliance, that is a decisive competitive edge.



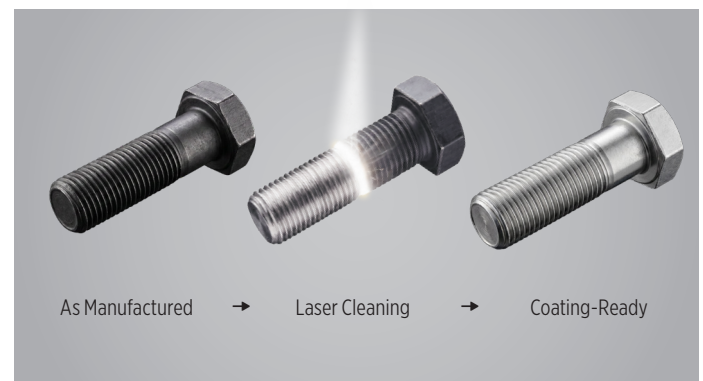
Compact by Design, Powerful by Results

LAMA® replaces multiple surface preparation stations, delivering the same results in a far smaller footprint. Engineered for full automation, it provides the seamless operation and repeatable consistency that fastener production demands, inside a Class 1 laser safety enclosure.



Smarter and More Efficient Process

Laser cleaning delivers residue-free results with repeatable process control. Surface preparation before zinc flake coating becomes a single step, replacing lengthy sequences of degreasing, rinsing, pickling, neutralization, phosphating or blasting and dedusting.



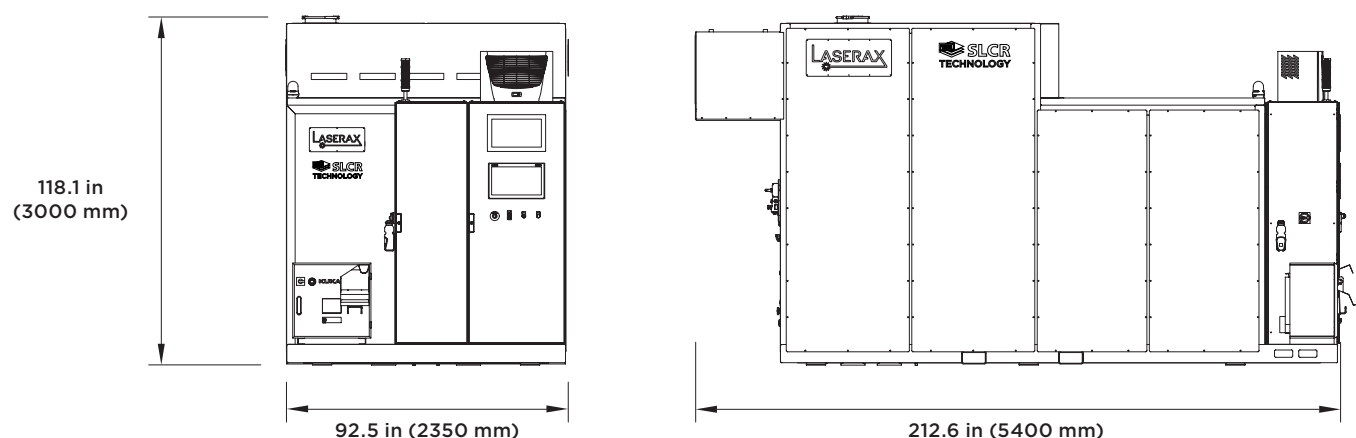
Green and Sustainable Process

LAMA® helps manufacturers reduce waste, energy consumption, and disposal costs while moving toward cleaner production with no chemicals or blasting media required. The process achieves an independently evaluated 65% reduction in overall environmental impact and over 35% lower CO₂ emissions.

Specifications

LAMA® Bulk Parts Laser Cleaning Machine	
Laser Type	Pulsed Fiber Laser
Laser Process	Laser cleaning of bulk part metal components
Part Material	Metals
Cooling	Water-cooling (chiller included)
Communications	Ethernet/IP, PROFINET (others available)
Power Requirements	480V/60Hz or 400V/50Hz
Power Consumption	15kW (without extraction)
Compressed Air	87 psi (6 bar); [2:4:2] according to DIN ISO 8573-1:2010, (particles/water/oil)
Operating Temperature	41°F to 95°F (5°C to 35°C)
Storage Temperature	41°F to 122°F (5°C to 50°C)
Operating Humidity	< 70% Non-condensing
Fume Extraction	>1,766 CFM (>3000 m³/h)
Enclosure	Class-I certified laser safety enclosure
General Dimensions (W x D x H)	92.5 in x 212.6 in x 118.1 in (2350 mm x 5400 mm x 3000 mm)
Foundation requirements	Industrial concrete floor with a flatness of 0.39 in (10 mm), in accordance with ISO 1101; 307 lb/ft² (1.5 t/m²). Concrete quality C20/C25 according to EN206 Concrete corner min. 7.1 in (180 mm)
Cleaning throughput	1,100 - 3,300 lb/h (500 - 1500 kg/h)
Loading capacity per batch Depending on components	65 - 550 lb (30 - 250 kg) 8 - 32 gal (30 - 120 L)
Reference test standards	Vibration test (DIN 969) Hardness, Vickers (ISO 6507-1) Coating adhesion, tape test (ISO 10683) Corrosion resistance, neutral salt spray (ISO 9227) Coefficient of friction after coating (ISO 16047) Life cycle assessment (ISO 14040/14044)

Dimensions



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