







Headquartered in Illinois with a regional engineering center in Huntsville, AL, Jupiter provides advanced CNC machine tools, turnkey solutions, and manufacturing support to leading manufacturing corporations across the United States. Satisfied Jupiter customers include the USAF, Toyota Motors Manufacturing, Caterpillar, Bell Helicopter, and many others.





Jupiter CNC Systems

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Quotation to: Email:

POC:

Company:

Quote #:

Project #:

Date:

Prices Valid for 30 days







JUPITER + MELTIO INTERGRATION = COMPLEX PARTS WITHIN HOURS NOT DAYS

The NEW JUPITER **VMC4024-WLMD** is a Premium Hybrid Additive-Subtractive CNC machine center which combines high performance speed and accuracy with an integrated Wire Laser Metal Deposition (WLMD) patented system by MELTIO. The new Jupiter CNC Machine Additive System is *"Power by Meltio"* and prints 3D metal parts *using wire not powder*. The WLMD system offers a selection of 14 different metal types such as Mild steel, Stainless Steel, Alloy Steels, Titanium, and others. The 3D part is printed to a "Near Net Finish" (within .040") shape which dramatically reduces machine cycle time, fixtures, design and machined work holding, tooling, and setup time.

The printed parts are very similar to forged parts but has higher densification, virtually eliminating voids and porosity, does not have a grain like billet material making it stronger, and parts are unlimited in shape. The work/print part envelope is 36" X 20" X 20".

Benefit summary of the Jupiter VMC4024-WLMD Additive-Subtraction system is:

- 1. No billet material is needed- eliminating traditional 12 lengths storage.
- 2. RAW material does not have to be sawed to machine length.
- 3. Parts can be repaired or reworked by printing, adding material using the WLMD additive process.
- 4. Forging dies, Injection Molds, or machine parts can be reworked by adding material and then is finish machining.
- High wear items like tooling, shafts, bearings, journals, augers, and other parts, can be "reclad" and machined.
 6.
- 7. Automation ready, with robotic tending and auto doors available.

When parts are not being printed the CNC machine performs everyday machine operations producing traditional production parts. Also, all standard accessories can be added as well. Some are, 4th axis, rotary tables, vises, three jaw chucks, and other fixtures.



"Powered by Meltio"



Start with wire spool material No specific stock sizes needed





Part being printed



Benefits to a Shop using 3 WLMD (Wire Luser Metal Deposition)

- □ The WLMD process eliminates the safety hazard of powder deposition methods
- Reduces material costs as parts are printed to a "near net finish" (*within .040*") eliminating removal of excess material, and reducing "*Cycle Time*", labor, and power consumption costs.
- □ Eliminates costs of "Work Holding" fixtures & reduces "Set Up" time.
- □ A part can be made using two different metals, i.e. mild steel as a core metal while the outside is finished with titanium using the *"Twin Wire"* function.
- □ WLMD parts have fewer voids **99.9998%** denser than forgings or castings.
- □ Enables parts to be made with internal passageways for gas or liquid flow.
- □ Allows prototype parts to be made in hours rather than days or weeks.
- □ The WLMD process eliminates the safety hazard of powder deposition methods.
- No billet needed; all parts can be printed from wire, eliminating sawing, or storage.



Printed Part





Sample printed parts:





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VMC-4024 Standard Features:

Fanuc 0iMF Plus CNC Control System 15" Touchscreen The 3D metal printer system prints highly complex components of all shapes and sizes, Integral closed passageway geometries can be printed using different metals in the same part. Prototypes can be made without complex fixtures The Meltio CNC Engine is supplied with Control system with 25" color touch screen. Laser Chiller Wire drive system keeps wire moving during the print cycles. Print Head has six focused lasers to provide safe and accurate laser power focused to create a "Melt" pool during the printing process. Integrate with any 3 or 5 axis CNC machine, converting it into a hybrid metal manufacturing system. Makes any 3D metal shape part without inherent constraints and the part size is only limited by the size of the machine work envelope. CT-40 Tanere Dual Contact Direct Coupling 15:000 pm Spindle ram M Code. Tenperature Controlled Spurche 2011 Childenm; Printhead Weight 15.5 kg Automatic Tool Changer: 30 Tools Side Mount Drum w/swingarm High Precision C2 Class Pre-Tensioned Ball Screws Remote Portable MPG Automatic Centralized-Hybrid Grease Lubrication System Flood Coolant System with Side and Rear Chip Flush 105 US Gallons (400 Liters) Coolant Tank Dual LED Work Light Safety Vision Panel Auto Power Off M30 (M80) Machine Status Light Operator Coolant and Air Gun Air Purge for Spindle Cutter Air Blast and Side Coolant Nozzle with Solenoid Control Coolant thru Spindle Preparation including* *Hollow Shaft Motor, Rotary Union, Piping and wiring prep, & Stainless Chip Bed **MELTIO EGINE WLMD 3D ENGINE STANDARD FEATURES**

MELTIO ENGINE WLMD TECH SPECS









MELTIO WLMD GENERAL SPECS

- The 3D metal printer system prints highly complex components of all shapes and sizes, Integral closed passageway geometries can be printed using different metals in the same part.
- · Laser prototypes can be made without complex fixtures
- · The Meltio CNC Engine is supplied with Control system with 25" color touch screen.
- Laser Chiller
- Wire drive system keeps wire mover during the print cycles.
- Print Head has six focused lasers to provide safe and accurate laser power to focused to create a "Melt" pool during the printing process.
- Integrate with any 3 or 5 axis CNC machine, converting it into a hybrid metal manufacturing system.
- Makes any 3D metal shape part without inherent constraints and the part size is only limited by the size of the machine work envelope.
- The print head is deployed or retracted automatically by CNC program M Code.
- Printhead Size (WxDxH): 202 x 297 x 784 mm; Printhead Weight 15.5 kg

390 x 700 x 1025 2 - 5 kW peak depending on Dimensions (WxDxH): Power Consumption: selected options mm **Process Control:** Print Envelope Ø450 x 460mm Closed-loop, laser and wire modulation (WxDxH): System Weight: 142 kg **Enclosure:** Laser-safe, sealed, controlled atmosphere Laser Type: 6 x 200 W direct Cooling: Active water-cooled chiller diode lasers included Laser Wavelength: 976 nm Wire Feedstock 0.8 - 1.2 mm **Diameter:** Wire Feedstock Total Laser Power: 1200 W BS300 or Wire drums Spool: Power Input: 208/230V single phase or 400 V three phase Wire Materials: **Stainless Steels:** Excellent strength and corrosion resistance. Mild Steels: Affordable and ductile, with unparalleled machinability and weldability. **Carbon Steels:** High impact strength, retain hardness at high temperatures. **Titanium Alloys:** Highest strength to weight ratio and corrosion resistance. Nickel Alloys: High versatility, outstanding heat and corrosion resistance.

MELTIO WLMD GENERAL SPECS





CNC Spindle Technology



contact will provide better performance in all applications compared to standard toolholders.

	ISO 10791-2	STANDARD	JUPITER ACCURACY
Straightness full stroke	X	0.02	0.008
	Y	0.015	0.008
	Z	0.015	0.008
Squareness	X-Y	0.02 / 500	0.006 / 500
	Y-Z	0.02 / 500	0.006 / 500
	X-Z	0.02 / 500	0.006 / 500
Positioning Accuracy	X	0.02	0.005
	Y	0.016	0.005
	Z	0.016	0.005
Repeatability	Х	0.008	0.004
	Y	0.006	0.004
	Z	0.006	0.004
Spindle run-out on table		0.02 / 300	0.01 / 300
Spindle run-out	At base	0.01	0.004
	At 300mm	0.02	0.008
Circularity	CW	-	0.008
	CCW	-	0.008

Machine Accuracy



JUPITER VMC HYBRID

Meltio Engine Integration



* Proper foundation and environmental controls are required



JUPITER VMC HYBRID

Meltio Engine Integration



CNC Specifications		DC40-15	
Motion			
Rapid Traverse X/ Y/ Z/	m/min	36/36/36	
Max Acceleration X/Y/Z	G	.7/ .7/ .5	
Cutting Feedrate	mm/min (ipm)	1 -25,000 (0.04 - 984)	
Transmission		Direct	
Axial Motor (X Axis)	kW / HP	3 (4.0)	
Axial Motor (Y Axis)	kW / HP	3 (4.0)	
Axial Motor (Z Axis)	kW / HP	4 (5.4)	
Ball Screw Diameter / Pitch	mm (inch)	45 / 12 (1.77" / 0.472")	
Positioning Accuracy*	mm (inch)	0.005 <mark>(0.00019)</mark>	
Repeatability Accuracy*	mm (inch)	0.004 <mark>(0.00015)</mark>	
Guide Ways			
Type (All Axes)		Roller Linear Guide Ways	
Way Size (X axis)	mm (inch)	(2) sets – 35 (1.38")	
Way Size (Y axis)	mm (inch)	(2) sets – 45 (1.77")	
Way Size (Z axis)	mm (inch)	(2) sets – 45 (1.77")	
Blocks on Guide Ways (X/Y/Z)		4/4/6	
Coolant System			
Coolant Tank Capacity	L (gal)	400 (105)	
Nozzle Coolant & Flush Pump	Bar (psi)	100L(26.4gal)/min & 3.5Bar (50.76psi)	
General			
Floor Space (w/o chip conveyor)	mm (inch)	W: 2,150 (84.65") x D: 2,763 (108.78")	
Height	mm (inch)	2,843 (111.93")	
Weight	kg (lb.)	7,300 (<mark>16,060</mark>)	
Power Requirements			
Electrical	220V	3 Phase / 34 KVA/ 60 Hz	
Air	6 bar / 5 CFM @ 90 psi		





Complete Finite Elements Analysis (FEA) and Rigid Structure

FEA Techniques are all Meehanite castings used to analyze structure deformation, stress and cutting forces to assure an optimum structure. A low gravity center base and 3-point leveling assure stability during machining. Vertical mounted tool changer and magazine provide less vibration, no bending, increased stability and robust reinforcement to column and headstock. The castings include an enhanced symmetrical rib design for vibration and thermal displacement. Large, heavily ribbed column and wider guide ways assure minimal overhang and improved distribution of cutting forces.



Inspection and Alignment

Complete machine tests and laser calibration are done on every machine. Geometric accuracy is laser verified (Straightness, Perpendicularity, Flatness, and Squareness). Finally, circularity is checked by ball-bar in 3 planes.







Jupiter Exclusive Operation Panel

Designed by machinists for machinists. Jupiter's exclusive operation panel not only looks the part with its fully backlit keys but provides all the information and access you need at your fingertips for lightning-fast response. The Fanuc 15" LCD touchscreen provides menu driven access for all the deep data and smartphone type controls if that's your preference.





Prep for Thru-Spindle Coolant

Improve your bottom line. Jupiter Machining Centers come prepared for 1,000psi (70bar) thru-spindle coolant. Increase performance in all pocketing and drilling applications. Add an optional Jupiter high-pressure

pump to fit your application.





Central Automatic Greased Lubrication

Automatic centralized greased lubrication is provided to all roller guide ways and ball screws. Grease lubrication is more environmentally responsible and cost effective than oil lubrication. The very thin grease film is retained on the surface of guide ways and ball screws. Additionally, grease will not pollute water-base coolant and requires no oil skimmer to separate oil from the water-based coolant, extending the life of your coolant.

Portable MPG

A hand-held "Manual Pulse Generator" (MPG) lets each axis move in increments of x1, x10 or x100 for easy fixture or part alignment.



Ball Screws and Axis Drives

Each axis is driven by high precision <u>C2</u> class ballscrews. All ballscrews are centered between the guideways. Linear axes have 4/4/6 trucks for maximum rigidity. Ballscrews are pre-tensioned and supported at each end with angular contact thrust bearings. All axes are connected directly to digital servo drive motors for immediate response and accuracy.









Oversize Roller Type Linear Guideways

Full roller type linear guideways are equipped with rollers instead of balls. This provides for higher loading and rigidity than ball type of the same size. Roller type are especially suited for demands of high accuracy, heavy load, and high rigidity.

The Jupiter VMC-4024 utilizes 45mm guideways on the Y and Z axis and 35mm on the X axis.





Jupiter VMC-4024 Price with Standard Equipment: \$ XXXXX



Marposs Part and Tool Probing System with GUI: \$ 9,1245

Jupiter TSC Pump Kit Includes Coolant Hoses & Filter Electrical wiring & Contactor 300 psi Max Pressure

\$ \$3,800

3,000

Jupiter Jet Variable Hi-Pressure Pump with Programmable HMI



30I / minute Max Flow Rate 5 micron bag filtration 140I Tank Capacity Four (4) Separate Pressures Programmable by M codes **\$ 15,290** Field Installation will require additional travel expense.

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Jupiter Jet Hi-Pressure Pump 500psi Max Pressure 8gal (32l) / minute Max Flow Rate 5 micron dual bag filtration Single Outlet No suction Pump **\$ 4,900** Field Installation will require additional travel expense.

Coolant Mist Filtration Designed for the elimination of mist, smoke, and odor. Vortex Filtration, 99% filtering efficiency, washable filter Recycles coolant, Status Light Indicator \$





Field Installation will require additional travel expense.



Detron GFA 210 S+2 Trunnion Includes Fanuc & Series Motors and Amplifiers Cables and Installation Included \$ 47,460 Field Installation will require additional travel expense.



Detron RGX 255H Roller Cam NC Table Includes Fanuc & Series Motors and Amplifiers Cables and Installation Included 20,900 \$ Field Installation will require additional travel expense.



Detron GXA 255H NC Table Includes Fanuc ß Series Motors and Amplifiers Cables and Installation Included \$ 18,700

Field Installation will require additional travel expense.



VMC4024-WLMD SALE PRICE

MSRP SALE \$XXXX \$XXXXXX





(Price does not include rigging, shipping, or machine installation.

Payment Terms: Payment of 50% down Balance upon installation.

(Pricing does not include Rigging or trucking to your location)

Approved:

Jupiter Machine Tool Inc.





General Notes:

Specifications and pricing may be changed without notice.

Delivery:

If not in stock, delivery lead time will be verified by the factory after receipt of your written, firm purchase order.

FOB:

Port of Entry or Jupiter facility if USA stock.

Terms:

Jupiter CNC Systems Standard Terms & Conditions will apply. All ordered machines require the following:

- 40 Percent (40%) down payment with your purchase order.
- · 50 Percent (50%) due before shipment
- · 10 Percent (10%) due upon delivery

Training & Installation:

Complete, machine specific, operation and maintenance training is "NOT" automatically included. Initial Installation and Commissioning included in purchase price.

Training Charge

Training programs are charged at JCS published hourly rates. All travel charges, including per diem will be billed at actual cost.

Jupiter CNC System's Limited Warranty

Jupiter CNC Systems (JCS) warrants to the original purchaser, other than a purchaser for resale, (the "Purchaser") that JCS machine tools shall be free of defects in materials and workmanship for a period of two (2) years from completion of installation.

Warranty:

JCS *Limited Warranty* will apply. Page 18 of 19 Machine 2 Year Warranty, Controller 2 Year Warranty





Three jaw chucks, and other fixtures.

The limited warranty provided by JCS excludes the following:

- Damage, malfunction, or failure caused by or resulting from improper maintenance, misuse, neglect, accident, or any other cause beyond the control of the JCS.
- Damage, malfunction, or failure caused by modification of the machine (mechanical or electrical) without written authorization by JCS. D
- Damage, malfunction, or failure caused by installation or use of accessories or peripherals not purchased through or authorized in writing by JCS.
- Paint, batteries, filters, fluids, fuses, light bulbs, or any commonly expendable item.
 Damage to machines and/or components while being transported from JCS' warehouse, facility, or port to destination.
- Accessories or peripherals not manufactured by JCS, which shall be subject only to whatever warranty that is supplied by the manufacturer of such product.
- No person, agent, distributor, dealer, or company is authorized to change, modify, or amend the terms of this Limited Warranty in any manner. JCS makes no warranties, guarantees or representations, express or implied with respect to the machine tool, or parts thereof, except to the extent such warranty is set forth herein. The equipment covered does not necessarily comply with any codes or standards unless specifically quoted, ordered, and so accepted.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. JCS LIABILITY UNDER THIS WARRANTY IS EXPRESSLY LIMITED TO ITS PROMISE TO REPAIR OR REPLACE THE DEFECTIVE GOODS. JCS SHALL HAVE NO FURTHER LIABILITY IN CONTRACT OR NEGLIGENCE OR UNDER ANY OTHER THEORY OF LAW OR