



# Request for Quote

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
 ONE CAPITOL HILL  
 PROVIDENCE RI 02908

BUYER: Walsh, Gail M  
 PHONE #: 401-574-8122

CREATION DATE : 14-APR-14  
 BID NUMBER: 7548662  
 TITLE: FANUC ROBODRILL CNC VERTICAL MILLING MACHINE CENTER  
 BID CLOSING DATE AND TIME: 12-MAY-2014 11:30:00

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 DOA CONTROLLER  
 ONE CAPITOL HILL, 4TH FLOOR  
 SMITH ST  
 PROVIDENCE, RI 02908  
 US

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 RIDE WILLIAM M DAVIES CAREER & TECH HS  
 50 JENCKES HILL RD  
 LINCOLN, RI 02865  
 US

Requisition Number: 1358790

Line	Description	Quantity	Unit	Unit Price	Total
1	<p>THE WM M. DAVIES, JR. CAREER &amp; TECHNICAL HIGH SCHOOL IS HEREBY SEEKING BIDS FOR ONE FANUC ROBODRILL CNC VERTICAL MILLING MACHINE CENTER AS PER THE ATTACHED SPECIFICATIONS. Line Note to Bidders: QUESTIONS CONCERNING THIS SOLICITATION MAY BE E-MAILED TO THE DIVISION OF PURCHASES AT GAIL.WALSH@PURCHASING.RI.GOV NO LATER THAN APRIL 28, 2014 AT 12 NOON. QUESTIONS SHOULD BE SUBMITTED IN A MICROSOFT WORD ATTACHMENT. PLEASE REFERENCE BID #7548662 ON ALL CORRESPONDENCE. QUESTIONS RECEIVED, IF ANY, WILL BE POSTED ON THE INTERNET AS AN ADDENDUM TO THIS SOLICITATION. IT IS THE RESPONSIBILITY OF ALL INTERESTED PARTIES TO DOWNLOAD THIS INFORMATION.</p> <p>NO SUBSTITUTION TO MODEL SPECIFIED.</p>	1.00	TOTAL		

Delivery: \_\_\_\_\_

Terms of Payment: \_\_\_\_\_

It is the Vendor's responsibility to check and download any and all addenda from the RIVIP. This offer may not be considered unless a signed RIVIP generated Bidder Certification Cover Form is attached and the Unit Price column is completed. The signed Certification Cover Form must be attached to the front of the offer

William M. Davies, Jr. Career & Technical High School

Bid Specifications

**CNC Vertical Machining Center**

**Fanuc Robodrill aD14MiAS "ECO" 10.000 RPM**

The William M. Davies, Jr. Career & Technical High School is hereby seeking bids for one (1) Fanuc Robodrill aD14MiAS "ECO" 10,000 RPM CNC Vertical Milling Machine Center for instructional use in its Machine Technology Technical Program. No substitutions or equivalents will be allowed, as the machining center as outlined in the attached technical specifications has been designated by the school to meet industry needs and standards for career/job readiness for Davies graduates entering the workforce. Therefore, the school has selected the CNC machining center as outlined hereto.

The successful bidder will supply, deliver, and setup the milling center, as well as train Davies Machine Technology teachers in the operation of the machine. As such, all such costs must be included as part of the base bid pricing proposal submitted in response to this procurement.

**Pricing:**

Fanuc Robodrill aD14MiAS "ECO" CNC Vertical Machine Center with Fanuc 31i-BS CNC Control to include:

- Top Cover and Work light
- A Tooling Allowance of \$1,000 (for selection of a tool holder of choice)

Total bid price: \_\_\_\_\_

# Fanuc Robodrill

## aD14MiA5 "ECO" 10,000 RPM

### *CNC Vertical Machining Center*

#### ***Fanuc Robodrill aD14MiA5 "ECO", 10,000 RPM CNC Vertical Machining Center with Fanuc 31i-B5 CNC Control, including:***

- Axis Travel of 19.68" (X Axis), 15.74" (Y Axis), and 12.9" (Z Axis)
- 25.6" X 15.74" Table Area With A 660 Lbs Load Capacity
- 100-10,000 RPM Direct Drive
- 200L Coolant Tank
- Optional Fully Integrated 4th Axis and 5th Axis
- 14 Position, Bi-Directional Tool Changer (New Design)
- "Quick" ATC Recovery System
- 1.6 Second Tool Change Time (Chip to Chip)
- 0.9 Second Tool Change Time (Tool to Tool)
- 5,000,000 Duty Cycle Time
- Rigid Tapping up to 5,000 RPM
- "Quick" Tap Recovery System
- High Speed Reverse Tapping
- Thread Milling
- Helical and Linear Interpolation
- 1 Millisecond Servo Response Time
- Three Axis Simultaneous expandable to Five Axis Simultaneous
- Custom PMC
- HRV Positioning
- Simultaneous ATC / Table Positioning
- 2125 IPM Rapid Rate – X, Y, Z Axis
- Feed Rates to 1181 IPM X, Y, Z
- Multi Step Skip
- AI Contour Control I
- Nano CNC System
- Ultra Precise 16,000,000 Pulses/Rev encoders
- 1.5 G Acceleration
- Thermal Growth Compensation
- 1,280 Meter Memory (512 Kbyte)
- 1,000 Registerable Programs

# Fanuc Robodrill

## aD14MiA5 "ECO" 10,000 RPM

### *CNC Vertical Machining Center*

#### ***Standard Features (continued)***

- Tool Compensation Memory C
- Tool Offset Pairs 200 Pairs
- Part Program Storage 504,000 Character 1280 Meters
- 6 + 48 Work Offsets
- Coordinate System Rotation (G68.G69)
- Coordinate System Setting (G92)
- Custom Macro B
- Canned cycles for drilling (G73, G74, G81-G89/G80)
- Manual Handle Feed
- Coolant System
- Coolant & Chip Splash Guard
- Skip Function (G31)
- Background Editing
- Dynamic Graphic Display
- On Screen Display of Spindle 'RPM' and 'Load' Meters
- Basic Metal Top Cover
- Leveling Bolts and Pads
- Alpha Numeric Keyboard
- Automatic Lubrication System
- NEW! Periodic Maintenance Management
- Quick Side (Operator Interface)
- Manual Guide for Milling (Shop Floor Programming System)
- Manuals (1) Each: Operators, Maintenance, Parts, Operators CNC, & Maintenance CNC

#### **\*NOTE:**

- Top Cover and Work Light Optional
- ECO 2 does not support Coolant Thru the Spindle

# Fanuc Robodrill

## aD14MiA5 "ECO" 10,000 RPM

### CNC Vertical Machining Center

#### SPECIFICATIONS

##### Travels

Longitudinal (X) Axis .....	19.68" 500 mm
Cross (Y) Axis .....	15.74" 400 mm
Vertical (Z) Axis.....	12.9" 330 mm
Table Top to Spindle End.....	(5.9" - 18.89") (150-480) mm)
Spindle Center to Column Guideway .....	14.96"

##### Table

Table Size	25.6" x 15.74"
Table Load Capacity .....	660 lbs.
Table Surface Configuration .....	3 T-Slots, spacing 125mm apart
T-slots dimensions .....	14mm for bolts, 23mm width of bottom slot, 23mm depth

##### Spindle

Spindle Type .....	Cartridge Style Direct Drive
Spindle Taper.....	BT30
Bearings	(4) Steel Greased Packed
Lubrication .....	Grease Pack
Spindle Speed.....	100 -10,000 rpm
Accel time 0-10,000 rpm.....	.87 sec
Max Rigid Tapping Speed.....	5,000 rpm
Ace Time 0 to 5,000 rpm.....	.25 sec
Spindle Motor .....	Fanuc AC Spindle Motor
(1 Min. rating) .....	14.75 hp (11 kw)
(10 Min. rating) .....	7.5 hp (5.5 kw)
(Continuous rating) .....	5.0 hp (3.7Kw)
Spindle Torque	
(1 Min. rating) .....	39 Ft lbs (53Nm)
Full Torque .....	2,000 rpm
Spindle Orientation.....	Standard Electrical
Spindle Air Blow .....	Standard
Spindle Drive System.....	Direct Drive

##### Feedrate

Rapid Feedrate (X/Y/Z) .....	(2,125 in/min)
Cutting Feedrate (X/Y/Z) .....	(0.1 -1181")
Continuous Manual Feedrate.....	(0 - 157")

# Fanuc Robodrill

## a014MiA5 "ECO" 10,000 RPM

### CNC Vertical Machining Center

*Accuracy*

Positioning Accuracy:

X/Y ..... .0002"/12"  
 Z ..... .0002" /12"

Repeatability:

X/Y/Z ..... +/- .000078"

Machine Capabilities

Axis Thrust (2)..... 702 lbs.  
 Axis Thrust (X,Y) ..... 356 lbs.  
 Ball Screw (Dia. x Pitch, X/Y/Z)..... 25mm Dia. X 12mm Pitch

*Motors*

Main Spindle Motor ..... Fanuc AC Spindle Motor  
 (1 Min. rating) ..... 14.75 HP  
 (10 Min. rating) ..... 7.5 hp  
 (Continuous rating)..... 5.0 hp

Feed Motor:

X Axis (Fanuc Alpha 3/3000) ..... 1.20 hp cont. (4.0 hp acc. max)  
 Y Axis (Fanuc Alpha 3/3000) ..... 1.20 hp cont. (4.0 hp acc. max)  
 Z Axis (Fanuc Alpha MG/3000)..... 1.87 hp cont. (6.7 hp acc. max)  
 Coolant Motor ..... .33 hp  
 Lubrication Pump Motor ..... .3 Watt AC

Automatic Tool Changer

Tool Holder ..... MAS BT30  
 Pull stud ..... MAS P30T-1 (45 Degree)  
 Number of Tools ..... 14

Max. Tool Diameter Distance from taper gage line/max. diameter

0-1.33" ..... 2.55"  
 1.33" - 4.72 ..... 3.14"  
 4.72" - 9.84" ..... 1.57"

Max. Tool Length (depends on tool dia.) ..... 9.84"

Max. Tool Mass ..... 4.4 lbs/tool      6.6 lbs. /tool

Max Total Tool Mass ..... 33 lbs      48 lbs

Tool Change Time..... 0.9 sec      1.1 sec

Chip to Chip ..... 1.6 sec      2.1 sec

Tool Selection System: ..... Shortest Path

Tool Change System..... Drum / Turret Style ATC

# Fanuc Robodrill

## aD14MiA5 "ECO" 10,000 RPM

### CNC Vertical Machining Center

**Power Supply**

Input Power ..... AC 200/220v ± 10%,  
 ..... 50/60 Hz ± 1 Hz  
 Power Capacity ..... 15 KVA  
 Air Source ..... 71 - 135 PSI  
 Volume of Air ..... 130 Umin (4.0 CFM)

**Tank Capacity**

Lubrication Oil Tank Capacity ..... 1/2 gallon  
 Coolant Tank Capacity..... 53 gallons (200 liters)

**Machine Size**

Floor to Table..... 30.9"  
 Machine Height ..... 88.1"  
     With 110mm column riser option equipped..... 92.5"  
     With 200mm column riser option equipped..... 96.1"  
     With 300mm column riser option equipped..... 100.1"  
 Machine Size ..... 62" w x 79.9" d  
 Machine Size with Coolant tank ..... 62"w x 94.9" d  
 Floor Area (incl. Maint. area for Chip Conveyor) ..... 98"w x 111" d  
 Machine Total Weight ..... 4,400 lbs.  
 Machine Total Weight with the following:  
     With 110mm column riser option equipped ..... 4,535 lbs.  
     With 200mm column riser option equipped..... 4,670 lbs  
     With 300mm column riser option equipped..... 4,870 lbs

# FANUC 31i-B5 CNC CONTROL SPECIFICATIONS FOR RoboDrills

## ***Controlled Axes***

Controlled Axes .....	X, Y, Z
* Additional 1 Axes.....	4th Axes (Rotation Axes)
* Simultaneous 4 Axes .....	Positioning, Linear Interpolation
* Additional 2 Axes.....	5th Axes (Rotation Axes)
* Simultaneous 5 Axes.....	Positioning, Linear Interpolation

## ***Input Commands***

Least Input Increment.....	0.001 mm, (0.0001")
Least Command Increment .....	0.001mm, (0.0001")
Maximum Programmable Dimensions.....	± 99999.999mm, ± 9999.9999"
DEC PoinV CALC Type	
DEC Point Input Tape Code .....	EIA RS-244A/ISO 840
EIA/ISO Automatic Discrimination	
Control In/Out	
Buffer Register	

## ***Feed***

Feed Rate.....	F4 Digits (MM/MiN or "/MiN)
Manual Pulse Generator, 1 Set:	
0.001/0.01/0.1 mm/1 Scale;	
0.0001/0.001/0.01 Inch/1 Scale	
Manual Feed.....	Rapid/Jog Feedrate
Auto Acceleration/Deceleration	
Rapid Traverse.....	Linear Accel/Decel
Cutting Feed.....	Exponential Accel/Decel
Rapid )"raverse Override .....	1, 25, 50, 100%
Feed Rate Override .....	0-200%/10%
Override Cancel	

## ***Operation / Display***

Display .....	10.4" (LCD/color)+3
Operation Panel.....	Operation Panel with Alphabet Key
Display Function:.....	Commanded Values, Offset Values, Present Positions, Parameters, Tool Number, Alarm Message, Etc.
History Display Function.....	Alarm and Operation History MDI- Function
Run hour/Parts Number Display	
Load Meter Display	
Clock Function	

CNC CONTROL SPECIFICATIONS  
FOR RoboDrills

Input/Output Function/Devices

- Reader Punch Interface RS232C
- Ethernet
- PCMiA Slot
- .. Additional I/O unit
- I/O Device External Control
- \* Fast Data Server Function 1 G

Additional Control Functions as Standard Features

- Back ground Editing
- Extended Part Program Editing (Copy, Move Merge)
- All Contour Control (30 Block Look Ahead)
- 1280 meters of Memory 504,000 characters
- 1,000 Registerable Programs
- Tool Compensation C
- Work Coordinates 6+48
- Multi Step Skip
- Quick Editor
- Setup File
- Production Control
- Custom PMC
- Advanced Preview Control
- Bell Shaped Accel/Decel
- In-Position Check
- Dynamic Graphic Display
- Stored Stroke Limit
- Extended Stored Stroke Limit

STM Function

- Spindle Function (S Function) ..... S 5 Digit Command
- Spindle Speed Override ..... 50 -120% Increment 10%
- Tool Function..... T4 Digits Command
- Miscellaneous Function ..... M3 Digits Command

Tool Offset

- Tool Offset Memory 8 ..... Offsets for Figure & Wear
- Tool Offset Memory C ..... Offsets for Figure & WP. (n/H code)
- Tool Offset Number ..... 200 Pairs
- Tool Offset Number ..... 400 Pairs
- Tool Offset Number ..... 499 Pairs
- Tool Offset Number ..... 999 Pairs
- 3-Dimensional Cutter Compensation

# FANUC 31i-85 CNC CONTROL SPECIFICATIONS FOR RoboDrills

## Functions For Assist Operation

- Label Skip
- Single Block
- Optional Stop
- Optional Block Skip
- Dry Run
- Machine Lock
- Auxiliary Function (M.S.T.) Lock \_,
- Mirror Image
- Manual Absolute On/Off
- Z-Axis Command Neglect
- Tool Length Measurement
- Feed Hold
- Cycle Start
- Data Protection Key
- \* Program Restart ..... Setting by Screen

## Functions For Assist Program

- Circular Interpolation by Radius R
- Sub Program
  - Tool Offset Amount, Work Zero Point Offset Amount  
can be changed by Programming
- Custom Macro B
- Rigid Tapping M29
- Look Ahead Control Function AI CC I (30 Block Look Ahead)
- Part Program Storage 1280M (4225FT) (approx. 504,000 bytes)
  - Registered Programs ..... 1,000
- \* Variable Memory Expansion..... 600 sets
- \* Interruption Type Custom Macro
- \* Programmable Mirror Image

## Machine Accuracy Compensation

- Backlash Compensation
- Rapid/Jog Feedrate & Backlash Compensation
- Follow Up Function
- Stored Pitch Error Compensation
- \* Uni-Directional Positioning G60

# FANUC 31i-B5

## CNC CONTROL SPECIFICATIONS

### FOR RoboDrills

#### Machine Control Support Function

Built-in PMC  
Axis Interlock  
Control Axis Detach  
External Data Input

#### Automatic Support Functions

Multi-Step Skip Function (standard)  
\* High Speed Skip Signal Input

#### Safety/Maintenance

Emergency Stop  
Stored Stroke Check 1  
Stored Stroke Check 2  
Self-Diagnosis Function  
Memory Card Interface

#### Cabinet & Set Up Conditions

Cabinet Structure: Sealed and Dust-Proof Type  
Power Source (NC & Servo)..... AC200/220V,  $\pm 10\%$ -- $15\%$   
..... 50/60 HZ,  $\pm 1$  HZ  
Environmental Conditions:  
Ambient Temperature..... 0-45oC  
Vibration ..... 0.5G or Less  
Relative Humidity ..... 75% or Less

**Contract Terms and Conditions**

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## Terms and Conditions

### BID STANDARD TERMS AND CONDITIONS

### TERMS AND CONDITIONS FOR THIS BID

### TERMS AND CONDITIONS OF PRICING AGREEMENT

**SCOPE AND LIMITATIONS - This Agreement covers requirements as described herein, ordered by State agencies during the Agreement Period. No additional or alternative requirements are covered, unless added to the Agreement by formal amendment by the State Purchasing Agent or his designee.**

Under State Purchasing Law, 37-2-54, no purchase or contract shall be binding on the state or any agency thereof unless approved by the department [of administration] or made under general regulations which the chief purchasing officer may prescribe. Under State Purchasing Regulation 8.2.1.1.2, any alleged oral agreement or arrangements made by a bidder or contractor with any agency or an employee of the Office of Purchases may be disregarded and shall not be binding on the state.

**PRODUCT ACCEPTANCE** - All merchandise offered or otherwise provided shall be new, of prime manufacture, and of first quality unless otherwise specified by the State. The State reserves the right to reject all nonconforming goods, and to cause their return for credit or replacement, at the State's option.

- a) Failure by the state to discover latent defect(s) or concealed damage or non-conformance shall not foreclose the State's right to subsequently reject the goods in question.
- b) Formal or informal acceptance by the State of non-conforming goods shall not constitute a precedent for successive receipts or procurements.

Where the vendor fails to cure the defect promptly or replace the goods, the State reserves the right to cancel the Release, contract with a different vendor, and to invoice the original vendor for any differential in price over the original contract price.

### ORDER AUTHORIZATION AND RELEASE AGAINST PRICING AGREEMENT

**In no event shall the Vendor deliver goods or provide service until such time as a duly authorized release document is certified by the ordering Agency.**

**State Agencies shall request release as follows: All releases shall reference the Price Agreement number, the Contract Issue number, the item(s) covered, and the unit pricing in the same format as described herein.**

A Department Purchase Order (DPO) listing the items ordered shall be created by the agency. The agency may mail or fax a copy of the order to the Vendor. In some cases the agency may request delivery by telephone, but must provide the Vendor with a DPO Order Number reference for billing purposes. Vendors are encouraged to require written orders to assure payments are processed accurately and promptly.

**DELIVERY** If this is an MPA, Vendor will obtain "ship to" information from each participating agency. This information will be contained in the DPO. APA delivery information will be contained in the Notice of Award.

**PRICING** - All pricing shall be as described herein, and is considered to be fixed and firm for the term of the Agreement, unless specifically noted to the contrary herein. All prices include prepaid freight. Freight, taxes, surcharges, or other additional charges will not be honored unless reflected herein.

**INVOICING** All invoices shall reference the DPO Order Number(s), Price Agreement number, the Contract Issue number, the item(s) covered, and the unit pricing in the same format as described herein. If this is an MPA, Vendor will obtain "bill to" information from each participating agency. This information will be contained in the DPO. APA billing information will be contained in the Notice of Award.

**PAYMENT** - Invoices for items not received, not priced according to contract or for work not yet performed will not be honored. No payment will be processed to any vendor for whom there is no IRS W-9 on file with the State Controller.

**RIVIP INFO - BID SUBMISSION REQUIREMENTS**

It is the Vendor's responsibility to check and download any and all addenda from the RIVIP. This offer may not be considered unless a signed RIVIP generated Bidder Certification Cover Form is attached and the Unit Price column is completed. The signed Certification Cover Form must be attached to the front of the offer. When delivering offers in person to One Capitol Hill, vendors are advised to allow at least one hour additional time for clearance through security checkpoints.

MAILING ADDRESS FOR BID PROPOSALS ISSUED BY THE STATE OF RHODE ISLAND,  
DIVISION OF PURCHASES

All Bid Proposals must be submitted by mail or hand delivered to:

- State of Rhode Island
- Department of Administration
- Division of Purchases, Second floor
- One Capitol Hill
- Providence, RI 02908-5855

**DIVESTITURE OF INVESTMENTS IN IRAN REQUIREMENT:**

**No vendor engaged in investment activities in Iran as described in R.I. Gen. Laws §37-2.5-2(b) may submit a bid proposal to, or renew a contract with, the Division of Purchases. Each vendor submitting a bid proposal or entering into a renewal of a contract is required to certify that the vendor does not appear on the list maintained by the General Treasurer pursuant to R.I. Gen. Laws §37-2.5-3.**

**VENDOR SPECIFICATIONS**

ALL VENDORS MUST INCLUDE SPECIFICATIONS WITH BID PROPOSAL (EVEN THOSE BIDDING BRAND SPECIFIED). FAILURE TO SUBMIT SPECIFICATIONS WITH BID PROPOSAL MAY RESULT IN DISQUALIFICATION OF BID. ITEMS IN CATALOGS MUST BE CLEARLY MARKED AND PAGES TABBED.

**DELIVERY PER AGENCY**

DELIVERY OF GOODS OR SERVICES AS REQUESTED BY AGENCY.