

MILLING

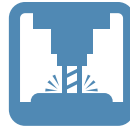
BRIDGEPORT CONQUEST V Series Vertical Machining Centers



www.bpt.com

 **BRIDGEPORT®**

CONQUEST V1000



MILLING

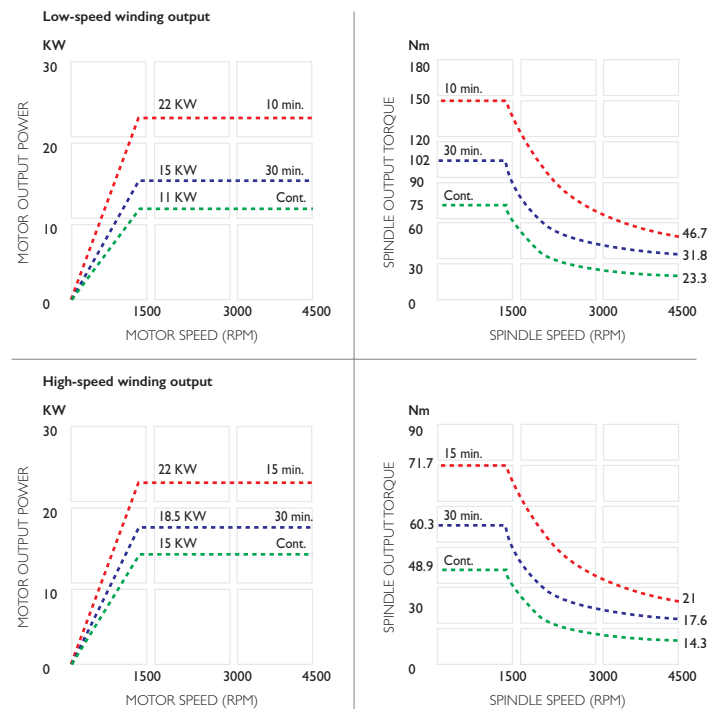
Machine

- 10,000 RPM, hollow shaft, direct coupled greased spindle
- 30 Tool ATC
- Spindle air purge
- CT40 or BT40 - BIG-PLUS®
- Rigid Tapping
- Side access doors with windows
- Manual central grease lubrication (X/Y/Z axes)
- Dual work light
- 3RD adjustable work light
- Stack light (3 color)
- Inverter drive for ATC
- Hand-held pulse generator (MPG)
- Ethernet connection & USB port
- Surround spindle circulating flush
- Coolant chip flush
- Manual coolant wash gun
- Automatic power off
- Through spindle coolant prep
- Leveling pads and screws
- Retention knobs (30)
- Maintenance tool kit

Spindle Features

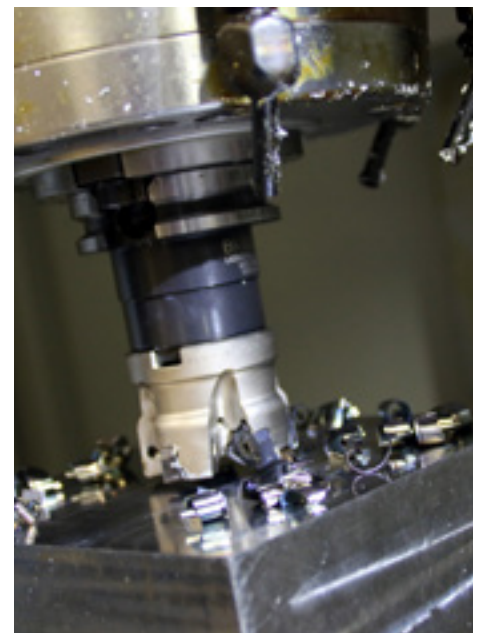
Direct Coupled Spindle power & torque characteristic curve:

- Power: 20 / 29hp (15kW / 22kW)
(Cont. / 15min, high-speed winding)
- Torque: 55 / 100 ft-lbs (75Nm / 150Nm)
(Cont. / 10min, low-speed winding)
- 1400-rpm base speed (Low-speed winding)



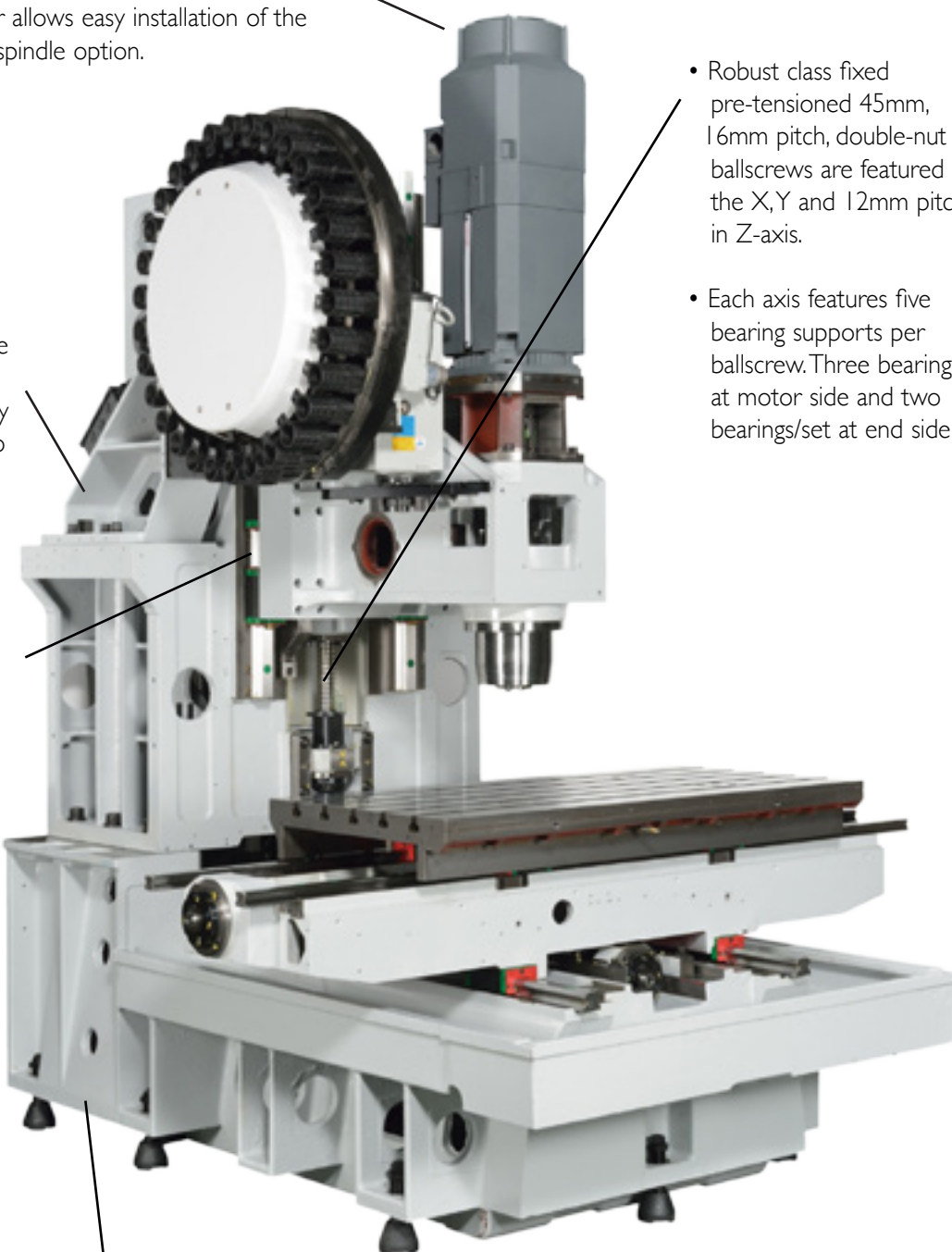
Optional Features

- 12,000 rpm spindle w/air-oil mist
- 15,000 rpm spindle w/air-oil mist
- 4th axis pre-wiring
- 4th axis drive package
- 5th axis drive package (4+1)
- Spare M-Codes (8)
- Part / tool probe (wireless)
(OMP 40-2 + OTS with OMI-2T)
- Linear optical scale (X/Y/Z Axes)
- Column riser: 6" (150 mm)
- Cutter air blast (spindle side)
- Chip conveyor: hinge type/scrapper type
- Coolant through spindle, 280 or 1000 psi
- Auto door
- Tool magazine autodoor
- Automatic central grease lubrication (X/Y/Z Axes)
- Spindle oil chiller
(STD 12K & 15K spindle)



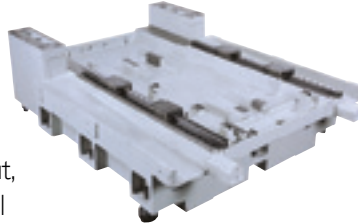
MACHINE CONSTRUCTION

Bridgeport CONQUEST VI000

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- Direct Coupled Spindle provides higher cutting performance, improved ACC/DEC and faster cycle times. Standard hollow shaft spindle motor allows easy installation of the coolant thru spindle option.
 - Robust class fixed pre-tensioned 45mm, 16mm pitch, double-nut ballscrews are featured in the X,Y and 12mm pitch in Z-axis.
 - Each axis features five bearing supports per ballscrew. Three bearings/set at motor side and two bearings/set at end side.
 - The ATC mount is designed to properly support the ATC's weight by putting the force directly into the column for superior stability, rigidity and minimized vibration to the cutting zone.
 - The Z & Y-axis utilizes 45mm ball-guides. The Z-axis features three trucks per guideway and the Y-axis, two trucks per guideway. The X-axis features two 35mm ball-guides with two trucks per guideway.
 - This heavy duty guideway system ensures a very stiff, rigid and durable machine providing years of low maintenance, high accuracy and superior surface finishes.
 - Robust "C- frame" fixed column design from the popular XR machine family.
 - Strategically ribbed base, column, and spindle carrier for increased rigidity and stiffness during demanding machining applications.
 - For improved overall machine stiffness, rigidity and cutting performance, there are a total of 17 hand scraped critical joint locations.

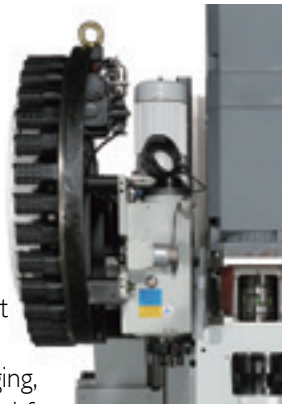
Heavy duty linear guideways, ballscrews and axis drives

Wide-spaced, oversized linear guideways provide optimum stiffness with less friction, less heat and less thermal growth for faster traverse rates, longer machine life and greater positioning accuracy. The linear way modules consist of slide members (guide trucks) and linear rails to provide a large load rating, stable accuracy, high rigidity and low friction. The wide spacing between all axes rails provides optimum stiffness for the overall machine structure. The machine features double-nut, pre-stretched, largest-in-class ball screws for optimal rigidity.



Large capacity, fast performance automatic tool changers

The CONQUEST VI000 has a fast tool change time of 2.5 seconds (Tool-Tool). The design of random inverter drive bi-directional ATCs and cam type mechanism features accurate, rapid and stable tool change system. 90 degree tool pocket prevents tool dropping. To ensure smooth and vibration-free tool changing, the tool changer is strategically located for minimal transfer of vibration—a unique design feature. The ATC also features random-access, bi-directional indexing.



Advanced digital control to unleash your productivity

The CONQUEST VI000 machines features the latest Mitsubishi Control and comes standard with NAVIMILL Conversational Programming. This control offers the latest hardware and software technology, providing an operator-friendly, easy to use system. Many standard features are included that other machine tool builders charge extra for such as high-speed machining, rigid tapping, tool life management, run time and parts counter to name a few.



BIG-PLUS® dual contact spindle system

BIG-PLUS® dual contact spindle that provides a stiffer interface between the spindle and the tool holder along with minimum run out on extended tools and better overall repeatability.



Big Tool Function:

On machining centers utilizing a random bi-directional tool chain for tool storage when oversize tools are required for a specific application this function allows the user to turn off tool storage in adjacent pockets allowing the oversize tools to be loaded into the tool chain without interference from adjacent tool pots. On the VI000 users are permitted to run up to four oversize tools. M codes are used to allow tool pocket numbers 10, 12, 14 and 16 to become available for oversize tools by disallowing any tools to reside in pockets 9, 11, 13, 15 and 17.

Machine lubrication

The CONQUEST VI000 utilizes Centralized Grease Lubrication for all ballscrews and linear guides for extended component life without contaminating cutting fluids as with way oil systems. Optional Auto Grease Lubrication is also available.



Manual lubrication unit



Auto lubrication unit optional

Elimination of Z-axial movement – A benefit of BIG-PLUS®

At high rotational spindle speeds, the mouth of the machine spindle can expand slightly due to centrifugal force. As the machine spindle expands, the conventional toolholder, which under constant draw bar pulling pressure, moves further into the spindle. On high tolerance applications, this slight pull back of the cutter can affect dimensional accuracy of the Z-axis. Pull back can also cause the toolholder to get locked into the machine spindle taper. The face contact provided by the BIG-PLUS® Spindle System prevents the toolholder from being drawn back into the machine spindle increasing accuracy and tool life.

Hardinge rotary solutions – optional

Hardinge Rotary Systems can easily be integrated into the Bridgeport CONQUEST VI000 increasing the machine's capabilities tremendously. Refer to brochure 2372 for a complete rotary product offering with dimensions and specifications.





General Overview

- Mitsubishi M70 – 64 BIT Control
 - 10.4" color LCD display with full keyboard
 - Loaded feature set – all opt turned on
 - Compact Flash Slot (up to 8 gig)
 - USB, Ethernet, and RS232 standard
 - Built in help screens
 - NAVI MILL conversational programming
 - Available PC simulator for training and demo's
 - Option stop
 - Machine lock
 - Block delete
 - Dry run
 - Single block operation
 - Emergency stop
 - Feed hold

Standard Features

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • 64-bit • Controlled axes 4 • Navi-mill conversational programming • High speed & accuracy control mode 2 (G05P10000) • 337 max block look ahead • Inch/Metric data selection by G-code • Linear Interpolation • Circular Interpolation • Helical Interpolation • Polar coordinate command • Corner chamfering/Corner R • Scaling (G50/G51) • Rigid tapping • Tool life management • Fixed cycles • Input of offset value by programming (G10) • Tool length compensation • Tool radius compensation • Custom macro variables 700 sets • Workpiece coordinate system, G52 - G59 | <ul style="list-style-type: none"> • Addition of workpiece coordinate system 48 pairs • Sub call • Background editing • Buffer correction (Edit while running) • Run time & parts counter • 1280 meters part program storage • 1,000 registered part programs. Program restart easily after power failure or broken tools occurred. • Max tool compensation 400 sets • 3D solid graphic and program check • 2D graphic check and trace • Sequence number search • Program number search • Absolute/incremental programming • Auto corner override • Cylindrical interpolation • Auto coordinate system setting • Custom macro • Decimal point programming | <ul style="list-style-type: none"> • Reference point return • Stored stroke check • Workpiece position measurement (surface/hole width/rotation) • Manual speed command • Dwell time • On-screen spindle load monitoring • Rapid traverse override (Low-25-50-100%) • Actual cutting speed display • Alarm display • Clock function • French, German, Italian or Spanish • Ladder diagram display • Mechanical run meter • On-screen "HELP" functions for alarms • Spindle orient • Self-diagnosis function • Operation & G code guidance • Alarm & parameter guidance |
|---|---|--|

SPECIFICATIONS

Bridgeport CONQUEST V1000

Positioning	
Auto Mode (X and Y axes)	1,692 in./min.
Auto Mode (Z axis)	1,417 in./min.
Manual Mode	0-354 in./min.
Axes Thrust X,Y,Z	939 / 939 / 2580 ft-lbs
Accuracy ISO 230-2	
Positioning	+/- 0.0004 in. (+/- 0.01 mm)
Repeatability	+/- 0.0002 in. (+/- 0.005 mm)
Spindle	
Type	Direct Drive
Min./max. Range 10K (STD) 12K (OPT) 15K (OPT)	35/10,000 rpm 35/12,000 rpm 35/15,000 rpm
Motor HP Rating Mitsubishi	20 / 25 / 29.5 hp
Torque 10K (STD) 12K & 15 (OPT)	110.6 ft/lbs (148 Nm)
Retention Force	1,984 ft-lbs. (2689 Nm)
Taper	CT40 or BT40
Distance from table surface to spindle gauge plane	3.9"-27.95" (min.-max.)
Worktable	
Working surface	47.2 in X 23.6 in. (1200 x 600mm)
Table load	2000lbs. (900 kg)
Number of T-Slots	5
T-Slot Size	.708" (18 mm)
Coolant	
Coolant tank capacity	105 US gallons (400L)
Flood Coolant	34 gal/min @ 21.33 psi

Automatic Tool Changer (ATC)	
Taper (ISO No.)	40
Type	Swing Arm
Tool Holder Type	BT or CAT or ANSI or DIN (SK)
Pull Stud Type	BT or CAT or ANSI 2. DIN"
Tool Selection	Random Bi-directional
Tool Capacity	30
Maximum Tool Diameter (Full Drum)	3.15" (75mm)
Max. Tool Diameter (Adj. Pockets Empty)	5.9" (150mm)
Maximum Tool Length	11.81" (300mm)
Maximum Tool Weight	15 lbs. (7 kg)
Tool Change Time (T-T)	2.5 sec
Tool Change Time (C-C) ISO 10791-9	4 sec
ATC Transmission	encoder feedback inverter drive ATC motor/cam
Axes Drives	
X axes servo motor	4hp (3.0kW; A51/3000 rpm)
Y axes servo motor	4hp (3.0kW; A51/3000 rpm)
Z axes servo motor with Brake	6hp (4.5kW; A51/3500 rpm)
Travels	
X-Axis	40.16" (1020mm)
Y-Axis	24" (610mm)
Z-Axis	24" (610mm)
Gage Line Height (Min-Max)	3.9"-27.95" (100-710mm)
Y-Axis Throat Distance	24.72" (628mm)

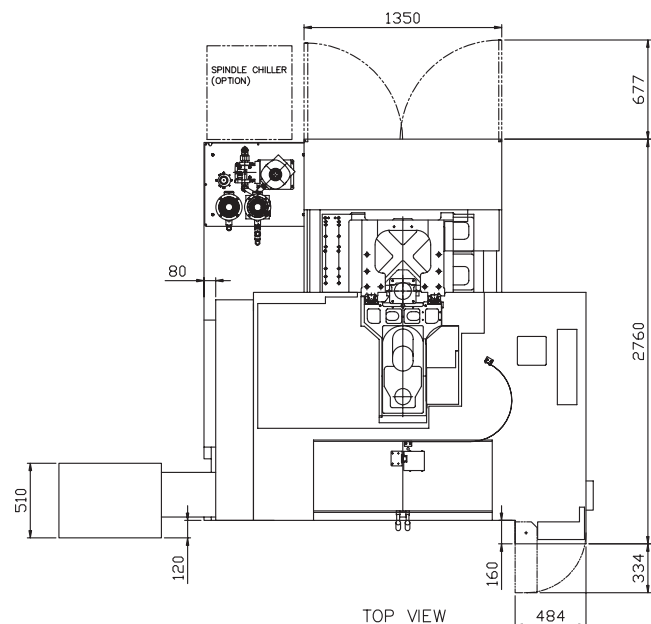


* Chip conveyor is an option and may be placed on the left or right of machine

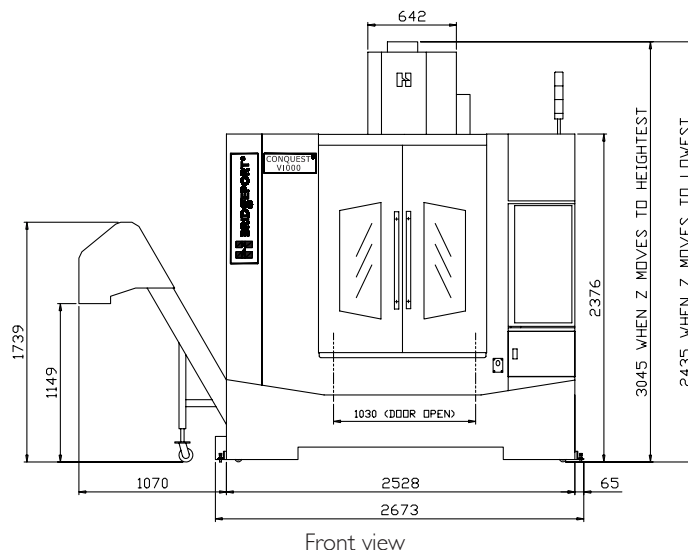
SPECIFICATIONS

Bridgeport CONQUEST VI000

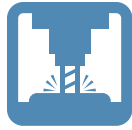
Table	
X Length	47.2" (1200mm)
Y Width	23.6" (600mm)
Load Capacity	2000lb (900kg)
T-Slots (# & size)	5 x .708" (18mm) x 3.94" (100mm)
Spindle Transmission	
Taper ISO No.	BIG PLUS® No. 40
Transmission	Direct Drive System
Max. Spindle Speed (rpm)	10K (STD) / 12K & 15K (OPT)
Main Motor HP Continuous/Duty rated	12000rpm 11/15 kW, 15/18.5 kW (cont. 30min)
Maximum Torque at Base Speed (1400rpm)	55.32/75.23/110.63 ft-lbs. (75/102/150 Nm) (cont./30min/10min)
Lubrication 10000 rpm	Permanently lubricated spindle
Spindle Bearing Protection	Air purge
Tapping Speed (max. rpm)	3000rpm
Spindle taper cleaning	Air blast
Draw Bar	
Actuation	Pneumatic
Clamp force	1,984- ft-lbs./ 8820 N
Clamp method	Disk springs
Ball Screws	
Ball Screw Support	Fixed pre-tensioned
Diameter (X,Y & Z Axis)	1.77" (45mm)
Double Nut (Ball Nut)	STD
Lubrication	Manual central lubrication option: auto grease lube
Ball Screw Pitch	X/Y: 0.63" (16mm) Z: 0.47" (12mm)



Linear Guideway	
Type	Ball Guide
Way Size X-Axis	1.38" (35mm)
Linear Ways Y & Z-Axis	1.77" (45mm)
Linear Ways X-Axis	2
Linear Ways Y-Axis	2
Linear Ways Z-Axis	2
Linear Guide Trucks X-Axis	4
Linear Guide Trucks Y-Axis	4
Linear Guide Trucks Z-Axis	6
Lubrication	Manual central lubrication option: auto grease lube
Rapid Traverse Rate (X,Y, and Z-Axis)	X/Y: 1692" (43m/min), Z: 1417" (36m/min)
Max. Programmable feed rates (X,Y, and Z-Axis)	630 in./min (16m/min)
General Specifications	
Machine Weight	15,400lbs/7000kg
Machine Overall Width	105" (2673mm) Chip conveyor not included
Machine Overall Height	120" (3048mm)
Machine Overall Depth	112" (2850mm)
Front Door opening	40" (1030mm)
Window material	Laminated panel (Lexan/Glass)
Coolant Tank Capacity (Liters)	105 GAL /400L
Coolant Flow Rate for Cutter (L/min)	MTH4-30/2, 34 gal/min (130L/min), 1.5kg/cm ² (60HZ) / MTH4-30/3, 34 gal/min (130L/min), 1kg/cm ² (50HZ)
Minimum Air Requirements	80 psi (5.5 kg/cm ²)
Power Requirements	
(FLA/VOLTS/PHASE)	79 amp / 220 volt / 3 phase, KVA =36



* Chip conveyor may be placed on the left or right of machine



CONQUEST V480 APC



MILLING

STANDARD FEATURES

Bridgeport CONQUEST V480 APC

Machine

- 10,000 RPM, hollow shaft, direct coupled greased spindle
- 20 Tool ATC
- Spindle air purge
- CT40 or BT40 - BIG-PLUS®
- Rigid Tapping
- Manual central grease lubrication (X/Y/Z axes)
- LED work light
- 3RD adjustable work light
- Stack light (3 color)
- Inverter drive for ATC
- Hand-held pulse generator (MPG)
- Ethernet connection & USB port
- On board PCMCIA memory card slot
- Surround spindle circulating flush
- Coolant chip flush
- Manual coolant wash gun
- Automatic power off
- Through spindle coolant prep
- Retention knobs (20)
- Maintenance tool kit



Optional Features

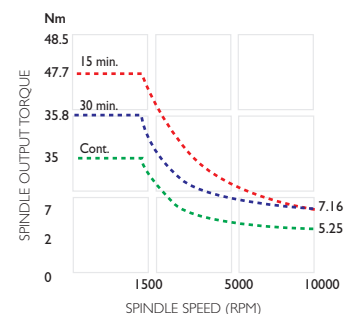
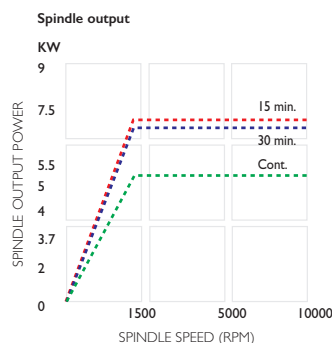
- 12,000 RPM - air /oil lube, direct coupled, BIG PLUS® spindle, hollow shaft motor; spindle chiller*
- 15,000 RPM - air /oil lube, direct coupled, BIG PLUS® spindle, hollow shaft motor; spindle chiller*
- CTS - deublin rotary union
- Through spindle coolant 280/1000 psi*
- 30 position 40 taper swing arm style ATC, upgraded from 20T to 30T*
- Air blast, for dry cutting
- Chip conveyor: hinge type/scrapper type*
- Spare M-Codes (8)
- External high voltage transformer, 25KVA, 380-440V, 50/60HZ*
- Spindle oil chiller (STD 12K & 15K spindle)
- Automatic central grease lubrication (X/Y/Z Axes)*
- Double 4th axis pre-wiring - one on each pallet
- 4th axis pre-wiring - one pallet only
- OMP40 OTS OMI2T Kit – Renishaw (NV 0002536COMBO5)
- Wireless probe interface (required for NV 0002536COMBO5)

* Factory order only

Mitsubishi spindle motor

Mitsubishi SJ-VS7.5-14FZT(F) 10000 rpm power & torque characteristic curve:

- Power: 7 / 10hp (5.5 kW / 7.5 kW)
(Cont. / 15 min, high-speed winding)
- Torque: 25.8 / 35.18 ft-lbs (35Nm / 47.7Nm)
(Cont. / 15 min, low-speed winding)
- 15000 rpm base speed (Low-speed winding)

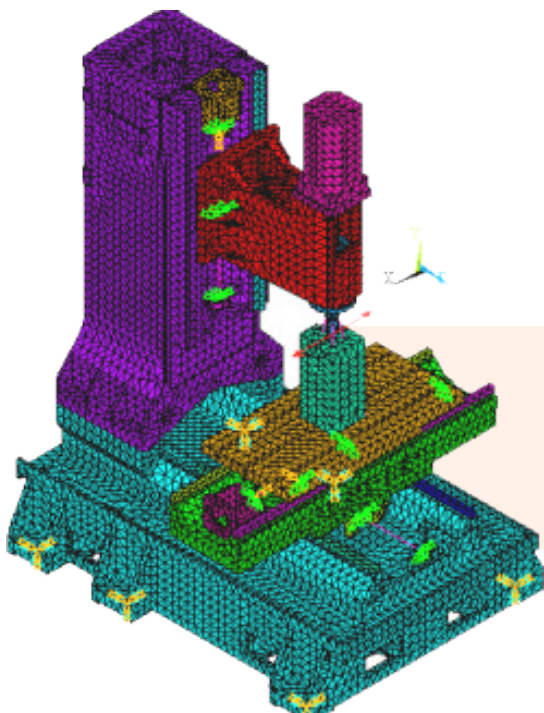
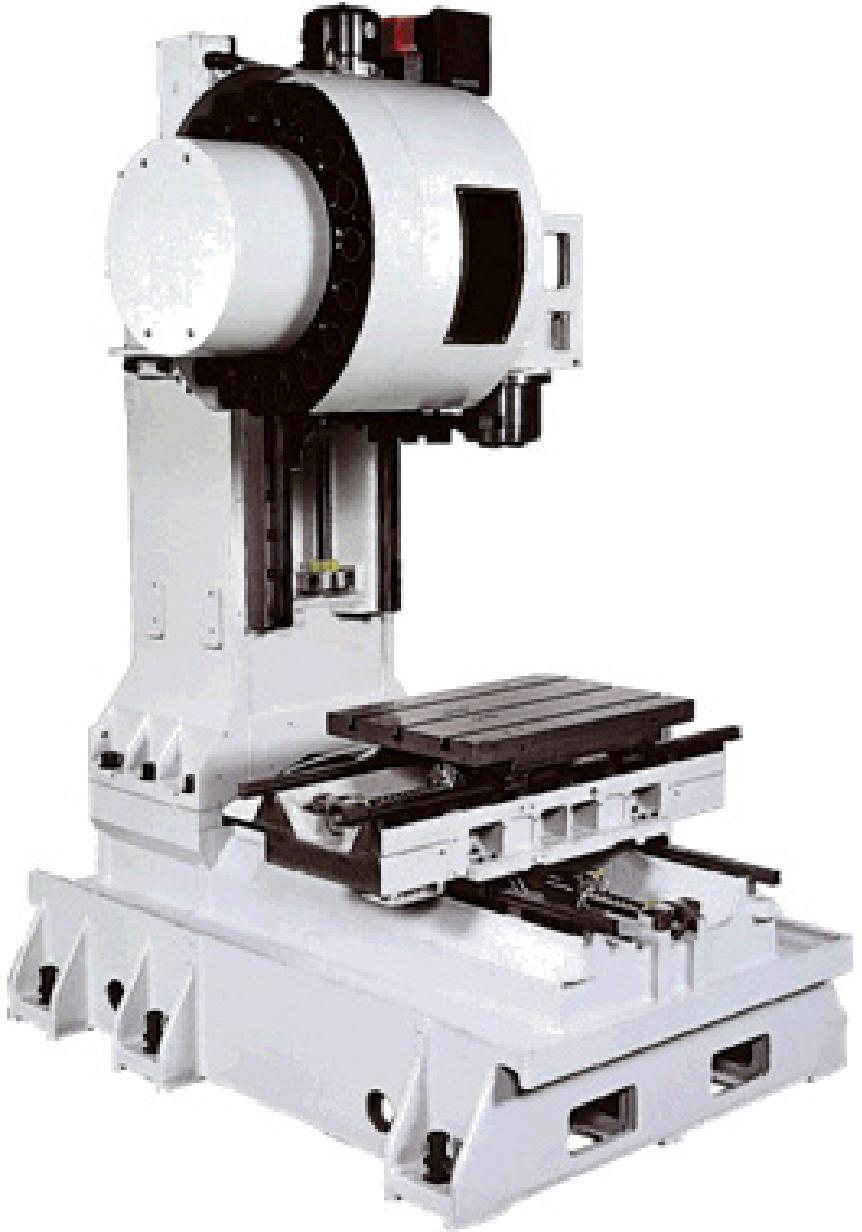


Machine Structure

- Robust C-frame fixed column design.
- Spindle carrier, column and base are manufactured from high-quality cast iron, contributing to overall rigidity and machining capabilities.
- Low inertia coupling connect between ball screws and axial servo motor directly.

Machine Base

- Ground ball screw features low noise, low thermal growth and heavy duty transmission.
- Two linear guideways on X axis and two guide blocks per guideway.
- Y and Z axes feature two linear guideways with two heavy duty guide blocks per guideway.



FEA Analysis

- FEA techniques were used to analyse the structure deviation, stress, thermal raise and vibration precisely and assure excellent geometrical accuracy and cutting surface.

KEY FEATURES

Bridgeport CONQUEST V480 APC

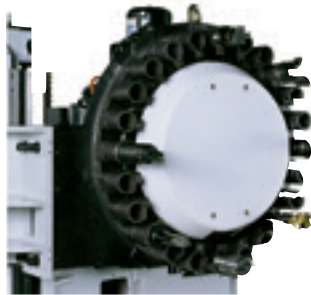
Heavy duty linear guideways, ballscrews and axis drives

Wide-spaced linear guideways provide optimum stiffness with less friction, less heat and less thermal growth for faster traverse rates, longer machine life and greater positioning accuracy. The linear way modules consist of slide members (guide trucks) and linear rails to provide a large load rating, stable accuracy, high rigidity and low friction. The wide spacing between all axes rails provides optimum stiffness for the overall machine structure.



Large capacity, fast performance automatic tool changers

The CONQUEST V480 APC have a fast tool change time of 2.2 seconds (Tool-Tool). The design of random bi-directional ATCs and cam type mechanism features accurate, rapid and stable tool change system. 90 degree tool pocket prevents tool dropping. All ATC's feature random-access, bi-directional indexing.



Advanced digital control to unleash your productivity

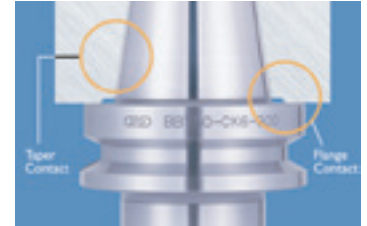
The CONQUEST V480 APC features a Mitsubishi or FANUC CNC control with the latest hardware and software technology, providing an operator-friendly, common platform. Many standard features are included that other machine tool builders charge extra for rigid tapping, tool life management, run time and parts counter are just some of those features.



BIG-PLUS dual contact spindle system

The BIG-PLUS spindle system assures higher rigidity, stiffness and accuracy of tool holders in high-speed and difficult machining applications.

The dual contact precisely positions the toolholder within one micron following a tool change.



Machine lubrication

The CONQUEST V480 APC utilizes Centralized Grease Lubrication for all ballscrews and linear guides for extended component life without contaminating cutting fluids as with way oil systems. Optional Auto Grease Lubrication is also available.

Elimination of Z-axis movement – A benefit of BIG-PLUS®

At high rotational spindle speeds, the mouth of the machine spindle can expand slightly due to centrifugal force. As the machine spindle expands, the conventional toolholder, which under constant draw bar pulling pressure, moves further into the spindle. On high tolerance applications, this slight pull back of the cutter can affect dimensional accuracy of the Z-axis. Pull back can also cause the toolholder to get locked into the machine spindle taper. The face contact provided by the BIG-PLUS® Spindle System prevents the toolholder from being drawn back into the machine spindle increasing accuracy and tool life.

Hardinge Rotary Solutions

Hardinge Rotary Systems can be integrated into the CONQUEST V Series machines, operating in a fully interpolated fashion with the other axes of the machine. The machining center must be configured for immediate or future 4th-axis operation. Refer to brochure 2372 for a complete rotary product offering with dimensions and specifications.





Bridgeport CONQUEST V480 APC E Series Mitsubishi Control

General Overview

- Mitsubishi M70 – 64 BIT Control
 - 10.4" color LCD display with full keyboard
 - Loaded feature set – all opt turned on
 - Compact Flash Slot (up to 8 gig)
 - USB, Ethernet, and RS232 standard
 - Built in help screens
 - NAVI MILL conversational programming
 - Available PC simulator for training and demo's
 - Option stop
 - Machine lock
 - Block delete
 - Dry run
 - Single block operation
 - Emergency stop
 - Feed hold

Standard Features

- 64-bit
- Max. controlled axes 5
- Simultaneous controlled axes 4
- Navi-mill conversational programming
- High speed & accuracy control mode 2 (G05P10000)
- 337 max block look ahead
- Inch/Metric data selection by G-code
- Linear Interpolation
- Circular Interpolation
- Helical Interpolation
- Polar coordinate command
- Corner chamfering/Corner R
- Scaling (G50/G51)
- Rigid tapping
- Tool life management
- Fixed cycles
- Input of offset value by programming (G10)
- Tool length compensation
- Tool radius compensation
- Custom macro variables 700 sets
- Workpiece coordinate system, G52 - G59
- Addition of workpiece coordinate system 48 pairs
- Sub call
- Background editing
- Buffer correction (Edit while running)
- Run time & parts counter
- 1280 meters part program storage
- 1,000 registered part programs. Program restart easily after power failure or broken tools occurred.
- Max tool compensation 400 sets
- 3D solid graphic and program check
- 2D graphic check and trace
- Sequence number search
- Program number search
- Absolute/incremental programming
- Auto corner override
- Cylindrical interpolation
- Auto coordinate system setting
- Custom macro
- Decimal point programming
- Reference point return
- Stored stroke check
- Workpiece position measurement (surface/hole width/rotation)
- Manual speed command
- Dwell time
- On-screen spindle load monitoring
- Rapid traverse override (Low-25-50-100%)
- Actual cutting speed display
- Alarm display
- Clock function
- French, German, Italian or Spanish
- Ladder diagram display
- Mechanical run meter
- On-screen "HELP" functions for alarms
- Spindle orient
- Self-diagnosis function
- Operation & G code guidance
- Alarm & parameter guidance

CONTROLS

Bridgeport CONQUEST V480 APC



FANUC

Bridgeport CONQUEST V480 APC *Fanuc Control*

General Overview

- FANUC Series Oi-MD*
 - 8.4" color LCD display
 - Manual Guide Oi
 - Max Controlled axes 5
 - Simultaneous controlled axes 4
 - DNC operation with memory card
 - Program restart
 - AI Contour Control (option)

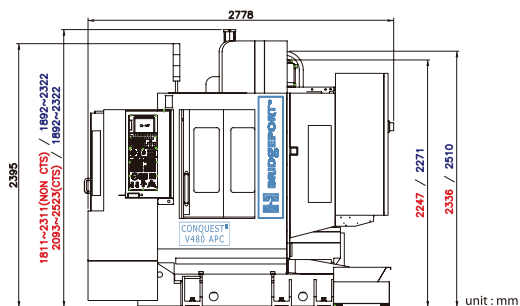
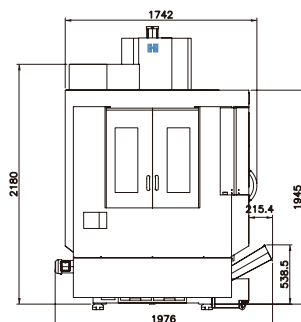
* Factory order only

Standard Features

- Dry run
- Least input increment - 0.001mm, 0.001deg.
- Fine Acc & Dec control
- Servo control HRV3
- Backlash compensation
- Linear interpolation
- Chamfering and corner rounding
- Coordinate system rotation
- Scaling
- Cylindrical interpolation
- Helical interpolation (Circular interpolation plus Max. 2 axes linear interpolation)
- Polar coordinate command
- Circular interpolation (Multi-quadrant is possible)
- Programmable mirror image
- Background editing
- Extended editing
- Dynamic graphic display
- Nano interpolation
- Rigid tapping
- Multi language display
- Run hour and parts count display
- Automatic acceleration /deceleration

Positioning	
Auto Mode (X and Y axes)	1,417 in/min (36m/min)
Auto Mode (Z axis)	1,417 in/min (36m/min)
Feedrate Range (X,Y and Z axes)	0.1-472 in/min. (0.1-12m/min)
Minimum Increment	0.00004 in. (.001mm)
Ball Screw Diameter/Pitch (X,Y,Z)	1.26" x .472" (32mm x 12mm)
Accuracy ISO 230-2	
Positioning	+/- 0.00039 in. (0.01mm)
Repeatability	+/- 0.000196 in. (0.005mm)
Spindle	
Spindle type	Direct Drive
Spindle Speed Range	10,000 rpm
Spindle Motor HP rating (CT/30min)	7.5/10 hp (5.5/7.5 kW)
Spindle Torque (15min. @1500 RPM)	35 ft. lbs.
Retention Force	1433 lbs. (650 kg)
Tool Holder	CT40 or BT40
Distance from table surface to spindle gauge plane	8.85 – 25.7" (225 – 655mm)
Pallet Changer	
Working Surface	23.6" x 15.8" (600x 400mm)
Table type	Turn table
Table load (each table)	440 lbs. (200 kg)
Clamping force	2200 kg @ 35 kg /cm ² (4840 lbs. @500 psi)
Table screw type	M12 X P1.75X35
Pallet change time	9 sec. +/- 1 sec.
Bolt Size	0.47 " (12mm)
Number of Bolt Holes	35
Coolant	
Coolant tank capacity	31.7 US gallons (120 L)
Chip flush rate	10.57 gallons (40 L/min.)
Nozzle coolant	10.5 gal/min.
Automatic Tool Changer (ATC)	
Taper (ISO No.)	40
Type	Swing Arm
Tool Holder Type	BT40 or CT40 taper
Tool capacity	20
Tool select	bi-directional

Automatic Tool Changer (ATC) cont'd	
Maximum Tool Diameter (Full Drum)	3.14" (80mm)
Maximum Tool Diameter (Adj. Pockets Empty)	5.9" (150mm)
Maximum Tool Length	7.48" (190mm)
Maximum Tool Weight	15.7 lbs (7kg)
Tool Change Time (T-T)	2.2 sec
Tool Change Time (C-C)	4.5 sec
Axes Drives	
X,Y,Z Axis Servo Motor	2 hp (1.8kW)
Travels	
X-Axis	18.9" (480mm)
Y-Axis	15.8" (401mm)
Z-Axis	16.9" (429mm)
Acceleration rates	Mitsubishi X: 6 m/sec ² Y: 4.6m/sec ² Z: 3.75 m/sec ² FANUC X/Y/Z : 4.8 m/sec ²
Ball Screws	
Ball Screw Size X/Y/Z-Axis	1.26" (32mm)
Ball Screw Pitch X/Y/Z-Axis	0.47 " (12mm)
Ball Nut Type	Single
Ball Screw Support	No pre-tension
Lubrication	Manual Centralized Grease
Linear Guideways	
Type	Ball Guide
Way Size (X,Y,Z)	#25/25/30mm
Linear Ways X/Y/Z Axes	25mm / 25mm / 30mm
Linear Guide Trucks X,Y,Z Axes	4
Lubrication	Manual Single grease
General Specifications	
Machine Weight	7,760 lbs. (3,520 kg)
Machine Overall Width	66" (1676mm)
Machine Overall Height	107.57" (2717.8mm)
Machine Overall Depth	110" (2797mm)
Minimum Air Requirements	70 psi
Power Requirements	
(FLA/VOLTS/PHASE)	65 amp / 220 volt / 3 phase



HARDINGE COMPANIES WORLDWIDE

Over the years, The Hardinge Group™ steadily diversified both its product offerings and operations. Today, the company has grown into a globally diversified player with manufacturing operations in North America, Europe and Asia. In addition to designing and building turning centers, and collets, Hardinge is a world leader in grinding solutions with the addition of the Kellenberger, Jones & Shipman, Hauser, Tschudin, Usach and Voumard brands to the Hardinge family. The company also designs and manufactures Bridgeport machining centers and other industrial products for a wide range of material cutting, turnkey automation and workholding needs.

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