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ISO 9001



ISO 14001



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NFP SERIES

Ultra Performance Bridge Type Machining Center



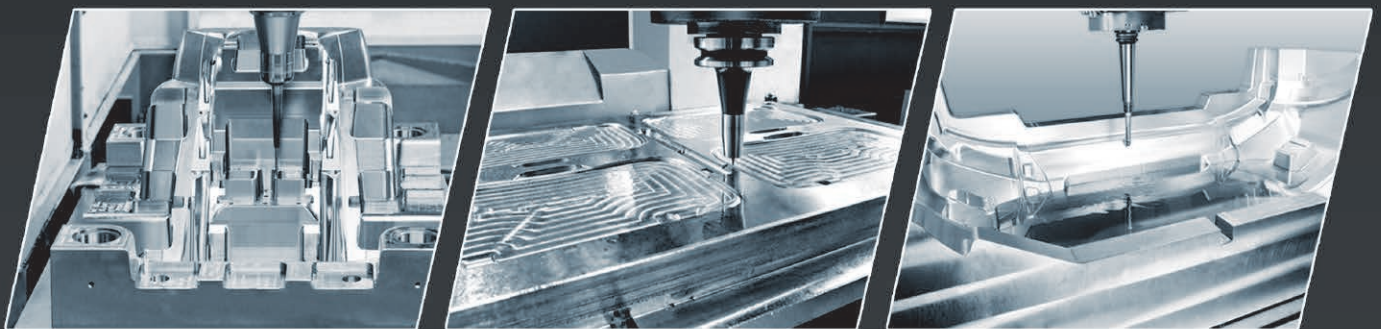
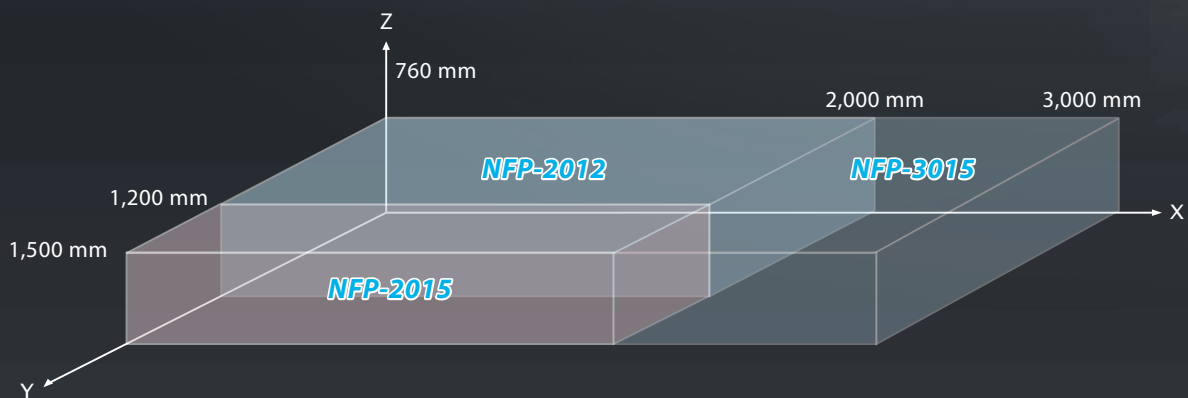
AWEA®

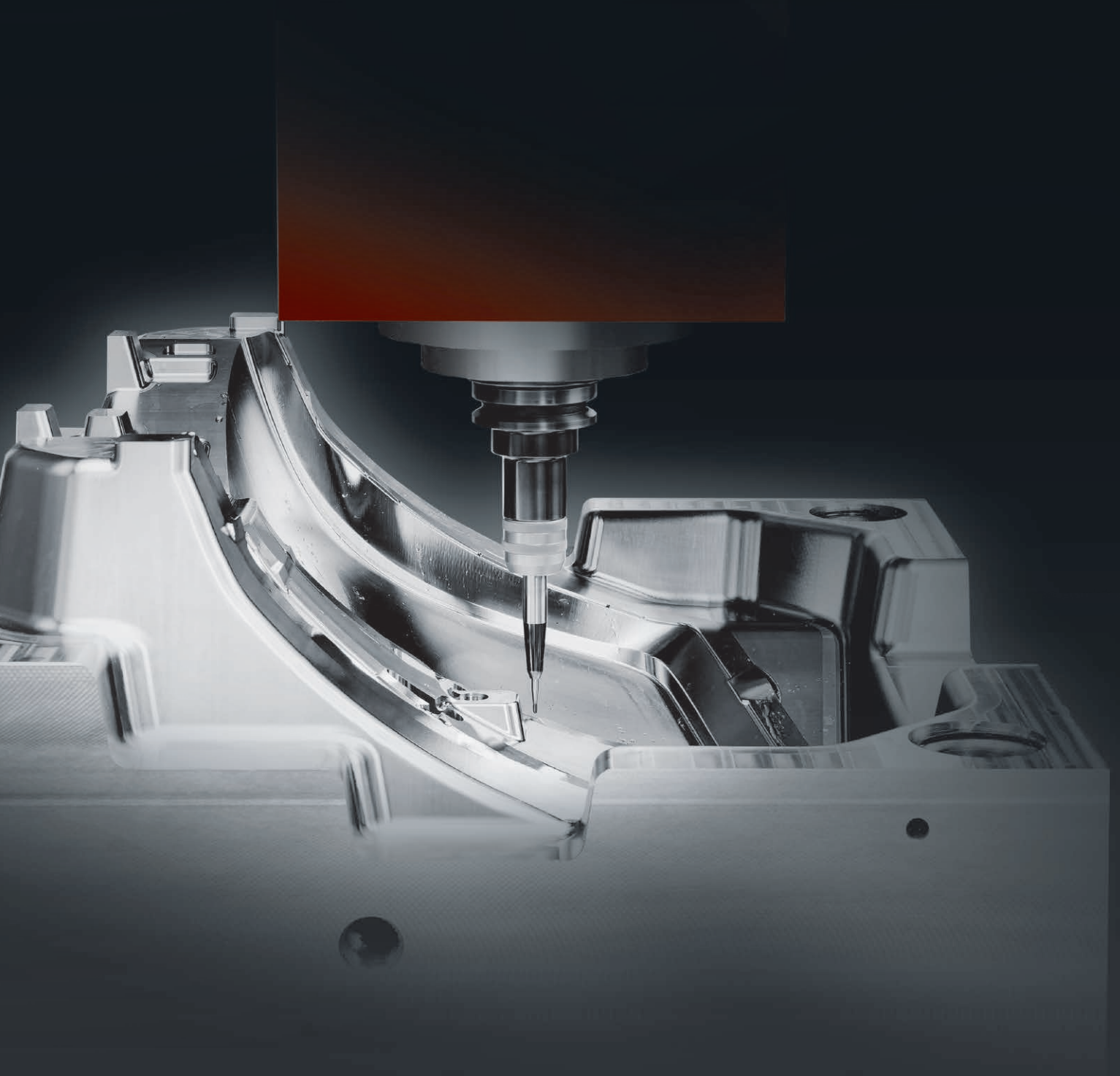
THE ULTIMATE MACHINING POWER

NFP Series

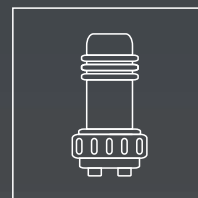
Ultra Performance Bridge Type Machining Center

NFP Series Product Map (X / Y / Z axes travel)

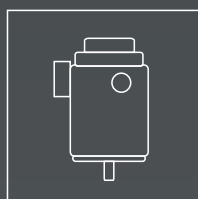




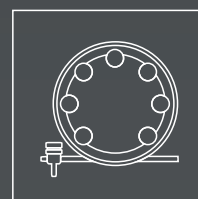
Advanced 0i - MF Control System



High power direct-drive spindle



High standard 3 axes servo motor



High reliable arm type tool magazine

NFP *Series* 2012 / 2015 / 3015

Ultra Performance Bridge Type Machining Center

With the latest machine tool technology and strict assembly inspection process, the NFP series has been developed to provide powerful and precise machining solutions and fulfill high precise mold macking requirements.

- Direct drive spindle with 6,000 rpm and 8,000 rpm are available to meet various high speed and high efficient machining needs.
- Heavy load and high precision roller type linear guideways design are used in 3 axes to provide the optimum control and efficient movement.
- The latest FANUC 0i-MF control provides the excellent numerical operation and shorter cycle time.
- Highly reliable 24T arm type magazine design provides fast tool change system.
- Equipped with dual chip augers on the machine base combines with chain type chip conveyor greatly increase the cutting chip evacuation efficiency.
- Exterior design of full enclosed splash guard with extension operation doors achieves safe protection and wide opening for ease of loading parts.



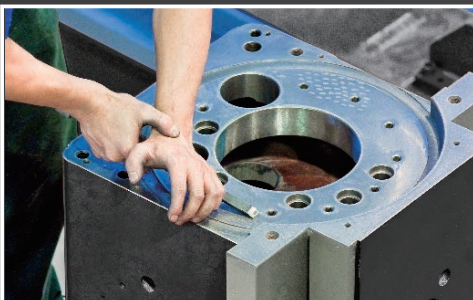


NFP-2012 full enclosed splash guard
(X: 2,000 / Y: 1,200 / Z: 760 mm)

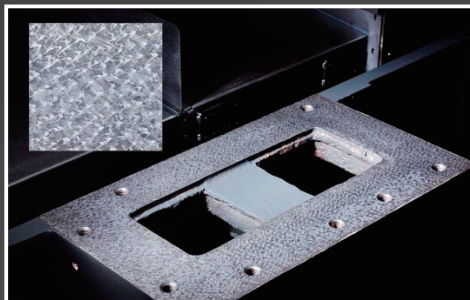
Ultra Performance Bridge Type Machining Center

Super Rigidity Structure

- The Finite Element Analysis (FEA) provides optimum structure design and light-weighted structure advantages while ensuring the best machine rigidity.
- Both column and base are one-piece casting structure with a heat-flow balance design to meet the long-term machining needs and maintain particularly outstanding performance.
- Rib reinforced working table restrains vibration while increasing machining stability.
- 3 axes are adopted with FANUC absolute AC servo motor direct-drive to provide great thrust and fast acceleration / deceleration movement.



■ Precision Hand Scraping



■ The contact area between columns and bed are precisely hand scraped.



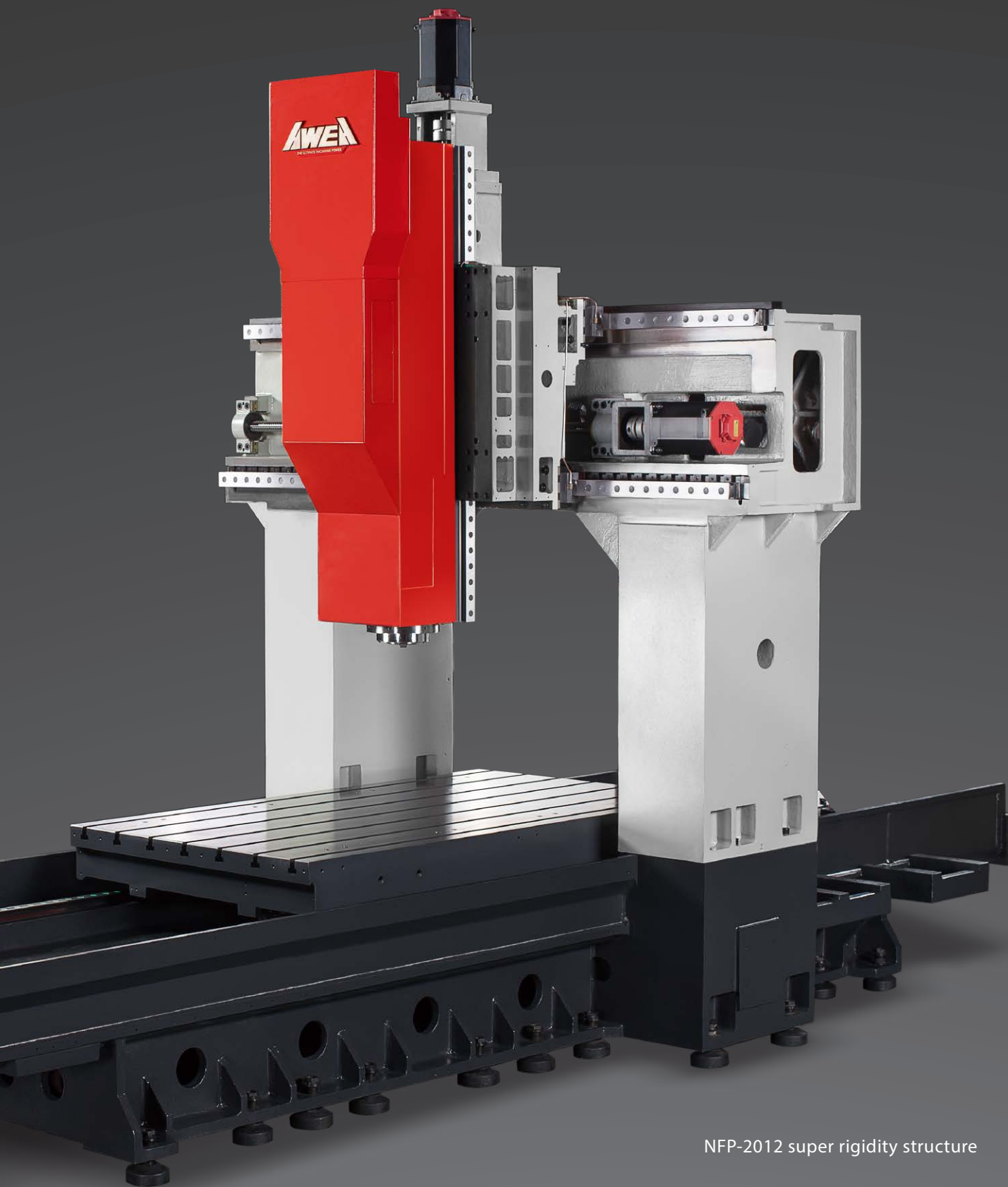
■ Precision Feedback System

The semi-closed loop circuit system in the end of the ballscrew is directly connected to the encoder to ensure high positioning accuracy.

■ Axial Torque Clutch

Ballscrews are equipped with mechanical torque clutches to minimize damages due to over load issues or crash.



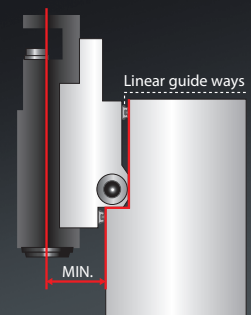


NFP-2012 super rigidity structure

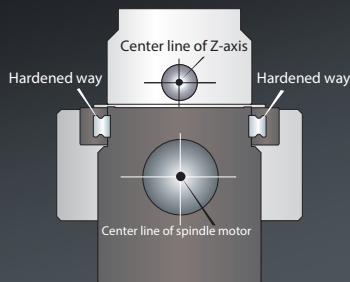
Optimized Spindle System

Powerful Cutting Capability

Inner-rail embraced structure provides super rigidity and gains good stress flow which minimizes overhang and vibration issues. The Y-axis linear guide ways offset from each other increases structural rigidity reduces distance between spindle to cross beam enhances overall cutting performance.



■ Y-axis sectional linear guide ways design



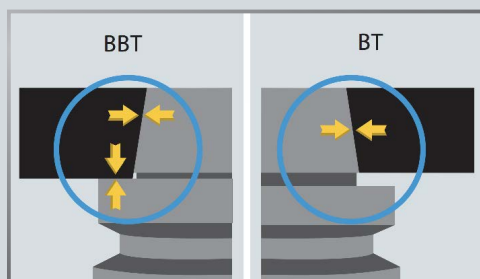
■ Centro-symmetric main spindle system design

Centro-symmetric Main Spindle System

Unique head design which the main spindle, spindle motor, ball screw and hydraulic counter balance cylinders are symmetrically placed. Hereby preventing thermal distortion and minimizing deflection. Assuring accuracy and heavy cutting capability.

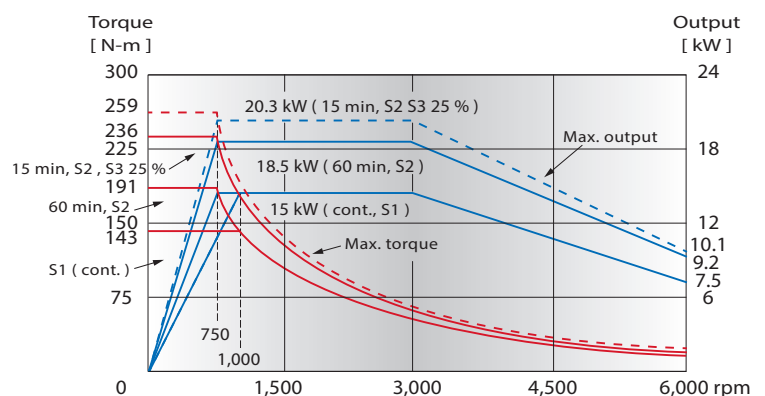


- Direct-drive spindle efficiently separates the heat generated from the motor, which reduces deformation, therefore increasing machining accuracy.
- 6,000 rpm direct-drive spindle provides maximum 263 N-m torque output at 750 rpm to meet with various high speed high torque working conditions.



- The inner taper of the spindle adopts with BBT50 tool to provide a firmer grip to the tools which eliminates the vibration of the tools.

BBT50 6,000 rpm Direct-drive Spindle



Advanced Control System

FANUC Oi-MF

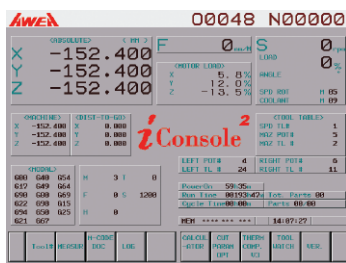
- USB port is available to transfer the NC programs to CF memory card.
- Embedded Ethernet is supported on the CNC main board, it can be connected to PC to transfer the NC programs.

i Console

Optional

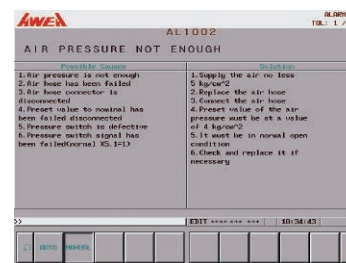
Informative Control Console

Multiple Functions Status Display



- Real time operation information
- Tool list
- Work piece measurement
- M code illustration
- PLC function
- Calculator
- CNC optimize parameter (Opt.)
- Spindle thermal compensation (Opt.)

Trouble Shooting



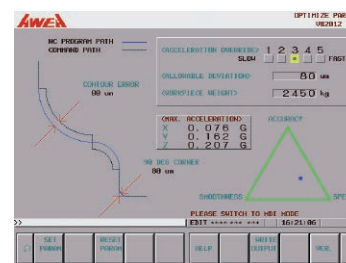
When the alarm appears, the program will display the breakdown cause and a troubleshooting procedure. Users can easily troubleshoot minor problems to save machine shutdown time.

Circular Work Piece Measurement



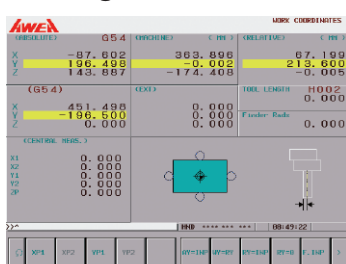
The circular work piece program can calculate the center coordinate of a work piece by measuring point A, B and C coordinates.

CNC Optimized Parameter



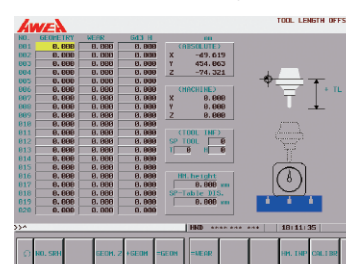
From rough cutting to fine machining, users can select different working modes, determine the allowable tolerance and the weight of the work piece, based on your desired working condition.

Rectangular Work Piece Measurement



The rectangular work piece program can calculate the center coordinate and the slant angle of a work piece by measuring point A, B, C, D and E coordinates; the calculated center coordinate can be inputted into the work piece coordinate program (G54 ~ G59).

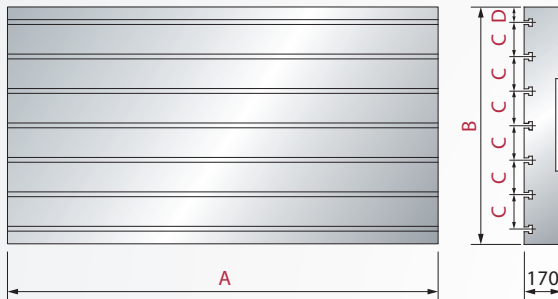
Manual Tool Length Measurement



After manually measuring the tool length, the controller will automatically calculate the tool tip position and input the data into the tool length offset table.

Dimensions

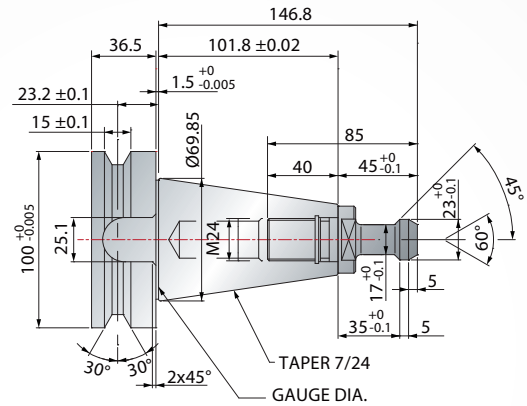
Table Dimensions



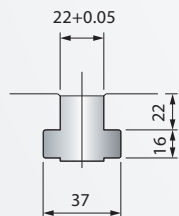
Models	A	B	C	D
NFP-2012	2,000	1,100	160	70
NFP-2015	2,000	1,400	160	60
NFP-3015	3,000	1,400	160	60

Tool Shank and Pull Stud Dimensions

BBT50

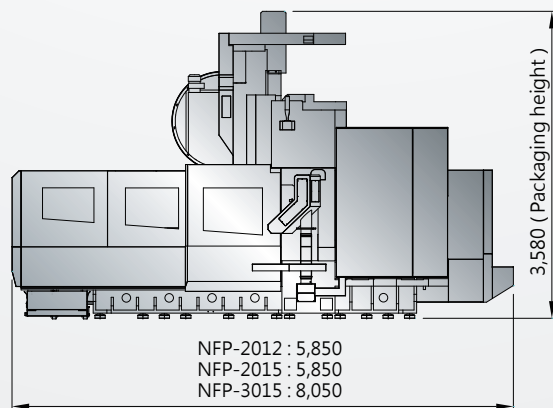
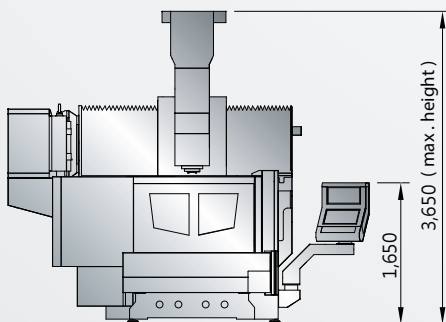
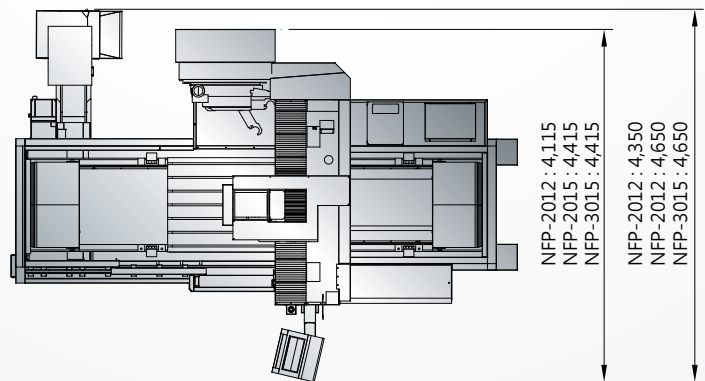


T-slot Dimensions



Models	no. of T-slot
NFP-2012	7
NFP-2015	9
NFP-3015	9

Machine Dimensions



		NFP-2012	NFP-2015	NFP-3015
SPECIFICATIONS				
X-axis travel	mm	2,000	2,000	3,000
Y-axis travel	mm	1,200	1,500	1,500
Z-axis travel	mm	760		
Dist. from spindle nose to table top	mm	200 ~ 960		
Dist. between columns	mm	1,300	1,600	1,600
WORKING TABLE				
Table size (X direction)	mm	2,000	2,000	3,000
Table size (Y direction)	mm	1,100	1,400	1,400
Table load capacity	kg	3,500	3,500	4,500
SPINDLE				
Spindle taper		BBT 50		
Spindle motor (cont. / 60 min / 15 min)	kW	15 / 18.5 / 20.3		
Spindle speed	rpm	Direct-drive 6,000		
FEED RATE				
X-axis rapid feed rate	m/min	20		
Y-axis rapid feed rate	m/min	20		
Z-axis rapid feed rate	m/min	20		
Cutting feed rate	m/min	10		
TOOL MAGAZINE				
Tool magazine capacity	T	24		
Max. tool length	mm	350		
Max. tool weight	kg	15		
Max. tool diameter / adj. pocket empty	mm	Ø 105 / 220		
ACCURACY				
Positioning accuracy (JIS B 6338)	mm	± 0.010 / Full travel		
Positioning accuracy (VDI 3441)	mm	P ≤ 0.020 / Full travel		
Repeatability (JIS B 6338)	mm	± 0.003		
Repeatability (VDI 3441)	mm	Ps ≤ 0.015		
GENERAL				
Power requirement	kVA	40		
Pneumatic pressure requirement	kg/cm²	6		
Lubrication oil tank capacity	liter	4		
Coolant tank capacity (pump)	liter	400	460	400
Machine weight	kg	15,000	16,500	21,000

Specifications are subject to change without notice.

Standard Accessories

- Spindle cooling system
- Centralized automatic lubricating system
- Fully enclosed splash guard w/o roof
- Coolant system with pump and tank
- Twin screw type chip auger
- Chain type chip conveyor
- Leveling bolts & pads
- Heat exchanger for electrical cabinet
- Tool kits
- Alarm light
- Air gun system
- Automatic power-off system

Optional Accessories

- Direct-drive spindle 8,000 rpm
- Column raiser 200 mm
- Tool magazine : 32T
- X / Y / Z axes optical linear scale
- Coolant through the tool adapter
- Automatic tool length measurement
- Automatic work-piece measurement
- CNC rotary table
- Oil skimmer