

## Product line-up



### N7

High Production Guideway Machine



### HN50E/63E-5X

Trunnion type 5-axis Machine



### PN500

High Performance Boxway Machine

### SOPHISTICATED NIIGATA UNMANNED SYSTEM



### EXTENDED MULTI-FUNCTIONAL ICC CONTROLLER



A World Leader of Horizontal Machining Centers



<https://n-mtec.com>

### NIIGATA MACHINE TECHNO CO., LTD.

1300 Okayama, Higashi-ku, Niigata city, Niigata pref,  
950-0821 Japan  
Phone : +81-25-270-9011 Fax : +81-25-271-5827  
email : info-nmt-hp-4-4d41@n-mtec.co.jp

### NIIGATA MACHINE TECHNO USA, INC.

1501 Landmeier Road, Elk Grove Village, IL 60007 USA  
Phone : +1-630-283-5880 Fax : +1-630-283-5843  
email : info@niigatausa.com

### NIIGATA MACHINE TECHNO CO., LTD.

#### European Representative Office

Carl-Zeiss-Strasse 22, D-42579 Heiligenhaus, Germany  
Phone : +49-171-4128798

### NIIGATA MACHINE TECHNO (NINGBO) CO., LTD.

No.20 Jiangnanzhong Road, Xiaogang, Beilun District,  
Ningbo City, Zhejiang, China  
Phone: +86-574-8619-9142 FAX: +86-574-8617-8684

The contents herein are subject to change without notice.  
All non-metric values are converted from metric measurements.  
Copy right ©2018 NIIGATA MACHINE TECHNO CO., LTD. All right reserved.

2018.9.2000.SAN

NIIGATA

HN800-V

# HN800-V

**UNRIVALED PERFORMANCE**—V SLIDE WAY-ENSURE PRECISION, RIGID, AND SPEED  
HORIZONTAL MACHINING CENTER



NIIGATA MACHINE TECHNO CO., LTD.

Niigata, Japan

# V SHAPE SLIDE-WAY — **HN800-V**

Niigata's unique design, "V" shape Slide-Way system is innovative solutions for variety of demands.

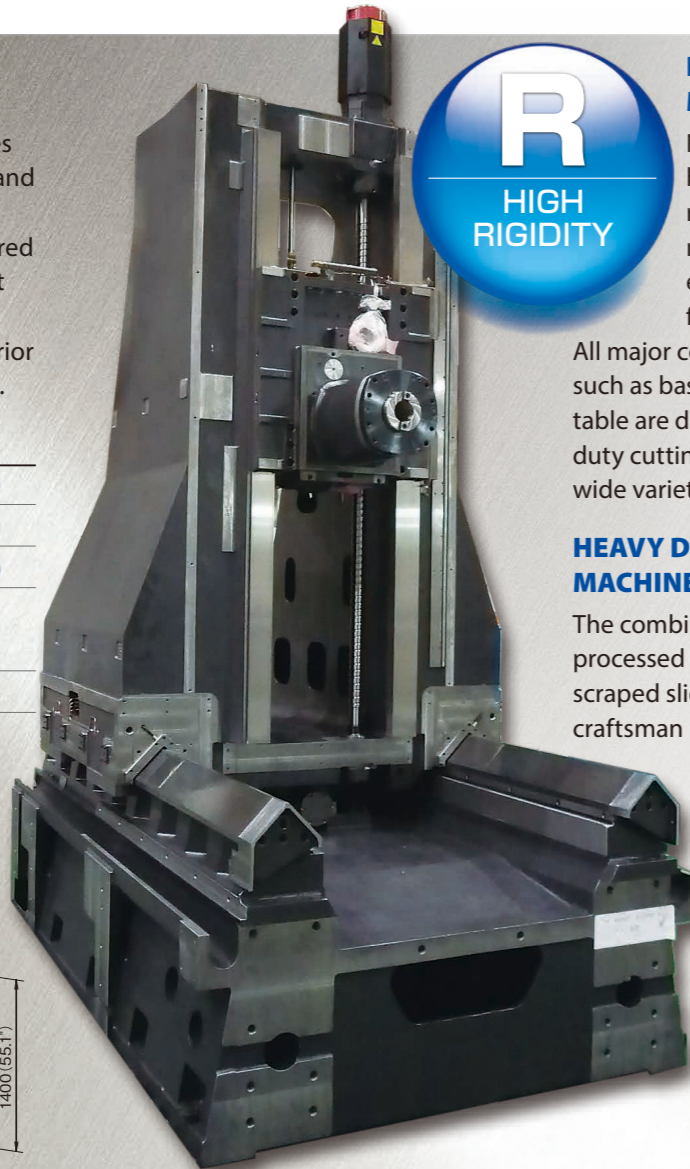
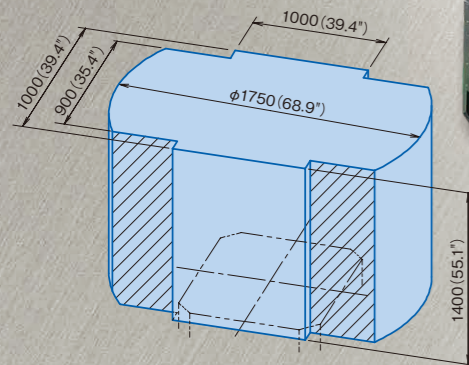
## LARGEST WORK ENVELOPE IN ITS CLASS

Niigata is known for large envelopes in each model. Consider the travel and workpiece size below. Many parts, which previously required one size larger machine, now will fit on this Niigata workhorse. The upgraded capacity offers superior price/performance and quicker ROI.

### HN800-V

TRAVEL	X axis	1530mm (60.2")
	Y axis	1230mm (48.4")
	Z axis	1020mm (40.2")
Max Workpiece Swing Diameter		
		1750mm (68.9")
Height		
		1400mm (55.1")

### Maximum Workpiece Envelope



## NEWLY ENGINEERED MACHINE RIGIDITY

Niigata Machining center have received favorable reputation for their superior machine rigidity and excellent cutting capability from worldwide customers.

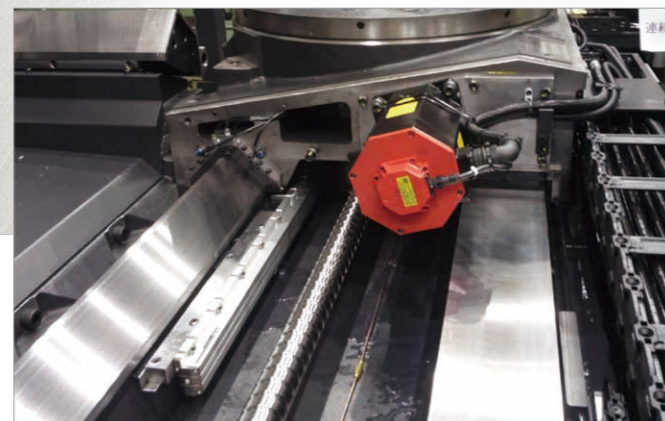
All major components of HN800-V, such as base, column, spindle, and table are designed to optimize heavy-duty cutting operation and meet a wide variety of production demands.

## HEAVY DUTY V SHAPE STYLE MACHINE CONSTRUCTION

The combination of hardening processed slide guide and hand-scraped slide way by skilled Niigata's craftsman provides superior stability, dumping characteristics and long-life durability.



Z axis : V - V shape slide way



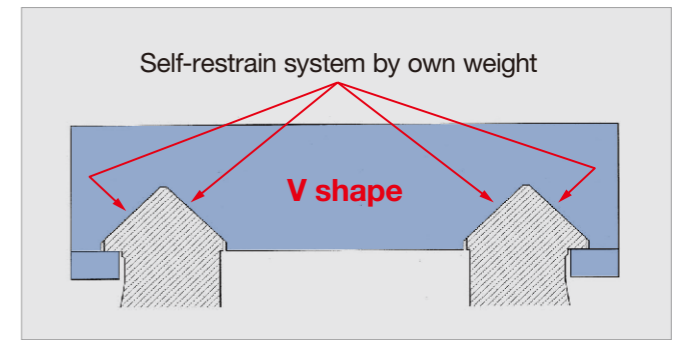
X axis : V - Flat slide way

HN800-V inherit great rigidity and high durability from Niigata traditional Machining center. V shape slide-way system adds higher positioning accuracy.

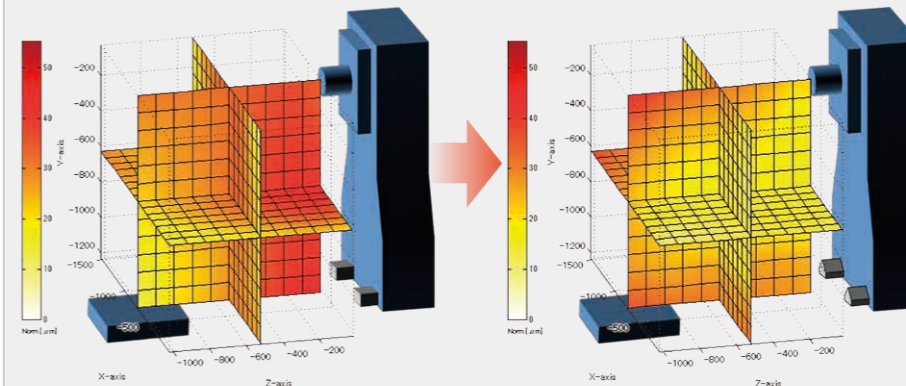


HN800-V is the world first machining centers which is equipped with V shape slide-way system. V shape slide-way system converts weight of column unit into restraining force on sliding unit. This restraining force provides superior stability and long-lasting positioning accuracy.

\* Machine squareness is maintained at same level over one year after installation of HN800-V in our factory.



## Maintains high positional accuracy in three dimensions



Previous model [ Box way ]

HN800-V [ V shape slide way ]  
Achieving high positioning accuracy



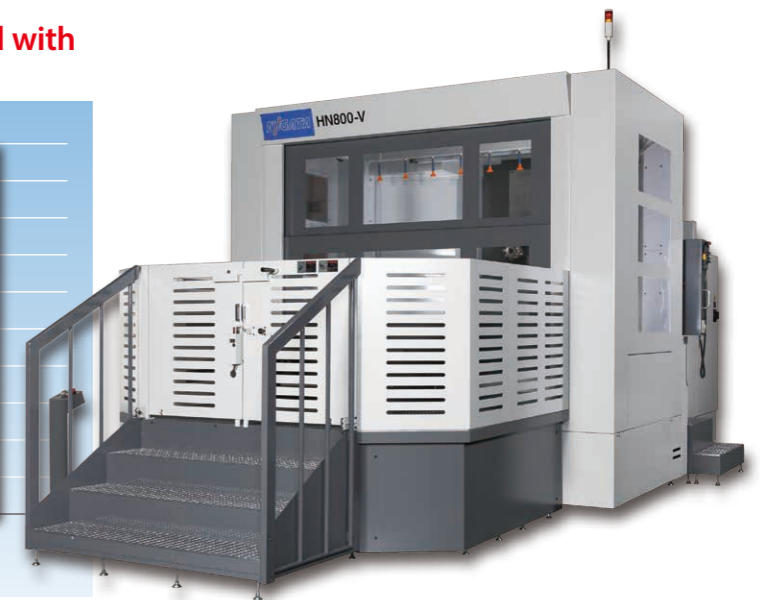
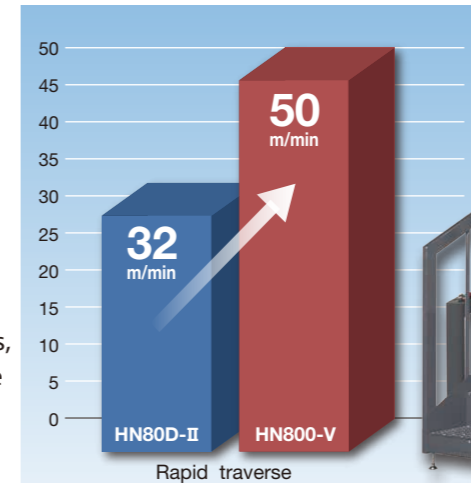
V shape slide way



## RAPID TRAVERSE 1.6 times higher compared with previous model

### FASTEST SPEED IN ITS CLASS.

HN800-V achieves rapid traverse 50m/min, the world's fastest in its class, thanks to V-shaped slide way with anti abrasion material.



# OUTSTANDING CHIP REMOVAL PROVES SUBSTANTIAL MACHINE RIGIDITY

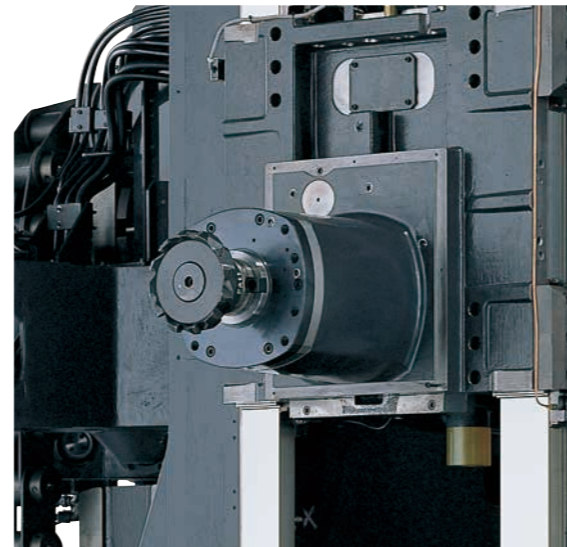
# MACHINING DATA & EXAMPLE



## HIGH TORQUE HEAVY DUTY SPINDLE

The rugged and reliable spindle employs wide-spaced, super precision tapered roller and angular contact bearings with a 110mm (4.33") diameter (ID). The spindle head stock is mono-cast (single piece) castings to achieve heavy and powerful milling capability and greater accuracy than bolt-together type spindle heads.

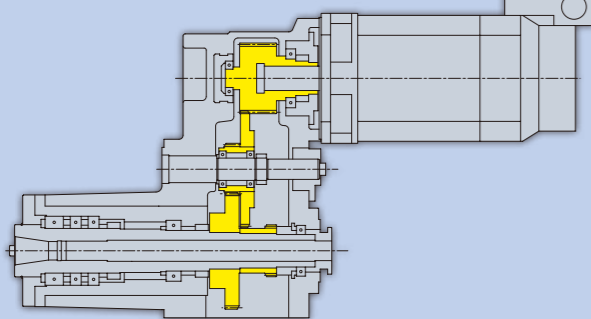
This high performance spindle, power and torque complements the extremely rigid machine frame. Super High Torque Spec. spindle is also available for the machining needs of the tough materials.



## HIGH TORQUE GEARED SPINDLE

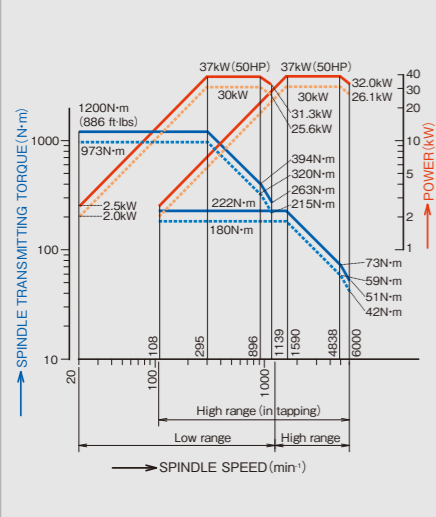
Full 37kW (50HP) cuts are achieved through an advanced (2) range head stock. With only (3) rotating components maximum power is transmitted simply and efficiently to the cutting tool.

## HIGH TORQUE GEARED SPINDLE

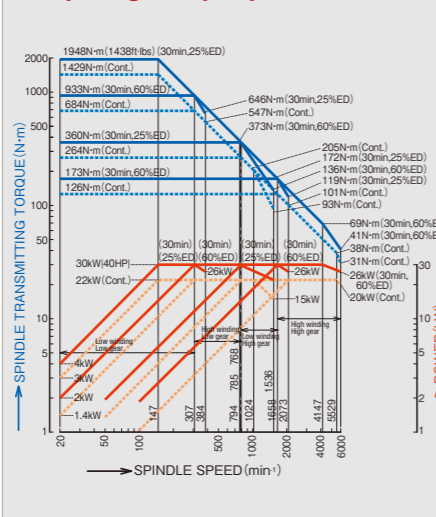


	① 6000min <sup>-1</sup> (rpm) Standard	② 6000min <sup>-1</sup> (rpm) Super High Torque spec. (option)	③ 6000min <sup>-1</sup> (rpm) Super High Power spec. (option)
POWER	37kW (50HP)	30kW (40HP)	45kW (60HP)
TORQUE	1200 N·m (886 ft·lbs)	1948 N·m (1438 ft·lbs)	1400 N·m (1033 ft·lbs)

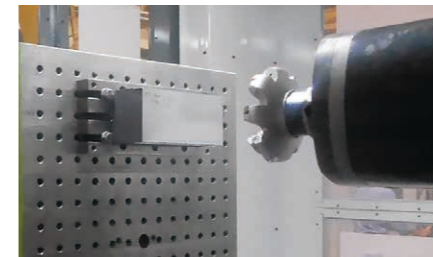
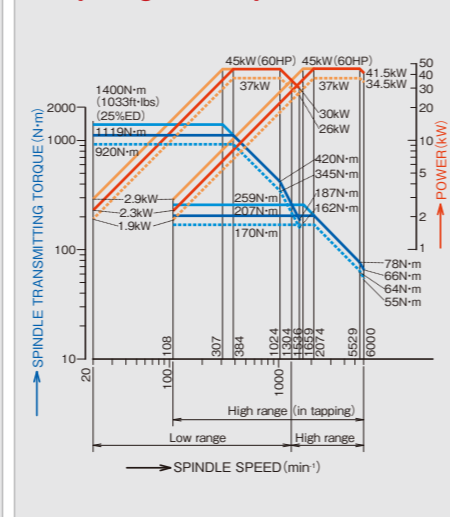
### ① SPINDLE SPEED AND TORQUE DIAGRAM Standard



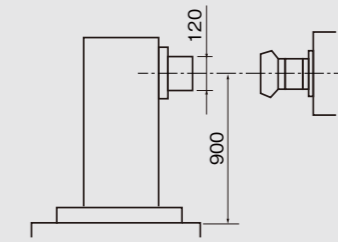
### ② SPINDLE SPEED AND TORQUE DIAGRAM Super High Torque spec.



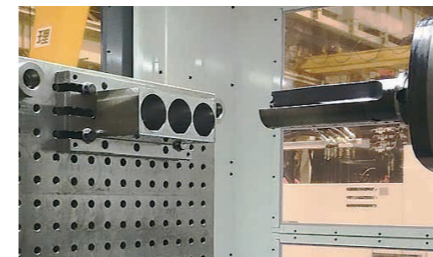
### ③ SPINDLE SPEED AND TORQUE DIAGRAM Super High Power spec.



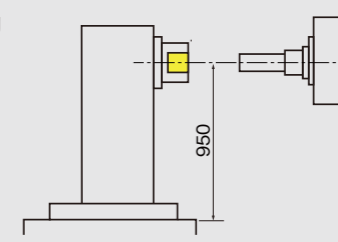
## Milling



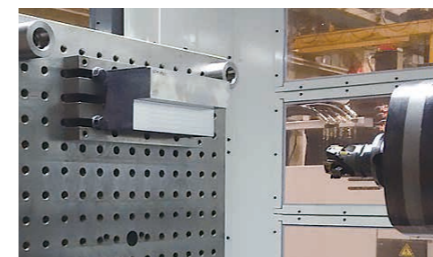
- Material : S48C
- Cutter : φ160-16T (MITSUBISHI)
- Depth : 4mm (0.157")
- Width : 120mm (4.72")
- Surface speed : 150m/min (492 SFM)
- Spindle speed : 300min<sup>-1</sup> (300 rpm)
- Feed rate : 1440mm/min (56.7 ipm)
- Cutting volume : 691cm<sup>3</sup>/min (42.2 in<sup>3</sup>/min)



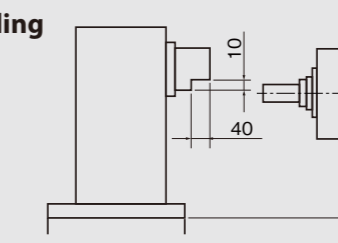
## Drilling



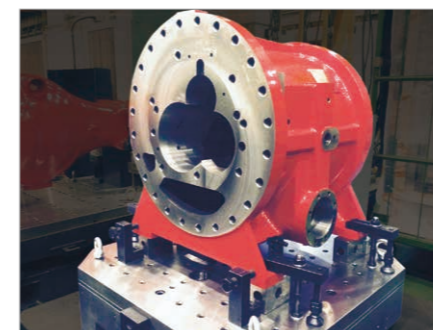
- Material : S50C
- Cutter : φ80 U drill
- Surface speed : 230m/min (755 SFM)
- Spindle speed : 916min<sup>-1</sup> (916 rpm)
- Feed rate : 101mm/min (3.98 ipm)



## Endmilling



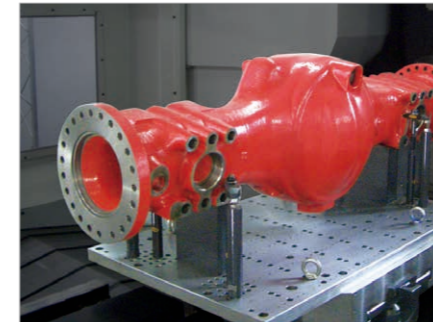
- Material : S48C
- Cutter : φ63-4T (MITSUBISHI)
- Depth : 10mm (0.394")
- Width : 40mm (1.57")
- Surface speed : 200m/min (656 SFM)
- Spindle speed : 1011min<sup>-1</sup> (1011 rpm)
- Feed rate : 1780mm/min (70.1 ipm)
- Cutting volume : 712cm<sup>3</sup>/min (43.4 in<sup>3</sup>/min)



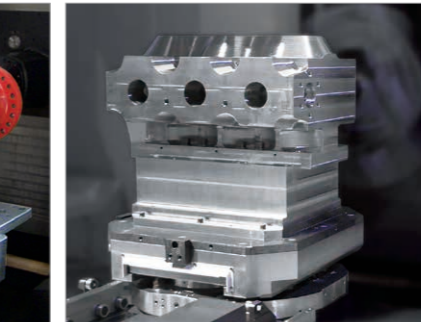
Name : Compressor Case  
Material : Casting



Name : End Plate  
Material : Casting



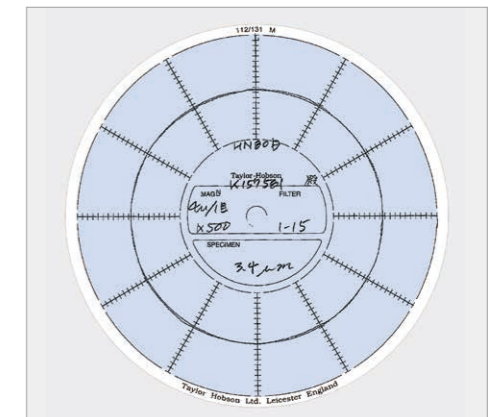
Name : Axle Housing  
Material : Ductile Cast Iron



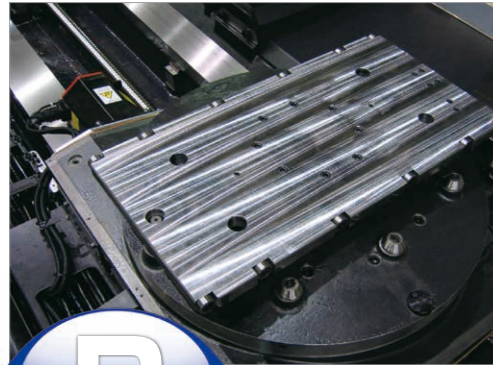
Name : Fluid End  
Material : Steel

## EXACTING ACCURACY

- Accuracy of circular interpolation (end mill)
- Roundness (tolerance) 0.020mm (0.00078")
- (Actual record) 0.0034mm (0.00013")
- Material : FC200 (cast iron)
- Processing dia : φ250mm (9.84")
- V=80m/min (315 ipm)
- F=320m/min (per tip 0.07mm) (12.6 ipm (per tip 0.028"))
- t=0.1mm (0.004")



# DESIGNED AND BUILT FOR FINE PRECISION ACCURACY



## CRAFTSMANSHIP—HAND-MADE FINISH PROCESS

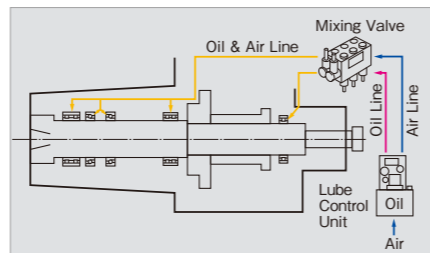
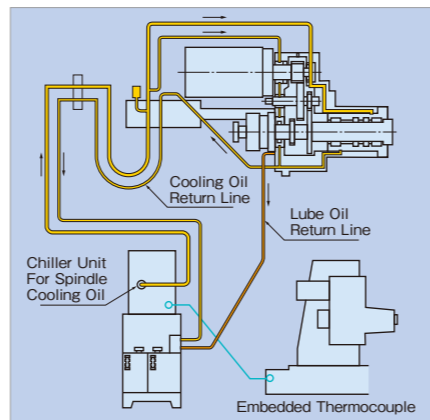
### PRECISION PALLET POSITIONING

Pallets are located with precision accuracy by cone-shaped tapered pins and bushings, (6) sets for HN800-V. The precision cone positioning system insures long-term accuracy and reliability. The pallet clamping system adopts a stable clamber plate that

provides super stability of the pallet during heavy duty machining. Jets of air discharge from the tapered cones when the pallet is changed. This assures proper clamping and helps to clean the bottom of the bushing and the tapered surfaces. AC servo provides fast bi-directional table indexing. The large diameter curvic coupling provides extremely accurate positioning of the table.

### NIIGATA'S UNIQUE SPINDLE HEAD COOLING TECHNOLOGY

Niigata's unique cooling system minimizes thermal distortion during heavy load on the spindle. A large volume of temperature controlled spindle cooling oil is circulated around the spindle bearings and gear box. A thermo-couple temperature sensor is embodied into the machine base to control oil temperature to coordinate with the base of the machine.



### QUICK & EASY INSPECTION

Machine maintenance items such as lubrication control units and devices are all assembled together at the rear of the machine for quick and easy inspection.



### OIL-AIR LUBRICATION SYSTEM

This system automatically assures constant lubrication to the spindle bearings to prevent premature failure (versus grease packed bearings which require periodic repacking).

# DESIGN DETAILS FOCUSED ON OPERATOR FRIENDLINESS

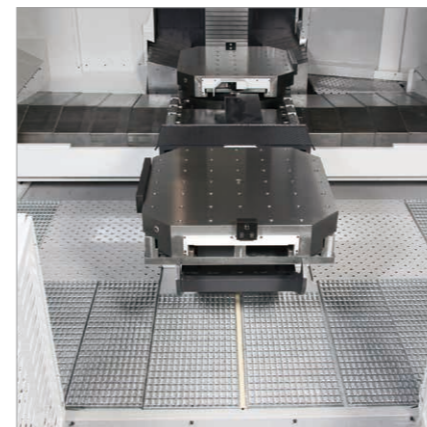


### EXCELLENT ACCESSIBILITY TO THE WORK ZONE

Large sliding operator door allows easy and safe access to the machining area. A slanted ceiling of the enclosure minimizes coolant dropping on the operator.

### WORK SETUP IS SAFE AND EASY

The reliable rotary type pallet changer system accommodates large fixtures and workpieces. Niigata's solution is the walk-around platform, which allows easy set-up and operator safety.



### NEW GENERATION OPERATION PANEL WITH 15" COLOR LCD

HN800-V is equipped with NEW generation operation panel with 15" color LCD as standard.

The control panel is strategically located at the most convenient position and the operator can easily monitor the workpiece and machining operations, while utilizing the control functions.

### SAFE AND CONVENIENT SETUP OF TOOLING

The tool magazine is on the side of the machine, outside the chip enclosure, and away from the cutting area. This design permits easy accessibility for tool inspection and replacement. Jog rotation of the tool magazine during automatic cycles facilitates tool inspection and changeover to maximize utilization. The load/unload station is located at a comfortable height for operator safety and ease.

### ADVANCED UNMANNED MONITORING SYSTEM NIIGATA NM24 MONITOR ACE

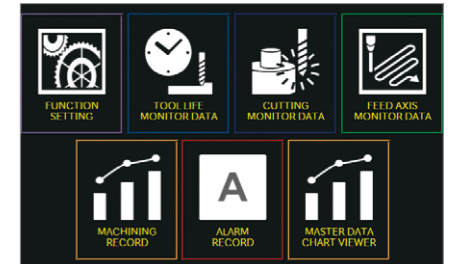
#### KEY FEATURES

- Display on Machine Operational Screen: All Main Features Shown on Machine Operational Screen (Fanuc CNC Control)
- Cutting Monitor: Max Spindle Load / Feed Axis Load / Adaptive Control / FN Adaptive Control
- Tool Management: Tool Life Monitor / Spare Tool Function / Tool Number Conversion
- Automatic Continuous Machining: Spare Tool Conversion / Pallet Skip
- Operations Record Display: Machining Record / Alarm Record / Tool Life (OP: New Niigata Monitor Ace is available for New HMI only.)



### FOR UNMANNED OPERATION NIIGATA MONITOR ACE

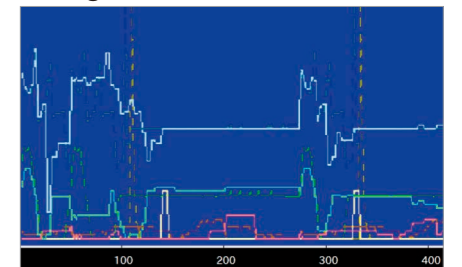
#### Menu Screen



#### Tool Life Monitor

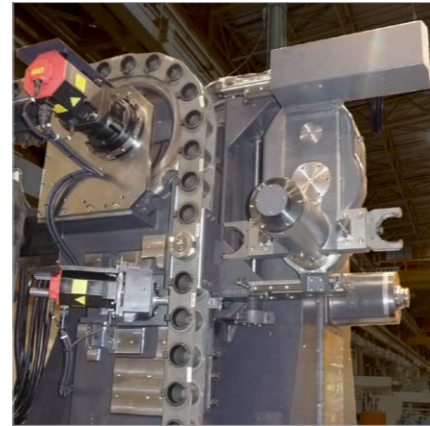
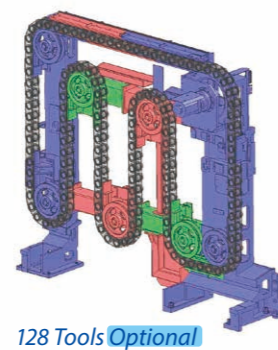
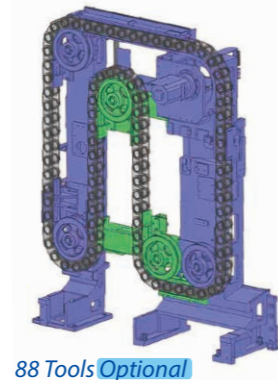
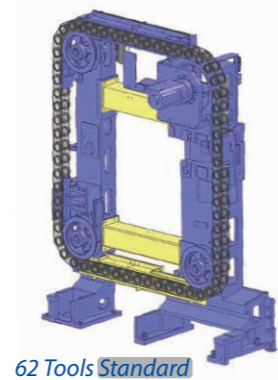
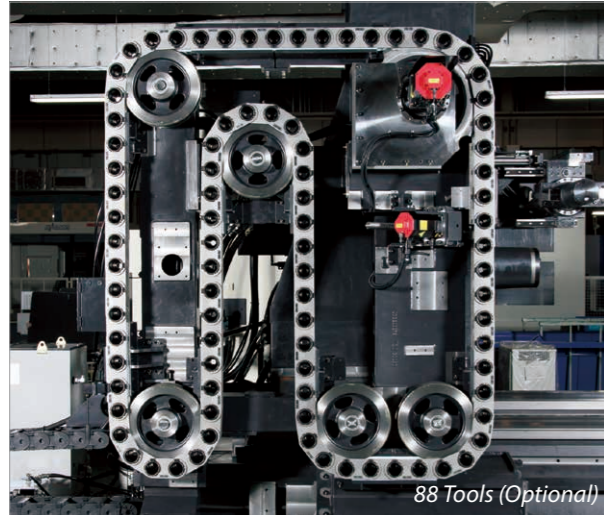
TOOL MONITOR LIFE	12345678	9101112	13141516	17181920	21222324	25262728	29303132	33343536	37383940	41424344	45464748	49505152	53545556	57585960	61626364	65666768	69707172	73747576	77787980	81828384	85868788	89909192	93949596	979899100
TOOL	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SET	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
REST	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
LIFE	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
BRK	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
CUT	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
CHK	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
POST	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

#### Cutting Load Master Data

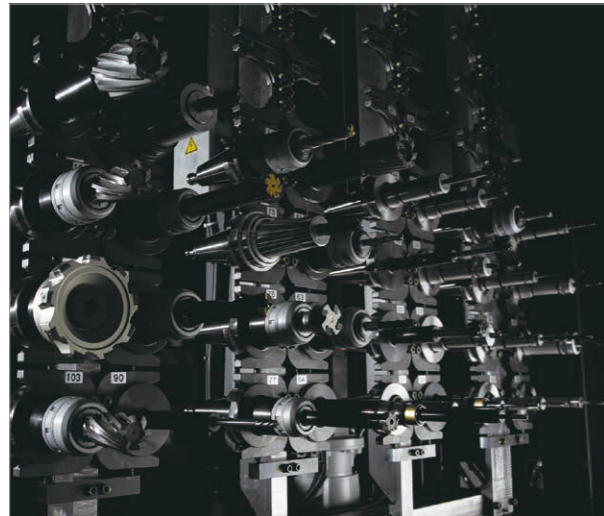


# WIDE RANGE OF OPTIONS TO ANSWER YOUR INDIVIDUAL MACHINING REQUIREMENTS

## NIIGATA HN-SERIES MODULAR DESIGN CONCEPT FIELD EXPANDABLE ATC MAGAZINE



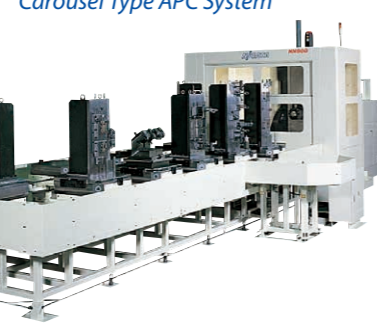
## MATRIX TYPE AUTOMATIC TOOL CHANGE SYSTEM



## LINEAR PALLET MAGAZINE SYSTEM WITH NIIGATA ICC SYSTEM CONTROLLER



## MULTIPLE PALLET MAGAZINE Carousel Type APC System

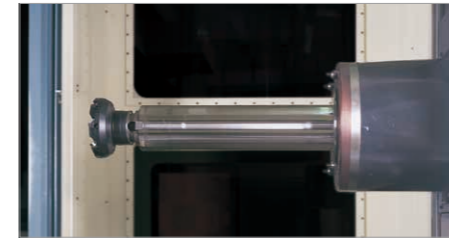


## ROBOT SYSTEM



## NEW FEATURE

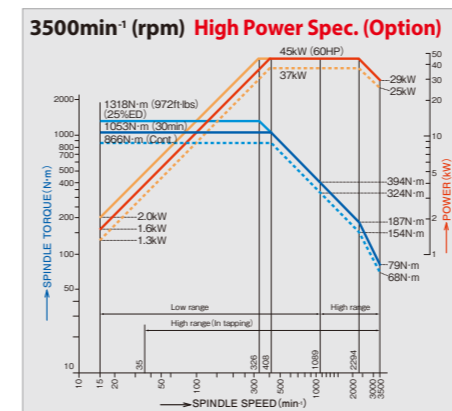
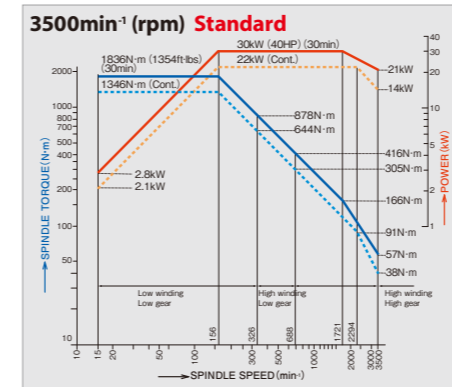
Core Cooling system in BAR spindle enable for high performance



## BAR/QUILL CAPABILITY ON HORIZONTAL MACHINING CENTER

Niigata's model: HN Series machining centers, always known for rugged, high speed, reliable performance, can be equipped with a BAR/QUILL style spindle. The BAR versions bring long-sought improvements in performance and accuracy to the work traditionally done by horizontal boring mills.

## SPINDLE PERFORMANCE DIAGRAM



## MACHINE SPECIFICATIONS

ITEM	HN800-V			
	Metric	Inch		
TRAVEL	X axis travel (column side to side)	1530 mm	60.2"	
	Y axis travel (spindle head up and down)	1230 mm	48.4"	
	Z axis travel (table front and rear)	1020 mm	40.2"	
	Spindle center line to pallet surface	0 ~ 1230 mm	0 ~ 48.4"	
	Spindle nose to table center line	200 ~ 1220 mm	7.87" ~ 48.0"	
TABLE	Pallet working surface	800 × 800 mm	31.5" × 31.5"	
	Table increments	1°	1°	
	[OP]	[ 0.001° ]	[ 0.001° ]	
SPINDLE	Maximum mass on pallet	2500 kg	5500 lbs	
	Spindle speed	6000 min <sup>-1</sup>	6000 rpm	
	Spindle drive motor	AC 37/30 kW	AC 50/40 HP	
	[OP]	[ AC 30/22 kW ]	[ AC 40/30 HP ]	
	Spindle max torque	1200 N-m	886 ft.lbs	
[OP]	[ 1948 N-m ]	[ 1438 ft.lbs ]		
FEEDRATE	Spindle taper	No.50	No.50	
	Rapid traverse X, Y, Z axes	50 m/min	1969 ipm	
	Cutting feed X, Y, Z axes	1 ~ 15000 mm/min	0.04 ~ 591 ipm	
	Table index speed / 1° table	12 min <sup>-1</sup>	12 rpm	
AUTOMATIC TOOL CHANGER (ATC)	NC table	11.1 min <sup>-1</sup>	11.1 rpm	
	Tool shank	BT50	CT50	
	[OP]	[ HSK A 100 ]	[ HSK A 100 ]	
AUTOMATIC PALLET CHANGER (APC)	Tool magazine capacity	62	62	
	[OP]	[ 88 / 128 / 175 / 255 ]	[ 88 / 128 / 175 / 255 ]	
	Field expandable	Field expandable	Field expandable	
	[OP]	[ 126 / 178 / 230 ]	[ 126 / 178 / 230 ]	
ACCURACY	Matrix style	Matrix style	Matrix style	
	Tool selection	Fixed position	Fixed position	
	Maximum tool length	610 mm	24.0"	
	Maximum tool diameter	φ120 mm	φ4.72"	
	Ditto adjacent pockets empty	φ230 mm	φ9.06"	
	Maximum tool mass (weight)	30 kg	66 lbs	
	[OP]	35 kg	77 lbs	
	Tool change time (tool to tool)	7.4 s	7.4 sec.	
	AUTOMATIC PALLET CHANGER (APC)	Type	Rotary Shuttle	Rotary Shuttle
	Number of pallets	2	2	
GENERAL	Positioning / full stroke X, Y, Z axes	±0.003 mm	±0.00012"	
	Repeatability	±0.0015 mm	±0.00006"	
	Table index 360 position	±3"	±3"	
GENERAL	Machine weight approx.	25000 kg	55000 lbs	
	Machine space width / depth	5195 × 7715 mm	204.5" × 303.7"	
	Machine space height	4180 mm	164.6"	
	Floor to table surface	1300 mm	51.2"	
	Power supply	82 kVA	82 kVA	
[OP]	(70 kVA : spec of energy saving)	(70 kVA : spec of energy saving)		
Control	FANUC	FANUC		

Figures in [ ] indicate optional features.

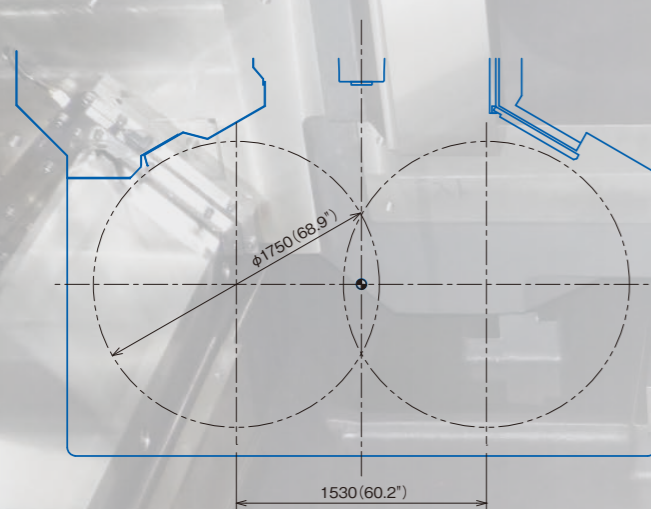
# LARGEST WORK ENVELOPE IN ITS CLASS

## φ1750mm(68.9") SWING DIAMETER INSIDE MACHINE

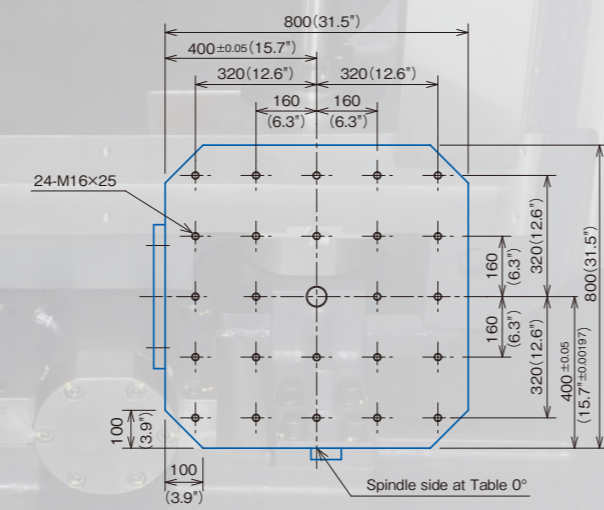


Unit : mm (inch)

Maximum Workpiece Envelope



Standard Pallet Top



HN800-V Outline

