



GO GREEN
WITH HORKOS



..... HORKOS provides products that serve global benefits

HORKOS CORP

Bedless Machining Center N-series



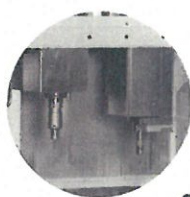
Bedless Machining Center
NS70/NJ50



Bedless Machining Center
NM100

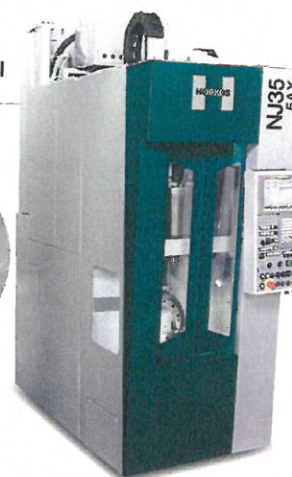


Twin-Spindle
Bedless Machining Center
NJ50 DUO



Multi Tasking Bedless
Machining Center
NS70 version L
C axis revolution 3,000min⁻¹

5-Axis Simultaneous control
Bedless Machining Center
NJ35-5AX

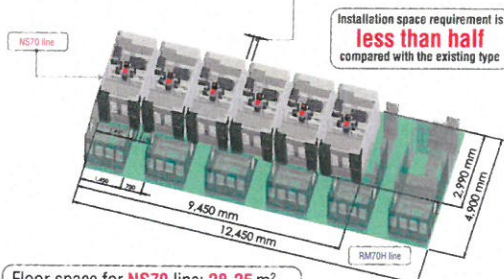


SPACE SAVING PERFORMANCE

Maintenance area is located only at Machine front and rear, so no need for maintenance work from both sides. This also enables machine located minimized with pitch, or against wall.

New development: Comparison between the **NS70** and our existing horizontal machining center **RM70H** (one unit consists of 6 machines)

No maintenance is required from the sides → Can be installed with the 150 mm pitch between the machines



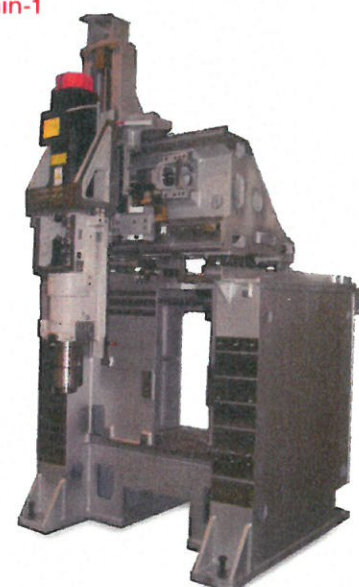
Floor space for **NS70** line: **28.25 m²**
Floor space for **RM70H** line: **61.00 m²**

HIPRECISION

Thanks for the Bedless configuration, chip and coolant hardly contact to Machine Body. This reduce drastically thermal displacement caused by heated chip and coolant, which enhance High Precision Machining even for long operation time.

HIGH RIGIDITY

Machining components and Table/fixture is fixed on the box, which reduce the distance of force transmission between tool point to workpiece. High rigidity performance is therefore generated.



Type	Travel (X axis x Y axis x Z axis)	Max rotation speed	Tool holder	Tool strage capacity	Machine size
NJ50/NJ60	350mm x 300mm x 350mm	12,000 min ⁻¹	BT30 HSK-A50	20	990mm x 2,200mm
	600mm x 450mm x 460mm	12,000 min ⁻¹	BT30 HSK-A50	20	1,400mm x 3,335mm
NJ60	1,000mm x 540mm x 460mm	12,000 min ⁻¹	BT30 HSK-A50	30	2,000mm x 2,788mm
NS70	500mm x 450mm x 500mm	12,000 min ⁻¹	BT40 HSK-A63 KM6350	16 24 30	1,450mm x 2,835mm
NS80	500mm x 450mm x 500mm	8,000 min ⁻¹	BT40 HSK-A63 KM6350	16 24 30	1,450mm x 2,835mm
NM100	500mm x 500mm x 550mm	6,000 min ⁻¹	BT50 HSK-A100 KM10080	16	1,800mm x 3,752mm
NS70/80 version L	500mm x 450mm x 500mm	12,000 min ⁻¹	HSK-A63 HSK-T63	16 24 30	1,450mm x 3,380mm
NJ50 DUO	480mm x 300mm x 350mm	12,000 min ⁻¹	HSK-A50	15 x 2	1,590mm x 2,775mm
NJ35-5AX	350mm x 250mm x 350mm	12,000 min ⁻¹	HSK-E32	32	990mm x 2,255mm

Horizontal Machining Center T-series



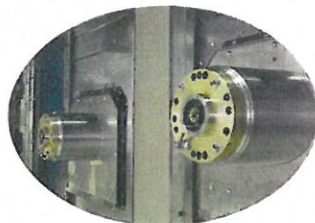
Horizontal
Machining Center
TS60H

Horizontal
Machining Center
TM100H



Horizontal
Machining Center
TM70H

Twin-Spindle
Horizontal
Machining Center
TM70H DUO



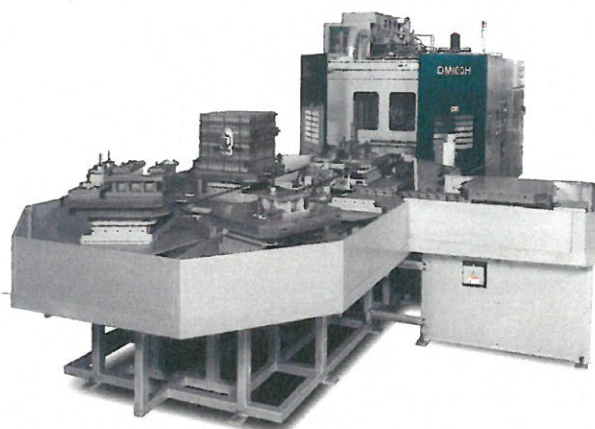
Type	Travel (X axis x Y axis x Z axis)	Max rotation speed	Tool holder	Tool storage capacity	Machine size
TS60H	530mm x 560mm x 530mm	20,000 min ⁻¹	BT30 HSK-A50	16tools 24tools 30tools	1,375mm x 3,310mm
TM70H/TM80H	530mm x 560mm x 530mm	15,000 min ⁻¹	BT40 HSK-A63 KM6350	16tools 24tools 40tools	1,500mm x 3,425mm
	700mm x 560mm x 530mm				1,670mm x 3,425mm
TL80H	530mm x 560mm x 530mm	12,000 min ⁻¹	BT40 HSK-A63 KM6350	16tools 24tools 40tools	1,530mm x 3,705mm
	700mm x 560mm x 530mm				1,700mm x 3,705mm
TM100H	500mm x 500mm x 500mm	6,000 min ⁻¹	BT50 HSK-A100 KM10080	16tools	1,500mm x 3,675mm
	670mm x 500mm x 500mm				1,700mm x 3,675mm
TL100H	530mm x 560mm x 530mm	6,000 min ⁻¹	BT50 HSK-A100 KM10080	16tools	1,530mm x 3,805mm
	700mm x 560mm x 530mm				1,700mm x 3,805mm
TM70H DUO	650mm x 560mm x 530mm	20,000 min ⁻¹	HSK-A63	70tools x 2	2,950mm x 5,025mm
TM100H DUO	700mm x 500mm x 500mm	10,000 min ⁻¹	HSK-A100	20tools x 2	3,100mm x 4,770mm

Horizontal Machining Center DM-series



Horizontal
Machining Center
DM70H

Multi pallet APC
DM100H



Type	Travel (X axis x Y axis x Z axis)	Max rotation speed	Tool holder	Tool storage capacity	Machine size
DM70H/DM80H	650mm x 730mm x 650mm	15,000min ⁻¹	BT40 HSK-A63 KM6350	60tools 124tools	2,200mm x 5,095mm
DL80H	650mm x 730mm x 650mm	12,000min ⁻¹	HSK-A63 KM6350	60tools 90tools	2,275mm x 5,115mm
DM100H	1,000mm x 800mm x 1,000mm	6,000min ⁻¹	BT50 HSK-A100 KM10080	60tools 124tools	3,535mm x 6,870mm

Horizontal Machining Center LB70

Super low gravity machining center with 1,600mm height



Horizontal
Machining Center
LB70

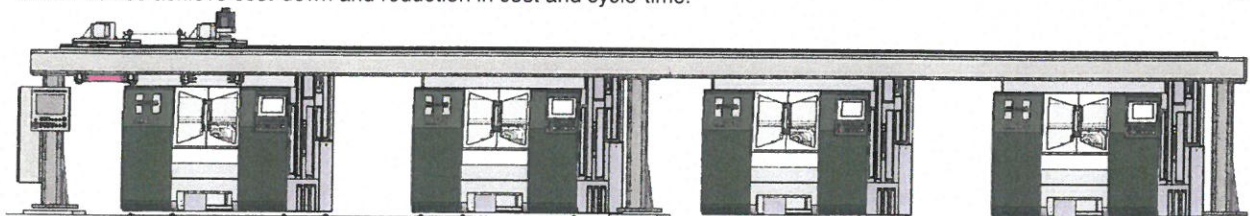
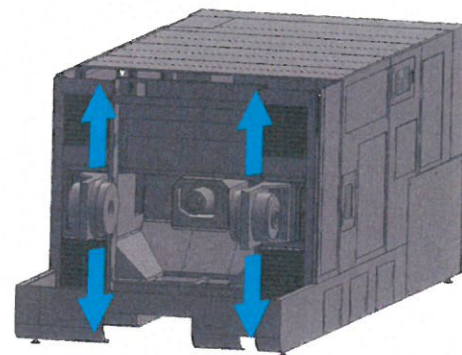


Adaptable to any loading height

Any loading height can be accommodated by jig fixture up and down movement.

Compact line structure and reduced total cost

In case of the line with gantry loader, a simple line with reduced height can be built by eliminating gantry up and down stroke. This can adapt to low-ceiling plant. Simplification of carrier device achieve cost-down and reduction in cost and cycle-time.



Type	Travel (X axis x Y axis x Z axis)	Max rotation speed	Tool holder	Tool storage capacity	Machine size
LB70	500mm x 500mm x 600mm	12,000 min ⁻¹	HSK-63A	24tools	1,700mm x 3,895mm x 1,600mm

Special Machine for Crankshaft



Special Machine for
Crankshaft Oil Hole

MOH

Special Machine for
Crankshaft Both End

MBE



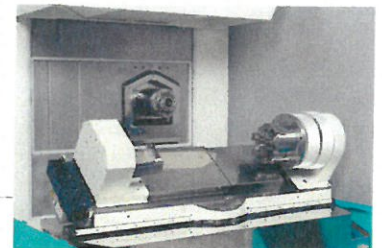
Special Machine for
Large Crankshaft Oil Hole

TG70H-II



Crankshaft Fixture Crankmaster

Crankmaster



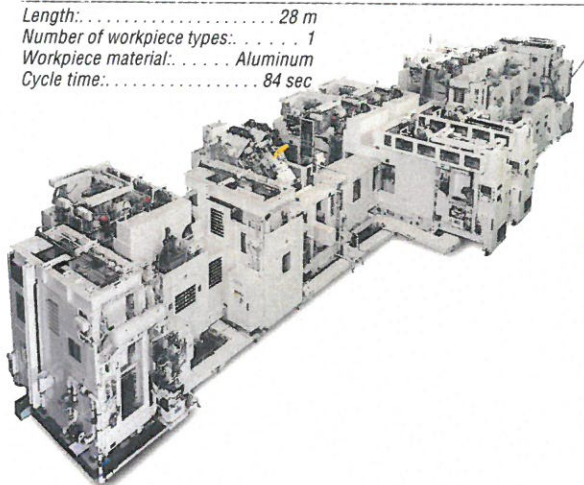
Type	Travel (X axis x Y axis x Z axis)	Max rotation speed	Tool holder	Tool storage capacity	Machine size
TG70H	800mm x 500mm x 1,290mm	8,000 min ⁻¹	HSK-A63 KM6350	16tools 24tools	2,900mm x 4,615mm
TG70H-II	1,250mm x 500mm x 1,150mm	8,000 min ⁻¹	HSK-A63 KM6350	16tools 24tools	3,400mm x 4,990mm
MOH	500mm x 150mm x 765mm	8,000 min ⁻¹	BT40 HSK-A63 KM6350	12tools	1,325mm x 3,750mm
MBE	500mm x 300mm x 400mm	8,000 min ⁻¹	BT40 HSK-A63 KM6350	20tools	1,250mm x 3,350mm

FMS·FTL

**Based on the deep production system experience,
Total system that involves Special purpose machines and
peripheral devices can be offered.**

Cylinder block machining line

Length: 28 m
Number of workpiece types: 1
Workpiece material: Aluminum
Cycle time: 84 sec



Mission case machining line

Length: 17.4 m
Number of workpiece types: 2
Workpiece material: Aluminum
Cycle time: 116 sec



Cylinder head machining line

Length: 52 m
Number of workpiece types: 8
Workpiece material: Aluminum
Cycle time: 45 sec (3 lines)

Three cylinder head machining lines with
tandem gantry loader transfer equipment

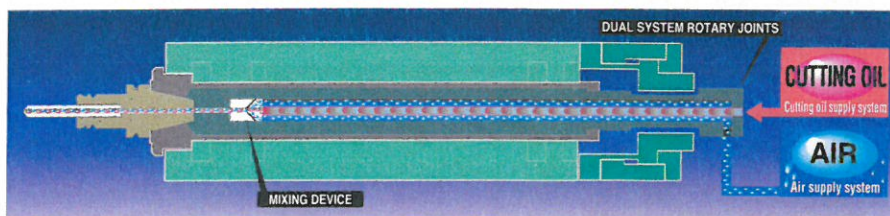
iMQL cutting system

**Realization of Energy and Resource saving ,
Preservation of the Environment, High efficiency machining.**
<Minimum quantity lubrication system (internal spindle mixing) iMQL>

iMQL cutting system



Small amounts of the cutting oil and air separately just before the spindle nose where they are mixed and then sprayed from the tip of the cutting tool



Environmental Responsiveness

Compared to the conventional wet machining, this method requires only small quantity of lubricant, It realizes earth-friendly machining.



Conventional wet machining



iMQL machining

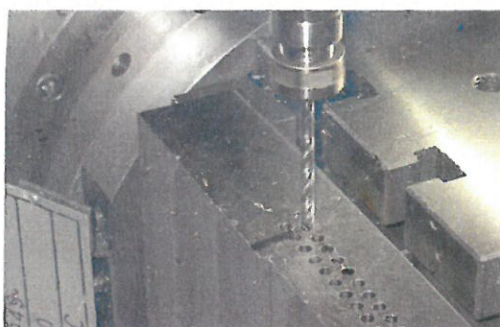
Energy Saving

No coolant pump unit that consumes major portion of Electric power is required. Power consumption for the operation has been significantly reduced.

**Power consumption
for lubrication
supply per
machining cycle**



High efficiency machining



iMQL machining case example

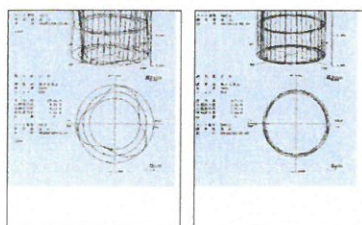
$\phi 8 \times 22.5D$: Drilling (no through hole)
 Work material: SCr20
 $S=4,775$, $F=1,671$
 Main body: NJ50

$\phi 2.5 \times 30D$: Drilling (no through hole)
 Work material: S45C
 $S=5,093$, $F=382$
 Main body: NS70

iMQL machining case examples:

Steel/Cast iron: Cylinder-Block, Cylinder-Head, Crankshaft, Camshaft, Connecting-rod etc.
Aluminum: Cylinder-Block, Cylinder-Head, Transmission-Case etc.

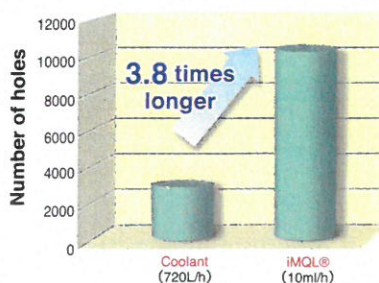
High Precision



Cutting conditions

Workpiece material: JIS A2017P
 Tool used: $\phi 7.1$ mm reamer
 Drilling depth: 15 mm
 Spindle speed: 4,483 min^{-1}
 Feed speed: 448 mm/min

Long Tool Life



Cutting conditions

Workpiece material: JIS S50C
 Tool used: $\phi 6.8$ mm drill
 Drilling depth: 20 mm
 Spindle speed: 5,600 min^{-1}
 Feed speed: 1,100 mm/min

Related products.



Oil mist collector
OIL MIST COLLECTOR
MIST EATER



Filterless type mist collector
OIL MIST COLLECTOR
MIST EATER Z



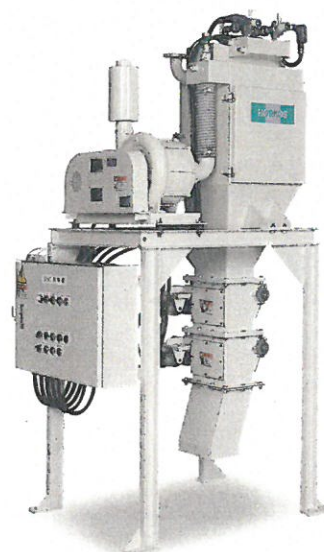
Electrical mist collector
OIL MIST COLLECTOR
MIST EATER EZ



Briquetting press machine
CHIP EATER



Vacuum holder



Vacuum cleaner



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- Machine Tool Dept.
- Environment Improving Equipment Dept.

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