

Nidec
All for dreams

High Performance Gear Hobbing Machine

HS SERIES



NIDEC MACHINE TOOL CORPORATION

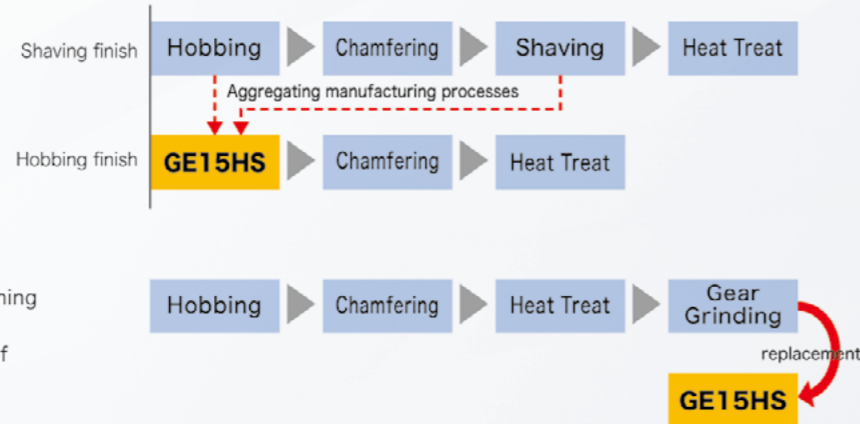
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GE15HS - High Performance Gear Hobbing Machine With Higher Speed, Precision and Efficiency

High precision machining with high-speed hobbing

Shaving finish

The GE15HS provides process efficiency, eliminating the finishing process of shaving prior to heat treatment.



Gear grinding finish

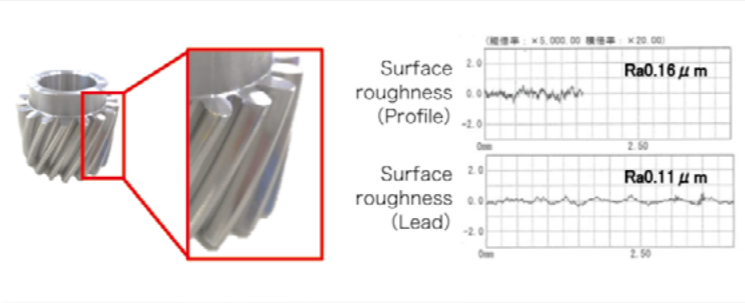
The GE15HS improve productivity while maintaining gear accuracy and surface finish on flank. In addition, it does not require a large amount of grinding fluid, enabling environmentally friendly process design.

Machining sample

High-speed hobbing targeting same level as finishing process

Gear Spec.		Cutting Condition (DRY)	
Module	1.6	Hob Spindle rpm	5,300min ⁻¹
N.T.	19	Cutting speed	1,499m/min
O.D	38mm	Axial feed	0.6mm/t.rev.
T.W	24mm		
H.A	24°RH		
Cutter Spec.		Cycle time	
O.D	90mm		26.9sec
Starts	1		<small>(include work loading time)</small>

High speed hobbing yields a surface roughness (profile and lead) of less than Ra0.2 - on a par with gear grinding

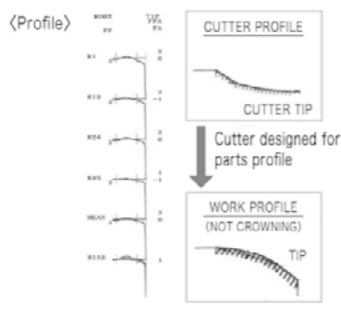


Machining sample

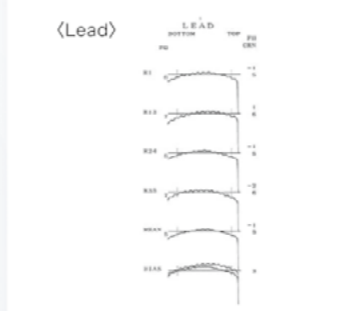
High-speed hobbing targeting Lead/Profile modification considering gear accuracy change after heat treatment

Gear Spec.		Cutting Condition (water soluble WET)	
Module	1.75	Hob Spindle rpm	4,966min ⁻¹
N.T.	45	Cutting speed	780m/min
O.D	87mm	Axial feed	0.6mm/t.rev.
T.W	18mm		
H.A	10°LH		
Cutter Spec.		Cycle time	
O.D	50mm		25.7sec
Starts	2		<small>(include work loading time)</small>

Accurate involute profiling is achieved by Nidec's hob cutter design expertise

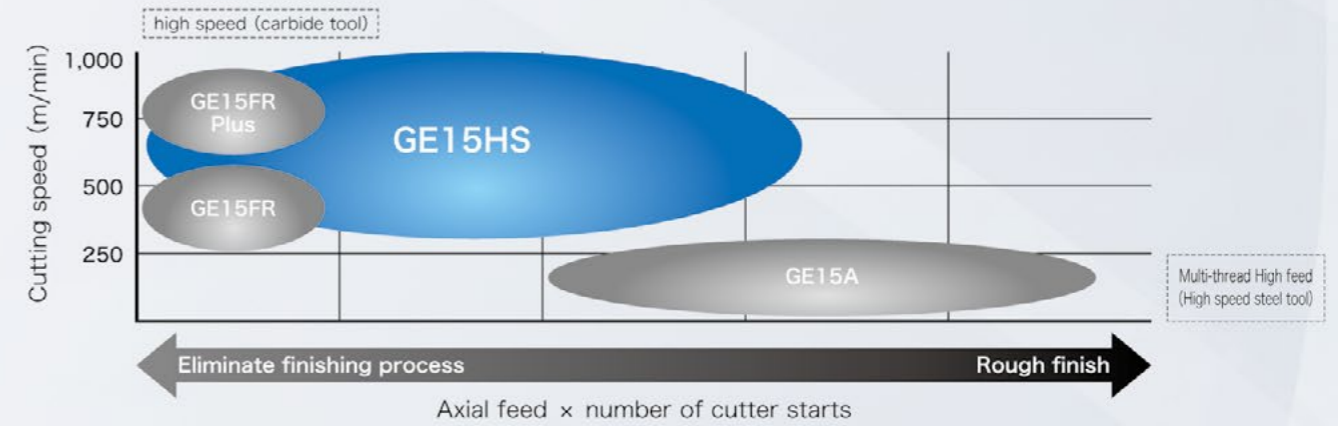


Lead modifications are achieved with included software



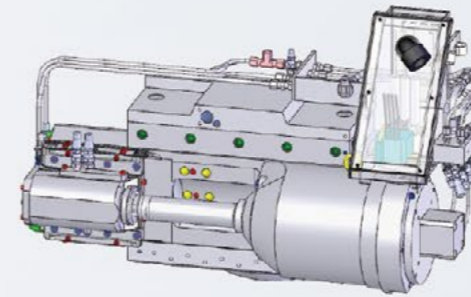
High accuracy/high speed machining for mass production of automobile components

The GE15HS model for mass production of automobile components with high speed machining. The high-speed, high-torque direct-drive motor for the main cutting spindle provides reduction in processing time



Machine features

High-speed, high-torque direct-drive motor for the main cutting spindle
a maximum spindle speed of 6,000 min⁻¹



Spindle/support for shank hob cutter are standard. Eliminates hob run-out due to mounting error

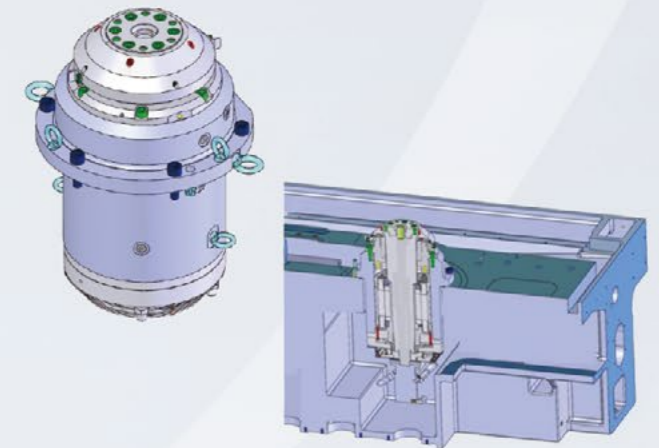


Easy maintenance

Cartridge type main spindle and table spindle. Rebuilt spindle can be installed quickly

High rigidity direct-drive motor for work table spindle

The high efficiency work table spindle uses a special table that provides high rigidity and high-speed rotation to handle the necessary thrust loads for high efficiency machining



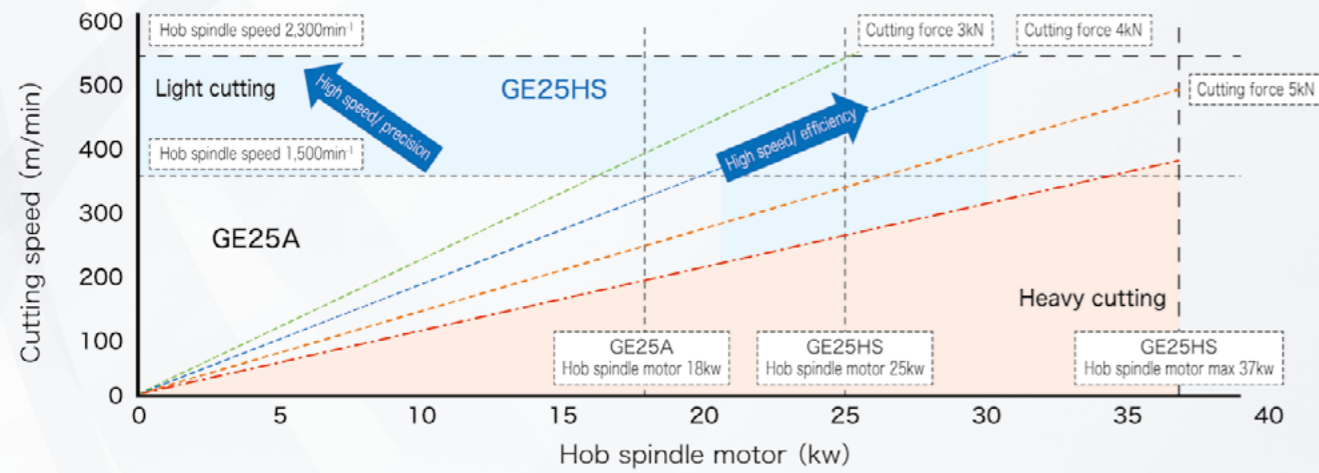
Countermeasures for machine heat deformation

Main spindle and table spindle with special cooling which provides stable high-speed machining. GE15HS uses high precision MP scale in radial (X) axis, and controls in full closed loop system. (opt.)

GE25HS - High Performance Gear Hobbing Machine With Higher Speed, Precision and Efficiency

Supports a wide range of machining areas with a high-power spindle

The GE25HS model for large diameter gears such as automobile differential gears. High power spindle motor and high-speed table provides for high-efficiency processing of mass production.

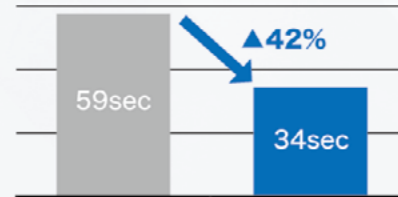


Machining sample

Cutting speed 400m/min
42% reduction in processing time



Cycle time comparison
(include work loading time)



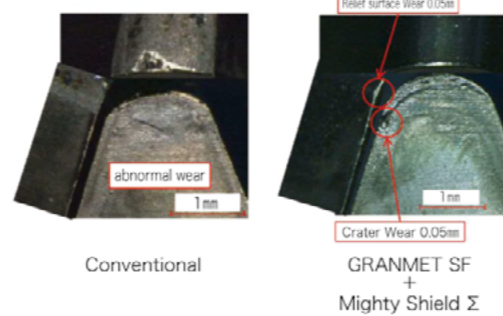
Gear Spec.

Module	3
N.T.	54
T.W	40mm
H.A	30° RH

Cutter Spec.

O.D	85mm
Starts	4

No abnormal wear was confirmed after 50pcs non shift hobbing.



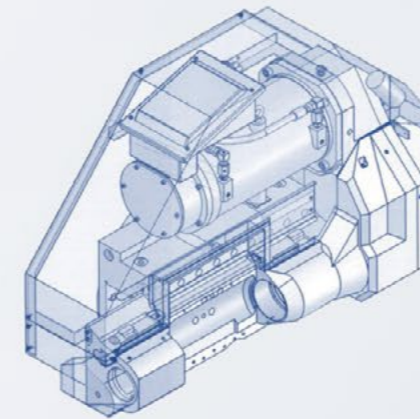
		GE25A	GE25HS
Cutting Condition	Spindle rotation min ⁻¹	750	1,500
	Table rotation min ⁻¹	56	111
	Cutting speed m/min	200	401
Cutter	Axial feed mm/t.rev.	1.7	1.7
	Material	MACH 11	GRANMET SF
	Coating	Super Dry III	Mighty Shield Σ
Accuracy		JIS N5 Class	

Machine features

High speed, high power main cutting spindle

High speed spindle with built in cooling system achieves high speed, accurate, and efficient production.

Wet (oil/water soluble) or DRY cutting

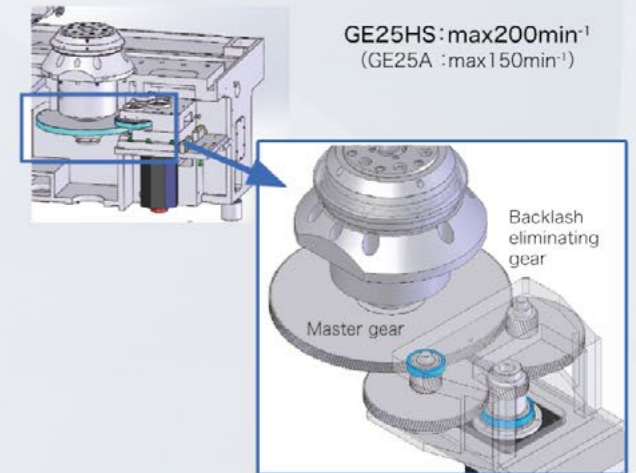


GE25HS: max2,300min⁻¹/25kW
(GE25A: max1,800min⁻¹/18kW)

High speed, high rigidity table spindle

High speed and high rigidity table for high efficiency hobbing process.

Backlash eliminator is standard for accurate machining during high speed operation.



GE25HS: max200min⁻¹
(GE25A : max150min⁻¹)

Machine Specifications

Item	Model	GE15HS	GE25HS
Max. workpiece diameter (mm in)		Φ150 Φ5.9	Φ250 Φ9.8
Max. module DP		4 6.35	6 4.23
Axial travel (mm in)		250 9.8	250 9.8
Radial travel (mm in)		140 5.5	210 8.3
Hob	Max. diameter (mm in)	Φ90 Φ3.5	Φ130 Φ5.1
	Max. length (mm in)	190 7.5	230 9.1
	Shift (mm in)	150 5.9	180 7.1
	Speed (min ⁻¹)	600 ~ 6,000 Direct Drive	230 ~ 2,300
Max. table speed (min ⁻¹)		500 Direct Drive	200
Total electric power (kVA)		43	40
Machine weight (kg lb)		8,500 18,800	11,000 24,300

Standard equipment

GE15HS

- Direct-drive hob spindle (600-6,000min⁻¹)
- Direct-drive work table (500min⁻¹)
- Hob spindle coolant unit
- Transformer
- Lead compensation software

GE25HS

- High power hob spindle (230-2,300min⁻¹)
- High speed work table (200min⁻¹)
- Hob arbor
- Hob arbor setting device
- Spindle inertia damper
- Table backlash eliminator

Common

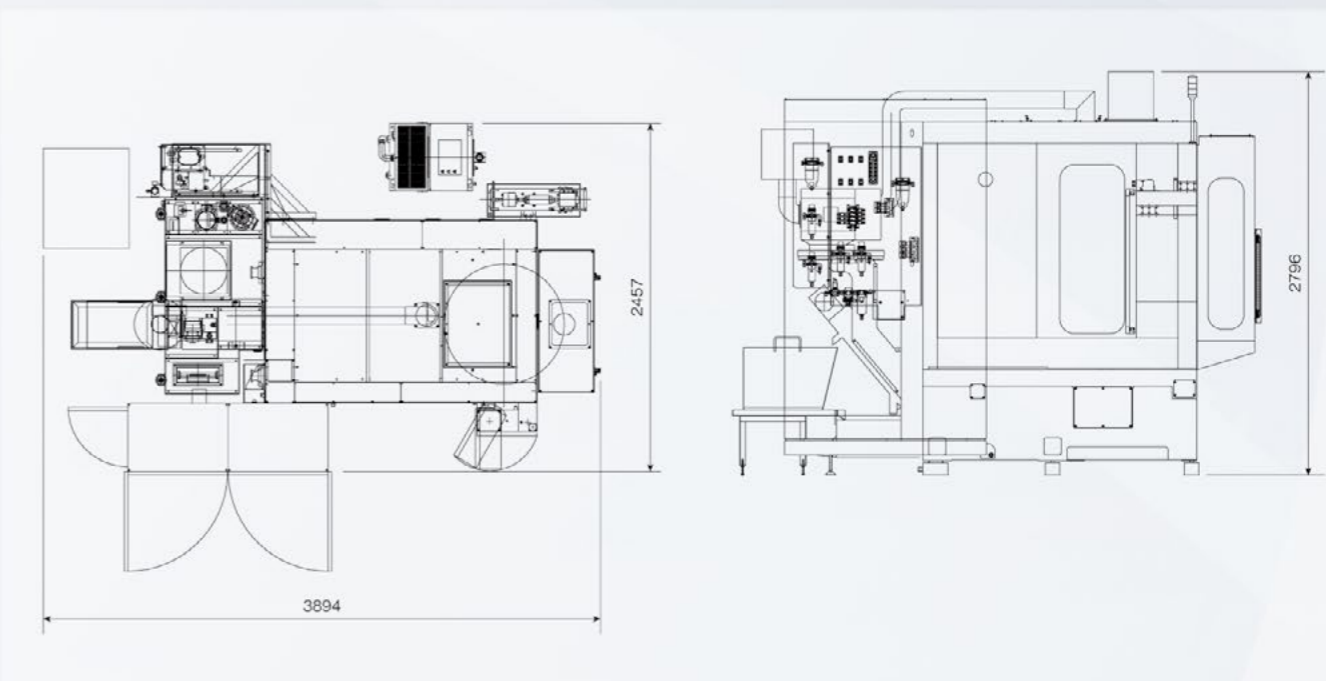
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|---------------------------------------|-------------------------------------|---|
| Hydraulic and lubrication oil unit | Power saving circuit | Mist Collector / Coolant Gun (for Wet Cutting) |
| Splash cover (fully enclosed) | Work counter | Dust Collector / Air Gun (for Dry Cutting) |
| Electromagnetic door interlock system | Power outlet | Original pressure residual pressure release valve |
| Chip conveyor | NC device (FANUC) | Zero point indication |
| Tailstock speed reducer | NC memory card | Machine Installation ▼ Mark |
| Cutter power clamp | Conversational programming software | Indication (weight, tank capacity, kVA) |
| Part clamping device | Manual coolant guard door | Safety regulation category 3 |
| Work light / Machine status light | Two-hand operation | |
| Light in the control box | Ethernet | |
| Lamp check circuit | Maintenance tool kit | |
| Spindle orientation | Chip flood coolant device | |

Options

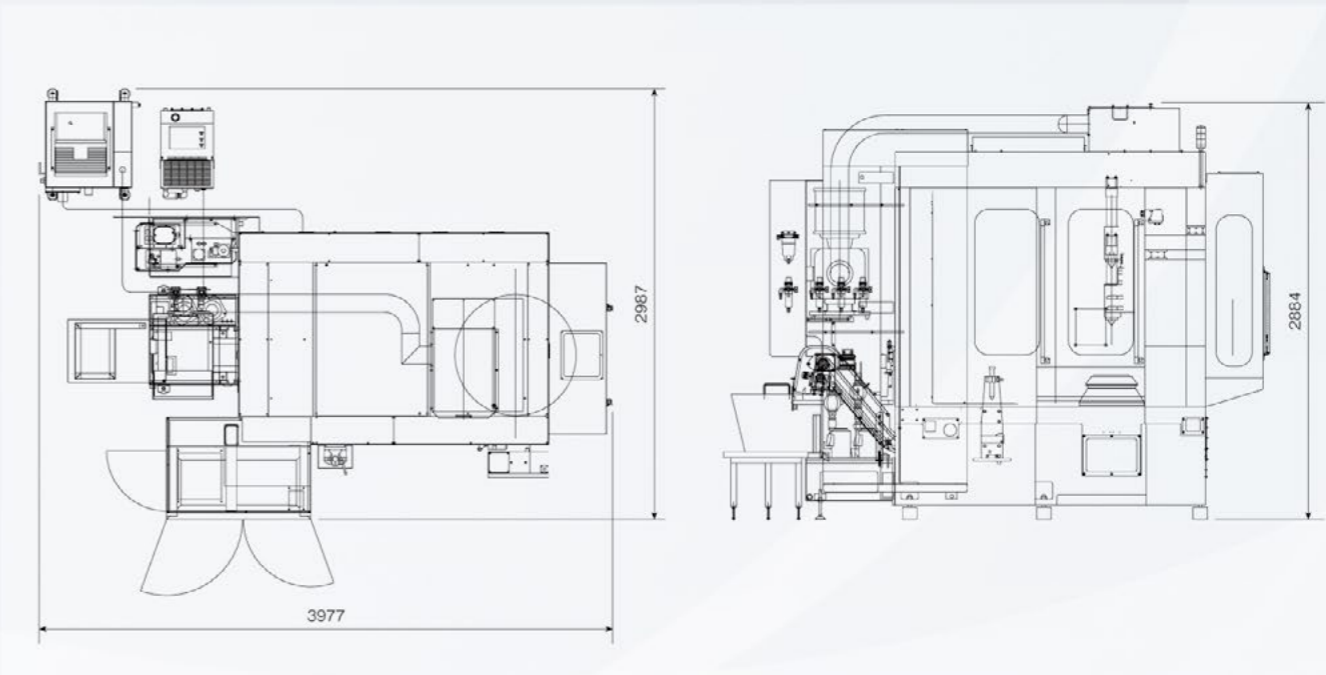
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|------------------------------|------------------------------|
| Part fixture | Additional memory |
| Transfer unit | Additional hob arbor |
| Automatic coolant guard door | Various programming software |
| Auxiliary operation panel | |

Machine Dimensions

GE15HS



GE25HS





Inquiry

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Machine specifications such as dimensions etc., are fixed using SI units including the metric system.
In case data are shown in other units in blue, such as inches, pounds and gallons etc. they are for reference only and the formal data
in black supersedes any equivalent data given in blue when fractions caused by conversion become an issue.
Specifications are subject to change without prior notice.
The export of this product is subject to Japanese Governmental approval.