



HORIZONTAL LATHES N-SERIES



● N20 | N30 | N40 | N50 | N60



THE NSH GROUP

N-SERIES

The NILES-SIMMONS N-series is a closed series of horizontal CNC slant bed lathes in sizes N20 to N60. The universal machine concept was developed for the economic and high precision turning of rotationally symmetric workpieces, including secondary operations.

The machines are designed for a wide range of workpiece geometries, primarily shaft- and disc-shaped turned parts, of various materials and sizes. Due to the wide range of machine sizes, both, compact components with a maximum turning diameter of up to 560 mm and turning lengths of up to 1000 mm as well as very large and heavy components up to a maximum turning diameter of 1500 mm and turning lengths of up to 8000 mm are machined accurately and reliably.

The solid structural base of the machines and the design of all major assemblies are engineered for both, intensive roughing operations and high-precision machining with consistent long-term accuracy.

The flexible design of the machines allows a wide range of technologies and processing concepts to be integrated and adapted to specific components. The N-series is also characterized by extremely high cutting performance, minimal non-productive times, maximum accuracy and productivity, as well as outstanding automation capability, which can also be realized within the NSH Group. Automatic tool and workpiece measurement as well as various process monitoring systems ensure unmanned production.

Highlights

▪ Efficient turning

Machining of workpieces with a turning length of up to 8000 mm and a turning diameter of up to 1500 mm

▪ Modular design principle

Wide range of configuration and combination options for your application-optimized use

▪ High cutting performance

High-torque drives and generously dimensioned guides and bearings for maximum chip removal

▪ Exceptional long-term accuracy

Durable assemblies and machine components,
Direct measuring systems in all axes

▪ Maximum productivity

Short setup times and integrated measuring strategies

▪ Minimum non-productive times

High acceleration and rapid traverse feeds, short changeover and auxiliary times

▪ Environmental friendly hard and dry machining

Thermally stable assemblies with high rigidity; grinding quality machining

▪ Tailored tooling concept

- Freely configurable tool carriers with integration of all common tool holders
- Integration of axial and/or radial toolholders
- Driven tools and special toolholders

▪ Automated User Interfaces

User-specific operating and programming interfaces

▪ Software packages

CAD/CAM system with postprocessor; digital twin;
in-house condition monitoring system ironMIND

▪ Operator and service friendliness

- Convenient operating concept on the basis of SINUMERIK
Operate with 15" TFT touch panel and NILES-SIMMONS HMI with tailored software tools and integrated DNC functionality
- Ergonomic machine design and low machine access
- Separate service aisle

▪ Wide range of automation options

Machine integration into loading systems and production lines (e.g. portal loading, robot loading)

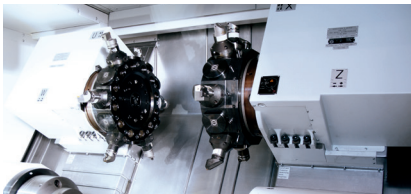
MODULAR DESIGN CONCEPT

The N-Series is based on a multifunctional machine concept offering a wide range of equipment and additional options. Variable slide designs with one or two tool turrets and lower support, various drives and several independent steady rest slides form the basis for machining.

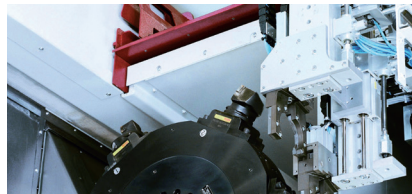
With intelligent hardware and software tools, we complete your process throughout the entire machine life cycle:

- CAM Solutions and Automated User Interfaces for NC programming
- „Virtual machine“ for collision control and NC program optimization
- Real time anti-collision monitoring with Protection Control System (PCS®-online)
- Process monitoring
- In-house condition monitoring system ironMIND - Know your Machine

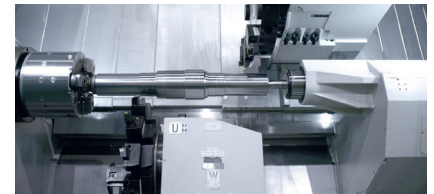
Configuration diversity



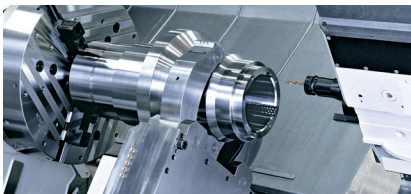
- One or two tool carriers (axial/ radial) for 2- or 4-axis machining



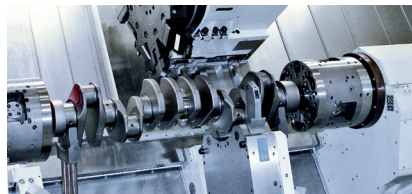
- Turning support with additional automatic tool change and magazine



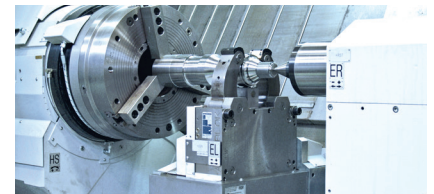
- Lower support/underlying turret



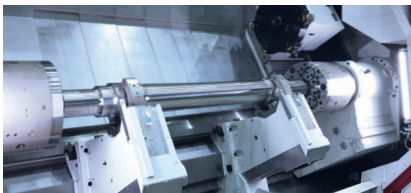
- Main spindle with gear or direct drive



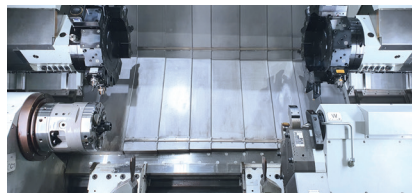
- Full-fledged, electrically couplable counter spindle



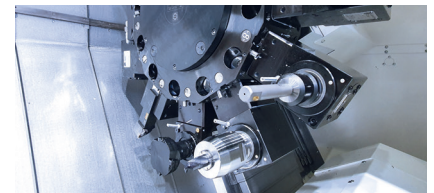
- Lowerable tailstock



- Up to 2 / 3 (from size N40) steady rest slides with 2 steady rests each and optional quick steady rest change



- Electric workpiece templates



- Driven tools for milling and drilling operations



- Slide unit with drilling quill



- In-house condition monitoring ironMIND



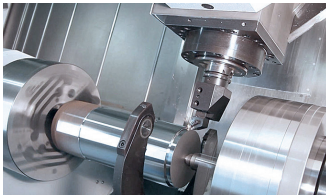
- Integrated or separate loading systems

CUSTOMIZED MACHINING SOLUTIONS

Use the innovative NILES-SIMMONS horizontal slant bed lathes for efficient and resource saving production. From individual workpieces to large-scale production, we develop an economical overall solution for your specific application.

Customized sizes and turning lengths with process-oriented speed and performance options, modular design and extensive process integration form the basis for the optimized technology for your workpiece machining.

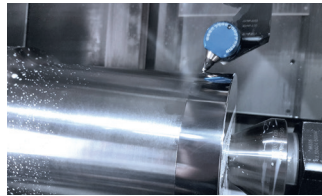
Technology diversity



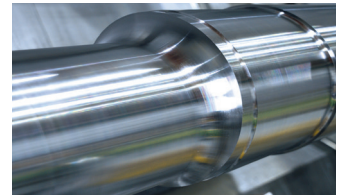
• OD Turning



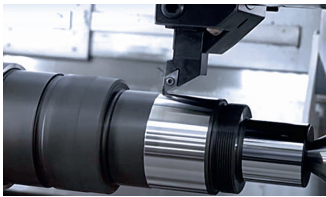
• ID Turning



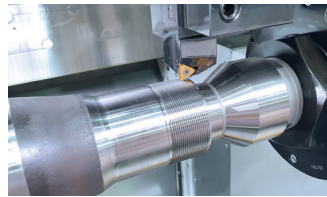
• Twist-free Turning



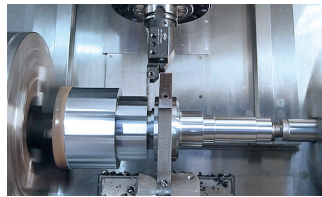
• Eccentric Turning



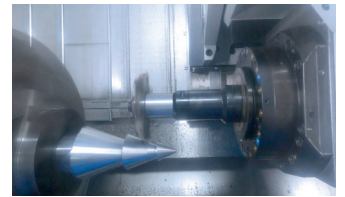
• Hard Turning



• Thread Turning



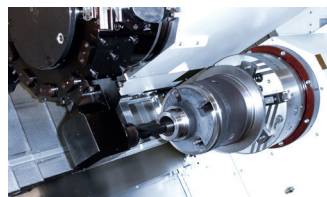
• Grooving



• Polygon Turning



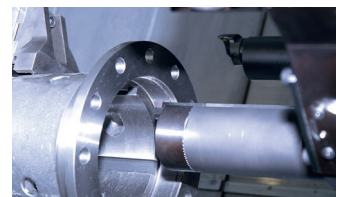
• Drilling



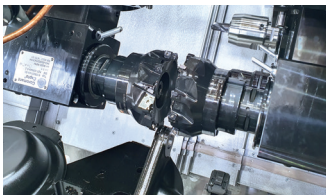
• Boring



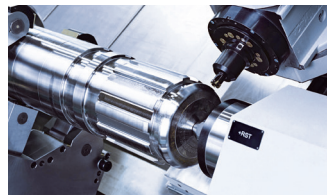
• Thread Tapping



• Shaping



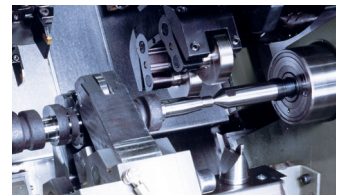
• Milling



• Circular Milling



• Deep Rolling



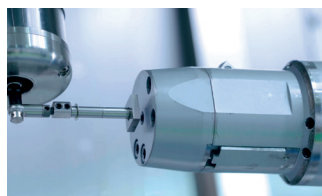
• Thread Rolling



• Automatic imbalance detection



• Deburring

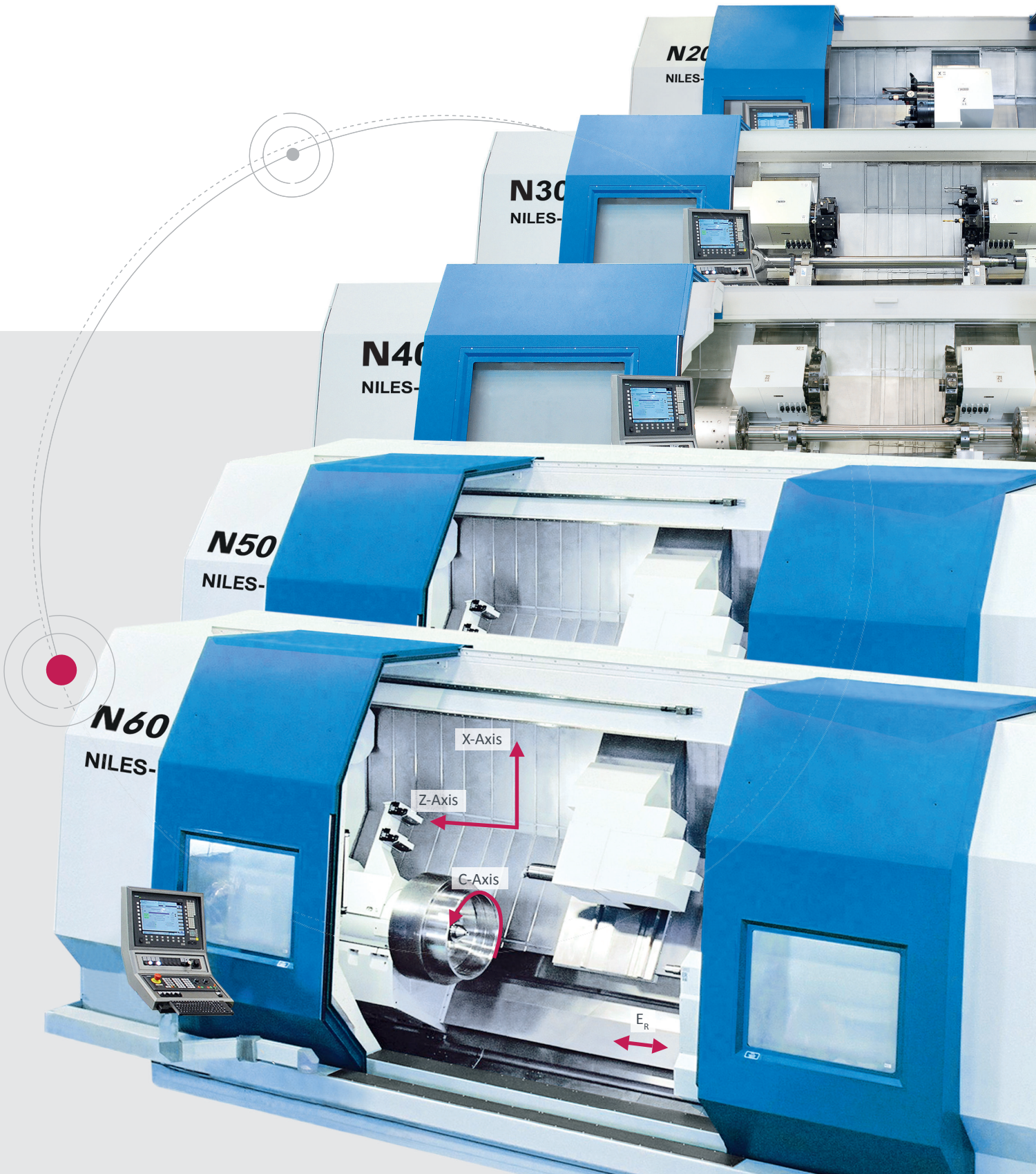


• Tool Measuring



• Workpiece Measuring

TECHNICAL DETAILS

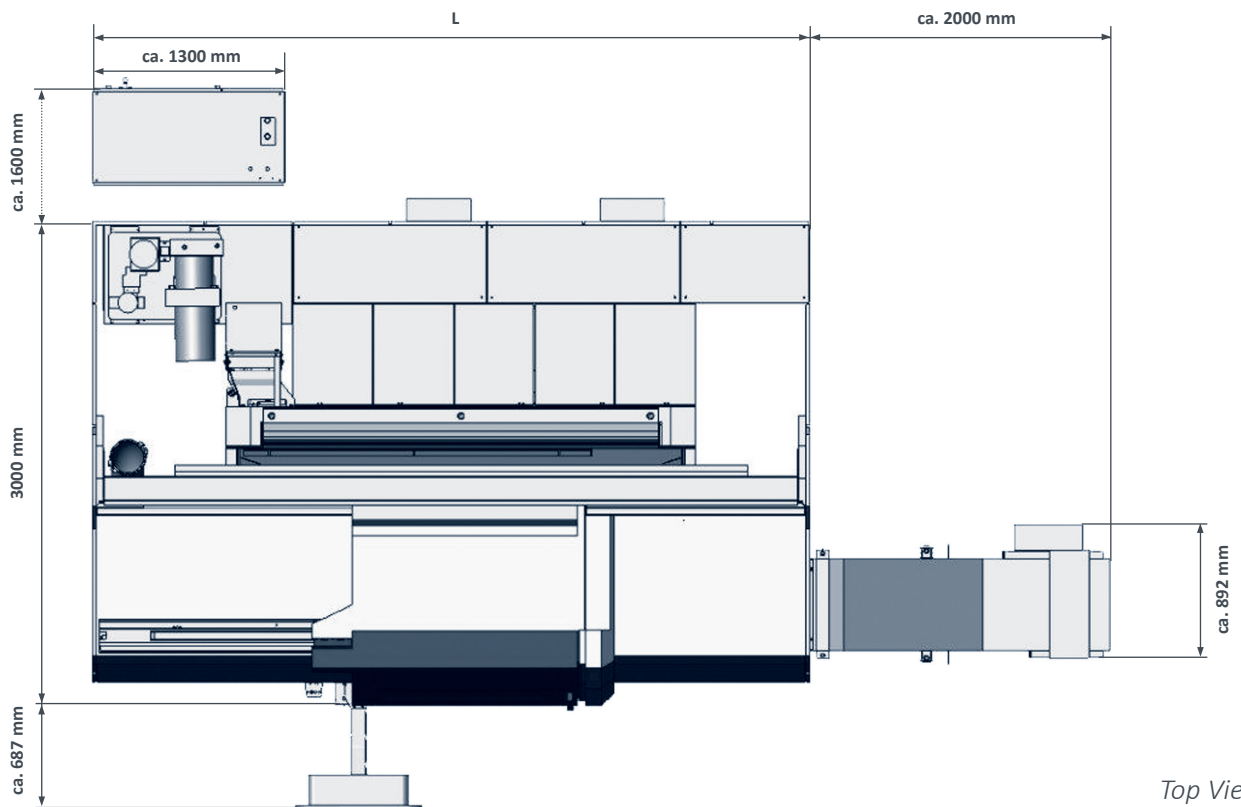




NILES-SIMMONS



N20



Top View

NOMINAL LENGTH	mm	1000	1500	2000	2500	3000	3500
Machine length (L)	mm	4450	4950	5490	5950	6575	7575





MACHINE SPECIFICATION – N20

CNC CONTROL

Control system	SINUMERIK ONE SINUMERIK 840D sl		
Drive system	SINAMICS S120		

WORKING AREA

Nominal Length	mm	1000 / 1500 / 2000 / 2500 / 3000 / 3500*	
Swing diameter	mm	650	
Slidetravel X-axis	mm	-15...+335	
Slidetravel Y-axis	mm	/	

MAIN SPINDLE / COUNTER SPINDLE (OPTION)

Spindle head acc.to DIN 55026	size	A8	A11
Spindle bore	mm	92	105
Bearing diameter	mm	150	180

MAIN SPINDLE DRIVE

Drive power S6-40% duty cycle/ S1-100% duty cycle	kW	34 / 30,4	- / 32
Speed range	rpm	0...3800	0...1800
Torque S6-40% duty cycle / S1-100% duty cycle	Nm	655 / 580	- / 1200
Speed range C-axis mode	rpm	0...100	

FEED DRIVES

Rapid feed rates X, Y, Z	m/min	25 / - / 40	
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TOOL TURRET

		2-axis	4-axis
Number of turrets	No.	1	2
Tool holder DIN 69880		50 40	
Tool configuration		axial radial	radial radial
Tool positions		12	12 / 12

TAILSTOCK

Quill centre	size	MK 5	
Quill travel	mm	160	166
Quill diameter	mm	140	150
Clamping force	kN	3...17/ 2...9	5...25

* other options available on request

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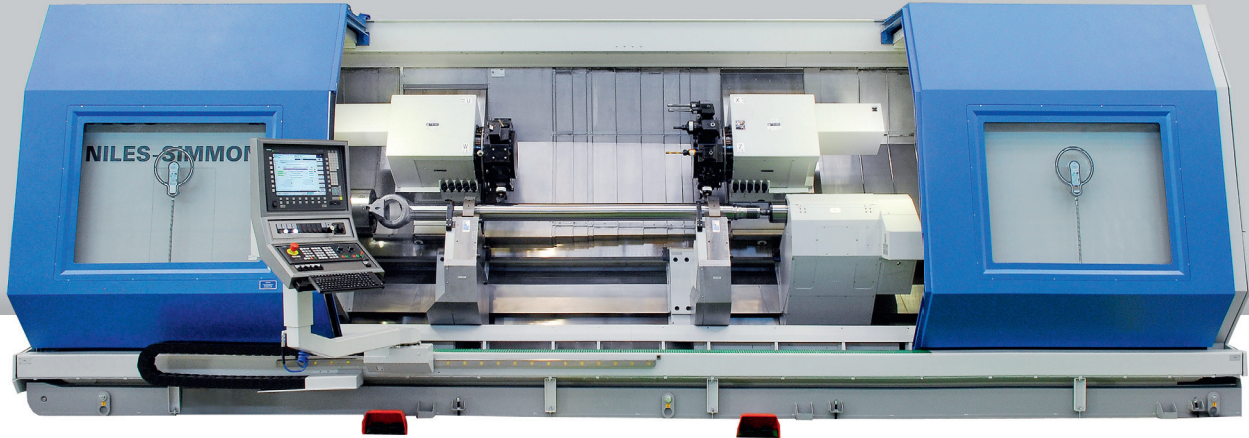


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MACHINE TOOL MANUFACTURING

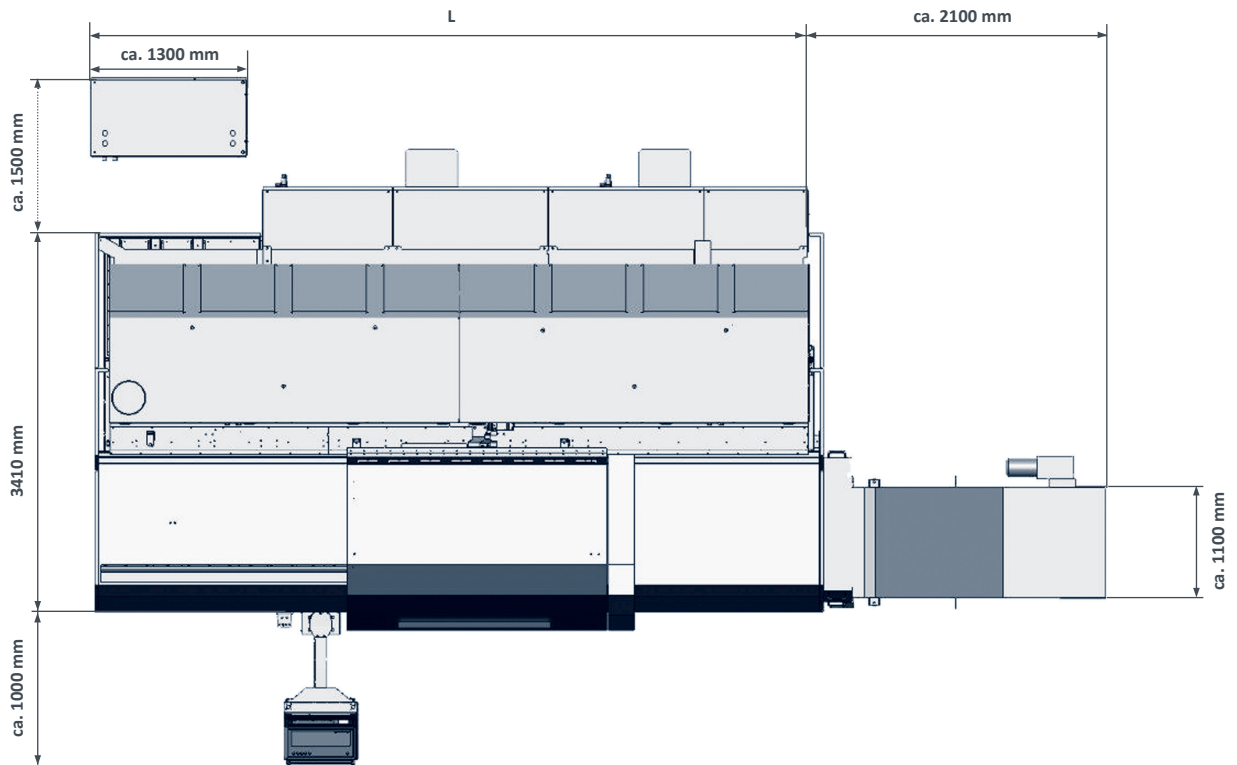




NILES-SIMMONS



N30



Top View

NOMINAL LENGTH	mm	1500	2000	2500	3200	4000	4500
Machine length (L)	mm	5400	5900	6400	7100	7900	9455





MACHINE SPECIFICATION – N30

CNC CONTROL

Control system	SINUMERIK ONE SINUMERIK 840D sl		
Drive system	SINAMICS S120		

WORKING AREA

Nominal Length	mm	1500 / 2000 / 2500 / 3200 / 4000 / 4500*		
Swing diameter	mm	780		
Slidetravel X-axis	mm	-12...+423		
Slidetravel Y-axis	mm	+ /-55		

MAIN SPINDLE / COUNTER SPINDLE (OPTION)

Spindle head acc.to DIN 55026	size	A11	A11 A15	
Spindle bore	mm	92	123	
Bearing diameter	mm	180	200 220	

MAIN SPINDLE DRIVE

Drive power S4-40% duty cycle/ S1-100% duty cycle	kW	78 / 64	80 / 67*	77 / 68
Speed range	rpm	0...3000	0...3000 0...2000	0...2000
Torque S4-40% duty cycle / S1-100% duty cycle	Nm	971 / 812	3135 / 2642	2110 / 1872
Speed range C-axis mode	rpm	0...100	0...50	0...100

FEED DRIVES

Rapid feed rates X, Y, Z	m/min	18 /-* / 30		
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TOOL TURRET

		2-axis	4-axis	
Number of turrets	No.	1	2	
Tool holder DIN 69880		50 60	50 60	BMT75
Tool configuration		axial radial	radial radial	radial
Tool positions		12 16*	12 /12 16/16	12

TAILSTOCK

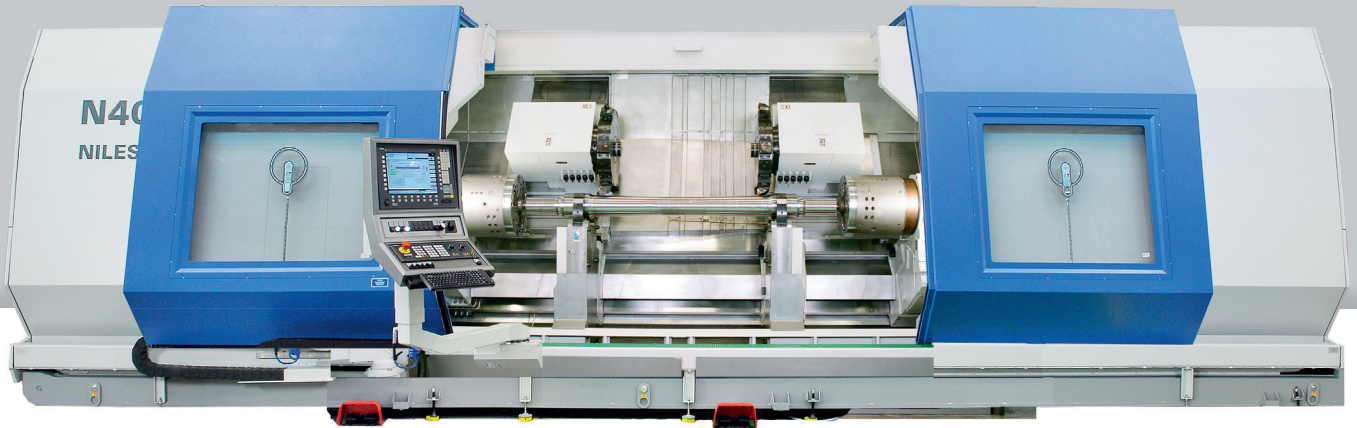
Quill centre	size	MK 5	MK 6
Quill travel	mm	160	170
Quill diameter	mm	150	180
Clamping force	kN	4...25	4...25

* other options available on request

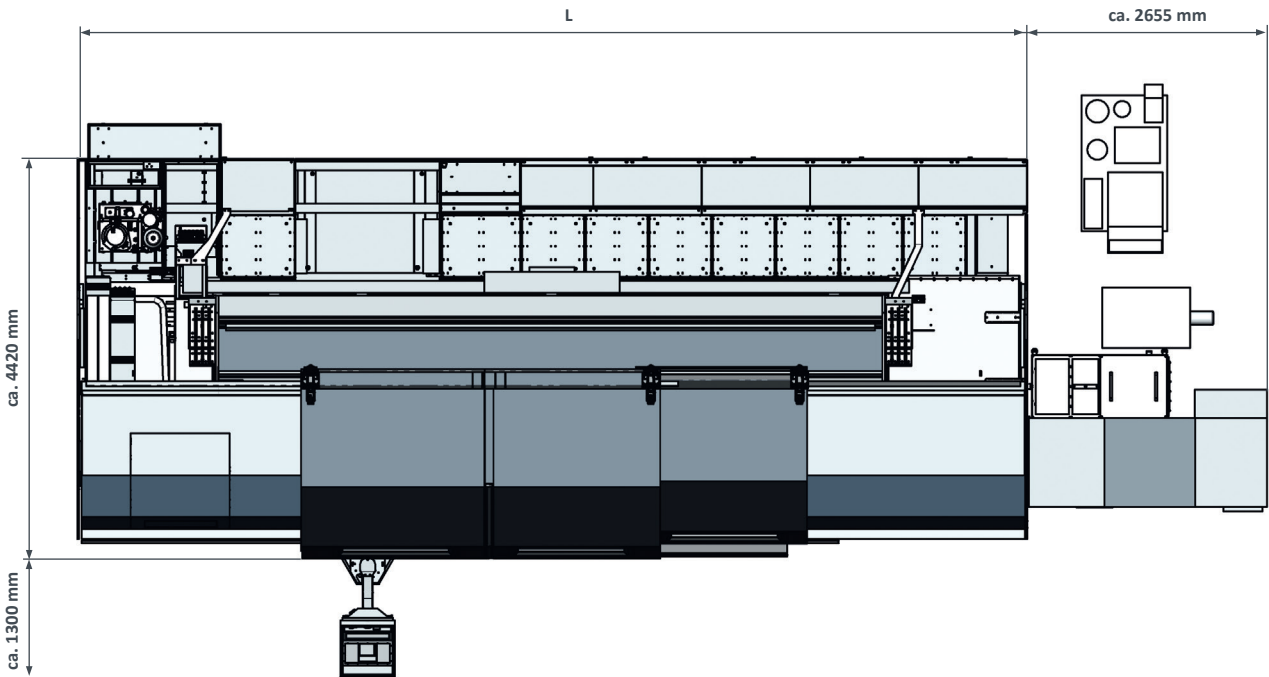




NILES-SIMMONS



N40



Top View

NOMINAL LENGTH	mm	2500	3500	5000	6500	8000
Machine length (L)	mm	7850	8850	10350	11850	13350





MACHINE SPECIFICATION – N40

CNC CONTROL

Control system	SINUMERIK ONE SINUMERIK 840D sl		
Drive system	SINAMICS S120		

WORKING AREA

Nominal Length	mm	2500 / 3500 / 5000 / 6500 / 8000		
Swing diameter	mm	1100		
Slidetravel X-axis	mm	685		
Slidetravel Y-axis	mm	/		

MAIN SPINDLE / COUNTER SPINDLE (OPTION)

Spindle head acc.to DIN 55026	size	A15	A20	
Spindle bore	mm	160	225	
Bearing diameter	mm	240	360	

MAIN SPINDLE DRIVE

Drive power S6-40% duty cycle/ S1-100% duty cycle	kW	80 / 71	77 / 64	87 / 78	77 / 64
Speed range	rpm	0...1000	0...1800	0...1750	0...1300
Torque S4-40% duty cycle / S1-100% duty cycle	Nm	0...200	4430 / 3700	8000 / 7230	6893 / 5765
Speed range C-axis mode	rpm	0...200	0...50		0...50

FEED DRIVES

Rapid feed rates X, Y, Z	m/min	20 / – / 30		
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TOOL TURRET

		2-axis	4-axis	
Number of turrets	No.	1	1 2	
Tool holder DIN 69880		60	60	
Tool configuration		axial radial	radial radial	
Tool positions		12	12 12 12	

TAILSTOCK

Quill centre	size	MK 6		
Quill travel	mm	170		
Quill diameter	mm	180*		
Clamping force	kN	5...35 / 8...50		

* other options available on request

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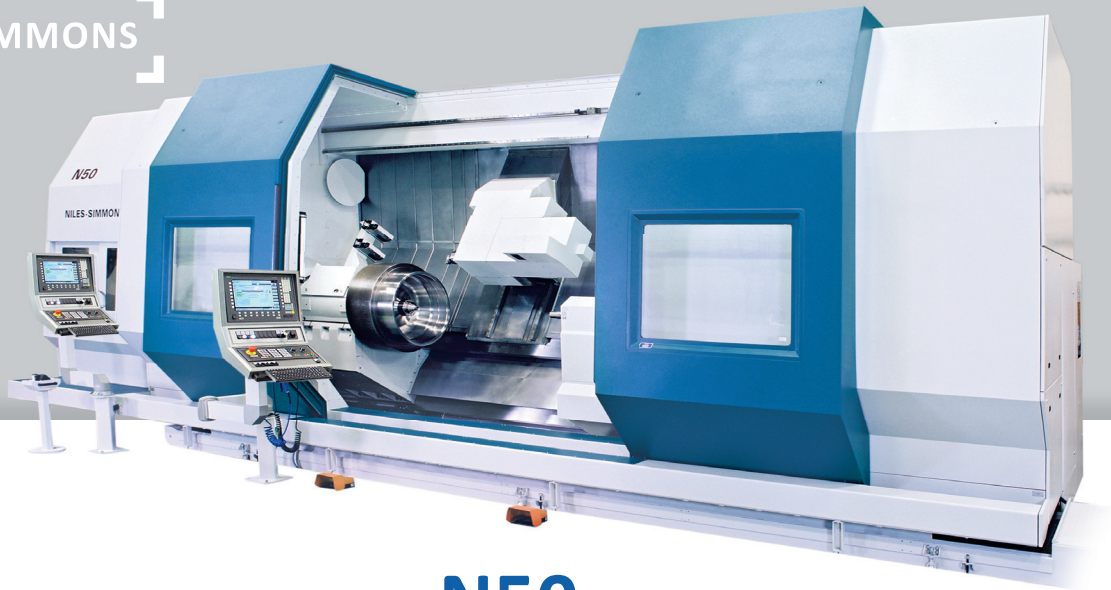


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MACHINE TOOL MANUFACTURING

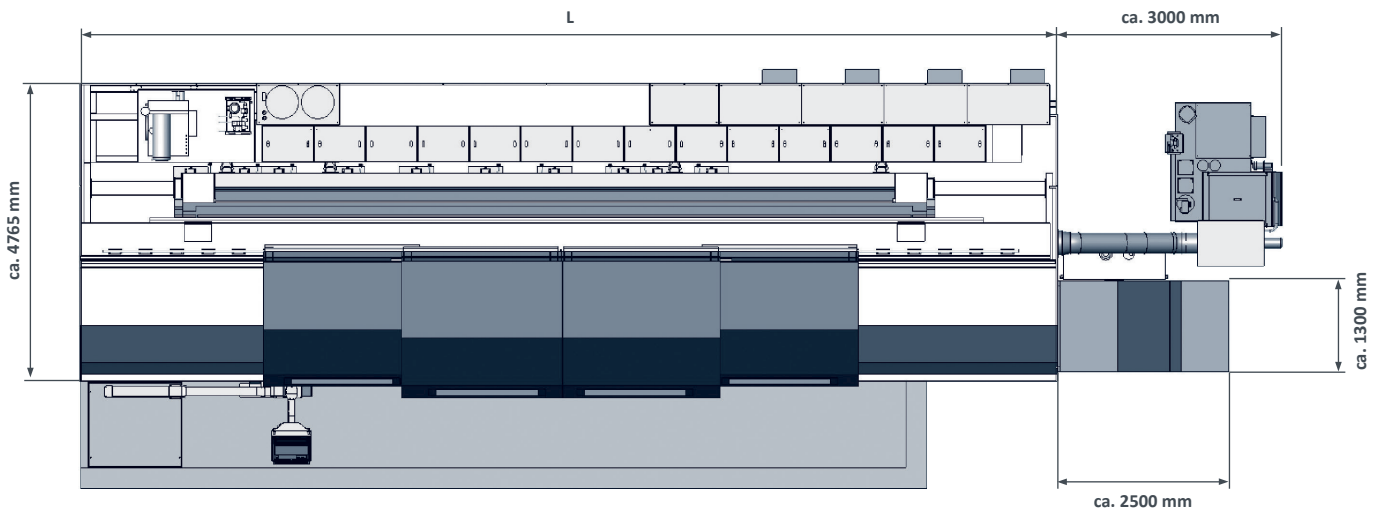




「 NILES-SIMMONS 」



N50



Top View

NOMINAL LENGTH	mm	2000	3000	4500	6000	7500
Machine length (L)	mm	8350	9350	10850	12350	13850





MACHINE SPECIFICATION – N50

CNC CONTROL

Control system	SINUMERIK ONE SINUMERIK 840D sl		
Drive system	SINAMICS S120		

WORKING AREA

Nominal Length	mm	2000 / 3000 / 4500 / 6000 / 7500*	
Swing diameter	mm	1250	
Slidetravel X-axis	mm	-20...+1050	
Slidetravel Y-axis	mm	/	

MAIN SPINDLE / COUNTER SPINDLE (OPTION)

Spindle head acc.to DIN 55026	size	A15	A20
Spindle bore	mm	160	225
Bearing diameter	mm	240	360

MAIN SPINDLE DRIVE

Drive power S4-40% duty cycle/ S1-100% duty cycle	kW	77 / 64	87 / 78	115 / 100
Speed range	rpm	0...1400	0...1244	0...888
Torque S4-40% duty cycle / S1-100% duty cycle	Nm	6900 / 5765	11020 / 9880	15000 / 13040
Speed range C-axis mode	rpm	0...50		

FEED DRIVES

Rapid feed rates X, Y, Z	m/min	12 / – / 24	
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TOOL TURRET

		2-axis	4-axis
Number of turrets	No.	1	2
Tool holder DIN 69880		60	
Tool configuration		axial / radial	radial / radial
Tool positions		12	12 / 12

TAILSTOCK

Quill centre	size	MK 6	ME 80
Quill travel	mm	300	
Quill diameter	mm	195	240
Clamping force	kN	5...35 / 8...55	8...55

* other options available on request

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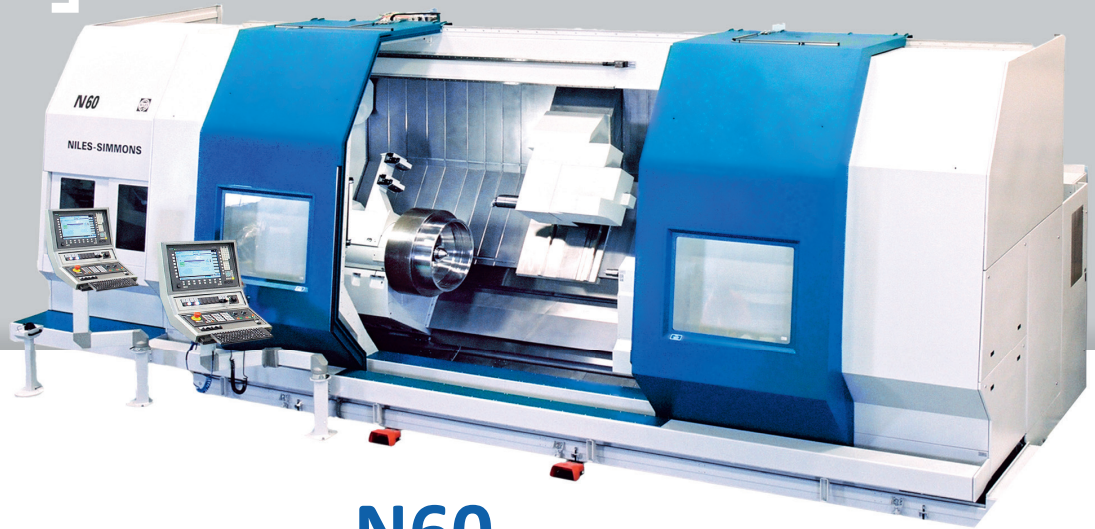


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MACHINE TOOL MANUFACTURING

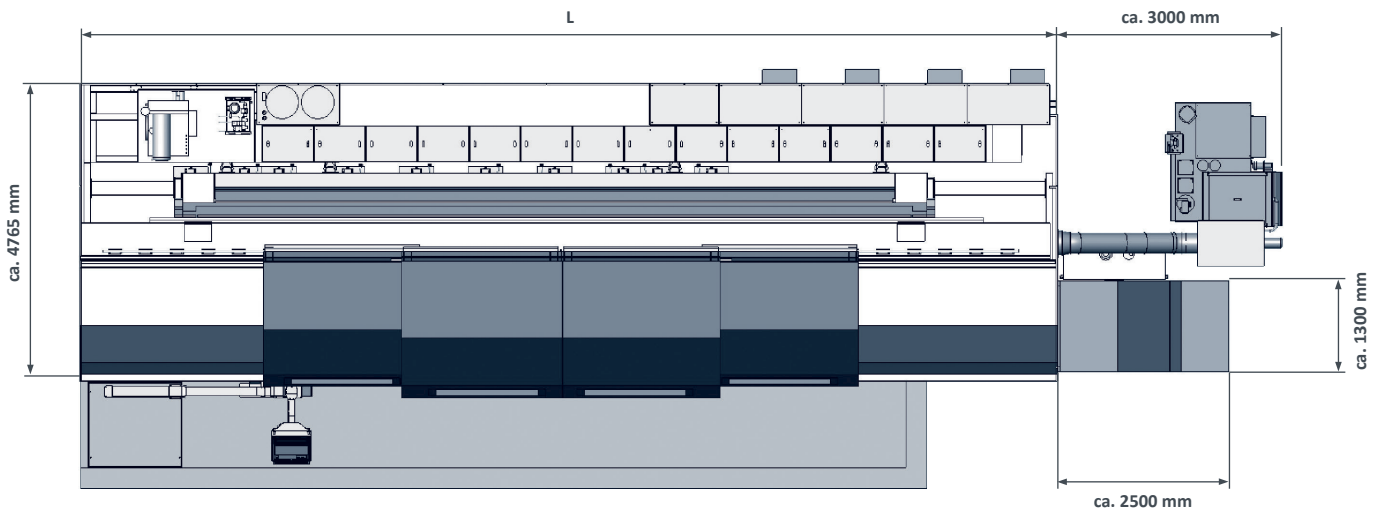




NILES-SIMMONS



N60



Top View

NOMINAL LENGTH	mm	2000	3000	4500	6000	7500
Machine length (L)	mm	8350	9350	10850	12350	13850





MACHINE SPECIFICATION – N60

CNC CONTROL

Control system SINUMERIK ONE | SINUMERIK 840D sl

Drive system SINAMICS S120

WORKING AREA

Nominal Length mm 2000 / 3000 / 4500 / 6000 / 7500

Swing diameter mm 1500

Slidetravel X-axis mm -20...+1050

Slidetravel Y-axis mm -500... +400 | -475... +300

MAIN SPINDLE / COUNTER SPINDLE (OPTION)

Spindle head acc.to DIN 55026 size A15 | A20

Spindle bore mm 160 | 225

Bearing diameter mm 280 | 360

MAIN SPINDLE DRIVE

Drive power S4-40% duty cycle/ S1-100% duty cycle kW 77 / 64 | 87 / 78 | 115 / 100

Speed range rpm 0...1400 | 0...1244 | 0...888

Torque S4-40% duty cycle / S1-100% duty cycle Nm 6900 / 5765 | 11020 / 9880 | 15000 / 13040

Speed range C-axis mode rpm 0...50

FEED DRIVES

Rapid feed rates X, Y, Z m/min 12 / 12 / 24

TOOL TURRET

2-axis

4-axis

Number of turrets No. 1 | 2

Tool holder DIN 69880 60

Tool configuration axial / radial | radial / radial

Tool positions 12 | 12 / 12

TAILSTOCK

Quill centre size MK6 | ME80

Quill travel mm 300 | 300

Quill diameter mm 195 | 240

Clamping force kN 5...35 | 8...55

* other options available on request

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The Technology Provider