



# MACHINING CENTERS

## MC-SERIES



● N20 MC | N30 MC | N40 MC | N50 MC | N60 MC



THE NSH GROUP

## MC-SERIES

The NILES-SIMMONS CNC turn-mill machining centers of the MC series are based on a proven inclined-bed machine concept and are available in the sizes N20MC to N60MC. The high and multifunctional performance spectrum of the machining centers enables the economic, flexible and highly precise complete machining of rotationally symmetrical workpieces in one setup (closed-door machining).

Based on a modular design principle our machining centers can be configured as single- or multi-slide machines. In addition, a wide range of configuration and combination options with innovative drive, clamping and tooling concepts can be realized. The MC series provides you with a tailor-made system solution for exceptional long-term accuracy and high cutting performance, even with complicated machining tasks.



### Highlights

- **Efficient complete machining**

For rotationally symmetric workpieces up to 9.500 mm length and max. 1.500 mm swing diameter

- **Modular construction principle**

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

- **Variable multi-slide concept**

Precisely adapted technology combinations with independent machining units

- **Innovative drive concept**

Electronic direct drive or various gearbox versions

- **Bottom support**

Additional bottom slide with turret and automatic tool change or alternative, process-dependent machining and measuring devices

- **Extensive internal machining solutions**

Use of interchangeable boring bars or boring heads with controllable cutting edge (NC axis)

- **Automated User Interfaces**

User-specific operating and programming interfaces

- **Modular expandable tool magazines**

Process-dependent configuration and with loading parallel to main time by means of independent chain magazines as well as separate magazines for long tools

- **Comprehensive tool management systems**

Process-dependent tool management as well as options for tool breakage monitoring and automatic tool measurement

- **CAM packages**

Machine simulation, anti-collision system (PCS®), Condition Monitoring (ironMIND)

- **Exceptional long-term accuracy**

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

- **Operator and service friendliness**

Ergonomic machine design, separate service & repair aisle, low machine access

- **Wide range of automation options**

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



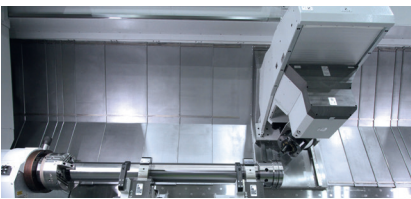
# MODULAR DESIGN CONCEPT

The MC series offers the highest flexibility in the configuration of high-precision CNC turn-mill machining centers. Variable configuration of machining units, drives, magazines and slides from the modular system allow the most demanding components to be completely machined in a single setup (closed-door machining).

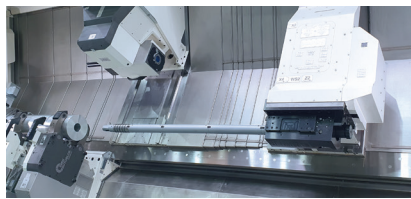
With intelligent hardware and software tools, we complete your process throughout the entire machine life cycle of the machine:

- CAM Solutions & Automated User Interfaces for NC programming
- „Virtual machine“ for anti-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

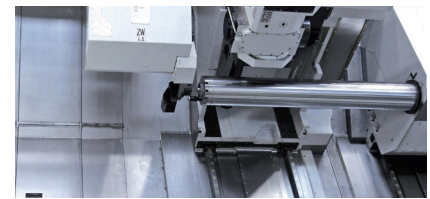
## Configuration diversity



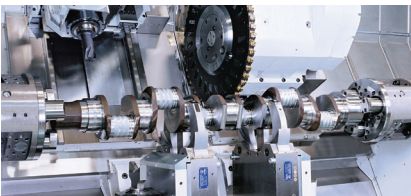
• Universal turning-milling unit



• Combination turning-milling unit and boring bar slide



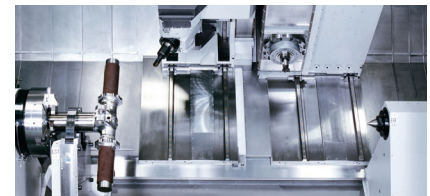
• Combination turning-milling unit and drilling quill



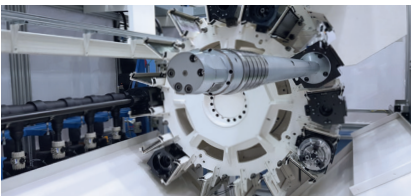
• Combination turning-milling unit and external milling unit



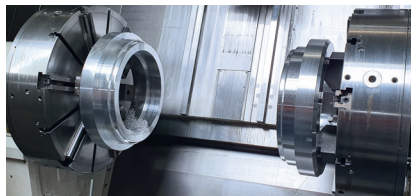
• Combination turning-milling unit and tool carrier



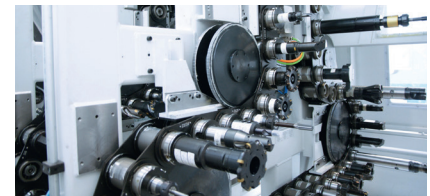
• Combination turning-milling unit and high-performance milling unit



• Boring bar magazine with automatic boring bar change



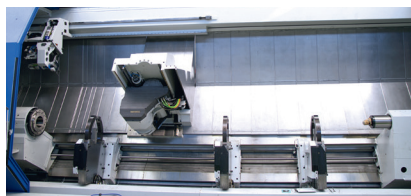
• Full-fledged, electrically couplable counter spindle



• Modular tool magazines



• Separate tool change for second slide



• Up to 3 steady rest slides with 2 steady rests each or optional hydrostatic support



• Special tool heads

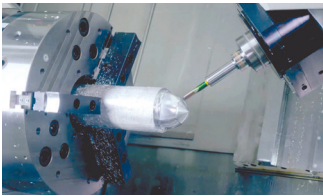
# CUSTOMIZED MACHINING SOLUTIONS

Use the MC series from NILES-SIMMONS for efficient, economical, and resource-saving production.

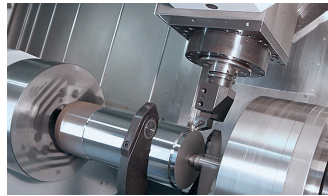
Due to the combination possibilities of different modules as well as extensive technology and software options, the complex requirements in complete machining are fulfilled.

NILES-SIMMONS offers individually configurable, part-specific technology solutions for your competitive success. Specialist know-how and many years of experience are the foundations for your tailored solution.

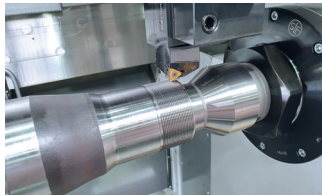
## Technology diversity



• 5-Axis-Machining



• Turning  
(external/ internal/eccentric)



• Threads



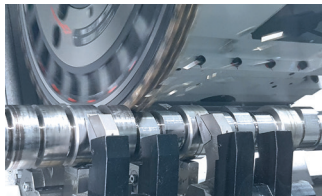
• Traori/ B-Axis Turning



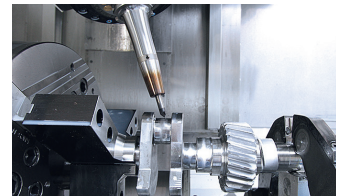
• Turning-Milling-orthogonal



• Fine Turning-Milling



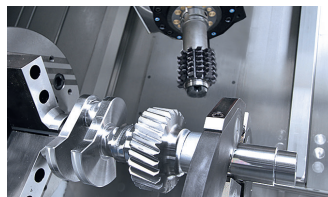
• Milling-axis-parallel



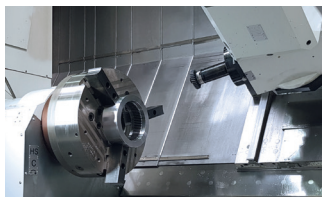
• Deburring



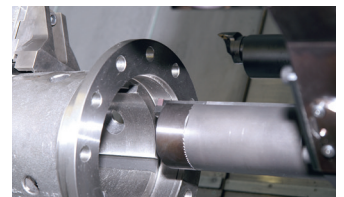
• Traori/B-Axis Milling



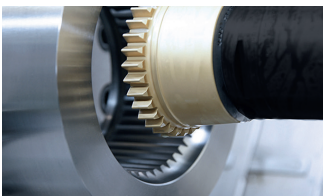
• Gear Hobbing



• Power Skiving



• Gear Shaping



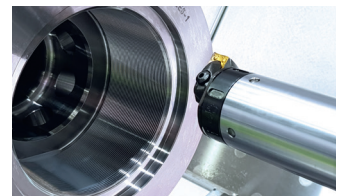
• Roller Shaping



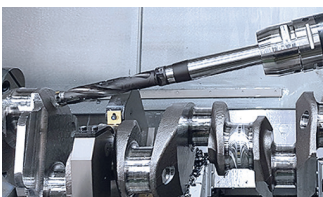
• Invo-Milling



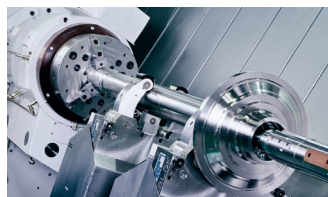
• Internal Machining  
with System Boring Bar



• Internal Machining  
with Drilling Quill



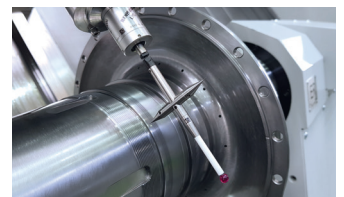
• Drilling



• Deep Hole Drilling



• Grinding



• In-Process Measuring  
(workpiece/tools)



# TECHNICAL DETAILS

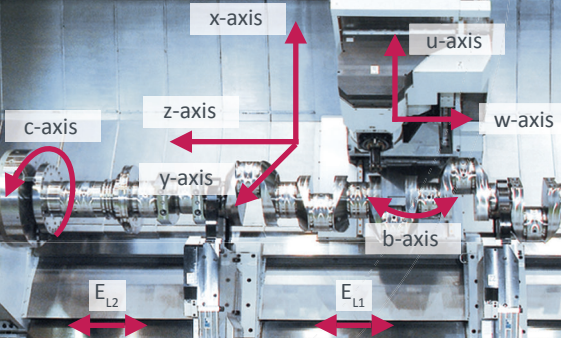
**N20<sub>MC</sub>**  
NILES-SIMMONS

**N30<sub>MC</sub>**  
NILES-SIMMONS

**N40<sub>MC</sub>**  
NILES-SIMMONS

**N50<sub>MC</sub>**  
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**N60<sub>MC</sub>**  
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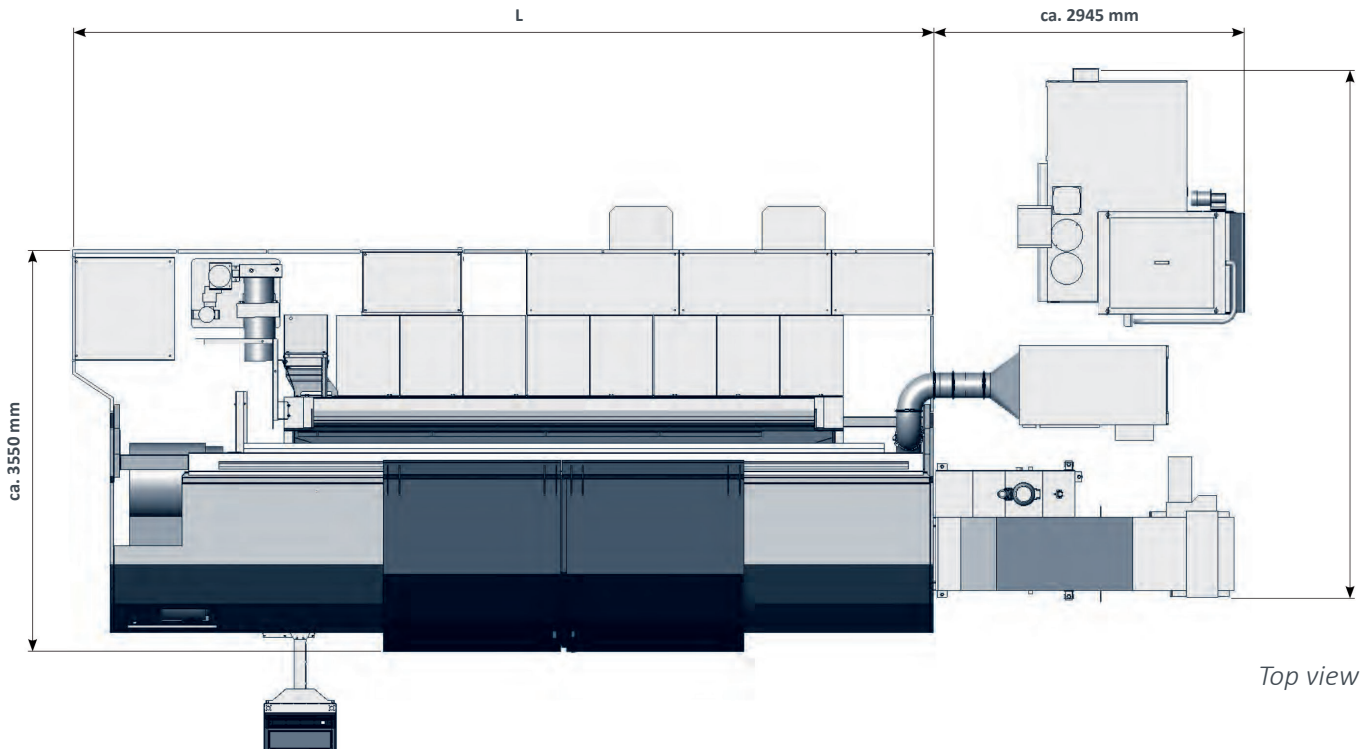




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# N20 MC



TURNING LENGTH	mm	1000	1500	2000	2500	3000	3500
machine length (L)	mm	5288	5788	6288	6788	7288	8433







## MACHINE SPECIFICATION – N20 MC

CNC-CONTROL			
Control system	SINUMERIK ONE   SINUMERIK 840D sl		
Drive system	SINAMICS S120		
WORKING AREA			
Turning length	mm	1000 / 1500 / 2000 / 2500 / 3000 / 3500*	
Swing diameter	mm	650	
Slidetravel X-axis	mm	-15...+660	
Slidetravel Y-axis	mm	-150...+200	
MAIN SPINDLE*			
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	36 / 32
Speed range	rpm	0...2500 (3800)	0...1800
Torque S6-40% duty cycle / S1-100% duty cycle	Nm	655 / 580	1337 / 1200
Speed range C-axis mode	rpm	0...100	
TURNING-MILLING-DRILLING HEAD			
Tool system	size	HSK 63T / Capto C6	
Drive power S6-40% duty cycle / 100% duty cycle	kW	23 / 22,6	33 / 30
Max. Speed range	rpm	6000	10000
Swivel range of B-axis	degrees	-15...+185	
Torque milling spindle 40% duty cycle / 100% duty cycle	Nm	250 / 175	245 / 164
FEED DRIVES			
Rapid feed rates X, Y, Z	m/min	25 / 12 / 40	
TOOL MAGAZINE			
Pockets	number	48 (60)	96 (120)
Max. tool length	mm	600*	600 / 400
Max. weight	kg	15	
TAILSTOCK			
Quill travel	mm	162	160
Quill diameter	mm	140	150
Quill centre	size	MK 5	MK 5
Clamping force	kN	3...17 / 2,5...11,7	3,5...28

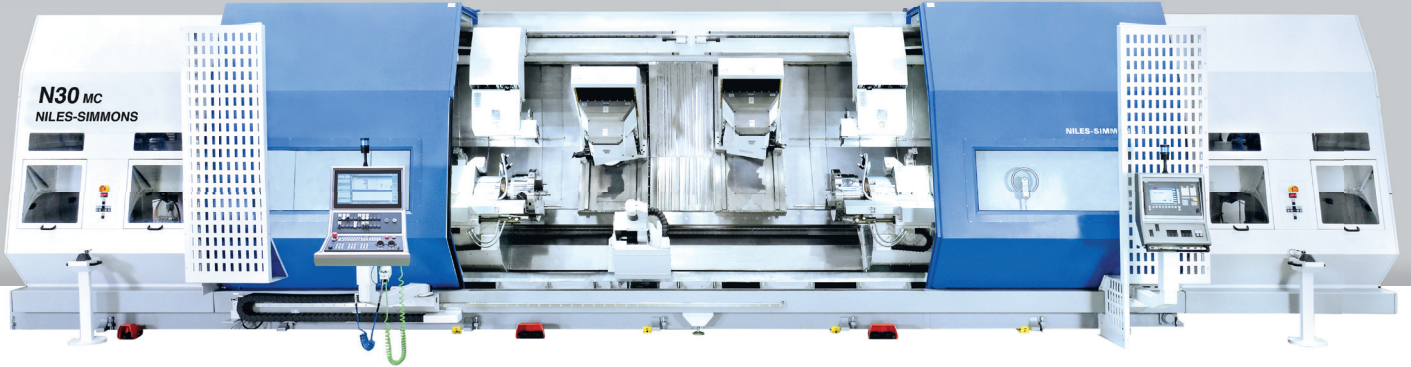
\*further options available on request

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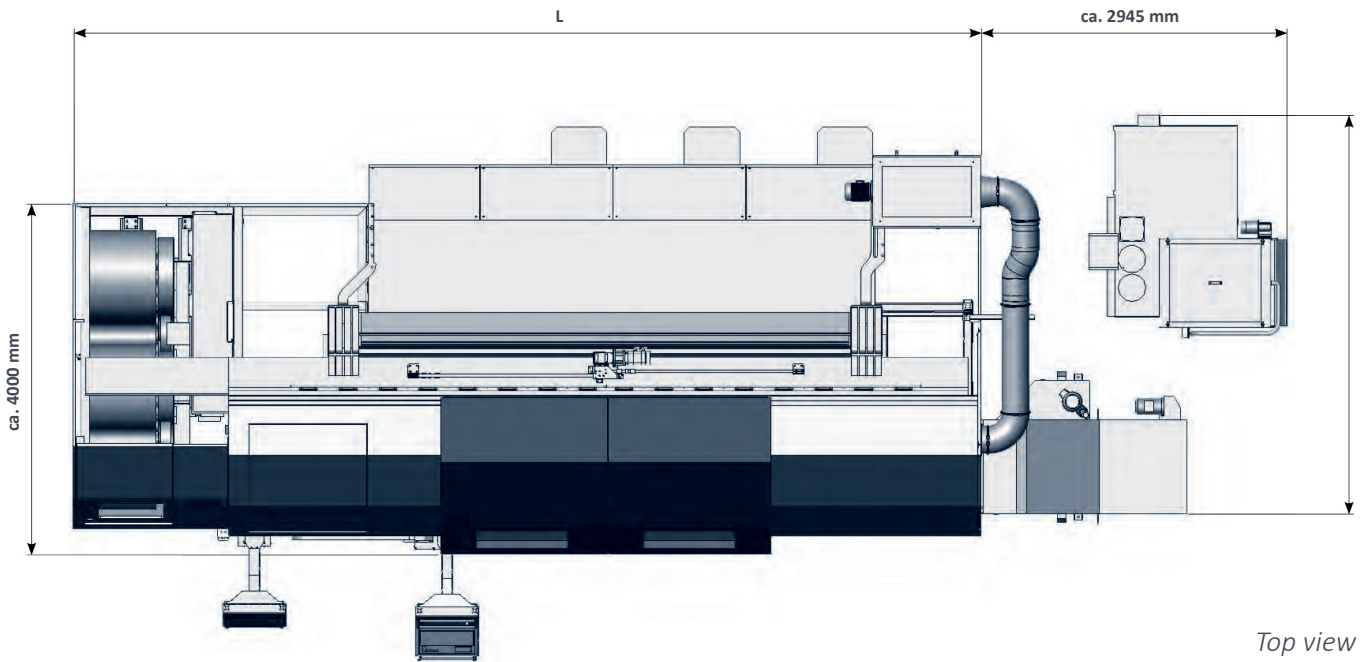




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# N30 MC



Top view

TURNING LENGTH	mm	1500	2000	2500	3200	4000	4500	6500
machine length (L)	mm	7077	7577	8077	8777	9577	10715	13715







## MACHINE SPECIFICATION – N30 MC

CNC-CONTROL				
Control system	SINUMERIK ONE   SINUMERIK 840D sl			
Drive system	SINAMICS S120			
WORKING AREA				
Turning length	mm	1500 / 2000 / 2500 / 3200 / 4000 / 4500 / 6500		
Swing diameter	mm	780	880	
Slidetravel X-axis	mm	-50...+725		
Slidetravel Y-axis	mm	-200...+300	-250...+250	
MAIN SPINDLE				
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 S6-40% duty cycle / S1-100% duty cycle	kW	80 / 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	1100 / 812	3135 / 2642	2110 / 1872
Speed range C-axis mode	rpm	0...100	0...50	0...100
TURNING-MILLING-DRILLING HEAD				
Tool system	size	HSK-T100 / C8		HSK 63T / Capto C6
Drive power S6-40% duty cycle / 100% duty cycle	kW	29,8 / 26,5	23 / 22,6	33 / 30
Max. Speed range	rpm	5000	6000	10000
Swivel range of B-axis	degrees	-15...+195		
Torque milling spindle 40% duty cycle / 100% duty cycle	Nm	328 / 261	250 / 175	245 / 164
FEED DRIVES				
Rapid feed rates X, Y, Z	m/min	18 / 12 / 30		
TOOL MAGAZINE				
Pockets	number	48 / 72 / 96 / 120 / 144*		
Max. tool length	mm	900	600 / 600	300 / 900
Max. weight	kg	25		
TAILSTOCK				
Quill travel	mm	160 / 170		
Quill diameter	mm	150 / 180		
Quill centre	size	MK 5 / MK 6		
Clamping force	kN	4...25 / 5...28		

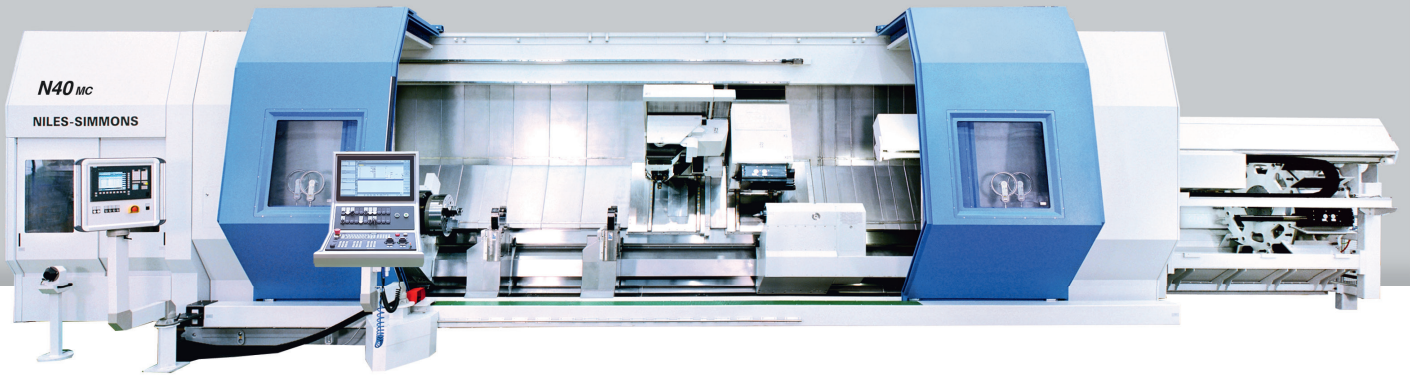
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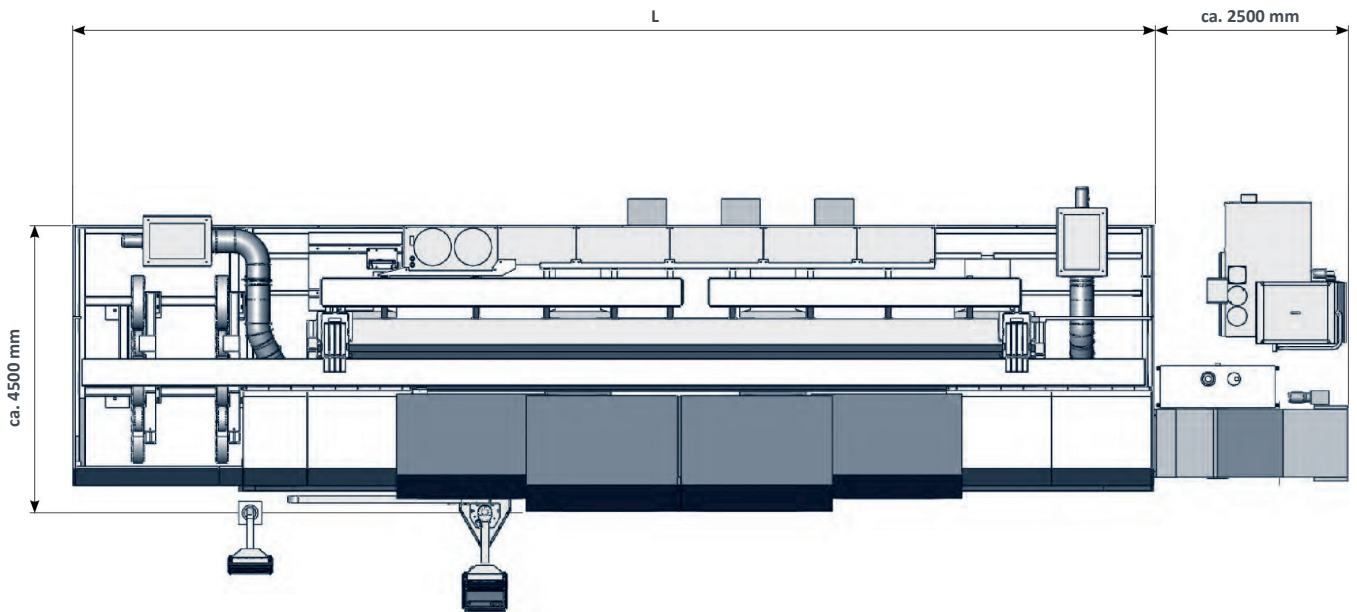




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# N40 MC



Top view

TURNING LENGTH	mm	2500	3500	5000	6500	8000	9500
machine length (L)	mm	9655	10655	12155	13655	15155	17055







## MACHINE SPECIFICATION – N40 MC

CNC-CONTROL				
Control system	SINUMERIK ONE   SINUMERIK 840D sl			
Drive system	SINAMICS S120			
WORKING AREA				
Turning length	mm	2500 / 3500 / 5000 / 6500 / 8000 / 9500		
Swing diameter	mm	1100		
Slidetravel X-axis	mm	-30...+1065		
Slidetravel Y-axis	mm	-350...+350		
MAIN SPINDLE*				
Spindle head acc.to DIN 55026	size	A15		
Spindle bore	mm	160		
Bearing diameter	mm	240		
MAIN SPINDLE DRIVE				
Drive power S6-60% duty cycle / S-1 100% duty cycle	kW	80 / 71	77 / 64	87 / 78
Speed range	rpm	0...1000	0...1800	0...1750
Torque S4-60% duty cycle / S1-100% duty cycle	Nm	3824 / 3400	4430 / 3700	8000 / 7230
Speed range C-axis mode	rpm	0...200	0...50	
TURNING-MILLING-DRILLING HEAD				
Tool system	size	HSK 100T   Capto C8		
Drive power S6-40% duty cycle / 100% duty cycle	kW	53 / 50	50 / 46,2	
Max. Speed range	rpm	5000	8000	
Swivel range of B-axis	degrees	-15...+195		
Torque milling spindle 40% duty cycle / 100% duty cycle	Nm	653 / 497	446 / 320	
FEED DRIVES				
Rapid feed rates X, Y, Z	m/min	20 / 20 / 30		
TOOL MAGAZINE				
Pockets	number	48 / 72 / 96 / 120 / 144		
Max. tool length	mm	900	600 / 600	300 / 900
Max. weight	kg	25		
TAILSTOCK				
Quill travel	mm	170		
Quill diameter	mm	180		
Quill centre	size	MK 6*		
Clamping force	kN	5,5...30 / 8...40		

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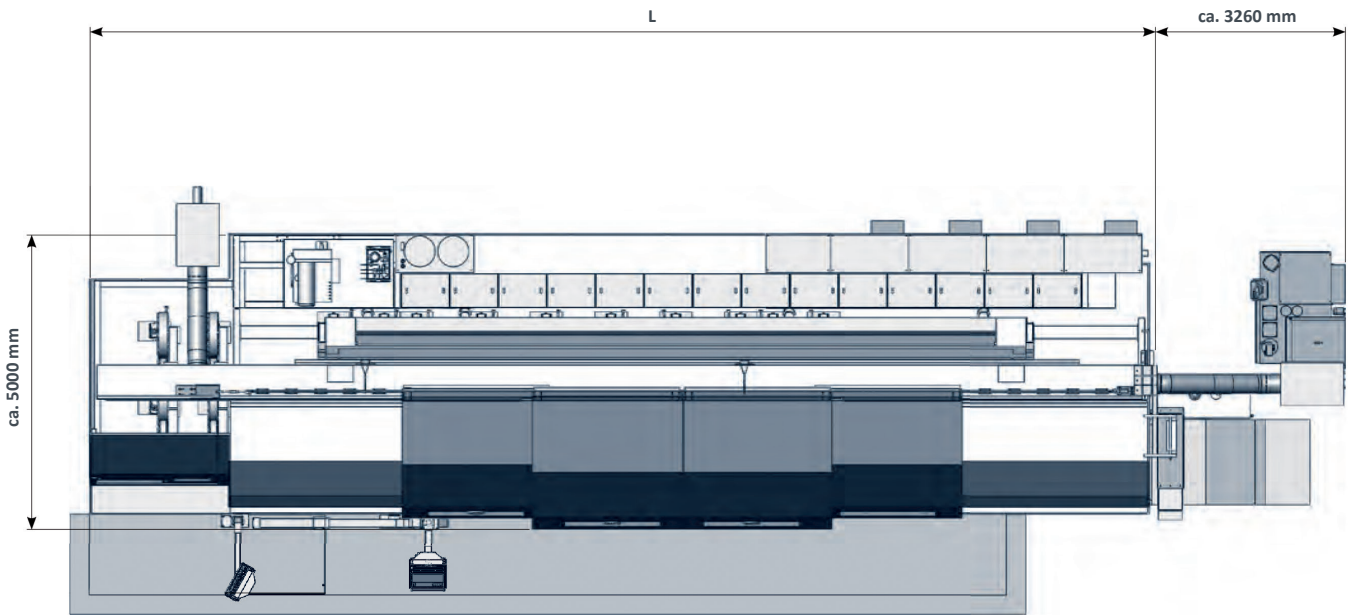




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# N50 MC



Top view

TURNING LENGTH	mm	2000	3000	4500	6000	7500
machine length (L)	mm	10850	11850	13350	14850	16350







**MACHINE SPECIFICATION – N50 MC**

**CNC-CONTROL**

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

**WORKING AREA**

Turning length	mm	2000 / 3000 / 4500 / 6000 / 7500*
Swing diameter	mm	1250
Slidetravel X-axis	mm	-20...+1010
Slidetravel Y-axis	mm	-395...+500 / -350...425

**MAIN SPINDLE**

Spindle head acc.to DIN 55026	size	A15	A20
Spindle bore	mm	160	225
Bearing diameter	mm	280	360

**MAIN SPINDLE DRIVE**

Drive power S6-60% duty cycle / S1-100% duty cycle	kW	77 / 64	87 / 78	115 / 100	- / 42
Speed range	rpm	0...1400	0...1244	0...888	0...500
Torque S6-60% duty cycle / S1-100% duty cycle	Nm	6900 / 5765	11020 / 9880	15000 / 13030	- / 4000
Speed range C-axis mode	rpm	0...50			

**TURNING-MILLING-DRILLING HEAD**

Tool system	size	HSK 100T, C8			
Drive power S6-40% duty cycle / 100% duty cycle	kW	48,3 / 38	80 / 67,4		
Max. Speed range	rpm	3500 / 4500 / 5500	3000		
Swivel range of B-axis	degrees	-15...+185			
Torque milling spindle 40% duty cycle / 100% duty cycle	Nm	678 / 533   525 / 413   431 / 339	800		

**FEED DRIVES**

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

Pockets	number	48 / 72 / 96 / 120 / 144 *
Max. tool length	mm	900   600 / 600   300 / 900
Max. weight	kg	25

**TAILSTOCK**

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

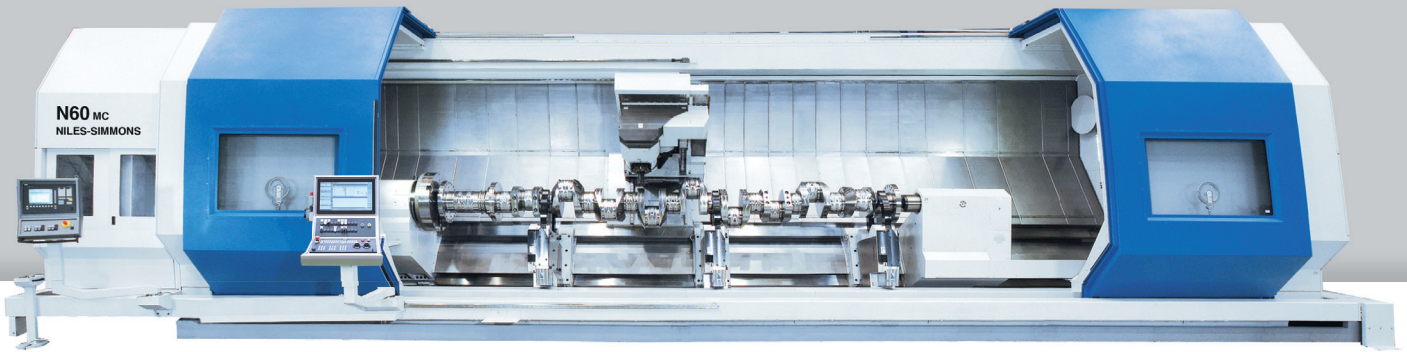
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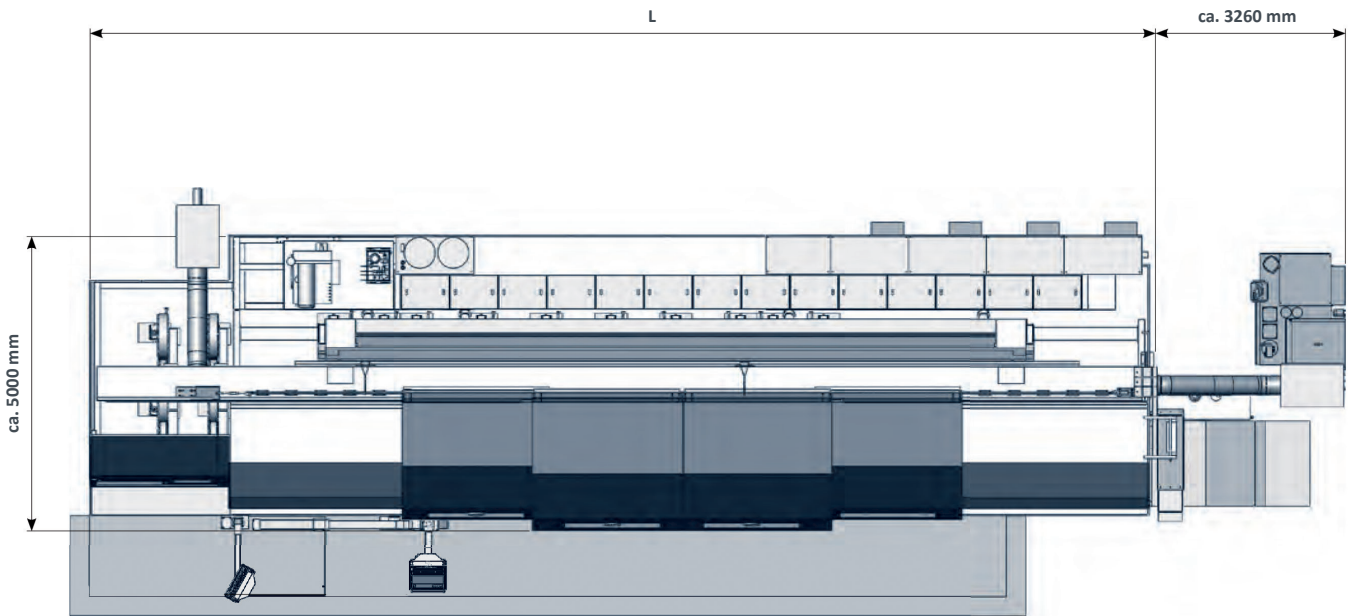




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# N60 MC



Top view

TURNING LENGTH	mm	2000	3000	4500	6000	7500
machine length (L)	mm	10850	11850	13350	14850	16350





## MACHINE SPECIFICATION – N60 MC

CNC-CONTROL					
Control system	SINUMERIK ONE   SINUMERIK 840D sl				
Drive system	SINAMICS S120				
WORKING AREA					
Turning length	mm	2000 / 3000 / 4500 / 6000 / 7500*			
Swing diameter	mm	1500			
Slidetravel X-axis	mm	-20...+1010			
Slidetravel Y-axis	mm	-500...+400 / -445...+350			
MAIN SPINDLE					
Spindle head acc.to DIN 55026	size	A15	A20		
Spindle bore	mm	160	225		
Bearing diameter	mm	280	360		
MAIN SPINDLE DRIVE					
Drive power S6-60% duty cycle / S1-100% duty cycle	kW	77 / 64	87 / 78	115 / 100	- / 54
Speed range	rpm	0...1400	0...1244	0...888	0...250
Torque S6-60% duty cycle / S1-100% duty cycle	Nm	6900 / 5765	11020 / 9880	15000 / 13030	- / 5000
Speed range C-axis mode	rpm	0...50			
TURNING-MILLING-DRILLING HEAD					
Tool system	size	HSK 100T, C8			
Drive power S6-40% duty cycle / 100% duty cycle	kW	48,3 / 38	80 / 67,4		
Max. Speed range	rpm	3500 / 4500 / 5500	3000		
Swivel range of B-axis	degrees	-15...+185			
Torque milling spindle 40% duty cycle / 100% duty cycle	Nm	678 / 533   525 / 413   431 / 339	800		
FEED DRIVES					
Rapid feed rates X, Y, Z	m/min	12 / 12 / 24			
TOOL MAGAZINE					
Pockets	number	48 / 72 / 96 / 120 / 144 *			
Max. tool length	mm	900   600 / 600   300 / 900			
Max. weight	kg	25			
TAILSTOCK					
Quill travel	mm	300			
Quill diameter	mm	195	240		
Quill centre	size	MK 6	ME 80		
Clamping force	kN	5...35	8...55		

\*further options available on request

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NILES-SIMMONS-HEGENSCHEIDT GmbH

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