NILES-SIMMONS

MACHINE SOLUTIONS

TURN-MILL
MACHINING CENTERS

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

One Machine. One Setup. Maximum Productivity.

THE NSH GROUP

Complete Machining. Redefined.

Engineered for your peace of mind.

ADDED VALUE

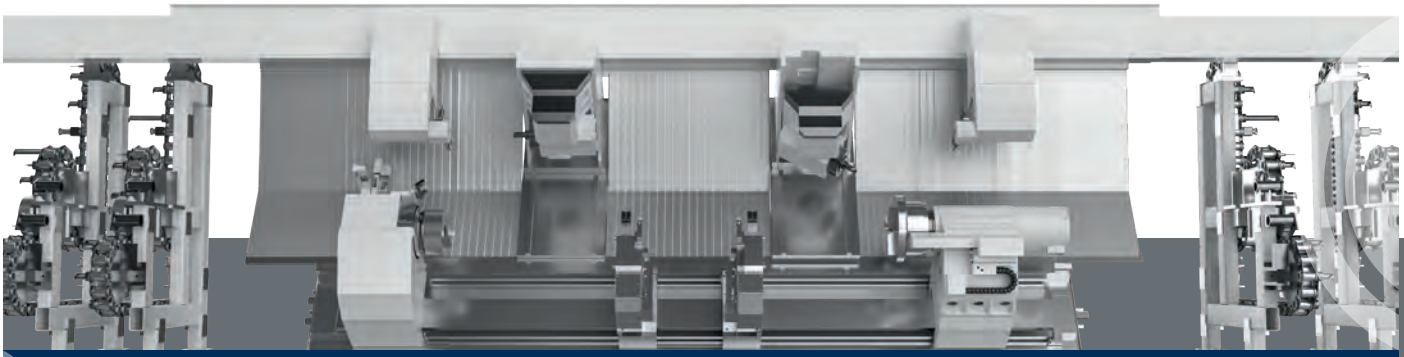
- **Reliable end-to-end machining** | Single setup, little to no operator intervention
- **Sustainable production** | Process integration and fewer machines in production
- **Lower production costs** | Reduction in non-productive time, scrap, and operator effort
- **Greater process stability and precision** | Elimination of interfaces
- **Optimized machining and cycle times** | Reduced re-clamping, handling, transfer, and setup times

TURN-MILL **SERIES**

Modern manufacturing demands seamless processes and maximum efficiency. Completing complex workpieces in a single setup minimizes interfaces, shortens production lead times, and ensures high process stability throughout the entire manufacturing chain.

NILES-SIMMONS horizontal TURN-MILL machining centers with a slant-bed design deliver economical, flexible, and highly precise complete machining of shaft- and disk-shaped workpieces in a single setup (closed-door machining). The modular machine concept, with sizes from N20 MC to N60 MC, handles workpieces with swing diameters of up to 1,500 mm and turning lengths of up to 9,500 mm — reliably and efficiently, even for demanding applications and materials.

Available with single or multiple slides, the machining centers integrate a wide range of manufacturing processes — including turning, milling, (deep-hole) drilling, gear cutting, grinding, burnishing, and in-process measurement in one machine. Advanced drive, workholding, and tooling technologies, combined with flexible configuration options, allow each machine to be tailored to the specific application. The result is maximum process reliability, long-term precision, and high metal removal rates—even when machining complex workpieces and demanding materials.



Highlights

- **Efficient Complete Machining in a Single Setup**
  For rotationally symmetric workpieces up to 9,500 mm in length and 1,500 mm swing diameter—fewer interfaces, fewer sources of error, higher productivity, and reduced machining times.
- **Maximum Modularity | Flexible Multi-Slide Concept**
  Extensive configuration and combination options for every workpiece family and application, with independent machining units.
- **Innovative Drive Technology**
  Electronic direct drive or a choice of different geared drive configurations.
- **Technology Tailored to Your Needs**
  Exactly the modules and machining processes required for each individual application.
- **Comprehensive Internal Machining Solutions**
  Interchangeable boring bars or boring heads with programmable cutting-edge adjustment (NC axis) | Automatic Tool Change (ATC) | Available with a dedicated boring-bar slide or innovative HydroDock solution for internal machining from both sides.
- **Control-Integrated, Sensor-Based Process Monitoring**
  In-process sensor monitoring with NILES-SIMMONS proprietary PLC interface for immediate control response when defined limits are exceeded.
- **Automated User Interfaces**
  Application-specific operating and programming interfaces for intuitive, efficient machine operation.
- **Modular, Expandable Tool Magazines**
  Application-specific configurations with independent chain magazines for parallel loading during machining, plus dedicated magazines for boring bars.
- **Comprehensive Tool Management Systems**
  Process-specific tool management with options for tool breakage detection and automatic tool measurement.
- **Digital Process Reliability**
  Digital solutions throughout the entire project and machine lifecycle — including 3D process simulation, virtual program verification and commissioning, digital twin technology, work area camera, collision protection system (PCS®), and condition monitoring (ironMIND).
- **Exceptional Long-Term Accuracy and Durability**
  Long-life assemblies and machine components, direct measuring systems on all axes, and outstanding accuracy and stability — even after decades of operation.
- **Operator- and Service-Friendly Design**
  Ergonomic machine design, dedicated service and maintenance access, and low machine entry height.
- **Extensive Automation Options**
  Seamless integration into loading systems and production lines, including gantry and robotic loading solutions.

MAXIMUM **MODULARITY**

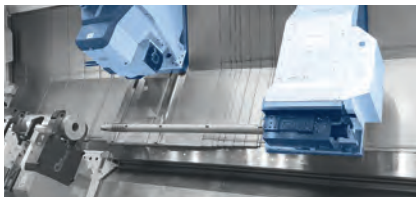
The NILES-SIMMONS TURN-MILL series offers maximum flexibility for configuring high-precision CNC turning and milling machining centers. Modular configuration options for machining units, drives, tool magazines, and slides enable the complete machining of even the most demanding components in a single setup (closed-door machining).

Intelligent hardware and software solutions support and optimize your process throughout the entire machine lifecycle:

- **CAM Solutions and Automated User Interfaces** for efficient NC programming
- **Virtual Machine** for collision checking and NC program optimization
- **Real-Time Collision Monitoring** with the Protection Control System
- **Process Monitoring** with optional control integration
- **In-House Condition Monitoring System ironMIND –** Know Your Machine

One Platform. Countless Configuration Options.

– Universal Turning-Milling-Boring Unit

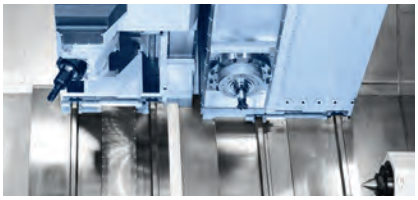


– Combination Turning-Milling-Boring Unit and Boring Bar Slide

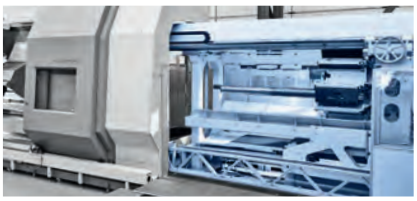
– Combination Turning-Milling-Boring Unit and Drilling Quill

– Combination Turning-Milling-Boring Unit and External Milling Unit

– Combination Turning-Milling-Boring Unit and Tool Carrier



– Combination Turning-Milling-Boring Unit and High-Performance Milling Unit

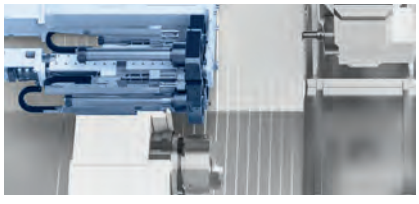


– Boring Bar Magazine with Automatic Boring Bar Change

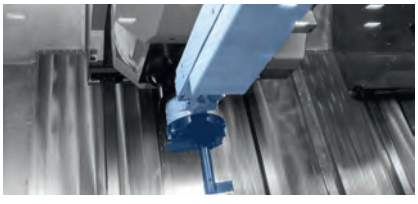
– Full-Fledged, electrically couplable Counter Spindle

– Modular Tool Magazines

– Automatic Tool Change (ATC) for System Boring Bars



– 3-Position Pick-Up Magazine for HydroDock Boring Bars and HydroDock Interface



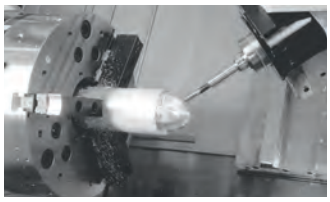
– U-Axis Systems

CUSTOMIZED **MACHINING SOLUTIONS**

Produce more efficiently, cost-effectively, and sustainably with the NILES-SIMMONS TURN-MILL series. With extensive options for combining modular machine components, advanced technologies, and software solutions, the series meets the highest demands for complete machining.

NILES-SIMMONS delivers individually configurable, workpiece-specific machining solutions designed to give you a competitive edge. Our in-depth expertise and decades of experience provide the foundation for customized solutions precisely tailored to your requirements.

One Platform. Endless Manufacturing Possibilties.



– 5-Axis-Machining

– Turning
(external | internal | eccentric)

– Threads

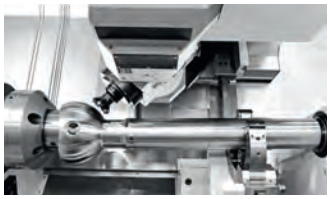
– TRAORI | B-Axis Turning

– Turning-Milling - orthogonal

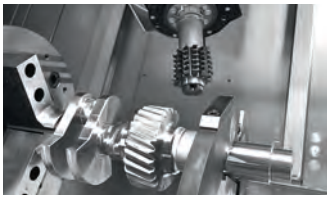
– Fine Turning-Milling

– Milling-Axis - parallel

– Deburring

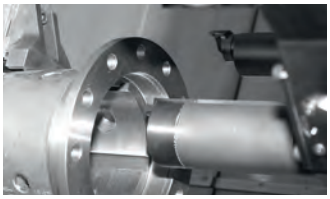


– TRAORI | B-Axis Milling

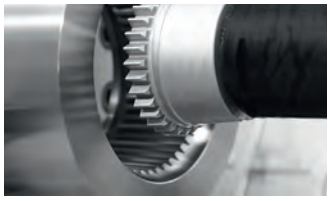


– Gear Hobbing

– Power Skiving

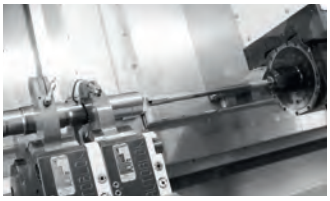


– Gear Shaping

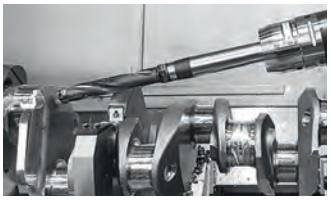


– Roller Shaping

– Internal Machining with System Boring Bar or Quill



– Deep-hole Drilling |
Ejector Drilling



– Drilling

– Bottle Boring

– Rolling

– Grinding

– In-Process Measuring
(workpiece/tools)

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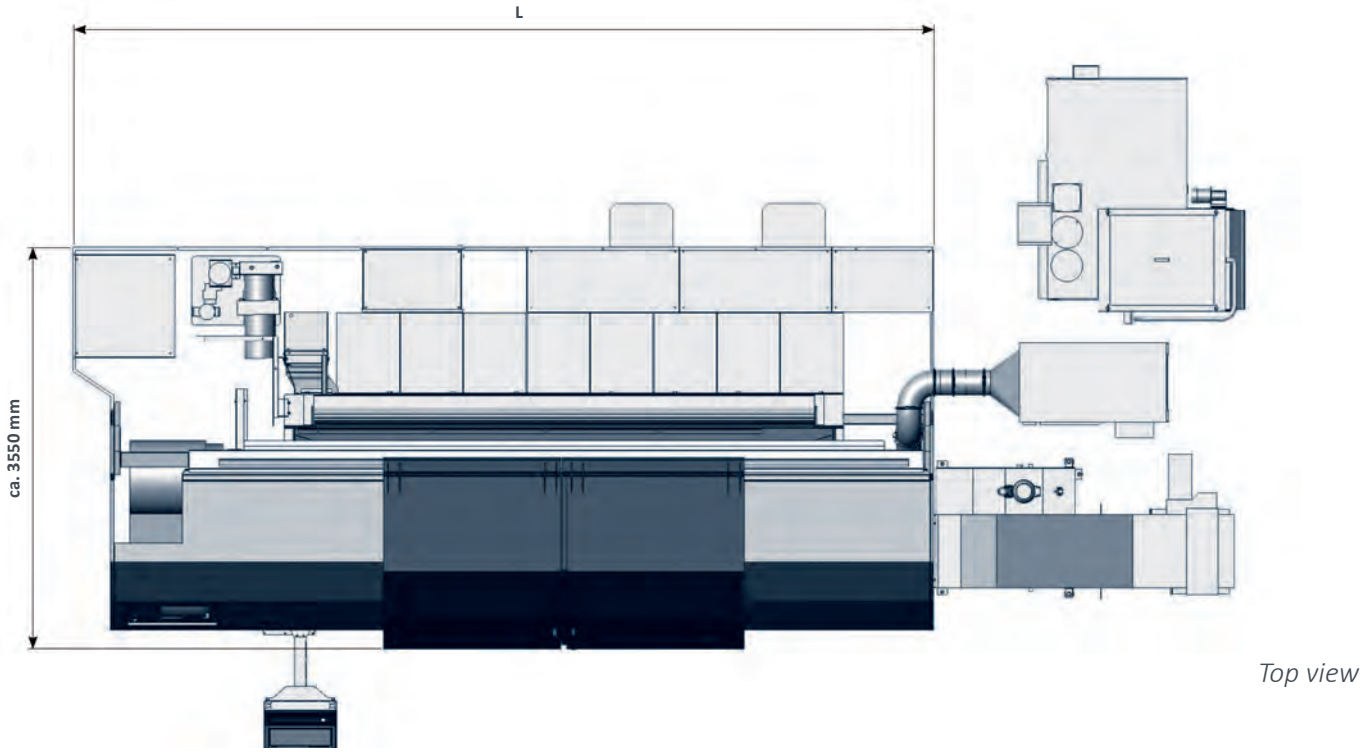
TURN-MILL **N20 MC**



Top view

NOMINAL LENGTH	mm	1,000	1,500	2,000	2,500	3,000	3,500
Center-to-center distance	mm	1,000	1,500	2,000	2,500	3,000	3,500
Machine length (L)	mm	5,288	5,788	6,288	6,788	7,288	8,433
Machine mass	t	18	19	20	22	24	26

MACHINE SPECIFICATION – TURN MILL N20 MC

CNC-CONTROL			
Control system		SINUMERIK ONE	
WORKING AREA			
Turning length	mm	1,000 | 1,500 | 2,000 | 2,500 | 3,000 | 3,500*	
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 40% duty cycle | 100% duty cycle	kW	34 | 30,4	40 | 31
Speed range	rpm	0 – 2,500 (3,800)	0 – 1,800
Torque 40% duty cycle | 100% duty cycle	Nm	655 | 580	1,337 | 1,200
Speed range C-axis mode	rpm	0 – 100	
TURNING-MILLING UNIT			
Tool system	size	HSK-T 63 | Capto C6 (PSC 63)	
Drive power 40% duty cycle | 100% duty cycle	kW	33 | 30	
Max. Speed range	rpm	10,000	
Swivel range of B-axis	degrees	-15 – +185	
Torque milling spindle duty cycle | 100% duty cycle	Nm	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	160 | 166	
Quill diameter	mm	140 | 150	
Quill centre	size	MK 5	
Clamping force	kN	3 – 17 | 4 – 25	

* further options available on request

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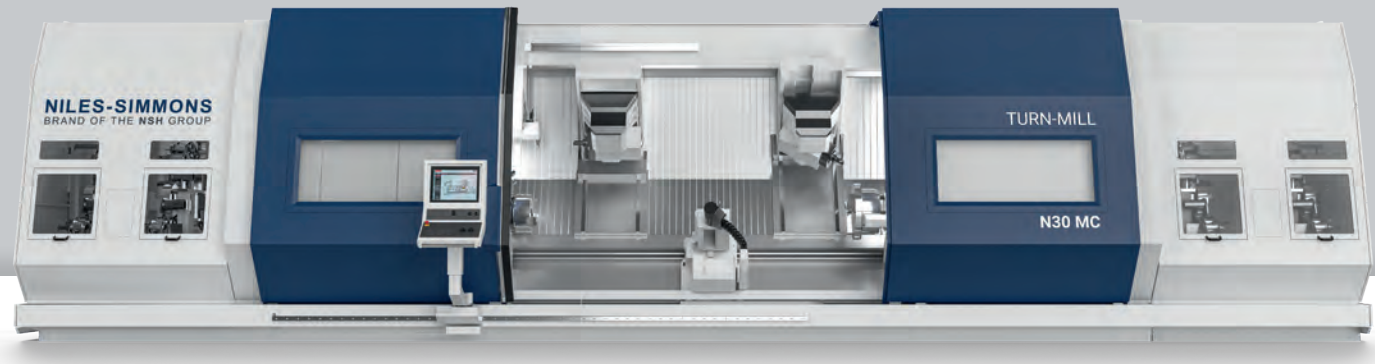
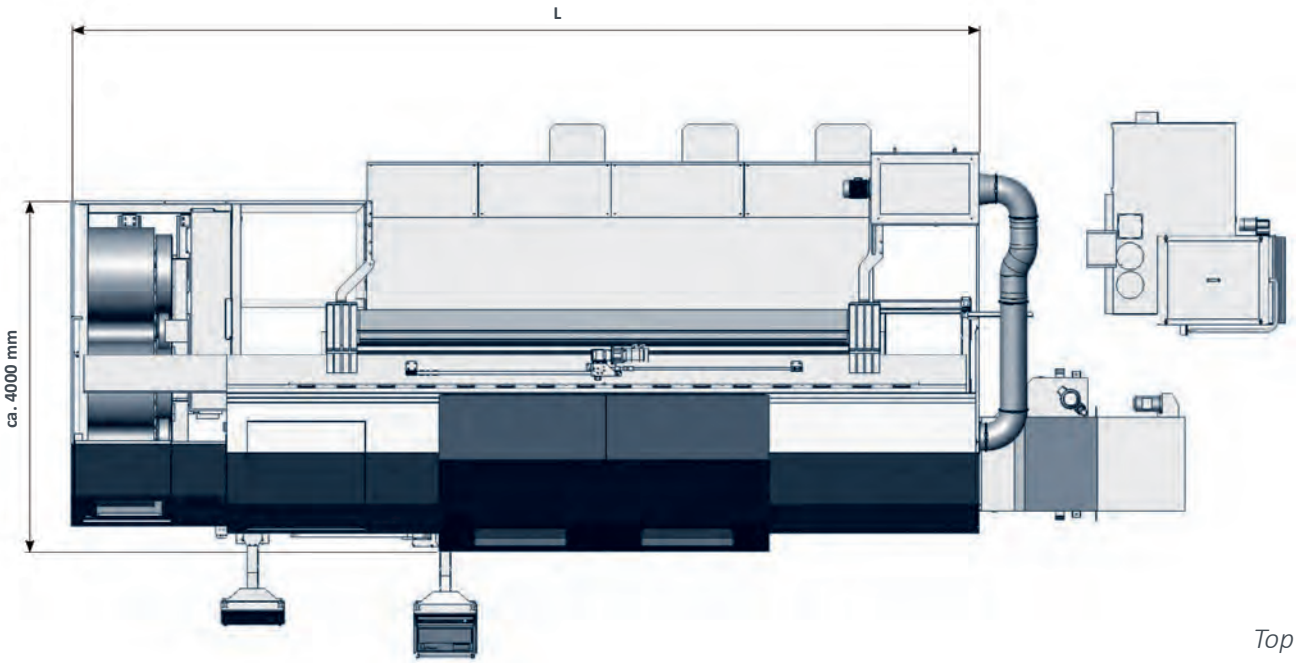


TURN-MILL **N30 MC**



Top view

NOMINAL LENGTH	mm	1,500	2,000	2,500	3,200	4,000	4,500	6,500
Center-to-center distance	mm	1,500	2,000	2,500	3,200	4,000	4,500	6,500
Machine length (L)	mm	7,077	7,577	8,077	8,777	9,577	10,715	13,715
Machine mass	t	29	31	35	39	43	45	52

MACHINE SPECIFICATION – TURN MILL N30 MC

CNC-CONTROL				
Control system		SINUMERIK ONE		
WORKING AREA				
Turning length	mm	1,500 | 2,000 | 2,500 | 3,200 | 4,000 | 4,500 | 6,500		
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 40% duty cycle | 100% duty cycle	kW	78 | 64	80 | 67*	77 | 68
Speed range	rpm	0 – 3,000	0 – 3,000 | 0 – 2,000	0 – 2,000
Torque 40 % duty cycle | 100% duty cycle	Nm	971 | 812	3,135 | 2,642	2,110 | 1,872
Speed range C-axis mode	rpm	0 – 100	0 – 50	0 – 100
TURNING-MILLING UNIT				
Tool system	size	HSK-T 63 | Capto C6 (PSC 63)	HSK-T 100 | Capto C8 (PSC 80)	
Drive power 40% duty cycle | 100% duty cycle	kW	33 | 30	25 | 26	
Max. Speed range	rpm	10,000	6,000	
Swivel range of B-axis	degrees	-15 – +195		
Torque milling spindle 40% duty cycle | 100% duty cycle	Nm	245 | 164	316 | 245	
FEED DRIVES				
Rapid feed rates X, Y, Z	m/min	18 | 12 | 30		
TOOL MAGAZINE				
Pockets	number	48 | 72 | 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		

* further options available on request

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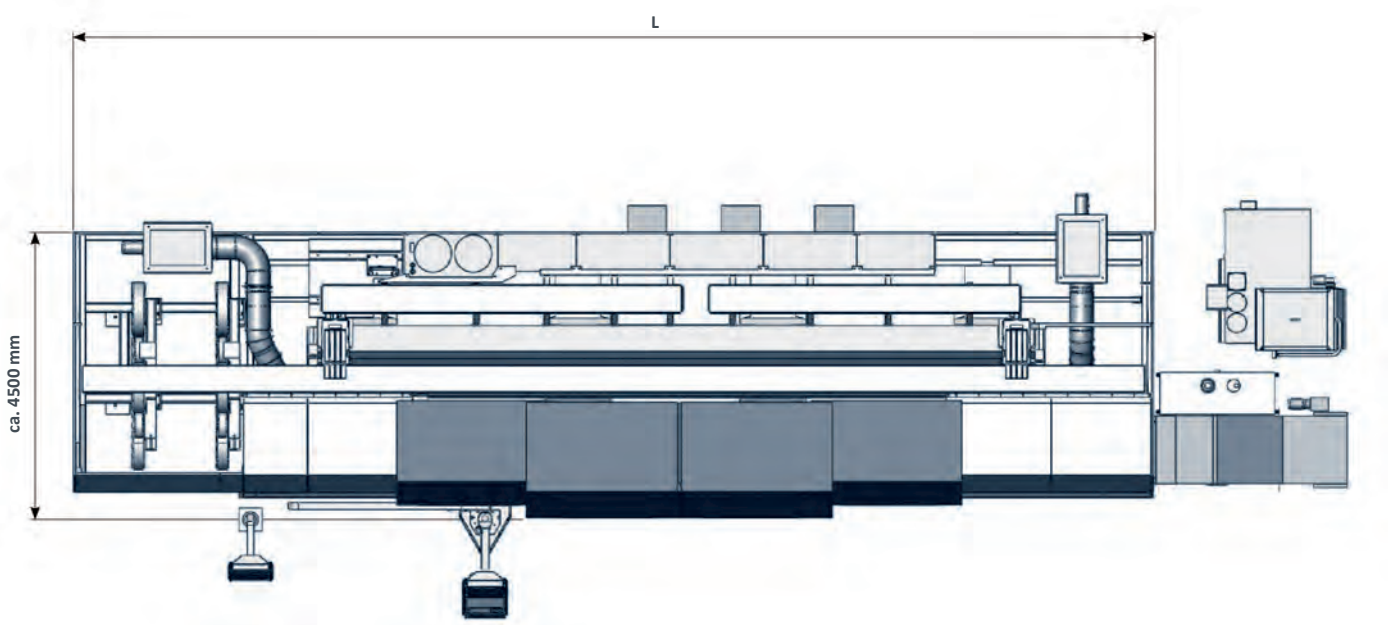
TURN-MILL **N40 MC**



Top view

NOMINAL LENGTH	mm	2,500	3,500	5,000	6,500	8,000	9,500
Center-to-center distance	mm	2,700	3,700	5,200	6,700	8,200	9,500
Machine length (L)	mm	9,655	10,655	12,155	13,655	15,155	17,055
Machine mass	t	55	60	65	70	75	85

MACHINE SPECIFICATION – TURN-MILL N40 MC

CNC-CONTROL			
Control system		SINUMERIK ONE	
WORKING AREA			
Turning length	mm	2,500 | 3,500 | 5,000 | 6,500 | 8,000 | 9,500	
Swing diameter	mm	1,100	
Slidetravel X-axis	mm	-30 – +1,065	
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 60% duty cycle | 100% duty cycle	kW	80 | 71	87 | 78
Speed range	rpm	0 – 1,000	0 – 1,750
Torque 60% duty cycle | 100% duty cycle	Nm	3,800 | 3,400	8,000 | 7,230
Speed range C-axis mode	rpm	0 – 100	0 – 50
TURNING-MILLING UNIT			
Tool system	size	HSK-T 100 | Capto C8 (PSC 80)	
Drive power 40% duty cycle | 100% duty cycle	kW	53 | 50	50 | 46
Max. Speed range	rpm	5,000	8,000
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	30 | 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	4 – 30	

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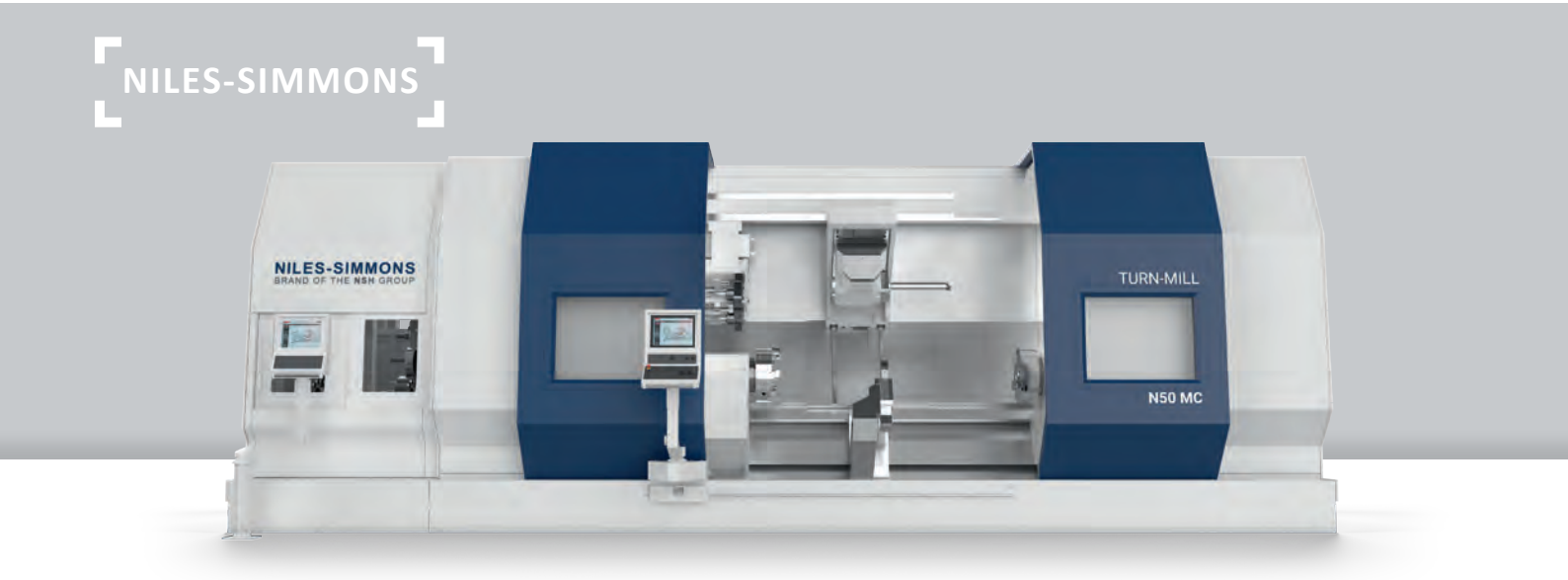
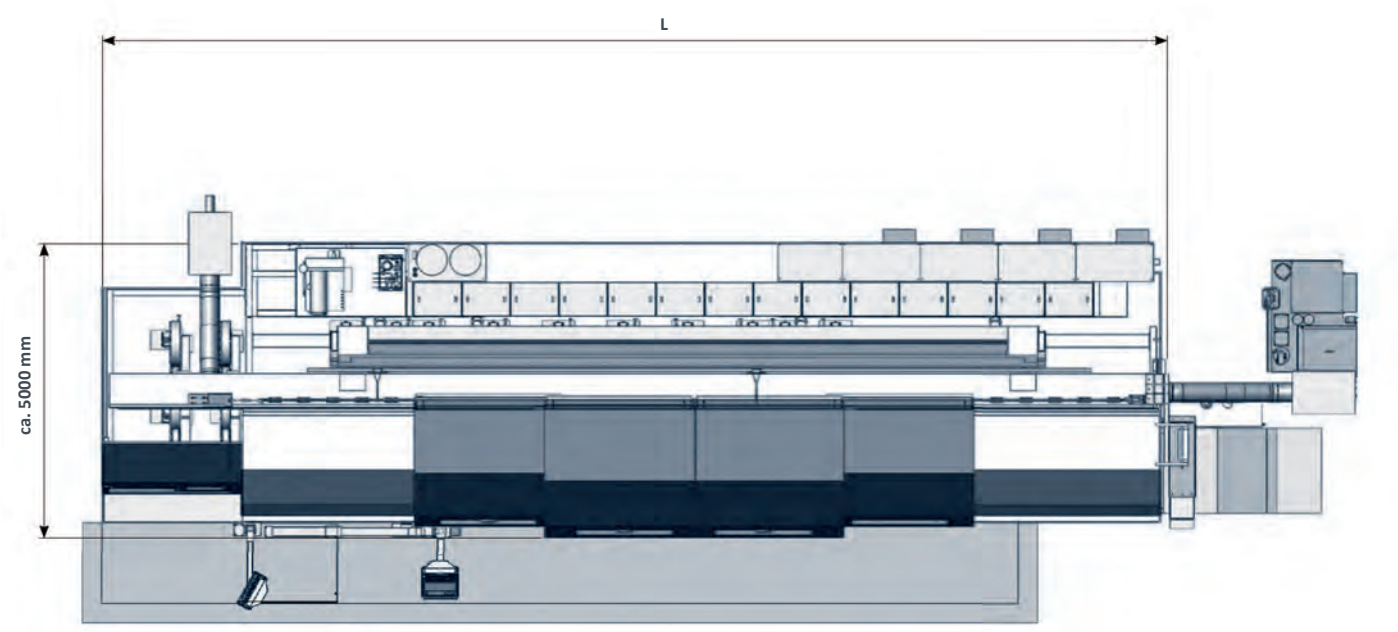


TURN-MILL **N50 MC**



Top view

NOMINAL LENGTH	mm	3,000	4,500	6,000	7,500
Center-to-center distance	mm	3,200	4,700	6,200	7,700
Machine length (L)	mm	11,850	13,350	14,850	16,350
Machine mass	t	55	61	68	75

MACHINE SPECIFICATION – TURN-MILL N50 MC

CNC-CONTROL					
Control system		SINUMERIK ONE			
WORKING AREA					
Turning length	mm	3,000 | 4,500 | 6,000 | 7,500*			
Swing diameter	mm	1,250			
Slidetravel X-axis	mm	-20 – +1,050			
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 60% duty cycle | 100% duty cycle	kW	77 | 64	87 | 78		115 | 100
Speed range	rpm	0 – 1,400	0 – 1,244		0 – 888
Torque 60% duty cycle | 100% duty cycle	Nm	6,900 | 5,765	11,020 | 9,880		15,000 | 13,030
Speed range C-axis mode	rpm	0 – 50			
TURNING-MILLING UNIT					
Tool system	size	HSK-T 100 | Capto C8 (PSC 80)			
Drive power 40% duty cycle | 100% duty cycle	kW	48,3 | 38			80 | 67,4
Max. Speed range	rpm	3,500 | 4,500 | 5,500			3,000
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			

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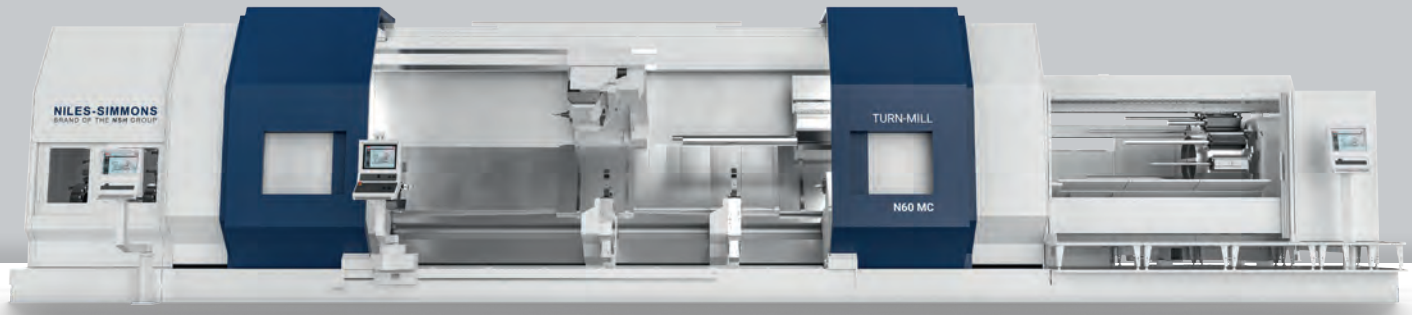
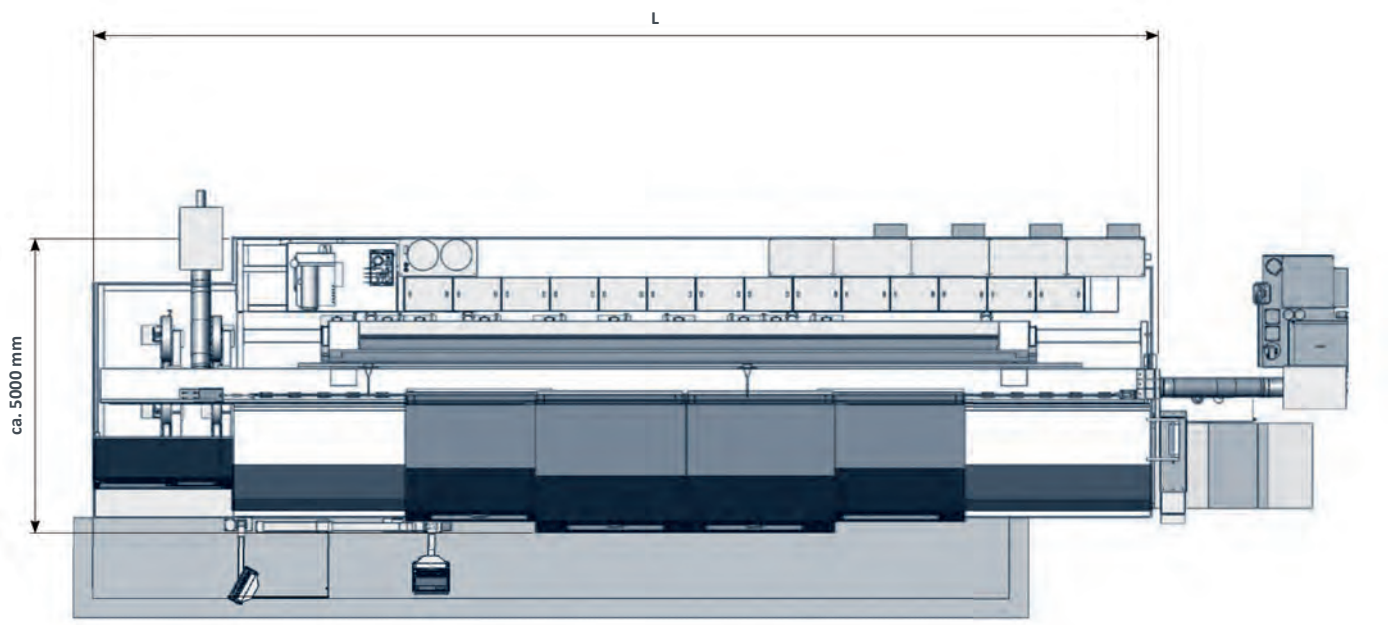


TURN-MILL **N60 MC**



Top view

NOMINAL LENGTH	mm	3,000	4,500	6,000	7,500
Center-to-center distance	mm	3,200	4,700	6,200	7,700
Machine length (L)	mm	11,850	13,350	14,850	16,350
Machine mass	t	56	62	69	76

MACHINE SPECIFICATION – TURN-MILL N60 MC

CNC-CONTROL					
Control system		SINUMERIK ONE			
WORKING AREA					
Turning length	mm	3,000 | 4,500 | 6,000 | 7,500*			
Swing diameter	mm	1,500			
Slidetravel X-axis	mm	-20 – +1,050			
Slidetravel Y-axis	mm	-525 – +375			-475 – +300
MAIN SPINDLE					
Spindle head acc.to DIN 55026	Größe	A15			A20
Spindle bore	mm	160			225
Bearing diameter	mm	280			360
MAIN SPINDLE*					
Drive power 60% duty cycle | 100% duty cycle	kW	77 | 64		87 | 78	115 | 100
Speed range	min^{-1}	0 – 1,400		0 – 1,244	0 – 888
Torque 60% duty cycle | 100% duty cycle	Nm	6,900 | 5,765		11,020 | 9,880	15,000 | 13,030
Speed range C-axis mode	min^{-1}	0 – 50			0 – 50
TURNING-MILLING UNIT					
Tool system	Größe	HSK-T 100 | Capto C8 (PSC 80)			
Drive power 40% duty cycle | 100% duty cycle	kW	48,3 | 38			80 | 67,4
Max. Speed range	min^{-1}	3,500 | 4,500 | 5,500			3,000
Swivel range of B-axis	Grad	-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	Anzahl	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	Größe	MK 6 | ME 80			
Clamping force	kN	5 – 35 | 8 – 55			

* further options available on request

NSH TECHNOLOGY GmbH | Zwickauer Str. 355 | 09117 Chemnitz | sales.nsi@nshgroup.com I + 49 371 802 333

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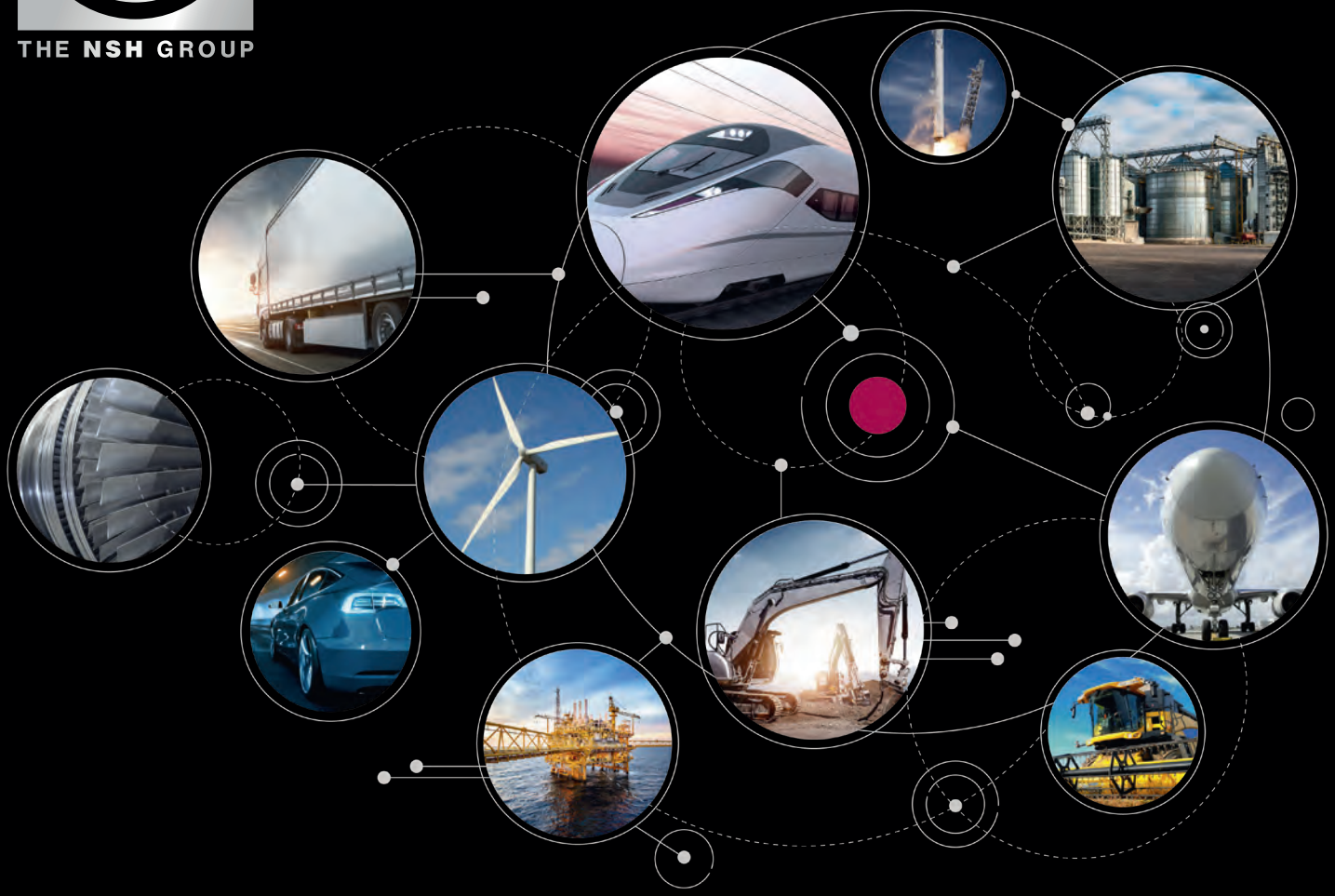

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