NCT

30 YEARS IN THE INDUSTRY

MACHINE TOOL CATALOG

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Lathes

Milling Machines

Conventional Machines

DEAR PARTNER!

Thank you for your attention, and welcome to the readers of the NCT product catalog! In this publication, we aim to provide you with a comprehensive overview of our company's development, manufacturing, and service activities in the field of machine production. In the first part of the catalog, you will learn about the history of NCT Ltd. We introduce our development activities and familiarize you with our service and customer support offerings, as well as the activities of the NCT Academy. The second half of the catalog presents the machine tools and accessories we offer.

The core activity of NCT is the development and production of CNC controllers and drive technology. This cannot be done at a high level without continuous and close contact with machine manufacturers and the end users of these machines. NCT collaborates with several significant Asian and European machine tool manufacturers. Our cooperation started with purchasing the mechanics of their machines, but today, we are also involved in the development of their machine tools. The technical and market information we receive from them greatly aids us in entering the vast Asian market and increasing our market share in other European and U.S. markets.

Our company is also making great strides in our own machine production. At our new manufacturing facility in Taksony, we have expanded our production capacity with one of Central Europe's largest and most precise bed grinding machines and a five-axis machining center. Here, we are building a new Hungarian machine tool factory with an excellent team of experts in a modern 5,400 m^2 production area. All of our CNC machines are equipped with electronics developed and manufactured by us. We provide the electrical assembly, installation of optional accessories, commissioning, testing, measurement, and, of course, all warranty and post-warranty services for our customers.

Along with the construction and development of machine tools, we are also developing and manufacturing our CNC controllers and related drive technology. As a result, we directly receive and observe the needs of users and our own machine production, as well as other requirements that arise during the testing of machine tools. Our latest products and services are designed with environmental consciousness, high speed, and ultra-precision in mind.

Póka István

Póka István
Board Member

NCT

R3, R5, R10

INDUSTRIAL ROBOTS

PRODUCTS AND SERVICES

1. Electronic Development and Manufacturing:

- Professional CNC controllers for a wide range of applications
- Servo drives, servo motors
- Torque motors and spindle motors

2. Manufacturing, Modernization, and Trade of Machine Tools:

- CNC machining centers, milling machines, and lathes
- Grinding machines
- EDM (Electrical Discharge Machines)
- Traditional machine tools

3. Services Related to Machine Tools:

- Design, manufacturing, and installation of custom solutions
- Turret head replacement
- Installation of mist collectors and cooling systems
- Installation of bar feeders and rod loaders
- Installation of CNC dividing units and rotary tables

4. Service:

- Servicing and procurement of products and equipment manufactured or distributed by NCT Zrt.
- Planned, preventive maintenance of machine tools
- Professional servicing of HEIDENHAIN products

5. Customer Service:

- Installation and relocation of machine tools
- Precision measurement, linear, nonlinear, and straightness compensation of machine tools with RENISHAW XL-80 laser interferometer
- Dynamic measurement and testing of machine tools with RENISHAW QC-20 circular tester
- Checking the drawbar force on milling machines
- Checking chuck force
- Vibration diagnostics of spindles and motors, balancing of motors
- Replacement of any CNC controller with NCT type, refurbishment of older NCT controllers (NCT UPGRADE)
- Complete electrical and mechanical refurbishment, modernization of machine tools, CNC conversion of high-value traditional machines

6. Software, Training, NCT Academy:

- Training on the operation and programming of NCT controllers (NCT Academy)
- Sale, installation, and training of VECTOR software
- Technological consulting

NCT 4 CONTROLLER AND SERVICES

NCT 4

The new NCT 4 controller is equipped with an industrial computer featuring a quad-core processor that manages CNC control and customer interface (HMI) tasks on separate threads. Three cores run the NCT user interface (HMI) with the well-known WINDOWS operating system, which allows numerous additional applications to run. The remaining core runs the NCT CNC control (CNC Kernel), isolated from the other cores but connected to them through the InTime RTOS system.

Several applications are available on the controller:

- myNCT dialogue programming
- Pro3D intuitive programming interface (2.5D milling)
- Integrated CAD/CAM solutions
- Traditional G code programming

One of the main advantages of our controller is that we can design and create custom interfaces for machine manufacturers and refurbishers, enabling the use of our control for general CNC applications as well as for specific uses such as laser cutting/plasma cutting, dental milling, or any other unique applications.

TOUCHSCREEN

The main advantage of the capacitive touchscreen is its customizability and multi-touch handling, which simplifies graphics handling and programming. Thanks to the display design, comfortable usability and clear, good touch sensation are ensured even in industrial environments.

COLLISION MONITORING

With our newly developed module, tool breakage and machine collisions can be avoided and prevented. The protection module simulates the generated tool path with a „ghost tool” before actual program execution, monitoring potential collisions with pre-defined machine and workspace models and other machine elements in the simulated space.

myNCT DIALOGUE PROGRAMMING

The myNCT programming interface allows the writing of complex macros and cycles without programming headers and codes. The required data input is illustrated and facilitated by easily interpretable graphical diagrams. After entering the necessary values, the program automatically generates the G code, which can be subsequently edited by the user.

HISTORY OF NCT

1982
The Year of NCT's Founding, Birth of the First HUNOR PNC Control.

1990
Introduction of NCT 90T (lathe) and NCT 90M (milling) Controllers at the Budapest International Fair.

2000
Introduction of the first ISO G code operated (FANUC compatible) NCT 99, later known as NCT 2000 controller. After many years of development, production of NCT drives and NCT motors begins.

2002
The NCT 100 / 104 controller family goes into production, capable of 4-5 axis control and high-speed, high-precision machining (NSNP/HSHP).

2004
Introduction of the ISO 9001:2000 quality management system.

2007
Our company expands with a new production area, allowing us to increase machine manufacturing capacity.

2010
The NCT Academy Public Benefit Nonprofit Ltd. is established, opening up new opportunities in the fields of education and research.

2011
Introduction of the first NCT 200 series controller, which fundamentally changed our company's operations and opened new markets for NCT.

2013


Acquisition of NCT Taksony Machine Tool Factory and relocation of machine tool manufacturing to the new site.

2016


The NCT 304 new generation controller family is introduced, featuring REAL TIME communication, which enables the integration of numerous new functions and services.

2018
Simultaneous 5-axis control (5D) becomes available in our controller, with the addition of new machining centers to the NCT product range accordingly.

2019
Introduction of myNCT dialogue programming and 3D solid graphics options.

2021


The prototype of the first Hungarian-manufactured NCT-R5 industrial robot has been completed.

2023
Completion and presentation of the NCT 4 controller prototype, equipped with numerous new functions and an updated user interface, tailored to meet the demands of the era.

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 20 02 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

HEIDENHAIN

Trade and Professional Service of HEIDENHAIN Products:

NCT Zrt. has been extensively using and distributing HEIDENHAIN measuring systems for decades. Our specialists regularly undergo advanced training at the HEIDENHAIN GmbH headquarters.

Since our company also has its own electronic development and manufacturing, we have an in-depth understanding of HEIDENHAIN measuring systems, comparable to our own products. NCT Zrt. was among the first in the world to start using EnDat 2.2 absolute measuring rails and encoders, establishing the necessary professional expertise and (custom) service background for this technology.

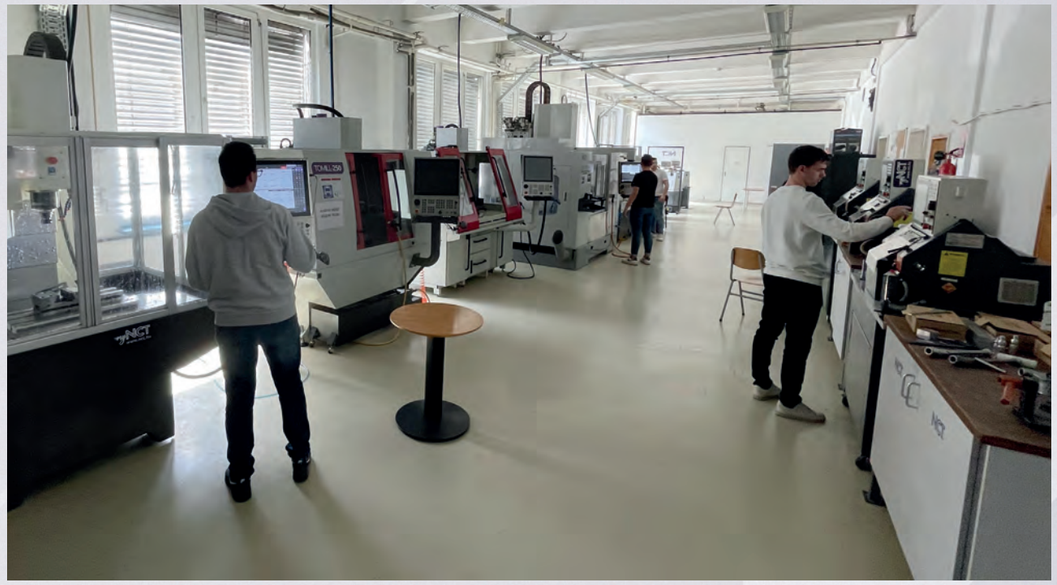
We possess all available measuring, setting, and diagnostic equipment required for high-quality and prompt service.

We keep commonly needed spare parts in stock and also have a safety stock of the most frequently requested measuring systems.

Measuring Systems:

For NCT products, we use HEIDENHAIN GmbH's incremental and absolute measuring systems, which are considered the leading manufacturer in the world. We accommodate 11 uApp, 1Vpp, TTL incremental measuring systems, whether it involves a single (or dual) reference point or distance-coded ‚C' design measuring system. Absolute position measurement and micron-level resolution are achieved simultaneously using HEIDENHAIN EnDat 2.2 measuring systems.

NCT ACADEMY



NCT Academy Nonprofit Ltd. is Hungary's leading CNC school. With modern equipment, a highly knowledgeable and experienced teaching staff, and the support of the NCT company, the Academy guarantees high quality!

Dual Training:

- CNC Programmer (SZJ: 407151001)

Courses:

- NCT CNC Programming Technologist
- Inspection Techniques
- Technical Drawing Reading
- Online Basic CAD
- Online Basic CAM
- Five-Axis CNC
- Five-Axis CAM - Edgecam
- Advanced 3D Modeling – Solid Edge

NCT® Akadémia

We also offer customized training tailored to your needs at the NCT Academy and at your site.
Adult education registration number:
B/2020/004858

Contacts:

nctakademia.hu
oktatas@nctakademia.hu
+36/30 519-1811

LATHES

SLANT BED LATHES

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RC-32

Slant bed lathes with gang type tooling

- Hardened, Ground Bed Rails
- Comfortable operation, spacious work area
- Massive cast iron bed and carriage structure
- X-axis inclined at a 30° angle
- Linear guide system
- Grease-lubricated spindle housing

Specification	RC-32
Max. swing diameter (mm)	100
Max. turning diameter (mm)	100
Max. turning length (mm)	100
Spindle drive	BELT
Spindle speed (rpm)	6000
Bar capacity (mm)	32
Spindle nose size	
Recommended chuck size	4"
Main motor power (kW)	5
Main motor cooling	AIR COOLING
Axes	X / Z
X / Z axis travel (mm)	340 / 150
X / Z axis rapid traverse speed (m/min)	18 / 18
Guideway type	LINEAR
Tooling	GANG-TYPE
Number of static tool stations	6
Number of live tool stations (OPT.)	1
Net machine weight (kg)	1600
Floor space x height (mm)	2000 x 1350 x 1835

SMART-42

Slant bed lathes with gang type tooling

- Heavy-duty cast iron bed and carriage structure
- X-axis inclined at a 30° angle
- Hardened and ground bedways
- Linear guideway system
- Grease-lubricated spindle housing

Specification	SMART-42
Max. swing diameter (mm)	320
Max. turning diameter (mm)	200
Max. turning length (mm)	140
Spindle drive	BELT
Spindle speed (rpm)	4000 (6000)
Bar capacity (mm)	42
Spindle nose size	A2-5
Recommended chuck size	6"
Main motor power (kW)	10
Main motor cooling	SLIDING GUIDEWAY
Axes	X / Z
X / Z axis travel (mm)	215 / 127
X / Z axis rapid traverse speed (m/min)	16 /16
Guideway type	LINEAR
Tooling	GANG-TYPE / VDI20
Number of static tool stations	8
Number of live tool stations (OPT.)	8
Net machine weight (kg)	2200
Floor space x height (mm)	2050 x 1480 (1850) x 1800

MSL-300

Slant Bed Lathes with Linear Guideways

- Robust Cast Iron Bed, Spindle Housing, and Carriage System
- X-axis inclined at a 30° angle
- Linear Guideway on all directions
- Hydraulic Chuck, Turret, and Tailstock Sleeve Operation

Specification	MSL-300/40	MSL-300/50	MSL-300/70
Max. swing diameter (mm)	530	530	650
Max. turning diameter (mm)	298	298	450
Max. turning length (mm)	380 / (580 opt.)	380 / (580 opc.)	600 / (1000 opc.)
Spindle drive	BELT	BELT	BELT
Spindle speed (rpm)	6000	4500	3500
Bar capacity (mm)	44	51	77
Spindle nose size	A2-5	A2-6	A2-8
Recommended chuck size	6"	8"	10"
Main motor power (kW)	11	11	15
Main motor cooling	AIR COOLING	AIR COOLING	AIR COOLING
Axes	X / Z	X / Z	X / Z
X / Z axis travel (mm)	180+15 / 400 (600 opt.)	180+15 / 400 (600 opt.)	180+15 / 400 (600 opt.)
X / Z axis rapid traverse speed (m/min)	30 / 30	30 / 30	30 / 30
Guideway type	LINEAR	LINEAR	LINEAR
Tooling	Bolt-On / VDI30	Bolt-On / VDI30	Bolt-On / VD40
Number of static tool stations	10	10	10
Number of live tool stations (OPT.)	10	10	10
Net machine weight (kg)	2400	2600	3600
Floor space x height (mm)	2240 x 1700 x 2020	2300 x 1700 x 2020	2800 x 2050 x 2250

TCS-2000(L), -2500(L)

Slant Bed Lathes with Linear Guideways

- Robust cast iron bed, spindle housing, and carriage system
- 45° inclined X-axis slide
- Wide stance, mounted linear guideways in all directions
- Ground, double-nut ball screws
- Long-lasting grease-lubricated spindle housing
- Oil-lubricated carriage system and ball screws

Specification	TCS-2000 (L)	TCS-2500 (L)
Max. swing diameter (mm)	520	520
Max. turning diameter (mm)	320	320
Max. turning length (mm)	400 / (600 OPT.)	400 / (600 OPC.)
Spindle drive	Belt	Szíj
Spindle speed (rpm)	4500	3500
Bar capacity (mm)	51	64
Spindle nose size	A2-6	A2-8
Recommended chuck size	8"	10"
Main motor power (kW)	21	21
Main motor cooling	AIR COOLING	AIR COOLING
Axes	X / Z	X / Z
X / Z axis travel (mm)	170 / 400 (600 opt.)	170 / 400 (600 opc.)
X / Z axis rapid traverse speed (m/min)	30 / 30	30 / 30
Guideway type	LINEAR	LINEAR
Tooling	Bolt-On / VDI30 / VDI40 / BMT65	Bolt-On / VDI30 / VDI40 / BMT65
Number of static tool stations	12 (Bolt-On / VDI40 / BMT65), 16 (VDI30)	12 (Bolt-On / VDI40 / BMT65), 16 (VDI30)
Number of live tool stations (OPT.)	12 (VDI40 / BMT65), 16 (VDI30)	12 (VDI40 / BMT65), 16 (VDI30)
Net machine weight (kg)	3300 (3900 OPT.)	3400 (4100 OPT.)
Floor space x height (mm)	3231 x 1820 x 2380	3231 x 1820 x 2380

S-TURN-52, -76, -92

High-performance lathes with box guideways

- Robust cast iron bed, spindle housing, and carriage system
- 45° inclined bed
- TURCITE-coated flat sliding guideways on all axes
- Ground, double-nut ball screws
- Long-lasting grease-lubricated spindle housing

Specification	S-Turn-52 (L)	S-Turn-76 (L)	S-Turn-92 (L)
Max. swing diameter (mm)	600	600	600
Max. turning diameter (mm)	580	580	580
Max. turning length (mm)	750 / (1250 OPT.)	750 / (1250 OPC.)	750 / (1250 OPC.)
Spindle drive	BELT	BELT	BELT
Spindle speed (rpm)	4500	3000	2500
Bar capacity (mm)	51	75	90
Spindle nose size	A2-6	A2-8	A2-8
Recommended chuck size	8"	10"	12"
Main motor power (kW)	36	39	45
Main motor cooling	AIR COOLING	AIR COOLING	AIR COOLING
Axes	X / Z / (Y OPT.)	X / Z / (Y OPT.)	X / Z / (Y OPT.)
X / Z axis travel (mm)	305 / 750 (1250 opc.) / 110 (+/-55, opt.)	305 / 750 (1250 opt.) / 110 (+/-55, opt.)	305 / 750 (1250 opt.) / 110 (+/-55, opt.)
X / Z axis rapid traverse speed (m/min)	24 / 24 / (7,5 OPT.)	24 / 24 / (7,5 OPT.)	24 / 24 / 7,5
Guideway type	SLIDEWAY	SLIDEWAY	SLIDEWAY
Tooling	Bolt-On / VDI 40 / BMT 65	Bolt-On / VDI 40 / BMT 65	Bolt-On / VDI 40 / VDI 50 / BMT 65
Number of static tool stations	12	12	12
Number of live tool stations (OPT.)	12	12	12
Net machine weight (kg)	S-TURN: 5400, SL-TURN: 6400, S-TURN Y: 7600, SL-TURN Y: 8700	S-TURN: 5500, SL-TURN: 6500, S-TURN Y: 7700, SL-TURN Y: 8700	S-TURN: 5600, SL-TURN: 6600, S-TURN Y: 7800, SL-TURN Y: 8800
Floor space x height (mm)	4310 (5110) x 1846 x 2016	4310 (5110) x 1846 x 2016	4310 (5110) x 1846 x 2016

MEGA-117

High-performance lathes with box guideways

- Robust cast iron bed, spindle housing, and carriage system
- 45° inclined bed
- TURCITE-coated flat sliding guideways on all axes
- Ground, double-nut ball screws
- Durable grease-lubricated spindle housing

Specification	MEGA-117	MEGA-117L	MEGA-117XL	MEGA-117XXL
Max. swing diameter (mm)	900	900	900	900
Max. turning diameter (mm)	700	700	700	700
Max. turning length (mm)	1300	2050	2800	3800
Spindle drive	BELT	BELT	BELT	BELT
Spindle speed (rpm)	1500	1500	1500	1500
Bar capacity (mm)	117	117	117	117
Spindle nose size	A2-11	A2-11	A2-11	A2-11
Recommended chuck size	18"	18"	18"	18"
Main motor power (kW)	52	52	52	52
Main motor cooling	AIR COOLING	AIR COOLING	AIR COOLING	AIR COOLING
Axes	X / Z / (Y opt.)	X / Z / (Y opt.)	X / Z / (Y opt.)	X / Z / (Y opt.)
X / Z axis travel (mm)	385 / / 1500 / 100 (+/-50, opt.)	385 / / 2250 / 100 (+/-50, opt.)	385 / / 3000 / 100 (+/-50, opt.)	385 / / 4000 / 100 (+/-50, opt.)
X / Z axis rapid traverse speed (m/min)	20 / 20 / (20 OPT.)	20 / 20 / (20 OPT.)	20 / 20 / (20 OPT.)	20 / 20 / (20 OPT.)
Guideway type	SLIDEWAY	SLIDEWAY	SLIDEWAY	SLIDEWAY
Tooling	Bolt-On /VDI 50 / BMT 75	Bolt-On /VDI 50 / BMT 75	Bolt-On /VDI 50 / BMT 75	Bolt-On /VDI 50 / BMT 75
Number of static tool stations	12	12	12	12
Number of live tool stations (OPT.)	12	12	12	12
Net machine weight (kg)	13 000 (+)	15 000 (+)	17 000	19 000
Floor space x height (mm)	5650 x 2350 x 2300	6500 x 2350 x 2300	7385 x 2350 x 2300	8385 x 2350 x 2300

JCL-60MY

Y-axis lathes with linear guideways

- Slant-bed CNC lathe
- Y-axis machining
- Cast iron bed and carriage system
- Driven toolholder with BMT turret

Specification	JCL-60MY
Max. swing diameter (mm)	500
Max. turning diameter (mm)	300
Max. turning length (mm)	400
Spindle drive	BELT
Spindle speed (rpm)	3500
Bar capacity (mm)	60
Spindle nose size	A2-6
Recommended chuck size	8"
Main motor power (kW)	21
Main motor cooling	AIR COOLING
Axes	X / Z / Y
X / Z / Y axis travel (mm)	190 / 500 / 120 (+/- 60)
X / Z / Y axis rapid traverse speed (m/min)	24 / 24 / 24
Guideway type	LINEAR
Tooling	BMT-55
Number of static tool stations	12
Number of live tool stations (OPT.)	12
Net machine weight (kg)	4085
Floor space x height (mm)	2885 x 2006 x 2005

RY-32, RY-42

Y-axis lathes with linear guideways

- Vertical bed CNC lathe
- Y-axis machining
- Cast iron bed and carriage system
- Gang tooling
- Durable grease-lubricated spindle housing

Specification	RY-32	RY-42
Max. swing diameter (mm)	32	32
Max. turning diameter (mm)	100	100
Max. turning length (mm)	270 / 260 / +- 135	270 / 260 / +- 135
Spindle drive	BELT	BELT
Spindle speed (rpm)	6000	6000
Bar capacity (mm)	32	32
Spindle nose size	A2-4	A2-4
Recommended chuck size	4"	4"
Main motor power (kW)	5	5
Main motor cooling	AIR COOLING	AIR COOLING
Axes	X / Y / Z	X / Y / Z
X / Z / Y axis travel (mm)	270 / 260 / +/- 135	270 / 260 / +/- 135
X / Z / Y axis rapid traverse speed (m/min)	15 / 15 / 15	15 / 15 / 15
Guideway type	LINEAR	LINEAR
Tooling	GANG-TYPE	GANG-TYPE
Number of static tool stations	21	21
Number of live tool stations (OPT.)	10	10
Net machine weight (kg)	2830	2830
Floor space x height (mm)	2160 x 1350 x 1920	2160 x 1350 x 1920

DUAL-52, -65

Slant-bed lathes with linear guideways and subspindle

- Slant-bed CNC lathe
- Subspindle with C-axis machining
- Y-axis machining
- Cast iron bed and carriage system
- Driven toolholder with BMT turret

Specification	DUAL-52 (L) Y	DUAL-65 (L) Y
Max. swing diameter (mm)	650	650
Max. turning diameter (mm)	380	380
Max. turning length (mm)	520 (OPT. 1020)	520 (OPT. 1020)
X / Y / Z / Z2 axis travel (mm)	215 / (+/-50 OPT.) / 520 (OPT. 1020)	215 / (+/-50 OPT.) / 520 (OPT. 1020)
Cant angle	30°	30°
Spindle / subspindle drive	BELT	BELT
Spindle / subspindle speed (rpm)	5000 / 5000	4000 / 5000
Spindle / subspindle bar capacity (mm)	52 /45	65 / 45
Spindle / subspindle nose size	A2-6 / A2-5	A2-6 / A2-5
Spindle / subspindle chuck size (mm)	210 (8") / 169 (6")	210 (8") / 169 (6")
Spindle / subspindle motor max. power (kW)	15 / 11	15 / 11
Axes	X / Y / Z / Z2	X / Y / Z / Z2
X / Y / Z / Z2 axis rapid traverse speed (m/min)	24 / 6 / 24 / 24	24 / 6 / 24 / 24
Guideway type	LINEAR	LINEAR
Tooling	BMT	BMT
Number of tools (staic / live)	12	12
Net machine weight (kg)	5100	5200
Floor space x height (mm)	3985 x 3135 x 1950	4485 x 3135 x 1950

JSL-20A, -26A, -32A

Swiss type lathe

- Cast iron bed and carriage structure
- Mounted linear guideways on all axes
- Driven tooling, Y and C-axis machining
- Direct drive (motorspindle) main spindle and subspindle

Specification	JSL-20A	JSL-26A	JSL-32A
Max. turning diameter (mm)	20	26	32
Max. turning length for static / rotating guide bush (mm)	200 / 85	220 / 200	220 / 200
Spindle drive	Motorspindle	Motorspindle	Motorspindle
Spindle speed (rpm)	8000	7000	7000
Main motor power (kW)	3.7	7.5	7.5
X / Y / Z / axis rapid traverse speed(m/min)	18	18	18
Axes	X / Y / Z / C	X / Y / Z / C	X / Y / Z / C
Number of axes:	4	4	4
Net machine weight (kg)	1800	2500	2500
Floor space x height (mm)	2015 x 1040 x 2210	2360 x 1660 x 2095	2360 x 1660 x 2095

JSL-26AB, -32AB, -42AB

Swiss type lathe with automatic subspindle

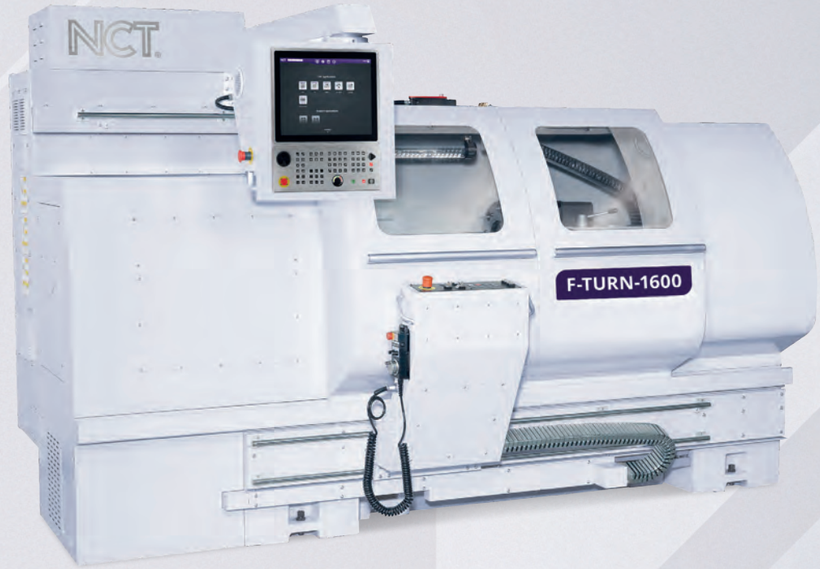
- Cast iron bed and carriage structure
- Mounted linear guideways on all axes
- Driven tooling, Y and C-axis machining
- Direct drive (motorspindle) main spindle and subspindle

Specification	JSL-26AB	JSL-32AB	JSL-42AB	JSL-42ABY
Max. turning diameter (mm)	26	32	42	42
Max. turning length for static / rotating guide bush (mm)	220 / 200	220 / 200		200
Spindle drive	Motorspindle	Motorspindle	Motorspindle	Motorspindle
Spindle speed (rpm)	7000	7000	6000	6000
Main motor power (kW)	7.5	7.5	7.5	7.5
Subspindle drive	Motorspindle	Motorspindle	Motorspindle	Motorspindle
Subspindle speed (rpm)	7000	7000	6000	6000
Subspindle motor power (kW)	7.5	7.5	7.5	7.5
X1 / Y1 / Z1 / X2 / Z2 axis rapid traverse speed (m/min)	18	18	18	18
Axes	X1 / Y1 / Z1 / X2 / Z2 / C1 / C2	X1 / Y1 / Z1 / X2 / Z2 / C1 / C2	X1 / Y1 / Z1 / X2 / Z2 / C1 / C2	C1 / (C2) / X1 / Y1 / Z1 / X2 / Y2 / Z2
Number of axes:	7	7	7	8
Net machine weight (kg)	3100	3100	7500	7500
Floor space x height (mm)	2865 x 1625 x 2045	2865 x 1625 x 2045	3380 x 2455 x 2155	3380 x 2455 x 2155

F-TURN-446, -1600, -1800

Flat-bed lathes with box guideways

- Horizontal layout universal lathe
- Cast iron bed and carriage system
- Single (F-TURN-446) or dual V-way Z-axis and dovetail guided X-axis
- Grease-lubricated spindle housing
- Centralized oil lubrication for the carriage system and ball screws



Specification	F-Turn-446	F-Turn-1600	F-Turn-1800
Max. swing diameter over bed (mm)	446	425	475
Max. swing diameter over gap (mm)	546	660	710
Max. swing diameter over cross slide (mm)	240	190	240
Max. turning length (mm)	650	1000 / 1500	1000 / 1500
Spindle drive		Belt	Belt
Spindle speed (rpm)	3000	5000	4500
Spindle bore diameter (mm)	52	46	65
Spindle nose size	A2-5	A2-5	D1-6
Recommended chuck size	6-8"	6-8"	6-10"
Main motor power (kW)	7	15	15
Axes	X / Z	X / Z	X / Z
X / Z axis rapid traverse speed (m/min)	15 / 15	15 / 15	15 / 15
Tailstock actuation	MANUAL	MANUAL	MANUAL
Tailstock quill actuation	MANUAL (HYDRAULIC OPT.)	MANUAL (HYDRAULIC OPT.)	MANUAL (HYDRAULIC OPT.)
Tailstock quill travel (mm)	150	150	150
Tailstock quill diameter (mm)	65	65	80
Guideway type	SLIDEWAY	SLIDEWAY	SLIDEWAY
Tooling	Bolt-On / VDI20 / VDI30	Bolt-On / VDI30	Bolt-On / VDI40
Number of tool positions	8	8	8
Tool change	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET
Net machine weight (kg)	2600	2400 / 2850	3000 / 3450
Floor space x height (mm)	2230 x 1560 x 1790	3030/3530 x 1932 x 2022	3030/3530 x 1932 x 2022

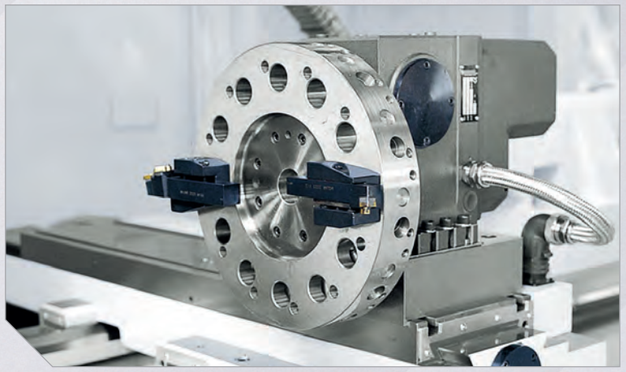
F-TURN-2200 - 6500

Flat-bed lathes with box guideways

- Robust cast iron bed, spindle housing, and carriage system
- TURCITE-coated flat sliding guides on all axes
- Wide stance horizontal bedways
- Precision-ground double-nut ball screws
- Oil-lubricated carriage system and ball screws

Specification	F-Turn-2200	F-Turn-2600	F-Turn-2800A	F-Turn-3000
Max. swing diameter over bed (mm)	550	650	710	760
Max. swing diameter over gap (mm)	770	870	970	1020
Max. swing diameter over cross slide (mm)	310	410	370	420
Max. turning length (mm)	1000-4000	1000-4000	1000-6000	1000-6000
Spindle drive	Belt	Belt	Belt	Belt
Spindle speed (rpm)	3500 / 2400	3500 / 2400 / 1480	1480	1480 / 650 / 500
Spindle bore diameter (mm)	82 (106 OPT.)	82 (106, 153 OPT.)	153	106 (153, 254, 355 OPT.)
Spindle nose size	A1-8/D1-8 (for 82 mm spindle bore)	A1-8/D1-8 (for 82 mm spindle bore)	A2-11	A1-11 (for 106 mm spindle bore)
Recommended chuck size	250/315	250/315	315	305 (106 mm spindle bore)
Main motor power (kW)	15 / 22	15 / 22	22 / 26	22 / 33
Axes	X / Z	X / Z	X / Z	X / Z
X / Z axis rapid traverse speed (m/min)	15 / 15	15 / 15	10 / 12	10 / 12
Tailstock actuation	MANUAL	MANUAL	MANUAL	MANUAL
Tailstock quill actuation	MANUAL (HYDRAULIC OPT.)	MANUAL (HYDRAULIC OPT.)	MANUAL (HYDRAULIC OPT.)	MANUAL (HYDRAULIC OPT.)
Tailstock quill travel (mm)	150	150	230	230
Tailstock quill diameter (mm)	65	80	125	125
Guideway type	SLIDEWAY	SLIDEWAY	SLIDEWAY	SLIDEWAY
Tooling	Bolt-On / VDI40	Bolt-On / VDI40	Bolt-On / VDI40 / VDI50	Bolt-On / VDI40 / VDI50
Number of tool positions	4 / 8 / 12	4 / 8 / 12	4 / 8 / 12	4 / 8 / 12
Tool change	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET
Net machine weight (kg)	3800-6800	3800-6800	8300-13 300	9000-14 000
Floor space x height (mm)	3190-6190 x 2225 x 2050	3190-6190 x 2225 x 2050	3900-8900 x 2977 x 223	3900-8900 x 2630 x 2220

Specification	F-Turn-3500	F-Turn-4000	F-Turn-5000	F-Turn-6500
Max. swing diameter over bed (mm)	890	1020	1300	1600
Max. swing diameter over gap (mm)	1150	1280	-	-
Max. swing diameter over cross slide (mm)	550	680	980	1280
Max. turning length (mm)	1000-6000	1000-6000	3000-12 000	3000-12 000
Spindle drive	Belt	Belt	Belt	Belt
Spindle speed (rpm)	1480 / 650 / 500	1480 / 650 / 500	800	800
Spindle bore diameter (mm)	106 (153, 254, 355 OPT.)	106 (153, 254, 355 OPT.)	153	153
Spindle nose size	A1-11 (for 106 mm spindle bore)	A1-11 (for 106 mm spindle bore)	A2-11 / ASA	A2-11 / ASA
Recommended chuck size	305 (for 106 mm spindle bore)	305 (for 106 mm spindle bore)	500	500
Main motor power (kW)	22 / 33	22 / 33	60 / 75	60 / 75
Axes	X / Z	X / Z	X / Z	X / Z
X / Z axis rapid traverse speed (m/min)	10 / 12	10 / 12	10 / 10	10 / 10
Tailstock actuation	MANUAL	MANUAL	AUTOMATIC (SERVO)	AUTOMATIC (SERVO)
Tailstock quill actuation	MANUAL (HYDRAULIC OPT.)	MANUAL (HYDRAULIC OPT.)	AUTOMATIC (SERVO)	AUTOMATIC (SERVO)
Tailstock quill travel (mm)	230	230	230	230
Tailstock quill diameter (mm)	125	125	240	240
Guideway type	SLIDEWAY	SLIDEWAY	SLIDEWAY	SLIDEWAY
Tooling	Bolt-On / VDI40 / VDI50	Bolt-On / VDI40 / VDI50	Bolt-On / VDI50 / VDI60	Bolt-On / VDI50 / VDI60
Number of tool stations	4 / 8 / 12	4 / 8 / 12	4 / 8 / 12	4 / 8 / 12
Tool change	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET	MANUAL QUICK CHANGE TOOL POST / TURRET
Net machine weight (kg)	9500 - 14 500	10 000 - 15 000	18 000 - 45 000	18 000 - 45 000
Floor space x height (mm)	3900-8900 x 2630 x 2220	3900-8900 x 2800 x 2285	7520-16 430 x 3388 x 2680	7520-16 430 x 3388 x 2680



VTL-50 – VL-600

Compact- and large vertical lathes

- Robust cast iron bed, spindle housing, and slide system
- TURCITE-coated flat sliding guides on all axes
- Wide horizontal bed guideways
- Precision ground, double-nut ball screws
- Oil-lubricated slide system and ball screws

Specification	VTL-50	VTL-70
Max. swing diametere (mm)	650	800
Max. turning diameter (mm)	550	700
Max. turning height (mm)	500	600
Spindle size (mm)	A2-8	A2-11
Chuck size	12"	15"
Max. workpiece weight (kg)	500	1000
Table speed (rpm)	2500	2000
Main motor power (kW)	15/18,5	18,5 / 22
X axis (mm):	-40 + 350	-40 + 430
Z axis (mm):	550	650
X / Z axis rapid traverse speed (m/min)	45650	45646
Number of tool positions (static / live)	8	8
Tool change (sec)	2	2
Net machine weight (kg)	6000	10 000
Floor space x height (mm)	2850 x 2000 x 3100	3250 x 1900 x 3395

Specification	VL-125C	VL-160C	VL-200C	VL-250C
Max. swing diametere (mm)	1600	2000	2500	3000
Max. turning diameter (mm)	1600	2000	2500	2970
Max. turning height (mm)	1200	1200	1600	
Face plate size (mm)	1250	1600	2000	2500
Table speed (rpm)	300	250	200	160
Main motor power (kW)	37 / 45		60 / 75	
Axes	X / Z			
X / Z axis rapid traverse speed (m/min)	10 / 10			
Number of tool positions (static / live)	12 (16 OPT.)			
Tool change (sec)	10			
Net machine weight (kg)	24 500	27 500	47 000	51 000
Floor space x height (mm)	6500 x 4900 x 5200	7100 x 5200 x 5250	7600 x 5500 x 6650	7800 x 6100 x 6650

Specification	VL-86C	VL-100C
Max. swing diametere (mm)	950	1200
Max. turning diameter (mm)	950	1100
Max. turning height (mm)	650	800
Face plate size (mm)	800	1000
Max. workpiece weight (kg)	2000	3500
Table speed (rpm)	600	400
Main motor power (kW)	18.5 / 22	30 / 37
Axes	X / Z	X / Z
X / Z axis rapid traverse speed (m/min)	10 / 10	10 / 10
Number of tool positions (static / live)	12 / (12 OPT.)	12 / (12 OPT.)
Tool change (sec)	10	10
Net machine weight (kg)	13 500	17 800
Floor space x height (mm)	2520 x 2800 x 3900	4050 x 2900 x 3700

Specification	VL-300	VL-400	VL-500	VL-600
Max. swing diametere (mm)	3600	4500	6000	7000
Max. turning diameter (mm)	3600	4500	6000	7000
Max. turning height (mm)	2000		2600	
Face plate size (mm)	3000	4000	5000	6000
Table speed (rpm)	120	85	50	20
Main motor power (kW)	60 / 75			
Axes	X / Z			
X / Z axis rapid traverse speed (m/min)	10 / 10			
Number of tool positions (static / live)	16 / 12			
Tool change (sec)	15			
Net machine weight (kg)	99 000	114 000	139 000	169 000
Floor space x height (mm)	8500 x 6500 x 7400	10 200 x 7000 x 7400	12 500 x 9000 x 9000	13 000 x 11 000 x 9000

MILLING MACHINES

3-AXIS MACHINING CENTERS

- SFM-760 / SFM-1020
- VD-510S
- HSP -660, -780, -80100
- NCT CONTROL SYSTEM
- EML-510E - EML-1600SV

5-AXIS MACHINING CENTERS

- EMB-1300, 1600, 2000
- MXS 650, 650DD, 400MT
- EML-1300GT - 1600DT
- EMP-350

PORTAL MILLING MACHINES

- BMC-2012 - BMC 6140
- RV-2622 - RV-8142

HORIZONTAL MILLING MACHINES

- HB-500, -630, -800
- FBE-1500, -2000, -2600, -3000
- HBM-R1, -R2, -R3
- HBM-T2, -T3, -T4, -135TN

STRUCTURE MILLING MACHINES

- ACMC-4D-2500 - 6500
- SCMC40-2500 - 8500
- SCMC50-2500 - 6500
- SCMH-2500 - 6500

SFM-760 / SFM-1020

Machining centers

- Cast iron bed, column, and carriage system
- Mounted linear guides in X, Y, and Z directions
- Central oil-lubricated carriage system and ball screws
- Long-lasting grease-lubricated spindle housing

Specification	SFM-760	SFM-1020
Working space X / Y / Z axis (mm)	760 x 400 x 400	1020 x 400 x 400
Table size (mm)	1270 x 305	1524 x 305
Table loading capacity (kg)	200	300
T-slot number x size x pitch (mm)	3 x 16 x 102	3 x 16 x 102
Positioning accuracy (mm)	< 0.02	< 0.02
Repeatability (mm)	< 0.01	< 0.01
X / Y / Z rapid traverse speed (m/min)	12 / 12 / 12	12 / 12 / 12
Type of the X / Y / Z axis	BALL ROLLER GUIDEWAY	BALL ROLLER GUIDEWAY
Spindle drive	BELT	BELT
Speed (rpm)	6000 (8000 opt.)	6000 (8000 opt.)
Max. power (kW)	7.8	7.8
Max. torque (Nm)	51.8	51.8
Tool changer	UMBRELLA-TYPE	UMBRELLA-TYPE
Max. number of tools	16	16
Tool change time [TtT] (sec)	2	2
Chip conveyor	SPIRAL OPT.	SPIRAL OPT.
Net machine weight (kg)	2500	2700
Floor space x height (mm)	2510 x 2170 x 2390	3020 x 2170 x 2390

VD-510S

High-speed machining center

- Mounted precision linear guides In X, Y, and Z directions
- Direct drive main motor to spindle (without belt drive)
- Tool change time TtT / CtC (seconds): 2.5

Specification	VD-510S
Working space X / Y / Z axis (mm)	510 x 406 x 330
Table size (mm)	650 x 400
Table loading capacity (kg)	300
T-slot number x size x pitch (mm)	3 x 14 x 125
Positioning accuracy (mm)	< 0.008
Repeatability (mm)	< 0.004
X / Y / Z rapid traverse speed (m/min)	48 / 48 / 48
Type of the X / Y / Z axis	BALL ROLLER GUIDEWAY
Spindle drive / Taper size	DIRECT / #30
Speed (rpm)	12 000 / 20 000 / 24000
Max. power (kW)	4.9 (6.9) / 3.7 (5.5)
Max. torque (Nm)	24.6 (37) / 11.7 (17.8)
Tool changer	DISC-TYPE
Max. number of tools	21
Max. tool diameter (mm)	80
Tool change time [TtT] (sec)	1.6
Chip conveyor	SPIRAL
Net machine weight (kg)	2600
Floor space x height (mm)	1600 x 2150 x 2320

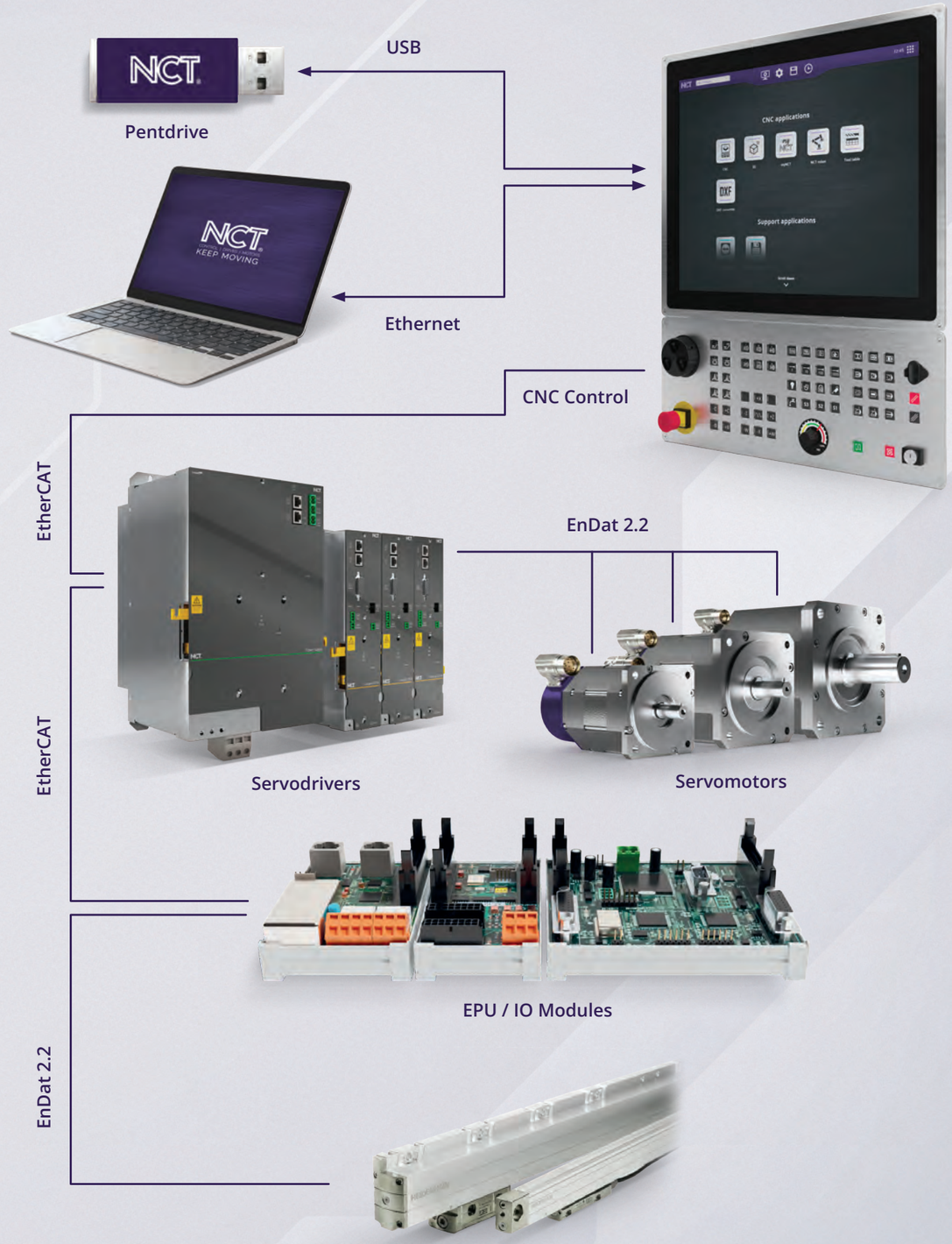
HSP -660, -780, -80100

Electrode milling machine

- Casted frame, bed and carriage system
- Extremely rigid portal design
- Mounted rolling guides in X, Y, and Z directions
- Motor Spindle
- Direct (EnDat 2.2) measurement system

Specification	HSP-660	HSP-780	HSP-80100
Working space X / Y / Z axis (mm)	600 x 600 x 250	700 x 800 x 320	800 x 1000 x 450
Table size (mm)	600 x 650	750 x 850	800 x 1000
Table loading capacity (kg)	500	800	1500
Positioning accuracy (mm)	< 0.008	< 0.008	< 0.008
Repeatability (mm)	< 0.004	< 0.004	< 0.004
X / Y / Z rapid traverse speed (m/min)	10 / 10 / 10	10 / 10 / 10	5 / 5 / 5
Type of the X / Y / Z axis	BALL ROLLER GUIDEWAY	BALL ROLLER GUIDEWAY	BALL ROLLER GUIDEWAY
Spindle drive / Taper size	MOTOR SPINDLE / ER32	MOTOR SPINDLE / ER32	MOTOR SPINDLE / ER32
Speed (rpm)	24 000 (50 000 opt.)	24 000 (50 000 opt.)	24 000 (50 000 opt.)
Spindle rated / max. power (kW)	5.5 / 8.5	7.5 / 12	7.5 /19
Tool changer	GANG-TYPE	GANG-TYPE	GANG-TYPE
Max. number of tools	6	6	6
Exhaust system	Graphite and mist cleaner	Graphite and mist cleaner	Graphite and mist cleaner
Net machine weight (kg)	3200	4200	6000
Floor space x heught (mm)	1800 x 2160 x 2300	1970 x 2455 x 2700	2280 x 2900 x 2820

NCT CONTROL SYSTEM



EML-510E - EML-1600SV

Linear guideways machining centers

- Casted frame, bed and carriage system
- Extremely rigid portal design
- Mounted rolling guides in X, Y, and Z directions
- Motor Spindle
- Direct (EnDat 2.2) measurement system

Specification	EML-510E	EML-510SV	EML-610E	EML-610SV
	ECONOMIC VERSION	SUPER VERTICAL	ECONOMIC VERSION	SUPER VERTICAL
Working space X / Y / Z axis (mm)	510 x 410 x 460	510 x 410 x 460	610 x 460 x 510	610 x 460 x 510
Table size (mm)	600 x 320	600 x 320	800 x 450	800 x 450
Table loading capacity (kg)	300	300	400	400
T-slot number x size x pitch (mm)	3 x 14 x 100	3 x 14 x 100	5 x 18 x 100	5 x 18 x 100
Positioning accuracy (mm)	< 0.005	< 0.005	< 0.005	< 0.005
Repeatability (mm)	< 0.003	< 0.003	< 0.003	< 0.003
X / Y / Z rapid traverse speed (m/min)	36 / 36 / 30	36 / 36 / 30	36 / 36 / 36	36 / 36 / 36
Type of the X / Y / Z axis	BALL ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	BALL ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY
Spindle drive	BELT	DIRECT	BELT	DIRECT
Speed (rpm)	10 000	15 000	10 000	15 000
Max. power (kW)	16	16	16	29
Max. torque (Nm)	110	110	110	106
Tool changer	ARM-TYPE	ARM-TYPE	ARM-TYPE	ARM-TYPE
Max. number of tools	20	20	24	24
Tool change time [TtT] (sec)	2.5	2.5	2.5	2.5
Chip conveyor	SPIRAL	STEEL BELT	SPIRAL	STEEL BELT
Net machine weight (kg)	2800	2800	3800	3800
Floor space x height (mm)	2000 x 2305 x 2460	2000 x 2305 x 2460	2260 x 2435 x 2550	2260 x 2435 x 2550

Specification	EML-1200E	EML-1200SV	EML-1300E
	ECONOMIC VERSION	SUPER VERTICAL	ECONOMIC VERSION
Working space X / Y / Z axis (mm)	1200 x 610 x 610	1200 x 610 x 610	1300 x 700 x 700
Table size (mm)	1300 x 600	1300 x 600	1450 x 700 / 1750 x 700
Table loading capacity (kg)	650 / 1000	650 / 1000	1500
T-slot number x size x pitch (mm)	5 x 18 x 100	5 x 18 x 100	5 x 18 x 125
Positioning accuracy (mm)	< 0.016	< 0.016	< 0.005
Repeatability (mm)	< 0.008	< 0.008	< 0.003
X / Y / Z rapid traverse speed (m/min)	36 / 36 / 30	36 / 36 / 30	30 / 30 / 24
Type of the X / Y / Z axis	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY
Spindle drive	BELT	DIRECT	BELT
Speed (rpm)	10 000	15 000	10 000
Max. power (kW)	22	29	22
Max. torque (Nm)	118	106	118
Tool changer	ARM-TYPE	ARM-TYPE	ARM-TYPE (CHAIN-TYPE OPT.)
Max. number of tools	24 (30 opt.)	24 (30 opt.)	24 (30 opt.)
Tool change time [TtT] (sec)	2.5	2.5	2.5
Chip conveyor	STEEL BELT	STEEL BELT	SPIRAL
Net machine weight (kg)	6800	6800	8350
Floor space x height (mm)	3450 x 2805 x 2950	3450 x 2805 x 2950	3650 x 2915 x 3027

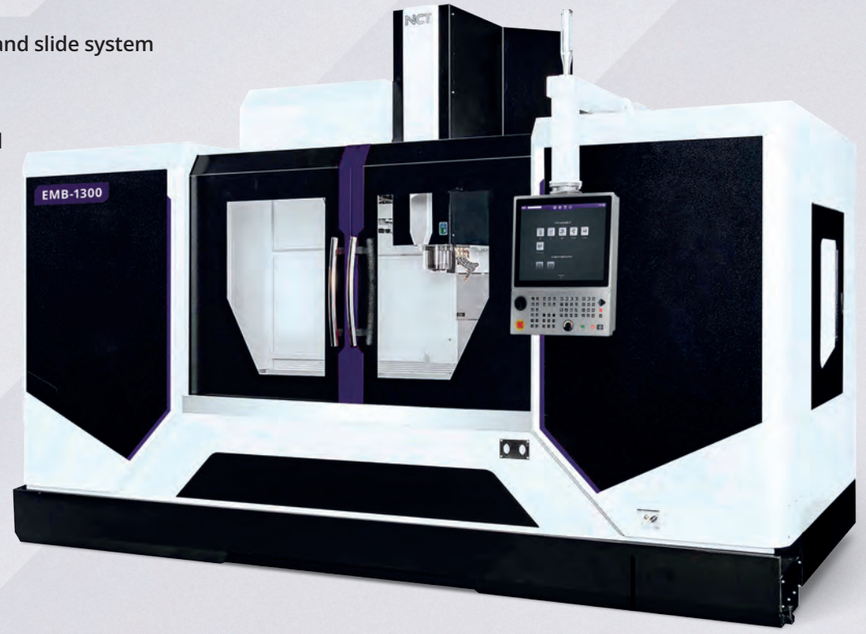
Specification	MM-850E	MM-850SV	EML-1020E	SV-1000
	ECONOMIC VERSION	SUPER VERTICAL	ECONOMIC VERSION	SUPER VERTICAL
Working space X / Y / Z axis (mm)	850 x 510 x 510	850 x 510 x 510	1020 x 510 x 560	1020 x 520 x 640
Table size (mm)	950 x 500	950 x 500	1200 x 500 / 1300 x 600	1150 x 520
Table loading capacity (kg)	600	600	650 / 1000	600
T-slot number x size x pitch (mm)	5 x 18 x 100	5 x 18 x 100	5 x 18 x 100	5 x 18 x 100
Positioning accuracy (mm)	< 0.005	< 0.005	< 0.016	< 0.005
Repeatability (mm)	< 0.003	< 0.003	< 0.008	< 0.003
X / Y / Z rapid traverse speed (m/min)	36 / 36 / 36	36 / 36 / 36	36 / 36 / 30	36 / 36 / 36
Type of the X / Y / Z axis	BALL ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	BALL ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY
Spindle drive	BELT	DIRECT	BELT	DIRECT
Speed (rpm)	10 000	15 000	10 000	15 000
Max. power (kW)	16	29	22	29
Max. torque (Nm)	110	106	118	106
Tool changer	ARM-TYPE	ARM-TYPE	ARM-TYPE	ARM-TYPE
Max. number of tools	24 (30 opt.)	24 (30 opt.)	24 (30 opt.)	24 (30 opt.)
Tool change time [TtT] (sec)	2.5	2.5	2.5	2
Chip conveyor	SPIRAL	STEEL BELT	STEEL BELT	STEEL BELT
Net machine weight (kg)	3900	3900	5200	5500
Floor space x height (mm)	2600 x 2330 x 2685	2600 x 2330 x 2685	3100 x 2420 x 2850	2600 x 2800 x 2890

Specification	EML-1300SV	EML-1600E	EML-1600SV
	SUPER VERTICAL	ECONOMIC VERSION	SUPER VERTICAL
Working space X / Y / Z axis (mm)	1300 x 700 x 700	1600 x 700 x 700	1600 x 700 x 700
Table size (mm)	1450 x 700 / 1750 x 700	1750 x 700	1750 x 700
Table loading capacity (kg)	1500	1500	1500
T-slot number x size x pitch (mm)	5 x 18 x 125	5 x 18 x 125	5 x 18 x 125
Positioning accuracy (mm)	< 0.005	< 0.005	< 0.005
Repeatability (mm)	< 0.003	< 0.003	< 0.003
X / Y / Z rapid traverse speed (m/min)	30 / 30 / 24	30 / 30 / 24	30 / 30 / 24
Type of the X / Y / Z axis	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY
Spindle drive	DIRECT	BELT	DIRECT
Speed (rpm)	15 000	10 000	15 000
Max. power (kW)	29	22	29
Max. torque (Nm)	106	118	106
Tool changer	ARM-TYPE (CHAIN-TYPE OPT.)	ARM-TYPE (CHAIN-TYPE OPT.)	ARM-TYPE (CHAIN-TYPE OPT.)
Max. number of tools	24 (30 / 32 opt.)	24 (30 / 32 opt.)	24 (30 / 32 opt.)
Tool change time [TtT] (sec)	2.5	2.5	2.5
Chip conveyor	STEEL BELT	SPIRAL	STEEL BELT
Net machine weight (kg)	8350	10000	10000
Floor space x height (mm)	3650 x 2915 x 3027	4370 x 2915 x 3027	4370 x 2915 x 3027

EMB-1300, 1600, 2000

Rolling guideways machining centers

- Robust cast iron bed, column, and slide system
- Ground double-nut ball screws on all axes
- Main spindle bearing protected by air overpressure
- No reference point setting due to indirect absolute measuring systems



Specification	EMB-1300 B/D/G	EMB-1600 B/D/G	EMB-2000 B/D/G
	(B) BELT / (D) DIRECT / (G) HEADSTOCK GEAR	(B) BELT / (D) DIRECT / (G) HEADSTOCK GEAR	(B) BELT / (D) DIRECT / (G) HEADSTOCK GEAR
Working space X / Y / Z axis (mm)	1300 x 700 x 710	1600 x 800 x 800	2000 x 900 x 800
Table size (mm)	1500 x 650	1800 x 840	2200 x 850
Table loading capacity (kg)	1000	2200	2500
T-slot number x size x pitch (mm)	5 x 18 x 100	5 x 22 x 150	5 x 22 x 150
Positioning accuracy (mm)	< 0.02	< 0.02	< 0.02
Repeatability (mm)	< 0.008	< 0.008	< 0.008
X / Y / Z rapid traverse speed (m/min)	30 / 25 / 25	30 / 25 / 25	15 / 15 / 12
Type of the X / Y / Z axis	SLIDEWAY	SLIDEWAY	SLIDEWAY
Spindle drive	BELT / DIRECT / HEADSTOCK GEAR	BELT / DIRECT / HEADSTOCK GEAR	BELT / DIRECT / HEADSTOCK GEAR
Spndle taper size:	SK 40 / SK 50	SK 40 / SK 50	SK 40 / SK 50
Speed (rpm)	8000 - 15 000 (SK40) / 6000 - 10 000 (SK50)	8000 - 15 000 (SK40) / 6000 - 10 000 (SK50)	8000 - 15 000 (SK40) / 6000 - 10 000 (SK50)
Max. power (kW)	(B) 22 / (D) 29 / (G) 31	(B) 22 / (D) 29 / (G) 31	(B) 22 / (D) 29 / (G) 31
Max. torque (Nm)	(B) 118 / (D) 106 / (G) 446	(B) 118 / (D) 106 / (G) 446	(B) 118 / (D) 106 / (G) 446
Tool changer	ARM-TYPE / CHAIN-TYPE	ARM-TYPE / CHAIN-TYPE	ARM-TYPE / CHAIN-TYPE
Max. number of tools	20 / 24 / 30 / 32	20 / 24 / 30 / 32	20 / 24 / 30 / 32
Tool change time [TtT] (sec)	6 / 2.5 / 2.5 / 2.5	6 / 2.5 / 2.5 / 2.5	6 / 2.5 / 2.5 / 2.5
Chip conveyor	SPIRAL / STEEL BELT	SPIRAL / STEEL BELT	SPIRAL / STEEL BELT
Net machine weight (kg)	9200	14 500	19 000
Floor space x height (mm)	3200 x 2825 x 3080	4400 x 3300 x 3300	5500 x 3435 x 3310

MXS 650, 650DD, 400MT

5 axis machining centers

- Robust casted machine bed and slide system
- Belt driven B & C axis (MXS-650)
- Torque motor B & C axis (MXS-650DD)
- High-speed C axis suitable for turning operations (MXS-400MT)
- BIG-PLUS type tooling

Specification	MXS-650	MXS-650DD	MXS-400MT
Rotary table drive	WORM-GEAR DRIVE	DIRECT DRIVE (TORQUE)	DIRECT DRIVE (TORQUE) WITH LATHE FUNCTION
Working space X / Y / Z axis (mm)	620 x 520 x 460	620 x 520 x 460	620 x 520 x 460
Table size (mm)	650	650	400
Table loading capacity (kg)	300	300	100
Axis speed [B/C] (rpm)	25 / 25	120 / 210	30 / 1000
Axis angle range [B/C] (degree°)	- 30°+110° / 360°	- 30°+110° / 360°	- 30°+110° / 360°
T-slot number x size x pitch (mm)	5 x 18 x 100	5 x 18 x 100	FURATOS
Positioning accuracy [axis/table] (mm)	< 0.005 / < B / C 16" / 8"	< 0.005 / < B / C 16" / 8"	< 0.005 / < B / C 16" / 8"
Repeatability [axis/table] (mm)	< 0.003 / < B / C 8" / 4"	< 0.003 / < B / C 8" / 4"	< 0.003 / < B / C 8" / 4"
X / Y / Z rapid traverse speed (m/min)	36 / 36 / 36	36 / 36 / 36	36 / 36 / 36
Type of the X / Y / Z axis	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY
Spindle drive	DIRECT	DIRECT	DIRECT
Speed (rpm)	15 000 (20 000 opt.)	15 000 (20 000 opt.)	15 000 (20 000 opt.)
Max. power (kW)	29	29	29
Max. torque (Nm)	106	106	106
Tool changer	ARM-TYPE (WITH CHAIN-TYPE MAGAZINE)	ARM-TYPE (WITH CHAIN-TYPE MAGAZINE)	ARM-TYPE (WITH CHAIN-TYPE MAGAZINE)
Max. number of tools	32 (40, 60 opt.)	32 (40, 60 opt.)	32 (40, 60 opt.)
Taper size	BIG PLUS SK 40	BIG PLUS SK 40	BIG PLUS SK 40
Tool change time [TtT] (sec)	2	2	2
Chip conveyor	CHAIN-TYPE	CHAIN-TYPE	CHAIN-TYPE
Net machine weight (kg)	8500	8500	8500
Floor space x height (mm)	4250 x 4120 x 2980	4250 x 4120 x 2980	4250 x 4120 x 2980

EML-1300GT - 1600DT

Tilting head machining center

- Tilting Head / Rotary Table Design (optional)
- Spacious working area, with a wide-opening work area door
- Easily openable, spacious, and glass-sided work area side doors
- Motor spindle drive
- #40 spindle taper, DIN or BT tooling
- Spindle housing temperature control with digital oil cooler

Specification	EML-1300GT	EML-1600GT	EML-1300DT	EML-1600DT
	TILTING BY GEAR	TILTING BY GEAR	TILTING BY TORQUE MOTOR	TILTING BY TORQUE MOTOR
Working space X / Y / Z axis (mm)	1300 x 700 x 700	1600 x 700 x 700	1300 x 700 x 700	1600 x 700 x 700
Table size (mm)	1450 x 700	1750 x 700	1450 x 700	1750 x 700
Table loading capacity (kg)	1000	1200	1000	1200
T-slot number x size x pitch (mm)	5 x 18 x 125	5 x 18 x 125	5 x 18 x 125	5 x 18 x 125
Positioning accuracy (mm)	< 0.005	< 0.005	< 0.005	< 0.005
Repeatability (mm)	< 0.003	< 0.003	< 0.003	< 0.003
X / Y / Z rapid traverse speed (m/min)	30 / 30 / 24	30 / 30 / 24	30 / 30 / 24	30 / 30 / 24
Type of the X / Y / Z axis	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY	CYLINDER ROLLER GUIDEWAY
Tilting axis	B AXIS	B AXIS	B AXIS	B AXIS
Max. tilting torque(Nm)	1000	1000	700	700
Max. holding torque(Nm)	1530	1530	500	500
Spindle drive	MOTOR SPINDLE	MOTOR SPINDLE	MOTOR SPINDLE	MOTOR SPINDLE
Speed (rpm)	15 000	15 000	18000	18 000
Max. power (kW)	19.4	19.4	19.4	19.4
Max. torque (Nm)	75	75	15	15
Tool changer	ARM-TYPE (CHAIN-TYPE opt.)	ARM-TYPE (CHAIN-TYPE opt.)	ARM-TYPE (CHAIN-TYPE opt.)	ARM-TYPE (CHAIN-TYPE opt.)
Max. number of tools	24 (30 / 32 opt.)	24 (30 / 32 opt.)	24 (30 / 32 opt.)	24 (30 / 32 opt.)
Tool change time [TtT] (sec)	2.5	2.5	2.5	2.5
Chip conveyor	STEEL BELT	STEEL BELT	STEEL BELT	STEEL BELT
Net machine weight (kg)	8000	10 000	8000	10 000
Floor space x height (mm)	4370 x 3400 x 3300	4670 x 3400 x 3300	4370 x 3400 x 3300	4670 x 3400 x 3300

EMP-350

5-axis portal machining center

- Table-mounted two axis rotary table (A and C-axis table movement)
- Torque-driven (direct) table movement
- Heavy-duty cast iron bed, stand, and slide system
- Portal design
- Mounted precision cylindrical roller linear guides on all axes
- Direct or motor spindle configuration
- BIG-PLUS SK40 type tooling

Specification	EMP-350
Working space X / Y / Z axis (mm)	1020 x 610 x 510
A / C axis	-120° - +30° / 360°
Rotary table diameter (mm)	350
Table loading capacity (kg)	200
T-slot number x size x pitch (mm)	8 x 12 x45
Positioning accuracy (mm)	< 0.008
Repeatability (mm)	< 0.004
A / C positioning accuracy ("/mp)	±5" / ±5"
A / C repeatability ("/mp)	±4" / ±4"
X / Y / Z rapid traverse speed (m/min)	36 / 36 /36
Type of the X / Y / Z axis	CYLINDER ROLLER GUIDEWAY
Rotary and tilting axis	A and C
Max. holding torque (Nm)	840 / 1380
Spindle drive	DIRECT
Speed (rpm)	15 000 (20 000 opt.)
Max. power (kW)	29
Max. torque (Nm)	106
Tool changer	UMBRELLA-TYPE
Max. number of tools	24
Taper size	SK 40 (HSK-63A opt.)
Tool change time [TtT] (sec)	2.5
Chip conveyor	Chain-type
Net machine weight (kg)	8500
Floor space x height (mm)	3559 x 2437 x 3760

BMC-2012 – BMC 6140

Manual angular head portal machining centers

- Cast iron bed, spindle housing, and slide system providing high rigidity and vibration damping
- High lead and preloaded ball screws for sustained accuracy
- Table guidance supported in all working positions
- Ball screws cooled by a digital-controlled fluid cooler

Specification	BMC-2012A / BMC-2012	BMC-3012A / BMC-3012	BMC-2015	BMC-3015
Working space data				
Table X size (mm)	2000	3000	2000	3000
Table Y size (mm)	1100	1100	1500	1500
X axis travel (mm)	2100	3100	2100	3100
Y axis travel (mm)	1200	1500	1600	2200
Z axis travel (mm)	800 (opt 1000)		900 (1100 opt)	900 (1100 opt)
Table loading capacity (kg)	4000	5000	6000	7000
Distance between table surface and spindle nose (mm)	"150 - 950 / 200 -1000 (150-1150 opc.) / (200-1200 opt.)"	"150 - 950 / 200 -1000 (150-1150 opc.) / (200-1200 opt.)"	" 200 -1000 (200-1200 opt.)"	" 200 -1000 (200-1200 opt.)"
Distance between columns (mm)	1350	1350	1650	1650
Spindle				
Speed (rpm)	8000, 10000, 12000 / 6000, 8000		Headstock gear 6000 (Direct 8000, 10 000, opt.)	
Drive	Direct / Headstock gear	Direct / Headstock gear	Headstock gear (Direct opt.)	Headstock gear (Direct opt.)
Spindle taper size	#40 / #50	#40 / #50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	32, 40 / 30, 40, 60	32, 40 / 30, 40, 60	30, (40 ,60 opt)	30, (40 ,60 opt)
Tool diameter (mm)	75 / 125	75 / 125	125	125
Tool length (mm)	300 / 400	300 / 400	400	400
Installation data				
Net machine weight (kg)	20500	25000	21500	26500
Floor space x height (mm)	6040 x 4230 x 4340	8040 x 4230 x 4340	6040 x 4530 x 4230	8040 x 4530 x 4260
Machine power (kVA)	35	35	35	35

Specification	BMC-4122	BMC-5122	BMC-3127	BMC-4127	BMC-5127
Working space data					
Table X size (mm)	4000	5000	3000	4000	5000
Table Y size (mm)	2100	2100	2600	2600	2600
X axis travel (mm)	2100 - 3100	2600 - 6100	2600 - 10 100	2100 - 3100	2100 - 3100
Y axis travel (mm)	1500	1600	2200	1200	1500
Z axis travel (mm)	900 (1100 opt)	900 (1100 opt)	900 (1100 opt)	900 (1100 opt)	900 (1100 opt)
Table loading capacity (kg)	17000	20000	15000	18000	20000
Distance between table surface and spindle nose (mm)	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"
Distance between columns (mm)	2300	2300	2800	2800	2800
Spindle					
Speed (rpm)	Headstock gear 6000 (Direct 8000, 10 000, opt.)				
Drive	Headstock gear (Direct opt.)				
Spindle taper size	#50	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)
Tool diameter (mm)	125	125	125	125	125
Tool length (mm)	400	400	400	400	400
Installation data					
Net machine weight (kg)	40000	44000	39000	45500	50700
Floor space x height (mm)	10750 x 5100 x 4570	12750 x 5100 x 4570	8540 x 5600 x 4570	10800 x 5600 x 4570	12900 x 5600 x 4570
Machine power (kVA)	45	45	45	45	45

Specification	BMC-2618	BMC-3118	BMC-4118	BMC-2622	BMC-3122
Working space data					
Table X size (mm)	2500	3000	4000	2500	3000
Table Y size (mm)	1400	1400	1500	2100	2100
X axis travel (mm)	2600	2100 - 3100	2600 - 6100	2600 - 10 100	2100 - 3100
Y axis travel (mm)	1800	1800	1800	2200	1200
Z axis travel (mm)	900 (1100 opt)	900 (1100 opt)	900 (1100 opt)	900 (1100 opt)	900 (1100 opt)
Table loading capacity (kg)	9000	11000	18000	11000	14000
Distance between table surface and spindle nose (mm)	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"
Distance between columns (mm)	1900	1900	1900	2300	2300
Spindle					
Speed (rpm)	Headstock gear 6000 (Direct 8000, 10 000, opt.)				
Drive	Headstock gear (Direct opt.)				
Spindle taper size	#50	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)
Tool diameter (mm)	125	125	125	125	125
Tool length (mm)	400	400	400	400	400
Installation data					
Net machine weight (kg)	31500	33500	37500	34000	36000
Floor space x height (mm)	7790 x 3590 x 4570	8840 x 3590 x 4570	10750 x 3590 x 4570	7540 x 5100 x 4570	8540 x 5100 x 4570
Machine power (kVA)	45	45	45	45	45

Specification	BMC-4131	BMC-5131	BMC-4140	BMC-5140	BMC-6140
Working space data					
Table X size (mm)	4000	5000	4000	5000	6000
Table Y size (mm)	2900	2900	3200	3200	3200
X axis travel (mm)	2600 - 6100	2600 - 10 100	2100 - 3100	2100 - 3100	2600 - 6100
Y axis travel (mm)	1600	2200	1200	1500	1600
Z axis travel (mm)	900 (1100 opt)	900 (1100 opt)	1100	1100	1100
Table loading capacity (kg)	18000	20000	18000	20000	23000
Distance between table surface and spindle nose (mm)	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"	" 200 -1100 (200-1300 opt.)"
Distance between columns (mm)	3200	3200	3750	3750	3750
Spindle					
Speed (rpm)	Headstock gear 6000 (Direct 8000, 10 000, opt.)				
Drive	Headstock gear (Direct opt.)				
Spindle taper size	#50	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)	30, (40 ,60 opt)
Tool diameter (mm)	125	125	125	125	125
Tool length (mm)	400	400	400	400	400
Installation data					
Net machine weight (kg)	57500	59500	65000	71500	78000
Floor space x height (mm)	10800 x 6100 x 4570	12900 x 6100 x 4570	10800 x 7000 x 5050	12900 x 7000 x 5050	14900 x 7000 x 5050
Machine power (kVA)	45	45	45	45	45

RV-2622 – RV-8142

Automatic angular head portal machining center

- Robust cast iron bed, spindle house, and slide system providing high rigidity and vibration damping
- Hardened ground guides on the Z axis with TURCITE-B coating
- 5-axis machining
- Automatic head changer unit

Specification	RV-2622	RV-3122	RV-4122	RV-5122
Working space data				
Table X size (mm)	2500	3000	4000	5000
Table Y size (mm)	1500	1500	1500	1500
X axis travel (mm)	2600	3100	4100	5100
Y axis travel (mm)	2200	2200	2200	2200
Z axis travel (mm)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)
Table loading capacity (kg)	9000	11000	14000	17000
Distance between table surface and spindle nose (mm)	200 - 1300 (200 - 1500 opt)	200 - 1300 (200 - 1500 opt)	200 - 1300 (200 - 1500 opt)	200 - 1300 (200 - 1500 opt)
Distance between columns (mm)	1700	1700	1700	1700
Spindle				
Speed (rpm)	6000	6000	6000	6000
Drive	Headstock gear	Headstock gear	Headstock gear	Headstock gear
Spindle taper size	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)
Tool diameter (mm)	125	125	125	125
Tool length (mm)	450	450	450	450
Installation data				
Net machine weight (kg)	35000	37000	41000	45000
Floor space x height (mm)	7790 x 5070 x 5050	8660 x 5070 x 5050	10750 x 5070 x 5050	12850 x 5070 x 5050
Machine power (kVA)	45	45	45	45

Specification	RV-2627	RV-3127	RV-4127	RV-5127	RV-3135
Working space data					
Table X size (mm)	2500	3000	4000	5000	3000
Table Y size (mm)	2100	2100	2100	2100	2100
X axis travel (mm)	2600	3100	4100	5100	3100
Y axis travel (mm)	2700	2700	2700	2700	3500
Z axis travel (mm)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)
Table loading capacity (kg)	11000	14000	17000	20000	14000
Distance between table surface and spindle nose (mm)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)
Distance between columns (mm)	2300	2300	2300	2300	2700
Spindle					
Speed (rpm)	6000	6000	6000	6000	6000
Drive	Headstock gear	Headstock gear	Headstock gear	Headstock gear	Headstock gear
Spindle taper size	#50	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)
Tool diameter (mm)	125	125	125	125	125
Tool length (mm)	450	450	450	450	450
Installation data					
Net machine weight (kg)	39000	41000	45000	49000	43000
Floor space x height (mm)	7680 x 5640 x 5350	8580 x 5640 x 5350	10680 x 5640 x 5350	12680 x 5640 x 5350	8650 x 6230 x 5350
Machine power (kVA)	45	45	45	45	45

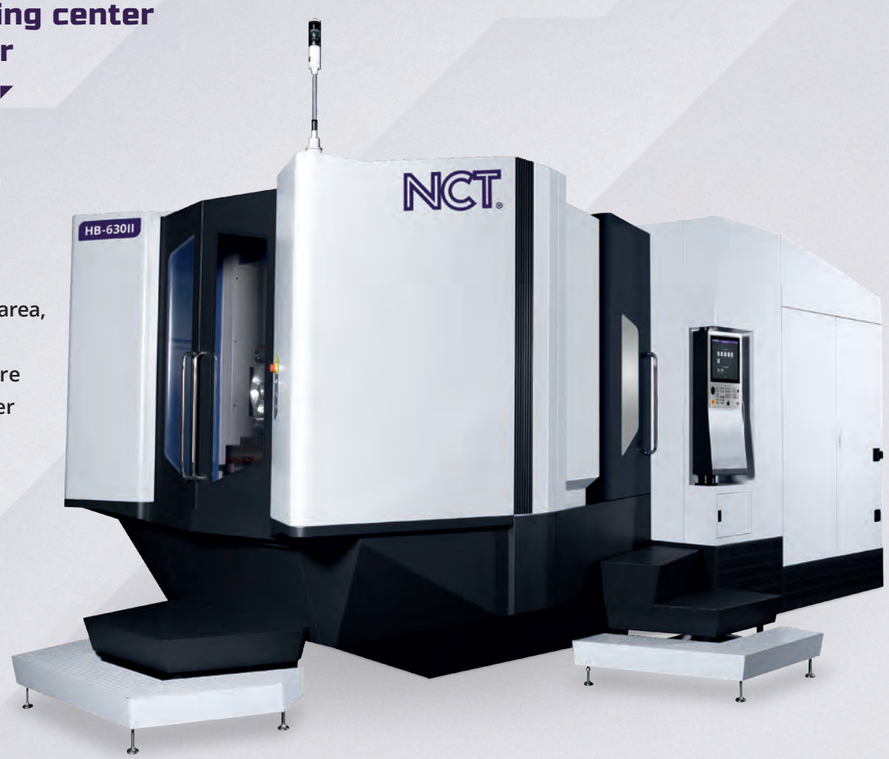
Specification	RV-4135	RV-5135	RV-3140	RV-4140	RV-5140
Working space data					
Table X size (mm)	4000	5000	3000	4000	5000
Table Y size (mm)	2100	2100	2600	2600	2600
X axis travel (mm)	4100	5100	3100	4100	5100
Y axis travel (mm)	3500	3500	3500	4000	4000
Z axis travel (mm)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)
Table loading capacity (kg)	17000	20000	15000	18000	20000
Distance between table surface and spindle nose (mm)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)
Distance between columns (mm)	2700	2700	3200	3200	3200
Spindle					
Speed (rpm)	6000	6000	6000	6000	6000
Drive	Headstock gear	Headstock gear	Headstock gear	Headstock gear	Headstock gear
Spindle taper size	#50	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)
Tool diameter (mm)	125	125	125	125	125
Tool length (mm)	450	450	450	450	450
Installation data					
Net machine weight (kg)	47000	51000	41000	49000	53500
Floor space x height (mm)	10650 x 6230 x 5350	12650 x 6230 x 5350	8600 x 6742 x 5350	10650 x 6742 x 5350	12670 x 6742 x 5350
Machine power (kVA)	45	45	45	45	45

Specification	RV-6140	RV-4142	RV-5142	RV-6142	RV-8142
Working space data					
Table X size (mm)	6000	4000	5000	6000	8000
Table Y size (mm)	2600	3200 (3500 opt.)	3200 (3500 opt.)	3200 (3500 opt.)	3200 (3500 opt.)
X axis travel (mm)	6100	4100	5100	6100	8100
Y axis travel (mm)	4000	4200	4200	4200	4200
Z axis travel (mm)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)	1100 (1300 opt.)
Table loading capacity (kg)	23000	18000	20000	23000	26000
Distance between table surface and spindle nose (mm)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)	200 - 1300 (200 - 1500 opt.)
Distance between columns (mm)	3200	3750	3750	3750	3750
Spindle					
Speed (rpm)	6000	6000	6000	6000	6000
Drive	Headstock gear	Headstock gear	Headstock gear	Headstock gear	Headstock gear
Spindle taper size	#50	#50	#50	#50	#50
Tool changer	Arm-type	Arm-type	Arm-type	Arm-type	Arm-type
Max. number of tools	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)	60 (40,90,120 opt.)
Tool diameter (mm)	125	125	125	125	125
Tool length (mm)	450	450	450	450	450
Installation data					
Net machine weight (kg)	61000	69500	74500	82500	92500
Floor space x height (mm)	14670 x 6742 x 5350	10800 x 6930 x 5350	12800 x 6930 x 5350	14800 x 6930 x 5350	18800 x 6930 x 5350
Machine power (kVA)	45	45	45	45	45

HB-500, -630, -800

Horizontal machining center with pallet changer

- Heavy-duty cast iron bed, frame, and carriage system
- Gear-driven or direct-drive spindle housing
- Chain-type tool magazine separated from the working area, with arm-type tool changer
- Spindle housing temperature control with digital oil cooler
- Automatic pallet changer



Specification	HB-500	HB-630	HB-800
X axis (mm)	800	1050	1400
Y axis (mm)	710	850	1200
Z axis (mm)	710	970	1300
Distance between spindle nose and table centre (mm)	150-860	100-1070	150-1450
Distance between spindle axis and table surface (mm)	50-760	100-950	100-1300
Pallet size (mm)	500 x 500	630 x 630	800 x 800
Pallet loading capacity (kg)	600 x 2	1200 x 2	1800 x 2
Pallet surface	25 pieces of M16 hole	25 pieces of M16 hole	25 pieces of M16 hole
Table indexing accuracy (degree)	1 (0.001 opt.)	1 (0.001 opt.)	1 (0.001 opt.)
X / Y / Z / W rapid traverse speed (m/min)	60	50	10
Type of the X / Y / Z axis	Linear guideway	Linear guideway	Linear guideway
Spindle drive	Motorspindle	Motorspindle (Headstock gear opt.)	Motorspindle (Headstock gear opt.)
Spindle taper size	SK / BT 50	SK / BT 50	SK / BT 50
Speed (rpm)	10 000	10 000 (6000 opt.)	10 000 (6000 opt.)
Max. power (kW)	30 kW	30 kW	30 kW
Max. torque (Nm)	420 Nm	420 (1460 opt.)	420 (1460 opt.)
Tool changer	Chain-type magazine, arm-type changer	Chain-type magazine, arm-type changer	Chain-type magazine, arm-type changer
Max. number of tools	60 (90 / 120 opt.)	60 (90 / 120 opt.)	60 (90 / 120 opt.)
Max. tool diameter (mm)	125	125	125
Coolant tank capacity (litre)	510	800	800
Net machine weight (kg)	14 000	21 600	22 000
Floor space x height (mm)	3125 x 6209 x 3124	3510 x 7848 x 3325	4535 x 8803 x 3875

FBE-1500, -2000, -2600, -3000

Horizontal Angular Head Machining Centers

- Heavy-duty cast iron bed, column, and slide system
- Gear-driven or direct-drive spindle housing
- Long-lasting grease-lubricated spindle housing
- Automatic tool change in vertical or horizontal spindle position, depending on the tool changer

Specification	FBE-1500	FBE-2000	FBE-2600	FBE-3000
Working space X / Y / Z axis (mm)	1500 x 1000 x 950 (1500 OPT.)	2000 x 1000 x 950 (1500 OPT.)	2600 x 1000 x 950 (1500 OPT.)	3000 x 1000 x 950 (1500 OPT.)
Table size (mm)	1600 x 1050	2100 x 1050	2700 x 1050	3100 x 1050
Table loading capacity (kg)	3000	5000	6000	8000
T-slot number x size x pitch (mm)	7 x 22H8	7 x 22H8	7 x 22H8	7 x 22H8
Positioning accuracy (mm)	< 0.005	< 0.005	< 0.005	< 0.005
Repeatability (mm)	< 0.003	< 0.003	< 0.003	< 0.003
X / Y / Z rapid traverse speed (m/min)	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10
Type of the X / Y / Z axis	SLIDEWAY	SLIDEWAY	SLIDEWAY	SLIDEWAY
Spindle drive	ZF GEARBOX	ZF GEARBOX	ZF GEARBOX	ZF GEARBOX
Spindle taper size	SK 50	SK 50	SK 50	SK 50
Speed (rpm)	3500 (6000 opt.)	3500 (6000 opt.)	3500 (6000 opt.)	3500 (6000 opt.)
Max. power (kW)	25	25	25	25
Max. torque (Nm)	650	650	650	650
Tool changer	Arm-Type / Chain-Type	ARM-TYPE / CHAIN-TYPE	ARM-TYPE / CHAIN-TYPE	ARM-TYPE / CHAIN-TYPE
Max. number of tools	24 / 32 / 60	24 / 32 / 60	24 / 32 / 60	24 / 32 / 60
Chip conveyor	STEEL BELT	STEEL BELT	STEEL BELT	STEEL BELT
Net machine weight (kg)	11 000	14 000	15 000	18 000

HBM-R1, -R2, -R3

Horizontal Boring / Milling Machine with Moving Table

- Heavy-duty cast iron bed, column, and slide system
- Hydraulic counterbalance
- Guideway protection with metal telescopic cover on all axis ends
- Spindle housing with gear drive configuration

Specification	HBM-110 R1	HBM-110 R2	HBM-110 R3
X axis (mm)	1400	2000	3000
Y axis (mm)	1390	1780	1780
Z axis (mm)	1050	1050	1050
W axis (mm)	500	500	500
Table size (mm)	1120 x 1250	1440 x 1600	1400 x 1600
Table loading capacity (kg)	4000	6300	6300
T-slot number x size x pitch (mm)	5 x 18 x 100	7 x 24 x 160	7 x 24 x 160
Table indexing accuracy (degree)			
X / Y / Z / W rapid traverse speed (m/min)	10	10	10
Type of the X / Y / Z axis	SLIDEWAY	SLIDEWAY	SLIDEWAY
Spindle drive	HEADSTOCK GEAR	HEADSTOCK GEAR	HEADSTOCK GEAR
Spindle taper size	SK / BT 50	SK / BT 50	SK / BT 50
Speed (rpm)	2500	2500	2500
Max. power (kW)	26	26	26
Max. torque (Nm)	1504	1504	1504
Tool changer	CHAIN-TYPE (opt.)	CHAIN-TYPE (opt.)	CHAIN-TYPE (opt.)
Max. number of tools	(60 / 90 opt.)	(60 / 90 opt.)	(60 / 90 opt.)
Tool change time [TtT] (sec)	9	9	9
Chip conveyor	STEEL BELT	STEEL BELT	STEEL BELT
Net machine weight (kg)	16 000	19 000	21 000
Floor space x height (mm)	6600 x 5700 x 3370	7700 x 6200 x 3800	7850 x 4815 x 3900

HBM-T2, -T3, -T4, -135TN

Moving Column Horizontal Boring / Milling Machine

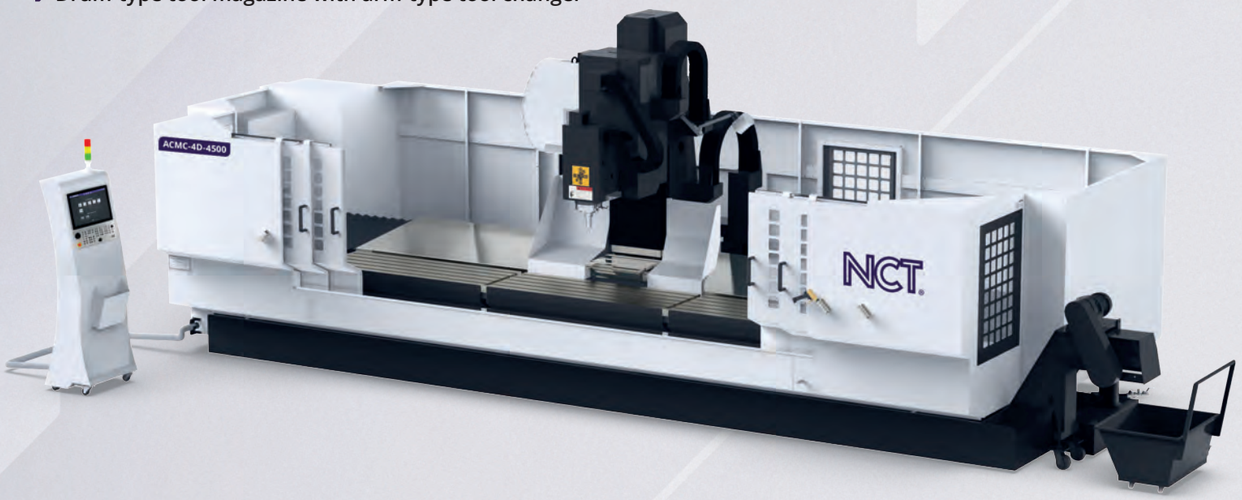
- Heavy-duty cast iron bed, column, and slide system
- Hydraulic counterbalance
- Guide protection with metal telescopic covers at all axis ends
- Spindle gearbox configuration

Specification	HBM-110 T2	HBM-110 T3	HBM-110 T4	HBM-135 TN
X axis (mm)	2000	3000	4000	3000
Y axis (mm)	2050	2050	2050	2500 (3000 opt.)
Z axis (mm)	1500	1500	1500	1500 (2000 opt.)
W axis (mm)	500	500	500	800
Table size (mm)	1440 x 1600	1440 x 1600	1440 x 1600	2200 x 2200
Table loading capacity (kg)	8000	8000	8000	15000
T-slot number x size x pitch (mm)	9 x 24 x 160	9 x 24 x 160	9 x 24 x 160	11 x 28 x 200
Table indexing accuracy (degree)				
X / Y / Z / W rapid traverse speed (m/min)	10	10	10	10
Type of the X / Y / Z axis	SLIDEWAY	SLIDEWAY	SLIDEWAY	SLIDEWAY
Spindle drive	HEADSTOCK GEAR	HEADSTOCK GEAR	HEADSTOCK GEAR	HEADSTOCK GEAR
Spindle taper size	SK / BT 50	SK / BT 50	SK / BT 50	SK / BT 50
Speed (rpm)	2500	2500	2500	2500
Max. power (kW)	26	26	26	37
Max. torque (Nm)	1504	1504	1504	3376
Tool changer	CHAIN-TYPE (opt.)	CHAIN-TYPE (opt.)	CHAIN-TYPE (opt.)	CHAIN-TYPE (opt.)
Max. number of tools	(60 / 90 opt.)	(60 / 90 opt.)	(60 / 90 opt.)	(60 / 90 opt.)
Tool change time [TtT] (sec)	9	9	9	9
Chip conveyor	STEEL BELT	STEEL BELT	STEEL BELT	STEEL BELT
Net machine weight (kg)	24 000	25 000	26 000	34 000
Floor space x height (mm)	7100 x 7060 x 4100	7100 x 7800 x 4100	7100 x 9100 x 4100	7200 x 7500 x 5100

ACMC-4D-2500 - 6500

Moving Column TILTING HEAD Aluminum Structure Machining Centers (#40)

- Heavy cast iron bed, stand, and slide system
- Assembled, precision linear guides on all axes
- Rack and pinion drive for X axis, ball screw drive for Y and Z axes
- Direct drive main spindle
- Drum-type tool magazine with arm-type tool changer

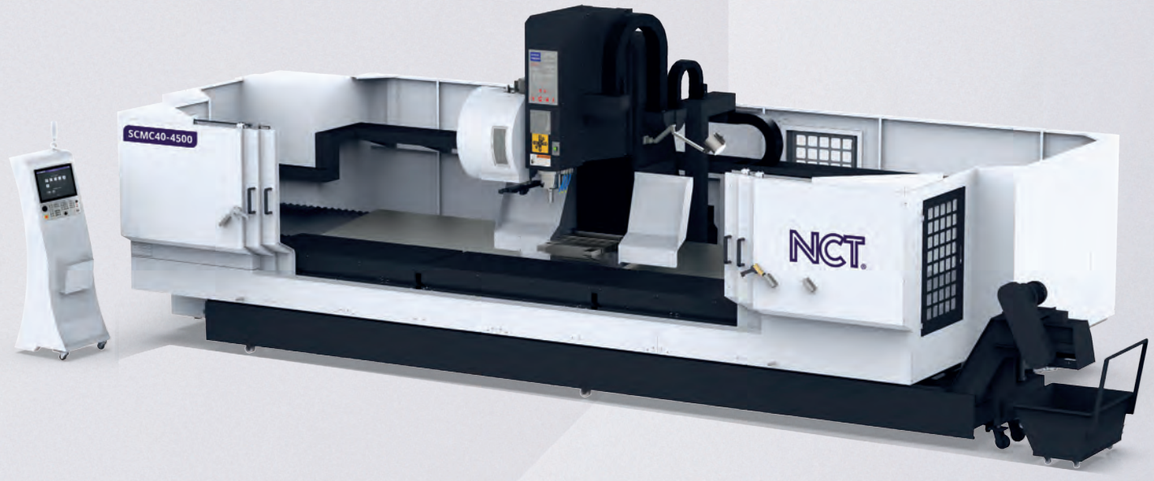


Specification	ACMC-4D-2500	ACMC-4D-4500	ACMC-4D-6500
X axis (mm)	2500	4500	6500
Y axis (mm)	500	500	500
Z axis (mm)	700	700	700
B axis (mm)	±90°	±90°	±90°
Distance between spindle and table surface (mm)	130-830	130-830	130-830
Table size (mm)	2500 x 550	4500 x 550	6500 x 550
Table loading capacity (kg/m2)	1000	1000	1000
T-slot number x size x pitch (mm)	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100
Positioning accuracy (mm)	0.05	0.05	0.05
Repeatability (mm)	0.02	0.02	0.02
X / Y / Z rapid traverse speed (m/min)	60 / 28 / 28	60 / 28 / 28	60 / 28 / 28
Spindle drive	Motorspindle	Motorspindle	Motorspindle
Speed (rpm)	18 000	18 000	18 000
Max. power (kW)	16	16	16
Tool changer	Arm-type	Arm-type	Arm-type
Max. number of tools	24	24	24
Tool change time [TtT] (sec)	2	2	2
Net machine weight (kg)	10 500	12 500	14 700
Floor space x height (mm)	6700 x 2850 x 3200	8710 x 2850 x 3200	10 700 x 2850 x 3200

SCMC40-2500 - 8500

Moving column steel structure machining centers (#40)

- Heavy cast iron bed, stand, and slide system
- Assembled, precision linear guides on all axes
- Rack and pinion drive for X axis, ball screw drive for Y and Z axes
- Direct drive main spindle
- Drum-type tool magazine with arm-type tool changer

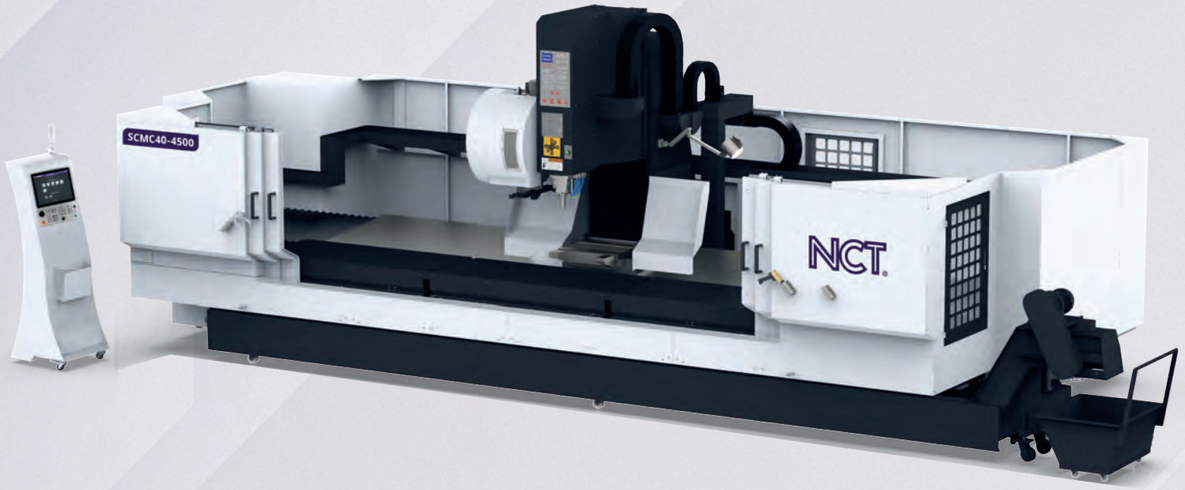


Specification	SCMC40-2500	SCMC40-4500	SCMC40-6500	SCMC40-8500
X axis (mm)	2500	4500	6500	8500
Y axis (mm)	580	580	580	580
Z axis (mm)	700	700	700	700
Table size (mm)	2500 x 650	4510 x 650	6520 x 650	8530 x 650
Table loading capacity (kg/m2)	1500	1500	1500	1500
T-slot number x size x pitch (mm)	6 / 18 / 100	6 / 18 / 100	6 / 18 / 100	6/18/100
Positioning accuracy (mm)	0.05	0.05	0.05	0.05 mm
Repeatability (mm)	0.02	0.02	0.02	0.02 mm
X / Y / Z rapid traverse speed (m/min)	60 / 28 / 28	60 / 28 / 28	60 / 28 / 28	60/28/28
Type of the X / Y / Z axis	Linear guideway	Linear guideway	Linear guideway	Linear guideway
Spindle drive	Belt / Direct	Belt / Direct	Belt / Direct	Belt / Direct
Spindle taper size	#40	#40	#40	#40
Speed (rpm)	10 000 / (15 000 opt.)	10 000 / (15 000 opt.)	10 000 / (15 000 opt.)	10 000 / (15 000 opt.)
Max. power (kW)	13 / 20	13 / 20	13 / 20	13 / 20
Max. torque (Nm)	89 / 109	89 / 109	89 / 109	89 / 109
Tool changer	ARM-TYPE	ARM-TYPE	ARM-TYPE	ARM-TYPE
Max. number of tools	24	24	24	24
Tool change time [TtT] (sec)	2	2	2	2
Chip conveyor	drag-type	drag-type	drag-type	drag-type
Net machine weight (kg)	12 000	13 500	17 000	19 000
Floor space x height (mm)	6900 x 3100 x 3100	8900 x 3100 x 3100	10 900 x 3100 x 3100	13 400 x 3100 x 3100

SCMC50-2500 - 6500

Moving column steel structure machining centers #50

- Heavy cast iron bed, stand, and slide system
- Assembled, precision linear guides on all axes
- Rack and pinion drive for X axis, ball screw drive for Y and Z axes
- Direct drive main spindle
- Drum-type tool magazine with arm-type tool changer

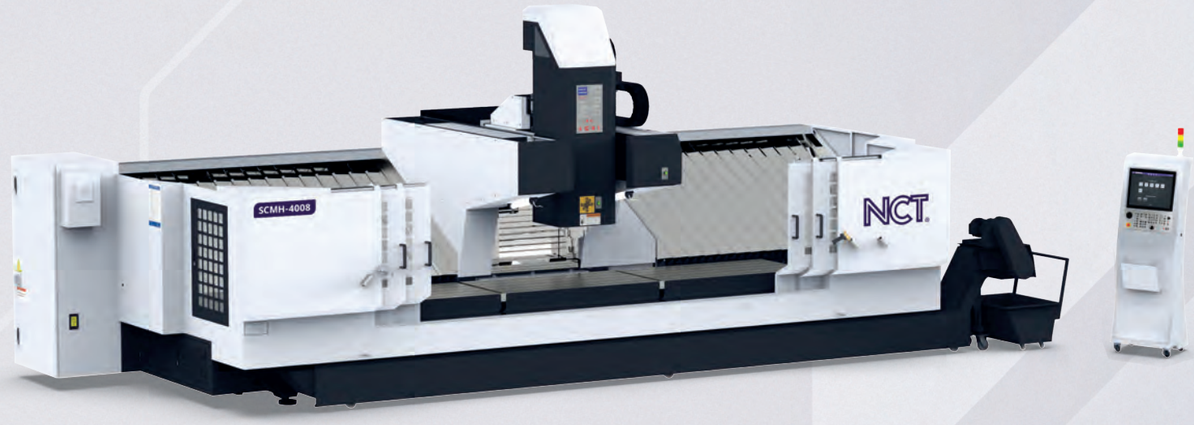


Specification	SCMC50-2500	SCMC50-4500	SCMC50-6500
X axis (mm)	2500	4500	6500
Y axis (mm)	650	650	650
Z axis (mm)	700	700	700
Table size (mm)	2500 x 650	4150 x 650	6520 x 650
Table loading capacity (kg/m2)	1200	1400	1600
T-slot number x size x pitch (mm)	6 / 18 / 100	6 / 18 / 100	6 / 18 / 100
Positioning accuracy X (mm)	0.05	0.05	0.05
Positioning accuracy Y / Z (mm)	0.02	0.02	0.02
Repeatability (mm)	±0.01/300	±0.01/300	±0.01/300
X / Y / Z rapid traverse speed (m/min)	60 / 48 / 40	60 / 48 / 40	60 / 48 / 40
Spindle drive	Belt	Belt	Belt
Spindle taper size	#50	#50	#50
Speed (rpm)	8000	8000	8000
Max. power (kW)	22	22	22
Max. torque (Nm)	120	120	120
Tool changer			
Max. number of tools	24	24	24
Tool change time [TtT] (sec)	2	2	2
Net machine weight (kg)	12 000	16 500	17 000
Floor space x height (mm)	6900 x 3100 x 3100	8700 x 3200 x 3100	10 900 x 3200 x 3100 mm

SCMH-2500 - 6500

Moving column steel structure machining centers WITH EXTENDED Y-AXIS STROKE

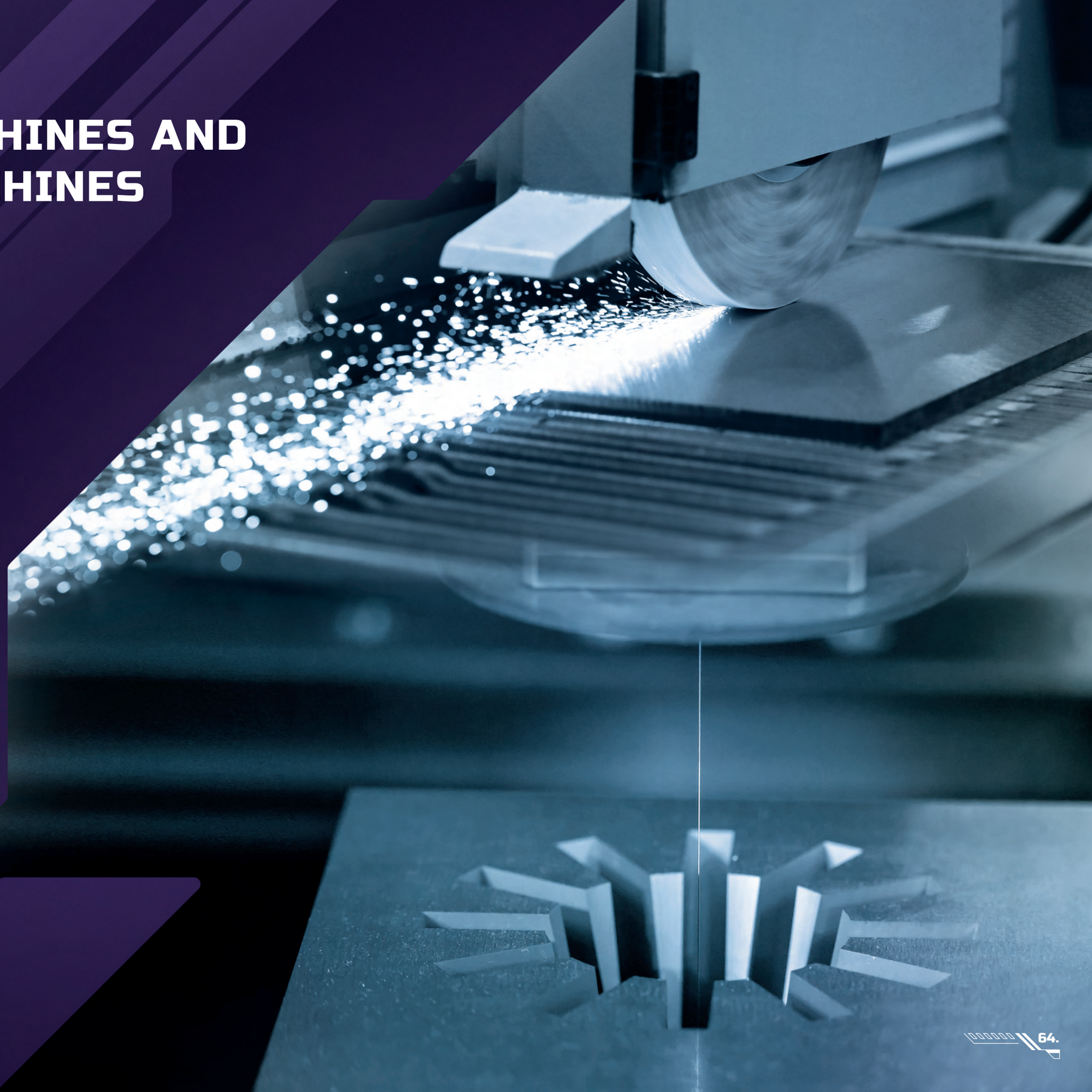
- Heavy-duty cast iron bed, column, and slide system
- Assembled, precision linear guideways on all axes
- Rack-and-pinion drive for X axis, ball screw drive for Y and Z axes
- Direct-drive spindle
- Tool magazine with arm-type tool changer



Specification	SCMH-2508	SCMH-2512	SCMH-4008	SCMH-4012	SCMH-6008	SCMH-6012
X axis (mm)	2500	2500	4000	4000	6000	6000
Y axis (mm)	800	1200	800	1200	800	1200
Z axis (mm)	600	600	600	600	600	600
Distance betveen spindle and table surface (mm)	130-730	130-730	130-730	130-730	130-730	130-730
Table size (mm)	2500 x 800	2500 x 1200	4150 x 800	4000 x 1200	6500 x 800	6000 x 1200
Table loading capacity (kg/m2)	1500	1500	1500	1500	1500	1500
T-slot number x size x pitch (mm)	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100	5 / 18 / 100
Positioning accuracy (mm)	0.05	0.05	0.05	0.05	0.05	0.05
Repeatability (mm)	0.02	0.02	0.02	0.02	0.02	0.02
X / Y / Z rapid traverse speed (m/min)	40 / 30 / 20	40 / 30 / 20	40 / 30 / 20	40 / 30 / 20	40 / 30 / 20	40 / 30 / 20
Spindle drive	Direct	Direct	Direct	Direct	Direct	Direct
Spindle taper size	#40 / #50	#40 / #50	#40 / #50	#40 / #50	#40 / #50	#40 / #50
Speed (rpm)	6000 / 8000 / 12 000 / 15 000	6000 / 8000 / 12 000 / 15 000	6000 / 8000 / 12 000 / 15 000	6000 / 8000 / 12 000 / 15 000	6000 / 8000 / 12 000 / 15 000	6000 / 8000 / 12 000 / 15 000
Max. power (kW)	17 / 22 / 29 / 32	17 / 22 / 29 / 32	17 / 22 / 29 / 32	17 / 22 / 29 / 32	17 / 22 / 29 / 32	17 / 22 / 29 / 32
Max. torque (Nm)	180 / 160 / 130 / 109	180 / 160 / 130 / 109	180 / 160 / 130 / 109	180 / 160 / 130 / 109	180 / 160 / 130 / 109	180 / 160 / 130 / 109
Tool changer	UMBRELLA-TYPE	UMBRELLA-TYPE	UMBRELLA-TYPE	UMBRELLA-TYPE	UMBRELLA-TYPE	UMBRELLA-TYPE
Max. number of tools	16	16	16	16	16	16
Tool change time [TtT] (sec)	6 / (20 #40)	6 / (20 #40)	6 / (20 #40)	6 / (20 #40)	6 / (20 #40)	6 / (20 #40)
Chip conveyor	Chain-type	Chain-type	Chain-type	Chain-type	Chain-type	Chain-type
Net machine weight (kg)	17 000	18 000	19 000	21 000	22 000	24 000
Floor space x height (mm)	7900 x 3500 x 3600	7900 x 3500 x 3600	9000 x 3500 x 3600	9000 x 3500 x 3600	11 000 x 3150 x 3700	11 300 x 3500 x 3600

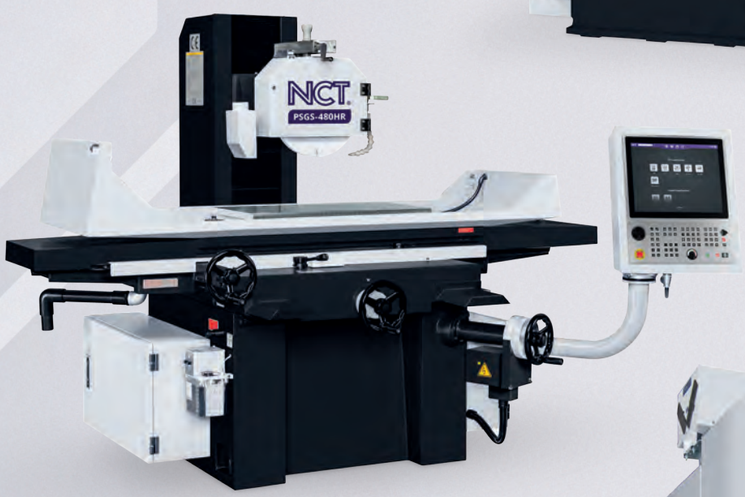
GRINDING MACHINES AND WIRE EDM MACHINES

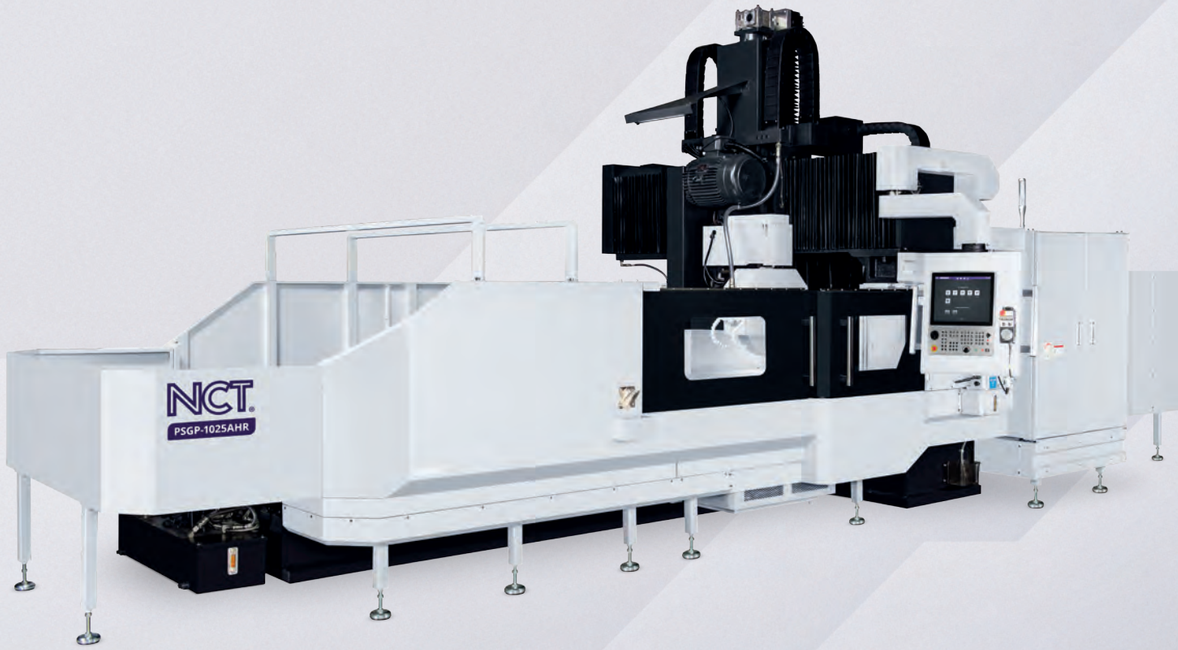
- PSGS, PSGC, PSGO, PSGP, PSRC
- DK-77
- SOFTWARES



PSGS, PSGC, PSGO, PSGP, PSRC

Surface Grinding Machines





PSGS

The column remains stationary while the workpiece performs movements in the longitudinal and cross directions

Specification	1535M	1545M	2045M	2550AH	3060BH	4080AHR
Max. travel (transversal x longitudinal) (mm):	160 x 375 mm	175 x 480	220 × 485	280×600	340×700	460×900
istance between spindle centre and table surface (mm):	420	420	420	500	600	600
Max. distance between table surface and grinding wheel (mm):	330	330	330	322	422	422
Table size (mm):	150 × 350	150 × 450	200 × 450	250 × 500	300 × 600	400 × 800
Table speed (m/min) :	Manual	Manual	Manual	1-25	1-25	1-25
Vertical rapid traverse speed (opt):	Manual	Manual	Manual	220 (option)	220 (option)	220 (option)
Grinding wheel size (O.D. / W / I.D.):	180 x 13 x 31.75	180 x 13 x 31.75	180 x 13 x 31.75	355 × 25 × 127	355 × 38 × 127	355 × 38 × 127
Grinding wheel speed (rpm):	3000	3000	3000	1500	1500	1500
Main motor power (kW):	1,1	1.1	1.5	2.2	3.7	3.7
Weight (kg):	800	800	800	1700	2500	3400
Size (mm):	1000 × 1150 × 1800	1000 × 1150 × 1800	1510 × 1570 × 1900	1700 × 1870 × 1800	1950 × 1950 × 1900	2550 × 2100 × 1900

PSGO

The grinding wheel performs movements in the cross and vertical directions.

Specification	60150AHR	70150AH	70220AHR	70300AHR
Max. travel (transversal x longitudinal) (mm):	660×1650	810×1650	810×2350	810×3150
istance between spindle centre and table surface (mm):	700 (950 option)	700 (950 option)	700 (950 option)	700 (950 option)
Max. distance between table surface and grinding wheel (mm):	522	522	522	522
Table size (mm):	600×1500	750×1500	750×2200	750×3000
Table speed (m/min) :	1-25	1-25	1-25	1-25
Vertical rapid traverse speed (opt):	200	200	200	200
Grinding wheel size (O.D. / W / I.D.):	355×50×127	355×50×127	355×50×127	355×50×127
Grinding wheel speed (rpm):	1500	1500	1500	1500
Main motor power (kW):	7,5	7,5	7,5	7,5
Weight (kg):	10800	12300	14000	16000
Size (mm):	5100×2500×2600	5100×2500×2600	6600×2500×2600	8400×2500×2600

PSRC

Rotary Table Surface Grinder

Specification	500S	600S
Max. grinding radius (mm):	290	340
Distance between spindle centre and table surface (mm):	500	500
Max. distance between table surface and grinding wheel (mm):	322	322
Table diameter (mm):	500	600
Table speed (rpm):	10-60	10-60
Vertical rapid traverse speed (opt):	400	400
Grinding wheel size (O.D. / W / I.D.):	355 × 50 × 127	355 × 50 × 127
Grinding wheel speed (rpm):	1500	1500
Main motor power (kW):	7.5	7.5
Weight (kg):	5500	6000
Size (mm):	2500 × 1900 × 2600	2500 × 1900 × 2600

PSGC

The column performs the crosswise movement, while the workpiece performs the longitudinal movement

Specification	50100AHR	50120AHR	50150AHR	60120AHR	60150AHR	60220AHR	60250AHR
Max. travel (transversal x longitudinal) (mm):	560×1150	560×1350	560×1650	660×1350	660×1650	660×2350	660×2650
istance between spindle centre and table surface (mm):	700	700	700	700	700	700	700
Max. distance between table surface and grinding wheel (mm):	522	522	522	522	522	522	522
Table size (mm):	500×1000	500×1200	500×1500	600×1200	600×1500	600×2200	600×2500
Table speed (m/min) :	1-25	1-25	1-25	1-25	1-25	1-25	1-25
Vertical rapid traverse speed (opt):	400	400	400	400	400	400	400
Grinding wheel size (O.D. / W / I.D.):	355×50×127	355×50×127	355×50×127	355×50×127	355×50×127	355×50×127	355×50×127
Grinding wheel speed (rpm):	1500	1500	1500	1500	1500	1500	1500
Main motor power (kW):	7,5	7,5	7,5	7,5	7,5	7,5	7,5
Weight (kg):	6900	7500	8500	9600	10900	13900	15600
Size (mm):	3200×2700×2960	4000×2700×2960	4700×2700×2960	4000×2830×2960	4700×2830×2960	6200×2830×2960	7200×2830×2960

PSGP

The grinding wheel performs the crosswise and vertical movements

Specification	1015AHR	1020AHR	1025AHR	1030AHR	1040AHR
Max. travel (transversal x longitudinal) (mm):	1200×1650	1200×2150	1200×2650	1200×3150	1200×4150
Distance between spindle centre and table surface (mm):	1100	1100	1100	1100	1100
Max. distance between table surface and grinding wheel (mm):	845	845	845	845	845
Table size (mm):	1000×1500	1000×2000	1000×2500	1000×3000	1000×4000
Table speed (m/min) :	2-25	2-25	2-25	2-25	2-25
Vertical rapid traverse speed (opt):	220	220	220	220	220
Grinding wheel size (O.D. / W / I.D.):	510×100×203,2	510×100×203,2	510×100×203,2	510×100×203,2	510×100×203,2
Grinding wheel speed (rpm):	1150	1150	1150	1150	1150
Main motor power (kW):	7,5	7,5	7,5	7,5	7,5
Weight (kg):	13000	17000	21500	26500	41000
Size (mm):	5100×2900×3400	6200×2900×3400	7300×2900×3400	8400×2900×3400	11200×2900×3500

DK-77

Molybdenum Wire EDM Machines

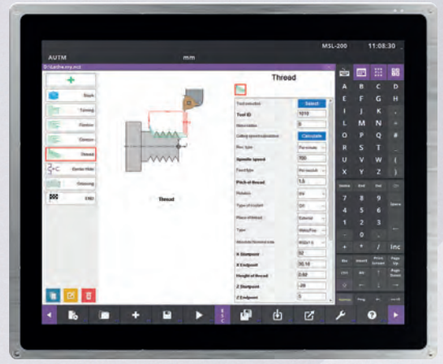
- Cast iron bed, column, and slide system
- Durable accuracy with HIWIN rolling guides on X, Y, U, and V axes
- Automatic cutting repetition (roughing, pre-finishing, finishing)
- Automatic stop at the end of the program or in case of wire breakage

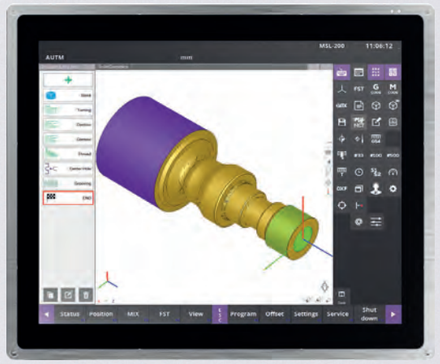
Specification	DK-7732F	DK-7740F	DK-7750F	DK-7763F	DK-7780F	DK-77100F
Table size (mm)	415×635	500×785	600×900	600×1100	820×1400	1090×1600
X / Y axis travel (mm)	320×400	400×500	500×630	630×800	800×1000	1000×1200
Max. cutting thickness (mm)	500	500	500	500	500	500
Max. taper angle (°)	60	60	60	60	60	60
Max. workpiece size (mm)	980 x 550	1180 x 710	1310 x 795	1400 x 940	1580 x 1150	
Max. workpiece weight (kg)	400	500	800	3000	5000	5000
Machine weight (kg)	1700	2000	2300	4500	6700	7000
Max. cutting speed (mm2/min)	150	150	150	150	150	150
Best roughness (µm)	Ra≤1.5 (by finishing)	Ra≤1.5 (by finishing)	Ra≤1.5 (by finishing)	Ra≤1.5 (by finishing)	Ra≤1.5 (by finishing)	Ra≤1.5 (by finishing)
Best cutting precision (mm)	0,015	0,015	0,015	0,015	0,015	0,015
Wire diameter range (mm)	0,15 - 0,2	0,15 - 0,2	0,15 - 0,2	0,15 - 0,2	0,15 - 0,2	0,15 - 0,2

NCT SOFTWARE OPTIONS

myNCT

- 3+2 Axis Milling
- Driven Tool Milling
- Free Contour Pocket Milling
- Thread Milling
- Turning, Boring, Thread Cutting Cycles
- Engraving, Serial Numbering
- Simple Milling Cycles
- Drilling Cycles



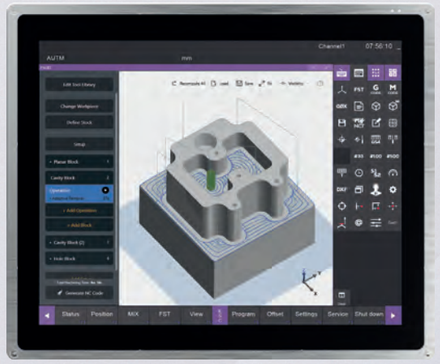


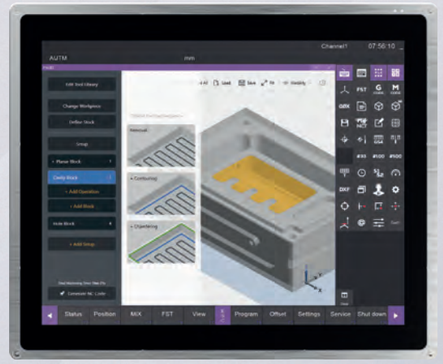
3D Solid Graphics

- Programmed workpieces and machining cycles displayed on lathe and milling controllers

Pro3D

Intuitive, “one-touch” programming interface for 2.5D milling tasks





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NCT IPARI ELEKTRONIKAI ZRT.

H-1148 Budapest, Fogarasi út 7. Phone: (+36) 30 525 51-71

mail: nct@nct.hu www.nct.hu

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