

Rexroth IndraMotion MTX

The new CNC system solution – perfect cutting and forming

Open, complete and high performance



Rexroth IndraMotion MTX – High-speed CNC machining

Today, the market for CNC machine tools is characterized by high variability and demand for control and drive solutions which meet user expectations in job shops and in automated, large-scale production environments.

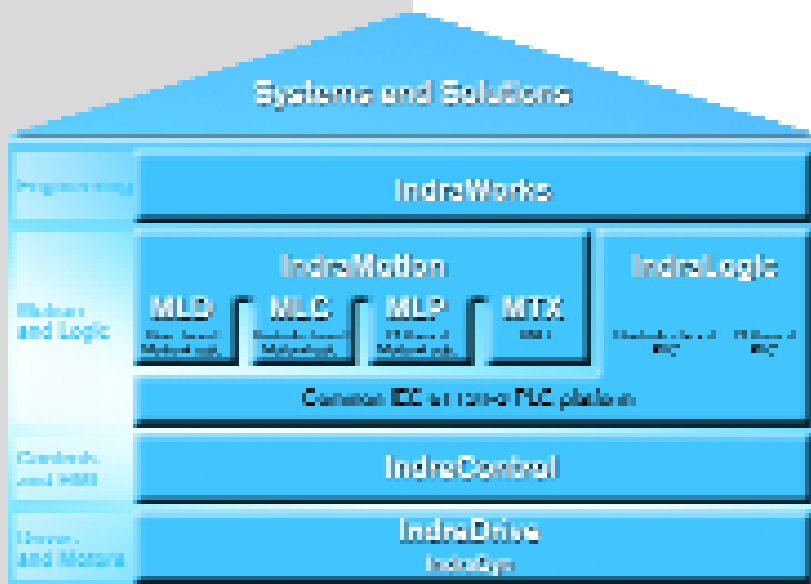
Using our Automation House, we have created one of the most advanced CNC platforms: Rexroth IndraMotion MTX, completely covering a wide range of applications.

Regardless of whether you want to automate a production machine for cutting or forming applications, or control a networked system for large-scale production, the IndraMotion MTX will provide you with a customized solution. Outstanding features of the system include:

- scalable performance and functionality
- open system architecture
- a full-featured engineering framework
- simple operation and programming

A wide range of technology functions and excellent performance characteristics open up new possibilities in the areas of:

- turning
- cutting
- boring
- grinding
- bending
- nibbling
- punching
- laser applications
- integrated machine automation



IndraMotion MTX, part of Rexroth's Automation House, is a high-productivity CNC system solution for leading-edge cutting and forming applications. It contains all of the system components which users need to implement highly successful automation designs including drives, controllers, user-friendly operation and a powerful engineering framework which provides the engineering department with a uniform working environment. This innovation is the result of our many years of applications experience and it opens to you the freedom of automation technology – logical, intelligent and an investment for the future.

Easy-to-use

A full-featured engineering framework, user-friendly operating software and integrated web technology simplifies programming, operation and diagnostics.

Versatile platform

An innovative CNC kernel, comprehensive libraries and technology packages provide flexibility for applications ranging from standard machines to fully-automated production systems.

High-precision machining

A high performance CPU, in conjunction with the intelligence of Rexroth's new IndraDrive system, delivers very high precision in all of your applications, extending down to the nanometer range. A complete solution with integrated cycles and high-end technology functions ensure standardization of your machines and allow you to implement special, machine-specific functions.

Open architecture

The open system platform utilities of international industry standards such as Fieldbus, SERCOS, Ethernet, OPC and XML, facilitating integration into higher-level ERP systems like SAP.

Outstanding performance

Shortest CNC cycle times and minimum PLC processing times permit high-speed, dynamic machining and reduced non-productive times for significant increases in productivity.

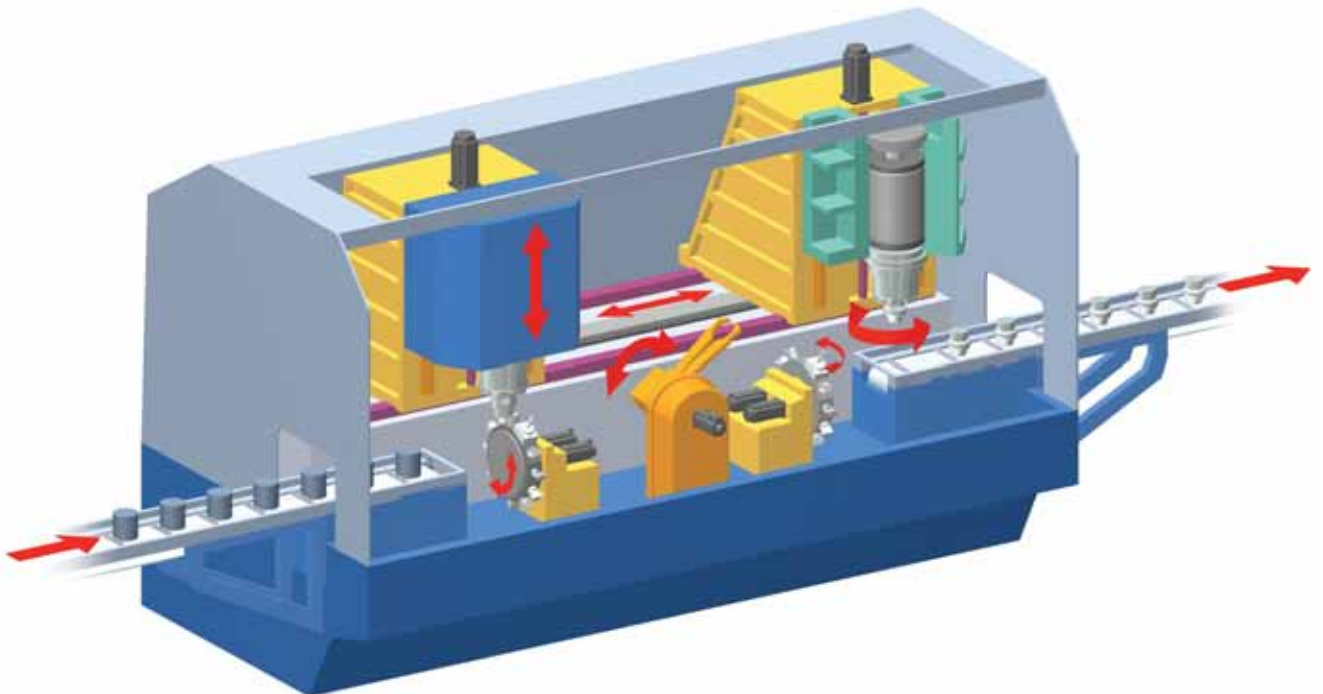


Outstanding performance for faster production

You can use the IndraMotion MTX to perform simple, effective control of machines for turning, cutting, boring, grinding, nibbling, punching and/or bending operations. You can make use of a complete, full-featured software package that takes you from project planning and startup right through to part programming.

User interfaces, designed with practical application in mind, increase productivity and simplify troubleshooting – providing greater transparency in your systems and processes.

- DIN 66025 compliant CNC programming
- up to 64 servo axes
- up to 32 spindles using a SERCOS interface
- up to 12 independent CNC channels
- integrated IEC 61131-3 compliant PLC

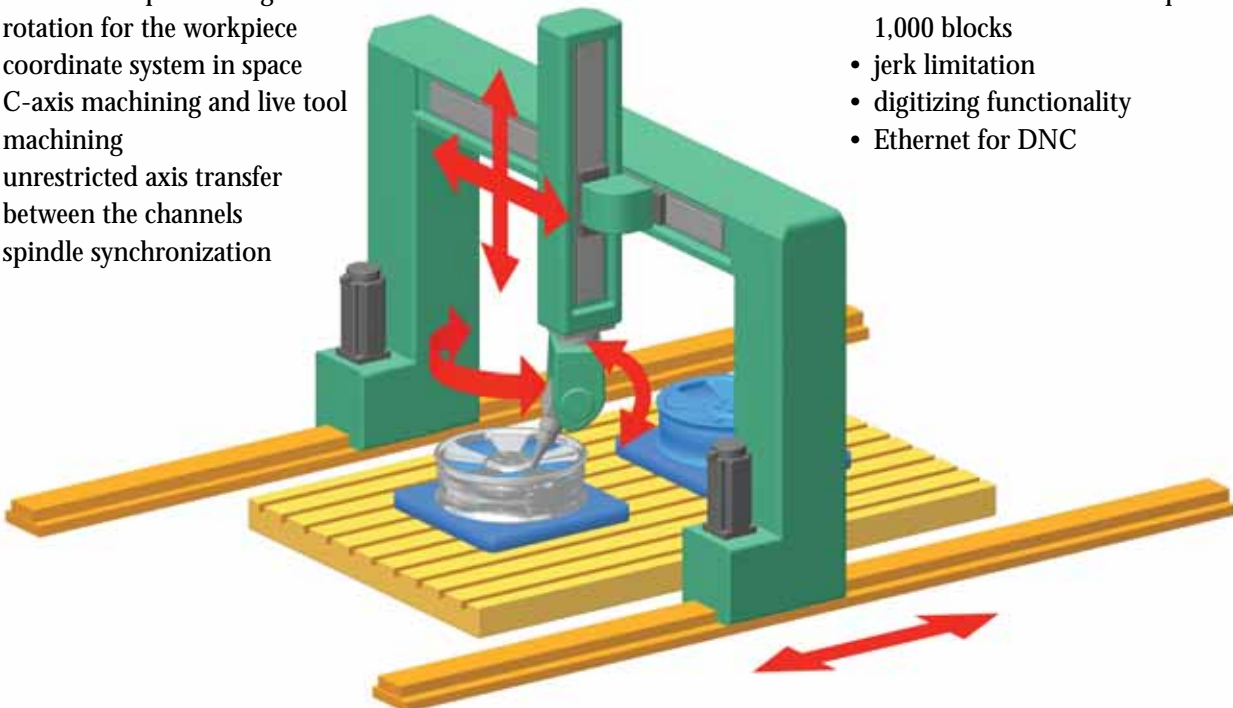


**Turning –
precise and complete**

IndraMotion MTX offers you all the functions and capabilities of cross-technology, multi-axis machining. The combination of turning, cutting, and boring in one process lets you perform complete machining operations with a single clamping.

Multi-channel capability and unrestricted axis allocation allow you to perform complete part machining with workpiece transfer on multi-spindle lathe centers.

- graphical contour definition programming
- 3D machining simulation
- integrated technology cycles
- unrestricted positioning and rotation for the workpiece coordinate system in space
- C-axis machining and live tool machining
- unrestricted axis transfer between the channels
- spindle synchronization



**Cutting –
fast and effective**

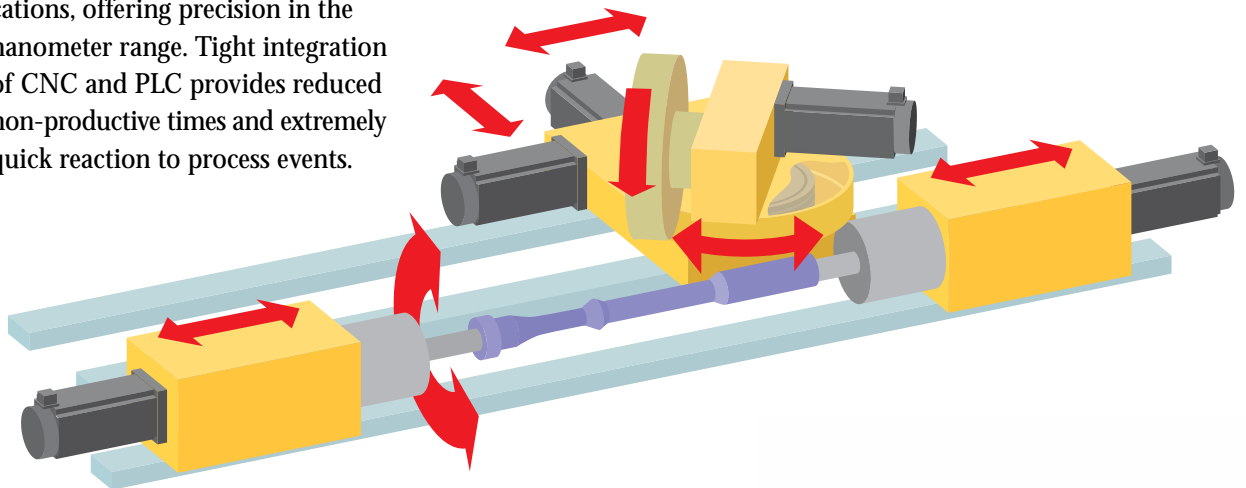
The CNC functions of the IndraMotion MTX, which have a proven track record in practical applications, cover the entire spectrum ranging from standard cutting machines to HSC centers for free-form machining. Open system architecture allows you to integrate supplier-specific software packages to create part programs. With the high CNC processing speed you can execute large programs, without delay, directly from mass storage or from the network.

- 5/6-axis transformation
- spline and NURBS interpolation
- 3D cutter radius correction
- look-ahead function for up to 1,000 blocks
- jerk limitation
- digitizing functionality
- Ethernet for DNC

Combining more technology for highest precision and production

Grinding – highly-dynamic with nanometer accuracy

IndraMotion MTX in combination with Rexroth's intelligent IndraDrive digital drive units and the IndraDyn motors are the ideal solution for your demanding grinding applications, offering precision in the nanometer range. Tight integration of CNC and PLC provides reduced non-productive times and extremely quick reaction to process events.



- integrated transformation for inclined axes
- minimum CNC interpolation time of 0.25 ms
- high-speed spindle drives up to 180,000 rpm
- linear and rotary direct drives with excellent dynamic characteristics
- integrated IEC 61131-3 compliant PLC
- high-speed I/O on-board
- standard user interfaces which can be adapted to suit customer needs

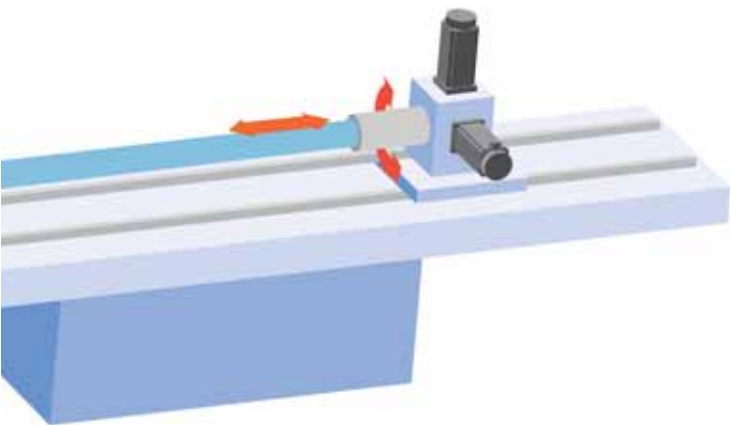


Bending – coordination of high precision

The IndraMotion MTX consistently bends sheet metal, pipe, profiles or wire with a high degree of geometrical precision. You can use axis interpolation with up to 8 axes on one CNC channel to achieve perfect operations such as 3D bending.

You can combine Rexroth's hydraulic and electro-mechanical CNC axes any way you like using the SERCOS interface to achieve optimal process adaptation.

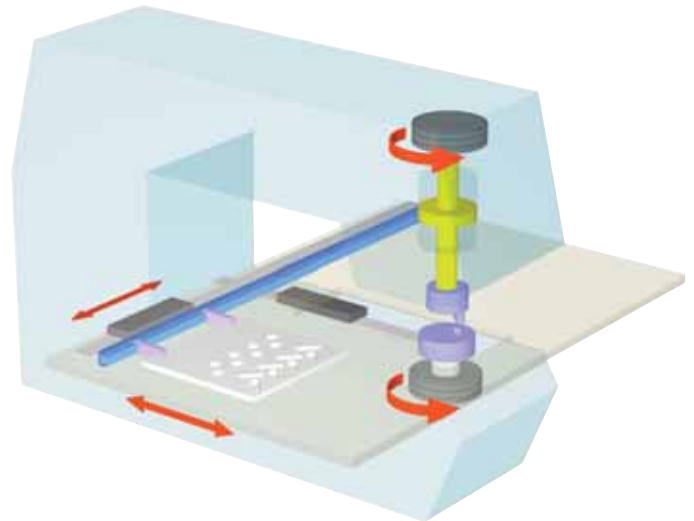
- exact motion coordination in space
- intelligent, hydraulic-axis control



- interpolation between hydraulic and electrical axes
- high performance digital drives
- integrated safety functions to protect man and machine

Nibbling, punching, and laser – fast and accurate

By taking advantage of the process-optimized control functions and the dynamics of our intelligent digital drives, you increase the number of strokes on your machine and consequently your productivity. A process-optimized user interface combined with special punching and nibbling functions in the CNC kernel reduce your process engineering workload.



- electro-hydraulic punch axis
- speed stroke activation from the NC kernel
- robust control hardware designed for industrial environments
- tangential tool guidance
- high-torque motors for direct tool drive
- auto-height control
- laser power control

Individual solutions with open standards

IndraMotion MTX is a complete system platform from which we configure tailored CNC solutions for your application – whether you want to automate a single series machine or a complex high-production system.

IndraMotion MTX is individually scalable in power and functionality using uniform hardware and software.

These variants satisfy all needs:

- IndraMotion MTX compact
- IndraMotion MTX standard
- IndraMotion MTX performance

IndraMotion MTX compact – space-saving rack version for distributed control technology

With all interfaces, including 8 digital fast I/Os, it has all the necessary functionality for simple CNC stations or standard machines with up to 8 axes. The controller allows connection of all operating and visualization devices and has an integrated expansion interface for add-on modules and I/O devices.



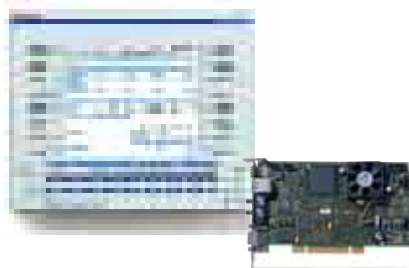
Functionality modules are available which allow upgrading using special interfaces.

For use in modular systems using distributed control equipment, the IndraMotion MTX compact offers a fast Ethernet interface for data and control networking. The system also features a PROFIBUS DP interface for connection of distributed I/O devices or compact HMI devices.



IndraMotion MTX standard – PC-based CNC system

The CNC and PLC functions are packaged as a plug-in controller in an industrial PC. Even the basic version offers outstanding performance for 8 axes, of which 2 can be used for spindle functions. Two independent CNC channels are available for process automation. IndraControl VSP industrial PCs can be integrated seamlessly into the IT network landscape in modern production environments – including a complete package for operation and programming and fast communications ports.



IndraMotion MTX performance – a CNC system for the highest requirements

IndraMotion MTX performance, packaged in a special high-end industrial PC with matching operating features, is the system solution of choice for demanding machine tools in harsh industrial environments. The controller delivers excellent performance and offers a wide range of technology functions for special requirements. Up to 32 of the 64 axes available can be used for spindle functions. With up to 12 independent CNC channels you can implement the most exacting applications.



A whole series of functions is available for performing complex interpolation, axis coupling, special kinematics, fast I/O coupling and much more.

IndraMotion MTX performance can be upgraded to handle future requirements. For example, you can add additional interfaces or field-bus connections.

Simple operation and convenient diagnostics for more efficient production

The CNC user interface of the IndraMotion MTX can be precisely adapted to the requirements of your machine. The software offers standard screens for all areas of operation.

With the HMI editor WinStudio, application-specific displays can be easily integrated in the standard screens. A configuration tool of the IndraWorks engineering framework helps to customize the menu structure and to integrate application images.

The state-of-the-art software architecture of the user interface makes it easy to plug in readily-available ActiveX-Controls or 3rd party software.

The screen header area shows the user the status of the machine and manufacturing process. Icon-based convenient and clear diagnostics and an automatic "message ticker" ensure that the right information is always supplied.

The "Diagnostics" operator area provides an overview of active messages and access to the message log book. Detailed descriptions of faults and troubleshooting hints are displayed along with the diagnostic messages.



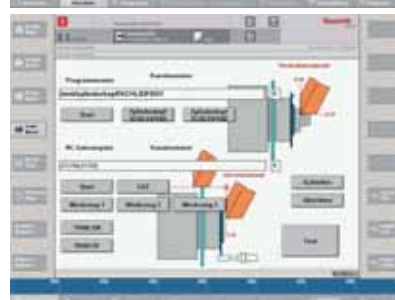
Complete operating and programming user interface



Integrated visualization for tools and NC data



Easy to understand configuration dialogs



Integration of system-specific special images



Use of pre-programmed ActiveX controls

Easy programming for rapid workpiece development

The integrated NC editor gives you a simple, easy to understand method of creating part programs. Syntax highlighting makes it easier to recognize keywords. ISO 66025 code, high-level language elements, and flexible subroutine techniques allow you to create well-organized program structures that are easy to understand.

Technology cycles for drilling and cutting are available for efficient execution of repetitive machining sequences. Graphical aids for data entry help the person setting up the machine complete the task faster and more reliably.

Graphical CNC programming for turning and cutting guides the programmer through the shortest path from the drawing to the finished part. There are design aids to help you create contours and complete dialog-driven programming of shaped elements.

3D graphical simulation allows you to check a part program and quickly eliminate programming errors. This initial quality check reduces scrap and idle time before a single chip has been removed. Simulation can be executed while the machine is working on a different workpiece.



Integrated NC editor



User-friendly programming help systems



Integrated technology cycles



Contour path programming



Perfect 3D simulation

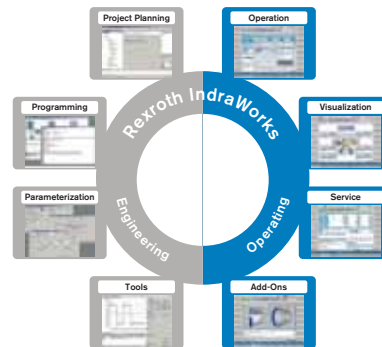
Straightforward engineering cuts time to production

Rexroth's IndraWorks engineering framework combines design planning tools for initial operation and troubleshooting. You can take advantage of cross-system project management and data storage to organize large-scale automation projects in an efficient format that is easy to understand.

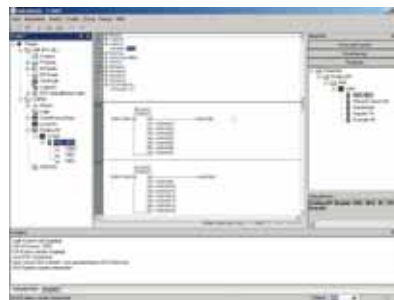
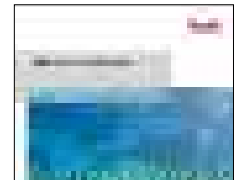
The integrated IEC 61131-3 compliant PLC lets you program using instruction lists, function block diagrams, ladder diagrams, structured text, sequential language or CFC. Multi-programming and multi-tasking technology give you new ways of achieving the best possible representation of the process.

There is an oscilloscope function to record digital and analog signals plus a convenient status display to support you during troubleshooting. You can use the integrated configurator to set up fieldbus systems and the distributed I/O devices that you have connected.

Commissioning functions for the parameterization and optimization of Rexroth digital drives are started centrally from IndraWorks.



**IndraWorks –
task-oriented
operation and
visualization**



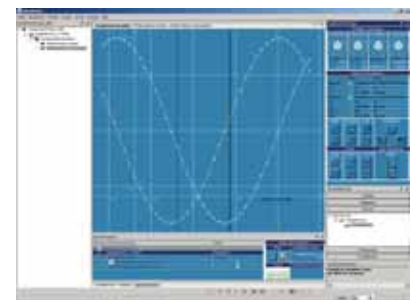
PLC programming and start-up



Basic fieldbus configuration



Configurable user interface



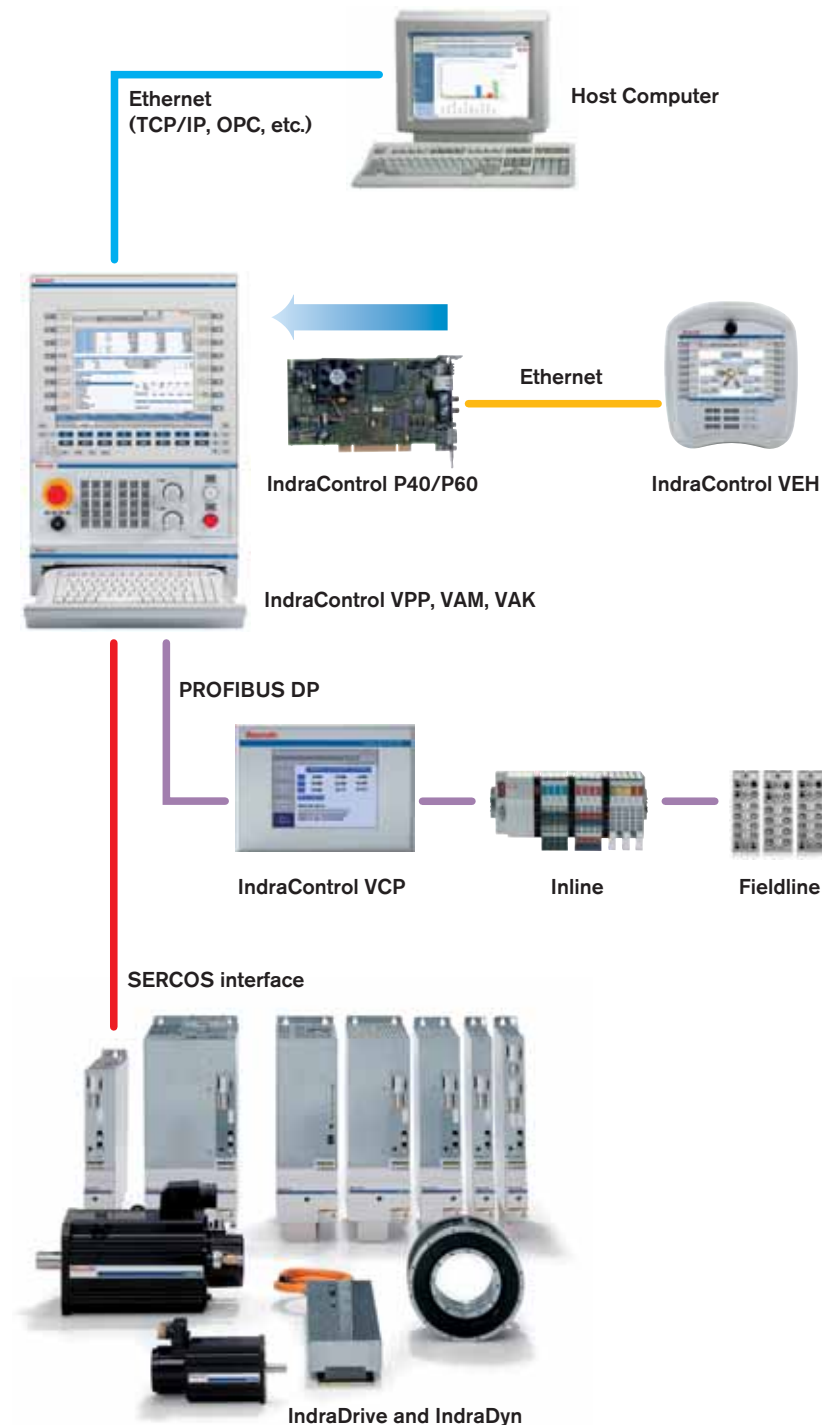
**Drive unit parameterization
and optimization**

User-specific custom screens can be created with the integrated HMI editor WinStudio. In this way, system overviews and additional operation screens can easily be integrated into the standard user interface.



Integrated HMI editor

Uniform communication at all levels



Host computer level

Our industrial PCs provide a simple and cost-effective communications path to host computer systems. The system is based on standard hardware and software modules such as Ethernet TCP/IP, OPC and Windows access mechanisms like COM/DCOM.

HMI level

PC-based operating devices with operating systems such as Windows XP or "Windows CE .NET" simplify data exchange using standard networking such as the Microsoft network.

I/O level

To communicate with the sensor/actuator level, we use worldwide standards such as PROFIBUS DP, or DeviceNet.

Drive level

The internationally-standardized SERCOS interface is used to achieve the highest level of dynamics and precision. IndraMotion MTX and IndraDrive fully exploit the advantages of the newest SERCOS interface generation with data transfer rates up to 16 MBaud.

IndraMotion MTX incorporates a modular system design, open controller structure and standard international interfaces to

solve all of your machining tasks in the field of CNC technology with the highest level of dynamics and precision

Scalable system components for flexible automation

IndraControl V – high-performance industrial PCs



If you are looking for a complete solution for control, operation and visualization, we can offer you powerful industrial PCs. As a panel PC or as a separated PC and display to minimize enclosure installation in a control cabinet, the IndraControl V series is suitable for various systems configurations.

The IndraControl VSP series offers cost-effective, compact panel PCs featuring the latest technology with 12" or 15" displays and keyboard layouts for speedy operation.

The IndraControl VPP series is suitable for the toughest requirements. Shock and vibration isolated hard disk, compact design, integrated temperature monitoring, and UPS are just some of the features of these rugged devices.

VAK – ergonomic industrial keyboards



These IP65 keyboards are compact and easy to install. The retractable keyboard offers the convenience of a standard PC keyboard with integrated mouse.

The membrane keyboard has a minimum mounting depth while offering complete MF2 functionality and IP65 protection.

VAM – convenient machine control panels



All control panels are designed for use with our operating and visualization devices.

A PROFIBUS DP interface is used to connect them to the controller.

IndraControl VCP and VEH – control devices and compact display



The compact IndraControl VCP control terminals are a cost-effective solution for visualization and troubleshooting. They are available with a monochrome or color display with keys or touchscreen. They offer simple connectivity using Ethernet or fieldbus interface.

The hand-held IndraControl VEH control devices gives you a fast and convenient way of operating a machine, setting parameters and running diagnostics. An Ethernet interface, a three-stage live man switch with occupational safety certification and a STOP button are all standard equipment. An electronic handwheel and an override switch are available as options.

**IndraControl P40 and P60 –
a complete CNC and PLC in PC
format**



This high-performance central assembly provides CNC performance to control up to 8 or 64 axes on 2 or 12 independent CNC machining channels. Standard equipment includes ports to control I/O through PROFIBUS DP, intelligent drives through a SERCOS interface and peripheral devices through Ethernet.

An innovative storage design ensures very high system availability even in harsh industrial environments. Functionality modules with a high-speed interface for IndraControl P60 facilitate the addition of the fieldbuses DeviceNet and Ethernet/IP or other interfaces.

**IndraControl L40 –
a complete CNC in a DIN
rail-mount format**



This central assembly, designed for DIN rail mounting, combines CNC performance with PLC functions in an ultra-compact terminal format. Eight integrated I/O ports, a PROFIBUS DP interface, a SERCOS interface for intelligent drives and Ethernet for communications with peripheral devices are included as standard equipment. The standard I/O ports can be expanded using Rexroth Inline modules. Functionality modules with a high-speed interface facilitate the addition of the fieldbuses DeviceNet and Ethernet/IP or other interfaces.

**Inline –
a flexible I/O system**



Inline is a scalable I/O system with very fine granularity. There is a choice of PROFIBUS DP and DeviceNet as interfaces. Digital and analog I/O ports plus the corresponding supply modules are available for connection of sensors/actuators.

**Fieldline –
I/O modules with IP67 protection**



You can use our compact Fieldline I/O units to bring I/O peripherals close to the sensors and actuators on your machine to reduce wiring costs and installation time. We offer input, output and combination modules for PROFIBUS DP and DeviceNet.

Efficient production with intelligent drive technology

You can use IndraDrive digital drive technology to turn IndraMotion MTX into a perfect automation system.

The combination of three features makes IndraDrive unique and innovative:

- a full-featured platform
- integrated intelligence
- an innovative safety concept

In conjunction with IndraDyn highly-dynamic motors, IndraDrive offers you a host of advantages:

- “safety-on-board” complying with EN 954-1, Category 3, for safe hold and safe motion
- a wide power range from 1 kW to 120 kW
- integrated motion & logic with IEC 61131-3-compliant PLC
- international standardized interfaces
- highest performance and precision
- scalable performance and functionality
- converters and inverters on a unique platform
- a comprehensive range of motors with excellent performance

IndraDrive and IndraDyn are Rexroth's application-optimized drive solution with integrated safety features, PLC and highly-dynamic motors

Safety on board

Safety technology compliant with EN 954-1, Category 3, makes sure that people are protected to the greatest extent. Power contactors and speed monitors are no longer needed.

Integrated motion & logic with IEC 61131-3-compliant PLC

Integrated motion & logic with IEC 61131-3-compliant PLC is fully committed to open standards and makes it easier to implement customer know-how.

Integrated technology functions

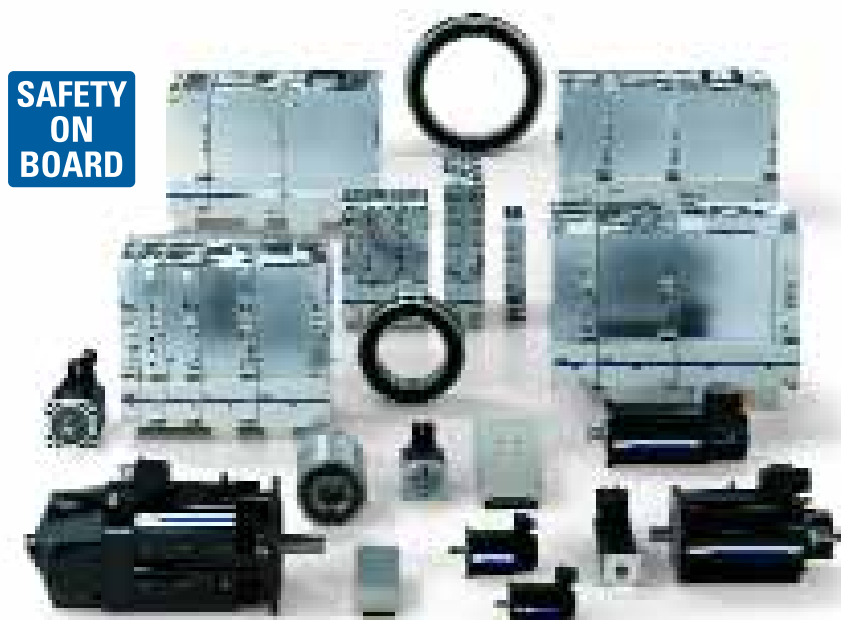
Technology functions can be parameterized on the basis of the drive motion & logic to perform the most diverse process-oriented tasks – without programming knowledge.

Open interfaces

There is a choice of SERCOS interface, PROFIBUS DP and DeviceNet for communicating with the CNC and the PLC.

One engineering tool for all tasks

The IndraWorks engineering tool guides you through all steps of the design phase, programming, parameter setting, operation and diagnostics.



Technical Information

1 Machining technologies	MTX compact	MTX standard	MTX performance
1.1 Turning	●	●	●
1.2 Milling	●	●	●
1.3 Drilling	●	●	●
1.4 Grinding	–	●	●
1.5 Nibbling, laser cutting	–	●	●
1.6 Metal forming	–	●	●

2 Axis control	MTX compact	MTX standard	MTX performance
2.1 Number of axis (standard)	8 ●	8 ●	8 ●
2.2 Maximum number of axis	8 ●	8 ●	64 ○
2.3 Maximum number of spindles	2 ●	2 ●	32 ○
2.4 Number of independent CNC channels (standard)	2 ●	2 ●	3 ●
2.5 Maximum number of independent CNC channels	2 ●	2 ●	12 ○
2.6 Number of interpolating axis (standard) per channel	4 ●	4 ●	4 ●
2.7 Maximum number of interpolating axis per channel	4 ●	4 ●	8* ○
2.8 Linear axis	●	●	●
2.9 Rotary axis	●	●	●
2.10 Endless rotary axis	●	●	●
2.11 Hirth gear axis	●	●	●
2.12 Spindle/C axis changeover	●	●	●
2.13 Maximum number of Gantry axis per channel	4 ② ○	4 ② ○	8 ② ③ ○
2.14 Maximum number of synchronize groups per channel	4 ① ② ○	4 ① ② ○	8 ① ② ③ ○
2.15 Axis switching between channels	●	●	●
2.16 Cam table	●	●	●
2.17 Soft limits	●	●	●
2.18 Main spindle synchronization	① ② ○	① ② ○	① ② ③ ○
2.19 Integrated safety functions EN 954-1 Cat. 3 (safe stop, safe reduced speed, safe axis limits)	□	□	□

Legend:

- Standard control function
- Optional control function
- Optional in combination with suitable PC
- Optional with IndraDrive

- ① Technology package "Turning 1"
- ② Technology package "Milling 1"
- ③ Technology package "Milling 2"
- ④ Workshop programming "Turning"
- ⑤ Workshop programming "Milling"

* An export license is required for this option.
Per Part I C of the export list (EC Regulation)
item 2D002.

3	Interpolation functions	MTX compact	MTX standard	MTX performance
3.1	Linear interpolation	●	●	●
3.2	Linear interpolation with/without exact stop	●	●	●
3.3	Circular interpolation with radius and center point programming, helical interpolation	●	●	●
3.4	Circular interpolation with tangential start	●	●	●
3.5	Rigid tapping	●	●	●
3.6	Thread cutting	●	●	●
3.7	NC block look-ahead, look-ahead with jerk limitation	max. 30 blocks ●	max. 30 blocks ●	max. 1,000 blocks ○
3.8	5/6 axis transformation with TCP programming	–	–	③ ○
3.9	Jog mode with active transformation	–	–	③ ○
3.10	Spline interpolation C1 + C2 continuous, cubic splines B splines, NURBS	① ② ○	① ② ○	① ② ③ ○
3.11	Nanometer resolution	●	●	●

4	Feed functions	MTX compact	MTX standard	MTX performance
4.1	Feed in mm/min or in/min	●	●	●
4.2	Inverse time programming	●	●	●
4.3	Feed per revolution	●	●	●
4.4	Constant cutting speed	① ○	① ○	① ○
4.5	Feed to positive stop	●	●	●
4.6	Reduced torque programming	●	●	●

5	Offsets and corrections	MTX compact	MTX standard	MTX performance
5.1	Mirror, scale, rotate	●	●	●
5.2	Zero offsets	●	●	●
5.3	Programming of corrections and zero offsets via PLC	●	●	●
5.4	Programming of corrections and zero offsets via CPL	●	●	●
5.5	Placements (FRAMES)	② ○	② ○	② ③ ○
5.6	2D tool path compensation	●	●	●
5.7	3D end mill radius compensation	–	–	③ ○
5.8	Path compensation with plane switching	●	●	●
5.9	Tangential tool path	●	●	●

6 Tool management	MTX compact	MTX standard	MTX performance
6.1 Integrated, flexible tool management	●	●	●
6.2 Configurable tool database	●	●	●
6.3 Freely-definable tool compensations (length, radius, tool edge correction, user data)	●	●	●
6.4 Additive tool compensation (D corrections)	●	●	●
6.5 Tool data access via PLC	●	●	●
6.6 Tool data access via CNC	●	●	●
7 CNC programming	MTX compact	MTX standard	MTX performance
7.1 Part program creation	DIN 66025/ RS427 ●	DIN 66025/ RS427 ●	DIN 66025/ RS427 ●
7.2 High level language programming, CPL customer programming language	●	●	●
7.3 Graphical NC programming	④ ⑤ ■	④ ⑤ ○	④ ⑤ ○
7.4 Graphical NC simulation	④ ⑤ ■	④ ⑤ ○	④ ⑤ ○
7.5 CNC application memory	64 MB	64 MB	64 MB
7.6 CNC user memory	8 MB	8 MB	8 MB
7.7 Maximum part program size	8 MB PC hard drive (Network File System) ■	PC hard drive (Network File System)	PC-Festplatte (Network File System)
8 Technology cycles	MTX compact	MTX standard	MTX performance
8.1 Drilling	① ② ○	① ② ○	① ② ③ ○
8.2 Turning	① ④ ○	① ④ ○	① ④ ○
8.3 Milling	② ⑤ ○	② ⑤ ○	② ⑤ ③ ○
9 Functions	MTX compact	MTX standard	MTX performance
9.1 Dwell time in sec.	●	●	●
9.2 Acceleration programming, KV programming	●	●	●
9.3 Referencing via NC program	●	●	●
9.4 Absolute dimensioning, incremental dimensioning	●	●	●
9.5 Unit switching in/mm	●	●	●
9.6 Probe, static/on-the-fly measuring	●	●	●
9.7 Read process and drive data via SERCOS interface	●	●	●
9.8 Rounding and chamfering	●	●	●
9.9 Laser power control	●	●	●
9.10 Digitizing	●	●	●
9.11 NC block selection via PLC	●	●	●

Legend:

- Standard control function
- Optional control function
- Optional in combination with suitable PC
- Optional with IndraDrive
- ① Technology package "Turning 1"
- ② Technology package "Milling 1"
- ③ Technology package "Milling 2"
- ④ Workshop programming "Turning"
- ⑤ Workshop programming "Milling"

10 Support for user interference	MTX compact	MTX standard	MTX performance
10.1 Configurable user screens	■	●	●
10.2 Cycle header/input dialog support for OEM cycles	■	●	●
10.3 Block pre-scan/block search	●	●	●
10.4 Dry run	●	●	●
10.5 Leave contour and reposition to contour	●	●	●

11 PLC programming	MTX compact	MTX standard	MTX performance
11.1 Integrated PLC: IndraLogic	●	●	●
11.2 Programming languages IEC 61131-3 (IL, LD, FBD, ST, SFC)	●	●	●
11.3 PLC program memory	8 MB	8 MB	8 MB
11.4 Number of high-speed I/Os	–	8/8 ○	8/8 ○
11.5 Number of fieldbus I/Os in Byte	8192/8192	8192/8192	8192/8192
11.6 Multitasking	●	●	●
11.7 Maximum number of PLC tasks	16	16	16

12 Diagnostic and commissioning tools	MTX compact	MTX standard	MTX performance
12.1 Integrated engineering framework IndraWorks	■	●	●
12.2 Automatic system monitoring	●	●	●
12.3 Status and fault messages in clear text	■	●	●
12.4 Integrated drive commissioning tool	■	●	●
12.5 Drive oscilloscope	■	●	●
12.6 Integrated PLC commissioning tool	■	●	●
12.7 Logic analyzer	■	●	●
12.8 I-Remote diagnosis	○	○	○

13 Open architecture control	MTX compact	MTX standard	MTX performance
13.1 Configurable standard user interface with all standard functions	■	●	●
13.2 Configurable, user-specific operator graphics	■	●	●
13.3 Adaption and integration via standard interfaces (OPC, XML, ActiveX, .NET)	■	●	●

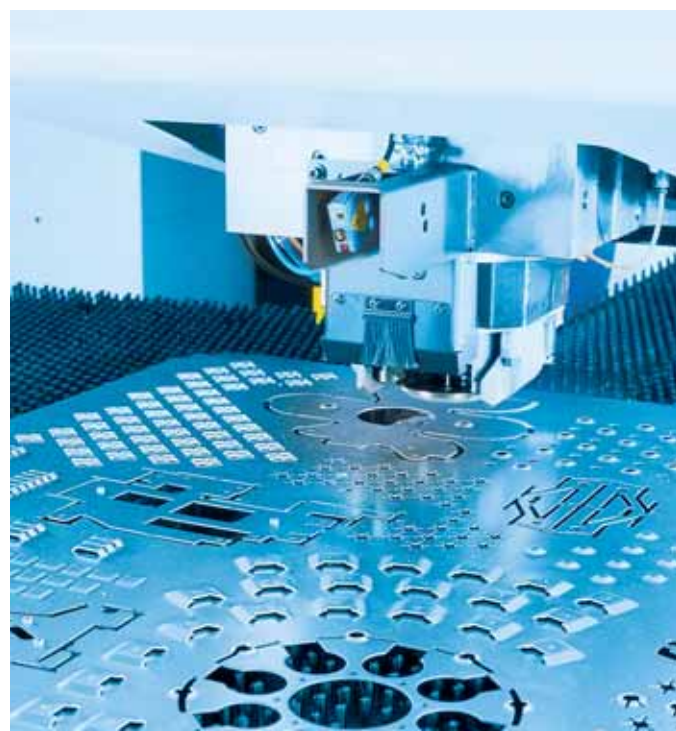
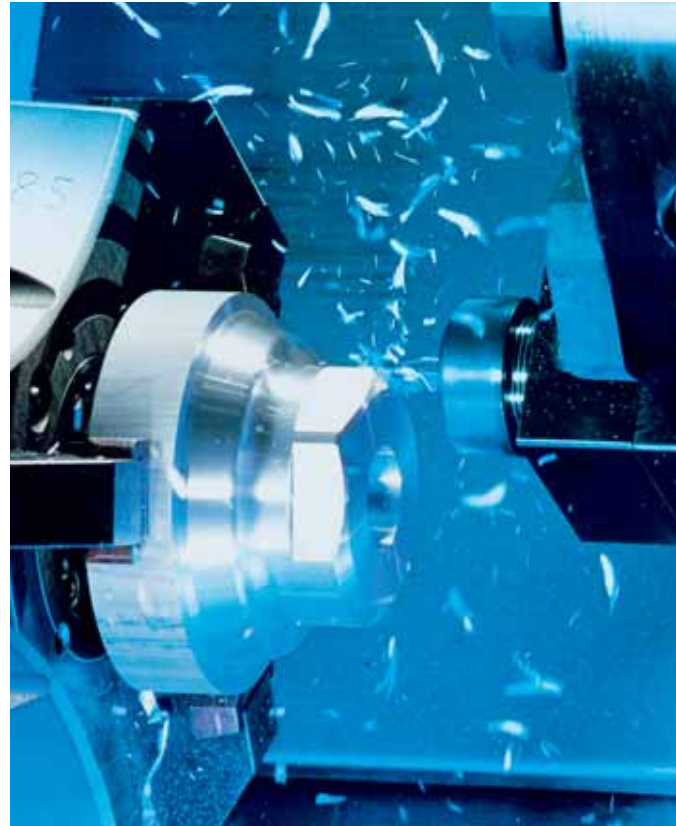
14 Control hardware und interfaces	MTX compact	MTX standard	MTX performance
14.1 CPU	IndraControl L40	IndraControl P40	IndraControl P60
14.2 Digital drive interface SERCOS interface	2 - 16 MBaud ●	2 - 16 MBaud ●	2 - 16 MBaud ●
14.3 PROFIBUS DP	12 MBaud ●	12 MBaud ●	12 MBaud ●
14.4 Ethernet	10 MBit ●	100 MBit ●	100 MBit ●
14.5 Ethernet-IP	○	—	○
14.6 DeviceNet	○	—	○

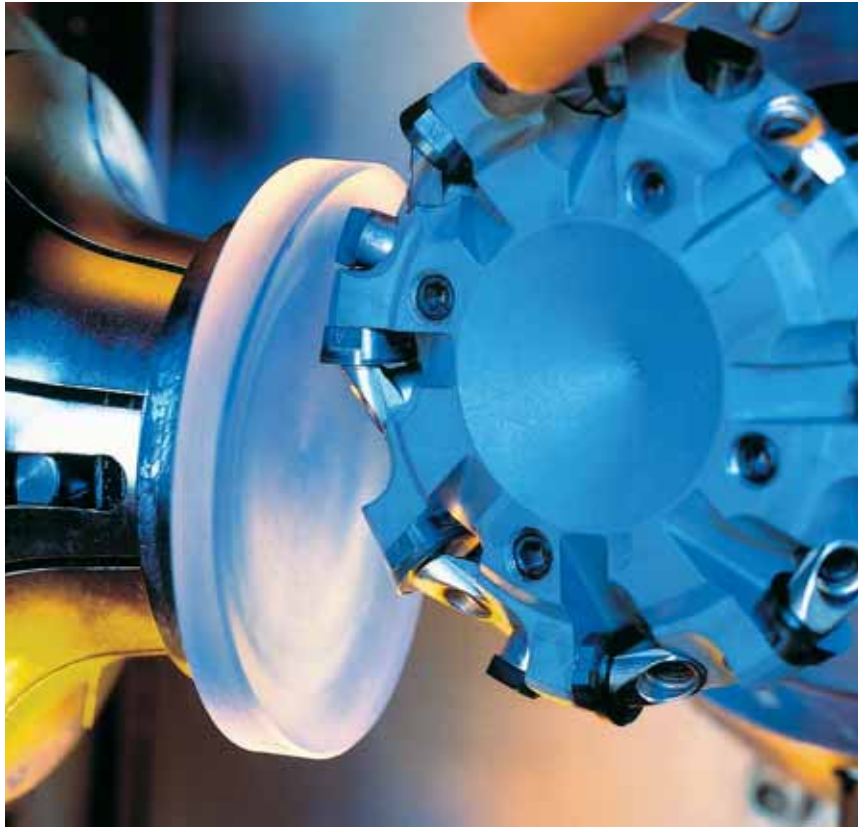
15 Software and hardware	MTX compact	MTX standard	MTX performance
15.1 Operating system Windows XP	—	●	●
15.2 Panel PC IndraControl VSP 16/40 - CPU: Celeron 2 GHz - Main memory: 512 MB - Hard drive: 30 GB min. - TFT screen: 12"/15" - TFT resolution: 800 x 600/1024 x 768 - Floppy drive (USB): 1.44 MB - DVD-RW/DVD-ROM drive - Ethernet 100 MBit, 2 COM, 1 LPT, keyboard, mouse - USB port/IP65: 2/1 - 16 machine operating keys	○	○	○
15.3 Panel PC IndraControl VPP 16/40 - CPU: Celeron M 1.3 GHz - Main memory: 512 MB/1 GB - Hard drive shock-isolated: 20 GB min. - TFT screen: 12"/15" - TFT resolution: 800 x 600/1024 x 768 - Floppy drive (USB): 1.44 MB - DVD-RW/DVD-ROM drive - Ethernet 100 MBit, 2 COM, 1 LPT, keyboard, mouse - USB port/IP65: 2/1 - UPS connector (rechargeable batteries optional) - 16 machine operation keys - Integrated temperature and fan monitoring	○	—	○
15.4 Industrial PC IndraControl VSB 40 - CPU: Celeron 2 GHz - Main memory: 512 MB - Hard drive: 30 GB min. - Floppy drive (USB): 1.44 MB - DVD-RW/DVD-ROM drive - Ethernet 100 MBit, 2 COM, 1 LPT, keyboard, mouse - USB port/IP65: 2/0 - 16 machine operation keys	○	○	○
15.5 Industrial PC IndraControl VPB 40 - CPU: Celeron M 1.3 GHz - Main memory: 512 MB/1 GB - Hard drive shock-isolated: 20 GB min. - Floppy drive (USB): 1.44 MB - DVD-RW/DVD-ROM drive - Ethernet 100 MBit, 2 COM, 1 LPT, keyboard, mouse - USB port/IP65: 2/0 - UPS connector (rechargeable batteries optional) - Integrated temperature and fan monitoring	○	—	○

Legend:

- Standard control function
- Optional control function
- Optional in combination with suitable PC
- Optional with IndraDrive
- ① Technology package "Turning 1"
- ② Technology package "Milling 1"
- ③ Technology package "Milling 2"
- ④ Workshop programming "Turning"
- ⑤ Workshop programming "Milling"

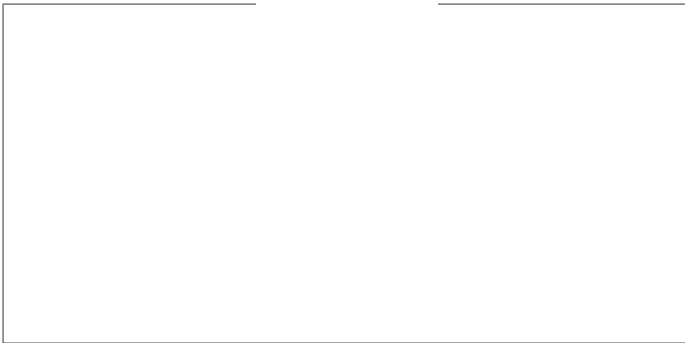
IndraMotion MTX from Rexroth – perfection in cutting and forming





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