



M40 | M40X | M50

M40-G | M40X-G | M50-G

M40 | M40X | M50 | M40-G | M40X-G | M50-G
[DE] [EN] [FR] [IT] [ES] [BR] [RU] [CN] [JP]

CLAMP ONCE - MACHINE COMPLETE



Maximum productivity

With the M40, M40-G, M40X, M40X-G, M50 and M50-G MILLTURN series, WFL Millturn Technologies is presenting a new generation of multifunctional turning-boring-milling centres for one-hit machining of complex chuck and shaft parts up to 670 mm swing over bed. Beside superior output and torque values of the spindle drives, the imposing feed forces in all axes make for superb dynamics and maximum productivity.

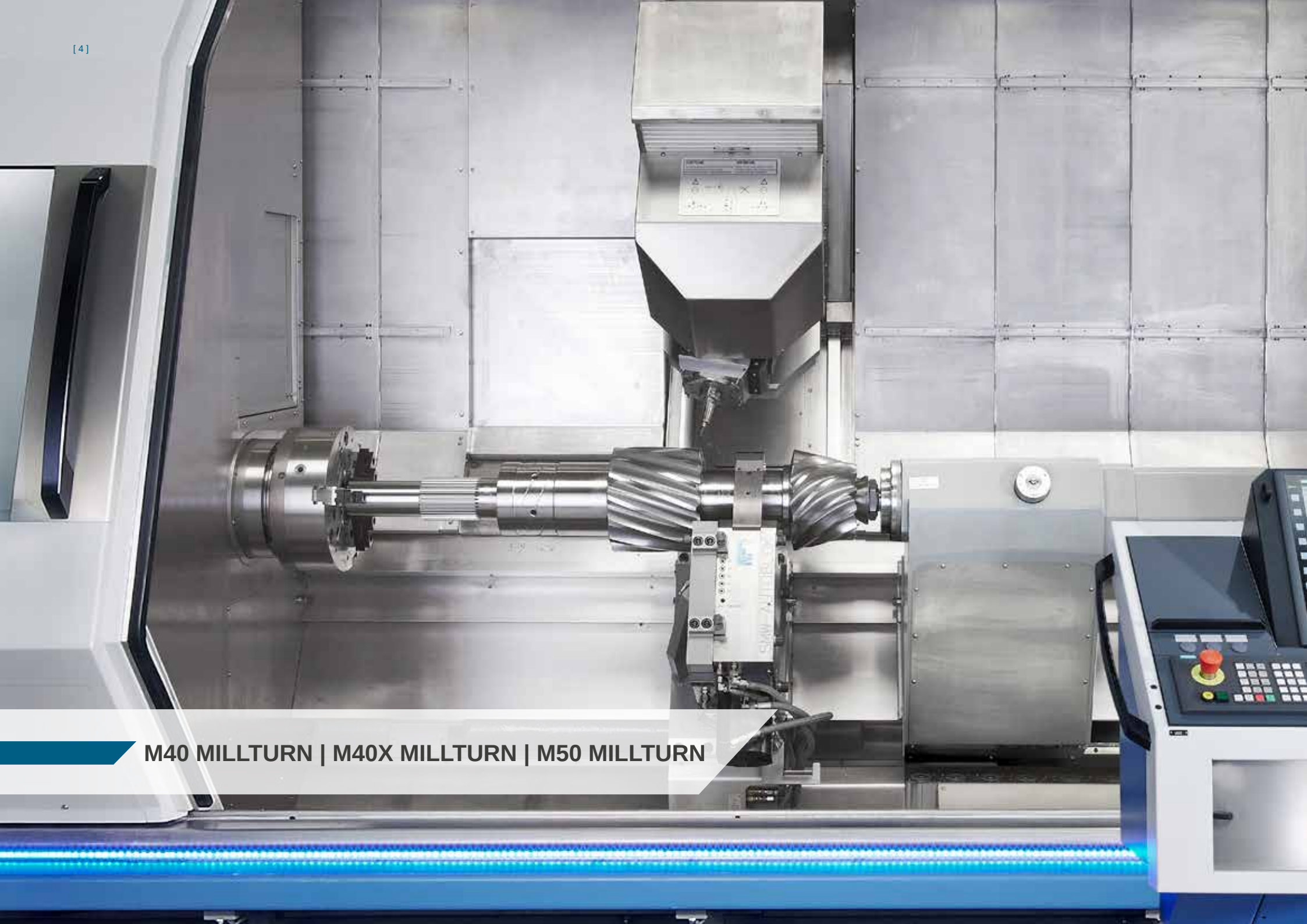
Supreme flexibility

Turning, milling, drilling, hobbing, shaping, gun drilling as well as ID machining can be performed under any angle of the tool. The interpolation of up to 5 axes makes machining of any geometrical profile possible. For six-side machining the M40-G, M40X-G and M50-G is equipped with two powerful turning spindles, and optionally with a 2x12 station disc turret, which can be equipped with driven tools and a hydraulic steady rest. The turning-boring-milling unit is offered in two speed-torque versions. The sturdy slant bed and the characteristic amply dimensioned linear guideways with their extra wide guide distance ensure perfect stability and optimum anti-vibration behaviour. The incomparable amount of hardware and software options and the meticulously designed machine structure are the consequence of long years at the cutting edge technological advance.



[3]





M40 MILLTURN | M40X MILLTURN | M50 MILLTURN

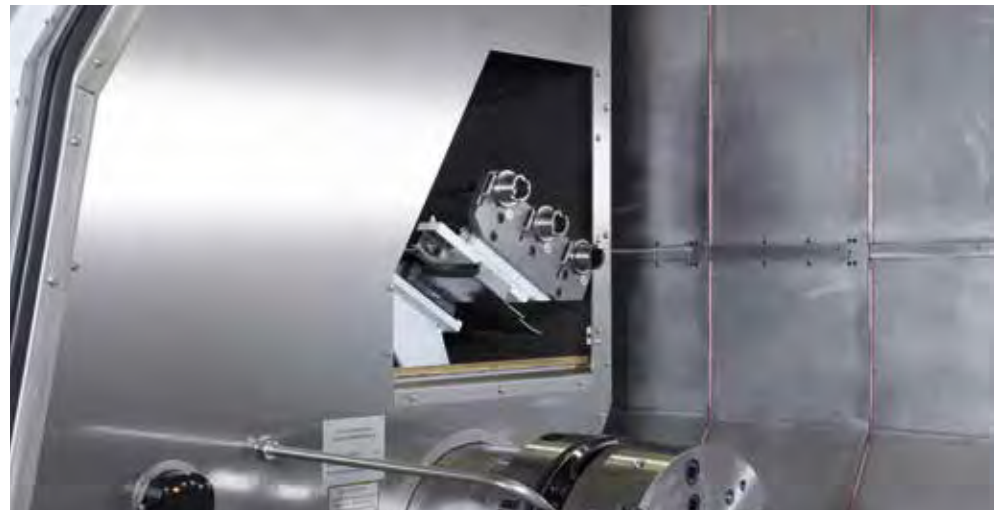


Features

Wide distances between guideways for the stable
accommodation of big steady rests



Pick-up magazine for long tools
with standard tool interface



B-axis turning





M40-G MILLTURN | M40X-G MILLTURN | M50-G MILLTURN



Features

4-axis turning



Workpiece transfer



High-precision measuring with integrated
measuring probe



The standard tool interface

In order to respond to the demands of the broad technological spectrum, MILLTURN turning-boring-milling centres use only modular tool interfaces with the highest levels of long-term precision and the maximum rigidity (HSK, Capto). The high pull-in forces of

the standard tool interface provide for particularly reliable machining. WFL offers a broad range of add-ons to ensure highly-productive deep hole drilling processes and to enable a variety of special technologies to be used.

High coolant pressure

- High coolant pressure for optimised chip breakage
- Coolant pressure below 150 bar – High Pressure Coolant (HPC)
- Coolant pressure between 150 and 350 bar – Ultra-High Pressure Coolant (UHPC)
- Significant increases in cutting parameters, tool life and process safety
- Reduced machining costs
- No additional interfaces required for up to 200 bar (coolant supplied directly through the milling spindle)

Coolant solutions for deep hole drilling

- High coolant supply rates to ensure the best possible removal of chips from the hole – this makes the MILLTURN a fully-fledged deep hole drilling machine
- Coolant supply rates of up to 200 l/min
- External interfaces with manual docking
- Individual configuration of the coolant pumps and filters

Special tool heads

- Special tool heads for special manufacturing requirements (difficult to access workpiece geometries, special processes and special coolant solutions)
- The special tool heads are handled by means of the automatic tool changer
- Optional torque support prevents undesirable turning of the special tool head and ensures a rigid connection to the swivel housing

Ultra-High Pressure Coolant (UHPC)



Ejector drilling



Angular head with torque support



The tool magazine

Fast tool change

The numerous types of machining require a large number of different tools. With up to 200 tool stations within the exceedingly safe operating disc type tool magazine the M40 and M50 MILLTURN possesses sufficient reserve. But, it's not just quantity that counts, it's also dimensions. Even tools with 500 mm length and 160 mm diameter are no problem for the super swift tool changer with double gripper.

In order to minimize shuttling distances and hence undesirable non-productive times during tool change, the change position can be programmed at will over the entire path of the Z-axis. And tool change is possible even while the Z-axis is in rapid traverse. In the case of tools having short cycle times, the optional look-ahead buffer brings about a sensible reduction of the chip-to-chip time. For optimum user-friendliness, tools are exchanged from/into the magazine at the machine front also while machining is in course. For even greater ease and rapidity, an optional chip-based writing and reading system is provided.

Fast tool change



[9]

Tool management

Convenient software functions support the anticipating, multi-order tooling of the magazine and guarantee tool employment until their edge life is up. The operator is guided by simple and logical menu instructions. The tool offsets are independent of the machining angle and are automatically converted by the control for all edge directions and B-axis positions.

Look-ahead buffer



The prismatic tool system





Pick-up magazine for prismatic tools

The interface for large tools

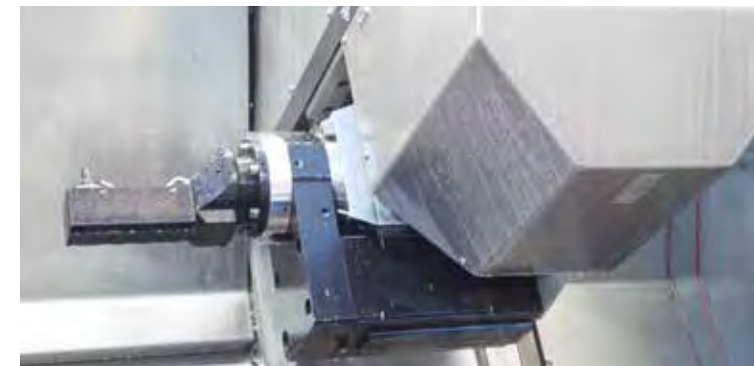
The prismatic tool interface enables the use of tools that exceed the maximum dimensions of standard tools. Thanks to the use of robust prismatic tool holders, boring bars, solid drills and angular heads can be attached to the milling unit in a highly stable manner.

Pick-up magazine

Prismatic tools can be stored in this additional magazine, which is positioned above the headstock. Tool transfer from the triple pick-up magazine and hydraulic clamping are automatic.



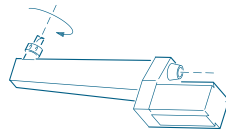
WFL system boring bar



Internal milling with angular head

Prismatic tools

Internal machining tool
Driven



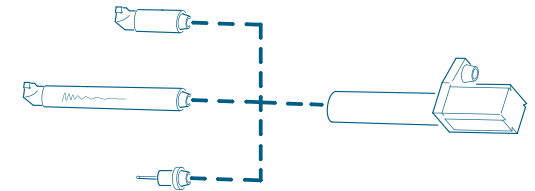
Boring bar
Single-piece, vibration damped



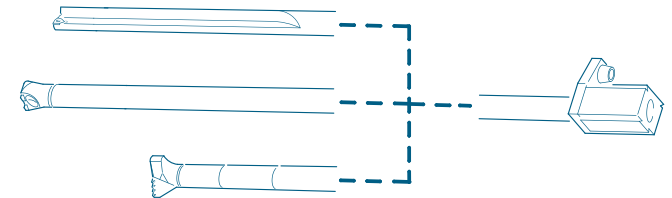
CNC special contour boring bar
Static with radial feed out
(bottle boring)



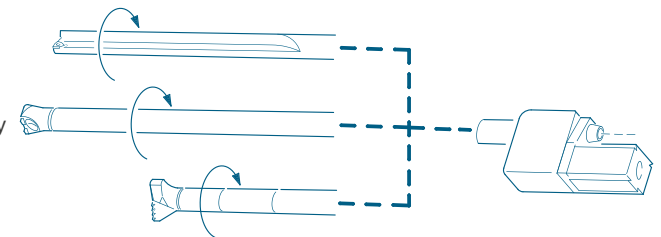
WFL system boring bar
Manual tool head change



Deep hole drilling tool
For central holes



Deep hole drilling tool
Rotating, with coolant supply



Ergonomic industrial design



[13]

Optimal view of the workpiece

- Large safety windows provide the best possible overview of the working area
- Optional spin windows
- Innovative and energy-saving lighting concept with LED lamps

Machine operation made easy

- Tilttable 19-inch display
- Ability of the operator panel to travel along the full length of the working range as far as the tool magazine

Easy maintenance

- Clear and logical structure of the control cabinet allows easy maintenance
- Excellent access to components requiring regular maintenance
- Hydraulic unit on extendable drawer



Modular machine concept for customer-specific manufacturing solutions

1. Machine bed

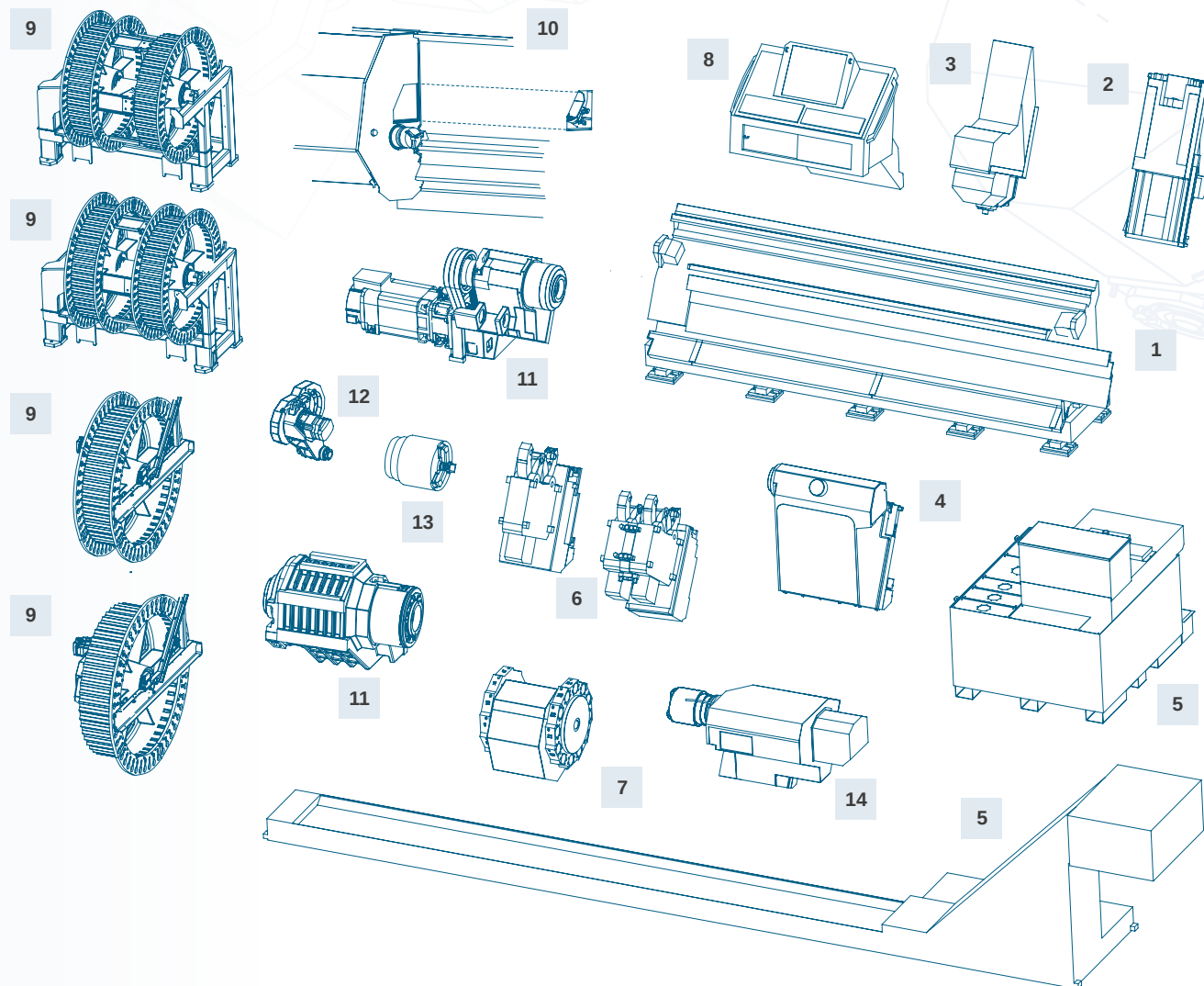
- 60° slant bed with large-scale guide ways
- Heavily ribbed cast body, designed to provide optimal torsional rigidity
- Optimal damping properties
- Minimal influx thanks to optimised chip flow
- Compact design of the bottom slides

2. Compound slide

- Cast body with optimal damping properties
- Best possible torsional and bending strength

3. Turning-boring-milling unit

- Linear direct measuring system in the X- and Y-axes
- Interpolable B-axis and B-axis clamping
- Indexable milling spindle
- Standard tool interface
- Optional prismatic tool interface
- Coolant supplied directly through the milling spindle (up to 200 bar)
- Optional external coolant supply for high supply rates – manual and automatic docking variants
- Optional integrated measuring probe



4. Tailstock

- Adjustable quill force
- Adjustable tip height
- Automatically positionable
- Also available with optional neck

5. Chip conveyor and coolant cleaning system

- Travels to the right
- With coolant tank and filter system

6. Steady rest

- Self-centring steady rests
- Individual clamping device and support solutions
- Automatically positionable

7. Disc turret

- 12-position or 2 x 12-position (6 tools per disc, also driven)
- Disc turret available in axial or radial design

8. Operator panel

- Control elements for the Siemens Sinumerik 840D sl control system
- Integrated printer

9. Disc magazine

- For up to 200 tools with a standard tool interface
- Setting-up parallel to machining time
- Max. tool length: 500 mm
- Max. tool weight: 15 kg
- Automatic tool change

10. Pick-up magazine (optional)

- For up to 3 prismatic tools
- Design variants for long tools with standard tool interfaces
- Max. tool length: 1245/1600 mm
- Max. tool weight: 150 kg
- Automatic tool change
- Optional, integrated tool control using a measuring probe in the type of a scanning head

11. Main spindle

- AC drive with 2-speed gearbox
- Motor and headstock thermally separated
- Robust cast housing with stable spindle bearing
- Direct drive with water-cooled BUILT-IN-engine

12. C-axis with retaining brake

- Can be swivelled hydraulically
- Clearance-free AC drive with Harmonic Drive
- Separate retaining brake for machining while the main spindle is static (optional damping function)

13. Chuck

- Partially-hollow or hollow centre clamping
- Automatic power chuck
- Rapid changing of clamping jaws
- Tool-specific special clamping devices

14. Counter spindle

- With tailstock and synchronous spindle function
- Digital AC drive

Software solutions by WFL

The latest in control technology

Not only does the Sinumerik 840D sl, which is perfectly-suited to machining tasks, have the highest processing power, alongside its especially user-friendly programming it is also perfectly compatible with all current CAD/CAM systems. NC programs, technological data, measuring protocols, tool data and machine and process parameters can be transferred to a host computer, for example, using an Ethernet connection. This means that the MILLTURN is fully prepared for connection to networked production and to meet future requirements.

Safety is a central concern

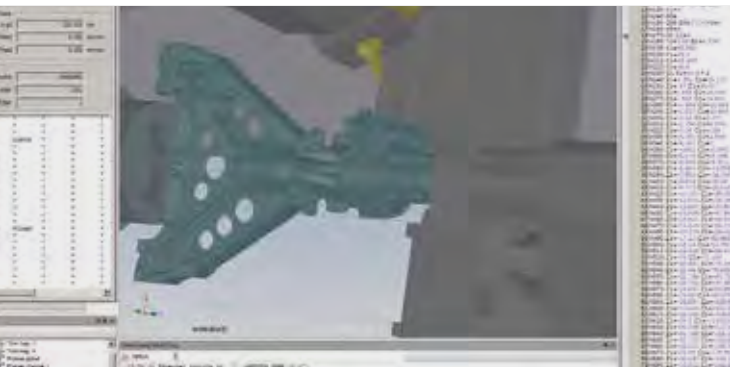
The sophisticated MILLTURN safety concept works on an exclusively electronic basis. The advantages of this are that the system reacts extremely quickly in comparison to conventional concepts, the cabinet configuration is more simple and it provides the option of precise fault diagnosis on site and via a network connection.

Good parts from the very first workpiece

High-precision measuring probes, linear direct measuring systems and clearance-free anti-friction guideways transform the MILLTURN into a 3D measuring machine. WFL provides the user with comprehensive modular measuring software and proven expertise for intelligent measuring strategies, which serve to exclude as many error-causing variables as possible, right from the very start.

- Creation of complex user-specific measuring processes
- Determination of workpiece features or any forging allowances prior to machining
- Automatic recording and compensation for tool wear
- Software-controlled temperature compensation in order to eliminate machining errors caused by the thermal expansion of the workpiece
- Saving or printing of measuring protocols

Simulation



Reality



Technology cycles





CrashGuard Studio



CrashGuard

Professional CAM solutions from WFL

CrashGuard Studio: Offline 3D simulation with material removal to enable verification of NC programs



Millturn PRO: Universal and easy to understand programming editor with graphic support, directly on the machine.



CrashGuard: Real time collision prevention software within the CNC machine control system



Safe machining with up to 12 monitoring channels...

During machining, the sophisticated process monitoring visualises and monitors the flow of forces on all of the axes and spindles. This renders the cutting process fully transparent and makes it easy to identify potential for optimisation.

- Tool breakage and collision monitoring
- Teach-In procedure to enable cutting forces to be saved and used for calibration in the event that the same task is repeated
- Machining aborts in the event that the process parameters exceed the freely-definable tolerance limits

Process monitoring



Tool management



Tool correction



Temperature compensation

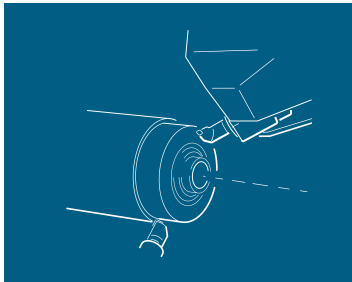


Millturn PRO

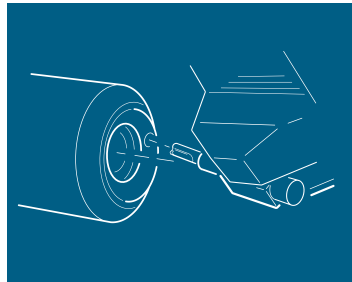


Technologies by WFL

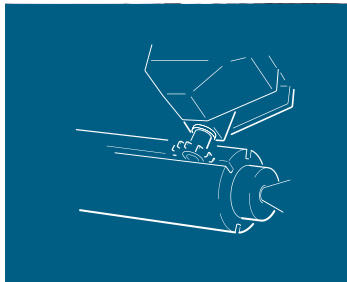
■ Turning



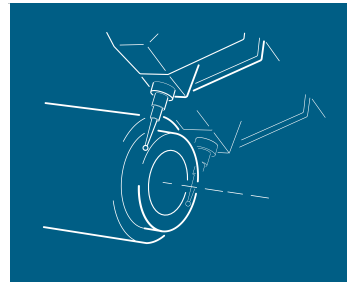
■ Drilling



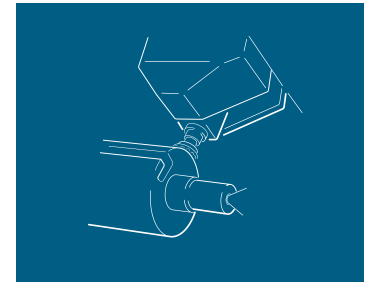
■ Milling



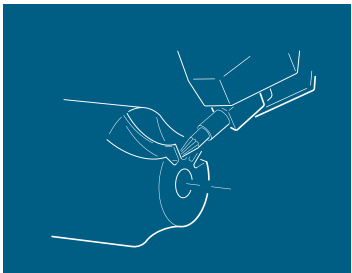
■ In-process measuring



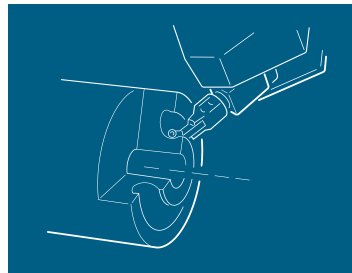
■ Turn-milling



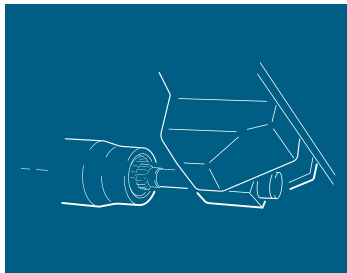
■ 5-axis milling



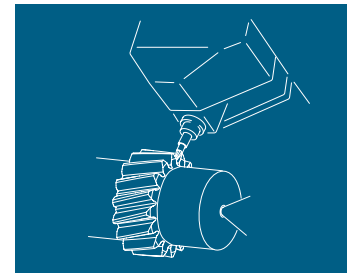
■ B-axis turning



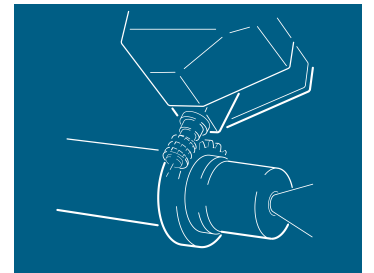
■ Shaping of gear teeth
(Flanx-Spline)



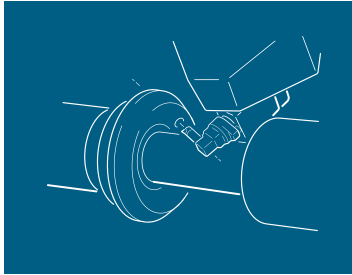
■ Milling of gear teeth
(Flanx-LM)



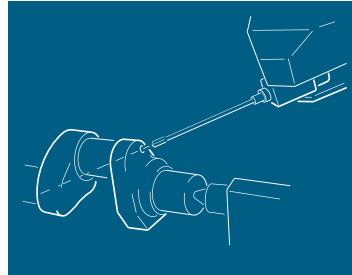
■ Hobbing of gear teeth
(Flanx-Hob)



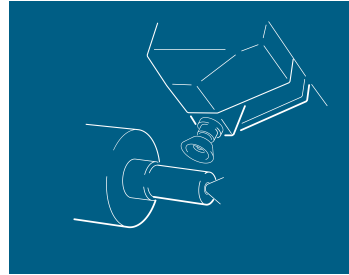
➤ Special tool heads



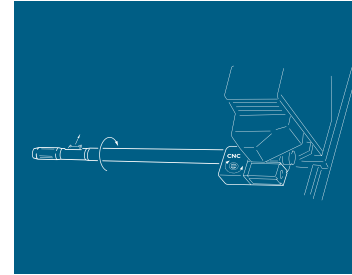
➤ Deep hole drilling



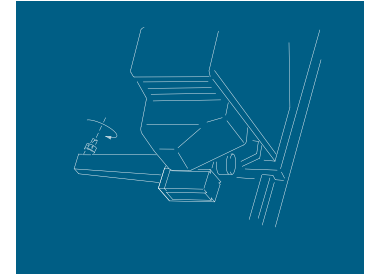
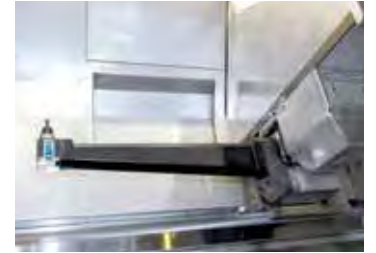
➤ Grinding and fine machining



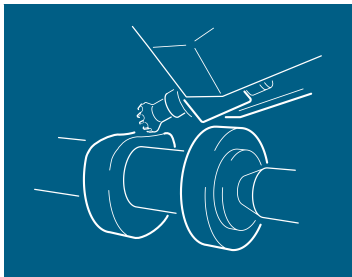
➤ CNC special contour boring bar



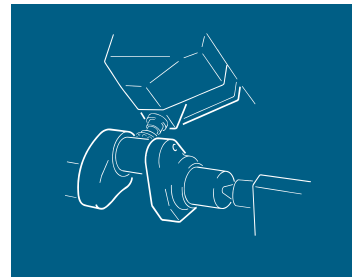
➤ Internal machining tool



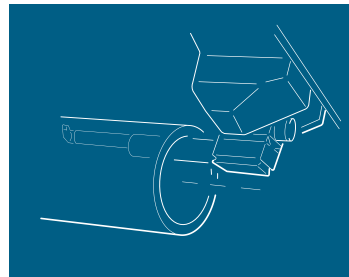
➤ Cam milling



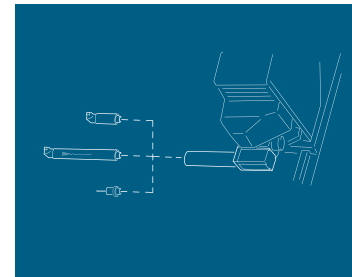
➤ Milling of crankshaft pins



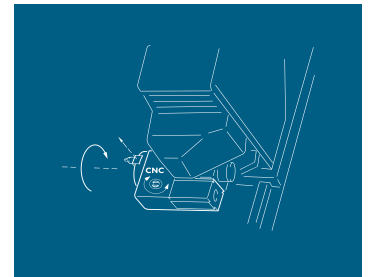
➤ Drilling and internal turning



➤ WFL system boring bar



➤ CNC facing head



Automation

Buckling arm robot
with deburring-station



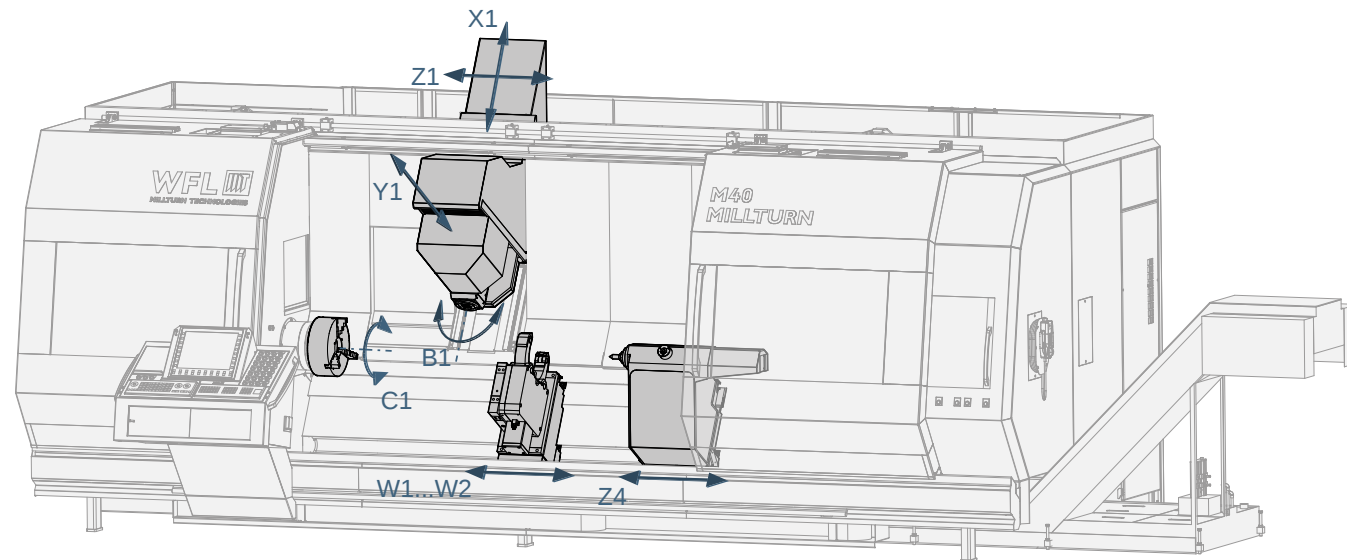
Gantry loader with loading hatch



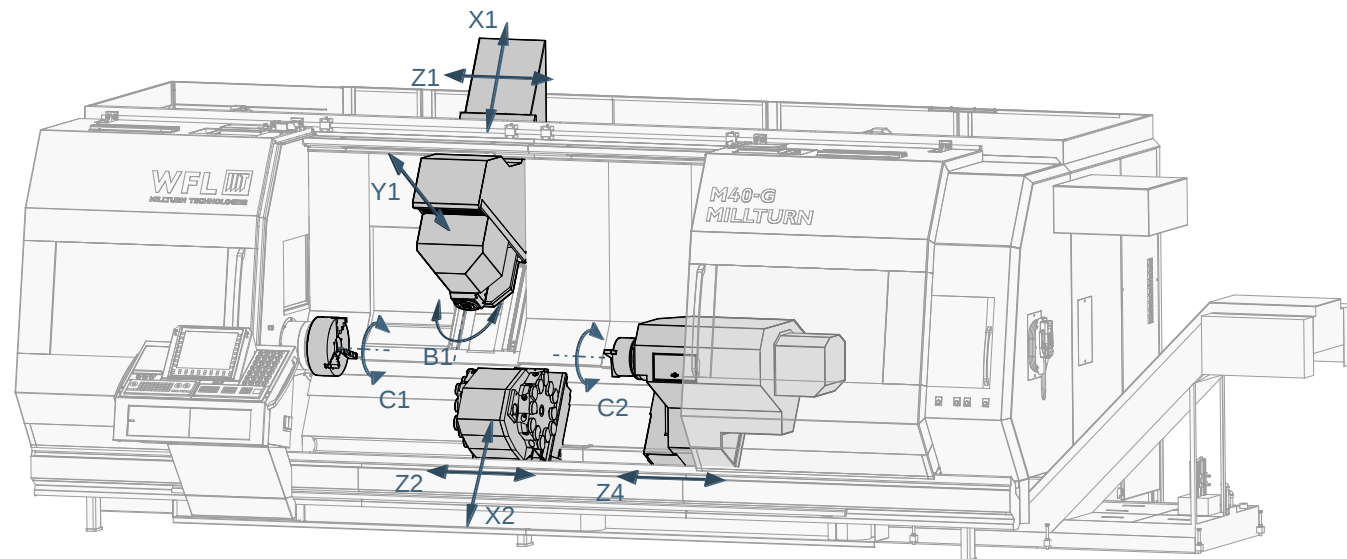
Gantry loader with rotary index magazine



Axis scheme

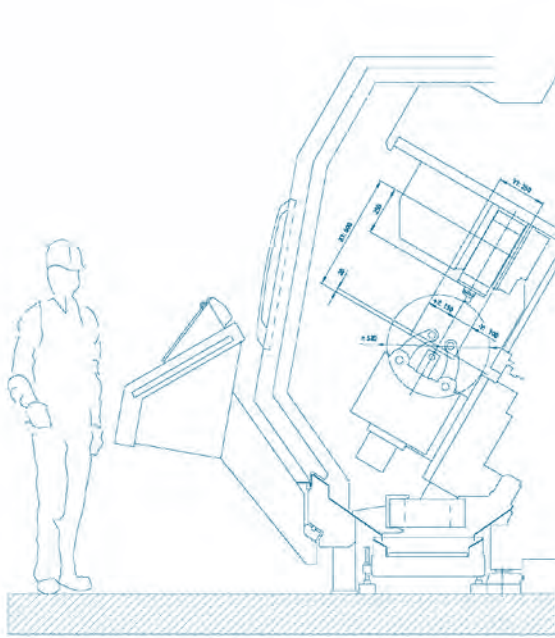


M40 MILLTURN | M40X MILLTURN | M50 MILLTURN

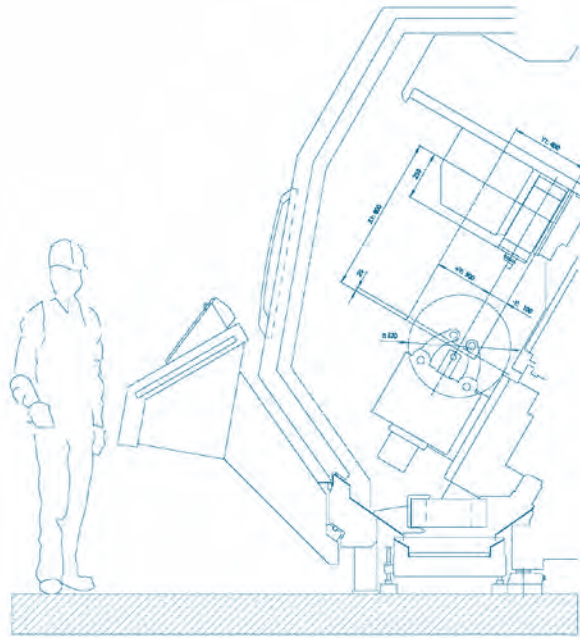


M40-G MILLTURN | M40X-G MILLTURN | M50-G MILLTURN

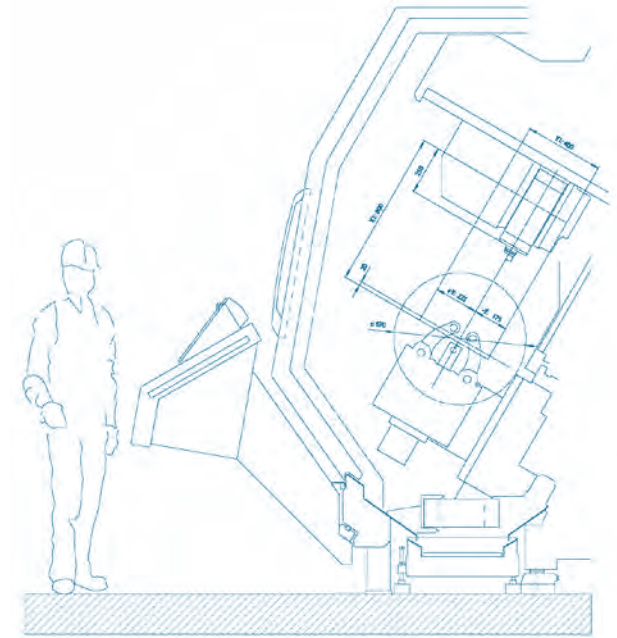
Machine cross section



■ M40 MILLTURN | M40-G MILLTURN

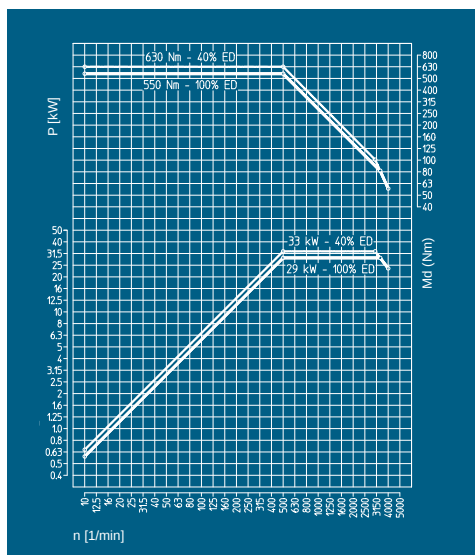


■ M40X MILLTURN | M40X-G MILLTURN

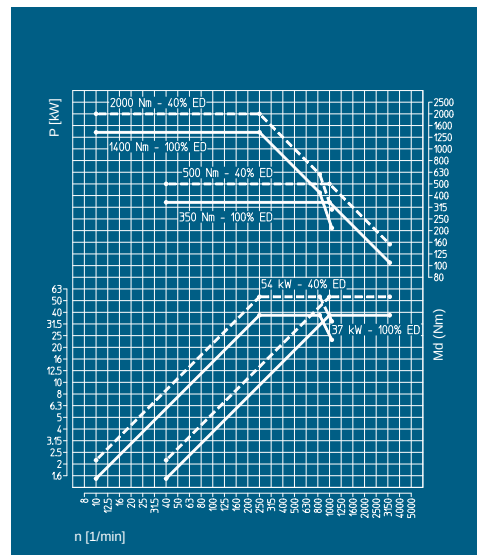


■ M50 MILLTURN | M50-G MILLTURN

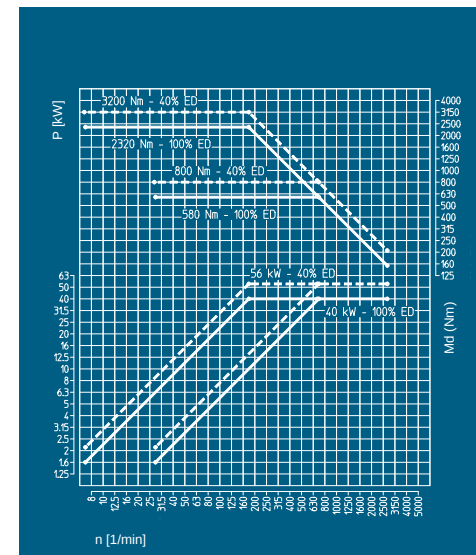
Axis scheme



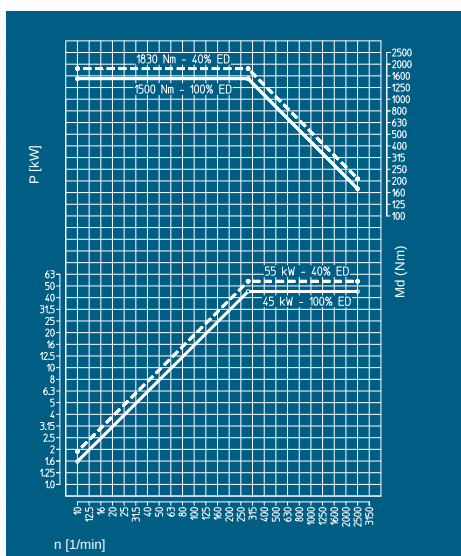
Main spindle 33(29) kW / A8 - 4000 min⁻¹



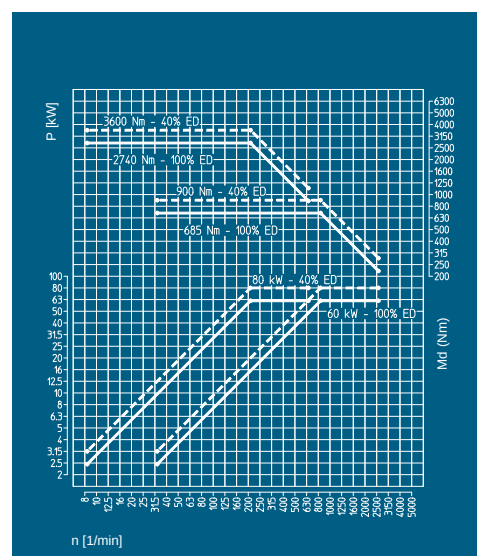
Main spindle 54(37) kW / A11 - 3300 min⁻¹



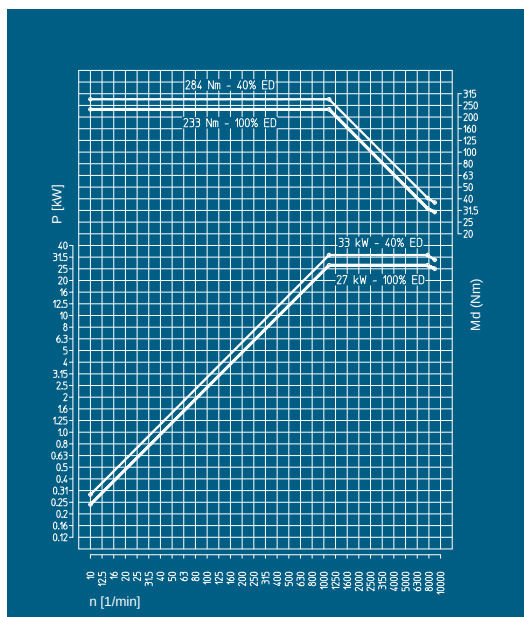
Main spindle 56(40) kW / A15 - 2600 min⁻¹



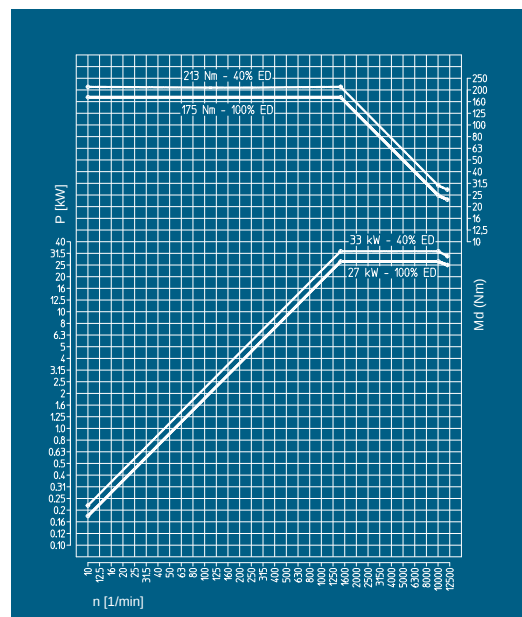
Main spindle 55(45) kW / A11 - 2500 min⁻¹



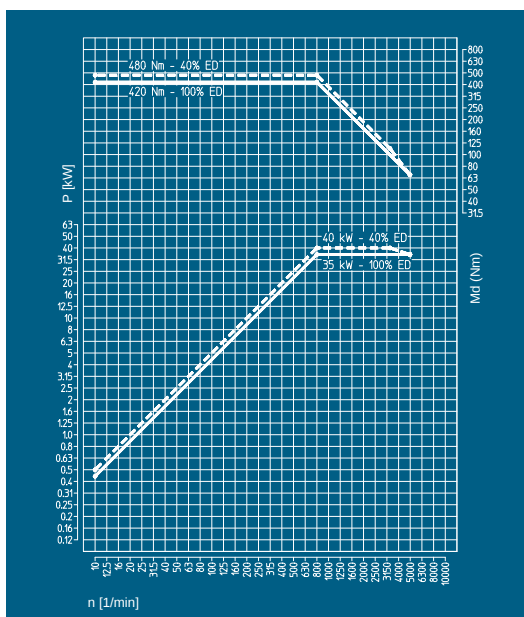
Main spindle 80(60) kW / A15 - 2600 min⁻¹



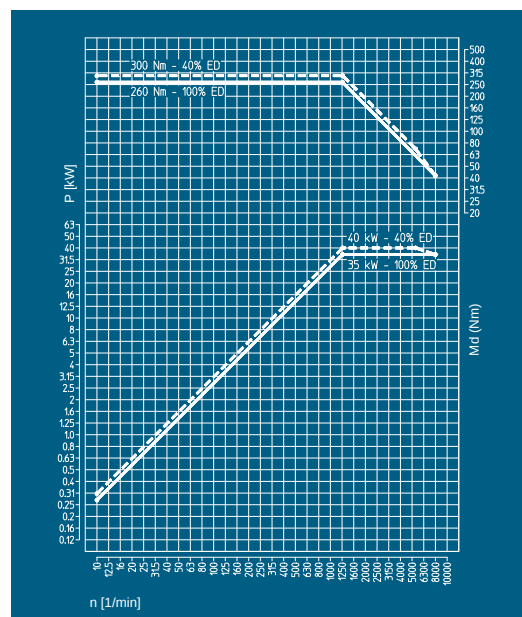
■ Milling spindle 33(27) kW - 9000 min⁻¹



■ Milling spindle 33(27) kW - 12000 min⁻¹



■ Milling spindle 40(35) kW - 5000 min⁻¹



■ Milling spindle 40(35) kW - 8000 min⁻¹



		M40 MILLTURN	M40-G MILLTURN	M40X MILLTURN	M40X-G MILLTURN
WORKING RANGE					
Centre distance	mm	1000 / 2000 / 3000 / 4500	1000 / 2000 / 3000 / 4500	1000 / 2000 / 3000 / 4500	1000 / 2000 / 3000 / 4500
Turning length max. (dependent on clamping device and spindle)**	mm	1100 / 2100 / 3100 / 4700	900 / 1900 / 2900 / 4700	1020 / 2020 / 3020 / 4620	900 / 1900 / 2900 / 4620
Swing diameter over top slide	mm	520	520	520	520
Turning diameter max.	mm	520	520	520	520
TURNING SPINDLE – LEFT // RIGHT		L	L // R	L	L // R
Spindle head DIN 55026	Size	A8 / A11	A8 / A11 // A8	A8 / A11	A8 / A11 // A8
Spindle bore	mm	77 / 115	77 / 115 // 77	77 / 115	77 / 115 // 77
Spindle diameter in front bearing	mm	160 / 160	160 / 160 // 160	160 / 160	160 / 160 // 160
Standard chuck diameter	mm	260 / 325 / 400	260 / 325 / 400	260 / 325 / 400	260 / 325 / 400
MAIN DRIVE – LEFT // RIGHT		L	L // R	L	L // R
Power max., 40% (100%) ED	kW	33 (29) / 54 (37)	33 (29) / 54 (37) // 33 (29)	33 (29) / 54 (37)	33 (29) / 54 (37) // 33 (29)
Speed max.	min ⁻¹	4000 / 3300	4000 / 3300 // 4000	4000 / 3300	4000 / 3300 // 4000
Torque max. 40% (100%) duty cycle	Nm	630 (550) / 2000 (1400)	630 (550) / 2000 (1400) // 630 (550)	630 (550) / 2000 (1400)	630 (550) / 2000 (1400) // 630 (550)
C-AXIS – LEFT // RIGHT		L	L // R	L	L // R
Speed max.	min ⁻¹	100 / 32	100 / 32 // 100	100 / 32	100 / 32 // 100
Torque max. 40% (100%) duty cycle	Nm	630 (550) / (1500)	630 (550) / (1500) // 630 (550)	630 (550) / (1500)	630 (550) / (1500) // 630 (550)
Holding torque max. of the disc brake	Nm	2000 / 3000	2000 / 3000 // 2000	2000 / 3000	2000 / 3000 // 2000
Smallest programmable increment	Degrees	0,0001	0,0001 // 0,0001	0,0001	0,0001 // 0,0001
TURNING-BORING-MILLING UNIT – UPPER TOOL CARRIER*					
Power max. 40% (100%) duty cycle	kW	33 (27)		33 (27) // 40 (35)	
Speed max.	min ⁻¹	9000 / 12000 / *		9000 / 12000 / * // 5000 / 8000	
Torque at the spindle max. 40% (100%) duty cycle	Nm	284 (233) / 213 (175)		284 (233) / 213 (175) // 480 (420) / 300 (263)	
Milling spindle diameter in front bearing	mm	80		80 // 100	
Z-axis travel	mm	1150 / 2150 / 3150 / 4750		1070 / 2070 / 3070 / 4670	
X-axis travel	mm	600 (-20...+580)		800 (-20...+780)	
Y-axis travel	mm	250 (-100...+150)		400 (-100...+300)	
Z-axis feed force 100% duty cycle	kN	14		14	
X-axis feed force 100% duty cycle	kN	14		14	
Y-axis feed force 100% duty cycle	kN	12		12 // 17	
Rapid feed speed Z / X / Y	m/min	40 / 30 / 15		40 / 30 / 15 // 40 / 30 / 18	
B-axis swivelling range	Degrees	-110....+110		-110....+110	
B-axis additional indexing	Degrees	2,5		2,5	
B-axis swivelling torque max.	Nm	1250		1250 // 1600	
B-axis holding torque max. indexed	Nm	10000		10000 // 15000	
B-axis holding torque max. clamped	Nm	5000		5000 // 6000	
Smallest programmable increment B-axis	Degrees	0,0001		0,0001	
Tool system	Type	HSK-A63 / Capto C6		HSK-A63 / Capto C6 // HSK-A100 / Capto C8	

		M40 MILLTURN	M40-G MILLTURN	M40X MILLTURN	M40X-G MILLTURN
TAILSTOCK (MECHATRONIC, ADJUSTMENT VIA NC SERVO DRIVE)					
Feed force (adjustable)	kN	2,4 - 12	-	2,4 - 12	-
Live centre	MK	5	-	5	-
Weight of workpiece max.	kg	1.000	-	1.000	-
STEADY REST					
Clamping diameter max.	mm	350 / *	-	350 / *	-
Swing over steady rest slide	mm	520	-	520	-
DISC MAGAZINE					
Number of tool stations (place-encoded)	Number	50 / 100 / 150 / 200		50 / 100 / 150 / 200 // 36 / 72 / 108 / 144	
Tool diameter, adjacent, max.	mm	90		90 // 125	
Tool diameter, non-adjacent, max.	mm	160		160	
Max. tool length	mm	500		500	
Max. tool weight	kg	15		15	
DISC TURRET – BOTTOM TOOL CARRIER					
Number of tool stations, (VDI 50, HSK-A63, Capto C6)	Number	12	2x12	12	2x12
Z-axis travel	mm	- / 1777 / 2777 / -	- / 1777 / 2777 / -	- / 1777 / 2777 / -	- / 1777 / 2777 / -
X-axis travel	mm	230	230	230	230
Rapid feed speed Z / X	m/min	30 / 10	30 / 10	30 / 10	30 / 10
Turning diameter max.	mm	350	350	350	350
Swing over turret	mm	360 / *	360 / *	360 / *	360 / *
CHIP CONVEYOR AND COOLANT UNIT					
Discharge height	mm	1250		1250	
Standard coolant pump pressure	bar	10		10	
PRINCIPAL DIMENSIONS OF THE BASE MACHINE					
Length x width x height (Magazine max. 72x / 100x)	m	7,3 / 8,3 / 9,3 / 11,7 x 4,6 x 3,3		7,3 / 8,3 / 9,3 / 11,7 x 4,7 x 3,6	
Working height of turning spindle	mm	1255		1255	
Weight total, approximately	kg	17.000 - 27.000	18.000 - 28.000	19.000 - 29.000	20.000 - 30.000
CONTROL					
			Sinumerik 840D sl		
Display on the operator panel	Type	LCD colour display / 19"			
PAINTING					
RAL 5023 distant blue, texture / 7035 light grey, texture / 7037 dusty grey, texture					

* other values available upon request

** indicated values refer to headstock A8 left without neck and chuck diameter 260mm

M50 MILLTURN
M50-G MILLTURN
M50 MILLTURN
M50-G MILLTURN
WORKING RANGE

Centre distance	mm	1000 / 2000 / 3000 / 4500 / 6000	1000 / 2000 / 3000 / 4500 / 6000
Turning length max. (dependent on clamping device and spindle)**	mm	900 / 1900 / 2900 / 4500 / 6050	-
Swing diameter over top slide	mm	670 / 670 / 670 / 670 / 650	670 / 670 / 670 / 670 / 650
Turning diameter max.	mm	670 / 670 / 670 / 670 / 650	670 / 670 / 670 / 670 / 650

TURNING SPINDLE – LEFT /// RIGHT

		L	L /// R
Spindle head DIN 55026	Size	A11 / A11 /// A15	A11 / A11 /// A15 /// A11
Spindle bore	mm	115 / 130 /// 165-145	115 / 130 /// 165-145 /// 130
Spindle diameter in front bearing	mm	160 / 190 /// 240	160 / 190 /// 240 /// 190
Standard chuck diameter	mm	325 / 400 / 500	325 / 400 / 500

MAIN DRIVE – LEFT /// RIGHT

		L	L /// R
Power max. 40% (100%) ED	kW	54 (37) / 55 (45) // 56 (40) / 80 (60)	54 (37) / 55 (45) // 56 (40) / 80 (60) /// 55 (45)
Speed max.	min ⁻¹	3300 / 2500 // 2600 / 2600	3300 / 2500 // 2600 / 2600 /// 2500
Torque max. 40% (100%) duty cycle	Nm	2000 (1400) / 1830 (1500) // 3200 (2320) / 3600 (2740)	2000 (1400) / 1830 (1500) // 3200 (2320) / 3600 (2740) /// 1830 (1500)

C-AXIS – LEFT /// RIGHT

		L	L /// R
Speed max.	min ⁻¹	32 / 100 // 20	32 / 100 // 20 /// 100
Torque max. 40% (100%) duty cycle	Nm	1500 / 1500 // 3000	1500 / 1500 // 3000 /// 1500
Holding torque max. of the disc brake	Nm	3000 / 3000 // 4000	3000 / 3000 // 4000 /// 4000
Smallest programmable increment	Degrees	0,0001 / 0,0001 // 0,0001	0,0001 / 0,0001 // 0,0001 /// 0,0001

TURNING-BORING-MILLING UNIT – UPPER TOOL CARRIER*

Power max. 40% (100%) duty cycle	kW	33 (27) // 40 (35)
Speed max.	min ⁻¹	9000 / 12000 / * // 5000 / 8000
Torque at the spindle max. 40% (100%) duty cycle	Nm	284 (233) / 213 (175) // 480 (420) / 300 (263)
Milling spindle diameter in front bearing	mm	80 // 100
Z-axis travel	mm	1070 / 2070 / 3070 / 4670 / 6250
X-axis travel	mm	800 (-20...+780)
Y-axis travel	mm	400 (-175...+225)
Z-axis feed force 100% duty cycle	kN	14
X-axis feed force 100% duty cycle	kN	14
Y-axis feed force 100% duty cycle	kN	12 // 17
Rapid feed speed Z / X / Y	m/min	40 / 30 / 15 // 40 / 30 / 18
B-axis swivelling range	Degrees	-110...+110
B-axis additional indexing	Degrees	2,5
B-axis swivelling torque max.	Nm	1250 // 1600
B-axis holding torque max., indexed	Nm	10000 // 15000
B-axis holding torque max., clamped	Nm	5000 // 6000
Smallest programmable increment B-axis	Degrees	0,0001
Tool system	Type	HSK-A63 / Capto C6 // HSK-A100 / Capto C8

TAILSTOCK (MECHATRONIC, ADJUSTMENT VIA NC SERVO DRIVE)

Feed force (adjustable)	kN	4 - 20	-
Live centre	MK	6	-
Weight of workpiece max.	kg	1.500	-

STEADY REST

Clamping diameter max.	mm	350 / *	350 / *
Swing over steady rest slide	mm	670 / 670 / 670 / 670 / 650	670 / 670 / 670 / 670 / 650

DISC MAGAZINE

Number of tool stations (place-encoded)	Number	50 / 100 / 150 / 200 // 36 / 72 / 108 / 144
Tool diameter, adjacent, max.	mm	90 // 125
Tool diameter, non-adjacent, max.	mm	160
Max. tool length	mm	500
Max. tool weight	kg	15

CHIP CONVEYOR AND COOLANT UNIT

Discharge height	mm	1250
Standard coolant pump pressure	bar	10

PRINCIPAL DIMENSIONS OF THE BASE MACHINE

Length x width x height (Magazine max. 72x / 100x)	m	7,3 / 8,3 / 9,3 / 11,7 / 13,2 x 4,7 x 3,6
Working height of turning spindle	mm	1295
Weight total, approximately	kg	19.000 - 39.000 20.000 - 40.000

CONTROL

		Sinumerik 840D sl
Display on the operator panel	Type	LCD colour display / 19"

PAINTING

RAL 5023 distant blue, texture / 7035 light grey, texture / 7037 dusty grey, texture

* other values available upon request

** indicated values refer to headstock A11 left and chuck diameter 325mm