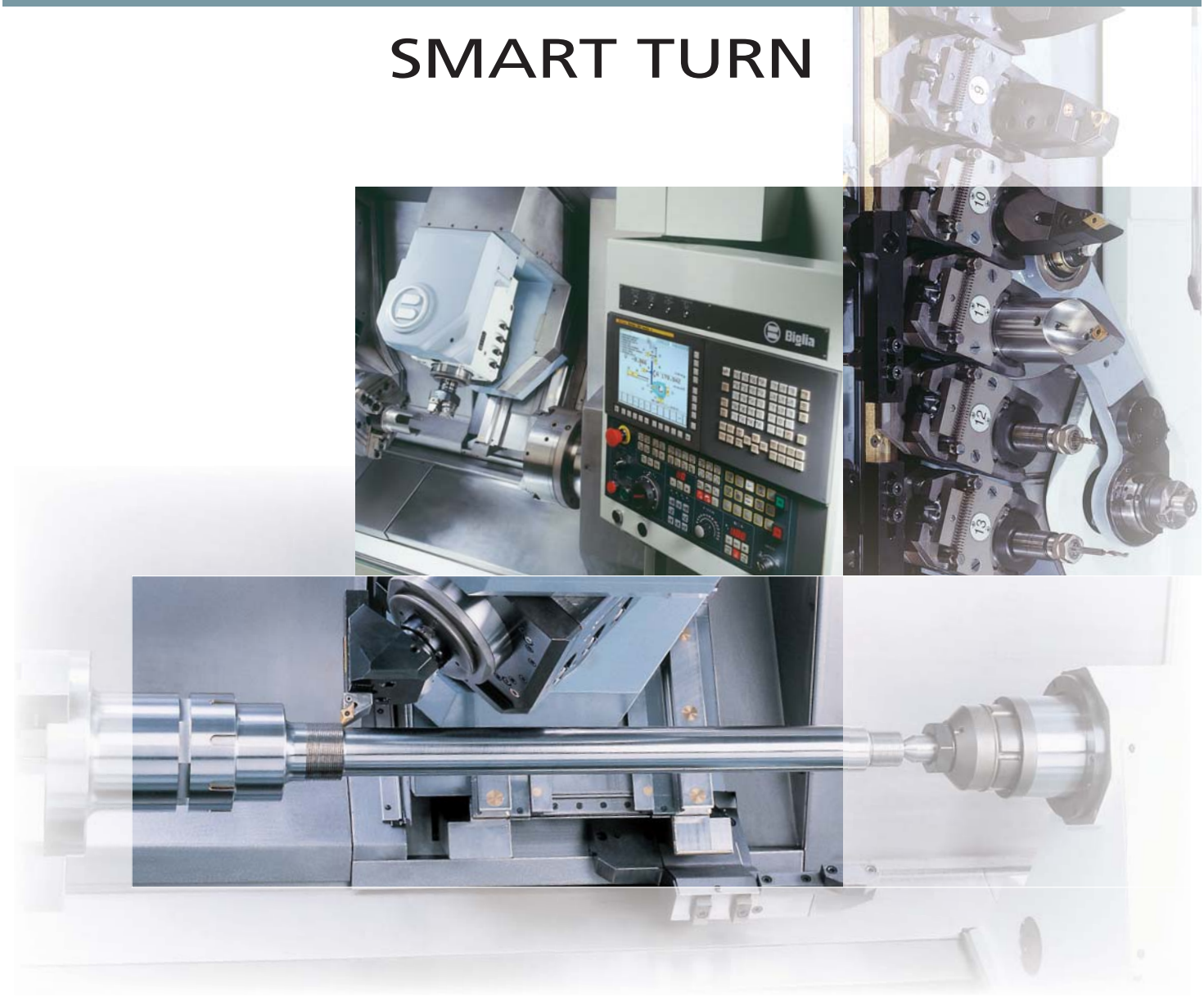
INTEGRATED TURN-MILL OPERATIONS

SMART TURN



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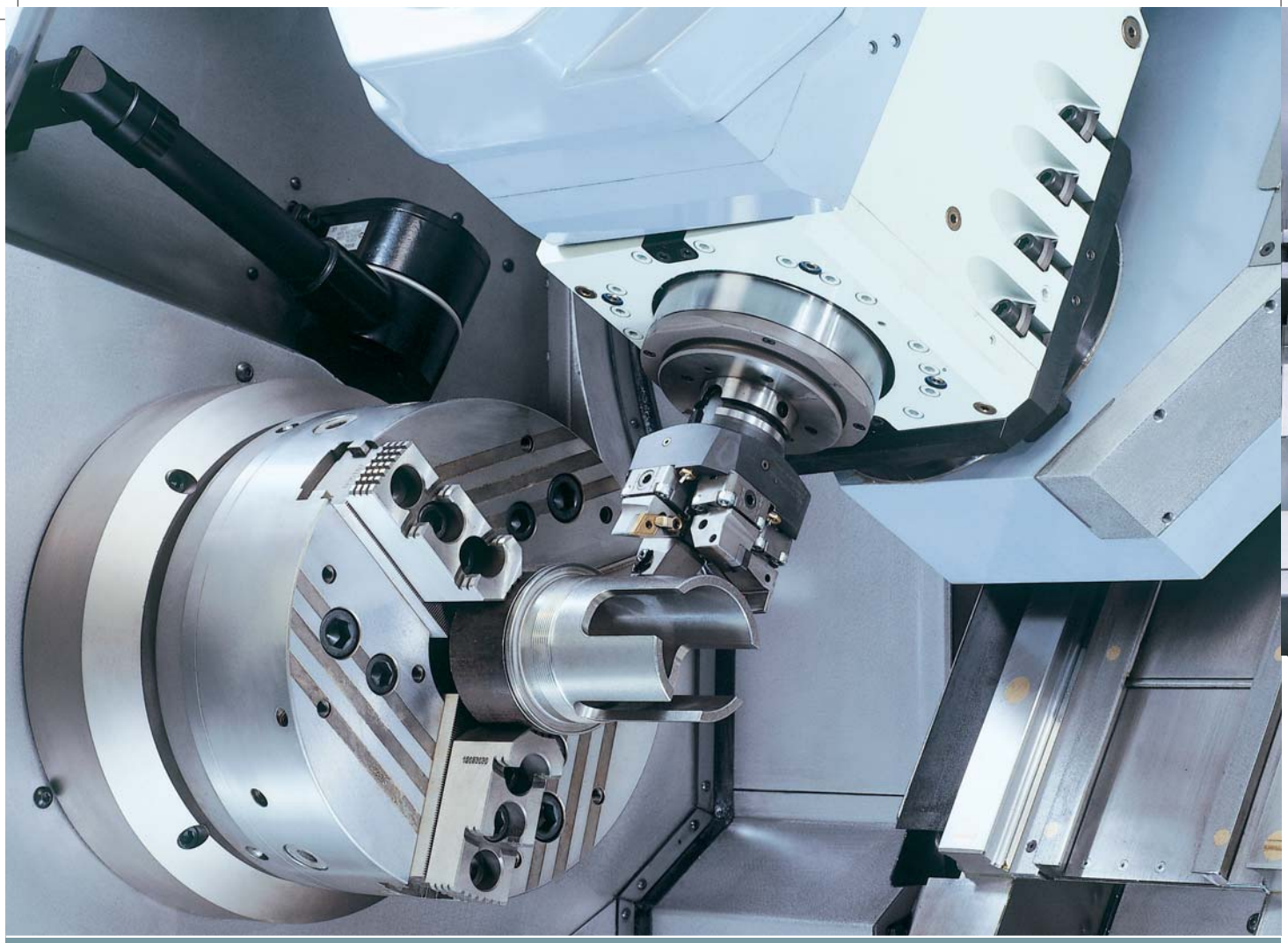
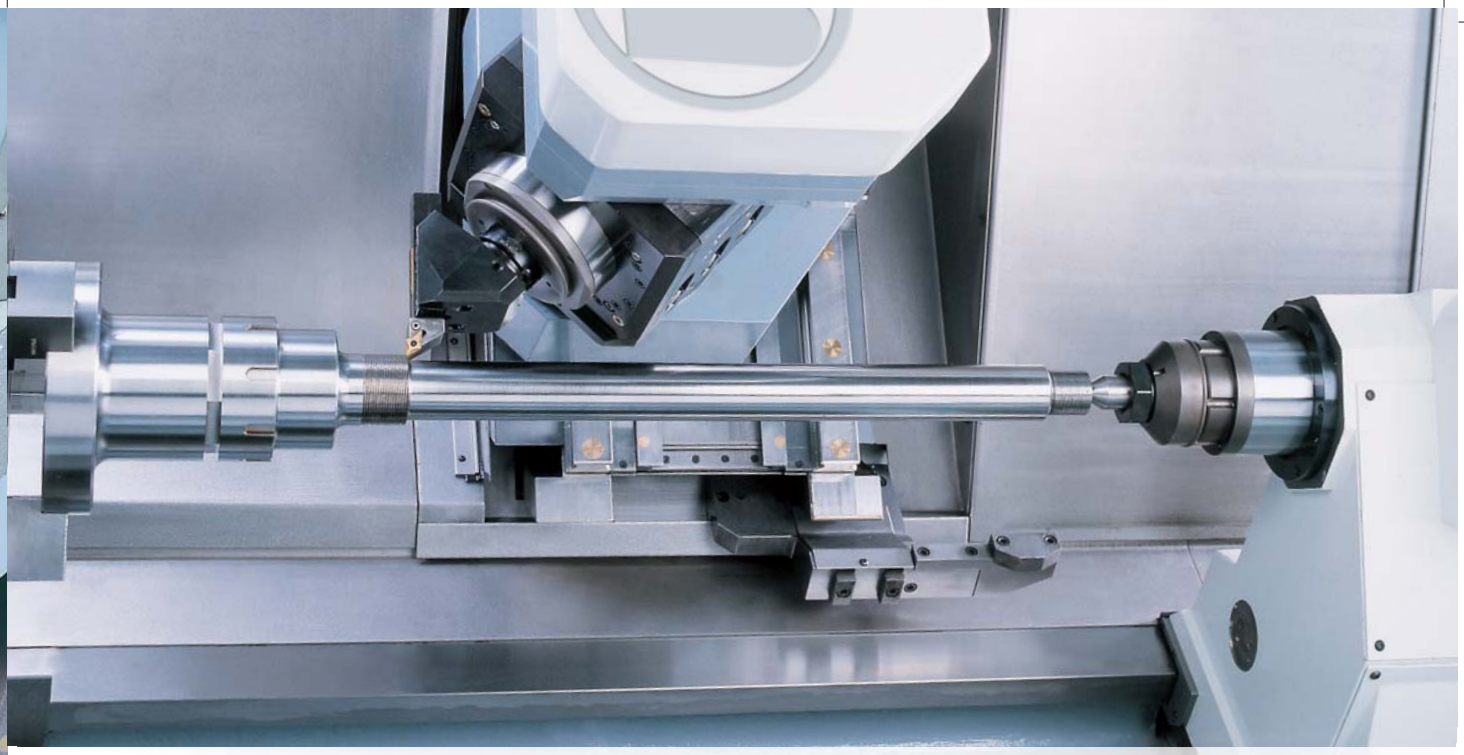


Integrated turn-mill technology.

SMART TURN



Multipurpose innovating technology.

The new family of multipurpose turn-mill centres SMART TURN with automatic tool change developed by BIGLIA represents the complete combination between a lathe and a machining centre.

The SMART TURN is the flexible answer to ever growing demand for the production of small and medium-sized components in various fields such as aeronautics, aerospace, medical industry and automotive as well as the general mechanics.

SMART TURN is available in two versions: the standard model equipped with automatic tailstock and the "**S**" configuration equipped with sub-spindle.

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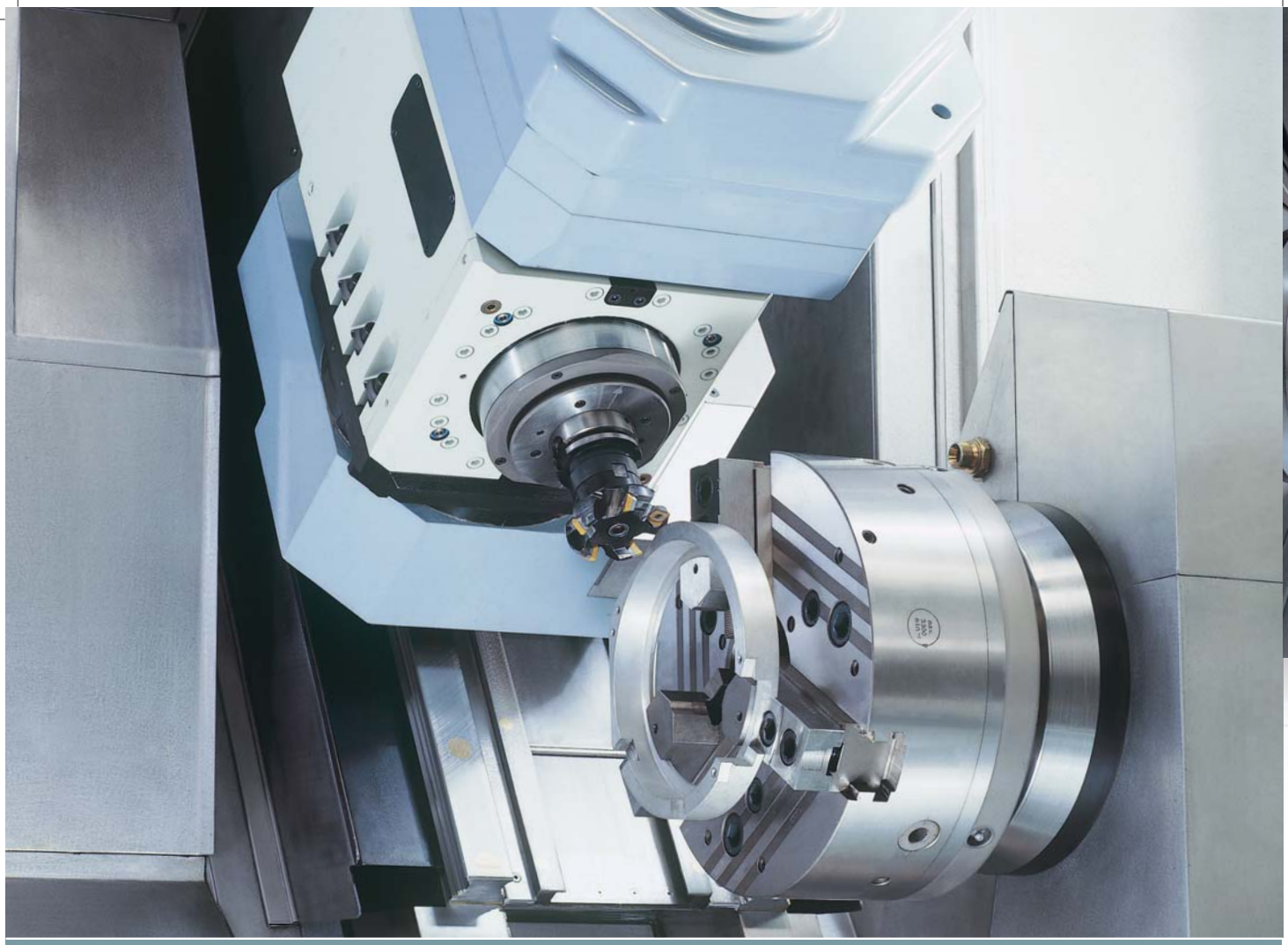
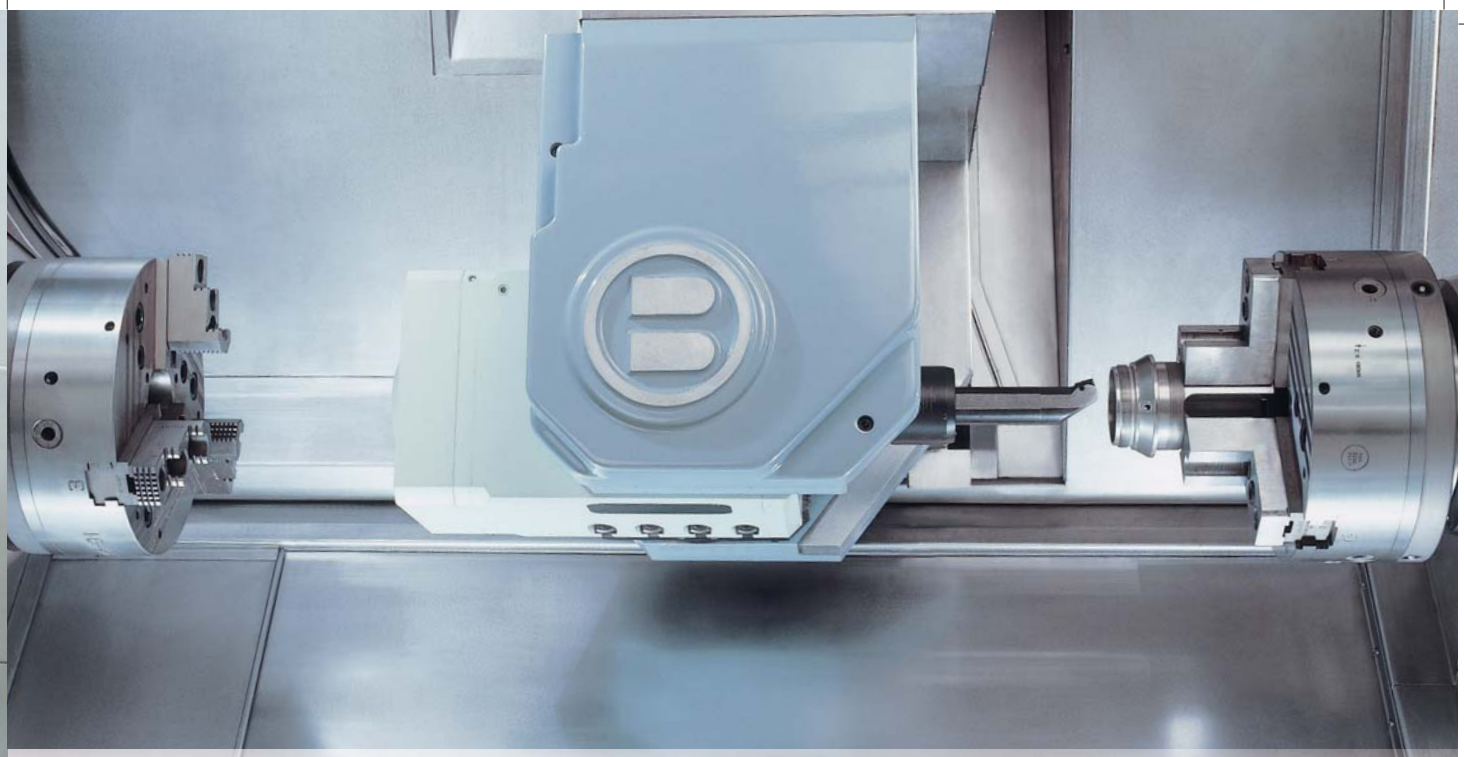


Great integrated turn-mill performance even on the sub-spindle.

SMART TURN S

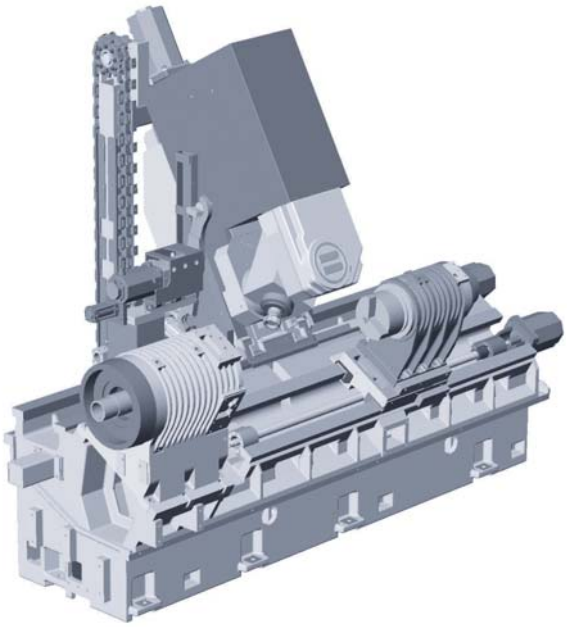


MAIN SPECIFICATIONS

- Sturdy cast-iron machine bed with hardened and ground box-type guideways to assure top rigidity and vibration damping
- Powerful spindle motor (25 kW) to allow the optimum chip removal at any machining conditions
- Large bar capacity:
  94 and 102 mm
- Integrated turn/mill module fitted on the B-axis, with 210° rotation range (±105°)
- Locking into machining position by HIRTH-couplings of both and B-axis unit (each 5°) and spindle unit each 7.5° for turning.
  The strong built-in synchronous spindle motor provides excellent performance in the machining of hard materials such as steel, of light alloys and aluminium
- Y-axis with 210 mm rotation
- Powerful sub-spindle (24 kW) for complete machining of the component
- Direct scales on the X- and Y-axes.

STANDARD EQUIPMENT

- Main spindle with large spindle bore
- Motor-driven unit on B-axis with coolant through the spindle and PEL system to monitor tool engagement
- 40 tool magazine
- Automatic tool setting arm
- HSK-63 (ICTM) tooling package for turning
- Swarf conveyor with coolant tank
- Coolant unit with low and high pressure (25 bar)
- Coolant filter
- Air conditioning for electrical cabinet, hydraulic unit and built-in motor spindles
- FANUC Manual Guide.



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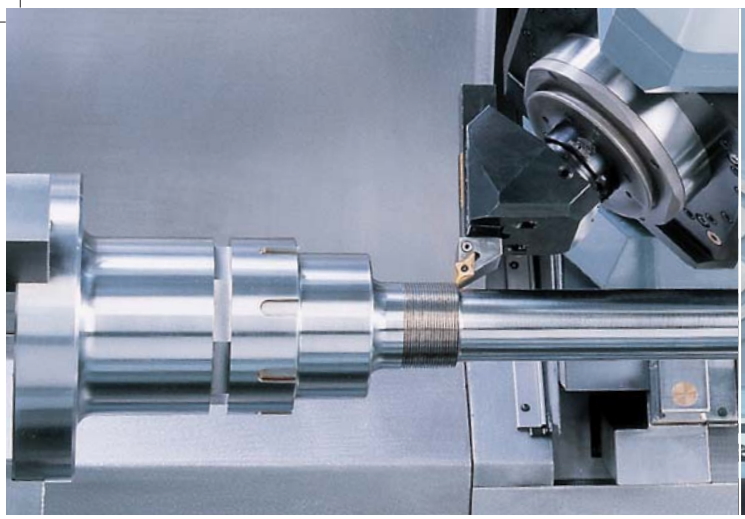
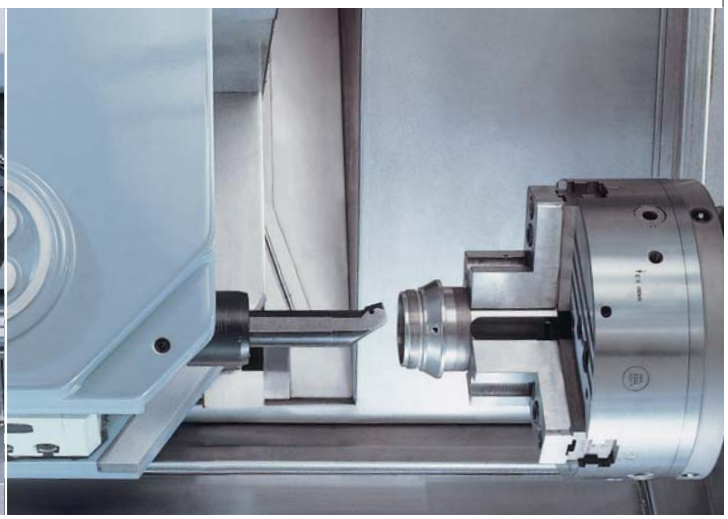


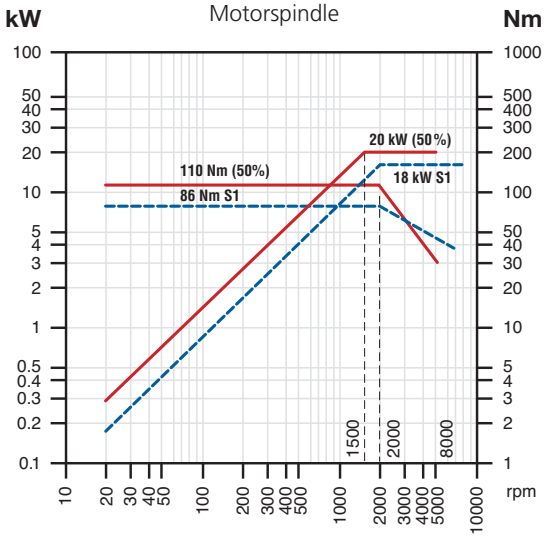


P O W E R - T O R Q U E D I A G R A M

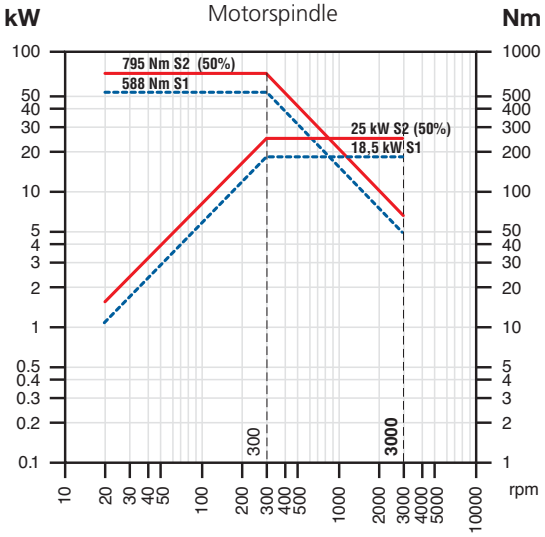
Chip removal

The two spindles and the turn/mill unit are operated by powerful motors with great power and torque available from low rpm enabling the machining of even the hardest materials.

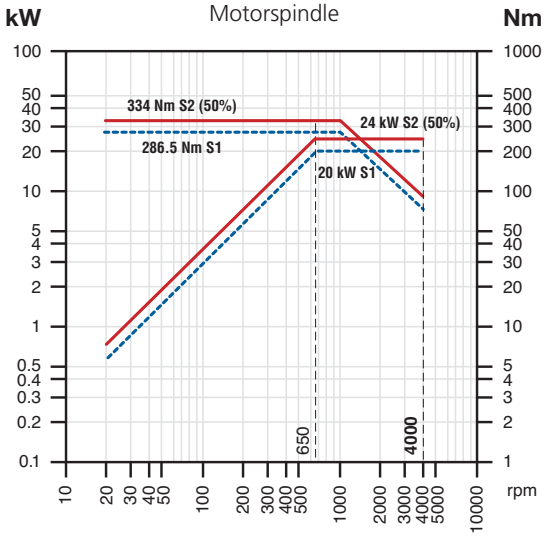
B-axis head
Motorspindle



Main spindle (SMART TURN)
Motorspindle

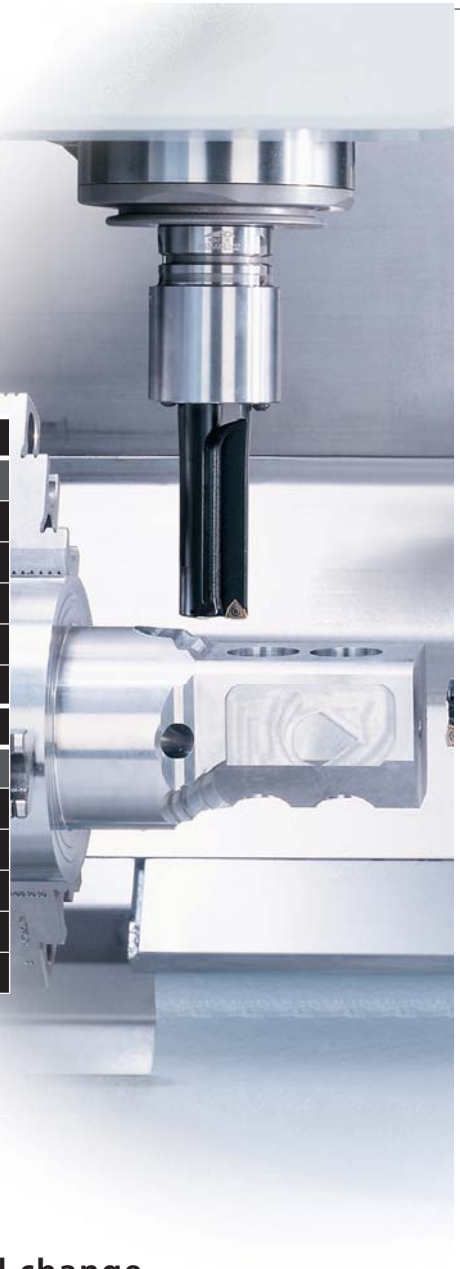


Sub-spindle
Motorspindle



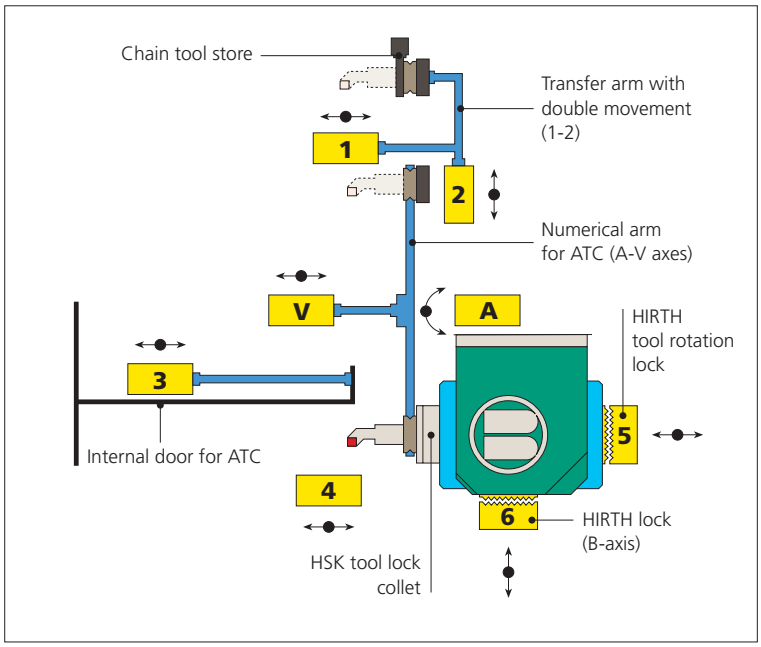
SMART TURN

Machining capability - Material C40



TURNING					
O.D. TURNING			DRILLING		
Spindle speed	rpm	400	Insert drill dia.	mm	60
Cutting depth	mm	7	Spindle speed	rpm	640
Cutting speed	m/min	200	Cutting speed	m/min	120
Feed rate	mm/min	0,4	Feed rate	mm/min	0,2
Volume of swarf removal	cm³/min	560	Volume of swarf removal	cm³/min	360

MACHINING WITH ROTARY TOOL					
MILLING			DRILLING		
Face mill dia.	mm	63	Insert drill dia.	mm	40
No. of 45° inserts	N°	5	Spindle speed	rpm	1000
Spindle speed	rpm	800	Cutting speed	m/min	130
Axial cutting depth	mm	5	Feed rate	mm/min	0,14
Radial cutting depth	mm	60	Volume of swarf removal	cm³/min	180
Cutting speed	m/min	160			
Feed rate	mm/min	600			
Volume of swarf removal	cm³/min	180			



Tool change

The servo-operated tool changer changes the tool in just 2 seconds, delivering a 5 second chip-to-chip time. The 40 tool store can accept tools up to 295 mm long and 7 kgs in weight.

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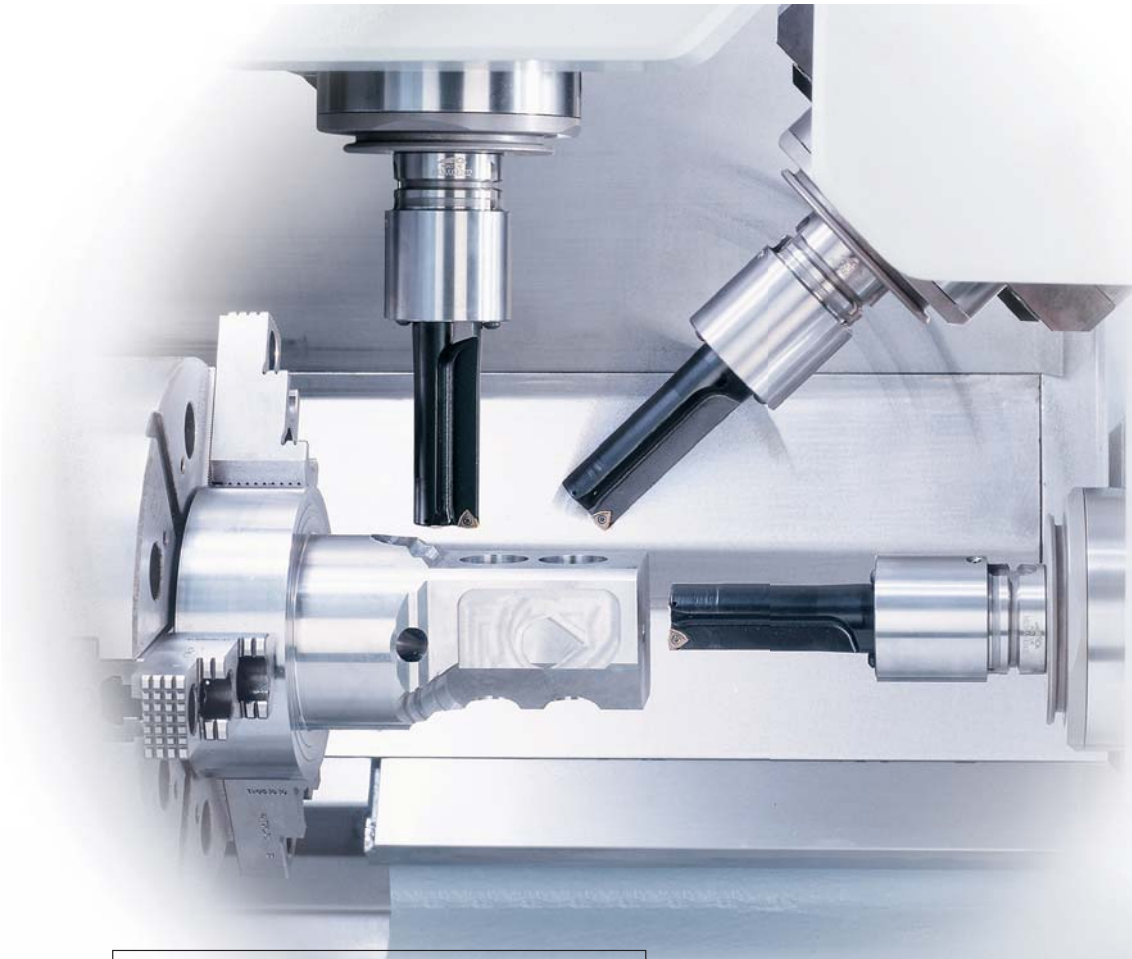
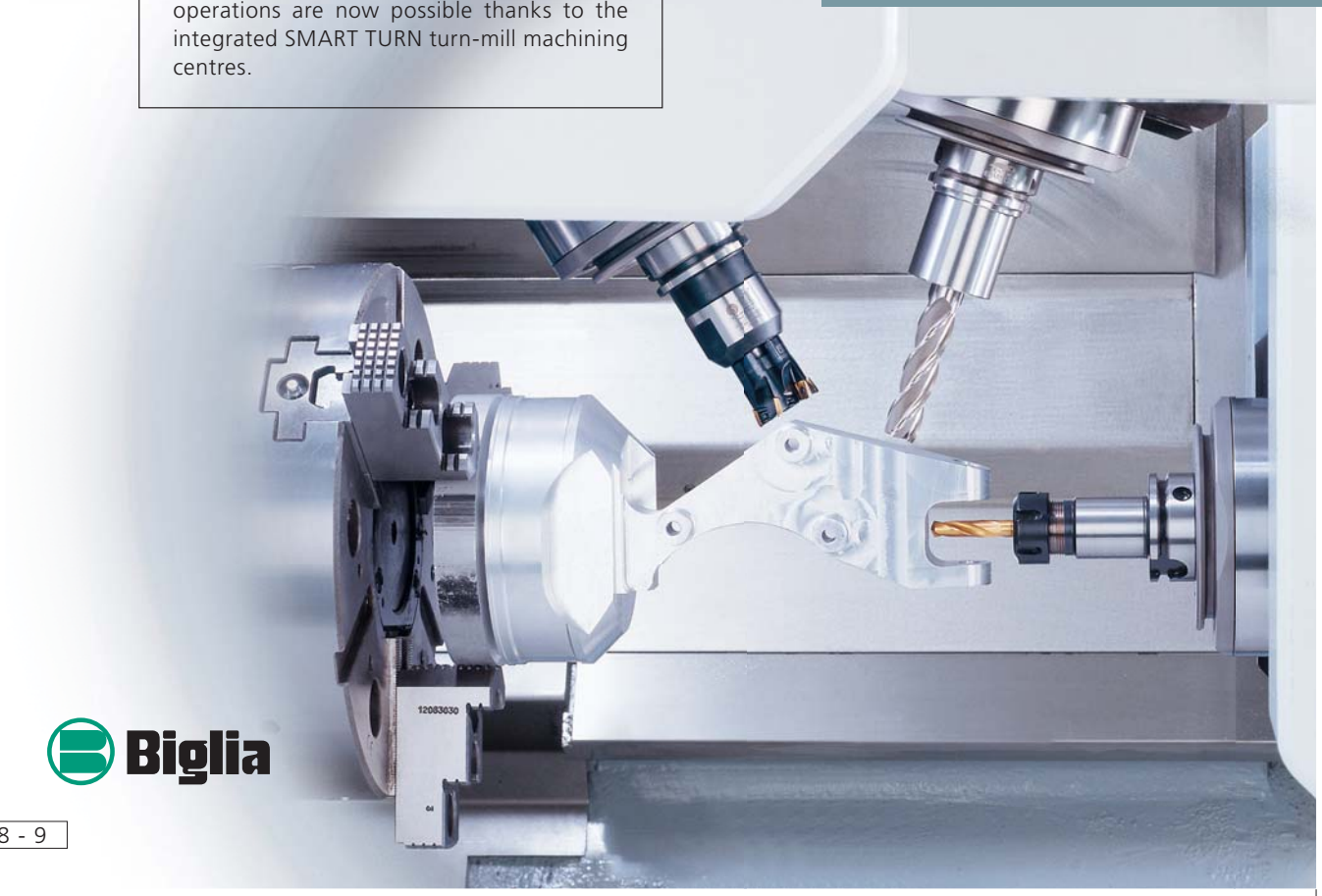


The turn-mill driven unit featuring B and Y axes allows superb chip removal, an automatic tool change system combined with a 40 tool store ensures maximum flexibility in complete machining of complex parts.
Inclined turning, milling, boring and tapping operations are now possible thanks to the integrated SMART TURN turn-mill machining centres.

Versatility in



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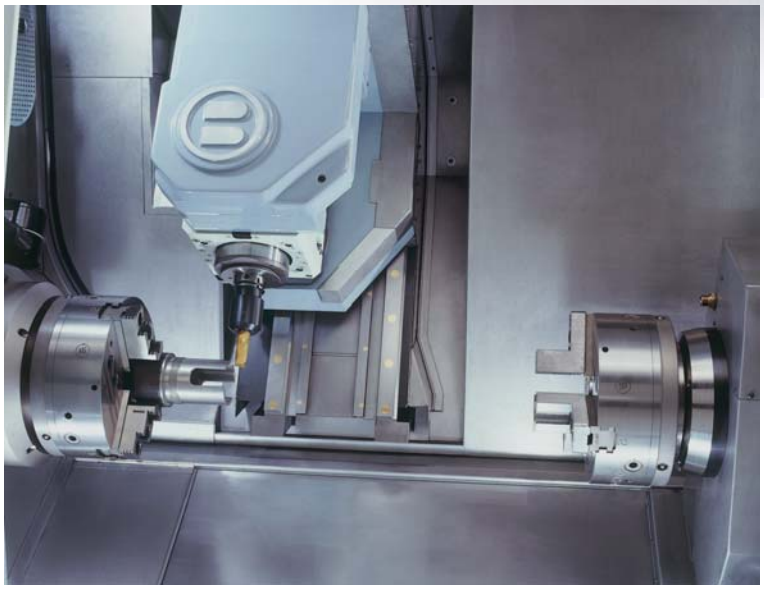
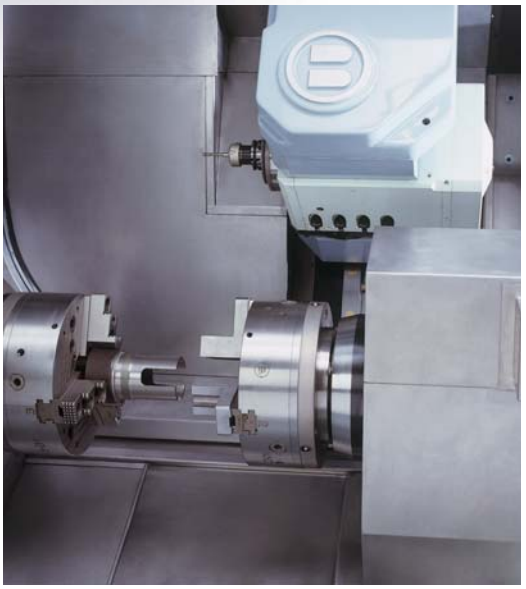
The SMART TURN "**S**" configuration is equipped with a powerful sub-spindle (24 kW) and torque (334 Nm) to allow complete machining of the component.

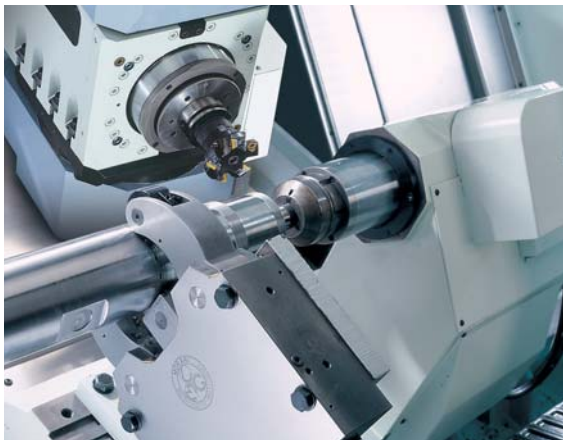
production... even on the sub-spindle.



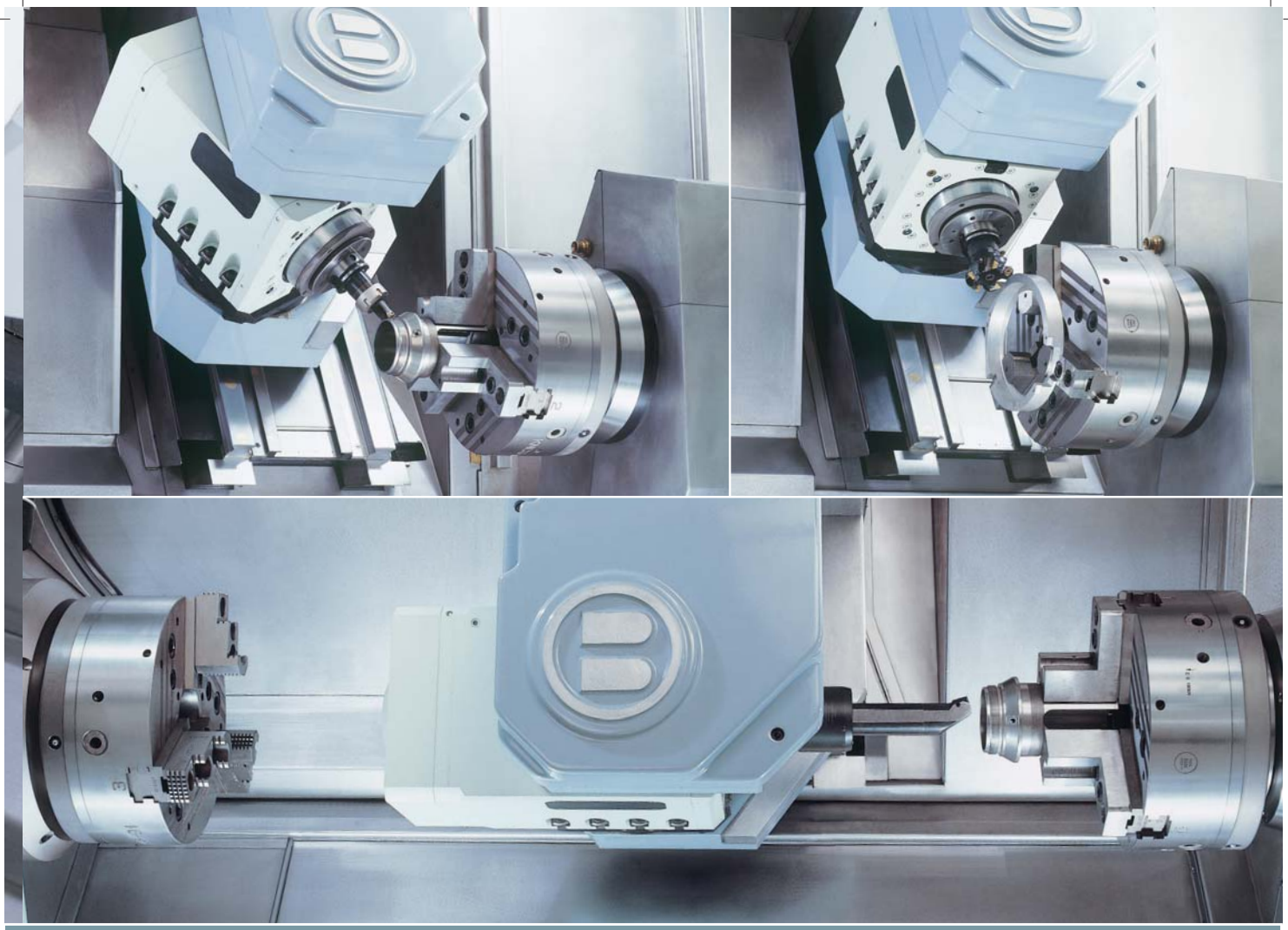


The best solutions for an integrated process.

AUTOMATIC TAILSTOCK
(only on the standard model)
The programmable tailstock is automatically positioned by the Z-axis slide.



AUTOMATIC STEADY-REST
(optional on the standard model)
The self-centering steady-rest is suitable to hold shafts up to 240 mm dia. Positioning, locking and unlocking are programmable. Available in two versions:
"in cycle" steady-rest with positioning by the Z-axis slide and "travelling" steady-rest" operated by the axis motor. The movement can be either synchronized or independent from Z-axis.



TOOL-SETTER (standard)
This device allows the automatic offsetting of tools. The tool tip is brought into contact with the probe and the tool offset value is automatically stored into relevant table of the CNC control.

BAR WORK KIT (optional)
The automatic parts-catcher combined with the pneumatic ejector on the sub-spindle allows the unloading of the finished part during bar machining.

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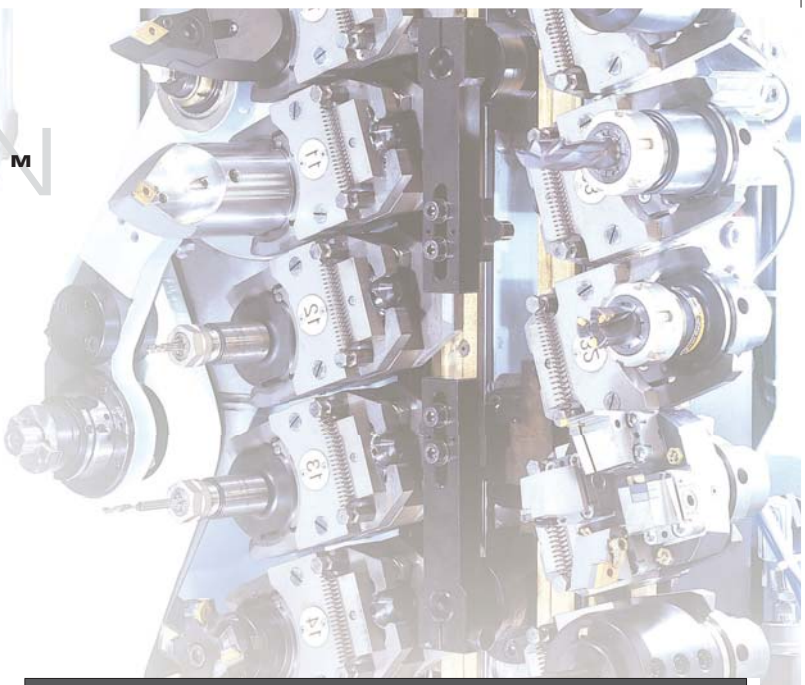
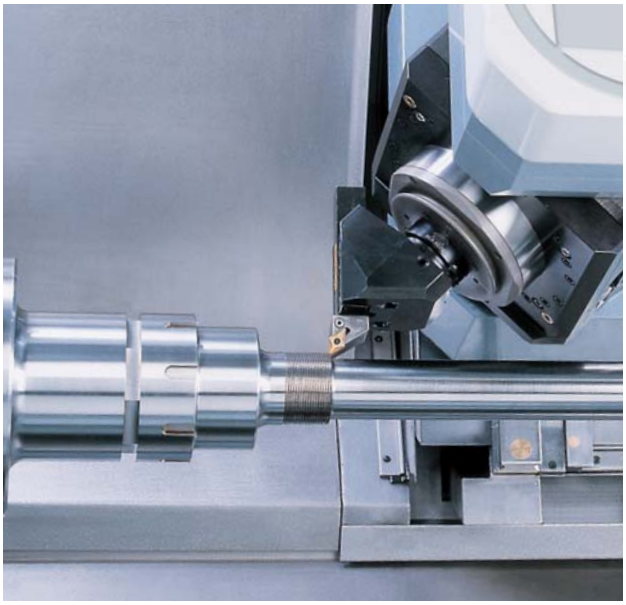
SMART TURN

TOOLING SYSTEM

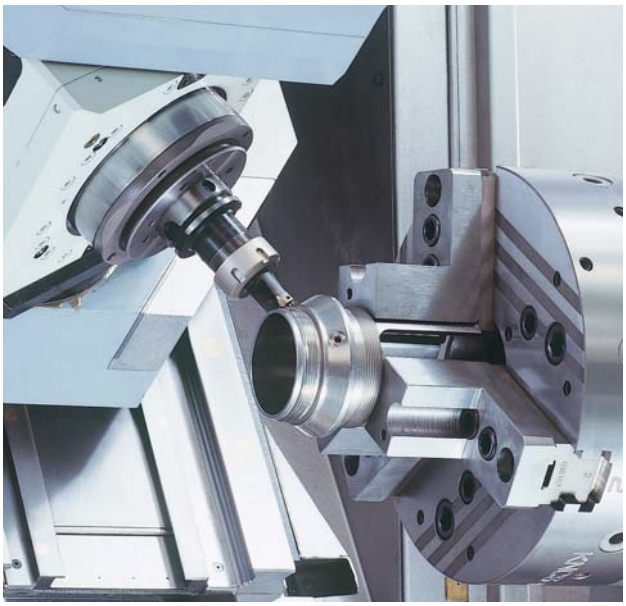


The turn/mill unit is equipped with HSK-A63 attachment.

The turning toolholders require the standard HSK-A63 ICTM attachment, which assures maximum engagement accuracy.

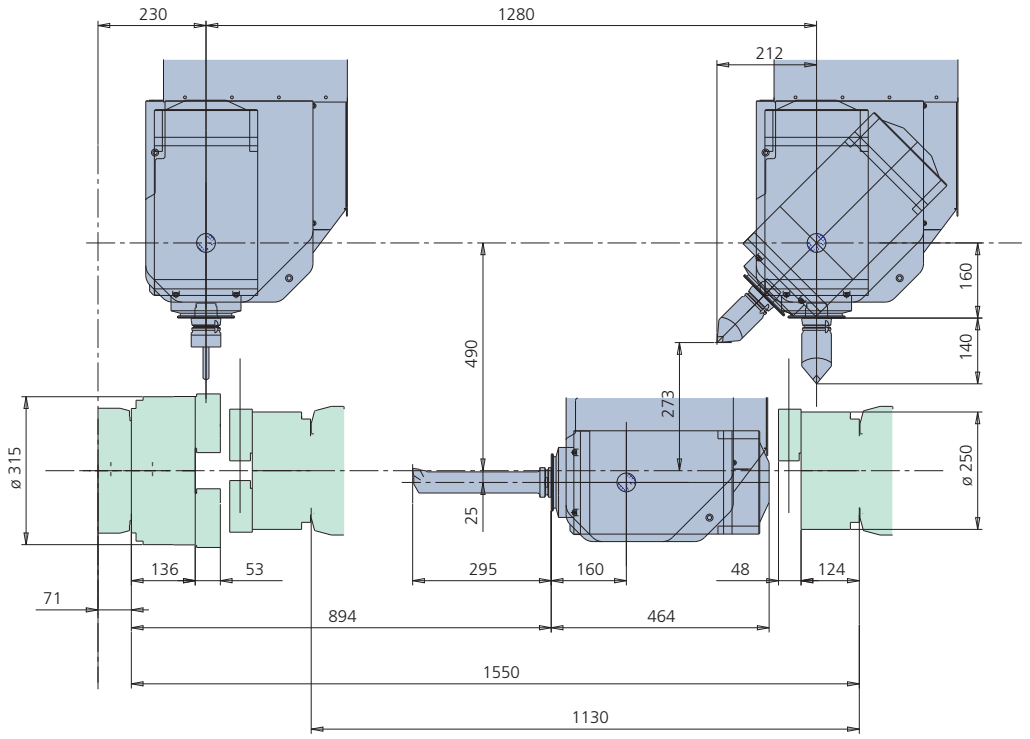


TURNING TOOLHOLDERS	
 I.D. turning	 I.D. turning
 O.D. turning	 Cut-off

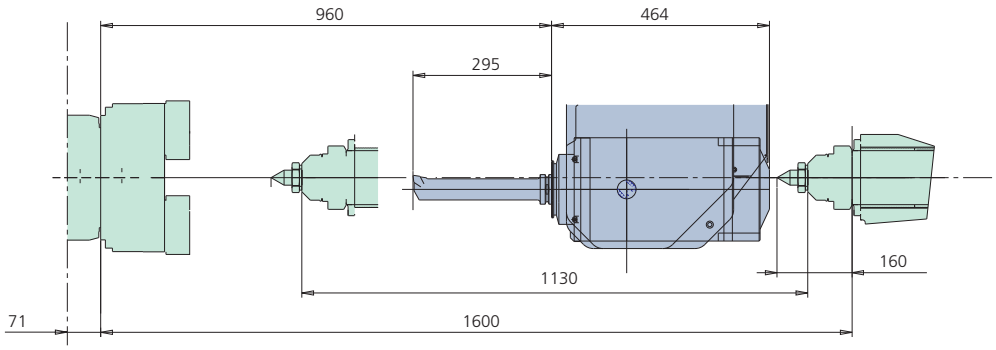


MILLING/DRILLING TOOLHOLDERS	
 Collet holder ER 25-32-40	 Bit holder WELDON
 Insert bit holder	 Face combined cutter holder

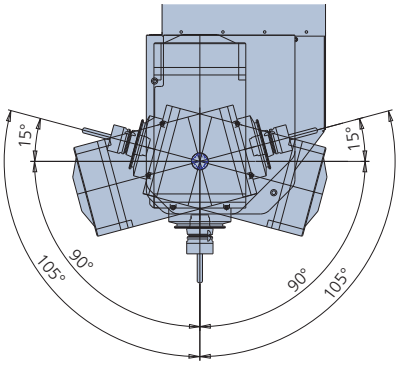
SMART TURN S



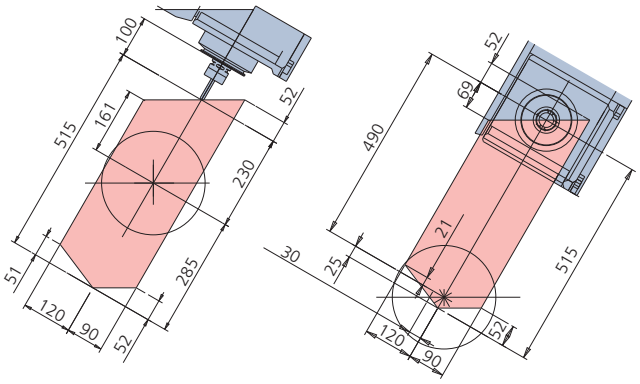
SMART TURN



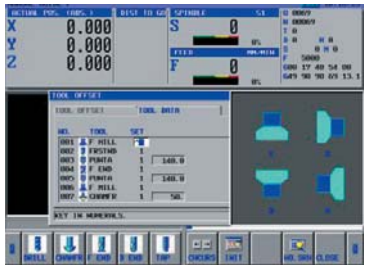
TURN / MILL MODULE - B AXIS FIELD



TURN / MILL MODULE - Y AXIS FIELD



Automated process.

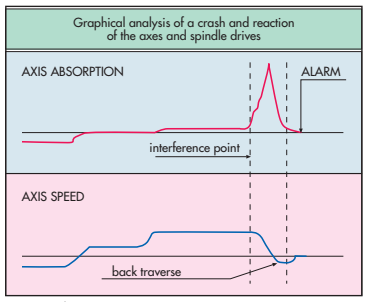


MANUAL GUIDE: QUICK AND EASY FOR PROGRAM RELIABILITY

The innovative MANUAL GUIDE software package provides operators with access to a very simple and user-friendly graphics interface, strong "editing" functions and offers a wide selection of machining cycles (turning, milling and drilling). This system allows the execution of even the most complex programs with ease of operation. The 3D simulation facilitates the checking of programmes before machining operations.

CNC UNIT

CNC unit mod. Fanuc 31i-T:
- 10.4" colour liquid crystal display
- Alphanumeric full-keyboard
- BIGLIA operator panel featuring softkeys.



Approximate diagram

DAMAGE PROTECTION (AIR BAG)

This special software detects the abnormal load created by a collision during rapid traverse or within the machining process. When a collision occurs, spindle rotation is stopped and the axis movement is halted thus damping the interference and limiting damage to the tooling. NOTE: this function does not prevent from collision.

SBS: BIGLIA SAFETY SOFTWARE TOOL LOAD MONITORING

This system monitors the loading of the most heavily used tools: e.g. 1st op. cutting tools, roughening tools, drills or U-drills. It ensures safe automatic machining with limited operator presence (option).

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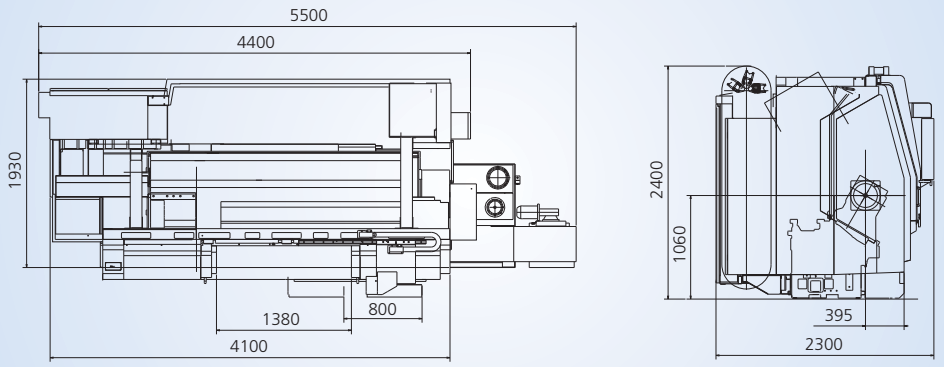
TECHNICAL SPECIFICATIONS

		SMART TURN	SMART TURN S
MACHINING FIELD			
Max. rotation diameter	mm	750	750
Max. turning diameter	mm	500	500
Max. turning length	mm	1260	1260
LINEAR AXES			
X-axis travel	mm	515	515
Z-axis travel	mm	1280	1280
Y-axis travel	mm	210 (+120/-90)	210 (+120/-90)
B-AXIS			
Rotation field	deg	210° (±105°)	210° (±105°)
Angular positioning	deg	0,001°	0,001°
MAIN SPINDLE			
Max. speed rotation	rpm	3000	3000
Spindle nose - DIN 55026	ASA	8"	8"
Max. bar capacity (opt.)	mm	94 / (102*)	94 / (102*)
Motor power	kW	25	25
Max. torque	Nm	795	795
Chuck diameter	mm	250 - 315 - 400	250 - 315 - 400
B-AXIS TURN/MILL UNIT			
Tool		HSK-A63	HSK-A63
Max. rotation speed (opt.)	rpm	8000	8000
Max. motor power	kW	20	20
Max. torque	Nm	110	110
TOOL MAGAZINE			
Number of tools	N°	40	40
SUB-SPINDLE			
Max. rotation speed	rpm	-	4000
Spindle nose - DIN 55026	ASA	-	6"
Max. bar capacity (opt.)	mm	-	65
Max. motor power	kW	-	24
Max. torque	mm	-	334
W-axis travel	mm	-	1130
Chuck diameter	mm	-	210 - 250
MACHINE INSTALLATION DATA			
Layout (L x B x H)	mm	5500x2300x2400	5500x2300x2400
Machine weight	kg	8200	8500

* with belt-type transmisison

MACHINE DIMENSIONS

SMART TURN



PRODUCTION PROGRAM

CNC TURNING CENTRES

B545	B545M	B545S	B545SM	B545Y	B545YS
B565	B565M	B565S	B565SM	B565Y	B565YS

B650	B650M	B650SM	B650Y	B650YS	
B658	B658M	B658SM	B658Y	B658YS	

B1200	B1200M	B1200Y			

MULTITURRET BAR TURNING

B445S	B445SM	B445S2M	B445YSM		
B470S	B470SM	B470S2M	B470YSM		

B446Y2					
B465Y2					

B745Y3					
B765Y3					

INTEGRATED TURN-MILL OPERATIONS

SMART TURN		SMART TURN S			

CNC VERTICAL LATHES

BV210	BV210M	BV210Y			
BV315	BV315M	BV315Y			

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THE TURNING TECH

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