

CTX TC / TC 4A - turn & mill machines

6-sided complete machining

CTX TC - turn & mill universal turning machines

CTX TC 4A - turn & mill production turning machines



Highlights

Machine and technology

Technology and options

Applications and parts

Control technology

Working space / layout plans / technical data

CTX TC / TC 4A

Turn & mill machines for 6-sided complete machining.



CTX beta and gamma TC – 5-axis universal turning

- + Universal use for the manufacture of small to medium lot sizes or for the machining of shafts
- + One tool carrier as NC-controlled B-axis
- + Maximum flexibility thanks to tool magazines with up to 180 positions
- + Optimal accessibility thanks to minimal reach to the main spindle, e.g. 350 mm for the CTX beta 1250 TC
- + ShopTurn 3G for workshop-oriented programming directly on the machine

DIRECT
Drive

Machine construction

1: Turret disc produced on a CTX gamma 1250 TC CK45 / 180 min.

2: Marine crankshaft produced on a CTX gamma 3000 TC 42CrMo4 / 280 min.



1



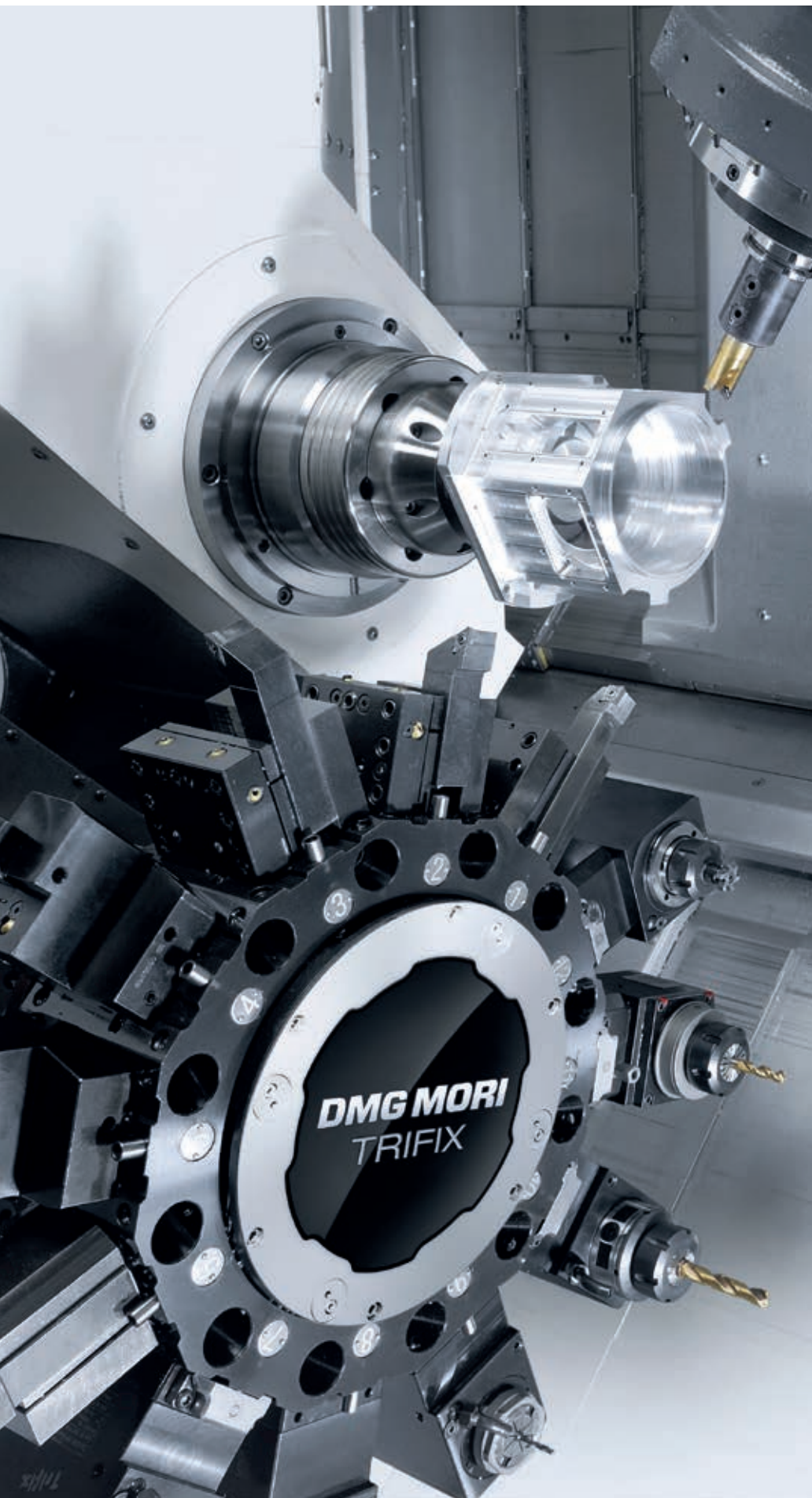
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Aerospace

3: Diffuser produced on
a CTX gamma 1250 TC 4A
Titan / 6 h

Automotive

4: Crankshaft produced
on a CTX gamma 2000 TC 4A
42CrMo4 / 6 min.



CTX beta and gamma TC 4A 5-axis production turning

- + Highly productive machines for the manufacture of medium to large batch sizes
- + Maximum productivity thanks to the simultaneous use of two tools
- + Turret with highest long-term accuracy thanks to TRIFIX® precision interface for < 30 sec. tool setting time
- + Ideally suited for series production thanks to optional automation solutions, like for instance an integrated handling system or portal loading
- + Programming via ShopTurn 3G, or via external programming systems

03

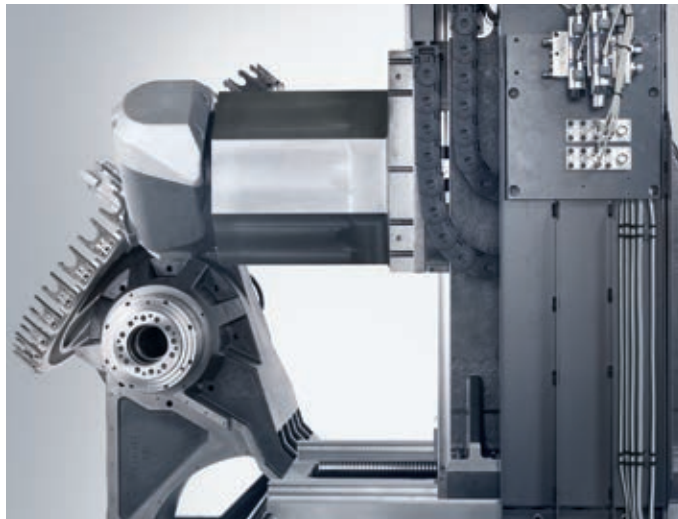
DIRECT
Drive

TRIFIX



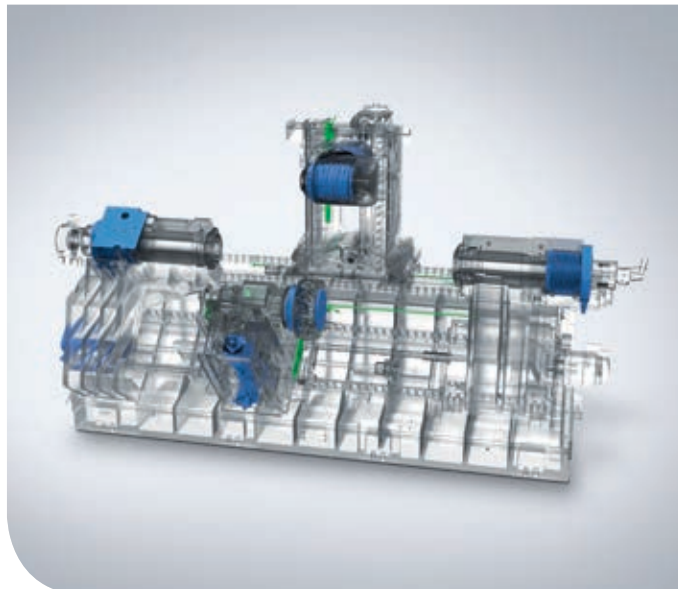
3D control system with DMG MORI exclusive technology cycles

- + Siemens 840D solutionline with ShopTurn 3G for convenient programming, using animated application images
- + DMG MORI exclusive technology cycles for simple, dialogue-guided programming thanks to parametrised input screens, e.g. gear hobbing or off-centre machining



Maximum stability and machining performance thanks to a highly stable moving column concept

- + Up to 750 mm wide spacing of linear guideways of the moving column (X / Y / Z):
 - CTX beta 1250 TC / TC 4A: 400 / 630 / 425 mm
 - CTX beta 2000 TC: 545 / 740 / 752 mm
 - CTX gamma TC / TC 4A: 545 / 740 / 752 mm
- + Maximum stability and optimal force transmission from the turning-milling spindle to the machine bed for heavy machining
- + Turning-milling spindle optional with HSK-A100 or Capto C8 taper and 160 Nm torque for the CTX gamma TC / TC 4A



Maximum precision and long-term accuracy

- + Maximum precision thanks to direct measuring systems in all axes
- + Maximum thermal stability thanks to liquid-cooled, integrated spindle motors and headstocks as well as the optional direct drive turret.
- + Maintenance-free linear drive in the Z-axis* with 60 months warranty and 1 g acceleration for maximum dynamics and long-term precision**

* optional, ** not for CTX beta 1250 TC 4A, CTX beta 2000 TC and gamma 3000 TC / TC 4A

CTX TC / CTX TC 4A

Turn & mill machines for up to 50% more productivity.



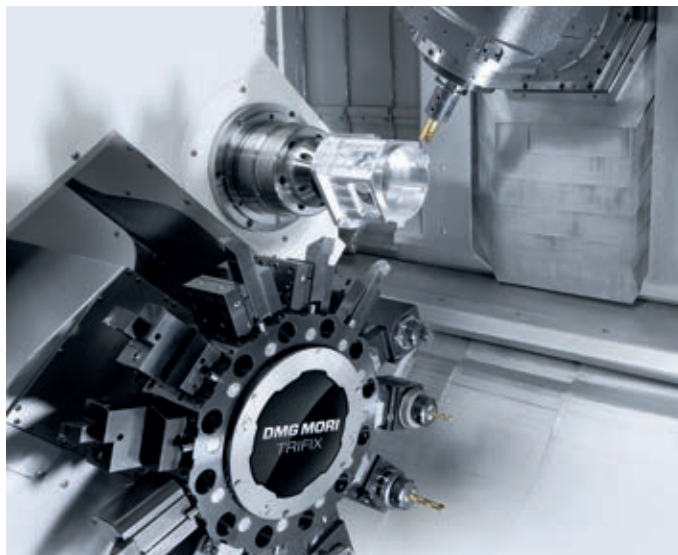
DIRECT
Drive

5 AXIS
Champion

100 rpm rapid traverse thanks to the B-axis with directly driven torque motor

- + Direct drive in the B-axis with torque motor for maximum dynamics and accuracy
- + Turning-milling spindle with 12,000 rpm, 22 kW and 100 Nm, optional 18,000 rpm or 8,000 rpm, 39 kW and 160 Nm
- + 5-axis simultaneous machining thanks to technology cycle (optional) for 5-axis interpolation on the main and counter spindle

05



TC 4A: Direct drive turret for maximum machining performance

- + < 30 sec. tool setting time and < 6 µm repeatability thanks to TRIFIX® precision quick change interface as standard
- + VDI 40 Direct Drive Turret with 10,000 rpm, 34 Nm and 14.2 kW power rating (optional)
- + Direct Drive Turret for the CTX beta 1250 TC 4A including Y-axis travel of 40 mm

DIRECT
Drive

TRIFIX

Highlights

Machine and technology

Technology and options

Applications and parts

Control technology

Working space / layout plans / technical data

CTX TC

5-axis universal turning of work pieces up to ø 700 mm and up to 3 m long.

Turning length			
CTX gamma TC // ø 700 mm	1,300 mm	2,050 mm	3,050 mm
CTX beta 2000 TC // ø 550 mm		2,050 mm	
CTX beta 1250 TC // ø 500 mm	1,250 mm		



High quality components as standard			
		CTX beta 1250 TC <i>(linear)</i>	CTX beta 2000 TC
Max. work piece length	mm	1,250	2,050
Max. work piece diameter*	mm	ø 500	ø 550
Max. swing diameter*	mm	ø 500	ø 630
Y-axis travel	mm	±100	±150
Main spindle	rpm	ISM 76 / 5,000	ISM 76 / 5,000
Torque / power	Nm / kW	380 / 34	380 / 34
Counter spindle (optional)	rpm	ISM 52 plus / 6,000	ISM 76 / 5,000
Torque / power	Nm / kW	170 / 27	380 / 34
Tool magazine as disc	positions	24	24
(optional chain magazine up to max.)		(48)	(100)

* for option with chain magazine with disc magazine ø 630 mm

- 1: Complete machining on a CTX beta 2000 TC with optional counter spindle and a B-axis with 240° swivel range
- 2: Machining on a CTX gamma 3000 TC with optional steady rest for work pieces up to ø 460 mm and counter spindle as standard



1



2

Highlights

- + 6-sided complete machining thanks to main and counter spindle, counter spindle for CTX gamma TC as standard*
- + 5-axis simultaneous machining thanks to B-axis with $\pm 120^\circ$ swivel range ($\pm 110^\circ$ for the CTX beta 1250 TC) in connection with the optional technology cycle
- + Turning-milling spindle with 12,000 rpm, 22 kW and 100 Nm, optional up to 18,000 rpm or 8,000 rpm with 39 kW and 160 Nm

* Optional



07

CTX gamma 1250 TC (linear)	CTX gamma 2000 TC (linear)	CTX gamma 3000 TC
1,300	2,050	3,050
ø 700	ø 700	ø 700
ø 700	ø 700	ø 700
±200	±200	±200
ISM 102 / 4,000	ISM 102 / 4,000	ISM 127 / 2,500
770 / 45	770 / 45	2,200 / 52
ISM 76 / 5,000	ISM 76 / 5,000	ISM 102 / 4,000
380 / 34	380 / 34	770 / 45
36	36	36
(180)	(180)	(180)

Highlights

Machine and technology

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CTX TC 4A

5-axis production turning with additional turret.

Drehlänge			
CTX gamma TC 4A // ø 700 mm	1,300 mm	2,050 mm	3,050 mm
CTX beta 1250 TC 4A // ø 500 mm	1,200 mm		



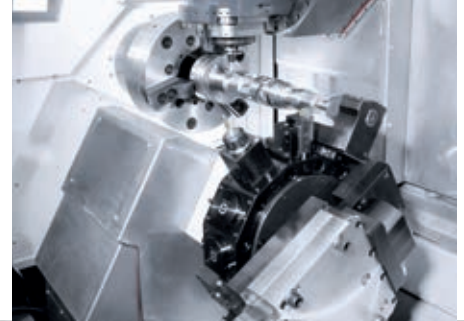
Highlights

- + Highly productive 6-sided complete machining thanks to the simultaneous use of two tools as well as a main spindle and a counter spindle as standard
- + 5-axis simultaneous machining thanks to B-axis with ±120° swivel range (±110° for the CTX beta1250 TC 4A) in conjunction with the optional technology cycle
- + Turning-milling spindle with 12,000 rpm, CTX gamma TC 4A, optional up to 18,000 rpm or 8,000 rpm and 160 Nm
- + Second tool holder as 12 position VDI 40 turret with TRIFIX® precision quick change system for < 30 sec. tool setting time and < 6 µm repeatability
- + Ideally suited to series production thanks to optional automation solutions such as an integrated handling system or portal loading

High quality components as standard

Max. work piece length	mm
Max. work piece diameter*	mm
Max. swing diameter*	mm
Y-axis travel	mm
Main spindle	rpm
Torque / power	Nm / kW
Counter spindle	rpm
Torque / power	Nm / kW
Tool magazine – disc type	positions
(optional chain magazine up to max.)*	
Turret (12x VDI 40)	rpm / Nm / kW

* for option with chain magazine with disc magazine ø 630 mm

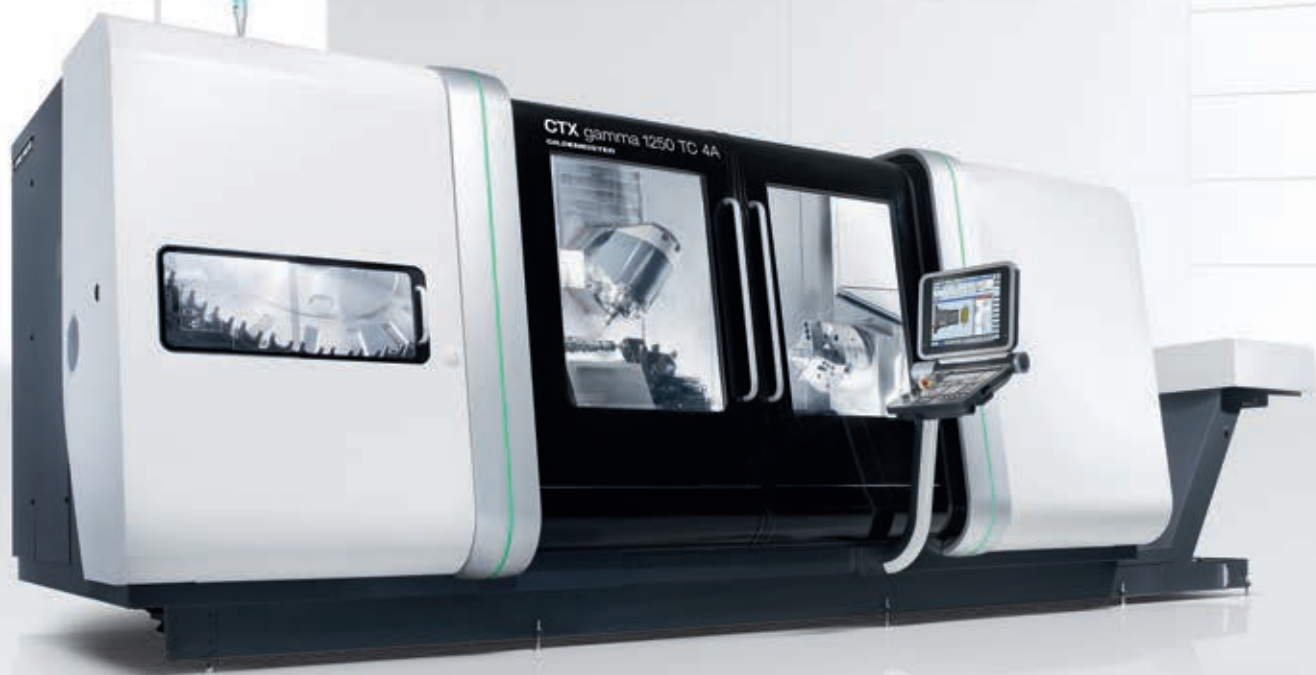


**Highly productive machining
on a CTX 1250 TC 4A with B-axis
and bottom turret**

- + Turret optional with direct drive for speeds up to 10,000 rpm
- + Direct Drive Turret for the CTX beta 1250 TC 4A including Y-axis travel of ± 40 mm

**Support of long work pieces by a
tailstock centre mounted on the turret
and / or a turret steady rest**

- + Work pieces up to $\varnothing 165$ mm chuck diameter, $\varnothing 101$ mm for the CTX beta 1250 TC 4A
- + Optional technology cycles for easy selection of the steady rest or the tailstock centre via dialogue programming from the tool storage



CTX beta 1250 TC 4A

1,200
$\varnothing 500$
$\varnothing 500$
± 100
ISM 76 synchro / 5,000
360 / 32
ISM 76 synchro / 5,000
360 / 32
24
(120)
4,000 / 28 / 11.3

CTX gamma 1250 TC 4A (linear)

1,300
$\varnothing 700^*$
$\varnothing 700^*$
± 200
ISM 102 / 4,000
770 / 45
ISM 76 / 5,000
380 / 34
36
(180)
4,000 / 28 / 10

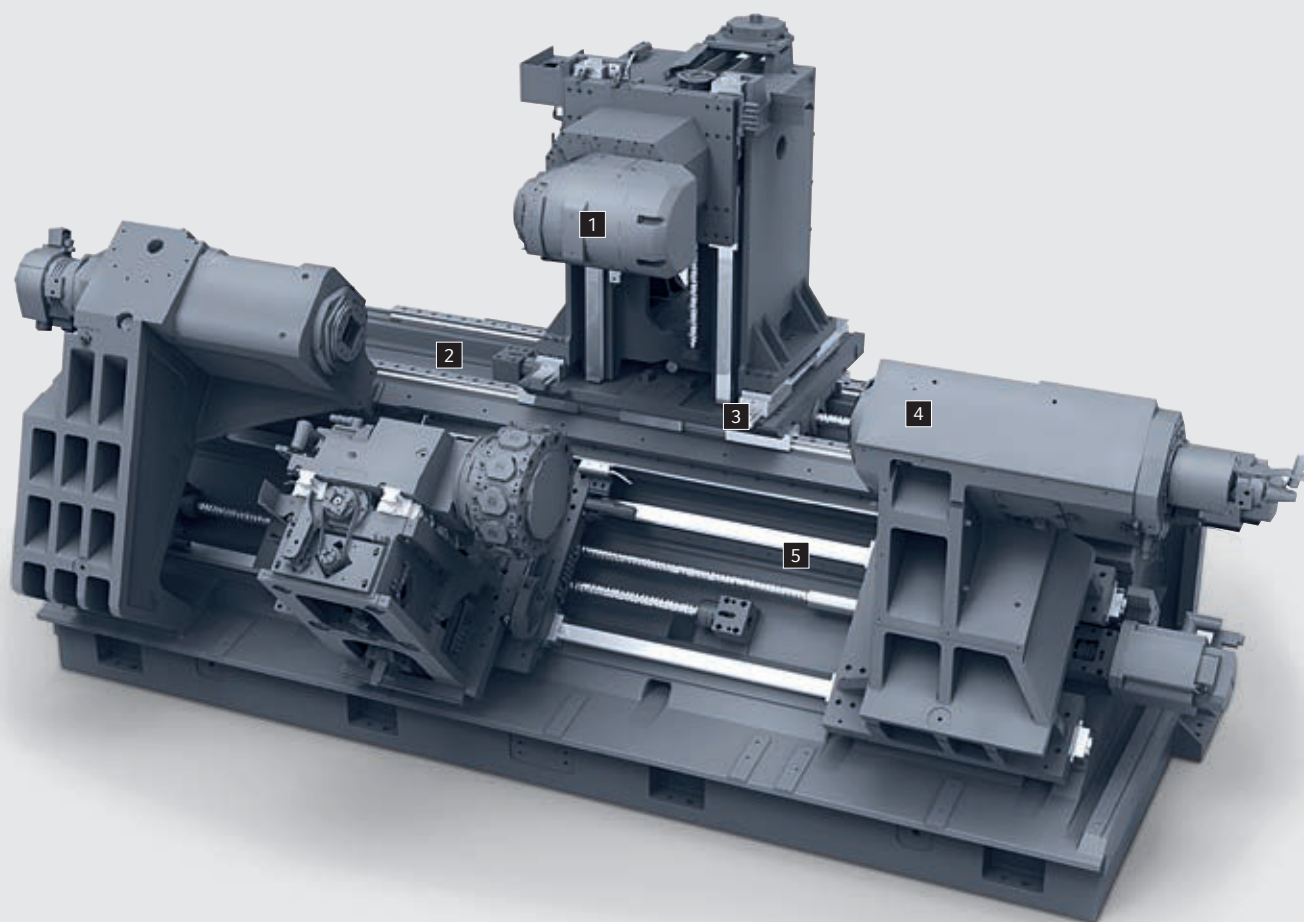
CTX gamma 2000 TC 4A (linear)

2,050
$\varnothing 700$
$\varnothing 700$
± 200
ISM 102 / 4,000
770 / 45
ISM 76 / 5,000
380 / 34
36
(180)
4,000 / 28 / 10

CTX gamma 3000 TC 4A

3,050
$\varnothing 700$
$\varnothing 700$
± 200
ISM 127 / 2,500
2.00 / 52
ISM 102 / 4,000
770 / 45
36
(180)
4,000 / 28 / 10

Turn & mill complete machining with maximum stability and long-term precision.



B-axis with direct drive

For maximum precision and dynamics with 100 rpm

Maximum stability

Constant rigidity thanks to robust guide ways up to size 55 and up to $\varnothing 50$ mm ball screws

Maximum precision

Direct measuring systems in all linear axes for the main and counter spindle and the turret for the TC 4A

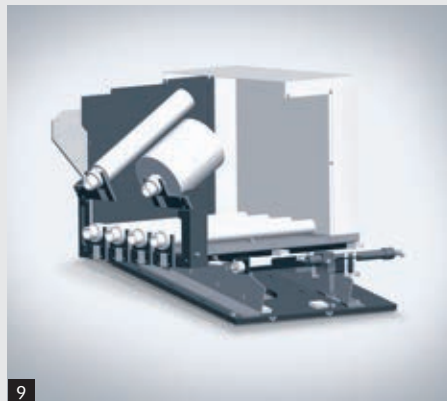
Thermal stability

Liquid-cooled main and counter spindle as well as optional Direct Drive Turret

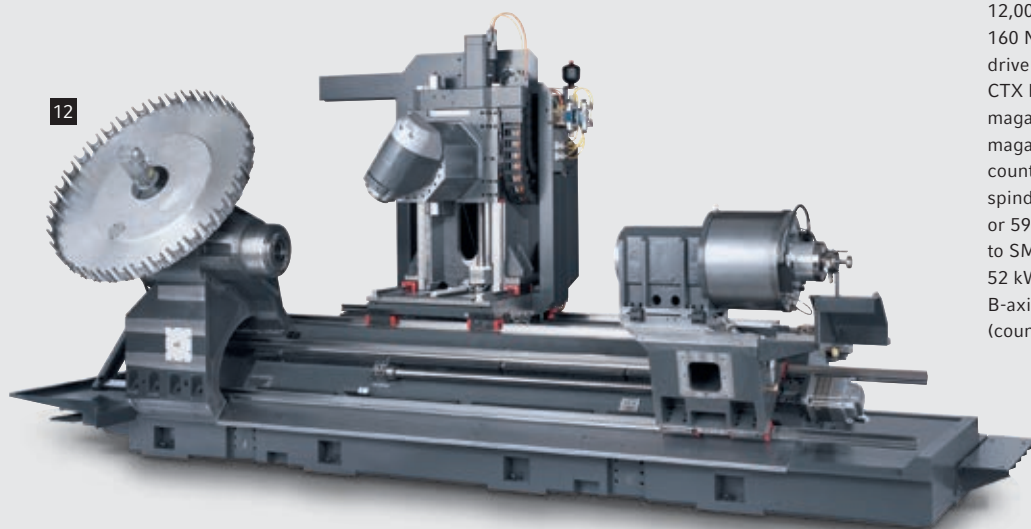
Maximum dynamics

Maintenance-free linear drive in the Z-axis (optional) with 60 months warranty and 1 g acceleration for maximum dynamics and long-term precision*

* not for CTX beta 1250 TC 4A, CTX beta 2000 TC and gamma 3000 TC / TC 4A



Intelligent building block system for all requirements from two to four axes.



6: Moving column with turning-milling spindle: 12,000 / 18,000 / 8,000 rpm (up to 39 kW and 160 Nm) 7: Moving column on top with linear drive in the Z-axis: not for CTX beta 1250 TC 4A, CTX beta 2000 and gamma 3000 TC 8: Tool magazines with up to 180 positions 9: Additional magazine for up to 6 extra large tools: via the counter spindle (from CTX beta 2000 TC) 10: Main spindle up to ISM 127 PLUS: max. 5,000 rpm, or 59 kW and 4,000 Nm 11: Counter spindle up to SM 127 (CTX gamma TC): max. 6,000 rpm, or 52 kW and 2,200 Nm 12: Basic machine with B-axis, disc magazine and counter spindle (counter spindle optional for CTX TC)

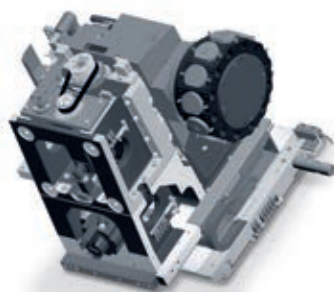
CTX TC

Steady rests for work pieces up to $\varnothing$ 460 mm



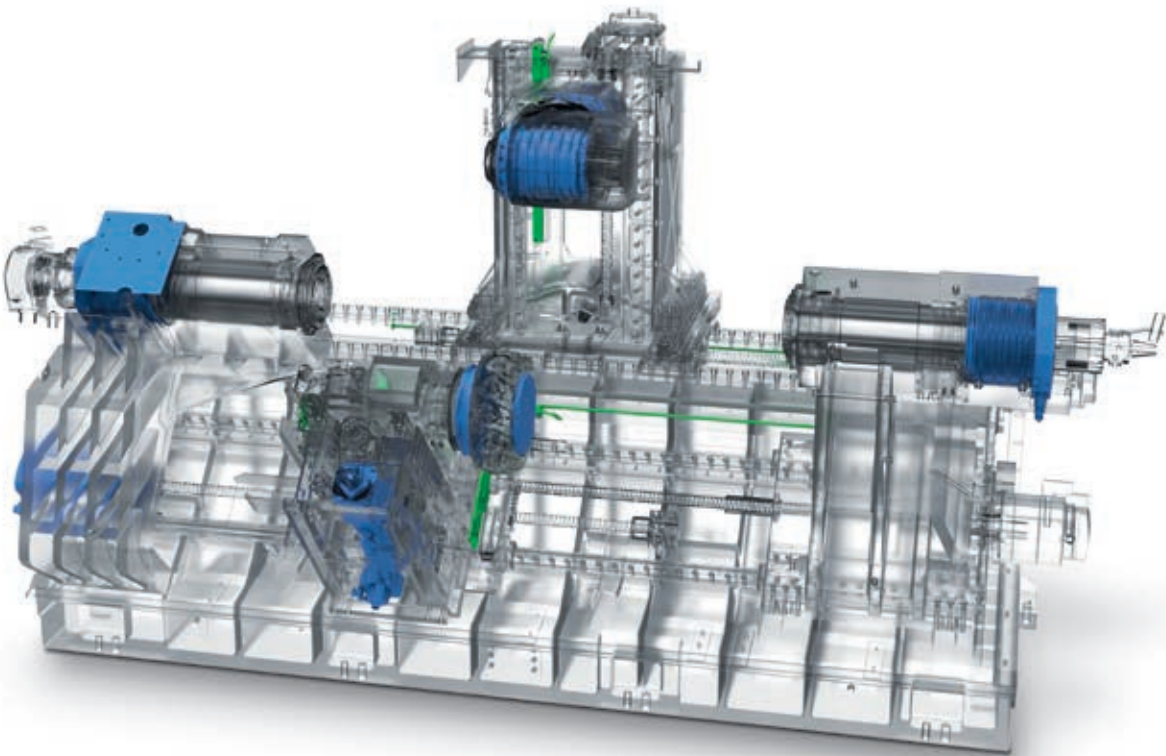
CTX TC 4A

Second tool holder as bottom turret, optionally as direct drive turret – Direct Drive Turret for the CTX beta 1250 TC 4A incl. ± 40 mm Y-axis traverse

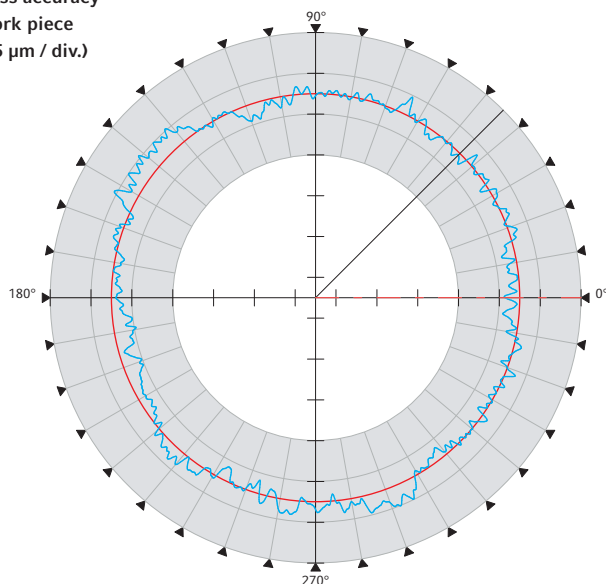


Maximum precision and temperature stability thanks to cooling of the main and counter spindles and direct measuring systems.

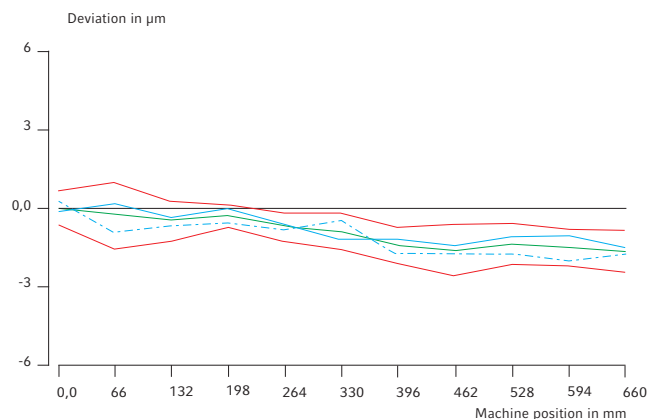
High quality components - designed for every application			
CTX beta 1250 TC	CTX beta 1250 TC 4A	CTX beta 2000 TC	CTX gamma 1250 / 2000 / 3000 TC / TC 4A
45 mm roller guides	45 mm roller guides	55 mm roller guides	55 mm roller guides
40 mm ball screws	40 mm ball screws	50 mm ball screws	50 mm ball screws
Linear measuring systems in the linear axes of the moving column (X1 / Y1 / Z1)			
–	Linear measuring systems in Z3 optional (counter spindle / tailstock)	Linear measuring systems in Z3 optional (counter spindle / tailstock)	Linear measuring systems in Z3 optional (counter spindle / tailstock)
–	TC 4A: Glass scales in X2, in Y2 / Z2 optional	–	TC 4A: Linear measuring systems in X2 / Z2
Water-cooled integrated spindle motors and spindle tailstocks			
Cooling of turret drives			
Cooling of the X- / Y- Z motors and the bottom turret			



Roundness accuracy
of the work piece
(scale 0.5 μm / div.)



Laser measurement according to VDI / DGQ 3441 (Z-axis)



< 0.6 μm roundness of the work piece for turning

Work piece	$\varnothing$ 42 mm cut piece, aluminium
Clamping operation	80 mm programming length, clamped directly in the spindle
Cutting speed	$v_c = 280$ m/min
Cutting depth	$a_p = 0.2$ mm
Traversing speed	$f = 0.1$ mm/rpm
Tool	Diamond tool

Precision in the μm -range

	Positioning accuracy ($P_{\max}$)	Repeatability ($Ps_{\max}$)
X axis	< 6 μm	< 2 μm
Y axis	< 6 μm	< 2 μm
Z axis	< 10 μm	< 3 μm
C axis	< 18"	< 5"

Technology step thanks to the SPRINT™ high speed scanning system. In-process measurement with 0.1 μm resolution in 3 dimensions and 1,000 measurement points per second

+ Time reduction thanks to up to 15 m/min. measuring speed

+ High precision data capture of features thanks to tactile scanning of the geometry

+ Support during all process steps of machining:

1. **Process basis:** Dynamic machine testing
2. **Process set-up:** Automated measurement of the work piece position. Recognition and processing of complex geometries for adaptive machining
3. **In-process measuring:** Tool optimisation or updating of tool parameters
4. **Process monitoring:** Automated measuring of critical characteristics of a process





1 g acceleration
and 60 m/min rapid
traverse

linear  **DRIVE**

**Linear drive* – minimum
maintenance costs, maximum
precision and productivity**

- + 60-month warranty on the linear drive
- + Maximum long-term accuracy, hardly any wear and tear parts
- + High acceleration, no mechanical transmission elements
- + Low maintenance, few or no wear and tear parts
- + Reduction of manufacturing costs thanks to low service costs

* optional, not for CTX beta 1250 TC 4A,
CTX beta 2000 TC and gamma 3000 TC / TC 4A



Steady rests: ø 460 mm



Chuck: ø 630 mm

Turn & mill

Application-oriented configurations for maximum productivity.

15

Automatically traversing steady rests* for vibration-free machining of long components such as shafts

- + **CTX beta 1250 TC:** up to ø 165 mm work piece diameter (not in conjunction with a counter spindle, trailing via moving column)
- + **CTX beta 2000 TC:** up to ø 350 mm work piece diameter (traversing via own NC-axis)
- + **CTX gamma TC:** up to ø 460 mm work piece diameter (traversing via own NC-axis)
- + 50 % shorter set-up time thanks to quick change system with double cone clamping for 3 µm repeatability

* optional

Use of chucks up to ø 630 mm thanks to highly stable machine concept and high torque spindles

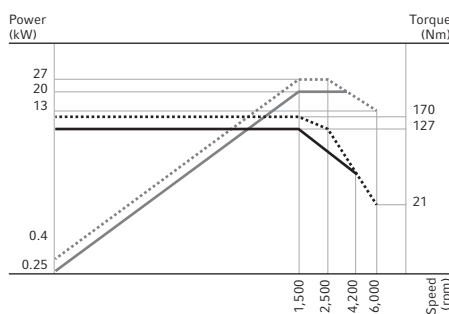
- + **CTX beta 1250 TC:** up to ø 400 mm clamping diameter* (counter spindle up to ø 260 mm*)
- + **CTX beta 1250 TC 4A:** up to ø 325 mm clamping diameter*
- + **CTX beta 2000 TC:** bis ø 500 mm clamping diameter*
- + **CTX gamma TC / TC 4A:** up to ø 630 mm clamping diameter*
- + Special solutions such as magnetic chucks on request

* optional: depending on the integrated spindle motor on the main or counter spindle

Integrated spindle drives rated up to 4,000 Nm for the highest machining performance.

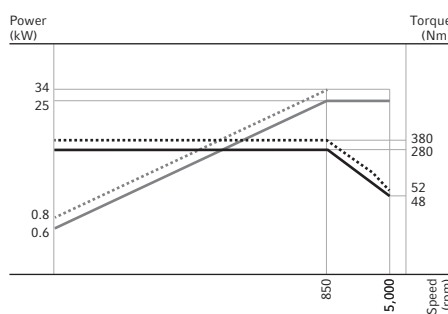
ISM 52 PLUS

6,000 rpm / 27 kW / 170 Nm



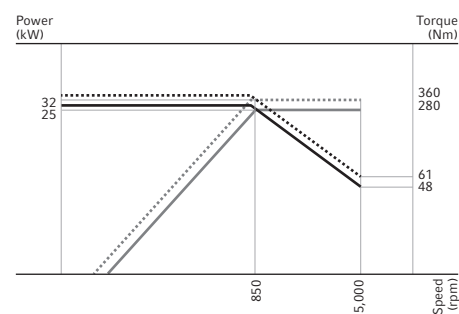
ISM 76

5,000 rpm / 34 kW / 380 Nm



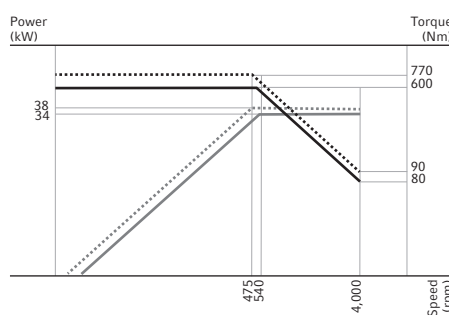
ISM 76 synchro

5,000 rpm / 32 kW / 360 Nm



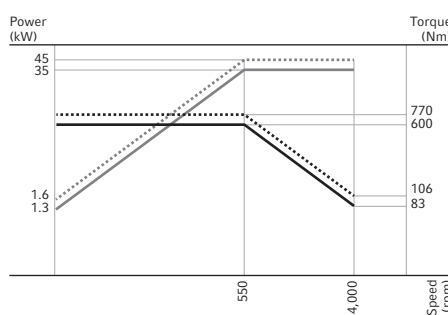
ISM 102

4,000 rpm / 38 kW / 770 Nm



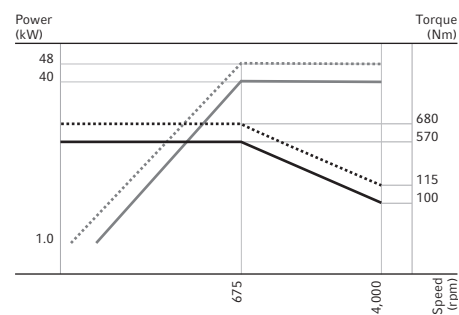
ISM 102

4,000 rpm / 45 kW / 770 Nm



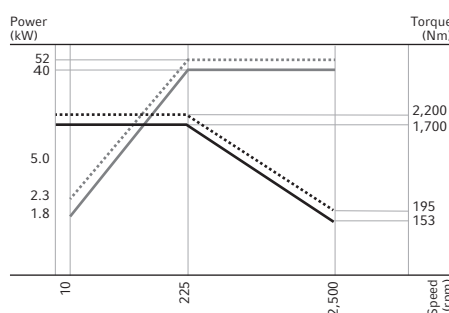
ISM 102 synchro

4,000 rpm / 48 kW / 680 Nm



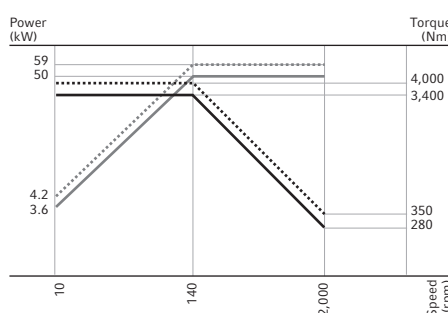
ISM 102 PLUS / ISM 127

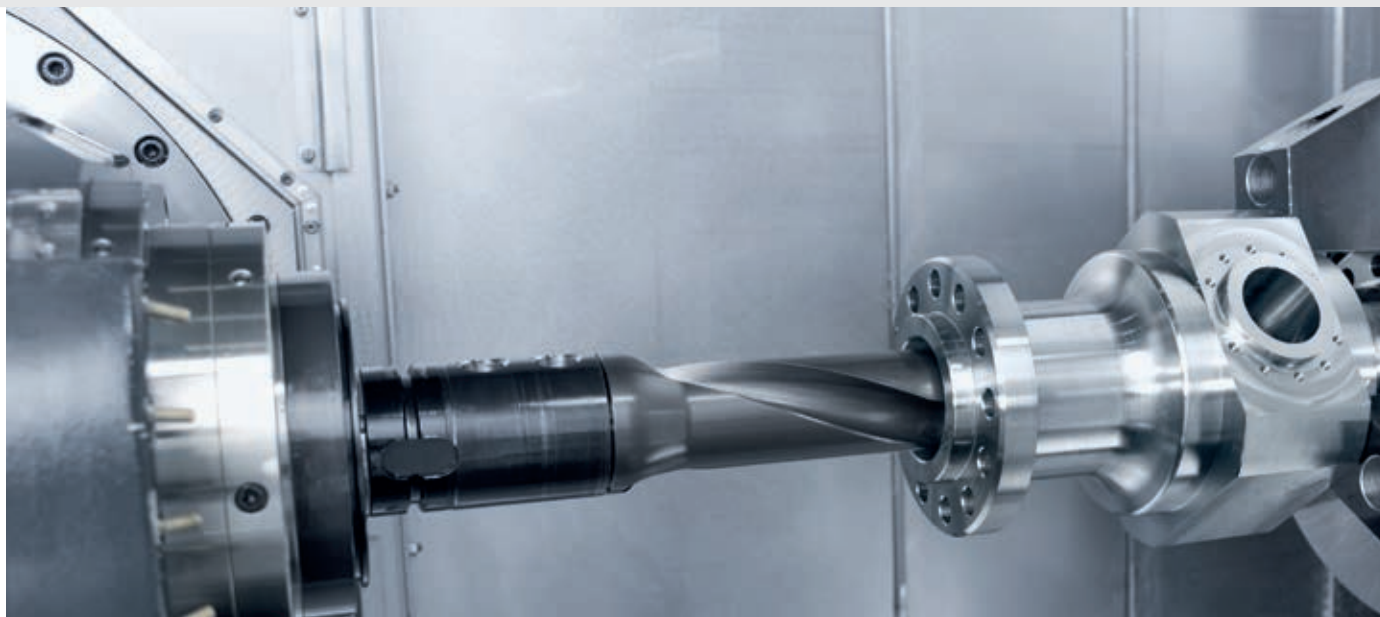
2,500 rpm / 52 kW / 2,200 Nm



ISM 127 PLUS

2,000 rpm / 59 kW / 4,000 Nm





Motor spindles	Machine									
Type // Speed Power // Torque (40 / 100 % ED) Bar capacity // Spindle head (flat flange)	CTX beta 1250 TC		CTX beta 1250 TC 4A		CTX beta 2000 TC		CTX gamma 1250 / 2000 TC / TC 4A		CTX gamma 3000 TC / TC 4A	
	MS	CS	MS	CS	MS	CS	MS	CS*	MS	CS*
ISM 52 PLUS // 6,000 rpm 27 / 20 kW // 170 / 127 Nm 51 (65) mm // 140h5		◦								
ISM 76 // 5,000 rpm 34 / 25 kW // 380 / 280 Nm 65 (76) mm // 170h5	●				●	◦		●		
ISM 76 synchro // 5,000 rpm 32 / 25 kW // 360 / 280 Nm 65 (76) mm // 170h5		◦	●	●						
ISM 102 // 4,000 rpm 38 / 34 kW // 770 / 600 Nm 93 (102) mm // 220h5					◦	◦				
ISM 102 // 4,000 rpm 45 / 35 kW // 770 / 600 Nm 93 (102) mm // 220h5	◦						●	◦		●
ISM 102 syncro // 4,000 rpm 48 / 40 kW // 680 / 570 Nm 102 mm // 220h5			◦							
ISM 102 PLUS // 2,500 rpm 52 / 40 kW // 2,200 / 1,700 Nm 102 mm // 220h5							◦	◦		◦
ISM 127 // 2,500 rpm 52 / 40 kW // 2,200 / 1,700 Nm – / A15							◦		●	◦
ISM 127 PLUS // 2,000 rpm 59 / 50 kW // 4,000 / 3,400 Nm – / A15							◦		◦	

MS = main spindle, CS = counter spindle, ● standard, ◦ optional, * standard for TC 4A

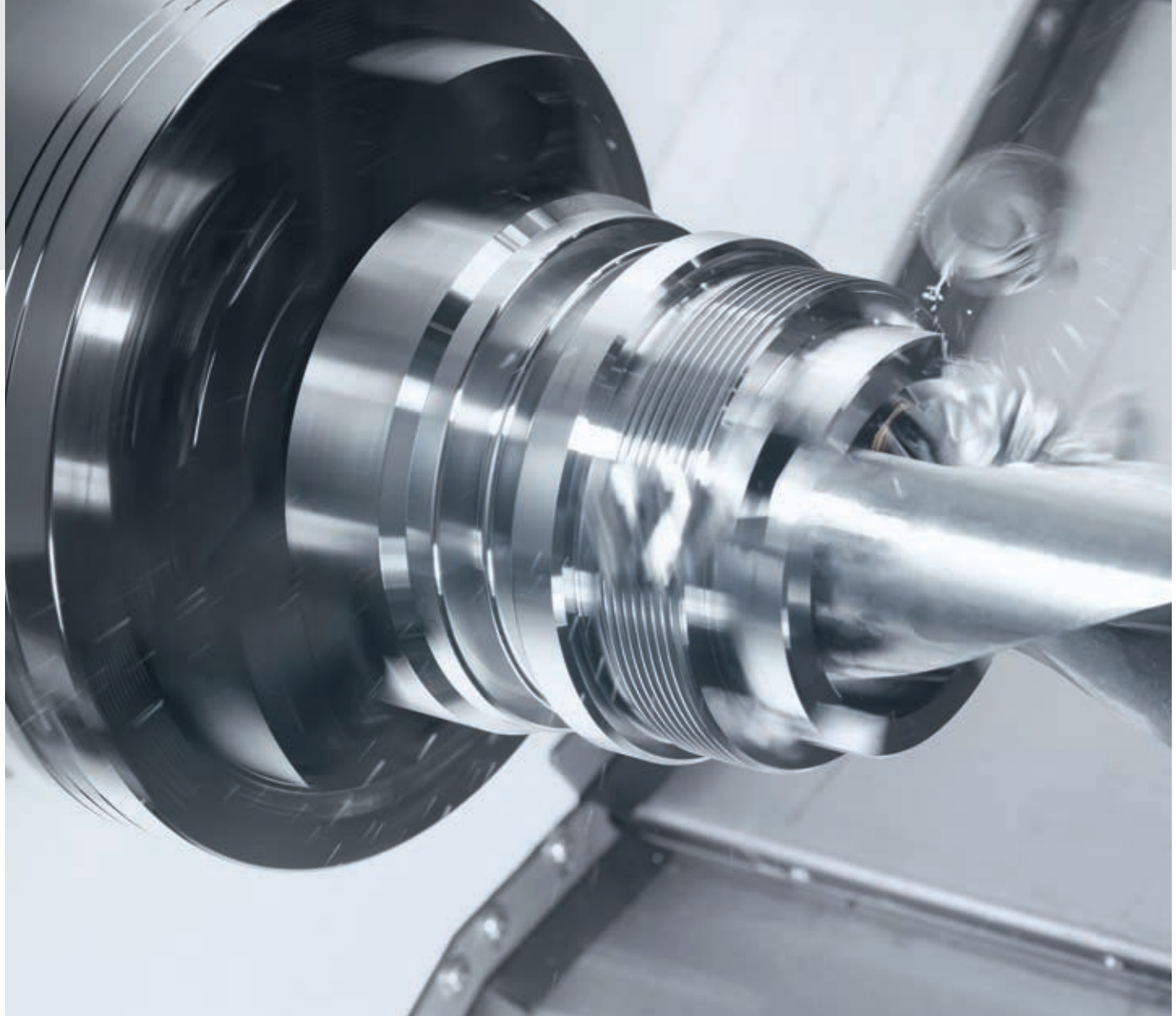
High-performance turning up to 59 kW and 4,000 Nm torque.

- + **Maximum dynamics** thanks to integrated spindle drives up to 6,000 rpm or 4,000 Nm and integrated C-axis (0.001°)
- + **Maximum precision and temperature stability** thanks to liquid-cooled drives for the main and counter spindle
- + **6-sided complete machining** with main and counter spindle, counter spindle is standard for the CTX TC 4A
- + **Service-friendly spindle assembly** thanks to cartridge principle

Type Speed Power // Torque (40 % ED)	ISM 52 PLUS 6,000 rpm 27 kW, 170 Nm		ISM 76 5,000 rpm 34 kW, 380 Nm		ISM 76 synchro 5,000 rpm 32 kW, 360 Nm	
	MS	CS	MS	CS**	MS	CS
CTX beta 1250 TC		◦	●			◦
CTX beta 1250 TC 4A					●	●
CTX beta 2000 TC			●	◦		
CTX gamma 1250 TC / TC 4A				●		
CTX gamma 2000 TC / TC 4A				●		
CTX gamma 3000 TC / TC 4A						

MS = main spindle, CS = counter spindle, ● standard, ◦ optional, * CTX beta 2000 TC, ** standard for TC 4A

High-performance roughing (CK 45)					
Component diameter	mm	75	150	150	
Material removal rate	cm ³ /rpm	336	504	462	
Cutting depth	mm	4	6	5.5	
Cutting speed	m/min	240	240	240	
Feed	mm/rpm	0.35	0.35	0.35	
High-performance boring (CK 45)					
Work piece diameter	mm	40	55	65	
Spindle speed	rpm	636	462	391	
Cutting speed	m/min	80	80	80	
Feed	mm/rpm	0.15	0.15	0.15	



ISM 102 4,000 rpm 45 (38)* kW, 770 Nm		ISM 102 synchro 4,000 rpm 48 kW, 680 Nm		ISM 102 PLUS 2,500 rpm 52 kW, 2,200 Nm		ISM 127 2,500 rpm 52 kW, 2,200 Nm		ISM 127 PLUS 2,000 rpm 59 kW, 4,000 Nm	
MS	CS**	MS	CS	MS	CS	MS	CS	MS	CS
○									
		○							
○*	○*								
●	○			○	○	○		○	
●	○			○	○	○		○	
	●				○	●	○	○	

	200	200	400	400	500
	630	714	1,080	1,080	1,584
	7.5	8.5	10	10	12
	240	240	240	240	240
	0.35	0.35	0.45	0.45	0.55
	72	72	105	105	105
	353	462	242	242	242
	80	80	80	80	80
	0.15	0.15	0.15	0.15	0.15

Complete machining thanks to B-axis with up to 120° swivel range.

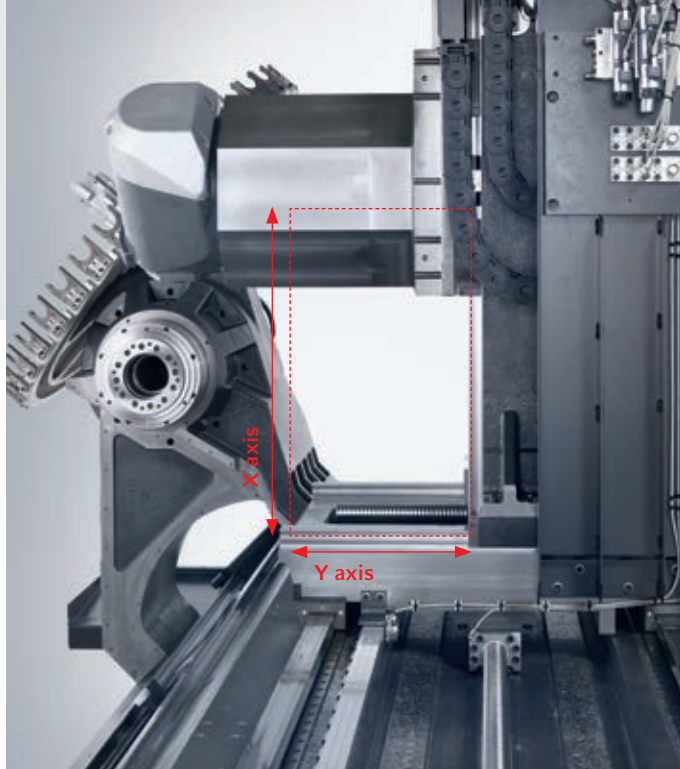
5 AXIS Champion

20

±120°

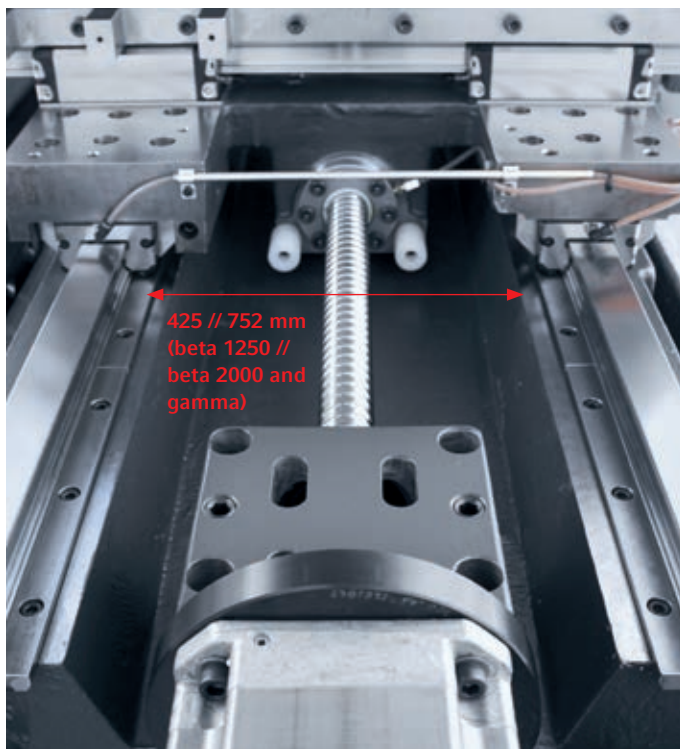
Highlights

- + Direct measuring systems in all linear axes of the moving column for maximum long-term accuracy
- + 5-axis simultaneous machining thanks to technology cycle (optional) for 5-axis interpolation on the main and counter spindle
- + 0.001° resolution of the direct measuring system in the B-axis for best surface quality in 5-axis machining



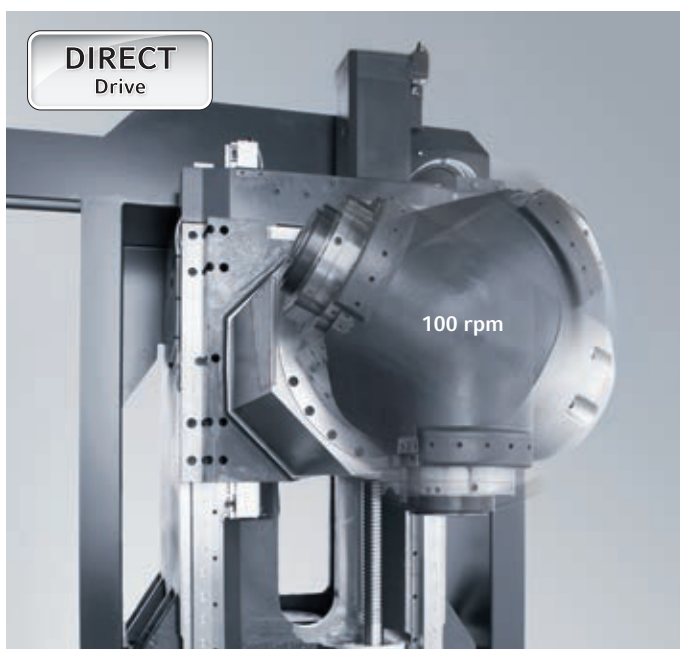
Y-axis with up to 400 mm travel

- + CTX beta 1250 TC / TC 4A: Y axis ± 100 mm
- + CTX beta 2000 TC: Y axis ± 150 mm
- + CTX gamma TC / TC 4A: Y axis ± 200 mm



Maximum stability thanks to wide spacing of slideways of the moving column

- + CTX beta 1250 TC / TC 4A:
400 / 630 / 425 mm (X / Y / Z)
- + CTX beta 2000 TC:
545 / 740 / 752 mm (X / Y / Z)
- + CTX gamma TC / TC 4A:
545 / 740 / 752 mm (X / Y / Z)



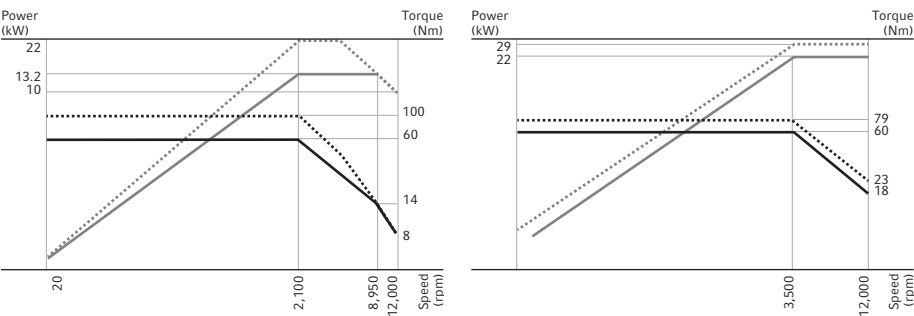
Direct drive for up to 100 rpm rapid traverse

- + B-axis with direct drive for maximum dynamics and 100 rpm rapid traverse speed (CTX beta 1250 TC with 70 rpm)
- + $\pm 120^\circ$ swivel range of the B-axis ($\pm 110^\circ$ for the CTX beta 1250 TC / TC 4A)

Turning-milling spindles for 5-axis simultaneous machining with up to 18,000 rpm or 39 kW and 160 Nm.

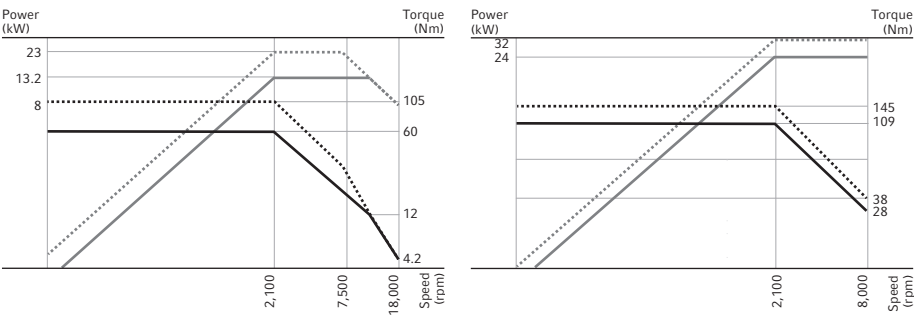
Standard spindle (HSK-A63 / Capto C6*)

CTX beta 1250 TC // gamma TC / TC 4A	CTX beta 1250 TC 4A
12,000 rpm, 22 kW, 100 Nm	12,000 rpm, 29 kW, 79 Nm



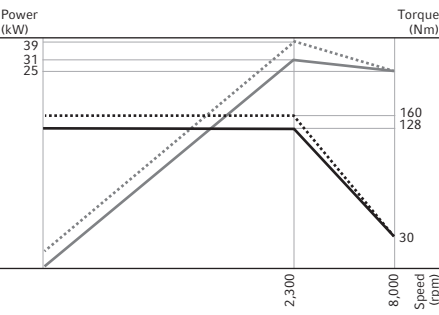
Optional spindle (HSK-A63 / Capto C6*)

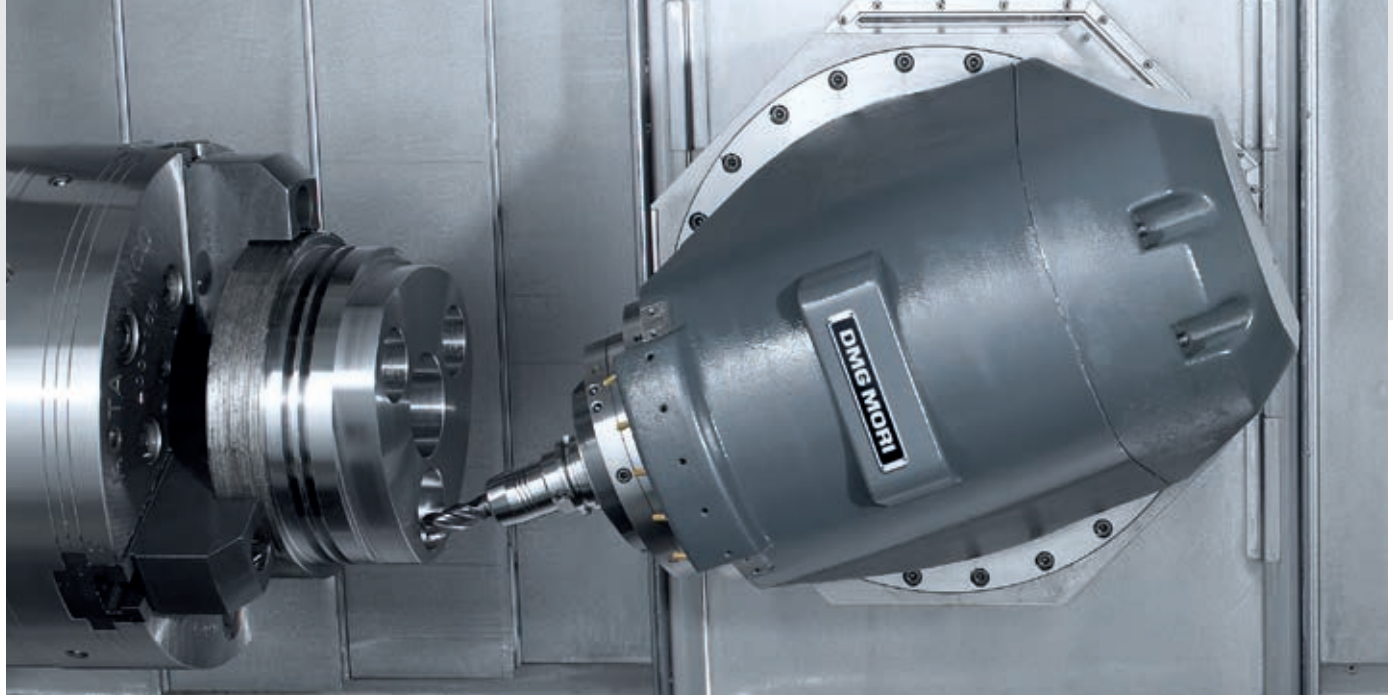
CTX beta 1250 TC // gamma TC / TC 4A	CTX gamma TC / TC 4A
18,000 rpm, 23 kW, 105 Nm	8,000 rpm, 32 kW, 145 Nm



Optional spindle (HSK-A100 / Capto C8*)

CTX gamma TC / TC 4A
8,000 rpm, 39 kW, 160 Nm

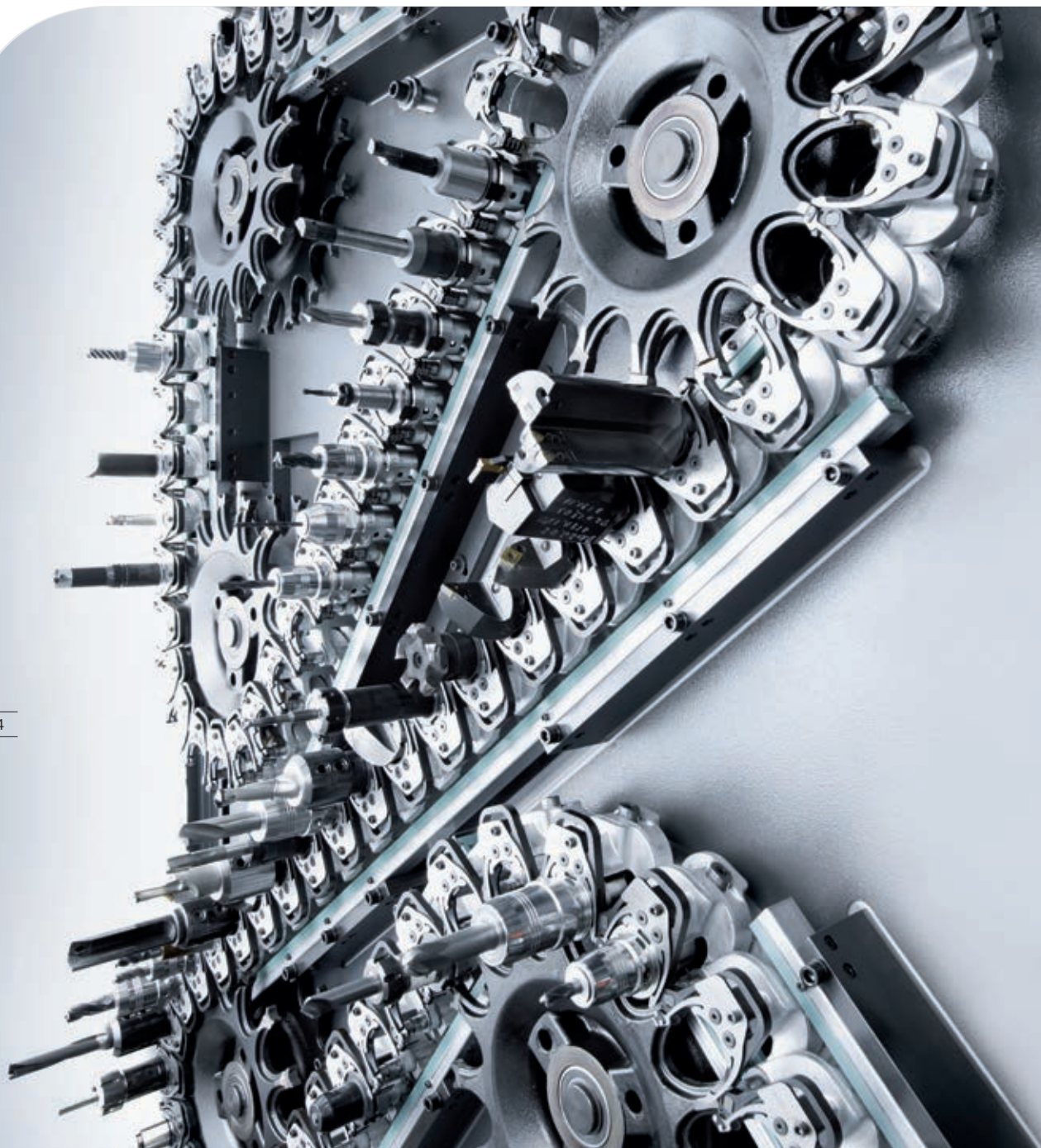




Speed // Power (40 / 100 % ED) Torque (40 / 100% ED) // tool holder	CTX beta 1250 TC	CTX beta 1250 TC 4A	CTX beta 2000 TC	CTX gamma 1250 2000 / 3000 TC / TC 4A
12,000 rpm // 29 / 22 kW 79 / 60 Nm // HSK-A63 // C6*	–	●	–	–
12,000 rpm // 22 / 13.2 kW 100 / 60 Nm // HSK-A63 // C6*	●	–	●	●
18,000 rpm // 23 / 13.2 kW 105 / 60 Nm // HSK-A63 // C6*	○	–	○	○
8,000 rpm // 32 / 24 kW 145 / 109 Nm // HSK-A63 // C6*	–	–	–	○
8,000 rpm // 39 / 31 kW 160 / 128 Nm // HSK-A100 // C8*	–	–	–	○

* optional, ● standard, ○ optional

		CTX beta 1250 TC CTX gamma TC / TC 4A: standard (optional) 12,000 rpm (18,000 rpm), 22kW (23 kW), 100 Nm (105 Nm) HSK-A63 // Capto C6*	CTX beta 1250 TC 4A: standard 12,000 rpm, 29 kW, 79 Nm HSK-A63 // Capto C6*	CTX gamma TC / TC 4A: optional 8,000 rpm, 32 kW, 145 Nm HSK-A63 / HSK-A100* Capto C6* / C8*	CTX gamma TC / TC 4A: optional 8,000 rpm, 39 kW, 160 Nm HSK-A100 // Capto C8*
High performance milling / milling spindle					
Material removal rate	cm ³ /min	477.4	477.4	596.8	646.5
Spindle speed	rpm	1,989	1,989	1,263	1,263
Performance	kW	15	15.2	19	20.6
Torque	Nm	73	73	144	156
Feed	mm/tooth	0.25	0.25	0.25	0.25
Cutting depth	mm	6	6	6	6,5
Cutting width	mm	40	40	63	63
Cutting speed	m/min	250	250	250	250
Number of teeth		4	4	5	5
Milling diameter	mm	40	40	63	63
Specification cutting force	N/mm ²	1,910	1,910	1,910	1,910
Tapping					
Thread size		M20 × 2	M20 × 2	M34 × 2	M24 × 3
Spindle speed	rpm	318	265	187	318



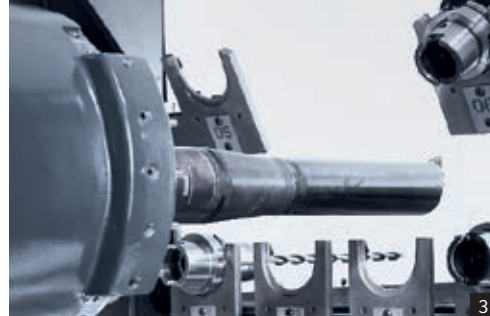
Tool sorting cycle

- + Shorter non-productive times thanks to automatic sorting of tools in the tool magazine, available for all chain magazines
- + Sorting of tools in the chain magazine according to the sequence of tools in the machining programme
- + Time-optimised sorting in the chain magazine due to the use of the tool shuttle instead of the spindle

- 1: Tool chain magazine for up to 180 positions
- 2: Special magazine for 6 (3)* extra large tools
- 3: Tool loading bay on a CTX gamma TC with optimal access from the front



2



3

CTX beta 2000 TC

Positions 1-3: length 700 mm, ø 80 mm

CTX gamma TC / TC 4A

Positions 1-3: length 700 mm, ø 80 mm

Position 5: length 360 mm, ø 160 mm
or length 500 mm, ø 80 mm

Positions 6: length 300 mm, ø 160 mm
or length 250 mm, ø 200 mm or
length 500 mm, ø 80 mm

CTX TC / TC 4A

Innovative tool handling.

	CTX beta 1250 TC	CTX beta 1250 TC 4A	CTX beta 2000 TC	CTX gamma 1250 TC / TC 4A	CTX gamma 2000 TC / TC 4A	CTX gamma 3000 TC / TC 4A
Tool magazine configurations						
Disc magazines (HSK-A63/Capto C6*)	24 / standard	24 / standard	24 / standard	36 / standard	36 / standard	36 / standard
Disc magazines (Capto C8*)	–	–	–	• (36 positions)	• (36 positions)	• (36 positions)
Chain magazine, 48 positions (HSK-A63 / Capto C6*)	◦	–	◦	–	–	–
Chain magazine, 80 positions (HSK-A63 / Capto C6*)	–	◦	–	◦	◦	◦
Chain magazine, 100 positions (HSK-A63 / Capto C6*)	–	–	◦	–	–	–
Chain magazine, 120 positions (HSK-A63 / Capto C6*)	–	◦	–	◦	◦	◦
Chain magazine, 180 positions (HSK-A63 / Capto C6*)	–	–	–	◦	◦	◦
Chain magazine, 80 positions (HSK-A100 / Capto C6*)	–	–	–	◦	◦	◦
Chain magazine, 120 positions (HSK-A100 / Capto C6*)	–	–	–	◦	◦	◦
Special magazine for extra large tools	–	–	◦	◦	◦	◦

25

Tool data (HSK-A63 / Capto C6*) Disc magazine (chain magazine)							
Max. tool diameter	mm	ø 80 / ø 120	ø 80 / ø 120	ø 80 / ø 120	ø 80 (110) ø 140	ø 80 (110) ø 140	ø 80 (110) ø 140
Max. work piece length	mm	300	300	300 (400)	500 (550**)	500 (550**)	500 (550**)
Max. weight	kg	7 (8)	7 (8)	7 (8)	12	12	12
Tool-to-tool time	sec.	2.5 (1.2)	2.5 (1.2)	2.5 (1.2)	2.5 (1.2)	2,5 (1,2)	2.5 (1.2)
Chip-to-chip time	sec.	11.5 (9.5)	11.5 (9.5)	11.5 (9.5)	11.5 (9.5)	11.5 (9.5)	11.5 (9.5)
Chip-to-chip time with linear drive	sec.	10.9 (8.9)	–	–	10.9 (8.9)	10.9 (8.9)	–

Tool data (HSK-A100 / Capto C8*) Disc magazine (chain magazine)							
Max. tool diameter	mm	–	–	–	ø 80 (110) ø 140	ø 80 (110) ø 140	ø 80 (110) ø 140
Max. work piece length	mm	–	–	–	500 (550)	500 (550)	500 (550)
Max. weight	kg	–	–	–	12 (25)	12 (25)	12 (25)
Tool-to-tool time	sec.	–	–	–	2.8	2.8	2.8
Chip-to-chip time	sec.	–	–	–	10.7	10.7	10.7
Chip-to-chip time with linear drive	sec.	–	–	–	10.2	10.2	–

• optionally available, * optional, ** special configuration magazine, else 400 mm

Holistic technology competence.

1: Tooling

Tool holder // CTX beta 1250 TC
Material: 42CrMo4
Work piece dimensions: $\varnothing$ 80 mm $\times$ 125 mm
Machining time: 5.8 min.
Highlight: Gear hobbing

2: Machine construction

Indexing plate // CTX gamma 1250 TC
Material: Steel
Work piece dimensions: $\varnothing$ 400 mm $\times$ 310 mm
Machining time: 124 min.
Highlight: Gear hobbing, free form milling

3: Oil/gas industry

Valve // CTX gamma 2000 TC
Material: GGG70
Work piece dimensions: $\varnothing$ 350 mm $\times$ 495 mm
Machining time: 56 min.
Highlight: 6-sided complete machining

4: Energy technology

Guide blade // CTX gamma 2000 TC
Material: X 13Cr12Ni2W1V-5
Work piece dimensions: 155 mm $\times$ 110 mm $\times$ 770 mm
Machining time: 180 min.
Highlight: 5-axis milling

5: Energy technology

Chain wheel // CTX beta 1250 TC
Material: 42CrMo4
Work piece dimensions: $\varnothing$ 140 mm $\times$ 495 mm
Machining time: 35 min.
Highlight: Multi-thread

CTX beta and gamma TC:



1



2



3



4



5



CTX beta and gamma TC 4A:



6: Automotive

Coupling element // CTX beta 1250 TC 4A
Material: 42CrMo4
Work piece dimensions:
 $\varnothing$ 100 mm $\times$ 80 mm
Machining time: 12.5 min.
Highlight: 6-sided complete machining

7: Automotive

Camshaft // CTX gamma 1250 TC 4A
Material: 16MnCr5
Work piece dimensions: $\varnothing$ 70 mm $\times$ 1.040 mm
Machining time: 80 min.
Highlight: 6-sided complete machining, alternating speed to prevent vibrations

10: Aerospace

Chassis components
 CTX beta 1250 TC 4A
Material: Steel
Work piece dimensions:
 $\varnothing$ 130 mm $\times$ 290 mm
Machining time: 165 min.
Highlight: Free form milling

8: Valve industry

Valve housing // CTX gamma 2000 TC 4A
Material: Cast aluminium
Work piece dimensions:
 180 mm $\times$ 450 mm $\times$ 250 mm
Machining time: 32 min.
Highlight: 6-sided complete machining

9: Drive technology

Part of a ship camshaft
 CTX gamma 2000 TC 4A
Material: 42CrMo4
Work piece dimensions:
 $\varnothing$ 150 mm $\times$ 370 mm
Machining time: 66 min.
Highlight: 6-sided complete machining, automatically changeable faceplate and tailstock, turret steady rest

CTX TC 4A

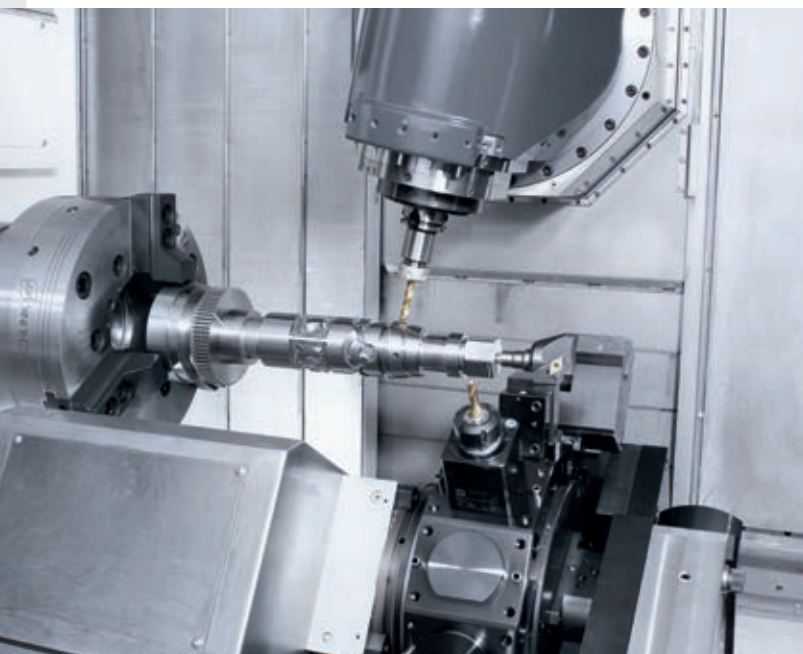
Maximum productivity thanks to simultaneous machining with two tools.



28

Turret steady rest**

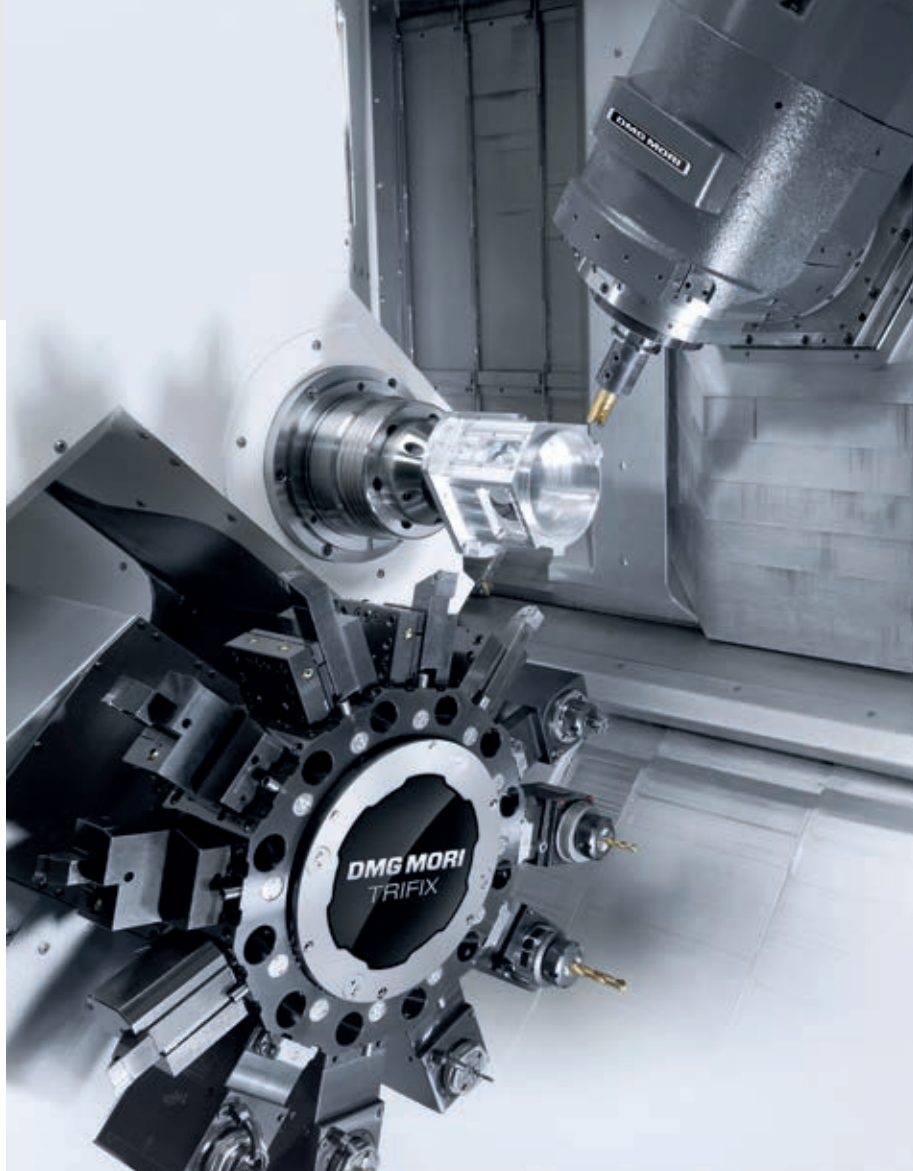
- + Use of a hydraulically operated steady rest to support long and slim components
- + Work pieces up to $\varnothing$ 165 mm chuck diameter, $\varnothing$ 101 mm for the CTX beta 1250 TC 4A
- + Steady rest possible on all turrets
- + Technology cycle* for easy selection of the steady rest via the programme from the tool storage unit; the cycle allows both approaching the steady rest and retraction from the steady rest.



Turret tip*

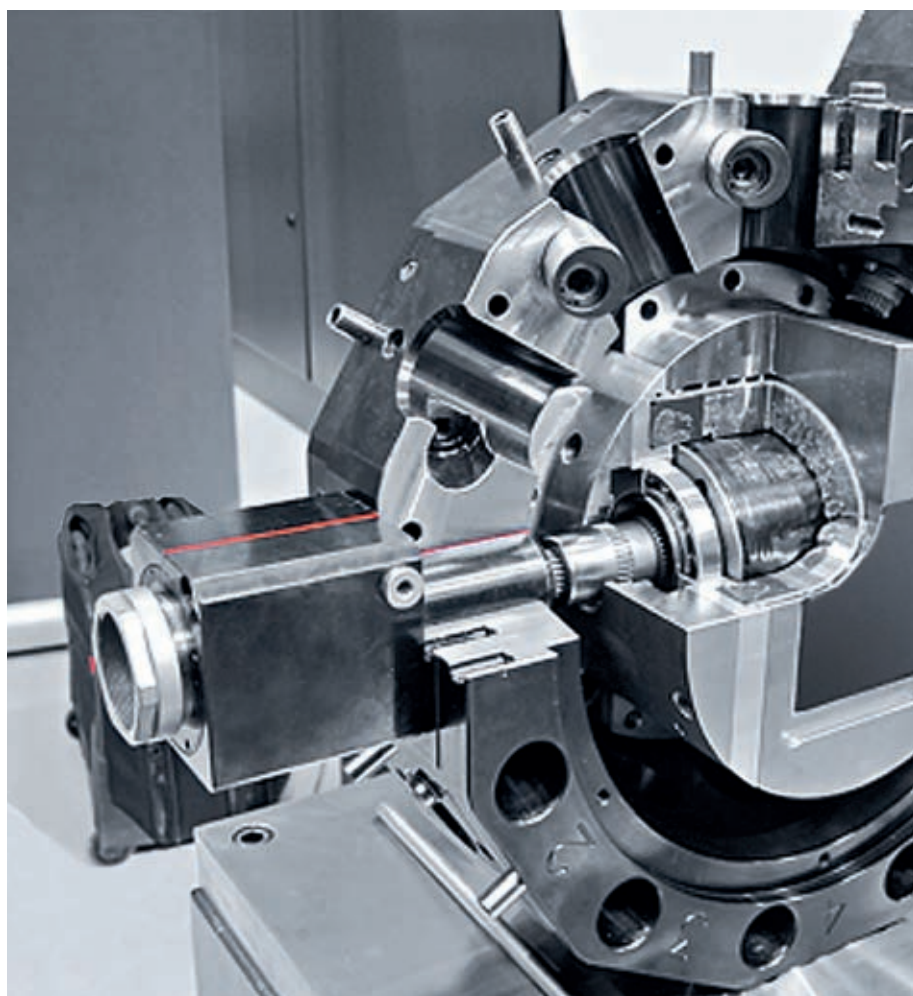
- + Use of a centre mounted on the turret
- + Application of rigid or spring-loaded centres
- + Technology cycle* for easy selection of the centres from the tool storage unit

* optional



**TRIFIX® quick and accurate
set-up with VDI compatibility**

- + Standard for all disc turrets
- + Tool set-up time of < 30 seconds thanks to VDI with TRIFIX®
- + The maximum stability and long-term accuracy: VDI interface, backlash-free and spring-loaded double centring and increased rigidity thanks to enlarged contact face with hole pattern
- + < 6 µm repeatability (same tool, same position)
- + < 10 µm positioning accuracy from one station to the next
- + Fully aligned driven tools
- + VDI holders can be used



**Direct Drive Turret rated
at 10,000 rpm for maximum
material removal rate**

- + Low-wear direct drive with low heat generation thanks to the elimination of the transmission
- + Smoother operation thanks to the gearless drive
- + Higher speed, power and torque than conventional drives: 12-fold VDI 40 turret with 10,000 rpm, 14.2 kW and 34 Nm, optional for CTX beta 1250 TC 4A and CTX gamma TC 4A
- + TRIFIX® precision interface with < 30 sec. tool setting time standard
- + Maximum machining performance with up to 160 Nm thanks to compact construction of the turret and tools with a gear reduction of up to 4 : 1

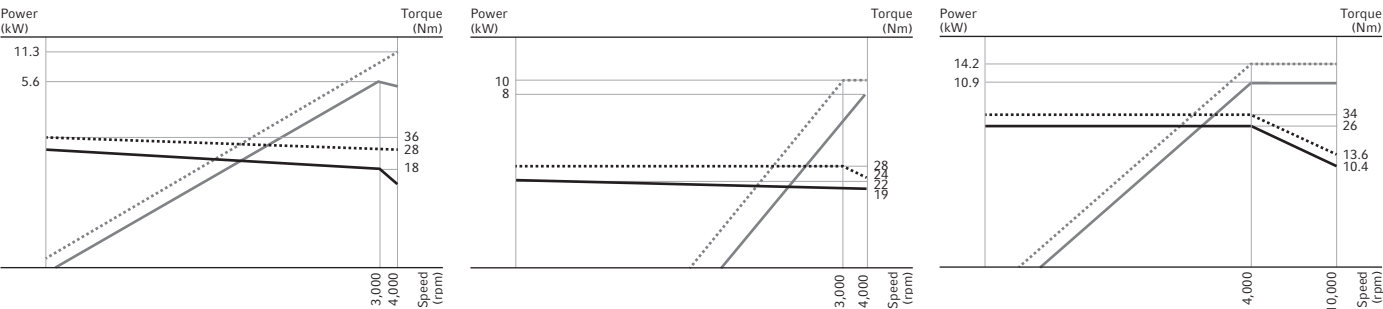
CTX TC 4A

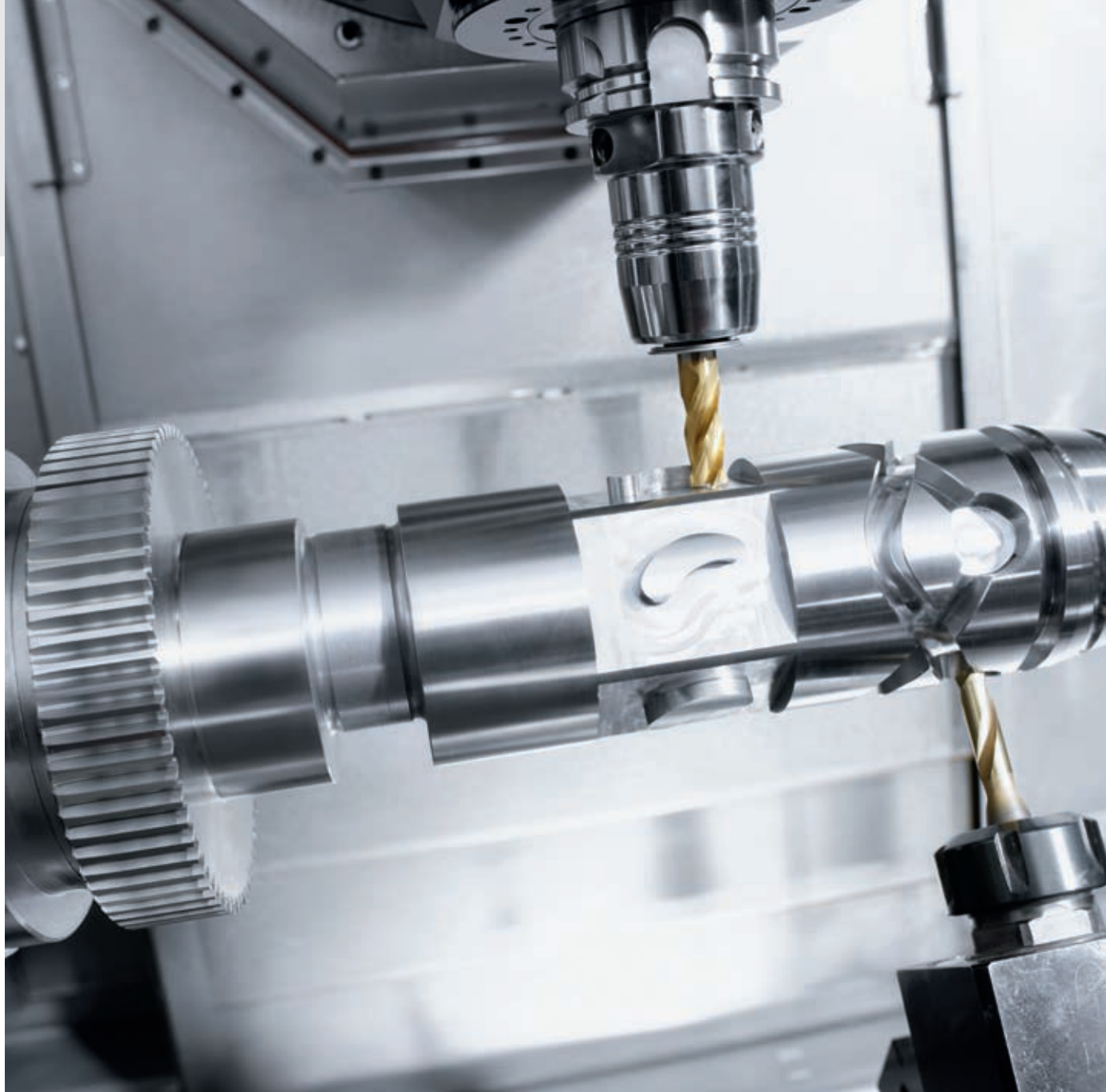
Production turning – turret up to 10,000 rpm and 34 Nm for maximum material removal rate.

- + TRIFIX® precision quick change system for > 30 sec. tool setting time and > 6 µm repeatability
- + Use of large tools for maximum machining performance thanks to tools with a gear reduction of up to 4 : 1 on the Direct Drive Turret

Motor spindles	Machine	
Type // Speed Performance (40 / 100 % ED) Torque (40 / 100 % ED)	CTX beta 1250 TC 4A	CTX gamma 1250 / 2000 / 3000 TC 4A
VDI 40, 12-fold disc turret with TRIFIX® 12 × 4,000 rpm, 11.3 / 5.6 kW, 28 / 18 Nm	●	
VDI 40, 12-fold disc turret with TRIFIX® 12 × 4,000 rpm, 10 / 8 kW, 28 / 22 Nm		●
VDI 40, 12-fold disc turret with TRIFIX® Direct drive, 12 × 10,000 rpm, 14.2 / 10.9 kW, 34 / 26 Nm	○	○
● standard, ○ optional		

VDI 40 standard turret	Direct drive VDI 40 turret optionally available	
CTX beta 1250 TC 4A 4,000 rpm, 11.3 kW, 28 Nm	CTX gamma TC 4A 4,000 rpm, 10 kW, 28 Nm	CTX beta 1250 TC // gamma TC / TC 4A 10,000 rpm, 14.2 kW, 34 Nm





	CTX beta 1250 TC 4A standard turret VDI 40 4,000 rpm 11.3 kW, 28 Nm	CTX gamma TC 4A standard turret VDI 40 4,000 rpm 10 kW, 28 Nm	CTX beta / gamma TC 4A optional Direct Drive VDI 40 turret, 10,000 rpm 14.2 kW, 34 Nm	CTX beta / gamma TC 4A optional Direct Drive VDI 40 turret, 10,000 rpm 14.2 kW, 34 Nm
High performance milling CK45				
Tool drive	1 : 1	1 : 1	1 : 1	4 : 1
Material removal rate	cm ³ /min	131.3	110	171.9
Spindle speed	rpm	1,401	2,546	4,775
Performance	kW	4.2	6.5	2.4
Torque	Nm	28	27	5
Feed	mm/tooth	0.25	0.12	0.75
Cutting depth	mm	1.5	4.5	1.2
Cutting width	mm	50	20	20
Cutting speed	m/min	220	160	300
Number of teeth		5	4	2
Milling diameter	mm	50	20	20
Specification Cutting force	N/mm ²	1,910	1,910	1,910
Tapping				
Thread size	M16 × 1.5	M16 × 1.5	M20 × 1.5	M20 × 1.5
Spindle speed	rpm	397	397	318

Highlights

Machine and technology

Technology and options

Applications and parts

Control technology

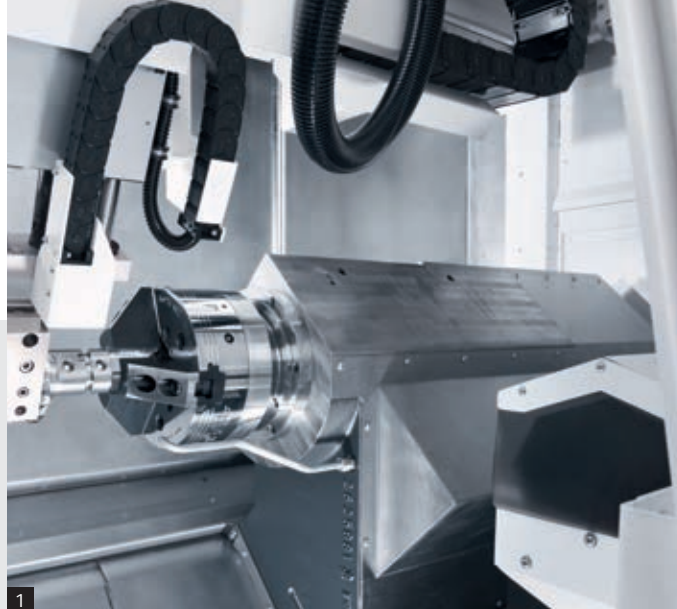
Working space / layout plans / technical data

Standardised and custo- mised automa- tion solutions

+ Portal solution with pallet
conveyor



- 1:** Bar machining package with gripper for pick-up of the work piece from the main or counter spindle
2: Integrated handling with double gripper for loading unfinished components and removing finished components



Complete packages for bar machining

- + Automatic work piece pick-up device
- + Transport conveyor belt for transporting the work pieces from the machine
- + Preparation for bar feed or bar loading magazine
- + **CTX beta TC:** $\varnothing 102 \times 200$ mm / 6 kg
- + **CTX beta TC 4A:** $\varnothing 102 \times 600$ mm / 10 kg
- + **CTX gamma TC / TC 4A:** $\varnothing 102 \times 250$ mm / 15 kg

* except for CTX gamma 3000 TC

Intelligent work piece handling for maximum productivity.

	CTX beta TC	CTX beta TC 4A	CTX gamma TC
DMG MORI Systems			
WH3	—	—	—
WH 10 25	•	•	—
WH 10 TOP	•	•	—
Additional solutions			
Integrated work piece handling	—	•	—
Articulated robot arm	•	•	•
Portal loader	•	•	•
Configuration levels / periphery			
Wash	•	•	•
Deburr	•	•	•
Measure	•	•	•
Work piece marking	•	•	•



DMG MORI ERGOline® control panel with 19" monitor

DMG MORI ERGOline® control panel with Siemens and ShopTurn 3G.

Highlights

- + DMG MORI ERGOline® control panel with 19" display and Siemens 840D solutionline Operate
- + ShopTurn 3G workshop programming for productivity increases of up to 30 %
- + **Up to 60 % reduction in programming time** thanks to innovative multi-channel programming, even of complex structures
- + **3D work piece multi-channel simulation**
- + **Absolute flexibility between DIN and workshop-oriented programming** thanks to DIN / ISO user interface for the combination of ShopTurn cycles with DIN functionality
- + **Up to 40 % reduction of machining time** thanks to 4-axis or parallel machining
- + **Quick, easy and clearly structured tool management**
- + **Full ShopMill functionality**



Heidenhain with DINPlus (TurnPlus optional) – single channel

- + **Graphical conversational programming** (structured machining time)
- + **3D real time simulation** parts program memory > 1 GB
- + **Tool file with 999 tools and 64 materials**
- + Tool downtime monitoring
- + **Maximum operating comfort:** Comprehensive cycle offer
- + Compatible with Heidenhain control systems 1190 and 3190
- + **Ethernet and USB interface** for rapid data exchange

Siemens with ShopTurn 3G – single channel or 2-channel for TC 4A

- + **Direct programming**
- + **3D graphics including real-time simulation**
- + New, clear screen design
- + **Indicator lamp diagnostics** for all drives
- + Simple, graphical programming
- + User diagrams for quick set-up
- + **Ethernet and USB interface** for rapid data exchange

1: Clear presentation of the block structure: thanks to alignment based on synchronous points; colour display of productive and non-productive time as well as spindles

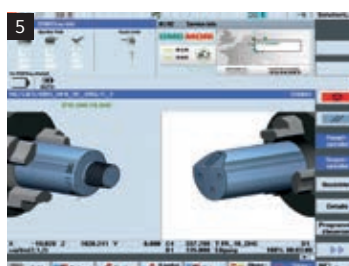
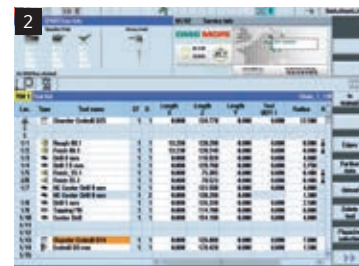
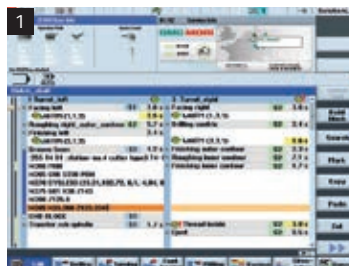
2: Tool management: efficient tool data management including all details, such as twin tools and tool service life

3: Presentation of cycles with animated elements: graphically simulated work process with animated elements in the dialogue for a clear presentation

4: Combination of DIN and ShopTurn programming: the blocks can comprise G-code NC programme sections consisting of DIN code, programGUIDE and ShopTurn- / Shop Mill work step elements

5: 3D simulation: visualising of multi-channel machining thanks to 3D displays, detailed images and work piece sectioning

6: Copy & paste: by copying, cutting and pasting in blocks, it is possible to optimise even complex programmes in two channels simultaneously



Exclusive technology cycles – complex machining programmed easily.

Technology integration



5-axis simultaneous machining

- + Machining free form surfaces
- + Turning and milling with interpolating B-axis



Gear hobbing using the hob method

- + Automatic creation of tooth systems, also helical gearing
- + Repositioning for even wear of the milling tool
- + Previously: time-consuming DIN programming



Off-centre turning and milling

- + Machining cylindrical elements of a work piece with centres not coaxial with the spindle

Technology integration



Multi-thread cycle

- + Cycle description is done via a user screen for pitch, number of threads and a description of the contour

Process safety



Easy tool monitoring

- + Driven tool load monitoring during the machining process in order to avoid damage to the machine and equipment

Component quality



Alternating speeds

- + Change of spindle speed of the main, counter or tool spindle in order to prevent vibrations by varying the speed during machining

Highlights

- + Up to 50 % increased productivity with exclusive DMG MORI technology cycles
- + Parametrised, exclusive context menus; easy conversational input of parameters
- + Ready-made windows to enter data, easy to learn, knowledge of programming hardly needed
- + No complicated DIN programming

Time reduction



Tool sorting cycle

- + Sorting of tools in the chain magazine according to the relevant position in the machining programme
- + Time-optimised sorting in the chain magazine due to the use of the shuttle instead of the spindle

Operating comfort



Retraction cycle

- + Emergency function to retract the X- and Z-axes at the push of a button
- + Operation via SOFTkeys®



Turret steady rest

- + A steady rest mounted on the turret can support the work piece or retract from it in-cycle

was meinst damit – verloren oder gewonnen?

Operating comfort



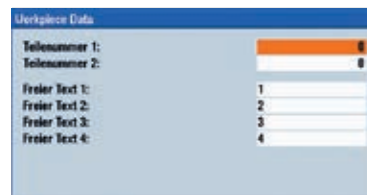
Turret centre

- + Advance position and support position in X and Z are input directly via the user interface
- + Automatic calculation of the approach traverses



Programme status display

- + Extended programme status monitoring and display throughout the cutting cycle



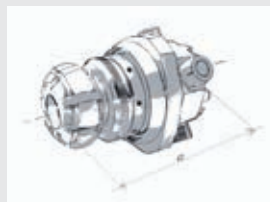
- + Presentation of the work piece position in the spindle and the associated machining status (e.g. unfinished part, half finished part, machining step)

DMG MORI TrainingBox – from a drawing to a finished work piece.

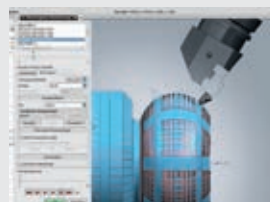
1:1 simulation



DMG Virtual Machine and NX CAM from Siemens



Idea
from the idea to the CAD model



CAM programming
with NX CAM by Siemens



1:1 simulation
with the DMG virtual machine



Production
with DMG MORI machines

CAD / CAM programming with Siemens NX

- + Programming for single and multi-channel turning machines with main and counter spindle
- + Milling operation with the C-, Y- and B-axis, 2D, 3D and 5-axis simultaneous machining
- + Turning routines for roughing, finishing, piercing, thread cutting and drilling
- + Multi-channel synchronisation
- + Programme output (post-processor)

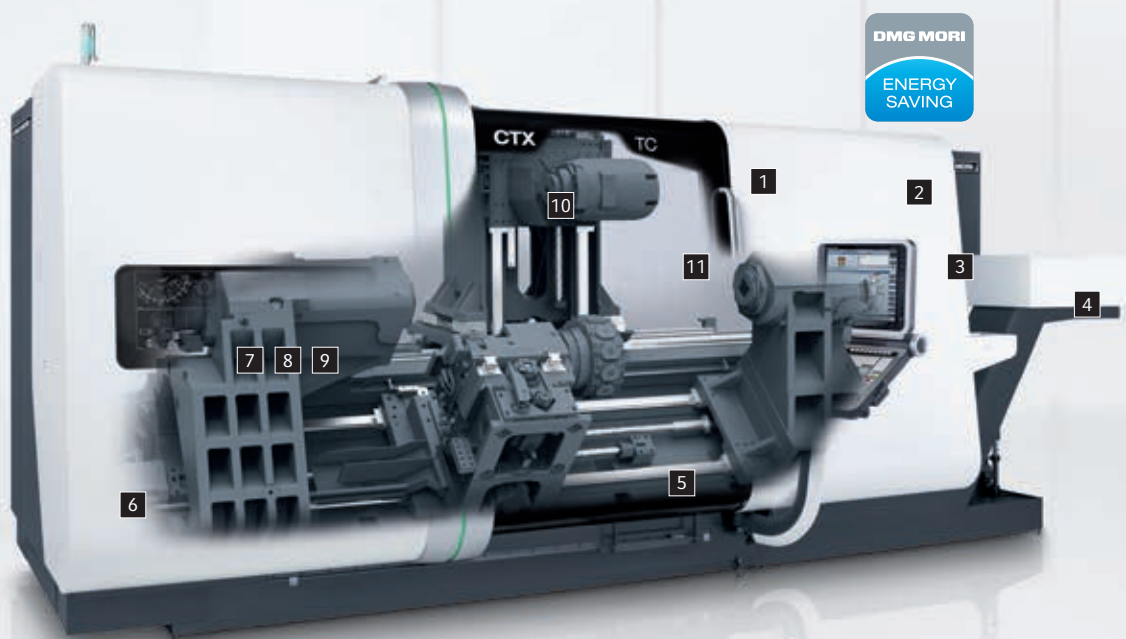
Simulation with DMG virtual machine

- + The highest process safety thanks to collision detection and work space monitoring
- + Realistic machine model with precise working area display
- + Comprehensive control of all program and production procedures
- + ShopFloor programming
- + Part production time calculation thanks to PLC integration
- + Significant reduction of changeover and set-up time
- + Efficient production start-up thanks to optimal preparation



5-axis simultaneous
machining
on a CTX gamma
2000 TC

Up to 38 % energy saving thanks to standard energy efficiency measures.



40

Frequency-controlled hydraulic unit

-12.7 % // -5,575 kWh p.a.

Cooling unit with cold water supplementation

-51.9 % // -22,800 kWh p.a.

Efficient switching cabinet cooler

-5.5 % // -2,400 kWh p.a.

Cycled chip conveyor

-1.6 % // -720 kWh p.a.

Friction-minimised roller guides

-0.6 % // -275 kWh p.a.

Class IE2 three phase motors

-0.1 % // -25 kWh p.a.

Recovery of braking energy

-1.3 % // -587 kWh p.a.

Direct drive with synchronous motor

-9.5 % // -4,160 kWh p.a.

Low oil leakage clamping cylinder

-4.9 % // -2,158 kWh p.a.

Appropriate sealing air

-5.9 % // -2,583 kWh p.a.

LED lighting of the working space

-0.5 % // -233 kWh p.a.

DMG AUTOshutdown for switch-off at the end of the programme

-5.4 % // -2,375 kWh p.a.

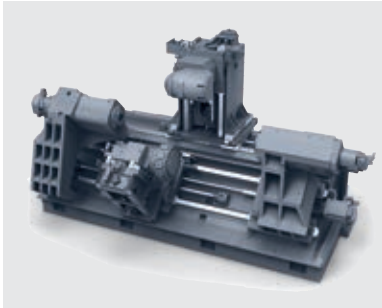
*** Calculation base Production conditions**

General information

Machine utilisation	h/day	16
Work days per year	days p.a.	250
Proportion production	%	50
Proportion ready for operation	%	40
Proportion standby	%	10

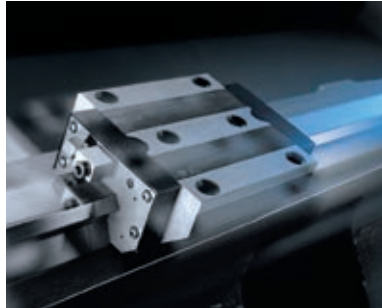
Time allocations in production

Roughing	%	25
Average power	%	25
Finishing	%	50



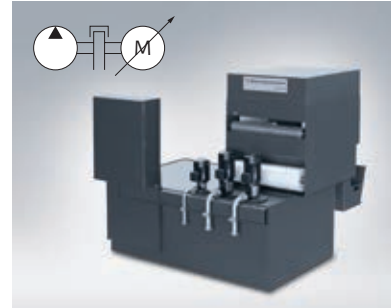
Design

FEM-optimised design with high static and low moving masses.



Linear guides

Minimal friction effects through advanced rolling bearing technology.



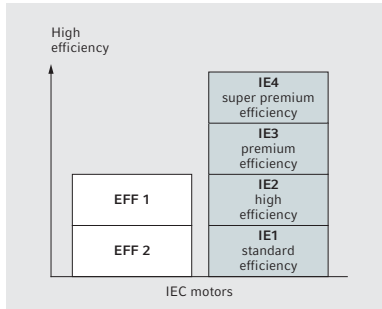
Servo technology / frequency control

Frequency-controlled coolant and hydraulic pumps instead of fixed displacement pumps with regulator technology.



Drives

Energy recovery during the braking phases of spindles and feed drives.



Motor

The latest drive motors with efficiency values of up to 93%.

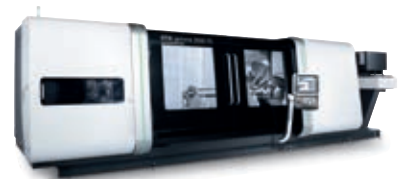


Cooling*

Inverter-controlled systems for demand-based cooling performance.

* Optional

CTX gamma 3000 TC
63,054 kWh p.a. consumption
38 % saving*



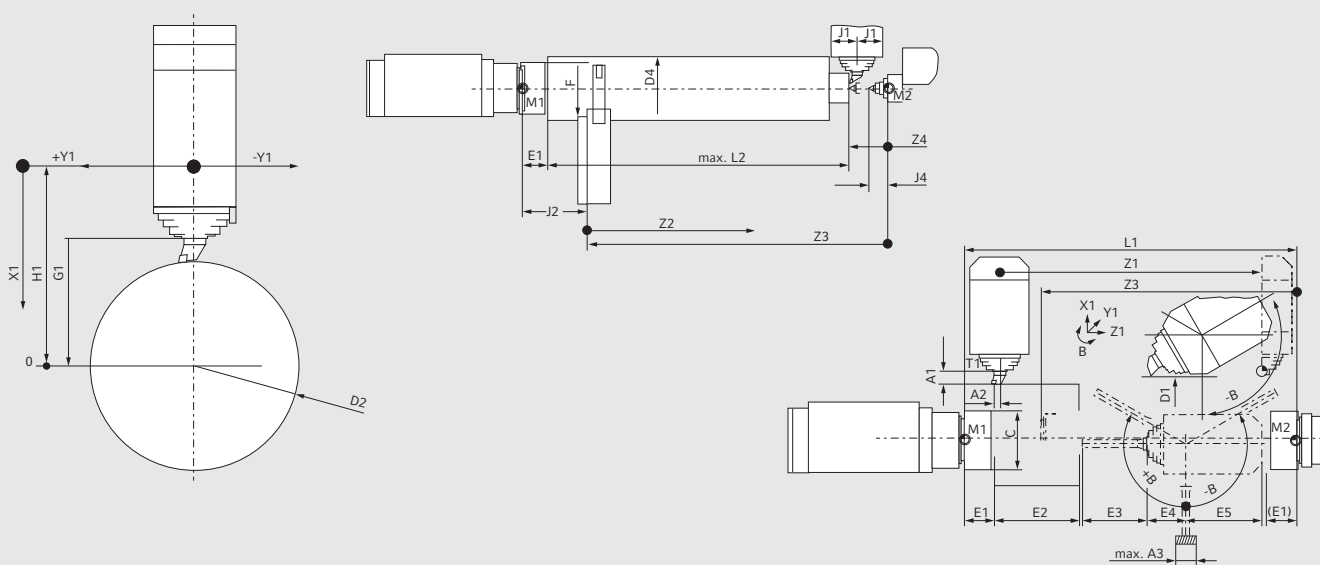
- + 125 kVA power supply line
- + 80 kW max. spindle rating
- + 16.2 kW avg. spindle rating

	40 %	60 %	80 %	100 %
Subsidies from 20 % energy saving				
Predecessor machine from 2009 (101,204kWh p.a.)				
CTX gamma 3000 TC				
Power consumption		63,054 kWh p.a.		101,204 kWh p.a.
Saving		38,150 kWh p.a. // -38 %		-

CTX TC / TC 4A

Layout plans

Work space CTX beta and gamma TC



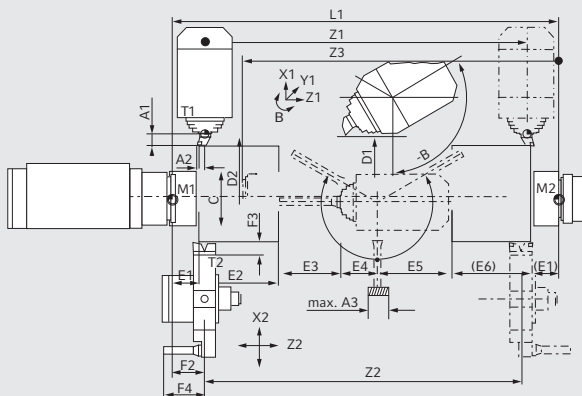
	A1	A2	A3	C	D swing	D1
Machine						
CTX beta 1250 TC	70	45	100	400	500	500
CTX beta 1250 TC 4A	70	45	80	325	500	500
CTX beta 2000 TC	70 / 110***	45 / 63***	125	500	630	550
CTX gamma 1250 TC / TC 4A	70 / 110***	45 / 63***	140	630	630 / (700)	630 / (700)
CTX gamma 2000 TC / TC 4A	70 / 110***	45 / 63***	140	630	630 / (700)	630 / (700)
CTX gamma 3000 TC / TC 4A	70 / 110***	45 / 63***	140	630	630 / (700)	630 / (700)

	E5	E6	F1	F2	F3	F4
Machine						
CTX beta 1250 TC	349	–	–	–	–	–
CTX beta 1250 TC 4A	273	200	340	150	120	180
CTX beta 2000 TC	272	480	–	–	–	–
CTX gamma 1250 TC / TC 4A	272	200	380	220	100	180
CTX gamma 2000 TC / TC 4A	272	480 / 400***	380	220	100	180
CTX gamma 3000 TC / TC 4A	272	990 / 920***	380	220	100	180

	J2	J4	L1	L2	X1	X2
Machine						
CTX beta 1250 TC	270	188.5	1,470	1,250	450	–
CTX beta 1250 TC 4A	–	–	1,470	–	450	195
CTX beta 2000 TC	120	102.5	2,260	1,910	650	–
CTX gamma 1250 TC / TC 4A	120	102.5	1,510	1,160	650	210
CTX gamma 2000 TC / TC 4A	120	102.5	2,260	1,910	650	210
CTX gamma 3000 TC / TC 4A	220	102.5	3,360	3,050	650	210

* clamping range steady rest, ** traverse tail stock sleeve spindle, *** HSK-A100 / Capto C8, () for chain magazine

Work space CTX beta and gamma TC 4A



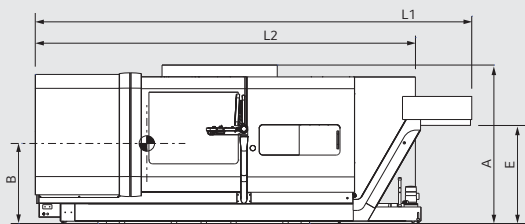
D2	D3	D4*	E1	E2	E3	E4
390	–	200	112	400	300	175
390	340	–	146	200	300	175
550	–	350	170	480	400	250
610 / 530***	440	460	170	200	200	250 / 260***
610 / 530***	440	460	170	480 / 400***	400 / 550***	250 / 260***
610 / 530***	440	460	207	990 / 920***	400 / 550***	990 / 920***
F5	F6	G1	G2	H1	H2	J1
–	–	265	–	440	–	143
120	345	265	290	440	460	122.5
–	–	375	–	625	–	176
120	360	375 / 365***	320	625	510	176
120	360	375 / 365***	320	625	510	176
120	360	375 / 365***	320	625	510	176
Y1	Y2	Z1	Z2	Z3	Z4**	B
±100	–	1,250	970	1,200	–	±110°
±100	(±40)	1,200	1,200	1,200	–	±110°
±150	–	2,050	–	1,910	–	±120°
±200	–	1,300	1,160	1,160	180	±120°
±200	–	2,050	1,910	1,910	180	±120°
±200	–	3,050	2,850	2,850	180	±120°

CTX TC / TC 4A

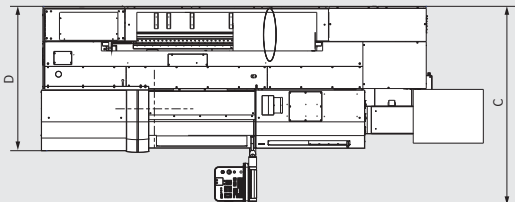
Layout plans

Layout plan CTX beta 1250 TC / TC 4A

Front view



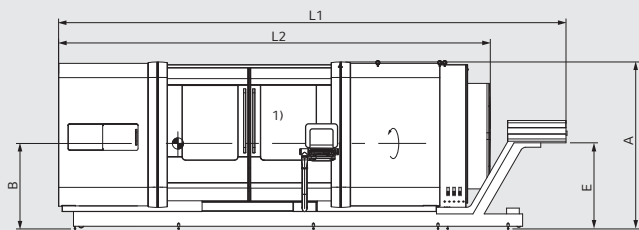
Top view



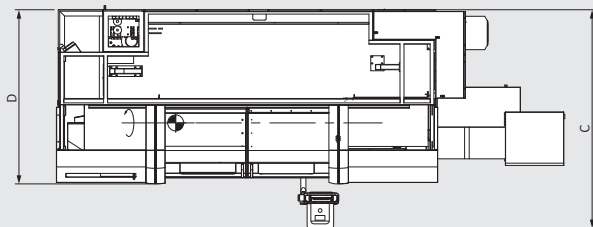
	A	B	C	D	E	F	L1	L2
Machine								
CTX beta 1250 TC	2,067	1,040	2,971	1,875	1,219	–	5,671	4,940
CTX beta 1250 TC 4A	2,393	1,310	3,124	2,416	1,280	340	5,953	5,679

Layout plan CTX beta 2000 TC und gamma TC / TC 4A

Front view



Top view



	A	B	C	D	E	L1	L2
Machine							
CTX beta 2000 TC	2,380	1,280	3,330	2,495	1,250	7,101	6,467
CTX gamma 1250 TC / TC 4A	2,580	1,280	3,435	2,609	1,250	6,850	5,717
CTX gamma 2000 TC / TC 4A	2,580	1,280	3,435	2,609	1,250	7,601	6,467
CTX gamma 3000 TC / TC 4A	2,580	1,280	3,435	2,609	1,250	9,307	8,141

¹⁾ CTX gamma 1250 TC with work space door on the left



60-month
warranty on
linear motors

+ Maximum long-term
accuracy and dynamics

CTX TC / TC 4A

Technical data

		CTX beta 1250 TC	CTX beta 1250 TC 4A
Working area			
Max. swing	mm	500	500
Max. turning diameter (disc or chain magazine)	mm	500	500
Distance from main spindle to tailstock (without chuck)	mm	1,281.5	–
Maximum work piece length with tailstock (machinable)	mm	1,250	–
Distance from main spindle to counter spindle (without chuck)	mm	1,470	1,470
Max. work piece length with tailstock (machinable)	mm	1,250	1,200
Main spindle (standard)		ISM 76	ISM 76 synchro
Integrated spindle motor (ISM) with C-axis (0.001°)	rpm	5,000	5,000
Drive power rating / torque (40 % ED)	kW / Nm	34 / 380	32 / 360
Spindle bearing – ø in front bearing	mm	130	130
Bar capacity - ø	mm	67 (77*)	67
Spindle head (flat flange) / max. chuck diameter*	mm	170 h5 / 315	170 h5 / 315
Counter spindle (standard for TC 4A)*		ISM 52	ISM 76 synchro
Integrated spindle motor (ISM) with C-axis (0.001°)	rpm	6,000	5,000
Drive power rating / torque (40% ED)	kW / Nm	20 / 127	32 / 360
Spindle bearing – ø in front bearing	mm	100	130
Bar capacity - ø	mm	52	67
Spindle head (flat flange) / max. chuck diameter*	mm	140 h5 / 210	170 h5 / 315
B-axis with turning-milling spindle (standard)			
Tool holder / number of tool positions		HSK-A63 / 24	HSK-A63 / 24
Spindle speed	rpm	12,000	12,000
Drive power rating / torque (40% ED)	kW / Nm	22 / 100	29 / 79
B-axis swivel range	°	±110	±110
Rapid traverse B-axis	rpm	70	100
Turret for TC 4A			12x VDI 40 mit TRIFIX®
Number of driven tools / max. speed	rpm	–	12 / 4,000
Drive power rating / torque (40 % ED)	kW 7 Nm	–	11.3 / 28
Switching time 30°	sek.	–	0.4
Top slide for B-axis			
X / Y / Z	mm	450 (-10) / ±100 / 1,300	450 (-10) / ±100 / 1,200
Rapid traverse speed X / Y / Z	m/min	30 / 30 / 30 (60**)	30 / 300 / 45
Feed force X / Y / Z	kN	10 / 7 / 10.3 (7**)	10 / 7 / 12.5
Bottom turret slide for TC 4A			
X / Y* / Z	mm	–	195 / ±40* / 1,200
Rapid traverse speed X / Y* / Z	m/min	–	30 / 30 / 45
Feed force X / Y* / Z	kN	–	4.5 / 4.5 / 9
Slide for counter spindle			
Z	mm	1,200	1,200
Rapid traverse speed Z	m/min	30	45
Feed force Z	kN	7.4	9
Tail stock			
Travel (hydraulic)	mm	1,200	–
Force	kN	14	–
Centre point holder MK	MK	5	6
Machine			
Space requirements for machine including chip conveyor	m²	10.6	16.4
Discharge height chip conveyor	mm	1,219	1,250
Machine height	mm	2,067	2,393
Machine weight	kg	8,000	14,500

* optional, ** for linear version

CTX beta 2000 TC	CTX gamma 1250 TC (4A)	CTX gamma 2000 TC (4A)	CTX gamma 3000 TC (4A)
630	700	700	700
550	630 / 700	630 / 700	630 / 700
1,927.5	1,177.5	1,927.5	2,867.5
1,910	1,160	1,910	2,850
2,260	1,510	2,260	3,360
2,050	1,300	2,050	3,050
ISM 76	ISM 102	ISM 102	ISM 127
5,000	4,000	4,000	2,500
34 / 380	45 / 770	45 / 770	52 / 2,200
130	160	160	220
67 (77*)	104	104	127
170 h5 / 315	220 h5 / 400	220 h5 / 400	A15 / 630
ISM76	ISM 76	ISM 76	ISM 102
5,000	5,000	5,000	4,000
34 / 380	34 / 380	34 / 380	45 / 770
130	130	130	160
67	67	67	104
170 h5 / 315	170 h5 / 315	170 h5 / 315	220 h5 / 400
HSK-A63 / 24	HSK-A63 / 24	HSK-A63 / 24	HSK-A63 / 24
12,000	12,000	12,000	12,000
22 / 100	22 / 100	22 / 100	22 / 100
±120	±120	±120	±120
100	100	100	100
	12x VDI 40 mit TRIFIX®	12x VDI 40 mit TRIFIX®	12x VDI 40 mit TRIFIX®
–	12 / 4,000	12 / 4,000	12 / 4,000
–	10 / 28	10 / 28	10 / 28
–	0.44	0.44	0.44
650 (-20) / ±150 / 2,050	650 (-20) / ±200 / 1,300	650 (-20) / ±200 / 2,050	650 (-20) / ±200 / 3,050
40 / 40 / 30	40 / 40 / 30 (60**)	40 / 40 / 30 (60**)	40 / 40 / 30
10.6 / 10.2 / 12.7	10.6 / 10.2 / 12.7 (10.4**)	10.6 / 10.2 / 12.7 (10.4**)	10.6 / 10.2 / 18.6 (10.4**)
–	210 / – / 1,160	210 / – / 1,910	210 / – / 2,850
–	40 / – / 40	30 / – / 30	30 / – / 20
–	6.5 / – / 9	6.5 / – / 9	6.5 / – / 7
1,910	1,160	1,910	2,850
30	20	30	20
9	9	9	9
1,910 NC controlled	1,160 NC controlled	1,910 NC controlled	2,850 NC controlled
18.0	18.0	18.0	25.0
6	6	6	6
17.8	17.9	19.8	24.3
1,250	1,250	1,250	1,250
2,380	2,530	2,530	2,530
22,000	18,500	24,000	30,000

CTX TC / TC 4A

Options (extract)

	CTX beta 1250 TC
Linear drive in the Z-axis (B-axis slide)	◦
Counter spindle	◦
Differential pressure for the main spindle and / or counter spindle	◦
Disc magazine 24 positions (HSK-A63, Capto C6 optional)	•
Disc magazine 36 positions (HSK-A63, Capto C6 optional)	–
Disc magazine 36 positions (Capto C8)	–
Tool chain magazine 48 positions (HSK-A63, Capto C6)	◦
Tool chain magazine 80 positions (HSK-A63, Capto C6)	–
Tool chain magazine 100 positions (HSK-A63, Capto C6)	–
Tool chain magazine 120 positions (HSK-A63, Capto C6)	–
Tool chain magazine 120 positions, tool length 550 mm (HSK-A63, Capto C6)	–
Tool chain magazine 180 positions (HSK-A63, Capto C6)	–
Tool chain magazine 80 positions (HSK-A100, Capto C8)	–
Tool chain magazine 120 positions (HSK-A100, Capto C8)	–
Additional magazine for 6 extra large tools (up to 700 mm length // up to Ø 200 mm)	–
Additional magazine for 3 extra large tools (up to 700 mm length // up to Ø 80 mm)	–
Two tool holders as bottom turret	–
Y-axis for bottom turret in conjunction with direct drive turret	–
Glass scales in Y2	–
Glass scales in Z2 / Z3	–
Measuring / Monitoring	
Tool measuring device for turning and milling tools	◦
Drill breakage control, mechanical	◦
In-process work piece measuring with measuring sensors	◦
Bar machining / automation	
Bar machining package with work piece collection device, hydraulic hollow clamping device, 4-colour signal light and connection slot for a bar feed or bar loading magazine	◦
Bar loading magazine for max. bar length of 1.2 to 3.2 m (depending on the machine)	◦
Preparation for handling with robot interface, automatic loading sliding door or loading hatch	◦
Integrated loading and unloading system for feeding parts including load portal, load hatch and swivel unit with gripper	–
Automatic load hatch for automation // Electrical interface	–
Shaft machining	
Tailstock function for counter spindle	◦
Sleeve spindle for tailstock with 180 mm traverse (hydraulic)	–
Steady rest slide, automatic positioning, steady rest clamping range up to 165 mm	◦
Steady rest slide, NC controlled, steady rest clamping range up to 350 mm	–
Steady rest slide, NC controlled, steady rest clamping range up to 460 mm	–
Steady rest quick change system	–
Turret head steady rest, clamping range up to 101 mm or 165 mm for the CTX gamma TC 4A	–
Clamping device for the main spindle	
Chuck up to Ø 325 mm including accessories and chuck jaws	–
Chuck up to Ø 400 mm including accessories and chuck jaws	◦
Chuck up to Ø 630 mm including accessories and chuck jaws	–
Clamping device for the counter spindle	
Chuck up to Ø 260 mm including accessories and chuck jaws	◦
Chuck up to Ø 325 mm including accessories and chuck jaws	–
Chuck up to Ø 400 mm including accessories and chuck jaws	–
Chuck up to Ø 630 mm including accessories and chuck jaws	–

• standard, ◦ optional

CTX beta 2000 TC	CTX gamma 1250 TC	CTX gamma 2000 TC	CTX gamma 3000 TC	CTX beta 1250 TC 4A	CTX gamma 1250 TC 4A	CTX gamma 2000 TC 4A	CTX gamma 3000 TC 4A
—	○	○	—	—	○	○	—
○	●	●	●	●	●	●	●
○	○	○	○	○	○	○	○
●	—	—	—	●	—	—	—
—	●	●	●	—	●	●	●
—	●	●	●	—	●	●	●
○	—	—	—	—	—	—	—
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○	—	—	—	—	—	—	—
—	○	○	○	—	○	○	○

CTX TC / TC 4A

Options (extract)

	CTX beta 1250 TC
Disposal of coolant and chips	
Chip conveyor	◦
8 bar IKZ coolant system, 600 l and 40 µm paper belt filter	◦
8 / 20 bar IKZ coolant system, 600 l and 40 µm paper belt filter	◦
8 / 20 bar IKZ coolant system, 980 l and 40 µm paper belt filter	◦
8 / 20 bar IKZ coolant system, 980 l and 40 µm paper belt filter and cooling unit	◦
8 / 20 / 80 bar IKZ coolant system, 980 l and 40 µm paper belt filter and cooling unit	◦
Aluminium package in conjunction with paper belt filter	◦
Oil mist extraction system	◦
Control system / software	
ShopTurn 3G technology cycle: 5-axis simultaneous machining	◦
ShopTurn 3G technology cycle: Milling of gears by hobbing	◦
ShopTurn 3G technology cycle: Off-centre turning and milling	◦
ShopTurn 3G technology cycle: Multi-thread cycle	◦
ShopTurn 3G technology cycle: Easy tool monitoring	◦
ShopTurn 3G technology cycle: Alternating speed	◦
ShopTurn 3G technology cycle: Tool sorting cycle	◦
ShopTurn 3G technology cycle: Retraction cycle	◦
ShopTurn 3G technology cycle: Turret steady rest	—
ShopTurn 3G technology cycle: Turret centre	—
ShopTurn 3G technology cycle: Programme condition control system	◦
Sister tool management system Tool Monitor	◦
Programming structure with sub-programme including graphic interface	◦
DMG Netservice // DMG Service Agent	◦
Miscellaneous	
Machine adaptation for increased ambient temperatures (tropical package)	◦
Control system	
DMG MORI ERGOline® control panel with 19" monitor	•
Siemens 840D solutionline Operate with ShopTurn 3G	•
Heidenhain Plus iT	◦

• standard, ◦ optional

1: Steady rest with automatically traversing steady rest slide for vibration-free machining of long components



DMG MORI
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