

Twin-spindle turning centres
TWIN series

DMG



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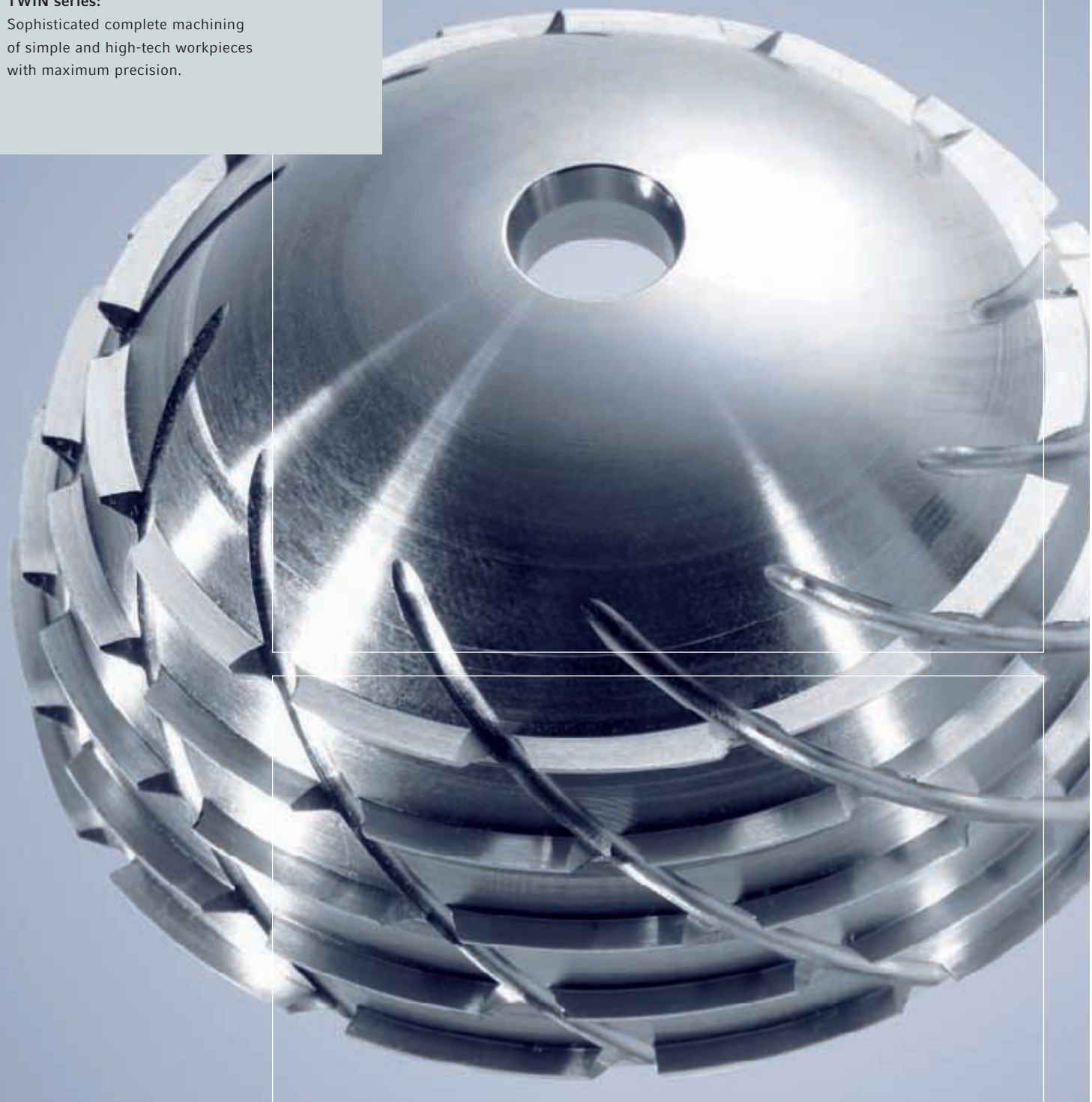
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TWIN series:

Sophisticated complete machining
of simple and high-tech workpieces
with maximum precision.



TWIN series: 3-tool technology – offering a 20% reduction in job times!

Whether in the automotive, instruments, hydraulic or electronics industry – the TWIN series comprehensive range, offers the ideal performance options for sophisticated complete machining of bar, shaft and chuck pieces.

The two frame sizes with their different spindle options are unique and contribute to the success of this series, they have been designed for flexible tailor-made solutions to meet varying demands. Time-tested and proven components ensure maximum performance, which include the integrated spindle motors, fast-operating 12x servo turrets and the use of three tools simultaneously (“3-tool technology”).

The modular expansion options of the TWIN series include an automated production island with bar loader and integrated handling/loading portals all offered to save the maximum cost and time for the user.



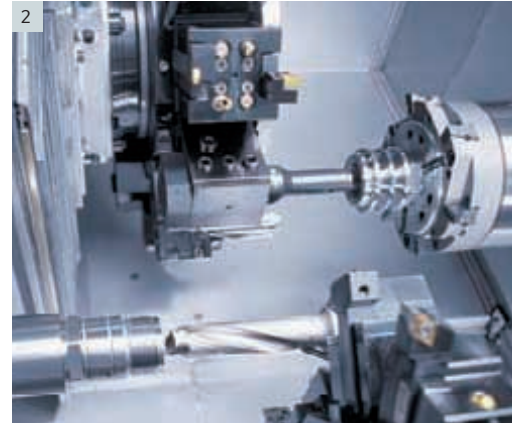
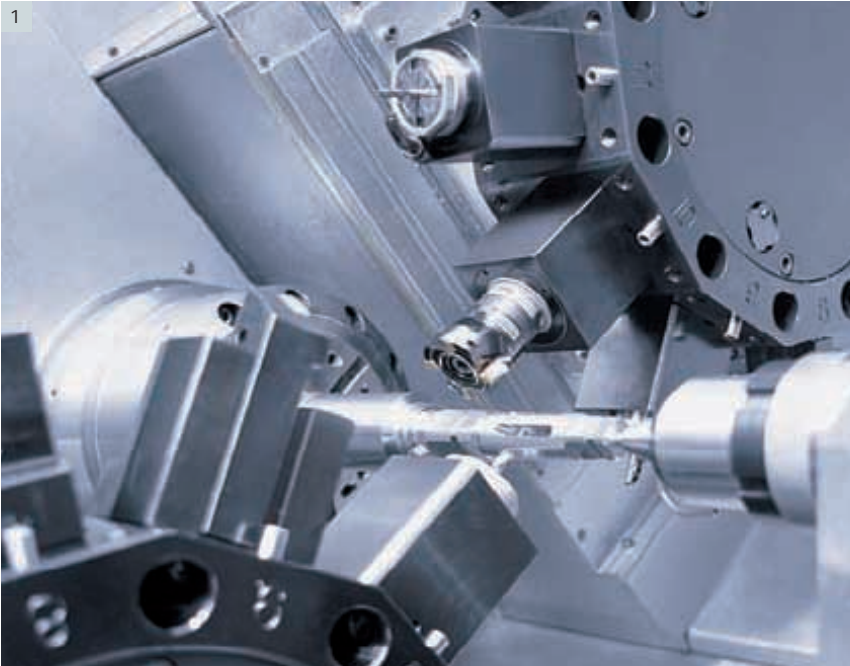
1| Connection element, instruments industry 2| Hydraulic component, hydraulics industry 3| Drive sleeve, hydraulics industry 4| HSK receiver, tool manufacturing industry 5| Control slide, control engineering 6| Coupling, drive technology 7| Steering element, automotive industry

TWIN 42 / 65 (Frame size 1): 1 g acceleration and rapid traverse speeds of 30 m/min.

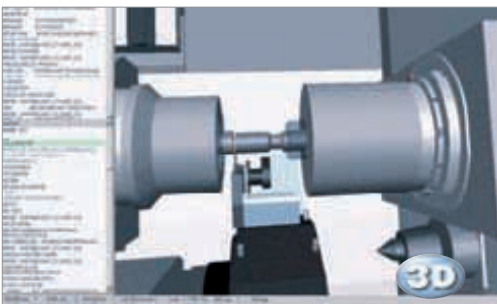
The TWIN series offers ideal options for sophisticated complete machining. The frame size 1 version encompasses two models with bar diameters of up to 65 mm. Power and dynamics are guaranteed with such features as integrated spindle motors that have a drive power of 28 kW (40% DC) and an acceleration from 0 to 7,000 rpm a second, fast indexing turrets with cycle times of 0.1 sec. plus 1 g acceleration and rapid traverses of 30 m/min. To increase the range of machining applications, the counter-spindle slide can be equipped with a tailstock. This allows the overhead turret to work simultaneously on the counter-spindle if this should be required. This unique work area design is the result of the 145 mm cross stroke of the CNC-controlled counter-spindle slide on which the optional tailstock is also mounted. This additional NC-axis makes even unconventional turning jobs possible. The optional Y-axis rounds off the performance range of off-centre boring and milling processes.

**TWIN series:**

Ultimate flexibility thanks to the twin-spindle technology with cross traversable counter spindle.



I1| Twin 12x tool turrets with powered stations – 3.8 kW and 10 Nm I2| Unique work area concept – NC controlled, cross traversable counter spindle and multi-sided machining on the counter-spindle



DMG Programmer 3D Turning:
Secure programming – secure production.
Programming and simulation systems for up to 50% lower setup costs.

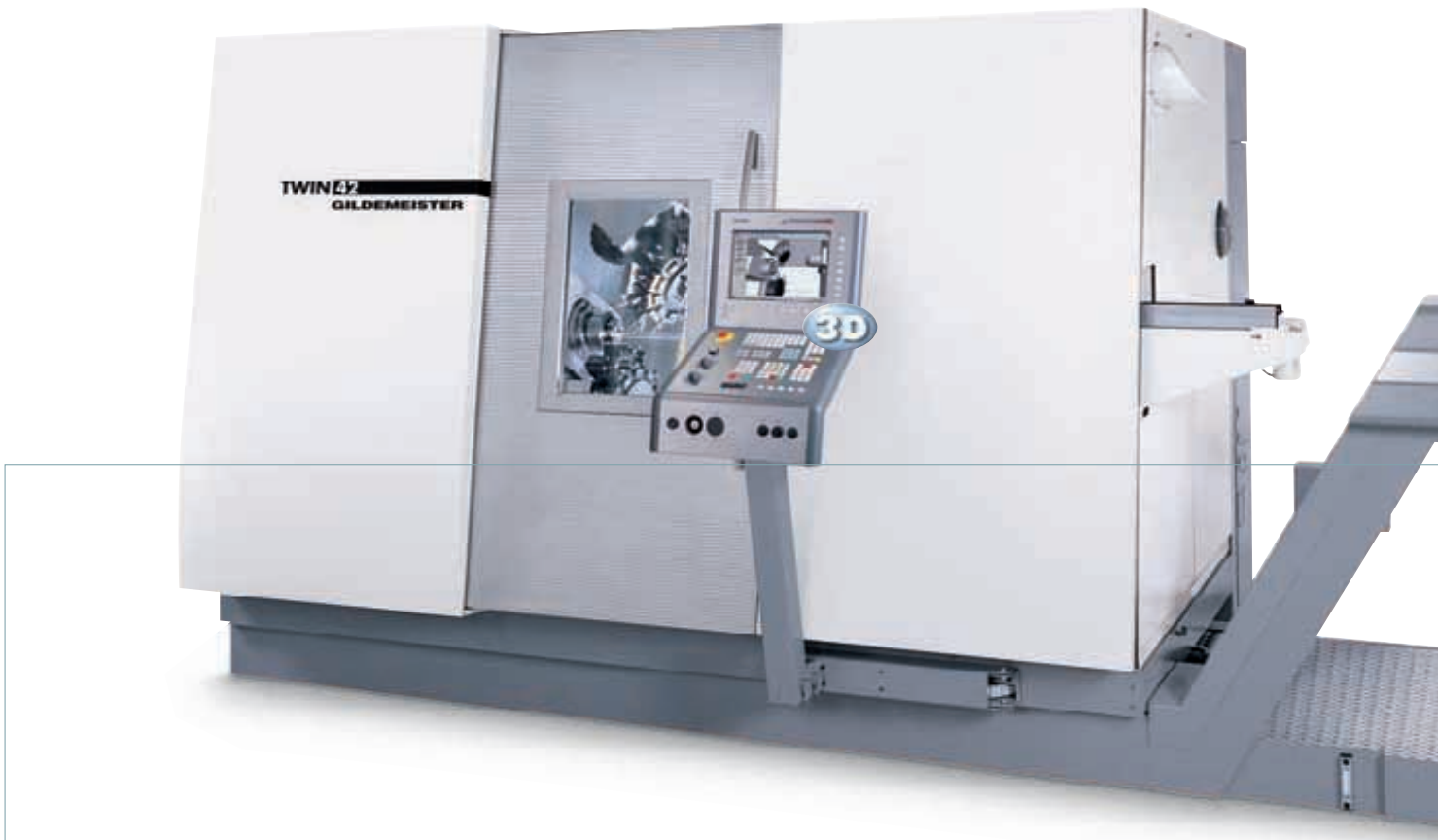
Highlights

- _ **Up to 20% reduction of job times thanks to “3-tool technology”** for simultaneous machining with up to 3 tools (optional)
- _ Unique (patented) work area design – **NC-controlled, cross traversable counter-spindle** for simultaneous, collision-free interior machining on the main and counter-spindles
- _ Powerful **multi-sided machining** thanks to the counter-spindle (optional)
- _ **High dynamics** with 30 m/min rapid traverse and 1 g axis acceleration
- _ **Y-axis** for off-centre drilling and milling (optional)
- _ **Workpieces are transferred** from main to counter spindle with **angular synchronism**
- _ **Identical power-spindle motors** in the main and counter spindle, including the C-axis
- _ **DMG ControlPanel** with 15"-TFT screen, Siemens 840D powerline
- _ **DMG Programmer 3D Turning** (optional)

TWIN 42 / 65 / 102 (Frame size 2): with a 180°-B-axis for complete machining of the most complex workpieces.

Excellent machine rigidity and compact design – the TWIN series opens up new production perspectives for the machining of larger bar diameters thanks to state-of-the-art synchronous spindle technology. With a 60°-machine bed made of cast-iron meehanite as its foundation, the work area of the frame size 2 machines is adapted to accommodate bar capacities up to 117 mm as well as a CNC-controlled B-axis. The B-axis can be pivoted with the aid of the overhead turret and when combined with the Y-axis a wide range of complex machining tasks can be performed. Slanted bores, curved surfaces and the most complicated milling contours can be machined in this way.

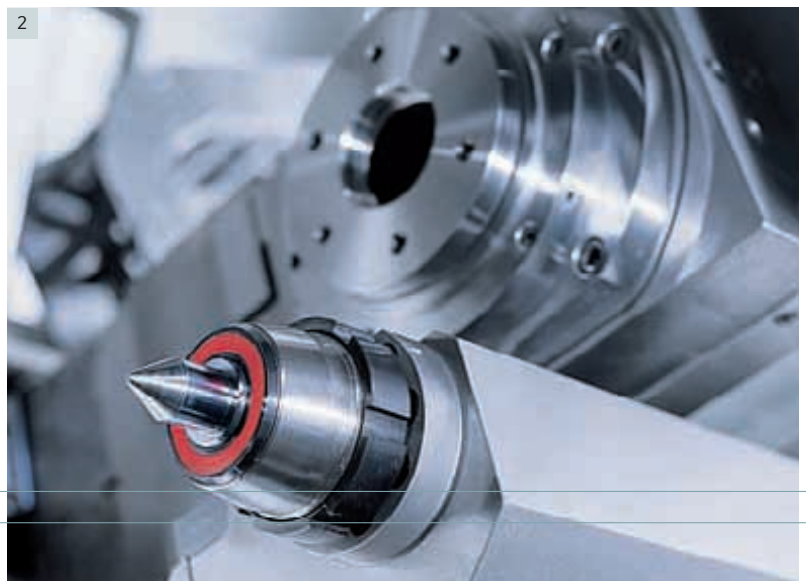
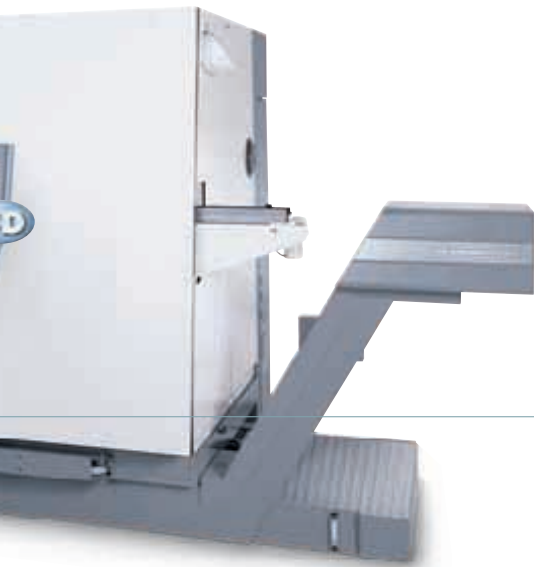
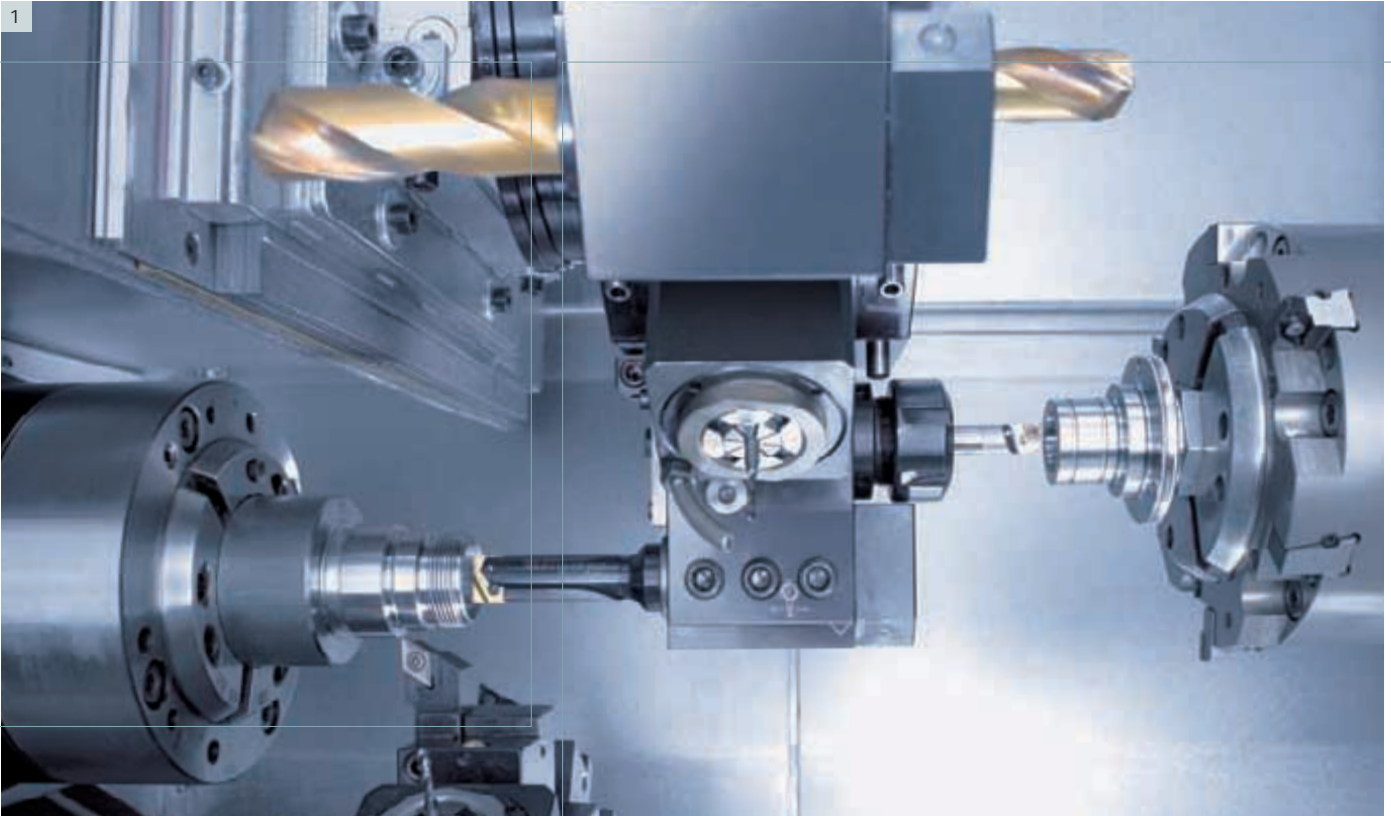
The frame size 2 TWIN machine also feature a unique work area design including a counter spindle/tailstock combination on the NC axis for off-centre travel (175 mm stroke).



Highlights

- _ **180°-B-axis** and **Y-axis** for off-centre drilling and milling (optional)
- _ Bar diameter range up to **117 mm**
- _ **Up to 20% reduction of job times thanks to "3-tool technology"** for simultaneous machining with up to 3 tools (optional)
- _ Unique (patented) work area design – **NC-controlled, cross traversable counter-spindle** for simultaneous, collision-free interior machining on the main and counter-spindles
- _ Powerful **multi-sided machining** thanks to the counter-spindle (optional)
- _ **Workpieces are transferred** from main to counter spindle with **angular synchronism**
- _ **Identical power-spindle motors** in the main and counter spindle, including the C-axis
- _ **DMG ControlPanel** with 15"-TFT screen, Siemens 840D powerline
- _ **DMG Programmer 3D Turning (optional)**





I1| 3-tool technology for simultaneous machining with up to 3 tools
I2| Counter spindle / tailstock combination for simultaneous support and collision-free machining on the main and counter spindles

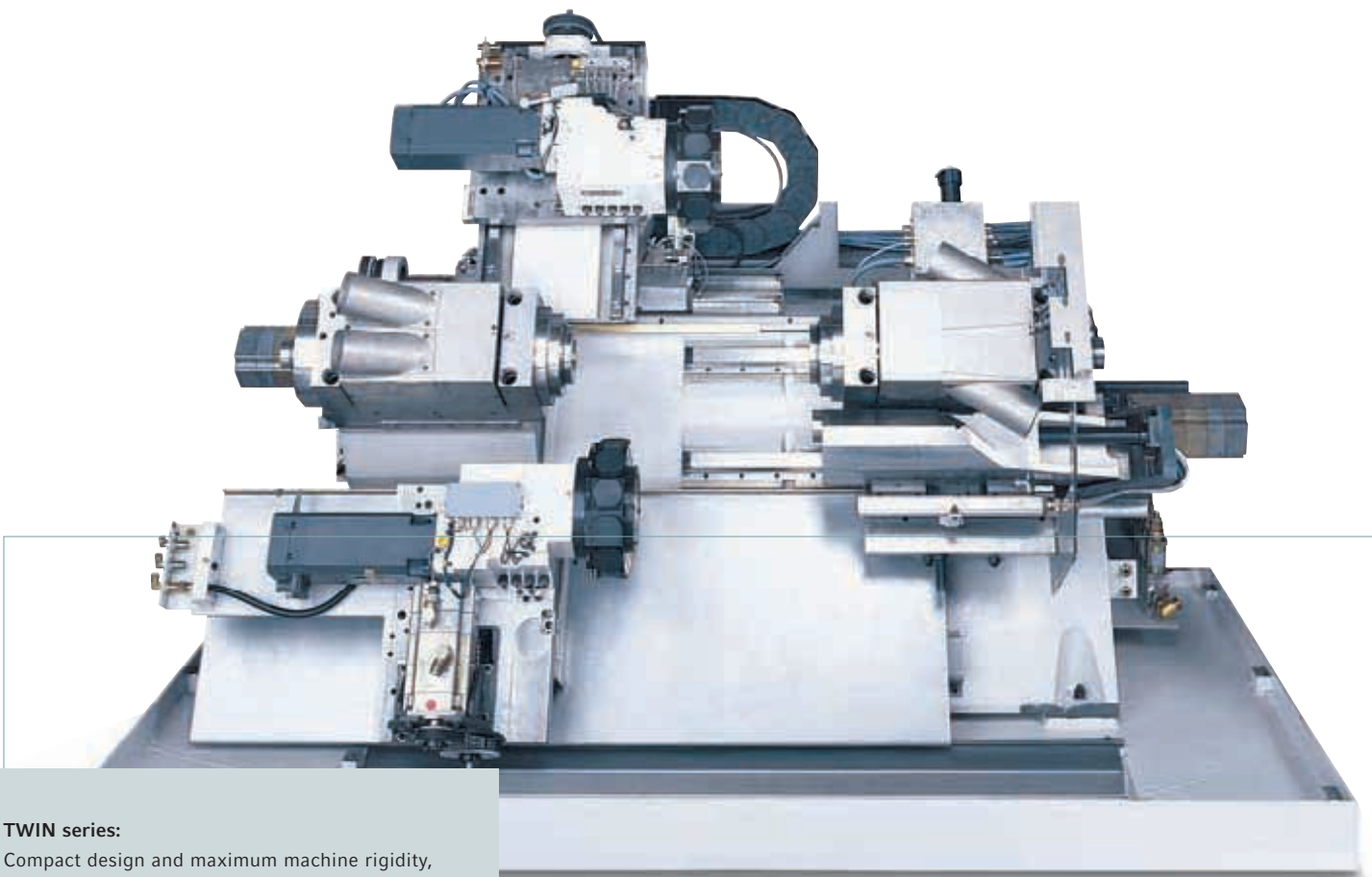
B-axis machining:

The combination of Y-axis and B-axis mean that slanted bores, curved surfaces and the most complicated milling contours can be machined easily.



Advanced expertise using state of the art technology – superior right down to the last detail.

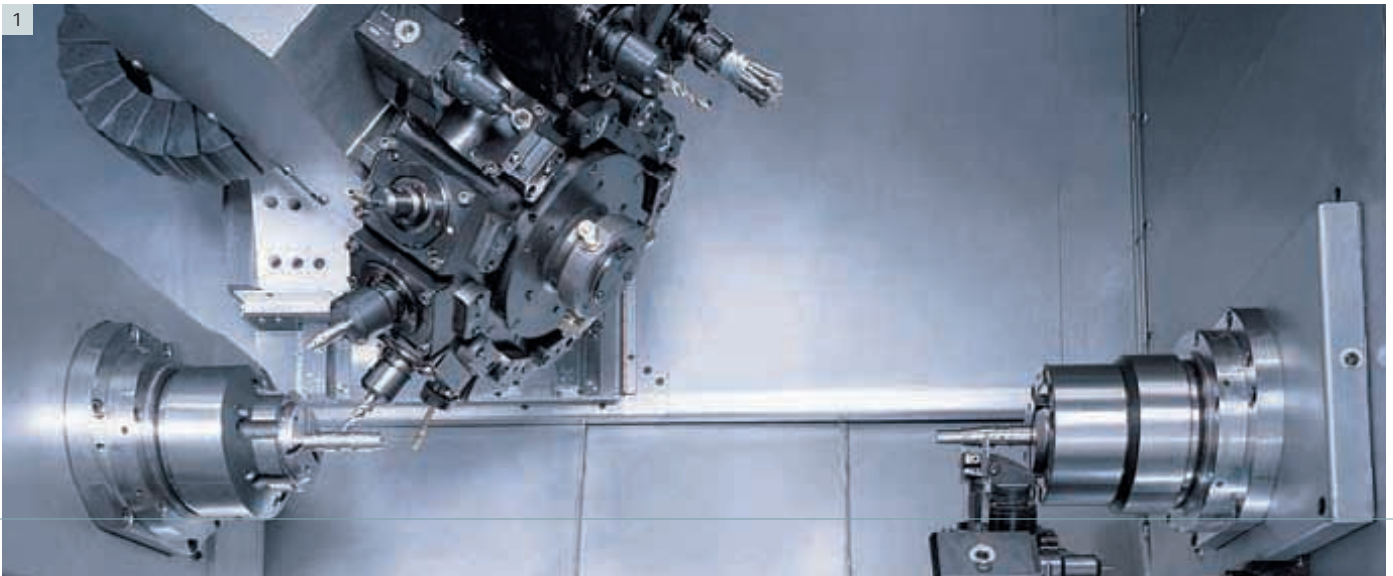
Even in the standard version, the TWIN series is equipped with technical options that set world standards in precision and productivity. The NC controlled cross slide which accommodates the counter spindle, allows collision free front-side and interior machining simultaneously on the main and counter spindles, as well as pick up of workpieces from the main spindle. In addition the optional modules available for the TWIN series provide high-tech features that guarantee a maximum in machining flexibility. The upper or lower turret, for example, can be equipped with a turret-head steady rest for flexible shaft machining. The hydraulic tailstock is also an impressive element for shaft machining that supports undulating workpieces at the main spindle.

**TWIN series:**

Compact design and maximum machine rigidity, with a 60° machine bed made of a cast-iron meehanite foundation – the ideal basis for sophisticated complete machining.

More flexibility can be achieved by the optional B axis on the frame size 2 TWIN. In combination with the Y-axis this allows easy machining of the most complicated milling contours and tooth systems in a roller milling procedure. Another guarantee for more flexibility is the control option “3-tool technology”. This allows three tools to be in operation at the same time: the first tool machines the workpiece at the main spindle, the second at the counter spindle and the lower turret also directs the third tool onto the workpiece at the main spindle.

During the machining of certain materials or where cutting oil is used, a CO extinguishing unit is mandatory to ensure process safety. This is activated by a light and temperature sensor and simultaneously regulates excess pressure in the work area via an equalisation valve.



I1| Spacious work area and off-centre traversable counter-spindle / tailstock combination for the most sophisticated complete machining I2| Machining with powered tool

A combination of options making the TWIN cost effective and highly productive.

The TWIN family is expanding now to become a complete machine series thanks to the various expansion options with the Y-axis or Y and B-axis combination which can all be equipped with modular workpiece handling options. This enables both the perfect handling of simple chuck parts and the damage-free (because it is impact-free) disposal and palletising of completely machined parts. Adding up all the benefits establishes the TWIN series as an unbeatable team for bar machining for diameters ranging from 42 to 117 mm.



- la) **Automation (optional):**
Automated workpiece loading with bar loading magazine / automatic unloading onto an integrated unloading conveyor / cleated cycle belt.

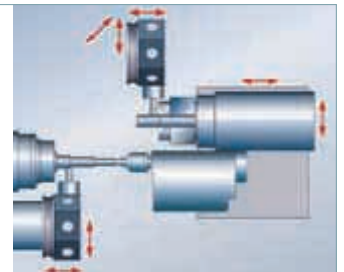


11-31 Impact-free workpiece pickup for SPC-compliant manufacturing



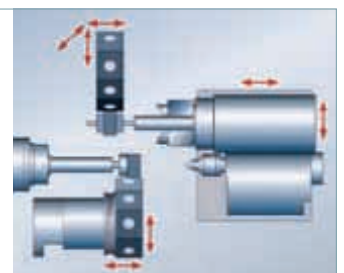
Utilisation option 1:

- _ Collision-free machining with twin turrets and tailstock
- _ 2 x 2 axis machining with the support of the tailstock for long narrow shafts
- _ Y-axis for sophisticated complete machining



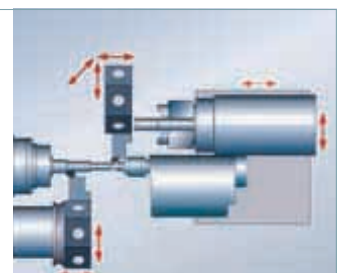
Utilisation option 2:

- _ With a cross traversable counter spindle, front-sided machining of long workpieces on main and counter spindles is possible
- _ Collision-free machining with twin turrets
- _ 2 x 2 axis machining



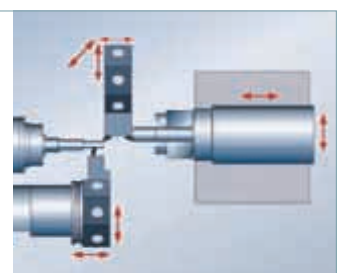
Utilisation option 3:

- _ Collision-free 4-axis machining with twin turrets and tailstock on a single workpiece for long narrow shafts



Utilisation option 4:

- _ 3-tool strategy:
 tool 1 on main spindle,
 tool 2 on counter-spindle (coupled operation),
 tool 3 on main spindle





Siemens 840D powerline:
with a DMG ControlPanel and 15"-TFT screen plus DMG power tools – a highly-efficient combination that bundles state-of-the-art control and programming technologies for success-oriented users.



DMG Powertools – The intelligent way to increase performance.

The innovative DMG software solutions open up completely new production perspectives: optimised training opportunities, minimised down times and higher machine reliability. More information at: www.gildemeister.com

Programmed for top performance: DMG ControlPanel with 15"-TFT screen and 3D software.

The TWIN series is controlled and programmed with the Siemens 840D powerline. "Powerline" stands for an increase in performance of more than 100% in the CNC and PLC sector. A high-end control that fits seamlessly into the performance spectrum of turning centres with powerful hard and software packages.

Siemens 840D powerline

- _ Hardware PCU 50
- _ Pentium III with 1.2 GHz
- _ 15"-TFT screen
- _ Fast network connections
- _ Extensive diagnostics
- _ Error display in plain language
- _ Clear user images

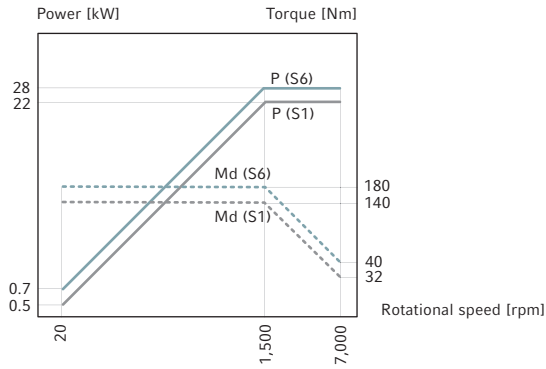
Your benefits

- _ Fast screen layout
- _ Large type
- _ Fast data transfer of
even complex programmes
- _ Safe setup also with graphic support
- _ Simple error recovery through
diagnostic support information
- _ Preventative maintenance

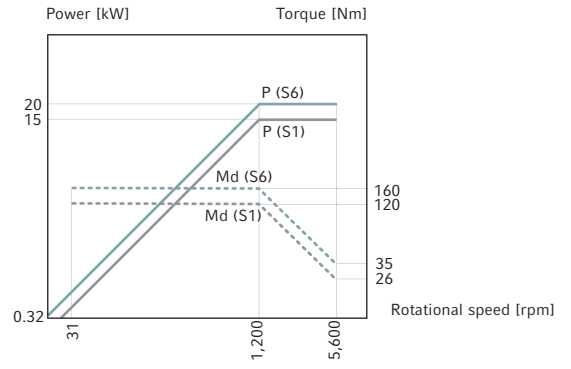
Performance diagrams

Frame size 1:

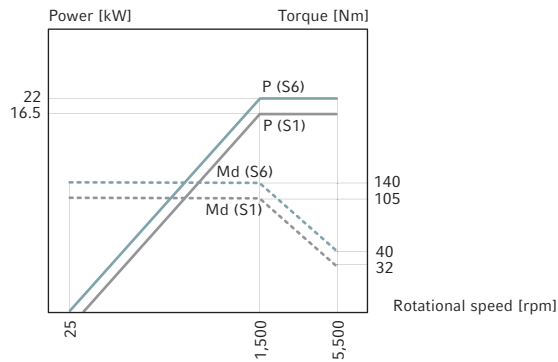
Main/counter spindle TWIN 42



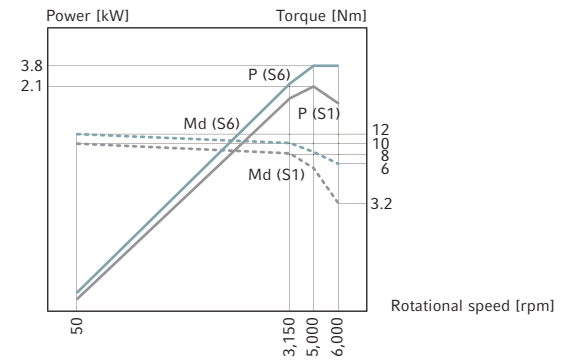
Main/counter spindle TWIN 65



ISM 42 counter-spindle* TWIN 65



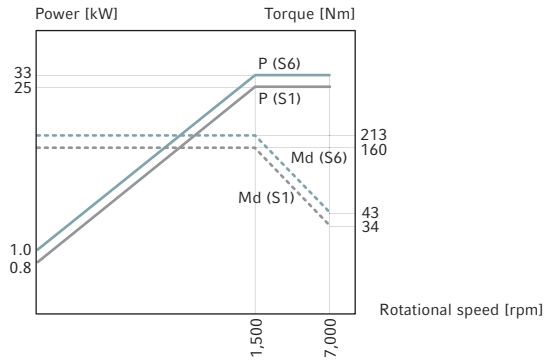
Powered tools TWIN 42 / 65



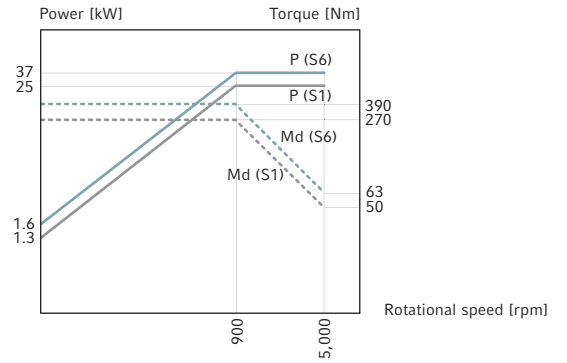
* optional, WZ = tools

Frame size 2:

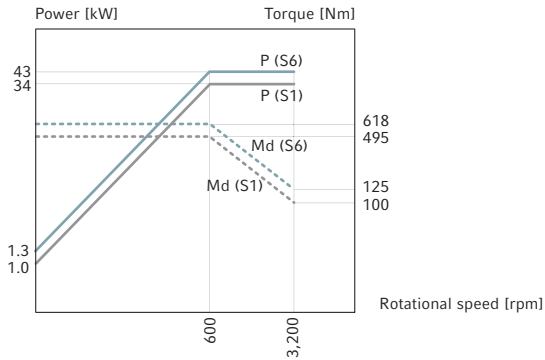
Main/counter spindle TWIN 42



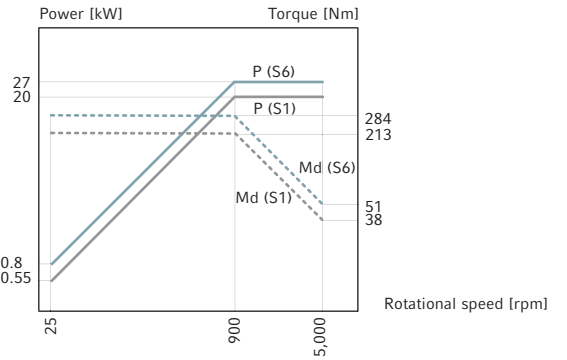
Main spindle TWIN 65



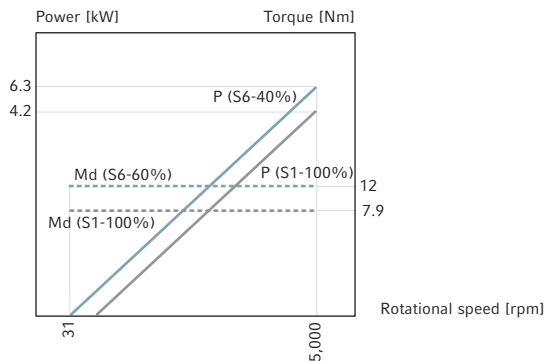
Main spindle TWIN 102



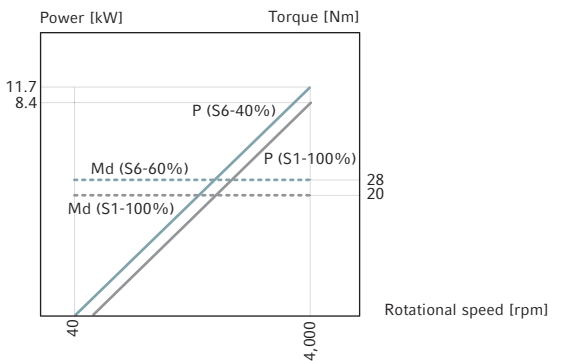
Counter spindle TWIN 65/102



Powered tools TWIN 42/65/102 w. B-axis



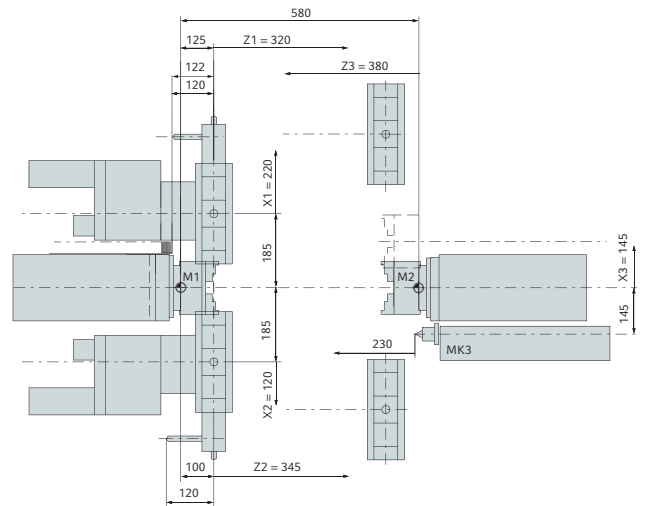
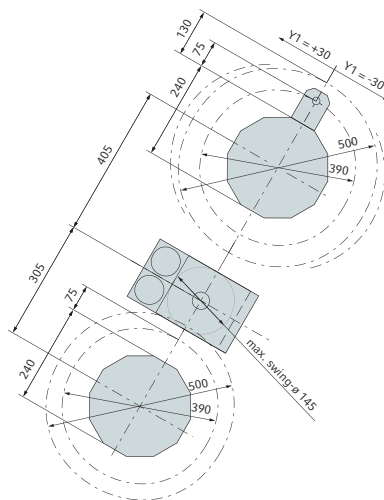
Powered tools TWIN 42/65/102



Work area

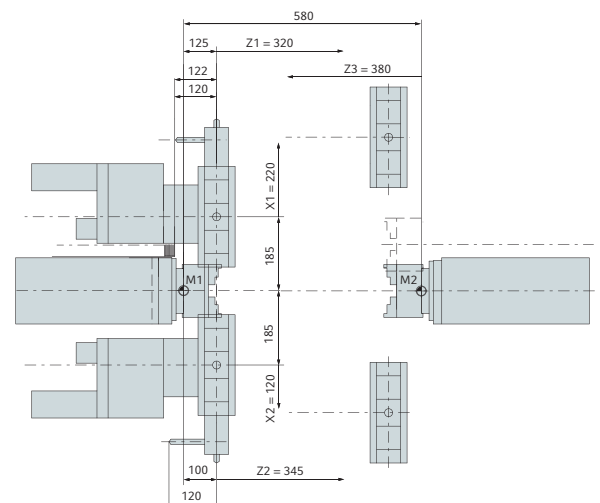
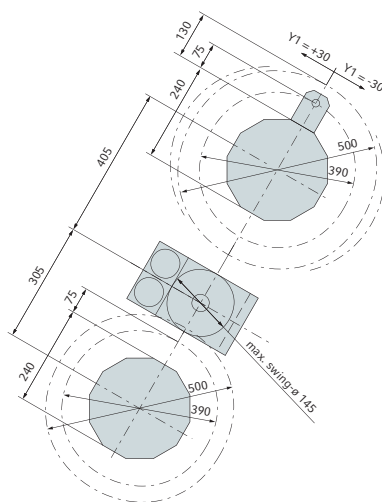
Frame size 1:

TWIN 42/65*



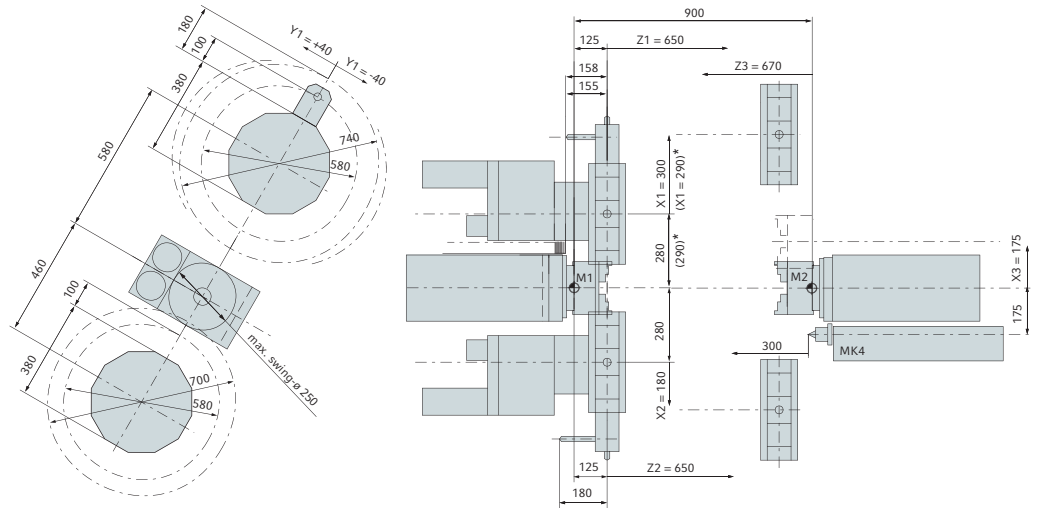
* tailstock for TWIN 65 only in combination with ISM 42 counter-spindle (optional)

TWIN 65

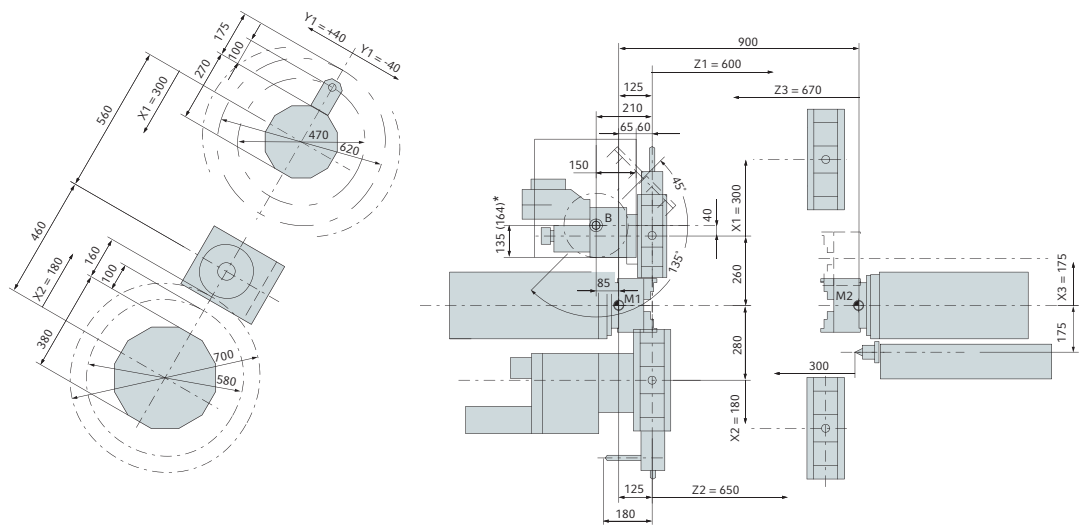


Frame size 2:

TWIN 42/65/102



TWIN 42/65/102 with B-axis

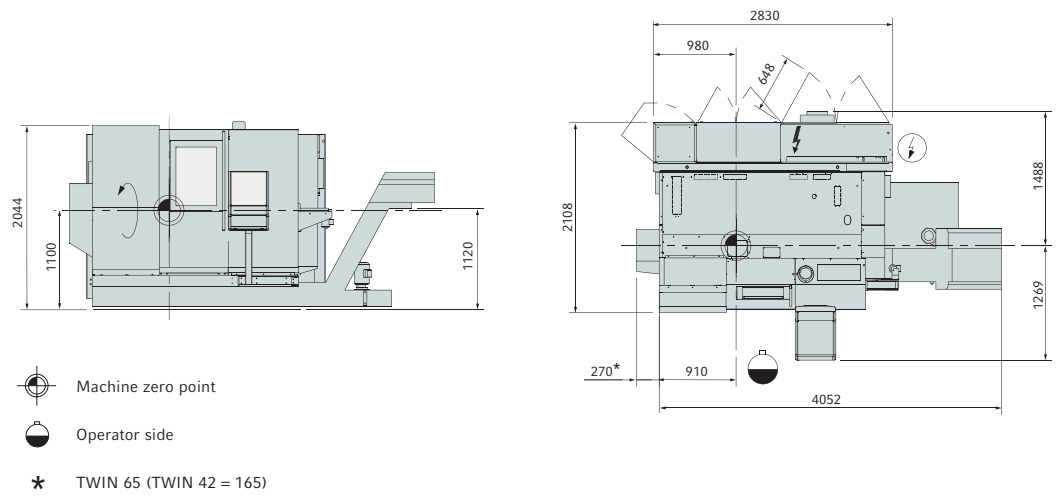


B = pivot point B-axis, * TWIN 102

Floor plans

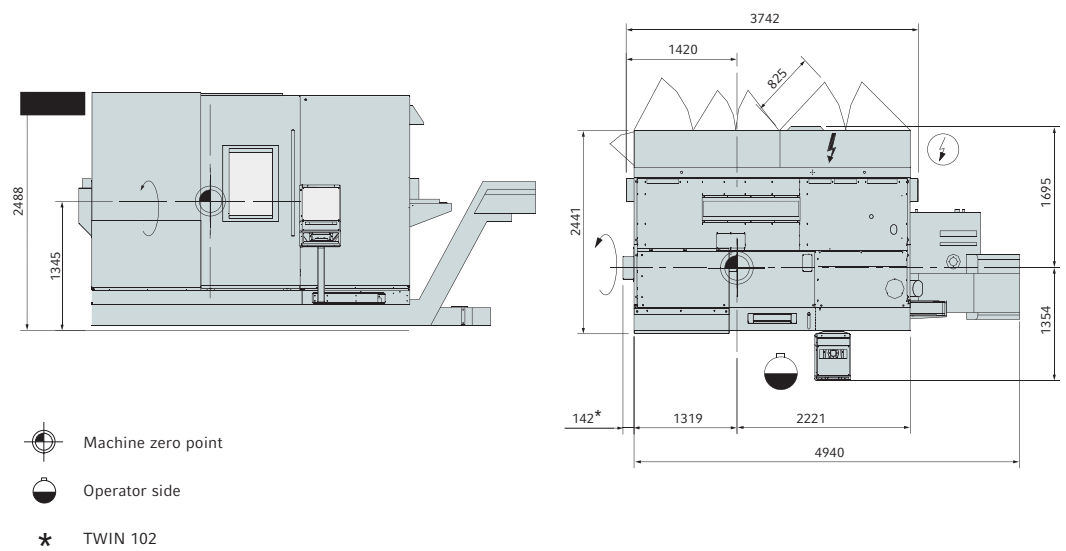
Frame size 1:

TWIN 42/65



Frame size 2:

TWIN 42/65/102



Technical data

Bed/version	Frame size 1		TWIN 42	TWIN 65
Version	60°-slanted bed		•	•
Type of guideway	Roller guideways		•	•
Work area	Swing diameter	mm	145	145
	Turning diameter normal	mm	100	100
	Spindle distance	mm	580	580
Spindle 1	Spindle head diameter, flat flange	mm	120h5	140h5
	Max. bar diameter	mm	45	65
	Chuck diameter	mm	130/140	130/140
Spindle 2	Spindle head diameter, flat flange	mm	120h5	140h5 (120h5)*
	Max. bar diameter	mm	45	65 (45)*
	Chuck diameter	mm	130/140	130/140
Main drive 1	Integrated spindle motor with C-axis		•	•
	Drive power (40/100% DC)	kW	28/22	20/15
	Rotational speed range	rpm	20–7,000	25–5,600
	Torque (40/100% DC)	Nm	180/140	160/120
Main drive 2	Integrated spindle motor with C-axis		•	•
	Drive power (40/100% DC)	kW	28/22	20/15 (22/16.5)*
	Rotational speed range	rpm	20–7,000	25–5,600 (25–5,500)*
	Torque (40/100% DC)	Nm	180/140	160/120 (140/105)*
Slide 1 (top)	Cross travel X/longitudinal travel Z	mm	220/320	220/320
	Vertical travel Y (optional)	mm	±30	±30
	Rapid traverse speed X/Y/Z	m/min	30/15/30	30/15/30
Slide 2 (bottom)	Cross travel X/longitudinal travel Z	mm	120/345	120/345
	Rapid traverse speed X/Z	m/min	30/30	30/30
Slide 3 (spindle 2)	Cross travel X/longitudinal travel Z	mm	145/380	145/380
	Rapid traverse speed X/Z	m/min	20/30	20/30
Tool mounts 1 and 2	Number of tools		12	12
	Shaft diameter in compliance with VDI 69880	mm	25	25
	Number of powered tools		12	12
	Drive power 40% DC	kW	3.8	3.8
	Torque 40% DC	Nm	10	10
	Rotational speed range	rpm	30–6,000	30–6,000
Options	Tailstock stroke	mm	230	230**
	Tailstock power	kN	3	3**
	Centre punch head	MK	3	3**
Weight	Weight of machine including control cabinet	kg	approx. 5,500	approx. 5,500

Control

DMG ControlPanel with 15"-TFT screen

Siemens 840D powerline

* optional ISM 42; ** only in combination with ISM 42 counter-spindle

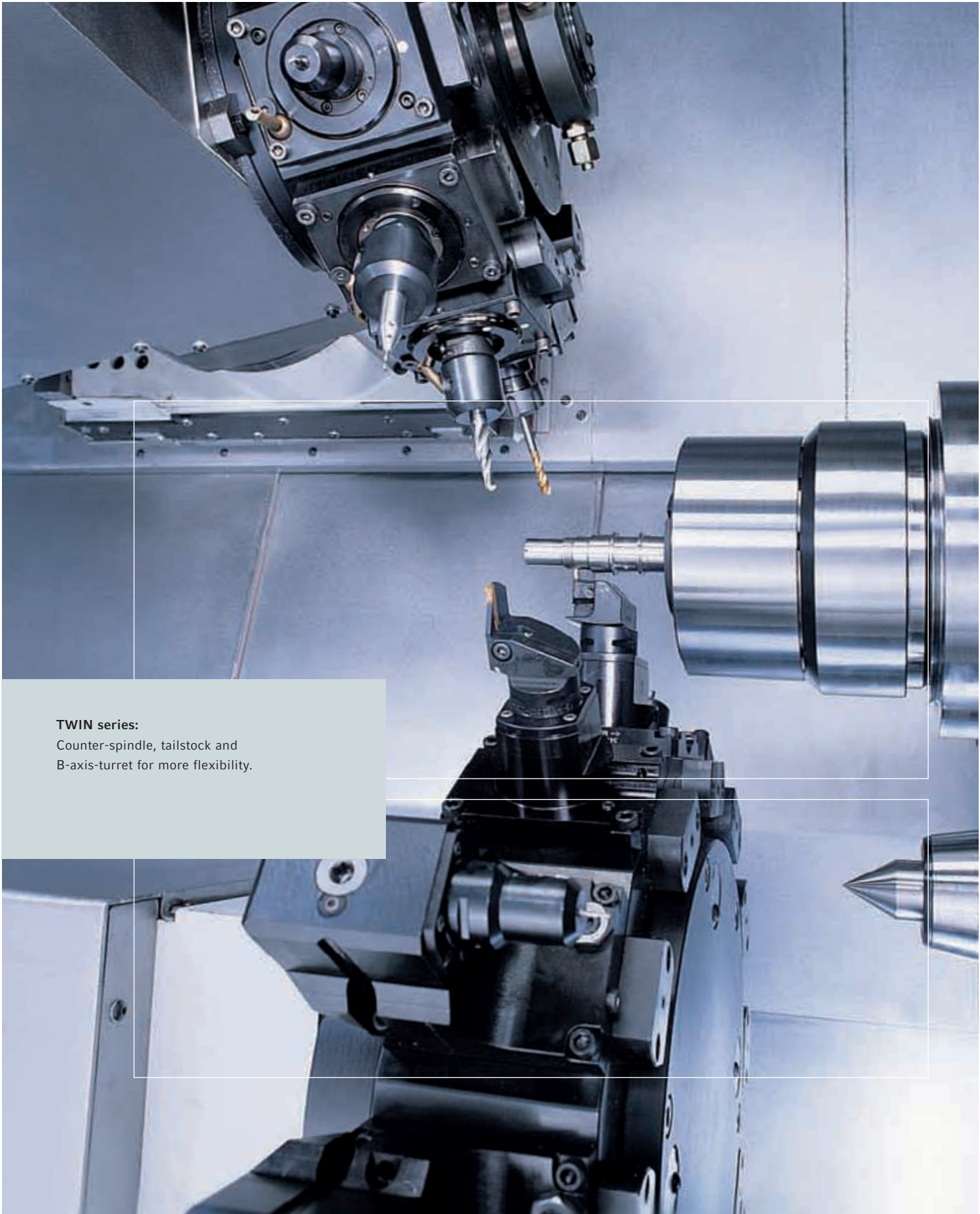
Bed/version	Frame size 2		TWIN 42	TWIN 65	TWIN 102
Version	60°-slanted bed		•	•	•
Type of guideway	Roller guideways		•	•	•
Work area	Swing diameter	mm	250	250	250
	Turning diameter normal	mm	100	200	200
	Spindle distance	mm	900	900	900
Spindle 1	Spindle head diameter, flat flange	mm	140h5	170h5	220h5
	Max. bar diameter	mm	45	65	102 (90/117) ³
	Chuck diameter	mm	170	200 (250)	250
Spindle 2	Spindle head diameter, flat flange	mm	140h5	170h5	170h5
	Max. bar diameter	mm	45	65	65
	Chuck diameter	mm	170	200 (250)	200 (250)
Main drive 1	Integrated spindle motor with C-axis		•	•	•
	Drive power (40/100% DC)	kW	33/25	37/25	43/34 (47/36) ⁴
	Rotational speed range	rpm	35–7,000	25–5,000	20–3,200 (20–4,000) ⁴
	Torque (40/100% DC)	Nm	213/160	390/270	618/495 (750/560) ⁴
Main drive 2	Integrated spindle motor with C-axis		•	•	•
	Drive power (40/100% DC)	kW	33/25	27/20	27/20
	Rotational speed range	rpm	35–7,000	25–5,000	25–5,000
	Torque (40/100% DC)	Nm	213/160	284/213	284/213
Slide 1 (top)	Cross travel X/longitudinal travel Z	mm	300/650 (600) ¹	300/650 (600) ¹	290/650 (600) ¹
	Vertical travel Y (optional)	mm	±40	±40	±40
	Rapid traverse speed X/Y/Z	m/min	30/15/30	30/15/30	30/15/30
Slide 2 (bottom)	Cross travel X/longitudinal travel Z	mm	180 / 650	180 / 650	180 / 650
	Rapid traverse speed X/Z	m/min	30/30	30/30	30/30
Slide 3 (spindle 2)	Cross travel X/longitudinal travel Z	mm	175/670	175/670	175/670
	Rapid traverse speed X/Z	m/min	15/30	15/30	15/30
Tool mounts 1 and 2	Number of tools		12 (16) ³	12 (16) ³	12 (16) ^{3,5}
	Shaft diameter in compliance with VDI 69880	mm	30	30	40 (30) ⁶
	Number of powered tools		12 (16) ³	12 (16) ³	12 (16) ³
	Drive power 40% DC	kW	11.7 (6.3) ¹	11.7 (6.3) ¹	11.7 (6.3) ¹
	Torque 40% DC	Nm	28 (12) ¹	28 (12) ¹	28 (12) ¹
	Rotational speed range	rpm	20–4,000 (25–5,000) ¹	20–4,000 (25–5,000) ¹	20–4,000 (25–5,000) ¹
Options	Swivel range, B-axis	Degree	135/- 45	135/- 45	135/- 45
	Tailstock stroke	mm	300	300	300
	Tailstock power	kN	6	6	6
	Centre punch head	MK	4	4	4
Weight	Weight of machine including control cabinet	kg	approx. 10,000	approx. 10,000	approx. 10,000

Control

DMG ControlPanel with 15"-TFT screen

Siemens 840D powerline

¹ tool mount 1 with B-axis; ² for machines with B-axes;
³ option; ⁴ for option bar diameter 90 mm;
⁵ not with the tool holder 1 with a B-axis;
⁶ 16 tools optional = shaft ø 30 mm

**TWIN series:**

Counter-spindle, tailstock and
B-axis-turret for more flexibility.

