Data sheet

Main drive	Direct drive by liquid-cooled speed-controlled induction motor				
	Speed ranges, steplessly programmable			rpm	0 to 6,000
				rpm	0 to10,000
	Set-up mode			rpm	0 to 800
	Manual intervention			rpm	0 to 5,000
	Torque		S 1 – 100% duty rating	max. Nm (lbf ft)	300 (220)
			S 6 – 40% duty rating	max. Nm (lbf ft)	440 (322)
	Input power		S 1 – 100% duty rating	kW (hp)	25 (33)
			S 6 – 40% duty rating	kW (hp)	37 (49)
Feed drive	3-phase AC synchronous servomotors				
	Feedrates		X/Y/Z axes	mm/min	1 to 40,000
			steplessly programmable	(ipm)	(0.04 to 1,575)
	Rapid traverse		X/Y/Z axes	mm/min	40,000
				(ipm)	(1,575)
	Set-up mode		X/Y/Z axes	mm/min	1 to 2,000
				(ipm)	(0.04 to 79)
	Manual intervention		X/Y/Z axes	mm/min	1 to 5,000
				(ipm)	(0.04 to 200)
	Feed force		X/Z axes (100% duty rating)	N (lbf)	15,000 (3,372)
			Y axis (100% duty rating)	N (lbf)	10,000 (2,255)
Measuring system	Resolution, smallest input increment		X/Y/Z axes	mm (in)	0.001 (0.0004)
	Positioning tolerance (as per VDI/DGQ 3441):				
	Direct measurement		X/Y/Z axes	mm (in)	0.010 (0.004)
	Direct measurement		B axis	sec of arc	14
Rotary table	Speed			max. rpm	19
	Pallet clamping force			N (lbf)	120,000 (27,000)
	Tilting moment			max. Nm	16,000
				(lbf ft)	(3,520)
	Tangential moment			max. Nm	4,800
				(lbf ft)	(3,523)
Pallet	Number				2
	Size			mm	500 x 630
				(in)	(19.7 x 24.8)
	Permissible load per pallet			max. kg	500/900
	when using 1 pallet/2 pallets			(lb)	(1,102/1,984
	Slots	T-slots	Number x width	mm	4 x 14^{H12}
				(in)	(0.16 x 0.55)
		Guide slot	Number x width	mm	1 x 14^{H7}
				(in)	(0.04 x 0.55)

Non-metric values are approximations.

Technical data

Working range

Length of traverse			
Tool diameter >200 mm (7.87 in)	X axis	mm (in)	800 (31.5)
Tool diameter ≤ 200 mm (7.87 in)	X axis	mm	+500/–400
(asymmetrical range of traverse)		(in)	(+19.7/-15.7)
	Y axis	mm (in)	710 (27.9)
	Z axis	mm (in)	710 (27.9)
	B axis	deg	360

Tool mounts

Standard		
Tool shanks, steep taper	ST 50	DIN 69871 Form A, AD
Draw-in pins	ST 50	DIN 69872 Form A
Coolant supply through tool (option)		
Standard:		
Tool shanks, steep taper	ST 50	DIN 69871 Form AD
Draw-in pins	ST 50	DIN 69872 Form A
Option:		
Tool shanks, steep taper	ST 50	DIN 69871 Form B
Draw-in pins	ST 50	DIN 69872 Form B
Tool shanks, steep taper	HST 100*	DIN 69893 Form A
Options		
Conversion kit – collet for draw-in pins (ANSI)	ST 50	ISO 7388/2 Type B
Conversion kit – collet for draw-in pins	Size 50	ASME B 5.50-1994
Tool shanks	HST 100	DIN 69893 Form A
Tool shanks	BT 50	JIS B 6339
Draw-in pins	BT 50	JIS B 6339

! Steep-taper tool shanks and draw-in pins must be provided with a central through bore.
When the option "Lubricoolant supply through tool via collar of tool shank" is used, the through bore of the draw-in pin ISO 7388/2 Type B must be closed.

Draw-in force	ST 50	N	25,000
		(lbf)	(11,250)
	HST 100*	N	45,000
		(lbf)	(10,125)

Non-metric values are approximations.

* HST = hollow-shank steep taper

Permissible tools

Only tools which meet the following requirement may be used on the machine:

- They must be firmly mounted and be in perfect condition.
- They must fit the spindle taper and the clamping system.
- They must be adequately dimensioned for the intended speed of rotation and cutting force (as specified by manufacturer) and properly balanced.
- The tool diameter and the spindle speed must be such that the retaining capacity of the inspection windows on the door to the working area is not exceeded (see Chapter "Maintenance, lubrication" under the heading "Inspection windows").

Caution: The use of tools of larger diameter or at higher speeds is dangerous and may lead to accidents.

Balancing quality G as per DIN ISO 1940	G	6.3

For spindle speeds higher than 8,000 rpm the use of rotationally symmetrical and balanced cutting tools is mandatory.

Technical data

Tool magazine

Fixed position coding
Variable position coding (VPC)

Carrousel magazine
Chain magazine
Dual chain magazine (within one chain)

Fixed position coding required for super-size and special tools

Number of tools	Carrousel magazine			40
	Chain magazine			62/90
	Dual chain magazine			124/180
Tool diameter				
Standard tools		Ø max.mm (in)		120 (4.72)
Special tools		Ø max.mm (in)		200 (7.87)
(if neighbouring positions are vacant)				
Trepanning tools	see collision diagram			
Tool length (from spindle nose)		max.	mm (in)	450 (17.71)
Tool weight				
Carrousel magazine		max.	kg (lb)	25 (55)
Chain/dual chain magazine	at normal tool change speed	max.	kg (lb)	5.5 (12.1)
Chain/dual chain magazine	at reduced tool change speed	max.	kg (lb)	25 (55)
Magazine load	40 tools	max.	kg (lb)	400 (881)
	62/90 tools	max.	kg	700/1,000
			(lb)	(1,543/2,204)
	124/180 tools	max.	kg	1,400/1,800
			(lb)	(3,086/3,968)

Tool changer

Carrousel magazine: horizontal, tools picked up by spindle

Chain magazine: horizontal, dual gripper

Non-metric values are approximations.

Technical data

Shipment data	Shipment weight (approx.) including panelling, splashguard enclosure, pallet changer		kg (lb)	12,500 (27,500)
	Shipping dimensions (approx.)			
	Machine with control console tilted back, Y-axis feed motor removed, carousel magazine chain/dual chain magazine and control cabinet removed	LxWxH	m (ft/in)	5.2 x 2.4 x 2.7 (17/1x7/10x8/10)
	Transport pallet	LxWxH	m (ft/in)	5.8 x 2.4 x 0.3 (17/1x7/10x1/0)
	Machine on pallet	H	m (ft/in)	3.0 (9/7)
	Shipment crate	LxWxH	m (ft/in)	6.0 x 2.7 x 3.4 (19/2x7/12x9/8)
	Required width of door	WxH	m (ft/in)	2.8 x 3.1 (7/12x9/7)
Installation data	Connected load (power input)			
	Rated power input		kVA	80
	Rated current		A	120
	Back-up fuse (slow)		A	3 x 160
	Operating voltage		V	400
	Frequency		Hz	50
	System fault level	min.	kW	5,600
	Compressed-air supply		bar (psig)	6 (75)
	Required system capacity (peak value, only required for short periods)		Nm^3/h (cu ft/h)	82 (3,090)
	Room temperature (as per EN 60204-1)		°C (°F)	+ 5 to + 40 (+ 41 to +104)
	Mean temperature in 24 h		°C (°F)	+ 35 (+ 95)
	Relative humidity		%	30 to 95
	Noise emission (L_{pA}) (as per DIN 45635-16-Class 2)		dB	≤ 75

Non-metric values are approximations.

Technical data

Overall height of machine	with carousel magazine	H	m (ft/in)	3.1 (10/2)
	with chain magazine	H	m (ft/in)	3.2 (10/6)
	with dual chain magazine	H	m (ft/in)	3.4 (11/2)
Floor space required	with carrousel magazine	L x W	m	5.7 x 5.9
			(ft/in)	(18/9 x 19/9)
	with chain magazine	L x W	m	6.0 x 6.5
			(ft/in)	(19/9 x 20/9)
	with dual chain magazine	L x W	m	6.0 x 7.6
			(ft/in)	(19/9 x 28/9)

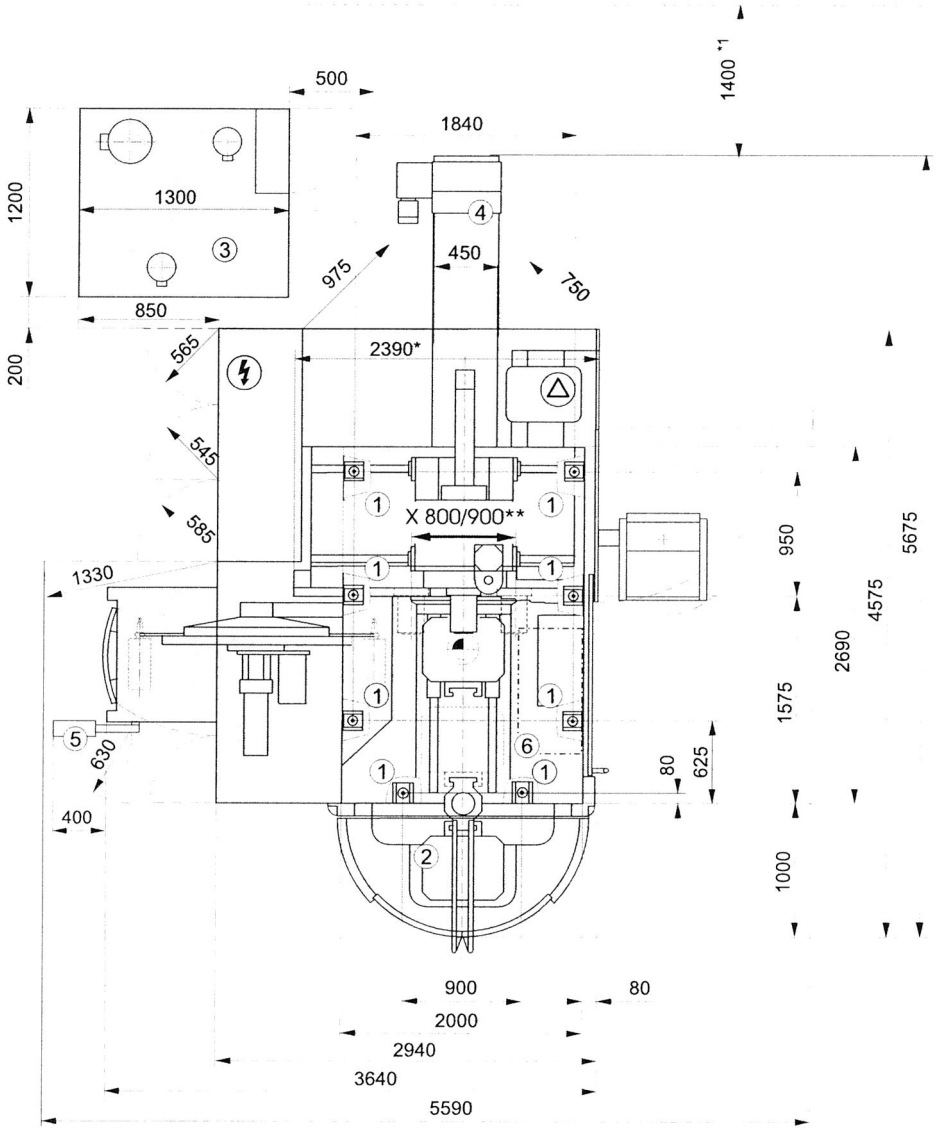
! Be sure to provide for adequate escape routes and safety areas in compliance with applicable legislation, standards, rules and regulations.

Machine weight			
with carrousel magazine (approx.)		kg (lb)	15,300 (33,730)
with chain/dual chain magazine (approx.)		kg	20,300/16,800
including panelling, control cabinet, splashguard enclosure, pallet changer, swarf conveyor, lubricoolant unit		(lb)	(44,753/37,037)
Installation weight (approx.)			
with carrousel magazine	max.	kg (lb)	17,300 (38,9139)
with chain/dual chain magazine		kg	23,900/19,400
including machine weight plus max. weight of workpiece, tool, oil and lubricoolants		(lb)	(52,689/42,769)
Load at machine base	max.	kg (lb)	16,200 (35,714

Support elements (BW fixators)	Number x model	Mfr Bertuch	8 x RkII-f-p-wes
Support elements for chain magazine	Number x model	7 x anchor bolt	M16 x 380 DIN 529
Support elements for dual chain magazine	Number x model	4 x grout-in anchor	0450-149551
		4 x bolt	M16x170 DIN 931
		4 x steel plate	200x100x15
		4 x levelling screw	M42x1.5

Non-metric values are approximations.

Installation diagram with carrousel magazine



① Support points, machine
② Pallet changer
③ High-pressure lubricoolant unit
④ Swarf conveyor
⑤ Supplementary control panel on tool magazine (option)
⑥ Oil mist separator (option)

Dimensions in mm

Power connecting point

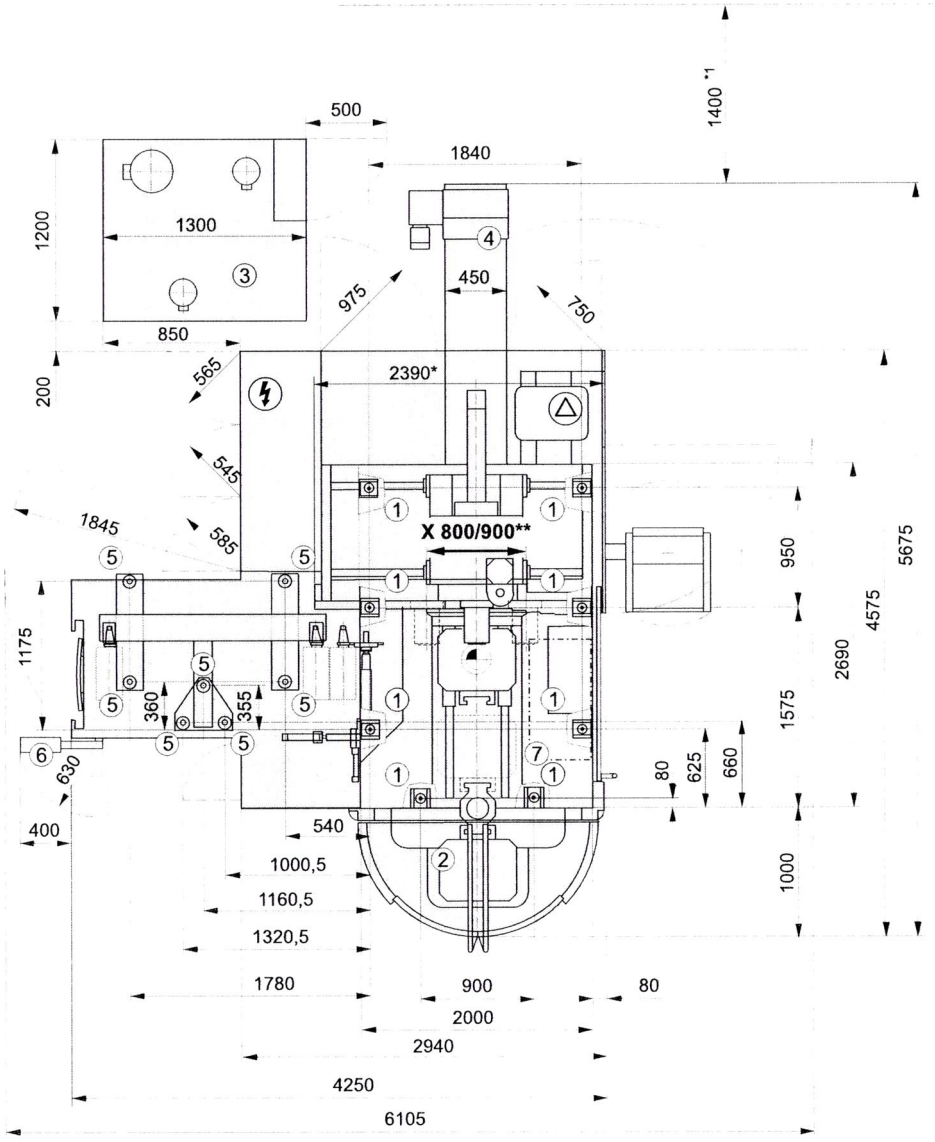
Compressed-air connecting point

* Shipping width of machine

** Asymmetrical range of traverse X +500 mm (19.7 in)/Y –400 mm (15.7 in) at max. tool diameter of 200 mm (7.9 in)

*1 = Min. distance from wall for assembly and removal of swarf conveyor

Installation diagram with chain magazine



Dimensions in mm

① Support points, machine
② Pallet changer
③ High-pressure lubricoolant unit
④ Swarf conveyor
⑤ Support points, chain magazine
⑥ Supplementary control panel on tool magazine (option)
⑦ Oil mist separator (option)

Power connecting point

Compressed-air connecting point

* Shipping width of machine
** Asymmetrical range of traverse X +500 mm (19.7 in)/Y –400 mm (15.7 in) at max. tool diameter of 200 mm (7.9 in)
*1 = Min. distance from wall for assembly and removal of swarf conveyor