03 Technical data . C 650



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Traverse Y axis 900 mm Traverse Y axis 900 mm Traverse Z axis 600 mm Rapid linear traverses Z axis 600 mm Rapid linear traverses X-Y-Z 35 - 35 - 35 m/min Linear acceleration X-Y-Z 6 m/s² Linear feed force X-Y-Z 7000 N Max. vertical table clearance 775 mm Max. vertical table clearance 9.900 mm Max. vertical table clearance 775 mm Max. vertical table clearance 9.900 mm Max. table clearance 9.000 mm Max. vertical table 10.000 mm Max. vertical table 9.000 mm Max. ve					
Traverse Z axis 600 mm Rapid Innear traverses X-Y-Z 35 - 35 - 35 m /min Linear acceleration X-Y-Z 6 m/s² Linear feed force X-Y-Z 7000 N Max. vertical table clearance 775 mm Max. workpiece diameter 0 900 mm Max. workpiece diameter 0 900 mm Max. workpiece beight 600 mm Collision circle (A axis) in 0° position 0 1100 mm Main spindle drive Speed 15000 pm SK 40 0 / HSK A63 0 Main power/Torque 20% c.d.f. 42 kW / 148 Nm Speed 18000 pm HSK A63 0 Main power/Torque 20% c.d.f. 42 kW / 148 Nm Speed 18000 pm HSK A63 0 Main power/Torque 20% c.d.f. 42 kW / 148 Nm Tool changer (pick-up) Magazine pockets 20% c.d.f. 42 kW / 148 Nm Control unit Heidenhain TNC 640 ● Tool changer (pick-up) Magazine pockets 42 items	Working area	Traverse	X axis	1050 mm	
Rapid linear traverses X-Y-Z 35-35-35 m/min Linear acceleration X-Y-Z 6 m/s² Linear feed force X-Y-Z 7000 N Max. vertical table clearance 775 mm Max. workpiece diameter 0,900 mm Max. workpiece diameter 0,900 mm Max. workpiece height 600 mm Collision circle (A axis) in 0° position 0,1100 mm Main spindle drive Speed 15000 rpm SK 40 ○ / HSK A 63 ● Main power/Torque 20% c.d.f. 42 kW / 148 km Speed 18000 rpm HSK A 63 ● Main power/Torque 20% c.d.f. 42 kW / 148 km Control unit Heidenhain TNC 640 ● Tool changer (pick-up) Magazine pockets 42 items ● Chip-to-chip time approx. 6 s Maximum tool length 350 mm Max. tool diameter 0,800 rm Max. magazine load 1800 rm Max. magazine load 1800 rm Max. magazine load 1808 rm Max. magazine load 20% c.d.f. 42 kW / 148 km Extension of tool storage Additional tool magazine ZM 50 additional 50 pockets 0 Additional tool magazine ZM 88 k additional 88 pockets 0 Additional tool magazine ZM 88 k additional 88 pockets 0 Additional tool magazine ZM 88 k additional 88 pockets 0 Additional tool magazine ZM 88 k additional 88 pockets 0 Additional tool magazine ZM 88 k additional 88 pockets 0 Additional tool magazine ZM 88 k additional 80 pockets 0 Additional tool magazine ZM 88 k additional 88 pockets 0 Additional 400 magazine ZM 88 k additional 89 pockets 0 Additional 400 magazine ZM 88 k additional 89 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 magazine ZM 88 k additional 80 pockets 0 Additional 400 maga		Traverse	Y axis	900 mm	
Linear acceleration X.Y-Z 6 m/s² Linear feed force XY-Z 7000 N Max. vertical table clearance 775 mm Max. workpiece diameter 0 900 mm Max. workpiece height 6000 mm Collision circle (A axis) in 0° position 0 1100 mm Main spindle drive Speed 15000 rpm SK 40 ○ / HSKA 63 ● Main power/Torque 20% c.d.f. 42 kW / 148 Nm Speed 18000 rpm HSKA 63 ○ Main power/Torque 20% c.d.f. 42 kW / 148 Nm Fored 18000 rpm HSKA 63 ○ Main power/Torque 20% c.d.f. 42 kW / 148 Nm Control unil Heidenhain TNC 640 ● Tool changer (pick-up) Magazine pockets 42 items ● Chip-to-chip time approx. 6 s Maximum tool length 350 mm Max. tool diameter 0 168 kg Extension of lool storage capacily Additional tool magazine load 168 kg Extension of lool storage Additional tool magazine Load additional 50 pockets ○ Additional tool magazine ZM 50 additional 50 pockets ○ Additional tool magazine ZM 58 k additional 68 pockets ○ Additional tool magazine ZM 88 k additional 68 pockets ○ Additional tool magazine Docket allocation in additional tool magazine 0 125 mm Max. tool weight 8 kg Chip drawer Removable chip drawer ● Chip conveyor Scraper belt or hinged belt conveyor 50 capacity of standard tank 1100 lwith 80 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 570 l with 40 bar Pressure (manually adjustable up to)		Traverse	Z axis	600 mm	
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Max. vertical table clearance 775 mm Max. workpiece diameter 0 900 mm Max. workpiece height 600 mm Collision circle (A axis) in 0° position 0 1100 mm Main spindle drive Speed 15000 rpm SK 40 ○ / HSK A 63 ● Main power/Torque 20% c.d.f. 42 kW / 148 Nm Speed 18000 rpm HSK A 63 ○ Main power/Torque 20% c.d.f. 42 kW / 148 Nm Control unili Heidenhain TNC 640 ● Tool changer (pick-up) Magazine pockets 20% c.d.f. 42 kW / 148 Nm Chiptochip time approx. 6 5 Maximum tool length 3550 mm Max. tool diameter 0 880 mm with corresponding adjacent pocket allocation 0 125 mm Max. magazine load 168 kg Extension of tool storage capacity Additional tool magazine 2M 80 mm with corresponding adjacent pocket allocation in additional tool magazine 0 125 mm Max. tool diameter 0 800 mm Max. tool diameter 0 800 mm Max. tool diameter 0 168 kg Chip drawer Removable chip drawer 0 125 mm Max. tool weight 8 kg Chip conveyor Scraper belt or hinged belt conveyor 0 125 mm Max. tool weight 1 8 kg Chip conveyor Scraper belt or hinged belt conveyor 0 125 mm Max. tool weight 1 100 livith 80 bar / 570 livith 40 bar Pressure (manually adjustable up to) max. 40 bar / 277 livith 40 bar Pressure (manually adjustable up to) max. 40 bar / 277 livith 40 bar Pressure (manually adjustable up to) max. 40 bar / 277 livin 0		Linear acceleration	X-Y-Z	6 m/s²	
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Main spindle drive Speed Main power/Torque 15000 rpm 20% c.d.f. 42 kW / 148 Nm Speed Main power/Torque 18000 rpm 20% c.d.f. 42 kW / 148 Nm Control unit Heidenhain TNC 640 Tool changer (pick-up) Magazine pockets 42 items Chip-to-chip time approx. 6 s Maximum tool length 350 mm Max. tool diameter with corresponding adjacent pocket allocation 0 125 mm Max. magazine load 168 kg Extension of tool storage capacity Additional tool magazine ZM 88 k additional 50 pockets of Additional 40 magazine ZM 88 k Additional tool magazine ZM 88 k additional 88 pockets of Additional 40 magazine with corresponding adjacent pocket allocation in additional tool magazine of 125 mm 0 80 mm Max. tool weight 8 kg Chip drawer Scraper belt or hinged belt conveyor Ejection height Chip cart at least 940 mm Chip conveyor Scraper belt or hinged belt conveyor Ejection height Chip cart at least 940 mm Linternal cooling lubricant supply with paper band filter Capacity of cooling lubricant tank 1100 l with 80 bar / 570 l with 40 bar Pressure (manually adjustable up to) max. 40 bar / 27 l/min		Max. workpiece height		600 mm	
Main power/Torque 20% c.d.f. 42 kW / 148 Nm Speed 18000 rpm HSK A 63 ○ Main power/Torque 20% c.d.f. 42 kW / 148 Nm Control unit Heidenhain TNC 640 ● Tool changer (pick-up) Magazine pockets 42 items ● Chip-to-chip time approx. 6 s Maximum tool length 350 mm Max. tool diameter 0 80 mm with corresponding adjacent pocket allocation 0 125 mm Max. magazine load 168 kg Extension of tool storage Capacity Additional tool magazine ZM 88 k additional 50 pockets ○ Additional tool magazine ZM 88 k additional 88 pockets ○ Max. tool diameter 0 80 mm with corresponding adjacent pocket allocation in additional tool magazine 0 125 mm Max. tool weight 8 kg Chip drawer Chip conveyor at least 940 mm Ejection height at least 940 mm Chip cart 450 l ○ Internal cooling lubricant supply wilth paper band filter Capacity of cooling lubricant tank 1100 l with 80 bar / 570 l with 40		Collision circle (A axis) in 0° position		Ø 1100 mm	
Main power/Torque 20% c.d.f. 42 kW / 148 Nm	Main spindle drive	•			
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Chip-to-chip time approx. 6 s Maximum tool length 350 mm Max. tool diameter with corresponding adjacent pocket allocation 0 125 mm Max. magazine load 168 kg Extension of tool storage capacity Additional tool magazine ZM 50 additional 50 pockets Additional tool magazine ZM 88 k additional 88 pockets Max. tool diameter with corresponding adjacent pocket allocation in additional tool magazine Max. tool weight 8 kg Chip drawer Removable chip drawer	Control unit	Heidenhain		TNC 640	•
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Max. tool diameter with corresponding adjacent pocket allocation Max. magazine load Additional tool magazine ZM 50 Additional tool magazine ZM 88 k Additional SM pockets O A		Chip-to-chip time		approx. 6 s	
with corresponding adjacent pocket allocation Max. magazine load Additional tool magazine ZM 50 Additional tool magazine ZM 88 k Additional tool magazine ZM 50 extensional tool magazine ZM 50 extension		Maximum tool length		350 mm	
Additional tool magazine ZM 50 additional 50 pockets Additional tool magazine ZM 88 k additional 88 pockets Max. tool diameter			ocation		
Additional tool magazine ZM 88 k Max. tool diameter with corresponding adjacent pocket allocation in additional tool magazine Max. tool weight Removable chip drawer Chip conveyor Scraper belt or hinged belt conveyor Ejection height Chip cart Capacity of standard tank Capacity of cooling lubricant tank Pressure (manually adjustable up to) Additional tool magazine 0 80 mm 0 125 mm 8 kg Chip drawer Chip conveyor Ejection height at least 940 mm 450 I Capacity of cooling lubricant tank 1100 I with 80 bar / 570 I with 40 bar		Max. magazine load		168 kg	
Max. tool diameter with corresponding adjacent pocket allocation in additional tool magazine Max. tool weight Removable chip drawer Chip drawer Scraper belt or hinged belt conveyor Ejection height Chip cart Capacity of standard tank Capacity of cooling lubricant supply with paper band filter Capacity of cooling lubricant tank Pressure (manually adjustable up to) Max. tool diameter 0 80 mm 0 125 mm at least 940 mm 450 l Capacity of cooling lubricant tank 375 l Tapacity of cooling lubricant tank 1100 l with 80 bar / 570 l with 40 bar	Extension of tool storage	Additional tool magazine ZM 50		additional 50 pockets	0
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Chip conveyor Scraper belt or hinged belt conveyor Ejection height Chip cart Chip cart Capacity of standard tank Capacity of cooling lubricant tank Capacity of cooling lubricant tank Pressure (manually adjustable up to) Scraper belt or hinged belt conveyor at least 940 mm 450 I O Thernal cooling lubricant supply With paper band filter Capacity of cooling lubricant tank 1100 I with 80 bar / 570 I with 40 bar		Max. tool weight		8 kg	
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Chip cart Chip cart 450 ○	Chip conveyor			at least Q40 mm	0
with paper band filterCapacity of cooling lubricant tank1100 I with 80 bar / 570 I with 40 barPressure (manually adjustable up to)max. 40 bar / 27 I/min					0
with paper band filterCapacity of cooling lubricant tank1100 I with 80 bar / 570 I with 40 barPressure (manually adjustable up to)max. 40 bar / 27 I/min O		Capacity of standard tank		375	•
		Capacity of cooling lubricant tank 1100 l with 80		0 bar / 570 I with 40 bar	
					0

Table variants	Swivelling rotary table	Ø 900 x 750	Rigid clamping table
	Clamping surface	Ø 900 x 750 mm	1250 x 982 mm
	Swivelling range	+ / -115°	-
	C axis drive mode	Worm	-
	Swivelling axis A speed: Tandem drive	25 rpm	-
	Speed rotary axis C:	25 rpm	-
	Max. table load	- 1500 kg	3000 kg
	T grooves parallel	7 / 18 H7	9 / 18 H7
Positional uncertainty	P in X-Y-Z axes according to VDI/DGQ 3441		0.008 mm
	(calculated at a constant ambient temperature Our products are subject to the German Exporauthorization since the attainable precision mathan 6 μ m.)		
Hydraulics	Operating pressure		120 bar ●
Central lubrication	Minimum grease lubrication quantity		•
Connected loads (machine)	Mains connection		400 V / 50 Hz
	Power consumption		max. 50 kVA
	Compressed air		6 bar
Weight	(standard version without optional extras, atta pieces and cooling lubricant)	achments, work-	approx. 15,0 t

[●] Included in standard delivery ○ Available upon request