KELLENBERGER H4000 TECHNOLOGY TO MEASURE

H4000

C KELLENBERGER



KELLENBERGER H4000 Options and accessories



MACHINE

Robust, distortion-resistant module
Consequent lay-out with regard to thermal stability

GUIDEWAYS / MEASURING

SYSTEMS / AXES DRIVES

measuring technique

Sliding guideways wherever required

• Linear guideways wherever possible

Absolutely smooth stroke reversal
Measuring systems optimally positioned with regard to the

Axes drives in the centre of friction







ATC AUTOMATIC TOOL CHANGER

ATC automatic tool changer with 12 magazine positions, permitting automatic machining with grinding wheels from \emptyset 3 mm to \emptyset 50 mm (alternatively with grinding wheels from \emptyset 0,3 mm to \emptyset 5 mm).

GRINDING MOTOR

Grinding motor 70S ATC with its extremely wide range of application, from 9'000 min⁻¹ to 65'000 min⁻¹. This grinding motor, and its stateof-the-art design is an absolute must for getting optimal use out of the grinding tool changer.

CBN DRESSING UNIT

CBN dressing unit with HF drive, for conditioning (dressing) vitrified and resinoid bond CBN grinding wheels.

• Scrap • Oil p system ATC = ATC = 12 ma auton whee

GUIDEWAYS

Scraped sliding guideways in X and Y axisOil pressurized guideway- lubricating

system, to avoid stick-slip effect ATC automatic tool changer ATC automatic tool changer with 12 magazine positions, permitting automatic machining with grinding wheels from \emptyset 3 mm to \emptyset 50 mm (alternatively with grinding wheels from \emptyset 0,3 mm to \emptyset 5 mm).



MSS

MSS – multi-sensor-system for automatic suppression of "air grinding" and for automatic grinding wheel calibration.

MEASURING PROBE Measuring probe for the automatic best fit of work-pieces.



CONTROL SYSTEM

If you appreciate user friendly menuprogramming and insist on the advantages of ISO/DIN programming, then the HAUSER product will be the right choice.

As standard, the X,Y, C, U, Z and W axes are CNC controlled. Based on the FANUC 30i-B with integrated PC, we have created HAUSER SOFTWARE CYCLES, ensuring that the control will perfectly cover all the special requirements of jig grinding.





ROTARY AND ROTARY TILTING AXES A- and A-B axes in customized version are available as additional units.

TECHNICAL SPECIFICATIONS

Work rangeRange of adjustment X, Ymm1'300×800Vertical adjustment Of grinding head (W)mm6.35Clearance between table surface and U-axis carrier plate for grinding motormmmmClearance between upright columnsmmmmDiameter ground in planetary mode, with grinding wheel 0.50 mm/70H5:mmmm' grinding motor 70H5 in U-axis center position, automatic grinding modemmmmax. 144' grinding motor 70H5 with extension plates, semi-automatic modemmmm axa. 260Diameter ground in planetary mode, with grinding wheel 0.100 mm/40H5:mmmaxa. 264' grinding motor 40H5 with extension plates, semi-automatic modemmmaxa. 264Taper grinding, included angle (divergent and convergent)degreemax. 120Taper grinding, included angle (divergent and convergent)mm1440 × 860Taper grinding, included angle (divergent and convergent)mm1440 × 860Taper grinding and CAmm1440 × 860Permissible table loadkgmax. 800 (1500)Feedmm/min0 - 2'000' Traversing speedmm/min0 - 2'000' fraversing speedmm/min4'000 - 4'0'000' for electric grinding motor 70H5, infinitely adjustable & programmablemin'9'0'00 - 6'5'00' of electric grinding motor 70H5, infinitely adjustable & programmablemin'9'0'00 - 6'5'00' of electric grinding motor 70H5, infinitely adjustable & programmablemin'9'0'00 - 6'5'00' of electric grinding motor 70H5, infinitely adjustabl	Machine type	Unit	
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Grinding spindle Z, C, Umm125Diameter of the spindle sleevemm125Basic machine is prepared for use of the following grinding spindle speeds:min ⁻¹ 4'000 - 40'000• for electric grinding motor 40HS, infinitely adjustable & programmablemin ⁻¹ 4'000 - 40'000• for electric grinding motor 70HS, infinitely adjustable & programmablemin ⁻¹ 9'000 - 65'000• System to allow use of grinding turbine T15min ⁻¹ 0p'000 - 65'000• System to allow use of grinding turbine T15min ⁻¹ 9'000 - 65'000• Planetary mode:min ⁻¹ 5 - 350• C-axis follow-up mode, AC servo drivemin ⁻¹ 9 - 350• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:mm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8• Z-stroke frequencyHzmax. 8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmmmfrom -3 up to +47Accuracymm0,0025mm0,0025	• Traversing speed	mm/min	4'000
Diameter of the spindle sleevemm125Basic machine is prepared for use of the following grinding spindle speeds:ininininFor electric grinding motor 40HS, infinitely adjustable & programmablemin ⁻¹ 4'000 - 40'000• for electric grinding motor 70HS, infinitely adjustable & programmablemin ⁻¹ 9'000 - 65'000• System to allow use of grinding turbine T15min ⁻¹ up to 150'000C-axis planetary mode:min ⁻¹ 0p to 150'000· C-axis follow-up mode, AC servo drivemin ⁻¹ 5 - 350· C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:mm/minVmin. 0,500· Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500· Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000· Z-stroke frequencyHzmax. 8· Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmmmAccuracymm0,0025	Grinding spindle Z, C, U		
Basic machine is prepared for use of the following grinding spindle speeds:Image: constant of the following grinding spindle speeds:• for electric grinding motor 40HS, infinitely adjustable & programmablemin-14'000 – 40'000• for electric grinding motor 70HS, infinitely adjustable & programmablemin-19'000 – 65'000• System to allow use of grinding turbine T15min-1up to 150'000C-axis planetary mode:min-15 – 350• C-axis follow-up mode, AC servo drivemin-15 – 350• C-axis follow-up mode, AC servo drivemin-1up to 10Z-axis in alternating stroke mode:mm/minVmin.0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmin.0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax.22'000• Z-stroke frequencyHzmax.8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmmmAccuracymm0,0025	Diameter of the spindle sleeve	mm	125
• for electric grinding motor 40HS, infinitely adjustable & programmablemin ⁻¹ 4'000 - 40'000• for electric grinding motor 70HS, infinitely adjustable & programmablemin ⁻¹ 9'000 - 65'000• System to allow use of grinding turbine T15min ⁻¹ up to 150'000C-axis planetary mode:min ⁻¹ 5 - 350• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:min ⁻¹ up to 10Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8· Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmmm0,0025	Basic machine is prepared for use of the following grinding spindle speeds:		
• for electric grinding motor 70HS, infinitely adjustable & programmablemin ⁻¹ 9'000 - 65'000• System to allow use of grinding turbine T15min ⁻¹ up to 150'000C-axis planetary mode:min ⁻¹ 5 - 350• Planetary mode, infinitely adjustable and programmablemin ⁻¹ 5 - 350• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:mm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyPositional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	 for electric grinding motor 40HS, infinitely adjustable & programmable 	min ⁻¹	4'000 – 40'000
• System to allow use of grinding turbine T15min ⁻¹ up to 150'000C-axis planetary mode:min ⁻¹ 5 - 350• Planetary mode, infinitely adjustable and programmablemin ⁻¹ 0 up to 10• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:min ⁻¹ up to 10• Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyPositional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	 for electric grinding motor 70HS, infinitely adjustable & programmable 	min ⁻¹	9'000 – 65'000
C-axis planetary mode:• Planetary mode, infinitely adjustable and programmablemin ⁻¹ 5 - 350• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:• Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47Accuracymm0,0025	 System to allow use of grinding turbine T15 	min ⁻¹	up to 150'000
• Planetary mode, infinitely adjustable and programmablemin ⁻¹ 5 - 350• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:• Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47Accuracy0,0025	C-axis planetary mode:		
• C-axis follow-up mode, AC servo drivemin ⁻¹ up to 10Z-axis in alternating stroke mode:ImmImm• Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500• Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000• Z-stroke frequencyHzmax. 8• Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyVoite axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	 Planetary mode, infinitely adjustable and programmable 	min ⁻¹	5 – 350
Z-axis in alternating stroke mode:Image: mode in the image: mode	• C-axis follow-up mode, AC servo drive	min ⁻¹	up to 10
· Z-alternating stroke movement, infinitely adjustablemm/minVmin. 0,500· Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000· Z-stroke frequencyHzmax. 8· Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyPositional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	Z-axis in alternating stroke mode:		
· Z-alternating stroke movement, infinitely adjustablemm/minVmax. 22'000· Z-stroke frequencyHzmax. 8· Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyPositional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	 Z-alternating stroke movement, infinitely adjustable 	mm/min	Vmin. 0,500
· Z-stroke frequencyHzmax. 8· Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyPositional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	 Z-alternating stroke movement, infinitely adjustable 	mm/min	Vmax. 22'000
· Z-stroke length, infinitely adjustablemm0,1 up to 170U-axis radial travel capacity (in CNC-mode)mmfrom -3 up to +47AccuracyPositional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441mm0,0025	• Z-stroke frequency	Hz	max. 8
U-axis radial travel capacity (in CNC-mode) mm from -3 up to +47 Accuracy Positional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441 mm 0,0025	• Z-stroke length, infinitely adjustable	mm	0,1 up to 170
Accuracy Positional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441 mm 0,0025	U-axis radial travel capacity (in CNC-mode)	mm	from -3 up to +47
Positional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441 mm 0,0025	Accuracy		
	Positional uncertainty of the axes X, Y and W, corresponding to VDI/DGQ 3441	mm	0,0025

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