

Engine lathe C-Turn



The machine is equipped with a digital 3-axis readout as standard



Available with stepless spindle speed & Constant Surface Speed (CSS) feature up to 3100 rpm

Technical Datasheet



Each machine is subject to comprehensive accuracy inspection prior to shipping.

- Guideways are hardened and precision-grounded
- Exceptionally low noise
- Universal type gearbox allowing for cutting metric, Whitworth, module and diametral threads with no need to change gears
- The feed handwheel can be ordered (left or right) in accordance to the needs of the operator
- Rapid traverse lengthwise, as well as crosswise

KAAST lathes meets the highest quality standards

It is our aim to offer the best possible lathes to our customers. In order to fulfill this promise, we ourselves have set the very highest demands and apply strict quality control during the entire manufacturing process. Before delivery, each machine is subjected to intensive inspections and tests with regard to accuracy, performance, and reliability.

C-Turn 230, 270

Standard configuration:

- ✓ 3-axis digital readout
- ✓ 3-jaw chuck
- ✓ Micrometer stopper
- ✓ Coolant supply system
- ✓ Footbrake
- ✓ Backsplash guard
- ✓ Halogen light
- ✓ Toolholder shield
- ✓ Lead screw guard housing
- ✓ Chuck guard
- ✓ Foundation screws and machine feet
- ✓ Auxiliary service tools
- ✓ Operation manual

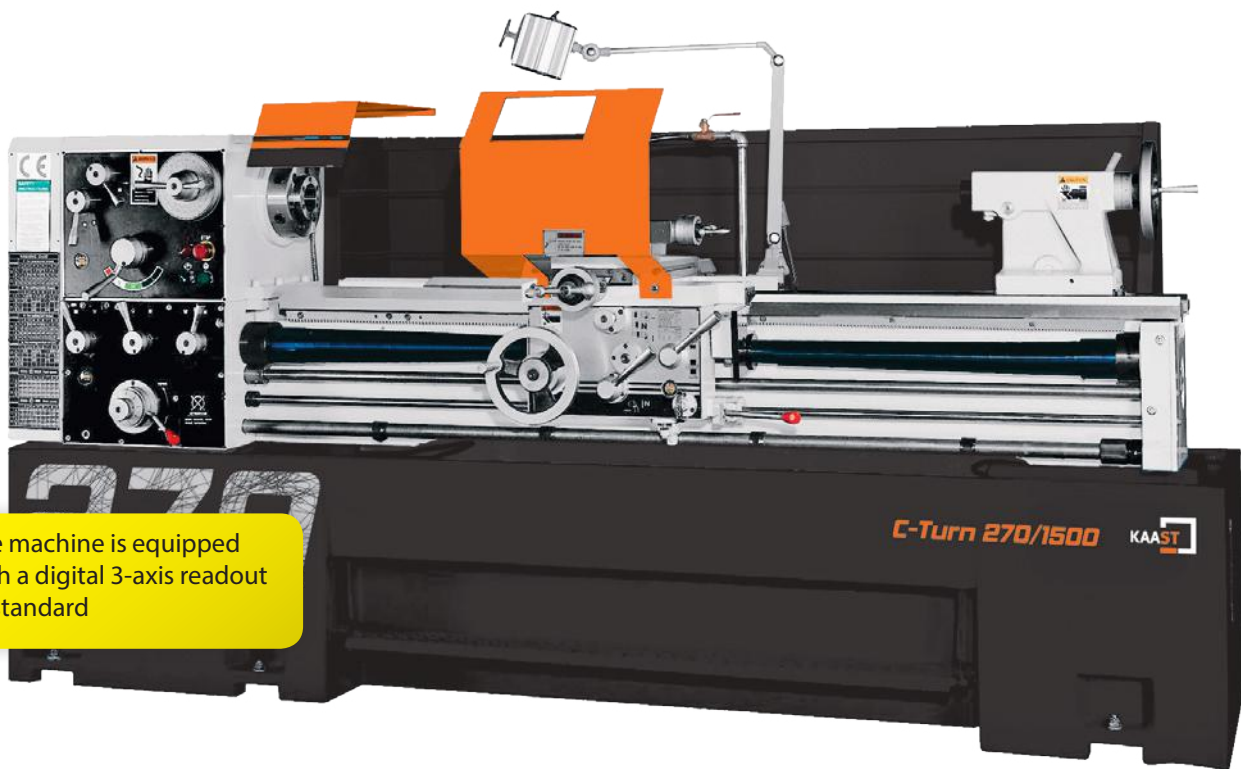
Optional configuration:

- Spindle bore up to Ø 105 mm (14") (C-Turn 270)
- 3-jaw chuck various Ø
- 4-jaw chuck various Ø
- 5C collets clamping chuck (manual)
- Face plate various Ø
- Revolving bezel
- Taper turning Lineal
- Live centers
- Steady & follow rest various Ø
- Quick change tool-holder system
- 5-pos. travel stopper
- Infinitely variable speed control incl. constant cutting speed CCS
- Rapid feed in X,Z-axis

Technical specifications	C-Turn 230			C-Turn 270			
	1000	1500	2000	1000	1500	2000	3000
Center height	230 mm (9")			270 mm (11")			
Swing over bed	Ø 460 mm (17.9")			Ø 540 mm (21")			
Swing over gap	Ø 640 mm (25")			Ø 680 mm (26.5")			
Swing over carriage	Ø 290 mm (11")			Ø 360 mm (14")			
Center-to-center distance	1000 mm (39")	1500 mm (58.5")	2000 mm (78")	1000 mm (39")	1500 mm (58.5")	2000 mm (78")	3000 mm (117")
Spindle nose	D1-6			D1-8 (Option: A2-11)			
Spindle bore	Ø 56 mm (2.1")			Ø 85 mm (3.3") (Option: Ø 105 mm (4"))			
Spindle speed range 18 steps:	(18) 39-2800 rpm			25-1545 rpm		23-1293 rpm	
Machine bed width	350 mm (13.5")			350 mm (13.5")			
Toolholder dimensions	20x20; L 110 mm (0.75x0.75" / 4.2")			25x25; L 125 mm (1x1" ; 4.8")			
X-axis travel	280 mm (11")			330 mm (12.8")			
Toolholder travel Z ₁	130 mm (5")			150 mm (5.8")			
Whitworth	(36) 4-56 TPI			(36) 4-56 TPI			
Metric	(24) 0.5-7 mm			(24) 0.5-7 mm (0.02-0.27")			
Diametral	(36) 8-112 D.P.			(36) 8-112 DP			
Module	(16) 0.25-3.5 M.P.			(16) 0.25-3.5 M.P.			
Feeds:	Z	0.06-0.88 mm/rev (0.002-0.034"/rev)		0.06-0.88 mm/rev (0.002-0.034"/rev)			
	X	0.03-0.44 mm/rev (0.001-0.017"/rev)		0.03-0.44 mm/rev (0.001-0.017"/rev)			
Quill diameter	Ø 75 mm (2.9")			Ø 75 mm (2.9")			
Tailstock quill travel	170 mm (6.6")			170 mm (6.6")			
Quill taper	MT 5			MT 5			
Main spindle motor	5.5 kW (Option: 7.5 kW) (7.5 Hp Option: 10 Hp)			7.5 kW (Option: 11 kW) (10 Hp Option: 15 Hp)			
Coolant supply	0.1 kW (0.15 Hp)			0.1 kW (0.15 Hp)			
Weight net.	2000 kg (4,440 lbs)	2300 kg (5,060 lbs)	2600 kg (5,720 lbs)	2400 kg (5,280 lbs)	2700 kg (5,940 lbs)	3100 kg (6,820 lbs)	3200 kg (7,040 lbs)
Item-No.	1610075	1610076	1610077	1610081	1610082	1610083	1610084
Item-No. (V-Model)	1610078	1610079	1610080	1610085	1610086	1610087	1610088

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The machine is equipped with a digital 3-axis readout as standard

Technical specifications	C-Turn 315			
	1000	1500	2000	3000
Center height	315 mm (12")			
Swing over bed	Ø 630 mm (24")			
Swing over gap	Ø 770 mm (30")			
Swing over slide	Ø 450 mm (17.5")			
Center-to-center distance	1000 mm (39")	1500 mm (58.5")	2000 mm (78")	3000 mm (117")
Spindle nose	D1-8 (Option: A2-11)			
Spindle bore	Ø 85 mm (3.3") (Option: Ø 105 or Ø 153 mm (4" or 6"))			
Spindle speed range (steps):	18 Steps 25–1545 rpm	18 steps 23–1293 rpm	18 steps 15–840 rpm	
Machine bed width	350 mm (13.5")			
Toolholder dimensions	25x25; L 125 mm (1x1"; 4.8")			
X-axis travel	330 mm (12.8")			
Toolholder travel Z ₁	120 mm (4.7")			
Whitworth	(36) 4-56 TPI			
Metric	(24) 0.5-7 mm			
Diametral	(36) 8-112 D.P.			
Module	(16) 0.25-3.5 M.P.			
Feeds	Z	0.06-0.88 mm/rev (0.002-0.034"/rev)		
	X	0.03-0.44 mm/rev (0.001-0.017"/rev)		
Quill diameter	Ø 75 mm (2.9")			
Tailstock quill travel	170 mm (6.6")			
Quill taper	MT 5			
Main spindle motor	7.5 kW (10 Hp) (Option: 11 kW (15 Hp))			
Coolant supply	0.1 kW (0.15 Hp)			
Weight	2550 kg (5,610 lbs)	2850 kg (6,270 lbs)	3250 kg (7,150 lbs)	3550 kg (7,810 lbs)
Item No.	1610089	1610090	1610091	1610092
Item No. (V-Model)	1610093	1610094	1610095	1610096

C-Turn 315, 385, 420

Standard configuration:

- ✓ 3-axis digital readout
- ✓ Rapid feed in X, Z-axis
- ✓ Micrometer stopper
- ✓ Coolant supply system
- ✓ Footbrake
- ✓ Backsplash guard
- ✓ Halogen light
- ✓ Toolholder shield
- ✓ Lead screw guard housing
- ✓ Chuck guard
- ✓ Foundation screws and machine feet
- ✓ Auxiliary service tools
- ✓ Operation manual

Optional configuration:

- Spindle bore up to Ø 355 mm (14")
- 3-jaw chuck various Ø
- 4-jaw chuck various Ø
- 5C collets clamping chuck (manual)
- Face plate various Ø
- Revolving bezel
- Taper turning Lineal
- Live centers
- Steady & follow rest various Ø
- Quick change tool-holder system
- 5-pos. travel stopper
- Infinitely variable speed control incl.constant cutting speed CCS
- Extended motor power

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Technical specifications	C-Turn 385						C-Turn 420					
	1600	2100	3100	4100	5100	6100	1600	2100	3100	4100	5100	6100
Center height	385 mm (15")						420 mm (16")					
Max. turning diameter over bed	770 mm (30")						840 mm (33")					
Max. turning diameter over gap	980 mm (38")						1020 mm (40")					
Max. turning diameter over slide	500 mm (19")						570 mm (22")					
Center width	1600 mm (62")	2100 mm (82")	3100 mm (122")	4100 mm (161")	5100 mm (200")	6100 mm (240")	1600 mm (62")	2100 mm (82")	3100 mm (122")	4100 mm (161")	5100 mm (200")	6100 mm (240")
Spindle nose	A2-11 [options: A2-15 or A2-20]						A2-11 [9" bore: A2-15; 12" bore: A2-20]					
Spindle bore diameter	105 mm (4") [option: 155 mm (6")]						105 mm (4") [options: 155 mm (6"), 230 mm (9") or 305 mm (12")]					
Speeds 18 steps	23~1293 [option: 13~690]						23~1293 [6" bore: 13~690; 9" bore: 8~408]					
Speeds (inverter)	20~1500 [6" bore: 10~800]						20~1500 [6" bore: 10~800; 9" bore: 6~450; 12" bore: 5~350]					
Width of bed X-axis travel	450 mm (17")						450 mm (17")					
Toolholder travel Z ₁	250 mm (9.8")						250 mm (9.8")					
Threading inches	2-28 TPI						2-28 TPI					
Threading metric	0.08-14 mm/pitch (0.003-0.55")						0.08-14 mm/pitch (0.003-0.55")					
Threading diametral	4-56P						4-56 P					
Threading modul	0.5-7M						0.5-7 M					
Travels: Z	0.05-0.70 mm/rev. (0.002-0.03"/rev.)						0.05-0.70 mm/rev. (0.002-0.03"/rev.)					
Travels: X	0.025-0.35 mm/rev. (0.001-0.014"/rev.)						0.025-0.35 mm/rev. (0.001-0.014"/rev.)					
Tailstock quill diameter	105 mm (4")						105 mm (4")					
Quill travel	220 mm (8.6")						220 mm (8.6")					
Quill taper	MT 5						MT 5					
Main spindle motor	11 kW (15 Hp) [option: 15 kW (20 Hp)]						11 kW (15 Hp) [option: 15 kW (20 Hp)]					
Coolant supply motor	0.1 kW (0.1 Hp)						0.1 kW (0.1 Hp)					
Weight	3350kg (7370 lbs)	3600kg (7920 lbs)	4100kg (9020 lbs)	4600kg (10120 lbs)	5100kg (11220 lbs)	5700kg (12540 lbs)	3650 kg (8030 lbs)	3900 kg (8580 lbs)	4200 kg (9240 lbs)	4700 kg (10340 lbs)	5200 kg (11440 lbs)	5800 kg (12760 lbs)
Item-No.	1610136	1610137	1610138	1610139	1610170	1610171	1610131	1610132	1610133	1610134	1610135	1610172
Item-No. (V-Model)	1610300	1610301	1610302	1610303	1610304	1610305	1610306	1610307	1610308	1610309	1610310	1610311

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OPTIONAL EQUIPMENT



Steady Rest

- The steady rest is applied for supporting a long workpiece, to prevent the workpiece from springing or bending.
- Jaws are adjustable to hold the workpiece at correct position.



Follow rest

- The follow rest is mounted to the saddle and moves together with it.
- The function of the follow rest is to prevent a workpiece from springing away from the point of the cutting tool.



Face plate

- The face plate is applied to hold irregular shaped workpieces, which can not be clamped by a chuck.

Double chuck system

- The double chuck system is available for spindle bore over 4" in diameter.
- Open request, an additional chuck can be mounted at the rear end of the spindle.
- The double chuck system is used to clamp a long workpiece at two positions. That increases the stability of the workpiece.



3-Jaw scroll chuck

- The 3-jaws move in and out together to quickly hold a workpiece.
- Chuck diameter is dependent on lathe model

4-Jaw independent chuck

- The 4-jaw independent chuck is suitable for holding various irregular shaped workpieces.
- Each jaw as adjusted independently.
- The jaw can be reversed to grip the inside or outside of a workpiece.
- Chuck diameter is dependent on lathe model.

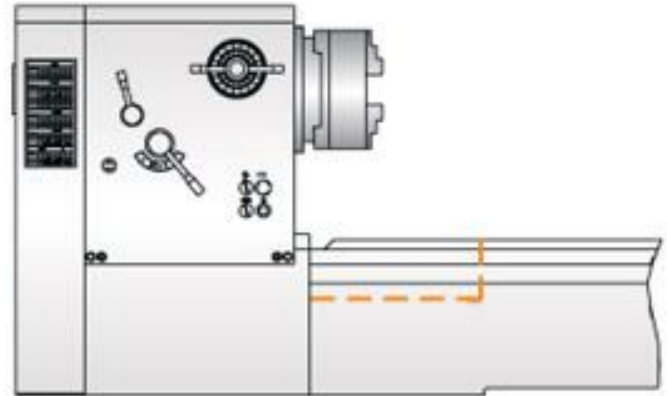


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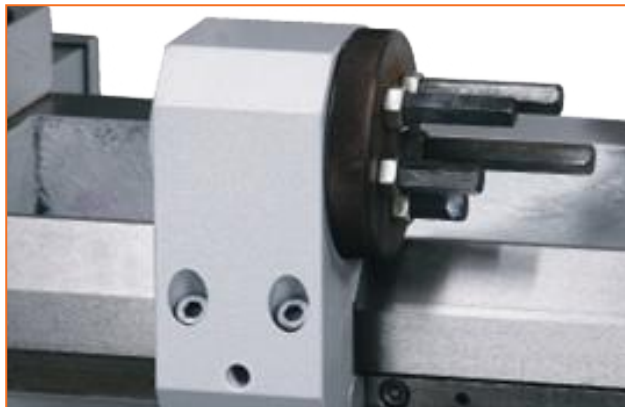
Micrometer bed stopper

- The micrometer bed stopper is mounted on the bed.
- It provides convenience especially when workpiece requires correct shoulder length.



Gap bed

- The gap bed is segment of bed, which can be removed to increase swing capacity.



Turret type 5-position bed stopper

- The turret type 5-position bed stopper is mounted on the bed.
- The stopper is equipped with 5 adjustable reference screws.



Taper attachment

- The taper attachment is mounted on the back side of the bed, which can be adjusted along the bed to meet the machining requirement.
- For taper turning application.



Chip and coolant shield

- The see-thru chips and coolant shield is mounted at the front of the saddle. It prevents operator from damage due to chips and coolant splashing.



Chuck guard

- The chuck guard is mounted over the chuck, providing a safety protection during cutting.
- Auto power off in case the chuck guard is opened.

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Characteristics of the V-models

- 3 transmissions with variable spindle speeds
- Electronic control for automatic speed control
- The spindle speed is shown in the LED display
- Stepless speed setting by frequency converter
- Constant cutting speed by automatic speed regulation with different workpiece diameters

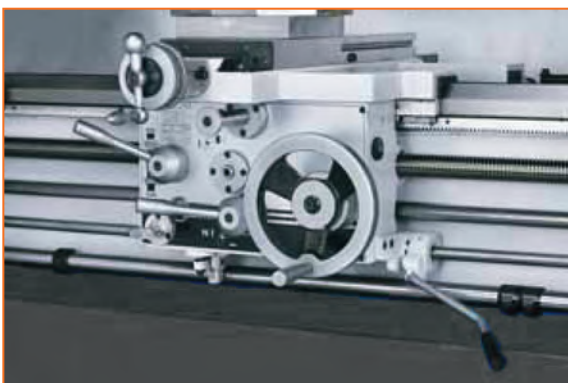
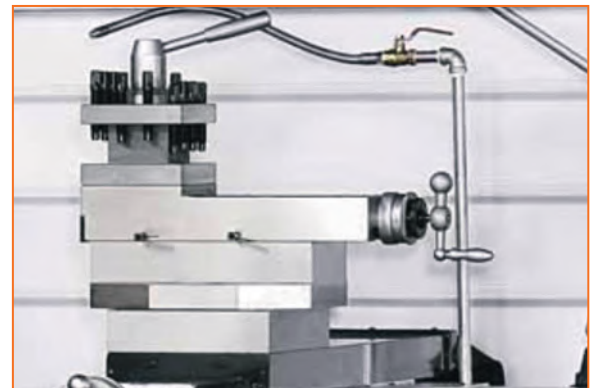


Rugged Tailstock

- The tailstock is ruggedly constructed, and easy to move along the bed
- Excellent for precision turning and drilling
- Tailstock quill is hardened and precision ground and graduated in inch and metric scales.

Compound Tool Post

- The slideways of carriage and saddle are hardened and precision ground for maximum wear resistance
- Equipped with a hand lubricator for lubrication on longitudinal and cross slideways



Apron

- The apron is designed with an interlock device to prevent simultaneously power feed and thread cutting
- The apron form an oil reservoir, providing oil bath lubrication for all gears in the apron

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Ultra rigidity structure

- Wide bed and box constructed, bed ways are high frequency heat treated, precision ground which can avoid vibration and tool chattering during performing heavy duty machining
- The massive bed is a box type construction combined with extra wide bed ways, providing increased rigidity and stability

Optimal Structure Design

- The bed and stand are manufactured from high quality cast iron and annealed to relieve internal residual stress
- The entire structure is carefully designed for maximum stability when performing heavy cutting



Optional with extra large spindle hole

Max. Spindle diameter: 155 mm (6"), 230 mm (9"), 255 mm (10"), 305 mm (12"), 355 mm (14")

Gear box ▶

- Speed range, feed rate selection and inch/metric threading are conveniently performed without changing gear.
- The wide range of feed rate selection and threading are accomplished by turning three levers and one rotary dial
- The gear box is oil-lubricated



◀ Headstock

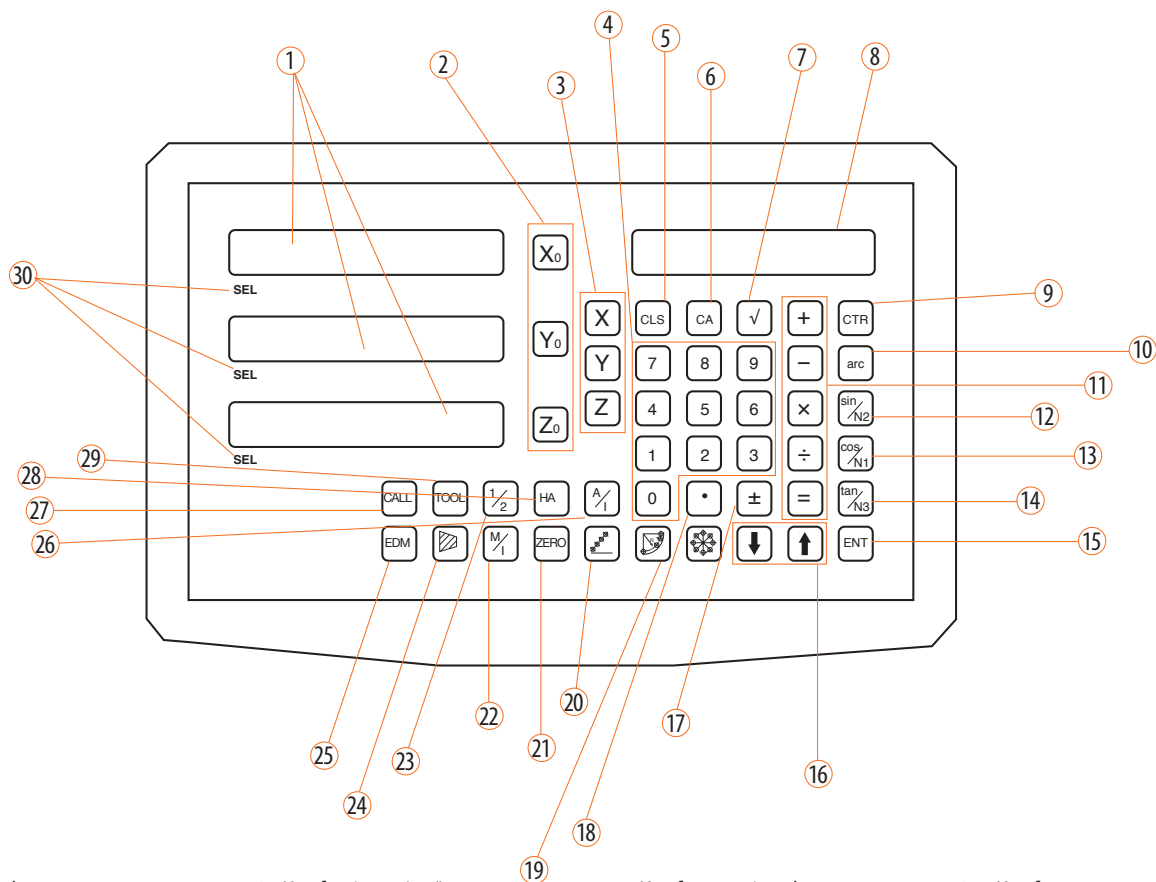
- Gears in the headstock are machined from chrome molybdenum alloy steel (SCM-21), carburized and precision ground for extremely smooth and quiet running

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Digital readout and scales

3-axis digital readout

- Digital readout for universal use on lathes, drilling, milling and grinding machines
- High-precision system for retrofitting your machine tool
- Different sizes to ensure a quick and easy installation, even in restrict spaces, especially with the mounting brackets supplied

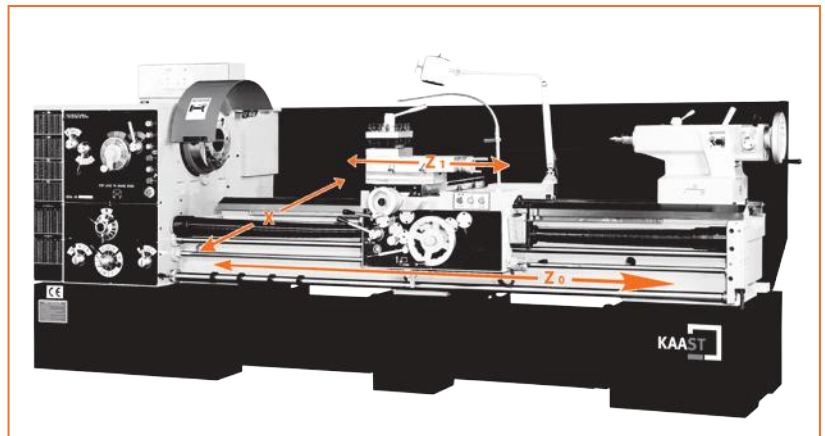


- | | | | |
|--|---|--|--|
| <p>1 Axes Displays</p> <p>2 Keys for cleaning the displayed value to zero</p> <p>3 Keys for Axis selection</p> <p>4 Entry keys for digits</p> <p>5 Key for cleaning the displayed value to zero</p> <p>6 Input (calculation result) canceling key (in Calculation function key)</p> <p>7 Square root calculating key (in Calculation function key)</p> <p>8 Message window</p> <p>9 Calculation function key (in Calculation function key)</p> | <p>10 Key for „inverting“ Trigonometric functions (in Calculation function key)</p> <p>11 Operation key (in Calculation function key)</p> <p>12 Angular surface processing function key; In Calculation function as sine trigonometric function key</p> <p>13 Progressive inner chamber processing function key; In calculation function as cosine trigonometric function key</p> <p>14 Tool compensation function key; In calculation function as tangent trigonometric function key</p> | <p>15 Key for entering data</p> <p>16 Key for selection of upper/lower term or plane precession</p> <p>17 Entry key plus or minus symbol</p> <p>18 Entry key for decimal point</p> <p>19 R angular ARC function key (ARC Function key)</p> <p>20 Function key for drilling holes along an oblique line</p> <p>21 Function key for 200 zero position</p> <p>22 Key for conversation the meter System / british system display</p> <p>23 Function key for getting one half</p> | <p>24 Key for taper measure function</p> <p>25 Function key for machine output (EDM)</p> <p>26 Key for the conversation of relative / absolute display</p> <p>27 Key for calling 200 tool storeroom</p> <p>28 Function key for sleep</p> <p>29 Key for input 200 tool storeroom Key for radius</p> <p>30 Selection</p> |
|--|---|--|--|

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Technical specifications

- Sturdy completely metal housing
- Connected value 80 to 260 V, 50-60 Hz
- Power consumption 25VA
- Working temperature 0 to 45 degree
- Signal processing = EIA-422A linedriver (better signal transfer than TTL)
- Maximum input frequency 5 MHz



Scales

Standard scales: KA-300 · KA-600

Glass scales in small construction
for small machines and tight spaces:
KA-500 · KA-200

Scales in excess length longer than 3.000 to 100.000 mm:
KA-800M

The scale consists of three different parts. An initial part with 1200 mm, then all following middle parts with 1200 mm and the endpiece in 400, 600, 800, 1000 and 1200 mm. If necessary, the endpiece can be ordered to the exact millimeter. Please note when ordering, you always need 100 mm more than the travel length. Resolution 5 μ m and 1 μ m.

Range of functions (depending on the machinetype settings)

- ✓ Completely calculator function
- ✓ Angular and bow function (Interior and exterior machining of roundings)
- ✓ 200 memory positions
- ✓ Tool diameter compensation
- ✓ Switching mm/inch
- ✓ Choice of coordinates abs./inc.
- ✓ Linear rows of holes
- ✓ Bolt circle processing
- ✓ Pocket milling function
- ✓ Special digital filter function when used for grinding machines (prevents a possible flickering of the last number, which sometimes can occur due to the natural frequency of a grinding machine)
- ✓ With memory function. If the display is completely switched off or has a power failure, the last displayed value is saved and displayed again after switching on
- ✓ With "snooze function", this means when travel is on by mistake when machine is off, this values will be saved
- ✓ Middle determination by halving the values
- ✓ Doubling the values for diameter display in lathe mode
- ✓ Cone calculation in lathe mode
- ✓ "Real" third display segment in lathe mode. The first segment shows X, the second segment Z and Zo to be cleared together (or Z alone) and the third segment Zo alone
- ✓ Optional linear error compensation option
- ✓ Furthermore the display has a non-linear-40-points error compensation (this is a "real" correction and not just approximate as in linear error compensation)
- ✓ Optional RS232 interface



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