



X-mill 700 • 700 HS



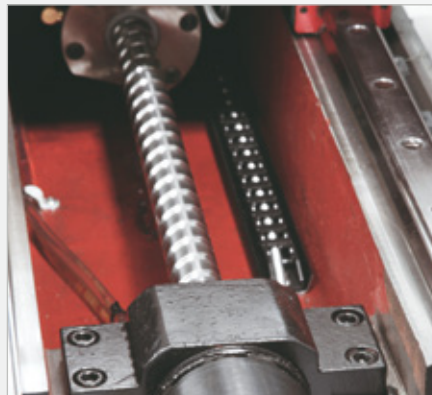
CUSTOMIZED

NEW!

X-mill 700 HS

Premium CNC Machining Center

- Cutter spindle with direct drive
- Cutter spindle speed 15,000 rpm (24,000 and 30,000 rpm optional)
- Preloaded ball screws with inside cooling
- Rapid feed 197ft/min
- Axis acceleration 1g



GPLUS 450



SIEMENS 828 D



X-mill 700 • 700 HS

DESCRIPTION

World-Class High-Performance Machining Center features Mineral Casting Frame

- High-speed advance and rapid feed for a significantly increased machine efficiency
- Constant accuracy and stability ensured by premium preloaded ball screws with integrated cooling (X.mill 700 HS)
- Milling spindle with closed cooling circuit for maximum precision and durability at high-speed machining operations (X.mill 700 HS)
- Superior mechanical properties of the total component package ensure longer tool life
- Easy accessibility of work table for easy setup and tooling



Siemens 828 D
www.knuth.de

GPlus 450
www.knuth-gplus.de

Touchscreen-Technology

www.knuth-usa.com



X-mill 700 • 700 HS

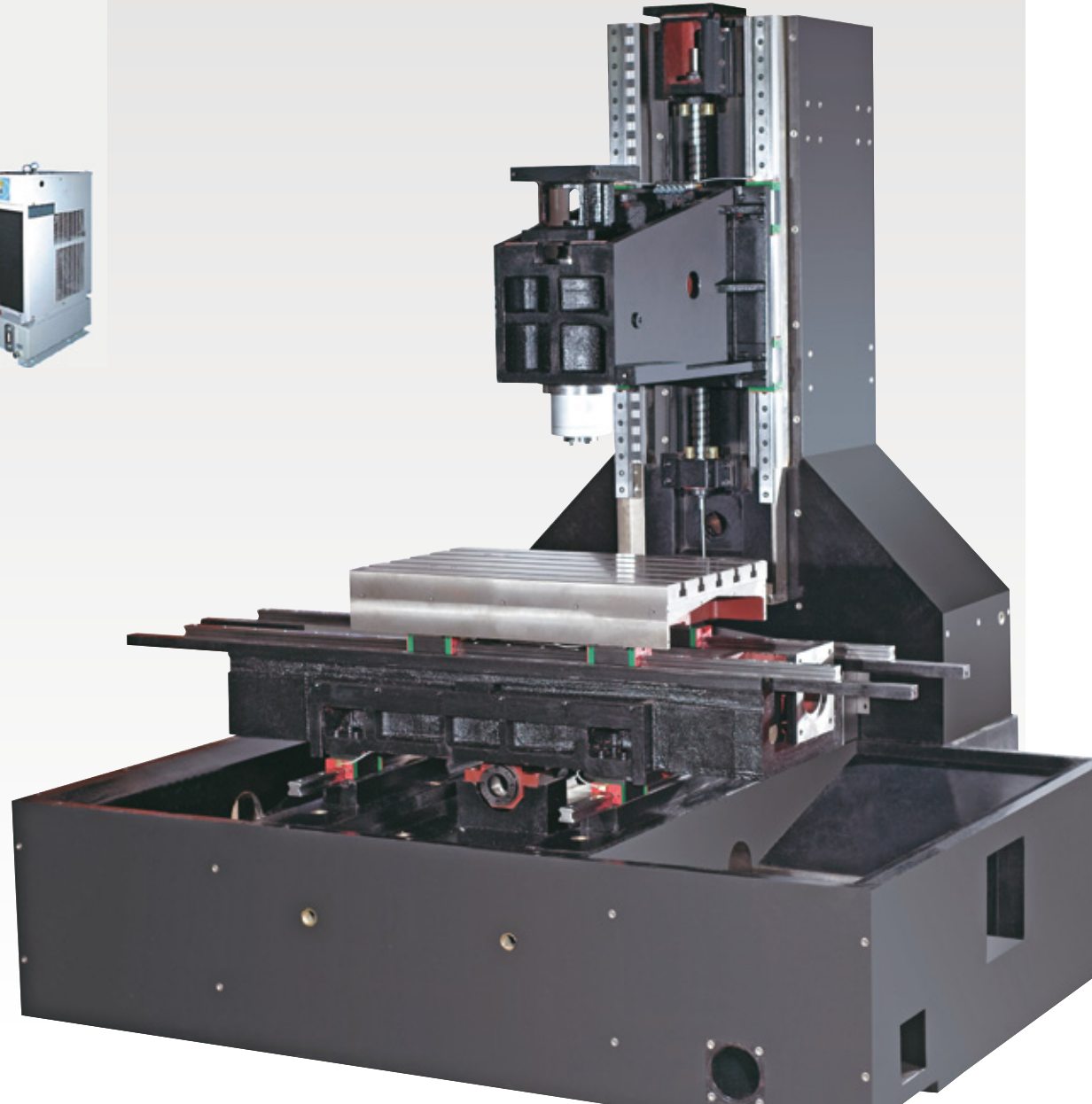
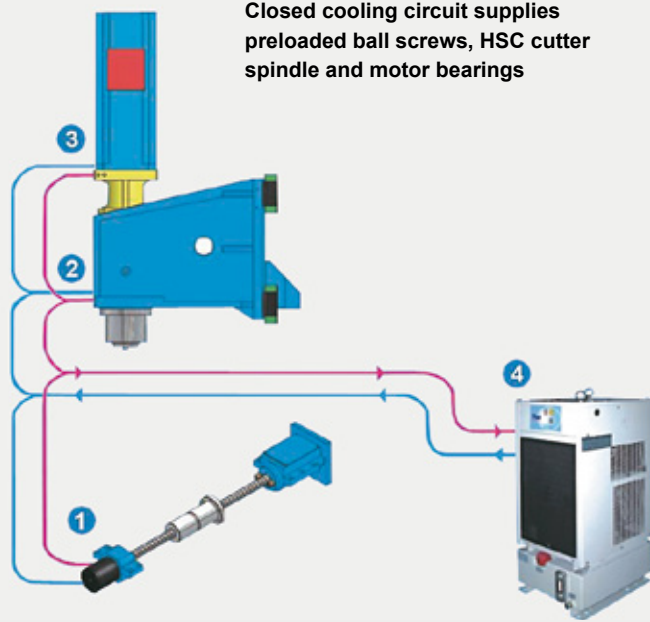
DESCRIPTION

KNUTH Machining Centers with mineral casting frame

For high-precision production and maximum productivity

- excellent damping properties
- high rigidity
- excellent thermal stability

The mineral casting frame combined with state-of-the-art machine components allows high-precision machining, prolongs tool life and increases productivity





X-mill 700 • 700 HS

SPECIFICATIONS

Specifications	X.mill 700	X.mill 700 HS
Working area		
X axis travel	28 in	28 in
Y- / Z axis travel	20 in	20 "
Table dimensions	30 x 18 in	30 x 18 in
Table load capacity	660 lbs	660 lbs
T-slots (qty x width x spacing)	5 x 0.6 x 3.1in	5 x 0.6 x 3.1 in
Spindle nose-to-table distance	3 - 22 in	3 - 22 in
Throat (spindle center to frame)	21 in	21 in (GPlus) 18 in (Siemens)
Headstock		
Drive type	belt drive	direct drive
Spindle speed	8,000 rpm	15000 rpm
Spindle mount	BT 40	BT 40
Feed		
Rapid feed X / Y / Z axis	1,181 in/min	2,362 in/min
Work feed X / Y / Z axis	394 in/min	472 in/min
Tool Carrier		
Number of tool stations	24 positions	24 positions
Tool size Ø x L (max.)	3 / 5 x 10 in	3 / 5 x 10 in
Tool weight (max.)	18 lbs	18 lbs
Tool changing time chip/chip	3 s	3 s
Tool-changing time, tool-to tool	2.5 s	2.5 s
Accuracy		
Positioning accuracy	0.0001 / 12 in	0.0001 / 12 in
Repeatability	0.0001 in	0.0001 in
Drive Capacities		
Main motor rating (cont/30 min)	10/15 Hp	10/15 Hp (GPlus) 12/17 Hp (Siemens)
Motor rating for X / Y / Z axis drive	2.4 Hp	3.9 Hp
Total connected load	20 kVA	22 kVA
Dimensions/Weight		
Dimensions	98 x 98 x 106 "	102 x 98 x 106 "
Weight	13,200 lbs	13,200 lbs
Part No. with GPlus 450 control	170 083	181 260
Part No. with Siemens 828 D control	-	181 261

Standard Equipment

- GPlus 450 or Siemens 828 D control
- 24-station tool changer with dual-arm gripper
- Electronic hand-wheel
- Spiral chip conveyor
- Enclosed work space
- Work lamp with program end indicator
- Ethernet and USB ports
- Cooling system for cutter spindle (X.mill 700 HS)
- Cooling system for preloaded ball screw (X.mill 700 HS)
- Spindle oil cooler (X.mill 700 HS)
- Air-conditioned control cabinet
- Autom. central lubrication
- Cutting oil system
- Spray gun for rinsing
- Operating tools
- Operating manual and programming instructions

Optional

Part No.

- | | |
|--|---------|
| - Cutter spindle | |
| HSK-E 50, 24,000 rpm (model HS) | 250 241 |
| HSK-E 50, 30,000 rpm (model HS) | 250 242 |
| - Automatic tool length measurement | 250 217 |
| - Coolant nozzle ring for milling spindle | 250 313 |
| - Linear scale measuring system (Model HS) | 250 248 |
| - De Luxe Clamping Tool Set 16/M14 | 105 300 |
| - Power Worker Metal Cutter | 123 040 |

Training

- Free 1-day training in Wasbek
- Including accommodations for 1 night in our guest house

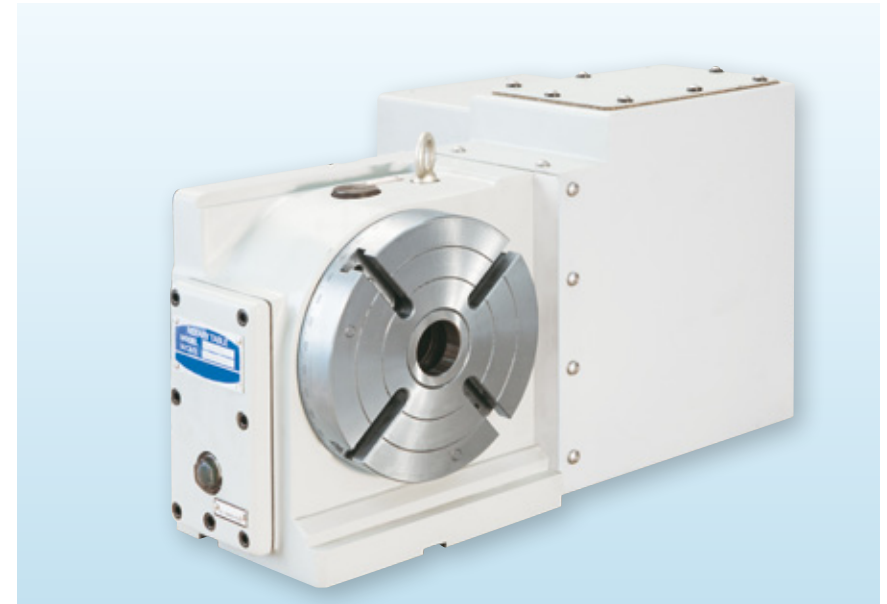


CNC Dividers

X.div

CNC Divider for universal use on CNC milling and engraving machines

- X.div Dividers have been customized for optimum use on KNUTH CNC Milling and Engraving Machines
- X.div Dividers for Fanuc, Siemens and GPlus controls - Complete package including motor and axis module for KNUTH Machines
- X.div Dividers without drive unit provide an optimum basis for equipping or retrofitting a wide variety of machines



suitable for vertical and horizontal usey

SPECIFICATIONS

Specifications X.div

face plate diameter	mm	125	170	210	255	320	400
face plate height (vertical)	mm	150	150	150	167	220	250
spin axis (horizontal)	mm	110	135	160	160	210	255
through-hole diameter	mm	25 H7	35 H7	45 H7	40 H7	40 H7	40 H7
T-slot width	mm	12 H7	12 H7	12 H7	12 H7	14 H7	14 H7
T-slots	mm	14 H7	18 H7	14 H7	18 H7	18 H7	18 H7
speed (max.)	min ⁻¹	33,3	33,3	33,3	11,1	11,1	11,1
reduction		0	0	0	0	0	0
step angle		0,001°	0,001°	0,001°	0,001°	0,001°	0,001°
angular accuracy		40"	20"	20"	15"	15"	15"
repeatability		± 2"	± 2"	± 2"	± 4"	± 4"	± 4"
max. load capacity (vertical)	kg	100	150	150	250	350	500
max. load capacity (horizontal)	kg	50	75	75	100	150	200
max. turning diameter	mm	125	170	210	255	320	400
weight with motor	kg	25	38	43	88	162	262
without servo drive	Part No	125 765	125 770	125 775	125 780	125 785	125 790
for Fanuc Control	Part No.	125 766	125 771	125 776	125 781	125 786	125 791
for Siemens Control	Part No.	125 767	125 772	125 777	125 782	125 787	125 792
for GPlus Control	Part no.	125 768	125 773	125 778	125 783	125 788	125 793

CNC Milling with GPlus



awarded with the TechStar 2008 for innovative future-oriented products

CNC CONTROL
GPLUS 450

Intuitive programming

- **true intuitive control** - each input parameter is uniquely displayed with a graphic and plain text
- **simple creation** of cycles for circular, rectangular, and arc pockets
- **drill pattern programming** - hole circle, row of holes grid, parallelogram, and free drill positioning
- **thread cutting cycles** for creating female and male threads: standard threads, linear threads, tapered threads, plane threads, variable pitch threads, multiple threads function: thread repair - recutting of worn threads
- **face milling cycle** - easy and quick to program
- **all cycles run as stand-alone programs** - fast and easy programming of a single program, which is integrated into a main program or available as a series of any number of cycles
- **quick data transfers** for external programs via USB port, network or optional WLAN-connection

Compatible and powerful

- **easy adaptation** to most CAD/CAM systems
- **large, internal hard drive** allows quick machining of virtually unlimited complex programs directly at the control
- **quick block processing** of 450 NC blocks per second and 200 Look Ahead sets ensure unprecedented fast and continuous program execution
- **standard networking-capability** - to create, manage and transfer external programs - the GPlus will adapt to your structures

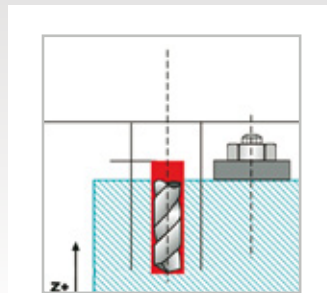
Easy tool and workpiece measuring

- **easy to understand graphics** and plain text support the intuitive operation
- **extremely simple collection** and implementation of values for tool length correction and zero offset

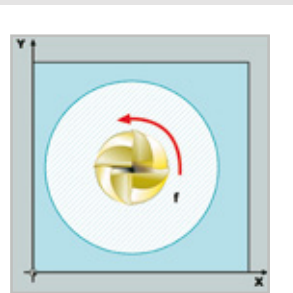
Control for up to 5 axes

- GPlus 450 allows a **4th and 5th axis** - which easily can be retrofitted

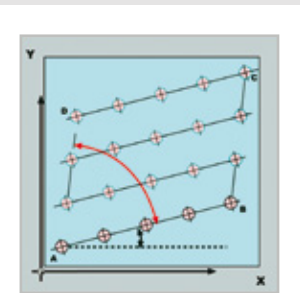
Samples of Parameter Help Graphics



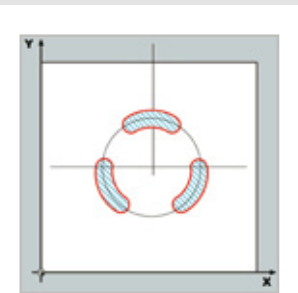
Final boring depth



Feed



Inside angle at corner point 1



Finish measurement, wall



GPlus - our Windows-based CNC control system for Machine Tools

Quick - powerful - user-oriented: key hardware facts

- **Workshop-oriented programming** at the control or external programming (CAD/CAM)
- **450 NC blocks/sec**, 200 sets LookAhead
- The GPlus 450 features a **17" TFT color monitor** with touch-screen display that shows all data for a user-friendly programming experience and easy operation
- Status messages show the user the current state of the control
- **Graphic simulation** with integrated Zoom function for a detailed display of the actual chip removal
- A standard 10/100 MBit Ethernet interface and **USB port** allow fast data transfers from externally created programs (CAD/CAM) and saving these on the GPlus 450 hard drive
- **Single CPU concept** (advantage: ties up only 2% of the system capacity)
- **40 GB storage**, 2.0 GHz Intel Celeron processor, 256 MB RAM
- **Worldwide remote diagnostics**
- Profibus, CANopen, DeviceNet implementation is possible
- **Easy integration** of the machine in factory networks
- **The mobile hand-held device** combines practical and compact controls to simplify machine setup



Your GPlus Advantage

- Easy to learn without prior DIN-ISO programming knowledge - from newcomers to professional users
- Short learning curve for experienced users - immediate productivity
- Quick programming directly at the machine, or easy transfer of programs to minimize down-times
- GPlus Support for any programming questions and quick assistance for problems

CNC CONTROL
GPLUS 450

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CNC Control

Siemens Sinumerik 828D

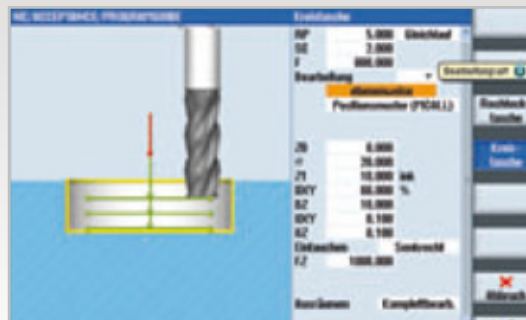
The top specialist for demanding milling operations

Highlights

- Compact, robust, maintenance-free control panel-based CNC
- Comfortable program and parameter input via QWERTY keyboard
- Maximum machining precision



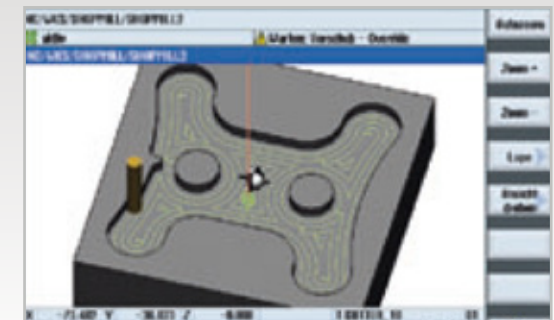
- Intelligent kinematic transformations for machining of cylindrical parts, and for angled workpiece levels
- SINUMERIK MDynamics with the new Advanced Surface feature: for perfect part surfaces and shortest machining times in mold making applications
- ShopMill: shortest programming time for single parts and small batch productions
- ProgramGUIDE: fastest machining time and maximum flexibility for large series productions
- Unique spectrum of technology cycles - from milling contours with residual material recognition to process measurements
- Animated Elements: unique operation and programming assistance with animated sequences
- Modern data transfer options via USB stick, CF card and network (Ethernet)
- Easy Message: maximum machine availability due to process monitoring per texting (SMS)



a good combination: programGUIDE



unlimited positioning pattern



reaming and machining of contours
in a class of its own



CNC CONTROL
SIEMENS 828 D

X-mill 700 • 700 HS

Simply compact - simply superior

The new CNC with a small footprint



CNC-Hardware

- Control-panel based high-performance CNC Control
- robust front control panel made of magnesium die-casting
- Integrated full-size QWERTY keyboard
- 10.4" TFT color monitor
- Maintenance-free design (no buffer battery required)

CNC performance data and functions

- SINUMERIK MDynamics package with Advanced Surface for mold making applications
- Tool changing time:
~2 ms (PPU 260/261) / ~1 ms (PPU 280/281)
- Number of Look Ahead sets: 100
(PPU 260/261) / 150 (PPU 280/281)
- Jerk-limited acceleration
- Dynamic feed-forward control
- 4-axis simultaneous interpolation
(X, Y, Z and rotary axis)
- Linear, circular and helical interpolation
- Tapping without compensating chuck, plus thread cutting
- Oriented spindle holder
- Toggle between inch and metric units
- FRAME concept for individual coordinate transformations, rotations, scaling and mirroring
- 100 adjustable zero offsets
- Synchronous actions and quick help function output

CNC technology cycles

- Technology cycles for programGUIDE and ShopMill work step programming are available
- Large selection of drilling cycles
- Large selection of milling cycles for standard geometries

- Large selection of position patterns for drilling and milling operations
- High-speed settings for mold making applications
- Geometrie calculator for free contour input
- Machining cycle for contour pockets / contour spigots with isolated contours

Graphic features

- Animated Elements: input help for machining parameters with animated sequences
- Graphical online help system, similar to PC system
- Graphical CNC simulation with level display

CNC tool management

- Display of tool and magazine data on one screen
- Tool management with plain-text tool names
- Loading/unloading feature for easy magazine assignment
- Number of tool edges:
256 (PPU 260/261) / 512 (PPU 280/281)
- Tool management with tool life monitoring

