



# V-Turn 410 PRO

## UNIVERSAL LATHE

Table of Contents	Page
Company Overview	2
Services	3
Series Highlights	4
Machine Construction	5
3 Axis Digital Read Out - X.pos 3.2 VC	11
Technical Data	12
Standard Equipment	13
Optional Equipment	15





## Everything for metalworking under one roof

KNUTH Machine Tools is a leading supplier of conventional and CNC machine tools. KNUTH is a global company with a presence in more than 30 countries.

In an area of 172,000 ft<sup>2</sup> at our headquarters in Wasbek, Germany, we keep a complete selection of machines for all areas of machining and metal working ready for demos and quick delivery.



## Quality Assurance for your KNUTH Machine

### Quality by KNUTH Certified Quality Assurance

More than 1400 machines are shipped annually from our headquarters in Wasbek, Germany. Every machine has to pass a series of tests in our 5-level quality assurance process that covers everything from incoming quality control to alignment testing, and from functional, technical and geometric accuracy tests to the final acceptance test. These tests are conducted by our master technicians who use a dedicated customized data processing system for this purpose.

An ISO 9001 certified quality management system ensures continuous control and improvement of all quality-relevant activities. Design, development and precision of each individual machine are documented exactly in detailed inspection protocols and acceptance test logs.

### All-Encompassing KNUTH Service Worldwide Reliability

Trust our global qualified staff take care of everything from installation and maintenance to repairs and upgrades quickly and professionally.



The Process of Making  
a KNUTH Machine Tool



### KNUTH Machines in Action

Visit our YouTube page to experience machines in action before the real-life test on site

**Subscribe to our YouTube channel - Go to KNUTH Machine Tools!**



# Complete Service by KNUTH

## Reliable service from a single source

We provide highly qualified technicians and engineers all over the world to ensure reliable service from one central source. And our global supplier network ensures prompt availability of replacement parts and consumables at a local level.



### CONSULTATION

- Sample work pieces
- Machine demos



### START-UP

- Installation / Commissioning
- On-site Instruction



### TRAINING

- User Training
- Maintenance Training



### PREVENTIVE MAINTENANCE

- Inspection
- Maintenance



### REPAIR

- Machine Repair
- Spare Parts



### MACHINE WARRANTY

- Protect Insurance

**KNUTH Technical Service Help Desk**

Tel. +1-847-415-3333

[service@knuth-usa.com](mailto:service@knuth-usa.com)

**KNUTH Parts Service**

Tel. +1-847-415-3333

[service@knuth-usa.com](mailto:service@knuth-usa.com)

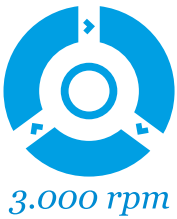
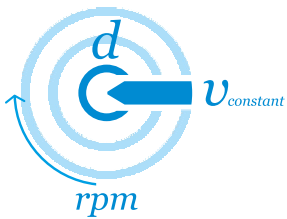
**Our Service Help Desk is available 24/7 online at: [knuth-usa.com/servicedesk](http://knuth-usa.com/servicedesk)**



Universal Lathe

## V-Turn 410 PRO

Our bestseller for workshop applications, production and training purposes



REDESIGNED MACHINE ENCLOSURE

IMPROVED APRON'S AUTO-FEED FOR EASIER OPERATION

CONSTANT CUTTING SPEED

HIGH SPINDLE SPEED AND MOTOR POWER

### V-Turn 410 PRO Universal lathe

**Models**  
V-Turn 410/1000 PRO

Our bestselling V-Turn is a versatile precision lathe designed to cover a wide range of workshop and production applications. Equipped with an inverter and a high-power spindle motor, this lathe can easily reach 3.000 rpm. It also has a built-in feature which allow you to have constant cutting speed during - the spindle speed automatically adjusts based on the turning diameter.

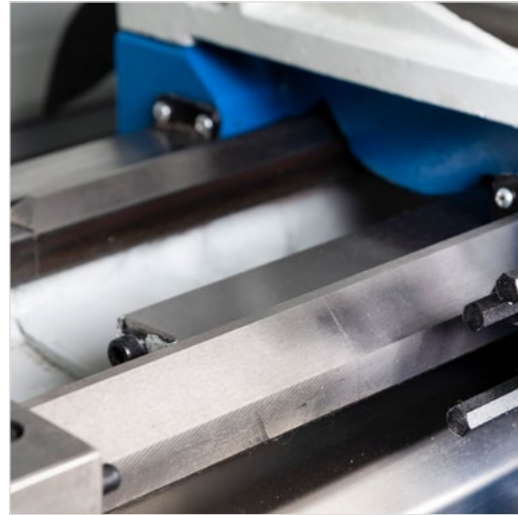
The new design of the PRO models makes them stand out from most of lathes on the market and brings them one step closer to the end-user in terms of ergonomics, safety and operation.

### Main Features

#### Machine construction



- A heavy ribbed machine bed and a massive one-piece cast-iron frame provide the solid basis for this machine



- The bed gap offers the possibility to turn larger workpiece diameters
- The wide, hardened and ground guideways ensure superior turning results even after many years of operation



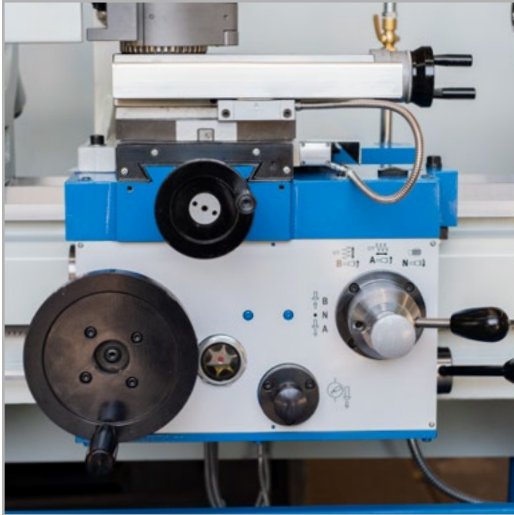
- The leadscrew has a steel cover which on one side is shielding it from falling chips and in the same time assures maximum safety for the operator



- The new cover design includes two large side doors which facilitates the mounting of complex workpieces and maintenance

## Main Features

### Carriage



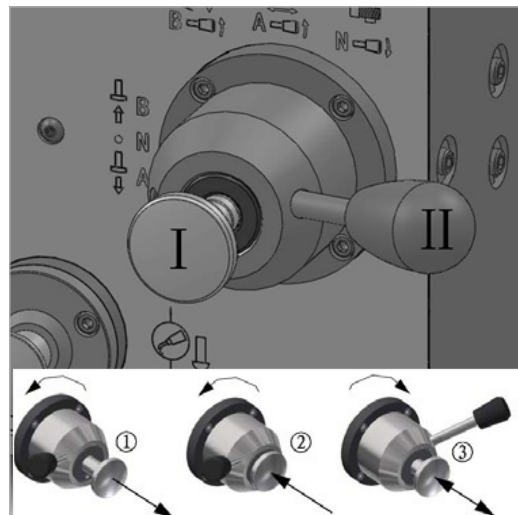
- The carriage features clearly arranged, user friendly feed hand-wheels and levers
- Feed gears are lubricated in oil-bath to ensure a smooth operation and minimum wear
- Central lubrication system ensures lubrication of guideways



- Machine is equipped with micrometer and turret stops for precise operations



- The auto-feed of the carriage has been re-designed, making it faster and much easier to operate.
- You can activate the desired direction of the auto-feed in just 2 steps:
  - step 1: push or pull the middle handle
  - step 2: turn CW or CCW the right handle



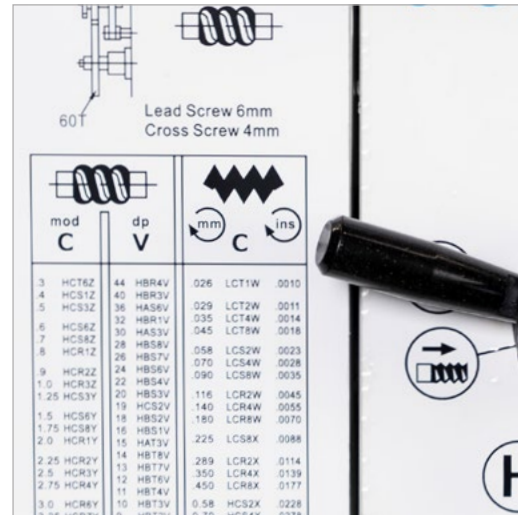
- **Longitudinal** auto-feed: pull handle I to the maximum and turn handle II 30° CCW
- **Horizontal** auto-feed: push handle I to the maximum and turning handle II 30° CCW
- **Thread** auto-feed: push or pull handle I to the middle and turn handle II 70° CW

## Main Features

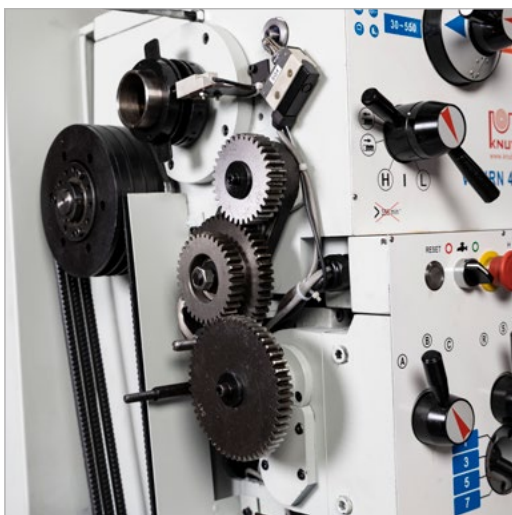
### Headstock



- Ergonomic arrangement for handles and buttons.
- Headstock gears and shafts are hardened and ground for smooth and quiet operation



- The comprehensive range of threads is covering almost every demand on the market
- These ranges, together with the required gears are clearly displayed on the front of the headstock



- The high-power motor (among the highest from its class) ensures a powerful machining
- Standard configuration includes gears for thread cutting



- This model benefits from the advantages of the Delta frequency inverter: accurate control of speed and torque, smooth handle of heavy loads and energy saving
- All electric components and safety modules and a are from worldwide known suppliers (Pilz, Schneider, ABB)

## Main Features

### Spindle



- The large spindle bearings ensure excellent concentricity
- The large bore diameter gives the possibility to machine shaft with diameters up to Ø2 in



- The frequency inverter reduces the number of speeds to only two, with infinitely variable speed adjustment



- Additionally, a spindle cover is provided to protect the operator. It integrates an interlock system, stopping the spindle when the cover is lifted



- This model is delivered standard with a 4-jaw independent chuck for clamping asymmetrical parts
- Other type of chucks can be provided on demand



## Main Features

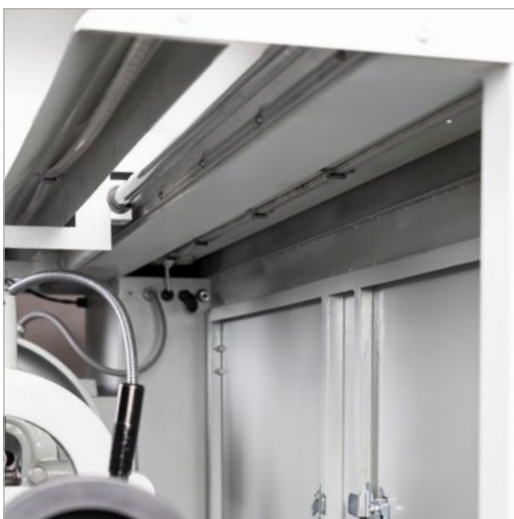
### Top slide and Toolpost



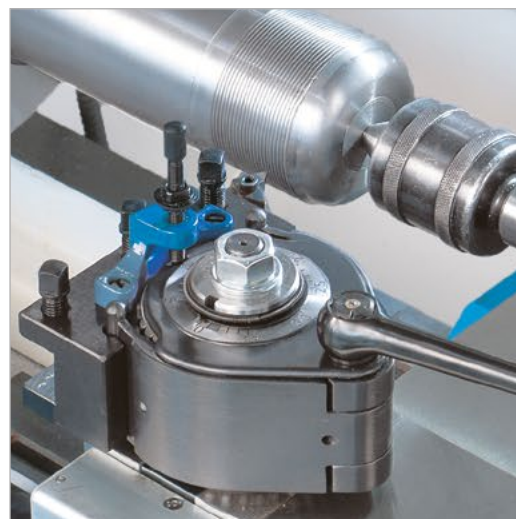
- The movement of both cross and top slides are read by 5 µm optical scales to ensure a precise positioning
- The top slide can be swiveled for easy taper turning



- For extra protection against chips and coolant splashes, a large liftable cover is installed over the toolpost which travels together with the carriage



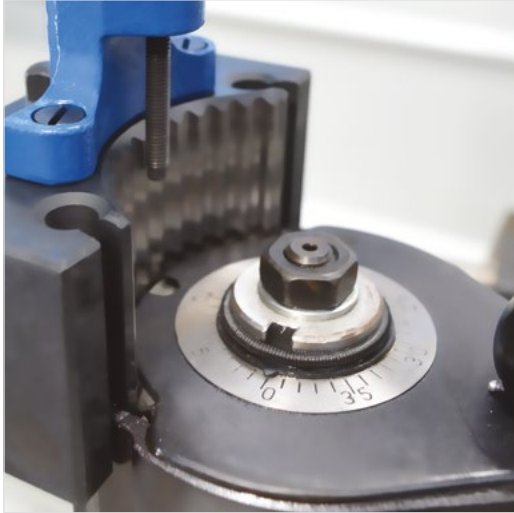
- Work light is provided along entire work area through industrial LED light bars which are integrated in the machine cover



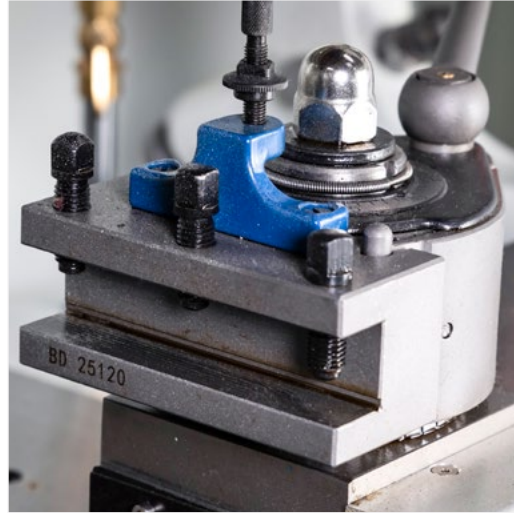
- This model is equipped as standard with high quality German type quick change tool post to easily switch the tools with repeat accuracy of 0,0004 in

### Main Features

#### Top slide and Toolpost



- Additionally, it can be swiveled with angle scale offering a larger range of working possibilities.



- Lathe knives are easily clamped using thumb screws.

#### Tailstock



- This model features a robust tailstock with MT4 taper and long quill travel, excellent for deep drilling and boring.
- It has also a traverse adjustment to facilitate taper turning.



- The quill can be positioned with ease using a hand-wheel with precision scale

## Main Features

### 3 Axis Digital Read Out - X.pos 3.2 VC



- Integrating multiple functions, this new generation of 3 axis digital readouts significantly offer a much better control over the machining processes, greatly decreasing down-times and error rates
- The new generation of displays uses system-on-chip technology to integrate all functions on one chip for a more compact and reliable design. Additionally, the CPU power was increased and the display was extended to 7" for instant and clear view of all functions and values
- It features a totally sealed enclosure made of high quality polyester film which protects it against hazardous environments in shop floors, such as dust or fumes and offers excellent chemical resistance to most commonly used industry solvents
- It can be easily installed and doesn't require maintenance. Is a very popular choice for retrofitting older machines

#### Basic Functions

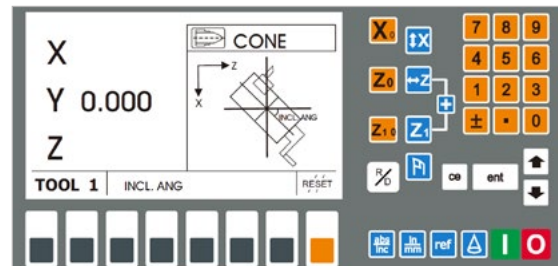
- » Resolution of 0,0002"
- » Spindle control ON/OFF
- » Unit measurement conversion Inch / Metric
- » Setting / Resetting current position
- » Coordinate display switching ABS / INC
- » Radius / Diameter display
- » Z1/Z2 Axes summing
- » Pocket calculator functions

#### Extended Functions

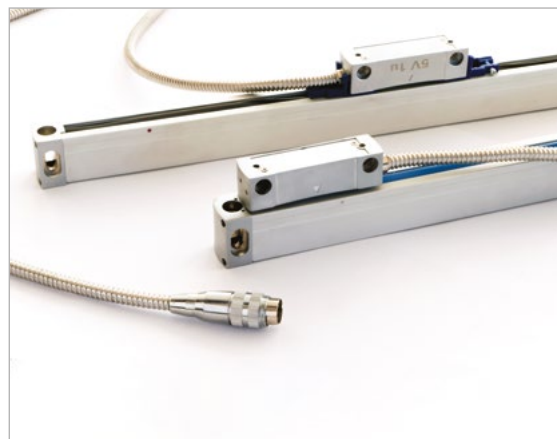
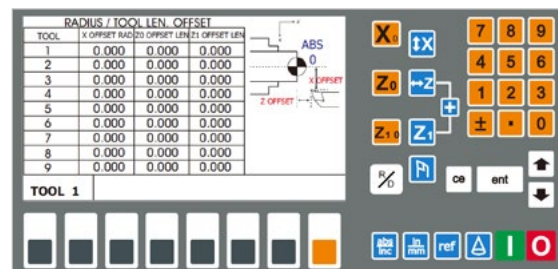
- **Constant cutting speed** - the spindle speed automatically adjusts based on the turning diameter



- **Taper turning function** - angle display for accurate positioning of the upper slide during taper turning



- **Tool offset subdatum function** - provides a total of 9 tools offset memory



- **Optical Scales:** 5 micron resolution (0,0002") with outside cover from aluminum for protection against oil, coolant and chips

## Technical Data

### V-Turn 410 PRO

#### Working area

Center width	in	39.37
Center height	in	8
Turning diameter over bed	in	15
Turning diameter over gap bridge	in	23
Turning diameter over support	in	10
Gap bridge length	in	10
Bed width	in	10
Swing range of top slide	°	± 45 °

#### Travels

Travel X / Z1 axes	in	8.3 / 6
--------------------	----	---------

#### Headstock

Speed range low / high	rpm	30 - 550 / 550 - 3.000
Spindle bore	in	2
Spindle mount / taper		Camlock D1-6 / MT 6

#### Feed

Feed X-axis	in/R	0.00051 - 0.01772
Feed Z-axis	in/R	0.00102 - 0.03543

#### Tapping

Tapping, metric	in	(39) 0,2-14
Tapping, diametric	DP	(21) 8-44
Tapping, module	in	(18) 0.01 - 0.14
Tapping, whitworth	TPI	(45) 2-72

#### Tailstock

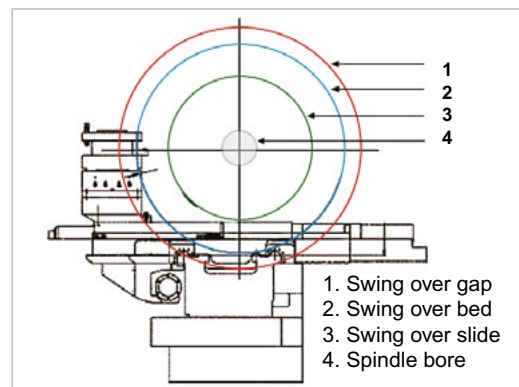
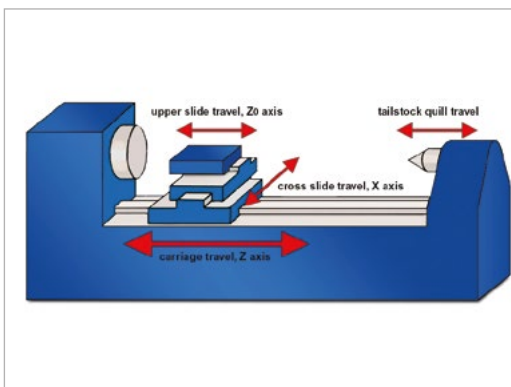
Tailstock quill diameter / taper	in	2 / MT4
Tailstock quill stroke	in	5
Tailstock traverse adjustment	in	± 13

#### Drive capacity

Motor rating main drive	Hp	7.4
-------------------------	----	-----

#### Measures and weights

Overall dimensions (length x width x height)	in	77x40x60
Weight	lbs	2.662
Part No.		<b>300822</b>



## Standard Equipment

### 3 axis position indicator



- X.Pos 3.2 VC - new generation
- Integrated functions
- Spindle speed display
- Constant cutting speed

### 4-jaw face plate chuck



- Cast-iron 4-jaw chuck
- Ø10" chuck diameter

### Face plate



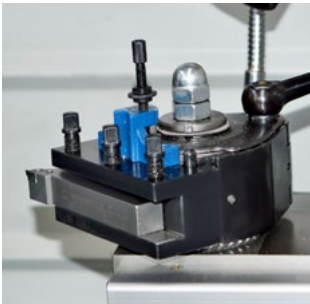
- Face plate diam. Ø14"

### Change Gears



- Change gears for thread cutting

### Quick change tool post



- Quick change tool post WB

### Quick change tool holder



- Quick change tool holder WBD 25120 (1×4.7")

### Turret stop



- Turret stop with 4 positions which are used as spacers when paired with a micrometer stop.

### Micrometric stop



- Increases the precision of operations and reduces down-times spent for part measuring.

### Steady rest



- Large steady rest with three adjustable jaws and rollers.
- Indispensable when working with long and thin workpieces
- Max. working diameter Ø5.11 in

### Follow rest



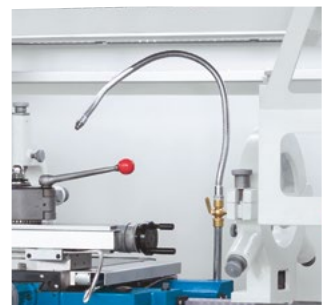
- The follow rest is fixed on the saddle and minimizes deflections during the turning of long workpieces
- Max. working diameter Ø2.75 in

### Thread gauge



- Facilitates the thread cutting process.

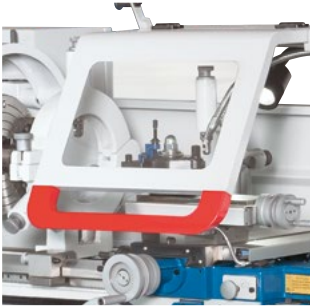
### Coolant system



- The coolant system increases the life of the tools.
- The coolant tank is integrated in the base of the machine to maintain a small floor space.

## Standard Equipment

### Toolspost guard



- Large cover to protect the operator against chips and coolant splashes

### Fixed splash guard (wall)



- Large, fixed splash guard
- Covers full working length

### Chuck guard



- Chuck guard with integrated interlock system

### Foot brake pedal



- Emergency foot brake pedal

### LED work lamp



- Very rugged LED light lamp
- Protected against water, oil and dust

### Dead Center



- Used to support the workpiece when turning between centers
- It is delivered with reduction sleeve for main spindle

### Operating tools



- Tool box with tools for operating the lathe and maintenance

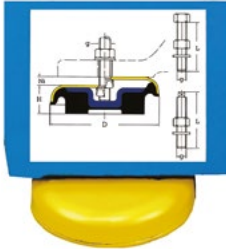
### Operator instructions



- Installation instructions
- Operation manual
- Maintenance plans
- Electrical diagrams
- Spare parts lists

## Optional Equipment

### Pivoted mounts LK 33



- Absorb shock for a vibration-free machine operation
- The screw set allows easy machine alignment

### Accessory set for MT4



- Reducing sleeves: MT4/MT3, MT4/MT2, MT4/MT1
- Extension Sleeve: MT4/MT5
- Tool holder bit: MT4/B18, MT4/B16
- Keyless drill chuck: 0.12-0.63" / B 18
- Keyless drill chuck: 0.04-0.51" / B 16

### 3-jaw chuck steel



- High quality steel 3 jaw chuck suitable for high speeds

### Live center for MT4



- Live center for MT4, hardened and ground point 60°

### Tool holder WBD 25×120



- Fits all standard German quick-change tool holder
- Tool holder head and tool holder feature profile-ground gearing
- Size: 1×4.7"

### Quick-Set Spindle Bore Stop Size 6 1.8-2.3 in



- For lathes
- Key length: 740
- Quick and easy adjustment to any hollow-spindle point
- Easy adjustment - just tightening with a safety wrench

### Live Centers MT 4



- With 7 replaceable centers
- Body made of hardened and ground tool steel
- Mushroom diameters up to 1.3"

### 5C-Collet Chuck Typ 3911



- The key-verified chuck for use on lathes ensures uniform and torsion free clamping of workpieces
- The 5C Collet System is available from 0,04" to 1"

### Soft jaw pads



- Available for all chucks from our range
- Price and details on demand

### Hard jaw pads



- Available for all chucks from our range
- Price and details on demand

### Coolant concentrate – 5L



- Dilute with water 1:20
- 1 canister contains 5 Liters

### Power Worker Metal Cutter



- Universal, quick and mobile use even at limited access locations
- Adjustable rod length
- Compact dimensions: 14" - 23" long, Ø 1"
- Low weight: 1.32 lbs



## **KNUTH Machine Tools USA, Inc.**

590 Bond St.

IL 60069 Lincolnshire / Chicago

Tel. +1-847-415-3333

Fax +1-847-415-2402

E-Mail [info@knuth-usa.com](mailto:info@knuth-usa.com)

# **[www.knuth-usa.com](http://www.knuth-usa.com)**

Subject to change without notice. Errors and omissions excepted.

