THE CONSEQUENCE IN CONTROL ENGINEERING

WEILER one1 CONTROL

Complex challenges – solved simply

Ergonomics in a new dimension

WEILER

www.weiler.de

THE DECISIVE ADVANTAGES OF THE WEILER one1

Superior cycle machining

All trained turners can easily find their way around the WEILER software even without programming knowledge. With the automatic cycle, every lathe can be controlled like a "hand-operated" one. With the help of the geometry processor, the contours of the workpiece can be completely programmed – right up to the automatic calculation of intersection points.

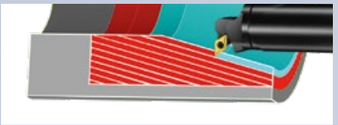
Three fundamentals apply to working with the WEILER one1 control

1. Simple workpieces are manufactured like on a conventional machine, but more efficiently.
2. Demanding workpieces are manufactured like on a conventional machine, but faster.
3. Complex workpieces are manufactured like on a CNC machine, but simpler.

The WEILER one1 control guides all users step by step and needs-based from the simplest to the most complex options. The control is an exclusive and protected development from WEILER and is only available in the WEILER machines of the E-series and V-series.

Unique – only available on the WEILER one1 control

- **22" TFT touch screen** with swiping and tapping
- **Manual operation** as with a conventional machine
- **Powerful geometry calculator** for easy and quick contour creation
- **Programmable speed overlay** during machining to reduce vibrations
- **Diagonal machining**
  Improved cutting tools for machining long, thin workpieces and turning deep holes



- **Specially developed cycle for easy thread machining**
  – Fine-tune the thread depth by manual adjustment with a handwheel
  – Thread repair using teach-in function
  – Thread cutting like on a conventional machine
  – Processing of trapezoidal threads without shaped steel
  – Machining round threads for cable drums

Simply closer to practice

CONVINCING ARGUMENTS

WEILER one1: Make more use of your lathing skills

1. In-house developed user interface
- Building on the experience of over 6,000 machines in use
- With the needs of our customers in mind

2. Basic control Siemens Sinumerik one
- Large memory capacity
- Intuitive user interface
- Large 22" touch screen with swiping and tapping
- Sinumerik full CNC keyboard

3. Easy manual operation
- Turning against the stop
- Taper and radius turning
- Roughening and smoothening cycles for simple machining operation
- Thread cutting without entering the programming level

4. Tool management
- 300 tools
- Tool display
- User-parameter database
- Hints

5. Programming of cycles
- Powerful contour calculator for determining points that are not dimensioned directly. Solutions are displayed graphically and applied at the touch of a button
- Preset macros for DIN 509 grinding undercuts (Forms E, F, G and H)
- Preset macros for DIN 76 thread undercuts (Forms A, B, C and D)
- Preset macro for entering customer-specific undercuts
- Contour macros for recurring contour components
- Programming of part families using integrated parameter lists
- Each contour element can be assigned a feed value for smoothening.
- Longitudinal/transverse machining both inside and outside
- Diagonal machining for more stability in the workpiece and tool as well as improved chip removal
- Consideration of pre-machined contours
- Chip breaking cycles for long-chipping materials
- Grooving with both standard geometry and free contour definition
- Cycles for machining with powered tools (option)
  – Spindle positioning
  – C-axis machining

6. Thread cutting
- For longitudinal and transverse threads, internal, external and tapered threads (e.g., API)
- For trapezoidal threads without forming turning tools
- Cable drum thread
- For thread repairs like on a conventional lathe
- For linear, degressive and progressive thread pitches

7. DIN/ISO programming
- Creating DIN/ISO programs on the machine
- Importing externally created DIN/ISO programs from CAD/CAM systems

8. DIN Editor
- Automatic block number generation
- Correction block display
- Use of Siemens cycles

9. File import (option)
CAD drawings can be imported to create a workpiece contour.

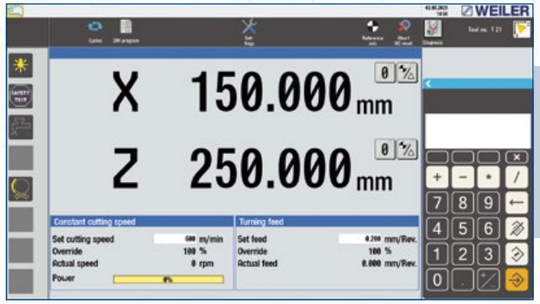
10. Simulation
- Line graphic with workpiece and cutting insert representation
- Display of the current tool position
- Integrated zoom function to enlarge details
- Plane switching for displaying turning and milling

11. Intuitive data management
- The workpiece programs consist of individual, manageable processing steps that can consist of cycles as well as DIN/ISO programs.
- All programs can be provided with information important to the user.
- It is possible to assign programs to specific product groups, customer names or similar.
- USB port
- Network port
- Remote maintenance (option)

12. Parallel programming
Creating new programs while machining

WEILER one1
User-friendly
Intuitive
Self-explanatory

EASY MANUAL OPERATION



Home screen

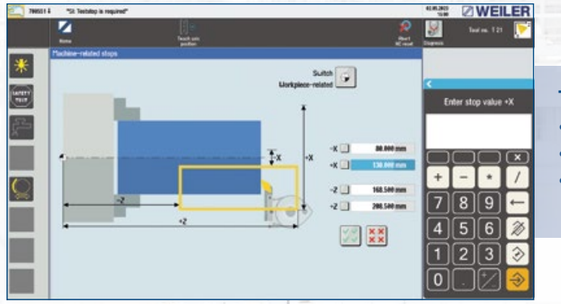
Home screen
Clear presentation of all necessary information

Feed/spindle data

Speed and feed values
- Easy input of speed and feed values
- Parameter input from the tool database
- Oriented spindle stop (teach-in)
- Speed limit

Positioning

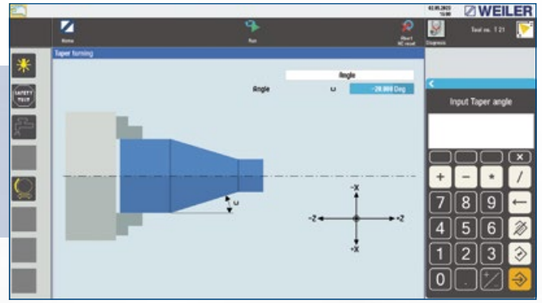
Positioning
Automatic positioning of the tool



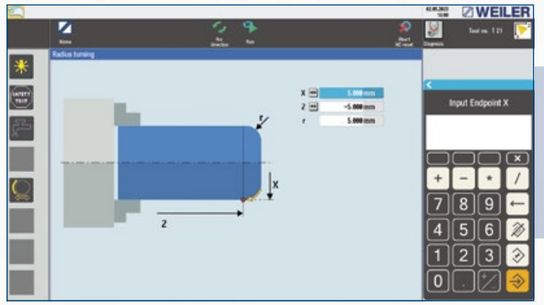
Setting stops

Turning against the stop
- Setting stops longitudinal and transverse
- Stops in (+) and (–) directions
- Active in automatic feed and when working with the handwheels

Taper turning
- No programming required
- Turning any tapers in all directions
- Also with boundary (turning against one shoulder)



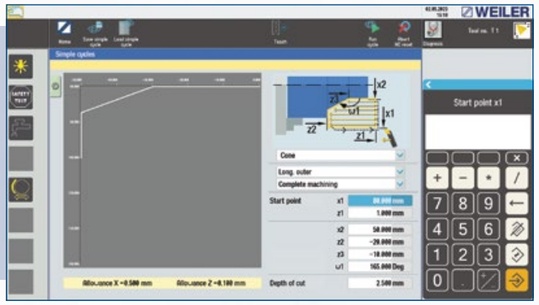
Simple taper turning



Radius turning

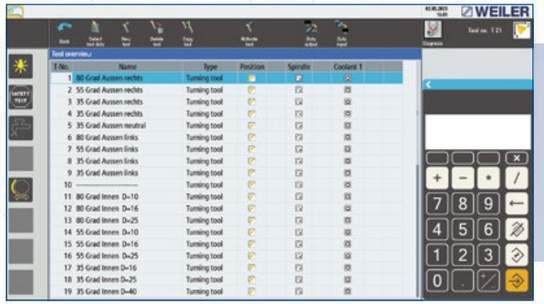
Radius turning
- Convex and concave arc
- Free entry of radius and end point coordinates

Single cycles
- Cutting longitudinal/transverse
- Internal and external machining
- Thread machining
- Calculation of the thread depth based on the pitch entered
- Quick implementation with few data entries
- No entry into the programming level necessary



Single cycle

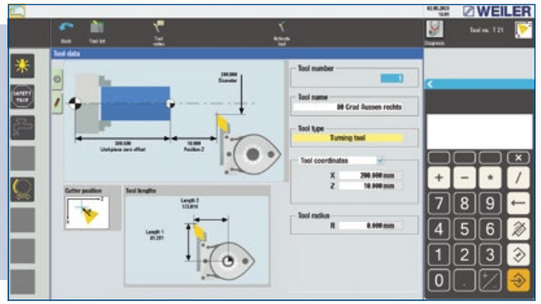
TOOL MANAGEMENT



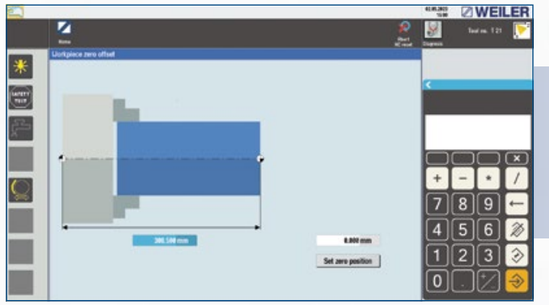
Tool table

- 300 tools
- Copy and delete function
- Direction of spindle rotation for automatic operation
- Coolant for automatic operation
- Tool stations at tool turrets
- Easy selection by tool name, tool type and cutter orientation

- Menu-assisted input of tool data
- Tool definition by name, type, coordinates, tool orientation, tool radius and tool width
- Tool display
- Setting values and tool wear separated in the data storage
- Hints (comments)



Single tool



Setting the zero position

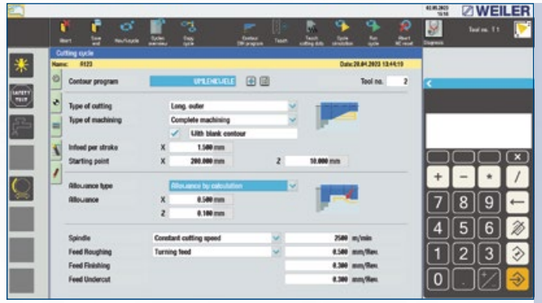
Zero-point offset
- Adaptation to different machining types, workpieces and their dimensions
- Well-arranged graphics for data input
- Accessible in all relevant areas

CYCLE TURNING – GENERAL

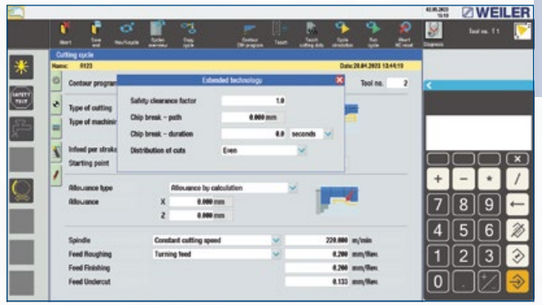
Overview of cycles (the figure includes options)

General information on cycles
- Workpiece-related management of cycles and DIN programs
- Easy programming through machining parameter and geometry data screens
- Graphical support for data entry
- Safety distances are programmable individually
- Parameter lists for part families
- Programming in parallel to machining
- Simulation
- Search function for work steps already been created (text search)
- Blank definition

CYCLIC TURNING – CUTTING



Cutting cycle – various parameters for machining

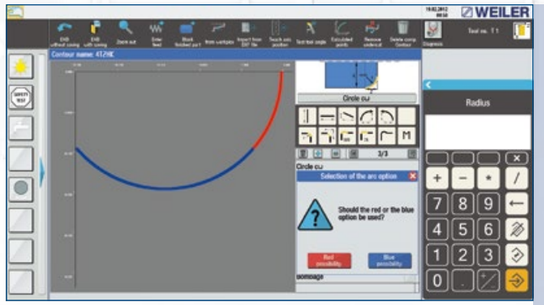


Cutting cycle – extended parameters for machining

Cutting – technology
- Machining longitudinally/transverse
- Machining inside/outside
- "Diagonal" machining (for more stability and improved chip removal)
- Contour-appropriate finishing allowance
- Technologically optimised undercut machining
- Chip breaking cycle for long-chipping materials
- Automatic tool angle monitoring, also in the feed direction
- Consideration of preformed blanks (forgings, castings, pre-turned workpieces)
- Easy blank contour input using the teach-in function
- Optimised cut distribution

Diagonal cutting
The WEILER one1 offers the option of diagonal cutting for the external machining of long, narrow workpieces and internal machining of long holes.
- Higher cutting speeds and feed rates
- Greater stability thanks to larger boring bar diameters
- Improved chip removal

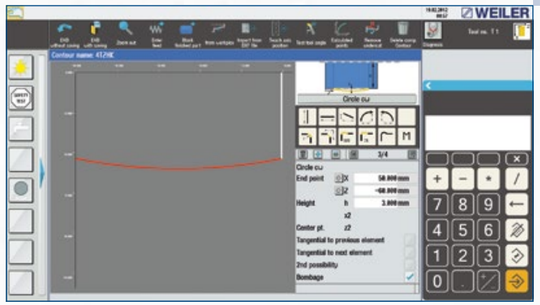
CYCLIC TURNING – POWERFUL GEOMETRIC CALCULATOR



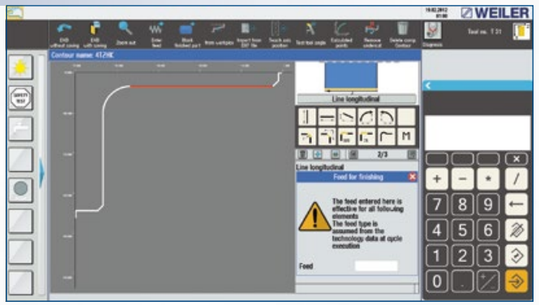
Calculation of points of intersection line/circle with the possibilities "red/blue"

Powerful geometry calculator

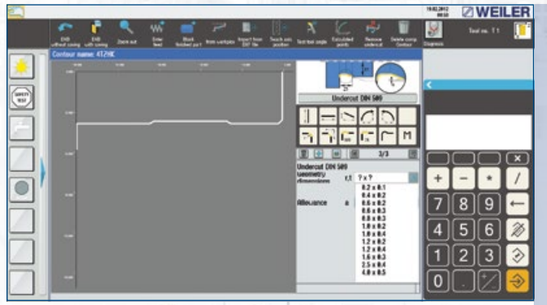
- Easy element selection using symbols
- Support for data entry with auxiliary graphics
- Automatic calculation of intersections and tangential transitions
- Predefined macros for undercuts according to DIN
- Freely definable contour macros for recurring contour sections
- Circle camber by only specifying the height
- Correction-friendly design (e.g., for prototype construction)
- Element-related feed input for optimised smoothening process
- Use of parameter lists to determine part families
- Zoom function for improved display of details



Circle camber



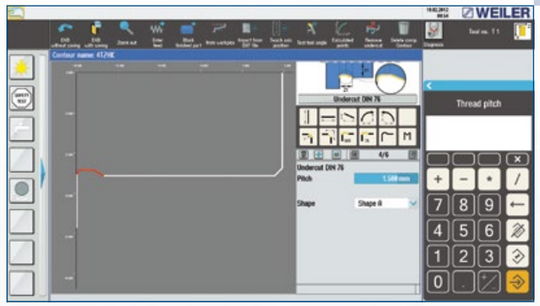
Feed input



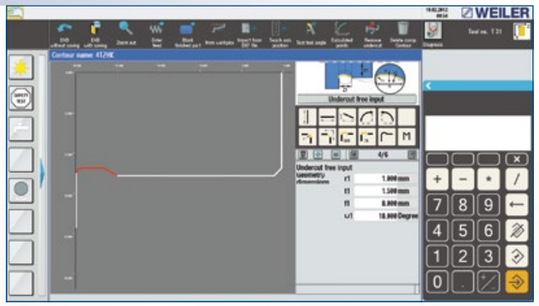
Undercut selection DIN 509

Macros for undercuts

- DIN 509 forms (E, F, G and H)
- DIN 76 forms (A, B, C and D)
- Individually with free input of radius, depth, length and angle



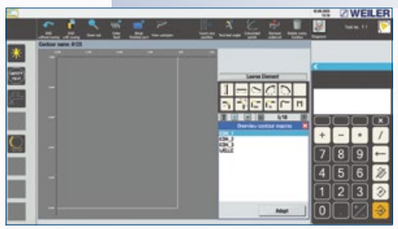
Undercut programming DIN 76



Individual undercut programming

Macro creation

Freely definable contour macros



Macro selection

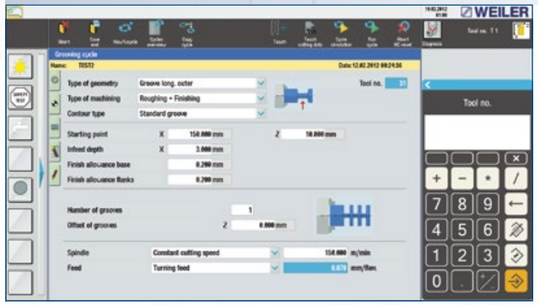
Geometry with inserted macros

CYCLIC TURNING – GROOVING/PARTING

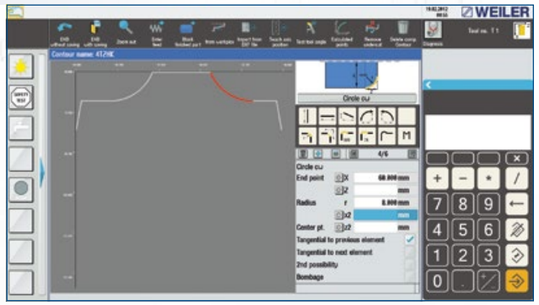
Grooving cycle
- Longitudinal and transverse
- Internal and external
- Standard/free contour

- Parametrisation according to the drawing, therefore no need to convert dimensions

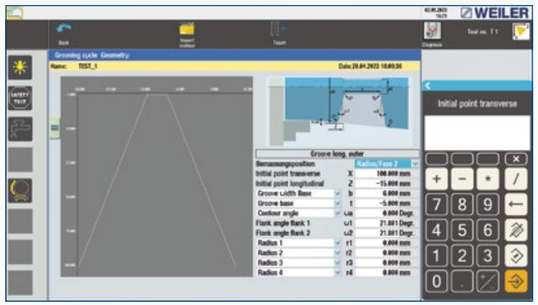
- Free choice of machining strategy
- Technologically optimised groove turning



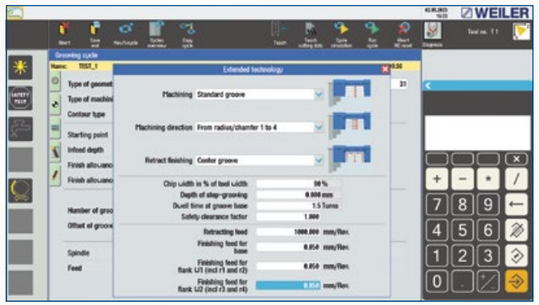
Grooving cycle – various parameters for machining



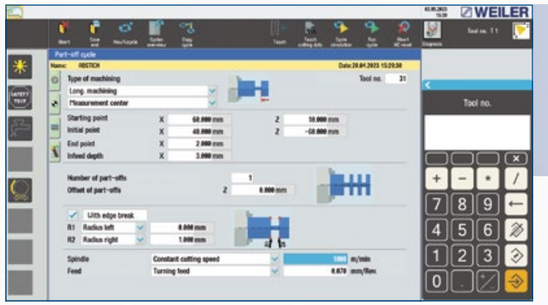
Geometry input – free groove contour



Geometry input – standard geometry



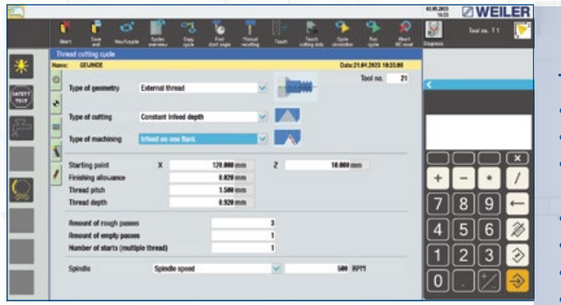
Extended parameters for machining (standard)



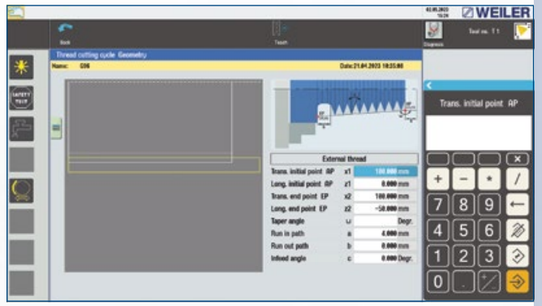
Parting cycle

Parting cycle
- Quick programming of simple grooves (longitudinal and transverse)
- Parting of workpieces
- With chamfers/radii

CYCLIC TURNING – THREADS



Cycle machining

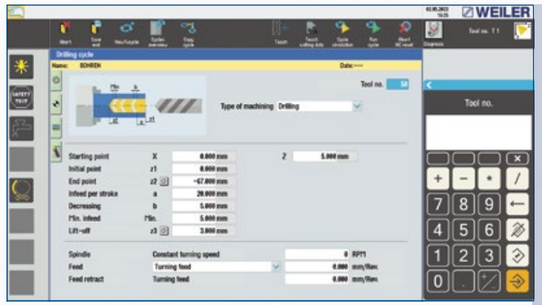


Thread geometry

Thread cycle
- Easy creation of all thread types
- API mode for oil-tight, gas-tight threads, etc.
- Trapezoidal mode for machining large trapezoidal threads to reduce cutting pressure
- Cable drum threads
- Standard mode with various infeed options
- Longitudinal, transverse and tapered threads
- "Quick retraction" function when the cycle is interrupted
- Metric, imperial, modular and diametric pitch threads
- Multi-start threads through starting angle offset
- Constant, progressive or degressive pitches
- Technologically sensible machining of multi-start threads (machining in layers)
- Additional cuts for thread optimisation with handwheel feed
- Speed change during cutting
- Thread machining through manual rework like on a conventional machine

Recutting existing threads
- Threading into the existing thread using a simple teach-in function when the workpiece is stationary
- Thread machining while the workpiece is running. In this process, the machine does NOT carry out an automatic delivery. Instead, the handwheels can be enabled. This allows an infeed carried out in both axes.

CYCLIC TURNING – DRILLING



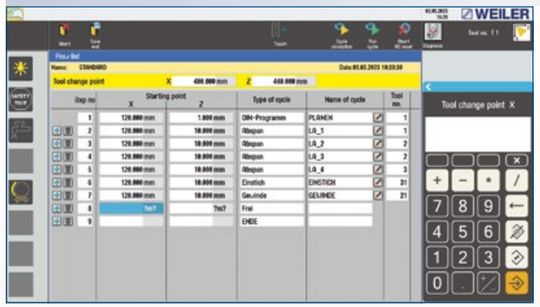
Drilling cycle

Drilling cycle
- For centric machining
- Centring, drilling, reaming, tapping
- Deep hole drilling
  - Linear/degressive infeed
  - Chip break/chip removal
- Tapping with automatic direction reversal at the thread end
- Separate feed input for machining and retraction

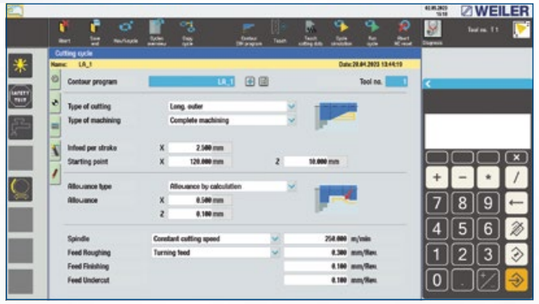
CYCLIC TURNING – REPEAT PARTS LIST/ WORKPIECE PROGRAM

Repeat parts list
- Connection of all individual steps (cycles/ DIN ISO) into a complete workpiece program
- Clear presentation
- Automatic program sequence with manual tool change or turret
- Automatic program sequence with manual tool change or turret
- Consideration of several machining types, workpieces and zero points
- Positioning cycles for measuring or individual tool change points
- Display of the tools used
- Direct editing of the individual work steps

EDIT



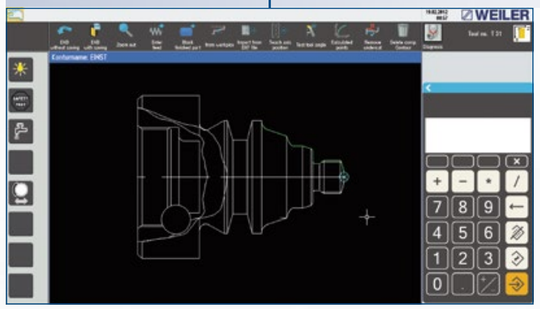
Repeat parts list



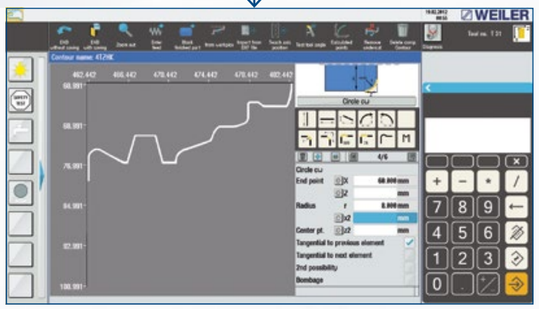
Cutting – extended parameters for machining

DXF IMPORT (OPTION)

Importing DXF drawings
- Transfer of drawing data in DXF format to the machine control
- Generating a cutting contour
- Selection of various layers
- Various modes for selecting the required contour elements
- Zoom function
- Consideration of drawing scales
- Converting imperial – metric or metric – imperial
- Mirroring around the X/Z axis
- Contour turning
- Trimming individual contour elements
- Reworking is possible in the contour editor (delete, insert elements, change dimensions)

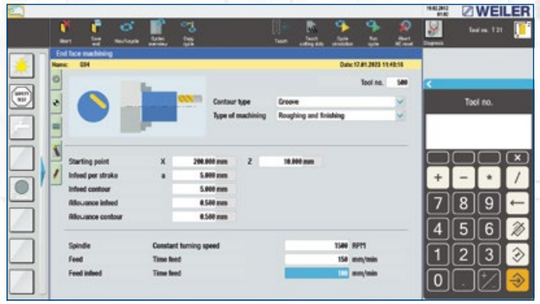


CAD drawing

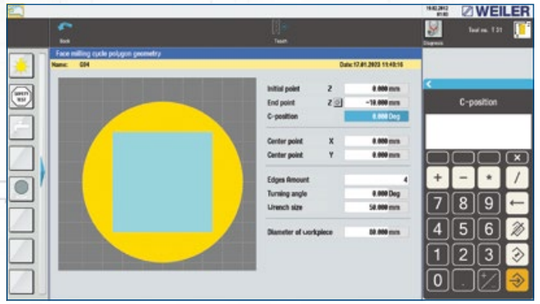


Imported contour

CYCLIC MACHINING WITH THE C-AXIS (OPTION)

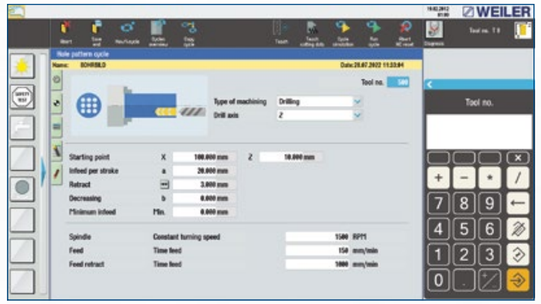


Data/parameter input screen for face milling with "groove" geometry



Geometry data screen with square

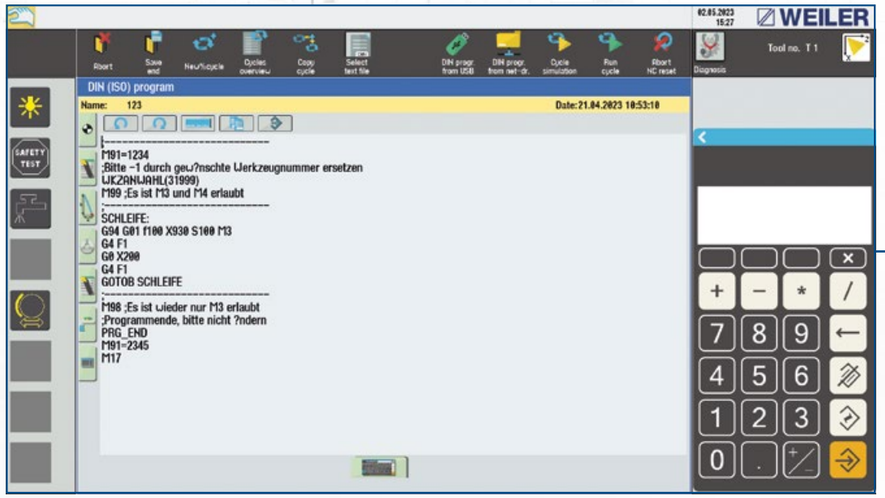
Geometry data screen "groove" (lateral surface)



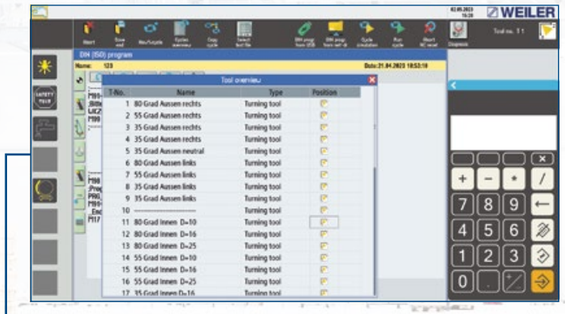
Hole pattern cycle – various parameters for machining

Cycles for:
- Circular thread machining
  - Centric
  - Bolt circle
- Thread milling
  - Thread start
  - Thread end
- Polygon
  - Square
  - Hexagon
  - Triangle and other polygons
- Spanner attachment faces
- Faces
- Circular grooves of different widths
- Splined shaft profiles
- Lubricating grooves
- Drilling pattern with Cartesian coordinate programming
- Eccentric
- Engraving to label your workpieces (certification)

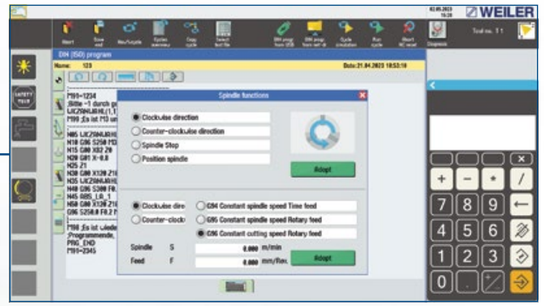
CYCLIC TURNING – DIN/ISO



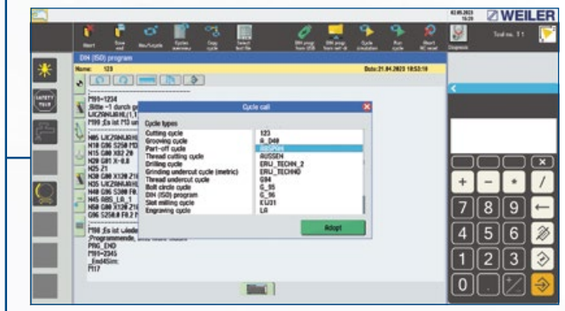
DIN editor



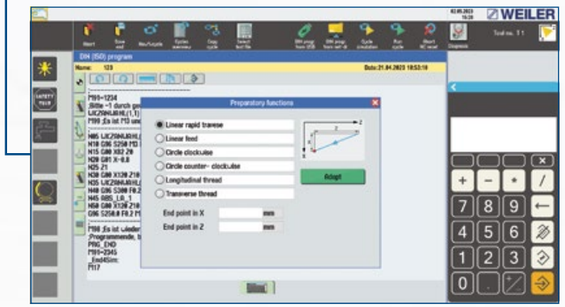
Tool access



Machine parameters



Cycle access

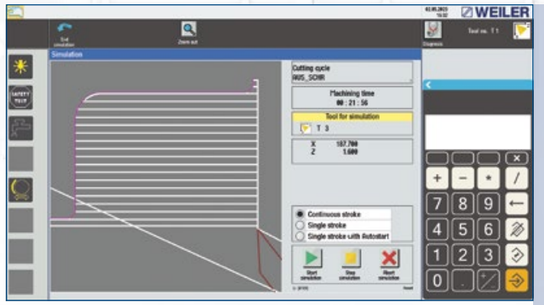


Path requirements

DIN/ISO

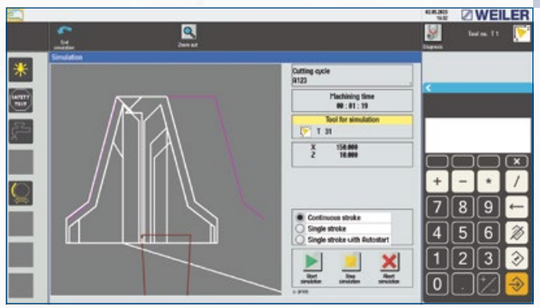
- A DIN/ISO program can represent an individual work phase or a complete process.
- DIN/ISO programs and cycle programs can be combined as desired
- Input assistance for
  - Tool access
  - Machine parameters
  - Path requirements
  - Cycles
  - Spindle functions
  - Functions for powered tools
- Transfer of text modules (e.g., X/Z coordinates) from other text files

CYCLIC TURNING – SIMULATION



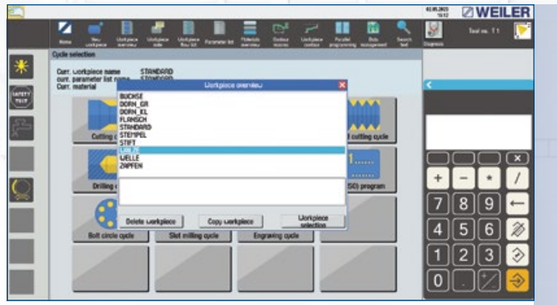
Cutting simulation

Line graphics
- With workpiece and blank representation
- With representation of the cutting insert
- Single or continuous stroke version
- Output of the individual coordinates X/Z for improved monitoring
- Zoom function for displaying details
- Plane switching for turning, face or lateral surface machining



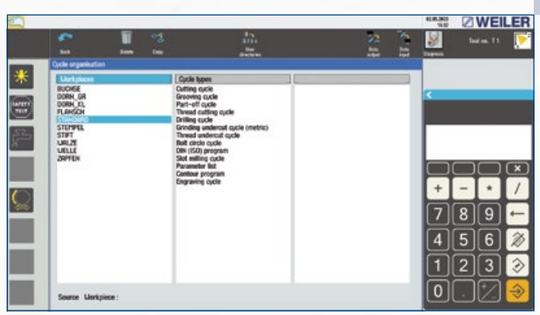
Grooving simulation

CYCLIC TURNING – DATA MANAGEMENT

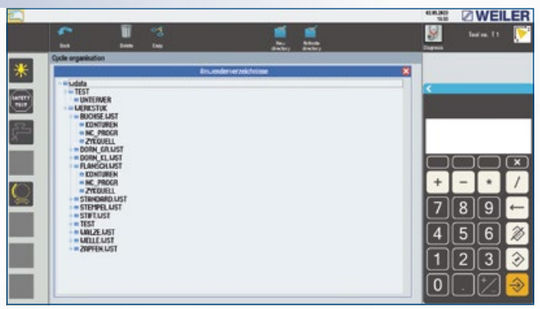


Workpiece selection with comments

Data management
- Copying and deleting individual cycles or complete workpiece archives
- Creating and managing customer-specific directories
- Comments



Cycle management



User directories

WEILER one1 Control

Subject to technical changes | 09/23 · 5.0915.06.90.02.08

WEILER

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User videos are available on the WEILER Channel at

YouTube

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