**HEIDENHAIN CNC PILOT 640: High-End Turning at the Push of a Button**

*The HEIDENHAIN turning control CNC PILOT 640 has been impressing customers for many years with many advantages that facilitate the user's high-end turning operations. This is why it is becoming increasingly popular in applications that need to combine simple operation in the workshop with high production quality. This was also recognized by the lathe specialist EMCO, which included the CNC PILOT 640 in the control program for the EMCOTURN E45 and the EMCOTURN E65.*

Their flexibility and numerous support functions make the HEIDENHAIN CNC PILOT 640 a popular turning control in workshop-oriented production. Coupled with the optimized motion control typical of HEIDENHAIN controls, these advantages ensure particularly efficient, process-reliable and high-quality production of individual parts and series as well as simple and highly complex workpieces.

**TURN PLUS – NC program at the push of a button**

With TURN PLUS, the user creates his NC programs on the CNC PILOT 640 in the shortest possible time. After describing the raw and finished part contour, the user need only select the material and the clamping device—TURN PLUS does everything else automatically:

* Analysis of the contours
* Selecting the machining strategy
* Selecting tools and cutting data
* Generating NC blocks

The result is an extensively commented smart.Turn program with work blocks that are termed units. The CNC PILOT 640 automatically generates the part program even for complex workpieces that need to be machined on the front face, back face, and lateral surfaces. After geometry definition, this saves up to 90 percent of the time required for conventional part programming.

**Interactive Contour Programming (ICP)**

For complex jobs, or when certain dimensions are lacking in the workpiece drawing, you need Interactive Contour Programming (ICP). Either the user of the CNC PILOT 640 describes the contour elements as they are dimensioned in the drawing, or he simply imports the contour from a drawing file in .dxf format.

Provided that they are mathematically defined, the CNC PILOT 640 automatically calculates missing coordinates, intersections, center points, etc. If there are several possible solutions, the control displays the mathematically possible variants so that the user can select the desired solution. Moreover, existing contours can be supplemented or changed at any time.

**Visual inspection even before machining**

The high-resolution, finely detailed 3-D simulation of the CNC PILOT 640 shows the production result of turning, drilling or milling processes even before the actual machining. The freely rotatable view about the axes permits visual inspection of the blank and finished part from all angles. Intuitively, the user navigates and zooms into every programmed detail—of course even with C-axis contours on the cylindrical surface or face, and with Y-axis contours in the tilted plane. In this way, the 3-D simulation enables you to detect even the smallest error already before machining. Even with complex multi-channel programming, the tool movements of the slides involved on the workpieces can be simulated in advance and displayed.

**Load monitoring detects tool wear and breakage during machining**

The load monitor observes the motor load of the machine’s spindle and feed axes while comparing them with the utilization values of a reference operation. The CNC PILOT 640 can graphically display the utilization rates in a separate window. To do this, the user sets two limit values that cause different error responses:

* After the first limit value is exceeded, the current tool is flagged as worn out and the control automatically exchanges it on the next tool call with a predefined replacement tool.
* After the second limit is exceeded, the CNC PILOT 640 assumes that there is an impermissible load (e.g., tool breakage) and stops the machining process.

This significantly increases process reliability during processing, particularly in unmanned shifts.

**Full-surface machining with B axis and counter spindle**

Machines with B axes make it possible to drill, bore and mill in oblique planes. The CNC PILOT 640 solves such tasks easily and quickly, because the user can program his machining as usual in the plane of the principle axes. He therefore profits from

* efficient program creation with smart.Turn
* effective turning, milling, boring and drilling with internal control cycles
* six-sided full-surface machining
* increased productivity and reduced machining time

**State-of-the-art multitouch operation and clear-cut display**

The CNC PILOT 640 is also available with a practical touch screen conceived for harsh workshop conditions. It is splash proof, scratch-resistant and certified for IP54 protection. The screen can be operated with gestures such as are commonly used on mobile devices.

On its touchscreen, the CNC PILOT 640 gives the user a clear view of all the information he needs to program, operate and check the control and machine.

* During program input, the required parameters are illustrated in help graphics.
* In the simulation, all movements of the tool are displayed in a detailed and realistic manner.
* During the program run, the CNC PILOT 640 displays all information on the tool position, speed and load of the drives as well as the current machine condition.

**Efficient turning in networked production**

The user of a CNC PILOT 640 can use Connected Machining to retrieve all important data from the network and apply it directly at the control. This includes, for example, the display of graphic or PDF files using the standard functions of the control.

The Remote Desktop Manager enables the user to switch from the control screen to the surface of a Windows PC. Technical drawings, CAD data, NC programs, tool data, work instructions, parts lists and warehouse information are therefore digitally available at the machine. The right information is always available on the right machine in the right quality and at the right time.

The StateMonitor software and Extended Workspace display from the Connected Machining package also allow users to keep track of the status of their machines anytime, anywhere.

StateMonitor runs on any device that has a web browser, for example on PCs, smartphones and tablets, but of course also on HEIDENHAIN controls and Extended Workspace. The software provides a quick overview of the current machine and job status of the connected machines as well as information on machine messages. Beyond this, StateMonitor can also send an e-mail upon certain events, e.g., at the end of the program, notifying machine downtime or as a service message. The recipient of the machine messages can react immediately and take appropriate action.

Extended Workspace offers as an additional monitor beside or above the actual control screen, such as for a view of an office computer that is connected via the Remote Desktop Manager or the StateMonitor software. The control screen continues to display the running NC program. Extended Workspace can be configured individually for the desired applications. The integrated computer manages the running applications itself and has its own powerful processor.

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| O:\Persoenliche_Ordner\Poestgens\Datenbereitstellung\Bilder EMCO\FST_3330.jpg | *The CNC PILOT 640 from HEIDENHAIN masters the latest demands on turning.* |
| O:\Persoenliche_Ordner\Poestgens\Datenbereitstellung\Bilder EMCO\FST_3286.jpg | *Its simple operation is the special strength of the CNC PILOT 640 from HEIDENHAIN.* |
| O:\Persoenliche_Ordner\Poestgens\Datenbereitstellung\Bilder EMCO\FST_3274.jpg | *Its strengths are unmatched: EMCO has added the CNC PILOT 640 from HEIDENHAIN to the control program for the lathes EMCOTURN E45 and EMCOTURN E65.* |
|  | *TURN PLUS saves time: contour, strategy and tools result directly in the NC program.* |
| O:\Persoenliche_Ordner\Poestgens\Documents\Texte\Presse\Presse-Informationen\Produkte\Steuerungen\Unterlagen\CNCPILOT640_Touch_VA19_s_V02_de_office.png | *The CNC PILOT 640 from HEIDENHAIN with touchscreen enables intuitive operation using gestures directly on the screen.* |
|  | *Multi-touch operation and 3-D simulation: intuitively check whether the production result will be correct.* |
|  | *Connected Machining integrates the HEIDENHAIN controls for milling and turning into the company network.* |

***For more information, visit:***

[www.heidenhain.de](http://www.heidenhain.de)

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