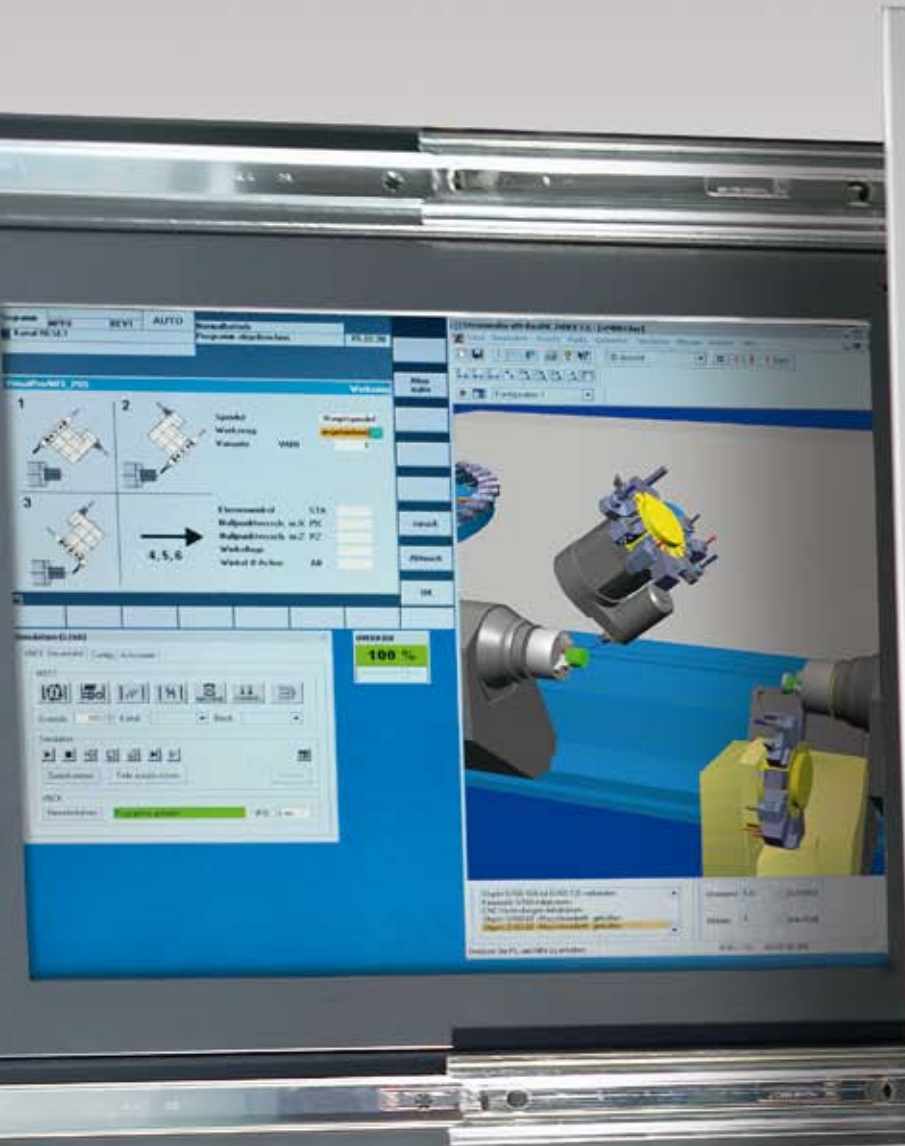


## VirtualLine

VirtualPro  
Programming support



## Programming support for practical work



### **VirtualPro is a new programming support for INDEX turning machines\***

A large number of powerful input masks, parameterizable sequences and geometric functions simplify programming considerably. You arrive at the desired workpiece program more comfortably and more quickly and thus more safely. VirtualPro allows you to carry out programming either directly on the control display of the real machine or as extension of the INDEX Virtual Machine directly next to the machine control, as desired. (see figure)

\* INDEX turning machines equipped with 840D control: ABC, C100, C200, G200, G300, G160, G250, G400, MS series

## The standard of programming



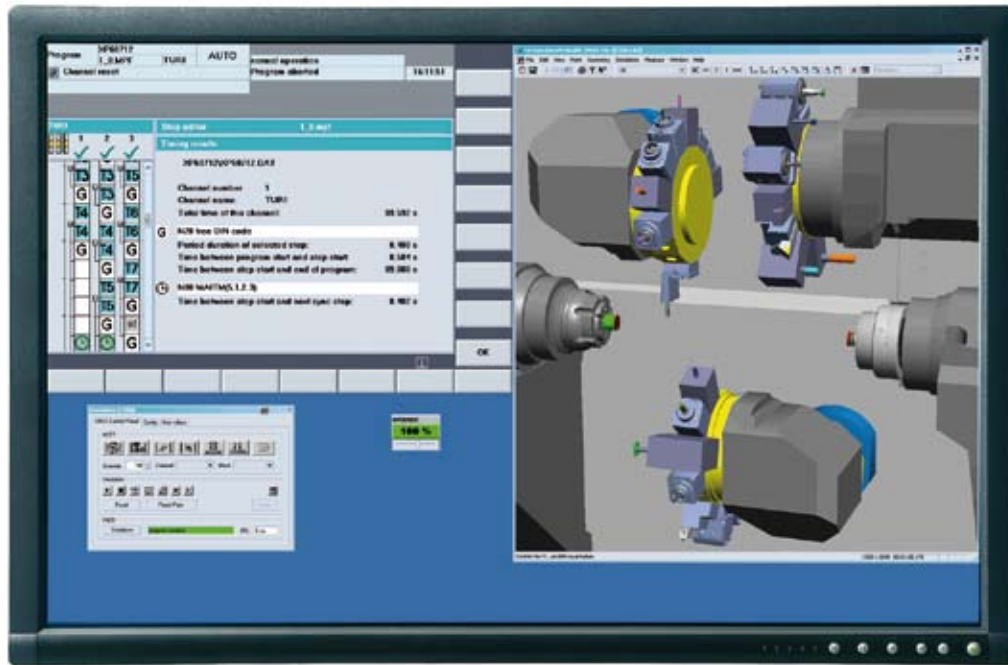
### More comfort

- Practice- and machine-oriented graphics for programming support
- All cycles and functions reconvertible
- Simple geometry definition by means of contour generator
- Read-in of complex geometries via DXF reader
- Quick access to your own created program templates
- Perfect integration into the INDEX C200-4D machine control
- Optimum addition for the Virtual Machine from INDEX

### Clearer view

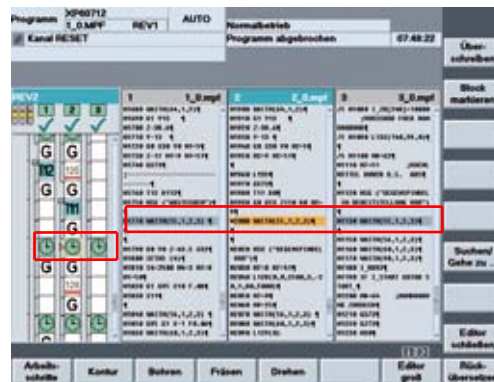
- All channels at a glance, even during programming
- Time-synchronous display for easy identification of optimization potentials
- User-specific display as NC code or as machining description
- Exact display of waiting times at WAIT-marks
- Easy-to-understand structuring of the cycles and functions according to technologies
- Quick access to programming instructions, cycle descriptions, and help documents

# Optimization included



**See more – Know more**

- Active recording of the program runtime at the real or Virtual Machine
- Status signals for displaying the current time
- WAIT-mark synchronized or runtime-proportional program display (following recording)
- Numeric output of the machining-step-related program runtime per channel
- Runtime-related, synchronized sequence display of all channels (of the workpiece program)
- Display of the total program runtime per channel (cycle time)
- Optimization support through output of the waiting times at WAIT-marks
- Far-reaching optimization options through program-run-related time analyses



# Programming using ready-to-use solutions



- B axis functions**
- Working in rotated coordinates
  - Tool change including positioning
  - Milling in an inclined plane



- Tool retraction**
- In 1, 2 or 3 axes
  - With preset axis order
  - To change position or freely defined



- Undercut contour**
- According to DIN 509x, DIN 67C
  - Freely defined

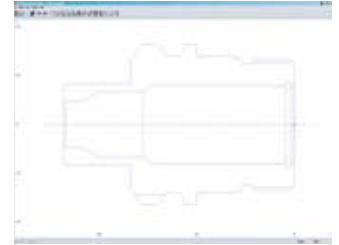
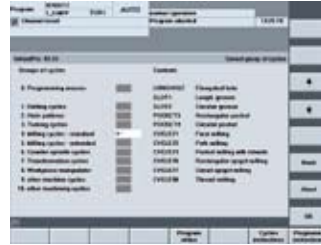


SINUMERIK

Werkzeugname	Werkzeug-ID	Werkzeug-Größe	Werkzeug-Material	Werkzeug-Form
Werkzeug 1	1	0.000	Al	1
Werkzeug 2	2	0.000	Al	2
Werkzeug 3	3	0.000	Al	3
Werkzeug 4	4	0.000	Al	4
Werkzeug 5	5	0.000	Al	5
Werkzeug 6	6	0.000	Al	6
Werkzeug 7	7	0.000	Al	7
Werkzeug 8	8	0.000	Al	8
Werkzeug 9	9	0.000	Al	9
Werkzeug 10	10	0.000	Al	10

INDEX C 200-4D

## Program creation made easy



### Multi-channel step editor

- Optimum overview and navigation; easy channel (program) switchover
- Basis of multi-channel, parallel workpiece program creation
- Parallel WAIT-synchronized or runtime-related view
- Runtime-based display and optimization functions
- Direct change "Large" ASCII single program view and between channels

### List of functions/ cycles

- Tabular overview of technological and functional cycles
- Logic structure by machining type and function
- Graphics-supported detail selection
- Explanatory text and graphics diagram for input parameters
- Directly reconvertible to the originally used parameterization mask
- Online programming instructions for program commands, cycles and functions

### Contour generator

- Contour definition through geometric elements (Cylinder, cone, circle, etc.)
- Programming of continuous contour paths
- Insertion of form elements in and between the geometric elements
- Automatic calculation of open geometries (up to 5 unknowns)
- Reconvertible as contour path

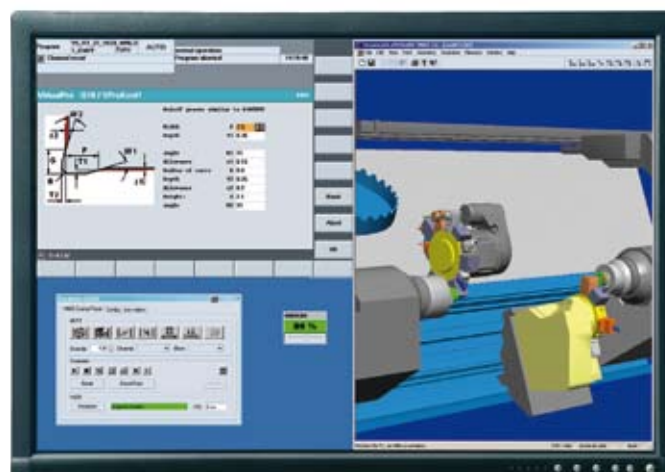
### DXF reader

- 2D contour tracking including application of geometry to open workpiece program
- Coordinate definition, setting zero point, clean-up of measurement and auxiliary lines
- Reconvertible to geometry processor, for example for subsequent contour changes
- Direct access from (multi-channel) editor of the control

## Operating comfort made-to-order

The VirtualPro programming support makes a 1:1 copy of your individual machine configuration. The only machining operations to be offered are those that can actually be machined using the existing machine configuration.

VirtualPro is available in three application versions:



2. As extension of the INDEX Virtual Machine software on the PC



1. Directly on the control of the machine (excluding simulation)



3. As extension of the INDEX Virtual Machine directly next to the machine control (including simulation)

# Technical specifications (excerpt)

VirtualPro functions	Examples
Macrofunctions	Selection of turning/milling, setting stops, tool retraction
Workpiece handling	Workpiece from counter spindle, remnant from main spindle
Drilling	Drilling and end facing, deep-hole drilling, tapping
Drilling patterns	Row of holes, circular hole, point grid
Turning	Groove, undercut, metal-cutting, extended metal-cutting
Milling - standard	Slot on circle, circular slot, rectangular pocket, face milling
Milling - extended	Ellipsis milling, polygon milling (axial or radial)
Counter spindle machining	Pulling workpiece forward, counter spindle as tailstock
Transformations (face/circumferential surface machining)	Cylinder track milling, machining on the circumference
Spindle and C axis functions	Spindle positioning, electronic spindle coupling
B axis machining	Rotated coordinates, B axis traversing, tool change and positioning
Other machining operations	engraving cycle, transverse bore deburring, parting-off

VirtualPro template	Description
Insertion	Insertion of predefined program templates (including multi-channel ones)
Organizing	Memory location for filing and organizing templates
Creation	Easy creation of templates using the program editor

VirtualPro contour generator	
Contour start	Start coordinates (diameter/length), definition of name
Contour elements	Cylinder, circle, cone, chamfer, rounding, fits
Contour path	Straight line, circle, chamfer, rounding
Form elements	Thread undercut, groove (radial and axial)
Correction	Undo element

VirtualPro DXF reader	
Contour application	Files in 2D format, definition of machine axis names, selection of machining plane, definition of zero point
Contour elements	Definition of start element, definition of end element, individual tracking of contour sequence, selection of drilling patterns, saving contour
Transfer folder	File storage without VirtualPro being open after "TRANSFER" or direct access to "TRANSFER" folder from CAD reader
Auxiliary functions	Clean-up of measurement and auxiliary lines, zoom $\pm$ , Contour fitting and rotating

VirtualPro multi-channel step editor	
Multi-channel (workpiece) editor	Workpiece machining ("workpiece" view), parallel display of all workpiece programs, "Large" single program view
Synchronized program view	Normal view (continuous step sequence) WAIT-marks synchronous view, runtime synchronous view (by program run), machining time display for machining blocks and overall viewstep
Sequence display	Structuring into machining blocks, compressed or expanded representation, working steps/ASCII view, navigation aid
Functions	Recording machining times, on-line programming instructions, display of total cycle time, syntax check via synchronous marks

VirtualPro Tool ID sheet output	
When used as extension of the INDEX Virtual Machine, the tools created by the tool manager for simulation can be output as tool ID sheets	
Functions: Insertion of your own company logo, parts list for individual tool components, diagram for tool insertion, remarks, overview sheet, print / export	

**INDEX-Werke GmbH & Co. KG**

**Hahn & Tessky**

Plochinger Straße 92  
73730 Esslingen, Germany  
Tel. +49 (711) 3191-0  
Fax +49 (711) 3191-587  
[www.index-werke.de](http://www.index-werke.de)

**INDEX Corporation**

14700 North Point Boulevard  
Noblesville, IN 46060, USA  
Tel. +1 (317) 770-6300  
Fax +1 (317) 770-3166  
[www.index-usa.com](http://www.index-usa.com)