

## SYMplus Milling - for cost-efficient, time-saving and economic working

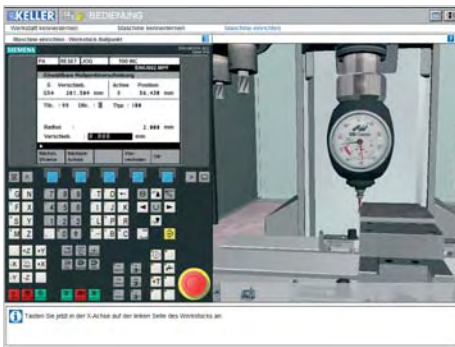
CNC software  
**SYMplus Milling**  
 Item No: 358 3850  
**€ 2'000.00 (VAT excl.)**

SYM plusMilling is the ideal software add-on for the machine OPTI F100 CNC:

This training software supports the rapid training for the operation of the control Sinumerik 802S. The employees who are having little CNC experience can learn the basics of the DIN programming using the SYMplus and finally also write and test programs with 802S cycles. But principally SYMplus is 2½D CAD/CAM system which is easy to learn, which allows you to save programming times, to avoid crashes and to reduce production times.

The software is subdivided to four modules:

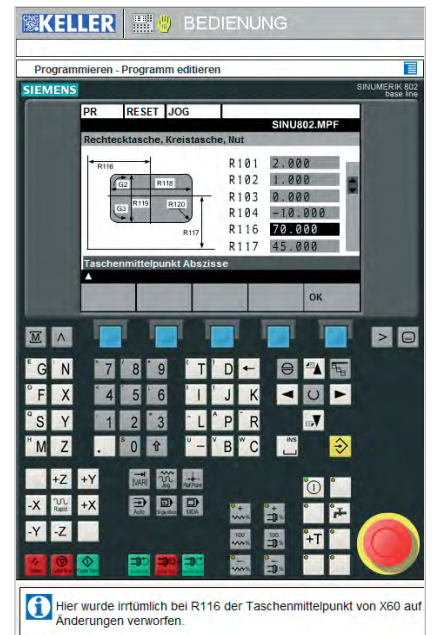
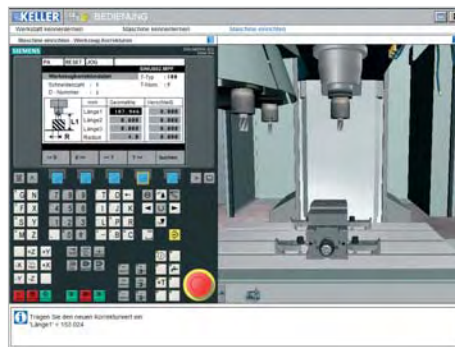
### Module SHOP



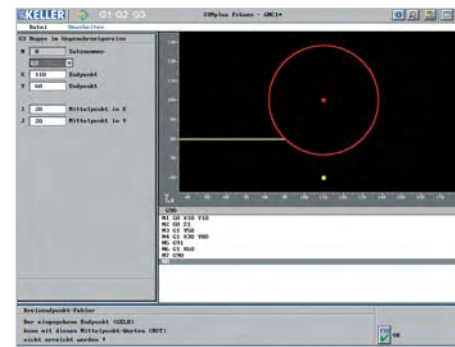
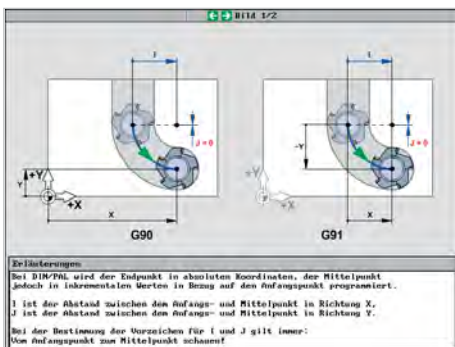
◀ Here you can practice typical action sequences to set up the Sinumerik 802S.

Also inactively practice the key sequences to program the Sinumerik control. ▶

The realistic designed machine (with noises) will give you the feeling to practice very near to reality – without any stress of real risk of crash. ▶

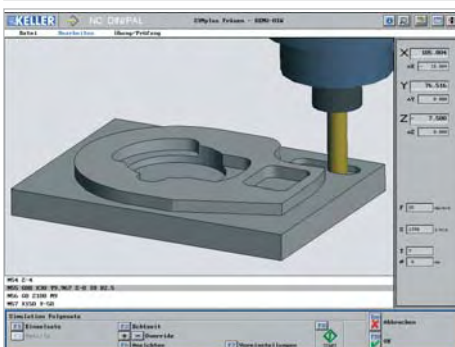


### DIN/ISO module



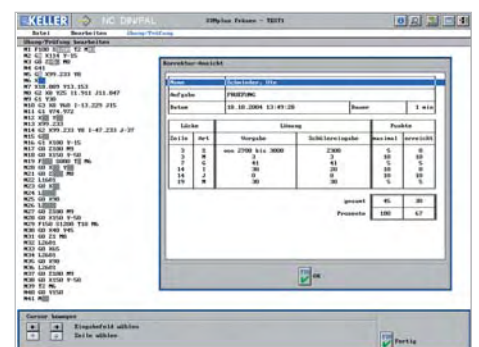
◀◀ On this module you can either learn or polish up the geometric basics of the DIN programming.

There is a context help and a graphic support to perform an error analysis. ▶



◀ You can write complete DIN programs using a controlled editor, check on errors and simulate them.

A test module is included for your trainees. The results are automatically evaluated. ▶

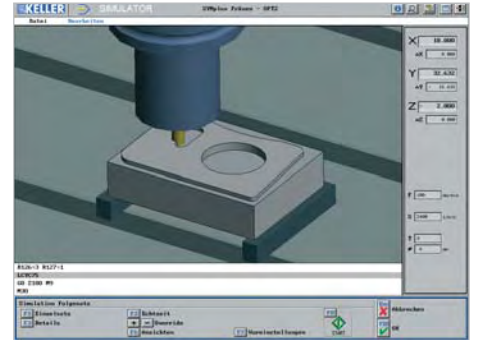
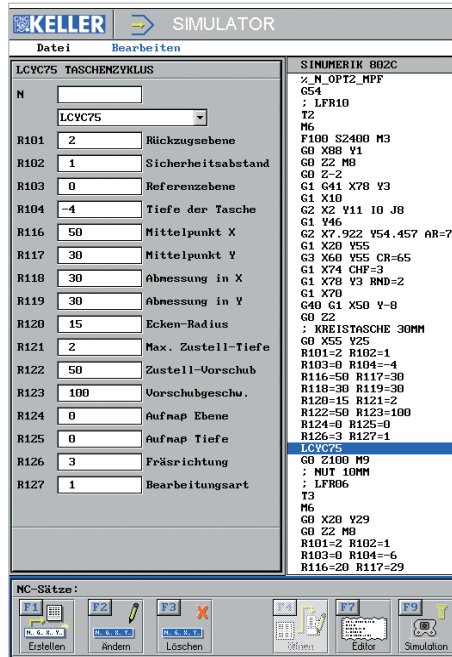


### Module CONTROL

Here you can write and simulate programs using 802S cycles and commands. ►

The clear editor allows you to work efficiently. ►

Help graphics are available for all commands and cycles.



Simulator for 802D is available as upgrade

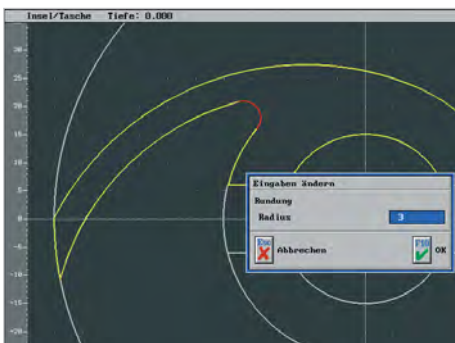
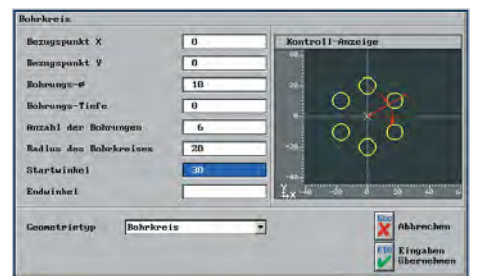
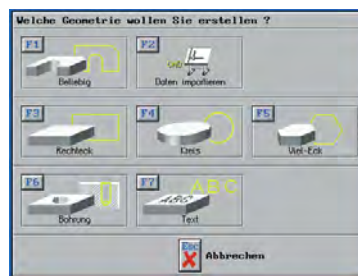
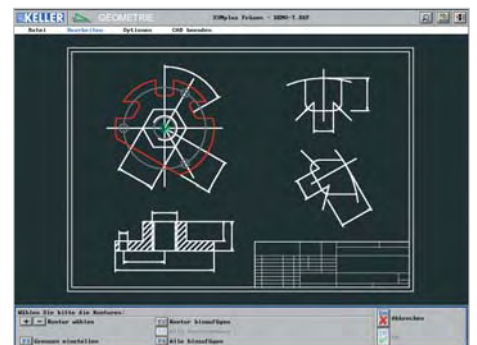
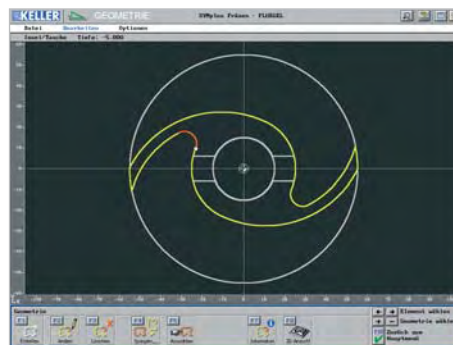
### Module CAD/CAM – Geometry

Unequaled quickly and simply you can graphically program using SYMplus workpieces even if the drawing is not including NC dimensioning. ►

Alternatively you can load and output CAD contours. ►►

There are geometric macros for rectangles, circles, polygons, drilling images and text engravings. ►

Value entries are immediately dynamically converted. ►►



◀ It is also possible to subsequently change any construction data within short time.

It is possible to create symmetric contours by mirroring/turning, etc. Also overmeasure geometries can be created with a few mouse clicks. ►



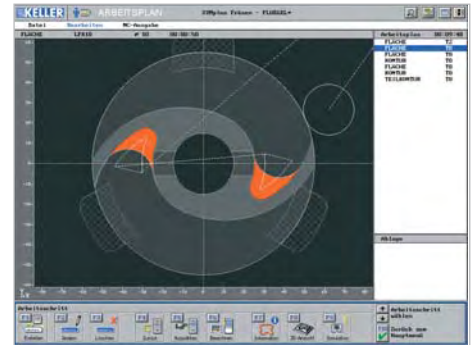
## Module CAD/CAM – Workplan

Operation	Duration
FLÄCHE	T2
FLÄCHE	T8
KONTUR	T8
TEILKONTUR	T8
ANFASEN	T1

Buttons: F1 Fläche, F6 Berechnen

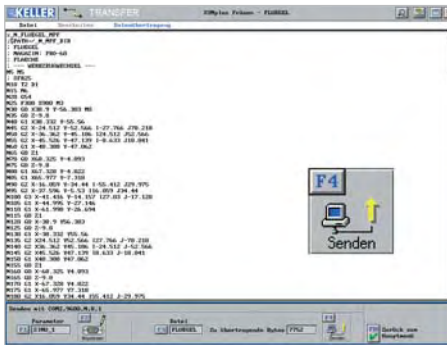
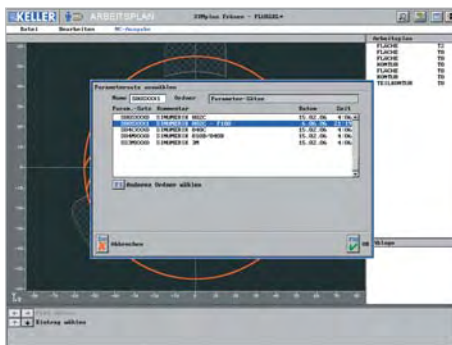
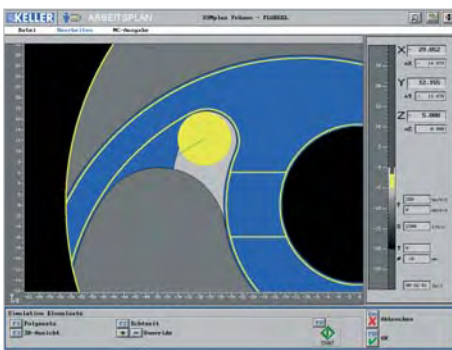
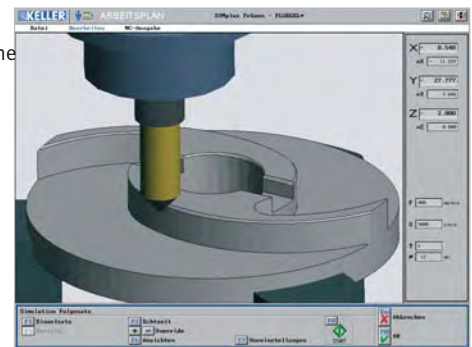
◀ Also the processing is determined graphically by pictograms. You can very easily compare the production strategies and this way, optimize the processing.

The time calculation will help calculating. There are no air chips (the red zones indicate the remaining material). Collision checks are performed for all tool paths. ▶



◀ The 2D simulation shows lots of details in the view from the top such as e.g. overmeasures and the cutting trace of the single milling path.

The 3D simulation will give you the best overview of the operations. Also chamfers and indentations are easy to detect. ▶



◀◀ The NC program for the 802S is created by a mouse click. The post processor for the control 802S of the machine OPTI F100 TC CNC is available as a part of an upgrade. Other post processors are available upon request.

◀ The data transfer is directly performed from the SYMplus to the control on the machine.

## Setting up tools, etc.

Werkzeug-#	20	mm
Werkzeuglänge	80	mm
Schaft-#	30	mm
Fräs-Tiefe	30	mm
Innen-#	12	mm
Innen-Tiefe	3	mm
Zahnzahl	5	
Halter-#	45	mm
Haltergeräthöhe	35	mm
Greifer-#	63.5	mm
Greiferhöhe	16	mm

◀ Tools can be entered geometricaly including shank and holder – this is important for the crash control.

Depending on the material and the operation mode you can save the cutting data for each tool. ▶

Schnittgeschwindigkeit	251.327	m/min
Drehzahl	4000	U/min
Vorschub/Zahn	0.025	mm
Vorschub	500	mm/min
Vorschub (senkrecht)	250	mm/min
Vorschub (Helix/Rampe)	500	mm/min
Zustellmaß	5	mm

Spindel im: Rechtslauf

Eintauchen Senkrecht: NEIN

Eintauchen Helix/Rampe: JA

Maximaler Eintauchwinkel: 5

Bevorzugte Eintauchstrategie: Helix

An Kontur: Eingang-Abheben

◀ You can also save the preferred plunging strategy for pocketing (here helical with max. 5° can be preset).

The tools can be individually configured in magazines. ▶

Anzahl der Stationen: 12

Station: 9

Werkzeug: SFR20

Schaftfräser

Werkzeug-#

Werkzeuglänge

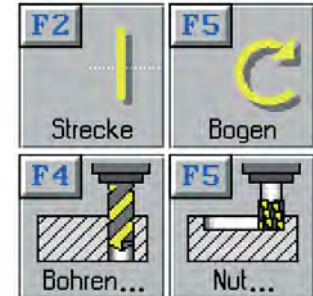
Fräs-Tiefe

Zahnzahl

Buttons: Werkzeug entfernen, Magazin speichern, Magazin-Daten ändern, Arbeitsplan-Magazin laden

**CAD/CAM functionality at a glance****Geometry**

- Interactive contour setting via pictograms. Any contour, rectangle, circle, polygon, drilling images, text
- Constructions of variants to simply change contours, bidirectional CAD interfaces (DFX, IGES)
- Measuring functions, 3D display at any point in time of the construction incl. calculation of volumes and masses

**Workplan**

- Strategies reducing the production time by detection of residues over the whole processing, working with any unmachined parts
- Face milling, surface milling (pockets, islands), contour parallel or shaded with different plunging strategies (helical, ramp, vertical), contour milling, chamfering, grooving, engraving text, handwheel (teaching) clamping, drilling, counterboring, grinding, threading
- Comprehensive collision check, taking the clamping devices into consideration
- 2D and 3D simulation with common types of machines, real time, preview of single records, magnifying glass
- Time calculation for the calculation and to optimize the working plan, automatically created tooling sheet
- Post processor(s) to generate NC programs for your control

**Tool management, data transfer**

- Tool management (geometric and technologic, depending on the material)
- NC editor for easy editing (copying, cutting, searching, replacing)
- Bi-directional data transfer via the serial interface (RS232)

**Versions, licenses, delivery volume**

- SYMplus Milling is available in the languages German, English, French, Spanish, Italian, Dutch, Polish, Hungarian and Slovakian. Other languages are available upon request.
- SYMplus will be delivered on CD-ROM. The license is protected by a USB dongle. The software package includes a manual and a 4-colored exercise book of more than 130 pages.
- The software also always includes a SIMENS post processor (fitting the control of the F100 CNC) to automatically generate the NC programs of your machine. A simulator for the control SINUMERIK 802S and an RS232 interface to transfer the data is also integrated by default. Additional post processors and/or simulators are optionally available.

**System requirements**

- Commercial PC from e.g. Intel Pentium® IV on.  
Operating system Microsoft Windows® 2000/XP
- Microsoft DirectX® from version 7 on or OpenGL from 1.1.2 on, Macromedia SHOCKWAVE PLAYER® Version 10.1.0.11 (included in the delivery volume), Direct3D compatible 3D graphic card (e.g. GeForce 2. 3. 4), screen resolution min 1,024 x 768
- 128 MB main storage or 512 MB main storage for Windows® 2000/XP about 280 MB free fixed-disk storage
- PC keyboard and mouse. CD-ROM or DVD drive. Sound card and loudspeakers
- Serial interface for the data transfer, alternatively USB interface, USB interface for the dongle

**SYMplus Turning**

The SYMplus software is also available 1:1 for the turning technology.