

FEATURES PRESENTATION





MAIN FEATURES OF THE 8060FL

■ Avant-garde browsing

All kinds of advantages to speed up the work of the end user

~~TOUCH SCREEN~~ (Option only on the 8060 model)

USB CONNECTION (Default)

Two USB connectors, one on the back and one on the front.

ETHERNET (Default)

SERIAL LINE (Optional)

To connect devices such as printers, bar code readers,...



■ User memory

CNC MEMORY

Standard memory of 1300 M) for the user.

MEMORY EXPANSION

Compact Flash

USB memory

(Programs can be run directly from both devices)



REMOTE MEMORY

Using the memory of a remote PC.

The user select and run the program directly from the PC.

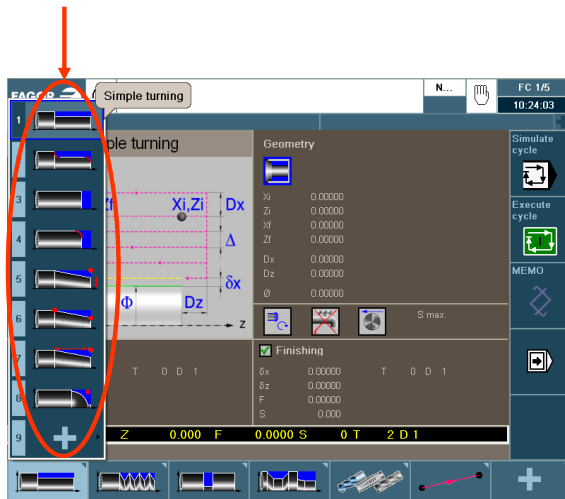
■ Freeware PC workstation (Simulator)



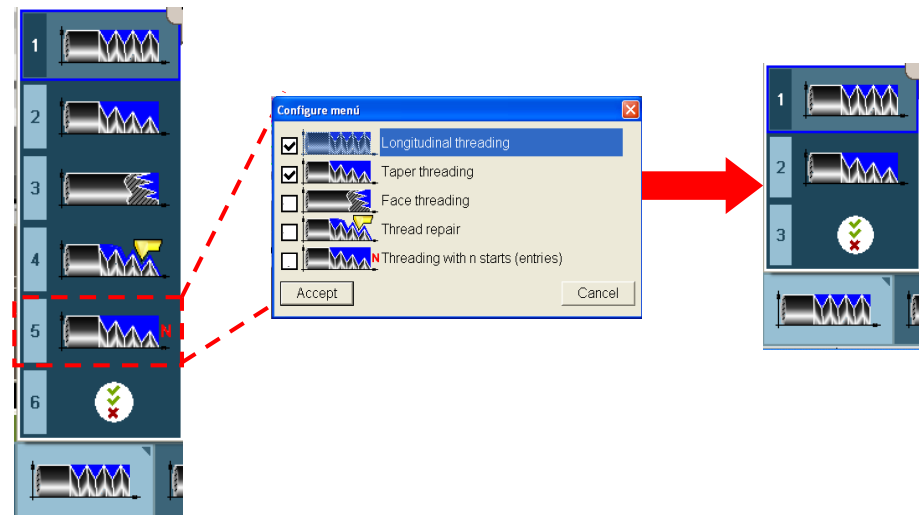
- No expiration date
- Unlimited size for programs on edition or execution
- Same features as the CNC 8060
- Real machine configuration can be loaded.
- Software available on Fagor website.

■ Visual and interactive interface

Pop-up navigation



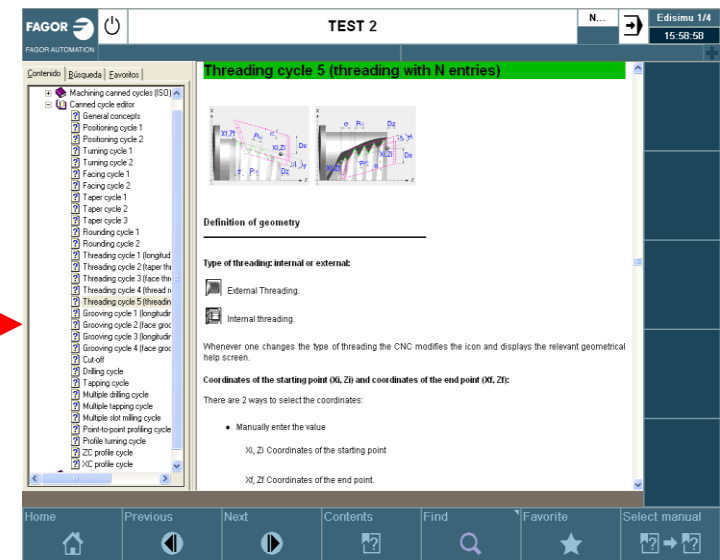
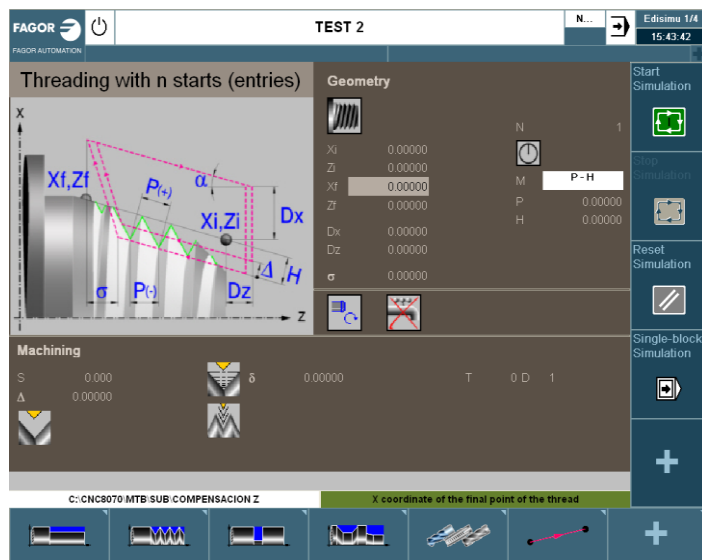
User customizable interface



■ Integrated manuals

The CNC integrates the operating and programming manuals.

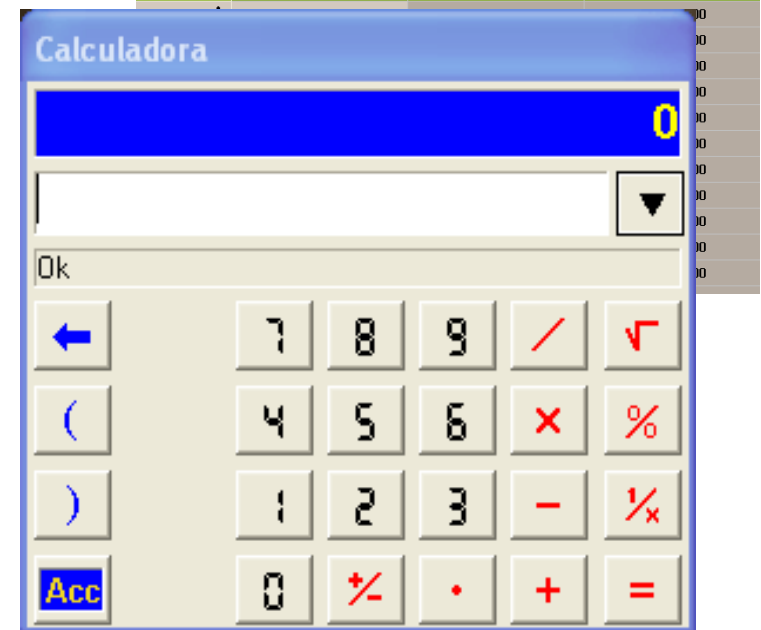
The chapter related to the current operation is displayed.



■ Part preparation assistance (Calculator)

- Calculations are made faster
- Errors are avoided when writing the data.

Origen	X (mm)	Y (mm)	Z (mm)
PLCOF	00000.0000	00000.0000	00000.0000
G158			
G54 (G159=1)	00000.0000	00180.0000	00000.0000



Visual tool tables



Simplified mill

Simplified lathe

Offsets and wear management

FAGOR AUTOMATION READY COPY DUBAI-SCHRUPPEN.M55 N... Tools 14:52:25

M TOOLS: STANDARD

T	D	Mz	Name	L	R	Rp	Lc	Ae
1	1	1		75.0000	31.5000	0.0000	10.0000	0.0000
2	1	1		100.0000	7.5000	7.5000	10.0000	0.0000
3	1	1		75.0000	3.0000	1.0000	12.0000	0.0000
4	1	1		100.0000	4.0000	0.0000	10.0000	0.0000
4	2	1		100.0000	3.0000	0.0000	0.0000	0.0000
4	3	1		0.0000	0.0000	0.0000	0.0000	0.0000
5	1	1		85.0000	2.5000	0.0000	10.0000	0.0000
6	1	1		50.0000	2.5000	0.0000	30.0000	0.0000
7	1	1		80.0000	5.0000	5.0000	20.0000	0.0000
8	1	1		65.0000	3.0000	0.0000	30.0000	0.0000
9	1	1		100.0000	10.0000	0.4000	50.0000	0.0000
10	1	1		85.0000	7.5000	0.0000	30.0000	0.0000
11	1	1		75.0000	5.0000	0.0000	10.0000	0.0000
12	1	1		125.0000	12.0000	0.0000	35.0000	0.0000

Switch to inches 9.9 Show T Main Wears Offsets Edge Show tools Active tools Process Magazine Mz

FAGOR AUTOMATION READY CARA.NC N... Tools 11:26:31

T TOOLS: STANDARD

T	D	Mz	Name	A	B	C	Lc	Rp	Rp V
14	1	1		0.0000	0.0000	0.0000	75.0000	0.0000	0.0000
15	1	1		90.0000	0.0000	0.0000	50.0000	0.0000	0.0000
16	1	1		90.0000	0.0000	90.0000	25.0000	0.0000	0.0000
17	1	1		0.0000	0.0000	0.0000	2.5000	0.0000	0.0000
18	1	1		90.0000	0.0000	90.0000	0.0000	0.0000	0.0000

Show M Main Offsets Edge Show tools Active tools Process Magazine Mz

FAGOR AUTOMATION READY CARA.NC N... Tools 11:26:44

M TOOLS: OFFSETS

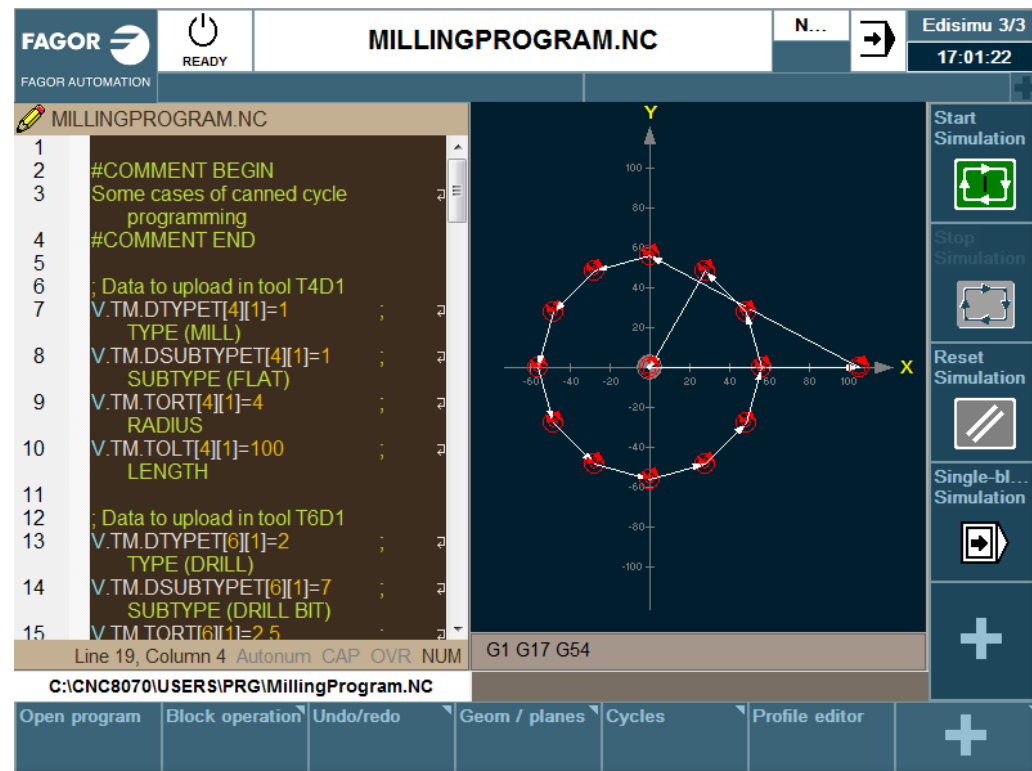
T	D	Mz	Name	Off X	Off Y	Off Z	OW X	OW Y	OW Z
1	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	1	1		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Show T Main Offsets Edge Show tools Active tools Process Magazine Mz

■ Interactive graphics

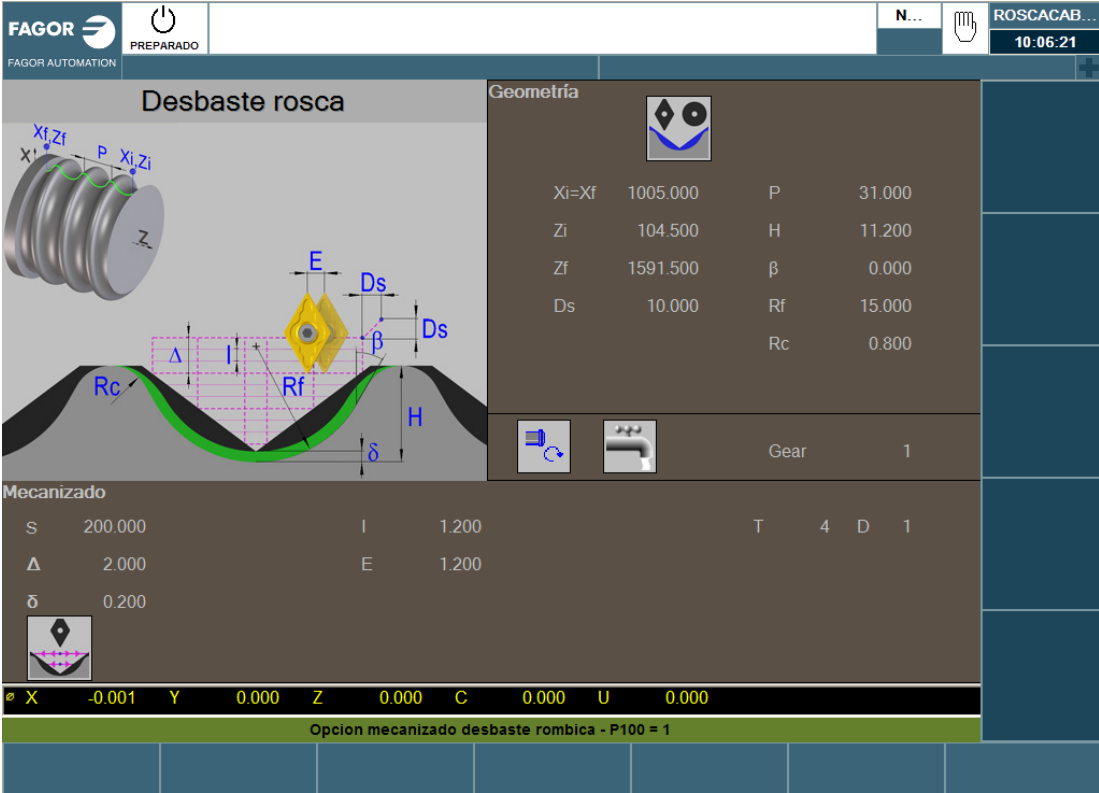
Programmed profiles can be displayed during the edition.

User can check the movements and the direction programmed before execute the programs or even before simulation



■ User cycles

Customized, exclusive cycles can be developed for the customers



Desbaste rosca

Geometría

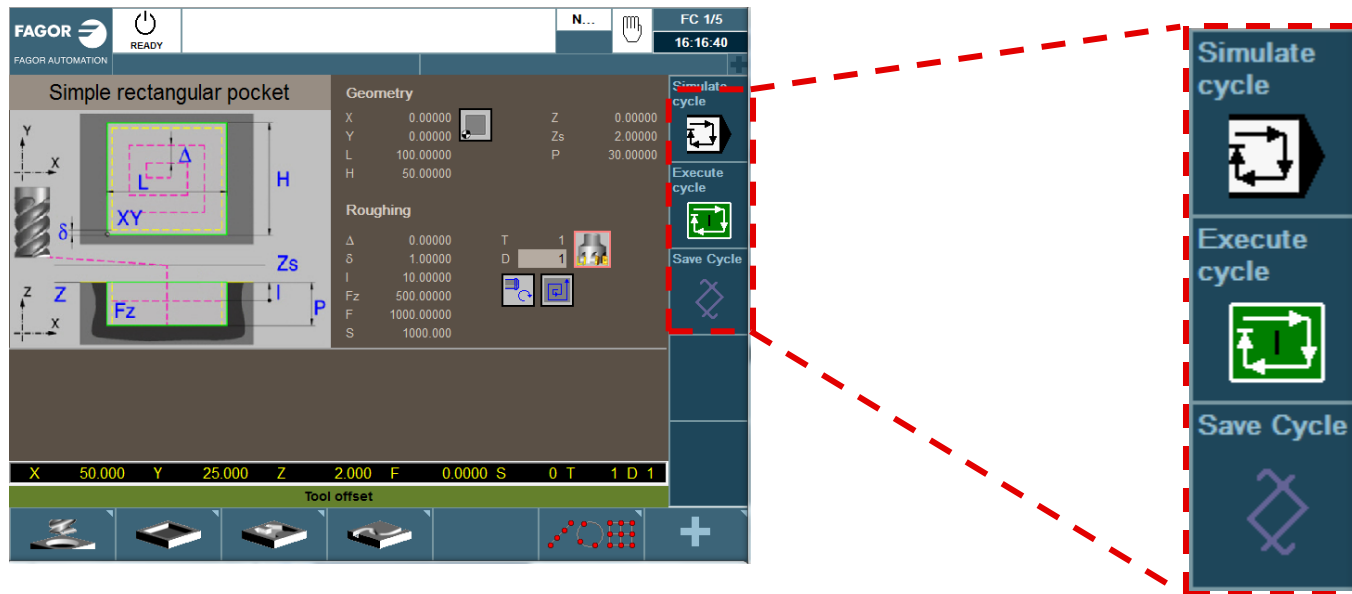
$X_i = X_f$	1005.000	P	31.000
Z_i	104.500	H	11.200
Z_f	1591.500	β	0.000
D_s	10.000	R_f	15.000
		R_c	0.800

Mecanizado

S	200.000	I	1.200	T	4	D	1
Δ	2.000	E	1.200				
δ	0.200						

X -0.001 Y 0.000 Z 0.000 C 0.000 U 0.000
 Opcion mecanizado desbaste rombica - P100 = 1

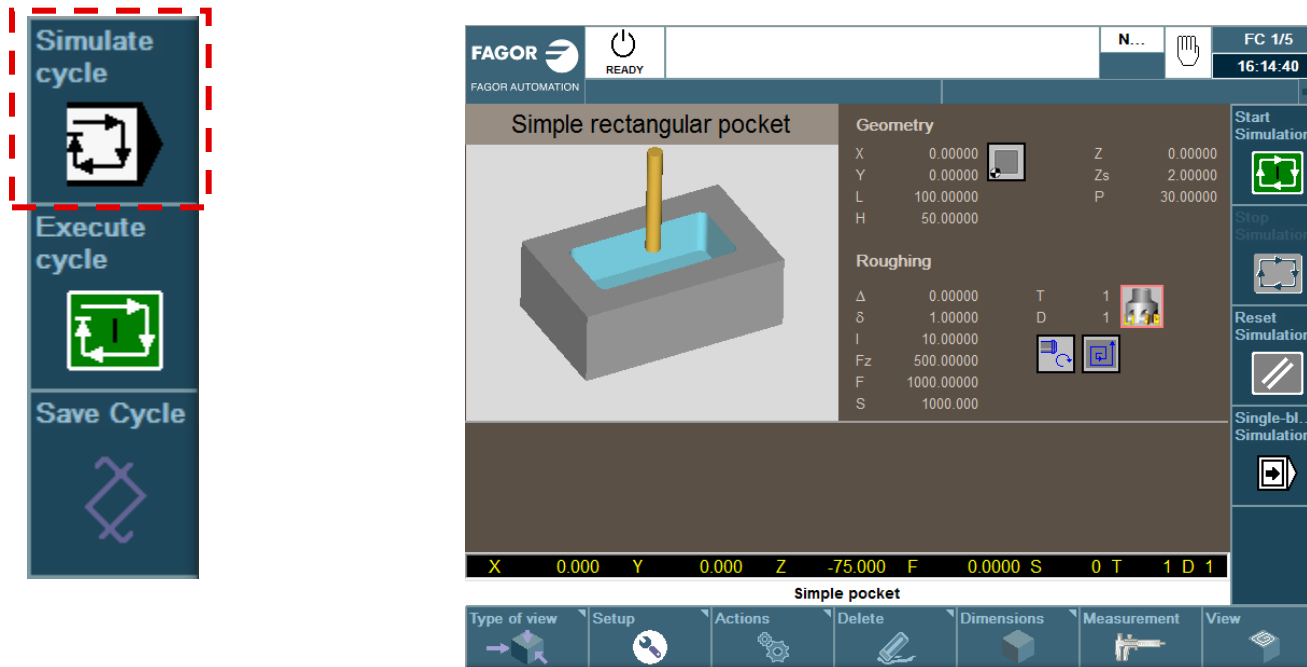
■ The conversational cycles can be run alone



The Fagor IIP Programming system allows to the user to run the machining directly from the cycles.

There is not need to create programs, so there is not waste of memory of the disk for those simple operations.

■ The conversational cycles can be run alone



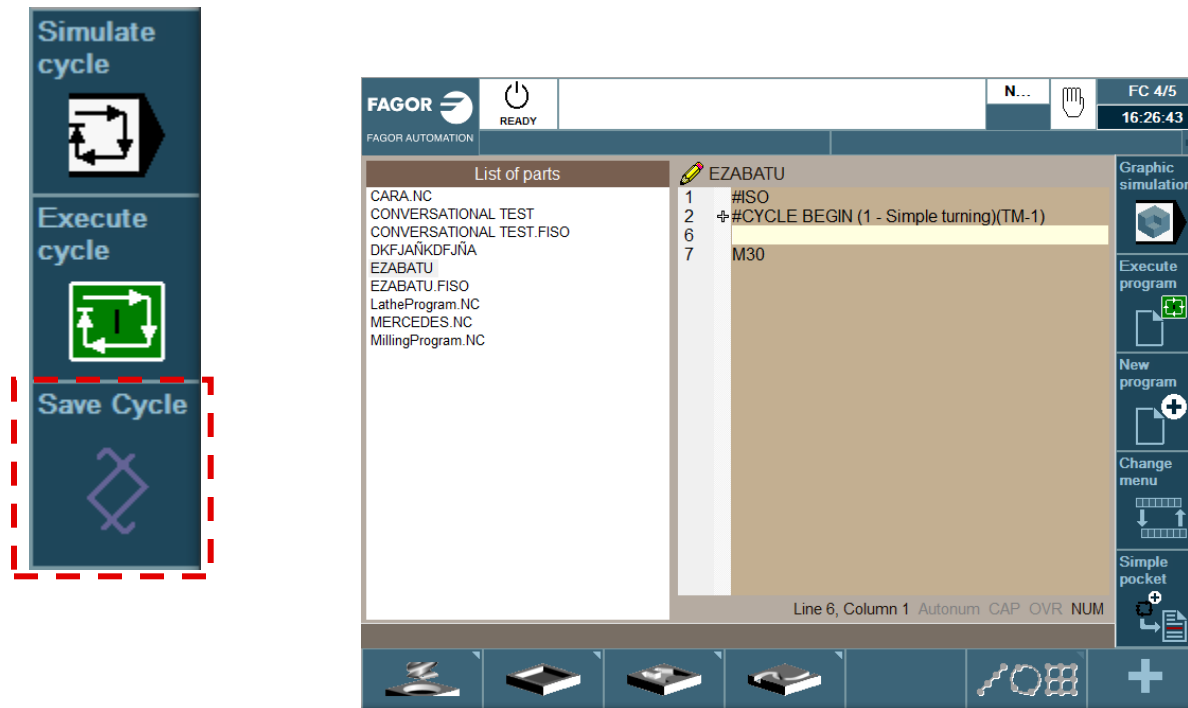
The cycle can be directly simulated on the cycle page. If the user is not satisfied with the result he can directly check the inserted data.

■ The conversational cycles can be run alone



The user can directly run this individual cycle just selecting the executing option

■ The conversational cycles can be run alone



Finally, the user can select to save the cycle on a program

■ Background programming & executing



Program execution




Editing and simulating another program

NEW DEVELOPMENTS ON THE FAMILY 8060/65



■ PC Simulator, machines directory



MACHINE	Comment	Modified
 C axis lathe	Model AAA	20/11/2015 14:28
Default Mill Machine	Default Mill Machine	01/02/2016 17:20
Default Lathe Machine	Default Lathe Machine	20/11/2015 14:28
3 axis VMC	Model XXX	20/11/2015 14:28
Standard lathe	Model BBB	
5 axis machine	Model YYY	



■ CNC customizing

G500... G599 routines

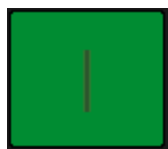
The Oem can define its own cycles using these macros adding his own G codes to the ones offered by Fagor

HSC programming on the 8055
Standard programming 8060/65
HSC programming using the G501

G51 E0.01
#HSC ON [SURFACE, E0.01]
G501 E0.01

START macro

A macro can be defined that will be systematically executed every time when we will press START. After the macro is executed the program will be executed normally.



START
MACRO

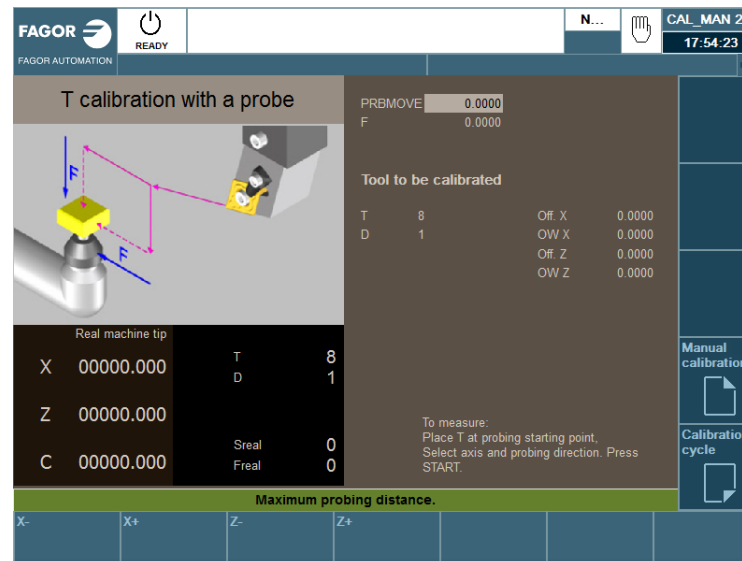


Normal program execution

■ Probing features evolution

Routines can be defined to be executed before and after the probing cycles
(To activate lathe probes, for example...)

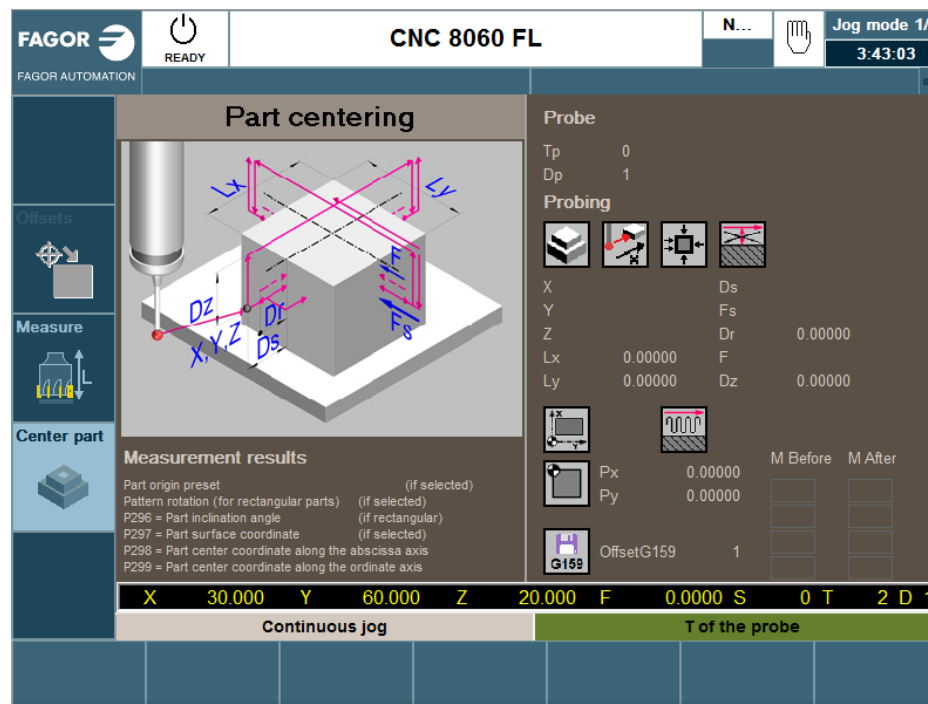
BEGINNING
PROBING
MACRO



ENDIG
PROBING
MACRO

■ Probing features evolution

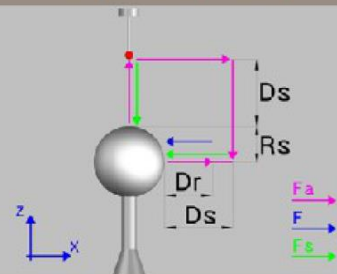
Friendly, complete part centering cycle.



■ Probing features evolution

Kinematics calibration

Kinematics calibration



Operation:

1. Put the probe over the center of the ball about 10 mm (0.3934 inches) off the ball.
2. It may be executed when the cycle data is correct.
3. Press Start

	Actual		
X	0.000	Y	0.000
Z	20.000	A	0.000
B	0.000	C	0.000
U	0.000		

KIN ID 1 Type 3

Tool data

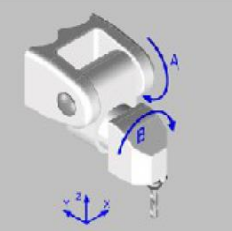

T	1	D	1
L	50.000		
R	7.500		

Rotative Axis Parameters

	A	B
Pi	100.00	0.00
Pf	100.00	200.00
Np	5	5

Cycle parameters

F	100.00000	Ds	10.00000
Fs	100.00000	Dr	10.00000
Fa	100.00000	Rs	10.00000

■ Probing features evolution

Kinematics calibration

Modifying machine parameters
OEM

PREPARADO

N...

KinCal 2/2

12:40:12

Validar	MNEMON...	Valor inicial	Valor calculado	Offset máximo	Offset inicial	Offset calculado
	TDATA 1	0.0000000000...	<input type="checkbox"/> 0.0000000000...	2.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 2	-107.2345061...	<input type="checkbox"/> -107.232382...	2.0000000000...	0.0000000000...	<input checked="" type="checkbox"/> 0.002123646...
	TDATA 3	-91.63715385...	<input type="checkbox"/> -91.5261956...	2.0000000000...	0.0000000000...	<input type="checkbox"/> 0.110958173...
	TDATA 4	-412.1667440...	<input type="checkbox"/> -412.183110...	2.0000000000...	0.0000000000...	<input checked="" type="checkbox"/> -0.01636685...
	TDATA 5	0.0283938417...	<input type="checkbox"/> 0.002166108...	2.0000000000...	0.0000000000...	<input checked="" type="checkbox"/> -0.02622773...
Datos Ejecución	TDATA 6	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 7	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 8	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 9	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 10	1.0000000000...	<input type="checkbox"/> 1.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
Datos Ciclo	TDATA 11	1.0000000000...	<input type="checkbox"/> 1.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 12	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 13	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 14	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 15	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 16	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 17	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
	TDATA 18	0.0000000000...	<input type="checkbox"/> 0.0000000000...	0.0000000000...	0.0000000000...	<input type="checkbox"/> 0.0000000000...
Calibrar eje A	Calibrar eje C					

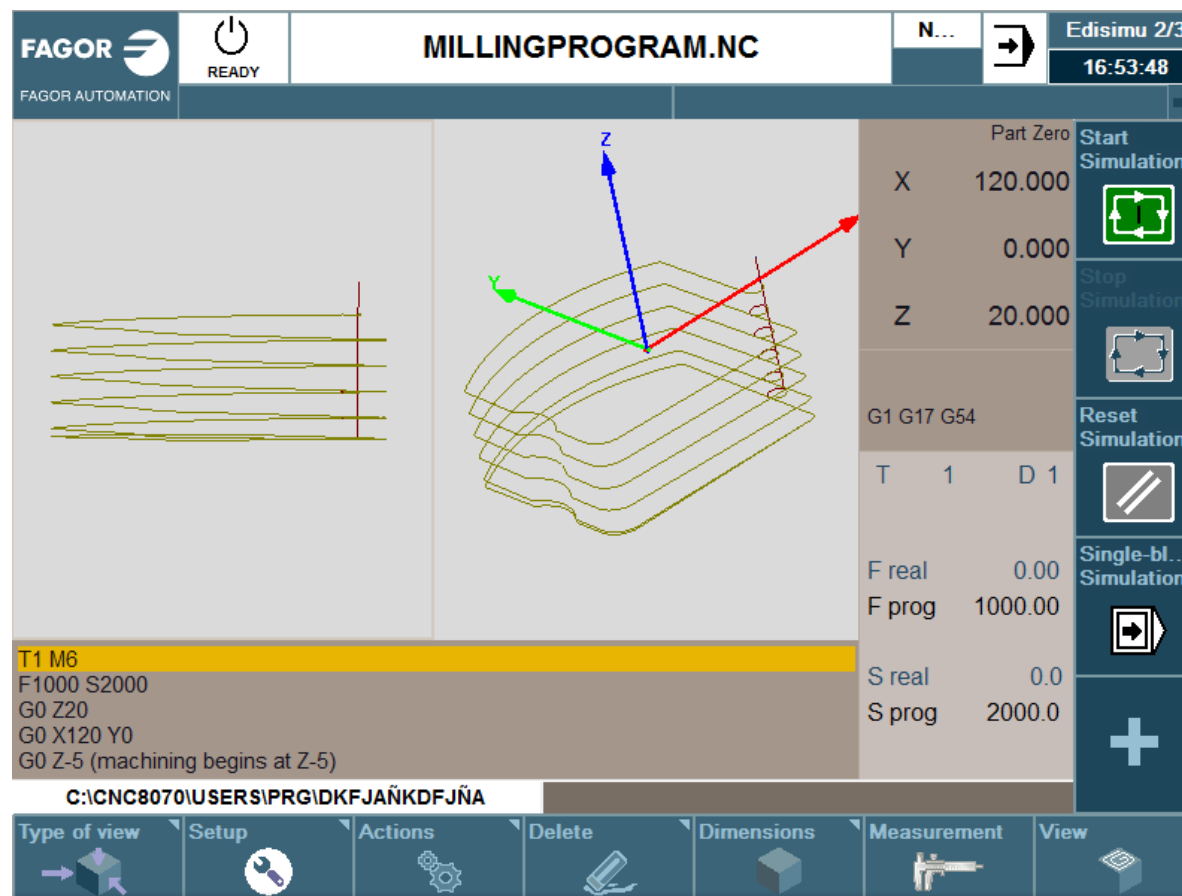
Modifying offsets
USER

■ Probing features evolution

Probing collision control
-CNC will be continuously watching the status of the probe even if it is not selected. If the probe touch any place, it will stop immediately



■ Spiral milling



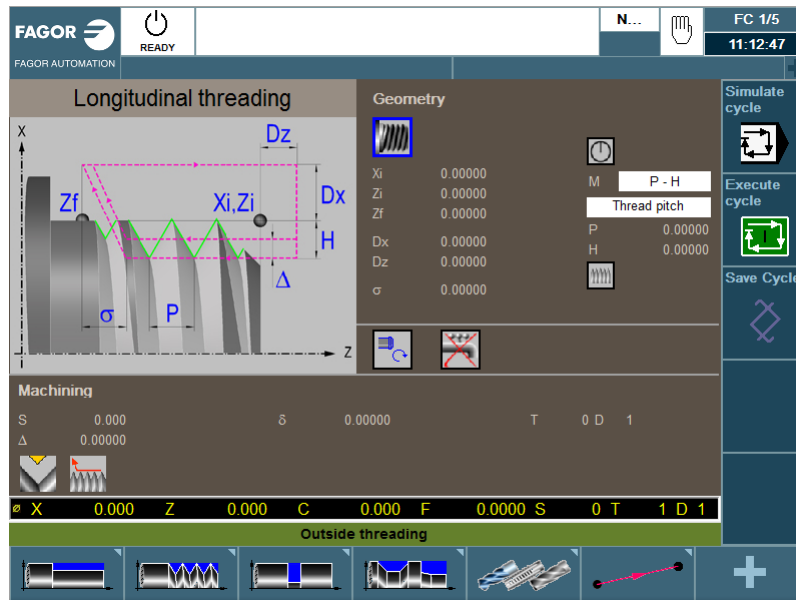
■ Advanced DXF import

- Identification of circles to convert them into cycles.
- XY offsets
- Z offset
- Selection of the subroutine to be executed in the case of cycles
- Selection of the subroutine to be executed at the beginning/end of the program



■ New ISO convertor

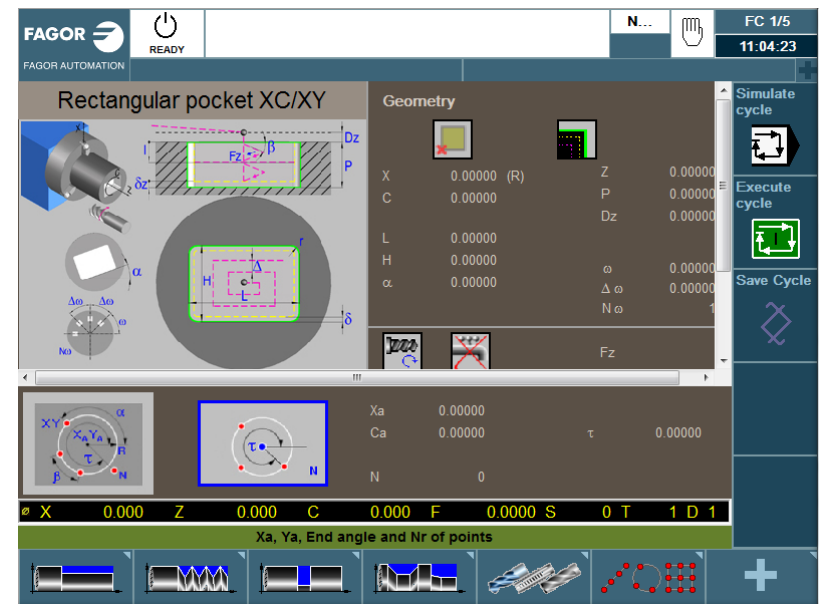
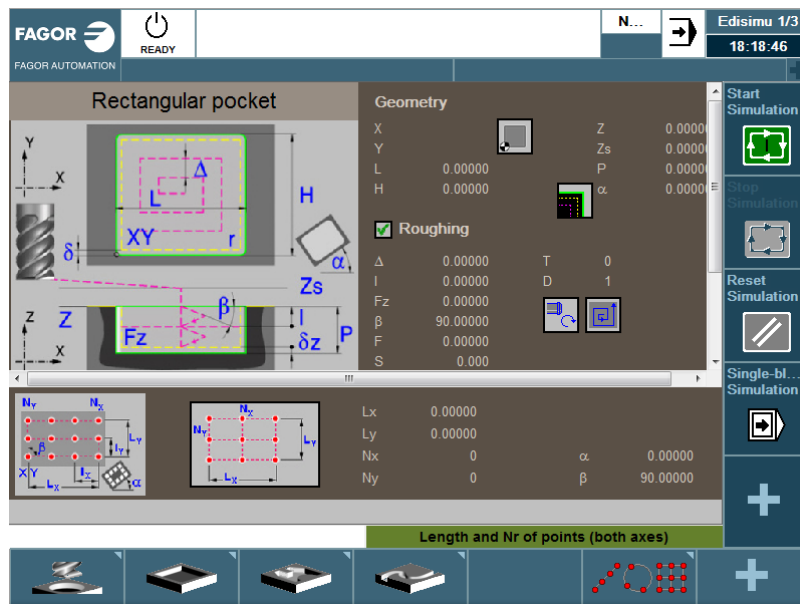
#ISO



#ISO OFF (or M30)

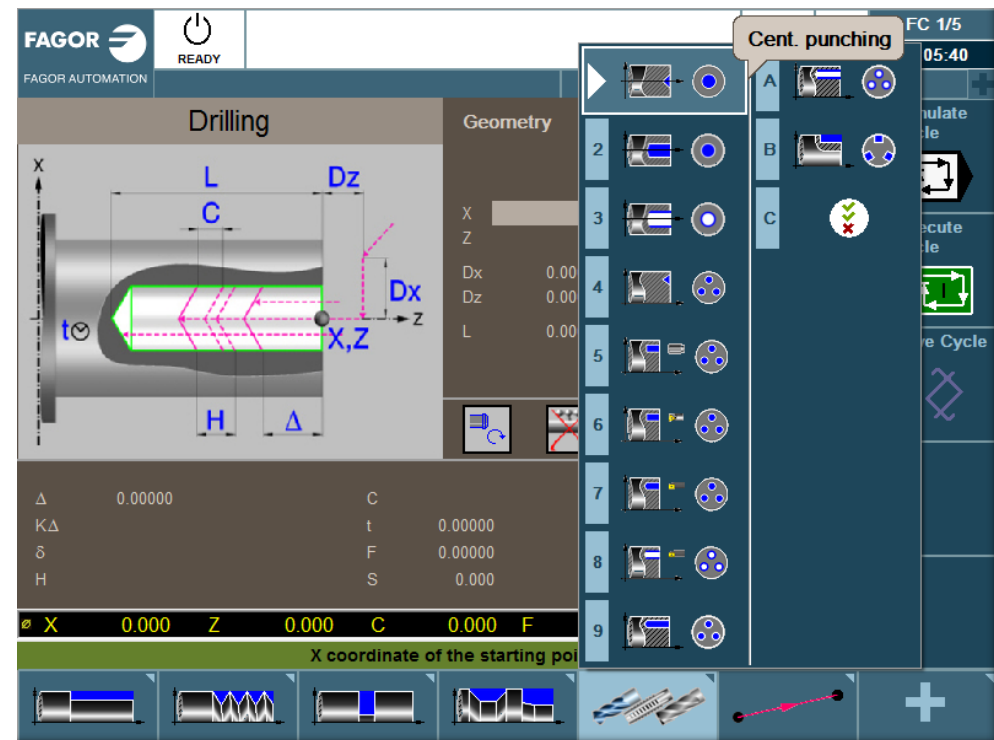
M9
T6D1
M9
G97S=500
M3
G0G50G90Z2X54
G40
G0G61Z2X54
G0X48
V.A.PRGSSO.S=100
V.G.PRGFRO=100
#DFHOLD
#DSTOP
#SLOPE[0]
G33G61Z-99.78298611X48K5
G33G61Z-100X48K5
G0X54
G33G61Z-99.78298611X47K5
...
...
#CYCLE END
M30

■ Multiple pockets

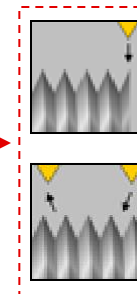
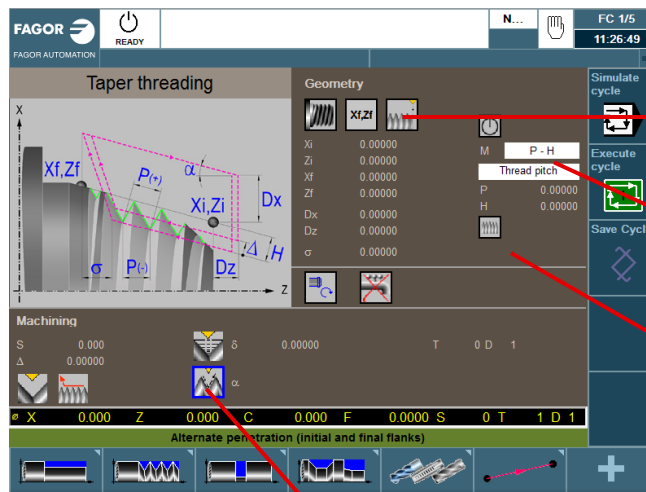


■ Complete range of milling cycles for the lathe

Center punching.
 Drilling.
 Deep hole drilling.
 Tapping.
 Reaming.
 Boring.
 Boring with spindle orientation.
 Bore milling.
 Thread milling.
 ...



■ Improved thread cycles

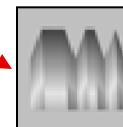


Full thread

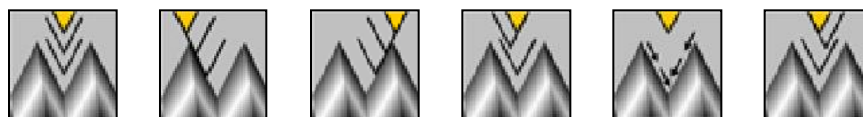
Partial thread



API standard included

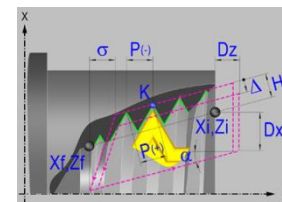
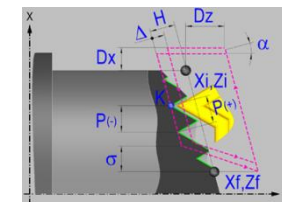
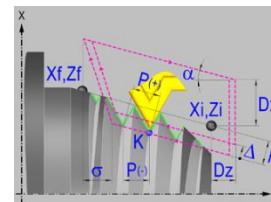
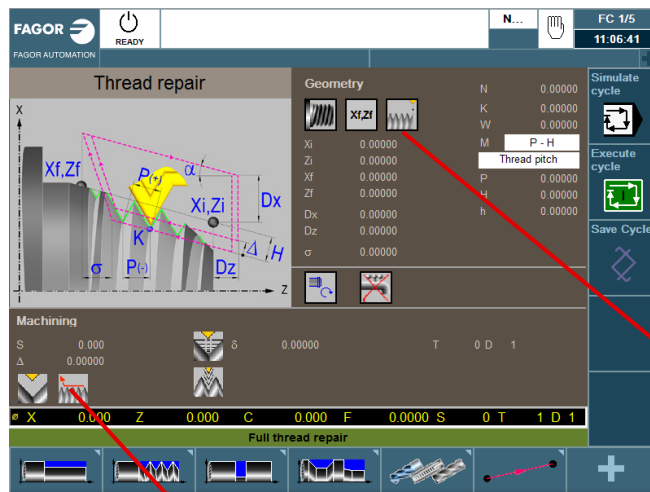


Variable-pitch thread

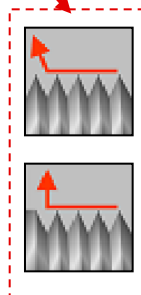


Multiple types of penetration in threading cycles

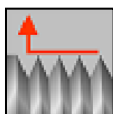
■ Improved thread cycles (2)



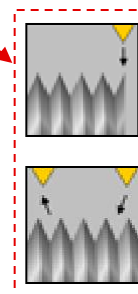
External, internal & frontal threads



Standard thread



Blind thread



Full thread repair



Partial thread repair

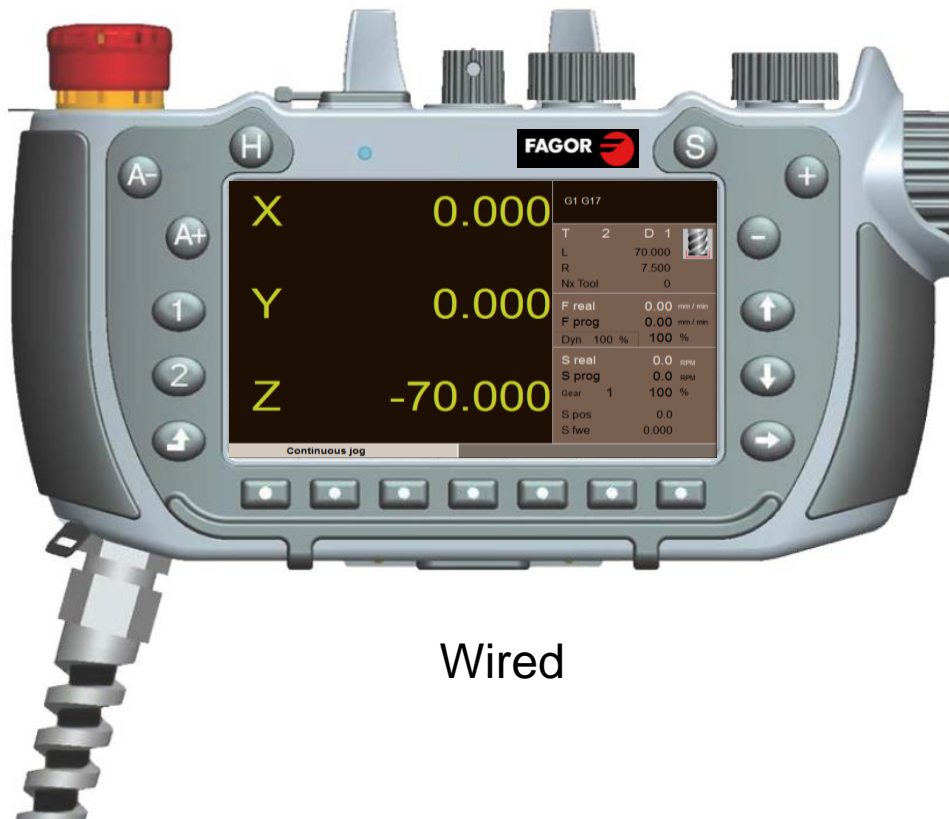


Multi-start (entry) thread repair

NEW COMING FEATURES



■ New handwheels HBH3/HBH4



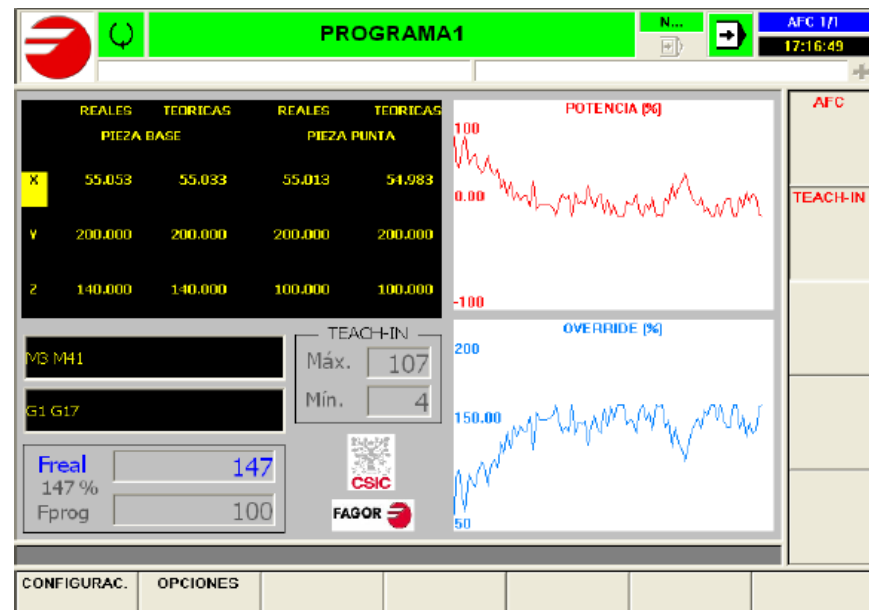
Wired

Wi-Fi



■ Dynamic Machining Control (DMC)

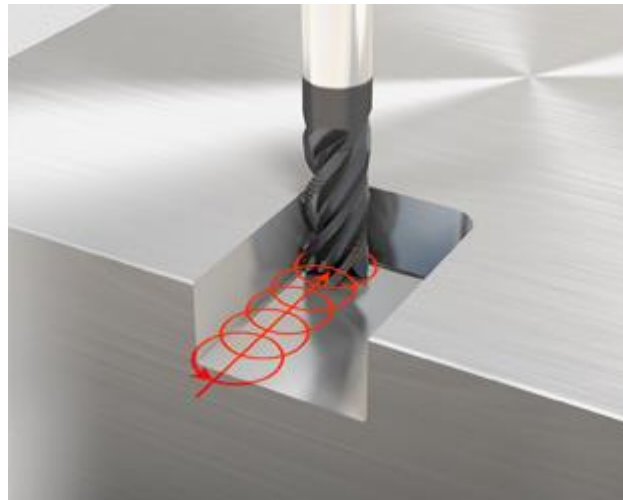
The CNC analyzes the machining conditions (power consumed, tool tip temperature, etc.) and adapts both the axis feed rate and the spindle speed for machining under the best conditions in order to achieve maximum productivity



■ Orbital milling

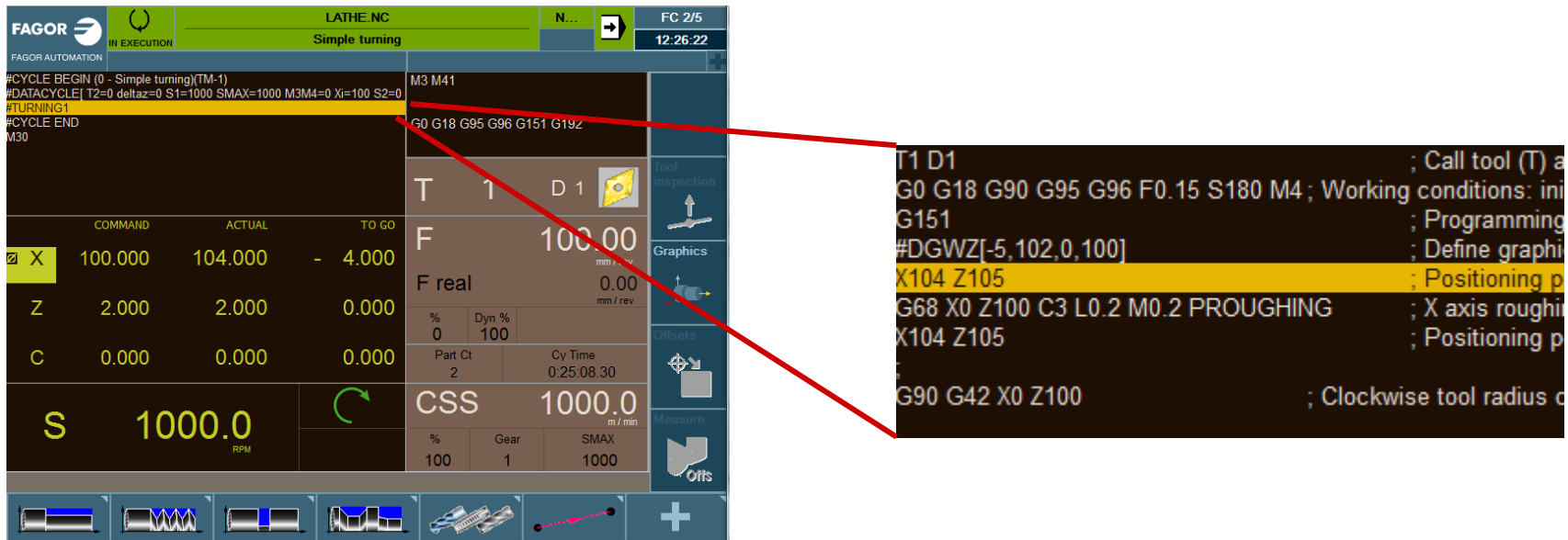
The main advantages of this machining strategy are:

- Be able to machine a bigger groove than the cutting tool diameter
- The cutting speed will be bigger
- The tools last longer as the contact cutting point is continuously changing.



■ Display of the instructions of the canned cycles

The end user will have the possibility to verify what is being executed inside a canned cycle on any moment. He will be able to control the process, step by step.



The screenshot shows the FAGOR CNC control interface. The top bar indicates 'FAGOR AUTOMATION' and 'IN EXECUTION'. The main display shows the command 'G0 G18 G95 G96 G151 G19Z' and the actual values for X, Z, and C axes. A red arrow points from the command line to a detailed view of the cycle instructions on the right.

COMMAND	ACTUAL	TO GO
X	100.000	104.000 - 4.000
Z	2.000	2.000 0.000
C	0.000	0.000 0.000

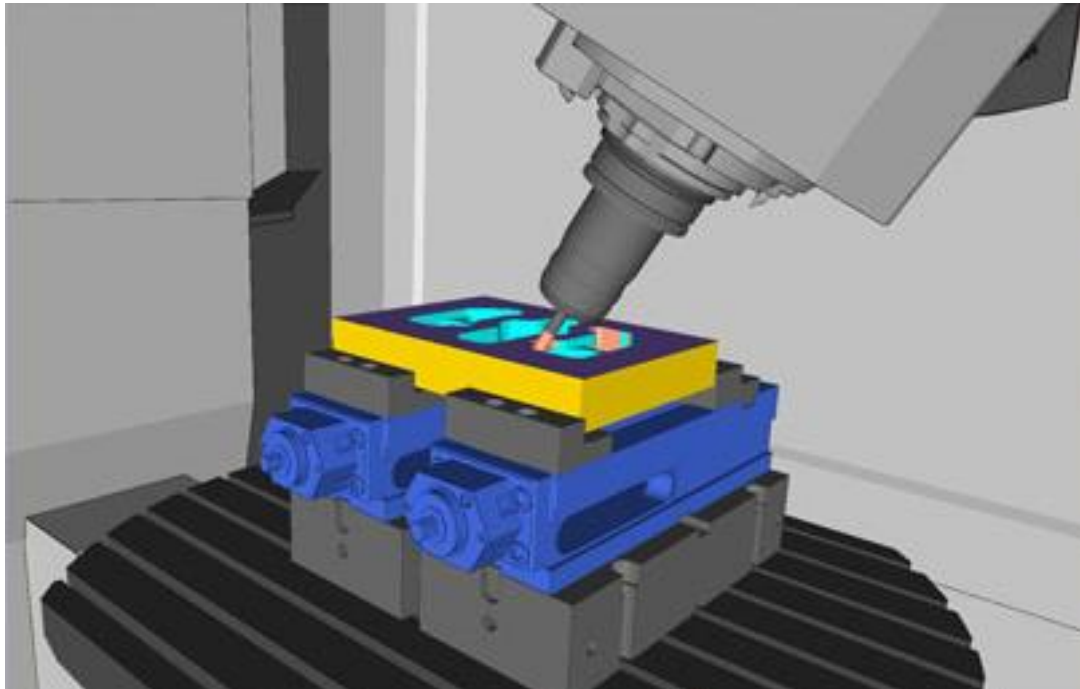
The detailed view of the cycle instructions on the right shows the following commands:

```

T1 D1 ; Call tool (T) a
G0 G18 G90 G95 G96 F0.15 S180 M4 ; Working conditions: ini
G151 ; Programming
#DGWZ[-5,102,0,100] ; Define graphi
X104 Z105 ; Positioning p
G68 X0 Z100 C3 L0.2 M0.2 PROUGHING ; X axis roughi
X104 Z105 ; Positioning p
G90 G42 X0 Z100 ; Clockwise tool radius c
  
```

■ 5 axis collision control

The CNC will control the position of the machine kinematics to avoid any collision with the static parts of the machine.



■ Vectorial programming format

The Fagor CNC will allow you to use the vectorial programming format. The same program will be able to use on machine with different kinematics.





THANK YOU