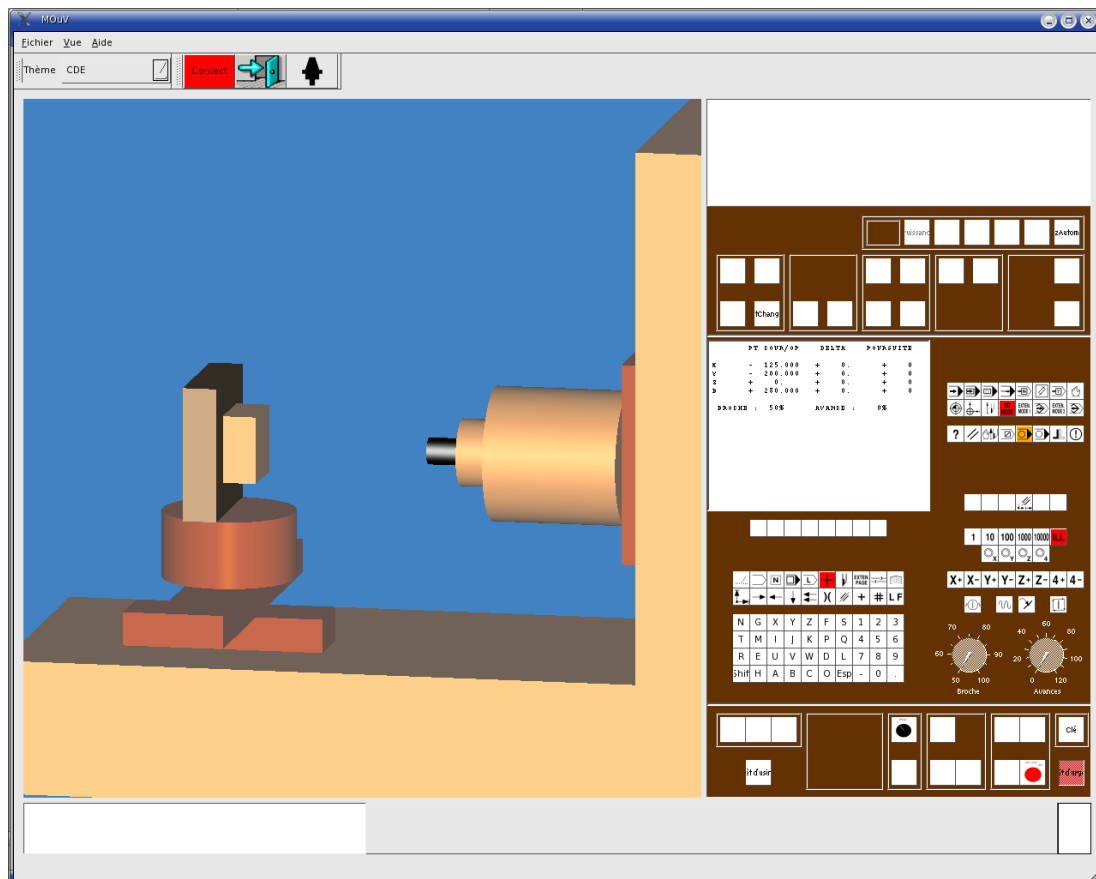


# VIRTUAL MACHINING CENTER

## GRAFFENSTADEN CU60

### Getting Started manual



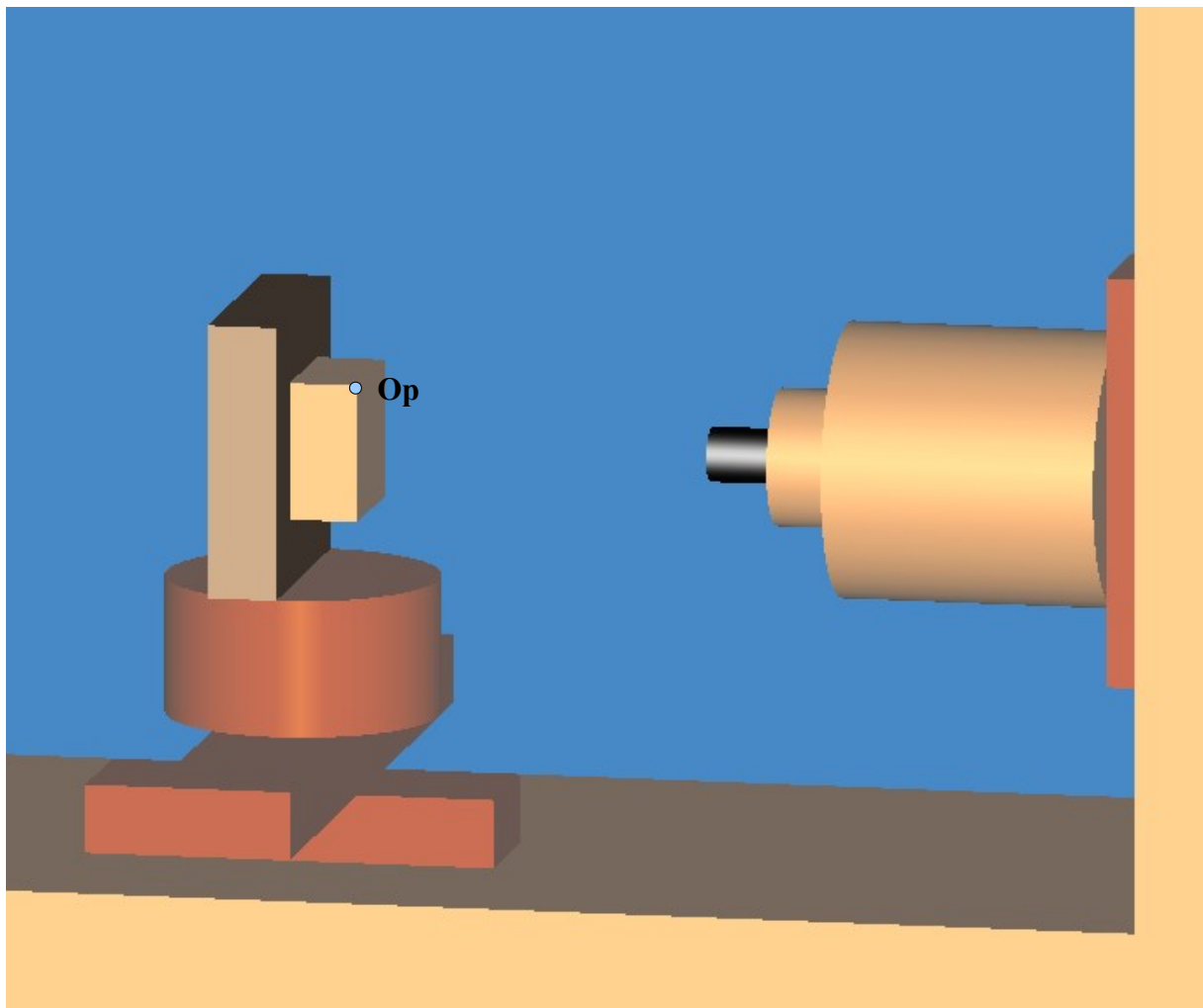
## Getting started manual

### Introduction

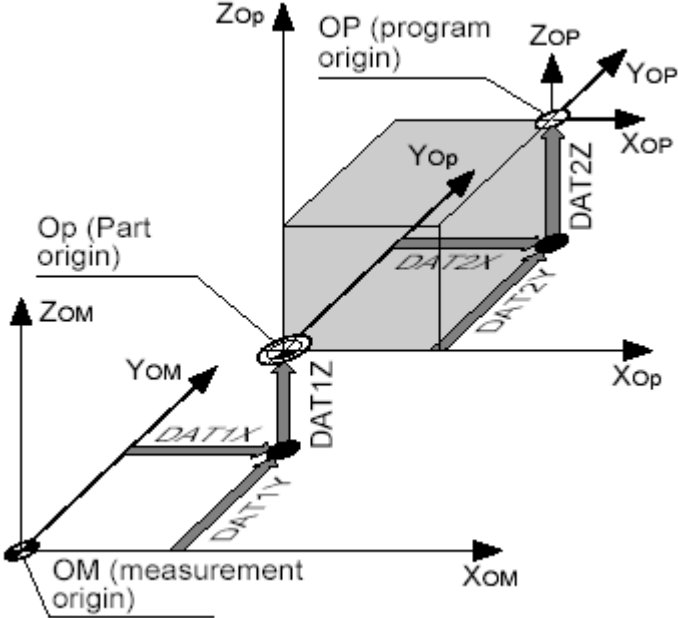
The aim of this tutorial is to explain students how to use the machining center and the CN lathe of the UPS's workshop.

### Exercise :

We suppose that the measurement origin (called  $O_m$ ) is located at the intersection between the gauge plane of the cone of the spindle and the z axis. The part origin (called  $O_p$ ) is chosen on the machining assembly as shown below. The program origin will be defined later. The gauge used measures 199,34 mm long and the radius of the ball is 4,99 mm. Calculate vector  $\overrightarrow{O_m O_p}$  (called vector DAT1 in NUM language)



**Remember**



## **Partie 2 : Getting started**

The tutorial is divided in 7 parts :

**Switch the machine on**

**Manual movements :**

**Homing procedure (M.O.S.) :**

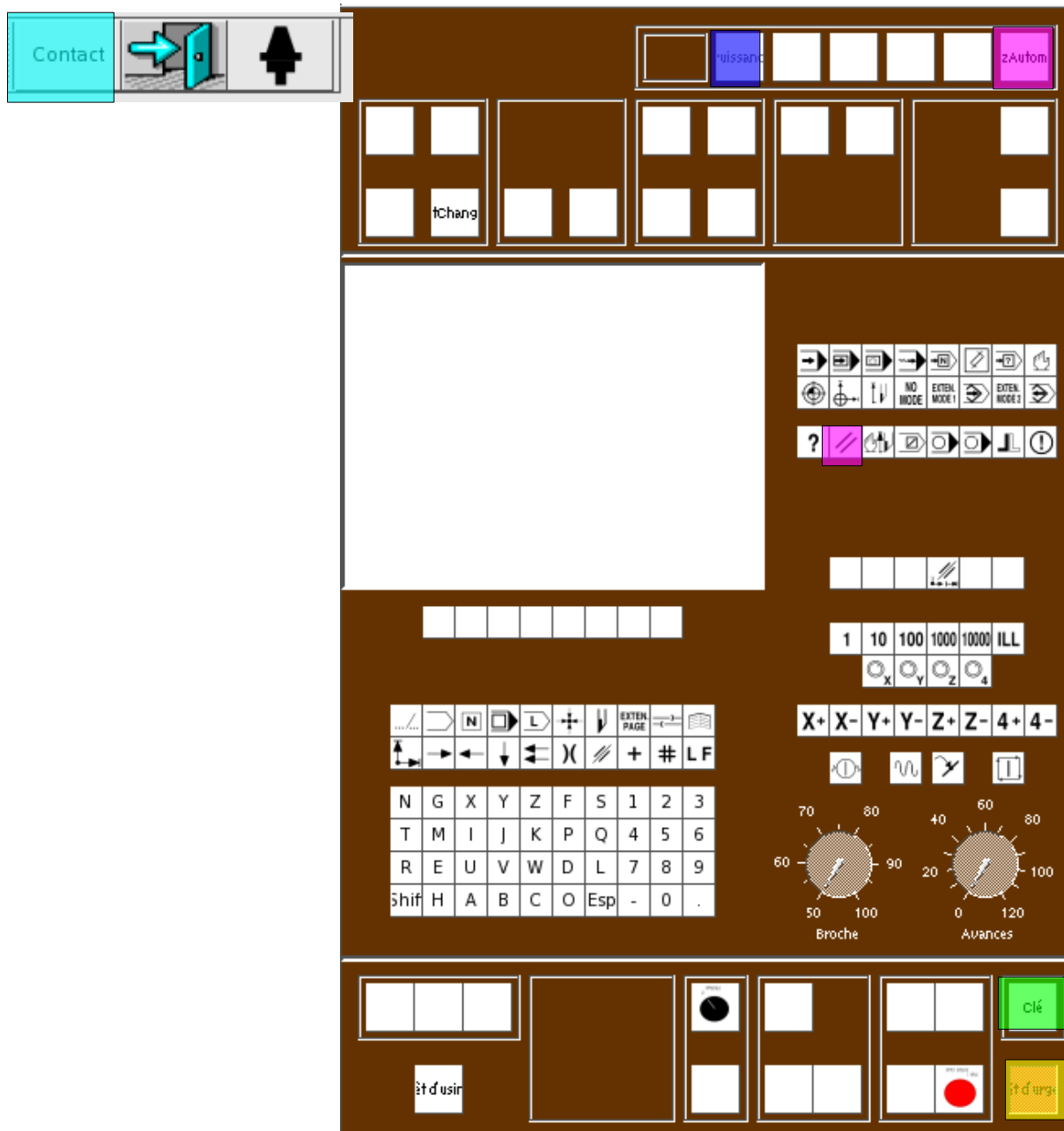
**Door shut :**






**Programmed movements**

**Calculation of DAT1 :**

**Entering DAT1 values using the keyboard**

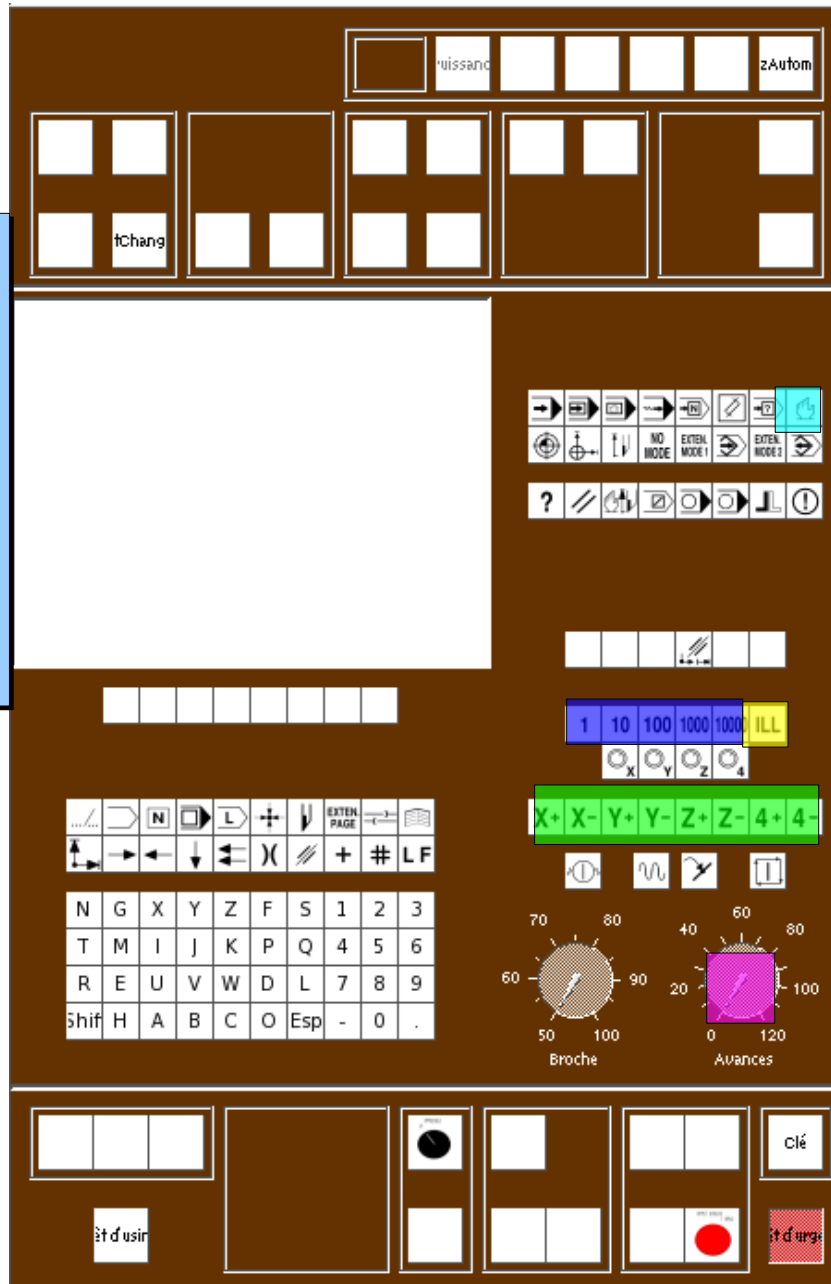
## SWITCHING THE MACHINE ON








	Clic on the contact button
	Unlock the emergency stop
	Clic on the 2 reset buttons
	Turn the key to switch the hydraulic system on
	If everything is OK, the « power » indicator lightens.

## MANUAL MOVEMENTS

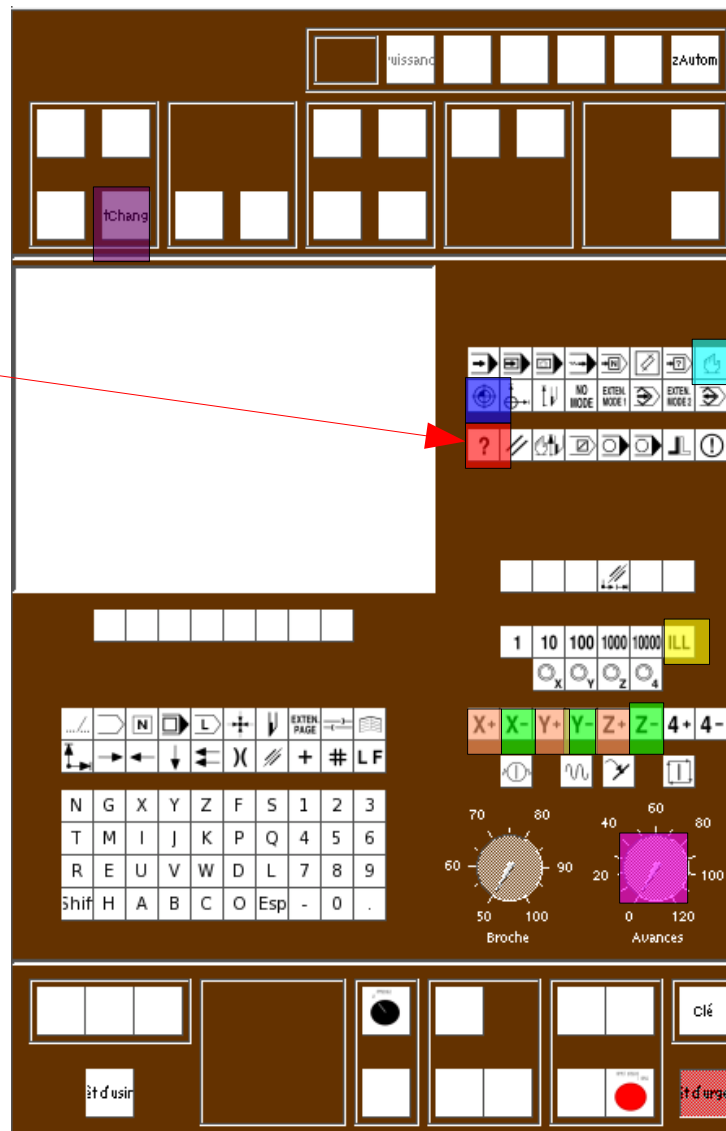
**Attention :**  
**On the real machine, turn the potentiometer to 0 before any displacement ; then turn it up progressively**










	Select the MANUAL mode
	For an unlimited movement, select the ILL mode
	Turn the feed potentiometer to 100 %
	Press on the button of the selected axis.
	For an incrementl movement, choose the value of the displacement (10, 100, ou 1000 $\mu\text{m}$ ) then press on the button of the selected axis

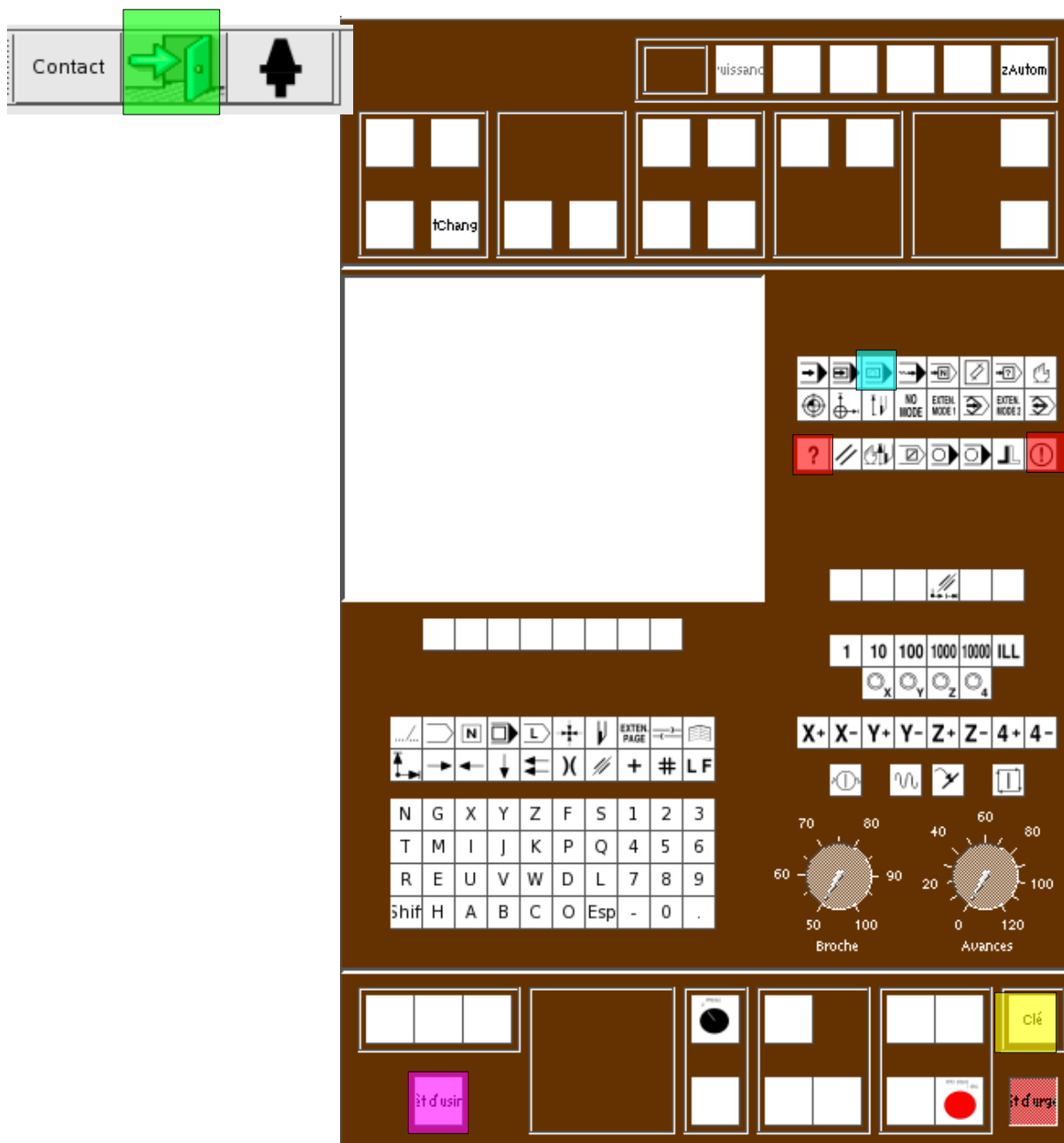
## HOMING PROCEDURE (M.O.S.)






Necessary only if the **DEFAULT** indicator flashes



	Select the MANUAL mode
	Sélect the ILL mode
	Turn the feed potentiometer to 100 %
	Move on X-, Y- et Z- axes beyond the MOS point
	Select the MOS mode
	Press on the Z+ button. When the movements stops, the MOS point on Z axis is reached. Do the for the other axes. The « default » indicator switches off if the homing procedure has correctly be executed.
	Press this button to reset the tool changer

## CLOSED DOOR VALIDATION



	Select the IMD mode
	The « default » and « stop » indicators lighten red
	Shut the door
	Turn the key
	Press on "machining stop". The « default » and « stop » indicators switch off. The door is closed and the closure is validated.



## DÉPLACEMENTS EN MODE IMD

Contact

**Pay Attention :**  
**the door**  
**must be**  
**closed and**  
**the closure**  
**validated !**

missanc

fchang

zAutom

1

10

100

1000

10000

ILL

X+

X-

Y+

Y-

Z+

Z-

4+

4-

N	G	X	Y	Z	F	S	1	2	3
T	M	I	J	K	P	Q	4	5	6
R	E	U	V	W	D	L	7	8	9
Shif	H	A	B	C	O	Esp	-	0	.

Broche

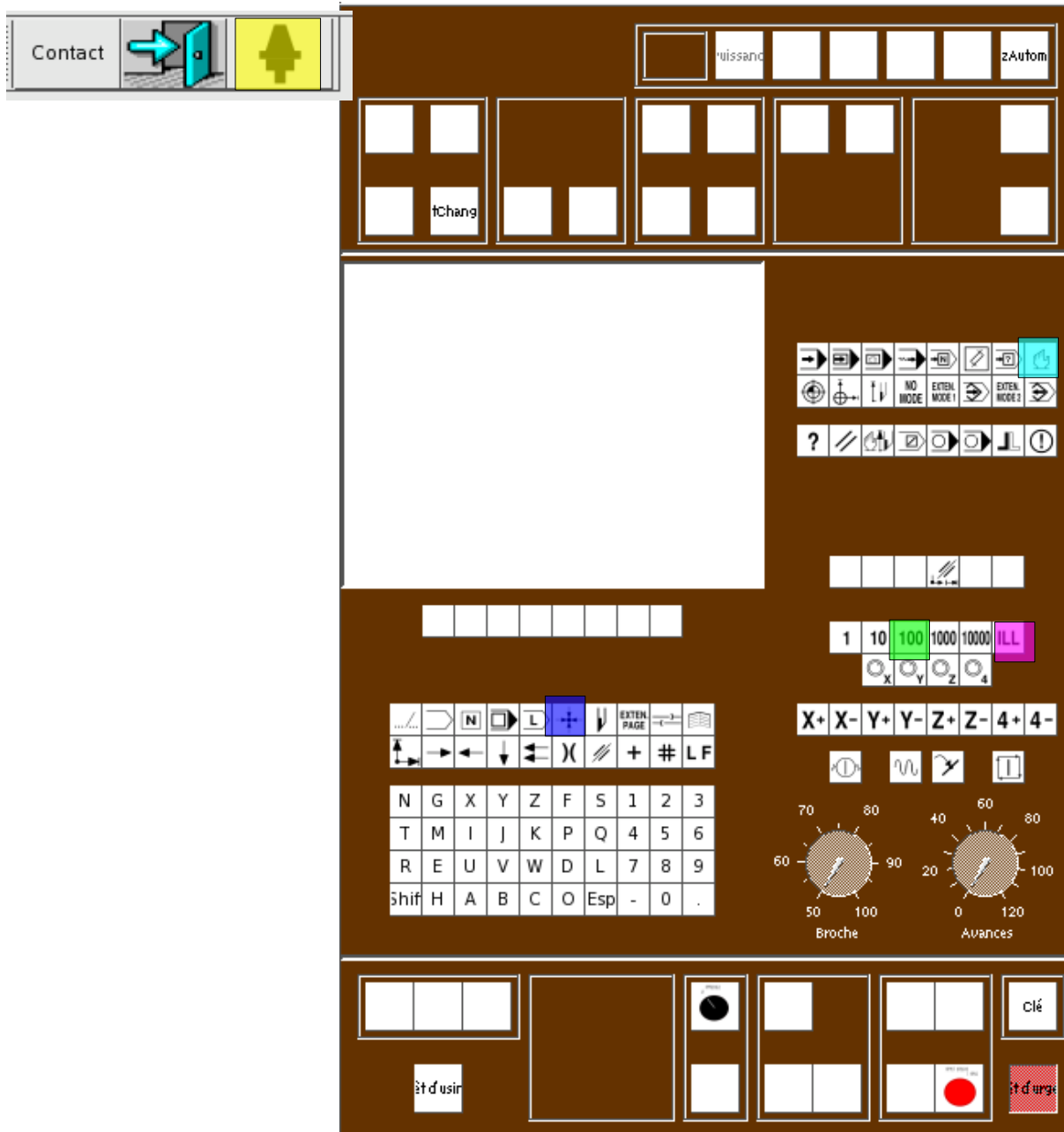
Avances






État d usin

Clé

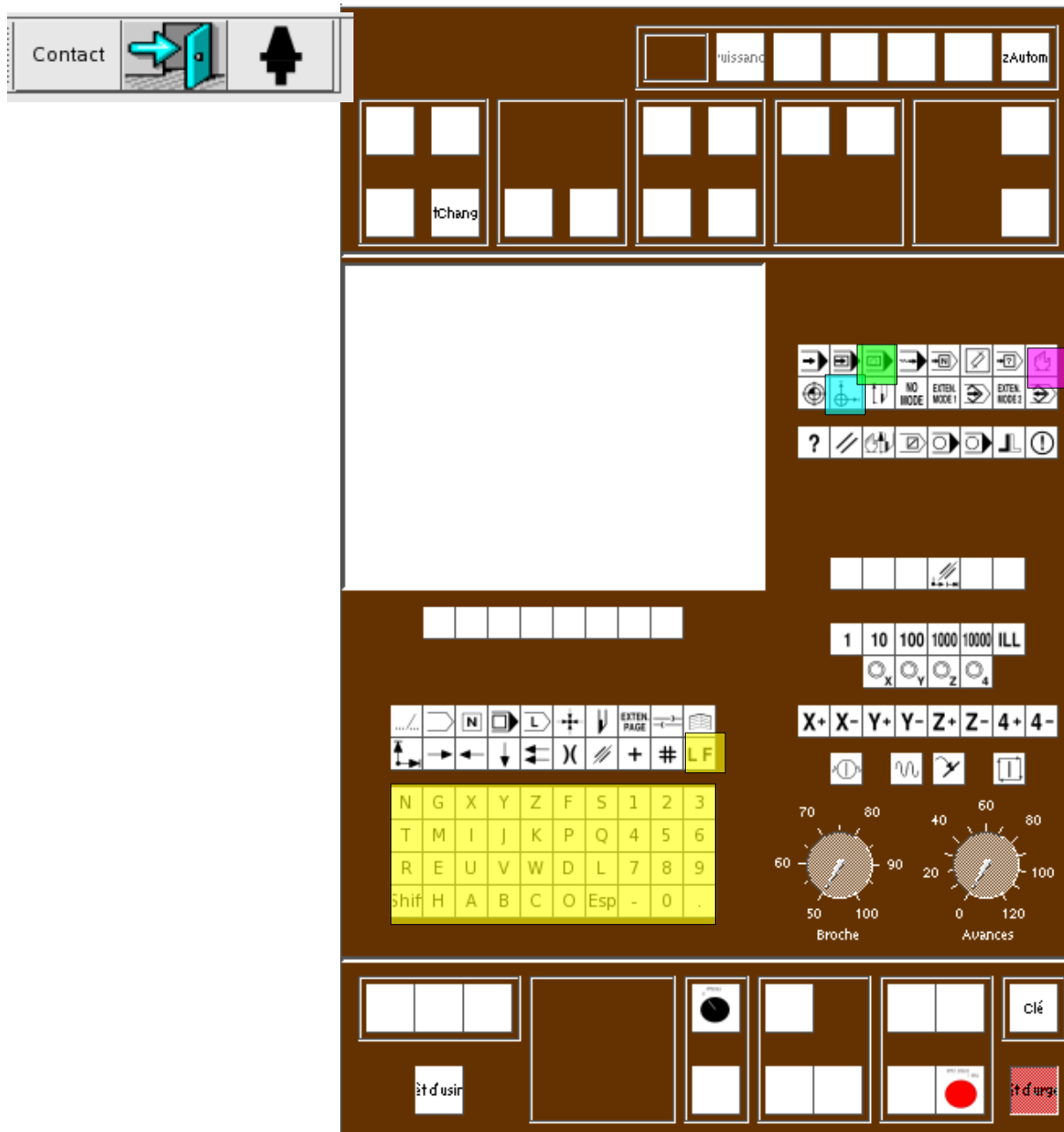
	Select the IMD mode
	Write a block : for example G0 G52 X0 Y0 Z0 B0 to reach the measurement origin. Press LF to validate
	Turn the feed potentiometre to 0
	Press on cycle start
	Check with the deltas that the movments will bve correct. Then turn up the feed potentiometer progressively.






# CALCULATION OF DAT1



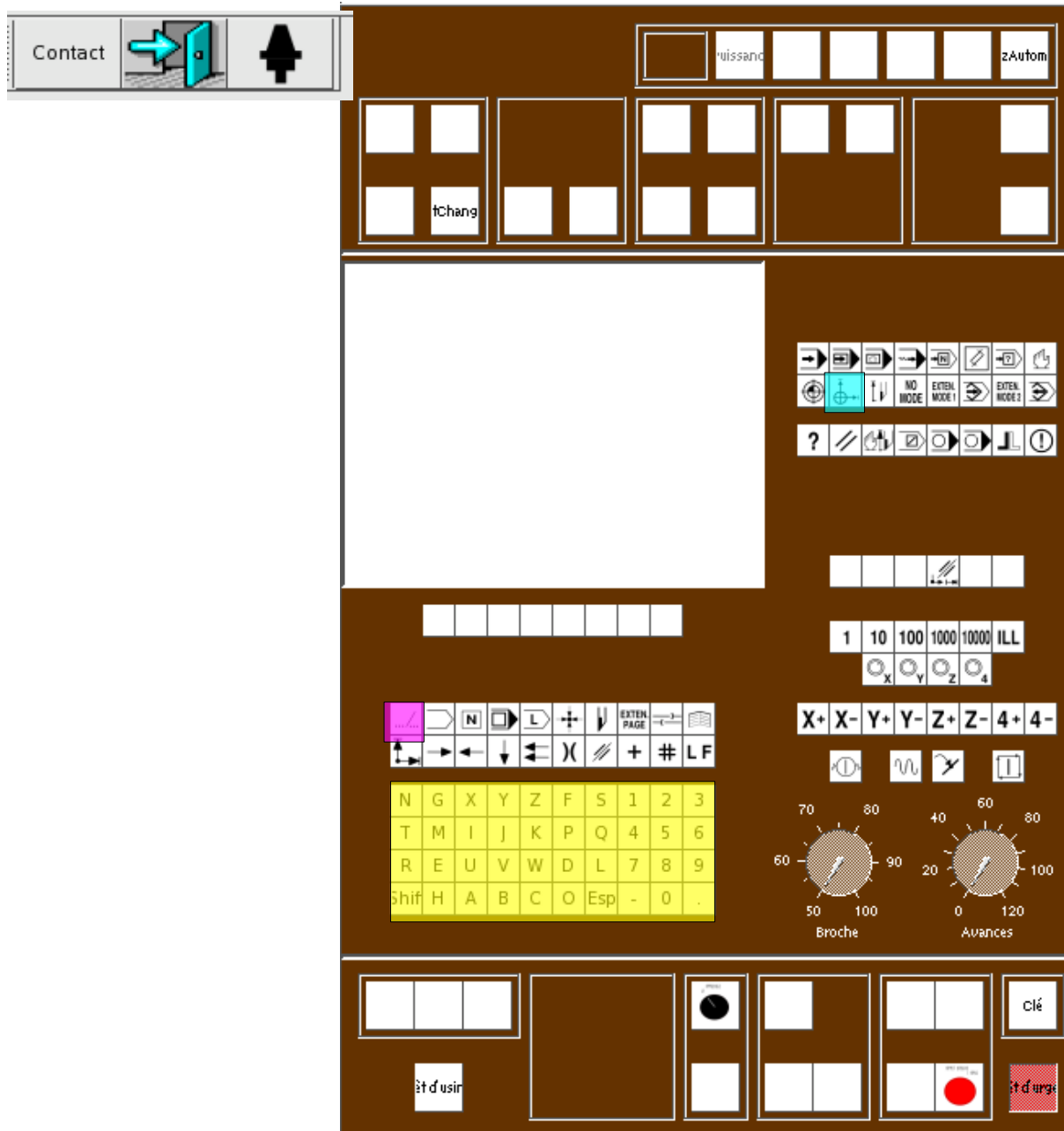
	Select the manual mode
	Put feeler in the spindle. Set the machining assembly normal to the spindle (IMD mode, then strike G0 G52 B180, LF and CYCLE START ; Turn the potentiometer to 100 %)
	Select the ILL mode and let the feeler go close to the surface under consideration
	Select the incremental mode (0.1 mm) to touch the surface under consideration <b>beware : admitted range on X or Y axis : 0,5 mm ; on z axis : 10 mm.</b>
	Display the coordinates relatively to Om. Then calculate DAT1 on axis under consideration.




## ENTERING DAT1 VALUES USING THE KEYBOARD



	Select the DAT mode
	Strike ion the keyboard the new values of DAT 1 (For examle. : X-250 ; Y-200 ; Z-300 ; ) ; press LF to validate
	Using the manual mode, go back on Z axis
	Select the IMD mode. Ask for the displacement G1 X0 Y0 Z199.34 .
	Is the feeler gauge correctly positionnated ? Are the DAT1 correct ?, Why having programmed Z199.34 ?

# INTRODUCTION DES DEC1 AU CLAVIER



	Sélectionner le mode PREF
	Appuyer sur la touche "suite"
	Entrer les valeurs du décalage