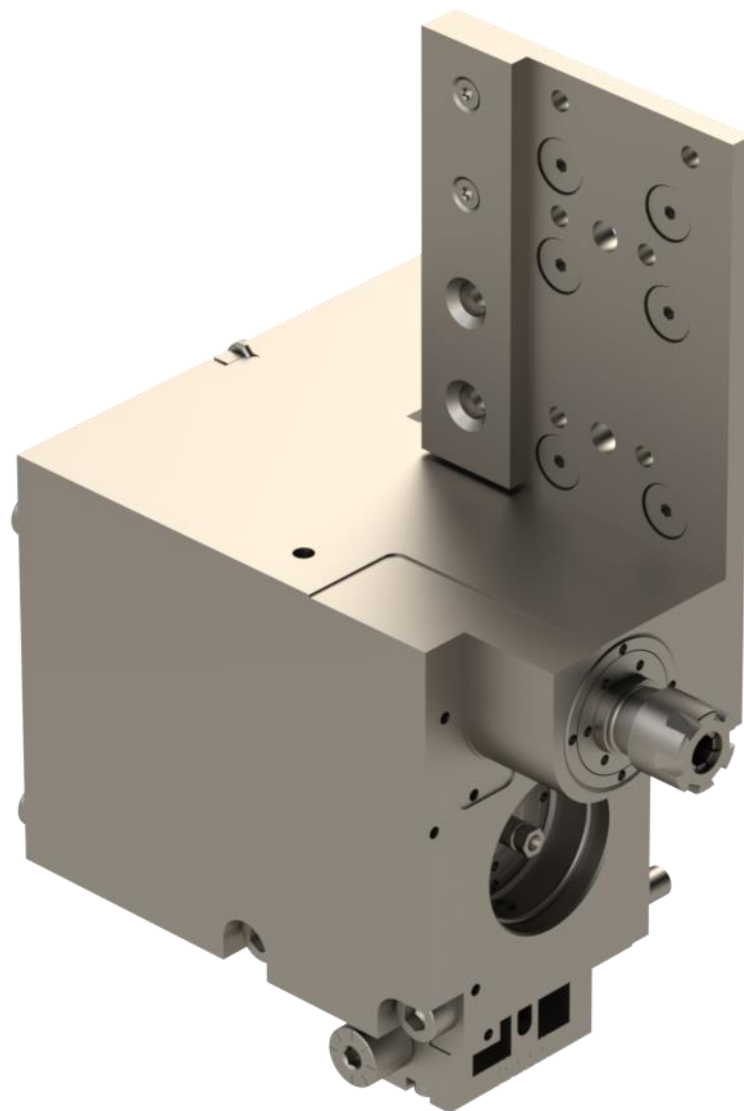


	Manuel d'installation Installation manual Installationshandbuch	Garant: BT	Document : 0400-BU000-02 Installation manual.docx
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PCM driven base unit for Tsugami P034W



Zone industrielle C Rte du Grammont 101 CH-1844 Villeneuve	PCM Precision Tooling SA SWISS MADE Copyright © PCM Precision Tooling SA.	Tél ++41 21 967 33 66 Fax ++41 21 960 38 95 http://www.pcm.ch email: sales@pcm.ch
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	Manuel d'installation Installation manual Installationshandbuch	Garant: BT	Document : 0400-BU000-02 Installation manual.docx
		Validation : 25.01.2024	Page : 2 de 41
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	Manuel d'installation Installation manual Installationshandbuch	Garant: BT	Document : 0400-BU000-02 Installation manual.docx
		Validation : 25.01.2024	Page : 3 de 41
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0400-BU000-02

1. Introduction

1.1. General

Read this manual carefully before using for the first time !

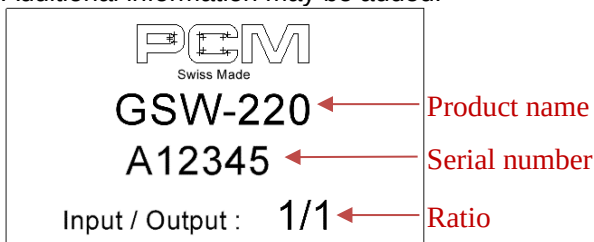
Keep for future reference.

This manual contains important information for the correct use of the tool holder.

The manual is downloadable from :
<https://www.pcm.ch/en/download>

1.2. Tool Holder identification

All PCM Precision Tooling SA tools have a product name and serial number engraved on one side. Additional information may be added.



Incorrect use are:

- Use of the product by unqualified and/or untrained persons.
- Use of the product without instruction.
- Non-compliance with tightening torques.
- Use outside limits.
- Deactivation of safety systems.
- Open the product using tools such as a hexagonal wrench, unless specifically indicated for certain functions.
- Sealed screws (white dot) must not be screwed in or out.



- Modification of the product.
- Use of a product with visible damage or defects.
- Collision due to programming error.
- Use with accessories from other manufacturers without prior agreement from PCM Precision Tooling SA.
- Exposure of the product to corrosive environments.
- Use of compressed air in the direction of the product..



Warning

Incorrect use of the product can result in serious injury and considerable material damage. It is the responsibility of the person responsible for the product to inform the user of potential hazards and how to avoid them.

2. Security

All persons using the tool holder must be familiar with the information and recommendations contained in this manual. The person responsible for the product must ensure that all users understand and comply with these instructions.

2.1. General

When using and handling the toolholder, always comply with the laws and safety regulations of your country and/or the European Union, as well as the safety and operating instructions of your machine tool manufacturer.

2.2. Instructions

PCM Precision Tooling SA accepts no liability for incorrect use of the tool holder and/or machine tool.

2.3. Non-PCM Accessoires

PCM Precision Tooling SA is not responsible for the safety and function of accessories supplied by third parties.

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3. General

3.1. Warranty

The warranty covers all defects caused by faulty design, material or workmanship, in accordance with the following conditions:

- The warranty is valid for 12 months from the date of delivery. Repairs are guaranteed for 6 months after delivery.
- The warranty is void if the conditions of use are not respected.
- The warranty is void if the toolholder has been repaired, dismantled or modified by a person or organization not approved by PCM Precision Tooling SA.
- The warranty is void if the transport conditions are not respected.
- The warranty is void in the event of a collision due to a programming error.
- The warranty is void if a sealed screw (white dot) has been screwed in or out..



- In the event of a defect, use must be discontinued immediately and a complaint sent to PCM Precision Tooling SA.
- All warranty repairs may be subject to verification by PCM Precision Tooling SA.

3.2. Transport

Failure to comply with the transport instructions may result in damage to the product, causing serious injury and considerable material damage.

Transport instructions are :

- Transport using suitable means of transport.
- The product must be carefully packed, including screws and tools.
- The product must be secured with filler to prevent shocks.

3.3. Running-in

PCM Precision Tooling SA recommends running-in to ensure long product life.

Run the product at 30% of maximum speed for 15 minutes without load.

The product body temperature must not exceed 75°C (167°F) during running-in; direct coolant onto the product if necessary.

3.4. Maintenance

Clean the product regularly to maintain high quality and precision.

Use a clean cloth every 24 hours of use to remove chips, oil, coolant

Check product rotation by removing it from the machine and turning the spindle several times by hand once a week.



Warning

Using compressed air will damage the product!

Chips, dirty oil and dust are pushed onto the seals and can enter the product, causing serious damage.

3.5. Greasing

Bearings, gears and other rotating parts are greased for life.

PCM Precision Tooling SA products do not need to be greased except for assembly and repair.

3.6. Storage

The product must be thoroughly cleaned and lightly lubricated before being stored in a clean, dry place.

Rotate the spindle several times a month to circulate the grease inside, avoid fretting corrosion in the bearings, prevent seals from sticking...

0400-BU000-02

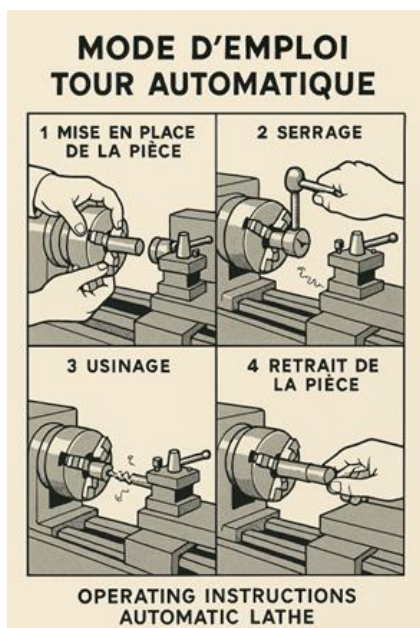
4. Installation

4.1. Generals



Warning

Follow your machine manufacturer's recommendations!



Before fitting the tool, always check the product for visual damage or defects, and rotate the spindle to check rotation and play.

If a defect is found, do not use the product and contact PCM Precision Tooling SA or your dealer.



Warning

Never insert a dirty tool holder into the machine!

Carefully wipe the surfaces of the toolholder with a clean cloth to remove oils, chips, etc.

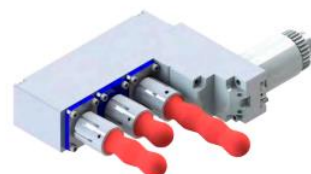


Warning

High risk of serious injury if cutting tools are not covered or removed!

Tool protectors can be ordered:

Check the accessories catalog for available dimensions.



Warning

Never use an empty tool holder in the machine, put a plug in the spindle!

Thread whirling toolholders are supplied with a special plug. For more information, contact PCM Precision Tooling or your reseller.

All our ER collet toolholders are supplied with a protective plug.

Additional plugs can be ordered:

Check the accessories catalog for available dimensions.



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Warning

The original main block must be replaced with this tool. To adjust the offset, please contact your local TSUGAMI dealer. The motor parameters must be adjusted according to the sheet provided.

All fixing screws shall be tightened to the torques specified in the table below.

Standard quality: 8.8

Recommended torque for screws and bolts

Diameter	Tightening torque [Nm]			
	Class 5.8	Class 8.8	Class 10.9	Class 12.9
M2	0.22	0.35	0.49	0.58
M3	0.77	1.2	1.7	2.1
M4	1.8	2.9	4	4.9
M5	3.6	5.7	8.1	9.7
M6	6.1	9.8	14	17
M8	15	24	33	40

4.2. Removing original Tsugami base

If there is no tool on the machine, start at step 4.3.

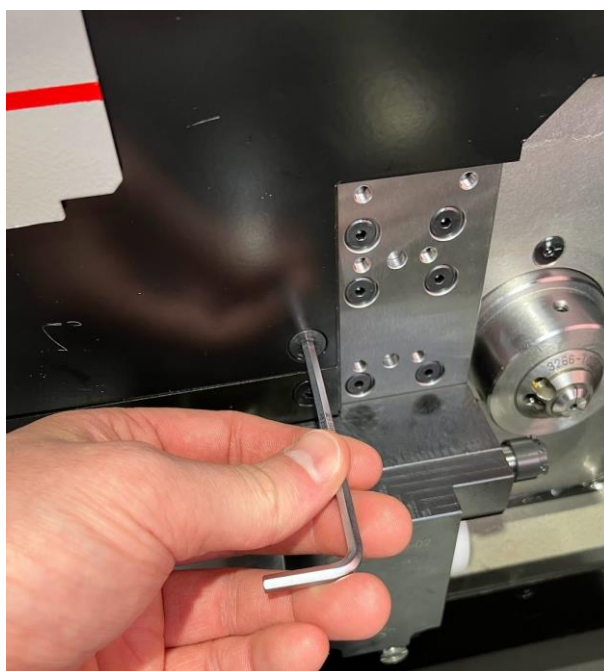
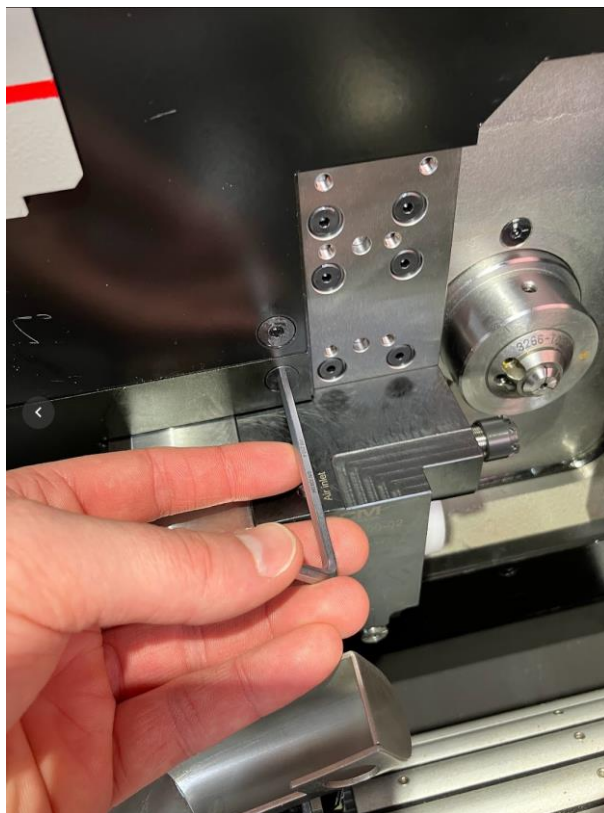
To reach all the screws, it is necessary to move the machine axes.

We advise you to press the emergency stop button between all movements !

1. Remove the Y axis access panel.



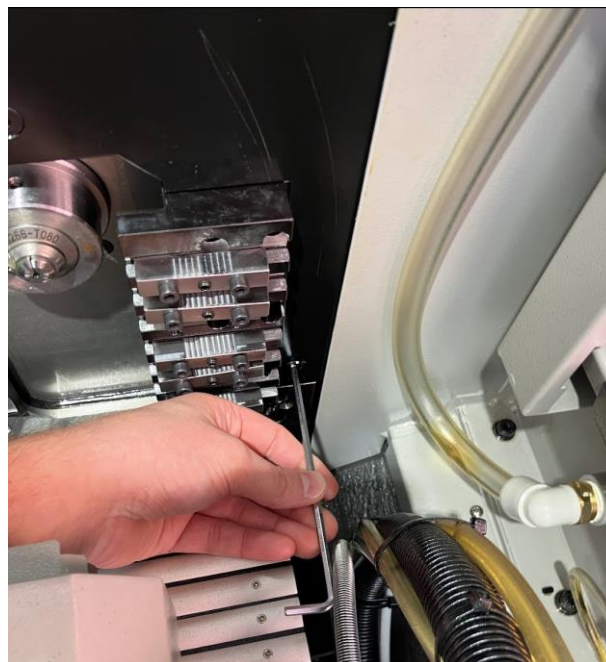
2. Remove the front protection sheet.



0400-BU000-02



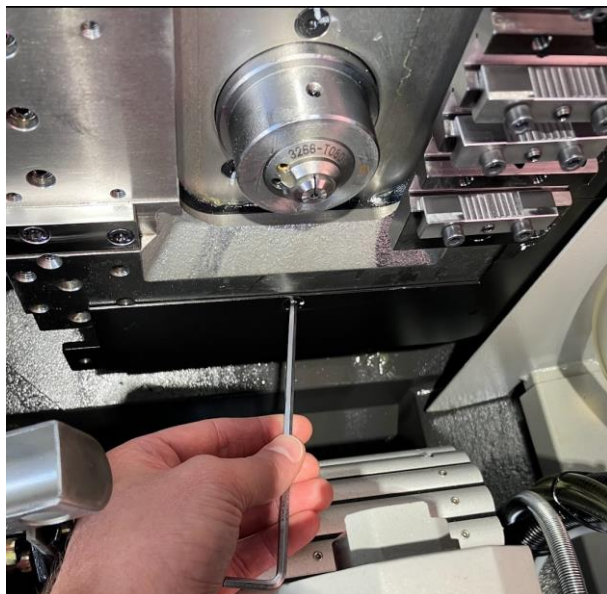
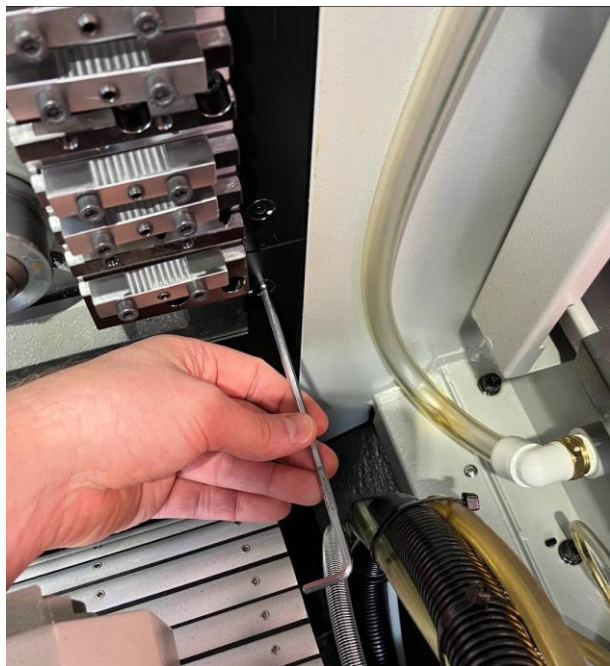
3. Remove the upper protection sheet.



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4. Remove the lower protection sheet.

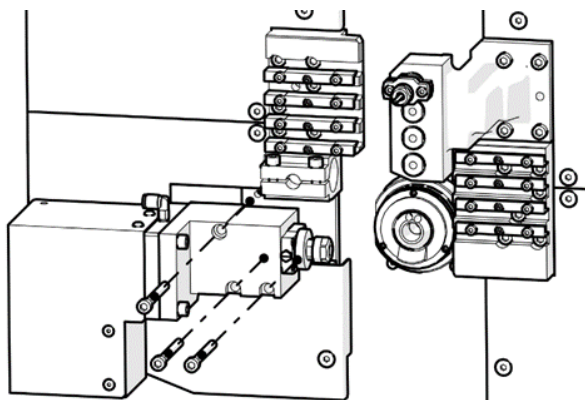


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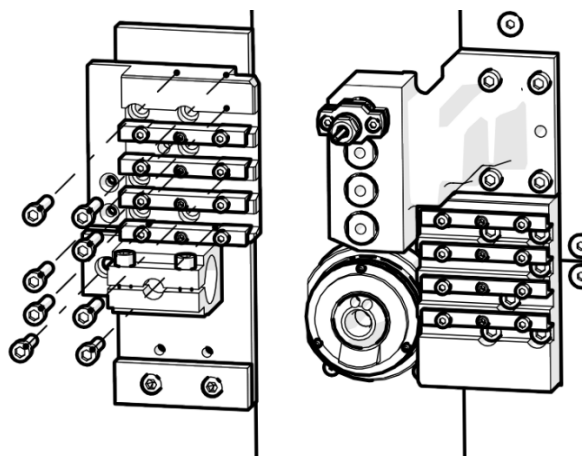
5. Losen the 4 screw of the motor and remove the motor.



6. Remove the original driven base unit.

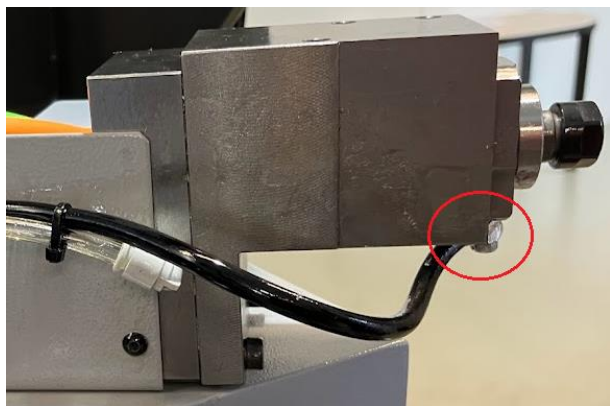


7. Remove the tool holder blocs.

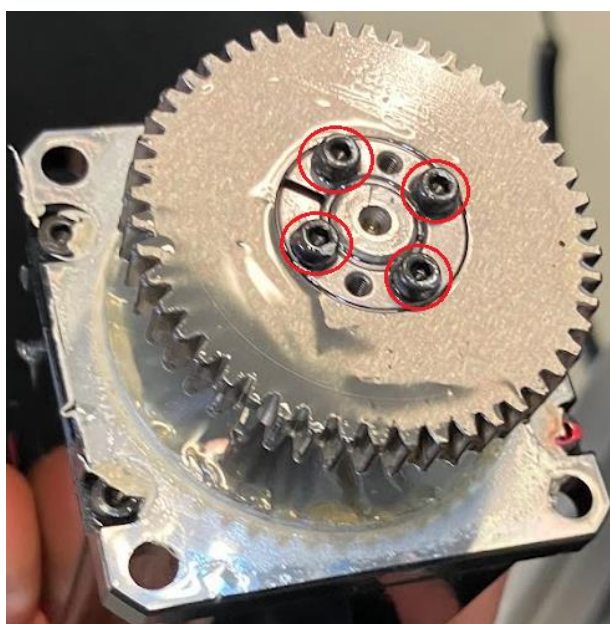


0400-BU000-02**4.3. Dismantling the motor from the original driven base unit**

1. Remove the air supply coupler from the original driven unit and keep it for later.



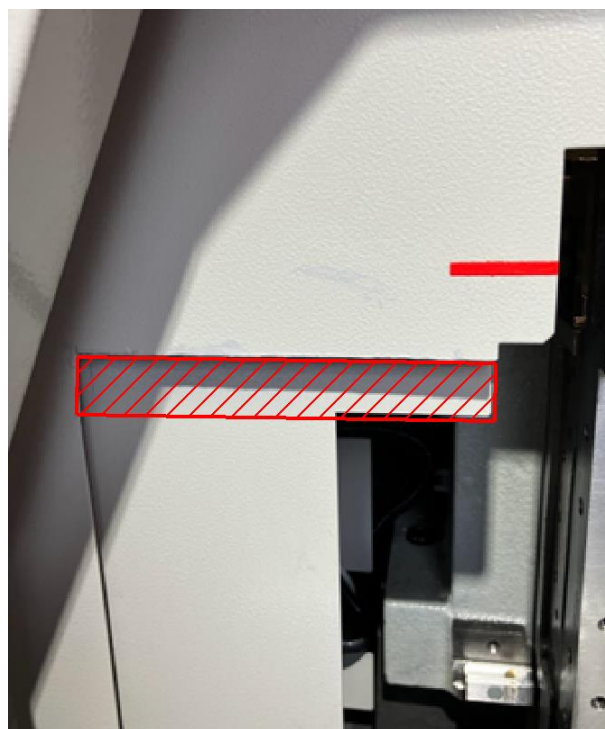
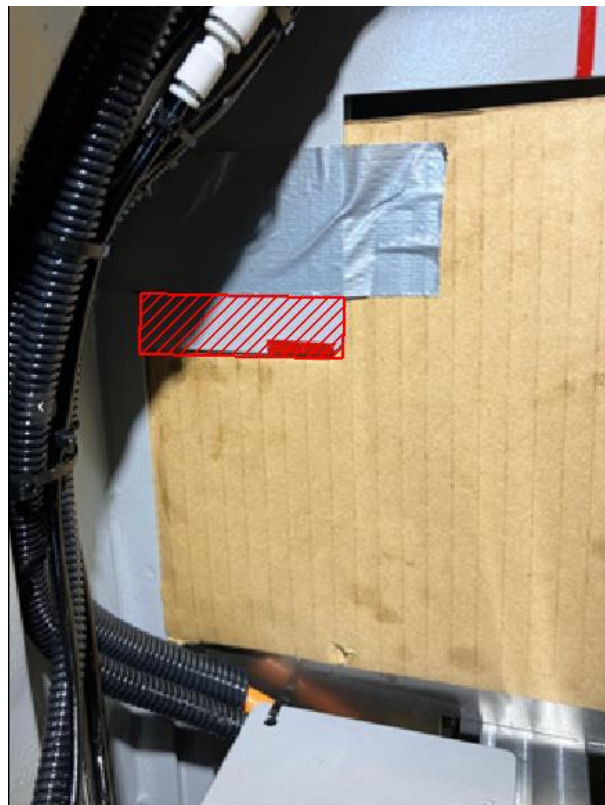
2. Loosen the 4 screws of the coupler and remove the gear from the motor.
Avoid rotating the motor shaft as much as possible !
The coupler will be used later.



0400-BU000-02**4.4. Pre-installation modification**

If the modification has already been done, go to step 4.5.

1. Cut 23 mm of the machine base protection sheet before mounting the base unit.

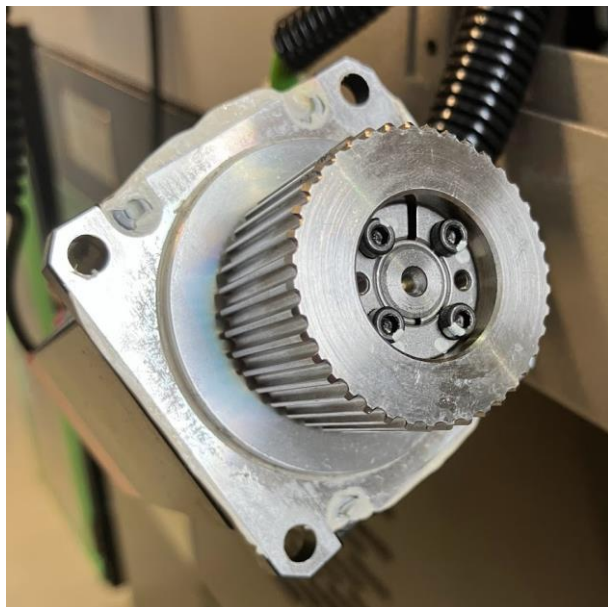
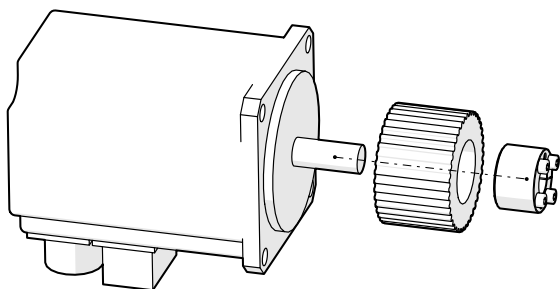
**Warning**

Avoid cutting the second protection sheet and protect the area from the cutting dust.

0400-BU000-02**4.5. Installing PCM pulley to the motor**

1. Put the PCM pulley and the original coupler on the motor and tighten the screws. The coupler face must be aligned with the shaft face.

Avoid rotating the motor shaft as much as possible !

**4.6. Installing the PCM base unit on the gang tool post**

Warning

All fixing screws shall be tightened to the torques specified in the table below.

Standard quality: **8.8**

Recommended torque for screws and bolts

Diameter	Tightening torque [Nm]			
	Class 5.8	Class 8.8	Class 10.9	Class 12.9
M2	0.22	0.35	0.49	0.58
M3	0.77	1.2	1.7	2.1
M4	1.8	2.9	4	4.9
M5	3.6	5.7	8.1	9.7
M6	6.1	9.8	14	17
M8	15	24	33	40

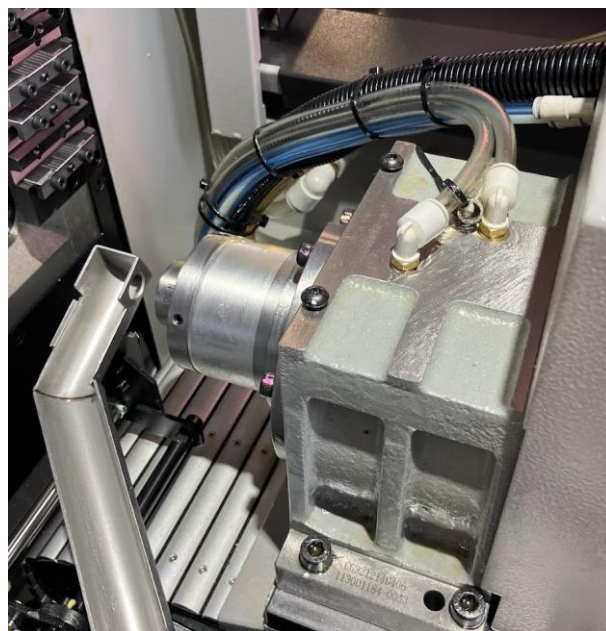
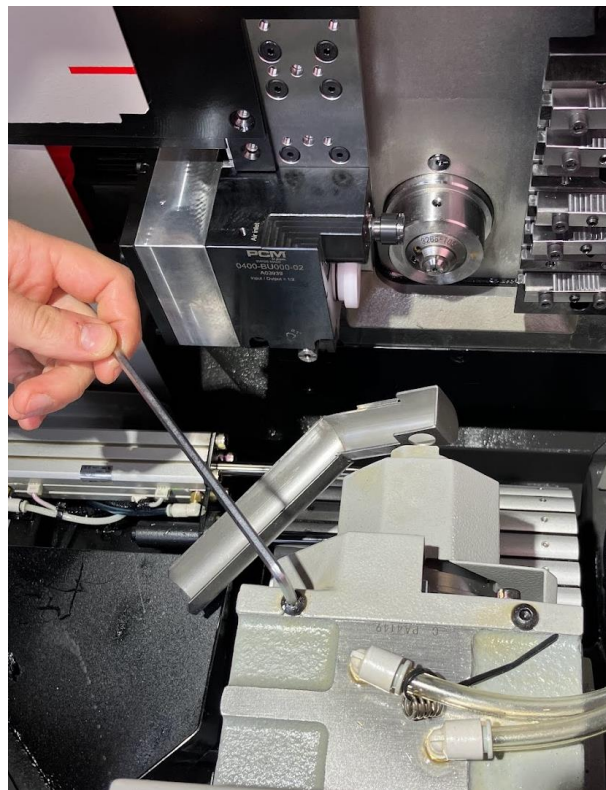
1. Place the base on the gang tool post and tighten the 6 upper screws and 2 lower screws.



0400-BU000-02

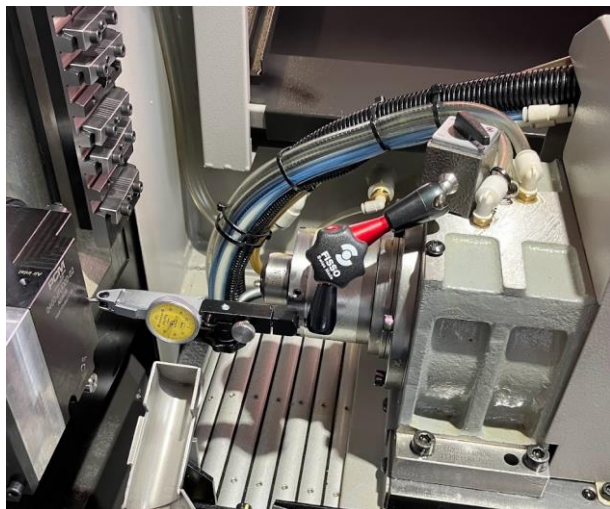


2. Remove the protective cover of the counter spindle.

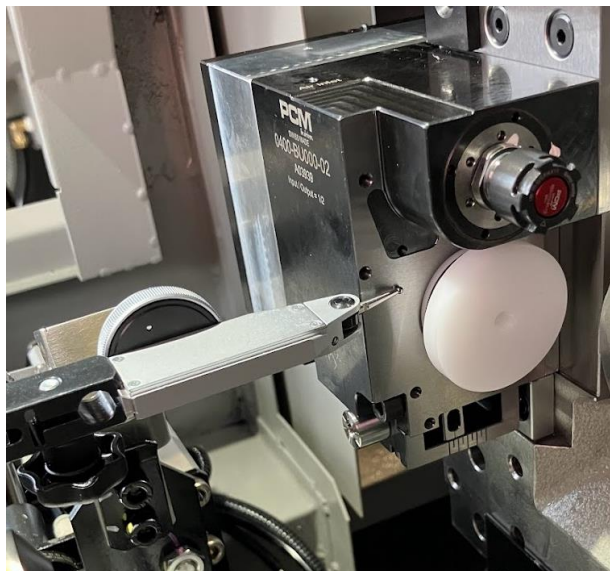


0400-BU000-02

3. Place a dial comparator on a stable surface.

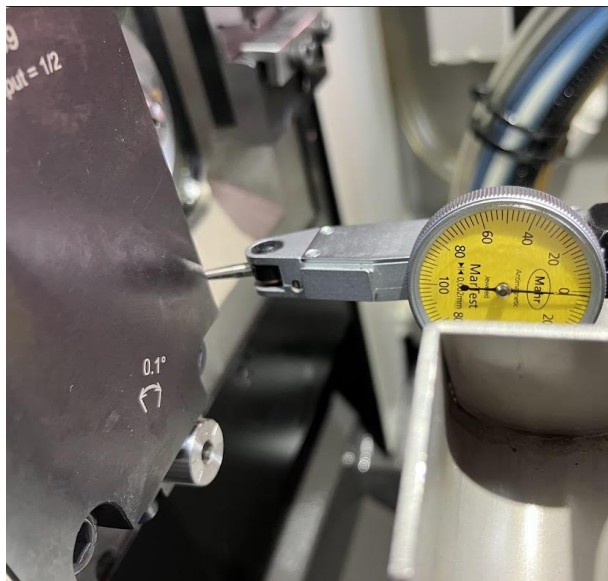


4. Loose the 8 screws from step 1 and align the base the base using a dial comparator on the vertical grounded face.
Advice: tighten 1 of screw slightly more than the others to use it as a pivot.

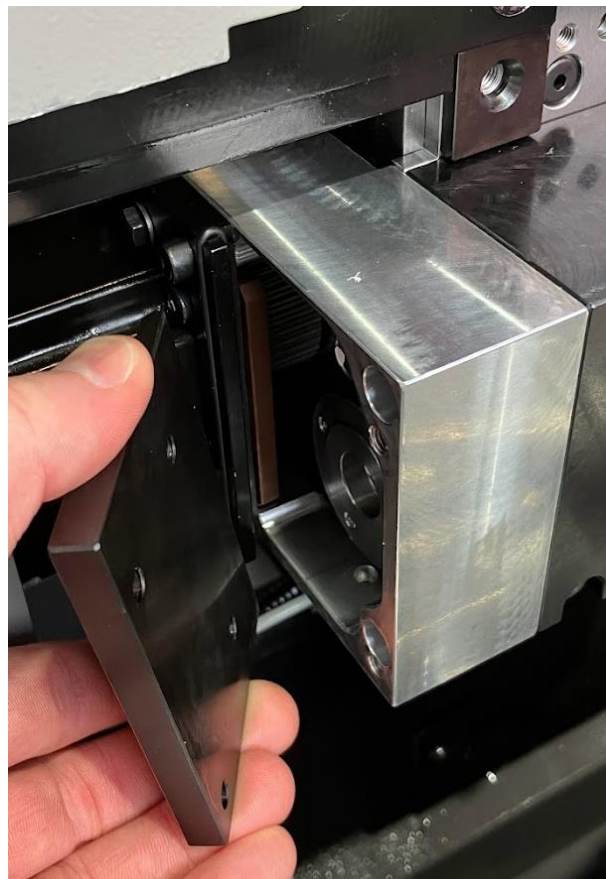


5. We recommend a maximum deviation of 0.002 mm.



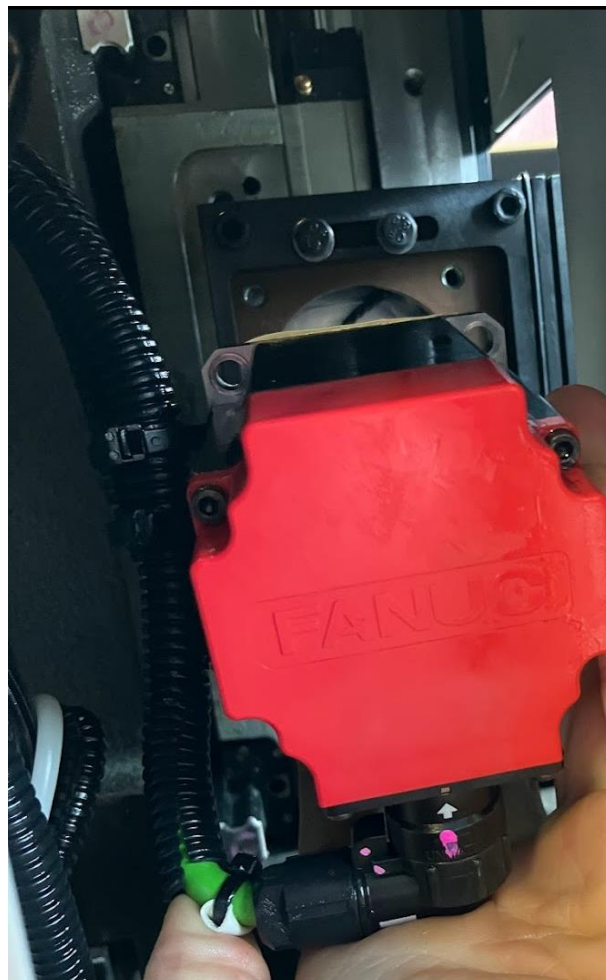
0400-BU000-02

6. Tighten the 8 screws securing the base unit in step 1.
7. Remove the belt cover.



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8. Place the motor, with the connector facing down and tighten the 4 screws.

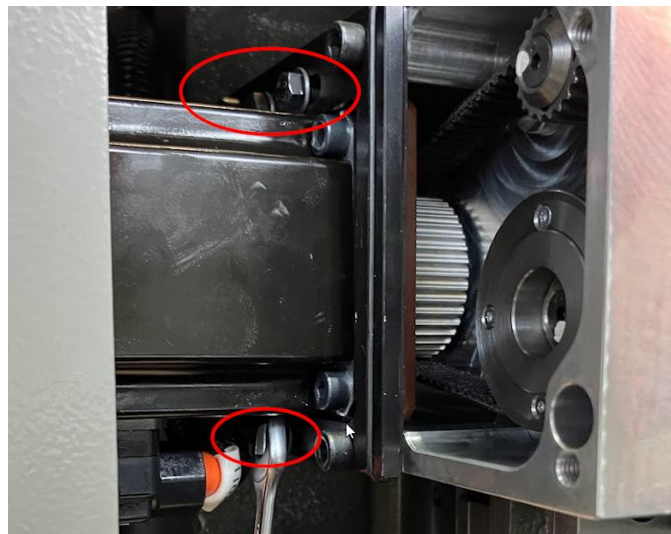
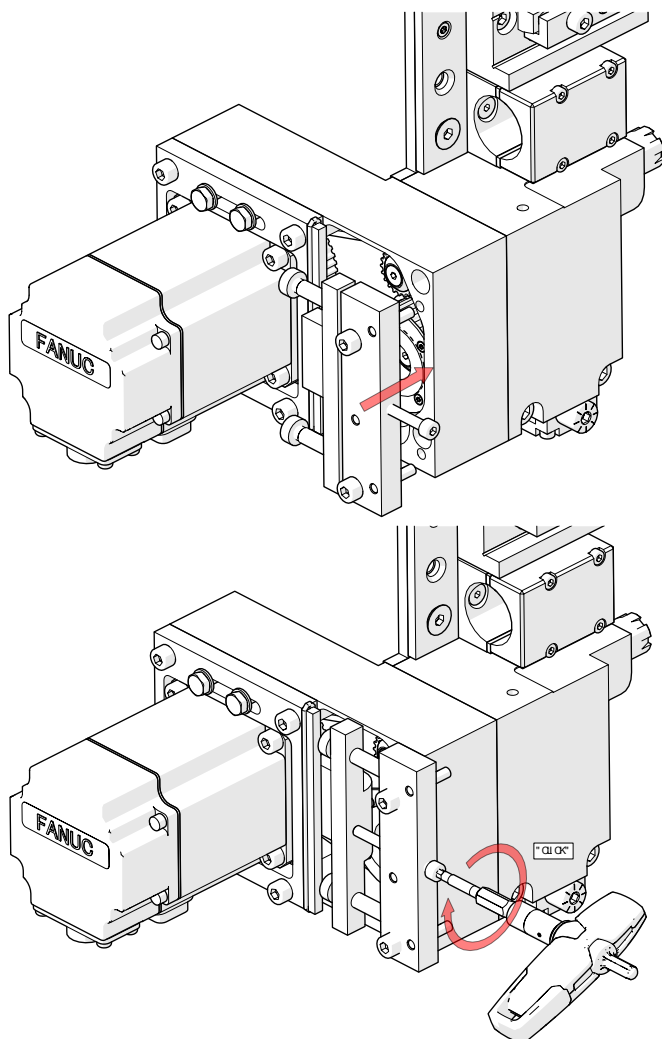


0400-BU000-02

9. Tighten the belt with the supplied belt tightening tool, then tighten the 3 hexagon-head screws.
Always tighten the belt with the supplied torque screwdriver, there is a "click sound" when tightening. (0.2 Nm).

**Warning**

Incorrect belt tensioning can lead to malfunction.



10. Check the belt tension, it must not be able to skip a tooth on a pulley.

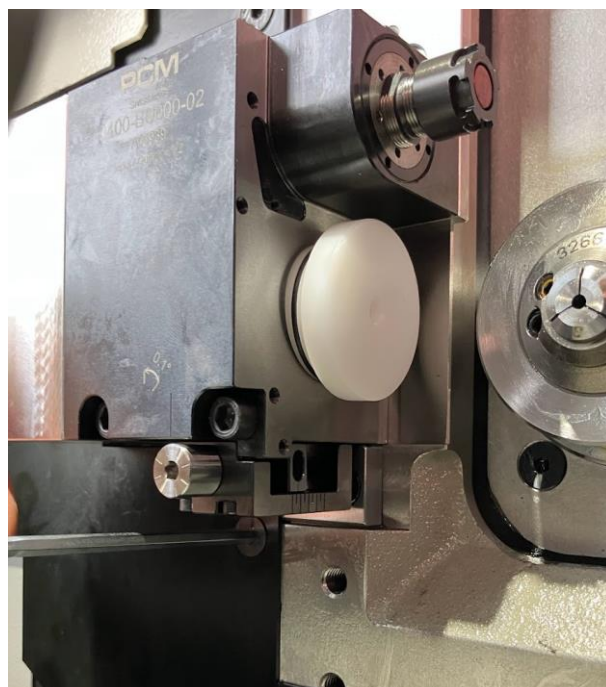


11. Close the belt cover.



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12. Replace the protective panels.



0400-BU000-02

4.7. Parameter modification



Warning

This guide may not be correct for every machine.
PCM Precision Tooling takes no responsibility for
any errors in this manual or in programming.

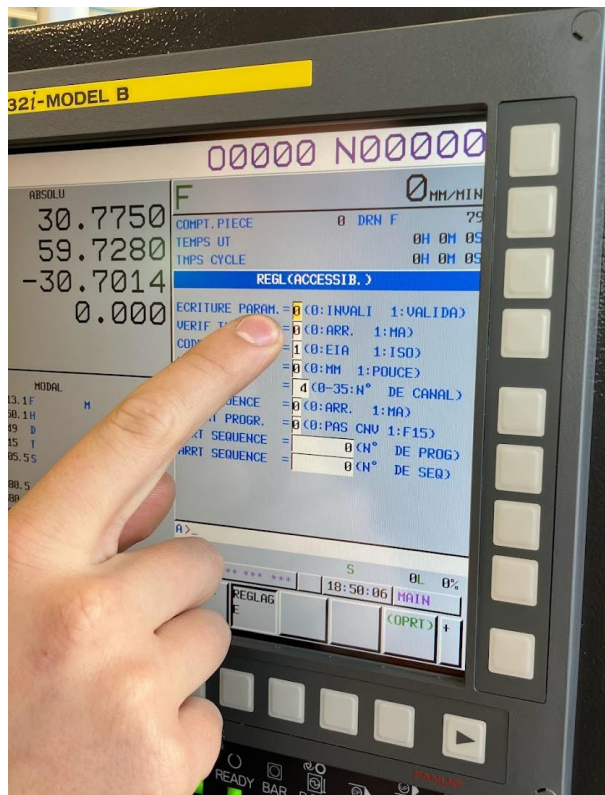
1. Select MDI mode.



2. Select OFS/SET.



3. Enter 1 in Write parameter.

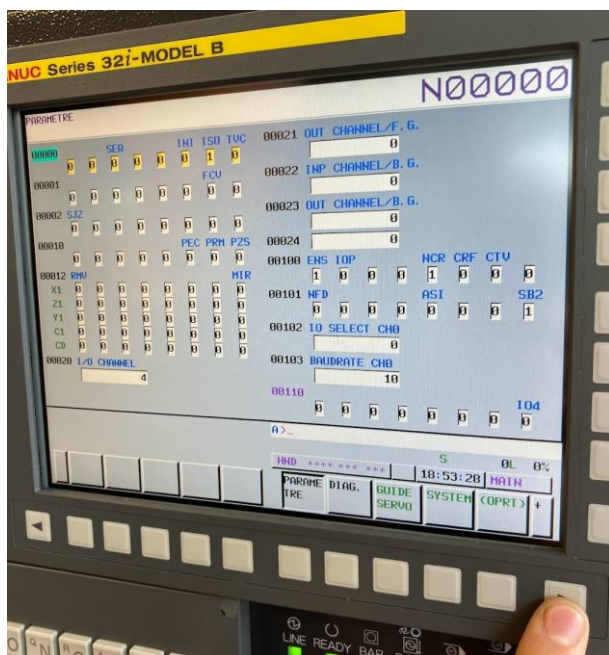


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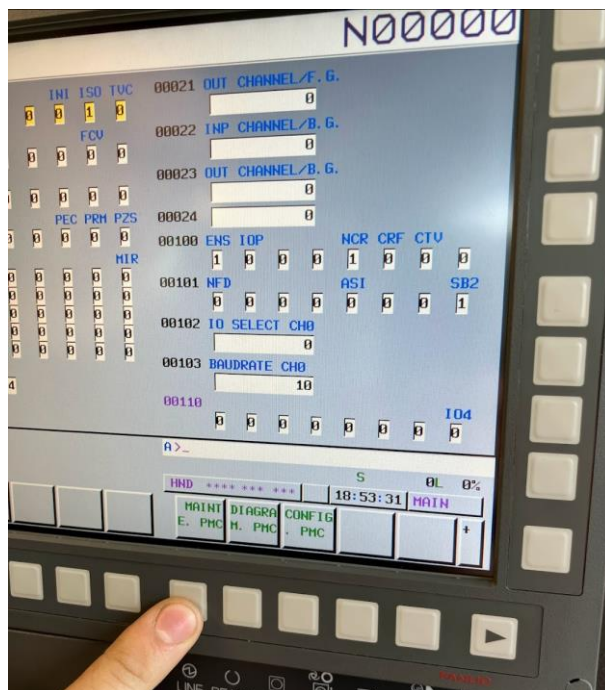
1. Select SYSTEM.



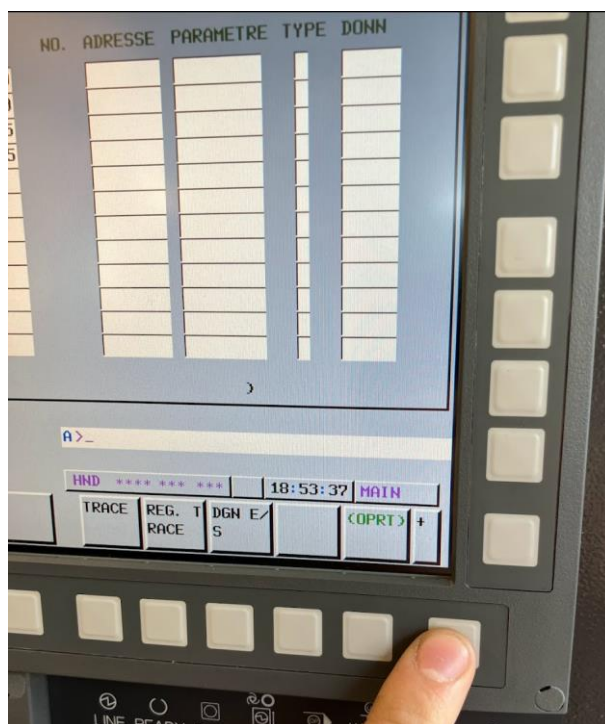
2. Select +.



3. Select MAINT E. PMC.

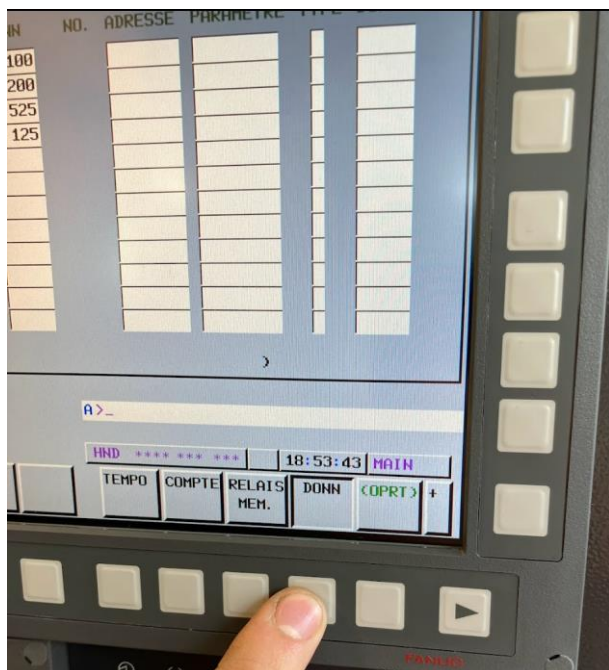


4. Select + twice.



0400-BU000-02

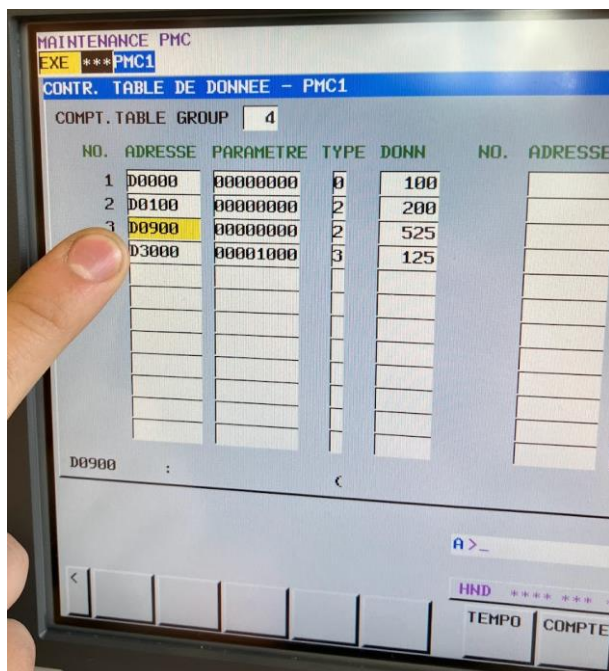
5. Select DONN.



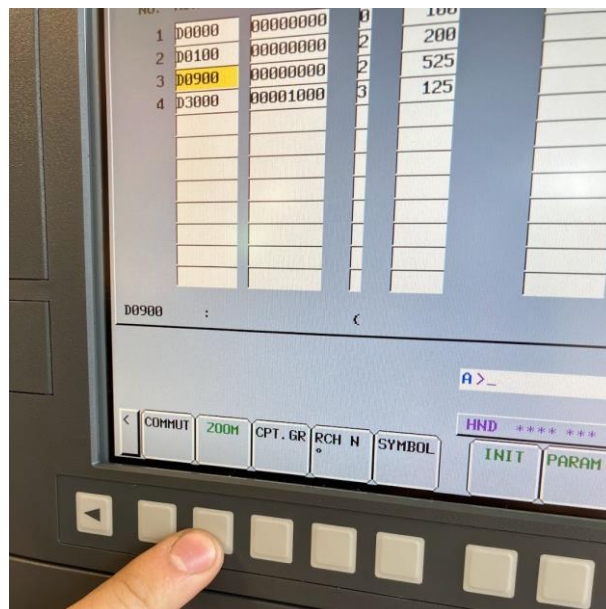
7. Select (OPRT).



6. Move the cursor to D0900.

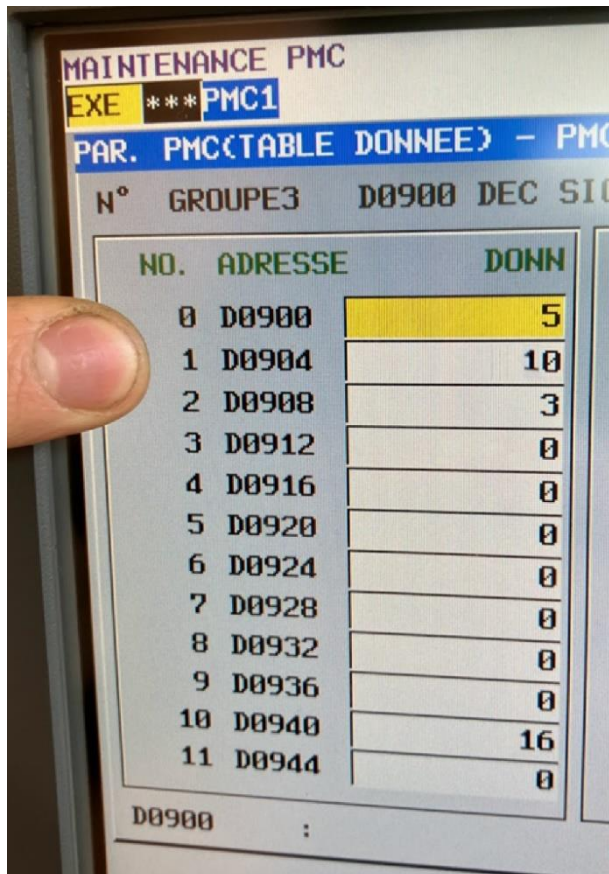


8. Select ZOOM.



0400-BU000-02

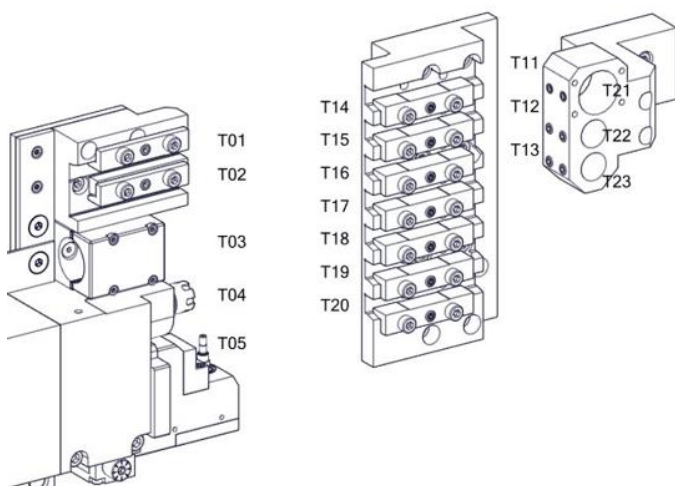
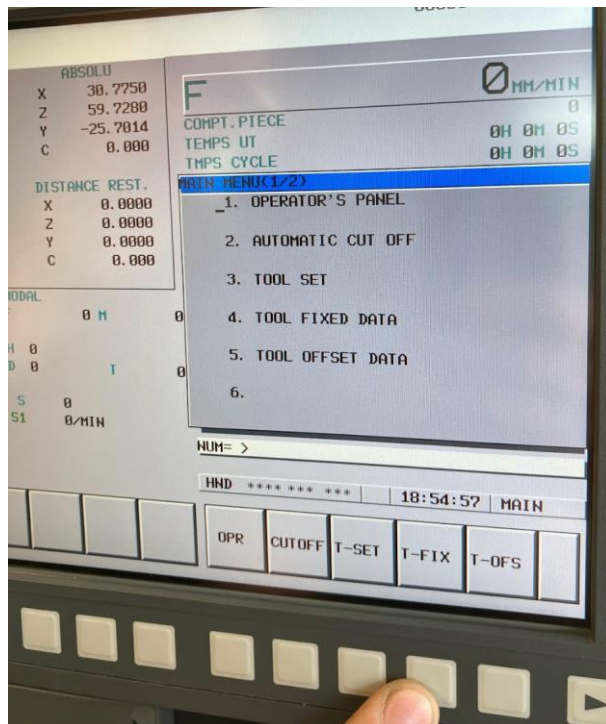
9. Enter the number of tools per position.
- D0900 = 5 (Front gang tool post).
 - D0904 = 10 (Back gang tool post).
 - D0908 = 3 (Horn for Back spindle).



10. Select CSTM/GRPH.

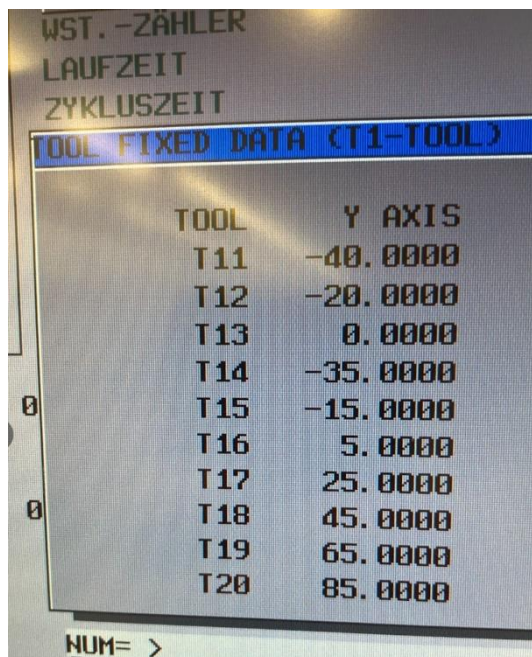


11. Select T-FIX.



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12. Control that the number of tools is correct.



13. Select PAGE DOWN to see the other positions.



14. Restart the machine.

0400-BU000-02

4.8. Motor parameters



Warning

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any errors in this manual or in programming.

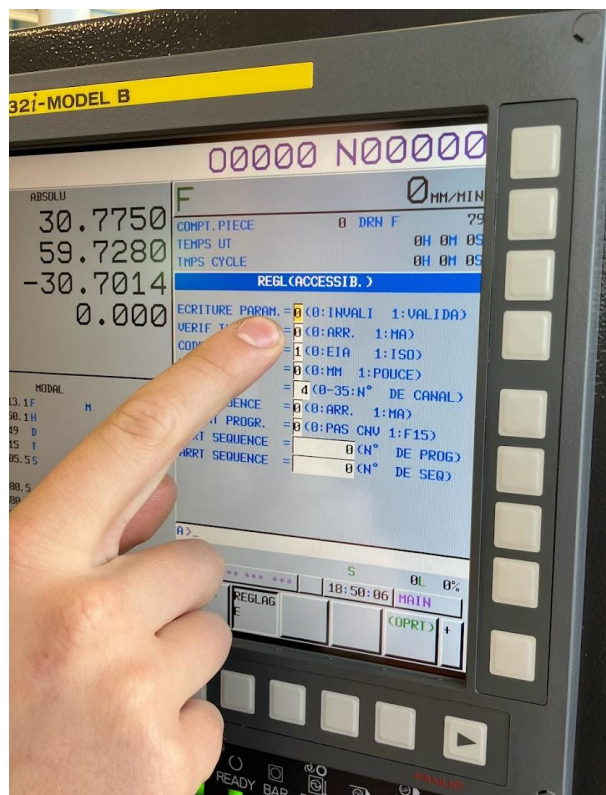
1. Select MDI mode.



2. Select OFS/SET.



3. Enter 1 in Write parameter.



0400-BU000-02

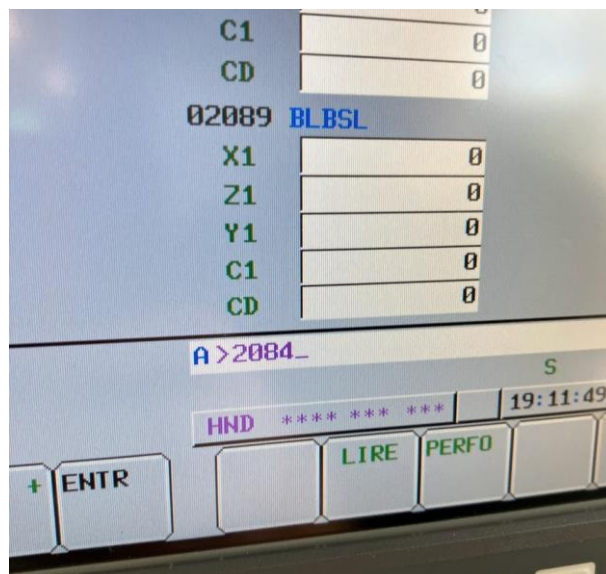
4. Select SYSTEM.



5. Parameter to modify:

Parameters	Old	New
02084 SDMR1	CD A 360	CD A 9
02085 SDMR2	CD A 5000	CD A 250
02086 RTCURR	CD A 1376	CD A 1376

6. Type the number of the parameter.



7. Select RCH N°.

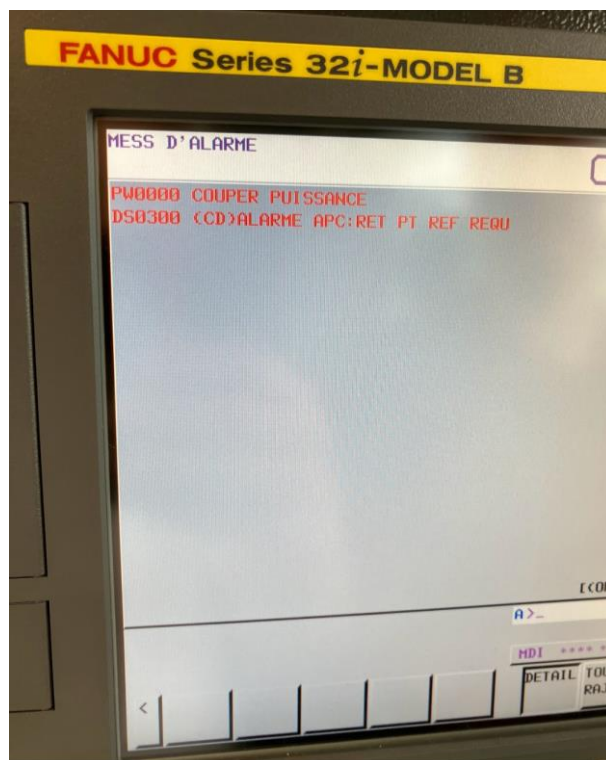


0400-BU000-02

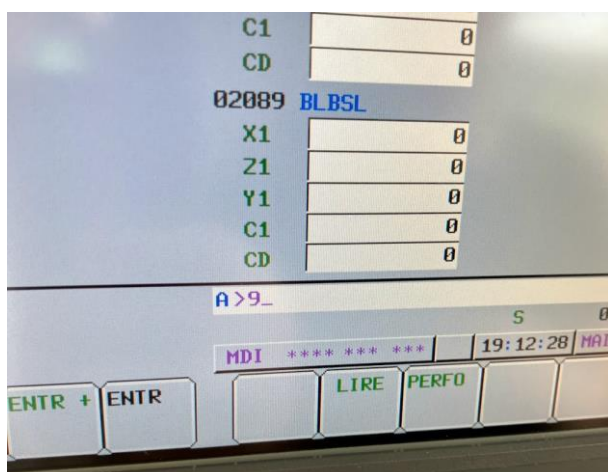
8. Navigate with the arrow.



11. There will be an error.



9. Enter the new value.



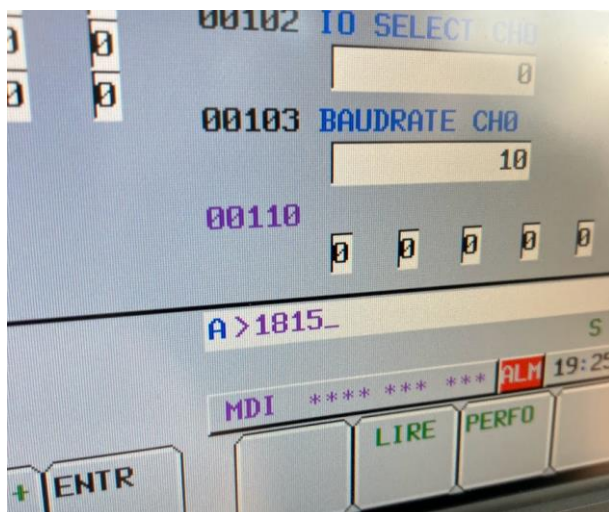
12. Select SYSTEM.

10. Select INPUT.



0400-BU000-02

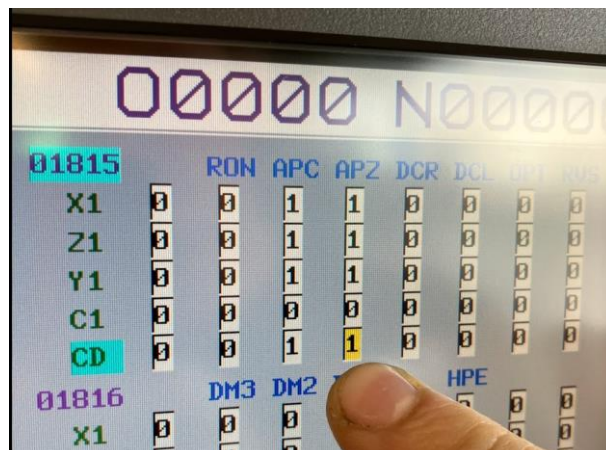
13. Type 1815.



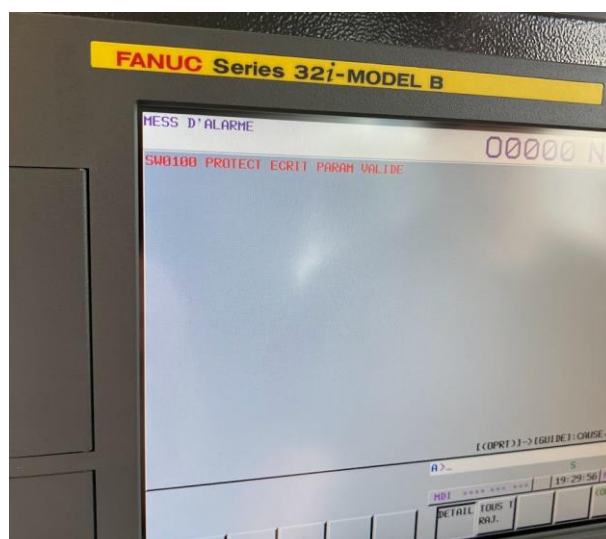
14. Select RCH N°.



15. On the parameter 01815, on the line CD, the APC and APZ must be 1.



16. There will be an error.



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17. Select CAN and RESET.



18. Press the emergency stop.



19. Rotate the motor 2 turn (4 turn on the ER11 spindle).



20. Restart the machine. If there is an error after restart, repeat all and turn slower the motor.



0400-BU000-02

4.9. Tool fix



Warning

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PCM Precision Tooling takes no responsibility for
any errors in this manual or in programming.

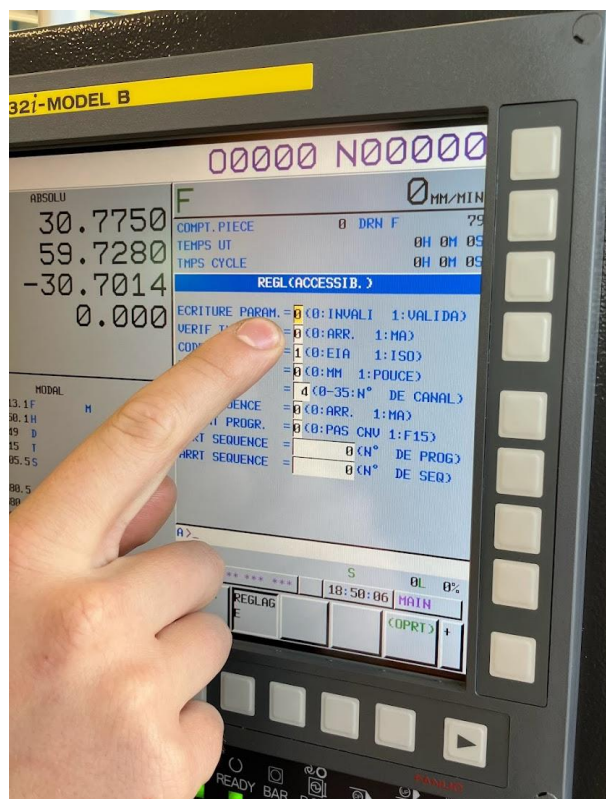
1. Select MDI mode.



2. Select OFS/SET.



3. Enter 1 in Write parameter.



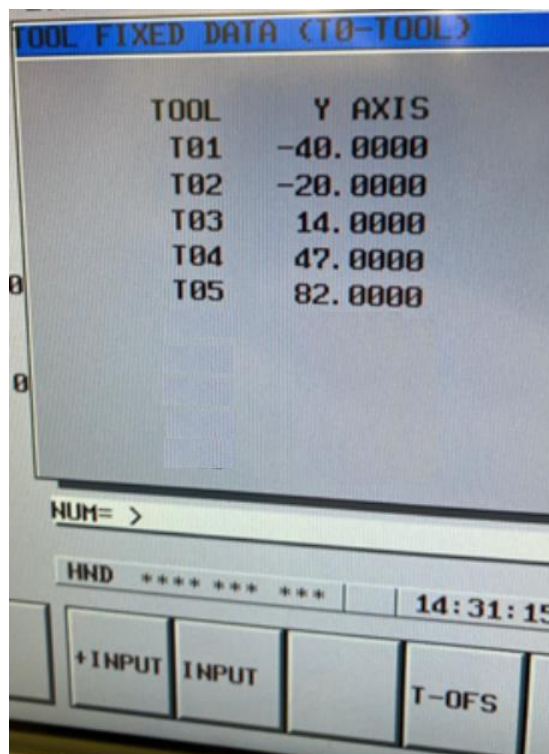
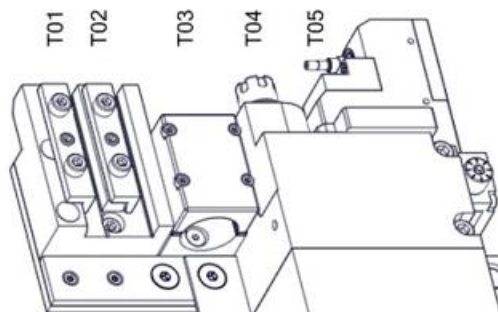
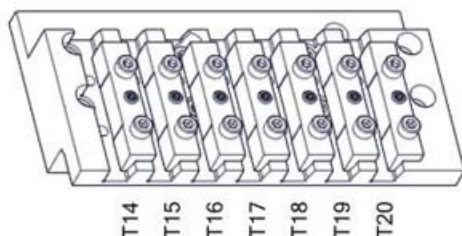
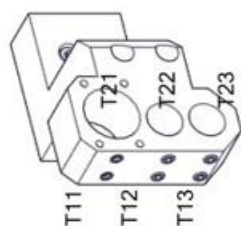
4. Select CSTM/GRPH.



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5. Enter tool correction. The approximate positions are:

T01	-40.0000	T11	-40.0000
T02	-20.0000	T12	-17.0000
T03	14.0000	T13	3.0000
T04	47.0000	T14	-35.0000
T05	82.0000	T15	-15.0000
		T16	5.0000
		T17	25.0000
		T18	45.0000
		T19	65.0000
		T20	85.0000



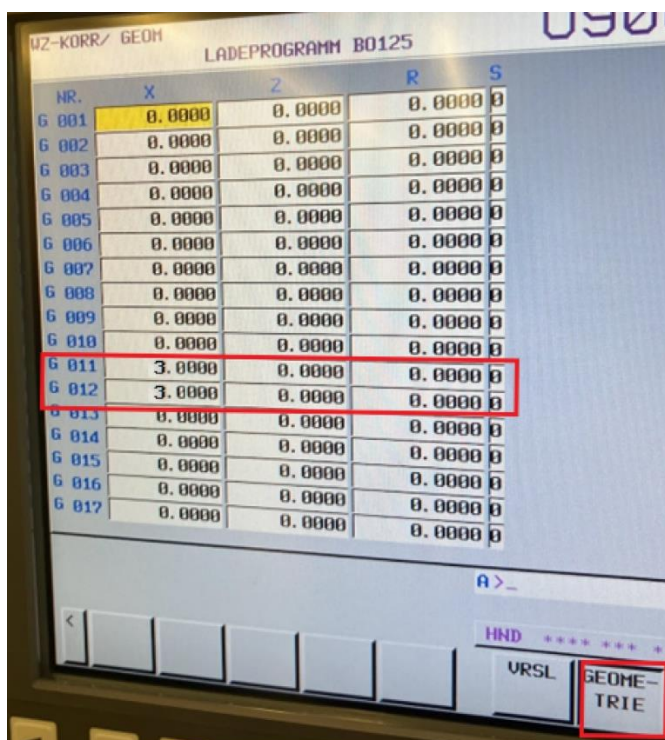
6. Select INPUT.



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7. For P03-GDF-816-II, the 2x Ø 16 mm have a 3 mm offset in X.
This offset must be given in the GEOMETRIE menu.

NR.	X	Z	R	S
G 012	3.0000	0.0000	0.0000	0
G 013	3.0000	0.0000	0.0000	0
G 022	3.0000	0.0000	0.0000	0
G 023	3.0000	0.0000	0.0000	0



8. Precise correction must be done with TOOL OFFSET and VRSL following the machine manufacturer's instructions.

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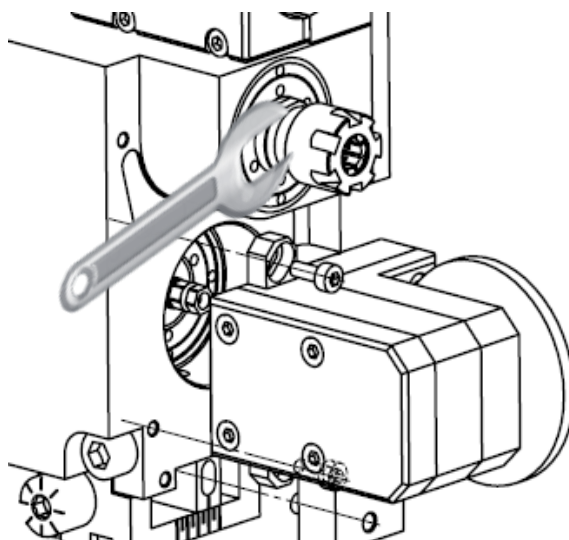
5. Operating instructions

5.1. Generals

During the assembly or the dismantling of your cutting tool, block the spindle with the appropriate fork key (SW13).

The difference between the diameter of the chuck and the tool must not exceed 0.4 mm.

Example: Chuck Ø9.5 mm – minimum tool Ø 9.1 mm.

**Warning**

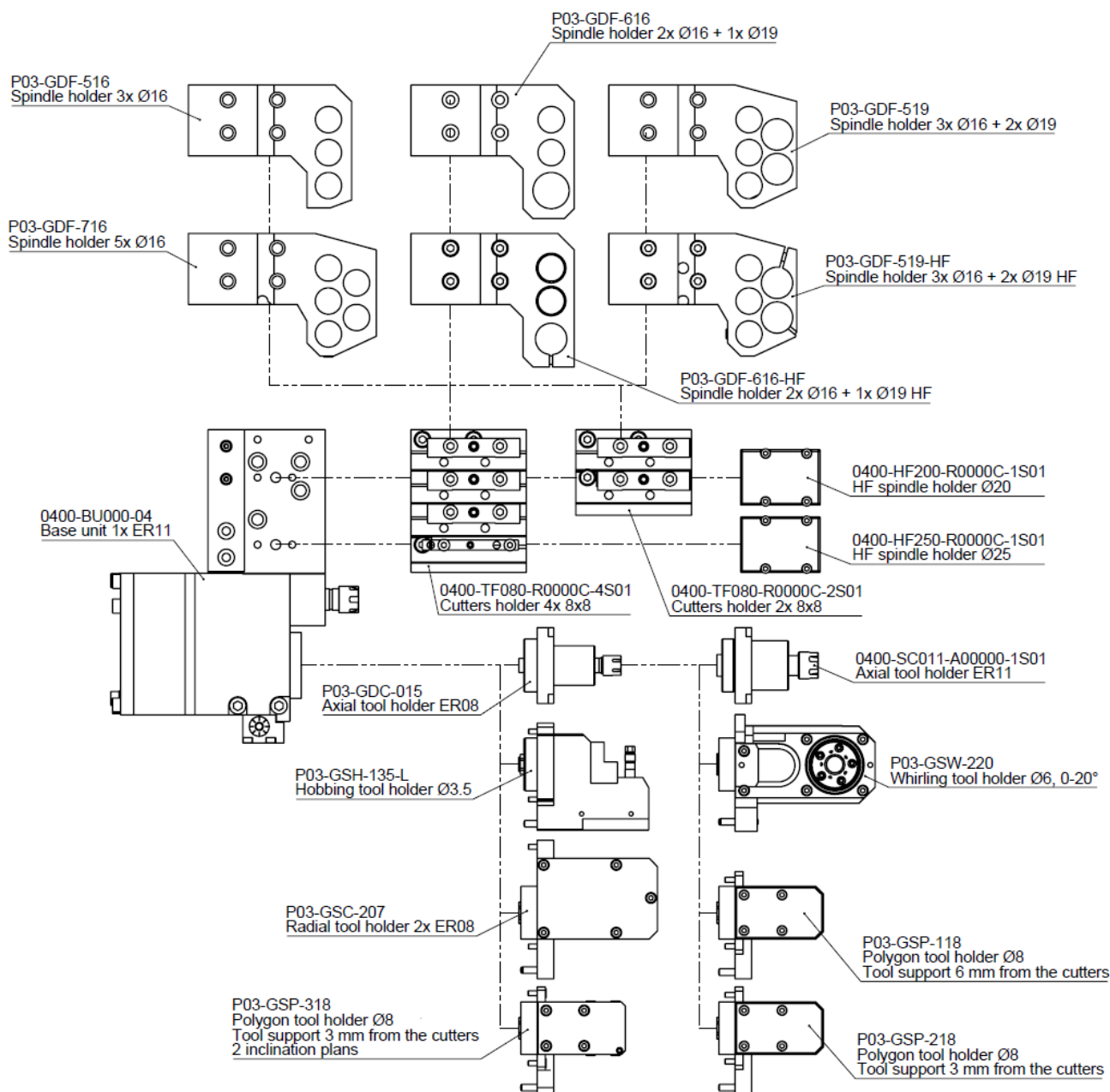
- You need to contact your local TSUGAMI dealer to modify the offset of your Swiss turn.
- You need to adjust the motor parameters.
- Never use the tool holder with empty positions, use the supplied protection plugs.

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5.2. Tool position

Tool No. 01 to No. 4 Modular tool holders.
Tool No. 05 ER11 with max. speed of 16'000 RPM.
Tool No. 06 Driven modular tool holders.

Optional tool holders (see www.pcm.ch for news):

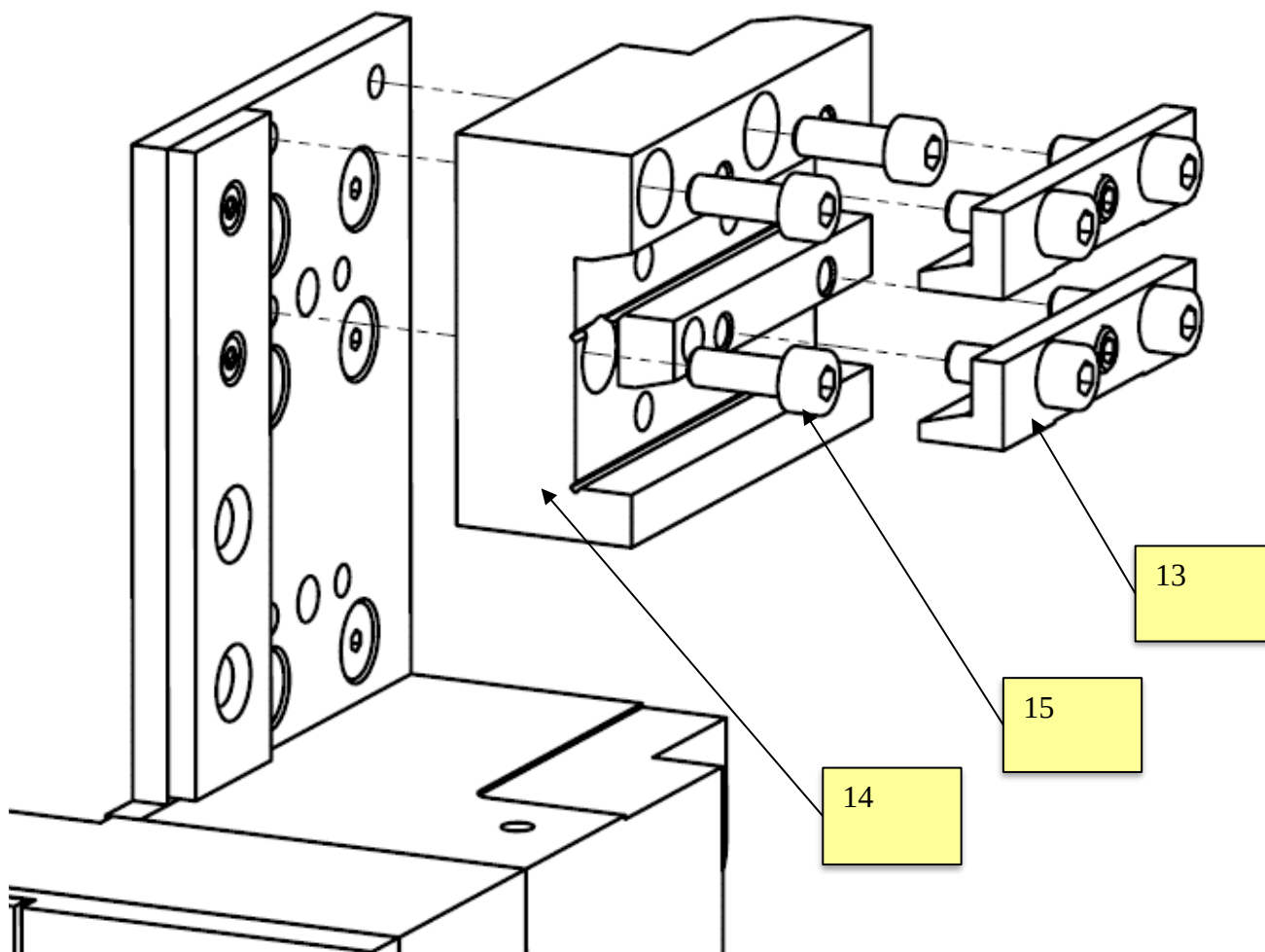


Warning

The sub spindle can be blocked by the radial spindle holder!

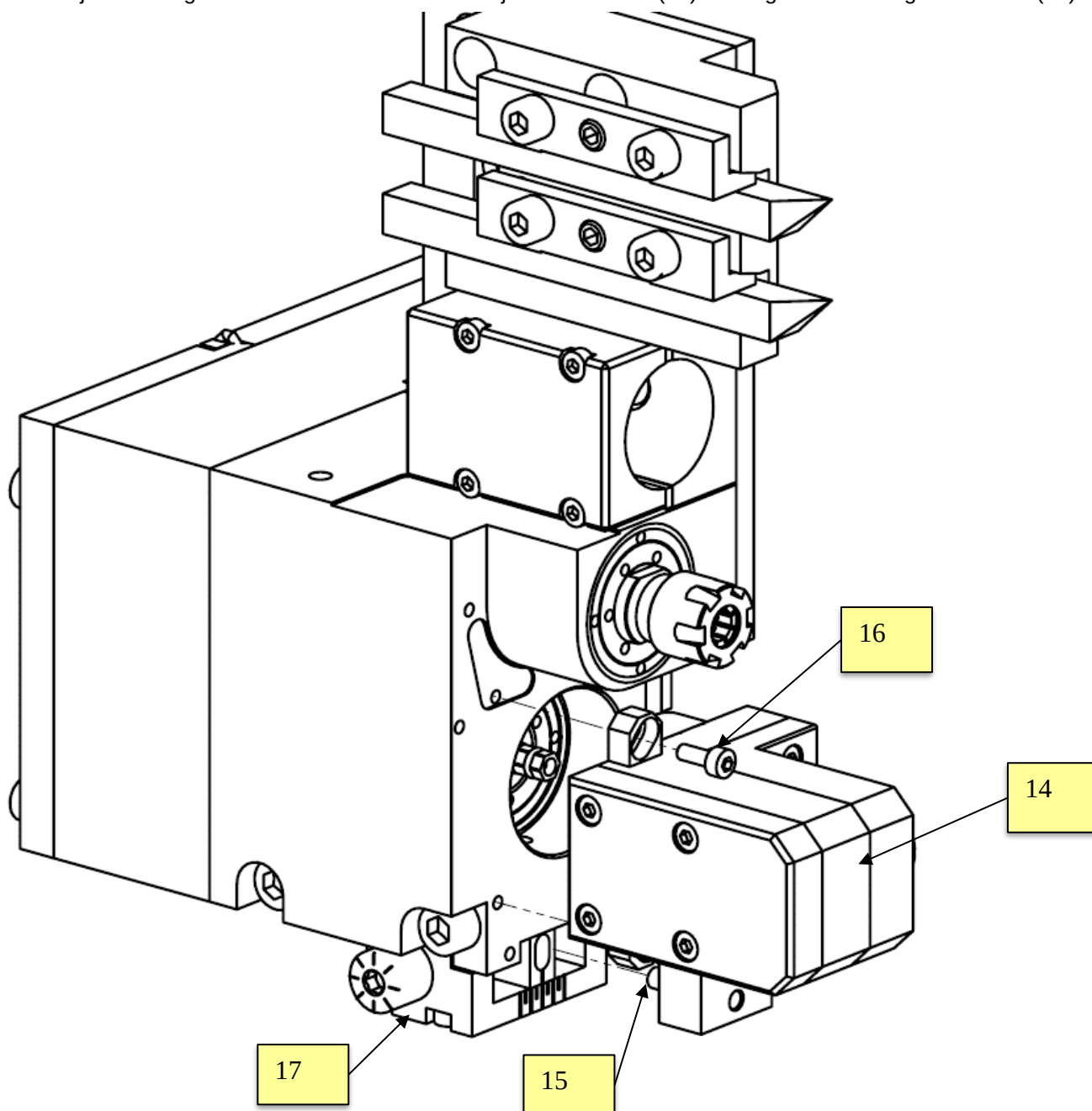
0400-BU000-02**5.3. Installing modular tool holders**

1. Remove the clamping wedge (13).
2. Place the tool holder (14) on the base unit and tighten the screws (15), then loosen them $\frac{1}{4}$ turn.
3. Adjust the tool holder with a comparator, we recommend 0.002 mm on the length of the tool, the tighten the screws.
4. Replace the clamping wedges (13).



0400-BU000-02**5.4. Installing modular driven tool holders**

1. Insert the tool holder (14) in the base unit, you may need to rotate a bit the tool holder to align the coupling. Be careful to insert the pin (15) in the adjustment block.
2. Tighten the screws M3 (16) then loosen them $\frac{1}{4}$ turn, their position and number may vary depending on the modular driven tool holder.
3. Adjust the angle of the tool holder with the adjustment screw (17) then tighten the fixing screws M3 (15).





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Betriebsanleitung
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