



User Manual

AnyCut KNC91 Key Cutting Machine

Version 1.0

Revise date 2023/01

Please read this user manual carefully before using Anycut KNC91 Key Cutting Machine, referred to as the “KNC91” throughout this document. When reading the manual, please pay attention to the words “Note” or “Caution” and read them carefully for appropriate operation. Due to technical updates, software update, etc., some of the pictures shown on the manual might not be fully accurate. Product images and description only for reference purpose, so please see the subject produce.

⚠ Alert!!!: Please read the operation instructions below carefully prior to usage. Improper operation will cause damage or even death to you and to the machine!

OPERATION INSTRUCTIONS

- Make sure that the machine is operated under a safe environment.
- Wear a pair of goggles that matches the ANSI safety standards during operation.
- Keep away from children.
- Avoid using compressed air or any blower of any kind to clean the machine.
- Avoid contact of any kind with the machine during operation.
- Always pay attention to the machine during operation.
- Do not attempt to disassemble the machine or fiddling with the Li-iON battery inside.
- Disconnect the power supply to the machine prior to storage.
- Avoid humid/greasy/dusty area and keep the machine away from heat and never expose it to direct sunlight.
- Only operate the machine on a leveled bench.
- Keep the machine dry and clean at all times.
- SHUT DOWN THE POWER IMMEDIATELY if any abnormalities are detected.

MAINTENANCE TIPS

- Always keep clean from any debris in order to maintain the performance and the precision of the machine!
- Avoid using oil or chemical based products to clean any part of the machine as it may damage or corrode parts!
- Always check the fastener of the key cutting machine and make sure they are tight as they should be!
- Replace and Adjust parts that is worn or damaged on time.
- We suggest a through monthly check of the performance and status of the machine.

AFTERSALES-SERVICES

XTOOL strives to provide best-in-class support!

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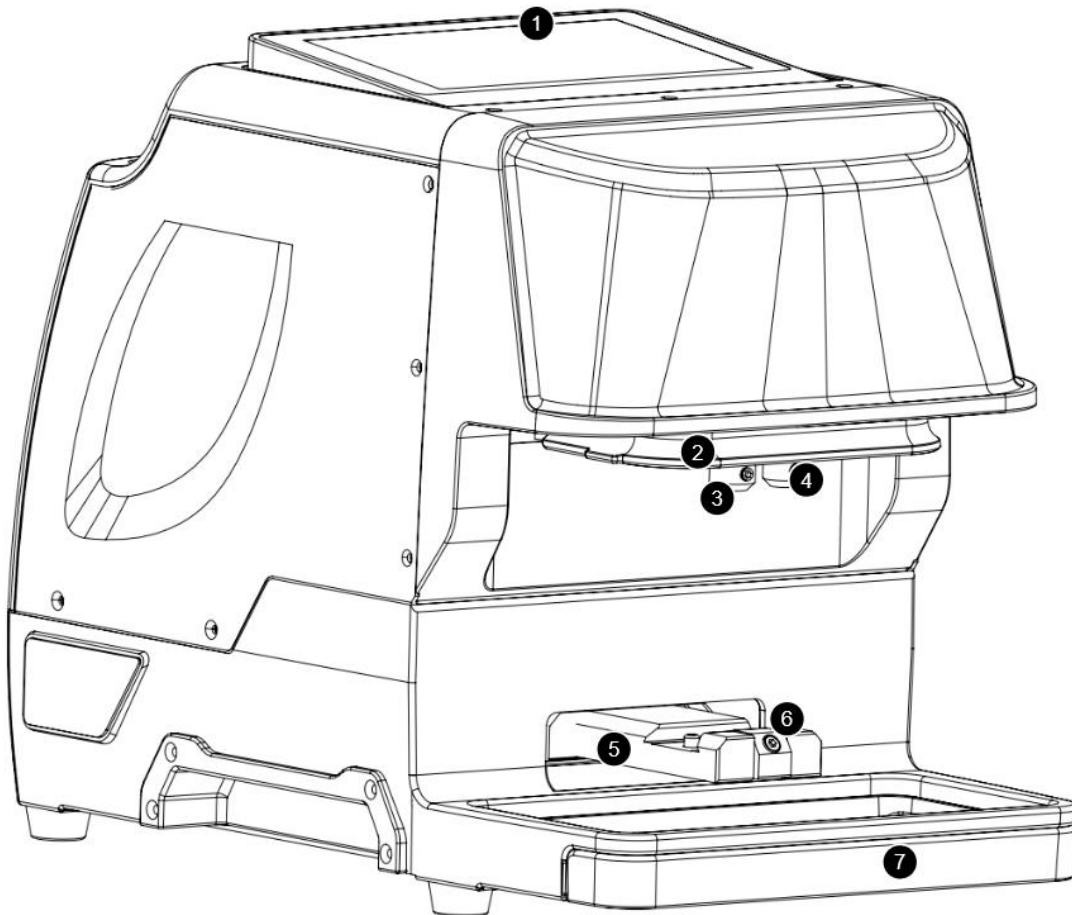
1. GENERAL INTRODUCTION

Anycut KNC91 Key Cutting Machine (referred to as the “KNC91” in the rest of the manual) is a CNC key cutting machine with integrated key database. It finds the bitings on the keys and cut out the keys from the key blanks. KNC91 can also perform these functions:

- Cut Keys by Codes
- All-keys-lost Searching
- Missing Bitings Query
- Customize Key Profile
- Parameter Adjustments
- Trace Duplication
- Etc....

MAIN UNITS

- KNC91



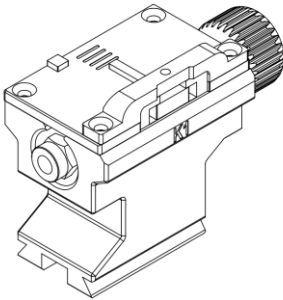
1: 7-inch touch screen
6: Jaw locking screw

2: Protective cover
7: Dust tray

3: Probe mount 4: Cutter mount 5: Bench / Jaw mount

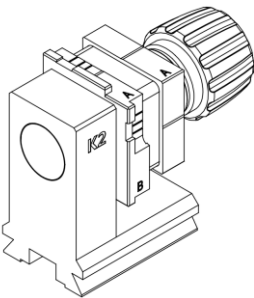
- Jaws

There are 5 jaws that are adapted with KNC91. Here are their introductions.



Jaw K1: Used for edge cut keys.

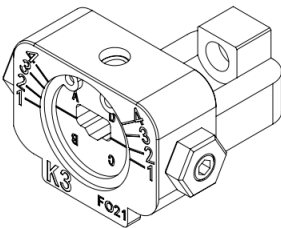
e.g.: Toyota / Mazda / Nissan / etc.



Jaw K2: Used for inner groove keys, external groove keys and high-security edge cut keys.

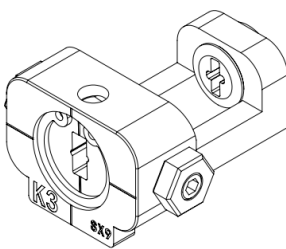
e.g.: VW / BMW / GM / Ford for inner groove keys; Mercedes for external groove keys and Honda / Subaru for high-security side cutting keys.

This jaw has different sides; please refer to the machine for selecting sides.



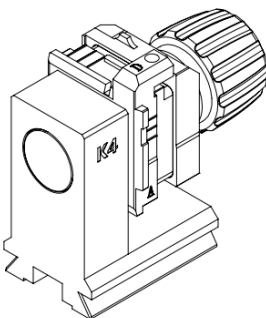
Jaw K3_FO21 (optional): Specialized for Ford FO21 Tibbe keys.

K3_FO21 must be used together with jaw K2/K4.



Jaw K3_SX9 (optional): Specialized for Peugeot / Citroen SX9 keys.

K3_SX9 must be used together with jaw K2/K4.



Jaw K4 (optional): Used for inner groove keys, external groove keys and all edge cut keys.

K4 combined all features from jaw K1/K2.

This jaw has different sides; please refer to the machine for selecting sides.

DEVICE SPECIFICATIONS

Items	Specifications
Adapter Voltage	Input: 100~240V / Output: 26V DC
Minimum Power Consumption	150W
Package Size	345x550x470 mm
Machine Size	251x421x318 mm
Screen Resolution	1024x600 px
Battery Capacity	55.5 Wh
Cutter Spindle Speed	12,000 RPM
Working Temperature	-5~+40°C
Humidity	10~90%
Net Weight	17kg
Gross Weight	20kg

PACKING LIST

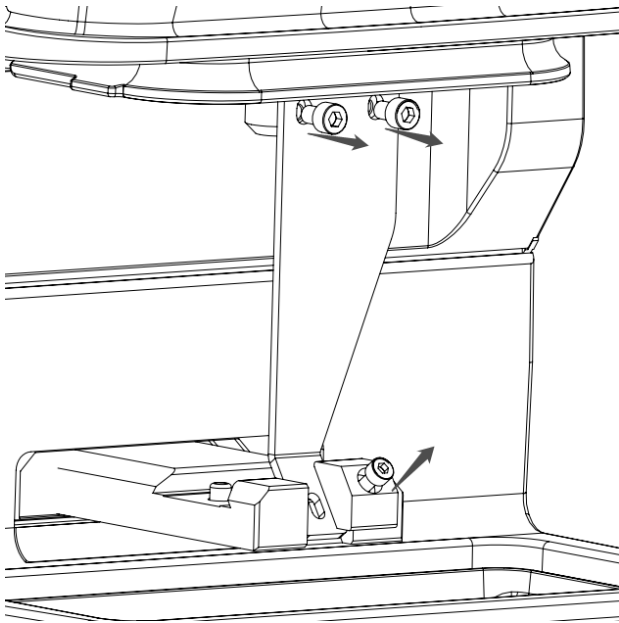
Main Unit	Anycut KNC91
	Battery Pack
Cutter / Probe	1.0mm Probe (Φ1.0 x Φ6 x 40L) x2
	1.5mm Cutter (Φ1.0 x Φ6 x 37L)
	2.5mm Cutter (Φ2.5 x Φ6 x 37L)
	2.5mm Extended Cutter (Φ2.5 x Φ6 x 45L)
	Calibration Block
Jaw	Jaw K1
	Jaw K2
Tools	Brush
	2.5mm Hex Wrench (Type-T)
	2.5mm Hex Wrench (Type-L)
	4.0mm Hex Wrench
Adapters	Power Adapter
	US Power Cable
Others	Screws x6
	Quick Guide
	Packing List
	Certification Card

2. GETTING STARTED

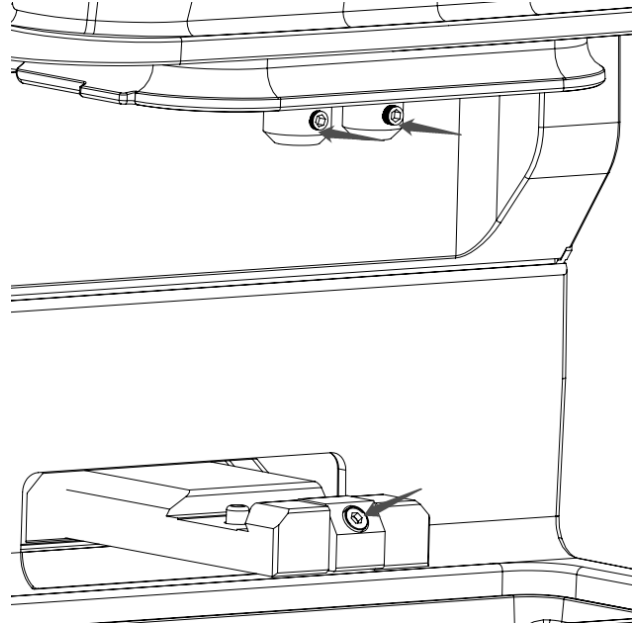
REMOVE PROTECTION FRAME

⚠ Caution: The protection frame is a metal piece that protects the machine from damage when delivering. DO NOT turn on the machine before you remove this protection frame.

To remove the frame:



1. Take the hex wrenches that come with the machine, remove the screws that fixed the frame and pull the frame out.



2. After that, take 2 screws that come with the machine. Put them into the probe & cutter mounts and replacing the screws that fixed the frame. Also install the locking screw at the bottom back on the bench.

INSTALL PROBE & CUTTER

- 1) Lift up the protection cover. Spin the right cylinder inside the cover until the screw hole is right in front of you.
- 2) Use the hex wrench to loosen the screws on the cylinders.
- 3) Take out the probe. Push it inside the slot of the left cylinder, until you can't push it further. Then tighten the screw of the left cylinder.
- 4) Take out the cutter you need (1.5/2.0/2.5mm). Make sure the flat side of the cutter is on the same direction of the screw hole and push it inside the slot of the right cylinder. Make sure the tip of the cutter is 3~5mm lower than the probe. Then tighten the screw of the right cylinder.
- 5) Every time after installing probe or cutter, please turn on the machine, go to settings and calibrate the probe and the cutter.
- 6) To take out (or exchange) the cutter or probe, turn off the machine, loosen the locking screw and pull out them. When pulling the cutter, take on a pair of gloves to avoid scraping your hands.

INSTALL JAW

- 1) Use the hex wrench to loosen the locking screw on the bench;
- 2) Take out the jaw, slide it inside the slot of the bench from the right side of the bench;
- 3) When the jaw is slided inside the bench, tighten the locking screw to lock the jaw from moving.

To uninstall the jaw, loosen the screw and slide the current jaw out. Then you can replace it with a new one.

BATTERY CHARGING

The charging socket is on the back of the machine. When charging, make sure the flat side of the socket is on the top. DO NOT plug it in with wrong directions.

ON/OFF SWITCH

The on/off switch is located on the right side of the machine (if the front of the machine is positioned in front of you).

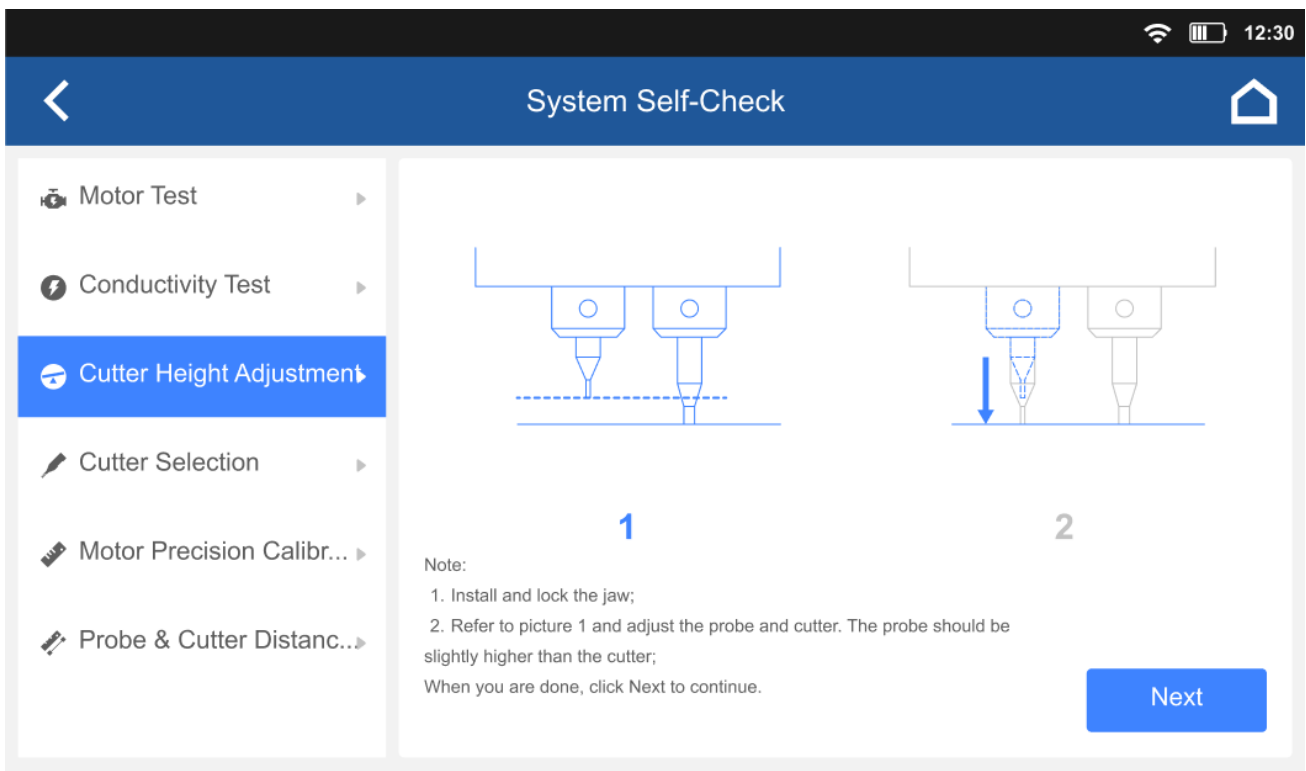
The on/off switch also acts as an "EMERGENCY SWITCH" to immediately stop and halt all cutting process should any situation arise that require you to do so.

PUSH the switch if you need to turn the machine off

MACHINE CALIBRATION

⚠ Caution: Calibration must be done before first usage, or every time you replaced with a new probe or cutter.

To do the calibrations, go to "Machine Calibration" menu and select "Cutter Height Adjustment".

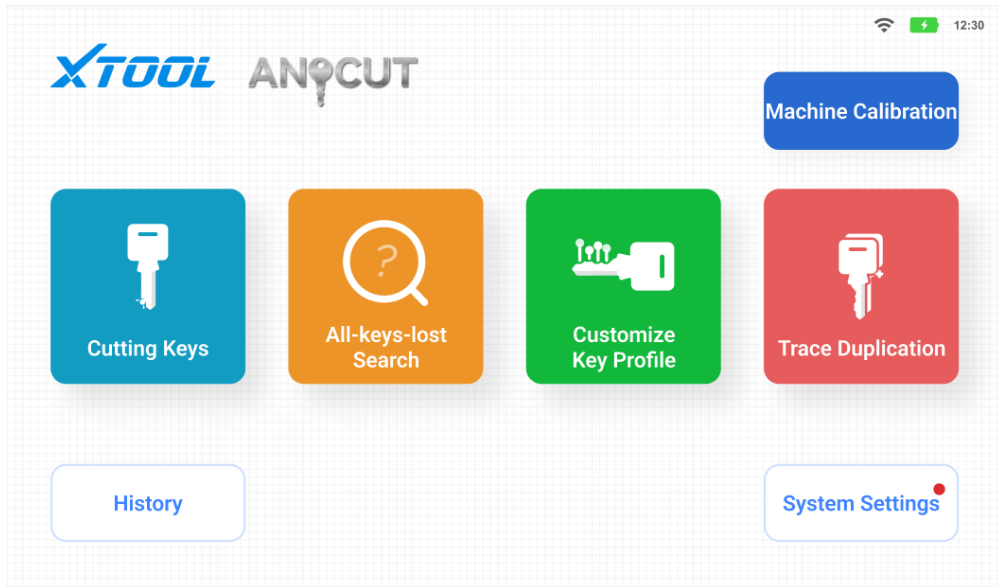


When the process is done, loosen the screw on the left and move the probe until it touches the jaw. Then click "Next" again to finish calibration.

After calibration, you need to select the cutter that you have installed on the machine. Please select the correct one or it will affect the precision of the machine. We suggest to use 1.5mm cutter on daily cutting projects.

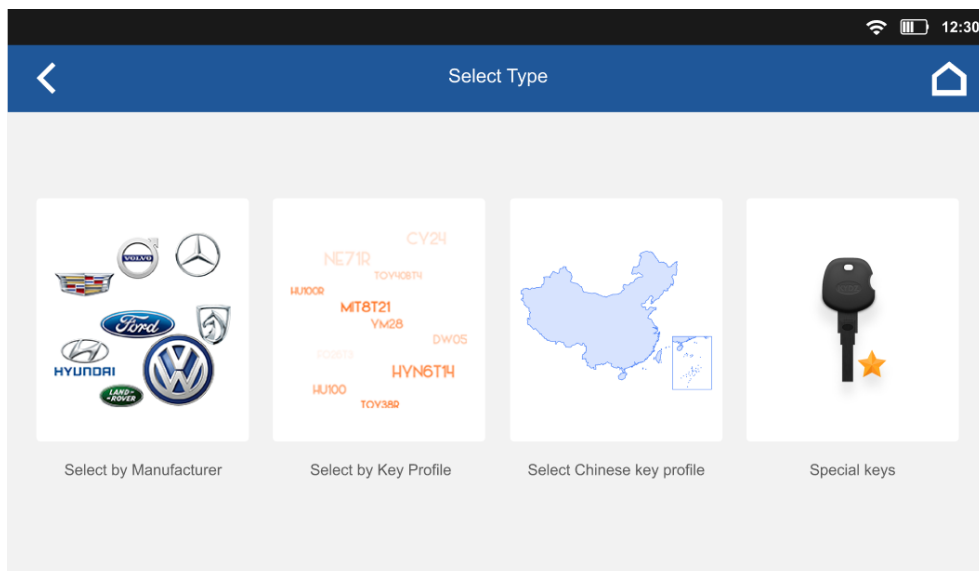
3. OPERATIONS

KNC91 have lots of methods for you to find the key you want and cut it. Here we will be introducing some of the methods from the main menu.



CUT KEYS BY CODES

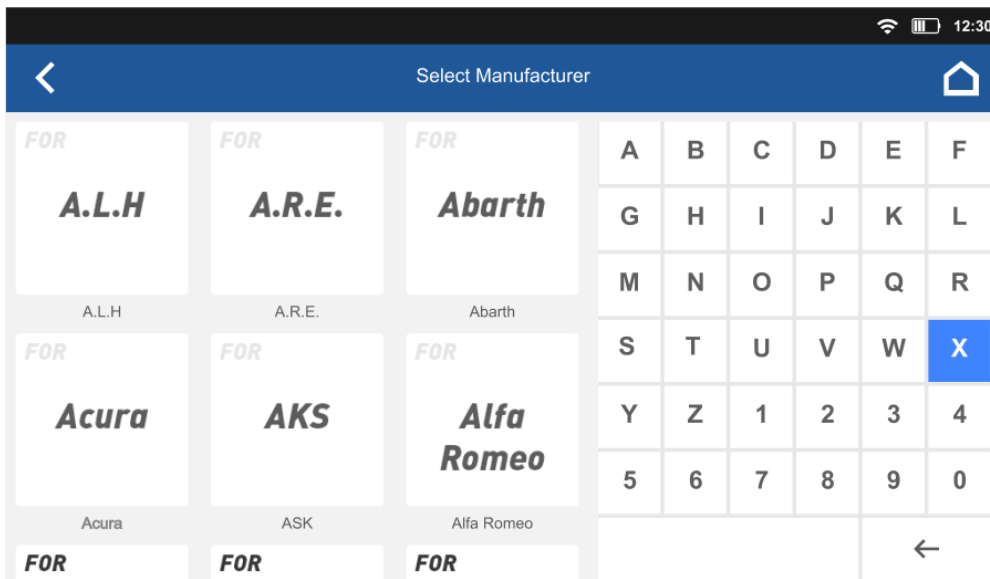
This allows you to cut the keys via recognizing key bitings. To do that, select “Cutting Keys” menu.



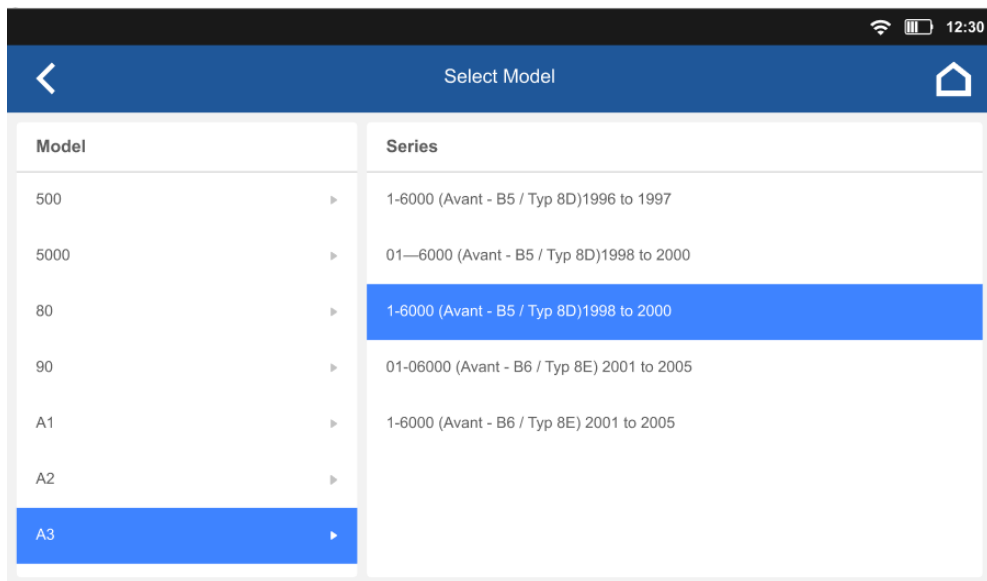
Here you can select:

- **Select by Manufacturer:** Find your keys by selecting your vehicle model.
- **Select by Key Profile:** Find your keys by selecting the key profile that you want to cut.
- **Select Chinese Key Profile:** Find your keys by selecting a vehicle model that is a brand from China. The menus inside works the same as “Select by Manufacturer”
- **Special Keys:** Cut some special keys that are made by different materials (plastic, aluminum) or thinner keys.

SELECT BY MANUFACTURER

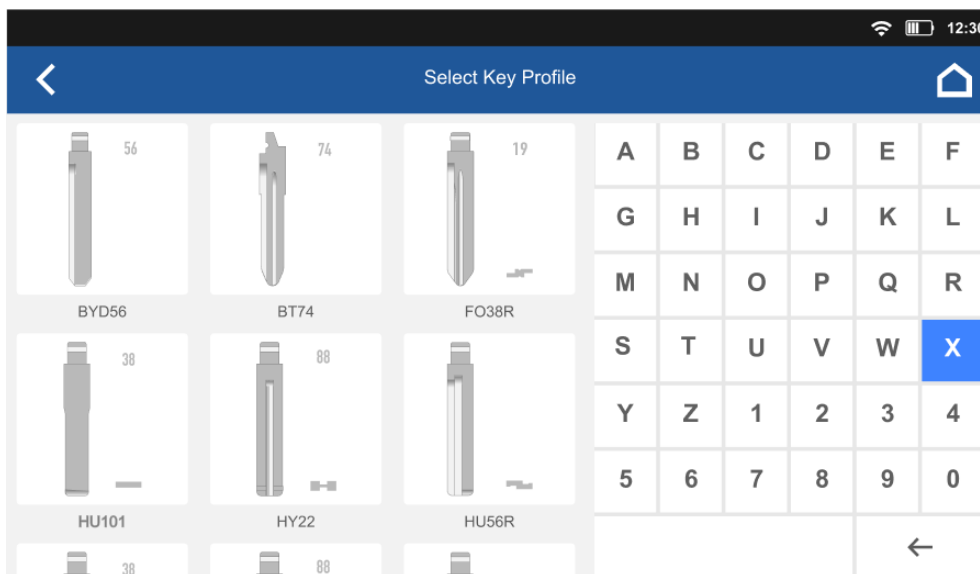


You can find the manufacturer from the menus from the left. Click the keyboard on the right to filter the keywords and help you find the manufacturers more easily.

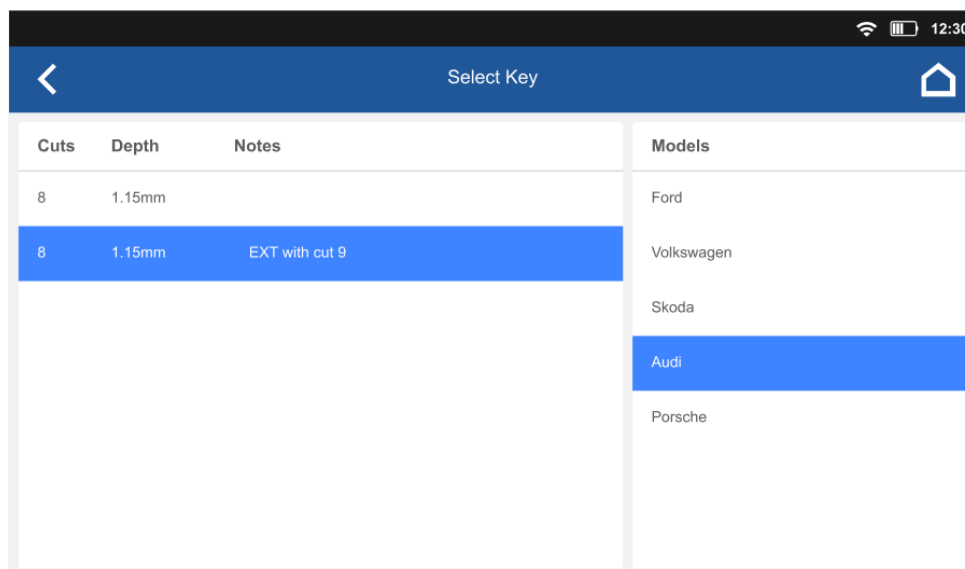


From here you can select the model and model year for your car. Sometimes there are menus with the same models and model years but different ISNs. Please select the menu by your actual needs.

SELECT BY KEY PROFILE



You can choose the keys here by the key profile. The profile will be showing on the left, helping you find the one that matches the key blank. Click the keyboard on the right to filter the keywords and help you find the profile more easily.



After select the profile, you also need to check the bitings and cutting depth of the key. These info can be easily found on the key, or by measuring the cylinder. You will need to select the vehicle manufacturer also, but not by the exact models.

SELECT CHINESE KEY PROFILES

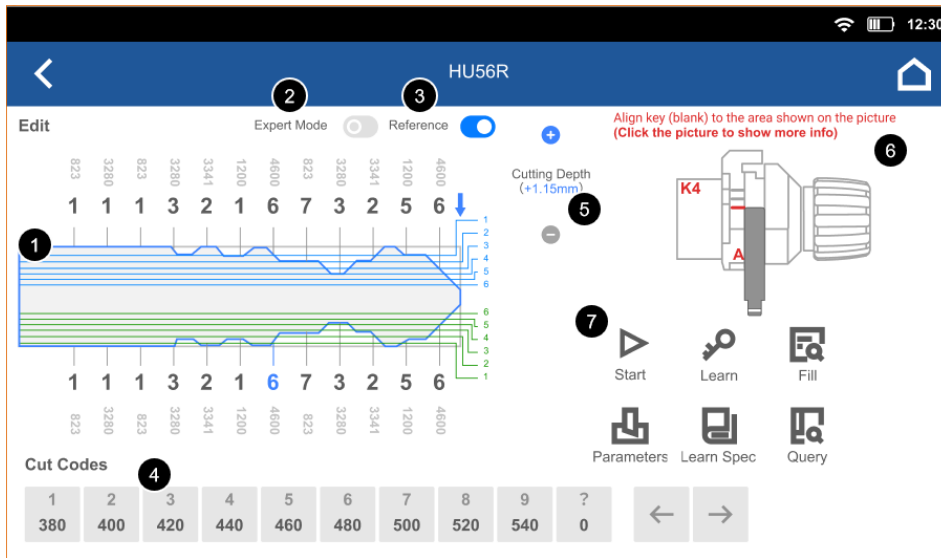
Key profiles on Chinese car models might not be the same as others. In such cases, we have divided the menus for Chinese models only. The way to select the key is the same as “Select by manufacturer” menu; select your car and continue.

SPECIAL KEYS

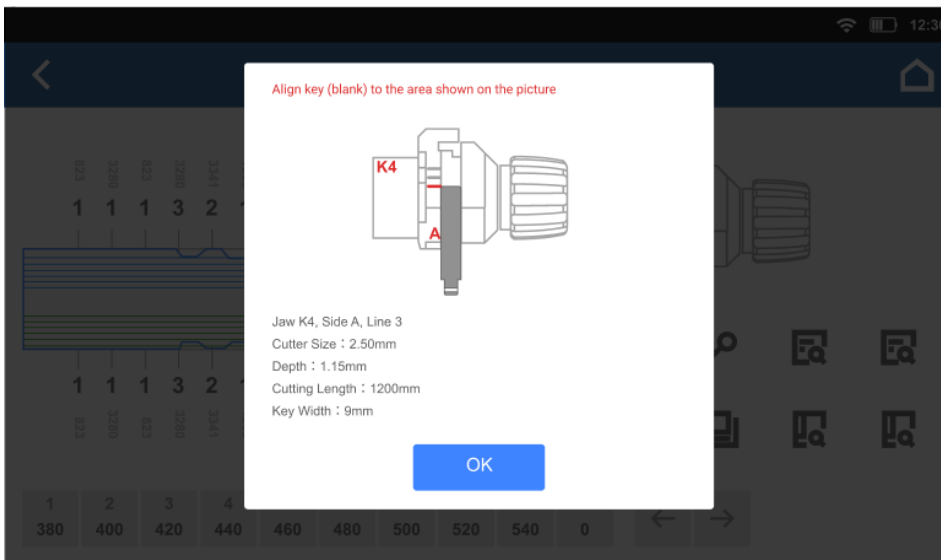
Keys made by special materials (non-conductive) need an alternative way to detect the keys. The way to select those keys are the same as “Select by key profile” menu; Please follow the instructions on cutting those keys – the process are different with normal keys.

KEY CUTTING MENU

After selecting the key, for most of the times, this menu will show up:

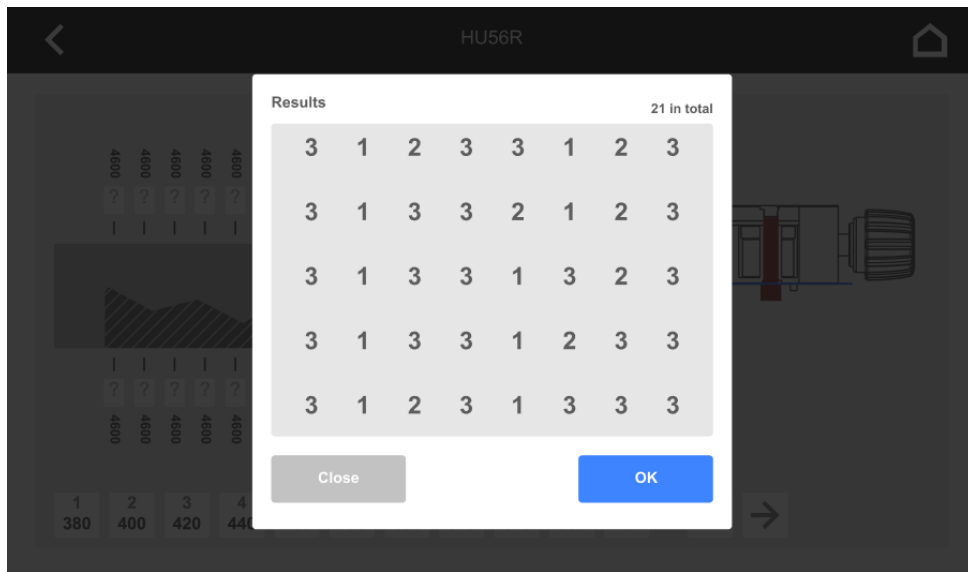


- 1) Shows the current key shape based on the codes that you entered or decoded by learning.
- 2) By turning on expert mode, you can do minor adjustments to each biting.
- 3) Turn this switch on to show reference line on the key profile.
- 4) Enter code to manage the bitings on the key. Press the arrows on the right to change different positions.
- 5) Adjust cutting depth (thickness) of the key.
- 6) Show which jaw and which side of the jaw should be used, and how the key (or key blank) should be installed on the jaw. Click the picture to show more detailed information, like the default key thickness, cutter size, etc.



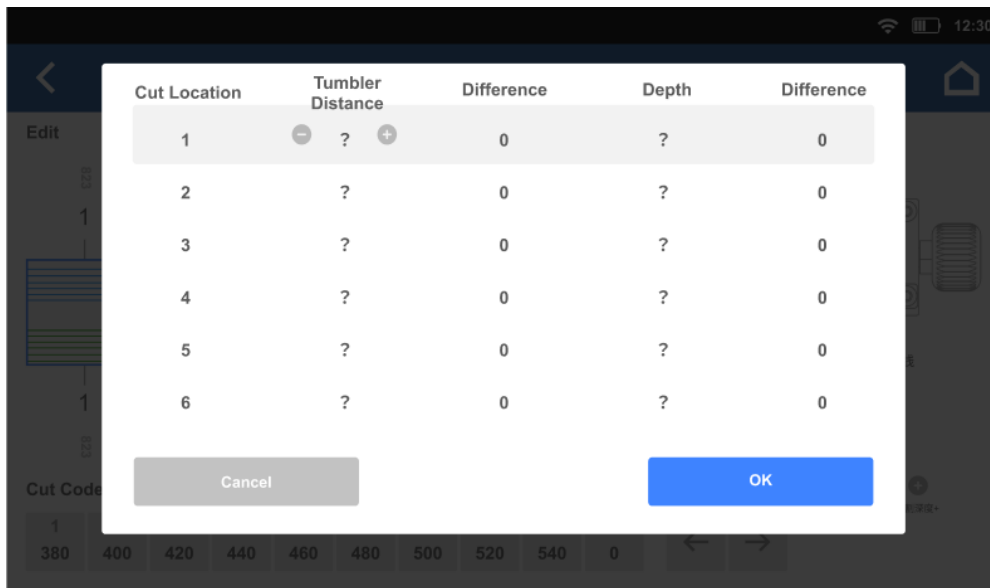
- 7) Here are some commands that you can do with the machine:
 - a. **Start:** Cut keys by the bitings that shown on the left. Usually this button is divided into 2 parts – Initial processing and Secondary processing. **When you cut this key for the first time, please select initial processing. If not, please select secondary processing for accuracy.**
 - b. **Learn:** This function lets the machine read the key bitings of the original key by putting the key inside the jaw. The learning process will detect all the bitings on the key and show them on the left.
 - c. **Fill (Cut Progressioning):** Use this menu in some situations when there are some bitings on the key are unknown. Leave a "?" on the missing bitings first and click this button so the machine will search and show all possible results

on the screen. Click one of the results and the bitings will be shown on the left. We suggest having no more than 2 missing bitings to cut the correct keys within minimum tries.



- d. **Parameters:** This menu will only show up when you turned on Expert Mode. Click this button to modify the parameters on the cutting process, like the cutting depth and the groove thickness.

⚠ Note: Unless otherwise specified, all length units on the machine are 0.01mm. E.g.: 380 shown on machine is actually 3.80mm.



- e. **Learning Details:** This menu will only show up after you finished learning. Click this button and the machine will show the details of the learnt key and the differences between the set cutting depth and the actual measured data.

Cut Location	Tumbler Distance	Actual Value	Reference	Difference
1	1840	706	3(718)	-12
2	1535	742	2(754)	-12
3	1230	740	2(754)	-14
4	925	672	4(682)	-10
5	620	705	3(718)	-13
6	380	790	1(800)	-10

- f. **Query:** If you don't have any keys on your hand but you have codes on the cylinder, this will be an easy way to find the key biting. For more information, please check "All keys lost search" menu which works the same.

Please enter SN
SB1004-SB9999

Digits only

1	2	3	4	5	6	7
8	9	0	K	L	M	N

Cancel Search

KEY CUTTING FOR SPECIAL KEYS

For some non-conductive and alternative keys, the cutting process and the selected menu are different. Please try "Special keys" menu and follow the instructions shown on the screen. Pay attention to those keys:

- HU66 Plastic Keys for Volkswagen
- HU101 Aluminum Keys for Land Rover / Volvo
- TOY2 Keys (Thin) for Toyota / Lexus

CUTTING KEYS WITH MULTIPLE SIDES

There are also some special keys (like FO21 Tibbe keys / SX9 keys / HU162T keys) with bitings on multiple sides. Processing those keys require additional steps, and FO21 / SX9 keys need specialized jaw for cutting them.



FO21 Key Blanks



SX9 Key Blanks



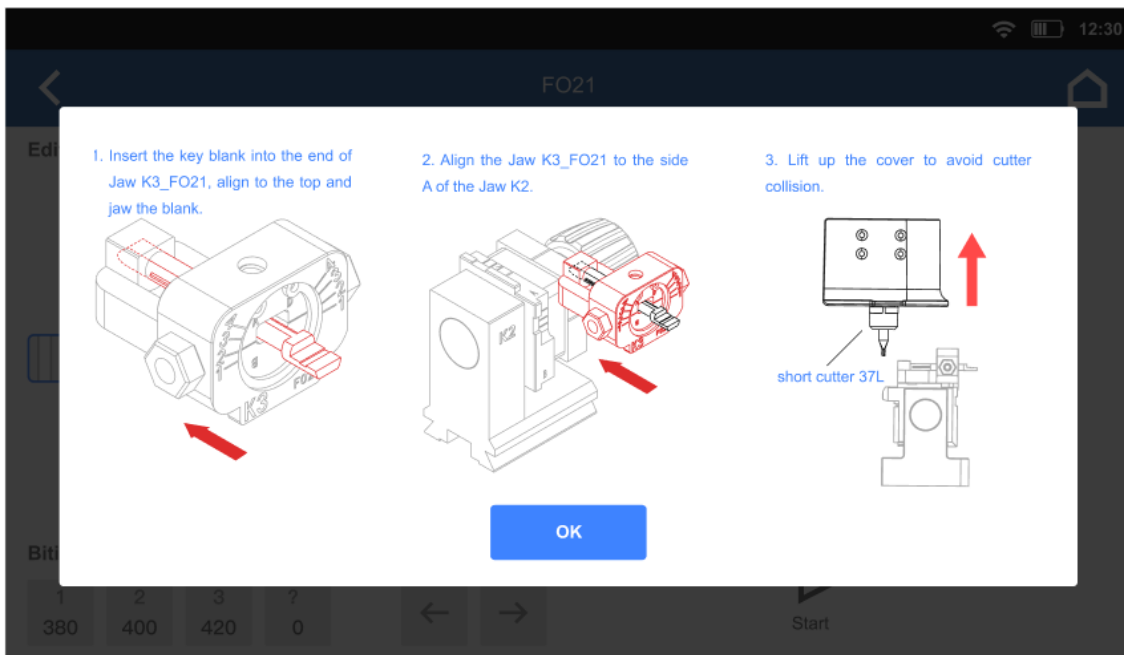
HU162T Key Blanks

To cut those keys, go to “Select by Key Profile” and choose these keys, or go to “Select by Car Manufacturers” and select the vehicle model which are using these keys. In the following sections, we will be discussing how to cut those keys.

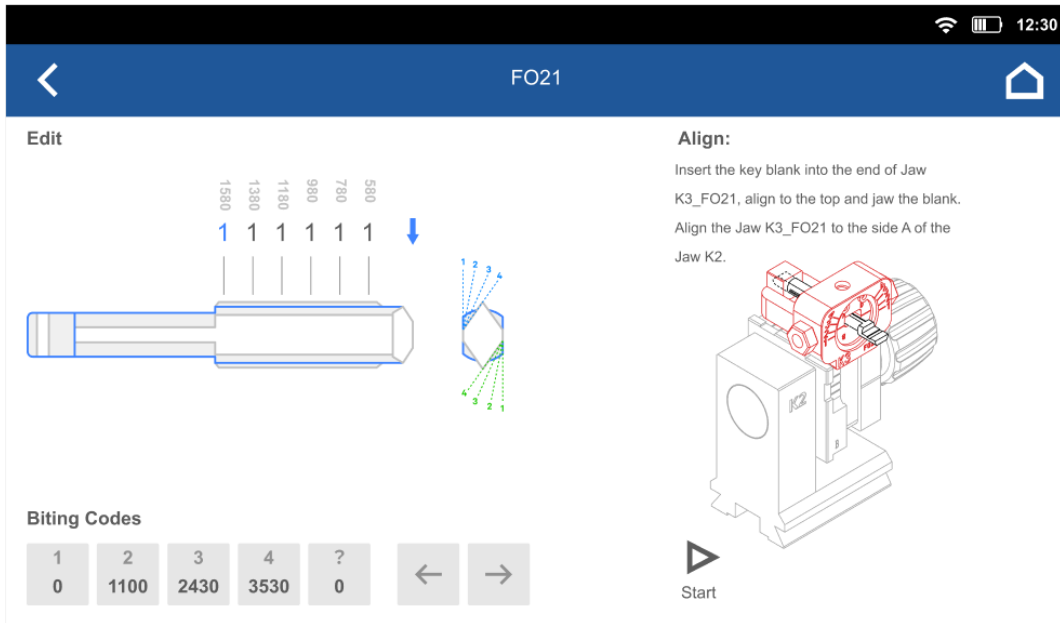
1) FO21 keys:

First, follow the instructions on the screen and install the key blank and the jaw K3_FO21.

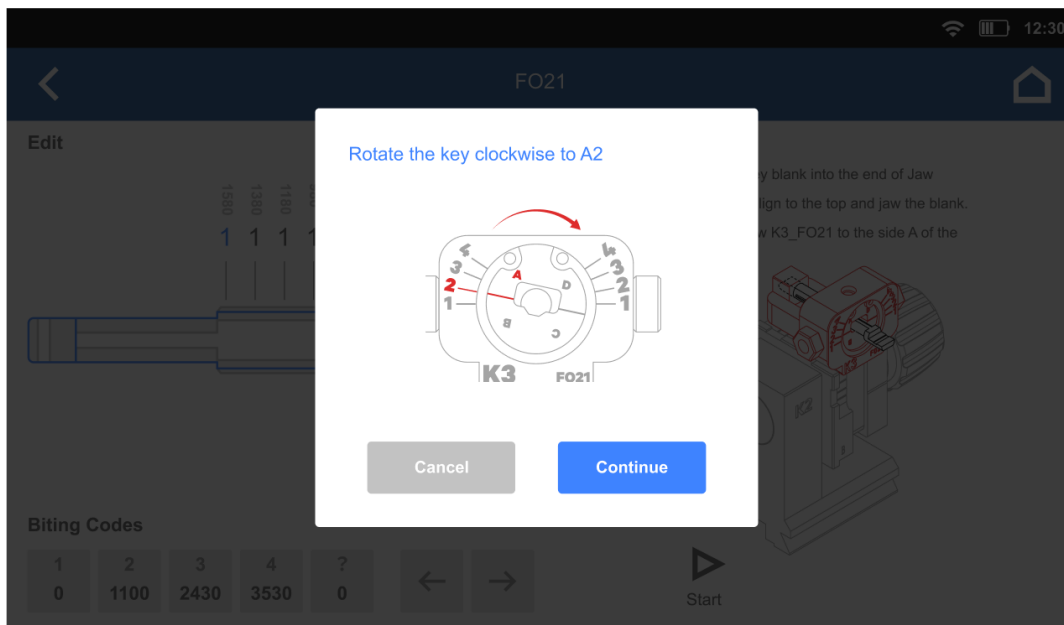
⚠ Caution: Jaw K3 (FO21/SX9) must be installed on Jaw K2 or K4, Side A. To avoid cutter collision, do not pull down the protection cover, and do not use the extended cutter.



When you are all set, click OK and go to key modification page.

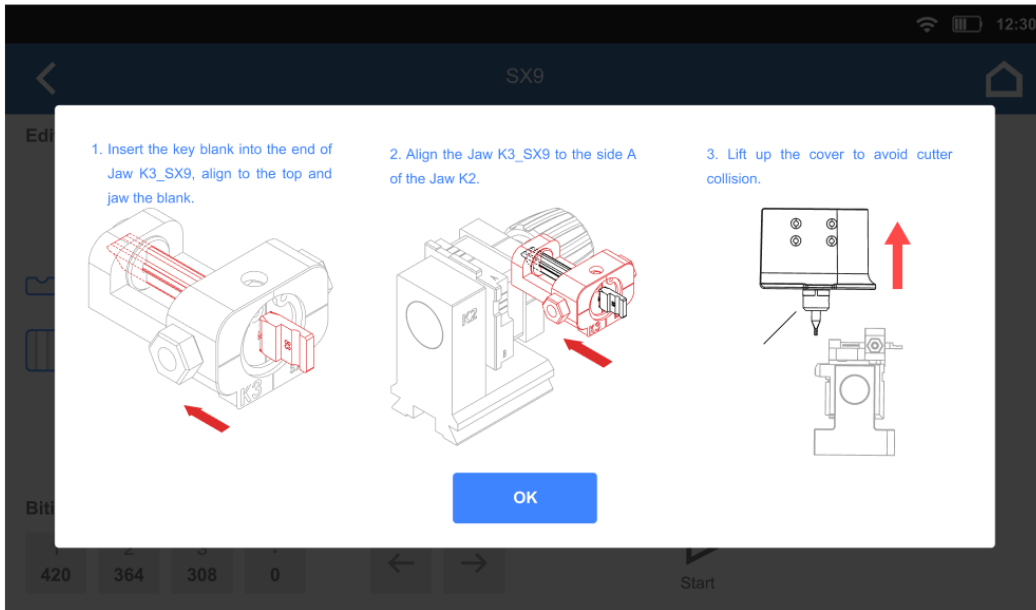


Enter the biting codes and start cutting. When cutting, you need to rotate the key to specific locations in order to cut the bitings on different side of the key.

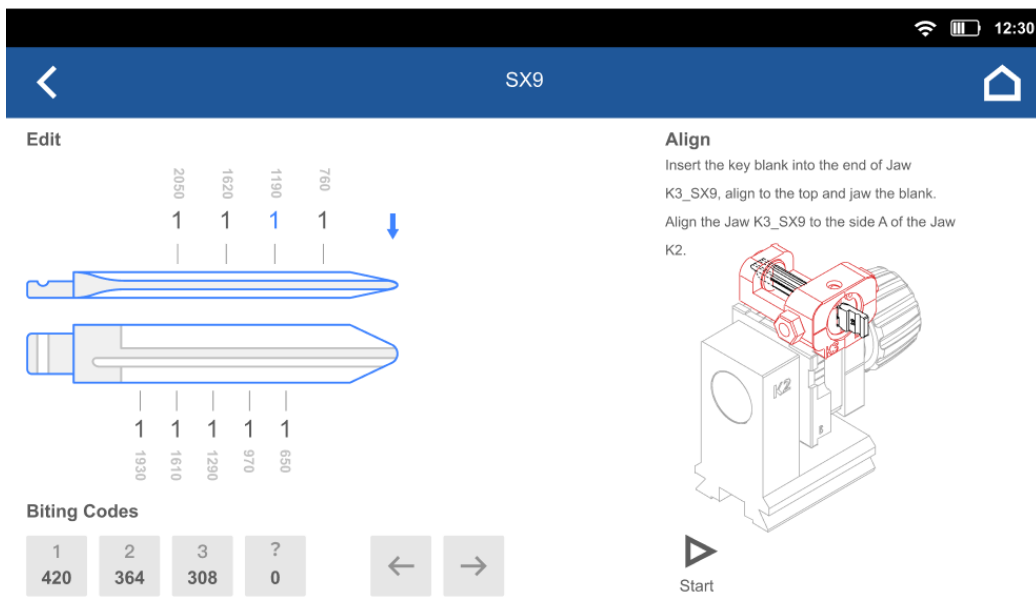


2) SX9 keys:

First, follow the instructions on the screen and install the key blank and the jaw K3_SX9.

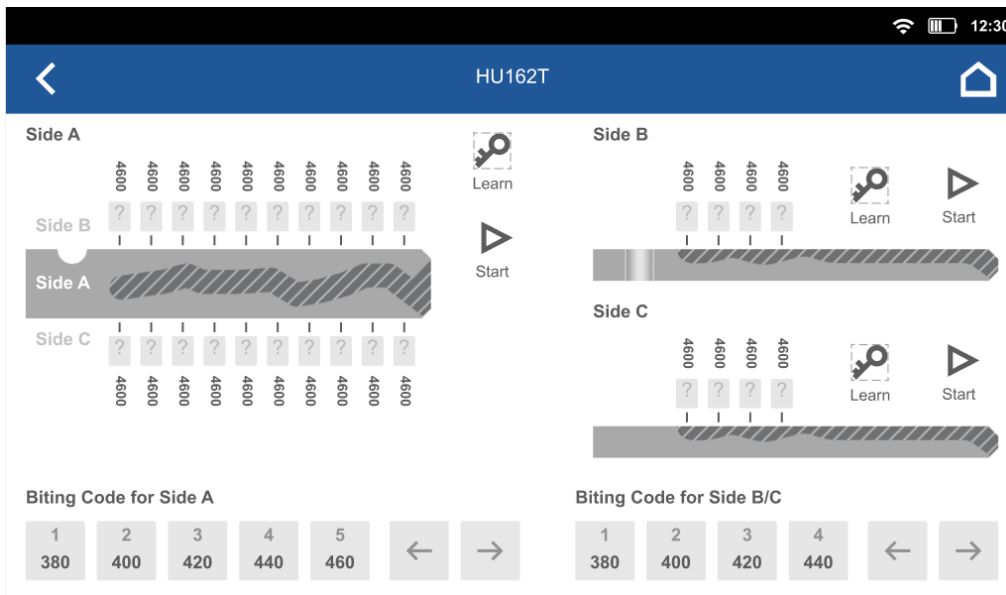


Enter the biting codes and start cutting. When cutting, you need to rotate the key to cut the bitings on another side of the key.



3) Volkswagen HU162T keys:

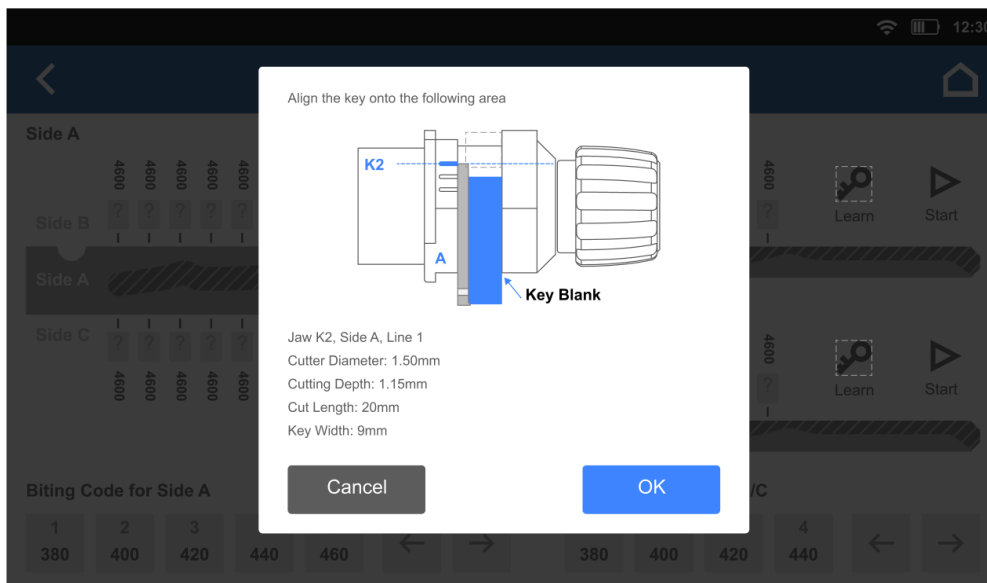
HU162T keys got 3 sides. When you select the menu, this screen will appear.



Enter the codes for 3 sides, or start learning to get the codes.

We will start from cutting side A. To do that, align the key blank to jaw K2/K4, side A, line 1. This process is the same as cutting normal inner groove keys.

When side A is done and side B/C needs to be processed, find another HU162T key blank and clamp both on jaw K2/K4, side A, line 1 (see picture below). The key that needs to be cut should be side upwards.



Make sure the keys are clamped tightly on the jaw. Click OK to start processing.

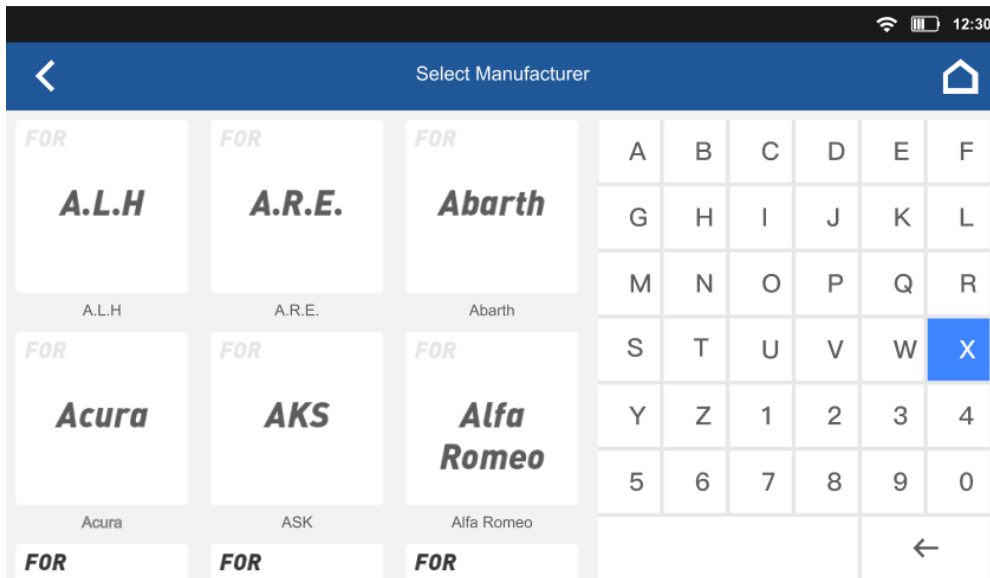
TIPS ON CUTTING KEYS

- 1) KNC91 requires biting codes to cut the keys. Other than learning, filling or searching codes from our database, you can also recognize the codes by eye-checking the original key, or by picking the lock using specific tools.
- 2) Sometimes there are some tips (materials that haven't been cut) on the key after cutting. We suggest using a file to trim the keys after that.
- 3) Make sure the key is clamped flatly on the clamp, avoid tilting the key.
- 4) Make sure you are selecting the correct cutter size before cutting, and the machine must be well calibrated before operations.
- 5) Use the brush to clean the jaw, probe, cutter and bench every time you finished cutting.

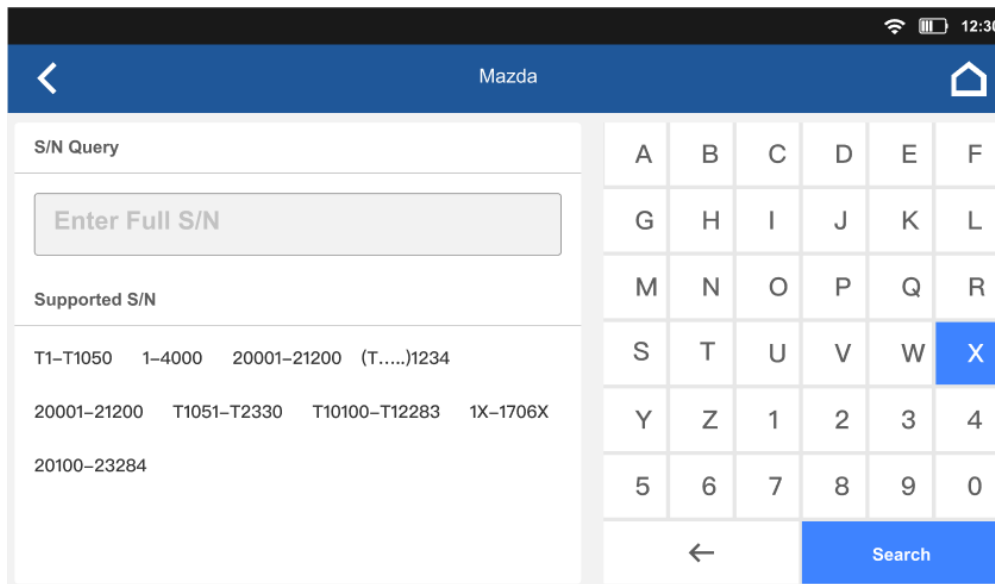
ALL KEYS LOST SEARCH

This function is used when you don't have any keys on your hand but you have the key codes. Key codes can be printed on a tag when the car is handed to owners from a dealership. Our database can translate the key codes into biting codes, and this is how you can do it.

Click "All-keys-lost search" on the main screen, then select the manufacturer.



After that, enter the code shown on the tag. All possible codes will be shown on the bottom-left corner of the screen.



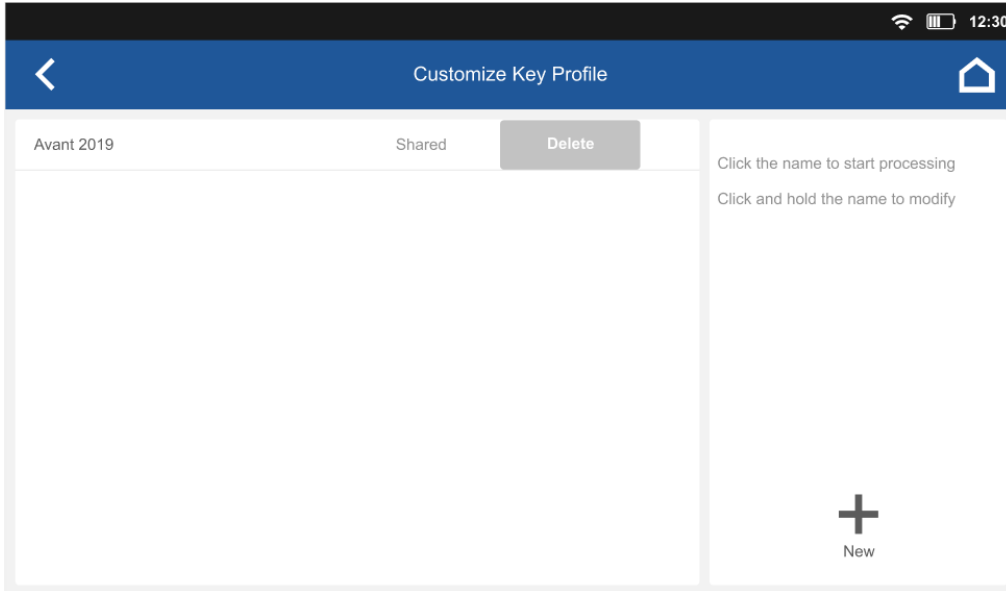
Enter the code on the tag, and the key profile and the bitings will automatically show up. You can directly cut the key after that.

The Query menu inside the cutting menu works the same by entering the key codes. KNC91 will search for the bitings that matches the key code and show it on the screen.

CUSTOMIZE KEY PROFILE

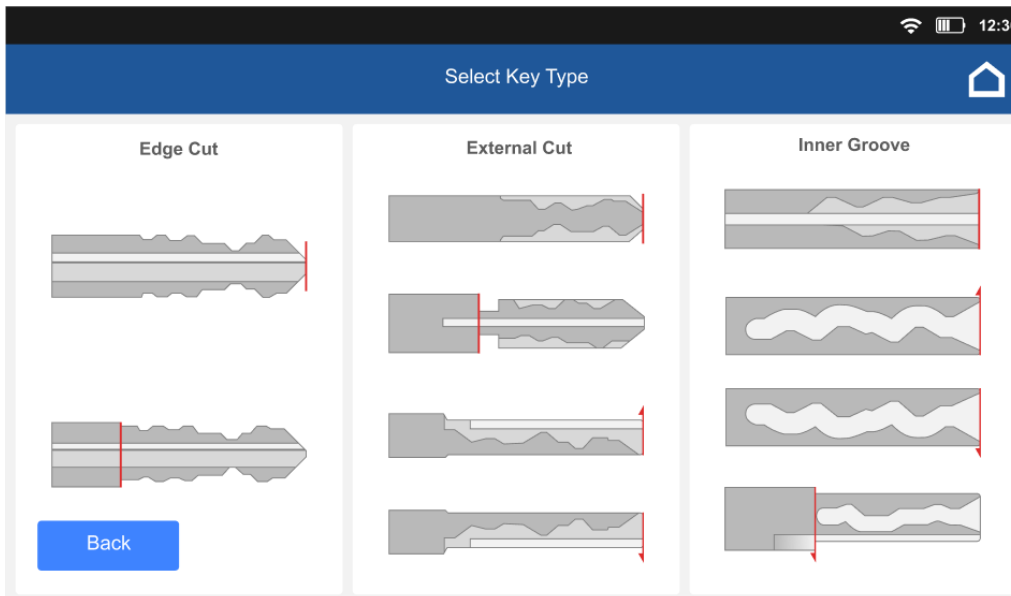
In some cases you may see some keys that have never been seen before and not shown inside our database. With a set of calipers, a key or a fully assembled cylinder, you can customize a new key profile, cut it, and share to others.

To do that, click "Customize key profile", and this menu will show up.



If you have made any key profiles or saved any shared contents, the profile will be shown on the left of the screen. Click to start processing with this profile and hold to modify it. Click "Add" on the bottom-right corner to make your own key profile.

If you try to modify or add a new key profile, this screen will appear. Please select the key biting type below.



The diagrams show how the key roughly looks like. The red line on the diagram indicates where the key should be aligned with the jaw (tip/shoulder).

The next step requires the dimensions of the key profile. Now please take the caliper and measure the keys, then enter the data.

Here are some explanations to each column:

- **Key Length:** Measure the length of the **working part/groove** of the key.
- **Key Width:** Measure the width of the key.
- **Key Thickness:** Measure the thickness of the key. Please measure the width from the uncut part of the key.
- **Groove Depth:** Measure the difference between the **thickness** of the uncut part and the cut part of the key. This will affect the amount of feed when cutting. This is not required for edge-cut keys.
- **Groove Width:** For inner groove keys, please input the width of the groove. You can also get this data by measuring the width of the working points for each wafer.

You can also click “?” to see more information, diagrams or explanations to them.

Next step is to locate the stations / bitings. Use the calipers to measure the position on each station and fill it in the columns.

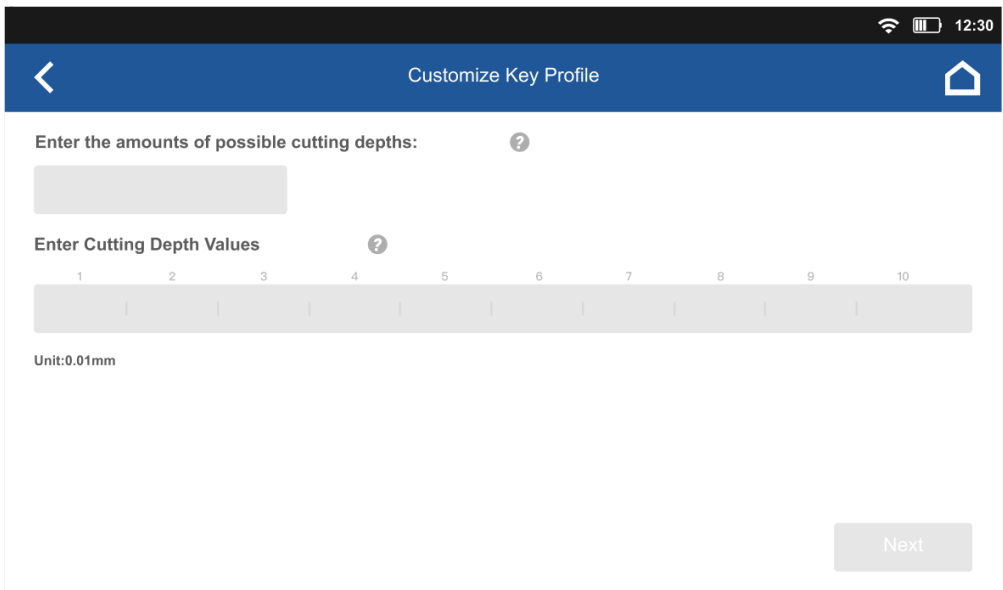
Here are some explanations to each column:

- **Wafer Thickness:** Measure the thickness of the wafer. Please enter a whole number, without decimal points.

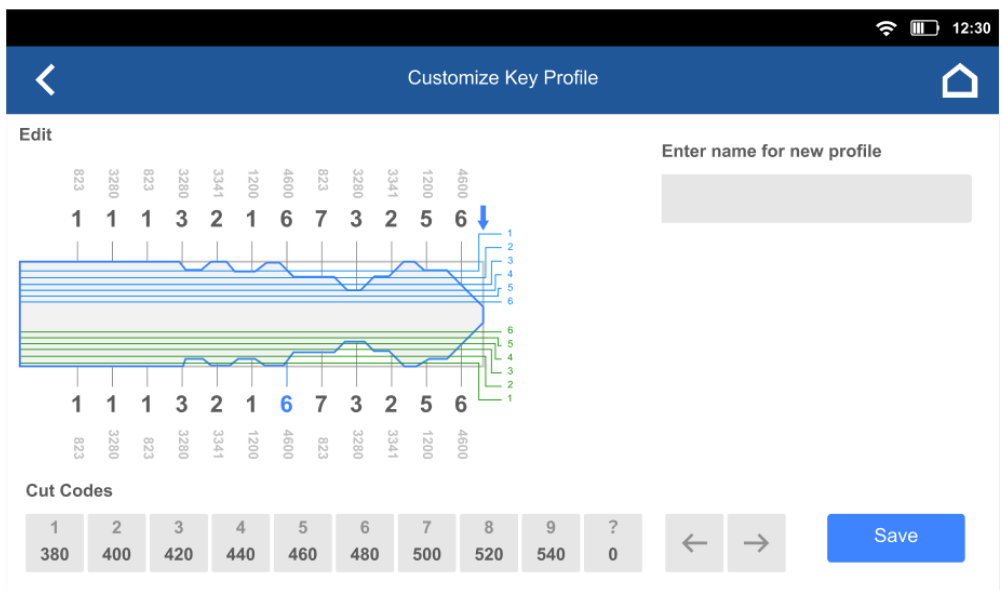
- **Wafer Amounts:** Count the amounts of the wafers. Please note that there are wafers that installed to the cylinder from above and wafers that installed from the bottom so please divide them into A-axis and B-axis. The total amounts of wafers are the same as the amounts of bitings on the key.
- **Station Locations:** Measure the locations for all stations. For tip-aligned keys, measure the distance from the tip of the key to each station, with station 1 is the closest and the distance for following stations increases. For shoulder-aligned keys, measure the distance from the shoulder of the key to each station, with station 1 is the farthest and the distance for following stations decreases. The distances from the tip/shoulder to each biting should be matched with the station locations.

You can also click “?” to see more information, diagrams or explanations to them.

Next step is to define the cutting depth for each biting code. Measure the biting depth for all the wafers available for the cylinder, or all the possible biting codes for the key, and enter in the following columns.



After entering the cutting depths, you have successfully made a new key. Now check the diagram for your new profile on the left, and make a name for it, then you are good to go.



You can still go back and change the dimensions. When you checked OK, click “Save” and the new profile will be shown at the first menu.

TRACE DUPLICATION

Trace Duplication is a key learning & cutting method which the probe detects the track for the entire key and cut a key with exact the same shape with the original one. An original key is required for this process.

To do this, select “Trace Duplication” on the main menu, then this will show up.

Select the type of the key first. After that, refer to the picture below and install the original key on the jaw, click “Copy” to start learning the key.

After learning, the shape will be shown on the bottom-right corner of the screen. Take a comparison with the original one, then install the key blank, click “Processing” to start cutting.

⚠ Note: Trace Duplication will also copy the wear of the original key. We don't suggest copying old keys with this process – the cut key might not be usable.

4. CALIBRATION & TESTS

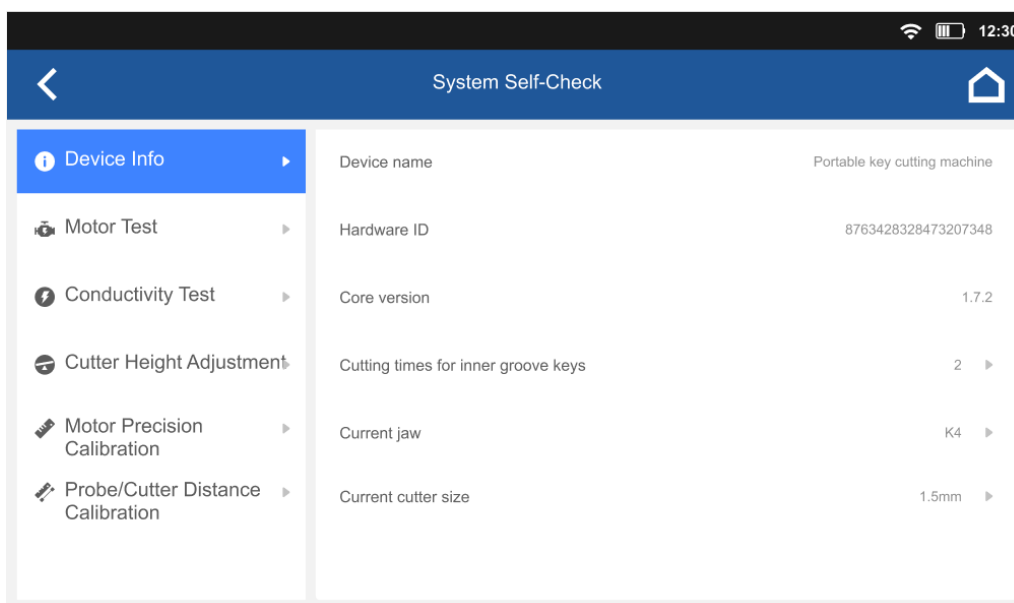
To keep the machine precise, KNC91 requires calibrations at irregular intervals. When you find the key that has been cut is not accurate, or the motors are not working correctly, please go to “Machine Calibration” menu and do some tests and calibrations.

⚠ Caution: Calibration and tests can help you fix and locate some of the problems that happened to the machine. Please contact your dealer or Xtool customer services if the problem happens consistently.

⚠ Note: Due to some unpredictable issues, there are chances that the screen stuck in testing process. There will be a notice show up in the process, click and hold the text to stop testing.

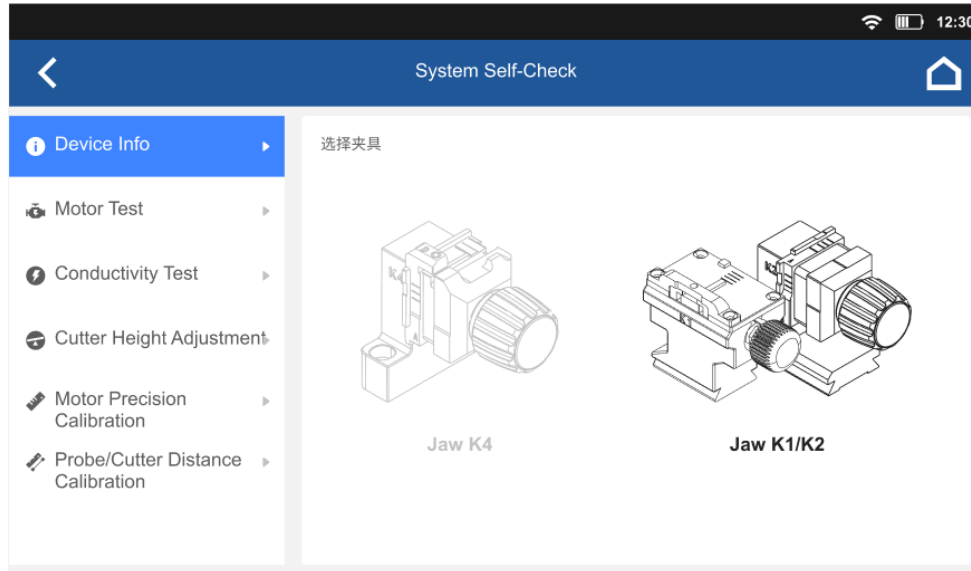
DEVICE INFORMATION

Here you can check the basic information of the machine and do some changes for some of the parameters.

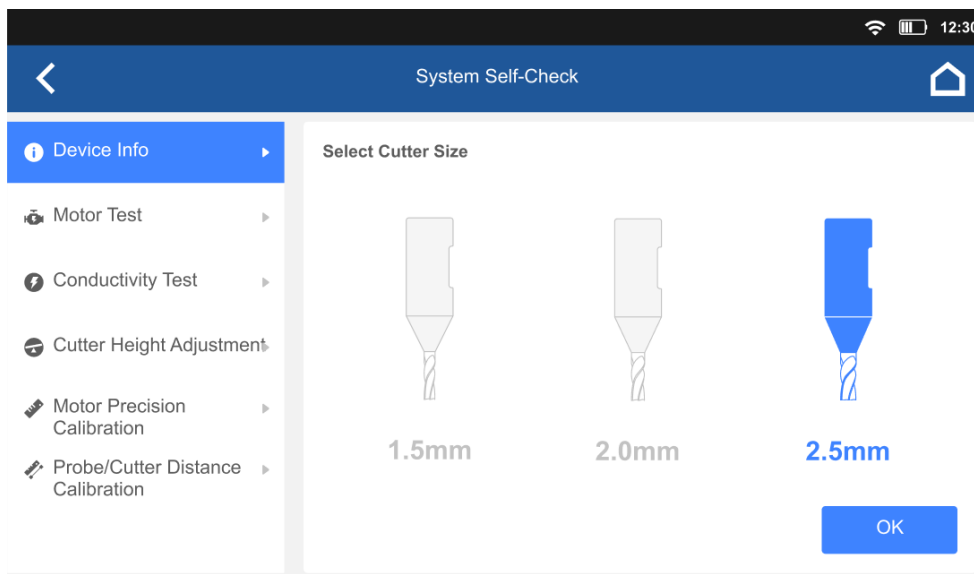


Here are the changes that you can do to the machine:

- **Cutting times for inner groove keys:** Confirm how many times does the machine cuts the key to finish cutting process. To maintain cutter lifespan, we suggest leave it at "2", which means that the machine will cut the key twice to shape it up.
- **Current jaw:** Change the jaw that you are currently using.



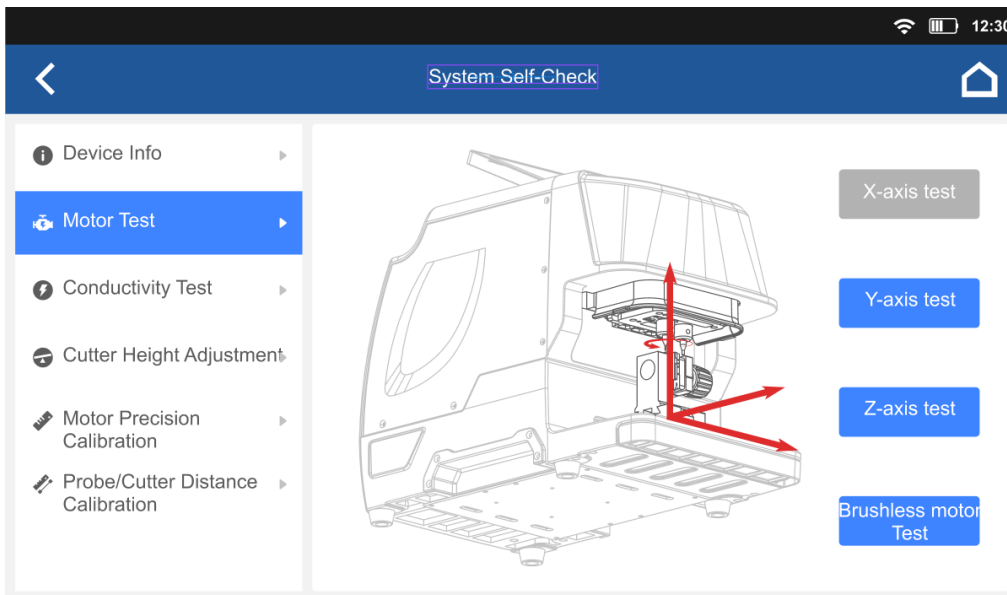
- **Current cutter size:** Change the cutter size that you are using.



⚠ Note: Please do a cutter height adjustment every time you change a different size cutter,

MOTOR TESTS

In this menu, you can test the motors and see if they can run normally.



After clicking each button, the corresponding motor will run for several seconds.

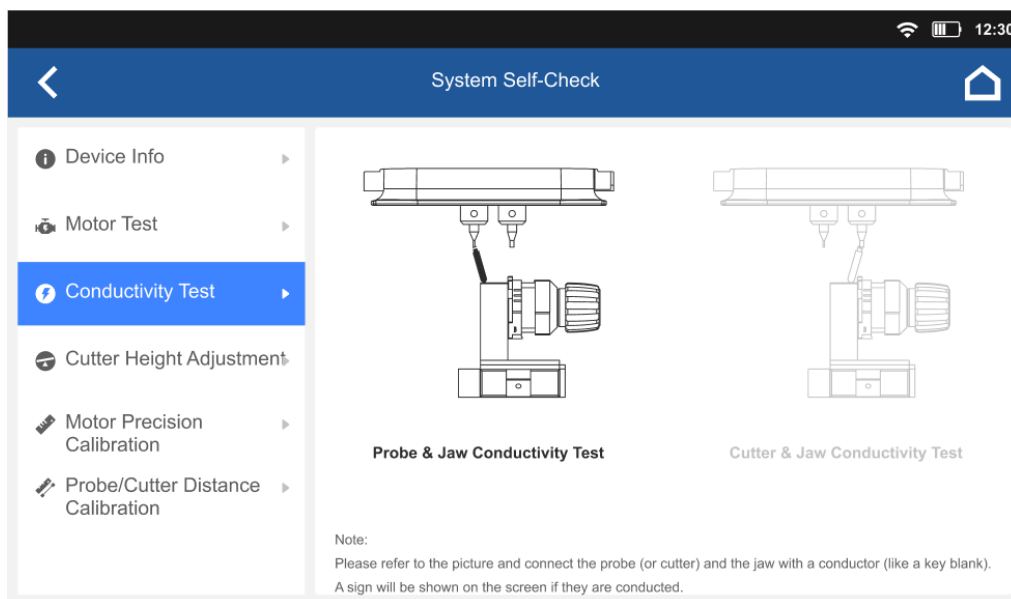
CUTTER HEIGHT ADJUSTMENTS

See **Getting Started – Machine Calibration**.

CONDUCTIVITY TEST

The probe and the cutter detect the key by weak currents. If there are conductivity issues on the machine, the probe and the cutter will get easily broken when processing. If this happened on the machine, we suggest doing a test on machine conductivity.

Take a key blank and touch it with the jaw and the probe (or cutter). Normally the picture on the screen will be highlighted when they are connected, indicating the probe (or cutter) is conducting the electricity.



ORIGIN POINT ADJUSTMENT

This needs to be done when there is obvious error on machine accuracy.

Use the original cutter, the calibration block, the jaw K2/K4 for this process. Turn jaw K2/K4 to side A, install the calibration block (with logo side up) to the 1st line and clamp it on the jaw, and start the calibration.

MOTOR PRECISION CALIBRATION

This needs to be done when there is obvious error on machine accuracy.

Use the calibration block and the jaw K2/K4 for this process. Turn jaw K2/K4 to side A to continue.

To calibrate the X&Y-axis motors, install the calibration block (with logo side up) to the 1st line and clamp it on the jaw, and click the button to continue.

To calibrate the Z-axis motor, move the calibration block to the 3rd line and clamp it, then click the button to continue.

5. SETTINGS

Click the Settings button to adjust the default settings and view information about the machine.

- **Screen angle settings**
- **Language**
- **Wifi settings**
- **Screen brightness settings**
- **Updates**

SCREEN ANGLE SETTING

This function is to control the screen motor to go up and down. Click + or – to adjust the angle of the screen.

If the screen got frozen when moving the screen, click and hold the texts on the screen to stop.

LANGUAGE

Currently the device supports Chinese (simplified) and English. Click this menu to change language.

WIFI SETTINGS

This will allow you to connect to Wifi and check the online contents of the device (like software update, shared contents, etc.)

SCREEN BRIGHTNESS SETTING

Adjust the brightness of the screen. Toggle the bar to adjust the brightness.

UPDATES

Click this menu to check updates. It will be downloaded automatically if it finds any new updates.

6. WARRANTY & SERVICES

Shenzhen XTOOLtech Intelligent Co., LTD.(the Company) warrants to the original retail purchaser of this XTOOL device that should this product or any part thereof during normal usage and under normal conditions be proven defective in material or workmanship that results in product failure within **ONE YEAR** from the date of purchase, such defect(s) will be repaired, or replaced (with new or rebuilt parts) with Proof of Purchase, at the Company's option, without charge for parts or labor directly related to the defect(s).

The Company shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the device.

This warranty does not apply to:

- 1) Products subjected to abnormal use or conditions, accident, mishandling, neglect, unauthorized alteration, misuse, improper installation/repair, or, improper storage;
- 2) Products whose mechanical serial number or electronic serial number has been removed, altered, or defaced;
- 3) Damage from exposure to excessive temperature or extreme environmental conditions;
- 4) Damage resulting from connection to, or use of any accessory or other product not approved or authorized by the Company;
- 5) Defects in appearance, cosmetic, decorative, or structural items such as framing and non-operating parts;
- 6) Products damaged from external causes such as fire, dirt, sand, battery leakage, blown fuse, theft, or improper usage of any electrical source.

7. APPENDIX

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This manual is designed for the usage of the IP819 Smart Diagnostic System and provides operating instructions and product descriptions for users of this scan tool.

Use the device only as described in this manual. XTOOL is not responsible for any consequences of violating the laws and regulations caused by using the product or its data information.

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All information, specifications and illustrations in this manual are based on the latest configurations and functions available at the time of printing. XTOOL reserves the right to make changes at any time without notice.

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