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Lingbiao Technology

Hebei Lingbiao Rock

Slab Countertop Construction Guidance Manual

CONTENTS

01 Construction Equipment & Tools

Name: Infrared cutting machine

Application: Straight line

Cutting Advantages: Low cost, high utilization rate

Name: Waterjet

Application: Can cut any complex shape, rock plate at a 45 degree angle

Cutting, and can meet the small angle mosaic cutting process requirements

Advantages: fast speed, high efficiency, can cut various complex shapes

Construction tools

Name: Angle grinder

Application: can be used for cutting, grinding, polishing

Advantages: low cost, high utilization rate, easy to carry

Name: Electric drill + glass drilling head

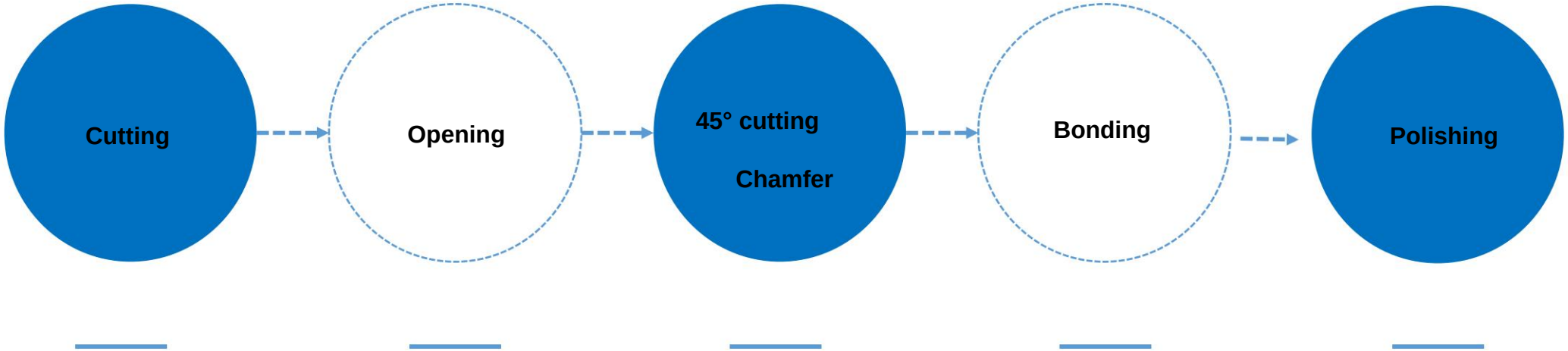
Application: Punching

Advantages: fast speed, high efficiency, low cost

02

Countertop System Construction Guide

Countertop system construction process



Cutting - Material selection and precautions before processin

• When processing, it is preferred to select the smallest possible ceramic rock plate size according to the design size. Example: Use 1600mm×3200mm rock plate to process two circular slab with a diameter of 1600mm, the ceramic slab can be cut in the middle to form two squares with a length of 1600mm before processing; •

- During processing, place a

disposable wooden board or rubber-based (such as vulcanized rubber) board under the slab, place the slab steadily on the processing table of the cutting machine, and cut the slab according to the processing method.

• Before cutting, check the processed board to ensure the pattern and color are accurate. Check whether the board has defects and whether it is flat. If it is not flat, press a piece on it.

Same size panels.

Cutting - Waterjet Equipment Processing Parameters

序号	岩板厚度/(h/mm)	水刀速度/(mm/min)	金刚砂用量/(g/min)	水压力/MPa	备注
1	h≤6	1500-1800	130	240-320	水压变化±3%
2	6 < h≤12	1000-1500	160	280-320	水压变化±3%
3	h > 12	800-1000	190	320	水压变化±3%

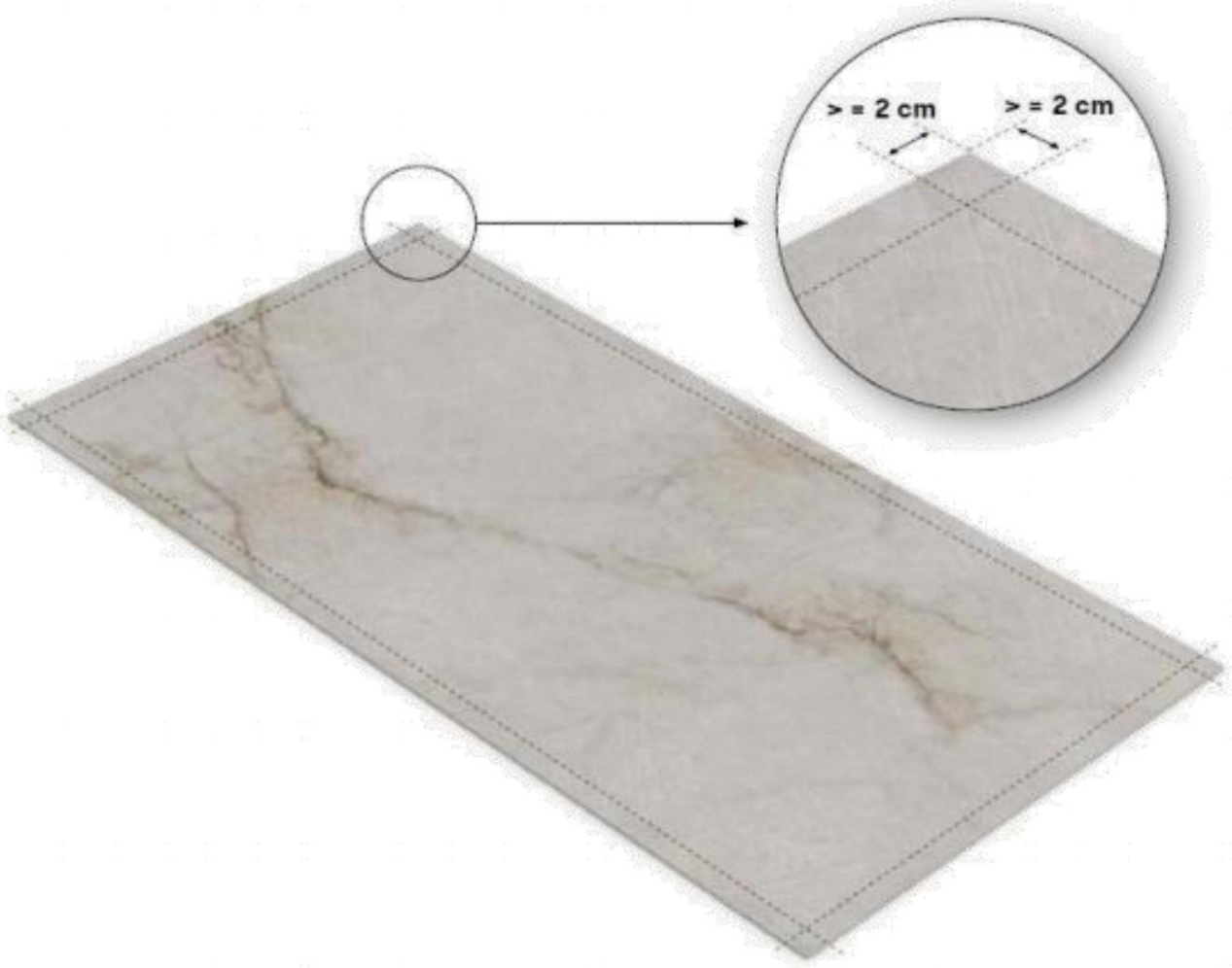
- If you use a hand push saw, make sure the operating table is stable and vibration-free, control the pushing speed within 1.5 m/min, push smoothly and evenly without shaking, and the last 10 cm must be 0.8m/min~1.5m/min minimum speed;
- If you use a portable saw, you need to move it at a steady and uniform speed, with the travel speed controlled at 0.5m/min~1m/min;

Cutting - Infrared bridge cutting processing parameters

序号	加工类型	锯片直径/mm	转速/（r/min）	加工速度/（mm/min）	开始和结束150mm段的加工速度
1	直线	300	2100-2800	1000-1500	50%
2	直线	350	1900-2500	1000-1500	50%
3	直线	400	1500-2300	1000-1500	50%
4	直线	500	1000-1600	1000-1500	50%
5	倒角	300	2100-2800	500-750	50%
6	倒角	350	1900-2500	500-750	50%
7	倒角	400	1500-2300	500-750	50%
8	倒角	500	1000-1600	500-750	50%

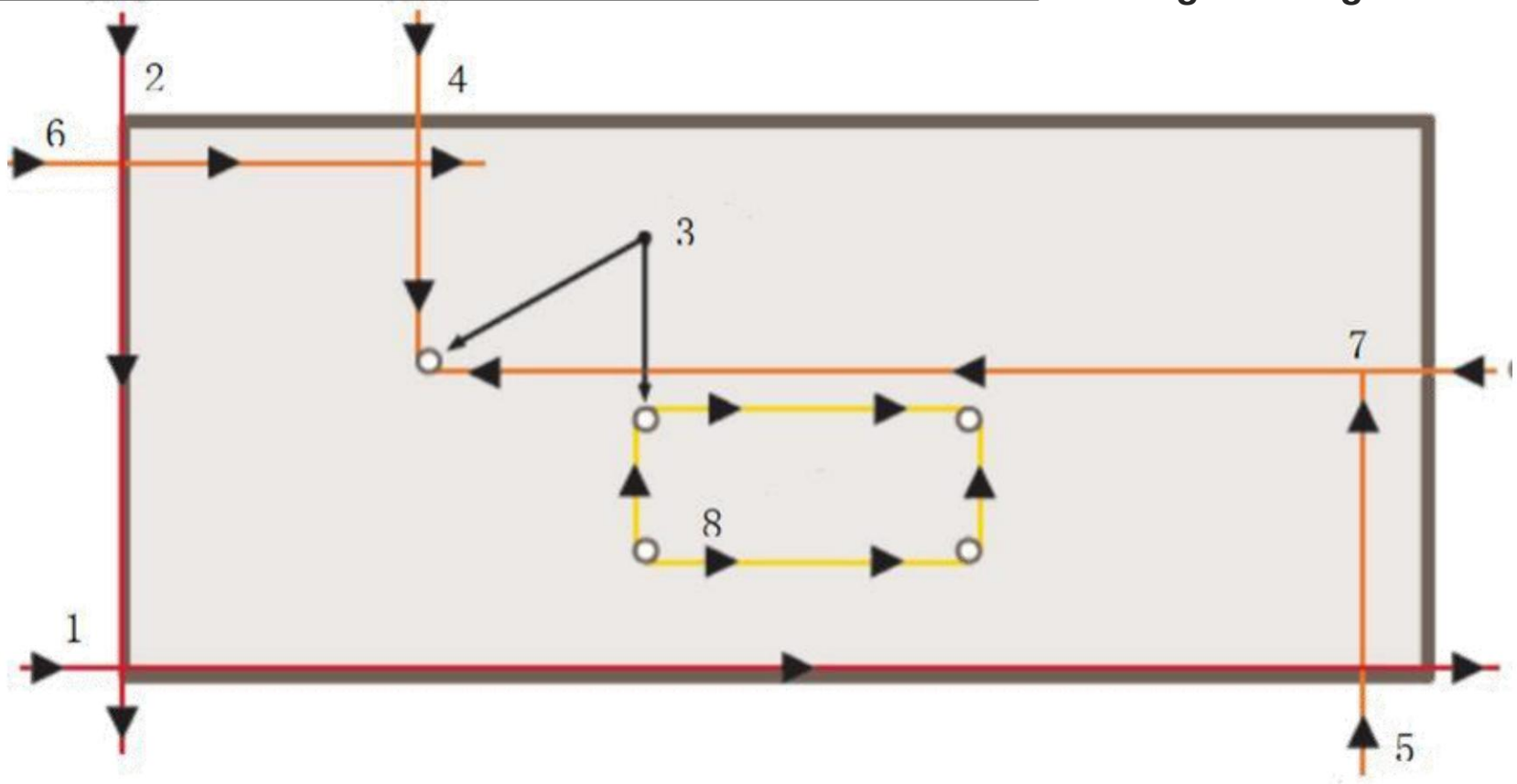
- To avoid cutting damage, reduce the feed and exit speeds by 50% during processing.

Blanking - stress relief



• First cut 20mm away from the edge around the rock slab (as shown in the figure) to release the stress of the rock slab and reduce the processing breakage rate.

Cutting - cutting technology route and sequence



• Processing technology route and processing sequence (cutting processing sequence as shown in the figure) to reduce the breakage rate of processing, the sequence is in the order of numbers from small to large in the figure; • Since rock plate is a material with high hardness and high density, a large amount of water should be used to assist cutting during cutting to fully cool the blade. The cooling water should be sprayed directly onto the blade.

At the cutting point in contact with the plate, it is recommended that the cutting speed of the first 30cm and the last 30cm be maintained at 0.6m-0.75m/min to ensure the flatness of the cut surface;

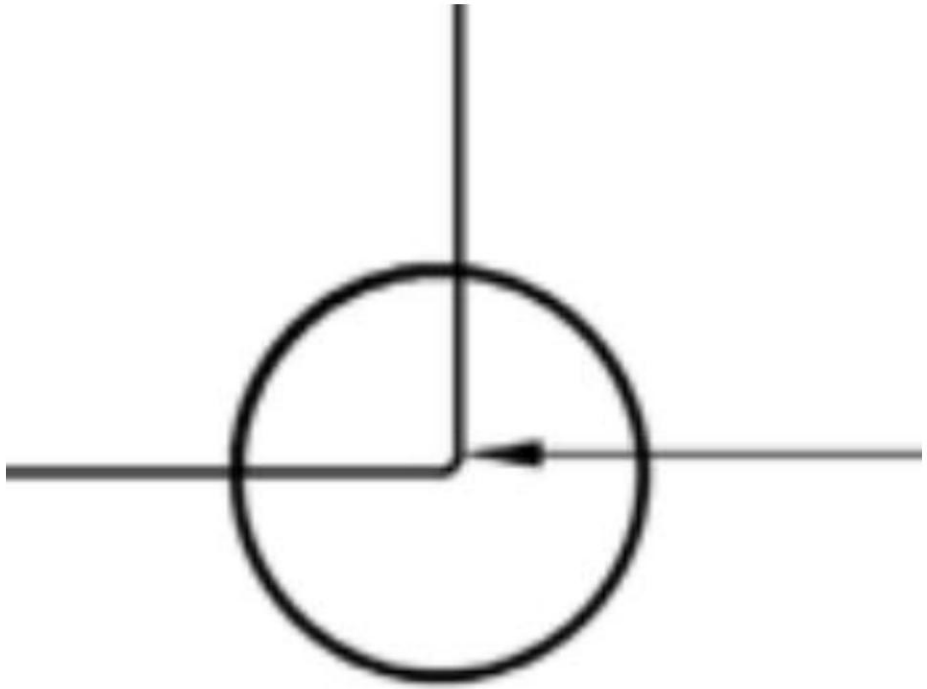
• Maintain the high sharpness of the saw blade to reduce the occurrence of edge collapse, corner drop, and cracking during the cutting process of the rock plate. The principle of material utilization is to achieve 90% and ensure

The remaining material width can exceed 60mm;

Linear processing-end punching

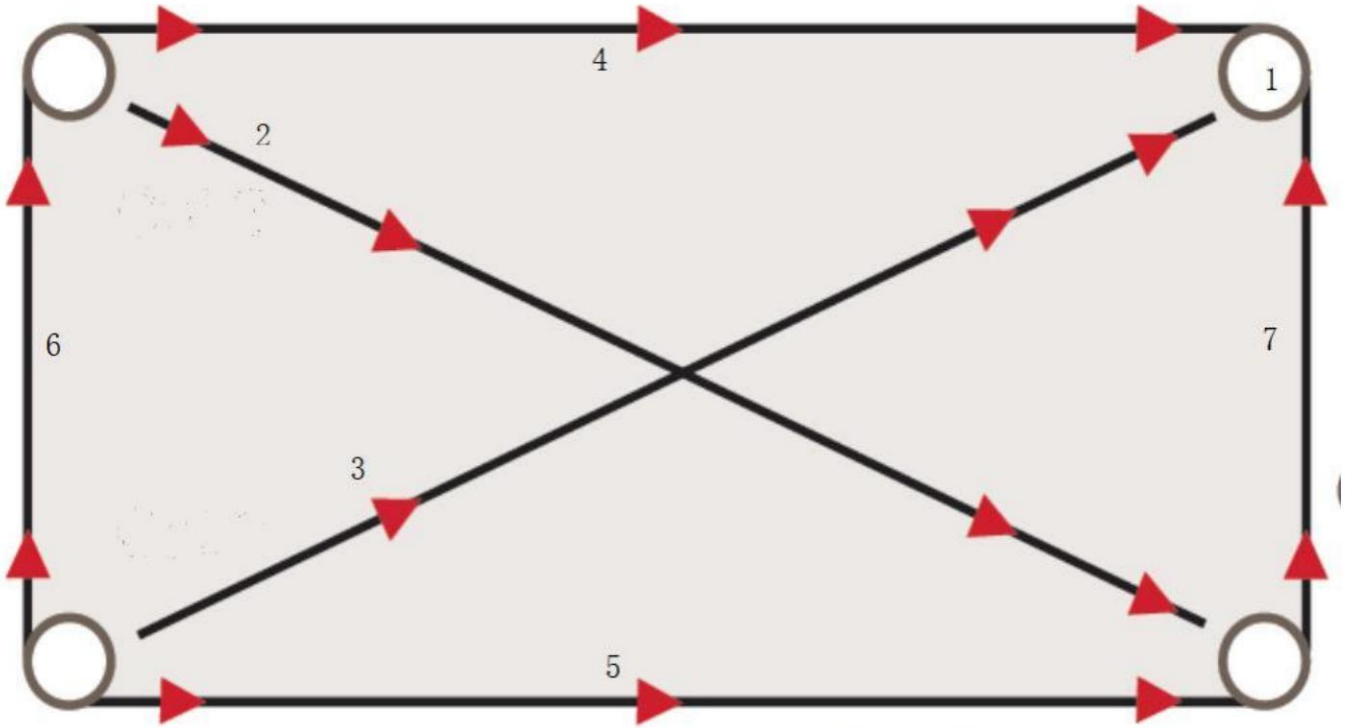
• Pre-process a safety hole with a diameter of 5~8mm at the processing end (as shown in the figure), and then use the processing tool to cut in the direction of the safety hole.

Corner and bend processing



• At corners or bends, a processing arc of R (8mm for rock slabs with thickness > 12mm and 6mm for rock slabs with thickness ÿ 12mm) should be designed (see Figure as shown).

Drilling - technical route and sequence



• Processing technology route and processing sequence (cutting processing sequence as shown in the figure) to reduce the processing breakage rate, the sequence is in the order of the numbers in the figure from small to large;

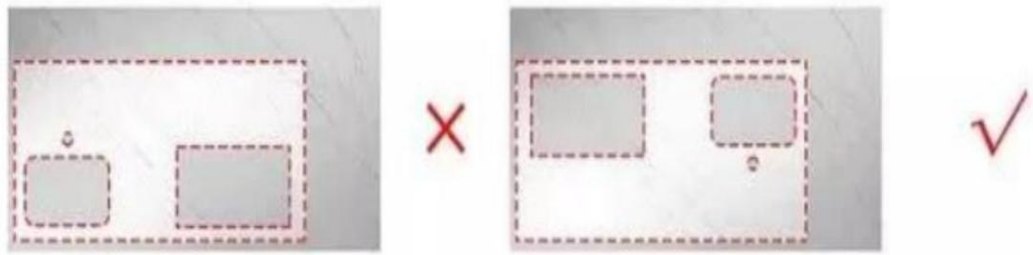
• The drilling must be done on a wooden workbench with a large surface support. It is strictly forbidden to work in the air to prevent cracks caused by falling off;

• Leave a 2mm gap on the four sides of the above-the-counter basin. After marking the line on the board, in order to avoid the extension of the cutting line and cracks in the corners, you must drill a hole of more than 3cm in the opening corner, and then Use a hand cutter to cut along the inside of the hole, and keep the corners as rounded as possible;

• All the holes for sinks, basins, and stoves on the countertops must be polished three times with water, i.e. 50#, 150#, and 500#, to ensure that the edges of the holes are smooth and free of cracks.

Countertop opening types

Type 1: Single board countertop basin hole



Type 2: Faucet hole

p The cutting position of the plate must be planned before operation to ensure that the plate

The material can better withstand the cutting pressure, please try to be in the middle of the rock plate

The hole is opened at the position as shown in the figure above.

Manual round hole cutting

p According to the diameter of the circular hole to be cut, select a glass drill bit with the corresponding diameter and install it on the hand drill to drill holes on the brick surface;

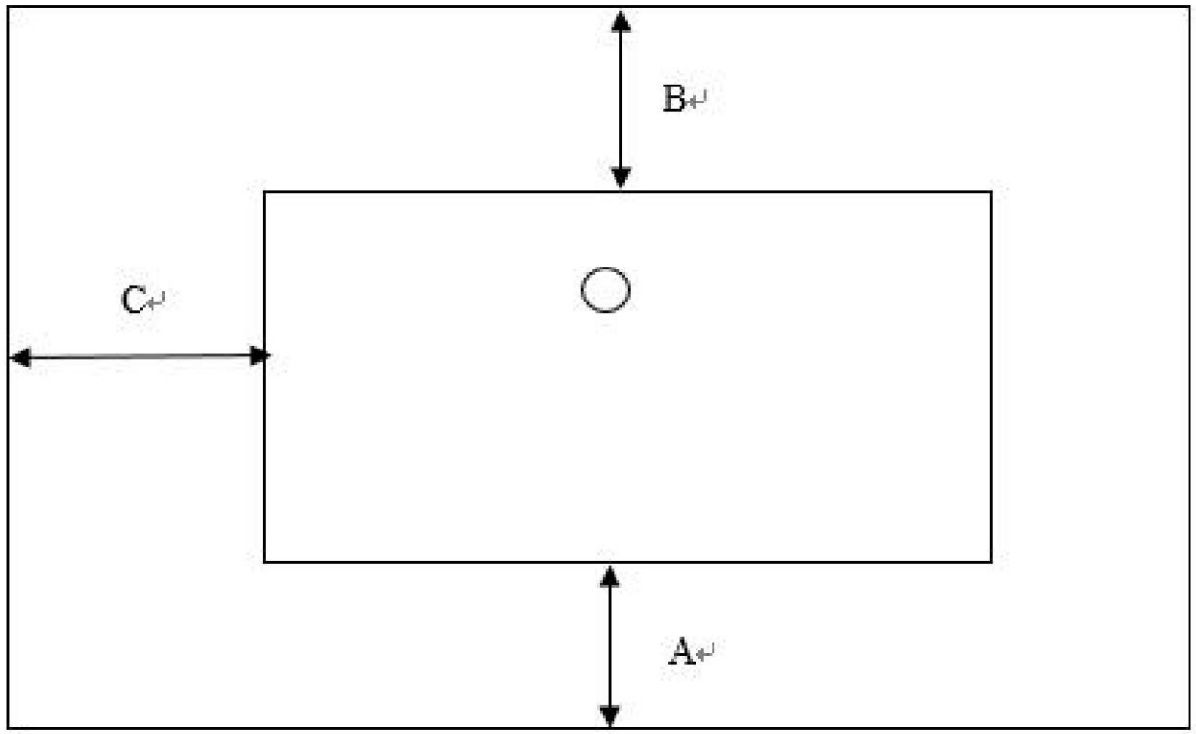
When drilling holes, first keep the electric drill at a 45° angle on the brick surface, then slowly drill a mark of a certain depth on the brick surface, then vertically drill the hole with an amplitude of 5-10°.

Shake the machine until the hole is drilled through;

p When drilling, do not push too hard and use water to cool the drill bit if necessary.

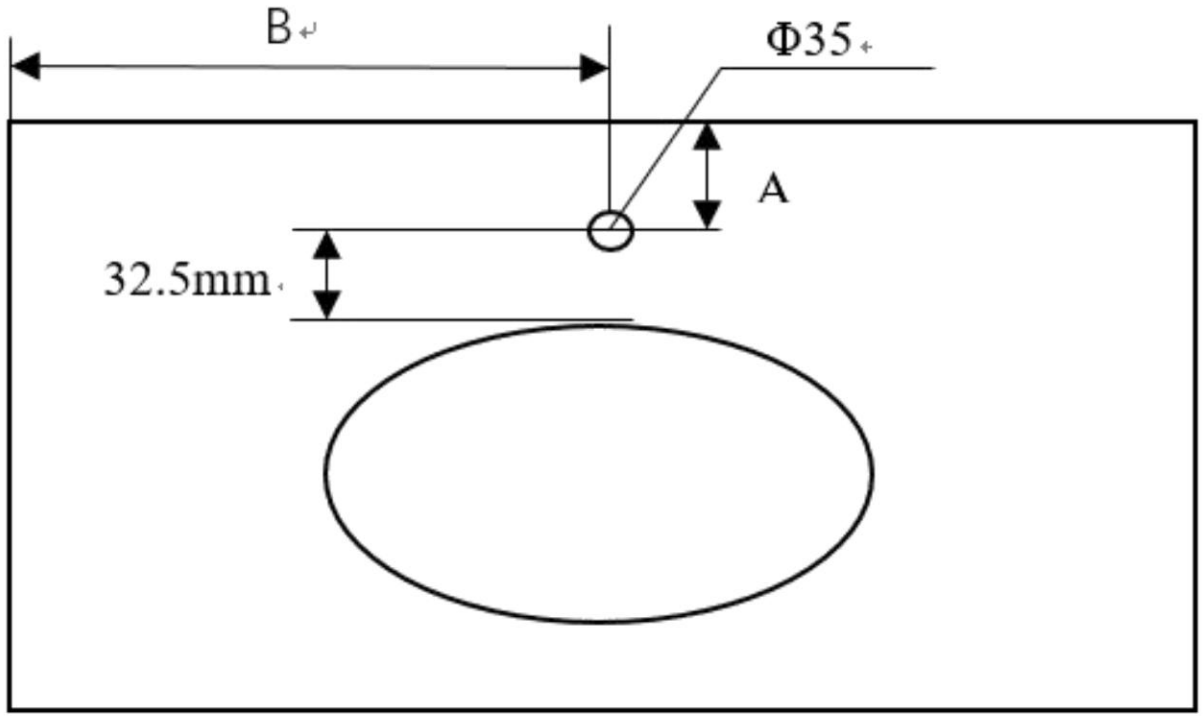
Single board countertop basin hole

Basin Type	Conditions Fro	nt hole margin A (mm)	Back hole margin B (m	m) Side hole margin C (
When installing aluminum	beams on the basin cabinet	>=80	>=70	>=70



Tap hole opening

Standard hole diameter	Integrated Basin	veneer
Distance A from hole center to rear edge	Integrated basin ÿ60mm	Single board ÿ60mm
Distance B from hole center to side	Integrated basin ÿ60mm	Single board ÿ60mm



Rock slab integrated basin

• The integrated rock slab basin is made of multiple rock slabs cut and chamfered before being glued together. Both the countertop and the basin are rock slabs, which is integrated and more beautiful.

• The processing cost is high and the technical requirements for processing are high.

Seamless rock slab ceramic basin

• The countertop of the seamless rock slab basin is made of rock slab, and the basin is a conventional ceramic basin. The countertop and the ceramic basin are precisely combined through precision processing of the countertop.

• Seamless basins are becoming more and more popular in China.

Seamless splicing rock slab ceramic basin back bonding

p Use slate glue to fix the ceramic basin to the back of the countertop.

Do not move within three hours after bonding to allow the glue to cure.

Rock plate induction cooker integrated countertop

p Embed the induction cooker into the slate dining table or island table to make the two seamless. When cooking, just place the pot on the table to heat it. During the whole heating process, we can't see any open flame, giving people the feeling of heating in the air; p

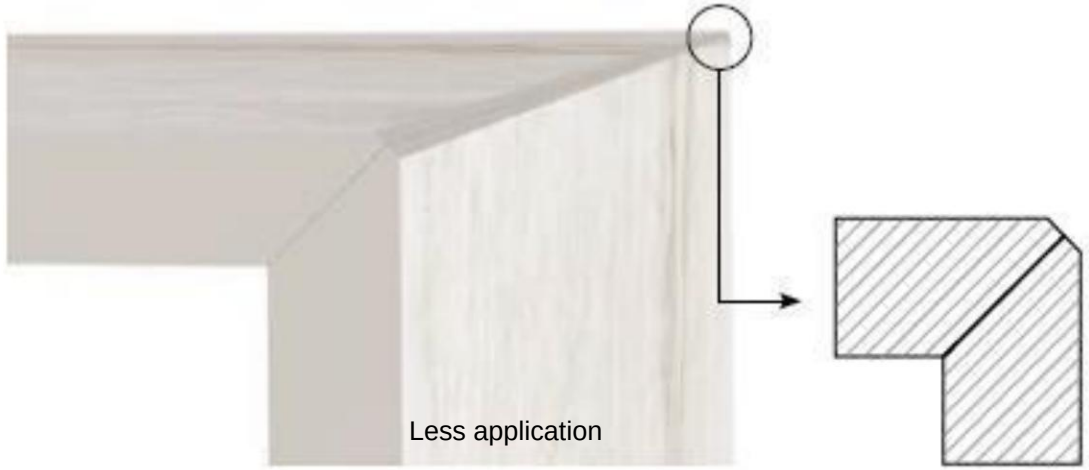
Installation method: •

Use the positioning plate to accurately determine the position of the induction cooker on the table of the slate dining table or island table, and draw the size of the induction cooker on the table top and bottom respe

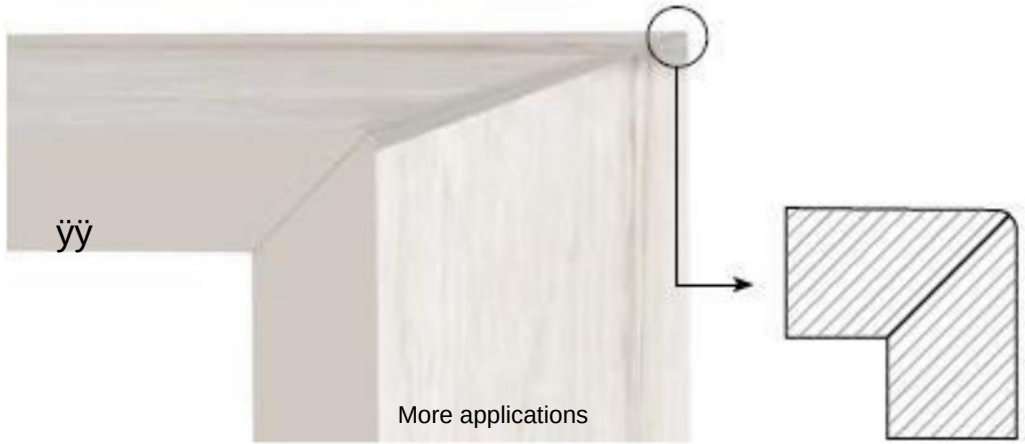
• Apply AB glue to the fixed bottom plate, stick it to the four corners of the induction cooker, and wait for the glue to dry. It is recommended to wait for more than 10 minutes;

• After the glue is dry, install the fixed angle cover (tighten it to 90%), and finally touch the table top to confirm the switch position. After confirming it, affix the switch sticker.

45° chamfer



Less application



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More applications

p The cutting tools and methods that can be used for chamfering: water jet, more advanced infrared cutting machine, 45° chamfering machine, manual chamfering; p When using a 45° chamfering machine for rock slabs, it is necessary to determine the cutting direction. Generally, the rock slab needs to be cut from right to left or from left to right. This ensures that the cutting lines are smoother and the chamfering effect is better;

p During the cutting process, stone chips and debris will be generated, which need to be cleaned up in time. Otherwise, these debris may block the machine or jam the tool, causing cutting problems. In addition, cleaning the cutting area can also maintain the cutting quality;

p Before performing 45-degree chamfering of rock slabs, the chamfering depth needs to be determined according to actual needs. Generally, the chamfering depth should not exceed 1/4 of the thickness of the rock slab; p Cutting speed is very important for 45-degree chamfering of rock slabs. Generally, The cutting speed should be moderate, neither too fast nor too slow. If the speed is too fast, the cutting tool may be damaged; if the speed is too slow, the work efficiency may be affected; p Before performing the 45-degree chamfering of the rock slab, it is necessary to carefully observe the cracks and flaws on the surface of the rock slab. If there are obvious cracks and flaws on the surface of the rock slab, it is necessary to avoid cutting there to avoid affecting the work effect;

p After 45° splicing, according to the design plan, it is advisable to create a bevel of at least 1mm at the top corner (straight line or circle), as shown in Figure ÿÿ.

Manual 45° chamfer

p Operation process: ruler positioning - adjust blade angle - uniform cutting - steel brush grinding - grinding after fitting;

p Tools used: construction operation table, hand drill, hand cutter, tape measure, woodworking pen

p Operation steps and precautions:

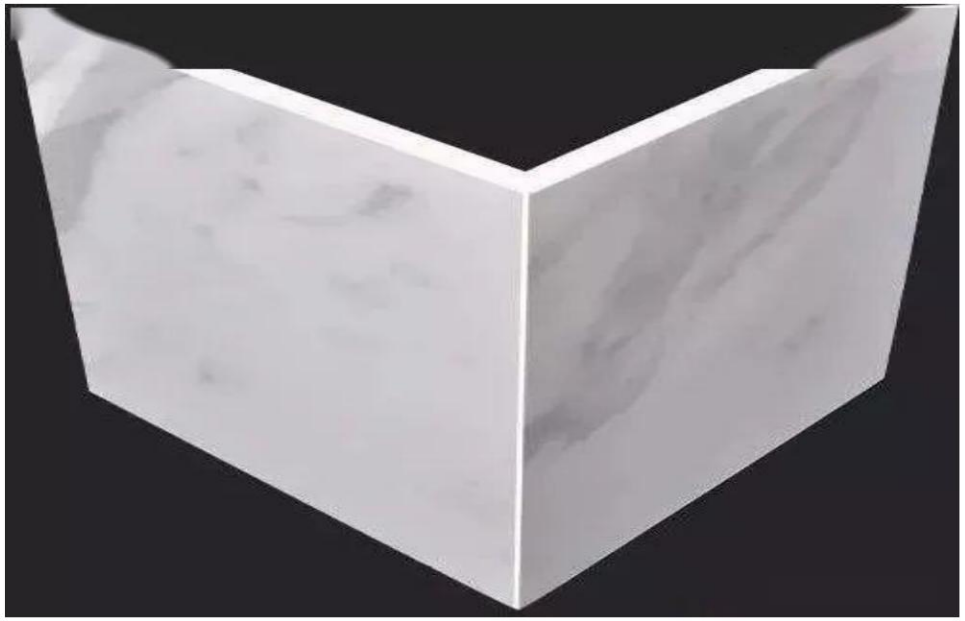
• Fix the guide rail to the specified size and adjust the angle of the cutting machine;

• A 45-degree cutting angle requires a 2mm thickness reserve, otherwise it will easily cause corner breakage and breakage, so you need to cut slowly when pushing;

• When cutting, pay attention to whether the cutting surface is consistent. If there is any deviation, stop the cutting machine and make fine adjustments;

• After cutting, it is necessary to return the grinding wheel for grinding to make the cut surface smooth and smooth to achieve a beautiful effect.

Bonding



p When splicing, make sure the interface is clean without any dust or oil, and do not touch it repeatedly with your hands;

p The interface needs to be kept flat and not uneven; p When straight edges are connected, the surface to be

glued must be thoroughly clean, dry and flat. Apply the same color glue evenly within 15mm of the edge of the bottom large panel, place the straight edge strip on the glue and rub it left and right.

Move, squeeze out the air, use the clamp and rubber bell to clamp the straight edge strip to the large board surface with moderate force;

p Place the clips every 5-10 cm, and clean the glue overflowing from the back after it is half dry. After the edge strips are bonded (after drying), use the same color glue to bond the same color quartz stone reinforcement material to make the straight edge and

The board surface is connected, and finally the lining wood strips are glued flatly to the board with the same color glue and clips; (flat type)

p After bonding and fixing, it cannot be moved within 3 hours; p Use quality-

assured epoxy-type rock slab adhesive, which has the same hardness as the rock slab and will not crack, fall off or turn yellow after curing.

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Bonding glue-special glue for rock slabs

Ø Special glue for rock slabs is a glue specially used for bonding rock slabs.

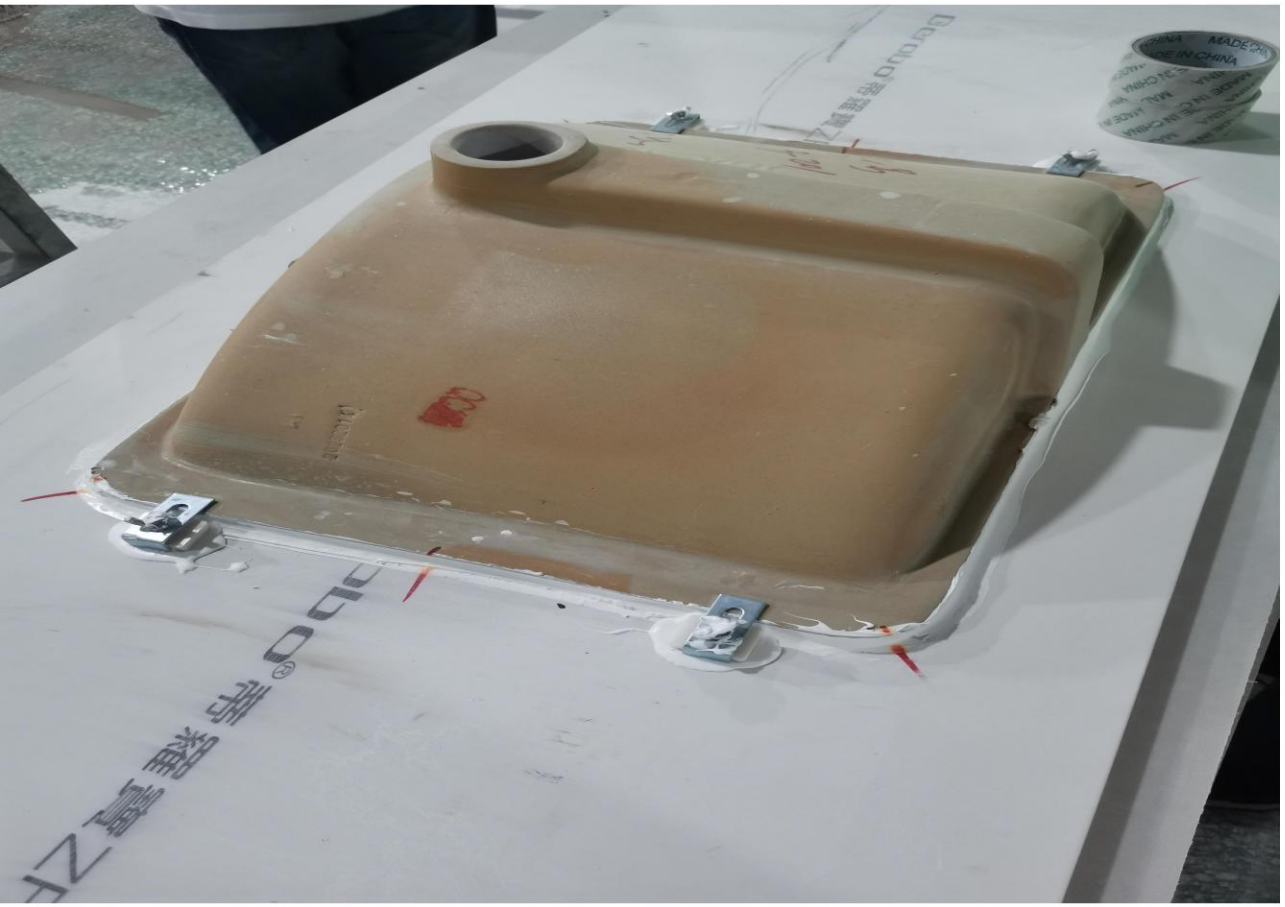
The color can be modulated and customized, which is more beautiful;

Ø Product advantages: higher strength, no yellowing, no cracking, stable color,

Use outdoors, fast and environmentally friendly;

Ø Recommended brands: Kangdeer, Kehui

Basin bonding installation



The bonding steps are as follows:

• Choose the right adhesive material according to the countertop material; • Apply glue to the back edge of the stone when bonding. Then place the sink

Clean the parts that need to be glued, and finally stick the sink to our

The lower part of the sink;

• For undermount sink installation, there is one more step:

Reinforcement. This is also the biggest difference between the under-counter basin and the traditional above-counter basin or the center basin; because if the under-counter basin is not firmly fixed, it is easy for the entire under-counter basin to fall off and fall to the ground;

• The conventional fixing method is to use stone strips to fix them, apply glue on the stone strips, and then stick them under the countertop to increase the sink

Fixing to the tabletop;

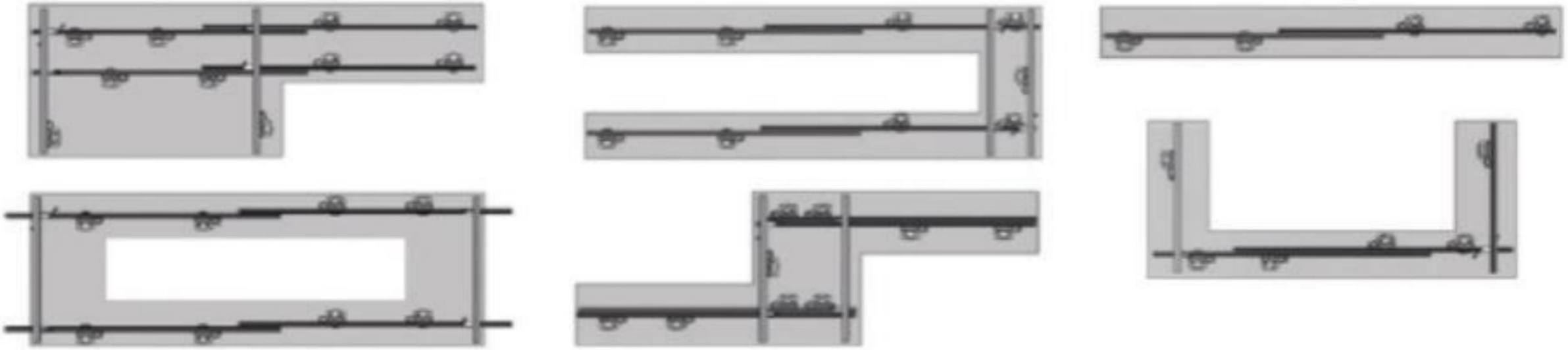
Countertop bottom pad type

Gasket-Quartz Gasket

Pad-Countertop Companion

Pad-Aluminum Honeycomb

move



• After processing, especially when there are openings or holes in the middle, it is advisable to use a multi-cup suction cup (as shown in the figure) to move the board to avoid excessive

Direct movement on the edge causes damage to the finished product.

Acceptance criteria for finished countertop products

The finished product and installation effect should comply with the processing design plan, and the surface quality should meet the following requirements:

p The surface is clean and free of scratches, and the visible adhesive material is cleaned without any residue;

p The joints and assembling edges are smooth, and there is no bumpy feeling when touched;

The polishing effect of the joint is similar to that of other parts, and the hand feel is similar to that of other parts;

p The sizes of various openings are standardized and flat, and the opening cuts are smooth;

p No chipping or cracking;

p The visible surface has no scratches;

p There are no cracks on the visible surface.

03

Causes and solutions for rock slab cutting cra

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Causes of rock slab cutting cracks

Product quality issues

The product itself has a sintered structure and raw materials

Ratio, body glaze expansion coefficient combined, internal

Residual stress and other reasons lead to cutting cracks.

Processing environment

The processing table is not flat and stable.

Shake, there are previously processed parts on the workbench

Waste fines.

Equipment cutting speed

The cutting speed of the equipment is too fast, and the feeding and discharging of materials

The speed is too fast.

Cutting saw blade

The rock slab cutting saw blade does not meet the requirements.

Blunt blade tip, cutting saw blade model selection

Not suitable.

Workers construction level

If workers operate construction equipment manually, it is very

It depends largely on the construction level of the workers.

Processing environment countermeasures

Processing environment

The processing workbench is uneven, unstable and shaking, and there are waste chips from previous processing on the workbench.

p Before processing, make sure the workbench must be clean, durable, solid and undamaged;

p The workbench must be completely level, stable and without shaking;

p The workbench must be free of previously processed waste and the surface must be in good condition.

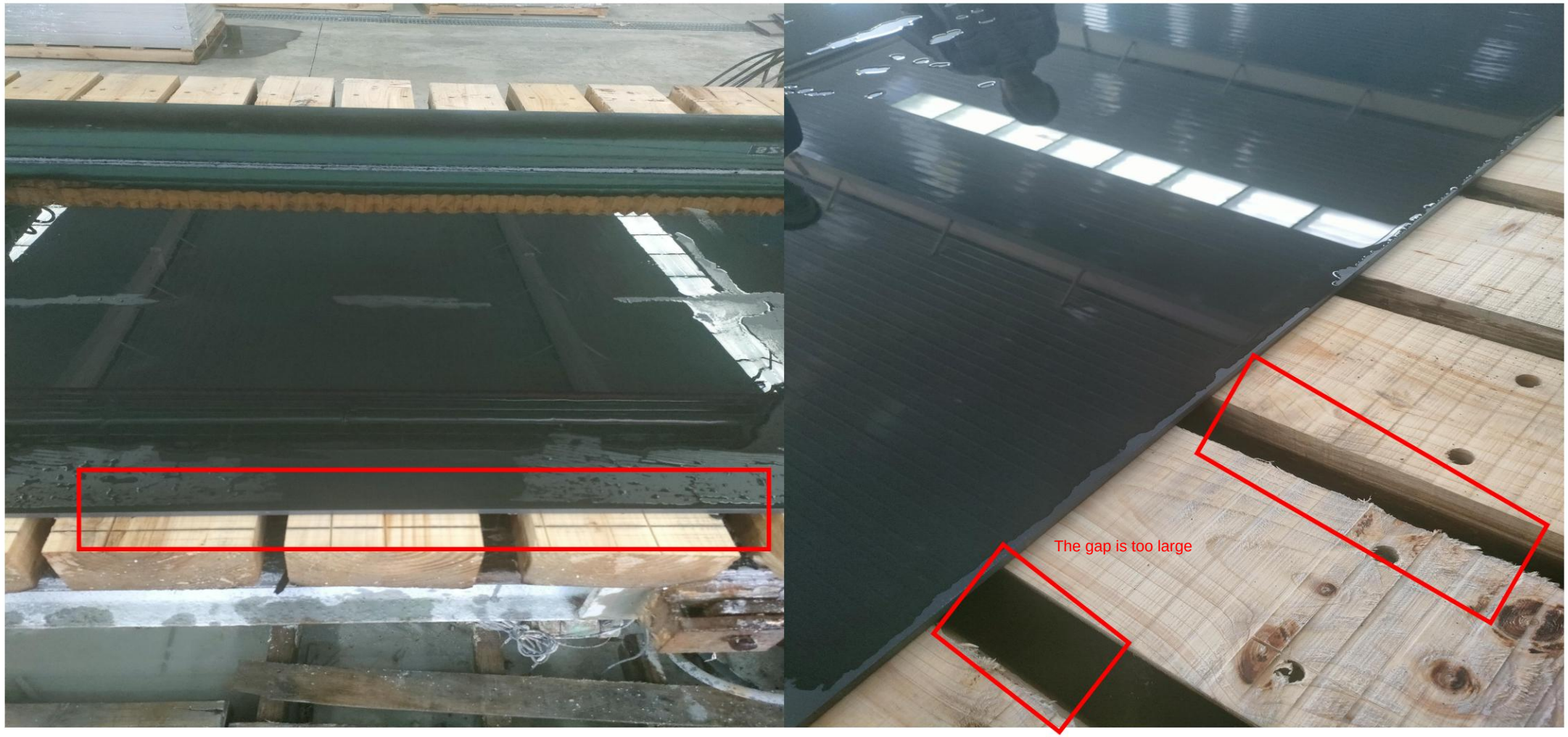
Therefore, it is recommended that the processing operator take samples before cutting.

Perform actual tests and make actual adjustments to achieve the best results.

Processing environment countermeasures

Ø Check whether the base screws of the infrared cutting machine are rusted and loose. If the base screws are rusted and loose, the chance of breakage will increase.

Processing environment countermeasures



Ø Check the flatness of the workbench and the flatness of the board, and confirm that there is no gap between the board and the workbench; Ø Check whether the gap between the wooden boards of the workbench is even, and whether there is a large gap. The gap needs to be kept even to avoid cutting damage.

Processing equipment and tool countermeasures

Cutting saw blade

The rock slab cutting saw blade does not meet the requirements, the saw blade head is blunt, and the cutting saw blade model is not suitable.

When cutting, use a cutting blade suitable for rock slabs or a

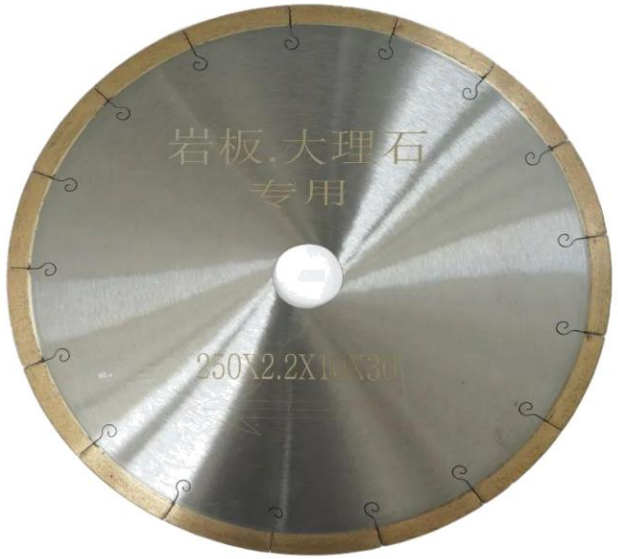
High-quality saw blades for ceramic products need to maintain high sharpness of the saw blades to reduce the occurrence of edge collapse, corner drop, and cracking during the cutting process of the rock slab.

If the saw blade is not sharp, replace it with a new one in time;

p To ensure the best cutting results, use a diamond layer higher than the plate.

Saw blade with material thickness of 1-1.5mm;

The smaller the cutting disc radius, the greater the spindle speed.



Cutting methods and countermeasures

Cutting method

The cutting speed of the equipment is too fast, and the feeding and discharging speeds are too fast.

p The slab must be fed in the same direction as the cutting disc rotates.

Proportional to the thickness of the cutting disc;

The slower the feed speed, the better the cutting effect.

Should always be 50% slower than rated speed;

p When cutting the board, cut off 2cm of width on each side to facilitate cleaning of the board

edge of the sheet and release the internal stress of the sheet (prioritize cutting the long edge and then

Cut the short side again);

p When cutting, use plenty of water to assist cutting and fully cool the blade.

Spray cooling water directly onto the cutting point where the blade contacts the sheet;

When cutting, place a small sample of the same thickness at the exit of the knife to ensure

Ensure cutting stability when holding the knife to avoid cutting corners.

Thanks for watching