KBM-16N-Type Bevelling Machine Operation Manual

Professional manufacturer of beveling equipment

Shenzhen Machinery & Electrical Equipment Co., Ltd.

Notice!

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

Please read this instruction carefully before operating this machine!

Preface

We are glad to know that you have decided to use our KBM-16N plate beveling machine. We believe that this machine can generate great economic benefits for your company.

We are happy to introduce the relevant information on the safe use of this machine. Help you improve your work ability and keep the machine in a high-efficiency, safe and stable state. At the same time, we also care about the safety of you and your colleagues.

The machine can be a very safe production tool, but if you are not careful, it may also become very dangerous. Therefore, before using this machine, please be sure to read this instruction manual carefully. Only by complying with the safe operating regulations can the safety of people and machines be ensured.

We know that safety is endless, and the information provided in the manual may only be some basic requirements, which cannot cover all operating methods and usage occasions. Therefore, please use your experience, common sense and correct judgment to remind yourself and train your employees. All operations must be safety-oriented.

The design, manufacture and manual writing of this machine are the crystallization of the technology and wisdom of all employees of our company. Our company is committed to providing safe and excellent machines for users. However, due to some factors that are beyond our control, it is inevitable that machine failure or personal injury may occur. In order to restore your normal operation as soon as possible and improve our technical level, we sincerely welcome you to record the situation at that time and immediately notify our company or the nearest agent.

Thank you!

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

catalog

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

1. Overview

1.1 Introduction

Welcome to the KBM series automatic plate beveling machine produced by Shenzhen Kaidesheng Machinery Equipment Co., Ltd. This series of products is a welding and cutting auxiliary equipment widely used in various welding manufacturing industries such as ships, metallurgy, steel structures, etc. Compared with other beveling methods, it has many advantages such as high efficiency, energy saving, environmental protection, simple operation, and convenient use; it can greatly reduce the workload of workers and save labor costs; at the same time, it conforms to the current low-carbon and low-energy consumption environmental protection trend and concept.

The KBM-16N beveling machine can automatically move and process a welding bevel with a bevel width of 12 mm on a steel plate with a thickness of less than 45 mm and a material tensile strength of 40kg/mm² at a speed of 1.5-2 meters per minute. According to actual needs, it can be processed to a bevel width of 18 mm in several times. The groove angle can be adjusted arbitrarily within the range of 25° to 60°

1.2 Parameters

Motor power……2.2 kW

Motor voltage……380 V

Motor speed……1450 rpm

Groove travel speed……1.5~2.5 m/min

Groove width (W)…… …0-30 mm

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

Groove angle…… .25º-60º

can be adjusted arbitrarily

Groove steel plate

thickness…… … …6-45 mm

Narrowest width of steel

plate…… … …75 mm

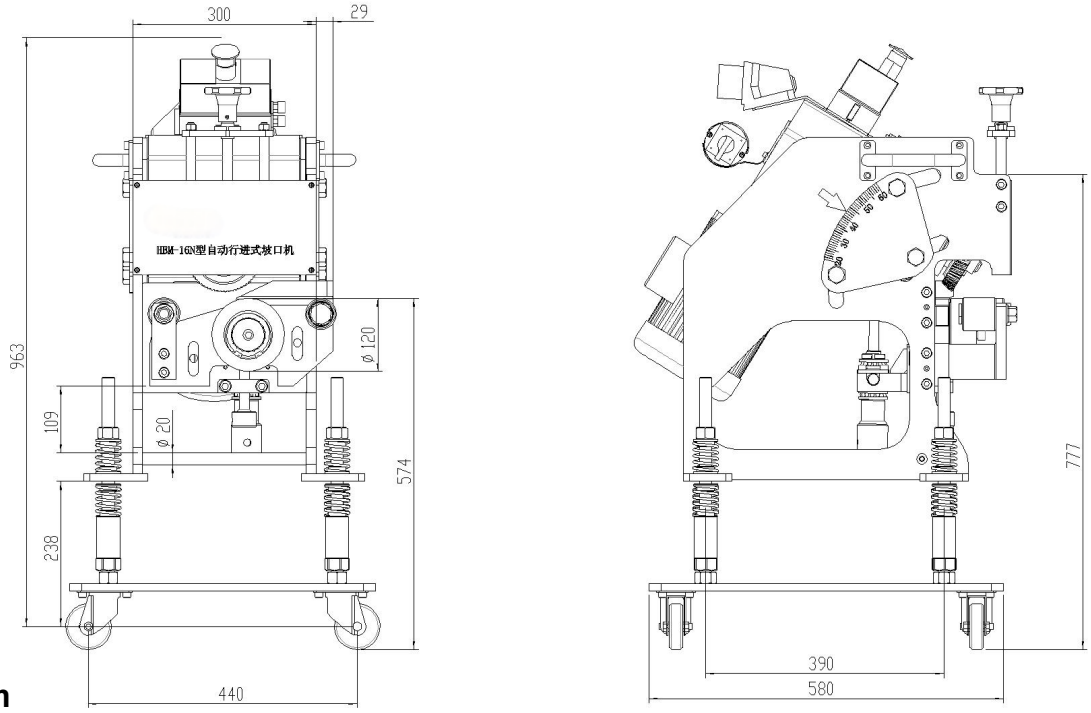
Net weight of

machine…… ……..185

kg

1.3 Machine

diagram



2. Safety and Warnings

2.1 Safety Instructions

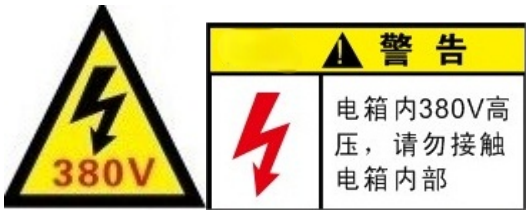
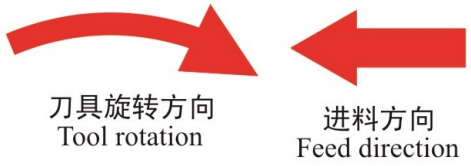
Before installing, using and maintaining this beveling machine, you must take enough time to carefully read all the operating instructions in this manual.

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

The electrical and rotating parts have the potential to cause serious personal injury or property damage.

This machine uses 380 volts. Before installing, wiring, starting, operating or making any adjustments, please use this manual as a guide to identify the various parts of the beveling machine. Electrical wiring installation and maintenance personnel must have the qualifications required by laws and regulations to ensure that life and property are not harmed or lost.

Warning signs used in mechanical parts

	Be careful about electrical safety. The power cord must be reliably grounded before it can work.
	During operation, be sure to keep a certain distance from the rotating parts. Except for starting and stopping the device, your arms must be kept at least 10 cm away from the rotating parts.
	The plate needs to be placed on a platform with a height of 700-740mm to ensure the smooth operation of the equipment.
	Note It must be clear that the direction of rotation of the tool indicated on the nameplate is

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

	clockwise. The feed direction must be from the right end during operation
	Note: Gloves are not protective equipment. Cutting chips generated during operation must be handled with care to avoid hand injuries.

2.2 Safety Precautions

1. This machine can only be used for its designed working purpose;

2. The person who installs and connects the machine must have an electrician qualification certificate; the power connection must have good grounding protection;

3. It is not allowed to perform beveling operations on materials and materials that do not meet the machine recommendations and operating manual regulations. Beyond-range beveling processing will cause damage to the equipment and tools or reduce the service life;

4. The operator is not allowed to leave the site during the operation of the machine;

5. When the machine is stopped, the power connection must be cut off.

6. When replacing tools, repairing, and cleaning, the machine must be cut off from power;

7. At the same time, use special tools and protective gloves to clean the chips to avoid high temperature, sharp cutting, etc. causing harm to the body; but it is never allowed to perform cleaning operations when the machine is running.

8. When the machine is running, the operator must stand directly behind the machine, and cannot stand on the left or right sides of the machine. The operator's clothes, gloves, etc. may be entangled during the rotation of the tool, causing serious personal injury.

3. Equipment Acceptance

3.1. Inspection

When you receive the beveling machine, please check carefully to see if there are any signs of improper handling by the carrier. This is particularly important: if any damage is found, obtain the signature of the delivery person, which will facilitate your future insurance claims.

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

Important things to know
Liability for lost or damaged goods Goods should be unpacked and inspected immediately upon arrival, because our responsibility for the goods ends after the user signs the bill of lading. If there is obvious shortage or damage when receiving the goods, there is an important thing you must do, that is, notify the carrier immediately and insist that he indicate the shortage or damage on the waybill, otherwise you will not be able to claim compensation from the transport company. If the shortage or damage is more hidden, it is absolutely necessary to notify the carrier immediately and request inspection, otherwise the carrier will not pay attention to your claim. The carrier should conduct an inspection and issue a certificate of hidden damage; if you issue a clear receipt for goods that are already in transit and are in shortage or damage, you will bear the risk and pay the price. We are willing to do our best to help you get compensation for shortage or damage. However, this kind of assistance from our side does not mean that we will be responsible for representing your claim case. The actual filling of forms and claim procedures need to be handled by you, the user.

3.2 Unpacking and handling

This machine is normally packed in wooden boxes during transportation, and the lifting and forklift loading and unloading positions are marked. The forklift and lifting positions are very important because the weight center of this machine is relatively high. Improper lifting and forking may cause rollover, which may cause personal injury and property loss.

3.3Tool accessories

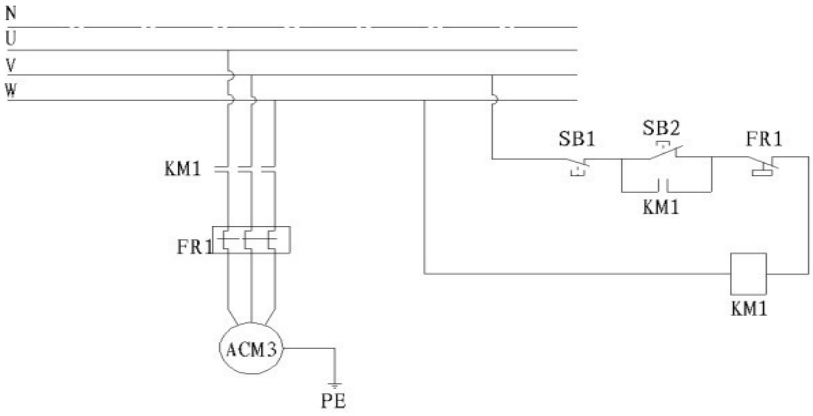
No.	Name	quantity	No.	Name	quantity
1	**Main unit**	1 set	5	**Aviation plug**	1piece
2	**Rolling cutter (one on the main shaft)**	3 piece	6	**Certificate of conformity**	1piece
3	**Accessory tool box (matching tools)**	1piece	7	**Delivery list**	1piece
4	**Operation manual**	1piece	8	**Aviation plug**	1piece
For other accessories, please see the delivery list					

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

4. Install

4.1 Electrical Installation

Electrical Schematics



1. Electrical connection and protection should be carried out in accordance with local regulations;
2. This machine uses 380 volts, please confirm that it is consistent with your company's power supply.
3. Use a cable to connect the electrical switch box of this machine to your company's main power supply. The power line specification is a three-phase cable greater than 2.5mm^2 .
4. Function settings of the electrical switch box:

- Machine start switch and emergency stop button
- Loss of pressure protection
- Overload protection

5. Check the direction of rotation of the tool: Check the direction of rotation after wiring and turning on the machine. The red mark on the front side indicates the correct direction of rotation during operation. If the direction of rotation is incorrect, you need to rotate the forward and reverse knob set on the left hand side of the machine. "0" means the machine stops, "1" and "2" are forward and reverse respectively (forward or reverse depends on the connection method of the phase sequence when wiring).

4.2 Installation and removal of the tool

1. Cut off the power supply of the machine;
2. Lift the upper clamping wheel to the highest position;
3. Loosen the fixing nut (2-M16) of the lower support adjustment plate, and loosen the support screw of the lower support adjustment plate to make it in the lowest position;
4. Loosen the locking nut of the tool, use the tool removal die provided with the machine to pull out the rolling shear tool;
5. After installing the new tool, install the previously removed and loosened parts in sequence (all nuts must be tightened);
6. Adjust the lower slide plate to the corresponding position according to the thickness of the plate.

Notice
When disassembling and installing the tool, please note that the sharpness of the blade and the high temperature may cause scratches and burns to the hands. It is recommended to wear protective gloves.

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

5. Bevel preparation

5.1Steel plate placement and trolley route

1. Lightweight and portable steel plates can be placed directly on the beveling machine for beveling operations;

2. For heavier steel plates, two or more auxiliary brackets are required, with a uniform height of about 700 mm, and the steel plates are placed directly on the brackets for fixing.

warn
The steel plate placement bracket is made by the customer. During the production, it is necessary to pay attention to stability, firmness and uniform height to prevent the steel plate from slipping, tilting, overturning and other safety accidents that may easily cause personal injury and equipment damage due to loose placement and shaking during the beveling operation.

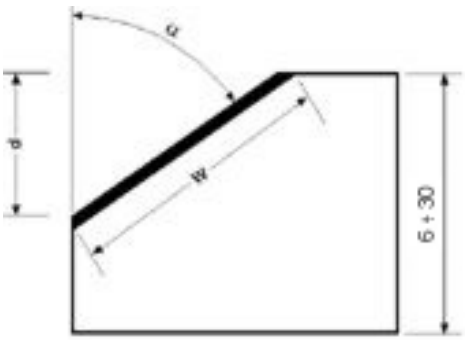
3. Clean the route of the trolley at the slope and keep the ground as smooth as possible. If conditions permit, you can lay a special steel plate on the ground. Uneven ground will cause the trolley to be unstable, which will in turn affect the service life of the tool.

5.2 Steel plate cleaning

1. The surface attachments of the steel plate that needs to be grooved must not have welding nodules and welding scars;

2. Before the steel plate groove operation, all the slag and burrs on both sides must be cleaned up. The unevenness and slag of the cut surface of the steel plate will cause uneven size of the fracture surface. The slag on the lower part of the steel plate will damage the tool and the lower adjustment roller, affecting the service life of the tool and the machine.

5.3 Steel plate thickness adjustment and groove depth setting



Recommended processing volume for one groove													
tensile strength	Carbon steel and low alloy structural steel						tensile strength	Stainless steel					
	R=40kg/mm²		R=50kg/mm²		R=60kg/mm			R=50kg/mm²		R=60kg/mm²		R=70kg/mm²	
α	w	d	w	d	w	d	II	w	d	w	d	w	d

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

25°	16	14.5	13	11.78	10	9	25°	8	7.2	5	6.3	6	5.4
30°	16	13.8	13	11.25	10	8.6	30°	8	6.9	5	6.0	6	5.1
35°	16	13.1	13	10.6	10	8.1	35°	8	6.5	5	5.7	6	4.9
40°	16	12.25	13	9.95	10	7.66	40°	8	6.12	5	5.3	6	4.5
45°	16	11.31	13	9.1	10	7.07	45°	8	5.6	5	4.9	6	4.2

1. First determine the tensile strength of the workpiece material, and select the groove height (d) of the material according to the groove parameters of one pass; refer to the above figure or the machine nameplate.

2. Loosen the 4-M12 bolt in the above figure, rotate the support screw, find the corresponding number in the following table according to the required groove depth, and adjust the scale line on the side of the machine's lower support adjustment plate to the corresponding position with the scale plate; the above parameters are only for reference, and the exact parameters need to be obtained by the operator through trial cutting of small plates, actual measurement and adjustment.

warn
During the operation, the groove depth of the groove must be strictly set according to the different steel plate materials. Any operation beyond the performance range of the machine will cause damage to the machine such as damage to the deceleration part, tool tooth collapse and spindle breakage. During the oxygen cutting process, the edge of the steel plate that needs to be grooved is heated at high temperature, resulting in increased hardness. This factor needs to be fully considered when setting the process parameters.

5.4 Angle adjustment

1. This model can adjust the groove angle arbitrarily within the range of 25-60 degrees;

2. Loosen the 8 M16 bolts on the left and right sides of the machine, and turn the adjustment screws on the lower side of the box by hand to freely adjust the angle of the groove tool. After the adjustment, tighten the bolts.

5.5 Height and angle adjustment of the traveling trolley

1. When adjusting the height, you only need to adjust the lower nuts on the 4 screws and set the upper busbar of the lower support wheel of the equipment to be basically the same height as the bottom surface of the steel plate;

2. The four lower springs of the traveling trolley must be in the maximum relaxed state.

6. Basic operation

Instructions

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

1) When beveling small-sized plates, place the machine firmly, hold the plate and gently insert it from the right side and push it to the biting state, the plate will automatically move forward to complete the beveling;

2) When beveling large-sized steel plates, the plate needs to be placed on the bracket described in 5.1-2 and fixed, and the machine is adjusted according to the plate thickness and the required beveling depth and beveling angle. Push the machine to the right side of the steel plate and gently push it to the biting state, the machine will automatically move forward and complete the beveling operation;

3) The upper pressing wheel is in slight contact with the steel plate, and it cannot be pressed too tightly, otherwise it will affect the automatic movement of the equipment;

4) During the working process, if the machine is stuck on the steel plate, the spindle stops, and it cannot move forward, it is necessary to rotate the forward and reverse knob to disengage the machine from the steel plate;

5) The processing volume of the first travel should be moderately less than the cutting parameters specified by the equipment. A slightly larger groove size can be obtained through secondary processing. The slope surface can be widened by 3 mm on the basis of the first processing for the second time, and the slope surface can be widened by another 3 mm on the basis of the second processing for the third time. The total maximum slope width can reach 18 mm.

6) Pay attention to regularly clean the iron filings between the block and the lower support wheel to keep the lower support wheel always rotating flexibly; (need to be cleaned when the machine is stopped)

7) After each large-size plate groove is completed, the travel route of the traveling trolley needs to be cleaned;

8) This machine can process the outer groove of the pipe with a groove angle of 20°-45°, and the inner diameter of the pipe must be greater than 110 mm;

The auxiliary support wheel needs to be removed before groove.

Notice
After the equipment has been working for a period of time, the temperature of the reduction box increases significantly because the high-concentration grease in the box is in a boiling state. The boiling of the grease is conducive to the heat dissipation of the machine and the transmission mechanism as a whole is in a thermal equilibrium state. If the equipment is overloaded during the operation of the machine, due to the increase in the current value, the thermistor in the electrical switch box will start and automatically cut off the power. After the power is cut off, it is necessary to wait for the thermistor to cool and reset before restarting. If the cooling is not sufficient, it will automatically stop again after working for a short distance.

7. Lubrication

1) The gearbox is lubricated by an oil pool and is filled with 2.5 liters of liquid grease at the factory. In principle, the grease should be replaced every 2000 working hours;

2) The gearbox of this machine uses Great Wall 7412 gear grease, with a

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

consistency grade of 000 and an applicable temperature of -40~150℃;

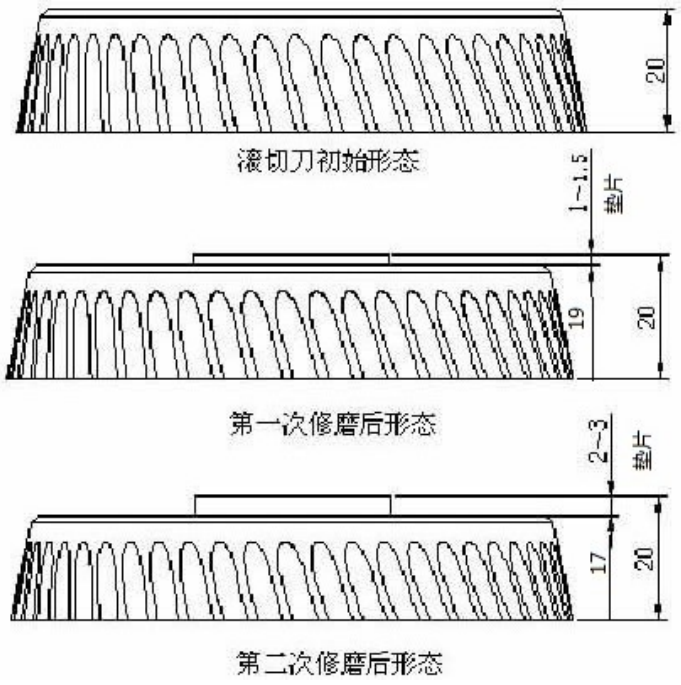
3) It is forbidden to use conventional engine oil or any other type of lubricant as a substitute.

8. Methods and precautions for regrinding and reusing the rolling cutter

1) Use an ordinary surface grinder to directly adsorb on the workbench to grind the large end face of the rolling cutter and thin the tool as a whole;

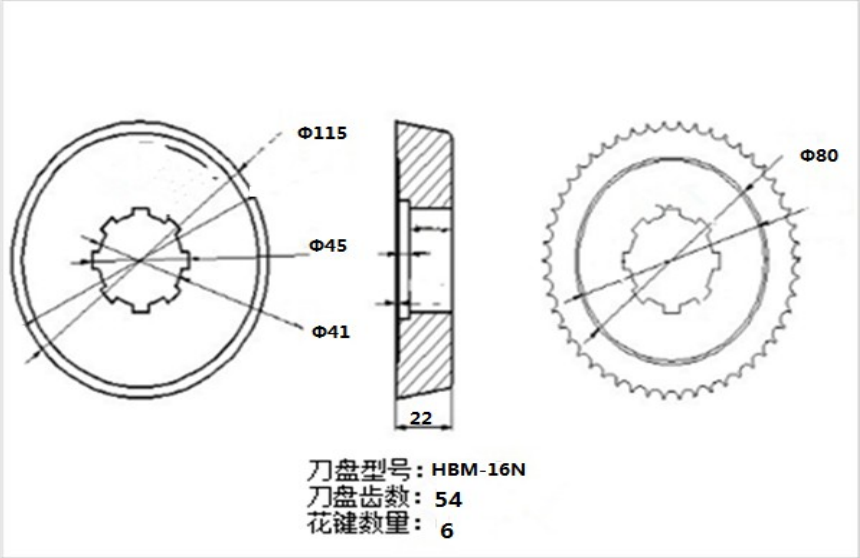
2) The grinding amount each time is 1-1.5 mm. When installing, it is necessary to add a gasket of the same thickness to the rear side of the tool to ensure the consistency of the scale calculation when using the new and old tools; (see the figure below)

3) The thickness of the heat treatment layer of the rolling cutter is about 2-3 mm, so the number of grinding times is generally about two

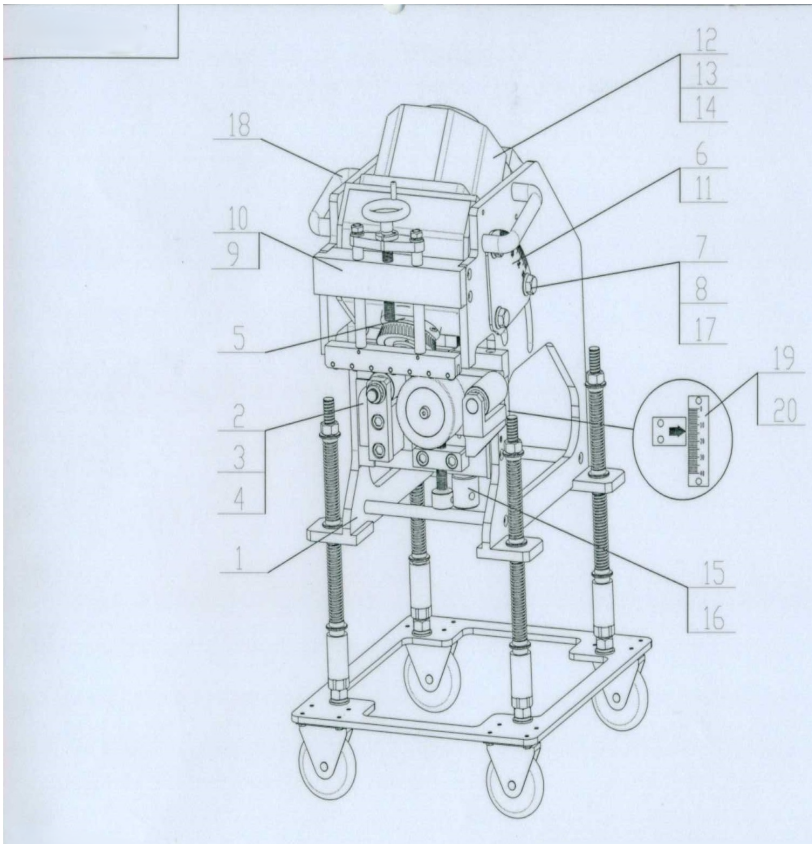


times;

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852



9. Parts assembly diagram



项目号	零件号	数量	
1	HY-16N-01墙板装配体	1	
2	HY-16N-04支撑轮装配体	1	
3	M14x50内六角圆柱头螺栓	2	
4	HY-16N-05-03垫片	2	
5	HY-16N-03主轴装配体	1	
6	HY-16N-05-01角度标牌	1	
7	HY-16N-05-02墙板螺丝垫片	6	
8	M18x35六角头螺栓	6	
9	M10x25内六角圆柱头螺栓	4	
10	HY-16N-02上压轮装配体	1	
11	HY-16N-05-01A角度标牌	1	镜像件
12	SZG45-F-1.1KW 1BI240电机	1	
13	M12x40螺丝	4	
14	平垫片M12	4	
15	HY-12N-03调整机构装配体	1	
16	M8x20内六角圆柱头螺栓	6	
17	YH-16N-0A调节板箭头	2	
18	拉手	2	
19	HY-16N-05-04高度刻度标牌	1	
20	HY-16N-05-05高度调节指示箭头	1	

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852

Figure 1: Comparison table of groove quantities for 30°, 35°, 45° and 60°

Bevel processing parameter reference table

30° groove feed and groove width comparison table Unit: mm

Steel plate thickness H	6	8	10	12	16	18	20	22	25	30
Feed scale (ap)	3	4	5	6	8	9	10	11	12.5	15
Groove width (aw)	6.93	9.24	11.55	13.86	18.48	20.79	23.1	25.4	28.87	34.64

35° groove feed and groove width comparison table Unit: mm

Steel plate thickness H	6	8	10	12	16	18	20	22	25	30
Feed scale (ap)	3.44	4.59	5.74	6.88	9.18	10.32	11.47	12.62	14.34	17.21
Groove width (aw)	7.32	9.76	12.21	14.65	19.53	21.97	24.41	26.86	30.52	36.62

45° groove feed and groove width comparison table Unit: mm

Steel plate thickness H	6	8	10	12	16	18	20	22	25	30
Feed scale (ap)	4.24	5.66	7.1	8.48	11.31	12.73	14.14	15.56	17.68	21.21
Groove width (aw)	8.49	11.32	14.14	16.97	22.63	25.46	28.29	31.11	35.36	42.43

60° groove feed and groove width comparison table Unit: mm

Steel plate thickness H	6	8	10	12	16	18	20	22	25	30
Feed scale (ap)	5.2	6.93	8.66	10.39	13.86	15.59	17.34	19.05	21.65	25.98
Groove width (aw)	12	16	20	24	32	36	40	44	50	60

The above parameters are for reference only. The exact parameters need to be obtained by the operator through trial cutting of small boards, actual measurement and adjustment.

Address:Building B, Zhongshun Industrial Park,No. 434 Fuqian Road, Fucheng Street, Longhua District,Shenzhen, China
Web:www.kedesmachine.com Email:contact@kedesmachine.com Tel/Whatsapp/Wechat: 86 19166278852