

# OPERATION MANUAL

## *Grinding Machine* **WINTER SAWMAX 600 PRO**



### **WARNING!**

*The operator must thoroughly read this manual before operation.  
Keep this manual for future reference.*

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# **1 Basic Guideline**

**Thank you for choosing our products, believe your right choice will make your work easily and smoothly. In order to understand the detailed information for operation and maintenance, to display the performance more safe and to extend the life, it will be great helpful if you read this manual carefully before the installation, debugging and operation .Please keep this manual for future maintenance.**

**Automatic Grinding Machine ---for grinding carbide teeth on circular saw blades. We will be responsible for spare parts replacement if any failure or damage happened during the warranty period under normal condition. We will not be held responsible for: Inappropriate use of the machine; improper installation, service or maintenance of the machine; improperly performed repairs, self-made modifications to the machine, catastrophe caused by an outside force or an act of God.**

**You are welcome to use our products, thank you for your trust!**

## **2 Safety Regulations**

**The grinding machine is built according to the recognized rules of technical safety.**

**However, improper use can damage the machine or other material assets or even cause bodily harm or death to the user or a third party. The machine is only to be used for appropriate uses, in a perfect, technically-safe condition.**

### **Safety Tips:**

- 2.1. Only qualified personnel are permitted to the installation, debugging.**
- 2.2. Before adjusting the electrical parts or mechanical parts, always power off and hang warning signs.**
- 2.3. Always wear helmet or eye & ear protection if anyone is near the machine working area**
- 2.4. Never allow children or non-operators near the machine**
- 2.5. Danger! Electricity! Don't open any cover when the machine is working.**
- 2.6. Seller, will not be held responsible, or liable for any personal injury due to the operation, reckless handling, or misuse.**

### **3 Packing and Transportation**

**This machine shall be packed in composite wooden boards which do not need doing fumigation. Inside wooden boxes, cover plastic sheet to protect the machine from humid climate and wet. The machine must be packed in very stable way in the wooden boxes, no matter how to move in side of wooden boxes. Experienced person are required when loading or unloading the machine from the container.**

**Please check it carefully when the machine arrived at your destination:**

- 3.1. Make sure the wooden box is in good condition; please take a photo if any damage happened, you should also inform the carrier and insurance company immediately .**
- 3.2. Check the items carefully against the packing list, please inform us within 5 days after arrival if short packing or damaged spare parts.**

### **4. Installations**

**The machine should be installed by qualified personnel. Improper machine installation will reduce the lifespan or destroy the machine parts.**

**Notes of installation:**

- 4.1. The machine should be installed in a clean, dry area inside a room.**
- 4.2. The machine must be installed on a solid, level surface. When necessary, It should be fastened to the surface to avoid any risk which caused by vibration during normal work.**
- 4.3. The area surrounding the machine must be great enough that the safety door can be opened completely and that the machine is accessible from all sides.**
- 4.4. In order to ensure proper cooling of machine parts, a minimum distance of 50cm from any wall is required. Overheating of the machine will minimize the life of its parts.**
- 4.5. In order to guarantee constant operation safely, the compressed air connection, power supply and cool water flow must be properly connected**

### **5. Maintenance**

**In order to extend the lifespan and keep the good performance of this machine, the maintenance and inspection of the machine is to be regularly conducted only by qualified, specially –trained personnel.**

- 5.1. The work table should be kept clean with dry cloth all the time.**
- 5.2. Refill the oil for the central lubrication system according to the states of this machine.**
- 5.3. Regular checking if the motor ,the spare parts of bearing ,and the lubrication system are working improperly;**
- 5.4. Authorize a qualified people in charge of the maintenance, the inspection and the setting.**
- 5.5. Turn off the supply power, the compressed air if the machine is being inspected, repaired or maintained.**

## 6. Installations

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## 7. Preparations for Start-UP

**Connection to the electrical mains**

The specification of the local electricity board must be observed .For connected loads, please refer to the specifications.



Work on the electrical system may only be performed by qualified electricians.

A Cable gland is provided for inserting the mains cable into the machine. The power supply is connected according to the circuit diagram.

7.1 Checking the rotational direction of the motor

It is sufficient to check the rotational direction of one motor; this is the best at the oil pump motor.

a) Turning on the machine using the main switch.

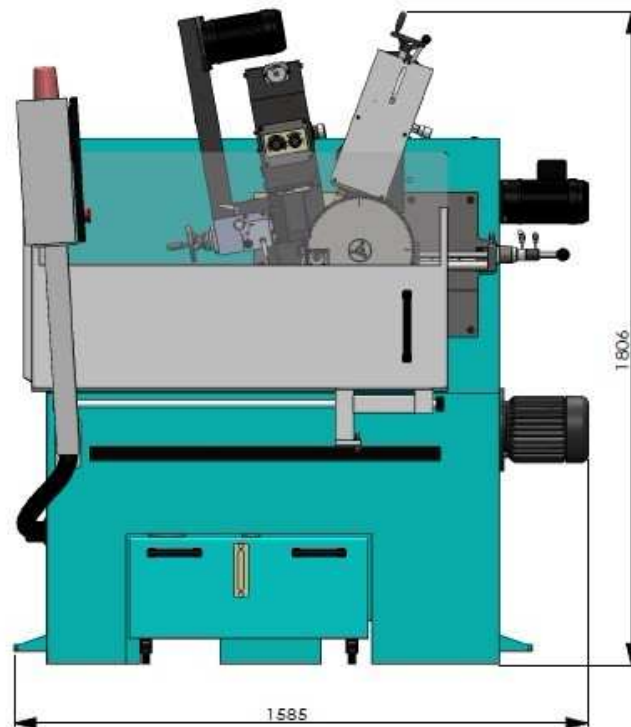
b) Press the key  and switch on the oil pump.

c) The rotational direction is indicated by an arrow on the pump motor.

d) If the pump is rotating in the wrong direction, disconnect the power supply to the machine and get a qualified member of staff to swap over the phases L1 and L3 at the mains terminals.

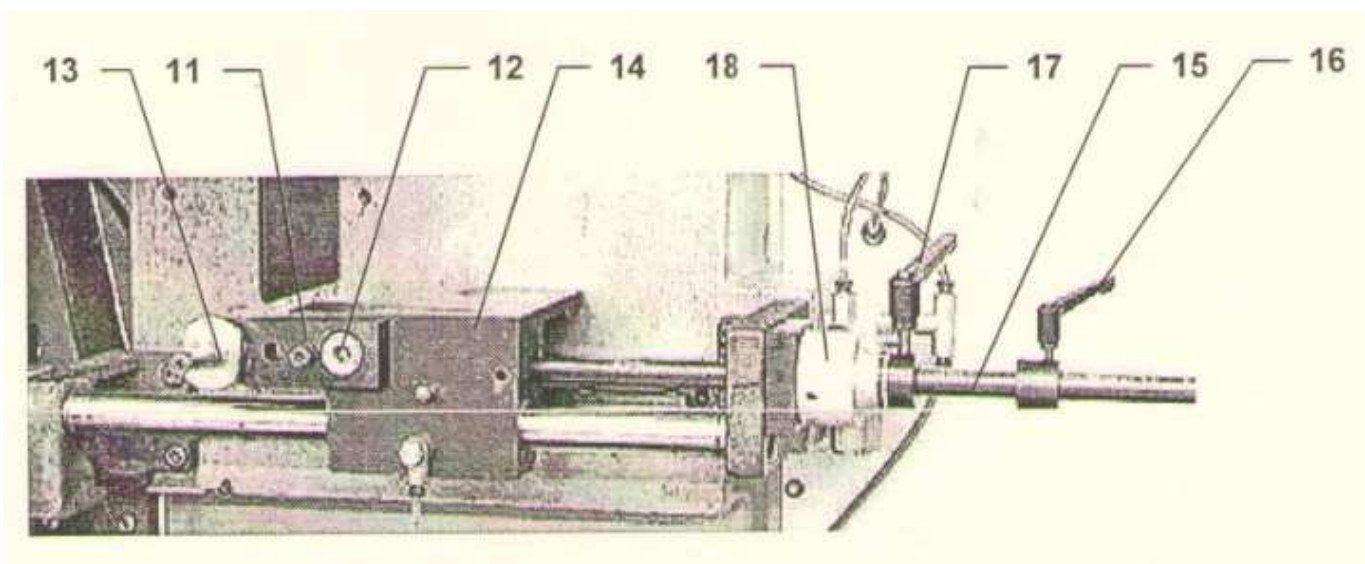
## 8. MACHINE DESCRIPTION

### 8.1 Designation of operating elements and their function



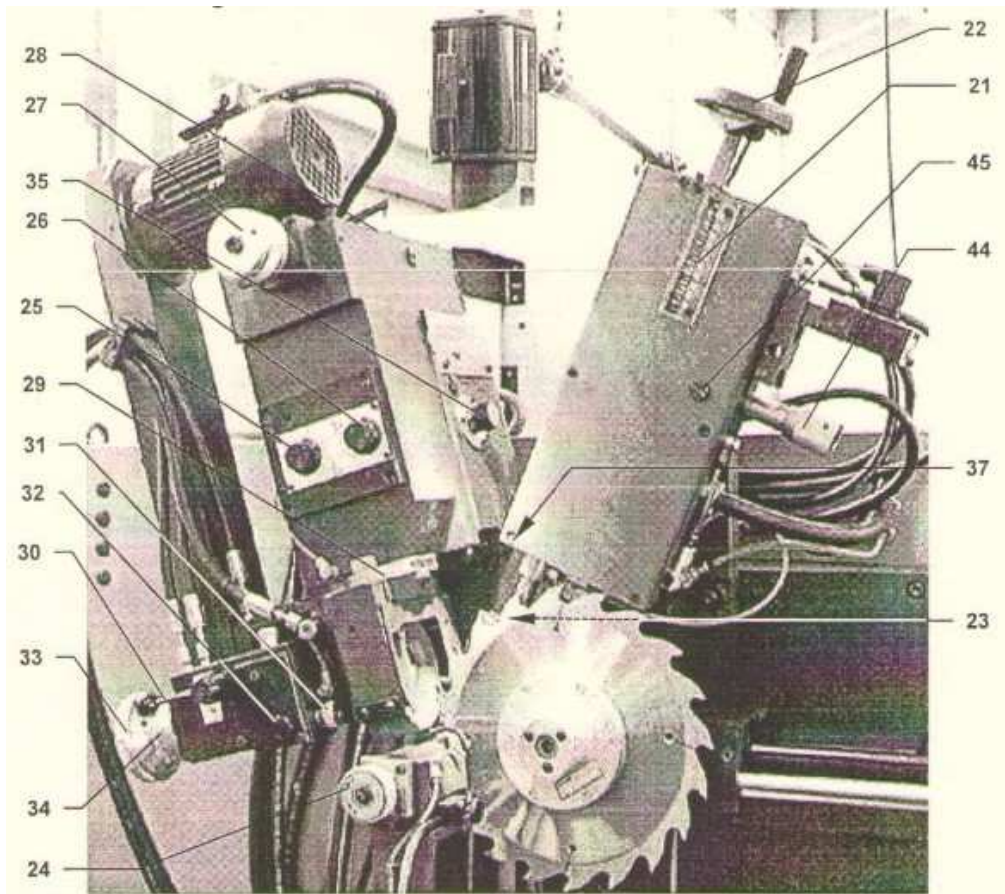
1. Sliding door
2. Control desk
3. Coolant tank

#### 8.1.1 Tool tray



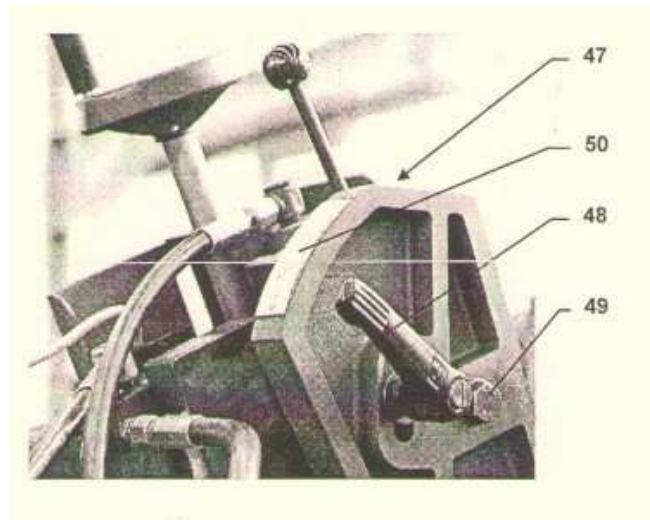
11. Saw Blade fixed screw
12. Fastening bolts
13. Saw blade center positioning axis
14. Loading material sliding seat
15. Connecting Rod
16. Adjusting ring with clamping lever
17. Fixed clamp of the connecting rod
18. Graduated sleeve for setting stock removal (one graduation=0.02mm) (No)

## 8.1.2 Grinding Head



- 21. Scale for tooth pitch (No)
- 22. Hand wheel for setting tooth pitch
- 23. Saw tooth
- 24. Dial for saw blade thickness
- 25. Adjusting knob for setting the grinding path
- 26. Adjusting knob for limiting the rapid traverse path (switchover point from rapid traverse to creep speed)
- 27. Adjusting wheel to set the angle for bevel grinding
- 28. Clamping lever to secure the grinding head setting (for straight or bevel grinding)
- 29. Scale for bevel angle
- 30. (No.Changed)
- 31. Knob for Set the height difference
- 32. Fixing screw for securing the set height difference
- 33. Hand wheel for axial displacement of the grinding wheel.
  - in the direction of the arrow in case of the grinding wheel
  - against the direction of the arrow for face grinding
- 34. Rotatable graduated collar for 33 (one graduation=0.02mm)
- 35. Throttle for grinding speed control
- 37. Round scale for hook and clearance angle

### 8.1.3 Feed cam



47. Feed cam (dependent on diameter)

48. Clamping lever

Release to set the saw blade outside dia.

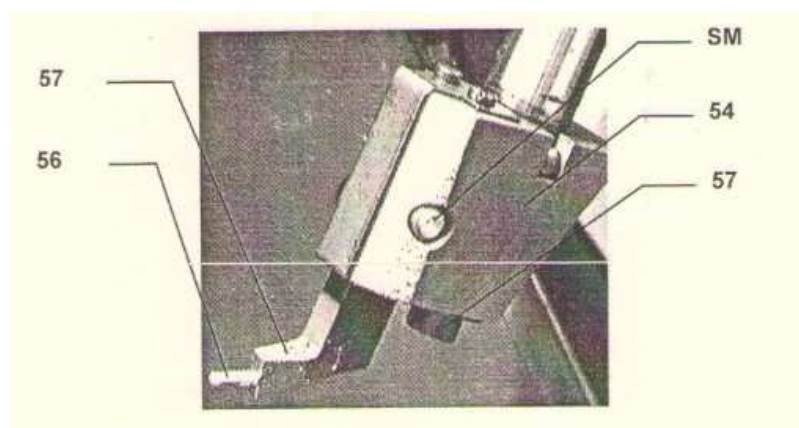
Unscrew to change the feed cam

49. Fixing screw

Unscrew to change the feed cam

50. Scale for saw blade outside diameter: 0 -1 for saw diameter 80-120mm  
6 -7 for saw diameter 250-350mm  
9 - 10 for saw diameter -650-810mm

### 8.1.4 Feed bolt



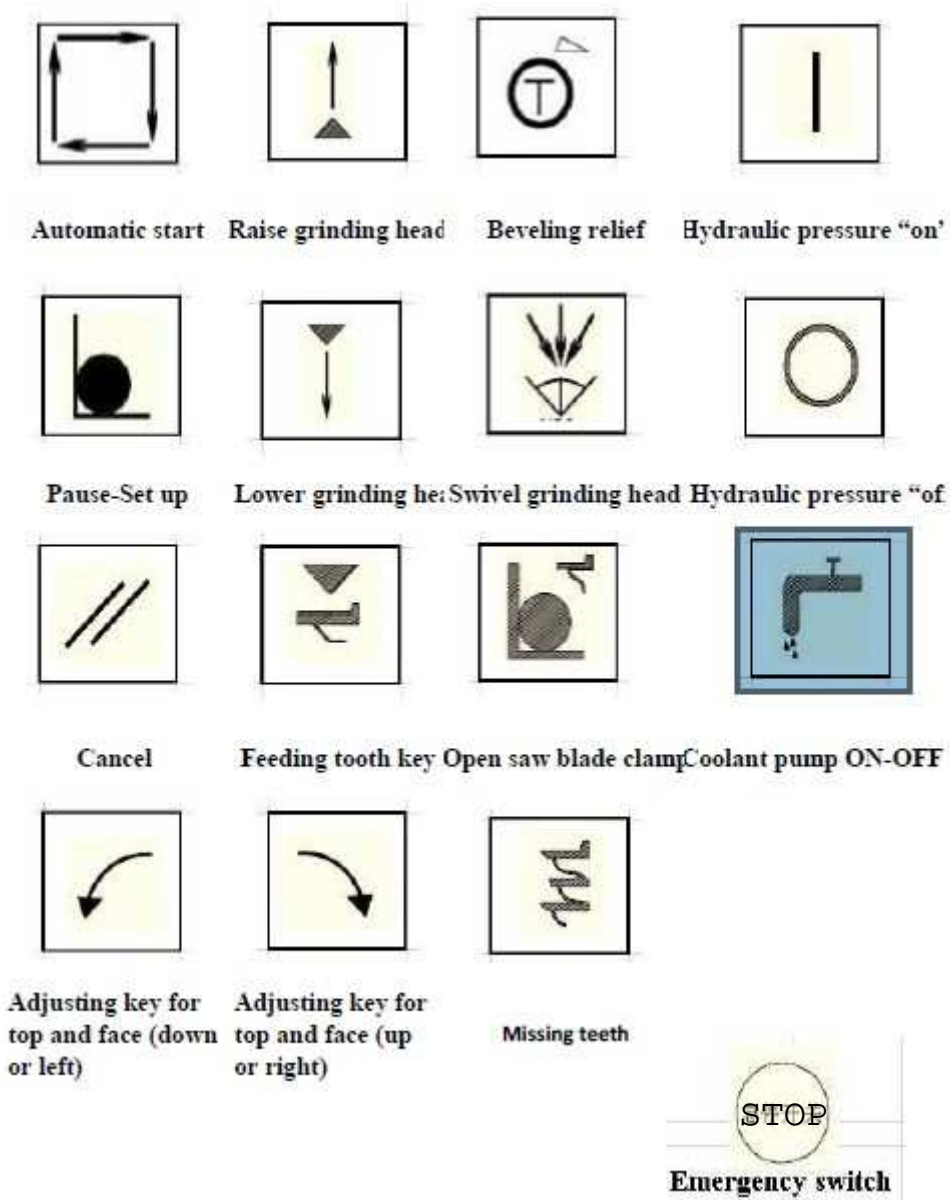
54. Pawel holder

55. Fixing screw (NO.57 at right side)

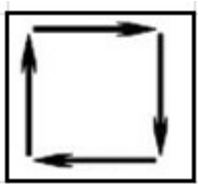
56 Feed bolt (Standard specification Dia 2.0& Dia 2.7 mm)

57. Feed bolt seat (No57 at left side)

## 8.2 Control Panel:

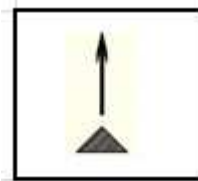


### 8.2.1 Function of keys in the control panel



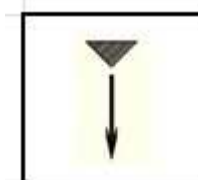
#### Automatic start

Automatic operation can only be started when the machine is in the basic position



#### Raise grinding head

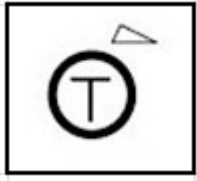
This key is used to raise the grinding head in set up mode.



#### Lower grinding head

This key is used to lower the grinding head in set-up mode.

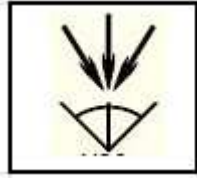




### Beveling relief

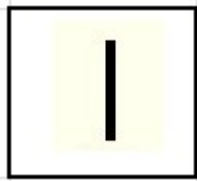
Press the key to relieve the pressure on the beveling oil cylinders. The beveling angle can be set at the swivel head.

Note: This function is only possible when the grinding head is in the home position.



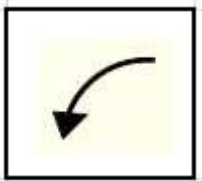
### Swivel grinding head

Every time this key is inched, the grinding head is swivelled to a grinding position which corresponds to the surfaces of the programmed tooth shape.



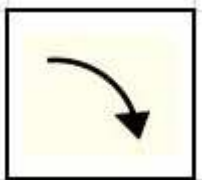
### Hydraulic pressure "on"

This key for start the Hydraulic pressure which is 4MPA .



### Adjusting key for top and face

Tumbler down or left direction



### Adjusting key for top and face

Tumbler up or right direction



### Missing teeth

If this key is actuated in the "automatic mode" while a tooth is being machined, the immediately subsequent tooth is omitted without grinding.





### Emergency switch

### Emergency switch (Red colour)

The machine stopped immediately.

The emergency switch key should only be actuated in emergency situations.

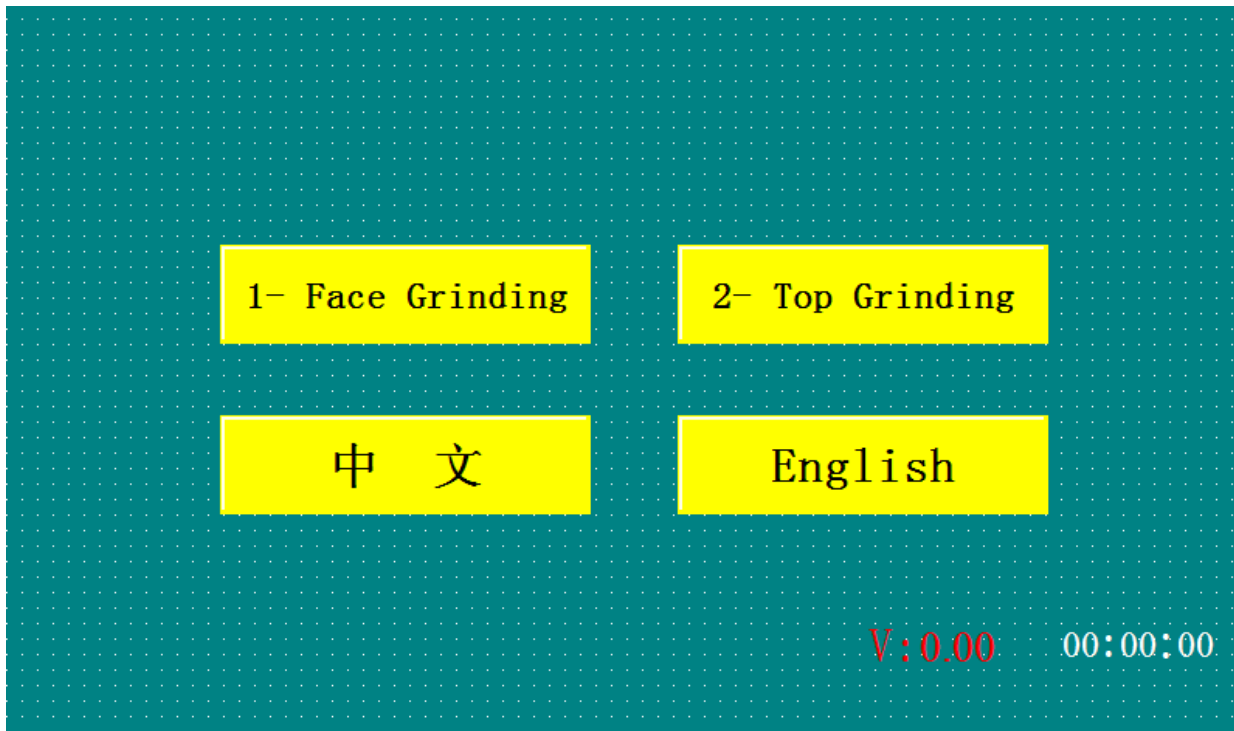
To cancel the emergency switch situation, release by turning to the right .

To restart the machine, presee the  and  keys.

Note: All reference points and counter readings are lost.

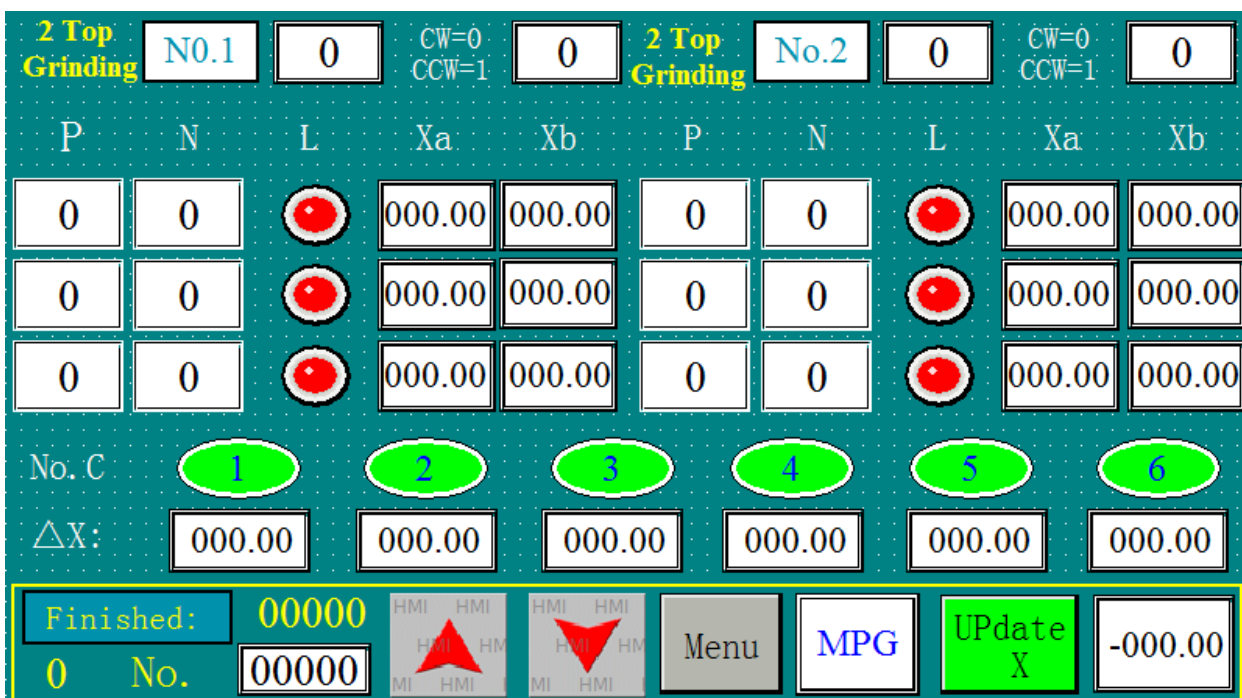
## 9. Program Description

### 9.1 Index of main program



9.1.1 Please select a language

9.1.2 Please select grinding top or grinding face



9.1.3 Please returned to the main page ,press the help button if you don't know how to set the parameters:

a) Help Page 1:

The tooth is processed?  
0: Teeth are not processed  
1: Processing

Wheel Direction  
0: Program direction  
1: Anti-program orientation

2 Top Grinding No.1		CW=0 CCW=1	2 Top Grinding No.2		CW=0 CCW=1				
P	N	L	Xa	Xb	P	N	L	Xa	Xb
0	0	Red	000.00	000.00	0	0	Red	000.00	000.00
0	0	Red	000.00	000.00	0	0	Red	000.00	000.00
0	0	Red	000.00	000.00	0	0	Red	000.00	000.00

No. C: 1, 2, 3, 4, 5, 6  
 $\Delta X$ : 000.00, 000.00, 000.00, 000.00, 000.00, 000.00

Finished: 00  
0 No. 00

Coordinates assignment status lights  
Red: Close  
Green: Assignment Status

Assignment status lights green, when the coordinates of touch here to fill in the value of

Assignment status lights green when the touch coordinates of the current coordinate values can be assigned the value of

b) Help Page 2:

0: Ping teeth  
1: Left teeth  
2: Right teeth

Processing times:  
0 Times, 1 Times,  
2 Times, 3 Times

2 Top Grinding No.1		CW=0 CCW=1	2 Top Grinding No.2		CW=0 CCW=1				
P	N	L	Xa	Xb	P	N	L	Xa	Xb
0	0	Red	000.00	000.00	0	0	Red	000.00	000.00
0	0	Red	000.00	000.00	0	0	Red	000.00	000.00
0	0	Red	000.00	000.00	0	0	Red	000.00	000.00

No. C: 1, 2, 3, 4, 5, 6  
 $\Delta X$ : 000.00, 000.00, 000.00, 000.00, 000.00, 000.00

Finished: 00000  
0 No. 00000

Saw Tooth Set

Hand wheel selection  
White: Close  
Red: Open



9.1.4 It is for select whether the work should be continue or not. 0 indicated that this teeth no need to grind and no continue, 1 indicted that this teeth need to be grind and continue grind next one.



Grinding Wheel direction 0 Rotate direction same as program, 1 Anti-program direction

9.1.5 Grinding face:

Station: The same teeth should be processed on three sides (0 flat; 1 left side; right side)

Views: processing times, 0 for 0 time; 1 for 1time; 2 for 2 times; 3 for 3 times

9.1.5 Grinding top:

Station: The same teeth should be processed on three sides (0 flat; 1 left side; right side)

Views: processing times, 0 for 0 time; 1 for 1time; 2 for 2 times; 3 for 3 times

9.1.7 Please touch the MPG,

Turned to RED ,it means on, please chooice a grind wheel coordinate from 0-15mm.

Turned to white ,it means off .

9.1.8 Coordinate X/A Setting ;



Method 1 : When the location is appropriate ,then select the red light (p,position,N,number,L,light) in the right side of the corresponding station, touch the red light until turn to green ,then you touch the bottom right corner of the coordinate values,the value is written to the corresponding coordinate.



Method 2: When the red light turns to green (p,position,N,number,L,light), Please touch the current coordinates, you can manually enter the appropriate coordinates.

9.1.9 Setting the feed X/b according to saw blade ,automatic setting or manual setting

9.1.10 NO.C Circle: It means how many circle should work.

The machine will continue to grind if the first circle is 0.

The macine will stop to grind if the second circle is 0.

9.1.11 Number of teeth: Finished :The number of teeth being processed ,such as 0,1,2,3, meas how many have already been processed.

9.1.12 No.Saw blade teeth: Write it according to the saw blade

## 9.2 Parameters Screen:

**2 Top Grinding**

Push teeth back delay	<input type="text" value="0000.0"/>	S	Retract delay	<input type="text" value="0000.0"/>	S	
CW/CCW delay	<input type="text" value="0000.0"/>	S	Anti infeed delay	<input type="text" value="0000.0"/>	S	
Fe/Re speed	<input type="text" value="000.00"/>	mm/s	Clamp delay	<input type="text" value="0000.0"/>	S	
CorrectSet:	<input type="text" value="000.00"/>	Enter	<input type="text" value="-000.00"/>	Infeed delay L	<input type="text" value="0000.0"/>	S
Single-tooth machining time	<input type="text" value="000000"/>	<input type="text" value="000000"/>	Infeed delay F	<input type="text" value="0000.0"/>	S	
Single-chip machining time	<input type="text" value="0000000"/>	<input type="text" value="0000000"/>	Infeed delay R	<input type="text" value="0000.0"/>	S	

00:00:00

Puch teeth back delay: Set the delay time after the teeth arrived at the working position

CW /CCW delay : The changing time from CW to CCW grinding wheel

Fe/re Speed : The grinding wheel speed

Correct : The grinding wheel speed



Pressed this button, the grinding wheel will automatically return to the origin position, when the light turns to green, the machine will set the coordinate as 0 automatically.

Correct set: Set the current position as the coordinate's location.

Single tooth machine time: Processing time for one teeth

Retract delay: Grinding wheel retract delay time

Anti in feed delay: Grinding wheel return delay time

Clamp delay : Saw clip clamping time

Infeed delay Left : The swing angle, feed the delay time (left)

Infeed delay F (middle): The swing angle, feed the delay time (middle)

Infeed delay Right: The swing angle, feed the delay time (right)

Single chip machine time: Processing time for one blade

### 9.3 Status indication:

Green light means running state;  
Red light means original state.

X0:Encoder A	X10:Feed lower bit	X20:Swing angle button
X1:Encoder B	X11:Feed Fast bit	X21:Zero button
X2:Swing L limit	X12:Front H button	X22:Sliding tooth button
X3:Swing F limit	X13:Front L button	X23:Swing angle Adjustment
X4:Swing R limit	X14:Feed front button	X24:Pause button
X5:Grinding origin	X15:Feed back button	X25:Auto cycle button
X6:Insurance bit	X16:Pulling teeth button	X26:Fluid Pump start
X7:teeth Lower bit	X17:Clamp/Rlea button	X27:Fluid Pump stop

### 9.4 Status indication:

Green light means running state;  
Red light means original state.

X30:Water pump STA/STP	Y0:PLSE_1	Y23: clamp valve
X31:Wheel Motor alarm	Y1:SING_1	Y24:Front Motor CW
X32:Fluid pump alarm	Y10:Wheel Motor CW	Y25:Front Motor CCW
X33:Servo alarm	Y11:Wheel Motor CCW	Y30:Swing F valve
X34:Wheel Motor CW Signal	Y12:Fluid Pump Motor	Y31:Swing L valve
X35:Wheel Motor CCW Signal	Y13:Water pump Motor	Y32:Swing R valve
X36:Standby	Y20:Release Valve	Y33:Feed front valve
Y35:Feed Fast valve	Y22:Pulling teeth valve	Y34:Feed back valve

## 9.5 Parameter setting:

**2 Top Grinding**

Delay alarm pulling teeth	<input type="text" value="0000.0"/>	S	Delay alarm Swivel right	<input type="text" value="0000.0"/>	S
Delay alarm Swivel flat	<input type="text" value="0000.0"/>	S	Delay alarm Infeed back	<input type="text" value="0000.0"/>	S
Delay alarm Swivel left	<input type="text" value="0000.0"/>	S	Delay alarm Infeed back	<input type="text" value="0000.0"/>	S
Feed Limit bits	<input type="text" value="000.00"/>	mm	Retract Limit bits	<input type="text" value="000.00"/>	mm
Static Stop Time	<input type="text" value="00000"/>	min	Top Retract Default	<input type="text" value="000.00"/>	mm
Anti infeed stop	<input type="text" value="Off"/>		Face Retract Default	<input type="text" value="000.00"/>	mm

Delay alarm pulling teeth: 50 seconds  
 Delay alarm swivel flat : 50 seconds  
 Delay alarm swivel left: 50 seconds  
 Feed limit bits: 15 mm  
 Static stop time: 5 minutes  
 Anti infeed stop : Off –Work, on –stopped  
 Delay alarm swivel right: 50 seconds  
 Delay alarm infeed back: 50 seconds  
 Delay alarm infeed back: 50 seconds  
 Retract limit bits: 0 mm  
 Top retract default: 2 mm  
 Face retract default: 0.2 mm

## 9.5 Parameter setting:

**2 Top Grinding**

	<input type="text" value="Offset 1 OFF"/>	<input type="text" value="Offset 2 OFF"/>	<input type="text" value="Offset 3 OFF"/>		<input type="button" value="UP page"/>
Total teeth	<input type="text" value="00000000"/>	<input type="text" value="00000000"/>	<input type="text" value="00000000"/>	N	<input type="button" value="Program"/>
Thickness	<input type="text" value="000000.00"/>	<input type="text" value="000000.00"/>	<input type="text" value="000000.00"/>	mm	<input type="button" value="Alarm"/>
Consumption/T	<input type="text" value="00.000000"/>	<input type="text" value="00.000000"/>	<input type="text" value="00.000000"/>	mm	<input type="button" value="Menu"/>
Precision	<input type="text" value="000.00"/>	<input type="text" value="000.00"/>	<input type="text" value="000.00"/>	mm	<input type="button" value="Clear"/>
Teeth of consumption	<input type="text" value="00000000"/>	<input type="text" value="00000000"/>	<input type="text" value="00000000"/>	N	
Total Compensation	<input type="text" value="00000000"/>	<input type="text" value="00000000"/>	<input type="text" value="00000000"/>	N	

There are three methods for memory the wheel compensation, we can write the real processing time of grinding wheel, thickness grinding wheel; the machine would calculate the consumption of each tooth automatically. We can choose the compensation precision; the machine will automatically calculate the compensation of teeth, the number of total compensation.

### 9.6 Alarm List

M210		Wheel motor alarm
M211		Fluid pump alarm
M214		Servo alarm
M215		Wheel CW AC contractor alarm
M216		Wheel CCW AC contractor alarm
M217		Pulling teeth electric eye destroy
M218		Swing F destroy
M219		Swing L destroy
M220		Swing R destroy
M221		Feed electric eye destroy
M222		Grinding origin electric eye destroy
M223		Authorization time to contact factory
M224		Water pump alarm
M225		Pause
M226		Feed stroke transfinite
M213		Insurance electric eye destroy
Y37		Finished

### 9.7 MF158A (PLC "DVP28SV 11T +DVP16SP11T )

表

INPUT			OUTPUT			
X0	A	Encoder A	YO	PLSE-1	PLSE-1	
X1	D	Encoder"	SING-1		SING-1	
X2	N	Swing L limit	Y2			




X3 "	*****	Swing F limit		Y3		
X4		Swing R limit	Y4			
X5		Grinding origin	Y5			
X6		Insurance bit	Y6			
X7		teeth lower bit	Y7			
X8			Y10		Wheel motor CW	k214
X9			Y11		WHEEL motor CCW	k215
X10		Feed lower bit	Y12		Fluid pukmp motor	k216
X11		Feed fast bit	Y13		Water pump motor	k217
X12		Front H button				
X13	*****	Front L button				
X14	*****	Feed front button				
X15		Feed back button				
X16		Pulling teeth button				
X17	*****	Clamp/ Rlea button				
X20		Swing angle button	Y20		Release Valve	Y114
X21	*****	Zero button	Y21			
X22		Sliding tooth button	Y22		Pulling teeth valve	Y116
X23		Swing angle adjustment	Y23		Clamp valve	Y113
X24		Pause button	Y24		Front motor CW	K217
X25		Auto cycle button	Y25	*****	Front motor CCW	K218
X26		Fluid pump start	Y26			
X27		Fluid pump stop	Y27			
X30		Water pump STA/STP	Y30		Swing F valve	Y222

X31

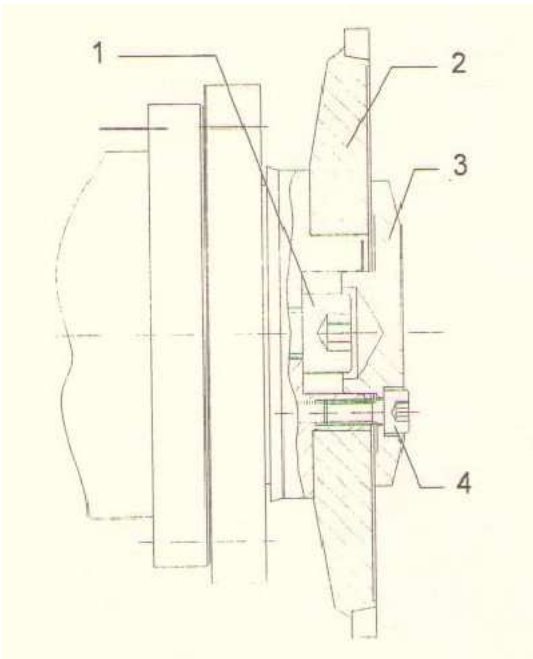
## 10. Instructions for operation

### 10.1 Machine set-up

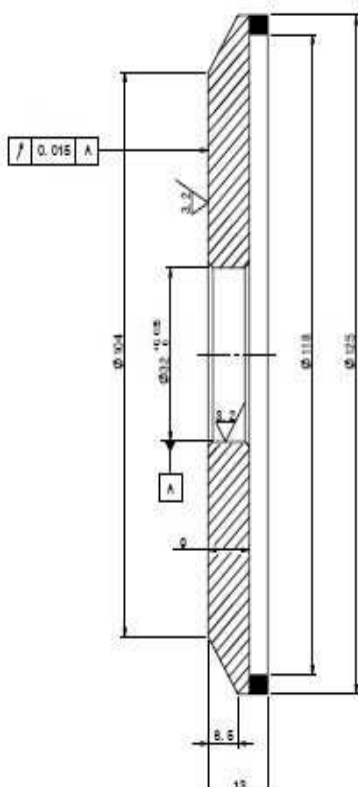
- Active the main machine and press the hydraulic “” on key.
- Enter the machine programs at the control desk. Move the lever (30) to the relevant machining position.
- Insert a feed bolt suitable for the tooth geometry.

### 10.2 Installing grinding wheels

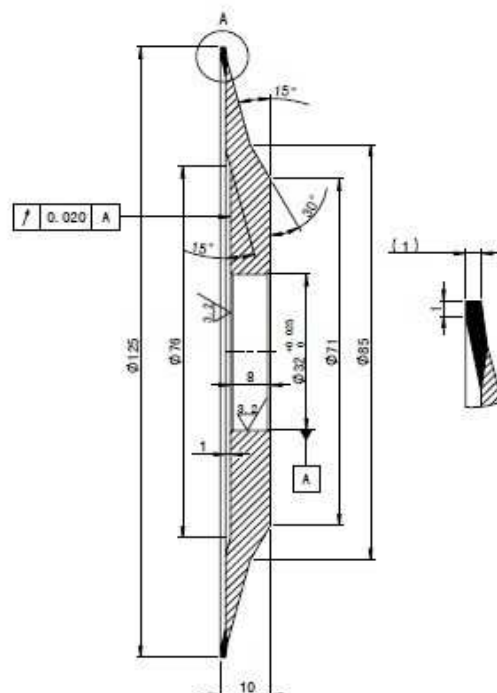
Installed the grinding wheel, turn on the switch; press the hydraulic “on” key. Please pay attention when install the grinding wheel, two type of grinding wheel, one for grinding top, one for grinding face, as they need different grinding wheel seat. For top grinding top, the grinding wheel seat would be more thinner, the thickness around 7 mm; For grinding face, the grinding wheel would be more thicker, the thickness around 23 mm.



**Grinding wheel / For grinding top**

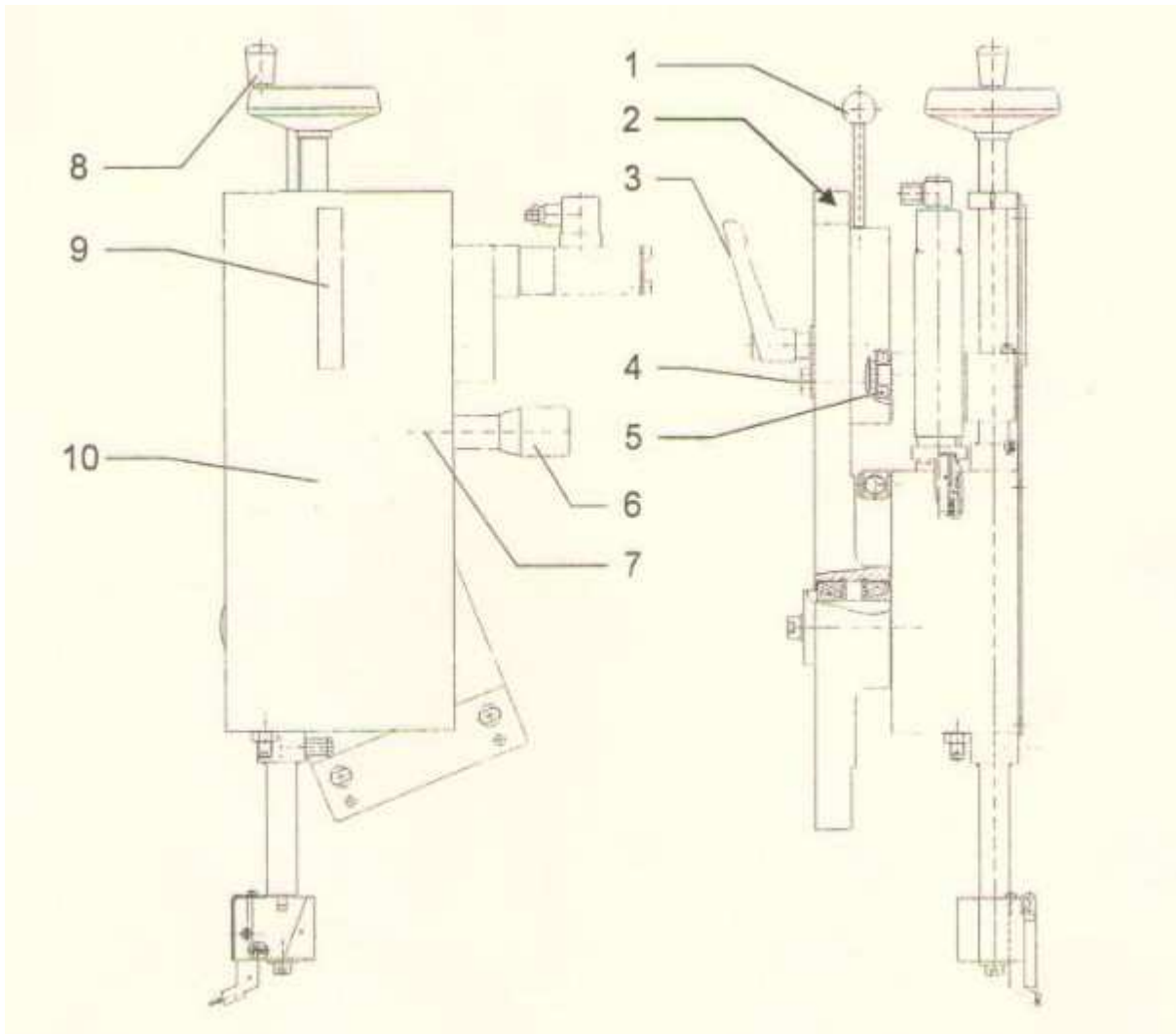


**Grinding wheel / For grinding face**



### 10.3 Adjusting for feeding

Adjust the dial gear cam sliding plate to the appropriate position according to the saw blade outer diameter, the 0-1 for saw blade diameter 80-120 mm; 6-7 for saw blade diameter 250-350 mm, 9-10 for saw blade diameter 650-810mm .No move is the best or less move.



- a) Loosen the screw 3, move the ball 1, Dial the tooth sliding cam guide plate in the appropriate location.
- b) Locked the screw 3, try to move the saw blade, until the right position .

### 10.4 Adjusting the tooth pitch

Standard tooth shape ( i.e. no variations in tooth pitch ) ,using the hand wheel (8) to move .

### 10.5 Adjusting the feed speed


For processing large-diameter saw blade ( 600MM or above ) , Through using a throttle valve ( 35 ) to adjust the speed.

Large saw blades may only be machined with a slow feed due to their bigger size.

### 10.6 Fine adjustment of tooth pitch

a) Roughly adjust the tooth pitch as described.



b) Move the saw tooth to the machining position by pressing the key .

c) Correct the tooth pitch so that the distance between the feed bolt and tooth face in the rear starting position of the feed unit is approx. 2 mm. This will enable the feed bolt to engage freely even in the event of tooth pitch errors.



Note: In order to turn the hand wheel 8, only when the feed bolt in the lower position.

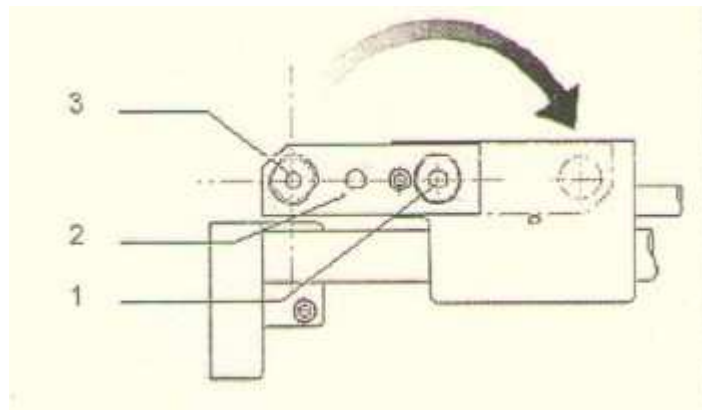


d) Press the key  again to check the tooth pitch setting the accuracy of the saw feed.

### 10.7 Mounting the saw blade



Always wear protection gloves when mounting and removing the saw blades.



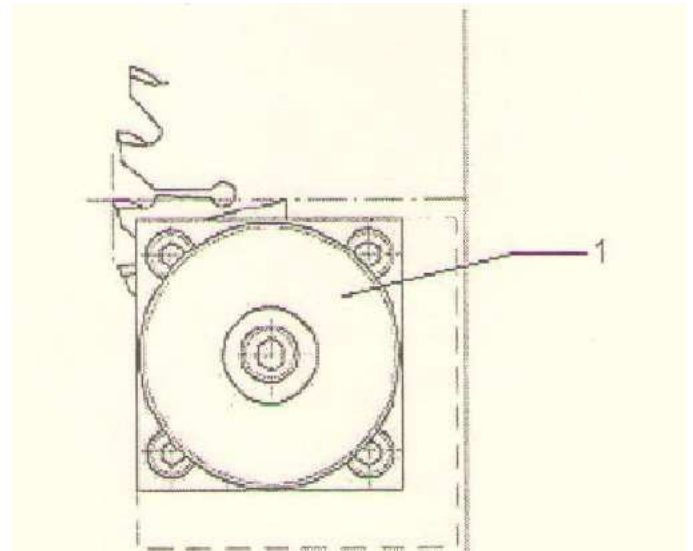
The blade mounting carriage is for clamping the saw blades in place. When mounting the saw blade, always observe the following points:


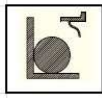
- In the case of small saw blades, the clamping plate (2) must be swiveled to the left position. For larger saw blades, the clamping screw (3) can be released and the clamping plate (2) rotated 180 ° clockwise before re-tightening the clamping screw (3).
- Screw the guide bolt into the screw thread (1) and slip on a centering ring to match the bore diameter of the saw blade (not illustrated).
- Mount the saw blade in the right-hand (clockwise) cutting direction.



Diameter-related magnetic flanges are also available as an optional accessory in order to speed up the tool change during series production.

## 10.8 Adjusting the blade clamp



- a) Press the key  in the control desk.
- b) Press the key  once clamp opens.
- c) Adjust the thickness of the blade body using the  
Depending on the type of machine, the graduation diagram, but in the lower part of the blade clamp.




The blade thickness can only be adjusted when the clamp is open.



## 10.9 Adjusting the angle at the tool cutting edge

### 10.9.1 Bevel-grinding adjustment


In order to adjust the bevel as described below, the grinding head is swiveled to the appropriate

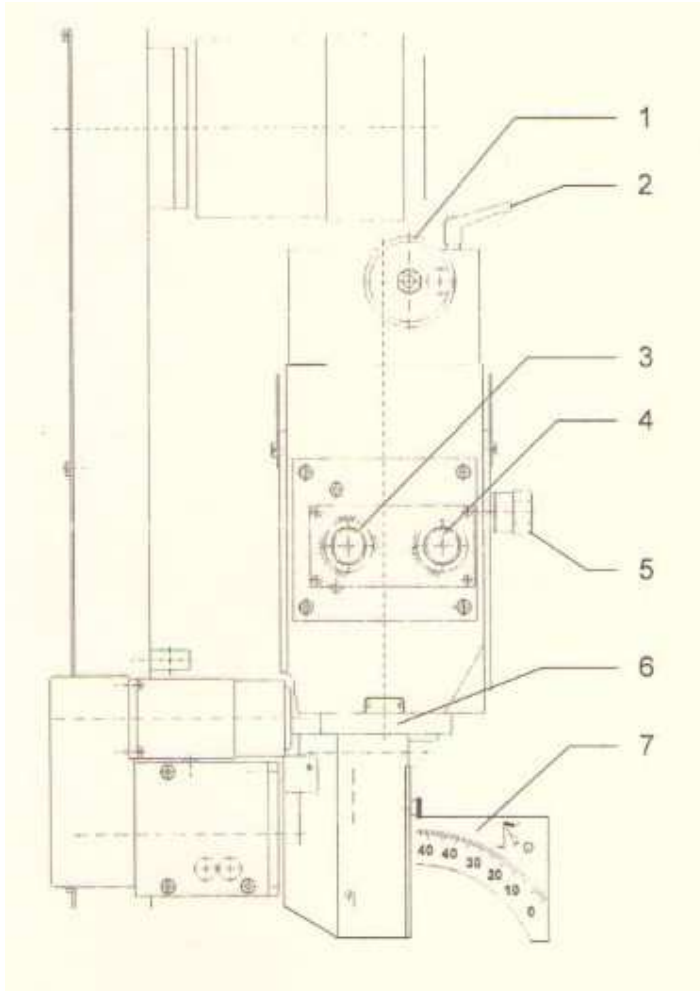
bevel-grinding position by pressing the key “change bevel grinding angle” 

- a) Release the hand wheel (2).



- b) Press the key , then press the key  and hold it down.

c) Set the bevel-grinding angle by turning the adjusting wheel(1).The angle thus set can be read of

from the scale (6) after releaing the key .



**10.9.2 setting the clearance angle (top grinding) or hook angel (face grinding)**



This adjustment is performed by motor power, using the key  or , The angle thus set is indicated by a pointer on the scale (7).

**10.9.3. Setting the grinding speed.**

The grinding speed is set at the throttle (5) in mm/s .

**10.9.4. Settign the grinding length**


The grinding length is the distance covered by the grinding wheel at grinding speed .It is the sum of the tooth length (carbide)+the diamond impregnation of the grinding wheel +1 mm overtravel.


- a) Move the grinding apparatus clear with the key  or  to move the grinding wheel ,for face grinding (move from left to right ), for top grinding ,(move from up and down) pre-set the grinding length with the adjusting knob (3) according to the scale.
- b) Move the first tooth of a tooth cluster (finishing tooth) to the grinding position by means of a feed cycle

(press the key  twice.)



Make sure that the angle at the cutting edge of the tool coincides with the set angle of the grinding head.

- c) By pressing this key  , move the grinding apparatus forward (grinding drive is started automatically)until the diamond impregnation is within the carbide area .
- d) By touching the MPG tune to red , rotating hand wheel until the carbide teeth near to the grinding wheel.
- e) Please refer to the 9.1.8 for setting the Coordinate X/A.

- f) Trace the grinding length by pressing the key  , the downward movement stops automatically when the set end point is reached .
- g) If the grinding wheel is not moved completely clear of the tooth (+1mm overtravel ),correct the grinding length at the adjusting knob(3).

h) Move the grinding head back to its starting position by pressing the key  .

- i) Correct the upper over travel distance if necessary by turning the adjusting knob.

### 10.10 Setting the feeding

No. C	1	2	3	4	5	6
$\Delta X:$	000.00	000.00	000.00	000.00	000.00	000.00

Feeding : If put 0.2mm under 1 Circular ,put 0.1mm under 2 Circular , you can write full 6 circular ,if put 0 under 3 circular ,the machine will stop working when finished the 2 circular .



On principle, during top grinding the tooth is traced at the straight edge of the lower tooth with the grinding wheel by turning the hand wheel (33). In the case of saw blades with alternating bevel at the tooth tip: not on the bevel.

### 10.11 Automatic operation



Before starting automatic operation, make sure that all adjustments have been correctly made and that there are no objects (e.g. setting tools) in the machining area.

- a) Align coolant hoses with the machining point and open the coolant shut-off valve.




- b) Closed the doors and press the .


#### 10.11.1. Interruption in automatic mode

The automatic mode may be interrupted by a mechanical fault ,a fault in the electrical system (power failure )or an intervention by the operating staff.




Always refer to the ‘safety regulations ‘chapter for troubleshooting purposes. Work on the electrical system may only be performed by qualified person.

- a) Interruption by pressing  the key, all axes move to the home position and the current tooth counter reading is deleted. Manipulations of the operating elements and modifications to the machining program are now possible. When the automatic mode is started again ,the counter is reset to 0 and the entire operating sequence starts again form the beginning .


- b) Interruption by pressing  the key, the current machining step is completed, and then the axes return to the home position. The current tooth counter reading is retained. Manipulations of the operating elements and modifications to the machining program are now possible. When the automatic mode is started again, the operating sequence is resumed at the point where was interrupted.

C) Interruption by actuating the “emergency switch “button, the “emergency switch “button should only be used in emergencies. In this case, the machine is switched off immediately, and all reference points and counter readings are lost. After eliminating the relevant hazard, release the “emergency stop” button by turning it clock wise.

#### 10.11.2 Resumption of operation after a fault

In the case of mechanical or electrical faults, press the key  (machine returns to home position) .

After eliminating the fault and restoring the original operating status, press the key again .The machine is now ready to be started up again. After a power failure is now ready to be started up again. After a power

failure or after an emergency stop, the machine can be started up again by pressing the keys  .