

MAGNETC ARC OSCILLATOR

MODEL : HTW-05-MG I

HTW-05-MG II



1. OUTLINE

Magnetic Oscillator does apply the magnetic power for oscillation of the welding, instead of the established mechanical oscillator. The inside of the head is winded with coil for making the electromagnetic force, and when the magnetic force approaches near the Arc stroked in the torch, the electromagnetic force makes the Arc pushed and pulled for oscillation. The vibration does not occur while the welding is being done, so the welding defects can be reduced. As follows are the result from the oscillation;

- 1) To get the bead clean and uniformed in the shape.
- 2) To get the penetration uniformed
- 3) To get multi deposit effect with one welding.
- 4) Arc is stable
- 5) To prevent the undercut and overlap.

NOTE

- 1) Make sure the earth cable should be bolted to the box case.
(The earth resistance should be under 100ohm)
- 2) Take care not to break any insulation in the welding torch when to mount the OSC head on the welding torch.
 - In case the earth in the OSC head is broken, the weld current makes the OSC head broken down, because the weld current runs on the OSC head.

2. STANDARD SPECIFICATION

MODEL	HTW-05-MG(I, II)		
INPUT POWER	1Ø 220V 50/60Hz, 1A		
CONTROL	DIGITAL		
OSCILLATION SPEED	0.0 ~ 1000Hz(0 ~ 3,000osc/min)		
TRAVEL WIDTH	ARC LENGTH 0~1:1MAX		
CENTER POSITION	ARC LENGTH 0~1:1MAX		
DWEL TIME	LEFT	~ 2.0sec. (unit : 0.1sec)	
	CENTER		
	RIGHT		
MANGNETIC UNIT (COOLING RATE 3ℓ/min. 3kg/cm ²) OSCILLATION HEAD : WATER COOLING TYPE	MG-1	300 Gauss/max	
	MG-2	300 Gauss/max	We have the unit for weaving & preheating of the front & the rear.
APPLICABLE PROCESS	GTAW, PAW, SAW, SPAY, TYPE, GMAW		

3. STRUCTURE

3-1. STRUCTURE PRODUCTS

- 1) CONTROL BOX 1SET
- 2) MAGNETIC HEAD 1SET
- 3) POWER CABLE 1SET
- 4) CONNECTOR FOR REMOTE 1SET



4. EXPLANATION ON PART

4-1. CONTROL BOX

- The control box is consist of CPU sequence PCB and , Magnetic Control PCB. For easy maintenance, the outside connection is produced with connector.
- On the front panel there are the functions switches which are needed to operate the unit. Before using, do understand all the function switches fully.

4-2. MAGNETIC HEAD UNIT

- Inside the head there is the coil wined for production of the electromagnetic force. The pole of the head is mounted near the ARC so the head should be protected from the heat by using the water cooling.

4-3. CONNECTOR



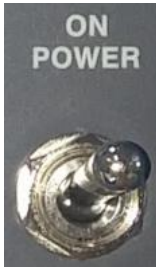
1) CN1 :
connector for remote control box

2) CN2 :
connector for Magnetic Head

4-4. REMOT CONTROL BOX(OPTION)

- On the remote control box there are RUN or STOP switch for outside control.

5. EXPLANATION ON THE FUNCTION SWITCH



Power Switch

- If the switch is ON, the power is supplied. When all the works is finished, the switch should be OFF.



Lamp for indication of power supply.

- If the lamp is lit, now the power is being supplied to the control.



Displayer for program of function.

- Here the parameters on operation can be inputted or saved. Please refer to CHAPPER

6. FUNCTION LIST



Oscillator RUN-STOP switch

- If the switch is positioned in RUN, the Oscillator does run as the programs.
If it is in STOP, the operation is stopped.



DWELL TIME-LEFT, CENTER & RIGHT

(2.00 ~2.20 / 3.00 ~ 3.20 / 4.00 ~4.20)

- With this switch, the dwell time can be input. The user toggles up, so the dwell time is longer, and if down, the time is shorter.

- Dwell time set range is from 0.0 ~ 2.0 sec.

*Setting unit : 0.1sec.

LEFT dwell time : 2.00 ~ 2.20

CENTER dwell time : 3.00 ~ 3.20

RIGHT dwell time : 4.00 ~ 4.20



TRAVEL WIDTH (6.00 ~ 6.99)

- The user toggles up; travel wider and the switch down is narrower.
- The range for travel width is max. 1:1 against the length of ARC. The display digit means the length is convert into %.



CENTER POSTION (500 ~ +599/-599)

- ARC position can be moved with this switch. If the switch is "UP", the position does move to the right. If the toggles down, the ARC does to the left.

- The pole of the magnetic head should be located at the center of ARC, but in the other case the operator makes it by inputting + or – digit. The display digit is from 5.00 to +5.99 or 5.00 to -5.99, which means % against the length of ARC.



Speed (1.00 ~ 1.100 display)

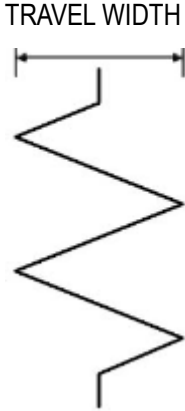
- The oscillation speed is controlled with this switch ; if the switch is pushed up, the digit does go up. For the toggle down, the number is also down. In this case the set digits show up on the Displayer. The displayed digit means oscillation frequency. Therefore, 1,000Hz means it takes 1sec for the pole of the head to return one time back.

6. FUNCTION LIST

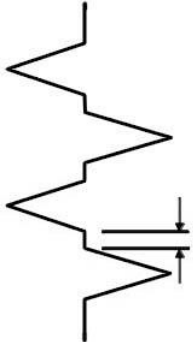
MODE	FUNCTION
1	OSCIOLLATION SPEED(Hz) 1.00 ~1.1000, setting by1Hz unit.
2	LEFT DWELL ON TIME,2.00 ~ 2.20 sec. setting by 0.1sec unit
3	RIGHT DWELL ON TIME,3.00~3.20sec. setting by 0.1sec unit
4	CENTER DWELL ON TIME,4.00~4.20sec. setting by 0.1sec unit
5	CENTER POSITION MOVE 5.00~+/-5.99
6	The vibration width setting shall be done by max. unit -1:1 and 1% according to Arc length. (Setting unit :6.00~6.99)

7. OSCILLATION PATTERN PROGRAM

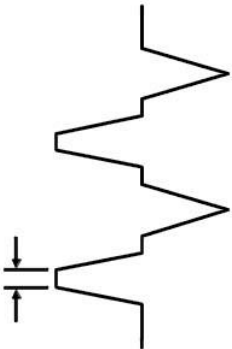
-There are eight patterns for oscillation according to the program.



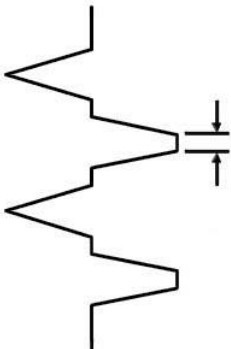
Picture 1. It is a operation pattern when the DWELL TIME OFF "0" is set.



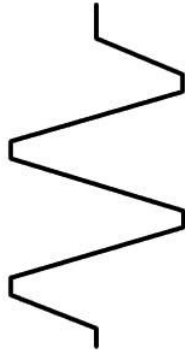
Picture 2. CENTER DWELL TIME : 0.1 or more setting.
LEFT, RIGHT, DWELL TIME : "0" setting.



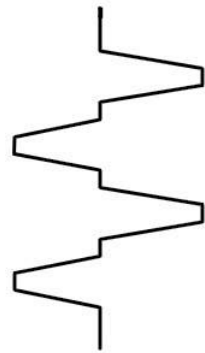
Picture 3. LEFT, CENTER DWELL TIME : 0.1 or more setting.
RIGHT, DWELL TIME : "0" setting.



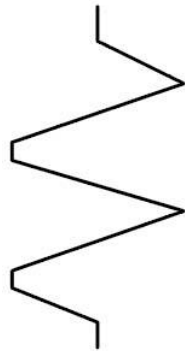
Picture 4. LEFT DWELL TIME : "0" setting
CENTER, RIGHT DWELL TIME : 0.1 or more



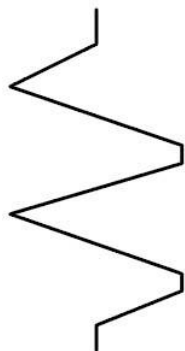
Picture 5. LEFT, RIGHT DWELL TIME : 0.1 or more setting.
CENTER DWELL TIME : "0" setting.



Picture 6. LEFT, CENTER, RIGHT
DWELL TIME : 0.1 or more setting .



Picture 7. LEFT DWELL TIME: 0.1 or more setting
CENTER, RIGHT DWELL TIME: "0" setting.

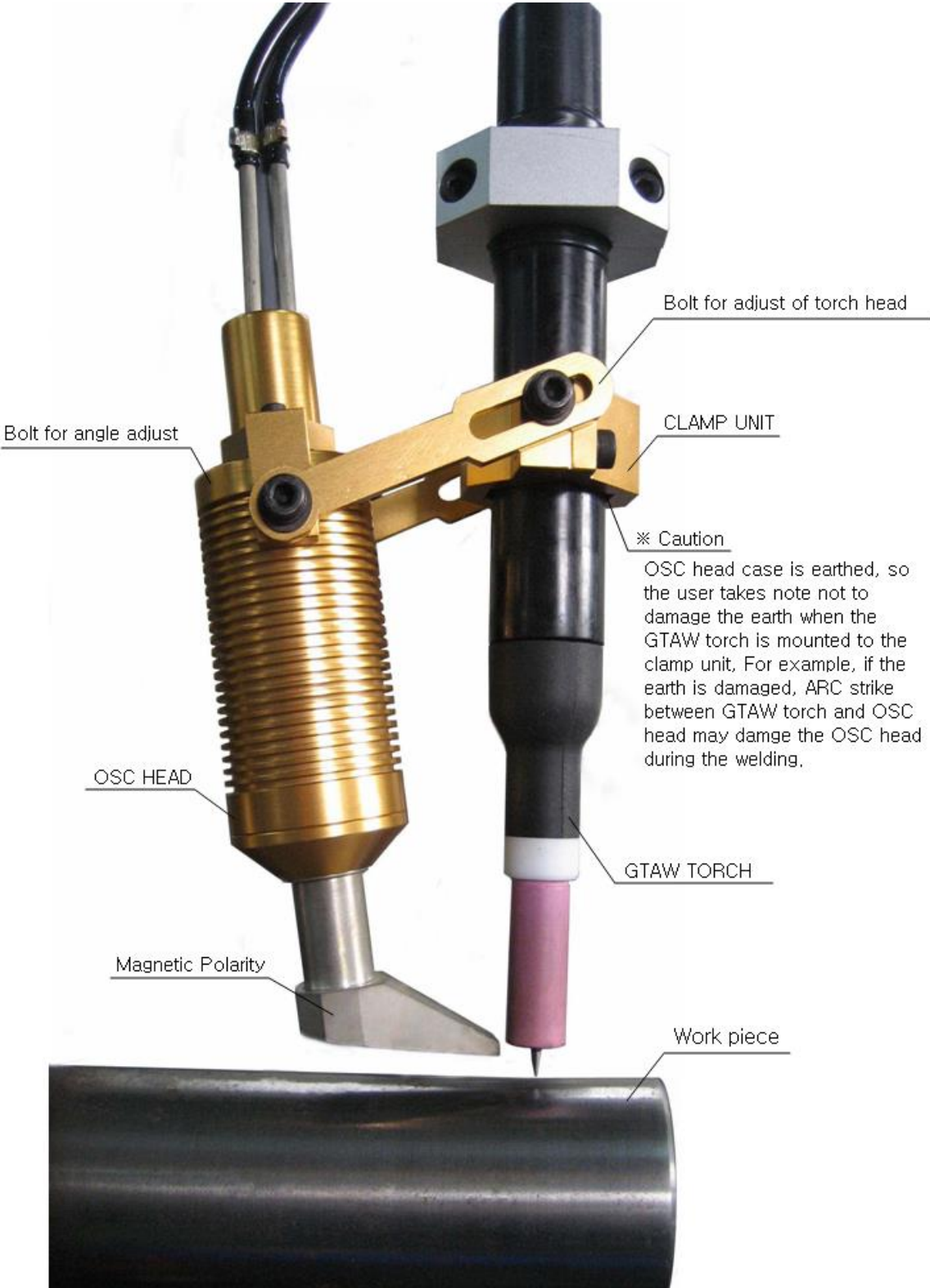


Picture 8. RIGHT DWELL TIME : 0.1 setting
LEFT, CENTER DWELL TIME : "0" setting.

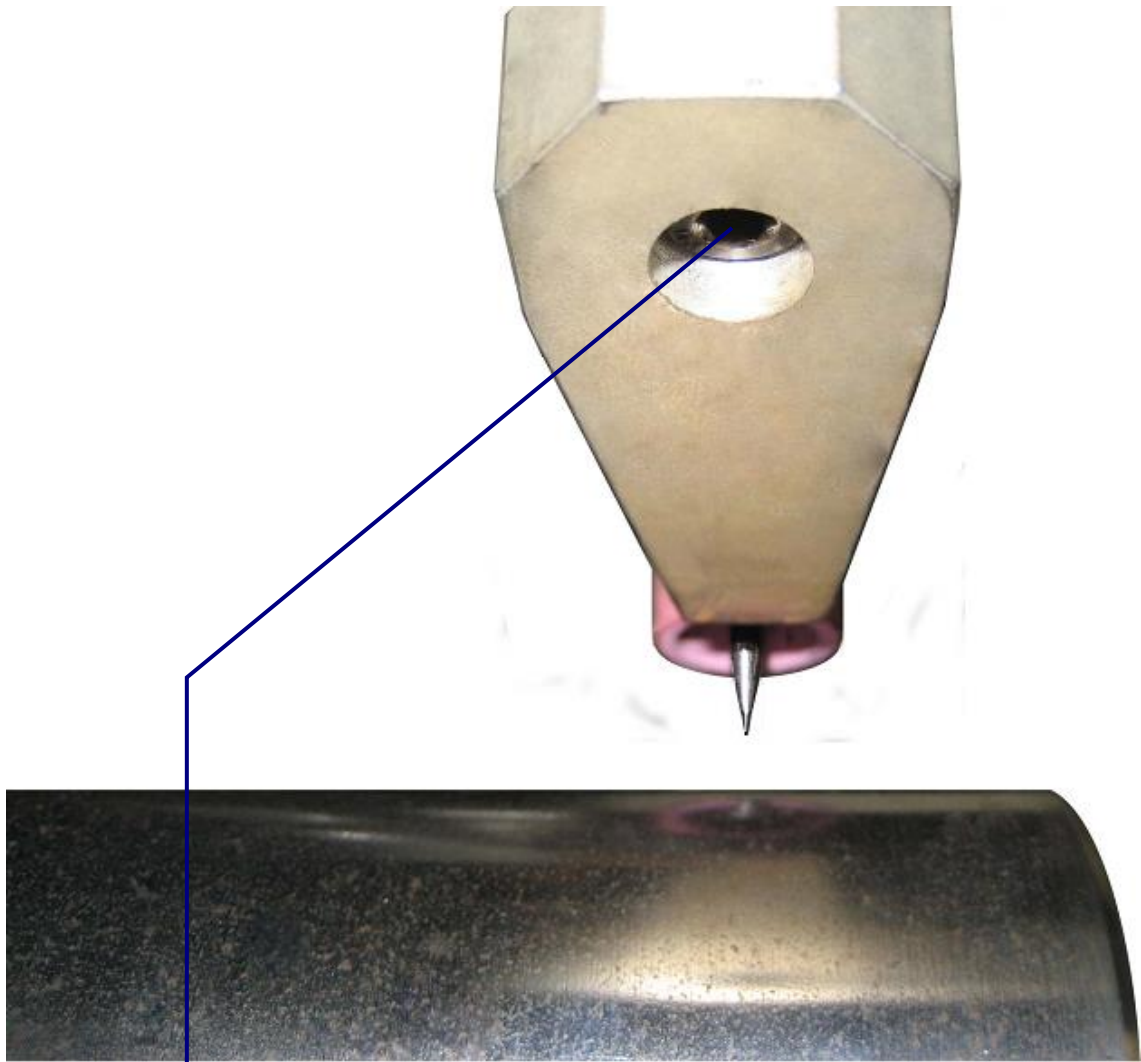
8. INSTALLATION

8-1. HTW-05-MG-(I) (Standard (for narrow space & just for weaving))

1) Picture on full installation

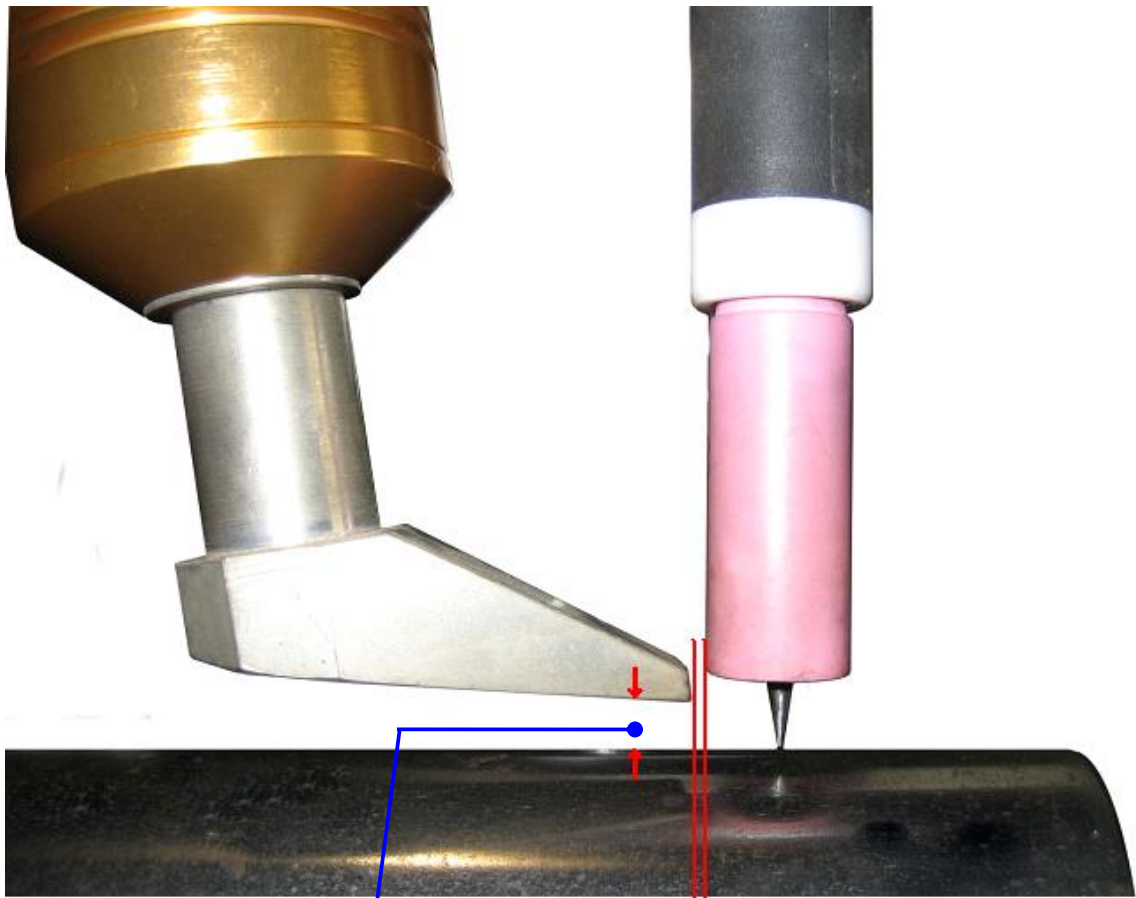


2) How to align the tungsten electrode point and the pole of electric magnetic power.



There is one bolt in the pole for fastening the pole. The bolt is lose.
Then, adjusting for alignment of the tungsten point and the pole.
After finishing the job, fasten the bolt again.

3) Side picture



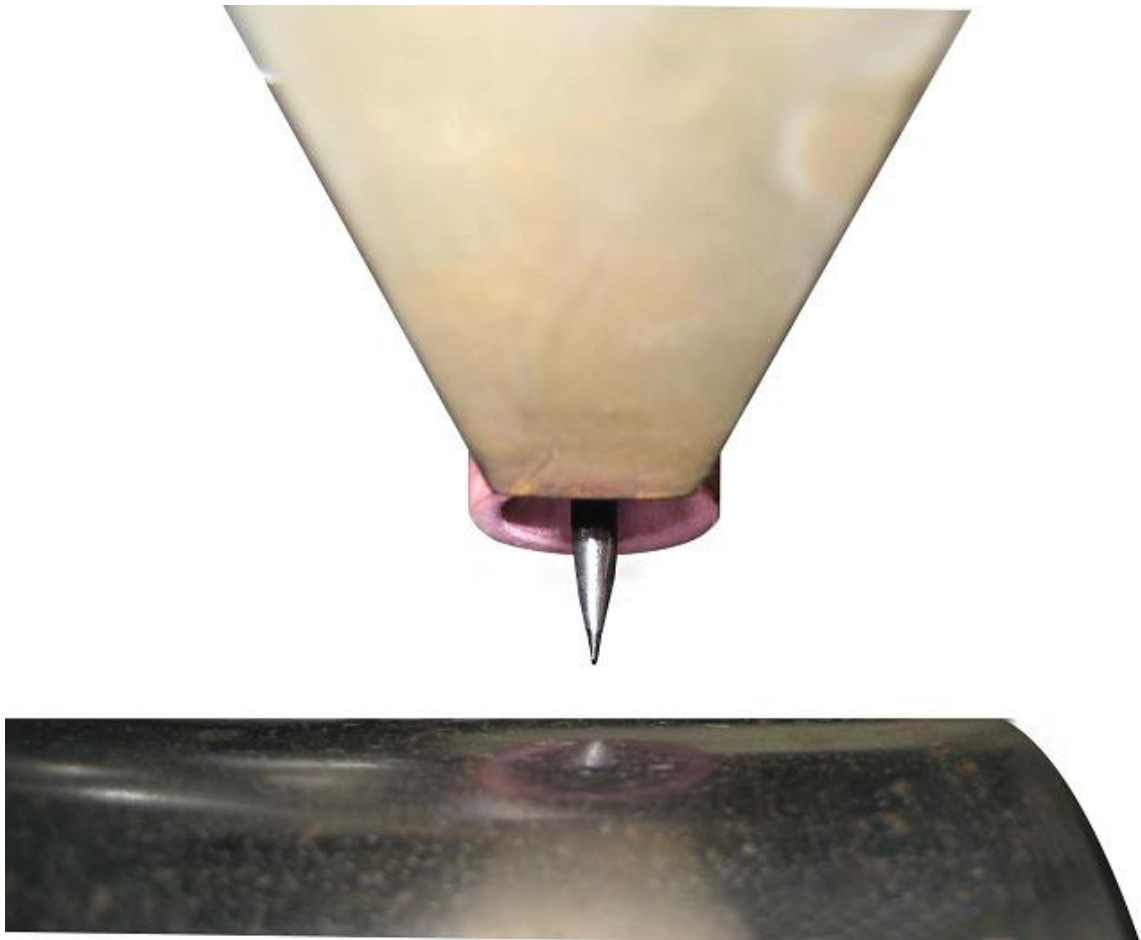
There is some distance between the pole and the work-piece so that the bead does not touch the pole.(about 10mm).

3mm

In addition, the user should make some distance between the pole and torch for shielding.

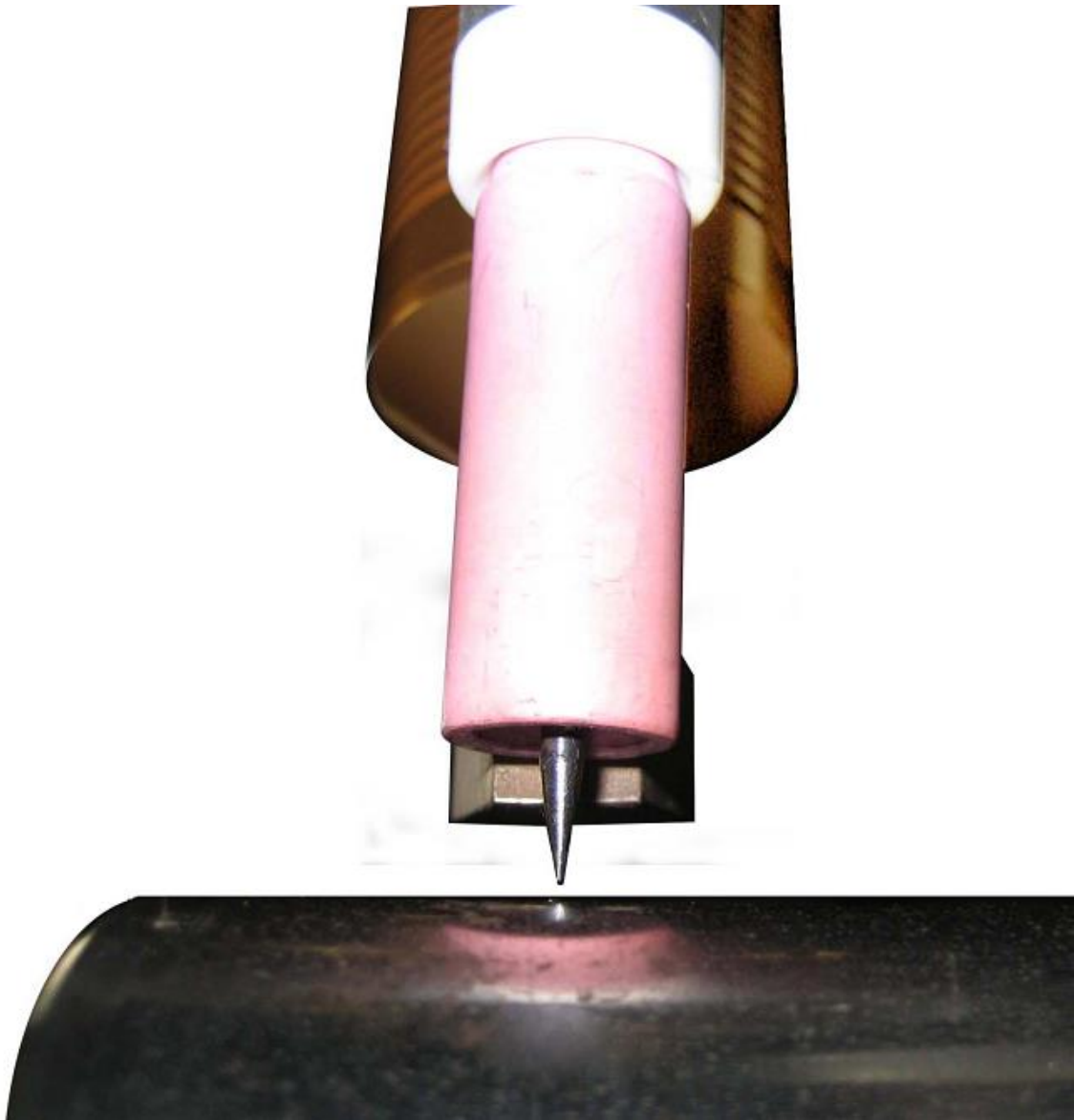
4) Rear side picture

Make sure the installation is like the picture. The tungsten point should be located at the center of the pole.



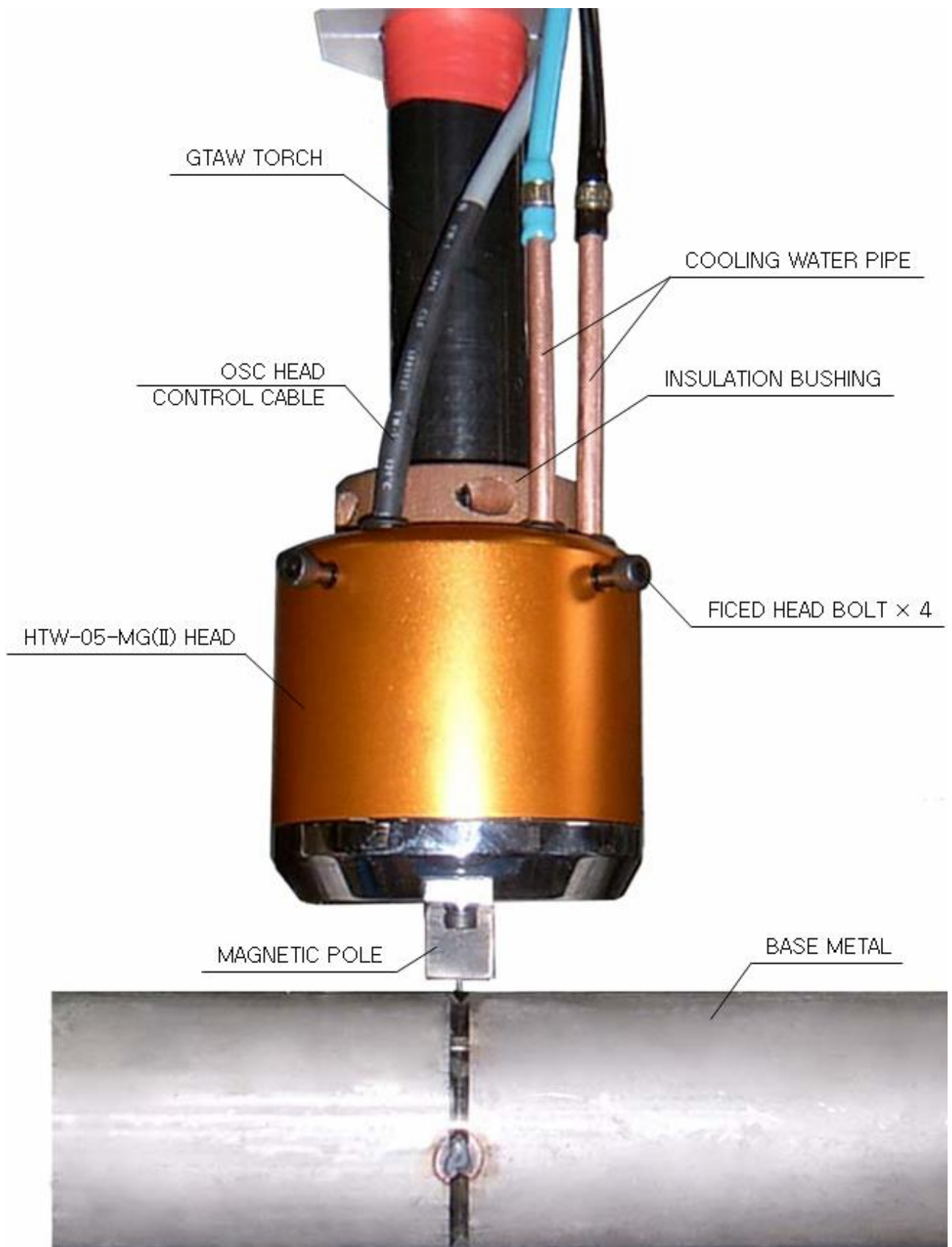
5) Picture on the front

Make sure the installation is like the picture. The tungsten point should be located at the center of the pole.



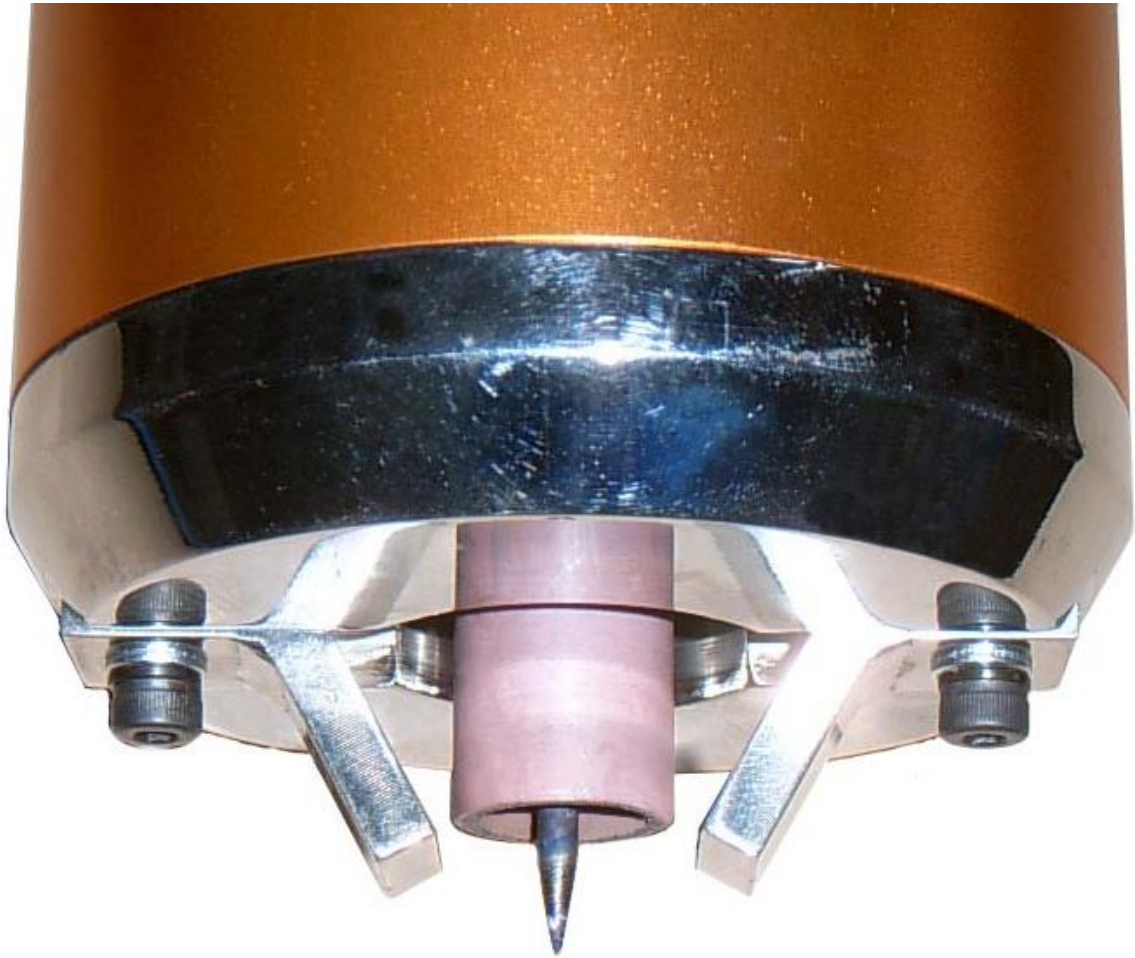
8-2. HTW-05-MG-(II) (Weaving and preheating at the front & the rear.)

1) Installation



2) Front picture on installation

- Make sure the distance between A and b is made same by adjusting the 4 bolts of the head.



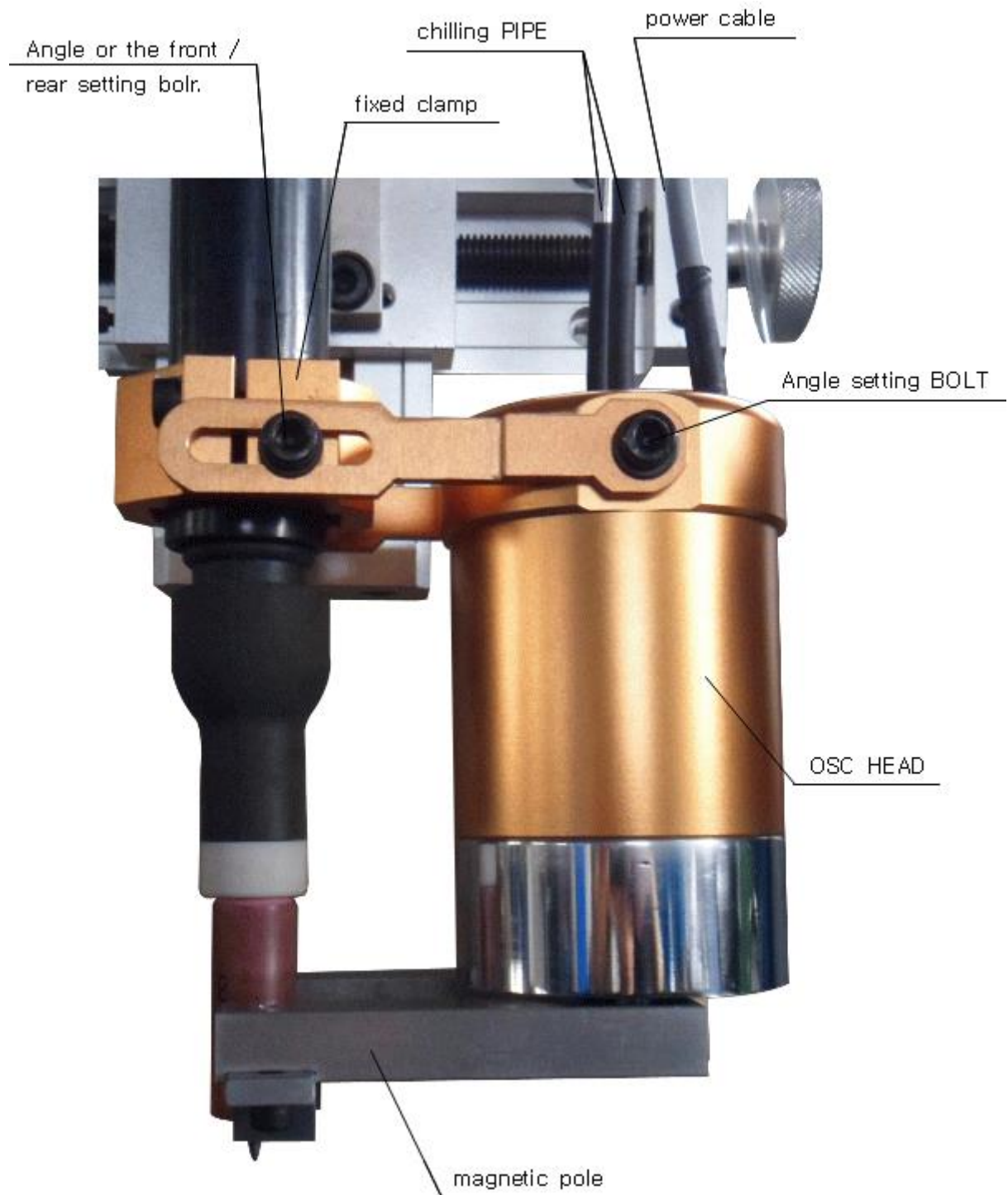
3) Side Picture on installation

-Make sure the center of the tungsten meets the center of the pole precisely by adjusting the bolt.



8-3. HTW-05-MG-(II)-I (Only for preheating of the front & the rear.)

1) Installation



2) Welding-traveling direction

a) left → right

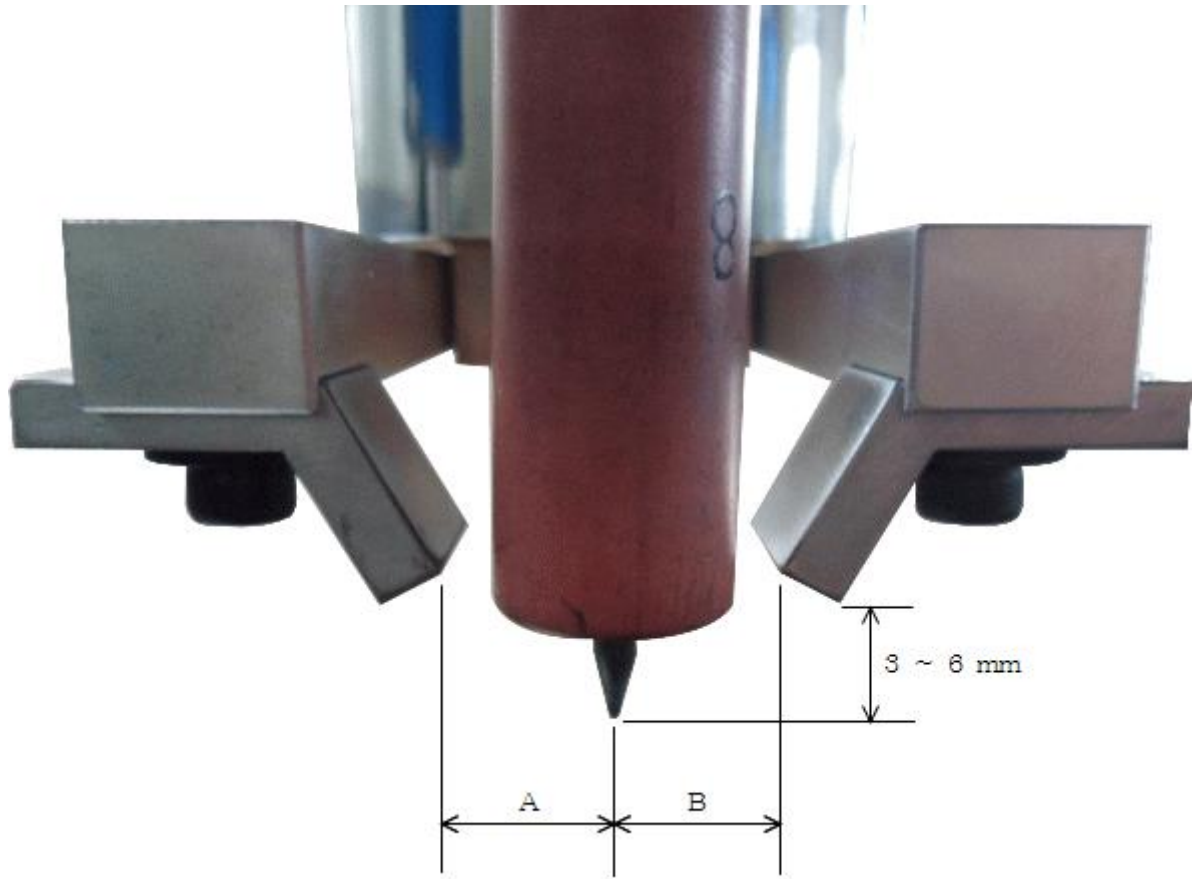


b) right → left

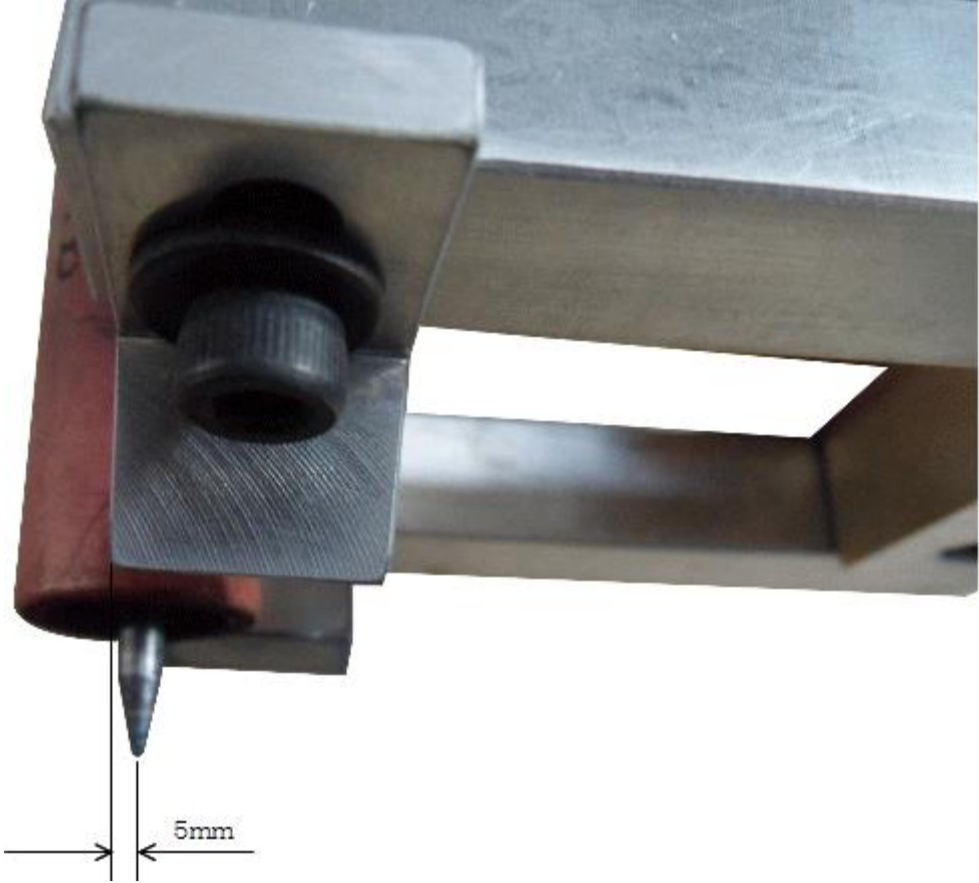


3) Front picture on installation

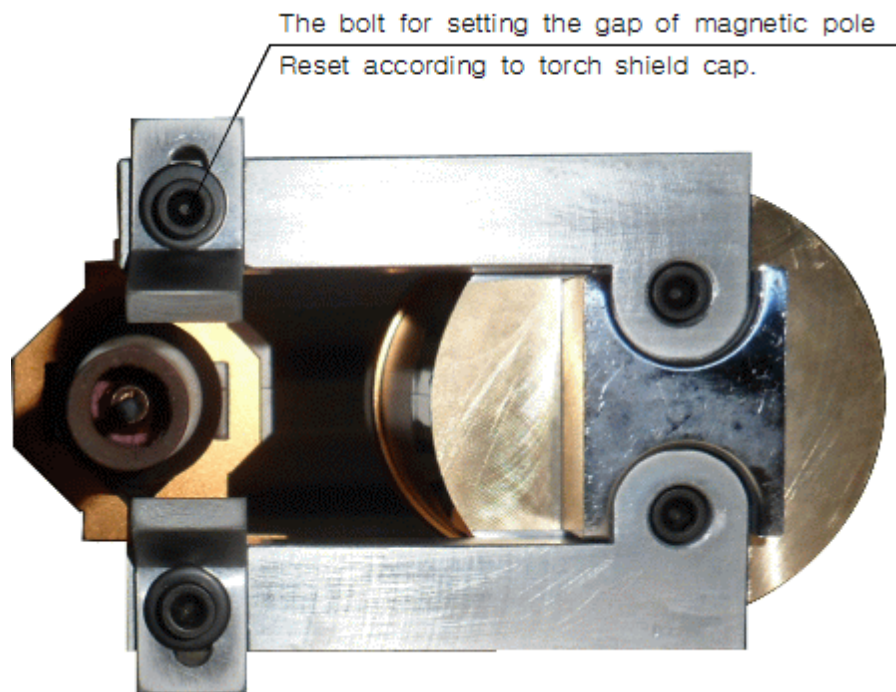
- The electrode gap of left to right is adjusted to be equivalent to the width of A to B.



4) Side Picture on installation

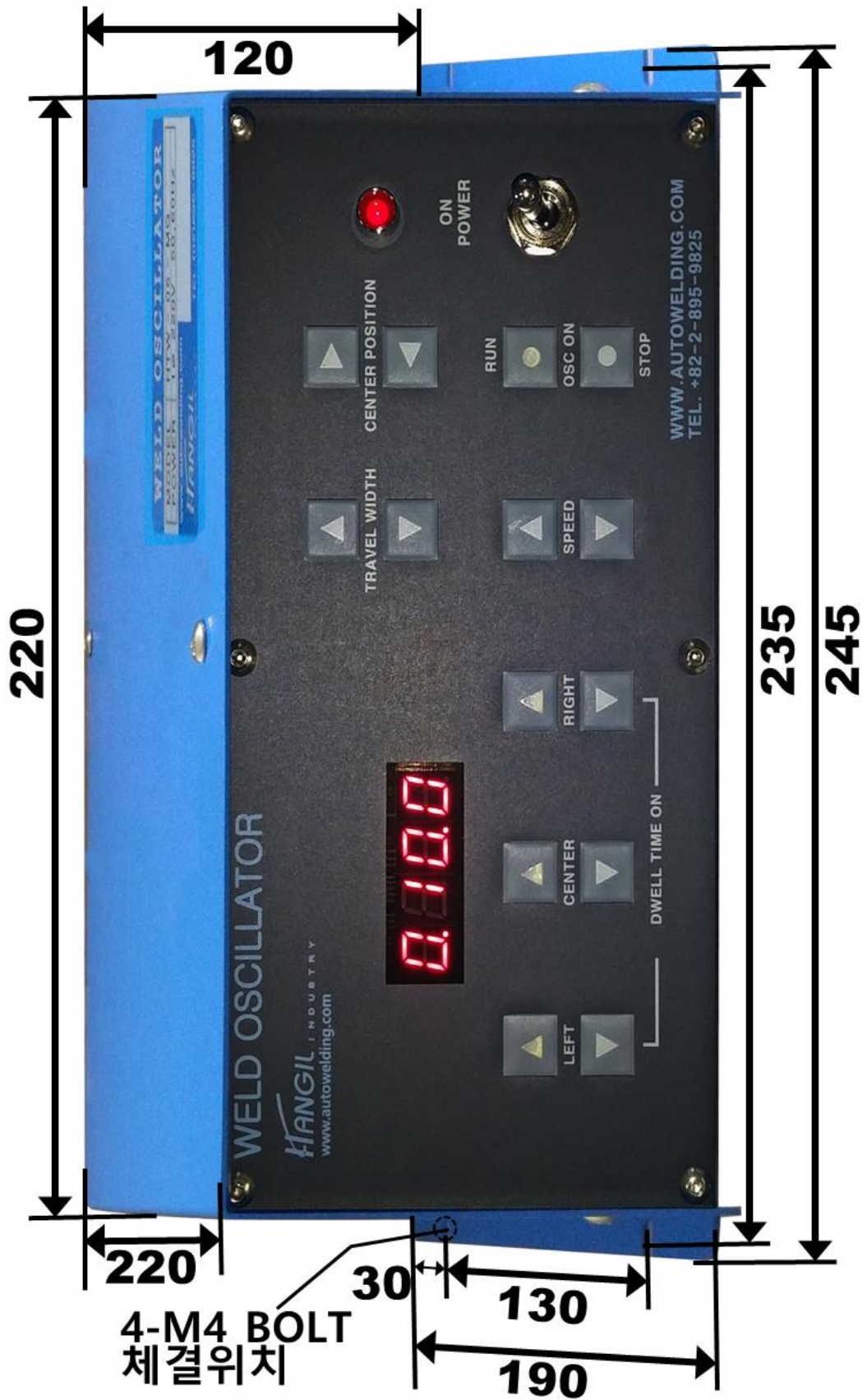


5) See the picture for installation below.



9. OUTLINE

9-1. Control box



9-2. OSC HEAD

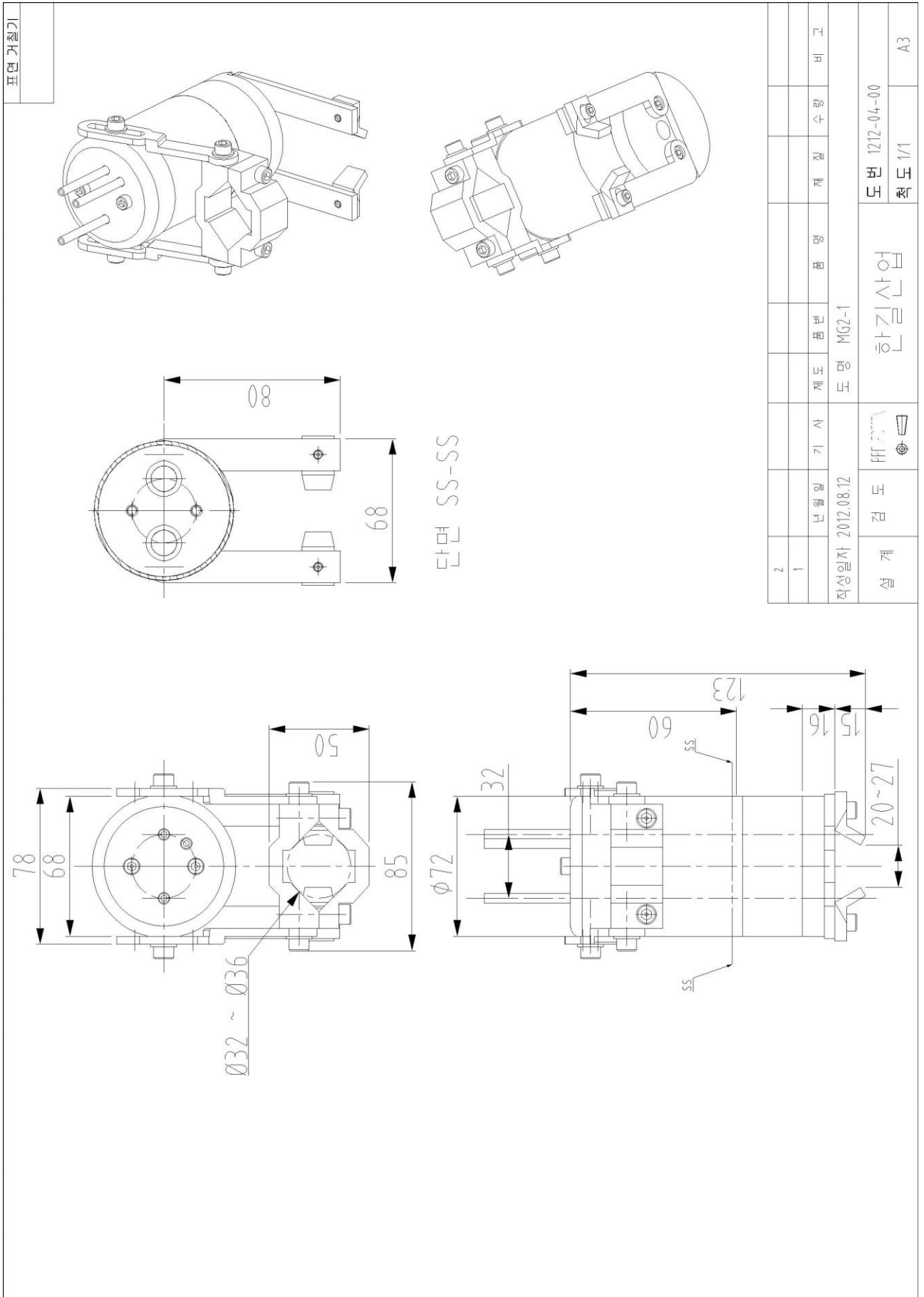
1) HTW-05-MG(I)

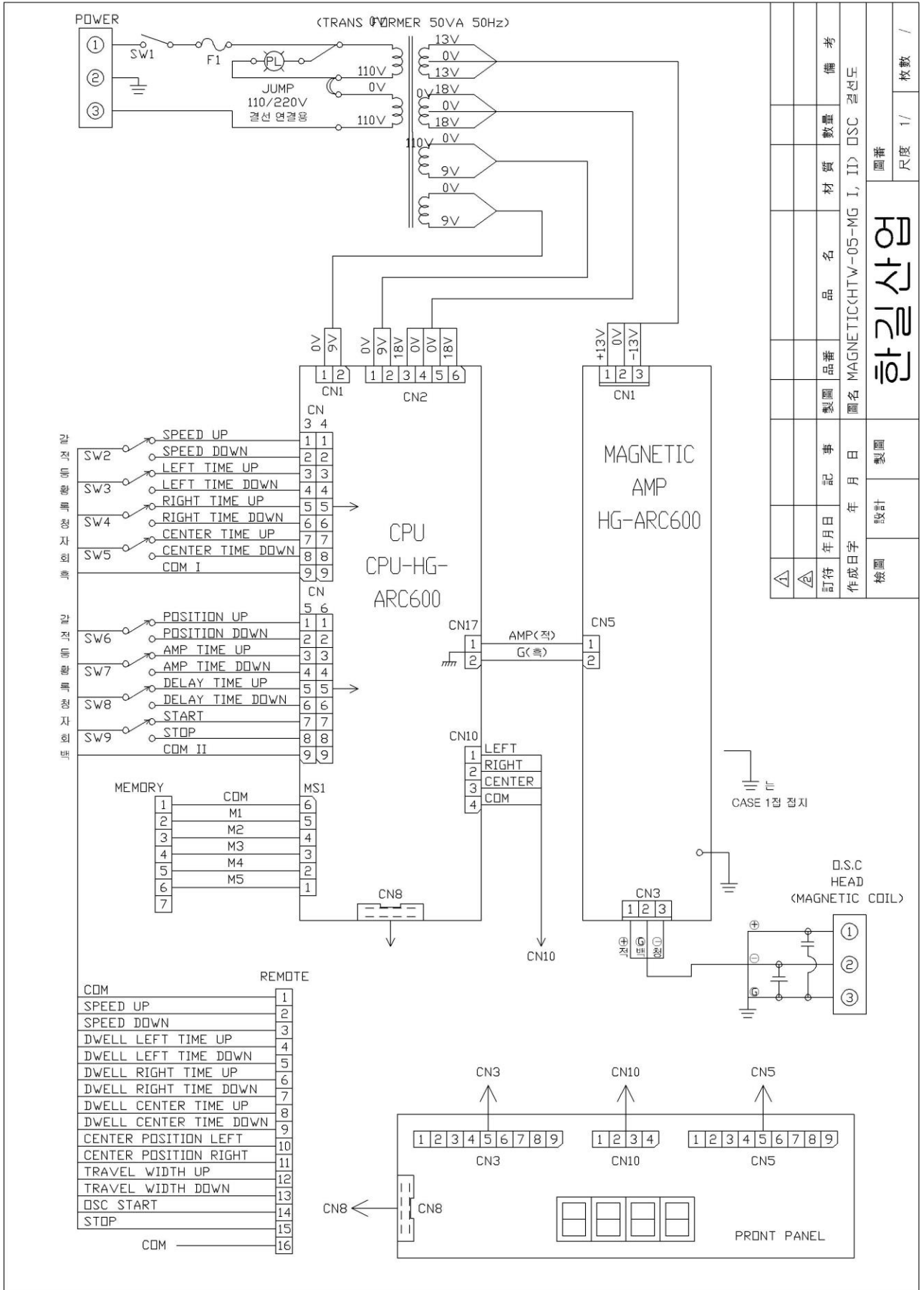
표면 거칠기														
2														
1														
작성일자 2012.08.09		년월일	기	사	제	도	품	번	계	진	수	량	비	고
		도 명 MG1												
심 계		검 도		PROJECTION		한길산업						도 번 0712-01-00		
												척 도 1/1		A3

2) HTW-05-MG(II)

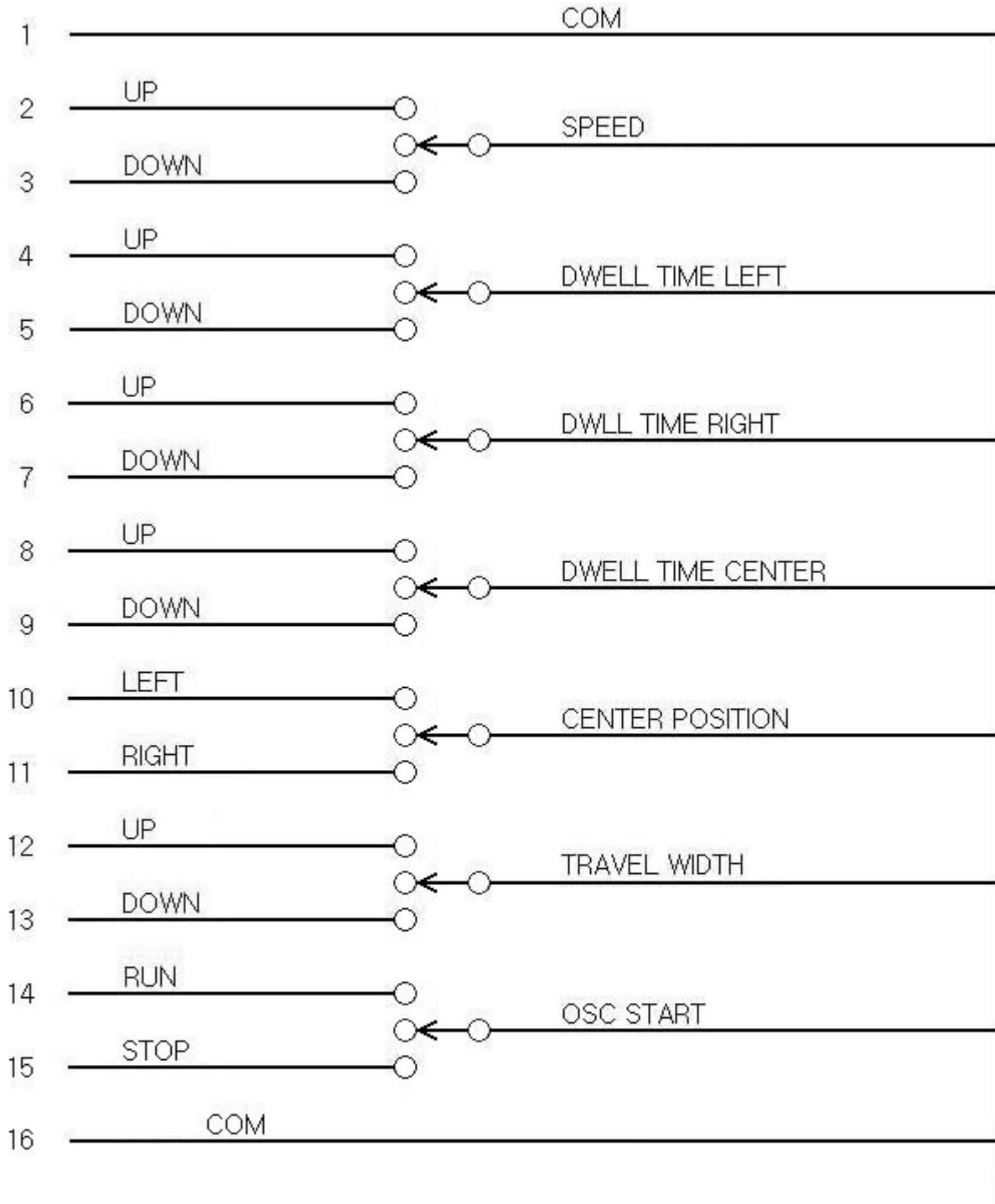
표면 거칠기											
<p>※ $\emptyset x$는 사용자가 사용하는 토치 \emptyset에 맞게 가공하여 사용.</p> <p>※ The end-user should machine the diameter X based on the diameter of torch.</p>											
2											
1											
작성일자		년월일		기 사		제도		품번		품명	
2012.08.13						도명		MG2			
설 계		검 도		도면		수 량		비 고			
		한기산업		도 번		1212-02-00		척 도		1/1	
		A3									

3) HTW-05-MG(II)-I





REMOTE CONTROL CONNECTOR 결선도



作成日字			도 명 HTW-05-MG1 REMOTE 결선도		
검도	설계	제도	한길産業		도번
			척도	매수	



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