AUTO TIP DRESSER （ＣＤ－ＪＥ－Ｆ）

USER MANUAL

*Please read user manual before using CD-JE-F.

KYOKUTOH CO., LTD

ATTENTION TO SAFETY

※ Please be sure to read “ATTENTION TO SAFETY” before using CD-JE-F.

This product is intended only for the dressing of specified electrodes. This product is not to be used in any manner other than that which is specified within this manual. We will not be held responsible for damage or injury caused as a result of misuse of this product.

SYMBOLS

※ The following symbols “Caution” and “Notice,” are used to indicate possible hazards and to prevent their occurrence.

⚠ Caution	Be careful to follow directions as specified, as an error could lead to possible injury or death.
⚠ Notice	Be careful to follow directions as specified, as an error could lead to malfunction and serious damage.

※ The following symbols are explained below.

	This symbol indicates operations that should **not** be done.
	This symbol indicates operations that should be done.

⚠ Caution

Absolutely never disassemble or reconfigure this machine or its parts. ○ **This could result in operation malfunction, ignition, or injury.**	Do not insert a finger or hand into gear opening while in operation. ○ **This will result in serious injury.**
Avoid as much contact with water as possible. ○ **This could result in operation malfunction (short), electrical shock or ignition.**	Do not insert metallic articles such as a pins or needles in gear or terminal box opening. ○ **This could result in operation malfunction or electrical shock.**
Be sure to switch off the power supply, when removing or repairing wiring. ○ **Will cause electrical shock**.	Be sure that spatter does cover any wiring. ○ **This will prevent the melting of wire membrane and a potential shock hazard.**
Remove the spatter which covers the tip dresser periodically. ○ **Spatter build-up can cause operation malfunction or ignition resulting in injury.**	Do not use acidic or chlorine detergents for maintenance purposes. ○ **Poisonous gas may be generated from the detergents, causing a possible health risk.**
Remove any oil that may accumulate on the tip dresser. ○ **Spatter could cause ignition and possible Injury.**	Do not use voltage other than that which is specified. ○ **Excess heat could cause operation malfunction and ignition.**
Be sure wire from power supply is of correct capacity. (10A/1unit) ○ **Incorrect wiring could result in operation malfunction or ignition**	Use wiring of enough thickness. (2 sq inches or more) ○ **Incorrect wiring could result in operation malfunction or ignition**
Do not allow power supply wiring to become damaged. ○ **Wiring damage could result in operation malfunction and ignition.**	

⚠ Notice

Firmly fix tip dresser to stand. ○ **If the Tip Dresser is not fixed tightly in operation, poor dressing and other problems could occur.**	Be sure that the motor is not locked up. ○ **This could result in overheating and possible ignition.**
Do not use any cutter or holder other than that which is intended and specified. ○ Use of an unspecified cutter or holder, could result in damage.	Do not install near the thermal generation source of the welding machine. ○ **This could cause trouble and accidents**.

	Do not install between a welding machine and a transformer. ○ Strong magnetic forces and heat can be dangerous and possibly cause malfunctions or ignition.	

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ＣＤ－Ｄ－Ｆ－４００ Tip Dresser Capability (Continuous use time)

Model	Power	Freq	Current	Rpm (Min-1)	Torque (N・m)	Output Rated	Rated Time	Mass Kg
CD-JE-F 200V connect	AC200V	50 Hz	2.0 A	95.1	34.9	４００W	Rated output continuously used	14 kg
	AC200V	60 Hz	1.8 A	114.4	29.0			
	AC220V		1.8 A	115.7	28.7			
CD-JE-F 400V connect	AC380V	50 Hz	1.0 A	94.5	35.1			
	AC400V		1.0 A	95.2	34.9			
	AC415V		1.0 A	95.9	34.9			
	AC400V	60 Hz	0.92 A	114.4	29.0			
	AC440V		0.91 A	115.7	28.7			
	AC460V		0.91 A	116.4	28.5			
	AC480V		0.92 A	116.8	28.4			

※ Dresser motor and terminal box have protection structures
ＩＥＣ STANDARD　ＩＰ５４APPROVED
(Painting color : lemon R30-371)

〖Features〗

1. Top Surface Verification Device.

2. Dresses upper and lower tips simultaneously, therefore dressing time is reduced.

3. Recommended dressing pressure is between 1078 N to 1960 when using KTW cutters.
(Dress up to 110kgf to 200kgf.)
Cutter blades are available for applications with pressures between 1960 N and 2450 N.

4. Floating mechanism greatly reduces stress on welding gun.

5. 1.5 times faster than A-type dresser.

6. KTW cutter blade reduces dressing time.

7. 2 second dressing time!

8. Terminal box accommodates both 200 & 400 voltages.

Criteria for Dressing GUN

(Applicable to both X-guns and C-guns; see figure 1 and 2)

1. If "A" dimension is less than 30mm, this dresser is not suitable, because it may contact gearbox.

2. If "B" dimension is less than 52mm, this dresser is not suitable, because it may contact gearbox.

3. Concentric tip with angle arm (Angle C=15°)
   *When using eccentric tips, please contact our technical department.

4. When the length of the Shank (D dimension) is too long, contact our technical department.

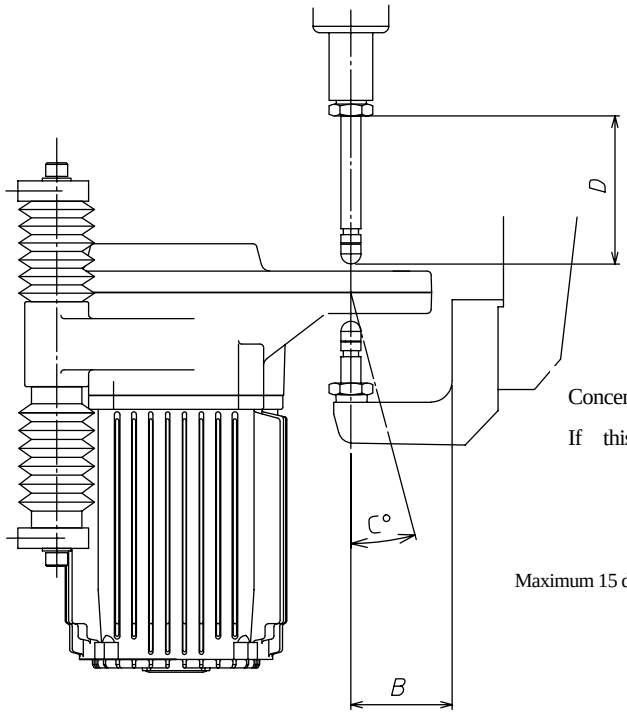
5. Base tips require an extended blade. (E dimension)
   *We will customize a blade if we are provided the gun drawing.

6. Recommended dressing force is between 1078N and 1960N.
   * Blades for higher & lower pressures are available.
   * If the force is over 2,450 N the dresser may stop. If this occurs reduce the pressure.

7. Select a blade well suited to the tip shape.

8. For other specifications for the CD-JE-F, please contact our engineering department.

Figure 1



Concentricity guide required

If this is over 90mm-ϕ16

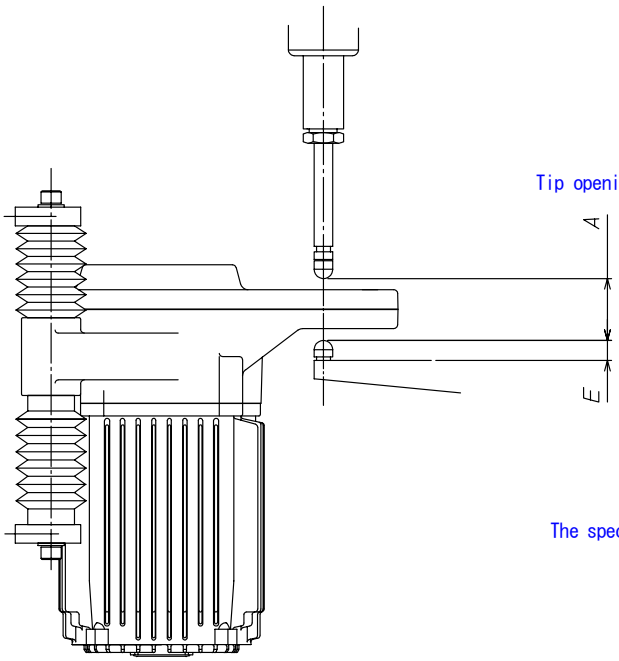
70mm-ϕ13

Maximum 15 degree is acceptable

To avoid interference

With gearbox 52mm required

Figure 2



Tip opening needs over 30mm

The special blade should be used for the shorter tip

Cautions for positioning dresser

1. The tip should be set parallel to floating mechanism. (see figure 3)

2. For X-guns, set the dressing location to the pressurization location.(see figure 4)

3. If using a C-gun, set the dressing location even with the pressurization location.

4. Although the floating mechanism is installed in dresser, locate the dressing position as closely as possible.

Figure (3)

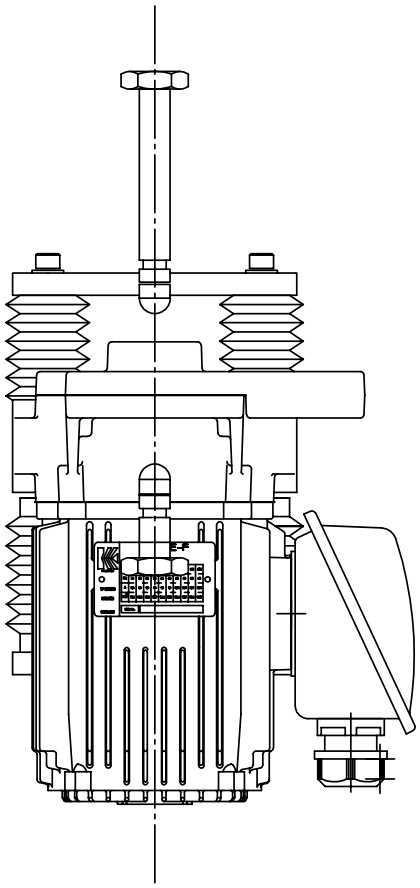


Figure （4）

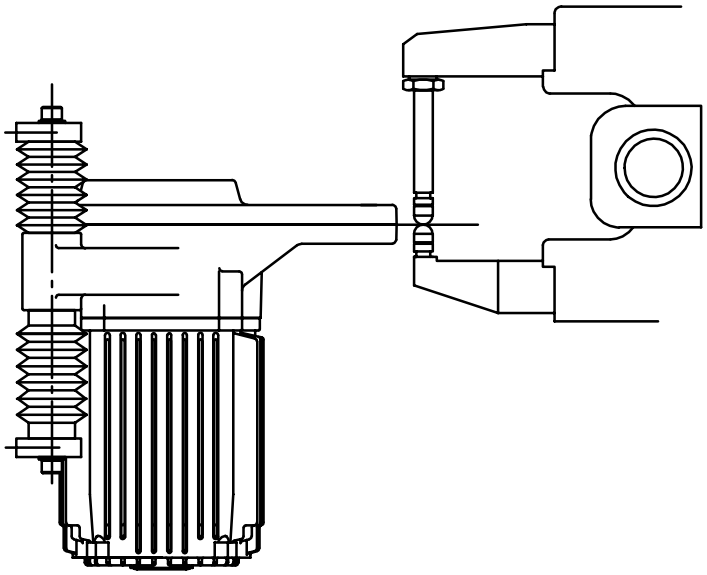
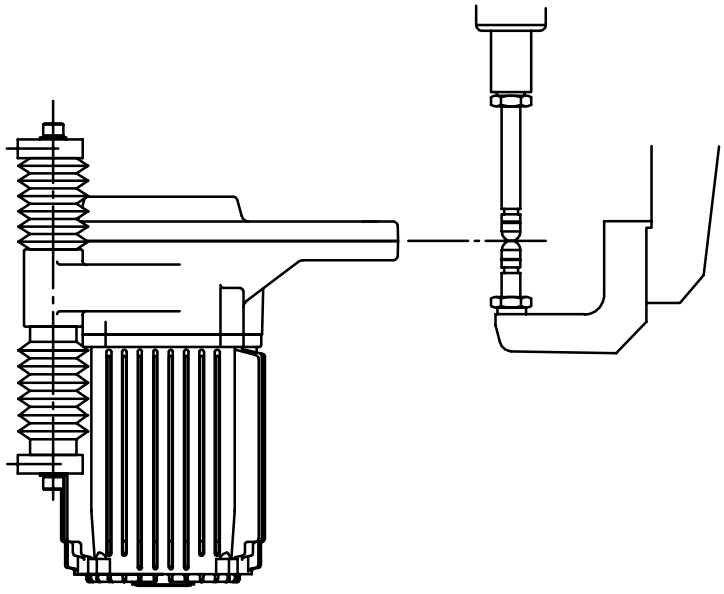
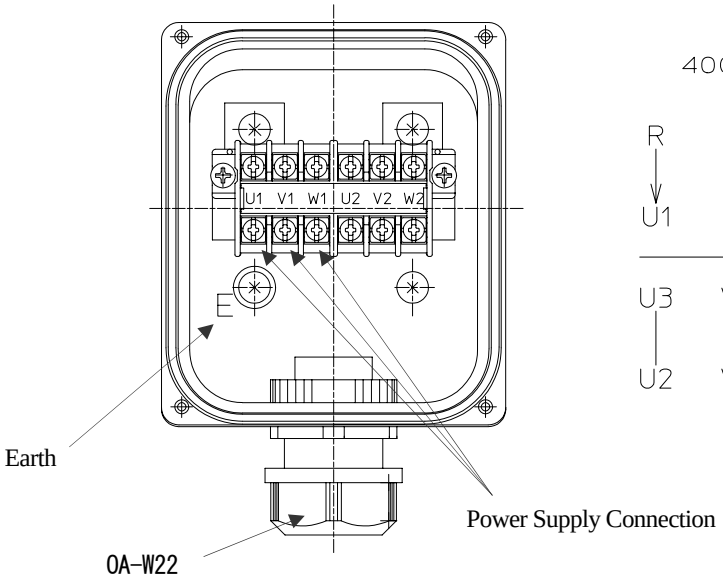


Figure （5）

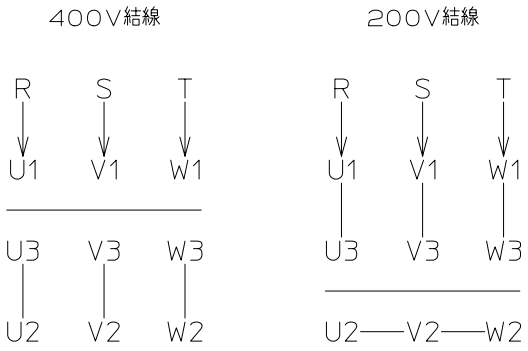


Wiring to Dresser

Terminal Box



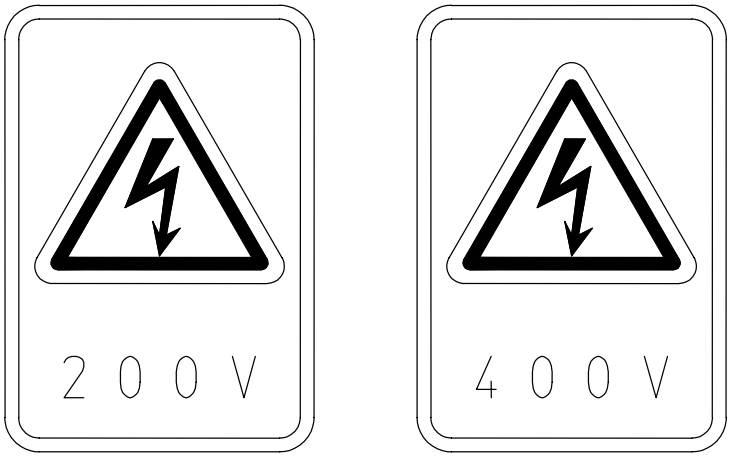
Circuit Diagram of The Motor



- Use at least a 2sq. inch power wire.
- When wiring, strip wire back 2-4s.
  *We recommend using a solderless terminal connector.
- Do not wire when the switch is on. (Be sure to turn the switch off.)
- The operator must be a certified electrical worker.
- Please take the cable's change (shrinkages or slack) into consideration when wiring because the floating mechanism is installed on JE-type dresser.
  *Because the floating mechanism is installed make sure the terminal bolt is tightened. (We recommend making a circle with cable beside the dresser in order to absorb the vibration.)
- Please wire power cord and thermostat fuse output cord separately for your security.
  *When using thermostat fuse, make a side hole on the terminal box of dresser.
  *When not using the installed thermostat fuse, please set the overloading protector beside the dresser

*200V Connect 200V/50.60Hz 220V/60Hz
*400V Connect 380V/50Hz 400V/50.60Hz 415V/50Hz 440V/60Hz
460V/60Hz 480V/60Hz
*Please wire according to the required voltage.

Cautions for voltage specification

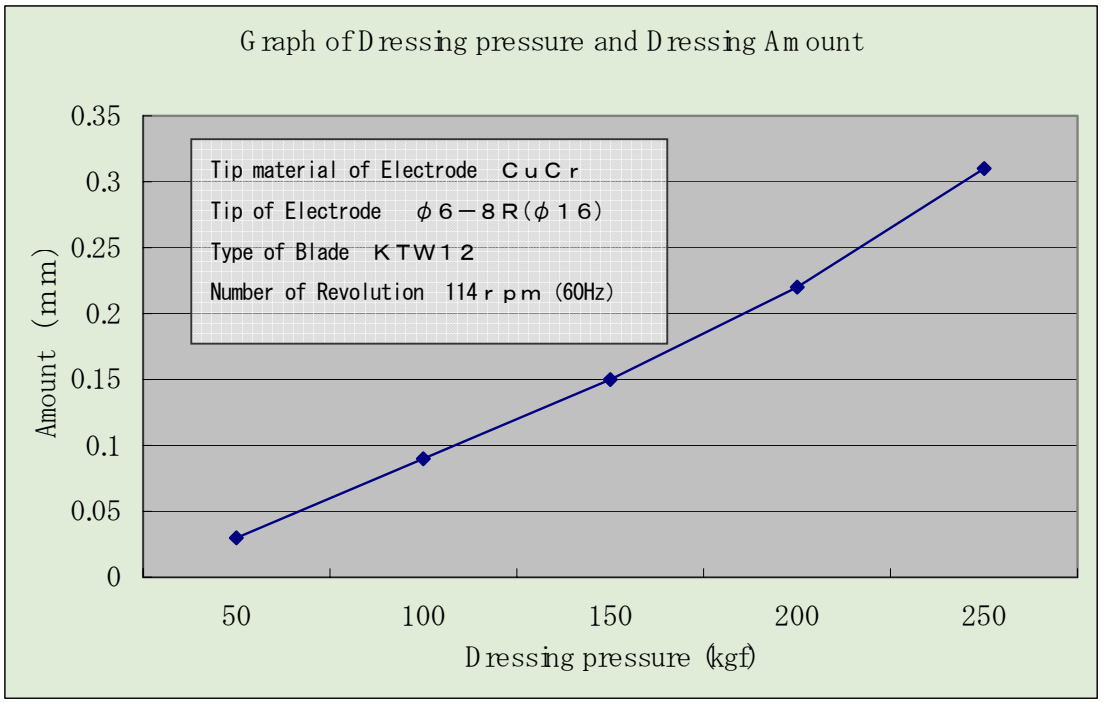


※ If a voltage is requested upon ordering, 200V connections or 400V connections will be delivered and specified accordingly.

※ If a voltage is not requested upon ordering, 400V connections will be delivered.

※ Upon wiring, pay close attention not to connect to the wrong voltage.

Blade Capacity and Dressing Time



- Estimated Dressing Time

Dressing time: 2 sec

Please adjust dressing time and pressure according to above graph.

Example 1: to dress 0.1mm
- Dressing time: 2 sec
- Dressing pressure: 110kgf

Example 2: to dress 0.1mm
- Dressing time: 1.4 sec
- Dressing pressure: 150 kgf

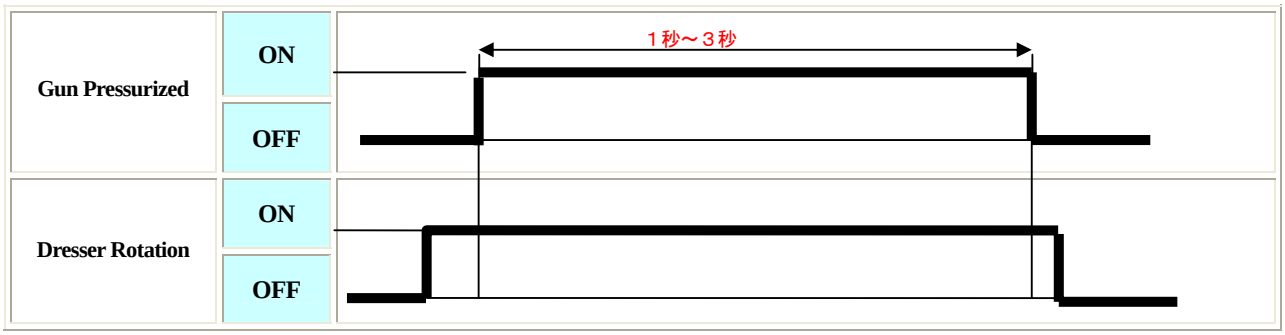
※ Above specifications are recommendations. Adjust accordingly to individual applications.

※ Average dressing cycle of KTW cutters blade after 200 welds is 1 to 2 seconds.

※ If results are unsatisfactory contact our engineering department for further help.

Timing Chart

ＫＴＷ type Cutter (Only clockwise rotation)



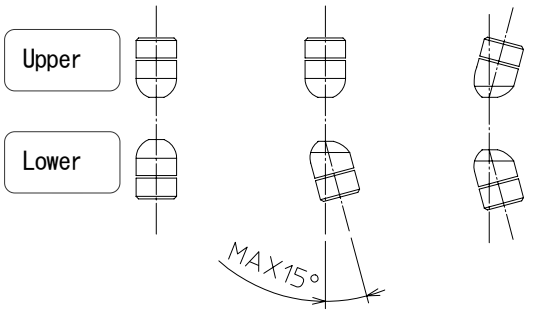
① Start motor in a clockwise rotation before pressing gun.

② Set the dressing time according to your tip condition. Approx: **1 to 3 sec.**

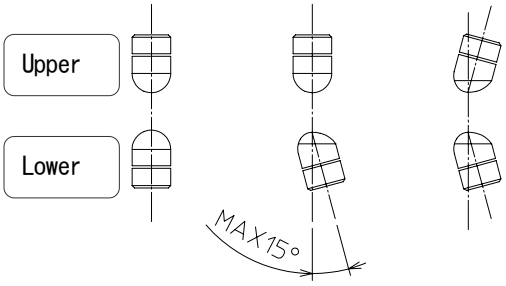
③ Confirm rotation direction (clockwise).

Before operating make sure that the blade and tip are in conformity.
In case there are chips on captip face, please touch cutter and then release gun.

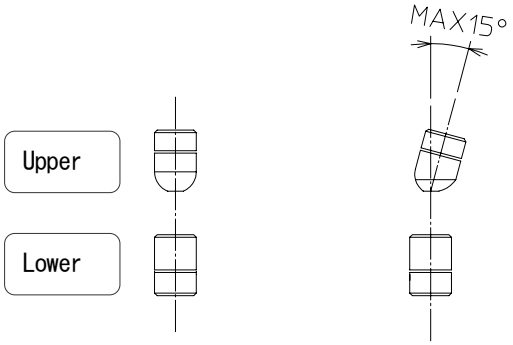
Procedure for Selecting The Blade (Make sure the diameter of tip is less than ϕ16)



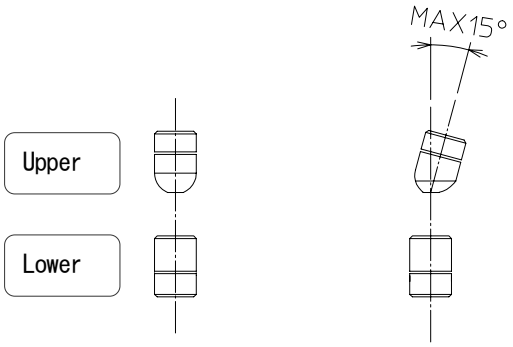
D Type : D Type			
Upper	Lower	Cutter	Holder
ϕ４×Ｒ８	ϕ４×Ｒ８	ＫＴＷ－１０	ＫＴＷＨ－１０
ϕ５×Ｒ８	ϕ５×Ｒ８	ＫＴＷ－１１	ＫＴＷＨ－１１
ϕ６×Ｒ８	ϕ６×Ｒ８	ＫＴＷ－１２	ＫＴＷＨ－１２
ϕ８×Ｒ８	ϕ８×Ｒ８	ＫＴＷ－１３	ＫＴＷＨ－１３



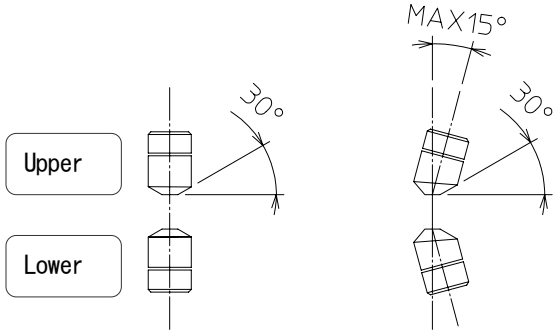
R Type : R Type			
Upper	Lower	Cutter	Holder
Ｒ６．５	Ｒ６．５	ＫＴＷ－１５	ＫＴＷＨ－１５
Ｒ８	Ｒ８	ＫＴＷ－１６	ＫＴＷＨ－１６



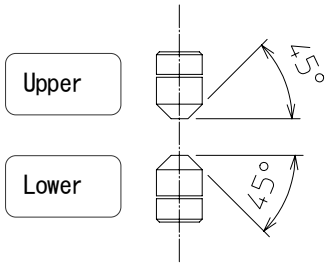
D Type : R Type			
Upper	Lower	Cutter	Holder
ϕ６×Ｒ８	Ｒ４０	ＫＴＷ－１４	ＫＴＷＨ－１４



D Type : F Type			
Upper	Lower	Cutter	Holder
φ６×Ｒ８	φ１６	ＫＴＷ－２３	ＫＴＷＨ－２３
φ６×Ｒ８	φ１３	ＫＴＷ－２４	ＫＴＷＨ－２４

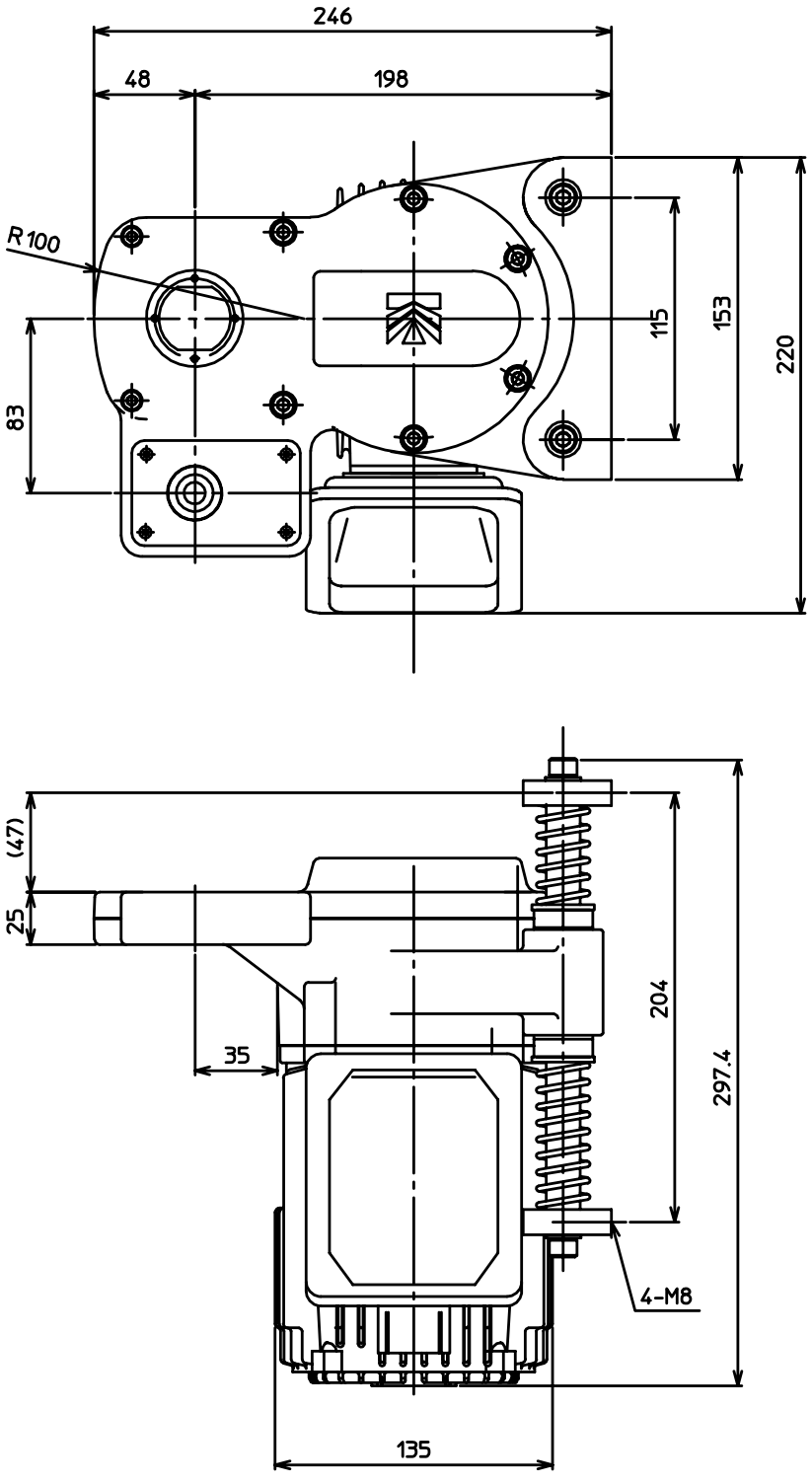


C Type : C Type			
Upper	Lower	Cutter	Holder
φ４×３０°	φ４×３０°	ＫＴＷ－０１	ＫＴＷＨ－０１
φ５×３０°	φ５×３０°	ＫＴＷ－０２	ＫＴＷＨ－０２
φ６×３０°	φ６×３０°	ＫＴＷ－０３	ＫＴＷＨ－０３
φ８×３０°	φ８×３０°	ＫＴＷ－０４	ＫＴＷＨ－０４



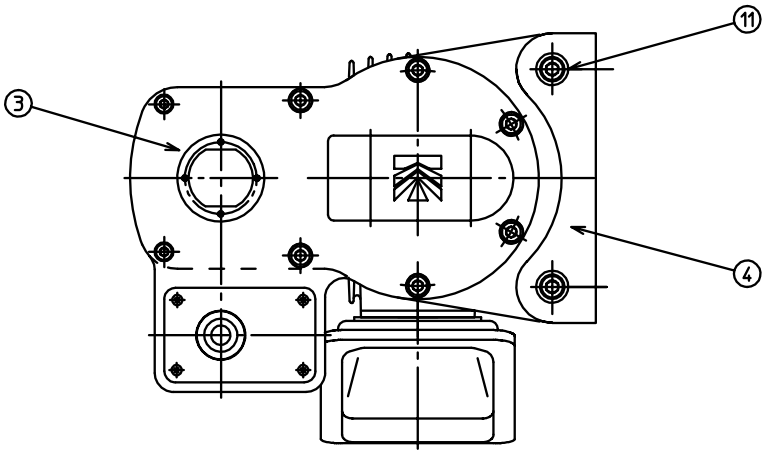
C Type : C Type			
Upper	Lower	Cutter	Holder
φ４×４５°	φ４×４５°	ＫＴＷ－０５	ＫＴＷＨ－０５
φ５×４５°	φ５×４５°	ＫＴＷ－０６	ＫＴＷＨ－０６
φ６×４５°	φ６×４５°	ＫＴＷ－０７	ＫＴＷＨ－０７
φ８×４５°	φ８×４５°	ＫＴＷ－０８	ＫＴＷＨ－０８

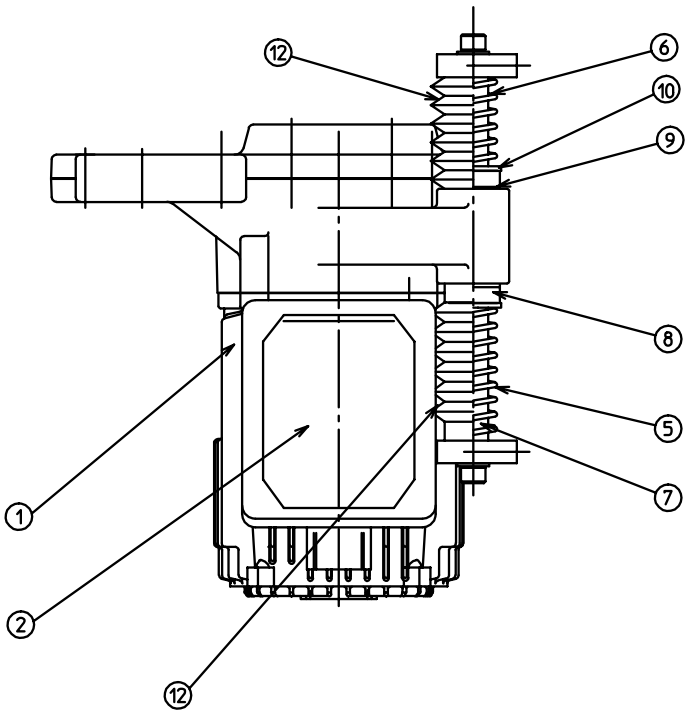
Isometric Drawing with Dimensions



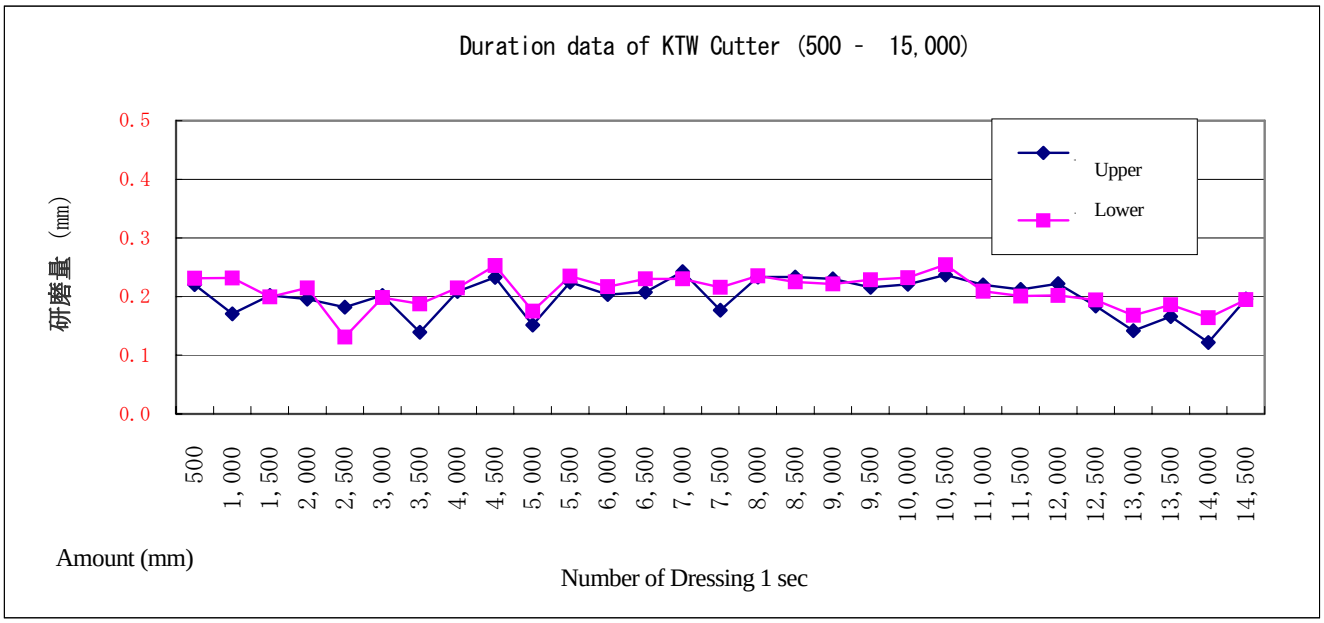
Parts List

NO.	Parts Name	Type or Size	
1	Tip Dresser	MGZ2MS04Z015HZ	1
2	Terminal Box	Include Motor	1
3	Output Bearing Gear	６８０９ＺＺ	2
4	Shaft Plate	TDR-E-P-F-001	2
5	Lower Spring	TDR-E-P-F-004	2
6	Upper Spring	TDR-E-P-F-003	2
7	Shaft	TDR-E-P-F-002	2
8	Slide Bearing	SM16GWUU	2
9	C-Ring for Bearing	軸用　28	2
10	Flat Washer	Ｍ１６用	4
11	Cap Screw	Ｍ８×２５	8
12	Rubber Boot	φ４５×８０Ｌ	4





Cutter Replacement



Even after 15,000 dressing cycles, the consistency of the cutter blade is virtually unchanged.

*Cutter life is determined by conditions.

(Example 例)

Tip material of Electrode : Cr-Cu (New)

Type of Electrode : 1623-A (RR-6-8R)

Type of Blade. : KTW-12 (RR-6-8R)

Number of Revolution : 273 rpm

Gun Force. : 1,960 N (200Kgf)

The Dressing Conditions : Dresser Revolution → Gun Pressure (2sec) → Gun release → Dresser stop

The measuring of one time (2 second)＝ The tip length before dress－The tip length after dress

The result of the above method is an **average dressing quantity of 0.2mm for 2 second.**

Nevertheless, **Cutting ability in 2 second is 0.1mm (0.2mm÷2)**

※ A new cap tip (no weld) was used in test.

※ Cap tip surface sometimes will be very hard because of welding condition, so above standard is not always right.

※ Please watch cutter and cap tip condition.

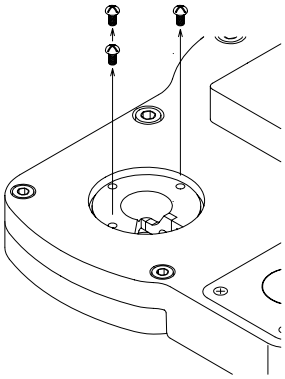
※ If you would like to make cutter life longer, please change dressing condition such as timing and pressure.

※ Dressing times and cutter life will depend on conditions.

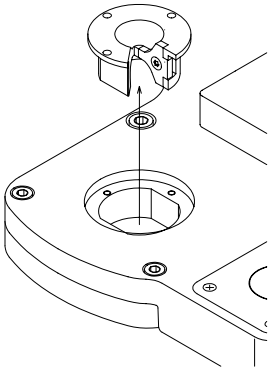
☆ For further information , request the cutter instruction manual.

How to change the cutter blade

1　Remove M3 cap screw from cutter holder.

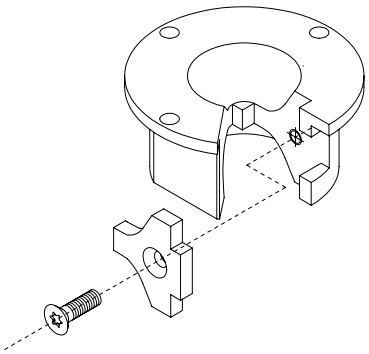


2　Remove the cutter holder from dresser.



3　To remove the cutter from cutter holder, loosen the M3 torque screw.

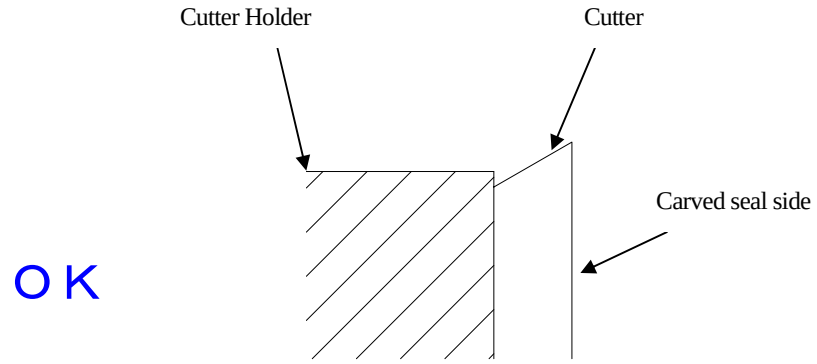
※ Use T-10 torque wrench.

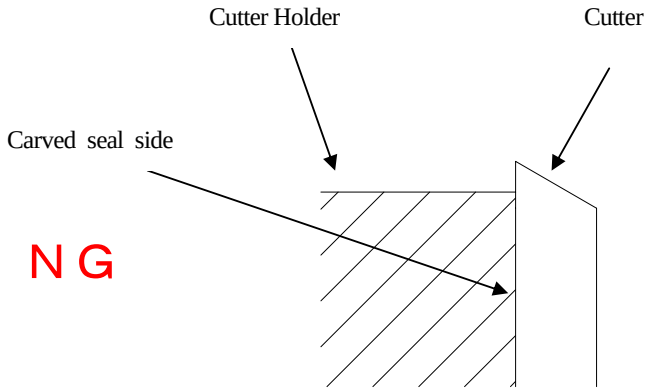


4 Replace New cutter

Confirm blade is replaced in the proper direction.

M3 screw is torque to 10-12kgf.cm.





5 Install the cutter holder to the dresser. Please do the reverse order from 1 to 3.

M3 cap screw is exclusive use for setting of cutter holder.

（torque of M3 screw is 10-12ｋｇｆ・ｃｍ）

[Cautions and Confirmation Before The Operation】

1. Confirm the specifications again.(voltage, option, etc)
2. Make sure of the conformity between the blade and tips.
3. Install the dresser in a place where the operator cannot touch it directly during the operation.
4. Confirm that the cutter and holder are securely fastened.
5. Confirm that the cutter holder is securely fastened into the dresser.
6. Make sure dresser and stand bolts are tightened firmly. Also, confirm stand is bolted securely to floor.
7. When connecting the wires to dresser, operation procedures must be followed with the electric construction standard and also make sure that it is protected from cooling water or spatter.
8. Be certain dresser is grounded.
9. Install in a location with little or no spatter.
10. Confirm the rotation direction of the KTW cutter is clockwise.
11. Confirm that only the cap tips are contacting the dresser. Also check for unusual sounds.
12. When the gun is pressurized, make sure that the current is not applied, and pressure is in usable limits.

13. Confirm the quality of the finished tip. Be sure that the shank is stable and not shaking during dressing.

◆The causes of the failure in dressing.

① The gun is not released during the revolution of the dresser.
② The pressure is too high or too low.
③ The forms of the tip and blade are not conformed.
④ The dressing time is too short.
⑤ The teaching is not applicable.
⑥ The forms of the tip after and before the dressing are too different.

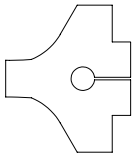
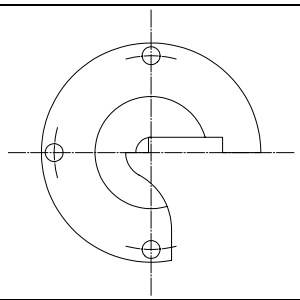
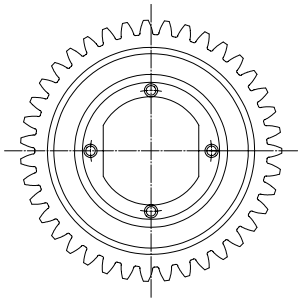
◇If dressing is in failure due a problem other than those described above, please contact with us without hesitation.

Abnormality and How to repair

Abnormal condition	Cause and Countermeasure
Dresser does not rotate.	* The power switch is OFF. → Check the power source. * Wire is cut-off or poor contact. → Check the junction box and control panel. * the thermostat fuse of motor side is working. → Check the motor and reset it after cooling down. * The gun pressure is higher than specified by our company. → Set gun pressure under 1,960N(200kgf). * Motor has seized. → Replace the motor. * The blade is not suitable for the tip. → Check the blade shape and replace the blade.
The motor is running but the blade does not rotate.	* Gear in the gear box is broken. → Remove the gear from the gear box and replace it.
The diameter of the dressed tip is not according to specification.	* Dressing time is insufficient. → Set the dressing time to the tip that has been crushed most. * The cutting capability of the blade has deteriorated or the blade has been damaged. → Replace the blade and check the gun pressure. * The tip is not at the proper position for dressing. → Re-do teaching. * The blade is not suitable for the tip. → Check the blade shape and replace the blade if the shape is not suitable for the tip. * Gear in the gear box is broken. → Remove the gear from the gear box and replace it. * Cutter blade screw has loosened. → Tighten the screw.
Make abnormal sound, noise during dressing.	* The tip is not at the proper position for dressing. * The blade has been damaged. → Replace the blade and check the gun pressure

Abnormal condition	Cause and Countermeasure
Dresser leaves burr on cap tip.	* The control method is wrong. → while dresser is rotating, gun has opened. Set the control to stop the dresser * The blade is not suitable for the tip. → Check the blade shape and replace the blade if the shape is not suitable for the tip. * The blade has been damaged. → Replace the blade and check the gun pressure. * Cutter blade screw has loosened. → Tighten the screw.
The tip diameter is not at the center or the designated location.	* The tip is loose in the blade because the shank is too long. → Replace with a concentric guide for long shank. * The whole length of the tip is too short, not the same in the initial position. → Replace with a new tip. * The bushing in the gear box has been worn out. → Replace the part .(Bushing: TDR-GA-008) * The tip is not at the proper position for dressing. → Re-do teaching.
The tip is not a true circle but an oval.	* The tip is loose in the blade because the shank is too long. → Replace with a concentric guide for long shank. * The bolts that fasten the motor and the gear box are loose. → Tighten the bolts. * The bolts that fasten the dresser to the stand are loose. → Tighten the bolts
The tip dressing is not completed in the set time.	* The cutting capability of the blade has deteriorated or the blade has been damaged. → Replace the blade and check the gun pressure. * Dressing time is insufficient. → Set the dressing time to the tip that has been worn the most. * Because of frequent dressing of tips, its hardness is decreased. → Adjust the dressing pressure accordingly.
・Remarks・Please be sure the switch is off when you are repairing, checking or replacing parts or blades of dresser. ・When the dresser is out of order, please contact us immediately. Do not take the dresser apart. Repair will be difficult if you disassemble it.	

Consumption Parts List

	The periodical replacements ＊ Cutter Type [KTW- Replacement Qty 1pcs Replacement cycles The total dressing time 30,000 second
	The periodical replacements ＊ Cutter holder Type [KTWH- Replacement Qty 1pcs Replacement cycles The total dressing time100000 second
Outsourced Product	Repair, Overhaul handling ＊ Bearing for Tip Dresser Type 6809ZZ Replacement Qty 2 pcs Replacement cycles 500 hours or 6 months Parts List P14 Figure No ③
	Repair, Overhaul handling ＊ Gear with bearing ϕ34 Type TDR-D-P-006-2 (with B R) Replacement Qty 1pcs Bearing replacement cycles *500 hours or 6 months Gear replacement cycles *2000 hours or 2 years

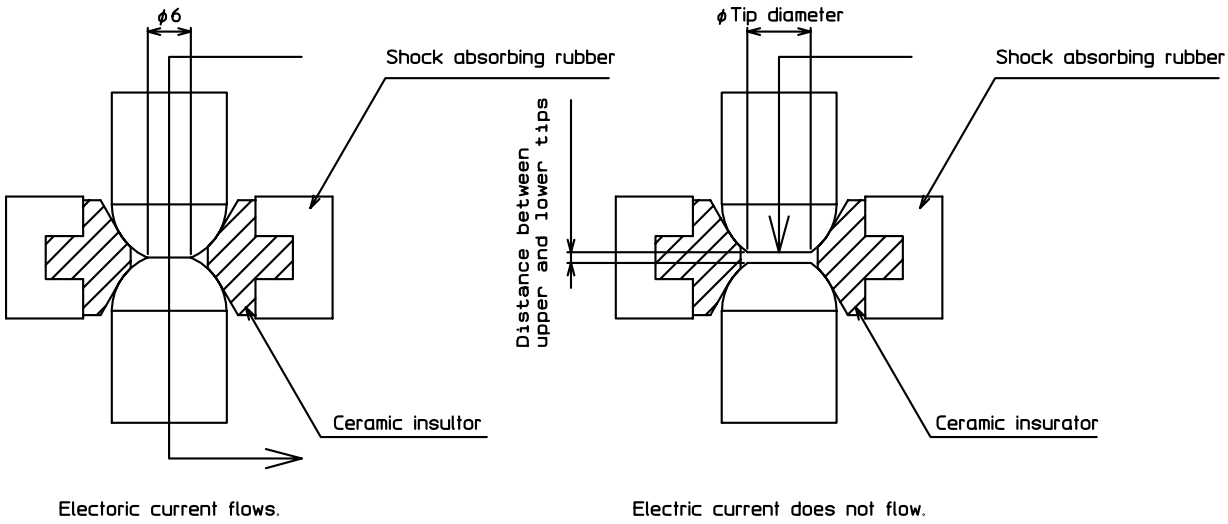
Available Options

1 Top Surface Verification Device (TSVD)

Features: Measures top surface diameter after dressing to insure quality welding conditions exist.

Specifications: Tip dia 16 OD.

- Can only be used with C-guns.
- Maximum gun pressure is 1470N (150kgf)
- There must be an electric current control function in the timer.
- Tolerance of the top surface diameter is +0.5mm, -0mm.



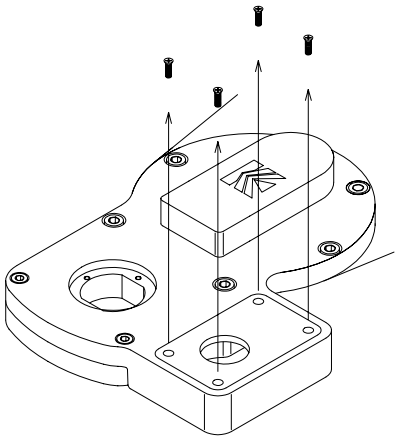
When verifying top surface diameter, gun pressure must be no more than 1450 N and the electrical current can be no more than 2000 A.

Tip Diameter φA(mm)	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
Distance Of tip X(mm)	0.041	0.082	0.125	0.168	0.212	0.257	0.303	0.349	0.397	0.445

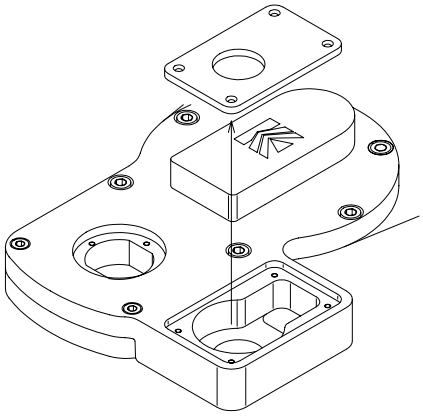
Tip Diameter φA(mm)	7.25	7.5	7.75	8	8.25	8.5	8.75	9	10	11
Distance Of tip X(mm)	0.569	0.699	0.835	0.976	1.123	1.277	1.437	1.604	2.342	3.213

Installation of Top Surface Verification Device

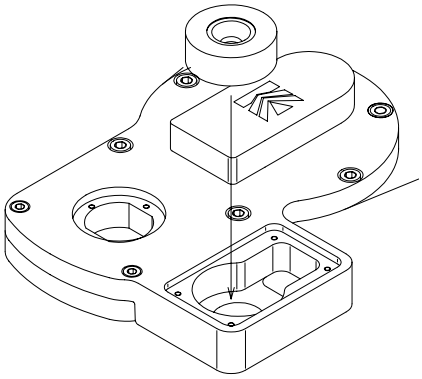
1　Remove 4 M3 screws



2　Remove Cover



3　Insert TSVD



4　Replace cover and screws

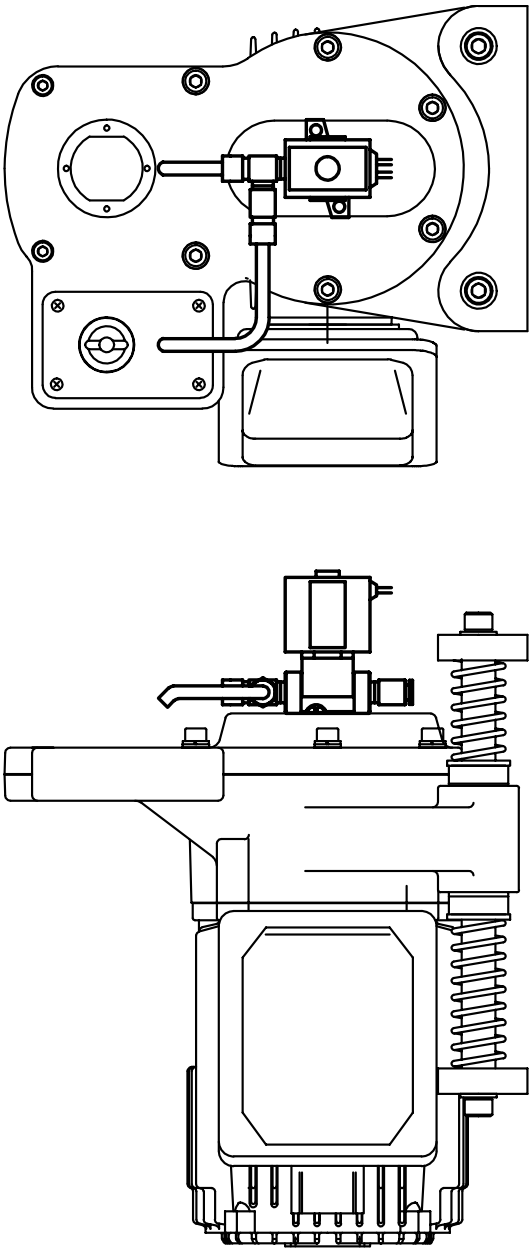
2　Air Blow Unit―（Ａ－２４）（Ａ－１００）（Ａ－２００）

Feature: Removes chips and spatter from blade and TSVD.

Specs: ・Air pressure　５ｋｇｆ．ｃｍ。

・Voltage of solenoid valve　ＤＣ２４Ｖ　ＡＣ１００Ｖ　ＡＣ２００Ｖ (Please specify)

・Solenoid Vlave　ＳＭＣ　ＶＸ２１１０－０１－＊＊－Ｂ



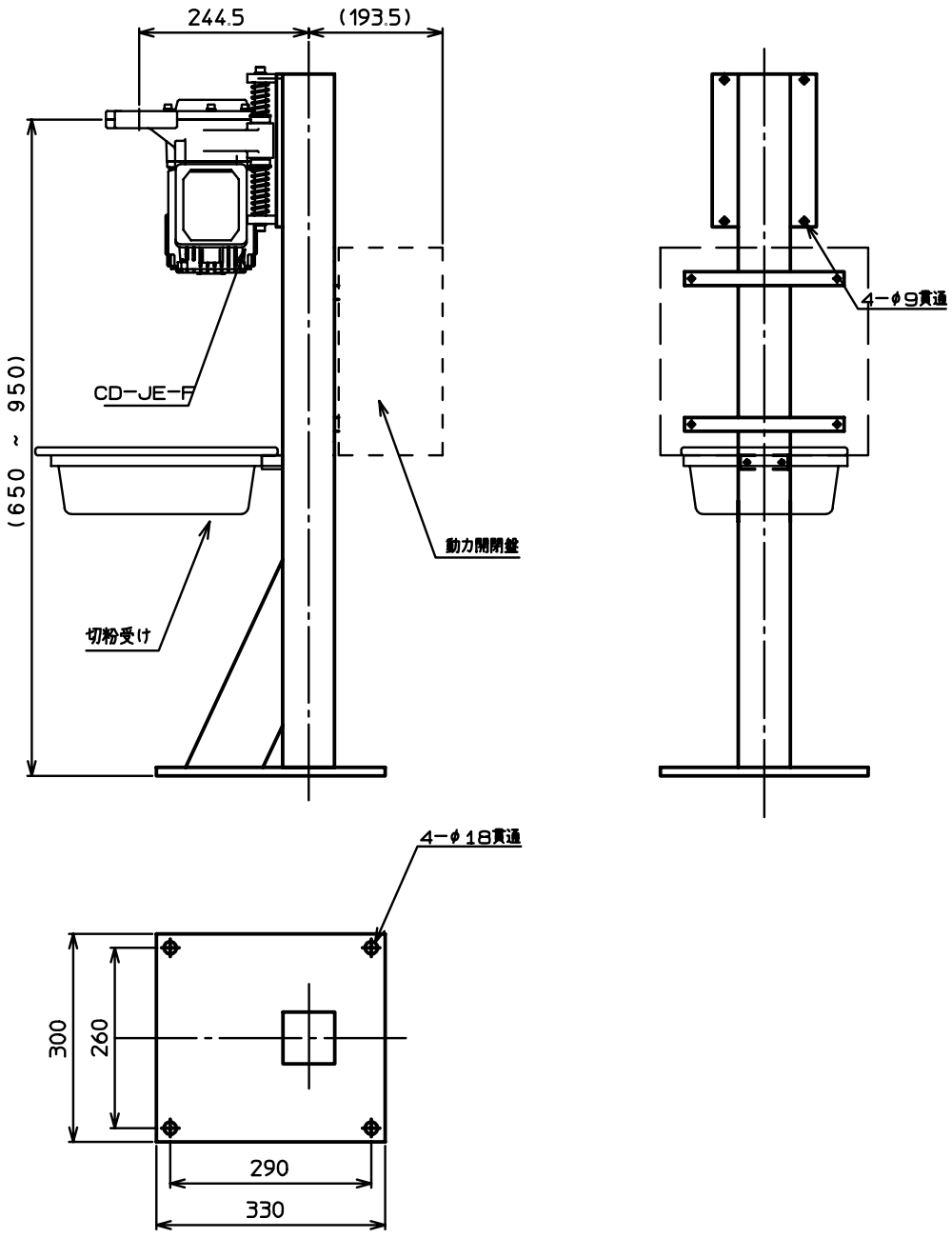
3　Stand　（ＳＴ－＊＊＊）

Feature: Conveniently mount tip dresser and switching box for use in welding line.

Specs: ・Height:　６５０mm to ９５０mm (Please specify exact heighth)

・Tip Receiver is standard

・Available in any color (Standard color: White)



4　Switching Box（ＫＰＳ－１０１ＪＥ－２００）（ＫＰＳ－１０１ＪＥ－４００）

(Please specify required voltage.)

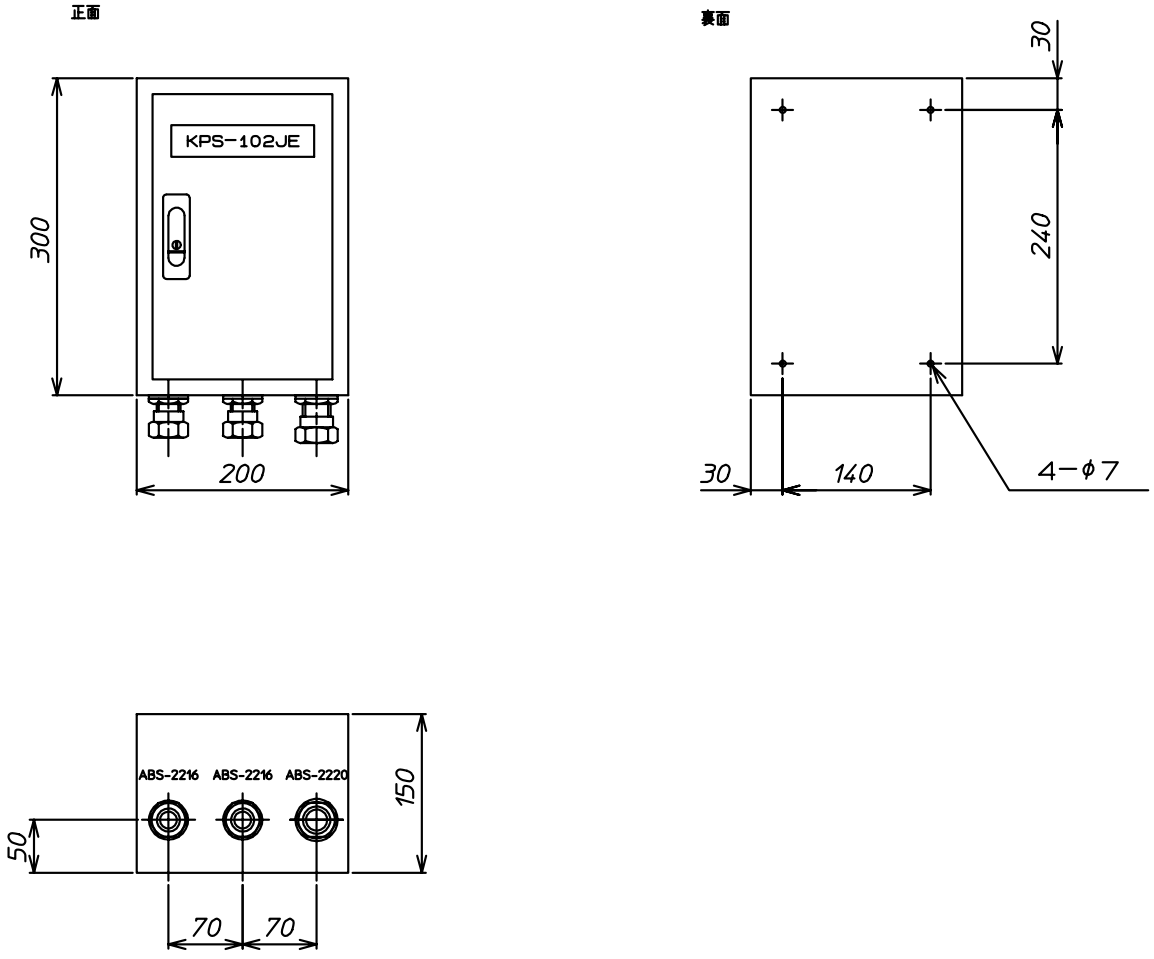
Feature: Connects to Robot PLC to operate tip dressing function.

Specs: ・Magnet Relay Voltage:　　ＤＣ２４Ｖ。

・Motor Protection:　　Thermal Relay

・Surge Protector

Drawings



Layout of Swithching Box

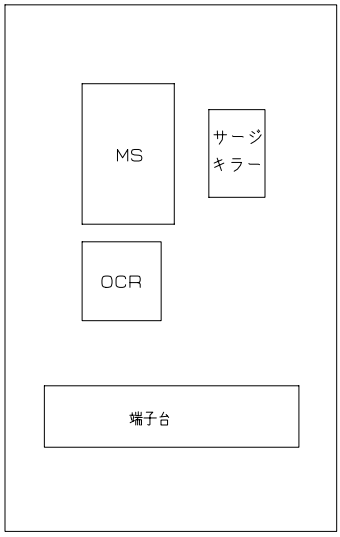
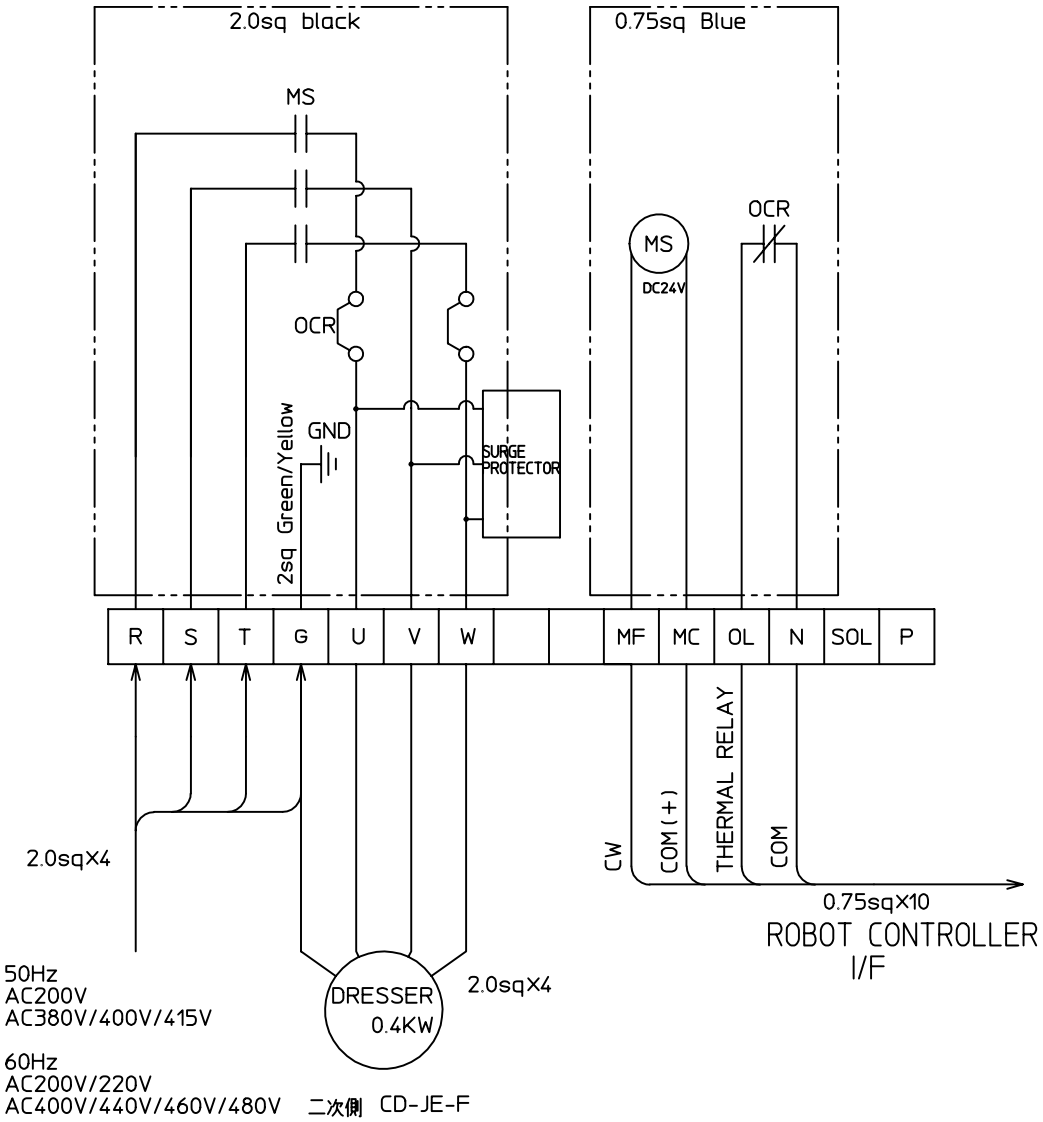


Diagram of Switching Box



5 Rotating Sensor

Feature: Proximity sensor checks cutter rotation.

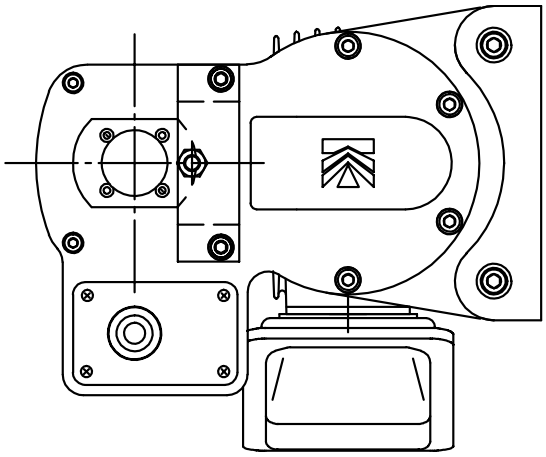
Specs: Proximity Sensor (Omron)

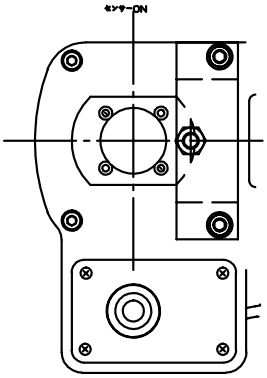
DC 2 Wire NO E2E－X2D1N（2m）

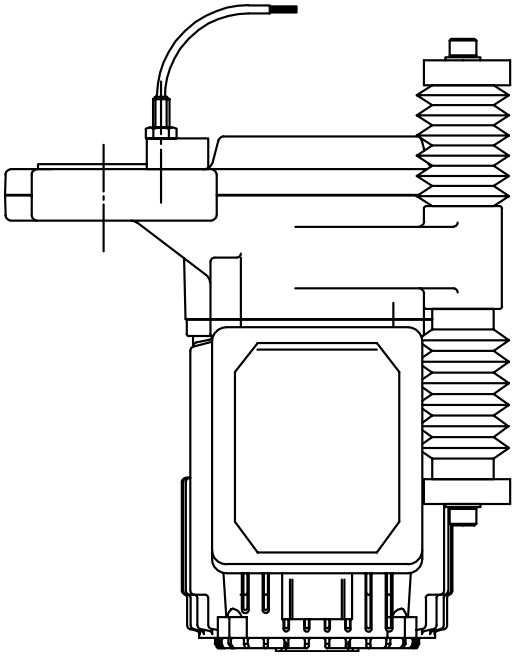
DC 3 Wire NO NPN E2E－X1R5E1（2m）

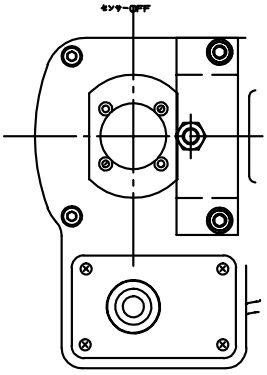
DC 3 Wire NO PNP E2E－X1R5F1（2m）

Switching Speed (Pulse Speed) 2 pulse per second





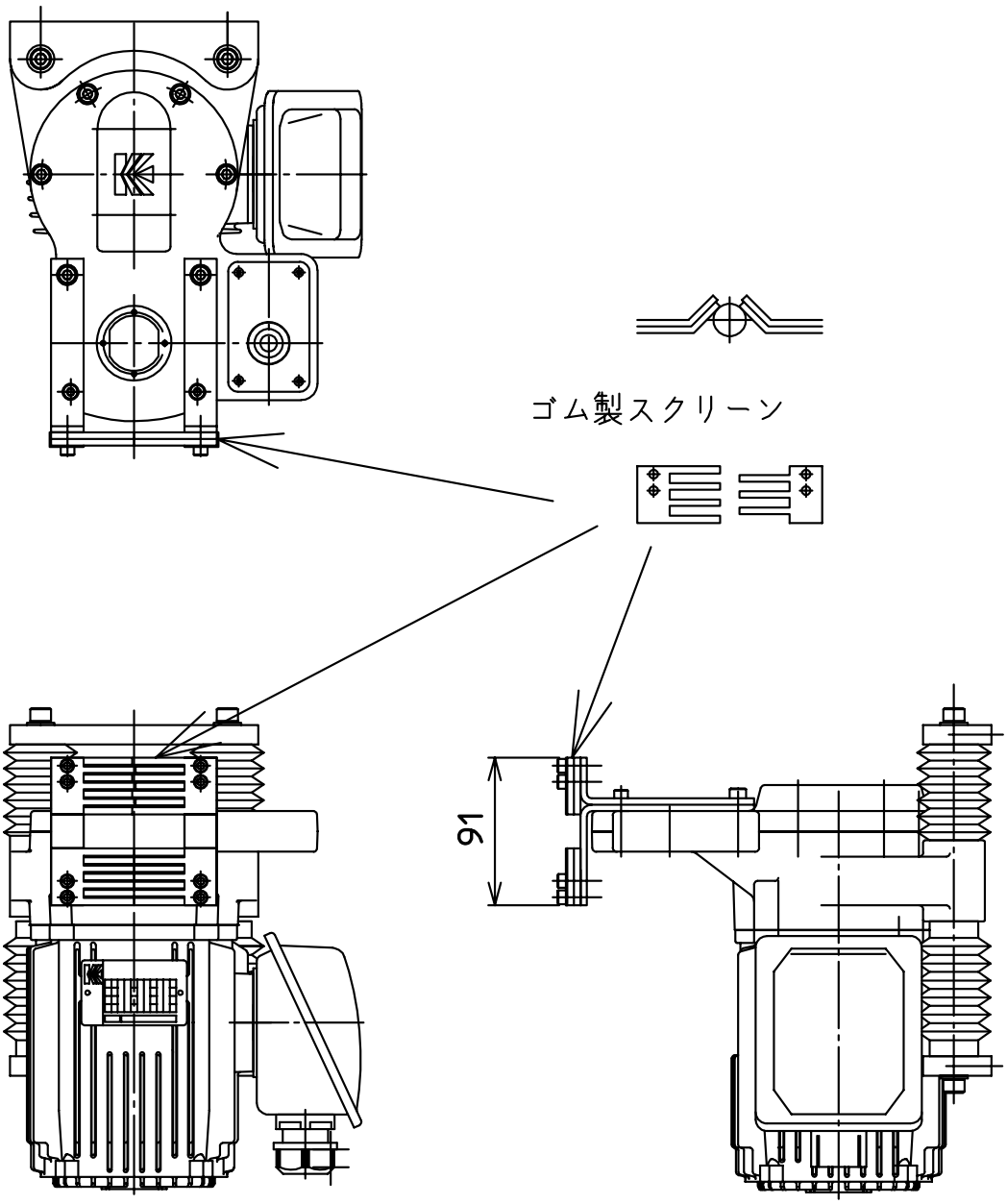




6　Tip Cleaning Screen（ＣＳ）

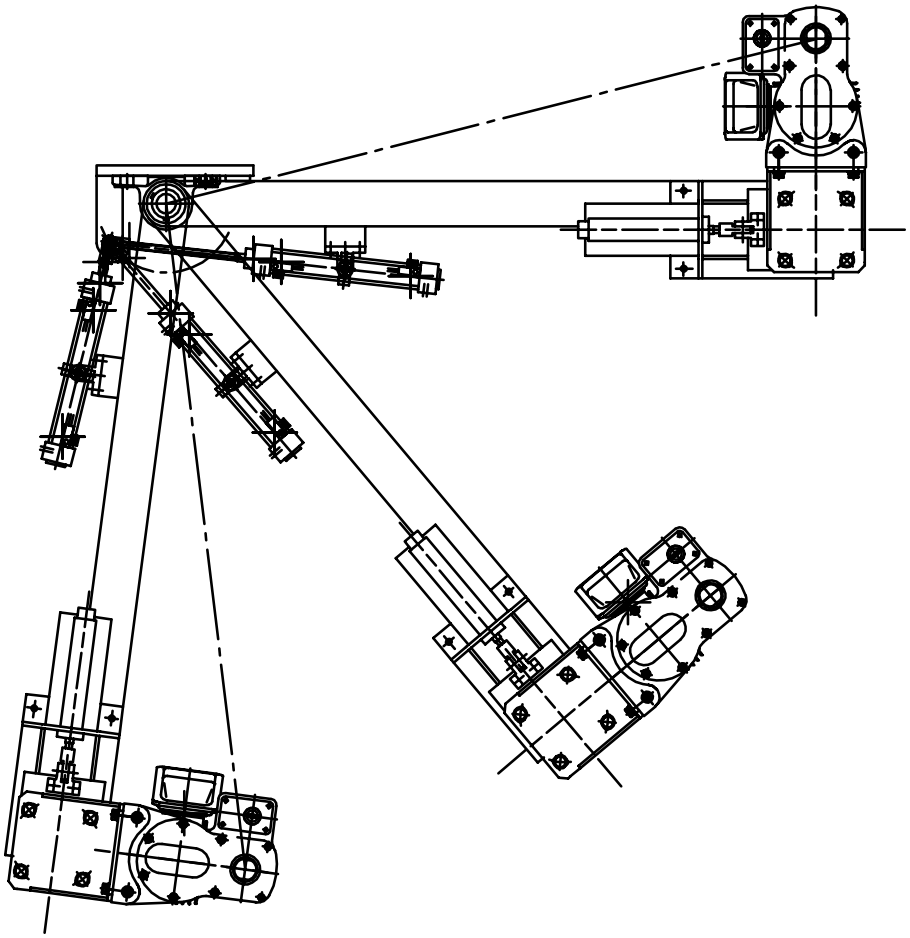
Feature: Removes spatter and chips from cap tips.

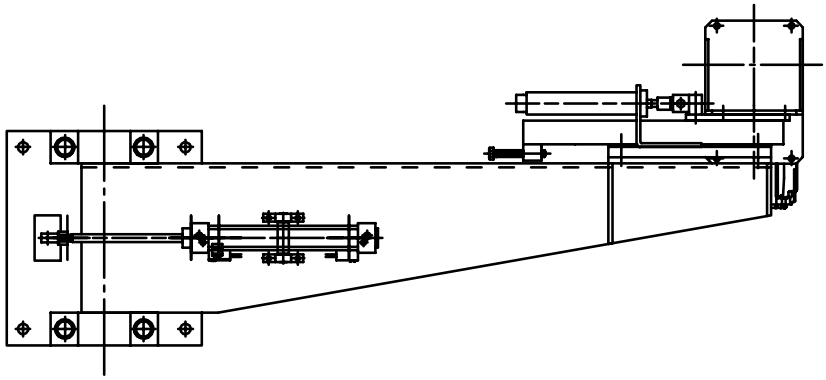
Specs: Screen is made from urethane foam.



7 Swinging Device (SD)

Feature: Used for automatic tip dressing of stationary spot welders.





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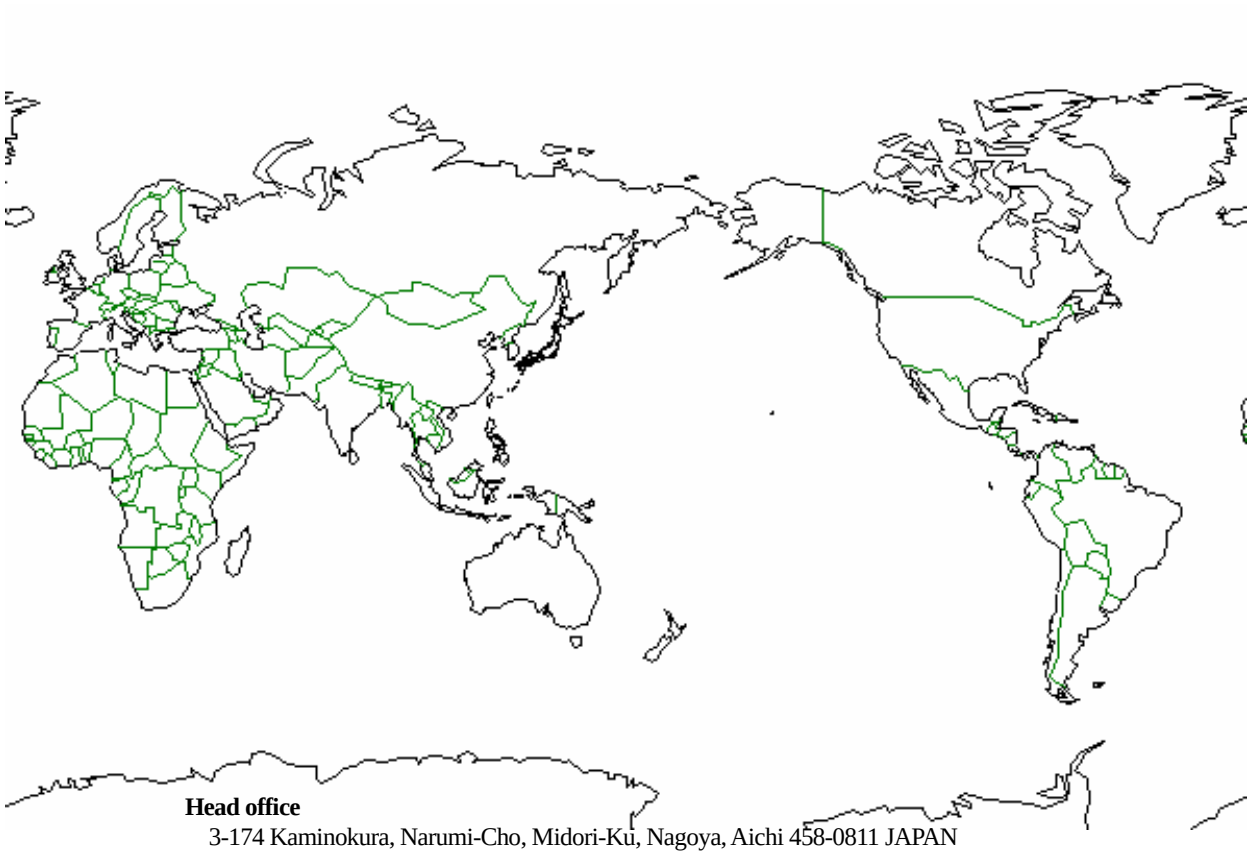

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