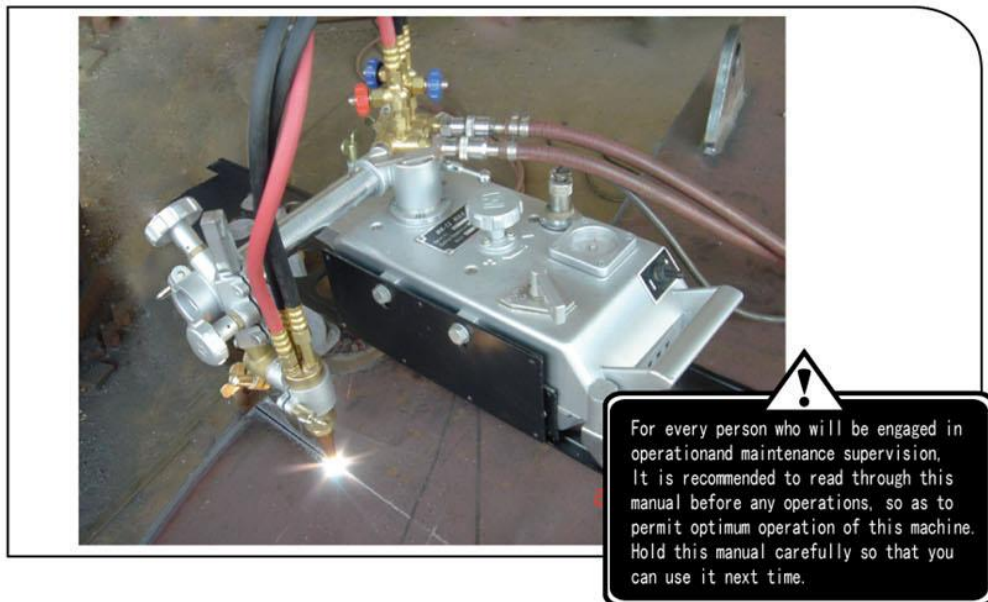


OPERATING INSTRUCTIONS



HK-12MAX-II Portable Flame Cutting Machine

INSTRUCTION

Thank you very much for purchasing this product. Read this instruction manual thoroughly to insure correct, safe and effective use of the machine. Read the manual first to understand how to operate and maintain the machine.

Make sure you read, understand and take all the necessary safety precautions.

SAFETY PRECAUTIONS










This product is designed to be safe, but it can cause serious accidents if not operated correctly. Those who operate and repair this machine must read this manual thoroughly before operating, inspecting and maintaining the machine. Keep the manual near the machine so that anyone who operates the machine can refer to it if necessary.

- **Do not use the machine carelessly without following the instructions in manual.**
- **Use the machine only after you completely understood the contents of the manual.**
- **If an explanation in the manual is difficult to understand, contact our company of sales service office.**
- **Keep the manual nearby at all times and read it so many times as necessary for a complete understanding.**
- **If the manual become lost or damaged, place an order with our company or sales service office for a new one.**
- **When transferring the machine to a new owner, be sure to hand over this instruction manual as well.**

QUALIFICATIONS FOR MACHINE OPERATOR

Operators and repair staff of this machine must completely understand the contents of the instruction manual and they must be qualified and educated to handle this equipment.

1. The license for gas welding ganger
2. The diploma of the training course on gas welding.
3. The qualification certificate approbated by the ministry of labor.

Symbol	Title	Meaning
	General	General caution, warning and danger
	Be careful not to get your fingers caught.	Possible injury to fingers if caught in the insertion part.
	Caution: Electric shock!	Possible electric shock under special conditions.
	Ground this equipment.	Operators must ground the equipment using the safety grounding terminal.
	Pull out the power plug from the outlet.	Operators must unplug the power plug from the outlet when a failure occurs or when there is a danger of lightning.
	Caution against bursting	Possible bursting under certain conditions.
	General	General warning.
	Caution: Hot !	Possible injury due to high temperature under certain conditions.
	Caution: Ignition!	Possible ignition under certain conditions.

CONTENTS

1 Safety instruction	1
2 Cautions in handling a portable cutting machine	1
3 Cautions in handling	3
4 Stick on place for caution label	5
5 Specification	6
5.1 Specification	6
5.2 Accessories	6
5.3 Option	7
6 Operation	7
6.1 Torch set	7
6.2 Set up	8
6.3 Preparation	8
6.4 Cutting processes	8
6.5 Cutting operation precautions	11
6.6 Cutting operations	11
7 Maintenance and inspection	12
8 Trouble shooting	12
8.1 Carriage does not move (motor does not run)	12
8.2 Carriage dies not move(Motor runs)	13
8.3 Abnormal carriage	13
9 Wiring diagram	14
10 Assembly drawing	14
11 Maintenance illustration	15
12 Cutting data	15
13 Diagrams & parts list	17

1 Safety instruction

Throughout this manual, notes, cautions, and warning are used to describe situations that require additional information. The following formats are used for each.

■DANGER

This word is used in a danger message at places that have big possibilities to cause injuries or deaths as results of non avoidance.

■WARNING

This word is used in a warning message at places that have possibilities to cause injuries or seriously damaging accidents as results of non avoidance.

■CAUTION

This word is used in a caution message at paces that have possibilities to cause slight injuries or damages of machine as results non avoidance. This is also used as a caution to habitual dangerous actions.

■NOTICE SIGNS

This is a sign to show machine operators and maintenance engineers items that relate directly to damage of machines and surrounding facilities and equipment's.

We list items to be specially observed for safe operations of the machine as followings. Please read them before starting operation for safety.

2 Cautions in handling a portable cutting machine

1. Machine casing is mainly made of aluminum alloy to lighten weight.

For this reason be careful not to drop a heavy item in the machine, or not to drop the machine. When carrying it since the alloy is not designed to with stand such impact.

2. Be sure to check the input power voltage of the machine before any operation. The input power voltage should be in the range of ($\pm 10\%$)of the rating voltage. It is not recommended to operate the machine out of this range.

3. Before connecting the cable with the metal plug on the machine side check if there is nodust inside. The metal plugs are screw threaded therefore be sure to fully tighten them so that they will not come loose during operation.

4. When mounting hoses to the torch and the distributor, tighten the nut with the attached wrench.

5. Bundle together the hose and cable with a tape, and place them on the opposite side of the flame so as to permit optimum running of the machine to avoid burning them with spatter or dross. So as to permit optimum running of the machine and to avoid burning them with spatter or dross.

6. Select tip type and gas pressure referring the standard tip capacity table.

7. Make sure to reset the change-over switch (neutral position or stop position) when reversing the running direction of the machine and only reverse direction after the machine stops.

8. Never move the machine while it is having the preheat flame on.

9. Always turn the power off when not in use.

10. The cutting operation noise levels may require ear protection for the operation and personnel in the adjacent area.



CAUTION

- When fixing a tip to the torch tighten the nut with the two wrenches attached. In addition, avoid damaging the taper of the tip since this may cause back fire.
 - Check with soapsuds, any leakage of gas from the connection part of distributor, hose and torch. Never use any oil or grease on the connection of the oxygen pipe to avoid backfire which may lead to explosion.
 - Be sure to check the following igniting.
Place the torch on the torch holder before igniting.
Always wear required protectors (gauntlets, goggles, helmets, etc.).
Check for any obstacles, dangerous materials, and flammable near or in the direction of cutting.
 - Pay full attention on spatters and dross when operating the machine at a high position. They may cause danger to the people below.
 - Torch, tip and heat shield are heated to a very high temperature. Make sure to use leather gloves when handling them, also the surface after cut is very hot so do not touch it even with the gloves on.
 - Never use the machine outdoors when the weather is wet. This will cause failure of the machine and may cause a fatal accident. And may cause a fatal accident like an electrical shock.
 - Never disassemble or remodel the machine other than in maintenance and inspection. Otherwise, it will result in malfunction.
 - The cable of this machine is equipped with grounding wire. For safety, be sure to ground the wire as follows, in addition to checking connection of the power cable.
- 1) The simplest way of grounding the wire is to connect the clip to the steel frame as shown in the right diagram.
 - 2) If a grounding wire is already equipped in the site connect the clip to the wire.

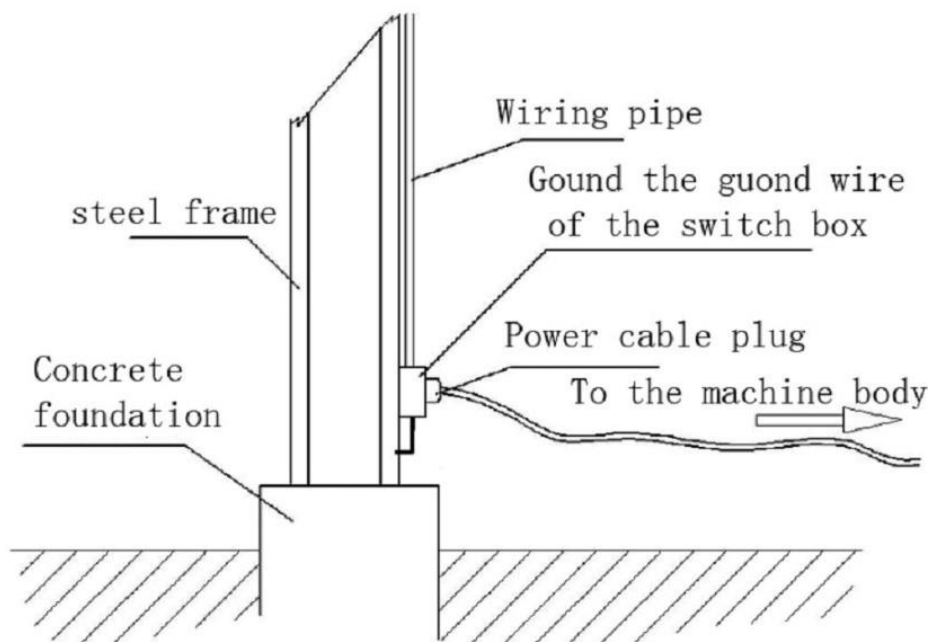


Fig 1

3 Cautions in handling

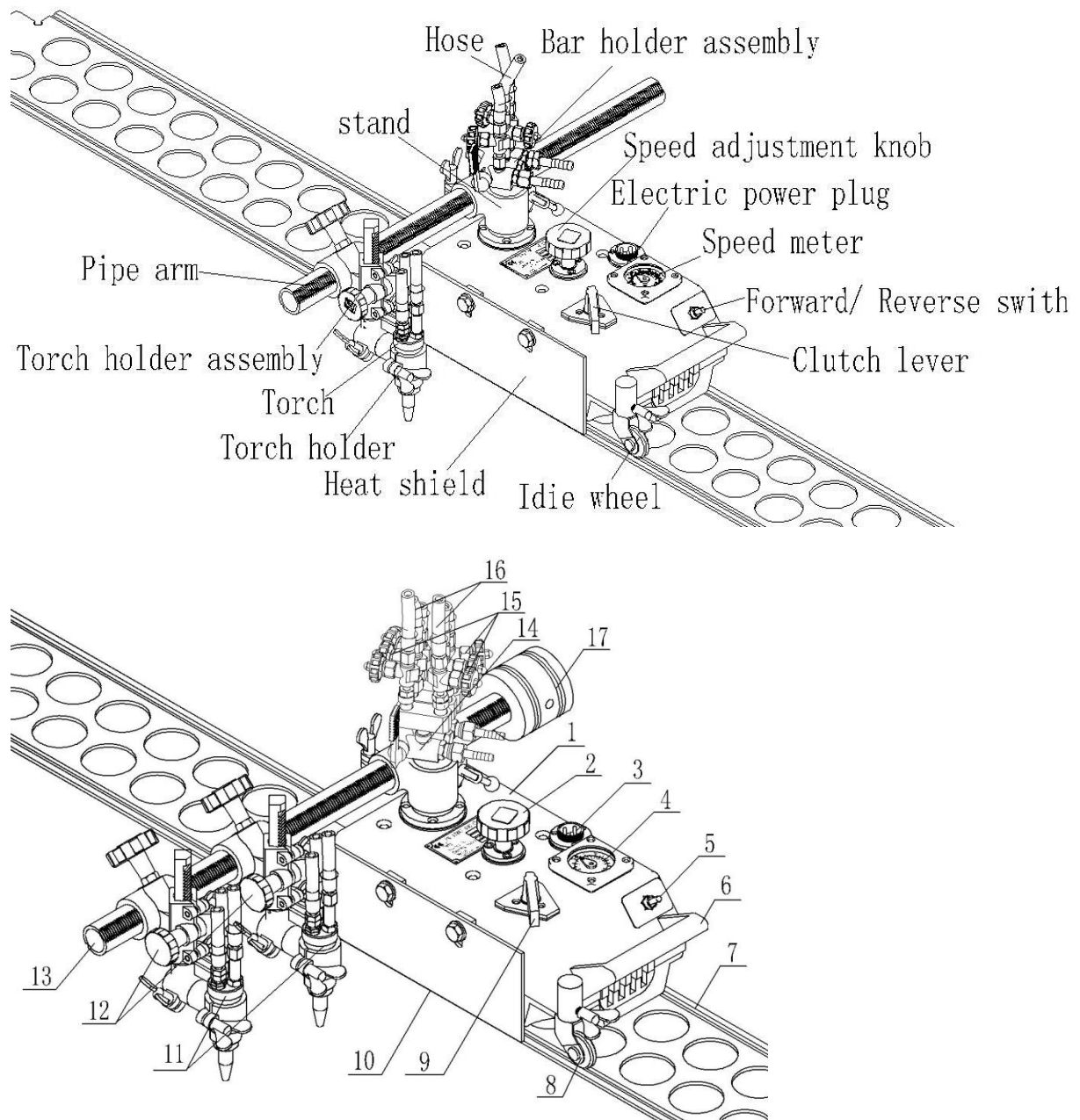


Fig 2

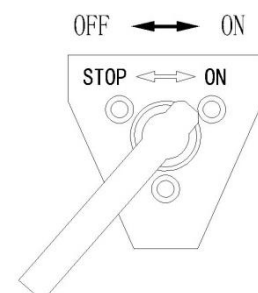
1. when joint the rails ,be careful not to catch your hands between the rails.

2. Clutch

Before running the machine, check to be sure the clutch is in. If the machine runs keeping the clutch by halves, troubles will arise for this reason.

3. After setting the cutting position using vertical and horizontal holder fox the position by tightening the screws for both holders.

4. Never hit the running surface with a hammer when aligning the tip with a making line. any dents on the running surface may result in irregular running such as knocking.



5. Direction switch

- By manipulating the direction switch the machine can be moved forward and backward. Neutral position on the switch is the stop position of the machine. Fig.3
- When shifting the direction make sure that the changeover switch is in neutral position, position, and shift the direction after the machine is stopped.
- Be sure that the switch is at neutral position before starting the machine.

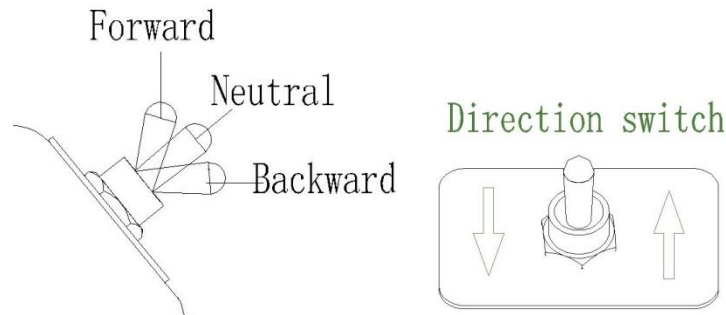


Fig4



Make sure that switch is in the neutral position before turning the power on, If the switch is in forward or backward position the machine will start as soon as the power is on which may lead to serious accidents.

- Never place your hands near the guide wheel, below the machine or between the heat shield and the steel plate whenever the machine is in operation. You may get caught in the machine and will be seriously injured, Also, never place your hands near any rotating parts of the machine.
- Always carry the machine holding the handle when carrying the machine or manually shifting the rail with the clutch disengaged. Carrying the machine by the hose will shorten the life of hose.
Should the hose becomes old, leakage of the gas may occur. Precision in cutting may be reduced even if the holder is deformed.
- When moving the rails, be sure to take down the machine body off the rails. Care must be taken to avoid the deformation of the rails which will otherwise make inadequate the cutting preciseness.
- Keep clean the running surface of the rails so that any of damages to the rails and knocked running of the machine as well can be avoided.
- When cutting is performed on the rails ,be sure to fox the idle wheels.(refer to fig 5)

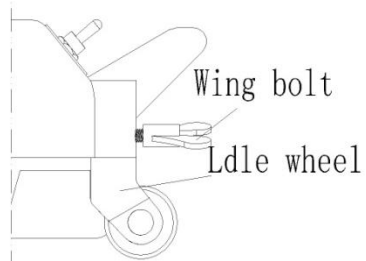
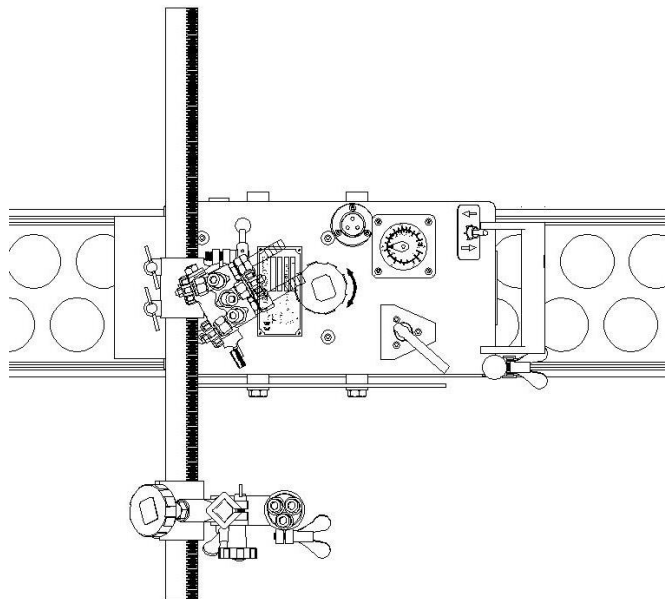


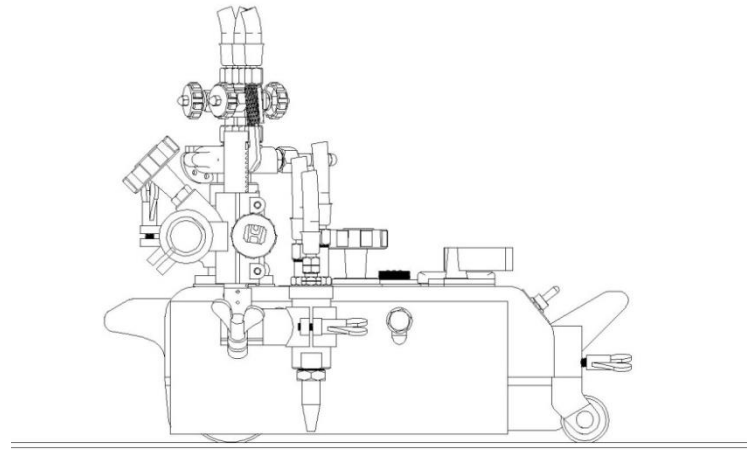
Fig 5

11. Heat shield should be fixed firmly so that it may not contact the rails.

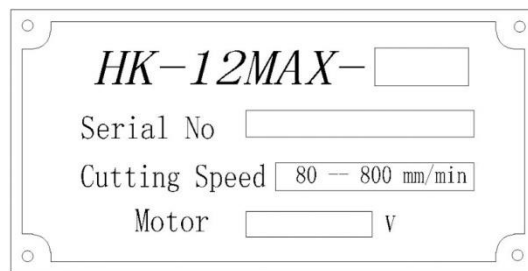
4 Stick on place for caution label

Please refer the places for each labels the machine.





1-1 Machine weight



1-2 Name plate

Fig6

5 Specification

5.1 Specification

1.Weight(body)	:10kg
2.Machine size	:440mm×205mm×125mm
3.Wheel distance	:160mm
4.Power source	:AC 42V, 110V , 220V
5.Reduction gear	:Double cone system
6. Cutting speed	:80mm/min-800mm/min(50Hz) :100mm/min-1000mm/min(60Hz)
7.Cutting edge shape	:I V (45)
8.Cutting thickness	:5mm-30mm(102or106 #0,1,2)
9.Motor	:1500r.p.m/1800r.p.m(9w/10w)

5.2 Accessories

1. Cabtyre cord: 1set

5.3 Option

1. Rail: 1.8m, 2.5m, 3.0m
2. Circle rail
3. Circle cutting attachment
4. S-100 torch set
5. Sp-100 torch set
6. Sp-300 torch set
7. Sp-400 torch set

6 Operation

6.1 Torch set

Carefully take the machine and the rail out of the case. First, please check your unit to make sure it is complete. The following is a list of the standard parts you should receive.

		S-100	S-200	SP-100	SP-200	SP-300	SP-400	L-100	EPOCH-300
1	Pipe arm	350mm 1pc.	500mm 1pc.	350mm 1pc.	500mm 1pc.	500mm 1pc.	500mm 1pc.	500mm 1pc.	500mm 1pc.
2	Arm holder	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.
3	Torch holder	1 set	2sets	1 set	2sets	1 set	1 set	1 set	1 set
4	Distributor	Single 1 Pc.	Double 1Pc.	Single 1 Pc.	Double 1Pc.	Double 1Pc.	Triple 1Pc.	Single 1Pc.	1Pc.
5	Hose	600mm Blue 2Pcs. Red 1Pcs.	900mm Blue 4pcs. Red 2pcs.	600mm Blue 2pcs. Red 1pcs.	900mm Blue 4pcs. Red 2pcs.	900mm Blue 4pcs. Red 2pcs.	900mm Blue 6pcs. Red 3pcs.	1000mm Flexible 3pcs.	1000mm Flexible 3pcs.
6	Torch	Ø32×70 1Pc.	Ø32×70 2Pc.	Ø32×70 1Pc.	Ø32×70 2Pc.	Ø32×90 With rack 3Pcs.	Ø32×90 With rack 3Pcs.	A3 B2 1Pc.	Epoch Torch 1PC.
7	Guide roller	-	-	1set	2set	1set	1set	-	-
8	Barnacle weigh	-	1Pc.	-	1Pc.	1Pc.	2Pc.	1Pc.	1Pc.
9	Spanner	Open ended spanner with double end type.1set(3pcS.)							
10	Driver(+ #2)	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.	1Pc.
11	Hose band	2Pcs.	2Pcs.	2Pcs.	2Pcs.	2Pcs.	3Pcs.	3Pcs.	3Pcs.
12	Tip Cleaner(16mm)	1set	1set	1set	1set	1set	1set	1set	1set
13	Weight Fixing bolt	M10×35 with washer					M10×45	M10×35	M10×45
	-	2Pcs.	-	2Pcs.	2Pcs.	2Pcs.	2Pcs.	2Pcs.	2Pcs.

14	Tip	102(acetylene)or106(Propane)#1,1,2 each 1Pc.						102(acetylene) or106(Propane))#0,1,2 each 1Pc.	Tip for Epoch 2Pcs.
15	V-cutting holder	-	-	-	-	1set	-	-	-
16	K-cutting holder	-	-	-	-	-	1set	-	-

6.2 Set up

Please follow the instructions below to prepare your machine for operation: Fig 7

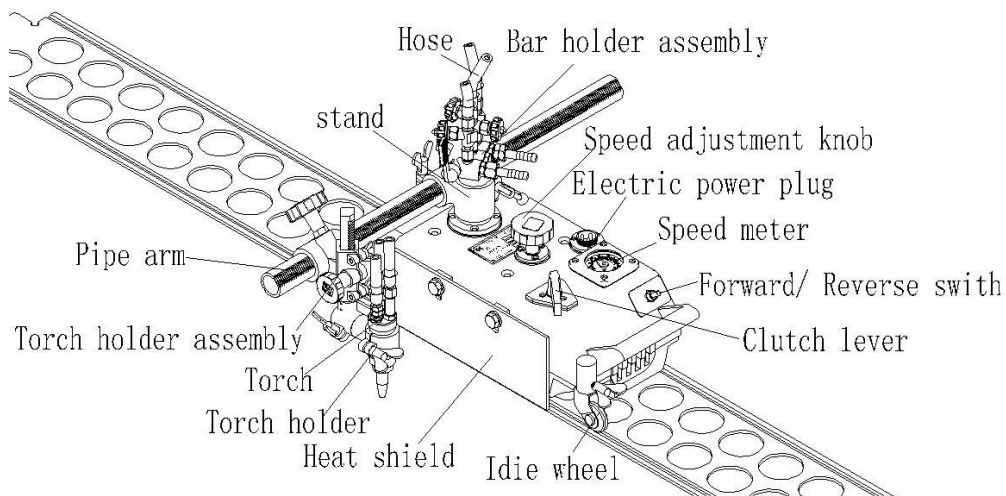


Fig 7

1. Fix the bar holder assembly to the stand, and insert the pipe arm into the bar holder assembly.(Fasten them with a wing bolt.)
2. Inset the torch holder assembly into the pipe arm.
3. Fasten the distributor and hose, and insert them into the stand.
4. Fasten the torch on hose, and insert them into the torch holder.

6.3 Preparation

1. Please connect cabtyre cord to power supply.
2. When fitting hoses on the primary gas side, confirm that the blue hose is connected to the oxygen outlet and the red hose to the preheat gas outlet.
3. Select a tip according to the thickness of the plate, referring to the cutting data, and fit it to the torch carefully so as not to damage the torch or tip.
4. Then, adjust the pressure with the regulator also referring to cutting data. First making sure that all valves of the distribution unit are closed.
5. When the ignited, the pressure drops slightly, so re-adjust.
6. Connect the cabtyre cord to the power source with the machine switch being turned to the neutral (stop) position.
7. For operational convenience, tie hoses and cabtyre cord together with tape, etc.

6.4 Cutting processes

1. In straight line cutting

- 1) Align the rail parallel to the planned cut and over 100 away from it.
- 2) Lock the guide wheel by tightening the thumb screw.
- 3) Use extension rails when required.

2. In bevel cutting

The torch inclination indicator is graduated 5° increments from 0° ~60°. When selecting a tip for bevel cutting, compute the cutting condition as indicated.

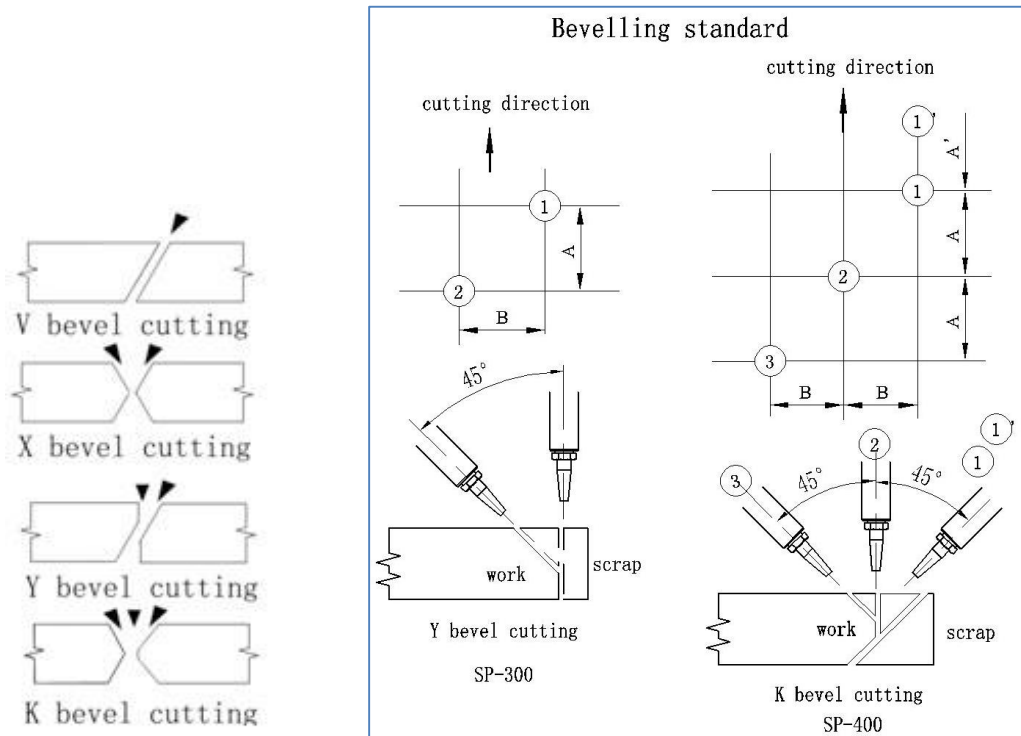


Fig 8

Using model 102 (106) Tip

Torch Tip Plate Thickness(mm)	1			2			3			Gas Pressure Kg/cm ²	Cutting speed mm/min
	Type	Tip NO.	Oxygen Pressure Kg/cm ²	Type	Tip NO.	Oxygen Pressure Kg/cm ²	Type	Tip NO.	Oxygen Pressure Kg/cm ²		
10 (I)	102 (106)	1	2.5							0.4~0.6	490~550
15(Y)	"	1	2.5	102 (106)	0	1.5				"	410~460
20	"	3	3.0	"	0	"	102 (106)	0	1.5	"	330~380
25	"	4	3.5	"	1	"	"	0	"	"	300~350
30	"	5	4.0	"	1	"	"	1	"	"	270~330
35	"	5	4.0	"	2	2.0	"	1	2.0	"	250~300
40	"	5	4.0	"	2	2.5	"	2	2.5	"	200~250

Using together with model 102D7 (106D7) Tip

Torch Tip	1			2			3			Gas Pressure	Cutting speed
	Type	Tip	Oxygen	Type	Tip	Oxygen	Type	Tip	Oxygen		

Plate Thickness(mm)		NO.	Pressure Kg/cm ²		NO.	Pressure Kg/cm ²		NO.	Pressure Kg/cm ²	Kg/cm ²	mm/min
10 (I)	102D7 (106D7)	1	7.0							0.4~0.6	600~680
15(Y)	"	2	"	102 (106)	0	2.0				"	510~550
20	"	3	"	"	0	"	102 (106)	0	2.0	"	450~500
25	"	3	"	"	1	"	"	0	"	"	400~450
30	"	4	"	"	1	"	"	1	"	"	380~400
35	"	4	"	"	2	"	"	1	"	"	330~350
40	"	5	"	"	2	"5	"	2	"	"	270~300

Note:

In the case of 30° beveling, increase the cutting speed about 5%.

Purity of oxygen is required over 99.7%.

Tip spacing: A=10~20

B=20~25mm

3. In the circle cutting

The machine is set up differently in two configurations as shown in the photograph to the left. Set up for circle cutting is as follows:

For circle cutting attachment (refer to fig 9)

For circle cutting attachment

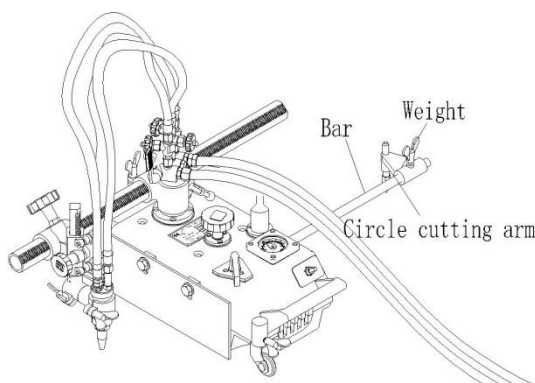


Fig 9

For circle rail

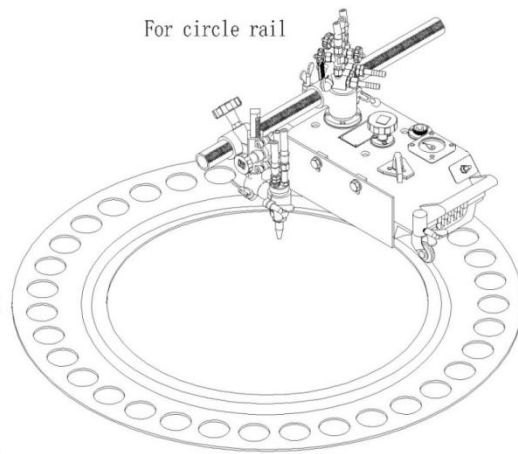


Fig 10

- 1) Remove the shield plate, and free the idle wheel by removing the fixing washer.
- 2) Attach the radius bar to the right side of the machine.
- 3) Attach the pivot pin and the balance weight to the radius bar.
- 4) Free the guide wheel and pull the machine so that it describes a natural arc, and tighten the guide wheel in its natural position.

5) Cutting capacity: $\phi 400 \sim \phi 2400$

For circle rail (refer to fig 10)

- 1) Align the idle wheel to the inside groove of the track, and the guide wheel to the outside groove.
- 2) Free the guide wheel and tighten it in its natural position.
- 3) According to circle size, the torch can be located at both sides of the machine.
- 4) Cutting performance may be improved by forward travelling.
- 5) Cutting capacity: $\phi 40 \sim \phi 360$ 、 $\phi 770 \sim \phi 1150$

6.5 Cutting operation precautions

The most serious problems are backfire and flashback. These two terms are frequently confused, but strictly speaking, backfire is the phenomenon caused by the flame blowing back into the torch,

Being momentarily extinguished, then immediately re-ignited.

Flashback refers to the situation in which the flame blows back into the torch and continues to burn the inside.



WARNING



Causes of backfire

1. Improper gas pressure adjustment
2. Overheated tip
3. Slag lodged in tip
4. Damage to the tapered section of the tip or torch will causes backfire, take the appropriate remedial action before using the torch again.



WARNING



Flashback

Should there be a hissing sound in the torch, quickly do the following:

1. Close the preheat oxygen valve.
2. Close the fuel gas valve.
3. Close the cutting oxygen valve.

Should flashback occur, find the cause and take the proper action before operation.

6.6 Cutting operations

1. Bring the tip to the cutting line.
2. First ignite the tip with the fuel gas valve open and the preheat oxygen valve to produce and neutral flame.
3. Adjust the tip position. Leave a distance of 2~3mm between the plate and the white cone of the flame.
4. After thorough preheating, open the cutting oxygen valve and turn the switch to forward

or reverse travel to start the cut.

5. Then, checking the cutting conditions and surface, adjust to obtain the most appropriate cutting.

6. After finishing cutting, close the cutting oxygen valve and turn the switch to OFF. Close the fuel gas valve, then the preheat oxygen jet is at right-angles with cutting surface.

Note: Make sure that the cutting oxygen jet is at right-angles with cutting surface. For safe and correct cutting, set the gas pressure according to the cutting date.

7 Maintenance and inspection

Carry out periodic inspection and maintenance according to the following instructions. Always keep this machine in good operation condition.

Period		Inspection and maintenance procedure
Daily	1	Wipe the body with a clean cloth, and brush all dirt form then rack and pinion of the pipe arm(S/N 60030300:pipe arm)
	2	Lubucate the shaft of the idle wheel with machine oil. (S/N 60030210:Idle wheel unit)
	3	Clean the outer surface of the drive wheel and idle wheel with an oily cloth. Ⓐ
Monthly	1	Lubicate the shafts of the speed control knob and the clutch lever. Ⓑ
	2	Measure the insulation resistance between the care and the power plug. It must read over M Ω .
	3	Clean the inside electric components removing the bottom cover. Ⓒ
	4	Clean the speed meter removing the glass cover. (S/N 60030239:Glass)
Every three months or 2,000 hours	1	Separate the reduction units form the motor, and clean the gear box with cleaning oil.
	2	Replace worn parts with new ones.
	3	Wipe the motor desk and ring cone with a oily cloth.

Ⓐ (S/N 60030243: Drive wheel, S/N 60030244: idle wheel)

Ⓑ (S/N 60030225: shaft, S/N 60031216: Clutch lever)

Ⓒ (S/N 60030209: Bottom plate)

8 Trouble shooting

8.1 Carriage does not move (motor does not run)

	Possible case	Procedure	Remedy
1	No electrical power	Check power circuit.	Ensure good connection.

2	Broken power cord	Use a circuit tester to check the cord.	Repair or replace The cord.
3	Bad plug	Check the wire soldering.	Resolder the wire.
4	Bad switch	Remove the connector and test across each terminal with a tester.	Replace faulty switch.
5	Bad condenser	Check the condenser with a tester.	Replace faulty condenser.
6	Bad connection	Check soldering.	Resolder bad connection.
7	Broken lead wire	Test each lead with a tester.	Replace faulty lead.
8	Bad motor windings	A faulty motor is indicated if all the above test results are normal.	Repair or replace the motor.

8.2 Carriage does not move(Motor runs)

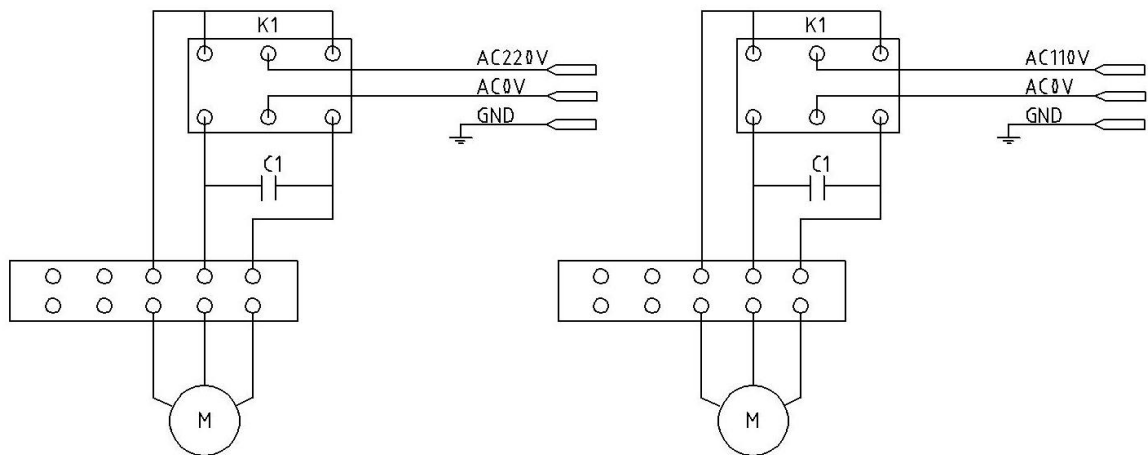
Possible case		Procedure	Remedy
1	Faulty clutch.	Remove the stand and check the connection of connecting bar (S/N60030220) and the screw for the lever (S/N 60030268).	Reconnect
2	Desk friction slips	Check the spring or greasy desk.	Replace the spring or clean the desk.

8.3 Abnormal carriage

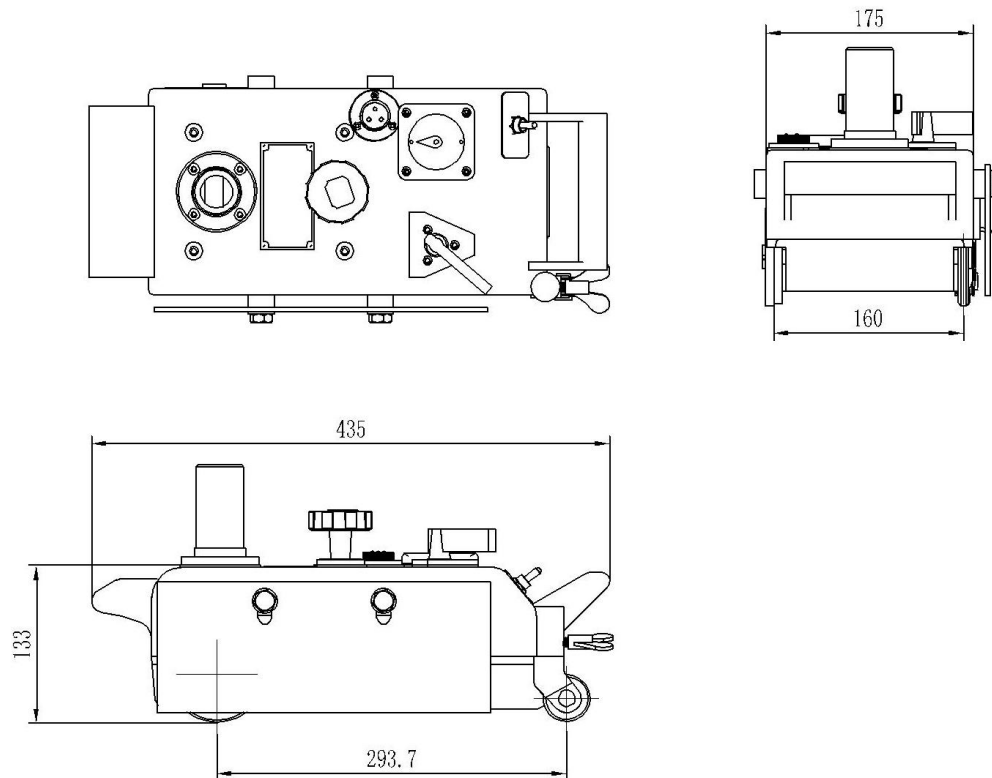
Problem		Possible cause	Remedy
1	Broken speed meter	Slip of the belt or the needle due to loosening of the needle fixing screw.	Set the speed control knob to low, and set the needle to the lowest scale.
2	No adjusting speed control	Slip of the pinion or faulty of gear and knock pin.	Repair or replace
3	Servers vibration and noise	Foreign matter caught in gear.	Repair or replace.
		Gear worn.	Replace.
		Motor faulty.	Repair or replace.
		Corn worn or damaged.	Replace.
4	No disk engaging clutch	Snap ring of the clutch pin is off.	Replace.
5	Knocks	Gear worn.	Replace worn gears.
		Faulty clutch pin.	Replace faulty pin.
		Clutch key worn.	Repair or replace worn key

	Loose shaft or drive wheel.	Repair or replace.
	Worn or damaged cone.	Replace.
	Heat shield touches to the work surface or rail.	Adjust.
	Damaged rail foreign object on rail.	Repair or clean.
	Hoses or cable interferes with carriage movement.	Exercise caution during operation.
	Faulty idle wheel unit.	Replace or repair.
	Foreign matter attached to drive or idle wheel, or these wheels are damaged.	Replace or repair.

9 Wiring diagram



10 Assembly drawing



11 Maintenance illustration

If you operate the machine according to the operating manual and the machine generates occurs accidents because of the product quality, we guarantee to keep the machine in good repair free of charge in half year based on invoice from the day we sell. According to the rules, if the following cases occur, we can't keep the machine in good repair free of charge:

- 1) The damages are leaded because of incorrect carriage or improper keeping.
- 2) The damages are leaded because of operating not according to the instruction manual and beyond the specified range of voltage.
- 3) The machine don't have maintenance card and receipt invoice.
- 4) The maintenance card don't match the machine.
- 5) The damages are leaded by natural disasters or some irresistible incidents.
- 6) The damages are leaded because the machine is token apart by unprofessional person
- 7)The damages are leaded because of using the fitting parts and accessories, which don't belong to our company.

(Illustration: Do not inform if the specifications and technical contents of the machine have been modified!)

12 Cutting data

HK-12MAX-II Portable Flame Cutting Machine

106 (STANDARD SPEED) For Propane

Metric System

PLATE THICKNESS (mm)	TIP SIZE	CUTTING SPEED (mm/min)	OXYGEN PRESSURE (Kg/cm ²)		FUEL GAS PRESSURE (Kg/cm ²)	KERF WIDTH (mm)
			CUTTING	PR-HEAT		
3	00	680	1.5	1.5	0.2	1.0
6	0	610	2.0	2.0	0.2	1.3
10	0	560	2.0	2.0	0.2	1.5
12.5	1	530	2.5	2.5	0.2	1.8
19	2	460	3.0	3.0	0.25	2.0
25	2	430	3.0	3.0	0.25	2.0
38	3	355	3.0	3.0	0.25	2.3
50	4	320	3.0	3.0	0.25	2.8
60	5	280	4.0	4.0	0.3	3.0
75	5	250	4.0	4.0	0.3	3.0
100	6	200	4.0	4.0	0.3	3.6
125	6	180	4.0	4.0	0.4	3.6
150	7	150	4.5	4.5	0.4	4.1
200	7	130	4.5	4.5	0.4	4.3
250	8	80	4.5	4.5	0.4	5.6
300	8	50	4.5	4.5	0.4	5.6

Inch system

Plate Thickness (Inches)	Tip Size	Cutting Speed (in/min)	Oxygen P.S.I.G		FUEL GAS P.S.I.G	KERF WIDTH (Inches)
			CUTTING	PR-HEAT		
1/8	00	27	20	20	2.8	0.04
1/4	0	24	30	30	2.8	0.05
3/8	0	22	30	30	2.8	0.06
1/2	1	21	40	40	2.8	0.07
3/4	2	18	45	45	3.6	0.08
1	2	17	45	45	3.6	0.08
1-1/2	3	14	45	45	3.6	0.09
2	4	12.5	45	45	4.3	0.11
2-1/2	5	11	55	55	4.3	0.12
3	5	10	55	55	4.3	0.12
4	6	8	55	55	5.7	0.14
5	6	7	55	55	5.7	0.14
6	7	6	65	65	5.7	0.16
8	7	5	65	65	5.7	0.17
10	8	3	65	65	5.7	0.23
12	8	2	65	65	5.7	0.27

106(STANDARD SPEED) For Propane

Metric system

PLATE THICKNESS (mm)	TIP SIZE	CUTTING SPEED (mm/min)	OXYGEN PRESSURE (Kg/cm ²)		FUEL GAS PRESSURE (Kg/cm ²)	KERF WIDTH (mm)
			CUTTING	PR-HEAT		
3	00	800	7.0	1.5	0.2	0.8
6	0	740	7.0	2.0	0.2	1.0
10	0	680	7.0	2.0	0.2	1.3
12.5	1	630	7.0	2.5	0.2	1.3
19	2	560	7.0	3.0	0.25	1.5
25	2	510	7.0	3.0	0.25	1.8
38	3	460	7.0	3.0	0.25	2.0
50	4	410	7.0	3.0	0.25	2.6
60	5	360	7.0	4.0	0.3	2.8
75	5	320	7.0	4.0	0.3	2.5
100	6	250	7.0	4.0	0.3	3.3
125	6	230	7.0	4.0	0.4	3.6
150	7	180	7.0	4.5	0.4	3.6
200	7	140	7.0	4.5	0.4	4.6
250	8	100	7.0	4.5	0.4	5.1
300	8	80	7.0	4.5	0.4	6.1

Inch system

Plate Thickness (Inches)	Tip Size	Cutting Speed (in/min)	Oxygen P.S.I.G		FUEL GAS P.S.I.G	KERF WIDTH (Inches)
			CUTTING	PR-HEAT		
1/8	00	31.5	100	20	2.8	0.03
1/4	0	29	100	30	2.8	0.04
3/8	0	27	100	30	2.8	0.05
1/2	1	25	100	40	2.8	0.05
3/4	2	22	100	45	3.6	0.06
1	2	20	100	45	3.6	0.07
1-1/2	3	18	100	45	3.6	0.08
2	4	16	100	45	4.3	0.10
2-1/2	5	14	100	55	4.3	0.11
3	5	12.5	100	55	4.3	0.11
4	6	10	100	55	5.7	0.13
5	6	9	100	55	5.7	0.14
6	7	7	100	65	5.7	0.14
8	7	5.5	100	65	5.7	0.18
10	8	4	100	65	5.7	0.20
12	8	3	100	65	5.7	0.24

Note:

1) All pressures are torch inlet pressures.

2) Oxygen purity is minimum of 99.7%; Propane is minimum of JIS Grade3.

1) Depending on the surface condition of the steel plate (scale, paint), either increase the fuel gas pressure or decrease cutting speed. Also, when precision cutting is required, adjust all data.

102 (STANDARD SPEED) For Propane

Metric System

HK-12MAX-II Portable Flame Cutting Machine

PLATE THICKNESS (mm)	TIP SIZE	CUTTING SPEED (mm/min)	OXYGEN PRESSURE (Kg/cm ²)		FUEL GAS PRESSURE (Kg/cm ²)	KERF WIDTH (mm)
			CUTTING	PR-HEAT		
3	00	680	1.5	1.5	0.2	1.0
6	0	610	2.0	2.0	0.2	1.3
10	0	560	2.0	2.0	0.2	1.5
12.5	1	530	2.5	2.5	0.2	1.8
19	2	460	3.0	3.0	0.25	2.0
25	2	430	3.0	3.0	0.25	2.0
38	3	355	3.0	3.0	0.25	2.3
50	4	320	3.0	3.0	0.25	2.8
60	5	280	4.0	4.0	0.3	3.0
75	5	250	4.0	4.0	0.3	3.0
100	6	200	4.0	4.0	0.3	3.6
125	6	180	4.0	4.0	0.4	3.6
150	7	150	4.5	4.5	0.4	4.1
200	7	130	4.5	4.5	0.4	4.3
250	8	80	4.5	4.5	0.4	5.6
300	8	50	4.5	4.5	0.4	5.6

Inch system

Plate Thickness (Inches)	Tip Size	Cutting Speed (in/min)	Oxygen P.S.I.G		FUEL GAS P.S.I.G	KERF WIDTH (Inches)
			CUTTING	PR-HEAT		
1/8	00	27	20	20	2.8	0.04
1/4	0	24	30	30	2.8	0.05
3/8	0	22	30	30	2.8	0.06
1/2	1	21	40	40	2.8	0.07
3/4	2	18	45	45	3.6	0.08
1	2	17	45	45	3.6	0.08
1-1/2	3	14	45	45	3.6	0.09
2	4	12.5	45	45	4.3	0.11
2-1/2	5	11	55	55	4.3	0.12
3	5	10	55	55	4.3	0.12
4	6	8	55	55	5.7	0.14
5	6	7	55	55	5.7	0.14
6	7	6	65	65	5.7	0.16
8	7	5	65	65	5.7	0.17
10	8	3	65	65	5.7	0.23
12	8	2	65	65	5.7	0.27

102(STANDARD SPEED) For Propane

Metric system

PLATE THICKNESS (mm)	TIP SIZE	CUTTING SPEED (mm/min)	OXYGEN PRESSURE (Kg/cm ²)		FUEL GAS PRESSURE (Kg/cm ²)	KERF WIDTH (mm)
			CUTTING	PR-HEAT		
3	00	800	7.0	1.5	0.2	0.8
6	0	740	7.0	2.0	0.2	1.0
10	0	680	7.0	2.0	0.2	1.3
12.5	1	630	7.0	2.5	0.2	1.3
19	2	560	7.0	3.0	0.25	1.5
25	2	510	7.0	3.0	0.25	1.8
38	3	460	7.0	3.0	0.25	2.0
50	4	410	7.0	3.0	0.25	2.6
60	5	360	7.0	4.0	0.3	2.8
75	5	320	7.0	4.0	0.3	2.5
100	6	250	7.0	4.0	0.3	3.3
125	6	230	7.0	4.0	0.4	3.6
150	7	180	7.0	4.5	0.4	3.6
200	7	140	7.0	4.5	0.4	4.6
250	8	100	7.0	4.5	0.4	5.1
300	8	80	7.0	4.5	0.4	6.1

Inch system

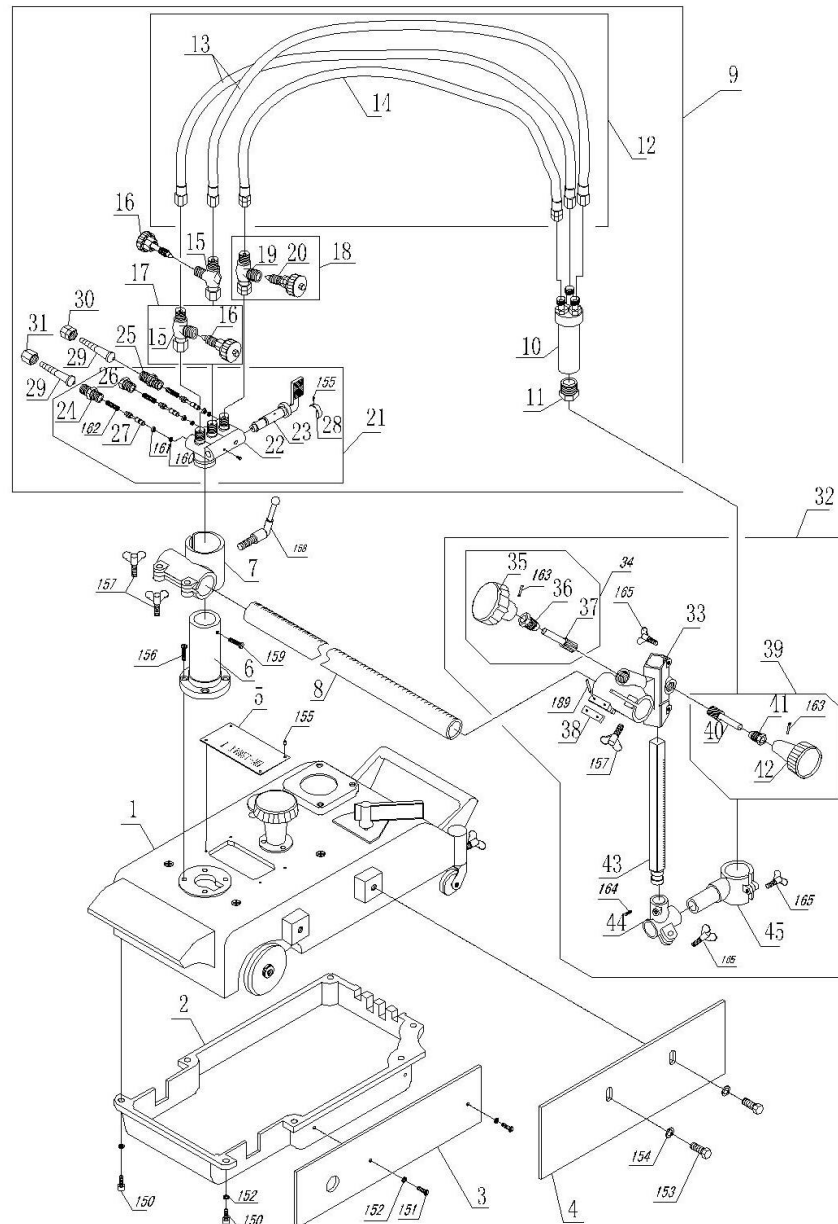
Plate Thickness (Inches)	Tip Size	Cutting Speed (in/min)	Oxygen P.S.I.G		FUEL GAS P.S.I.G	KERF WIDTH (Inches)
			CUTTING	PR-HEAT		
1/8	00	31.5	100	20	2.8	0.03
1/4	0	29	100	30	2.8	0.04
3/8	0	27	100	30	2.8	0.05
1/2	1	25	100	40	2.8	0.05
3/4	2	22	100	45	3.6	0.06
1	2	20	100	45	3.6	0.07
1-1/2	3	18	100	45	3.6	0.08
2	4	16	100	45	4.3	0.10
2-1/2	5	14	100	55	4.3	0.11
3	5	12.5	100	55	4.3	0.11
4	6	10	100	55	5.7	0.13
5	6	9	100	55	5.7	0.14
6	7	7	100	65	5.7	0.14
8	7	5.5	100	65	5.7	0.18
10	8	4	100	65	5.7	0.20
12	8	3	100	65	5.7	0.24

Note:

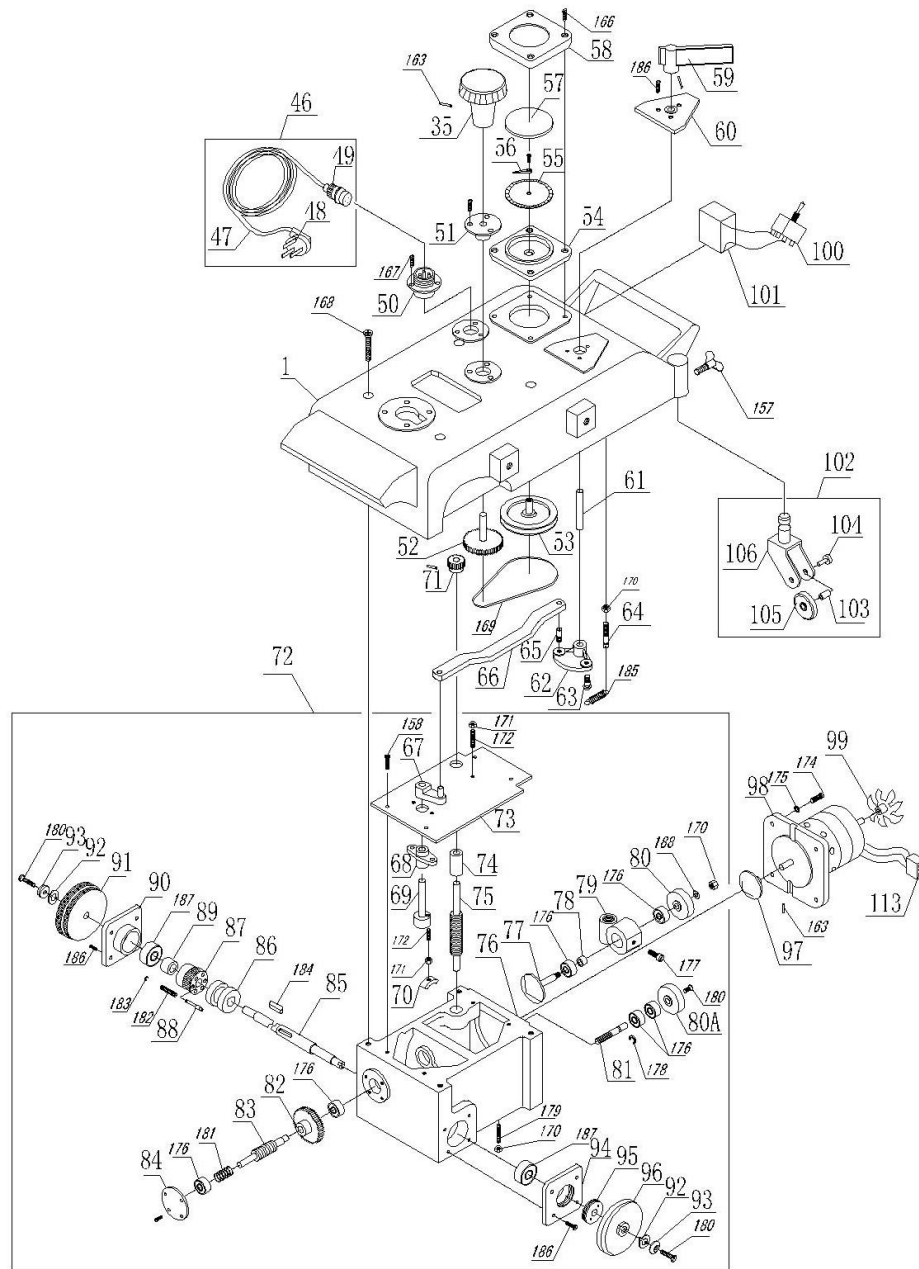
- 1) All pressures are torch inlet pressures.
- 2) Depending on the surface condition of the steel plate (scale, paint), either increase the fuel gas pressure or decrease cutting speed. Also, when precision cutting is required, adjust all data.
- 3) Oxygen purity is minimum of 99.7%.

13 Diagrams & parts list

HK-12MAX Gas cutting machine Resolve diagram (一)



HK-12MAX Gas cutting machine Resolve diagram (二)



Acknowledgment

Honored company to choose the company's production

The main production of the company:

CG1-30	Carriage gas flame cutter
CG1-30A	Precision gas flame cutter
CG1-30H	Fast carriage gas cutter (Can ticket plasma torch cutter)
CG1-100	Gas flame cutter (two torches)
CG1-100	Aprecision gas flame cutter (two torches)
CGD2-100	Multi-head gas flame cutter (three-five groups of torches)
CG1-2H	H beam cutter
CG1-75	Ingot gas cutting machine
CG1-13	Multi-direction gas cutter
CG2-150	Profiling gas cutter
CG2-150A	Profiling gas cutter (cutting dia.1800mm)
CG2-2700	Move style profiling gas cutter (cutting dia.2700mm)
CG2-600	Circular cutter
CG2-11	Magnet pipe gas cutter
CG2-11G	Hand pipe cutter
CG2-11D	Automatic pipe gas cutter
HK-30	Portable cutting machine
HK-30A	Multi-using cutter
HK-55	Handy auto kit
HK-66	Metal cutter
HW-2000	Automatic welding machine
HK SERIES	Auto- welding carriage
KMQ SERIES	Portable profiling cutter
LGK8 SERIES	Air plasms cutting machines
CG SERIES	Multi-head straight cutting machines (five-twenty groups of torches)
HNC SERIES	Numerical control flame / plasma cutting machine
ZYHC SERIES	Auto-control far-infrared electricity welding dryer machines
TRB SERIES	Welding dryer
YJJ-A SERIES	Suction flux drying machine

WELDING&CUTTING FUTTINGS:

The regulator of Oxygen, acetylene , propane , argon and CO₂; Handmade-welding torch and handmade-welding tip;

Acetylene, propane equi-pressure tip, pitch needle, conduit conflux and so on cutting and welding fittings.