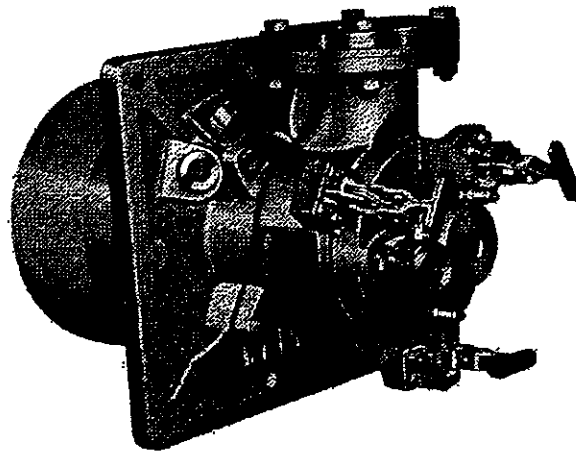


# HOPE

HOPE IP-F  
INSPECTION GAS BURNER  
HANDLING MANUALS



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We express our gratitude to you for purchasing a HOPE IP-F TYPE of INSPECTION GAS - BURNER.  
 We would like you to read this handling manual in order for you to enjoy performance of this burner and ,to inspect and maintenance the burner.  
 We hope that this instruction manual should be delivered to not only plant manufactures but also the user.

Checking points at the time of purchasing this burner.

Please make sure that the name plate of The burner for warded is same as the foll-owing specification and also make sure that these is no damage during transportation.

**Outline**

The IP-F type Inspection gas burner a nozzle mix type of gas burner ,has a good combutiobility in spite of shifts of combustion load. It is easy to inspect the nozzle and the tile of the burner and to maintain them.

This burner can be used widely for industrial furnaces such as heating furnaces ,melting furnaces ,rehearing furnaces.

**SPECIFICATION**

MODEL	HEAT CAPACITY ×10 <sup>4</sup> kcal/h	PIPING SIZE(A)		WEIGHT (kg)
		AIR	GAS	
IP-1F	5	40	20	30
IP-2F	10	40	20	30
IP-3F	15	65	20	48
IP-4F	20	65	20	48
IP-5F	25	80	25	67
IP-6F	30	80	25	67
IP-7F	40	80	40	67
IP-8F	50	100	40	80
IP-9F	60	100	40	80

- FUEL : ANY KIND OF FUEL GAS
- STANDARD SUPPLY PRESSURE: GAS: 200 ~ 1000mmH<sub>2</sub>O.  
 AIR: 600mmH<sub>2</sub>O

**Matters to be attended for safety**

Before installing, trial- operating, maintaining or inspecting this burner, please learn the inside of this burner, information of safety and other matters to be attended by reading this instruction manual and all of attached documents.

The rank of the matters to be attended is classified to "Top danger"

"Danger "and "Caution" in this instruction manual.



In case of wrong operating, it is predicted that serious dangerous situation will happen and the operator or other people.

May die or may be seriously injured.









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In case of wrong operating, it is predicted that dangerous situation will happen and the operator or other people will be injured or only material described.

**NOTE,** Even the matters classified to CAUTION have a possibility of causing serious results. Then, never fail to abide by matters described.

	Meaning of the mark	Sample
 <b>COMPULSION</b>	This is to tell that there is indication to instruct compulsorily your action. contents of the instruction must be described definitely nearby.	 never fuel to do
 <b>PROHIBITION</b>	This is to tell the prohibited action. Specifically prohibited action are described.	 <b>TOUCH PROHIBITED</b>
 <b>CAUTION</b>	This is to tell that there is a thing to be attended. The specifically attended thing is described nearby.	 <b>CAUTION HIGH TEMPERATURE</b>

## Read without foil



Never fail to exhaust the air in the furnace (pr-purge) before igniting. Repeated ignitions may cause explosion due to the gas stagnated in the furnace. please install safety devices like a flame supper visor.



**ELECTRIC SHOCK  
CAUTION**

Never fail to cut the electricity of transformer when you take off the ignition plug in order to i check the spark of it.



Never fail to take off the site hole when igniting or firinf the burner.  
※ flame in the furnace may blow out.



**TOUCHING  
PROHIBITED**

Never touch the mounting plate of the burner and fitting parts of the pilot burner. These area are high temperature when the burner is burning.

1. Do not use the attached gasket for sering this burner.
2. Put the replaced old gaskets pouch and thrae'away them according to the waste disposal regulation or the waste cleaning regulation.  
Never burn up them.

## Installation

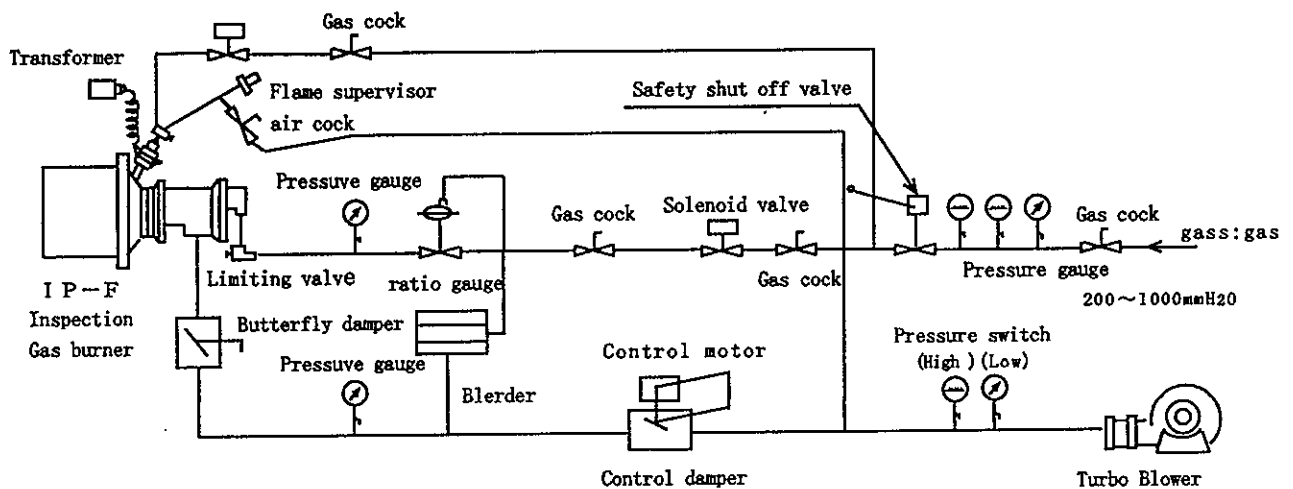
- ① Please support the outside ,especially bottom side of the burner tile refractories or castabled so that the burner tile does not drop down.
- ② When installing the burners ,stuff the space between burner tile and installing parts with refractories.

## Piping

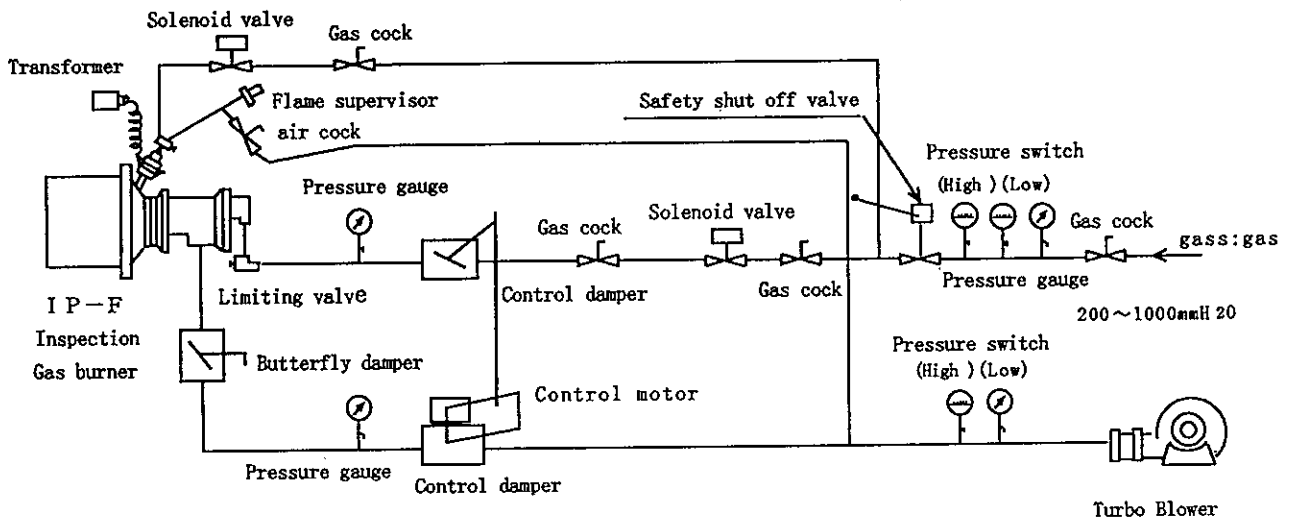
- ① Never fail to clean the inside of the piping so that sealing tapes ,adhesives ,sludge ,etc. do not remain.
- ② When connecting pipes ,set up piping support so that burners is not pressed.
- ③ Make straight piping 3 times longer of the diameter of the pipe at the burner inlet part of air piping because the IP-F has an air-orifice.

## FLOW DIAGRAM

( 1 ) Ratio regulating system



( 2 ) Interlocking system



## The way of operating the burner

### 1. Preparation

- ① Make sure that all cocks are closed.
- ② Inspect the leak in the piping with air or nitrogen.
- ③ Make sure that all accessories of gas and air piping work normally.
- ④ Make sure that gas is supplied at the stated pressure and that air is replaced completely by gas.
- ⑤ Start the blower and make sure that the air pressure is prescribed.
- ⑥ Set control damper to maximum firing.
- ⑦ Purge the air in the furnace by opening control damper fully.
- ⑧ Set the control damper to the position of minimum firing.

### Ignition

- ⑨ Make sure that the cock, the solenoid valve and the limiting valve are closed completely.
- ⑩ Ignite the pilot burner by pushing the ignition button.  
(Make sure that the pilot burner has ignited.)
- ⑪ Open fully the cock the solenoid valve before the burner, open the limiting valve slowly and make sure that the main burner are burning.

### Regulating

- ⑫ Read the air flow to burner by referring to the table showing the burner P-Q characteristic.
- ⑬ Calculate the required gas flow and regulate gas flow to get the correct air/gas ratio by regulating the limiting valve. (The correct air/gas ratio for the burner is  $m = 1.1$ )
- ⑭ Open slowly the control damper to the maximum firing position, confirming condition, and then confirm each flow. (In case of ratio regulating system.)
- ⑮ Confirm the amperage of the flame supervision.
- ⑯ After setting the air/gas ratio, return the control damper to the minimum firing position and connected the control damper to the control motor in order to get the needed turn-down ratio.

### Extinguishing

Close completely the cock and the solenoid valve before the burner and make sure that the burner has extinguished. Do not stop the blower until the furnace temperature goes down, to less than 500 °C in order to protect the burner nozzle.

### Inspection (Nozzle and burner tile)

※ Inspect the burner after the furnace cooled and never fail to put on gloves.

1. Make sure that all electricity are shutt off.
2. Make sure that all cocks are shutt off.
3. Loosen unions of the gas piping.
4. loosen clamps holding ③ the back plate and ⑬ the burner body. (Do after confirming that the burner cools.)
5. Lift ③ the back plate firmly and remove it from ⑬ burner body. ④ gas pipe and ⑤ the air nozzle are also removed together with ③. The back plate because ④, ⑤ and ③ are linkaged. Do not your face the back plate in this time because hot air may blast out from the space between the back plate and the burner body.

6. After removing the back plate ,inspect whether ⑤ the the air nozzle plate is burned off, foreign substances adhered to ⑤ the air nozzle plate and ④ gas pipes ,and any parts do not loosen. (replace ⑦ the gasket if it is damaged.)

Then, inspect the burner

7.Clean the burner if foreign substances adhered to burner. If you find the burner tile damaged, consult us because it is makes firing conditions wrong.

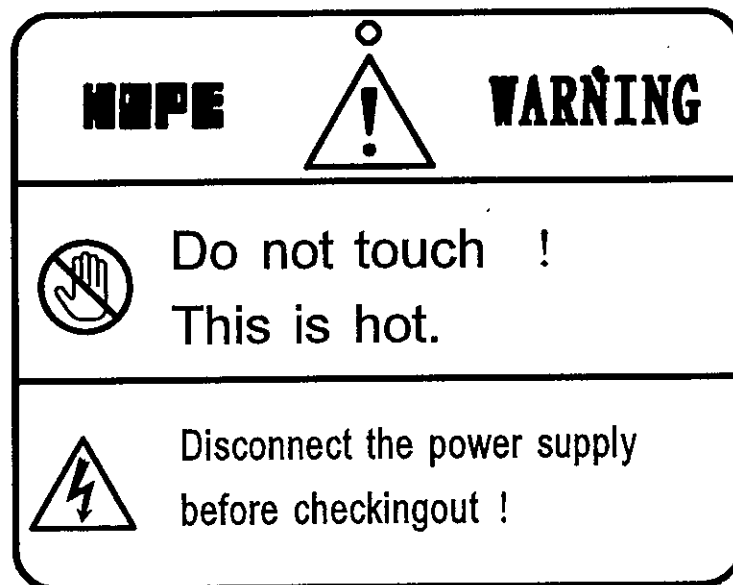
8. If you do not find the burners abnormal, reassemble the birt in reverse order.

(Take case not to fail to shut the piping and parts.)

- ※ 1. Since there is possibility that your fingers may be pinched when loosen or shutting the clamp, grasp the top parts of the handle .
- ※ 2.Inspection of the burner and accessories should be done properly according to the use conditions.

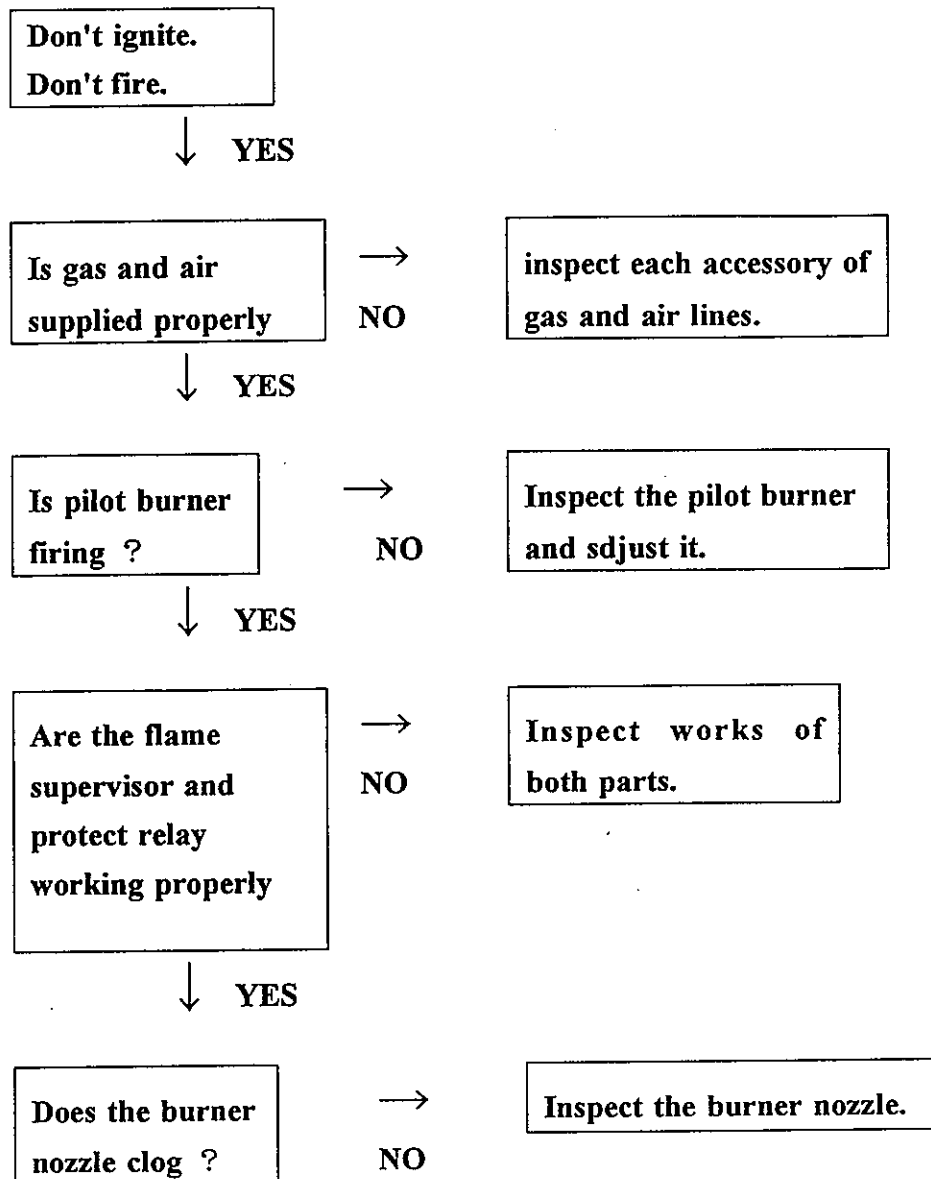
※ WARNING PLATE

Please check whether the warning plate shown below is removed from the burner body after installation looks finished . If the warning plate was lost , please let our sales department know it.





At the time when you think the burner has trouble.

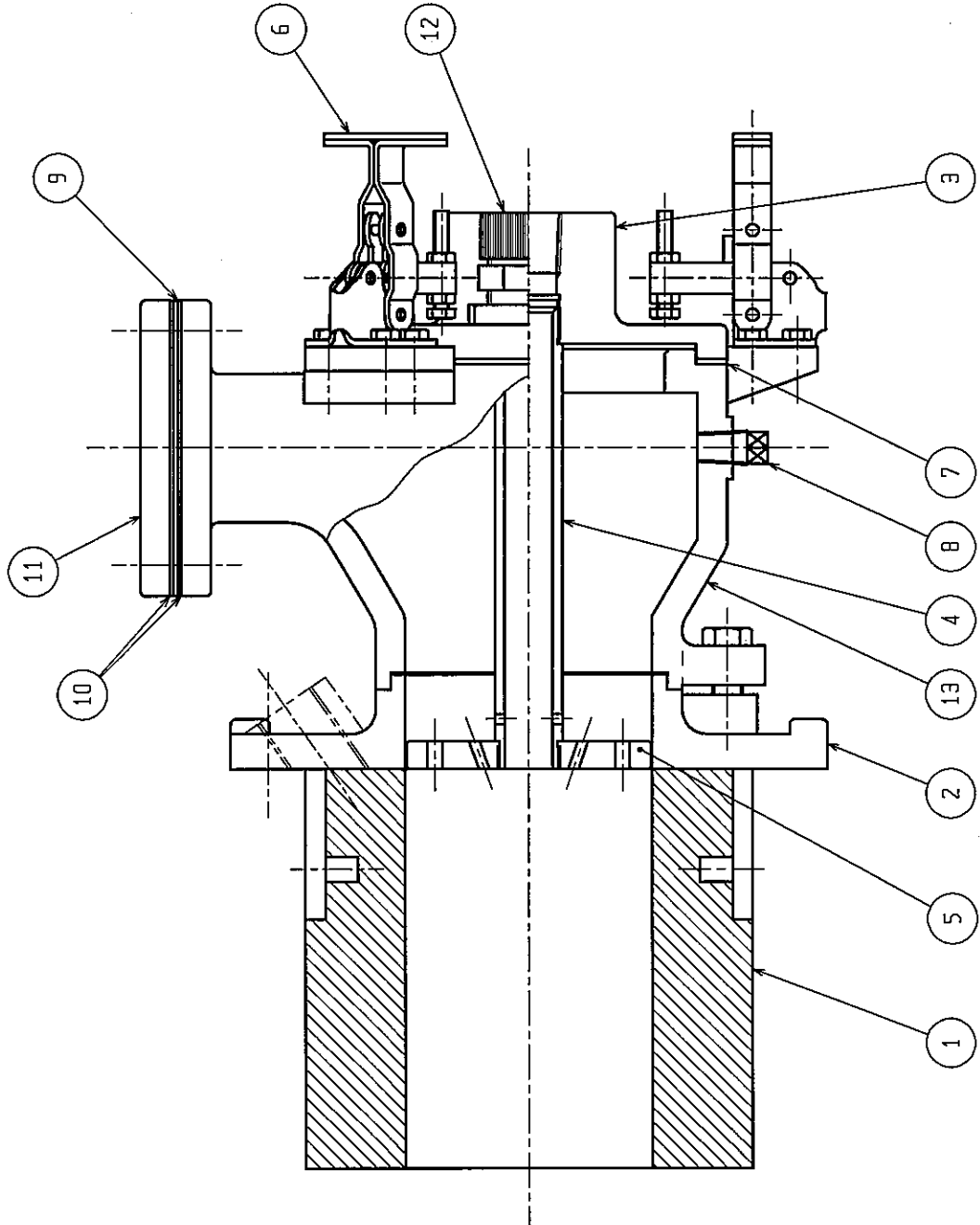


※ When inspecting the burner, read fully instruction manuals of the burner and accessories.

※ If you have any problem except the above matters, would you contact our sales department.

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IP-F-TYPE  
INSPECTION GAS BURNER



NO.	PARTICULARS	QUAN.	REMARKS
13	Burner Body	1	
12	Slight Hole	1	
11	Mating Flange	1	
10	Flange Packing	2	
9	Orifice Plate	1	
8	Plug PT-0A	1	
7	Packing	1	
6	Clamp	3	
5	Air Nozzle Plate	1	
4	Gas Pipe	1	
3	Back Plate	1	
2	Burner Plate	1	
1	Burner Tile	1	