Operation Manual

Hotrunner Time Sequence

SHT5V

Date: Jan, 2015

Version: V3.0 (English)

Contents

General Description:

Time controller is mainly used in valve hot runner injection molding system. By detecting the signal of injection molding machine and according to customers' mold injection requirement, time controller can adjust the delay of injection locking and time periods to unfold the valve etc. and accurately opening and closing the pneumatic / hydraulic valve pin, to eliminate or reduce the impact of injection molding products. The molding entrance will be all poured into the OFF state when receiving the injection signal but does not meet the delay time. The first section of molding entrance will open after 3 seconds, and the second section will open after 5 seconds, the third 10 seconds and the forth 1 second From the molding entrance was poured into the ON state to the time the injection finished, the four sections will all be switched to OFF state at the same time, and awaiting the next injection signal.

Operation notice:

For accurate operation of hot runner time controller, to avoid the errors due to manipulation that cause damage of hot runner time controller or personal injury, be sure to note the following points:

1. Please ensure that the power supply is AC220V 50/60HZ, otherwise it would cause damage to the controller
2. Confirm the solenoid valve controller output is connected to AC220V; otherwise it would cause damage to the solenoid valve and the controller.
3. The controller power is turned on, before putting into use, please refer to the instructions (1-5-2) on the need to adjust the injection time and delay time and confirmed late clamping connection signal to the controller is correct..
4. If the controller broke down in the using, please return it to the company for maintenance, please do not overhaul the controller, otherwise the warranty will not be assumed.

1. Chapter 1 Time Controller Module

1.1 Feature

- Multiple Touch-off signal options (AC220/110/DC24/Switch type)
- Multiple output voltage options (AC220/110/DC24/Relay/MOS Relay)
- Time display is adjustable to the first digit after the decimal point
- Stopwatch can be either accumulative or countdown.
- Three optional control modes.
- Optional pressure retaining mode.
- MOS Relay extension of working life.
- Mechanical Relay (up to 600mA) is optional.

1.2 Specification Software function (setting level)

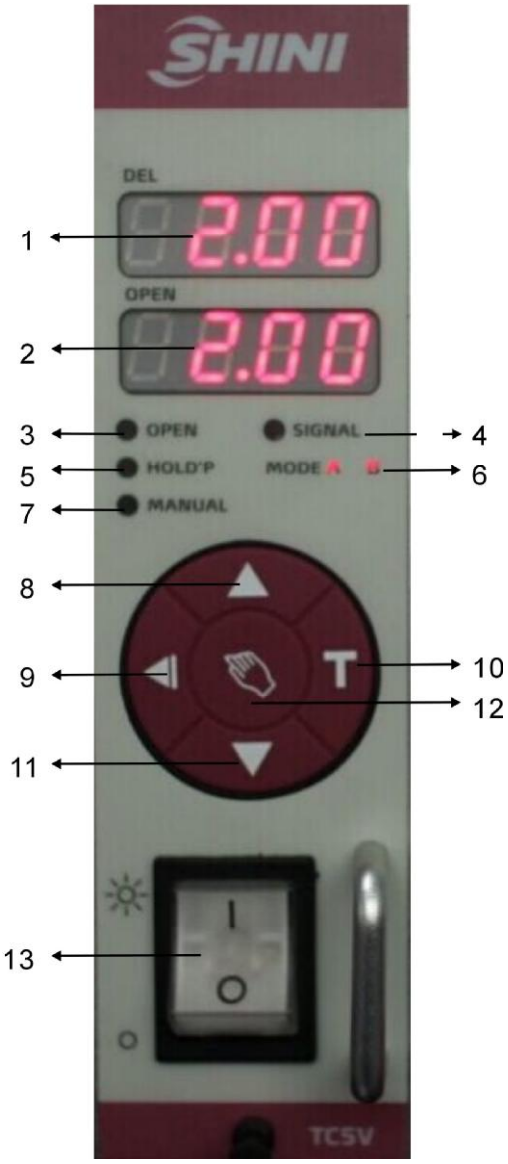
- A, B, AB three control switches
- Pressure retaining mode switch (delay, work)
- Pressure retaining delay time setting
- Pressure retaining time setting
- Decimal point switch
- Display mode

1.3 Module specification

- Panel measurement: 50*176mm
- Display: 7-Section tube 0.4*4*2
- Power switch: Manual dial type
- Input power: AC220 (50/60Hz)
- Trigger voltage: (Must jump JP), AC110 (50/60Hz), AC220 (50/60Hz), DC24, Switch (DC24)
- Output power: (must jump JP), AC110(RELAY/electronic switch 4VA), AC220 (RELAY, 2A/electronic switch 600mA),DC24 (RELAY/electronic switch 4W), RELAY－2A/electronic switch－600mA (either one)
- Keys: 5 keys (select/confirm, manual output, plus, minus, time setting)
- Function display lamps: A/B mode lamp, OPEN lamp, SIGNAL lamp, pressure retaining lamp, manual output lamp

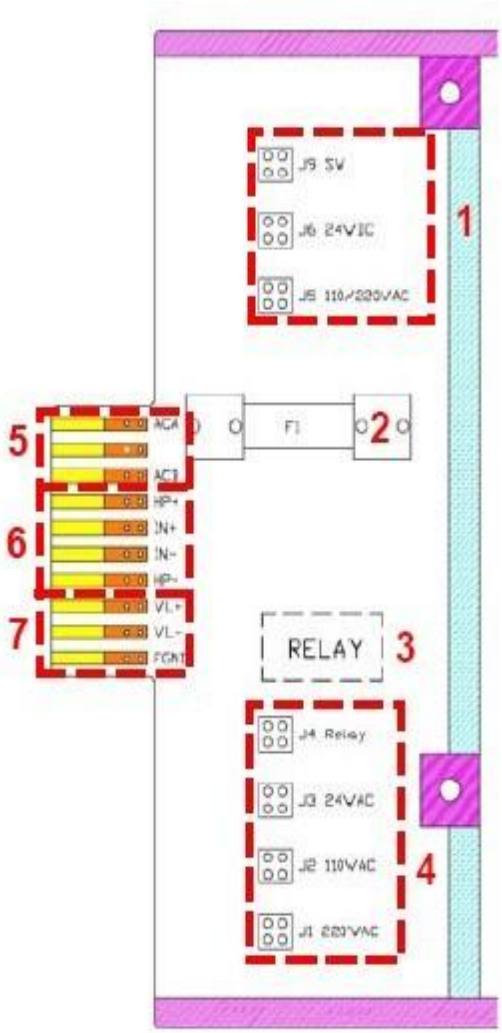
1.4 Description of operation panel

1.4.1 Faceplate description



1. Delay time: when a transmission is signal is received, it displays delay time.
2. Activation time: when run-in point is turned on, it displays activation time.
3. Activation indication: when run-in point is turned on, the indicator lamp turns on.
4. Signal indication: when signal is received, the indicator lamp turns on.
5. Pressure retaining indication: when pressure retaining is activated, lamp will turn on; when pressure retaining is operating, it flashes on and off.
6. Mode indication: In A mode, A lights up; in B mode, B lights up; in AB mode, A&B light up.
7. Up key: Sets plus or function.
8. Time set: Enters delay and activation time setting mode.
9. Down key: Sets minus or function.
10. Function option: Enters the setting level for optional functions.
11. Manual indication: Indication of start of manual output.
12. Manual key: Press once to turn on, "manual output" Press again to turn off, "manual output".
13. Power switch

1.4.2 Interior structural diagram

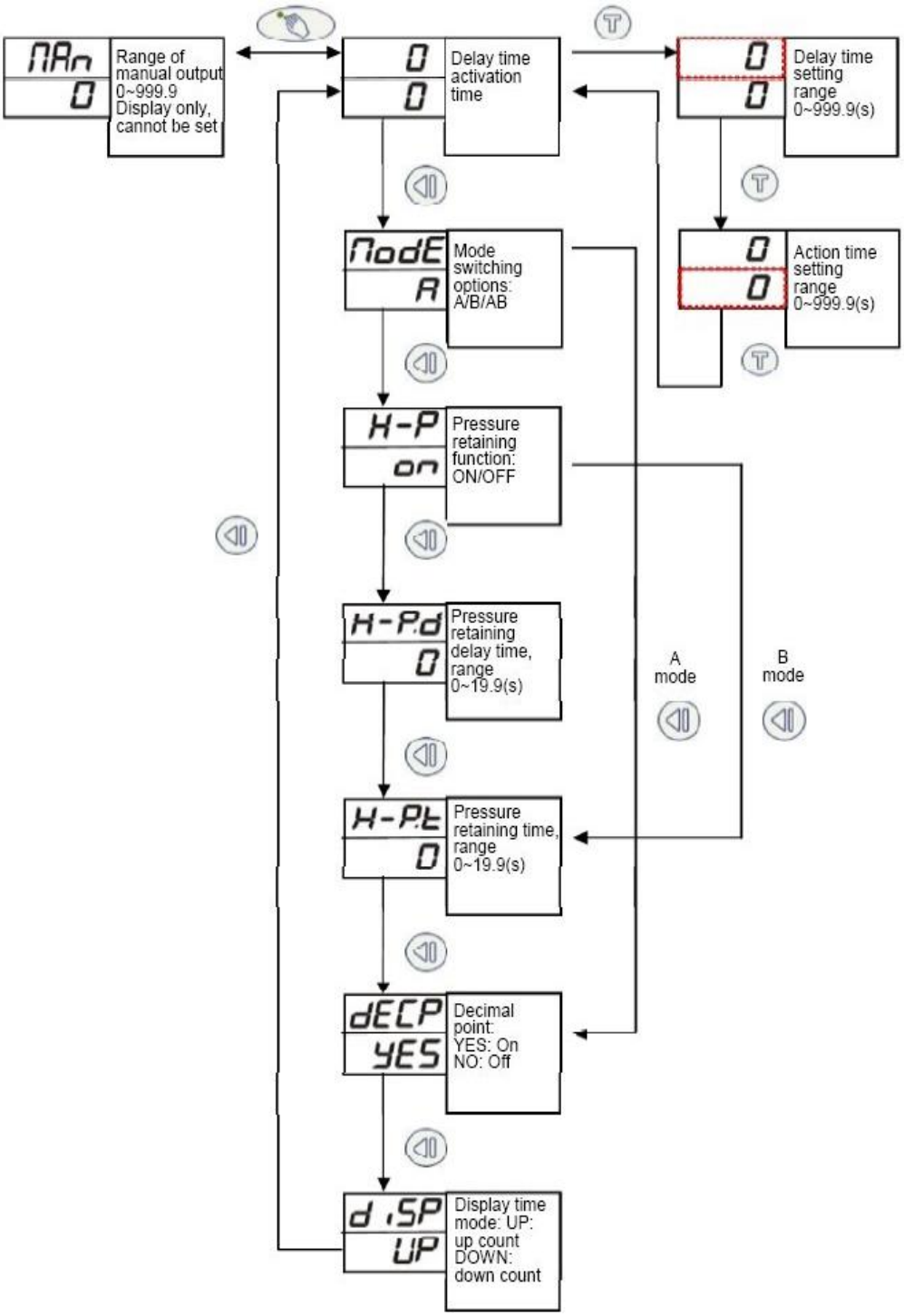


1. Jumper signal input selection short-circuit method
2. Fuse
3. Work relay
4. Output selection Jumper short-circuit method same as first point
5. AC220V input
6. AC220V/110V/ DC24V/Relay output
7. Signal input and grounding wire end

Caution: when you select short-circuit PIN, please be careful in regards to the short-circuit direction, up-and-down short-circuit is the correct direction, and each set can only select one.

1.5 Operating description

1.5.1 Parameter flow chart



1.5.2 Description of Operating Modes

A mode

Upon receipt of ejection signal, run-in point shows a closed status in delay time T1. When delay time ends, run-in point will show an ON status until the ejection signal ends and all run-in points turn off simultaneously.

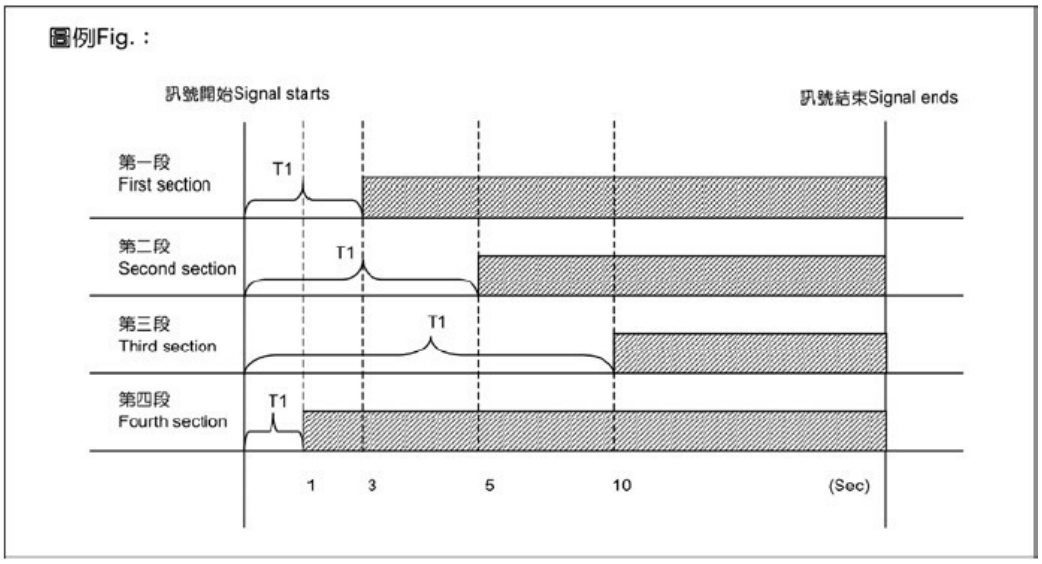
Example:

Ejection time 20 seconds. First section delay time 3 seconds,
Second section delay time 5 seconds. Third section delay time 10 seconds.
Fourth section delay time 1 second.

Description of operation:

When the ejection signal is received, run-in point is in OFF status before reaching the delay time.

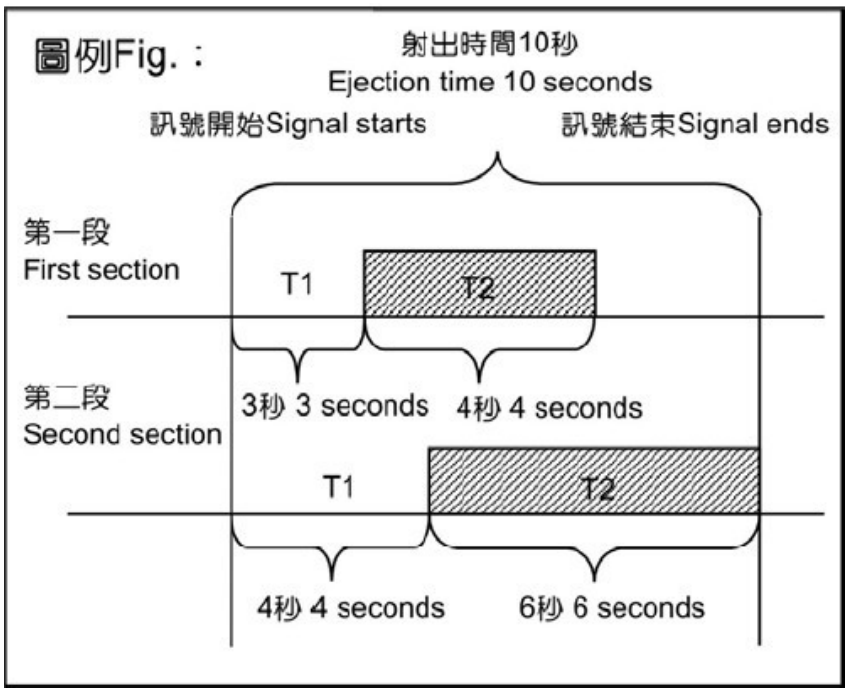
First section run-in point starts after 3 seconds,
Second section run-in point starts after 5 seconds,
Third section run-in point starts after 10 seconds,
Fourth section run-in point starts after 1 second,
Run-in point shows an ON status, after ejection time ends, at the same time 1-4 sections are switched to OFF status, and wait for the signal of the next ejection.



B mode

Upon receipt of ejection signal, run-in point shows an OFF status in delay time T1. When delay time T1 ends, run-in point shows an ON status in start time T2. When start time T2 ends, run-in point turns off.
When the pressure retaining function is activated, after start time T2 ends turn off run-in point and wait until ejection signal ends, then start pressure retaining function and stop receiving signals.
Run-in point is in ON status during pressure retaining time. When pressure retaining time ends, run-in point turns off and starts to wait for the signal of the next ejection. All sections can set different delay and start times.

Example 1:
Set ejection signal 10 seconds
First section delay time 3 seconds, start time 4 seconds; second section delay time 4 seconds, start time 6 seconds
Operation: Upon receipt of the ejection signal, first section run-in point starts in 3 seconds; second starts after 4 seconds, first section run-in point turns 4 seconds after starting, second section run-in point turns off 6 seconds after starting.



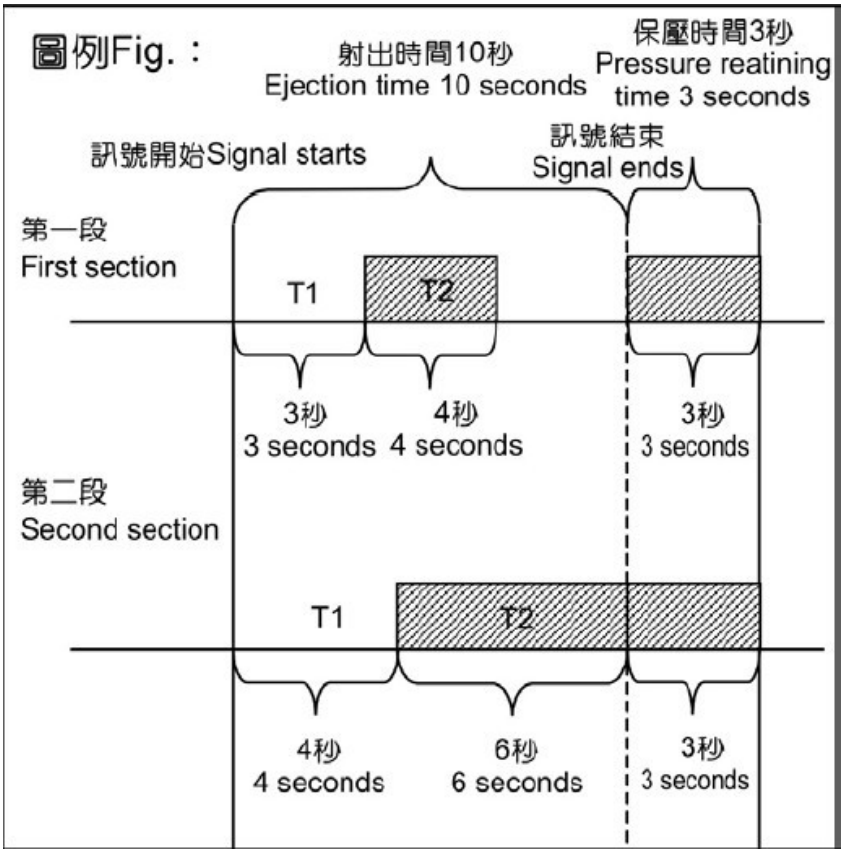
Example 2 (with pressure retaining function)

Set ejection signal 10 seconds

First section delay time 3 seconds, start time 4 seconds, pressure retaining start time 3 seconds

Second section delay time 4 seconds, start time 6 seconds, pressure retaining start time 3 seconds

Operation: After ejection signal is received, first section run-in point starts in 3 seconds; second sections starts in 4 seconds, first section run-in point turns off 4 seconds after starting, second section run-in point turns off 6 seconds after starting, after all section run-in points turn off, wait for the end of ejection signal, enter pressure retaining operation to start run-in point turn off 3 seconds, and begin to receive signals of the next ejection.



AB mode (applicable to trigger signal models with exterior mechanical switches)

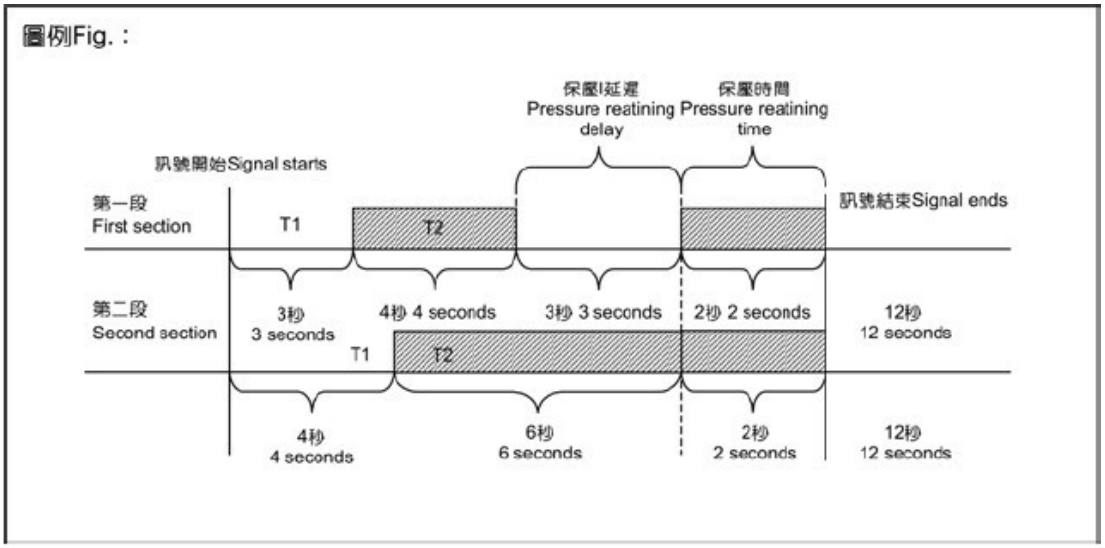
Upon receipt of the ejection signal, run-in point shows OFF status in delay time T1. When delay time T1 ends, run-in point shows ON status in start time T2. When start time T2 ends, run-in point turns off.

When pressure retaining time setting is activated, after start time T2 ends, run-in point shows OFF status in pressure retaining time, when pressure retaining delay time ends, run-in point shows ON status in pressure retaining time; when pressure retaining time ends, run-in point turns off.

Example:
Set ejection signal 12 seconds

First section delay time 3 seconds, start time 4 seconds, pressure retaining delay time 3 seconds, pressure retaining time 2 seconds; second section delay time 4 seconds, start time 6 seconds, pressure retaining delay time 0 seconds, pressure retaining operation time 2 seconds

Operation:
Upon receipt of ejection signal, first section run-in point starts after 3 seconds, and closes after 4 seconds after run-in point starts, and enters pressure retaining mode after run-in point is closed, run-in point starts after delay 3 seconds, and closes after 2 seconds after run-in point starts. Second section run-in point starts 4 seconds after receipt of signal, run-in point closes 6 seconds after starting and enters pressure retaining mode, run-in point starts 0 seconds after it is closed, run-in point closes 2 seconds after the start.



1.5.3 Parameter List

Product Model	4 Zone	6 Zone	8 Zone
Equipments			
Zone	4	6	8
Casing Type	SHT4V	SHT6V	SHT8V
Power Switch Capacity(A)	20	20	20
Contactor Type	SIBAS-16P×1	SIBAS-16P×1	SIBAS-16P×1
Weight without module（kg）	18	24	32
Dimension(mm) **(W=width, H=height, L=length)**	W=400 H=270 L=350	W=400 H=270 L=430	W=400 H=270 L=600
Specification			
Power Supply	220VAC±10% 50/60Hz	220VAC±10% 50/60Hz	220VAC±10% 50/60Hz
Output Watt.	500W/zone		
Power Consumption	2.5W per module		
Input Impendence	2MΩ		
Working Temperature	0~50℃		
Signal Input Type	DC24V switch signal		
Certificate	CE		

1.5.4 Safety Regulations

Please abide by the safety guide when you operate the machine so as to prevent damage of the machine and personal injuries.

All electrical components should be by qualified electricians.

Turn off main switch and control switch during repair and maintenance.

Warning! High voltage! This label must stick to the cabinet。

Warning! Be careful! Be more careful when this mark appears!

Attention!

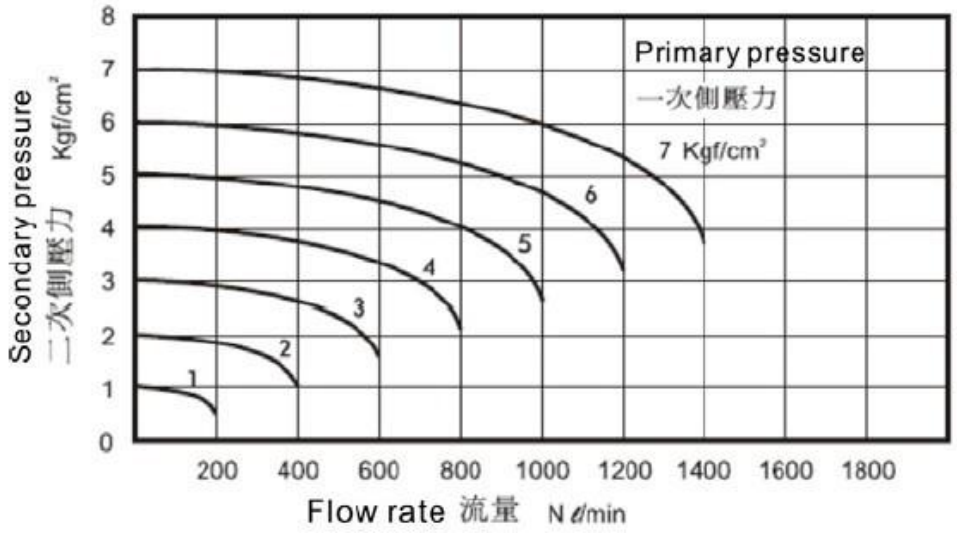
No need for regular inspection because all the electrical parts in the control unit are fixed tightly!

2. Chapter 2 Option

2.1 Solenoid Valve

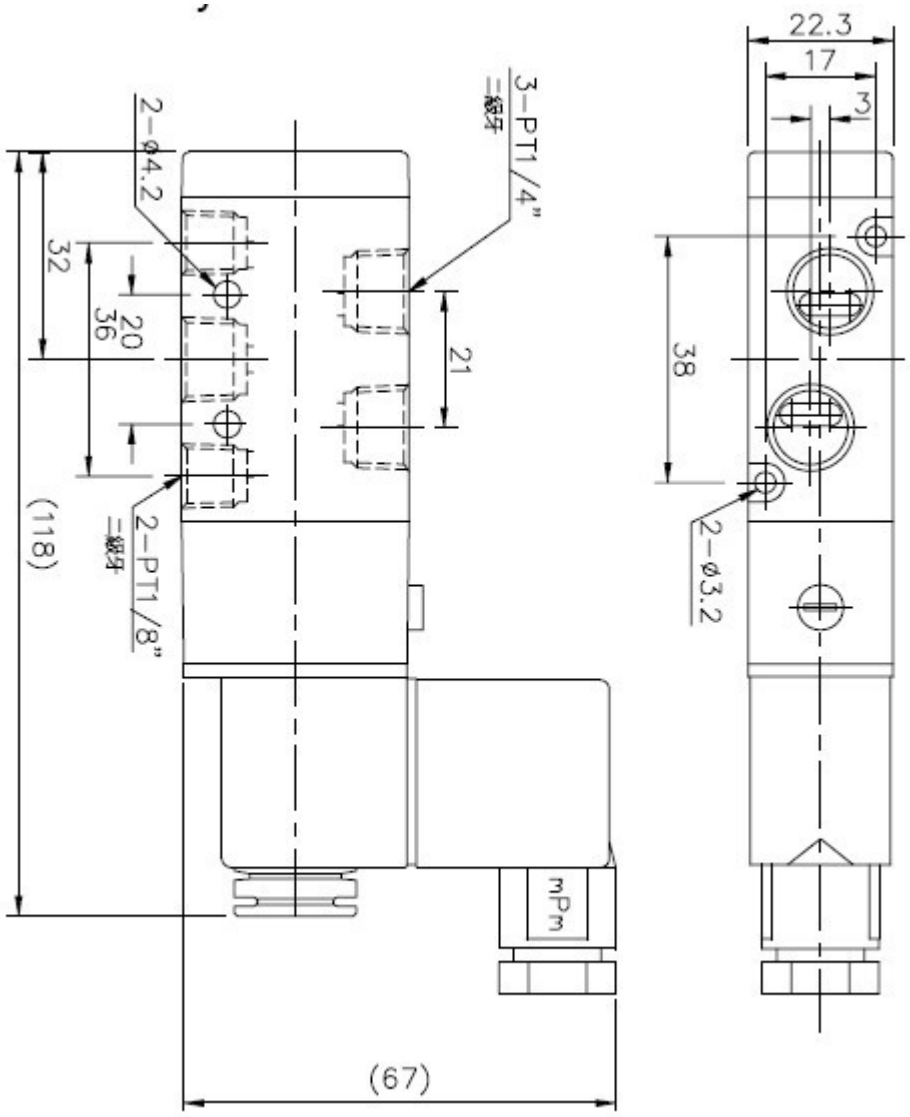
Model	MFH-5-1/8-B
Bore NO.	8A
Port size	PT 1/4
No. of port	5口
No. of position	2
Medium	Air
Operating pressure range	2~12 kgf/cm2
Proof pressure	15 kgf/cm2
Effective orifice	18 mm2
Ambient temperature	-5~+50℃(No freezing)
Response time	40 ms
voltage	AC110V, 220V (50/60)Hz, DC24V
Power consumption	AC=6/4, 9VA, DC=2.5W
Available voltage range	±10%
Insulation class	F class
Weight	255g

2.2 Flow Features

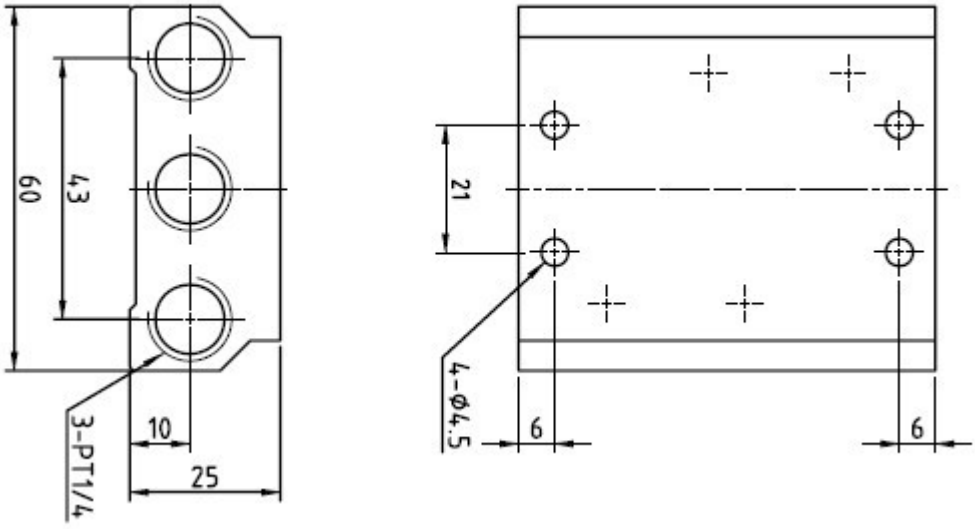


2.3 Solenoid Valve Dimension

2.3.1 Valve Body



2.3.2 Base



Base Suppressor and 8φ Straight Connector

Manifold number	P	L
2	57	69
4	103	115
6	149	161
8	195	207

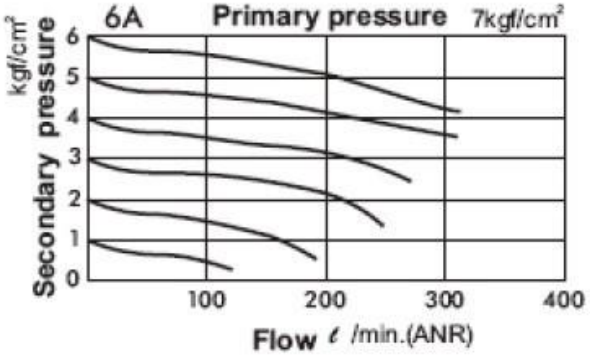
Please use a soft air hose with a diameter of 8φ.

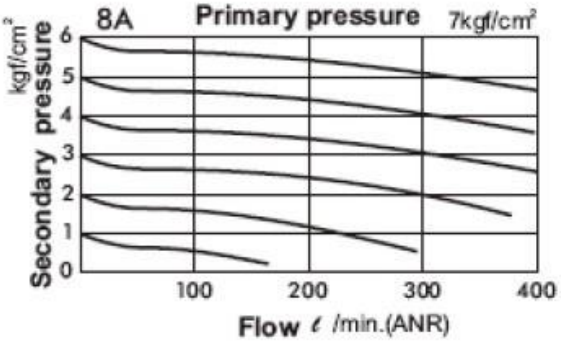
2.4 Specification

2.4.1 Specification

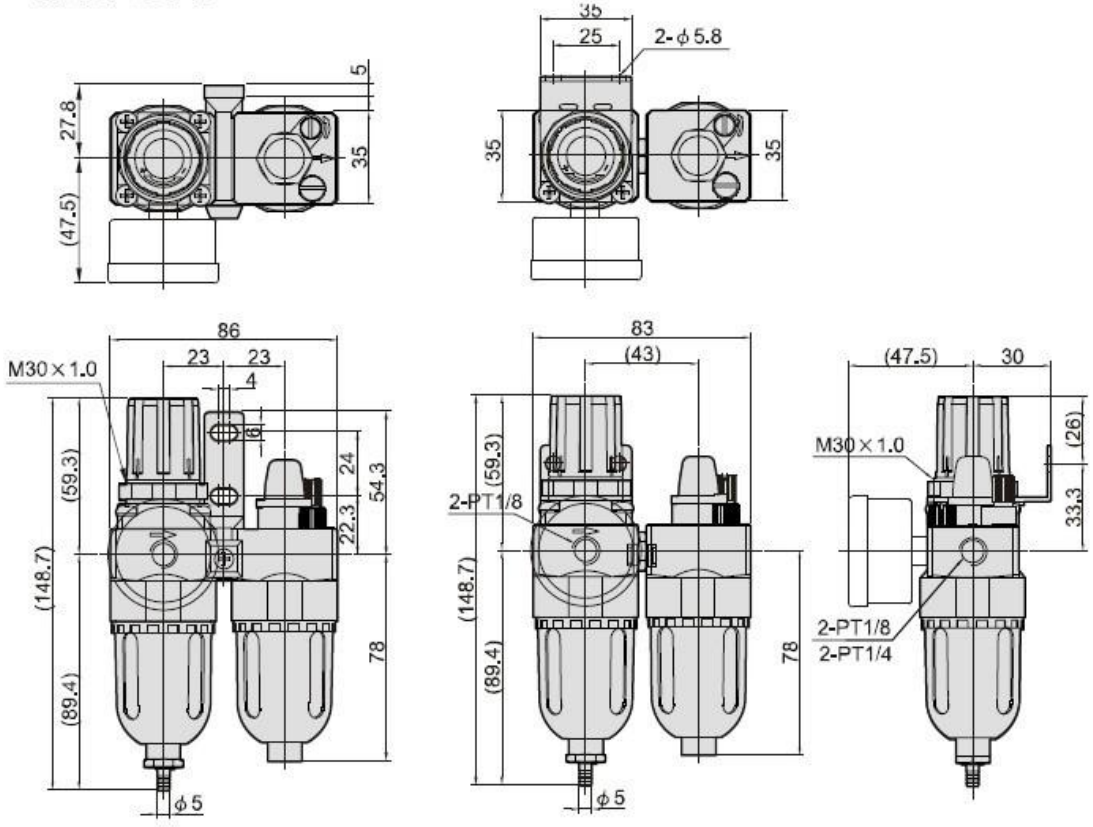
Model	MACP200
Components	MAFR200, MAL200
Bore No.	8A
Port size	PT 1/4
Medium	Air
Operating pressure range	0~9.9kgf/cm2 (0~0.99MPa)
Proof pressure	15kgf/cm2 (1.5MPa)
Regulation pressure range	0.5~8.5kgf/cm2
(0.05~0.85MPa)	
Ambient temperature	-5~+60℃(No freezing)
Filtration	Standard：40μm Option：5μm
Lubricating oil capacity	25c.c
Min. flow for oil drip	50m^3/min
Recommended lubricating oil	Turbine oil ISO-VG32
Attachment	Pressure gauge, bracket
Weight	606g

2.4.2 Flow feature





2.4.3 Air Regulator Dimensions



IN Quick male connector included

OUT 8φ straight connector included

＊**Please use a soft air hose with a diameter of 8φ.**

2.5 Order List

Customer Name：_____

模　組 ／ MODULE

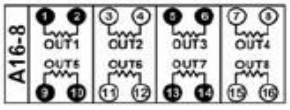
- Membrane 薄膜：☐ Standard 標準　☐ Customize 客製版
- TC5V Module 模組　☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐_____pieces 片(槽)
  ☐Blank plate 空白面板_____pieces 片(槽)

機　箱 ／ CABINET

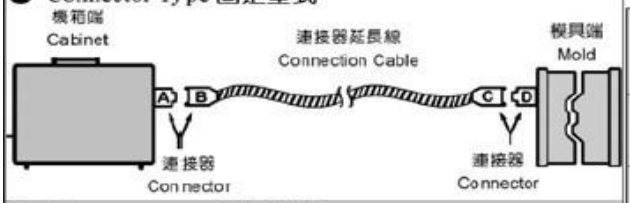
- Cabinet 機箱：☐ 2 ☐ 4 ☐ 6 ☐ 8
- Power cord wiring 電源接線： 單相 3 線(1Ø3W)， 220Vac+地線(G)， 3m Length 長度
- Connection 模具連接

- Connection cable 連接器延長線：16 PIN
  Length 長度：☐Standard 標準(3m)
  ☐Customized 客製_____m 長度
- Quantity 數量：_____

- Connector assignment 連接器配線：



- Connector Type 固定型式



	Cabinet 機箱端	Connection cable 連接器延長線		Mold 模具端
Connector 連接器	A	B	C	D
Name 名稱	Housing 護座	Hood 護蓋	Hood 護蓋	Housing 護座
Type 型式	Socket 母	Plug 公	Socket 母	Plug 公
Combination 固定型式	a	b	b	a

- Connector Type 固定型式

☐a--Single Lever 單勾
Qt'y_____個

☐b--Two Pegs 單釦
Qt'y_____個

配　件 ／ ACCESSORIES

Air Unit 三點組合	Solenoid valve 電磁閥	Signal cable 輸入訊號線：5m
		
☐ _____ sets 組	☐ _____ sets 組	☐ _____ pieces 條

- Note 備註：