SFR

Water Flow Regulators

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SHINI

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1. General Description

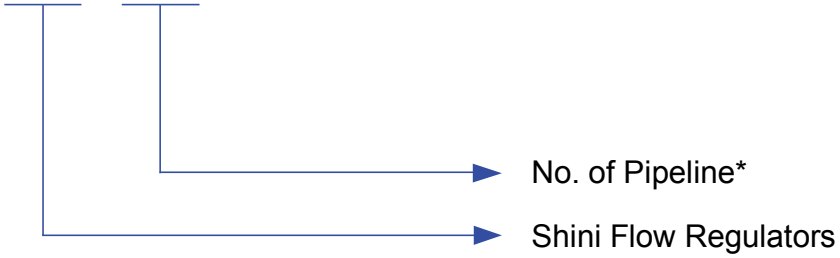
Read this manual carefully before operation to prevent damage of the machine or personal injuries.

SFR series water flow regulators are designed to work with mould heaters, water chillers and cooling towers, which can be connected to more than one mould connectors. They have the function like temperature and flowrate displays, flowrate control in order to meet the requirement of different working conditions. Modularized combination ensures convenient installation and maintenance. It is a necessary device for modern plastic industry to improve its moulding efficiency.

Model: SFR-600

1.1 Coding Principle

SFR - xxxx



Note: *
For example: SFR-200, 2 pipelines
SFR-1000,10 pipelines

1.2 Feature

- Modularized design and great expandability, which can be configured on client's demand.
- Optimal structure design, longer service life.
- Flowrate is adjustable according to different demand and has temperature and flowrate display function, which can display immediately whenever there is clogging in the mould circulation loops so as to avoid producing defective products.
- Ensure the conformity of product's shrinkage by accurate and reliable mould temperature control.
- Convenient for both mounting and demounting, easy for cleaning and maintenance.
- Purely mechanical structure with no power consumption.
- Viewable flowrate display helps fast adjusting to required rate.
- Adopts precise adjusting valve, which can adjust the flowrate more accurately.
- Mould connectors (3/8" male quick-release connector) are supplied as standard. For connecting with other sizes, they can be unscrewed to leave 3/8" PT female threads.
- Cleaning brush is supplied as standard for easy maintenance of flow tubes.
- Water connection elbows with quick-release connectors (3/8", 1/2", 3/4" and 1"), and machine mounting bracket are optionally available.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

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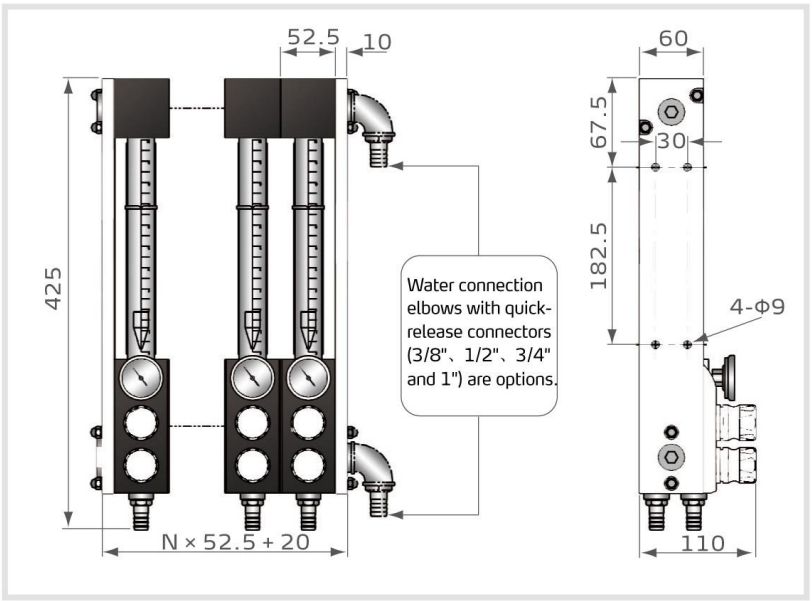
1.3 Technical Specifications

1.3.1 SFR Series Outline Dimensions



Picture 1-1: Series Outline dimensions

Table 1-1: Model

Model	Pipe No. (N)
SFR-200	2
SFR-400	4
SFR-600	6
SFR-800	8
SFR-1000	10
SFR-1200	12

1.3.2 SFR Series Technical Parameters

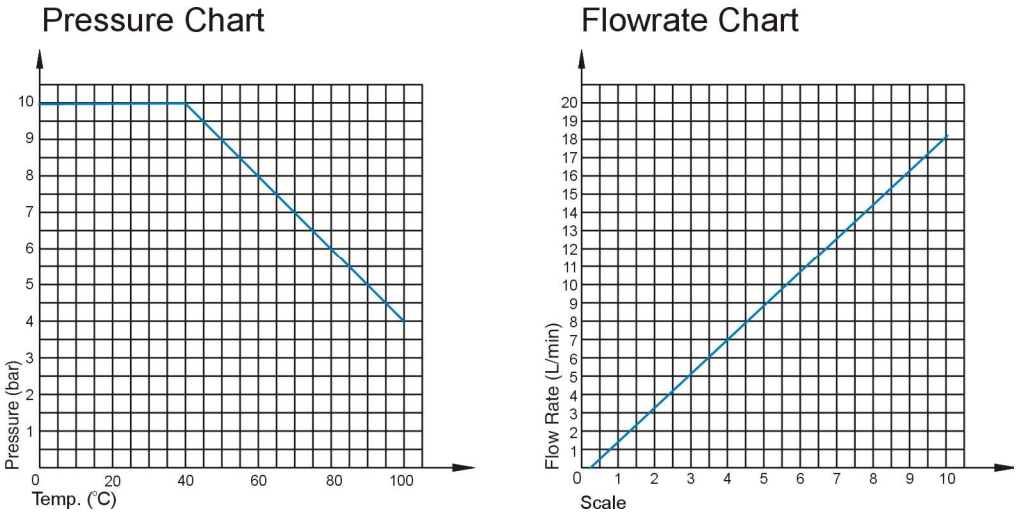
Max. Temperature: 100℃ (210℉)

Max. Pressure: 10 bar

Flowrate range: 0 ~ 18 ltr. / Min (each)

Mould connectors: 3 / 8" quick-release

Water connectors: 3 / 4" PT female thread



Picture 1-2: Chart

1.4 Safety Regulations

Strictly abide by the following safety regulations to prevent damage of the machine or personal injuries.

1.4.1 Safety Signs and Labels

Warning! Danger!

Take great care when this sign appears !

Attention!

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

1.5 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

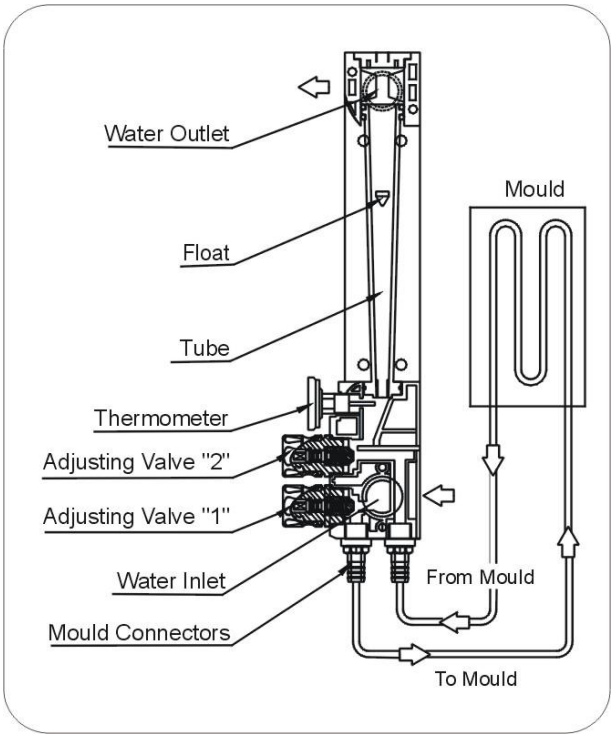
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

2. Structure Characteristics and Working Principle

2.1 Working Principle of SFR

1) Circulating water comes into flow regulator via water inlet.
2) Then the circulating water comes into mould via the adjusting valve "1".
3) After the circulating water completing its circulating in the mould, it will go back to the flow tubes via the flow regulator's return water inlet and the adjusting valve "2". Flowrate can be observed in the flow tubes.
4) Circulating water returns to the mould temperature controllers, water chillers or cooling tower via water outlet.
5) Thermometer displays the temperature of pipe flow.

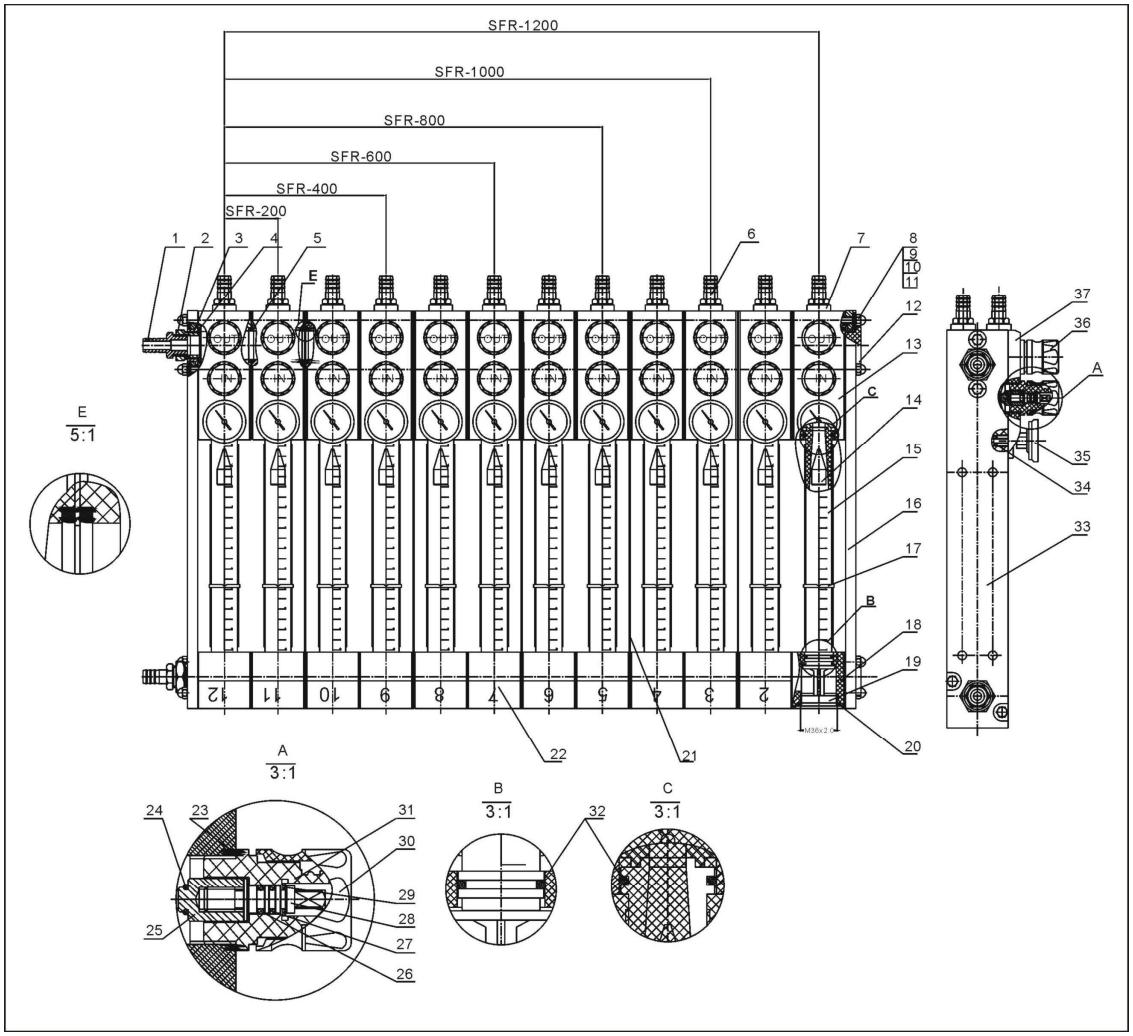
2.1.1 System Flow



Picture 2-1: System flow

2.2 Assembly Drawing

2.2.1 Assembly Drawing



Technical requirements:

1. No mixed use of various O type rings is allowed in assembling.
2. Face direction is that the pointed end faces valve body.
3. Zero installation graduation of transparent collet is on valve body.
4. Test water and find out no water leakage in every sealing place after assembling in accordance with regulations.
5. Adjust knob, flexible and reliable.

Remarks: please refer to material list 8.2.2 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-2: Assembly drawing

2.2.2 Parts List

Table 2-1: Parts list

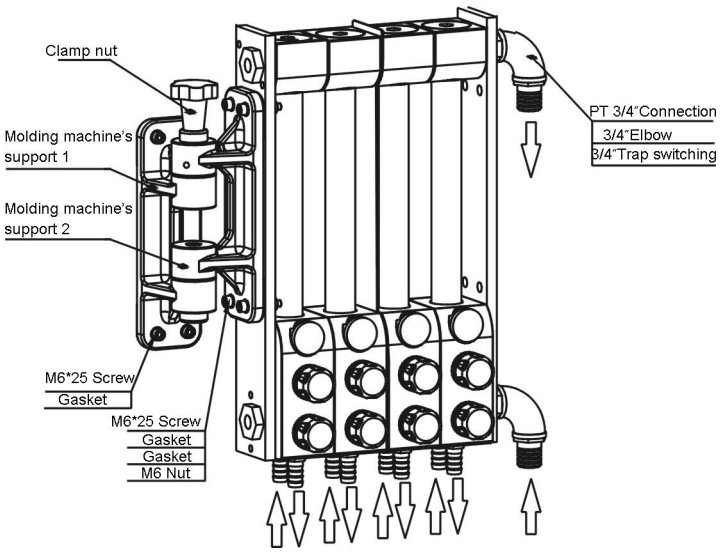
No.	Name	Part No.	No.	Name	Part No.
1	External pipe connector	BH12040000910	20	O type seal ring 6	YR20363000000
2	External pipe connector base	BH12040000810	21	Clapboard	BL26160500110
3	Connector base fixed ring	BH12040000710	22	Number label	YP31010000100
4	O type seal ring 1	YR20283500000	23	O type seal ring 3	YR20236200000
5	Rectangular seal ring	YR20401000000	24	O type seal ring 5	YR20562600000
6	3 / 8" Pipe's connector	YW04135300000	25	Regulator block	YW05040000400
7	Inside base of valve body connector	BH12400001210	26	O type seal ring 7	YR20052500000
8	Full bolt	BH10624000010	27	O type seal ring 4	YR20062000000
9	Flat gasket	YW66061800000	28	Regulator inner lever	YW05040000300
10	Spring washer	YW65006000100	29	E-rings	YW66000600000
11	Cap nut	YW64006000100	30	Regulator screw cap (IN)	YR40000000700
12	Seal screw	YR40000000900	31	Regulator fixing seat	YR40000000500
13	Valve body	YR40004000000	32	O type seal ring 2	YR20273000000
14	Face cone	YW04143500000	33	Left fixing plate	BW20040000410
15	Transparent collet	YR40000001100	34	4" Single-pore rubber plug	YR30000400100
16	Right fixing plate	BW20040000310	35	Bimetallic thermometer	YE90101100000
17	Collet measuring scale	YW20004700000	36	Regulator screw cap (OUT)	YR40000000800
18	Connection base	YR40000001000	37	Lateral mass	YR40000000600
19	Screw thread adjustment parts	YR40000001300			

3. Installation and Debugging

Read this chapter carefully before installation. Install as following orders to avoid any accident!

3.1 Installation Notice

1) Water flow distributor must be installed vertically on vibration free base without any evident slope, its installation height should facilitate the float scale reading, and the line of sight should be in level with float. The circulating water runs through the distributor from top to bottom.
2) The max. flow rate of the water inlet should be less than the max. processing rate (max. flowrate for each pipe is 18L / min).
3) Refer to the installation method in the following chart while selecting molding machine's support and main inlet-and-outlet connection. Use screws in attachment to fix molding machine's support 1on injection machine's template, install forming machine's support 1 on the top of forming machine's support 1 and lock it tightly with clamp nut, and use screws in attachment to fix water flow regulator and forming machine's support 2 tightly.
4) It is necessary to connect with other pipes for distributary circulation when water flow requirement of mould is less than that in water inlet. (Refer to the following chart)



Picture 3-1: Installation notice

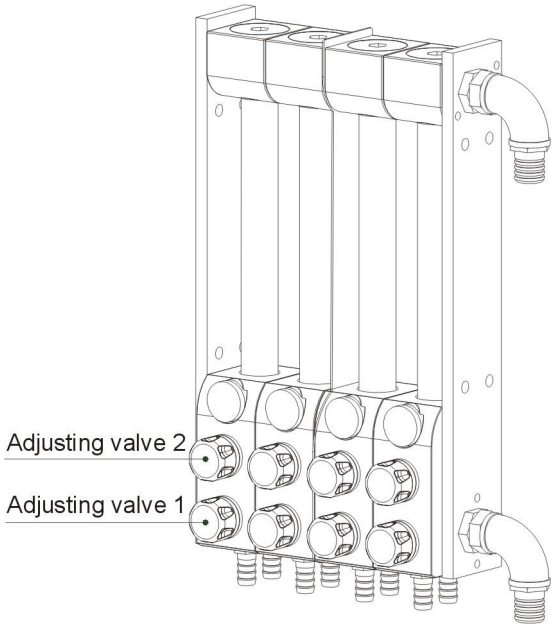
5) May need to mount water filter at the water inlet if it is using water that contains much impurities.
6) The pressure of the circulating water needs to be stable or it will cause the float fluctuation and incorrect readings.

Only applicable to purified water not for any other liquid or gas.

4. Operation Guide

4.1 Flowrate Adjusting

Water distributor adjusts the flowrate via two adjusting valves. When adjusting flowrate, first pull up the valve as indicated by the figure, turn clockwise to decrease the flowrate while increase its flowrate by turning it anticlockwisely. Press down the adjusting valve when finish.



Picture 4-1: Flowrate adjustment

The adjusting valve may not be able to adjust when it is pressed down.

5. Trouble-shooting

Failures	Possible Reasons	Solutions
Water leakage.	The nut has not been locked up. The seal ring is damaged. Too high water pressure.	Tighten up the screw. Change the seal ring. Reduce water pressure.
Incorrect temp.	Thermometer is damaged. Furring in thermometer.	Change the thermometer. Cleaning or change
Can not adjust flowrate.	Valve fails. Pipe clog.	Change valve. Clean the pipeline.
Incorrect flowrate display.	Great abrasion on float. Furring on float and plastic pipe.	Change float. Clean furring.

6. Maintenance and Repair

All stuff concerning repair must be conducted by professionals to avoid machine damage or harm to human body.

6.1 Clean the Furring

There are furring gatherred around the float and plastic pipe after using for a while, so please check periodically. If incorrect flowrate is found, please clean the furring on float by using sand paper or cloth, while use pipe brush to clean the plastic pipe.

6.2 Maintenance Schedule

6.2.1 About the Machine

Model:_____ SN: _____ Manufacturing date: _____

6.2.2 Installation Check

- ☐ Inspect if transparent collet is cracked.
- ☐ Check to see if the joint has been connected.
- ☐ Check if there is any water leakage.
- ☐ Inspect if water flow regulation valve works in normal state
- ☐ Check the thermometer to see if it can work normally.

6.2.3 Daily Check

- ☐ Inspect if water flow regulation valve works in normal state.
- ☐ Check the thermometer to see if it can work normally.
- ☐ Check if there is any water leakage.

6.2.4 Weekly Check

- ☐ Inspect if there is furring in bobber and transparent collet.