ASHMAR®
SCIENTIFIC

QuickTrace M Series
SPE Positive Pressure Manifold

P/N FM000701

Preface

Copyright notice

Trademark notice

Manual contents

The information in this manual contains typographical errors or technical incompleteness and is subject to change without notice. The products described in this manual may be updated and modified from time to time.

Product Information

The QuickTrace M-Series SPE is a positive-pressure solid-phase extraction instrument that can be used to extract and clean multiple samples at the same time with the help of a compressed air supply and without the need for electricity. The QuickTrace M-Series SPE requires personnel to assist in the operation and handles different sample volumes depending on the model, see "1.3 Instrument Introduction" for details.

Product safety warnings

Proper operation of the instrument according to the manual can avoid damage to the instrument and potential safety hazards. There may be high air pressure inside the instrument, please do not disassemble the instrument at will.

Warn:

- *In order to avoid instrument failure and personal injury, please do not disassemble the instrument without permission, if you need help, please contact ASHMAR Technology.*
- *Use this product as described in this manual. If this device is used in a manner not specified by the manufacturer, damage to the instrument may occur.*

Contact ASHMAR

ASHMARN Technology can provide you with a variety of professional services, including product online troubleshooting, maintenance guidance, service scheduling and replacement parts information.

Before contacting ASHMAR, please review the user manual for possible causes and solutions, and then provide the following information to the customer support representative

- The serial number of the instrument.
- If possible, provide an error message that appears on the screen.

ASHMAR product repair station

ASHMAR Product Repair Station provides repair, upgrade, refurbishment and installation services to all customers who purchase products at a reasonable price. For further information, please contact Ashmar Technologies.

Service Hotline:400-000-8187

E-mail:Marketing@ashmar-scientific.com

ASHMAR Technologies will dispatch professionally trained service engineers to solve the problem.

Instrument transport

Customers can choose the mode of transportation and other services.

Return policy

To ensure the safety of all of our technicians, each returned product must go through our instrument usage questionnaire explaining the chemicals they were exposed to, the chemicals used during use, and the cleaning measures taken prior to shipment.

Returns processing

Once the product has been returned, we will evaluate it for repair. If there is a fault or error in the instrument itself during the warranty period, it can be repaired and updated free of charge, or even replaced with a new instrument. If the damage is due to human factors, repair services can be provided, but an appropriate repair fee will be charged.

Customer service & support

ASHMAR Technologies offers you a full range of services to ensure that you are using your instrument correctly. From factory-owned warranty plans to comprehensive customer support services, ASHMAR Technologies can provide you with dedicated field service engineers who can help you with your hardware, software, and application needs.

The services include the following:

- Routine maintenance
- On-site diagnostic services
- Out-of-business day service support
- Repair services
- Other customized services

CE certification

The instrument complies with the rules and requirements in CE certification.

Table of symbols

The symbolic markings in Table 1 alert you to the dangers. These symbols may appear on this manual and on the products described therein.

Symbol	Description
	Danger: If this emergency cannot be avoided, it can result in death or serious injury
	Warning: Caution, there is a danger. Refer to the instructions in the user manual
	Note: warning statements, operation tips or maintenance suggestions; Failure to comply may result in damage to the instrument
	There is a risk of puncture
	Risk of eye injury, wear protective eyewear
	Risk of exposure to biological hazards
	Risk of fire
	Risk of poisoning
	Risk of explosion
	open
	close
	CE certification

Table 1Table of symbols

Directory

1、 Instrument introduction

ASHMAR's QuickTrace M-series solid-phase extraction devices provide fast and efficient enrichment and purification of solution samples with a continuous and stable air supply. This manual applies to the following models: QuickTrace M8, QuickTrace M48, QuickTrace M96.

Figure 1. QuickTrace M8

1.1 How it works

The QuickTrace M series solid-phase extraction device adopts the separation principle of selective adsorption and selective elution, so that the solvent passes through the adsorbent (solid-phase extraction cartridge or solid-phase extraction membrane), retains the measured components, and then selects the appropriate strength solvent to wash away the impurities, and then elutes the measured substance with a small amount of solvent, so as to achieve the purpose of rapid separation, purification and enrichment.

1.2 Packing list

Serial number	Name	Specification	Quantity
1	QuickTrace M-Series mainframes	--	1
2	Air intake pipe	Φ10	3
3	Waste collection tank	--	1
4	Solid-phase extraction cartridges	6ml/3ml	30/50
5	Small-volume sample holders	--	1
6	Large-volume sample holders	--	1
7	Collection racks	--	1
8	Cushion blocks	--	1
9	User Manual	Electronic version	1

Table 1. Accessories list

1.3 Instrument introduction

1.3.1 QuickTrace M8

Fig2. Quicktrace M8 left view

①Independent control of the hand valve

Control channel opening and closing

②Sealed cover

Seal the SPE cartridge to the corresponding channel

③Move the pallet

It is used to place the collection rack and move it back and forth

④Air intake

The connection port where the gas enters

⑤flowmeter

Displays the flow rate with low pressure

⑥Lift switch

A switch that controls the lifting and lowering of the enclosure

Fig3. QuickTrace M8 Right view

⑦Low-pressure pressure gauge

Displays the low pressure of the gas

Air intake

The connection port where the gas enters

⑧ High pressure gauge

Displays the high pressure of the gas

⑨Low pressure pressure regulating valves

It is used to adjust the low pressure of gases

⑩High-pressure pressure regulating valves

It is used to regulate the high pressure of the gas

⑪Indicator knob

Used to indicate a running step，respectively（Condition）、（Load）、（Rinse）、（Dry）and（Elution）

⑫Switching valves

It is used for fast switching between high and low pressure

⑬Collection racks

It is used for the collection of waste and extraction samples

⑭Large-volume loading module（Optional, see 2.5 large volume loading for details）

1.3.2 QuickTrace M48

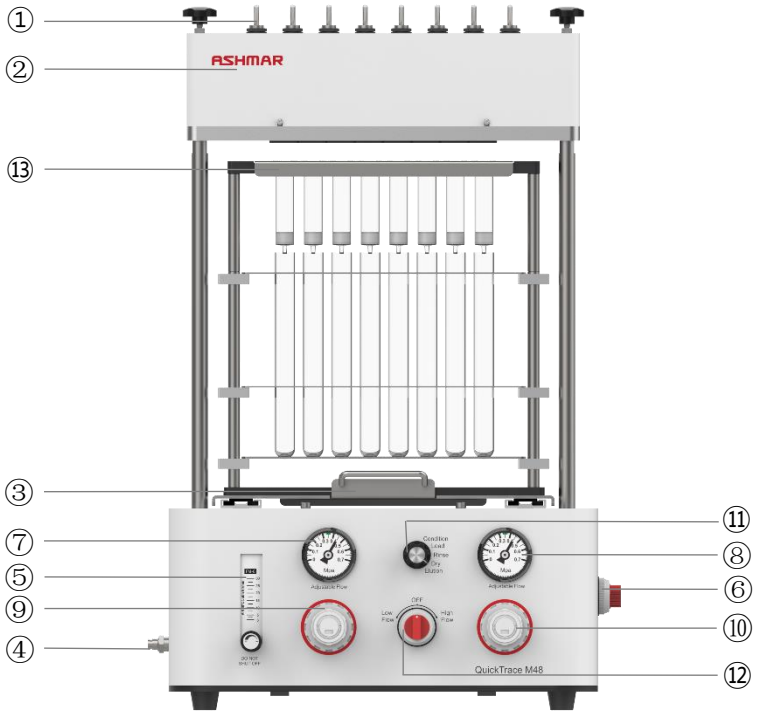


Fig4. Quicktrace M48 Front view

①Independent control of the hand valve

②Sealed cover

③Move the pallet

④Air intake

⑤flowmeter

⑥Lift switch

⑦Low-pressure pressure gauge

⑧High pressure gauge

⑨Low pressure pressure regulating valves

⑩High-pressure pressure regulating valves

⑪Indicator knob

⑫Switching valves

⑬Collection racks

Note: **For details of the widget function, please refer to1.3.1**

1.3.3 QuickTrace M96

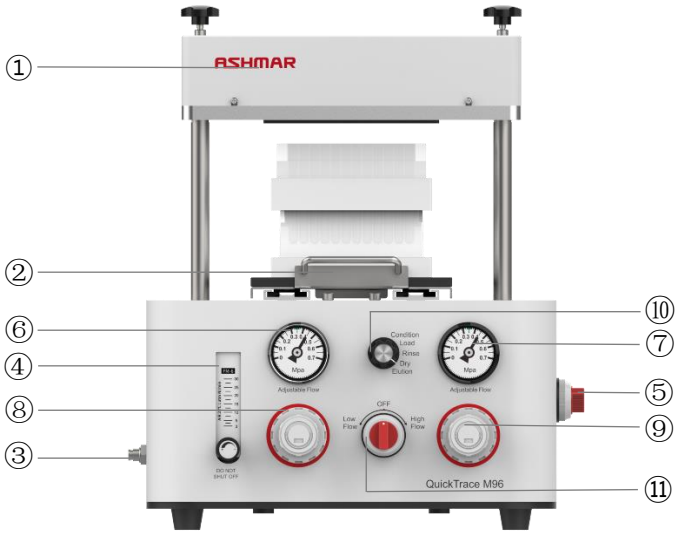


Fig5. QuickTrace M96view

①Sealed cover

②Move the pallet

③Air intake

④flowmeter

⑤Lift switch

⑥Low-pressure pressure gauge

⑦High pressure gauge

⑧Low pressure pressure regulating valves

⑨High-pressure pressure regulating valves

⑩Indicator knob

⑪Switching valves

Note: **For details of the widget function, please refer to1.3.1**

1.4 Instrument parameters

Instrument size

The specifications of the different models are as follows:

Name	Dimensions (mm)	Weight (kg)
QuickTrace M8	455x500x660	35
QuickTrace M48	455x550x660	35
QuickTrace M96	390x390x450	20

Table 2. Instrument size and weight

Run parameters

Gas pressure: small pressure 0-0.2MPa The maximum pressure is 0.2-0.7MPa

Gas flow：16-160ml/min

2、 Installation & Use

2.1 Unpacking and acceptance

Be sure to be accompanied by a commissioning engineer for unpacking and acceptance. When unpacking, please confirm that the accessories in the instrument box are complete, and refer to the packing list in the package for details of the accessories; If you find any damage or omission, please let our commissioning engineer know or contact Ashmar in time, and we will deal with it for you as soon as possible.

Record the serial number of the instrument, which is unique to each instrument; When the instrument needs to be repaired or software is updated, its serial number is required.

2.2 Installation Conditions

2.2.1 Air supply

（1）Air source requirements: nitrogen/air or other inert gases; Air pressure: 0.2-0.7MPa

（2） The instrument air inlet uses a metal pneumatic fitting, and only the tubing needs to be inserted into the air inlet.

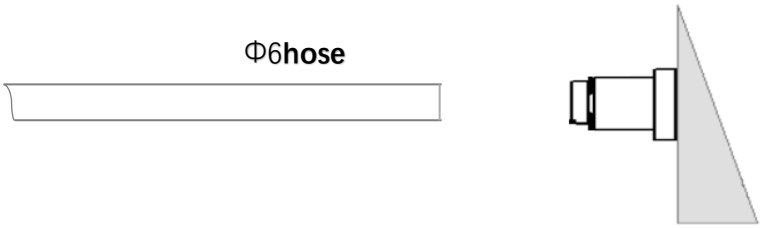


Fig6. Intake connection

Warn:

It is strictly forbidden to use hydrogen or other flammable gases as a gas source, the use of flammable gases may cause explosion or fire.

(3) Use environment: 10°C-30°C; Relative humidity: 20%-80%

2.2.2 Installation space

The instrument needs to be installed in a flat and firm space, and the volume of the space should be larger than the volume of the instrument; During the use of the instrument, it is necessary to have a stable air supply and a solvent vapor treatment device. In general, it is recommended to place the instrument in a fume hood to facilitate the evacuation of solvent vapors.

According to the actual purchase of the instrument model, the user can determine:

Model	Required installation space

QuickTrace M8	> 455x500x660
QuickTrace M48	> 455x550x660
QuickTrace M96	> 390x390x450

Table 3.Installation space

2.3 Installation Steps

Taking QuickTrace M8 as an example, the installation steps for other models are basically the same, and the actual model shall prevail.

1) Open the instrument package and check the packing list to see if there is any omission or damage;
2) Take out the instrument host and place it on a suitable test bench, preferably in a fume hood;
3) Connect one end of the air duct (random accessory) with the specification of Φ6 to the air source, and insert one end directly into the metal pneumatic joint on the left side of the instrument; (see 2.2.1 Air Supply for details);
4) Adjust the lifting switch on the right side to check whether the sealing cover is lifted normally;
5) Combine the upper and lower parts of the rack and place it on the mobile tray for later use.

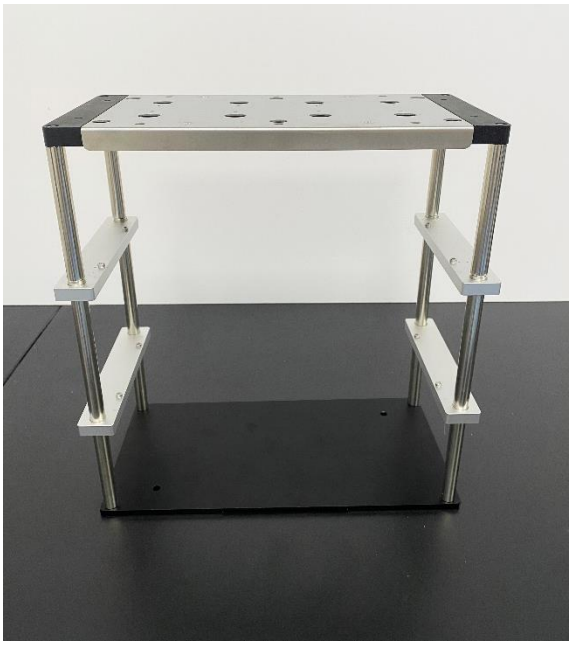


Figure 7. Installation diagram of the collection rack

2.4Procedure

The following steps are performed on QuickTrace M8 as an example, and the operations of other models are basically the same. Please refer to the actual model for details.

①Connect the air source and the air inlet of the instrument, and the connection method, refer to 2.2.1. Air supply supply. As shown in the figure, a collection rack base frame is placed on the moving tray;

Figure 8. Place the bottom rack of the collection rack

②Place the waste tank on a shelf;

Figure 9. Place the waste tank

③Place the required solid-phase extraction cartridges on the upper layer of the collection rack and install them on the bottom rack; Note: The pressure on the same row of cartridges is the same

Figure 10. Place the solid-phase extraction cartridge

④Pipette the sample into a solid-phase extraction cartridge (small volume); or through the large-

volume loading module (see 2.5 large-volume loading for details);

Figure 11. Pipette the sample into the cartridge

⑤Manually push the moving tray to the innermost side, directly below the sealing cover, and rotate the sealing switch valve clockwise. At this time, the sealing cover is automatically pressed down, and the solid-phase extraction cartridge is sealed;

Figure 12. Extraction hood seals cartridges

to make it open, a total of 8 valves (open according to the actual situation). ;

Figure 13. Open the independent control hand valve

⑦Turn the switching valve to the left (low flow) and select a suitable flow rate by adjusting the pressure knob and the flow meter knob to push the sample into the solid-phase extraction cartridge and into the waste tank.

Figure 14. Extraction with low pressure

When all the liquid has passed through the cartridge, switch the switch valve to the 0ff position, and rotate the seal switch valve counterclockwise, and the seal cover is raised.

Figure 15. The switching valve is turned to 0ff

⑧Pull the moving tray forward and add the eluent to the solid-phase extraction cartridge.

Figure 16. Add eluent

Then push the moving tray back and press down to seal;

Figure 17. Seal the cartridge

⑨Switch the switch valve to the left side (low pressure), when all the liquid has passed through the cartridge, switch the switch valve to the right side (high flow), and perform the blow drying step on the cartridge;

Figure 18. Blow dry the cartridge under high pressure

⑩After drying for a certain time, switch the flow valve to the OFF position, rotate the switch

valve counterclockwise, make the sealing cover rise, and pull the collection rack out;

Figure 19. Lift the sealing cover

⑪Remove the upper shelf of the collection rack where the cartridge is placed, remove the waste liquid collection tank on the lower layer, replace it with the sample collection rack, and install the collection tube, which corresponds to the solid-phase extraction cartridge one by one;

Figure 20. Replace the collection tube

⑫Attach the rack rack where the cartridges are placed to the rack and add the eluate to each

SPE cartridge

Figure 21. Add the eluate

Push the collection rack under the sealing cover and seal;

Figure 22. Seal the cartridge

⑬The flow switch valve switches to the left side (low flow) and the eluent elutes the sample

into the collection tube. When you're done, remove the sample tube.

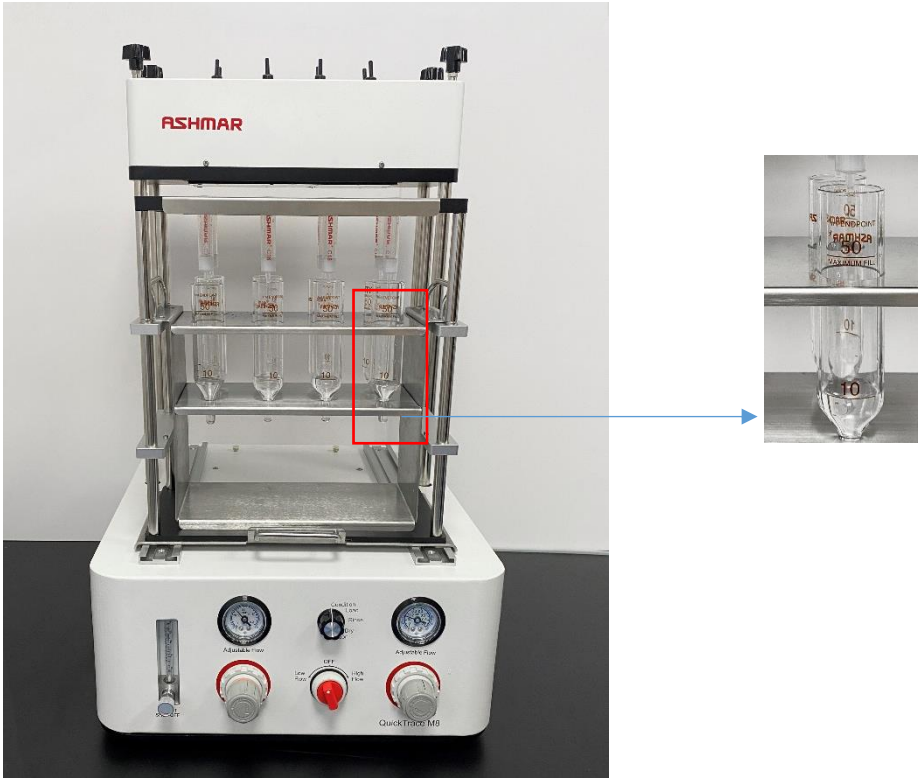


Figure 23. Collect the eluate

2.5 Large-volume loading

As an optional function of QuickTrace M8, the large-volume sample loading module can realize the function of automatic sample loading of large-volume samples. The purpose of automatic sample loading is achieved with the assistance of gas pressure, and the amount of air pressure can determine the speed of automatic sample loading.

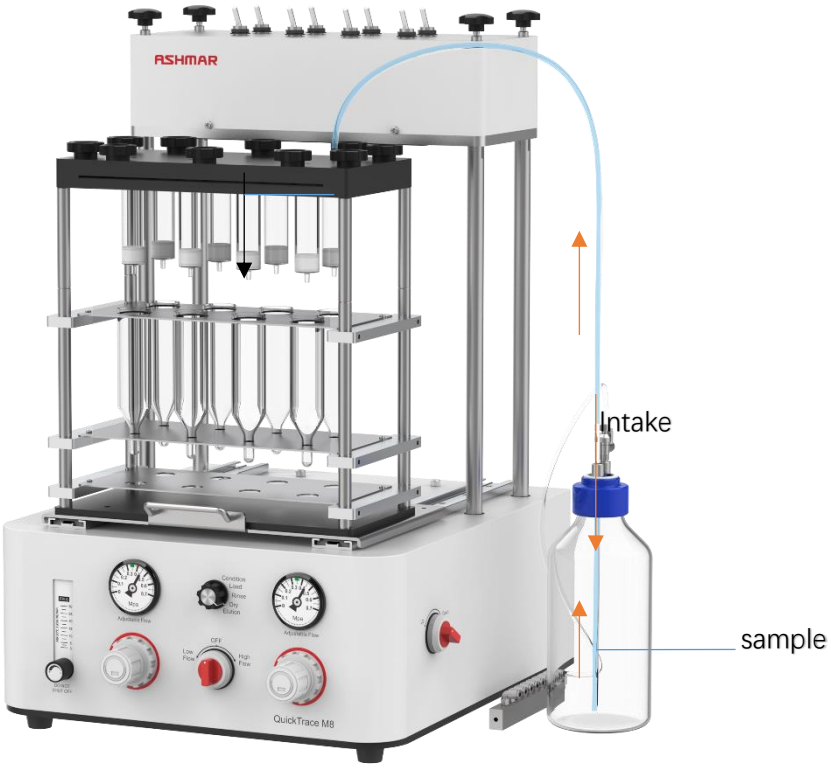


Figure 24. Large-volume loading mode

2.6 String column function

The two cartridges can be used in series by means of connectors. The string function is only available for QuickTrace M8.

Figure 25 String columns

3、 Precautions

3.1 Installation Precautions

- The instrument should be placed in a position that meets the laboratory management requirements to ensure the longevity of the instrument.
- The placement of the instrument should be shockproof, impact-proof, dustproof and corrosion-proof.
- Make sure that the surrounding environment is clean and free of other foreign objects.

3.2 Precautions for use

- Before using the instrument, make sure that the air supply has sufficient air supply.
- Non-original accessories (or accessories not from the original manufacturer) may cause damage to the instrument, please use with caution.
- The instrument is designed to be used in a fume hood, and solvent vapor will be generated during the use of the instrument, which may cause harm to the human body, please take protective measures.

4、 Maintenance & Maintenance

4.1 Routine maintenance

1) Cleaning of the seal

Before and after using the instrument, the seals need to be kept clean. It is recommended to wipe with a neutral detergent, such as alcohol; It is forbidden to use organic solvents containing strong corrosiveness for wiping to avoid damage.

2) Cleaning of the collection rack

Clean the racks regularly to prevent corrosion and cross-contamination of the racks by residues.

3) Cleaning of the collection tube

Cleaning of the collection tubes is carried out according to the standard requirements of the laboratory. Before each use, ensure that the sample tube is clean to prevent cross-contamination and affect the results of the experiment.

4.2 Replacement of accessories

Replace the seals

1）Use the hexagon tool to remove the 8 M4 hexagon screws at the bottom of the sealing cover for fixing the sealing sheet;

2）Remove the old seals;

3）Fit the new seal tightly to the bottom of the cover and press it by hand;

4）Fix the edge of the seal with the 8 M4 socket screws that have been removed.

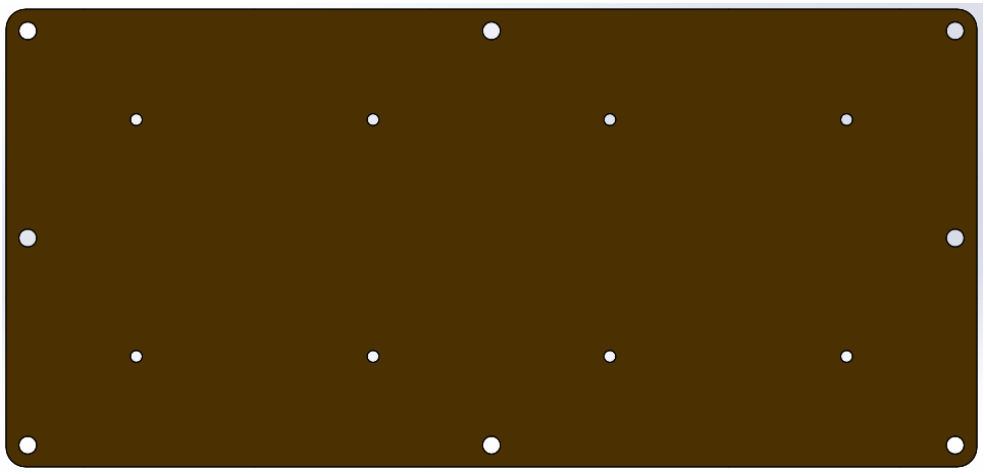


Figure 26. Seals

5、 Failure analysis

Description of the situation	Problems that may arise	solution
The extraction speed is too slow	The seal fails	Replace the seal
	The pressure regulating valve	Replace the pressure
Toggle low pressure without flow display	The stand-alone control valve	Open the independent control
	The flow meter knob is not	Turn on the flow meter knob
The switching valve fails	Damaged internal parts	Contact Ashmar
The lift switch is faulty	The cylinder fails	Contact Ashmar
At high pressures, the flow	The pipeline is gas-trapped,	Contact Ashmar

Table 4. Failure Analysis Table

6、 Ordering Information

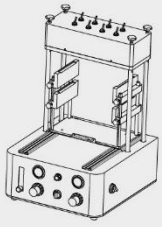
Product description	Order no.
QuickTrace M8 Configuration	
M8 Main Unit	081001
M8 Waste Reagent Tray	A00140
SPE small Column rack	
M8-1mL SPE column rack	A00128
M8-3mL SPE column rack	A00129
M8-6mL SPE column rack	A00130
M8-10mL SPE column rack	A00131
M8-12mL SPE column rack	A00132
M8-20mL SPE column rack	A00133
Collecting rack	
M8-16x125mm tube collection rack	A00138
M8-20x150mm tube collection rack	A00137
M8-20x200mm tube collection rack	A00136
M8-25x150mm tube collection rack	A00135
M8-50mL Quant concentration tube rack	A00134
Optional module	
M8- Large volume loading module	A00268
M8- Serial Loading module	A00269
Quality guarantee	
Host one year warranty	S08001

Product description	Order no.
QuickTrace M48 Configuration	
M48 Main Unit	481001
M48 Waste Reagent Tray	A00150
SPE small Column rack	
M48-1mL SPE column rack	A00141
M48-3mL SPE column rack	A00142
M48-6mL SPE column rack	A00143
M48-10mL SPE column rack	A00144
M48-12mL SPE column rack	A00145
Collecting rack	
M48-16x125mm tube collection rack	A00148
M48-20x150mm tube collection rack	A00147
M48-20x200mm tube collection rack	A00146
Quality guarantee	
Host one year warranty	S48001
QuickTrace M96 Configuration	
M96 Main Unit	961001
M96 Waste Reagent Tray	A00270
Quality guarantee	
Host one year warranty	S96001

Consumable			
1mL C18 SPE cartridge	C00032	16x100mm tube rack	C00014
3mL C18 SPE cartridge	C00033	16x125mm tube rack	C00015
6mL C18 SPE cartridge	C00029	20x150mm tube rack	C00018
10mL C18 SPE cartridge	C00034	20x200mm tube rack	C01012
12mL C18 SPE cartridge	C00035	25x150mm tube rack	C00019
20mL C18 SPE cartridge	C00036	50mL Quant concentration tube rack	C00007
1mL HLB SPE cartridge	C00037	96 deep well plate	C00030
3mL HLB SPE cartridge	C00038	96 shallow well plate	C00031
6mL HLB SPE cartridge	C00039	96 SPE Plate	C00072
10mL HLB SPE cartridge	C00040		
12mL HLB SPE cartridge	C00041		
20mL HLB SPE cartridge	C00042		

Configuration recommendation

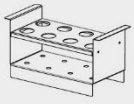
Selection and configuration note: Main unit + Waste solvent unit +SPE column rack + Collection rack + Host one year warranty



Main unit

Waste Reagent Tray

SPE column rack



Collecting rack

Table 5. Ordering Information Sheet

ASHMAR Scientific (Shanghai) Co., Ltd

Service Hotline: 400 000 8187

Service email: Marketing@ashmar-scientific.com

Company website: http://www.ashmar-scientific.com

Shanghai

Phone: +86 21 5221 0180

Address: Block 39,No.99 Huajia Road,Songjiang District,Shanghai, China

Nanjing

Address: Room 2001, Building 1, No. 32, Fengzhan Road, Yuhuatai District, Nanjing

Germany

Address: office NO.S-03, STAU 123, Oldenburg, Germany Zip Code: 26122

Singapore

Address: 103 Tampines Street 86 #03-06 the ALPS residences Singapore (528576)