Expert on Chromatography

Fully Automated, Eluting Position Controllable

YFLC

AI series

Dual Channel Flash Chromatography System

W-Prep 2XY

YAMAZEN CORPORATION

The Power is Doubled by the Parallel System, and Separation Efficiency is

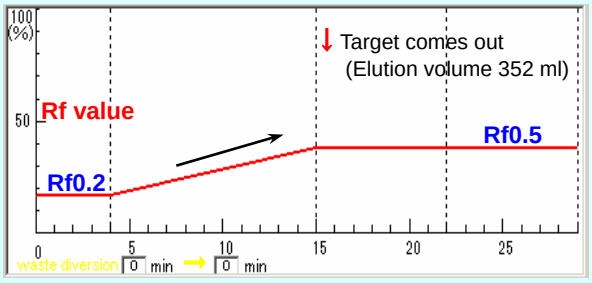
- Two AI-580 single channel systems are integrated into one to make a W-Prep 2XY, which resulted in a compact size. Both channels can be used simultaneously, which increases the productivity as much or even more than using two independent systems, or two chemists can use each channels.
- Yamazen's innovative user-friendly application software is developed based on a true theory of chromatography, and the optimum method will be developed automatically. Eluting position of the target compound will be predicted and pointed at by a yellow arrow upon setting the run method. The eluting position of the target compound can be changed freely to increase the resolution and/or to shorten run time.
- Chromatograms can be monitored over a broad OD (optical density) scale. There is no sample loss or peak saturation.
- Slow gradient on 1-7% is performed accurately.
- Real-time monitor of line pressure from the highly sensitive pressure meter guarantees safe sample run.

Automated Medium Pressure Flash Chromatography System

Innovative Application Software Based

Rf Gradient method controls the eluting position of the target compound. Yamazen's Automatic Method Setting is designed to achieve the optimal sample purification eluting the target compound at 4 CV position.

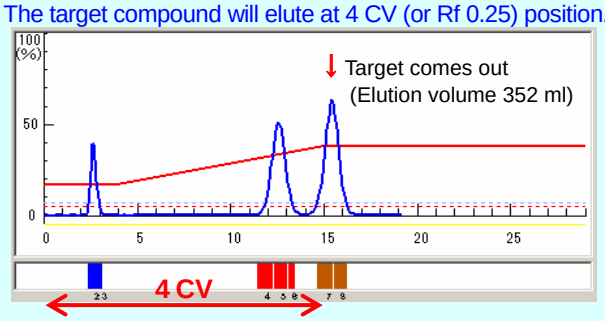
【Rf Gradient】 The Rf Gradient is developed when solvent mixture ratio is converted to Rf value.



RUN

Rf Gradient decides the eluting position of the target compound.

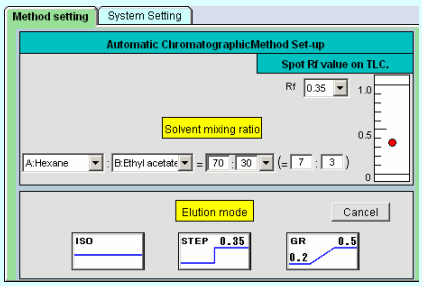
The target compound will elute at 4 CV (or Rf 0.25) position.



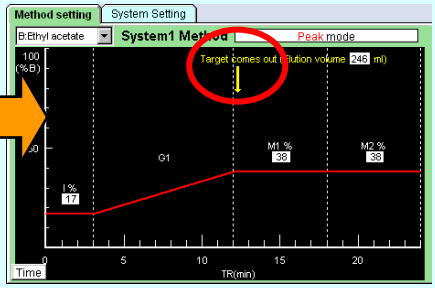
The above Rf Gradient gives the solvent strength that moves the target compound at Rf 0.25.

Rf Gradient does not waste the solvent, and controls the eluting position (or resolution) per user's preference.

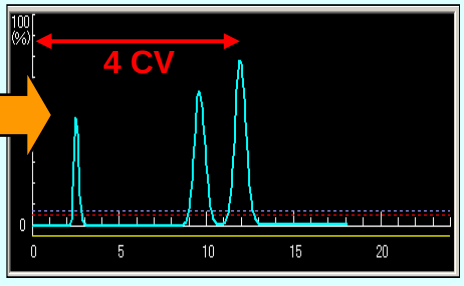
Input TLC result in the dialogue box for auto method setup. (Input the TLC Rf of the target compound only.)



An optimum Gradient Method is developed automatically, and a yellow arrow indicates where the target compound will elute.



The target elutes at the predicted position.



US Patent No.7169308, Japanese Patent No.3423707 & 4087395

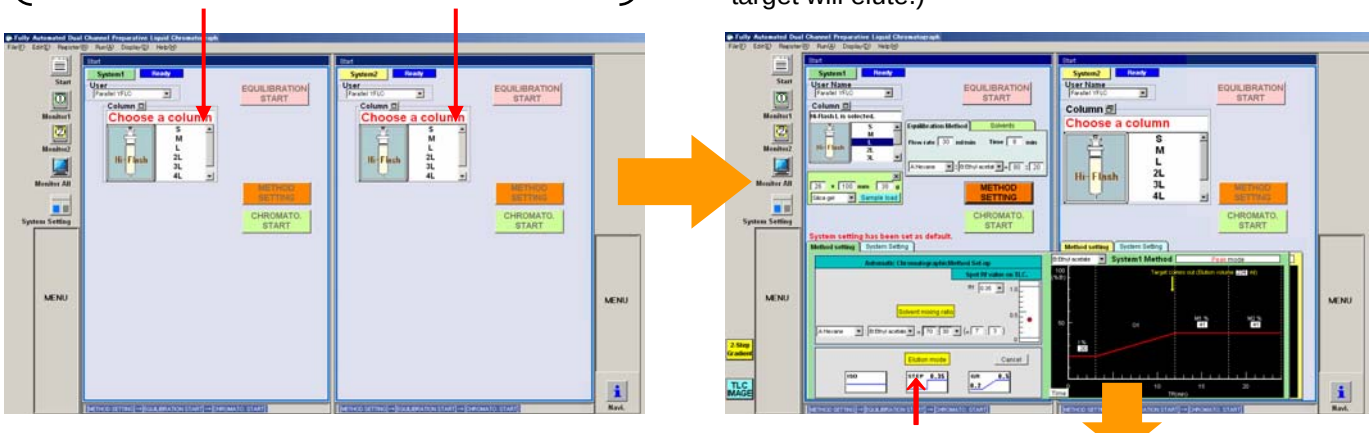
Dramatically Boosted. Elution Position is Predictable.

User-friendly Simple Display Screens

Just select a column.

Optimum chromatographic parameters such as flow rate and fraction volume are automatically decided upon selection of a column.

Input the TLC Rf of a target compound in the dialogue box of automatic method set-up, and the optimum Rf gradient method will be developed automatically. (A yellow arrow indicates where the target will elute.)



Dialogue box for auto method set-up

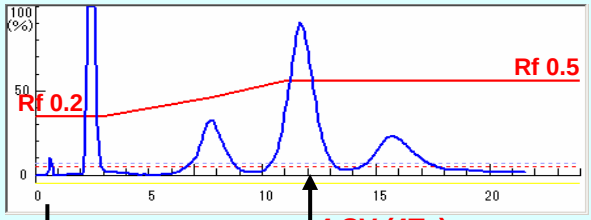
Select a column. → ① METHOD SETTING → ② EQUILIBRATION START → ③ CHROMATO. START

The sample can run this easy.

On the True Theory of Chromatography (Rf Gradient)

<Yamazen>

Rf Gradient Method

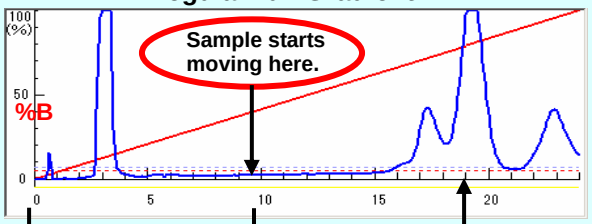


All 4 CV contributes to the sample separation.

An excellent separation with minimal solvent use. It's Eco-friendly!

<Other brands>

Regular %B Gradient



Waste of solvent **Only 2.5 CV is used for sample separation.**

Poor separation with a lot of solvent use

●Conventional chromatography methodology（TLC → Column chromatography）

When running samples with the solvent mixture ratio (solvent strength) that moves samples at Rf0.2 - 0.3 (0.25 on average) TLC, it is a proven fact that good separations are achieved in the normal phase silica column chromatography. Rf0.2 - 0.3 is equivalent to 3.3 – 5 CV (4 CV on average). Chemists used to run the TLC many times in conventional chromatography to get the solvent mixture ratio that gives Rf0.2 - 0.3. It was a very time-consuming process.

①Got the following TLC Rf values at first run. → ②Run TLC again with a smaller ratio of polar solvents.

This solvent mixture ratio is applied to run a column chromatography.

Time-consuming method setting in the conventional chromatography is now fully automated & optimized on Yamazen's automated flash chromatography systems; AI-Series and W-Prep 2XY. (Rf Gradient)

Gathering Proprietary Cutting-Edge Technologies in Preparative Liquid Chromatography

Easy, Fast and Accurate Sample Loading for High Performance Chromatography

■Easy, fast and accurate sample loading without any sample loss is possible with the use of the Inject Column. The liquid sample is quickly absorbed in the Inject Column.

Inject Column

Separation column (Universal Column, Hi-Flash Column, etc.)

The Inject Column makes the peak narrower, which results in a significant increase of peak resolution. The downsizing of the main separation column is possible with use of an Inject Column.

Dual Pressure Monitoring System Assures Safety

■The high precision pressure meter makes it possible to do real time monitoring of the pressure building up inside the columns, and stops a pump instantly upon hitting the preset limit. Also, pressure moderation system (PMS) protects disposable plastic columns and glass columns from exploding.

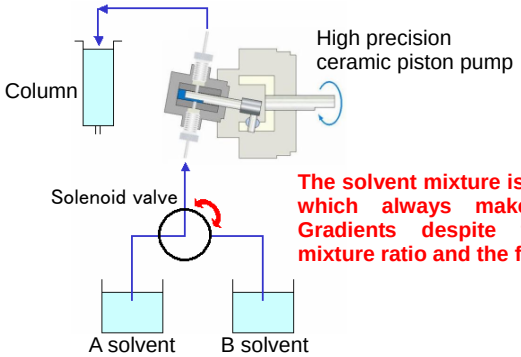
Yamazen's motto is **"Safety First!"**.

W-Prep 2XY-254W Fixed Wavelength UV Detector

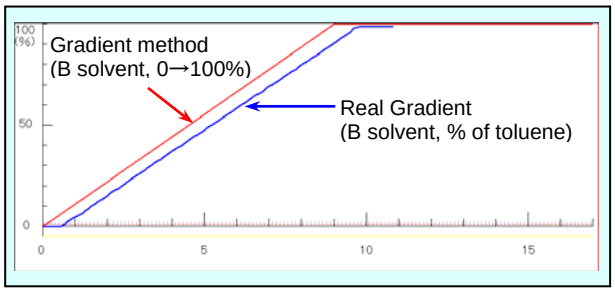
Monitoring dual channel on the same display

Superb Gradient Function

■High precision ceramic piston pump coupled with high performance solenoid valves makes it possible to perform accurate Gradients for 1-100% of B solvent throughout the entire range of flow rate.



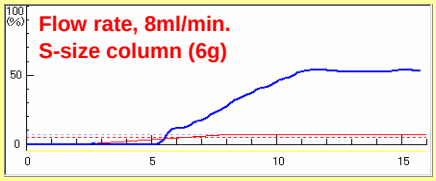
The solvent mixture is pumped up, which always makes accurate Gradients despite the solvent mixture ratio and the flow rate.

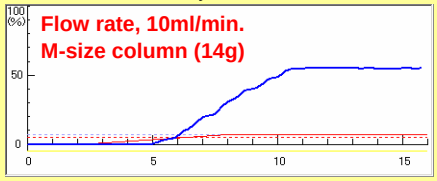


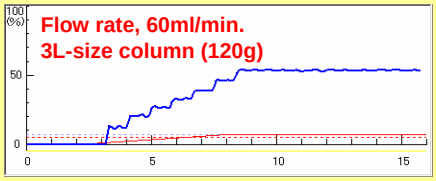
【Performance data】 Accurate slow Gradients are made regardless of flow rate.

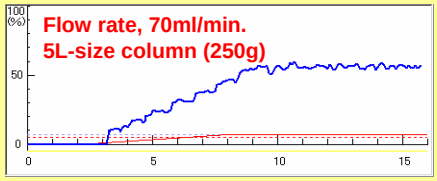
Chloroform/Methanol, Dichloromethane/Methanol, Ethyl Acetate/Methanol

1 %→ 7 %







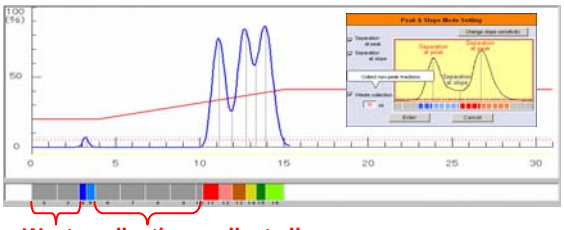


High Performance Flash Chromatography through Safe, Fast and Easy Operation.

Dual Channel Fraction Collector, FR-260

- XY driven fraction collector has ample space above the test tube racks for safe handling of the samples.
- Major functions
  - Many fractionation modes are available: Peak, Time, Peak & Slope
  - Manual collection
  - Start from anywhere
  - Waste diversion
  - Skip function of fraction nozzle

Example: Peak & Slope mode, Waste collection mode, etc.



Waste collection: collect all

- Each rack has the pin sensor and will be recognized automatically upon setting on the fraction collector. Custom-made test tubes are available.

FR-260 Fraction Collector holds two racks - either two of the same size racks for both channels or different size racks for each channel. Unless otherwise specified, two WP18150 racks will be equipped with the system as standard. See the back of this catalog for the available rack specifications.

W-Prep 2XY-10VW Variable Wavelength UV Detector

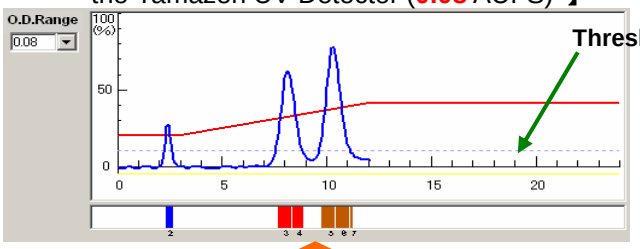
Detector range: 190-380nm

Yamazen's UV detectors monitor peaks in a broad OD range, 0.04-5.12 OD. → Reliable sample purification

- No sample loss due to the highly sensitive detection. No peak saturation up to OD 4.0.

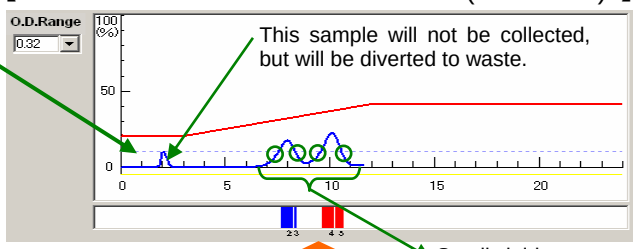
When running small size samples or samples that have low UV absorption;

【Highly Sensitive Sample Separation on the Yamazen UV Detector (**0.08** AUFS) 】



Even those samples that are small and/or samples that have low UV absorption will separate well and be collected without any loss.

【UV Detectors of Other Manufacturers (**0.32**AUFS) 】

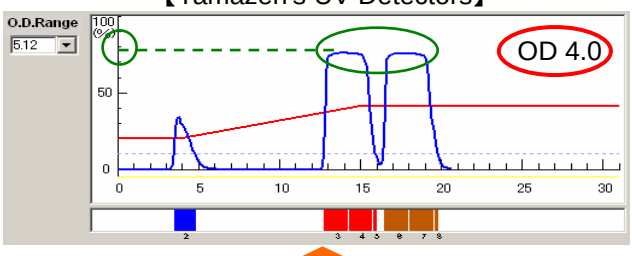


Whole peaks or a good portion of the peaks are below the threshold, and precious samples may be lost.

Sample: Butyl p-hydroxybenzoate, 0.5mg Methyl p-hydroxybenzoate, 0.5mg Toluene, 9mg
Column used: Yamazen's Hi-Flash, L (30 gram) Fractionation mode: Peak separation

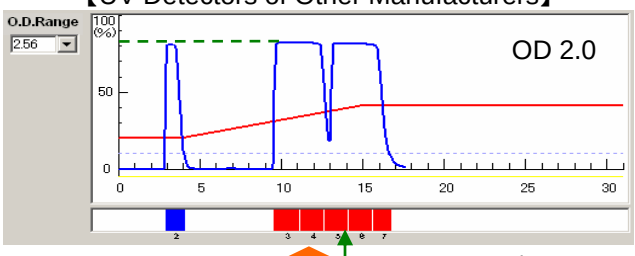
When running large scale samples and/or samples that have high UV absorption;

【Yamazen's UV Detectors】



Yamazen's UV detectors are capable of detecting up to OD 4.0 without any peak saturation. Even large-scale samples and samples that have high UV absorption can be separated well.

【UV Detectors of Other Manufacturers】



When the separation is not good, the peaks and the fractions (color-coded) do not clearly correspond to each other.

Sample: Butyl p-hydroxybenzoate, 500mg Methyl p-hydroxybenzoate, 500mg Toluene, 900mg
Column used: Yamazen's Hi-Flash, 2L (45 gram) Fractionation mode: Peak separation

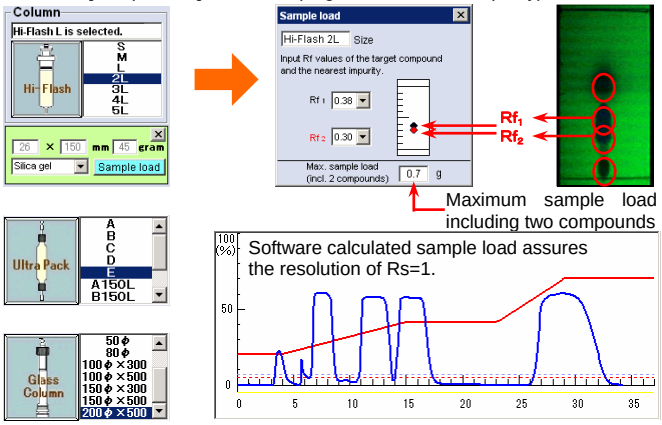
Maximum sample load is given for each column size.

■TLC Rf values decide the sample load. (PAT.No.4680761)

Column selection can be made easily by comparing the sample size and the maximum sample load given by the software for each column.

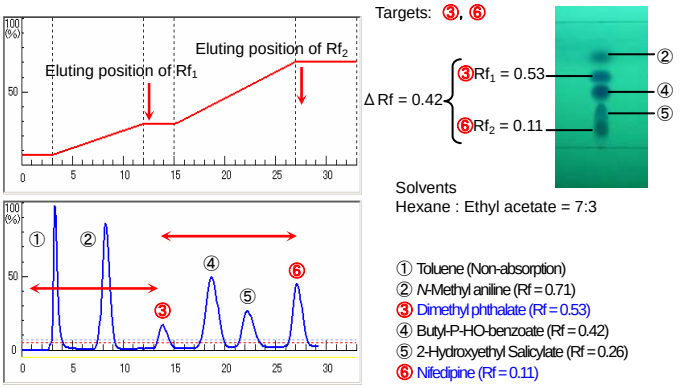
①Choose a column and click on [Sample load].

②Input TLC Rf values (target & the nearest impurity)



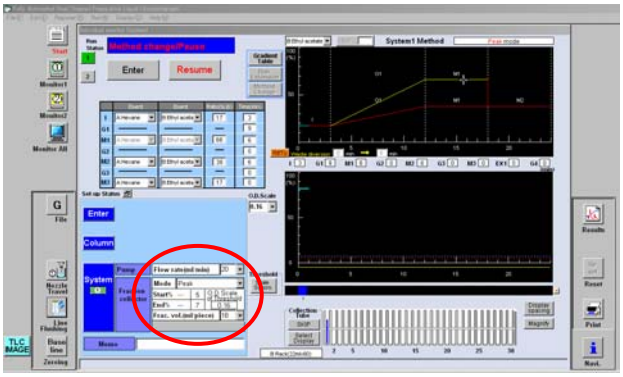
Even two target compounds can be well purified with the optimal run method.

■2-Step Gradient is the best method to use when separating two different compounds, when TLC Rf values (Rf_1 & Rf_2/③ & ⑥) are far apart from each other (Rf＞0.3) with some other compounds in between. Rf_1 (Component 3) and Rf_2 (Component 6) elute at 4 to 5 column volume on each gradient.



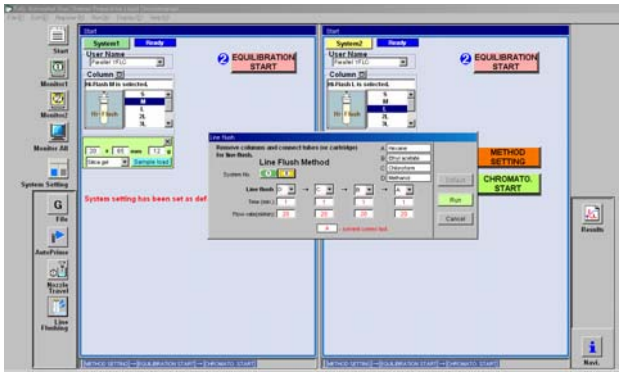
Any chromatographic parameter can be changed freely during run.

■Parameters like gradient method, flow rate, fractionation mode, fraction volume, etc. can be easily changed on the fly.



The entire flow path including inside & outside of fraction nozzle can be washed and cleaned whenever the system is not in use.

■Contamination and smudge in the flow path can be cleaned easily. Outer part of the fraction nozzle can be automatically cleaned after run to prevent the nozzle from getting crystallized sample.



Yamazen's proprietary packing technology assures high performance of Yamazen columns.

Hi-Flash Column

Universal Column

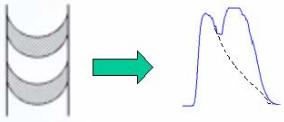
Ultra

Short Column 5L-S8

High performance Yamazen columns made under a strict quality control assures beautiful sample peaks with high theoretical plate numbers.

Hi-Flash Column L-size (30g)
N＞250
Ultra Pack Column B-size (100g)
N＞1000

Deflection of sample bands in a column causes a poor separation resulting in leading and tailing.

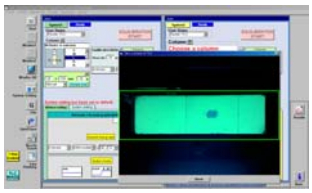


We fulfill the requirements of various clients in need of preparative chromatography with highly advanced technology.

Some Major System Packages Including Optional Accessories.

W-Prep2XY-TLC equipped with TLC Image Reader

Rf input directly from the TLC image is possible!

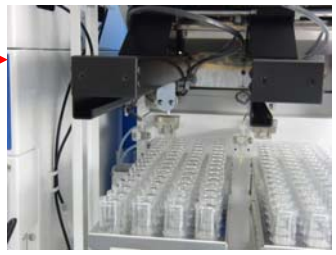


Place the TLC plate on the TLC Image Reader. With some simple clicks on buttons and the picture, TLC image will be shot and stored, and Rf values will be automatically calculated. These Rf values will be entered automatically as the parameters to use for Automatic Method Setup and for the sample loading software.

W-Prep2XY-N equipped with External Nozzle Cleaning System

External Nozzle Cleaning System removes the crystallized samples that accumulate at the tip of the fraction nozzles and will clean the debris well.

Cross contamination is a big problem in flash chromatography. The W-Prep2XY-N washes and cleans the outside of the fraction nozzles as well as the inside. Thus, pure fractions will be always collected. This system keeps entire solvent lines always clean. (PAT.No.4551364)



W-Prep2XY-RI equipped with UV/RI Parallel Detection System

Sample peaks will be detected and monitored by both UV detector and RI detector at the same time on the same display, and all the peaks can be collected.

W-Prep2XY equipped with Solvent & Waste Monitor plus Column Air Purge

Software coupled with highly sensitive photo detector continuously monitors the solvent amount. The software calculates and predicts the necessary amount of solvent to run a sample upon setting the run method. Software will give a warning when the solvent becomes low and will stop the pump to prevent the columns from drying. The waste monitor prevents waste containers from hazardous and messy overflow.

Column air purge pump
When the run is complete, column air purge system purges the solvent from the used columns. It is better for the environment, safer in the lab and eliminates messy column removal.

Capabilities and Functions

- Dual channel & fast speed: double the power; boost the separation speed and efficiency
- Smaller footprint & more space saving, two independent channels in one single system
- 4 different solvent systems (A/B, A/C, B/D, C/D) can be selected during run to change the solvent system for an increased run efficiency.
- Modular & Open System: easy to maintain and service
- Automatic method setup for the reversed phase chromatography as well as the normal phase chromatography
- 2-Step Gradient method for multiple target compounds
- Scale-up; Transfer method from one size column to another
- Simple and easy change of the running parameters on the fly
- Easy changeover of the collection modes; Time, Peak, and Peak & Slope, during run
- Manual fraction collection mode

System Specifications

Pumping system, Model No.580D	0-80ml/min, 1.0Mpa (145psi)
Fixed wavelength UV detector, Model prepUV254W	254nm with flow cell 0.2mm light path length (std.), 0.1mm light path length (option)
Variable wavelength UV detector, Model prepUV-10VW	190-380nm with flow cell 0.2mm light path length (std.), 0.1mm light path length (option)
UV-VIS detector, Model prepUV/VIS-10VW	190-600nm with flow cell 0.2mm light path length (std.), 0.1mm light path length (option)
Fraction collector, Model FR-260	X/Y driven parallel, double arms
Floor space (W x D x H)	540mm W x 500mm D x 795mm H
Certifications	JIS and CE
Options	Solvent & waste monitor, External nozzle cleaning, Column air purge, TLC image reader, UV/RI parallel detection

Specifications of test tube racks

When ordering the rack please specify the Cat. Number.

Racks for U.S. standard test tube sizes				Racks for Japanese standard test tube sizes			
Cat No.	Pin Code	Fraction Volume (Default)	Test Tube Sizes (mm)	Cat No.	Pin Code	Fraction Volume (Default)	Test Tube Sizes (mm)
WP13100	A	7ml	13x100x60 pieces	WP15150	A	15ml	15x150x60pieces
WP15125	A	12ml	15x125x60 pieces	WP18180	B	30ml	18x180x60pieces
WP16125	A	15ml	16x125x60 pieces	WP24180	C	60ml	24x180x30pieces
WP16150	A	16ml	16x150x60 pieces	WP21180	D	42ml	21x180x52pieces
WP18150	B	22ml	18x150x60 pieces	WP30180	E	90ml	30x180x27pieces
WP25150	C	45ml	25x150x30 pieces	WP30200	E	100ml	30x200x27pieces
WP25200	C	56ml	25x200x30 pieces				
WP20150	D	27ml	20x150x52 pieces				
WP30200	E	100ml	*30x200x27 pieces				

Note: Test tube with * is of Japanese standard (E size).

System specifications are subject to change without notice.

YAMAZEN CORPORATION

HEAD OFFICE RECRUIT SHIN-OSAKA BLDG. 3F, 5-14-22 NISHINAKAJIMA, YODOGAWA-KU, OSAKA 532-0011, JAPAN
TEL: +81-6-6304-5839 FAX: +81-6-6304-3681
R & D TEL: +81-6-6304-7284 FAX: +81-6-6304-7283
TOKYO OFFICE TEL: +81-3-5256-6481 FAX: +81-3-5256-6480
E-MAIL: info@yamazenc.co.jp WEB SITE: www.yamazenc.co.jp

YAMAZEN SCIENCE, INC.

903 SNEATH LANE, SUITE 125 SAN BRUNO, CA 94066
TEL: 650-877-7750 FAX: 650-873-6496
E-MAIL: info@yamazenusa.com
WEB SITE: www.yamazenscience.com

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