

B/R 36-100 High Efficiency Distillation Systems



Small Scale
Fractional
Distillation

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The 36-100 is a high efficiency fractional distillation system designed for challenging separations on batches of 50 to 1000 ml.

■ **High Efficiency:** These fractional distillation systems have up to 200 theoretical plates at atmospheric pressure. Distillation columns can be stacked for even higher efficiencies. They are well suited for producing high purity materials and making difficult separations.

■ **Customized for your Application:** The 36-100 can be configured according to your needs. Automation, vacuum systems, fraction collectors and other accessories can be integrated into the distillation system as needed. The result is a distillation apparatus customized to your specific needs.

■ **Easy to use:** Microprocessor control fully automates the distillation process from beginning to end, minimizing the time needed to operate the equipment. Easy programming of parameters makes you feel like a distillation expert. Heating, collecting of distillate and shut down of the equipment at completion are all done automatically. Manually operated equipment is also available for customers on a limited budget.



Distillation System with Mounting Rack and with Optional Fraction Collector

Common Applications

- Petroleum Distillation
- Crude Oil Distillation
- Flavor and Fragrance Distillation
- Essential Oil Purification
- Vacuum Distillations
- Specialty Applications

Automation and Accessories

Teflon or Metal Spinning Bands

Boiling Flask Sizes 50, 100, 250, 500 and 1000 ml

Regular or Stirring Heating Mantles

Microprocessor Control for Automatic Operation

Enclosure Cabinet with Door or Mounting Rack

Optional Fraction Collector

Optional Vacuum System for Vacuum Distillation



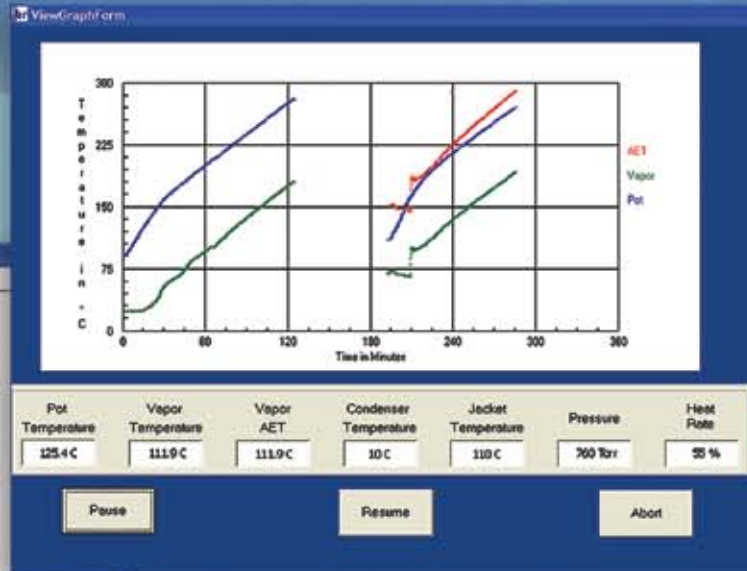
PC Interface for Fractional Distillation

View Results

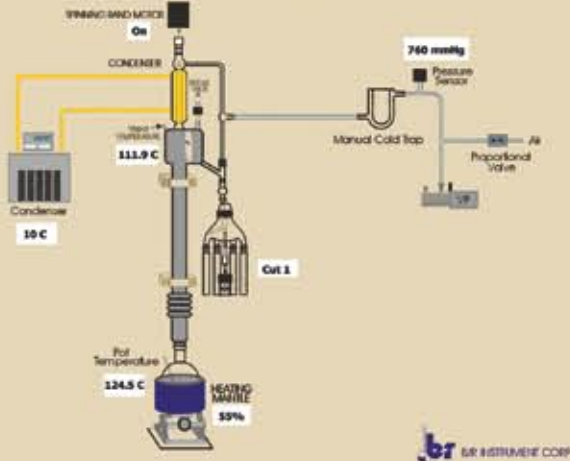
Time	Pot Temperature	Vapor Temperature	Vapor AET	Pressure
00:00:22	91.0 °C	23.3 °C	23.4 °C	760.00 Torr
00:00:31	90.9 °C	23.3 °C	23.3 °C	760.00 Torr
00:00:40	91.0 °C	23.3 °C	23.3 °C	760.00 Torr
00:00:49	91.0 °C	23.3 °C	23.3 °C	760.00 Torr
00:00:58	91.1 °C	23.3 °C	23.4 °C	760.00 Torr
00:01:07	91.1 °C	23.3 °C	23.4 °C	760.00 Torr
00:01:16	91.2 °C	23.3 °C	23.4 °C	760.00 Torr
00:01:25	91.2 °C	23.3 °C	23.3 °C	760.00 Torr
00:01:34	91.3 °C	23.3 °C	23.4 °C	760.00 Torr
00:01:43	91.4 °C	23.3 °C	23.4 °C	760.00 Torr
00:01:52	91.4 °C	23.3 °C	23.4 °C	760.00 Torr
00:02:01	91.5 °C	23.3 °C	23.4 °C	760.00 Torr
00:02:10	91.5 °C	23.4 °C	23.5 °C	760.00 Torr
00:02:19	91.8 °C	23.3 °C	23.4 °C	760.00 Torr
00:02:28	91.7 °C	23.4 °C	23.5 °C	760.00 Torr
00:02:37	92.1 °C	23.3 °C	23.4 °C	760.00 Torr
00:02:46	92.2 °C	23.3 °C	23.4 °C	760.00 Torr
00:02:55	92.5 °C	23.4 °C	23.5 °C	760.00 Torr
00:03:04	92.8 °C	23.4 °C	23.5 °C	760.00 Torr
00:03:13	92.9 °C	23.3 °C	23.4 °C	760.00 Torr
00:03:22	93.3 °C	23.4 °C	23.5 °C	760.00 Torr
00:03:31	93.5 °C	23.5 °C	23.6 °C	760.00 Torr
00:03:40	93.9 °C	23.4 °C	23.5 °C	760.00 Torr
00:03:49	94.1 °C	23.4 °C	23.6 °C	760.00 Torr
00:03:58	94.5 °C	23.6 °C	23.6 °C	760.00 Torr
00:04:07	94.8 °C	23.4 °C	23.5 °C	760.00 Torr

Pot Temperature: 125.4 C, Vapor Temperature: 111.9 C, Vapor AET: 111.9 C, Condenser Temperature: 10 C, Jacket Temperature: 110 C, Pressure: 760 Torr, Heat Rate: 95 %

Buttons: Pause, Resume, Abort



36-100 PROCESS DIAGRAM EIGHT PLACE FRACTION COLLECTOR



The PC interface allows the distillation process to be controlled by an external computer.

- Store thousands of distillation programs
- View process diagrams of the distillation in progress
- Store distillation data for future use or validation
- View graph of vapor and pot temperatures versus time

M690 Run Data

Run Number: 1, Number Of Seq: 3, Run Name: Run Name

Seq Number: 1, Seq Pressure: 760 Torr, Initial Heat: 50 %, Equilibration: 10 Min

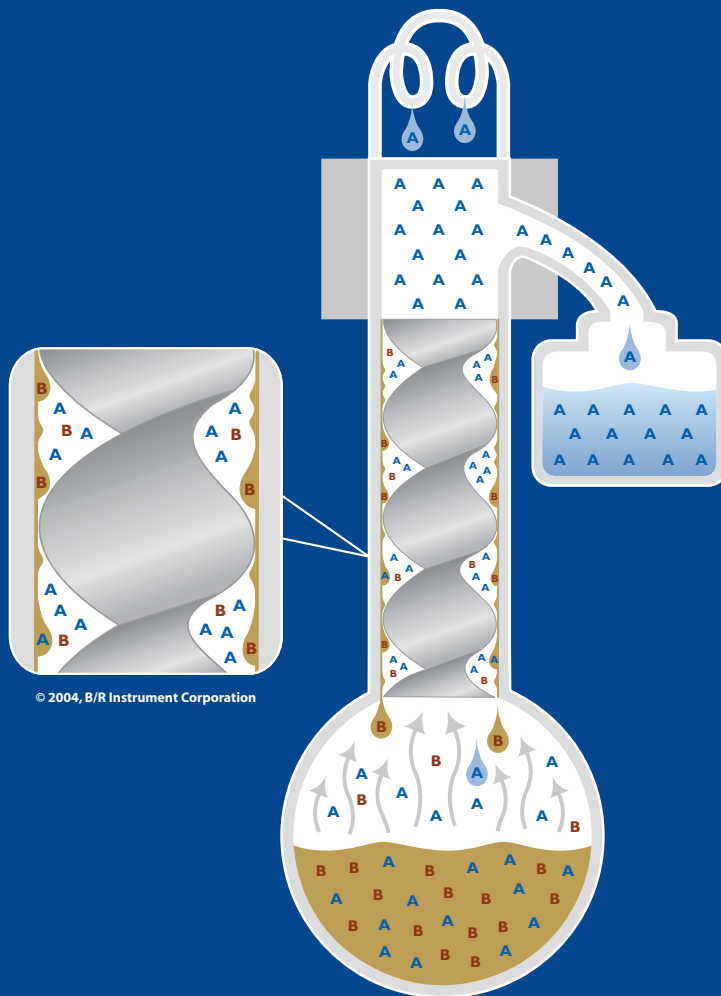
Number Of Cuts: 8, Cool Down Temp: 110 °C, Max Pot Temp: 350 °C

Cut Number	Open Cut	Close Cut	Reflex Ratio	Heat Rate	Condenser Temp
1	35 °C	100 °C	10 : 1	10 %	10 °C
2	100 °C	125 °C	10 : 1	10 %	10 °C
3	125 °C	150 °C	10 : 1	10 %	10 °C
4	150 °C	175 °C	10 : 1	10 %	10 °C
5	175 °C	200 °C	10 : 1	10 %	10 °C
6	200 °C	225 °C	10 : 1	10 %	10 °C
7	225 °C	250 °C	10 : 1	10 %	10 °C
8	250 °C	275 °C	10 : 1	10 %	10 °C

Pot Temperature: 125.4 C, Vapor Temperature: 111.9 C, Vapor AET: 111.9 C, Condenser Temperature: 10 C, Jacket Temperature: 110 C, Pressure: 760 Torr, Heat Rate: 95 %

Buttons: Previous Sequence, Pause, Abort, Resume, Next Sequence

All distillations attempt to separate a lower boiling material (A) from a higher boiling material (B). Spinning band distillation creates intimate contact between the vapors and the condensate in a dynamic process. It uses a helix rotating at high speeds inside the distillation column. The rotating band forces vapors into intimate contact with the condensate on the wall of the distillation column. This contact takes place in a very thin layer that is refreshed thousands of times per minute. As a result, spinning band distillation gives a very efficient separation in a short distillation column.



Some advantages of spinning band distillation:

■ High Efficiency:

The spinning band gives the highest efficiency for a given distillation column height. So spinning band will give the best distilled purity possible.

■ Low Hold Up:

Less than 1 ml of material remains in the column at the end of the distillation. Valuable material is not left behind in the distillation column at the end of the distillation. Cleaning between distillations is also minimized.

■ Low Pressure Drop:

The spinning band has very high "free space" and as a result has a very low pressure drop over the length of the distillation column. This is particularly important when distilling thermally sensitive materials.



B/R Instrument Corporation

B/R Instrument was founded in 1966 by Roger Roark, Sr. and Harry Brown, Jr. Originally a manufacturer of general glassware, the company began to specialize in the manufacture of spinning band distillation systems in 1968 under a DuPont patent. Since then the company has grown steadily in the distillation and laboratory equipment markets and now distributes products to customers throughout the world.

Located in Easton, Maryland on the beautiful Eastern Shore of the Chesapeake Bay, the B/R facility encompasses 14,700 square feet (1,370 square meters) and houses manufacturing, sales, engineering, service and administrative divisions. Manufacturing capabilities include glassblowing, welding, machining, electronics assembly and the production of glassware and laboratory equipment for other markets. Our engineering capabilities include PC board design and layout, software programming and mechanical engineering. B/R Instrument employs a service staff capable of performing installation, maintenance and service of all the equipment we manufacture. All of our products are engineered and supported on site.



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