



SOUTHWEST RESEARCH INSTITUTE



## Distillation of Fuels and Chemicals

Distillation is often used in refinery operations to purify the final product or specification material. The Chemical Engineering Department at Southwest Research Institute® (SwRI®) has over 50 years of experience with atmospheric and vacuum distillation of specification fuels, biofuels, oils, heavy oil, residuum, petrochemicals, specialty chemicals, and bulk chemicals.

SwRI can perform specialty or custom distillations such as reactive or cryogenic distillations. Custom distillations are performed at laboratory, bench, and pilot scales, using a variety of operating parameters. SwRI also has state-of-the-art columns for separating specialty chemicals with similar boiling points.

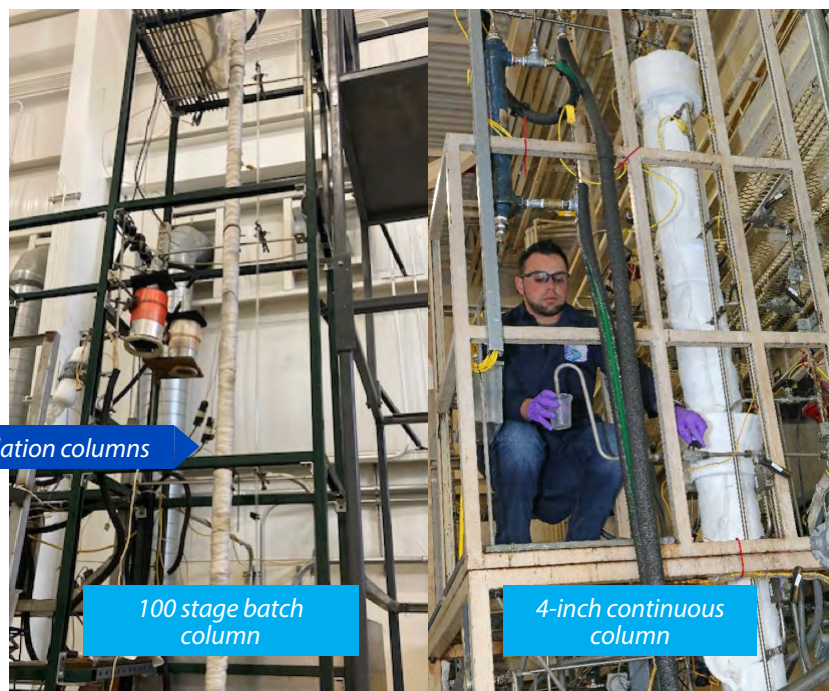
### Capabilities

- Batch and continuous operations
- Liters per day to drums per day
- Pressure range: 0.5 torr to 30 psia
- Up to 100 theoretical stages
- Up to 1000°F cuts
- Experienced operators for 24/7 operations
- 24/7 analytical support
- High viscosity feedstock and product handling
- Modifiable units

### Applications

- Separation of materials from a variety of processes:
  - Fischer-Tropsch liquid and wax products
  - Advanced biofuels derived from pyrolysis of plastics, MSW, and biomass
  - Solvent recycling
  - Hydroprocessing
  - Crude oil fractionation
  - Heavy oil fractionation
- Fuel registration
- Fuel blending
- Reactive distillation
- Tolling for reduced capital investment
- Process design evaluation

SwRI distillation columns



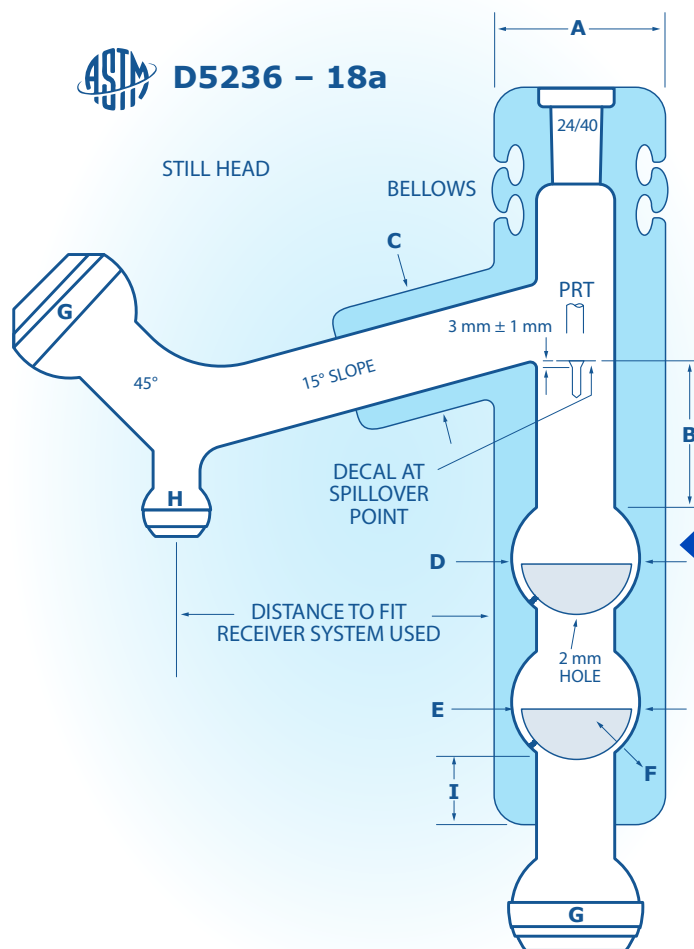
100 stage batch column

4-inch continuous column



Distillation internals





50 L batch distillation

SwRI Distillation Specifications

Column diameter	Batch		Continuous		
	2"	6"	2"	4"	6"
Size/Feed rate	10-50L	120 gal	10 lb/hr	40 lb/hr	100 lb/hr
Pressure range	0.5-760 torr	0.5-30 psia	5-30 psia	5-30 psia	1-30 psia
Cut point	1000°F	800°F	850°F	850°F	1000°F
Stages	10-100	50-100	40-75	40-75	20-25

Distillation units can be modified as needed for client-specific processes.

**We welcome your inquiries. For more information, please contact:**

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## SOUTHWEST RESEARCH INSTITUTE

Southwest Research Institute is a premier independent, nonprofit research and development organization using multidisciplinary services to provide solutions to some of the world's most challenging scientific and engineering problems. Headquartered in San Antonio, Texas, our client-focused, client-funded organization occupies 1,500 acres, providing more than 2.3 million square feet of laboratories, test facilities, workshops, and offices for more than 2,700 employees who perform contract work for government and industry clients.

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