

# VKS 90-S

WIPED-FILM SHORT PATH DISTILLATION SYSTEM

**ROOT**   
**SCIENCES**

# VKS 90-S

## Key Features

- **Throughput Capability:** Typically 3.5 L/h, Maximum of 4.25 L/h
- **Optimal Yields and Potency:** Finished distillate contains up to 99.85% total cannabinoids
- **Fully Jacketed System:** Heated from start to finish, negating the use of heating tape or heat guns to keep product moving through the system
- **Regulated Feed Rate:** German engineered gear pump allows for precise feed rate control, which is critical for obtaining consistently optimal results
- **GMP Ready:** Optional GMP package includes FAT, SAT, IQ, OQ. Equipment can be further customized according to your URS to meet any local or international GMP requirements
- **Economical Processing:** Specifically engineered for maximum processing performance and build quality at an industry leading price point
- **Expert On-Site Training:** Instructions for operation of equipment and proprietary parameters for producing distillate are included with purchase
- **Service and Maintenance:** Root Sciences offers Gold and Platinum service packages to keep your equipment in top operational condition



## What is Molecular Distillation?

Short-path molecular distillation is a technique used to purify compounds, such as cannabinoids, through a thermal separation process, utilizing a deep vacuum to reduce the boiling point of the desirable components, fractioning substances based on their boiling points.

Wiped-film distillation utilizes wipers or rollers to spread the feed-stock into a thin film on the evaporator, which greatly increases the surface area and decreases the residence time (or how long the crude oil is exposed to high temperatures). By using an internal condenser, the distilled vapor travels a short path before condensing, enabling efficient operation with little waste and minimal thermal degradation. This entire process operates in a continuous manner to enable rapid, repeatable, and scalable production. With a low operating cost, high throughput, and unbeatable reliability, wiped-film distillation has become the most popular method of purifying crude extracts to produce high potency concentrates.

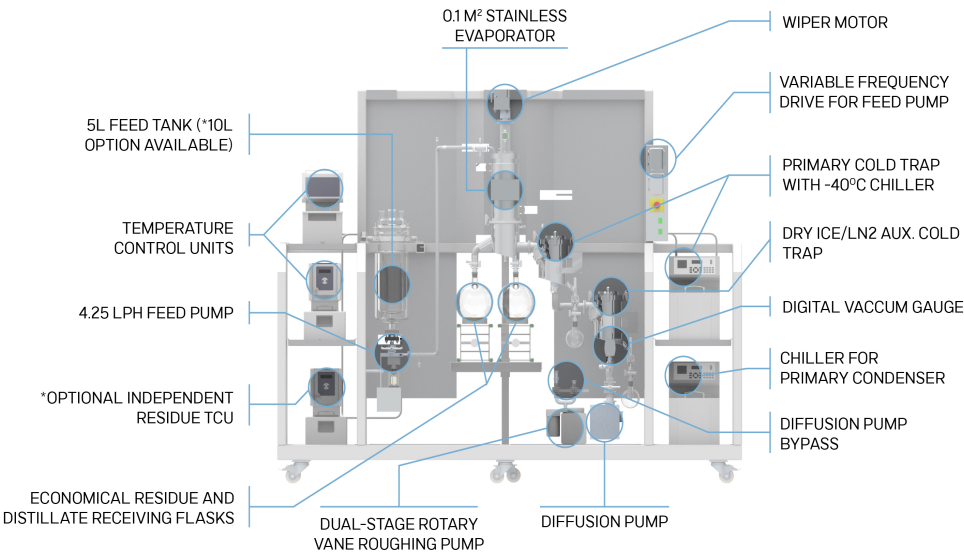
A necessary precursor for cannabinoid isolation, short-path molecular distillation is the preferred technology utilized during the production of CBD and CBG isolates.

# Wiped-Film Short-Path Distillation Equipment

Root Sciences’ wiped-film molecular distillation plants are specifically intended for the processing of cannabis and hemp crude oil, with honest and accurate throughput/yield rates reflecting that.

Designed and manufactured in Germany, these machines are expertly engineered to produce distillate that can be used in a wide variety of products commonly found on the market today.

The VKS 90-S is one of the most economical mid-sized options for reliable production of valuable cannabinoid distillate.



**\*optional upgrade**  
Dispensing gear pump allow for multiple machines to be connected in series if desired.

# DISTILLATION

## ROI / Payback Period

Material	Cannabis	Hemp	Cannabis	Hemp
Daily Processing Time	8-hour (one shift)		24-hour continuous (three shifts)	
Daily Crude Cost	\$44,400	\$3,850	\$133,200	\$11,550
Daily Distillate Yield	12 L		36 L	
Daily Distillate Value	\$78,500	\$6,550	\$235,500	\$19,650
Payback Period	5 days	66 days	2 days	22 days

Hemp data based on US average prices according to hempbenchmarks.com March 2021 spot price index report. Cannabis data based on 80% yield at Washington State I-502 market prices.

## Specifications

Maximum Feed Rate	4.25 L/h
Typical Throughput	3.5 L/h
Evaporator surface area	0.10 m <sup>2</sup>
Power requirements	1Φ 230 V, 60 Hz
Stages	Single
Dimensions (L x W x H)	8.4' x 3.3' x 6.7'
Certification	UL ready (all necessary individual components are UL listed)
Warranty	1 year (excluding glass and vacuum system)
Materials Used	316 stainless steel, borosilicate glass, PTFE glass fiber reinforced rollers
Options	10 L Feed vessel, Immersion chiller for cold trap, Separate heater for residue discharge arm, GMP package to include IQ, OQ, FAT, SAT, Heated transfer hose to connect multiple units in series



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## About Root Sciences

Root Sciences is the global leader in the distribution of equipment and support services for processing facilities in the cannabis and hemp industries, providing premium extraction, distillation and other post-processing technologies as well as business planning and lab/facility design and consulting services. However, we are in the unique position of being much more than an equipment distributor. Backed by years of hands-on experience in both growing and processing, our collective knowledge as a team of seasoned practitioners and process engineers is unmatched in the industry.

For Root Sciences, the sale is just the beginning, as we aim to nurture a long-term partnership with all of our clients. After delivering and installing equipment, our training and after-sales support is where we really add value. This is where Root Sciences' in-house knowledge and experience becomes so crucial, as we will have everything set up and running efficiently on day one. Furthermore, we are always just a phone call or an email away whenever support is needed. We also offer extended service and maintenance packages to keep your equipment in top condition and minimize the risk of downtime for your operations. As your partner, we have your back.