



WESTERN STATES

where *innovation* happens every day™



High-Performance Centrifuges



Western States Chemical Process Division



Filtering Centrifuges are the **most versatile and cost effective method for separating solids and liquids** and offer many advantages over other types of solid/liquid separation methods. Filtering Centrifuges can process a wide range of viscosities and solids content, and are capable of removing most unbound moisture without thermal processing. Filtering centrifuges are compact, reliable and economical. Western States has over 100 years of experience providing separation solutions, process assistance and custom engineered designs.

Filtering Centrifuge Overview:

- **High Separation Forces & Low Final Moisture** -

Filtering Centrifuges can generate over 1,000 gravities of separation force and can remove most, if not all, unbound moisture. No level of vacuum and pressure differential can come close to this level of centrifugal force separating liquids from solids.

- **Batch Integrity & Flexibility** - Filtering Centrifuges produce highly repeatable results. Because it is a batch operation, the time of purging, washing and drying can be varied independently and without affecting the other variables.

- **Low Cross-Contamination** - Clean design and access to all internal mechanisms make Filtering Centrifuges well suited for Clean-In-Place (CIP) design and easily adapted to meet cGMP requirements.

- **Efficient Cake Washing** - Because the wash spray is applied to the cake while the basket is spinning at between 50 and 500 rpm, washing is very efficient and uses less total wash fluid. In applications wherein the solids are soluble in the wash fluid, less wash fluid translates into less product dissolved and more solids retained.

- **High Capacity & Fast Cycle Time** - Solids retention capacity per batch ranges from 0.1 ft³ to 33.3 ft³ depending on centrifuge size. High separation forces drive liquids through the cake quickly providing cycle times as low as 4 minutes.

- **Particle Size** - Filtering Centrifuges are effective for separating solids as small as 2 microns. For smaller particles or very low solids content (<1%) Western States has special Decanting Centrifuge designs available.

- **Wide Viscosity Range** - Liquids between 1 and 1,000,000 cps can be efficiently loaded and separated in filtering centrifuges. Non-flowable products can be diluted slightly to increase flowability and improve feeding.

- **High or Low Solids Content** - Filtering centrifuges can process high or low solids content products. Very low solids suspensions can be processed because the solids are filtered and collected as liquid is continuously discharged.



Decanting Centrifuge Applications:

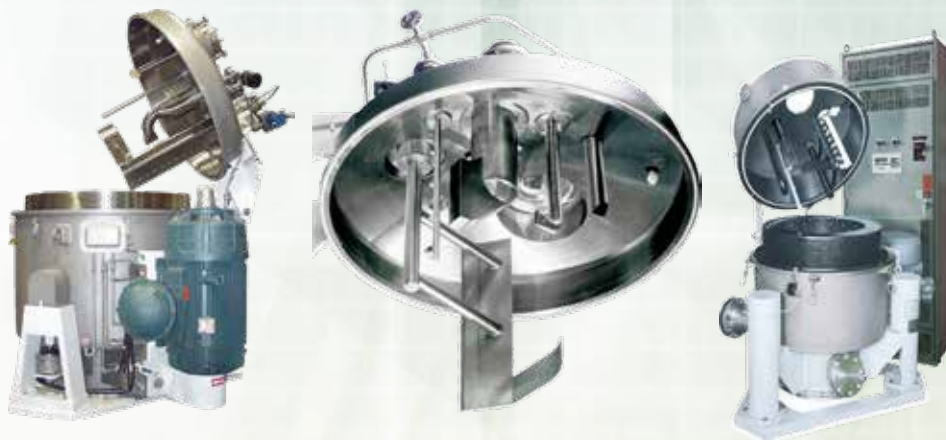
Particles of less than 5 microns are not readily captured by standard filter cloths. For these applications a Non-Perforated Solid Bowl can be used to centrifuge the solids toward the wall of the spinning bowl clarified liquid is siphoned. Once sufficient solids are captured, they are removed from the bowl. Decanting Centrifuges are also very effective for capturing solids in very dilute (<1% solids) suspensions.

Vertical Basket Centrifuge: Automatic Unloading



The Q-Series

Models	68	120	210	250	320	520
VOLUMETRIC CAPACITY (Ft³)	1.5	3.4	8.9	12.5	15.7	33.3
Volumetric Capacity (liters)	54	99	252	354	445	943
Filter Surface Area (ft²)	6.8	11.8	20.9	25.12	31.4	52
Basket RPM	1560	1450	1250	1150	1150	1000
Standard G-Force	900	900	900	900	900	850
HP (min)	10	15	20	30	40	50
HP (max)	15	20	30	50	100	200
Dimensions (inches)						
Basket Diameter	26	30	40	48	48	60
Basket Depth	12	18	24	24	30	40
Basket Cap Width	3	4	6	7	7	9
Approximate Weights (lbs)						
Link Suspension	2,000	5,000	7,000	8,000	9,000	16,000



The Quadramatic is a vertical, bottom discharging or top unloading centrifuge developed to generate up to 2,000 gravities of separation force. When operated as a filtering centrifuge, Quadramatic centrifuges can remove most if not all of the unbound moisture without the need for thermal processing to deliver a cost-effective and dependable method of separating solids and liquids for medium to full scale production.

The Quadramatic filtering centrifuge features several design components developed to produce highly dependable performance during manual and fully automatic operation available in capacities from 1.5 ft³ to 33 ft³ in a wide range of chemical applications. Quadramatic Centrifuges are also available with EZ Load and CIP designs to meet your processing requirements.

Material Options

316 Stainless Steel — 904 Stainless Steel — DUPLEX - HASTELLOY C-22 — HASTELLOY C-276 — Others

Coating Options

Halar — PTFE — Ebonite — Other

Laboratory/Pilot Scale: STM 3000



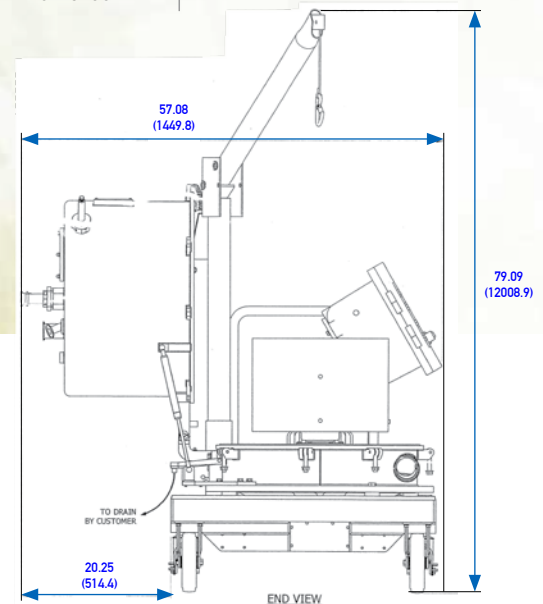
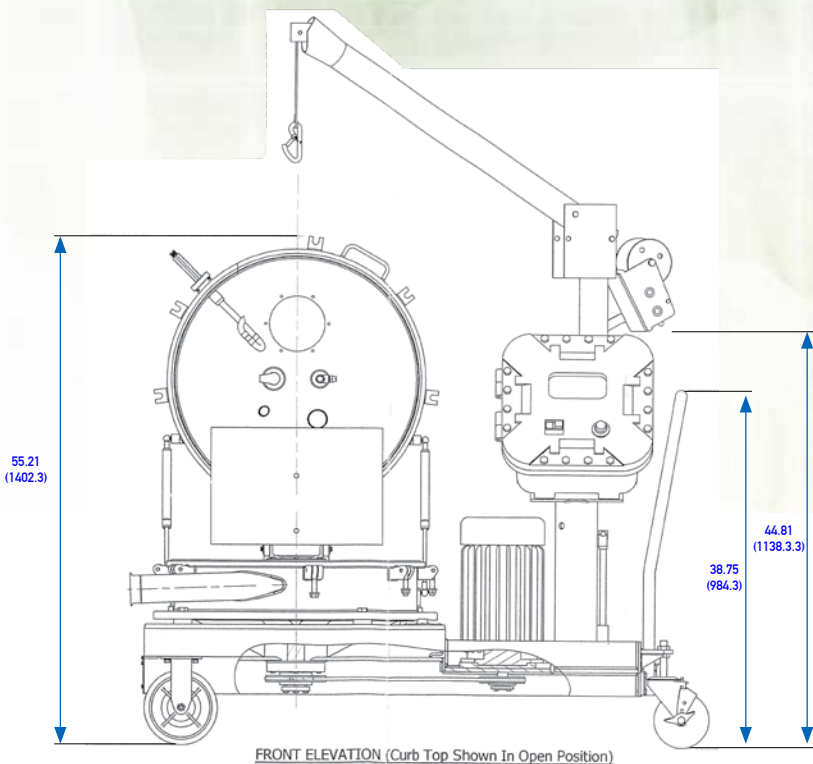
The Western States STM-3000 Top-Unloading Vertical Basket Centrifuge is the ideal solution for small scale processing.

The STM-3000 comes standard with an easy, full opening, gas, spring assisted curb top to access and remove filter screens and bags; as well as visual inspection of the centrifuge chamber. With a welded stainless steel base and heavy-duty casters, the STM-3000 is designed for easy sanitary clean-up and maneuvering.

Additionally, units come with a large 6 inch diameter curb top sight glass. With a 500 pound capacity, the manual winch provides easy extraction of filter bags and basket change outs. Motor and controls consist of variable frequency drive, start/stop buttons, speed potentiometer and digital RPM display mounted in an explosion proof NEMA 7/9 control panel.

MODEL STM 3000 Basket Size

Basket Diameter	18"
Basket Depth	12"
Basket Cap	3.25"
Basket Capacity (ft ³)	1.05
Basket Capacity (liters)	29.7
Maximum Load	100 lbs.
Standard Basket RPM	2800
Maximum "G Force	2000



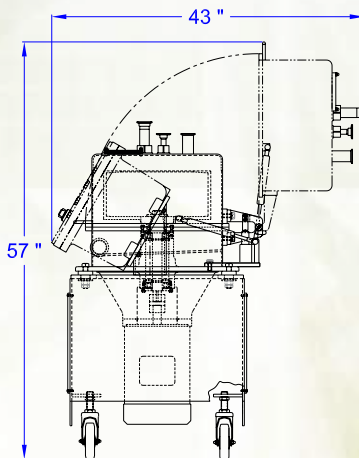
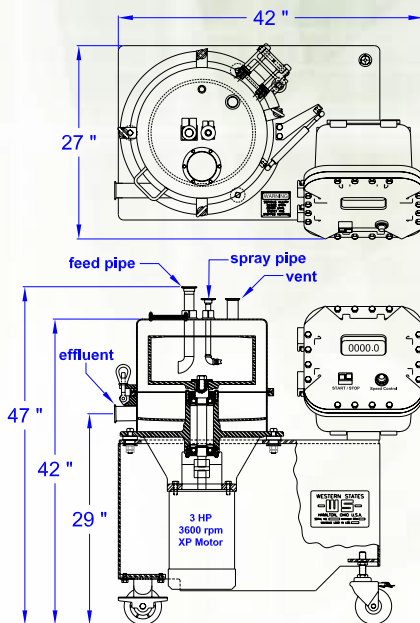
Laboratory/Pilot Scale: STM 2000



The Western States STM-2000 Centrifuge is a portable, self-contained, centrifuge that is suitable for small batch processing. The STM-2000 can be configured as a filtering centrifuge or a decanting centrifuge. The STM-2000 Centrifuge is a low cost solution for processes that require only small quantities of material and/or are done infrequently where a full size installation is not practical. The portability of the STM-2000 allows it to be easily transported to the process area when needed and then stored out of the way when not in use.

MODEL STM 2000	Basket Size		
Basket Diameter	10"	12"	14"
Basket Depth	4"	4"	6"
Basket Cap	1.5"	2"	2"
Basket Capacity (ft ³)	0.09	0.15	0.26
Basket Capacity (liters)	2.5	4.2	7.4
Filter Area (ft ²)	0.9	1.05	1.83
Maximum Basket RPM	3600	3600	3600
Maximum "G Force	1840	2200	2600
Rental Units Available			

3 HP Class 1, Division 1, Group C & D
230/460 Volt - 3 Phase Motor



Laboratory / Pilot Scale Centrifuge



The SLC-5000

SLC Properties

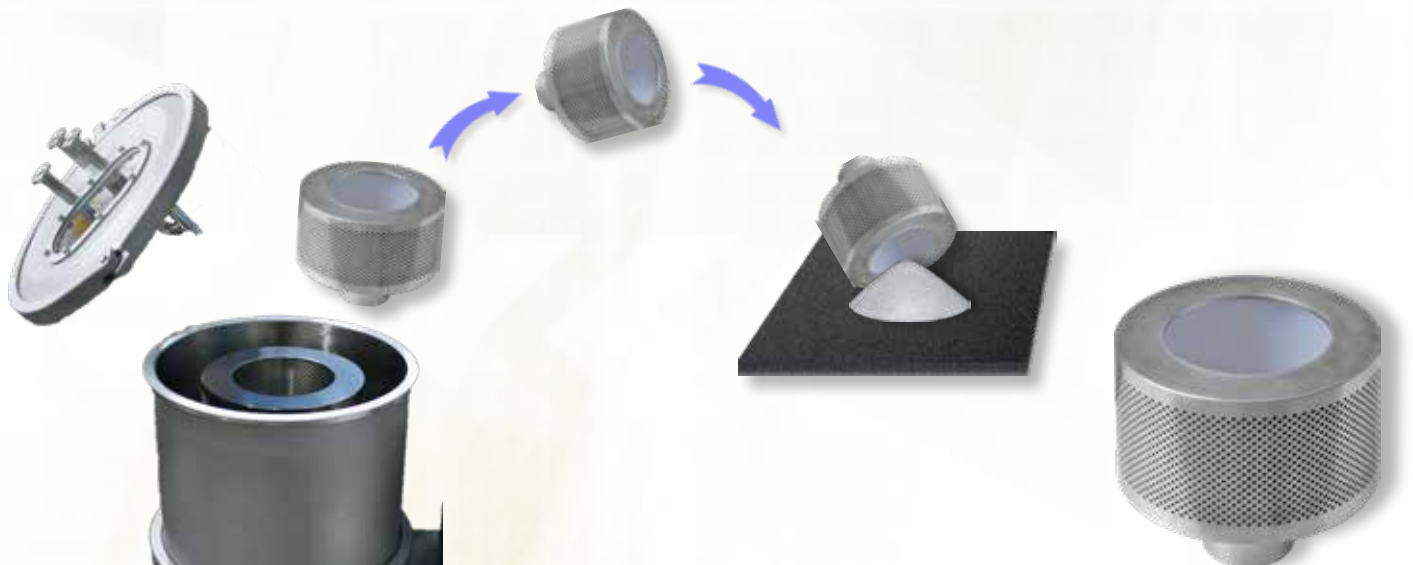
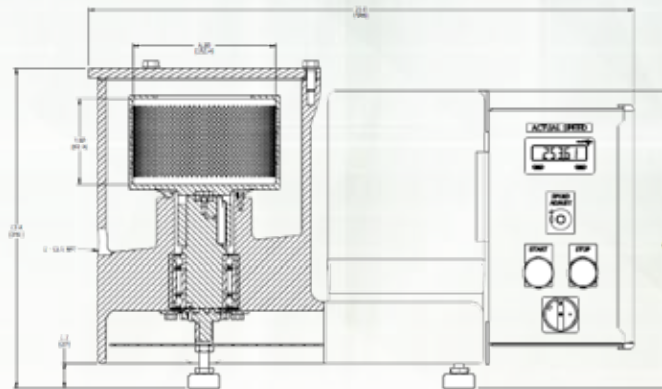
BASKET CAPACITIES

VOLUME-SOLIDS CAPACITY	56.5 in. ³ (927 cm ³ , 0.93 L)
MATERIAL OF CONSTRUCTION	316 Stainless Steel
BASKET SPEED	0-5,000 RPM
SEPARATION FORCE	2,130 Gravities

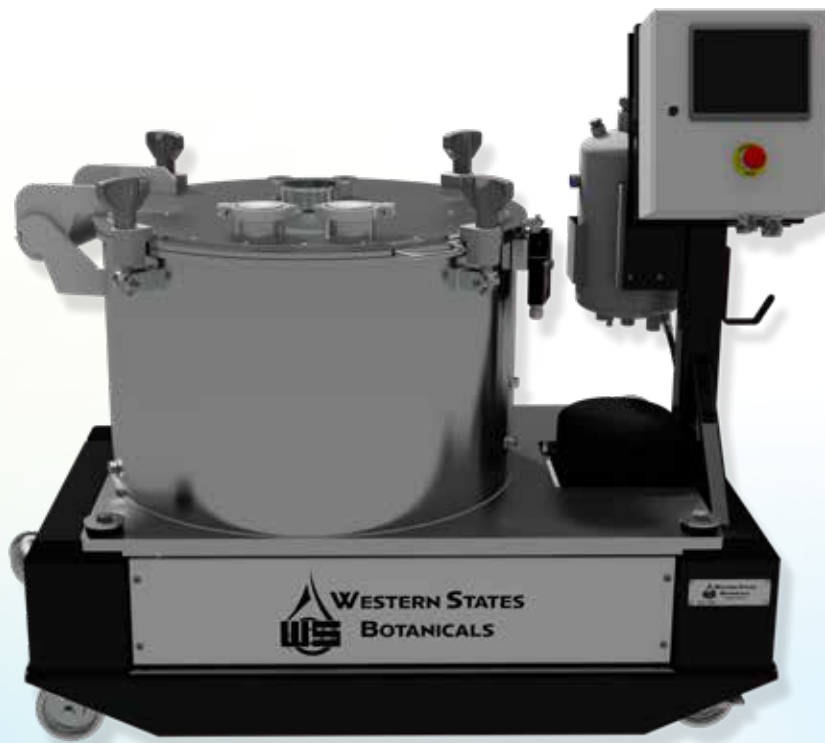
The Stainless Steel SLC-5000 centrifuge features a viewable processing area, portability, powerful and adjustable basket speed, and 2,130 gravities of separation force. Minimize the time and labor of your skilled professionals by using the SLC-5000 for your separation needs!

The SLC-5000 offers versatility enhanced by the tool-less basket removal. The basket is held in by a super-magnet. Lift the basket from the machine, carry to your workbench, and recover all of the retained solids. The removable basket also allows for easy cleaning or sterilizing of the basket. The SLC-5000 will leave you with clarified liquid, dry solid cake, and greater control of the separation environment. The SLC-5000 is perfect for product testing and sample creation.

Designed to meet cGMP requirements.



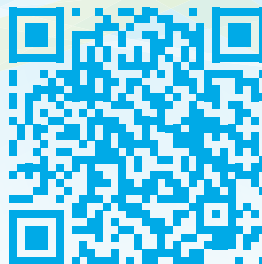
Western States Botanicals: WSB-40



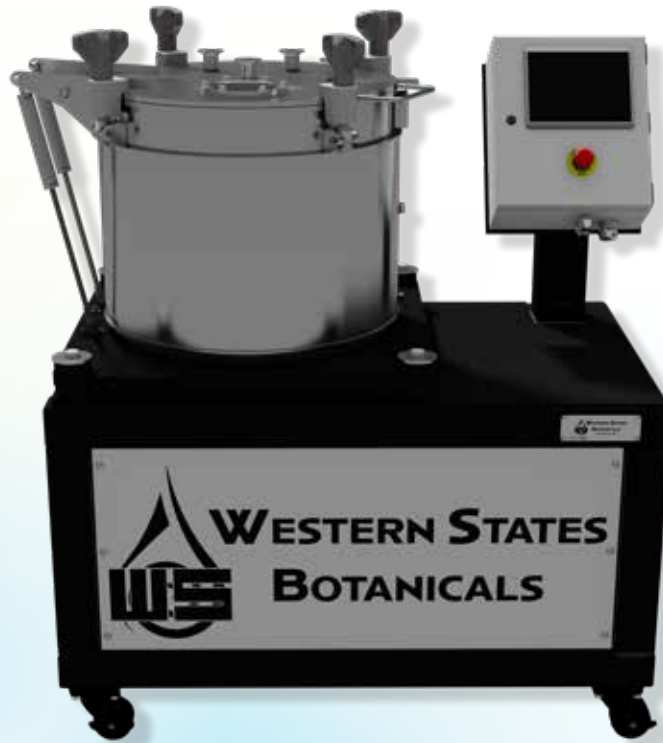
WSB-40 ETHANOL EXTRACTION CENTRIFUGE

The WSB-40 centrifuge is designed for optimal extraction of cannabinoids – capable of running 40 pounds of material per 10-20 minute cycle. Versatile and fast, the WSB-40 centrifuge provides flexibility for users to operate the machine with their own variables of temperature, rotation speed, and retention time, providing individualized control and unparalleled ease of use!

Scan the QR code to learn more!



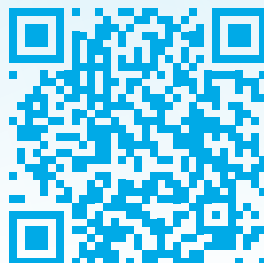
Western States Botanicals: WSB-15



WSB-15 ETHANOL EXTRACTION CENTRIFUGE

The WSB-15 centrifuge is designed for optimal extraction of cannabinoids – capable of running 15 pounds of material per 10-20 minute cycle. Versatile and fast, the WSB-15 centrifuge is suitable for low to mid-scale production volumes and offers flexibility for users to operate the machine with their own production variables of temperature, rotation speed, and retention time, providing individualized control and unparalleled ease of use!

Scan the QR code to learn more!



Western States Botanicals: WSB-MicroPro



WSB-MicroPro ETHANOL EXTRACTION CENTRIFUGE

The WSB-MicroPro centrifuge is a small-scale centrifuge for developing operations and low volume production, lab use, research, and testing.

Scan the QR code to learn more!





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