



# WESTERN STATES

where *innovation* happens everyday™



## Product Overview for the Sugar Industry

# The History of Western States Machine Company

Through the inventiveness and entrepreneurial spirit of Eugene Roberts, The Western States Machine Company (Western States) was founded in Salt Lake City, Utah, and incorporated April 11, 1917.

Western States customer base expanded to Canada, Peru, England, Hawaii, Mexico, Puerto Rico, Santo Domingo, Scotland, Korea and Japan. The remarkable growth of Western States was in large part due to Eugene Roberts' early experience in the sugar mill. At age 16, Roberts was a mechanic's helper at the Lehi Sugar Factory of Utah - only one of three independent sugar beet factories in the United States at that time. His detailed, hands-on knowledge and expertise pertaining to production and technical issues of producing sugar were priceless in contributing to the company's influence.



Founder Eugene Roberts

Western States built its success on three principles: quality products, superior service and building relationships. Western States grew in the 20's and 30's, but centrifugal manufacturing had to be scaled back with the onset of World War II. Western States was awarded several contracts with the US War Department to build a variety of war-driven supplies. One of these contracts, awarded in 1942, included the development of a centrifugal which contributed to the manufacture of war chemicals – Western States first foray outside the sugar industry. As the war ended in 1945, Western States realized a boon to business primarily due to orders for spare parts and replacements. During the subsequent three years, Western States manufactured and shipped 571 centrifugals.



Pictured Left to Right: Eugene Roberts, "Sloppy Joe", George Stevens and Henry Echenique at Sloppy Joe's Bar, in Havana, Cuba - 1935



On September 14, 1950, Eugene Roberts died – ending a 56 year legacy within the sugar industry. Roberts' vision continued to thrive and grow through his successors. In the 1970's a series of Continuous Process Centrifuges were invented. Through continued innovation these designs are still being manufactured today.

In 1985, Western States manufactured the first USDA approved centrifugal, utilized to process dairy products – primarily due to its innovative designs, materials, and CIP (Clean-In-Place) System. Throughout the 80's and 90's Western States continued to increase sales within the food and chemical industry – many of which were developed to process crystalline materials. Additionally, the company continued to leverage technologies such as computer aided design (CAD), personal computers, and integrated computer systems to increase internal efficiency and productivity.



In 2016, Western States solidified a partnership with BIG Tecnologia and Colmena, leading manufacturers supporting the Brazilian sugar industry. BIG Tecnologia and Colmena, both Brazilian companies founded in 2003, are located in Piracicaba, Brazil, providing service and support to the sugar and ethanol industries.

With more than 6,000 centrifuges, installed across two-thirds of the globe, located in 35 plus countries, Western States is a true pioneer and driving force in the design and manufacture of centrifugals for the Sugar, Chemical and Pharmaceutical Industries. No other manufacturer in the industry can claim the same depth and level of expertise. Through state-of-the-art technology, engineering and continuous innovation, we focus on serving our customers' needs.

# Centrifugals

## TITAN

1400 | 1600 | 1700 | 1900 | 2200 | 2400

The TITAN® Batch Centrifugal is designed to be a low-maintenance, efficient and cost-effective solution while providing a high return on investment for the end-user. Maintenance is reduced by minimizing the number of moving parts and the use of high strength alloys and non-metallic, food grade, components. The latest variable frequency drive technology and PLC controls ensures efficient operation with low power consumption. The TITAN® Batch Centrifugal is available in capacities from 1400 Kg to 2400 Kg.

### Design Features

**Largest open area of baskets** in the market today for unsurpassed purging

**Enclosed feed system** with anti-drip valve to prevent product contamination

**Intelligent loading system** learns/maximizes basket fill rate every cycle

Totally unobstructed, **downward opening basket bottom valve**

**Discharger plow** with spring-loaded tip for efficient unloading and screen protection

Compact and efficient **variable frequency drive**, no encoder required; motor matched to the variable frequency drive for maximum compatibility

**Fixed wash manifold** with modern, efficient fan style nozzles

**Disk brake** for emergency stopping

Solid state **gyration and vibration monitoring**

**Lowest energy cost** per ton of massecuite

**Bearing Temperature and Vibration Monitoring** available on drive heads

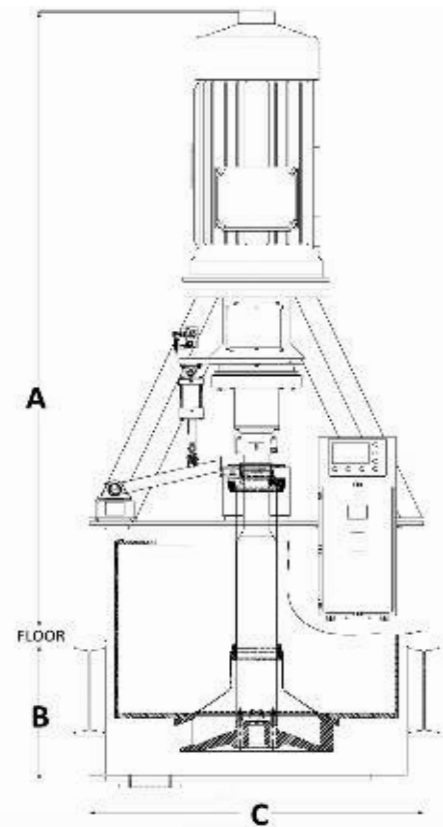


# TITAN Batch Models

Model	Basket Size	RPM (Nominal)	Actual Volume	Static Volume (Kg/charge)	Dynamic Volume* (pre-purge) (Kg/charge)	Maximum Cycles/Hour	Hourly Rate	Basket % O.A.	No. Holes (0.3120")
1400	54" x 40" x 9.0"	1140	29.5 ft <sup>3</sup>	1269	1421	30	42.6 MTPH	3.64%	3234
	1372 mm x 1016 mm x 229 mm		0.84 m <sup>3</sup>						
1600	57" x 40" x 9.5"	1100	32.8 ft <sup>3</sup>	1410	1579	30	47.4 MTPH	3.63%	3402
	1448 mm x 1016 mm x 241 mm		0.93 m <sup>3</sup>						
1700	57" x 43" x 9.5"	1100	35.3 ft <sup>3</sup>	1518	1700	30	51.0 MTPH	3.65%	3680
	1448 mm x 1092 mm x 241 mm		1.00 m <sup>3</sup>						
1900	60" x 45" x 9.625"	1080	39.7 ft <sup>3</sup>	1707	1912	30	57.4 MTPH	3.63%	4032
	1524 mm x 1143 mm x 244 mm		1.12 m <sup>3</sup>						
2200	66" x 45" x 10"	1035	45.8 ft <sup>3</sup>	1969	2205	28	61.7 MTPH	3.66%	4464
	1676 mm x 1143 mm x 254 mm		1.30 m <sup>3</sup>						
2400	72" x 45" x 10"	1000	50.7 ft <sup>3</sup>	2180	2442	26	63.5 MTPH	3.64%	4848
	1829 mm x 1143 mm x 254 mm		1.44 m <sup>3</sup>						

\*12% NOTES: Final results will depend on machine options, type of sugar, process conditions and quality of massecuite

## TITAN BATCH CENTRIFUGALS OVERALL DIMENSIONS



Model	Floor to Top of Motor (A)	Floor to Bottom of Discharge Chute (B)	Footprint (C)
1400	143.4" (3642.36 mm)	32.3" (820.42 mm)	72" x 72" (1828.8 mm x 1828.8 mm)
1600	143.4" (3642.36 mm)	32.3" (820.42 mm)	72" x 72" (1828.8 mm x 1828.8 mm)
1700	143.4" (3642.36 mm)	35.3" (896.62 mm)	72" x 72" (1828.8 mm x 1828.8 mm)
1900	163.81" (4160.77 mm)	35.44" (900.176 mm)	75" x 75" (1905 mm x 1905 mm)
2200	169.76" (4311.90 mm)	35.44" (900.176 mm)	80.5" x 80.5" (2044.7 mm x 2044.7 mm)
2400	181.45" (4608.83 mm)	35.44" (900.176 mm)	87" x 87" (2209.8 mm x 2209.8 mm)

# ROBERTS G-16 LINC

New Technology - Your Steel - The Right Fit

900 | 1100 | 1400 | 1600

The Roberts® G-16 LINC Batch Centrifugal has many advantages over your existing G-8 style batch centrifuge by incorporating modern components borrowed from the latest technology of the TITAN® Batch Centrifuges. This machine is designed to fit in the structural steel of your existing G-8, effectively cutting the cost of building a new structure, linking the footprint of the past to the technology of today!

**Downward opening spring basket valve** which allows for unobstructed sugar discharging **Precision paddle load control** ensuring accurate and consistent batches

**Duplex stainless steel ringless baskets** take less time to inspect Locally mounted **Allen-Bradley Micrologix 1400 PLC** includes built-in diagnostics and troubleshooting

**RD-3 Discharger** robust design for minimal sugar loss **Allen Bradley Panelview Plus Compact 1000 10.4"** color LCD touchscreen displays cycle information, help screens and tracks maintenance hour intervals, maintains alarm logs, and tracks centrifuge performance information

**Increase capacity** of the larger ringless baskets

48x30x7	743 Kg to 50.75x36x8.38	1097 Kg = 48%
48x36x7	889 Kg to 50.75x36x8.38	1097 Kg = 23%
54x40x7	1131 Kg to 54.00x40x9.00	1396 Kg = 23%

**Completely guarded** to meet OSHA standards



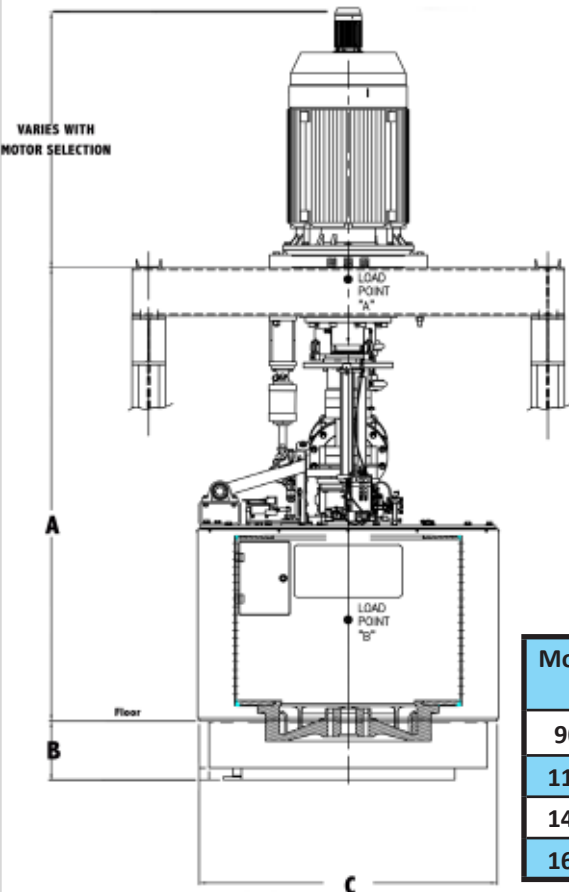
Model	Basket Size	RPM (Nominal)	Actual Volume	Static Volume (Kg/charge)	Dynamic Volume* (pre-purge) (Kg/charge)	Maximum Cycles/Hour	Hourly Rate	Basket % O.A.	No. Holes (0.3120")
900	50.75 x 30 x 8.38	1200	19.4 ft³	834	934	28	26.2	3.63%	2272
	1289 mm x 762 mm x 213 mm		0.55 m³						
1100	50.75" x 36" x 8.38"	1200	23.2 ft³	997	1117	28	31.3	3.64%	2736
	1289 mm x 914 mm x 213 mm		0.66 m³						
1400	54" x 40" x 9"	1140	29.5 ft³	1269	1421	28	39.8	3.63%	3234
	1372 mm x 1016 mm x 229 mm		0.84 m³						
1600	57 x 40 x 9.5	1100	32.8 ft³	1410	1579	28	44.2	3.63%	3402
	1448 mm x 1016 mm x 241 mm		0.93 m³						

\*12% NOTES: Final results will depend on machine options, type of sugar, process conditions and quality of massecuite



## Original G-8 to G-16 LINC Maintenance Comparison

System	Original G-8	G-16 LINC
Head	Oil lubrication system	Grease lubricated
	Mechanical brake each cycle - brake wear	VFD used to slow machine during operation
	Mechanical micro switch for gyration sensing	Electronic proximity switch for gyration sensing
Basket	Ringed – more time consuming for basket inspection	Ringless – higher capacity; less inspection time
Discharger	Narrow shoe tip for discharging	Wider plow blade for faster discharging times
	(N-11) Air and pressure switches for control	(RD-3) Electronic proximity switches for control
	Basket direction must be reversed to discharge	No reversing to discharge – saves cycle time
TurnTork	TurnTork required for reverse operation	TurnTork is eliminated
Basket Valve	Valve operator mounted in the basket, must be removed to adjust	Valve operator mounted above the curb top, easy access for simple adjustments
	Air opened, gravity shut	Air opened, spring shut
	Bolted two piece valve with shorter life span	One piece valve with very long lifespan
Gate	Roller or wedge style gate with complex adjustments	Simple butterfly valve – no adjustments and safer
	Greased gate and water lubricated stellite	No routine maintenance
	Open system – possible contamination	Enclosed system – cleaner
Load Control	Mechanical servo system with many moving parts and complex adjustments	Paddle and proximity sensor system with few moving parts and simple calibration at the HMI
Electrical	2 speed motor with mechanical contactors	Standard motor with VFD control
	Push button station with mechanical switches, no information	Touchscreen HMI with troubleshooting and diagnostics information



## ROBERTS G-16 LINC CENTRIFUGALS OVERALL DIMENSIONS

Model	Floor to Top of Rail (A)	Floor to Bottom of Discharge Chute (B)	Footprint (C)
900	98.38" (2498.9 mm)	11.12" (282.5 mm)	62" x 62" (1574.8 mm x 1574.8 mm)
1100	104.38" (2651.1 mm)	11.12" (282.5 mm)	62" x 62" (1574.8 mm x 1574.8 mm)
1400	112.38" (2854.3 mm)	11.62" (295.1 mm)	69" x 69" (1752.6 mm x 1752.6 mm)
1600	112.38" (2854.3 mm)	11.62" (295.1 mm)	72" x 72" (1828.8 mm x 1828.8 mm)

# ROBERTS I-SERIES

## Continuous Centrifugal

### 1100 | 1300

The Roberts® I-SERIES Continuous Centrifugal is the most productive continuous centrifugal available. Two innovative Western States' designs combine to provide maximum throughput with very low final molasses purity: the cast stainless steel basket with machined annular grooves for large drainage area, and the side feed system with complete massecuite conditioning.

#### Design Features

**State of the art, centrifugally cast, stainless steel basket** with larger holes and grooves for superior purging

**Exclusive Side Feed Design** for reduced crystal breakage and minimal purity rise (Center feed option available)

**Multi-point internal suspension** for superior vibration isolation and reliability

**Gentle “guide-rod” style massecuite conditioning system** minimizes crystal breakage and limits dissolved sugar

**Best long term value** based on tons of sugar produced per hour

**Touch screen controls** with intuitive interface

**Simplified maintenance:**

- Faster screen changes
- Minimal screen segments
- Top accessible bearing housing
- Easy access belt tunnel





# ROBERTS I-SERIES

## Continuous Centrifugal 1100 | 1300

	1100	1300
<b>A, B Masecuite</b>	28-36 MTPH	40-46 MTPH
<b>C Masecuite</b>	14-18 MTPH	18-22 MTPH
<b>Motor</b>	125 HP	150 HP



10-Point Suspension  
with Basket

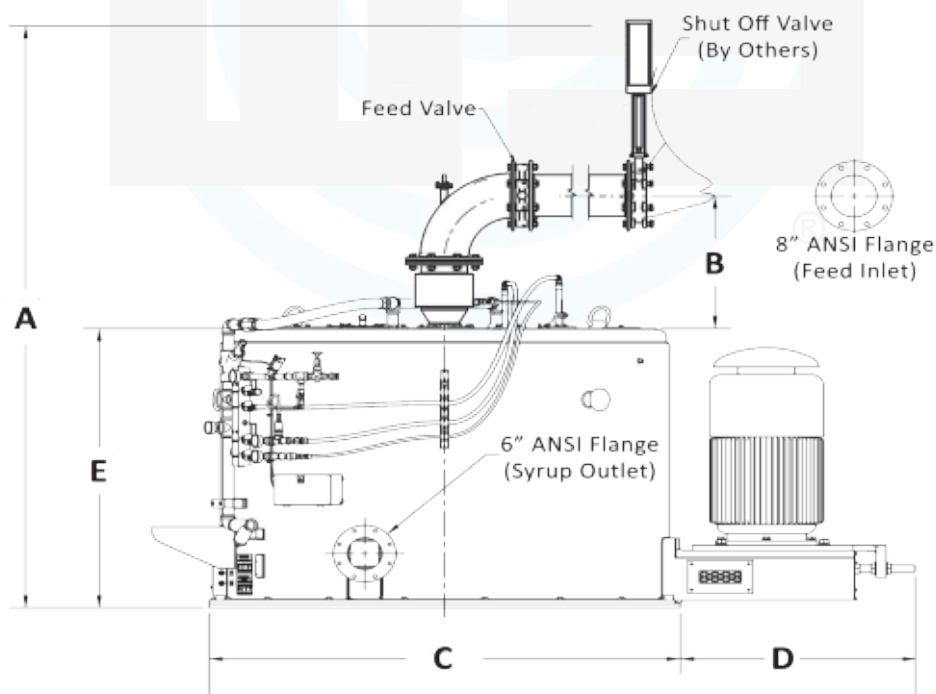


Internal 10-Point Suspension  
without Basket

### Multi-Point Suspension

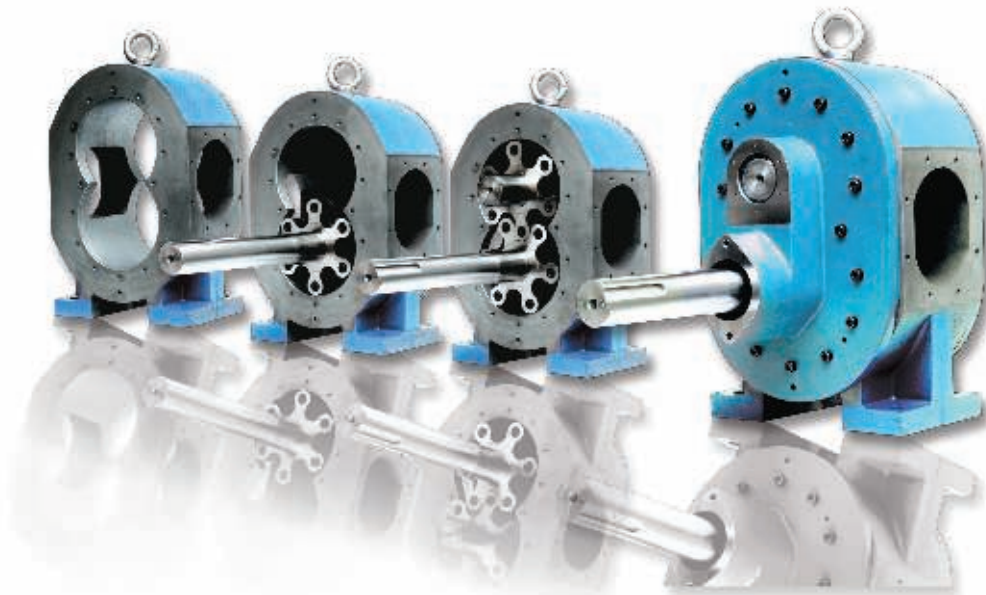
The basket and bearing housing are supported internally, separate from the curb, at eight points on the TITAN-1100 and ten points on the TITAN-1300 continuous centrifugal. On some competitive machines, the entire assembly, curb and all, is supported externally. Thus, vibrations are being transmitted to the entire centrifuge and the support structure.

## ROBERTS I-SERIES CONTINUOUS CENTRIFUGALS OVERALL DIMENSIONS



Model	A	B	C	D	E
<b>1100</b>	107.9" (2740.7 mm)	25.3" (642.6 mm)	82.7" (2100.6 mm)	42.5" (1079.5 mm)	49.1" (1247.1 mm)
<b>1300</b>	113.5" (2882.9 mm)	25.3" (642.6 mm)	82.7" (2100.6 mm)	42.3" (1074.4 mm)	54.8" (1391.9 mm)

# The MP Pump



Our MP PUMP (Massecuite Positive Displacement Pump) is designed to handle massecuities and magmas for the Sugar Industry. The MP PUMP is perfectly suited for viscous liquid applications.

The MP PUMP's throughput capacities range from 7m<sup>3</sup>/hour to 85m<sup>3</sup>/hour (247ft<sup>3</sup>/hour to 3001ft<sup>3</sup>/hour) at 65 rpm. Additionally, the MP PUMP is extraordinarily efficient, producing high outputs at low operating speeds – and is available in five sizes. With the ability to operate in either direction without changing stainless steel internal parts, the MP PUMP provides maximum versatility and durability.

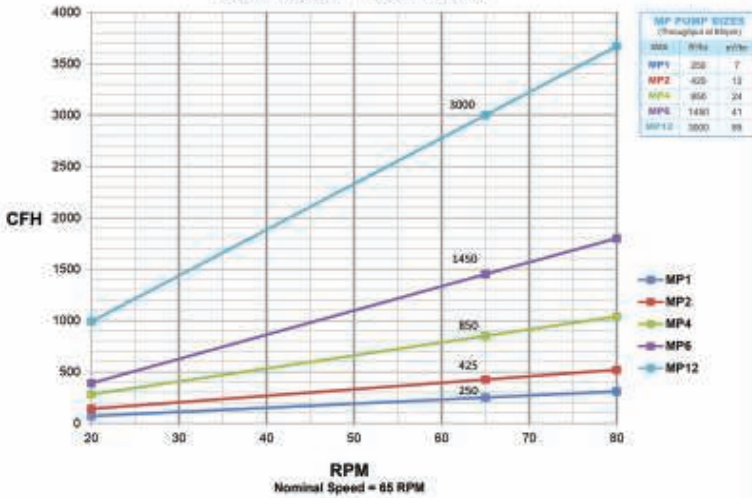
## WHY CHOOSE THE MP PUMP?

- Competitively priced
- Operates over long piped distances and high pressure
- Reliable performance: Extraordinarily efficient, producing high outputs at low operating speeds - and available in five sizes
- Low Maintenance: Only two moving parts! Simple maintenance of bushing and sleeve configuration results in limited downtime and servicing costs
- Durable: Sturdy design with stainless steel internal parts offers excellent corrosion wear and resistance
- Versatile: Capable of operating in either direction without changing parts
- Customizable: Technical experts help determine which motor size and configuration will work best in your facility

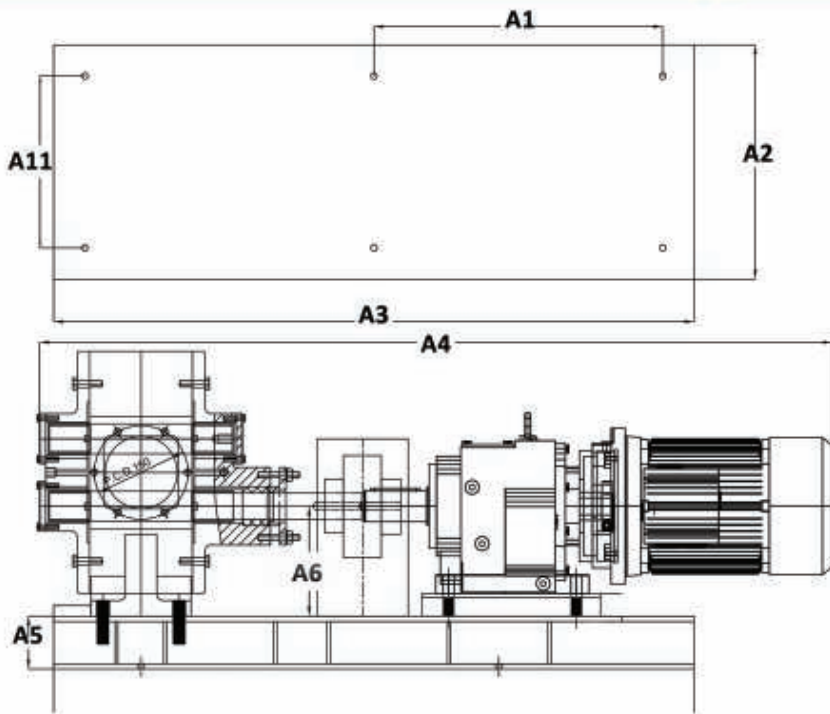
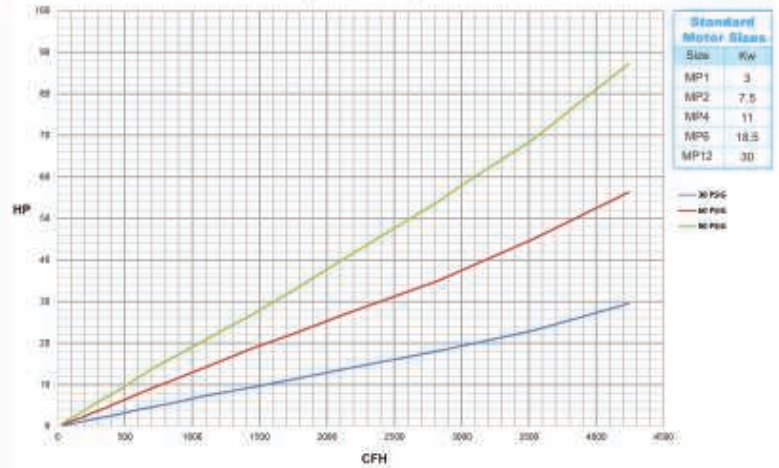
MP PUMP SIZES		
(Throughput at 65rpm)		
size	ft <sup>3</sup> /hr	m <sup>3</sup> /hr
<b>MP1</b>	250	7
<b>MP2</b>	425	12
<b>MP4</b>	850	24
<b>MP6</b>	1450	41
<b>MP12</b>	3000	85

# Massecuite Double Lobe Displacement Pumps

## CAPACITY CHART

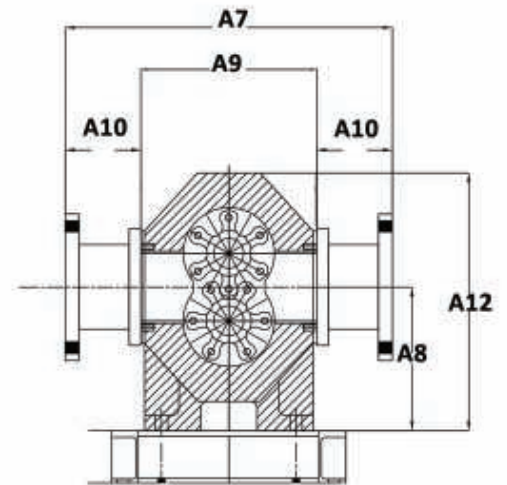


## POWER CHART



Elevation  
(Spool Piece Not Shown)

## GENERAL ARRANGEMENT DRAWING



Elevation

### General Arrangement Table (mm)

		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
MP1	in	18.2 (6 Holes)	14.8	40.4	50.0	3.9 x 2 Channel	6.9	18.1	9.1	11.0	3.5	10.8	16.3
	mm	462.9	375.1	1025.7	1270.0	100.0 x 50.0	176.0	460.0	230.0	280.0	90.0	275.0	413.0
MP2	in	21.5 (6 Holes)	16.8	46.8	62.7	3.9 x 2 Channel	7.9	21.4	10.6	12.9	4.3	13.0	19.7
	mm	544.9	425.5	1189.9	1593.5	100.0 x 50.0	200.5	544.0	268.0	328.0	110.0	330.5	500.0
MP4	in	24.3 (6 Holes)	20.1	52.5	77.2	3.9 x 2 Channel	9.7	26.6	13.2	16.4	5.1	16.2	24.0
	mm	616.9	511.0	1333.8	1961.0	100.0 x 50.0	247.0	676.0	336.2	416.0	130.0	411.0	610.0
MP6	in	27.6 (6 Holes)	21.7	59.2	79.4	5.5 x 2.4 Channel	10.1	29.1	14.2	18.9	5.1	17.7	26.0
	mm	701.5	550.0	1503.0	2016.6	100.0 x 50.0	256.9	740.0	360.5	480.0	130.0	450.1	660.0
MP12	in	17.31 (8 Holes)	21.7	69.1	88.9	5.5 x 2.4 Channel	12.4	30.7	15.6	19.7	5.5	17.7	30.0
	mm	438.9	550.1	1755.3	2259.0	100.0 x 50.0	315.0	780.0	395.0	500.0	140.0	450.1	760.0

# Machine Modernizations

Western States offers a wide range of modernization upgrades for existing centrifugals. The robust construction of the Western States centrifugal assures a life of 30 years or more.

As technology advances and new innovations are incorporated into the TITAN® centrifugals, Western States has created a line of modernizations that will allow the older Western States centrifugals to take advantage of the new technology. Upgrading existing centrifugals will increase performance, decrease spare part requirements, reduce maintenance, and greatly extend their life.

A full modernization consists of a VFD Upgrade, Load Control Upgrade, Ringless Basket Conversion, and installation of a Universal Discharger. Although we recommend all conversions to get older centrifugals operating at peak performance, each modernization can usually be purchased separately as well.

## Variable Frequency Drive and Motor Upgrades

Designed specifically for 48"x30", 48"x36" and 54"x40" batch centrifugals, **the VFD Upgrade eliminates the 2-speed motor, across-the-line contactors and high-maintenance TurnTork reversing drive.** These VFD's utilize advanced **Direct Torque Control (DTC)** which makes 40,000 speed control corrections per second. These drives use low-speed torque control, generate significantly lower noise than other VFDs and do not require an encoder to control motor speed, which eliminates the problematic signal cable between each motor and VFD.



### Upgrade Benefits:

- Increases production by reducing cycle time
- Active front end drive and full regenerative braking returns power to factory grid with each cycle
- Eliminates power spikes thereby reducing overall power consumption
- Encoder free operation reduces complexity and increases reliability
- Eliminates the TurnTork slow-speed reverse drive
- TEFC motor eliminates sugar dust contamination



## Exclusive Western States Ringless Baskets

Increase usable basket volume without changing the 2-speed motor or other major components <sup>[1]</sup>

Ringless baskets utilize the same outside diameter but larger inside diameter by eliminating steel support rings

High strength Duplex Stainless Steel <sup>[2]</sup> provides superior resistance to pitting and corrosion

Provides the same high purging performance as our ringed baskets

Superior manufacturing processes and quality control

Available up to 72" diameter

No other major modifications required <sup>[3]</sup>

Notes:

1. 54" baskets may require a larger motor to achieve equivalent performance.

2. Yield strength is approximately 2x that of austenitic steel

3. Basket screens are longer but the same height and the discharger blade tip may need to be increased about one inch in length

When converting from a ringed to a ringless basket, one must consider the increase in cycle time due to the increased sugar wall thickness. If a loss of 1 cycle per hour is assumed due to increased wash time and 20 cycles per hour were achieved before the conversion, the following capacity increases can be anticipated:

48" x 30" Ringed to 50.75" x 30" Ringless: 368 ft<sup>3</sup> / 313 ft<sup>3</sup> = 17.6% increase in capacity

48" x 36" Ringed to 50.75" x 36" Ringless: 441 ft<sup>3</sup> / 376 ft<sup>3</sup> = 17.3% increase in capacity

48" x 30" Ringed to 50.75" x 36" Ringless: 441 ft<sup>3</sup> / 313 ft<sup>3</sup> = 40.9% increase in capacity

54" x 40" Ringed to 57.00" x 40" Ringless: 570 ft<sup>3</sup> / 1478 ft<sup>3</sup> = 19.2% increase in capacity

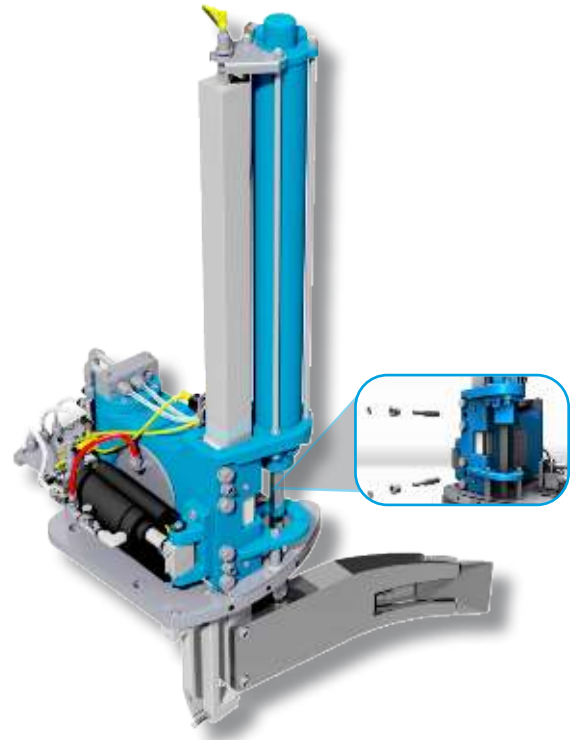


# The Universal Discharger

## Universal Discharger Features:

- Loosen and Rotate Cams Quickly and Easily in Four Locations
- No Need for Multiple Discharger Parts Inventories
- Can Replace Most Dischargers on G-8 Machines
- Increased Reliability with Proximity Switches

With the Universal Discharger, adjustment time is decreased from four hours to 15 minutes. Assuming a machine produces one ton of sugar per cycle with 20 cycles/hour, customers gain 3.75 hours or 75 tons of additional sugar processed – a definite plus for G-8 users.



## PLC Automation

- Replaces old relay and obsolete PLC controls
- Reduces spare parts cost
- Compatible with DCS systems
- Industry standard Allen Bradley PLC with world-wide support
- Siemens and other options available
- Standard Ethernet/IP communication

## Touch Screen Graphical Operator Interface

- Replaces mechanical push buttons
- Full color graphical touch screen for manual or automatic control of the centrifugal cycle
- Western States - PanelView-Plus-1000
- Set all process timers from the screen
- Control gate opening and basket fill from the screen
- Screen displays operating information throughout the cycle
- Displays diagnostic information to aid problem solving
- Requires PLC upgrade
- Allen Bradley, Siemens, C-More, and other options available

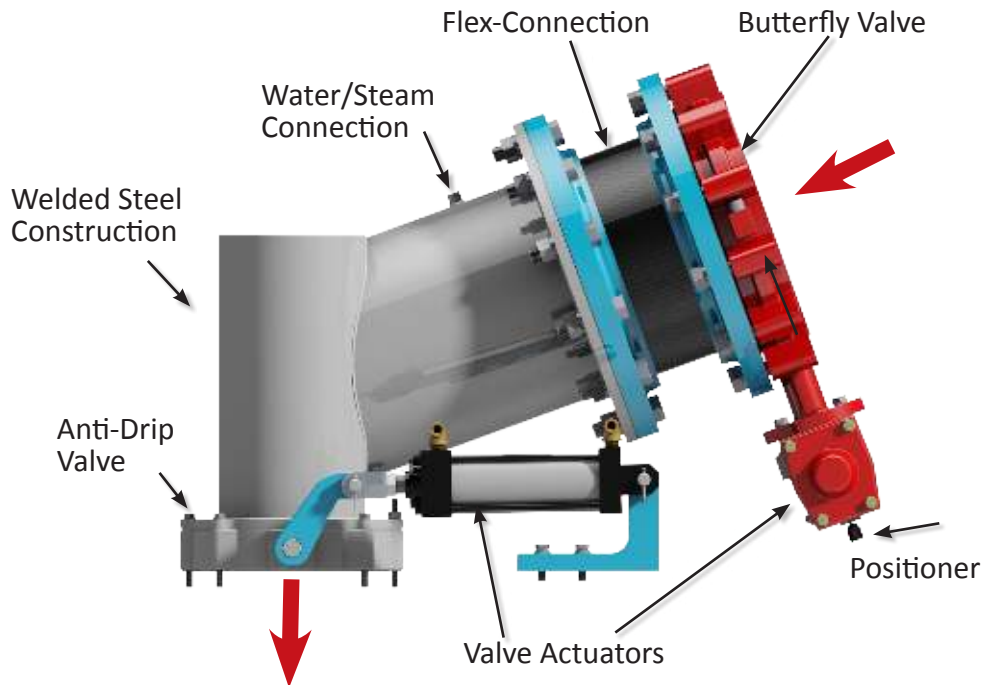


# Enclosed Feeding System

Round, butterfly style, infinitely adjustable feed valve  
Replaces the sliding wedge and roller wedge type loading gate  
Dripping is prevented by a rugged oval shaped butterfly valve mounted on the curb top  
Requires an electronic loading control

## Benefits:

- Retain Stepped Feed Valve Closing
- More Precise Basket Loading
- Eliminate Costly Gate Rebuilds
- Reduce Sugar Contamination
- Reduce Splashing
- Enhance Operator Safety



# Paddle Style Electronic Load Control

The Analog Feedback Mechanical Load Control is a fully enclosed, solid state device to replace the Servo Loading Control. The electronics for the Analog Feedback Mechanical Load Control assembly are located on the unit for easy access and simplified installation.



- Generates a 4 to 20 mA signal in response to changing sugar load to control the loading gate
- Retains the sequenced gate closing action to assure maximum loading of the basket
- Can be used with the sliding wedge or roller wedge loading gate

The complete package to convert a centrifugal using a sliding wedge or roller wedge gate and Servo Loading to Analog Feedback Mechanical Load Control consists of:

- Analog Feedback Mechanical Load Sensor
- Gate encoder

Optional items that may be required are:

- Electronics package
- Replacement valve lifter assembly
- Gate solenoid valves

# CC Modernizations

## Needle-Valve Feed System

- Replaces older style orifice plate feed system
- Changes feed rates as massecuite consistency changes without stopping the feed
- Achieves better pretreatment with the improved feed guide rod and halo steam design

## Single Loop Control

- Replaces old-style PLC and relay controls
- Accurately maintains the preset basket loading as massecuite levels in the mixer change

## 100 HP Drive Motor

- Replaces the 75 HP drive motor of a CC-6
- Increases throughput





# Rebuild Program

Each assembly sent to Western States for repair is inspected. A notification is sent upon completion of inspection with our recommendations for repair and costs associated. If assemblies are found to be irreparable, an inspection charge applies and either the parts can be returned or disposed of at our facility.

The following list includes the products that we rebuild for our customers using the same high OEM standards of quality as is received when buying new:

- G-8 Head Assembly
- G-8 Brake Assembly
- Ringed Basket Assembly
- Gate Assembly
- Discharger Assembly
- Valve Lifting Fork
- Turn Tork Assembly
- Brake Air Cylinder Assembly
- Gate Air Cylinder Assembly
- Load Control with Servo Assembly
- Straddle Valve Lifter Assembly



## G-8 Head Assembly

- 48x30, G-8C, 48x36, 54x40, G-8D
- Disassemble and inspect
- Sandblast and repaint as required
- Replace all worn parts
- Check ball and seat for proper fit
- Replace rubber buffer
- Assemble and test

## Gate Assembly

- Disassemble and inspect
- Sandblast and repaint as required
- Replace wedges
- Replace Stellite on body
- Replace springs, bushings
- Assemble and test

## Basket Assembly

- Ringed, Ringless, Continuous
- Sandblast
- Inspect
- True-up
- Balance

# Parts and Service

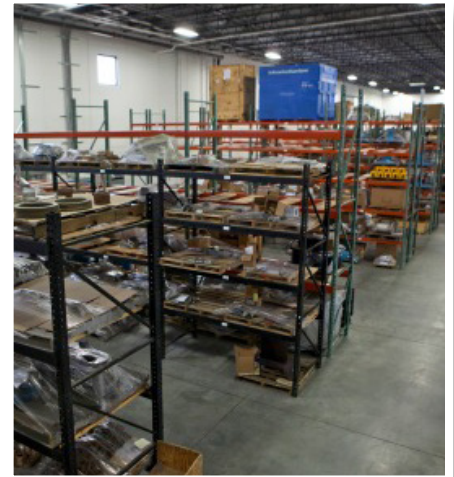


## OEM Parts

Western States has been supporting its customers and their centrifugals around the world since 1917 with quality parts and service. Whether your centrifugal was built in 1947 or this year, our warehouse has over 1,000,000 individual parts, from high alloy stainless steel baskets to simple spring washers. Using original quality parts from Western States will increase up time and performance as well as reduce maintenance.

We offer:

- 24 Hour Emergency Hotline
- Replacement Parts Specialists
- Every replacement part order is checked against original specifications
- Upgraded parts are automatically shipped when an older part is ordered
- \$6,000,000 parts inventory on site to provide immediate shipment of most parts





# Service Technicians

Western States has a committed staff of trained and experienced commissioning personnel to assist in the installation and commissioning of new centrifuges or maintaining existing Western States centrifuges.

Commissioning support (less travel and living expenses) is provided at no expense to the customer on installation of new equipment for a pre-negotiated number of days.

Western States provides service contracts specifically designed to meet the preventive maintenance needs of the individual customer.

Preventive maintenance can save thousands of dollars in costly parts, downtime and unnecessary maintenance.

We offer:

- Dedicated Service Engineers trained in both mechanical and electrical problem solving
- Maintenance Training Seminars which can be provided at either the customer's facility or at Western States
- Service Engineers will train both operators, mechanics, and instrument personnel regarding the operation and maintenance of a new installation
- Service Engineers are available for factory visits and inspections in as little as 24 hours





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 Cincinnati, USA  
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