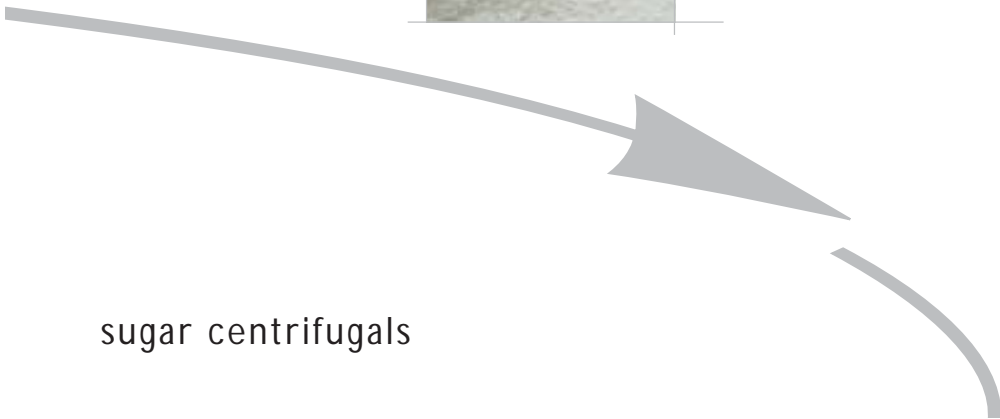
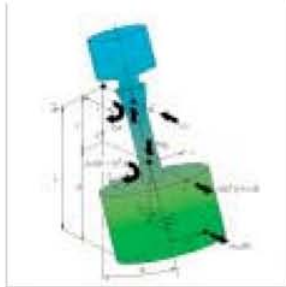




sugar & sweeteners division



sugar centrifugals



BATCH CENTRIFUGALS

BROADBENT offers a wide range of BATCH CENTRIFUGALS to suit all applications in the sugar, dextrose and sweetener industries. Special variants are also available for the chemical industry for processing Citric Acid, Nitrates and other free filtering crystalline products.



STANDARD FEATURES

The **standard features** of all Broadbent batch centrifugals are:

- **CUSTOM-DESIGNED AND MANUFACTURED BROADBENT MOTORS**
- **ONE-PIECE SUSPENSION HEAD HOUSES THE MAIN BEARINGS UTILISING A RUBBER CONICAL BUFFER**
- **TOTAL SUGAR REMOVAL USING THE UNIQUE BROADBENT PLOUGH DISCHARGER**
- **SPECIALLY DESIGNED WASH PIPE TO USE THE MINIMUM QUANTITY OF WATER**
- **DOWNWARD OPENING DISCHARGE VALVE ALLOWS FAST FLOW OF SUGAR FROM THE BASKET**
- **BROADBENT DESIGNED AND PROGRAMMED CONTROLS FOR RELIABLE FULLY AUTOMATIC OPERATION**
- **EASY TO USE OPERATOR CONTROLS UTILISING A COLOUR TOUCH SCREEN**
- **FEED CONTROL BY BUTTERFLY VALVE AND SECONDARY DRIP VALVE**
- **DRIVES SYSTEMS AVAILABLE:**

Three Speed Pole Changing Drive

The three speed motor provides a well proven and easily maintained drive option for high cycling continuous operation and gives significant enhanced energy recovery over earlier 2 speed designs.

Energy Efficient Variable Speed A.C. Drive

Using the latest energy efficient design of frequency converters, speed control is achieved by varying the frequency and voltage to the Broadbent motor. Full regenerative braking from high to plough speed recovers more power during the cycle with less mechanical wear and maintenance.

THREE SPEED DRIVE MODELS

Model	Basket Size mm	Max Speed rpm	Max Basket Capacity kg	Max Cycles/Hour	Max Capacity t/h	Structure <small>battery or trapezoidal</small>
P22M	1220 x 765	1,500	710	25	17	B
P26M	1220 x 915	1,500	850	25	21	B
P28M	1220 x 965	1,200	1,000	25	25	B
P32M	1300 x 1067	1,200	1,300	25	32	B/T

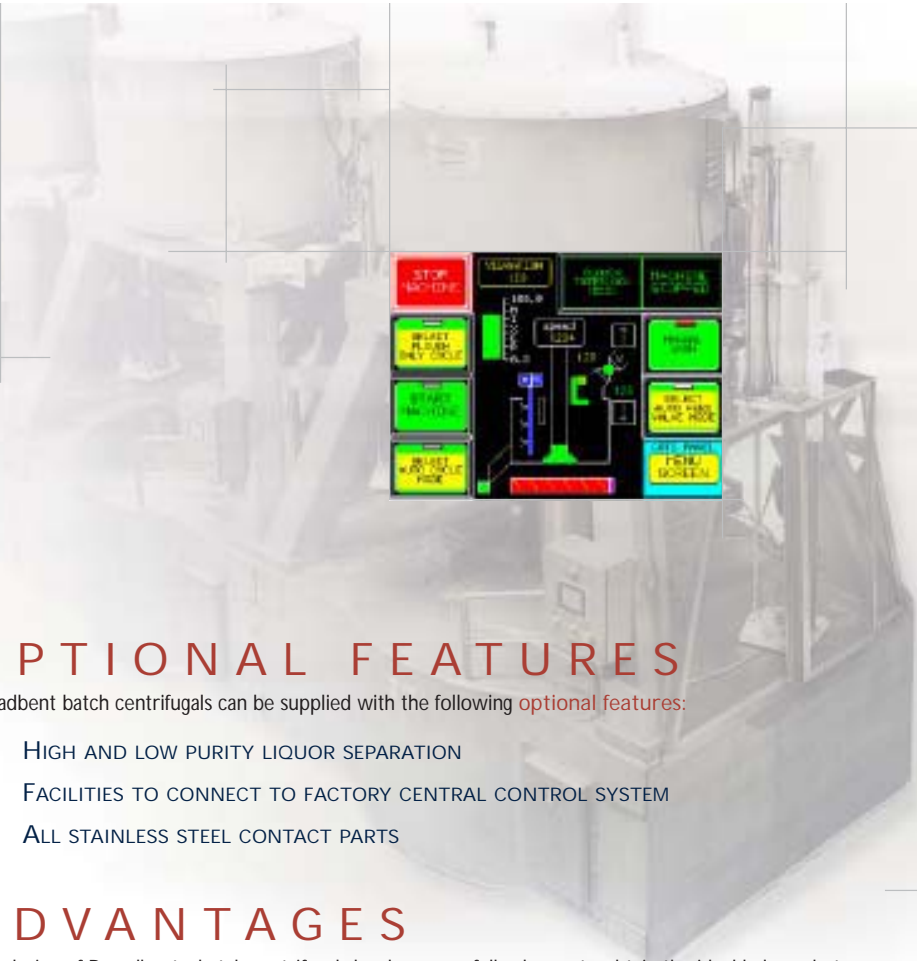
The quoted capacities and charges per hour are indicative only.

VARIABLE SPEED DRIVE MODELS

Model	Basket Size mm	Max Speed rpm	Max Basket Capacity kg	Max Cycles/Hour	Max Capacity t/h	Structure <small>battery or trapezoidal</small>
C26M	1220 x 915	1,500	850	25	21	B
C28M	1220 x 965	1,200	1,000	25	25	B
C32M	1300 x 1067	1,200	1,300	25	32	B/T
C46M	1400 x 1150	1,150	1,500	25	37	T
C52M	1500 x 1220	1,100	1,750	25	43	T
C54M	1600 x 1220	1,100	1,850	25	46	T
C58M	1700 x 1220	1,050	2,100	25	52	T
C60M	1800 x 1220	1,000	2,300	25	57	T



BATCH SUGAR CENTRIFUGALS



OPTIONAL FEATURES

Broadbent batch centrifugals can be supplied with the following **optional features**:

- HIGH AND LOW PURITY LIQUOR SEPARATION
- FACILITIES TO CONNECT TO FACTORY CENTRAL CONTROL SYSTEM
- ALL STAINLESS STEEL CONTACT PARTS

ADVANTAGES

The design of Broadbent's batch centrifugals has been carefully chosen to obtain the ideal balance between capacity, process results and sugar losses.

Design advantages include:

- SPECIALLY DESIGNED HIGH PERFORMANCE MOTORS BUILT BY BROADBENT TO GIVE MORE CYCLES PER HOUR
- ONE PIECE SHAFT SIMPLIFIES MECHANICAL DESIGN AND LOWERS MAINTENANCE COST
- HIGH TOLERANCE TO VIBRATION AND OUT OF BALANCE FORCES DUE TO UNIQUE CONICAL BUFFER SUSPENSION

Process advantages include:

- LOW WASH WATER CONSUMPTION TO MINIMISE DISSOLVED SUGAR AND REDUCE RECIRCULATION
- SHARP SEPARATION OF HIGH AND LOW PURITY LIQUORS TO IMPROVE PROCESS CONTROL
- CLEAN SCREEN DISCHARGE SYSTEM TO MINIMISE SUGAR LEFT IN BASKET

The combination of all these factors make Broadbent batch centrifugals the ideal process solution for the lowest centrifugal operating and maintenance costs





CONTINUOUS CENTRIFUGALS

BROADBENT SPV CONTINUOUS CENTRIFUGALS combine superb process performance with a simple mechanical design. Data from both cane and beet massecuite applications show that BROADBENT CONTINUOUS CENTRIFUGALS give an effective separation with a low purity rise at high sustainable throughputs.



STANDARD FEATURES

The standard features of the SPV centrifugals are:

- CENTRAL FEED AND ACCELERATION SYSTEM TO ENSURE FULL DISTRIBUTION OF MASSECUIE
- SPECIAL STAINLESS STEEL BASKET WHICH IS FULLY PERFORATED TO SEPARATE THE LIQUOR QUICKLY
- MASSECUIE CONDITIONING SYSTEM USING WATER AND STEAM
- THREE POINT EXTERNAL SUSPENSION UTILISING HEAVY DUTY VIBRATION ISOLATORS
- SIMPLE GREASE LUBRICATED BEARING ARRANGEMENT

SPV CONTINUOUS SUGAR CENTRIFUGAL RANGE

Model	Nominal Basket Diameter mm	Maximum Speed rpm	Maximum Separating Force G	Maximum Motor Power kW
SPV1220	1220 mm	2,050	2850 X G	75 kW
SPV1425	1425 mm	1,800	2500 X G	110 kW
SPV1575	1575 mm	1,600	2250 X G	132 kW

SPV CONTINUOUS SUGAR CENTRIFUGAL CAPACITIES

Model	Capacities - t/h					
	Beet		Cane		Refinery	
	Intermediate Grade	Low Grade	Intermediate Grade	Low Grade	Affination	Recovery
SPV1220	25	17	20	15	25	15
SPV1425	40	22	30	20	40	20
SPV1575	48	28	36	25	48	25

OPTIONAL FEATURES

Broadbent continuous centrifugals can be supplied with the following optional features:

- FEED & ISOLATION VALVES, MANUAL OR AUTOMATICALLY CONTROLLED
- SPECIAL SCREEN CONFIGURATIONS TO OPTIMISE PROCESS RESULTS
- ALL STAINLESS STEEL CONTACT PARTS
- HIGH AND LOW PURITY LIQUOR SEPARATION WITHIN THE CASING
- FACILITIES TO CONNECT TO FACTORY DCS
- VEE-WIRE™ SCREENS FOR EXTREMELY LONG LIFE



LIQUID DISCHARGE

All Broadbent SPV continuous centrifugals can be configured to provide a liquid discharge:

- MAGMA DISCHARGE BY MIXING THE SUGAR WITH A HIGH PURITY LIQUOR INSIDE THE CASING
- MELT DISCHARGE BY DISSOLVING THE SUGAR WITH HOT WATER AND STEAM INSIDE THE CASING

ADVANTAGES

The design of Broadbent's SPV continuous centrifugals has been carefully chosen to obtain the ideal balance between capacity, process results and sugar losses.

Design advantages include:

- EXTERNAL HEAVY DUTY SUSPENSION AVOIDING COMPLEX MAINTENANCE INSIDE THE CENTRIFUGAL
- FIXED MOTOR MOUNT WHICH HOLD THE PULLEY BELTS AT A CONSTANT CENTRE DISTANCE
- HEAVY DUTY BEARINGS DESIGNED TO COPE WITH HIGH VIBRATION LEVELS

Process advantages include:

- EFFECTIVE CONDITIONING OF THE MASSECUITE WITH WATER AND STEAM TO OPTIMISE SEPARATION
- 360° DISTRIBUTION OF MASSECUITE ON TO THE SCREENS TO MAXIMISE THROUGHPUT
- PRECISE WASH APPLICATION ON TO BASKET SCREENS



The combination of all these factors make Broadbent continuous centrifugals the ideal solution for processing intermediate and low grade sugars





HIGH GRADE CONTINUOUS



The BROADBENT HIGH GRADE CONTINUOUS CENTRIFUGAL uses processing techniques evolved from innovative technology developed by NOEA and their partners in the Australian sugar industry. These are combined with the proven design features of BROADBENT's low and intermediate grade continuous centrifugals to give batch results with continuous operation.

STANDARD FEATURES

The Broadbent SPVH1100 High Grade continuous centrifugal has the **key features** of our successful SPV low & intermediate grade continuous centrifugals with **special modifications** for processing high grade sugars:

- STAINLESS STEEL CRYSTAL PROTECTION EQUIPMENT MINIMISES CRYSTAL DAMAGE DURING DISCHARGE
- A STEEP ANGLED, FULLY PERFORATED STAINLESS STEEL BASKET TO INCREASE RETENTION TIME IN THE CENTRIFUGAL
- HIGH OPEN AREA WORKING SCREENS PERMIT CONSTANT HIGH THROUGHPUTS OF MASSECUITE
- AUTOMATIC WASH FACILITIES ALLOWING THE PRECISE APPLICATION OF WASH WATER ON TO THE BASKET SCREENS
- EASY TO USE OPERATOR CONTROLS UTILISING A COLOUR TOUCH SCREEN

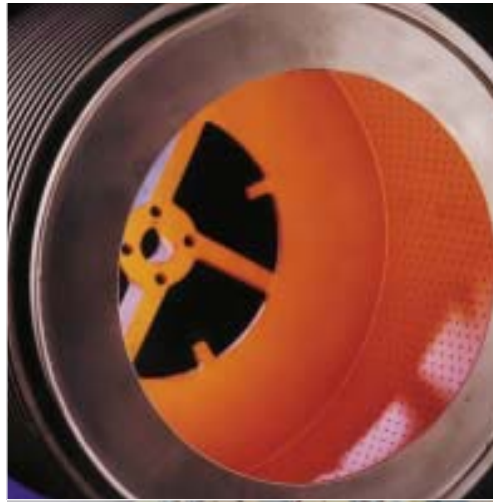
Characteristic	Typical Batch Centrifugal	High Grade Continuous Centrifugal
Capacity (t/h Massecuite)	30	30
Operation	Batch	Continuous
Sugar Quality		
Crystal Condition	Excellent	Excellent
% Fines	Low	Low
Purity	High	High
Sugar Moisture % (Ex-centrifugal)	Approx. 0.75	Approx. 1.5
Power Consumption (kWh/T Massecuite)	+/- 1.0	< 0.8
Power Usage	Variable	Constant
Power Demand	Up to 150kW	Maximum 45kW
Wash Water Consumption %	2-4	6-10
Process Control	Excellent	Good
Maintenance	Medium	Low
Control	Automatic with PLC	Automatic with PLC
Speed Control	Frequency converter	Fixed speed
Price Ratio	1	0.6

PERFORMANCE COMPARISON*

Comparison Data

The performance of the Broadbent SPVH1100 high grade continuous centrifugal is comparable with batch centrifugals.

* The data is typical only and actual results are dependent on massecuite quality and processing conditions.



CENTRIFUGALS

OPTIONAL FEATURES

Broadbent High Grade continuous centrifugals can also be supplied with a liquid discharge by dissolving in the centrifugal casing.

PROCESS PERFORMANCE

The advantages of Broadbent's High Grade continuous centrifugal over a typical batch centrifugal include:

Advantages:

- LOW CAPITAL COST
- LOW POWER CONSUMPTION FOR EACH TONNE OF MASSECUITE PROCESSED
- LOW OPERATING & MAINTENANCE COSTS



Broadbent High Grade Continuous Centrifugals are ideally suited to replace batch centrifugals in low colour reduction applications, e.g. raw, affination & refined sugars

SPARES & SERVICE

Broadbent's range of batch and continuous centrifugals are backed up by BCSL, Broadbent's dedicated spares and service division. BCSL utilises a highly trained team of engineers to support sugar producers world-wide with spare parts and service for Broadbent and other makes of centrifugal.

Specialist services available from BCSL include:

- INSTALLATION AND COMMISSIONING
- SPARE PARTS FOR ALL BROADBENT CENTRIFUGES
- GENERAL SPARE PARTS AND SCREENS FOR ALL MAKES OF CENTRIFUGALS

CONVERSION EQUIPMENT

As well as new equipment, the Sugar Centrifugal Division of Broadbent also offers a variety of conversions and upgrades for existing equipment. This option can extend the working life, improve efficiency and productivity of existing equipment at an economical cost.

Conversions and upgrades available include:

- PLC CONTROLS TO REPLACE OLD RELAY LOGIC CONTROL SYSTEMS
- SUGAR DISCHARGE SYSTEMS TO IMPROVE THE DISCHARGE EFFICIENCY
- PNEUMATIC CONTROLS TO REPLACE OBSOLETE SYSTEMS
- ENCLOSED FEED ARRANGEMENTS TO IMPROVE HYGIENE AND FEED CONTROL



ONE COMPANY - MANY SKILLS



Industrial Process Division

Tel: +44 1484 477260
Fax: + 44 1484 428041
e-mail: ipd@broadbent.co.uk
Web: www.broadbent.co.uk

Laundry Systems Division

Tel: +44 1484 477243
Fax: + 44 1484 516142
e-mail: bls@broadbent.co.uk
Web: www.broadbent.co.uk



Sugar & Sweeteners Division

Tel: +44 1484 477230
Fax: + 44 1484 423159
e-mail: sugar@broadbent.co.uk
Web: www.broadbent.co.uk

Service & Spares Division

Tel: +44 1484 477200
24hour: +44 1484 477350
Fax: + 44 1484 431821
e-mail: bcsl@broadbent.co.uk
Web: www.broadbent.co.uk



Broadbent Incorporated

P.O. Box 185249, 2509 Gravel Drive,
Fort Worth, Texas 76118. USA.
Tel: +1 (817) 595 2411
Fax: +1 (817) 595 0415
e-mail: broadbent.inc@att.net

Thomas Broadbent & Sons Ltd.

Queen Street South,
Huddersfield, HD1 3EA, England

Tel: +44 1484 477200
Fax: +44 1484 516142
e-mail: tbs@broadbent.co.uk
www.broadbent.co.uk



over 135 years of separation technology