

Cost-effective refurbishment of sugar centrifugals pays off

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Summary

Refurbished equipment is becoming an ever more economical option for sugar factories around the world. Here we feature Broadbent Customer Services Ltd (BCSL) and some of the work they have carried out, both alone and in partnerships, in Asia and other locations. This feature indicates that refurbishment may be a viable alternative to buying new machinery in an increasingly competitive and time-conscious industry.

Introduction

With a brand new centrifugal costing far in excess of the average budget, many factories (especially in the current economic climate) would be unable to continue without the option of purchasing refurbished equipment.

As a result, Broadbent Customer Services Limited, (BCSL), the customer service division of Thomas Broadbent & Sons Ltd., is one of the companies selling reconditioned machinery throughout the world. With large concentrations in the Far East and on the Asian continent, BCSL supplies to a wide range of markets, from Thailand, Australia, Malaysia, Pakistan and Bangladesh to mainland China, Vietnam, the Philippines and Sri Lanka.

The sugar cycle is in its longest trough for some time, due to the complex interrelationship of overproduction and price, and this has placed constraints on many sugar manufacturers and restricted their ability or opportunity to purchase new equipment. Before refurbishment was an option, these companies would have had to find the necessary funds for new equipment, lose business, or even shut down.

Reconditioned machinery can be put in place at a fraction of the price of new.

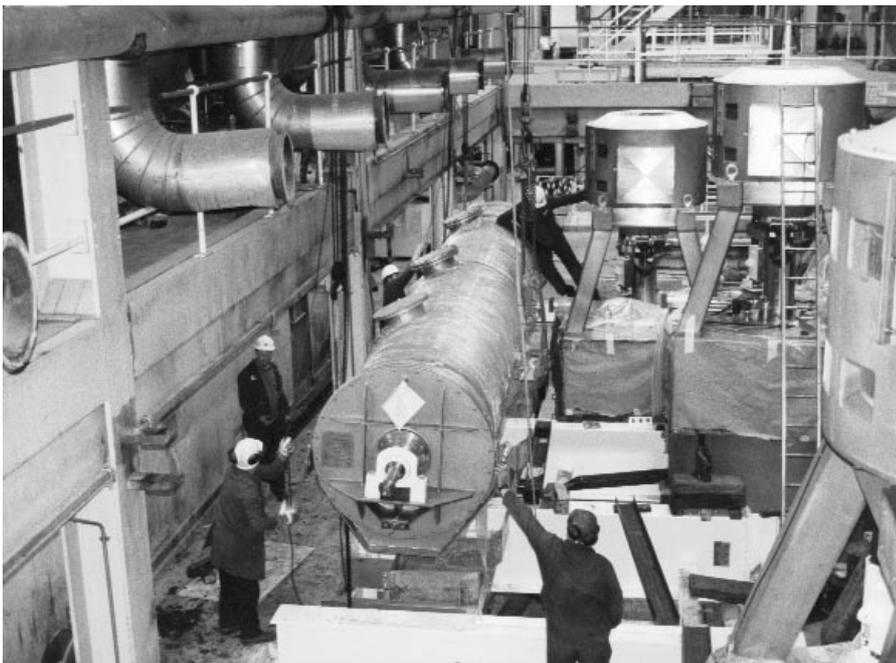
Speedy installation

Refurbished equipment allows new or developing factories either to increase their capacity rapidly or to reach a position of start-up within a minimum possible time. More often than not there are delays when purchasing new machinery, and refurbished equipment can be delivered in half the time, or even less.

For example, for the family owners of a Cost Rican sugar mill, refurbished equipment has been vital in keeping their business viable. Ingenio Cutris, established over 30 years ago, is one of around 17 cane sugar factories in Costa Rica, ranging in size from 500 to 2000 tonnes crushed daily (TCD). The Clinaz family needed to bring down production costs and increase productivity if they were to remain competitive (or even in business) but they were dependent on very old centrifuges and limited funds.

Their only collateral was sugar production, so the mill and company struck a deal exchanging two reconditioned machines for payment arising from funds generated from sugar production using these refurbished machines. BCSL supplied the machines, complete with modern controls, thus enabling the mill to increase efficiency in sugar crystal recovery from the massecuite. Production costs were significantly reduced to the extent that the proceeds paid for not only the reconditioned batch centrifuges but also for a brand new continuous centrifuge.

The mill has expanded as a result of the installation and the Clinaz family is delighted: "We have always known the name of Broadbent as one of the best



Picture 1. Typical installation work by Broadbent engineers at a major sugar factory.



Picture 2. Refurbishment of a bank of centrifuges.



Picture 3. A competitor's centrifuge being refurbished



Picture 4. Broadbent expanded its portfolio with the refurbishment of six 25-year-old centrifuges for Snow White Sugar in Puerto Rico.

centrifuge suppliers in the market. But after carrying out this project with them we have also learned that Broadbent really cares for its customers.”

Associated advantages

With refurbishment, customers benefit from many of the advantages associated with new equipment, including:

- Fitting of modern controls
- Enhanced reliability, more than could be expected from used equipment that is not reconditioned
- Drastically reduced delivery times
- And if supplied by BCSL, Broadbent warranties

A typical machine commissioned for refurbishment would be around 25 years old. Refurbishment involves stripping all

component parts, reconditioning and fitting a PLC (Programmable Logic Control) upgrade. Only parts that pass stringent inspection and non-destructive testing are considered for use.

Batch centrifugals are particularly suited to refurbishment, recently the refurbishment of six 48 x 30 batch centrifuges at Snow White Sugar in Puerto Rico was Broadbent's first venture into that country. The factory's machines had reached the end of their useful life and the customer had to operate within tight budget constraints. Broadbent managed to match their available budget to supply replacement machines which were completely renovated and fitted with modern PLC controls.

International co-operation

Broadbent has a range of international contacts with whom it can carry out joint refurbishment ventures. One such commission was carried out in Peru with Perry Vydex, USA, one of the biggest used equipment vendors in the world.

The Complejo Agroindustrial Cartavio SA factory was looking to increase its capacity and purchase some new centrifuges. Instead BCSL, with Perry's, supplied two fully

reconditioned Broadbent 48 x 30 centrifuges with PLC controls.

The customer placed a repeat order for two more reconditioned machines and a new high grade continuous centrifuge within 12 months.

Roger Beaumont notes that this form of co-operation is extremely useful, “This has been a beneficial venture for all parties involved - the customer, Broadbent and our partner Perry Vydex - and has expanded Broadbent's world-wide sales.”

Another partnership has involved British Sugar Overseas (BSO), for projects in the Asian market, supplying reconditioned machines for both the pharmaceutical and sugar industries.

The first project involved Niro, a Danish-based contracting company which purchased a plant for the Lianhua-BSO Pharmaceutical Company Ltd in Xiancheng City, located to the west of Shanghai.

In association with BSO, BCSL supplied six reconditioned 48 x 30 batch centrifuges which were used to manufacture dextrose. The machines were sourced from a redundant sugar factory in the UK where they were completely overhauled and modified to incorporate many stainless steel components. The turnaround was 10 weeks, approximately half the time it



Picture 5a. 30-year-old sugar batch centrifugals, ex-British Sugar.



Picture 5b. The same machines at a later stage of reconditioning where the machines were dismantled into component parts.



Picture 5c. The machines were fully refurbished with many components being replaced with new.

would have taken to build the machines from spec, and the cost was also cut by 50%.

This case study demonstrates how refurbishment can significantly reduce costs and lead-time.

Other projects have been completed with BSO for factories on mainland China.

The BSO sugar factories on mainland China are Luoxiu, known as the Bohua Food Company; and Shibie and Huaiyuan, known as the Boqing Food Company.

BCSL installed five brand new 48 x 38 batch machines for white A sugar at Luoxiu Sugar Mill and two new centrifugals at Huaiyuan. BCSL also reconditioned five batch machines for A sugar at Shibie, which led to orders for two brand new machines, one batch for A sugar and one continuous for C sugar. A further four new continuous machines have been installed at Luoxiu, two on B sugar and 2 on C sugar.

"All the machines have improved the quality of product, increased extraction and easily meet the needs of the businesses," commented BSO Operation Manager Niall Shaw. Training was provided for the local staff who now carry out any maintenance required.

Risk free refurbishment

In a recession such as the one presently facing the sugar world, refurbishment has become a valuable and risk-free option.

At the moment there are a lot of second-hand machines throughout the world, and refurbished machines do

not compete face-to-face with "as-seen" equipment. Refurbished equipment can eliminate consumer risk by giving a warranty, and machines (whether own or other label) are returned to customers in "good-as-new" condition matching prevailing and relevant international quality standards. Items within BCSL's remit for refurbishment include: batch basket centrifuges; decanter centrifuges used in the sugar industry to clean up environmental issues; peeler and pusher centrifuges for the process industries; washer extractors/hydro extractors and tunnel washers and systems for the laundry industry, along with batch and continuous sugar centrifugals and sugar centrifugal batteries. Machinery is completely

refurbished and reconditioned and upgraded to an existing or revised specification, and PLC controls and product and wear protection materials and coatings, including PTFE, ceramics and carbides are added.

Almost any make of equipment can be accepted by the company for reclamation or furnishing. Refurbishment and the up-grading of machines and systems can satisfy engineering, process and financial criteria by optimising the life of long-service items and by maintaining continuity whilst meeting short-term budget constraints.

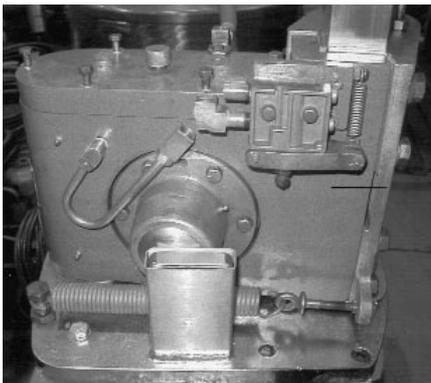
A BCSL speciality is sugar centrifugal replacement baskets; the company offers custom-built replacement baskets for almost any make of sugar centrifugal. The shell and top plate are



Picture 6. Machines after refurbishment prior to being shipped to China.



Picture 7a.



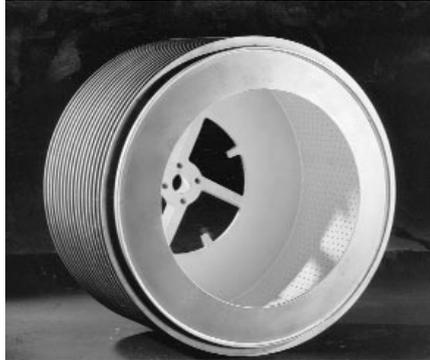
Picture 7b.



Picture 7c. Pictures 7a, b and c show a competitor's sugar discharge and head assembly being refurbished by BCSL.



Picture 8. Broadbent manufactures spares to fit parts for many competitors' centrifuges.



Picture 9. New basket manufactured by Broadbent to fit a competitor's centrifugal.



Picture 10a. BCSL's workshops can accommodate equipment weighing up to 30 tonnes.



Picture 10b. The premises are comprehensively equipped.

manufactured from 316L stainless steel as standard. The reinforcing rings are manufactured from a forged billet which is pierced and tyre rolled to form a continuous solid ring. The rings are individually machined prior to being "shrunk" fit on to the basket shell. To ensure correct spacing, special spacer keys are attached to the basket shell. Basket work is entirely "in shop" and under one roof, using CAD design and the latest in stress analysis techniques, with fully guaranteed baskets readily available.

Maintenance and service

After sales care is also important. Equipment breakdown is one possible problem, threatened loss of valuable product due to equipment downtime is another. After-care service needs to address both problems; preventative servicing and maintenance are simple ways to avoid such trouble.

Crisis maintenance is of course invaluable, but it can often be avoided. BCSL offers a world wide pro-active service contract, whereby an agreed number of inspection/maintenance visits over the lifetime of the agreement are carried out. Predictive maintenance provides both condition monitoring and engineering assessment of wear, with estimates (within parameters) of the likely remaining working life.

Such after sales service includes:

- Spares and repairs - rapid response from monitored stockholding valued at several million
- Repairs to own and other makes
- Service agreements and contracts
- On-off-site maintenance
- Installation, commissioning and operator training
- Refurbishment, reconditioning and upgrading
- Second-user equipment
- Full manufacturing workshop facilities
- Condition monitoring
- Dynamic balancing
- Plant and equipment relocation

BCSL's refurbishment service has become big business for Broadbent, particularly within those sectors of the sugar industry increasingly dependent on ageing centrifuges and on limited funds.