Emhart Glass: partnerships help manufacturers solve parts stocking issues

The possibility of being able to stock and supply a full range of replacement parts is one of the major problems facing machinery manufacturers. In this article, Emhart Glass shows how it has solved this problem, a solution that brings with it the benefit of fast delivery of these same parts, involving three parallel activities.

In a glass plant, stocks of replacement parts are a blessing and, at the same time, a curse. Their purpose is to minimize downtime, but to do this effectively requires a substantial investment in time and materials, which is often underestimated. Fortunately, there is an alternative.

Manufacturers can increase the availability of spare parts without investing in additional inventory through the development of a partnership with a parts supplier who knows the IS machine intimately, is able to provide a full range of replacement parts, and has the capability to deliver the goods quickly.
LESS WEAR

The reliability of container-glass production machines is being constantly improved, and sources of wear are being reduced. At Emhart Glass, this is being achieved by three parallel activities.

Firstly, mechanism design continues to be enhanced to take advantage of modern control techniques. For example, the servo-controlled Mould Open and Close mechanism in the NIS machine follows motion profiles which permit the movements to be completed quickly, while, at the same time, avoiding mould crashing, a source of much wear and damage.

Secondly, the life of parts such as piston rods, which are subjected to heavy abrasive forces, can be prolonged through the application of high-tech surface treatment. Emhart Glass achieves this through the use of a sophisticated ionitrating process, which requires highly specialized, expensive equipment, but which results in a surface hardness more than three times greater than untreated material.

Thirdly, the machines can be built better. Emhart Glass has always taken pride in the quality of its products, and, to ensure that this continues, the company employs Six Sigma analytical tools to identify and correct potential difficulties.

Nonetheless, any machine containing moving metal parts is subject to some wear, thus requiring replacement parts. IS machines are no exception. In addition to wear parts, there is a need for mould, section and delivery accessories to cover the vast range of containers that can be produced on a modern machine. In an ideal world, all of the parts needed to cover every eventuality, would be instantly available in plant. Industry studies carried out by Emhart Glass estimate the lost profit due to one hour of downtime to be of the order of EUR 1,000 to 2,000. With potential losses of this magnitude, there is understandable motivation to fill the plant store with parts. But which parts?

COMPLEXITY

A typical 10-section IS machine today consists of about 35,000 individual items, covering approximately 2,000-3,000 different parts. Which of these will need to be replaced, and when?

Knowing which parts to keep in the plant store, and in which quantities, demands a rigorous scientific approach, large quantities of historical data, and a fair amount of luck. Demand for parts for IS machines is notoriously volatile and unpredictable, usually resulting in the well-known phenomenon of a store full of expensive, corrod ing, non-moving, outdated parts, and at the same time, a demand for parts that are not in the store at all. Unexpectedly, parts can behave like perishables, sometimes with a surprisingly short life cycle.

Exercise

The main parts store of Emhart Glass illustrates the problem clearly. Drawings are available for some 200,000 items, of which about 65,000 can be considered active. However, 25,000 of these have not shown any usage during the last three years, and of these, some 10,000 have not been active within the last five years. Unfortunately for the planner, this does not necessarily mean that these items have “died”, never to be required again. Long-forgotten items have a habit of reappearing after years. These “exotic” non-moving items are not held in stock at Emhart Glass or anywhere else, as

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<td><strong>ADVANTAGES</strong></td>
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<tr>
<td>✔ You know what you have</td>
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<td>✔ High cost</td>
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<tr>
<td>✔ Too few or too many of each item</td>
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<td><strong>ALTERNATIVE 2: ESTABLISH PARTNERSHIP WITH COMPETENT SUPPLIER</strong></td>
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<tr>
<td><strong>ADVANTAGES</strong></td>
</tr>
<tr>
<td>✔ Low inventory cost</td>
</tr>
<tr>
<td>✔ Cost transparency</td>
</tr>
<tr>
<td>✔ High availability</td>
</tr>
<tr>
<td>✔ Parts always updated</td>
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<tr>
<td>✔ Right parts at right time</td>
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this enormous cost would far out-weigh the benefits to the users, driving prices to unrealistic levels. However, Emhart Glass aims to meet demand for “standard, moving” parts from stock, and has defined more than 3,000 items that meet these criteria, and cover about 70 per cent of total customer parts demand. These items are reviewed regularly, and checked against customer requirements, to ensure that the stock is always aligned with market requirements. In addition, every year, about 5,000 new parts or revisions are created to cater for new or improved design, and some of these are designated as stock parts even before a demand pattern has been established. Emhart Glass stocks more than 15,000 items for IS machines.

**MISSION IMPOSSIBLE?**

So what can the Plant Maintenance Manager do? Should he attempt to build up a substantial stock of every item that he might need? The cost of doing so is often hidden and sadly underestimated. Taking account of all stock-maintenance costs, (financing, inventory management, obsolescence, material handling, infrastructure, labour, inventory losses, etc.), the total cost of keeping an item in the store has been reliably estimated at about 25-30 per cent of the purchase price per year. In other words, the cost of storing an item for three to four years is the same as the purchase cost. This is a burden that few companies are prepared to shoulder - at least when they are aware of the true cost. Is there a way out of this impasse?

One solution - perhaps the only practical one - is to form a partnership with a supplier that knows the IS machine intimately, is able to provide the full range of replacement parts, can be relied upon to meet high quality standards, and has the capability to deliver the goods quickly.

**PARTS PARTNERS SHARE THE WORLD'S BIGGEST STOCK**

Over the recent years, Emhart Glass has developed its logistics services to the point where, today, orders for standard parts can be processed within a few hours. The refinement of bar-coding systems, computerized stocking and cooperation with international courier companies enable shipping within Europe to take less than 24 hours, with 48 to 72 hours for other parts of the world. Customers can call a round-the-clock telephone number, which will result in express shipment of the required items in emergency situations. This means that a glass plant can regard the largest stock of replacement parts in the world as an extension of its own, at the end of a very short supply pipe.

There is no need to maintain expensive, depreciating stocks of (potentially) the wrong parts in the plant, when the right parts can be supplied at short notice. Of course, it makes sense to maintain in the plant a small stock of emergency parts - those critical items whose failure can stop an entire machine.

Modern technology plays an increasingly important role in the area of logistics too. In 2004, a number of Emhart Glass customers started trials of a pilot Internet application that allows them to track their parts orders from the time of placement until delivery, from any computer in the world. This year will see the roll-out of Internet ordering of parts.

**THE ALTERNATIVES**

When it comes to parts stocking, the options are clear: do-it-yourself, or leave it to the specialists.

Each glass producer has its own circumstances and preferences. However, there are powerful arguments for considering whether the traditional methods of procuring and storing replacement parts are still valid today.

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