

# Steel storage tower reduces footprint by 66%

THE largest manufacturer of mechanical seals in the UK, Aesseal, has installed an automated, double tower system at its Rotherham factory to store stainless steel and superalloy bar, tube and billet in a compact footprint.

The Kasto Unitowers, housing 5t and 3t capacity cassettes, are positioned side by side and occupy just 30m<sup>2</sup>. This represents a three-fold saving compared with the 90m<sup>2</sup> of floor area previously needed to accommodate approximately 60t of material in conventional racking.

The capacity of the entire storage system is 126t, so there is ample opportunity to hold more stock as growth dictates. At the touch of a button on one of the control screens, retrieval of raw material from any of the cassettes is achieved in less than a minute. Presenting the material at an ergonomic height in front of the towers, in addition to speeding delivery to machine tools for maximum productivity, reduces risk of injury to operators.

Housed in a new 30 000ft<sup>2</sup> (2787m<sup>2</sup>) extension at Aesseal's site, the stores feed two Mori Seiki NT 4300 DCG 9-axis mill-turn centres in the manufacturer's recently formed Hydrocarbon Processing Cell (HPC).

On average, floor-to-floor times on the NT 4300 DCGs are less than two hours, giving an indication of the highly integrated process infrastructure and slickness of materials handling within the factory.

Also served by the store are machine tools dedicated to the manufacturer's Standard-Plus Division (SPD), which like the HPC produces specially designed, highly complex seals, which would be impracticable to make for stock.

Such seals are often needed to replace a faulty one in, for example, a critical chemical, pharmaceutical or paper plant process. So fast, reliable production of one-offs and quick turn-around are essential to support the customer, which could be located anywhere in the world.

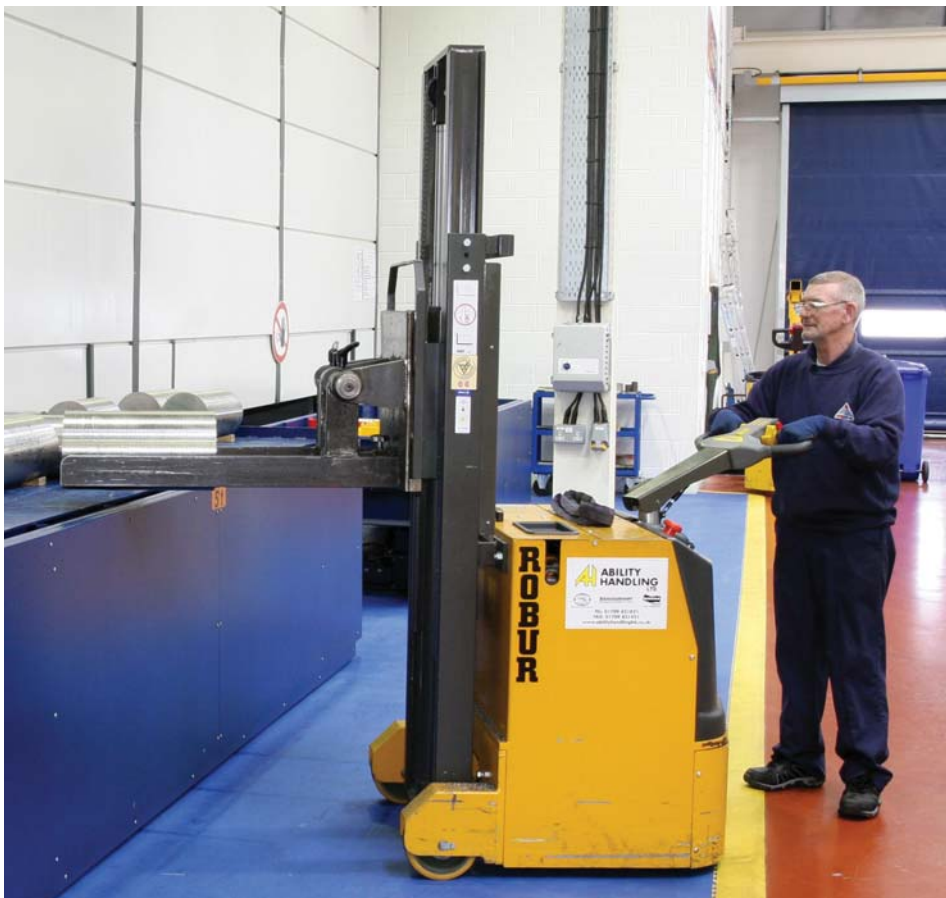
Since the mid 2000s, Aesseal has successfully used a similar Kasto Unitower to house mainly 316 stainless steel tube and bar in an area where higher volume, standard seals are manufactured in larger batches. Kasto was unique in being receptive to tailoring a system to suit Aesseal's application.

There is no algorithm that exists to calculate how a mix of material like this can best be stocked in the available space, so the job was completed manually and took several days. The number of different types of stock items that would fit into each cassette had to be worked out, without going over the 5t and 3t weight capacity limits.

The task was made more complex by having to determine the height of each cassette so that best use could be made of each storage volume, which was constrained by the stores' overall height limitation of 6.13m.

The optimum solution was found to be eight cassettes, each 285mm high, and seven cassettes, 200mm high in the 5t store, while the 3t store accommodates seventeen 200mm high cassettes. All are 840mm deep by 4200mm long.

A particularly thorny problem was how to access heavy, short billets that are difficult to sling. The solution that Kasto devised was to make the base of several cassettes loose in the 5t store and build a hydraulic lifting mechanism into the output station.



The base of a special 5-tonne-capacity cassette is raised hydraulically to enable billets to be offloaded by hand pallet truck.

When a cassette emerges from the store, the lift pushes the base upwards until it reaches the top. It is then a simple matter to remove the billets

using a pallet truck equipped with a special handling attachment. It is believed that this arrangement is a world first; it certainly is for Kasto. ■

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