ITW GSE's product reliability and performance are the key drivers in manufacture

LEADER OF THE PACK

The Editor travelled to Denmark, to find that there's a buzz in the air…

The GSE industry has a long memory. This is why, for example, it will take many years for names like AXA Power, Houchin, Trilectron, Hobart, Air-a-Plane, J&B Aviation and Military to finally fade away. Illinois Tool Works hit the GSE acquisition trail back in 1998, starting with Hobart Ground Power, followed by AXA Power in 2000 and the additional brands in the years immediately after. In 2012, the affinity with ITW GSE led to the placement of the logo in front of each brand, which this year has culminated in just one brand: ITW GSE. As Poul Elvstroem, VP International Sales & Marketing, freely admits, there was overlap and unnecessary duplication within the brands: life is a lot simpler now, with just one name to market and one global voice.

Odense, formerly the beating heart of the AXA Power brand, is slightly off the beaten track: any prospective visitor to this ITW GSE factory first needs to fly to Copenhagen and then take a train, which makes for a leisurely journey. But despite its location, the company in Denmark has had no trouble attracting business; and indeed, much is happening at the European headquarters.

"The US name transition has been satisfactory," declares Elvstroem, "despite some initial doubts. Hobart was a potential hiccough in the changeover process, but all turned out well. Since the name change we've held lots of open house events and the market has been very receptive. After all, in some respects nothing has changed: it's the same people manufacturing the same products."

Manufacturing notes

Actual construction of the ITW GSE range (which primarily embraces ground power and air conditioning units, as well as cables and hoses), is shared between the plant in Odense and another in Palmetto, Florida. Products, indeed components, are the same in both; and having a foot in each continent means that supply and distribution are greatly simplified. ITW GSE is one division of the parent company ITW Tool Works, a long-established entity with a sound track record, and which has another 80 divisions; and it's interesting to note that the GSE branch is allowed autonomy, to run its operation as it best sees fit. But in a marketplace that has no small number of ground power suppliers, Elvstroem is at pains to differentiate his portfolio.

"To us, it's more than simply the cost price per unit. What about the product liability, quality performance and company ethics? For us, it isn't about having an extensive customer list: what we look for is to guarantee the most reliable, cost efficient and environmentally friendly GSE to the largest airports, airlines and operators of the world. It's the old 80/20 principle: 80% of the business comes from 20% of the customer list."

Elvstroem takes no personal credit for this percentage equation: this was hit upon a century ago by an Italian, one Vilfredo Pareto, who proposed this formula in connection with the spread of wealth

and the percentage of those who actually owned the bulk of it.

Looking at the corporate website for Illinois Tool Works, the 80/20 concept is a tool the conglomerate practises in all business segments and divisions. For ITW it is a question of staying focused, and the end result, somewhat fewer customers but those with large order requirements, has contributed a year-on-year positive impact on the company's share value.

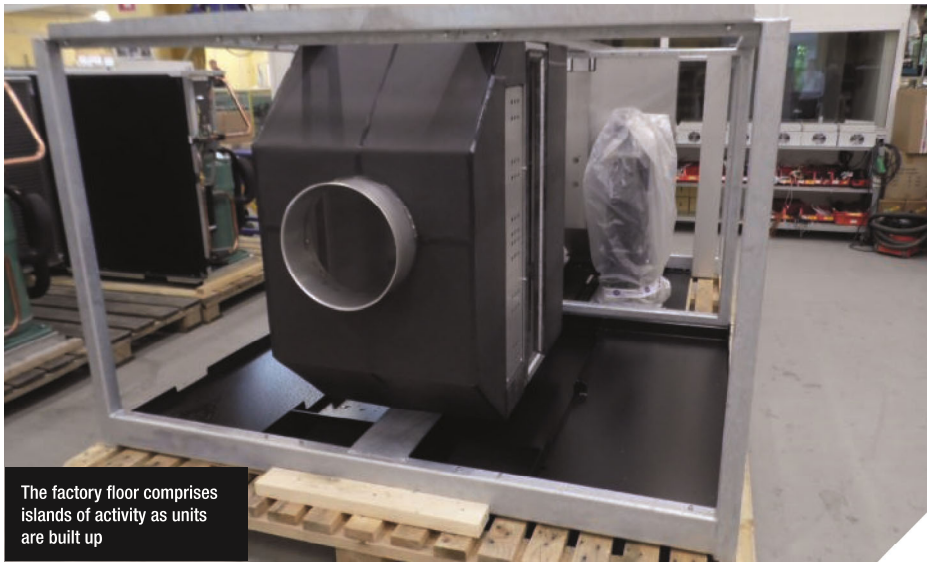
Thus the GSE division, with strategic offices (in addition to the manufacturing units in Denmark and US) in the UK, France, Dubai and Singapore, can boast a truly global presence.

Fixed or mobile?

Currently, there's a discernible market trend, according to Elvstroem, one that equates to a growing interest in fixed power installations.

The benefits of this will not be lost on most readers, one suspects: less GSE on the ramp brings with it the promise of a safer working environment. But mobile examples are still manufactured, and with the company looking for 2% growth above average market growth, it's an exciting time.

"Aircraft production is doubling every 15 years or so," he observes, "so we need to be in tune with this. That means spotting the airports that will be exhibiting the greatest growth. Those are our potential customers – it's all about forward planning."



The factory floor comprises islands of activity as units are built up

A focus on the customer

ITW GSE's mantra can be easily summed up: it's one of manufacturing the cleanest, most reliable and most cost-efficient GSE. Easy to say, of course, but slightly harder to achieve.

"Reliability means that we don't have to worry about spare parts packages," explains Elvstrom. "Simplicity is key here. Commonality of parts helps the situation; even the user interface is replicated. And if you want proof of this concept, I can say that more products are going out the door

than ever before, and with fewer problems reported from the buyers."

ITW GSE considers itself a leading supplier of fixed installed solid state 400Hz and PCA products. Offering three forms of propulsion, namely diesel, petrol and electric (more of which anon), ITW GSE seeks to have a solution for every handling operation. But the company has its sights firmly on the future, and the shifting sands that typify the sector. Elvstroem is convinced that sales of diesel powered GSE (including his ground power units) are in long term decline; grappling with Tier V has affected some but the truth is, many handlers are still working with their older fleet of Tier III levels. All that is changing, as the latest emissions technology begins to bite – and not every end-user wants to tread the latest Tier path. His company has put nine petrol-driven units into the US already, and one has gone to Saudi Arabia, by way of example.

"Diesel has maybe five years or so to go," he ventures, "but no-one knows for sure. The future is looking increasingly like it will be battery-driven – which is why we have developed our mobile electric GPU." It isn't just about electric, though, for Elvstroem's thoughts are also tending towards a hybrid version, surely something that would be of interest to the handling community.

Working with OEMs regularly means that packaging can be tailor-made for ITW GSE

Inside the factory

Like its sibling in Palmetto, the Odense site is given over to assembly. Around 45 staff work on the assembly line on a five day week; such is the streamlined approach that, should greater output be required, an extra pair of hands would result in a staggering 15% increase in output. Units often involve three people: two to assemble and one to test. Outsourcing of parts is performed on a global scale although some suppliers are located close to home for items that require short lead time. Staff are responsible for sourcing the components that they use; in consequence it's a tight-knit community which sees orders turned around in four weeks in general. Anything between 1,200 and 1,400 standard solid state converters are produced every year, while full traceability is a tenet of the

FACE OF THE FUTURE?

The company's electric 7400 GPU was first unveiled at InterAirport last year and, needless to say, it aroused a great deal of interest.

The cost of the lithium battery has been steadily falling over recent years, to the point where its adoption now makes a lot of sense. But in line with the company's philosophy, things are kept simple and proven components win the day. ITW GSE makes use of Nissan Leaf car batteries, stacking them in the GSE according to how many are required: this may be from two to six four in all. The beauty is that these batteries are not modified in any way and that the housing is made to fit. Because they are not altered at all, the GSE manufacturer can vouch for their performance; and the fact that Nissan subjects its battery packs to all manner of harsh testing, merely serves to underline their integrity. Indeed, Nissan was chosen as the battery supplier for its extensive knowledge and research in this area; beyond that, says Elvstroem, the company was able to give the longest and best guarantee. ITW GSE quotes anything up to six years in terms of its battery warranty and these take between two to four hours to charge from a fully exhausted state.

"The advantages are many: because there is no No_x or Co_2, the units can be used in hangars or in addition to the normal remote parking application. They are plug and play units: each unit has an input cable but the GSE arrives fully tested and can be taken into immediate operation. When used with narrow-body aircraft, you should be able to get between six and 15 turns on a single charge, subject to the aircraft type and configuration."

But there are other, less obvious benefits to the electric GPU. Whereas a traditional operation might involve 20 diesel-powered units, the reality would be that perhaps 25 or 26 would be required to cover those units out for maintenance or other reasons. With an electric GPU, there are far fewer moving parts, so maintenance is virtually nil. If 20 units are operating, the handler might require just one extra example as a back-up. And should one battery pack prove faulty in operation, then the rest can still be relied upon to continue working, thanks to the modular set-up.

For Elvstroem, initial customers for this radical new GSE will be airports and not necessarily only ground handling companies. "This technology isn't as cheap as the diesel option," he reveals. "But the upfront cost begins to make sense about five years down the line – that's when the savings start kicking in. We've done calculations and can show clients where that crossover line is. We feel that airports that have signed up to the Airport Carbon Accreditation scheme are ideal for this."

A survey conducted by ITW GSE found that in terms of e-readiness (to coin a phrase), 50% of manufacturers were US based. Some 40% were European, with the rest situated in Asia.

In terms of 7400 sales, around ten were in the marketplace at the time of writing. Schiphol worked closely with ITW GSE on this model and together the parties decided to go for onboard chargers, hence, all that it (or the eGPU) requires of an airport is three phase power.

The fact that every unit is available with input amperages ranging from 16 to 125 makes it very versatile indeed.

Could things get any simpler?

operation, with everything put under the microscope: in the event of any problem, a component's source can be identified. (Incidentally, the Odense facility reached a milestone in 2017, exceeding more than 2,000 400Hz or PCA units).

To give a simple example of how ITW GSE puts the customer first, on site is a facility for assessing the efficiency of air conditioning units in hot climates. A specially constructed narrow building abuts the control room: this latter serves as a dummy aircraft and from the control room, different levels of cooling operation can be replicated. Elvstroem says that it's a popular testing facility for many of his Middle East clients, who have come away with valuable information in terms of operating their air conditioning equipment.

In conclusion

Given the Danish take on life, one that many feel is a healthy and organised existence, it's not really a surprise to see such a philosophy inherent at the factory. Each day workers are encouraged to partake of half an hour's activity before lunch; where else would you find that kind of regime in a company? Today it is an important part of the company DNA, and few years back ITW GSE was awarded the title as the healthiest workplace in Denmark.

And yes, visitors are encouraged to join in… *ghi*

Full traceability of all of a unit's components is a useful feature of the operation