

# ULDs – a compact cargo solution

It may seem a statement of the obvious but unit load devices, or ULDs, have become a key element in the efficient and operational flexibility of air transport. A ULD is a container or pallet designed to carry luggage, freight or mail on widebody aircraft and certain narrowbody aircraft. ULDs comprise two basic types – pallets and containers. ULD containers are closed structures which come in different forms and can feature built-in refrigeration units. There are even specific types or pens, for the carriage of animals.

*Don Parry writes*



Jettanair claims that it can offer ULD management at lower cost than airlines

In operational terms, different airlines have different specifications. Some containers have metal doors while others are fabric. Metal door containers provide additional protection against weather and other damage to cargo. Flexible door containers are generally lighter, which is always a major consideration in aviation. Despite the occasional rough handling, there is, in general, no limit to the working life of a ULD. Airlines can continue their use as long as it can be maintained in an airworthy condition. Containers that are damaged must be repaired in an approved ULD repair shop.

In practice, this results in a wide variety of devices, each designated by their ULD number and a three-letter prefix identifies its type. A factor in the large number of types is the need for compatibility with a wide range of aircraft. This also means that there is a wide

range of manufacturers and the market is constantly evolving in terms of capabilities, materials and applications. VRR in the Netherlands designs, manufactures and maintains lightweight air cargo equipment. As explained by VRR's Thijs van Riemsdijk, the current container series uses custom made panels of reinforced plastic. These panels replace the traditional aluminium panels and offer reduced weight with higher impact resistance. In the case of damage there are no sharp burrs that could cause injury to handling crew or damage to cargo. van Riemsdijk is keen to emphasise that there is no other ULD manufacturer with a comparable history of working with alternative materials as VRR. "Whereas ULD manufacturers were typically outlets of aluminium producing companies, we have been independent of material supply since the start of our ULD manufacturing three decades ago," he stresses. Earlier this year, a project began to turn

VRR into a lean manufacturing organisation. The promise being short lead times, a high delivery reliability and quality achieved by the minimisation of waste. Driessen is also based in the Netherlands, producing a range of ULDs in both aluminium and composites. The company is keen to promote its "green" credentials and Managing Director Marc Witteveen explains that the increasing use of composites mean less weight, consequently less fuel burned by the carrier aircraft. In addition, the manufacturing process for composites requires only a fraction of the energy needed for the production of aluminium. Typically the company has introduced the Herculight Series durable and light cargo container line. The new AKE container weighs just 68kg and is made of composite materials to ensure a long lasting product. Maintenance expenses can be reduced by 30-50% compared with aluminium containers. As the new



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Driessen Hercullight Series

containers are easy to maintain within less time, fewer containers will be out of service, which improves the operator's efficiency. As for the future, Witteveen considers that full composite use will be the standard, offering less weight and lower maintenance costs. PalNet GmbH manufactures a hybrid container consisting of an aluminium superstructure with polycarbonate panels. Currently much discussion has been centred on the development and use of collapsible containers but Managing Director Klaus Demtroder told *Airside International*, that Palnet is not pursuing this general trend, though they are working on collapsible horseboxes. The PalNet Triple Horse Box consists of a standard PMC pallet 96" x 125" connected to the sidewalls of the container. The horsebox is designed for transport in a B747. The upper walls are foldable for transportation in a MD-11. The front and the back wall act as ramps for boarding and exiting horses. Integrated in the superstructure are foldable doors adjacent to the horses' heads for easier access. Sidewalls and partitions are fitted with soft foam panels for the protection of the horses. DoKaSch GmbH also manufactures collapsible horse stalls and these are available in various configurations. The advantage of the collapsible system is the space and cost saving on the return of empty stalls. Among the company's latest development of lightweight containers is the lw-65, using Dyneema composite panels. This series offers the lowest weight, increased strength stiff panels and in this case, a claimed more than 50% reduction in maintenance costs. Said to be unique in the world of ULD manufacturing, DoKaSch has built its own test centre for temperature sensitive containers consisting of two test chambers. This enables DoKaSch to conduct independent and rapid testing, and calibration of the cooling units. This test centre is capable of running tests under simulated, extreme ambient conditions. In addition, it has the capability to perform



VRR RGX Container

dynamic tests, ie tests with rapid changing ambient temperatures, as happens in normal transportation operations. For more than 30 years Nordisk has enjoyed a reputation for strong, lightweight and reliable containers. In close cooperation with customers, the company has developed solutions for almost every ULD need. The latest is the super light Nordisk Ultralite AKE (LD3) container, which offers a weight reduction of around 2% of, per container compared with traditional aluminium containers. The Sweden-based manufacturer Envirotainer is a significant provider of active, temperature-controlled air transportation solutions. Envirotainer emphasises that its technologies are the enablers of unbroken cool chains in air logistics. These containers feature active temperature control systems. This means they keep the product temperature stable, despite fluctuations in the ambient temperature. Healthcare companies need transport solutions with reliable temperature control throughout the distribution chain. For these shipments, Envirotainer offers two solutions for reliable product cold chains – t2 active temperature control system based on dry ice refrigeration and e1 active temperature control system, based on compressor cooling and electrical heating. Specialising in environmental control and security, the company can provide solutions for temperature and humidity control, shock damping and vibration isolation for all types of industrial products. The Envirotainer RGX has been designed to meet the rigorous demands of the semiconductor industry. Compliant with ISO and Air Standards, the Envirotainer RGX is an ISO 20ft, intermodal container with full airworthiness certification providing autonomous atmospheric condition control by road, rail and air transport. Compatible with most international power standards or completely self-sustaining on its internal diesel generation system, the RGX can be deployed across worldwide supply chains.



Upgraded RKN T2 Container

Recently, Emirates SkyCargo has been awarded Quality Envirotainer Provider (QEP) status, following audits carried out by Envirotainer. This means Emirates SkyCargo has been formally recognised as being a competent, industry best practices carrier for pharmaceutical products. Around 24% of the 1.6 million tonnes of cargo the airline car-

ried in 2009 was temperature sensitive, including pharma, life science, fruit and vegetables, fish and meat and flowers. Development and innovation continues and much comment is made of RFID techniques. These techniques are not within the ULD manufacturers' remit, RFID being subject to the airlines' network. However PalNet claims to be the

only manufacturer represented in a current research project sponsored by the German Ministry of Economical affairs, where Lufthansa is leading the consortium. Another "popular" idea has been some form of blast avoidance or suppression techniques, following terrorist related incidents. Manufacturers are scornful of these suggestions that seem to emanate from official, government sources as social palliatives, rather than practical solutions. Instead, it is emphasised that efforts should be made to make sure that any devices do not get on the aircraft. In recent times, much progress has been made with detection devices and operational processes. With so much manufacturing activity it is not surprising that there are very many ULDs in daily use on a global basis. The problem is how these are managed, checked and traced, as they are flown from place to place. This is where companies like Jettainer come into play and offer the capability of total management for ULDs. Typically, Jettanair claims that it can offer ULD management at lower cost than airlines. How is this achieved? In reply the company stresses that they make it their core competence. While for airlines, there are other fields in which to achieve major

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cost improvements (more asset-focused than ULDs), Jettainer's know-how is exclusively about ULD management. Secondly, it uses its IT solutions "Jettware" and "Management Cockpit" to optimise ULD usage and availability and ensure total transparency. Last but not least, Jettainer buys the airlines' ULD stock, thus turning fixed cost into variable cost, which leads to cost improvements. Furthermore, if the company bundles ULD management for a group of airlines, it can

stock of one airline, at a certain destination, can fill in for under stock of another carrier. Smart-pooling means, the ability to keep the ULD fleet of each airline marked specifically with its logo and not build one big pool. Only in the event of shortages will a ULD of one sub-pool be shifted into another one. This results in less damage to the ULDs, as they are still "branded" with individual airline logos, thus people feel "ownership" and act accordingly, although they

analysis of the new customers' ULD, aircraft fleet and network situation and benchmark with one or more of Jettainer's existing customers, to determine the size of the ULD fleet for the future and a personal ULD controller is installed within the customer's organisation. All stations and the ULD fleet will then be inserted into the Jettware System, to start steering the ULDs. In most cases, the customer is charged for ULDs in use, so a reduction of the ULD fleet directly affects cost. Recent contracts add a component considering ULD movements. The exact contract details vary from one customer to customer, as contracts are tailor made for each account. Jettainer currently claims that it has 80,000 ULDs in 500 locations, which would suggest a major problem in tracking them for optimum operational use. Once again, the answer is Jettware, the company's very own IT Solution, used by ULD controllers around the globe. Customers can gain an overview of their ULD situation around the globe using "Management Cockpit". This

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achieve economies of scale with regard to sales, repair, maintenance, transport, etc. Buying many units for a huge group of customers leads to better pricing. By "smart-pooling" the ULD fleet, over-

do not actually own the ULDs anymore. Less damage leads to less cost. Having gained a customer, how is the new account set up and handled? The initial action is to conduct a detailed

web-based application is intuitive in use and provides an overview and statistics about ULD situations at various stations. Unitpool is an independent provider of ULD supply and management services for airlines. Chief Executive Officer David Harman is quietly confident about the current market. His company's pool has grown from 23,000 ULDs to 32,000. This growth was driven by the arrival of European all-cargo leader, Cargolux, which joined Unitpool in January this year, as well as the growth of existing customers. Etihad, AirBridgeCargo, Brussels Airlines, Air Asia X, Cargotitalia, Polet Cargo have all added aircraft to their fleets and continue to develop their networks and products. This growth has necessitated the implementation of a fully dedicated freighter team in the company's Global Operations Centre to deal with the complexities of the growing all-cargo customer base. Harman comments: "We also continue to add field agents to increase our presence at key airports around the world. Since January we have added supervisors in Luxembourg and Kuala Lumpur, and we are currently working to add New York JFK, and Nairobi." In recent weeks traffic results and economic forecasts indicate that cargo seems to be making a recovery. *Airside*

*International* suggested that the recession has made airlines more amenable to outsourcing ULD management and services? "If on-going discussions are any indication, we would have to say yes," replies Harman. "Despite the over-supply of ULDs that was generated by the grounding of many aircraft, discussions continue to go forward with various carriers and new requests continue to come our way as the recovery is pushing demand for ULDs over the existing supply levels for many. Airlines seem to be re-thinking buying new equipment again versus fully outsourcing ULD supply and management. "The interest in the concept is definitely on the rise as airlines continue to evaluate the importance of focusing on core activities vs investments in assets that are always going to be a challenge to control without adequate resources and infrastructure." Last year the Company was evaluating second-generation lightweight ULDs, in what was said to be three-year process. What are the initial results and has it led to any new thinking? "The thinking remains the same," responds Harman. "Unitpool aims to convert its AKE fleet to lightweight. This is something that our customers want and that the industry is following through with. Many of the

airlines that we are in discussions with already have lightweight containers in their fleets."

It is not difficult to accept that the management and control of ULDs on a global basis is complex demanding and requiring considerable technical expertise. To make the task easier and universally manageable, IATA has also entered the fray, in conjunction with the Interline Unit Load Device User Group (IULDUG) and has introduced a standardised procedure for interline handling and control of ULDs. This is achieved through a multilateral ULD Control Agreement between participants in the programme, which is centralised and managed by the IATA ULD Control Centre. Perhaps the last word should be given to Alexander Plümacher, Managing Director, Jettainer, when asked to comment on the future of the industry. "The main trends in our industry are two-fold," he says. "Greener and lighter will certainly become one of the most important aspects in ULD management in the near future. Containers have a huge potential to lose weight, the ecological benefits of a better CO<sub>2</sub> footprint and the impact on emission certificates are immense. Not to mention cost saving potential. The other development is in the market." ■

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