

Box sizes find a new dimension

The efficiency of a new breed of containers is challenging transport's status quo in Europe and the US, writes **Brian Robinson**

LEGEND HAS IT that Malcolm McLean got the idea that led to containerisation when he was sitting in his trailer truck, waiting to be unloaded on a pier in Hoboken, New Jersey in 1937. The process took all day, and he began thinking about putting the cargo into boxes before it was loaded on to the ship.

The rig that McLean sat in, and the containers that emerged from his ideas bear little resemblance to the equipment in use today.

In general, everything in the world of transport and shipping has got bigger, but so far as containers are concerned the process has of necessity been gradual, and in some respects there has been no change at all.

Initially, container dimensions were based on the size of vehicles in use on US roads in the early 1950s.

Through a process of usage, standardisation and a few false moves, the industry has ended up with the standard marine container sizes of 20ft and 40ft long, 8ft – later increased to 8ft6 – high, and 8ft wide.

The International Standards Organisation (ISO) established dimensions and standards for containers that have made it possible for containerisation to become the worldwide

phenomenon that it has.

Through uniformity of dimensions it has been possible for ships and cranes, trains and trucks, terminals and handling equipment, and a multitude of other components of international trade to be manufactured and invested in with full knowledge that any and all equipment can be carried and handled anywhere in the world.

Containers have got higher and longer, but the width standard of 8ft has remained firm for international marine equipment. Thus ships have cell guides at standard 8ft width, and handling and transport equipment is uniformly built to handle containers 8ft wide.

But dimensions based largely on 1950s regulations in the US are sometimes a problem when 21st century issues are confronted.

Over the years, international marine transport has become increasingly intertwined with domestic traffic. The size of road vehicles has increased with the spread of multi-lane highways and as shippers, truckers and carriers want interchangeability of equipment in domestic and international use, a domestic fleet of containers has emerged that can work in conjunction with both

international marine containers and road trailers.

Given that much cargo weighs out before it cubes out, cubic capacity is king. But with the 8ft width being largely untouchable, only height and length could be increased.

Height increases were and are limited because carriage on roads and rail strictly limits any increase, although 9ft 6ins has become fairly common over the past 20 years – especially with refrigerated containers, where it is now pretty much the standard.

There is also a breed of 45ft deepsea containers now, but inflexibility limits the growth of this animal. Deck stowage is usually necessary, and many roads in many countries are not able to handle them.

However according to Jan Koolen, MD of Netherlands-based Unit 45, the 45ft domestic container is making serious inroads into the transport market throughout what he calls “Greater Europe”.

Unit 45 has been the leading proponent of the 45ft domestic box, and Koolen says that it produces about 6,500 containers per year, which are sold on to operators or absorbed into its own rental fleet.

Currently the Unit 45 fleet consists of 3,500 dry cargo units, 100 reefers, as well as some bulkers, garment carriers, open tops and car carriers – where ingeniously the racks slide into the roof when not being used, so that the commercially all-important

return leg can carry other types of cargo.

Koolen estimates that the total population of domestic 45ft containers in use throughout Europe is 190,000.

Greater Europe – as described by Koolen – stretches from North Africa to Scandinavia, and from Ireland to deep Eastern Europe, and he says that within this area the 45ft domestic container is “in competition with but easily beating” swap bodies and pallet-wide containers. The former are, he says, “too fragile for the rigours of international trade, and pallet-wides can carry fewer pallets”.

The Euro pallet measuring 800mm x 1200mm is commonplace in Europe, and for many users worldwide is superseding the standard US pallet that measures 48in x 40in (1,219mm x 1,016mm).

A 45ft domestic container can carry 33 Euro pallets – usually in 11 rows of three, although other configurations are possible – compared with 30 in a pallet-wide and 26 in an ISO 40ft, and an increase in carrying capacity of up to 25% makes for vastly better efficiency and profit margins.

The carrying capacity of 45ft is comparable to most road vehicles and, says Koolen, “they are particularly popular with intra-Europe operators who want to switch some or all of their traffic from road to rail, as well as, of course, shortsea operators”.

Most 45fts are made in China, and getting them back to Europe is the trick that Unit 45 has mastered, giving it the

edge over other providers.

Corner posts and the under structure are made of high tensile steel, giving a weight advantage of several hundred kilogrammes over smaller corten steel ISO containers. Floors are birch ply, making them both environmentally friendly and compatible with road trailers for spares and repairs.

Boxes are manufactured with 40ft corner casting positions so they can be handled with standard lifting equipment, and have eight castings on top and 12 on the floor, so that they can be stacked with either 2ft 6ins protruding at either end, or 5ft at one end.

The carriage of 45ft boxes on the roads of Europe has been a hot topic for years.

Some 10 years ago, EU directive 96/53/EU allowed 45ft to "circulate in national transport operations". However this so-called "transitional period" expired at the end of 2006, requiring an administrative fudge to be brought in to allow continued use.

As the EU admits, the concept "offers a good basis for promoting intermodality of rail, shortsea shipping and inland waterway transport", and if the highly desirable move from road transport to other modes is to be promoted the existing legal situation has got to be formalised and the concept encouraged.

In the US, allowable road lengths are greater, distances are longer and the integration of international and domestic traffic has, of necessity, gone further.

The maximum allowable road trailer length in the US is generally 53ft, and these trailers are 8ft6 wide, and 9ft6 high, giving a cubic capacity of 3,815 cu ft (108 cu metres). This compares with 67.2 cu metres for a standard 8ft6 ISO container – a 60% difference, and with domestic logistics in the US being what it is, a



Unit 45 containers are capable of carrying 33 Euro pallets, giving them a capacity of up to 25% more than ISO 40ft boxes

difference that cannot be ignored.

As a result, a breed of domestic container has evolved in the US to compete directly with road trailers. These boxes are almost identical in dimension to road trailers, and are used to supplement and often replace the inland movement of ISO marine containers.

A high proportion of the millions of containers that arrive at US West Coast ports from Asia contain cargo consigned for thousands of miles inland.

According to Mike Winchester, principal at Winchester Consulting, "much of the cargo is now being transloaded at warehouses 50 miles or so inland from west coast ports, into 53ft containers".

He says major shippers – the Targets and Wal-Marts of this world – often consolidate loads from several ISO boxes into one 53ft and sort the cargo according to destination requirements.

He adds: "The loads from

five ISO containers can be stuffed into three 53ft boxes, and not only is this more efficient it also removes all the hassle and cost of getting the marine box back to the coast."

A large portion of 53ft long distance moves are made by rail using double stack trains.

Initially, many rail cars could only take a shorter box in the well with a 53ft on top, but more cars are now coming on stream that can carry two 53ft boxes.

Railroad operators such as Burlington Northern-Santa Fe, CSX and Canadian Pacific are big owners and operators of domestic boxes, and a sizeable portion of the containers and chassis that carry them in road use are owned by major leasing companies.

Like their European cousins, most US domestic containers are made in China and getting them shipped one-way into the service arena at minimum cost is a trick of the trade.

The US variant also has pick points that allow for

handling with standard lift equipment and for stacking with 40ft/45ft/48ft and 53ft.

Tom Malloy, VP at the Intermodal Association of North America (IANA), a trade association representing the combined interest of all intermodal freight operators, says that currently there are 155,000 53ft containers in use, and quotes statistics to show the growth of this sector.

In 1996 there were 241,000 53ft domestic container moves, while by 2006 this had increased to 3,292,579 moves – a 1,300% increase and growing fast.

Malloy reiterates: "It is all a cube issue, and you just can't ignore the difference between a 53ft and a marine box."

The current 53fts have replaced 48ft domestics almost completely, and Malloy adds that this is probably as big as they will get.

"There are literally a handful of 57fts in use with one trucker, but under present legislation 53ft is it," he says. ■