



Container Planning

Optimisation algorithm for stowage

Since the advent of cargo containerisation some 30 years ago, the shipping industry has steadily continued to evolve. Today there is an increasing share of containers moving under the control of ship operators through several different land and sea transport modes. As the economic benefits of this intermodal network have been wrung out the system, they have largely been passed on to the purchasers of transportation.

Container optimisation

In order to achieve efficiency through economy of scale the size of containerships has increased dramatically. The first fully cellular vessels had a capacity of about 350 TEU. Today there are vessels with a capacity of over 20.000 TEU.

In addition to larger vessels, the economy of scale concept requires large numbers of containers. Since the transfer of containers to and from the vessel is a critical link in the transport chain, it becomes very important that it be carried out efficiently. Port efficiency and vessel utilisation are the main two determinants in efficient loading and unloading. Both are, although quite distinct, largely determined by a common factor; stacking of containers.

Replacing the top container in order to access the second is called a rehandle. Of course the number of rehandles is to be minimised, as well on the vessel and on the yard. In practice planners try to group containers according to port of destination of the containers. This approach seems effective, although figures prove otherwise. Up to 10 percent of all containers being handled appear to be rehandles.

In order to gain efficiency in stacking containers HMC developed a planning method, an algorithm. The main goal of the method is the minimisation of the number of rehandles. Originally the method was developed for stowage planning, but it appeared to be useful for yard planning as well. It tries to group containers to port of destination. But at second hand, and this feature is unique, it contains a check that counts the number of future rehandles. This future check is generated by a genius mathematical method. Therefore no containers are placed which immediately lead to rehandles in the future.

The method is tested with simulation models and appears to be very good. In addition the flexibility of the method leads to a wide range of applications. This includes different kinds of vessels as well as yard planning.

For more information, please contact HMC via info@hmc.nl.

HMC BV
Operetteweg 4
1323 VA Almere, The Netherlands
Tel.: +31 (0) 36 5464775
E-mail info@hmc.nl, website www.hmc.nl

