



World Port Development talks to Dominique Polte, Board Member at ShibataFenderTeam...

In your opinion, how will the market for fenders develop over the next couple of years?

Due to the fact that two experienced suppliers pulled out of the market in 2018, competition is concentrated on a small number of fender companies, with the SFT Group leading the field. There are only two true global players left who can compete for large-scale projects, thus competition for these mega projects is fierce and stronger than ever before.

Large scale projects equates to a fender investment worth millions: high-quality products are key to avoid repairs, accidents and downtime; this is always important, but related to fender systems for large scale projects it means that if low quality fenders and/or fender systems were ordered with a poor fender design, changing suppliers or getting the fenders re-delivered takes more time than for small scale projects. Downtime and delay of port opening costs millions so should be avoided whenever possible.

Clients and operators of these mega projects should have a strong focus on the experience of the manufacturer they want to work with; they should look for a manufacturer who is their partner during all project phases and who constantly supports them. Having trust in the quality of the products as well as the manufacturer's services is an important factor. The financial strength of the manufacturer is also an important factor for contractors: if a manufacturer is financially unstable, contractors face major risks to source their materials; this risk can be avoided when choosing a manufacturer who has demonstrated long term financial stability.



Photo copyright of McInnis Cement

What are the new market and environmental trends?

With regards to market trends, the requirements on the qualification of steel manufacturers are getting stricter (driven by Europe/US) with a consistent price pressure at the same time. The SFT Group ensures that our raw material and component suppliers are qualified according to the latest standards and even support the upgrade process of our supplier's qualifications.

External influences make the market situation complicated. For example, some countries, such as Venezuela, are unstable markets due to their current political situation. Countries which depend on oil suffer from the decreasing oil price and their economic situation will get worse - investments are stopped or reduced and usually infrastructure projects fall by the wayside first. With less worldwide trade due to trade wars and other reasons, there is less need to increase the capacity at ports etc. Of course it could be the other way around: economic downturn leads to investments in infrastructure projects to refloat the economy; however we have noticed the negative implications of a difficult economic situation.

With regards to environmental concerns there is discussion at PIANC Working Group 211 ('Guidelines for the design of fender systems') on how to dispose of fenders after their life cycle. The group is looking at how fenders can be recycled and how it can be used for e.g. road construction. This topic is very interesting and will open up new opportunities for manufacturers. One major issue the group agreed on is that recycled rubber shall not be used for high performance rubber fenders.

What new initiatives has ShibataFenderTeam taken to enforce the relationship between customer and manufacturer further?

By organising workshops and seminars we further widen the customer's knowledge on fender design. This initiative is already an established one within the SFT Group. Being in direct contact with our customers is a valuable opportunity to listen to their needs and at the same time to share our experiences with them. We do not only focus on the rubber fender itself, but on the bigger picture, which includes all fender components and their dependence and interaction between each other. Putting an extensive focus just on the

rubber unit and more or less ignore the requirements of the steel panel and overall design is a dangerous one-sided approach to fender design, which unfortunately seems to become common practice in the industry.



This year alone, we organised a fender design workshop at Inros Lackner, Germany, with their maritime engineering department to specify project related questions on fender design, organised a fender system design seminar with PIANC Argentina and had some in-house seminars at consultancies in Indonesia. Whilst in Indonesia we gave lectures at universities about fender spacing and examples of failures in the industry. In the US we organised various design training sessions with major engineering companies and participated at NordPIANC in Hirtshals, Denmark, by presenting a paper on port development in Nordic countries.

Can you give details about some recent orders?

Our new office in the Netherlands secured an order for Tilbury2, a new multi-million pound infrastructure project, implemented by the Port of Tilbury. Tilbury has been doubling the size of its business in the past 10 years and is projected to double the volume of cargo across the quay (from 16 million to 32 million tonnes) over the next 10-15 years. Graham Construction was awarded the contract for the marine package including the fenders as part of the upgrade of the existing Roll-On/Roll-Off (RoRo) and CMAT jetty.

As the port is located on the river Thames, which has large tides, the fender panels had to be very long. One of them measures almost 12m to cover the tidal range of around 6m. With such a large steel panel, a design with 2 cone fenders per panel was needed. In total, SFT will deliver 9 sets of double SPC 1400 Cone Fenders with panels (3.10 x 11.8m) as well as 6 sets of double SPC 1200 Cone Fenders with panels (2.40 x 9.90m). The client required a third party testing on rubber batch materials which had been done previously at our factory. Testing rubber batch

material refers to the testing of rubber samples cut from the finalised rubber sheet. This is one step before vulcanisation. The rubber sample was tested on physical properties to see if it met international standards and project requirements.

An interesting example of an already completed order is the delivery of a giant Donut Fender in May 2019. The Donut Fender, with an outer diameter of 4.2m and a total height of 6.3m, was delivered to the German Port of Bremen for the lock entrance at Oslebshausen, which is the connection between the industrial Port of Bremen and the river Weser. The fender was produced at the facilities of our long term joint venture partner MFI in Los Angeles, California, USA. It was shipped on a flat rack container from Los Angeles to Hamburg (Germany) and from there onwards to the job site with a special lowboy trailer to cater for the large diameter. The fender was installed in June by a local marine contractor on a pile with 2.3m diameter.

SFT delivered 107 SPC 1300 Cone Fender Systems and 144 nos. 150t T Head bollards. Since the rubber units are mostly standardised in the industry, the main engineering and design challenge lies with the steel panels, chains, and the corresponding anchorage.

Only when all components are designed in the correct balance and work together properly, will the fender system perform as expected. SFT was able to find the best technical and economical solution for Tema Port saving the client several million dollars. The first two of four new berths were opened for commercial vessels by the end of June 2019, which puts a head start on the scheduled completion of the project in 2020, with SFT delivering the fender systems between March 2018 and fall 2019. SFT is excited to be part of Tema Port's success story, with our fenders being elements of its foundation.



The Donut Fender for the lock entrance at Oslebshausen.

SFT's engineering excellence and holistic approach is very visible with the order for Tema Port in Ghana. Meridian Port Services (MPS) invested USD1.5 billion to expand the infrastructure of Tema Port in Ghana, one of the most important container ports in the sub-Saharan region, with a completely new state-of-the-art container terminal. The extent of the project is unprecedented, facing 1.4km of new quay wall, 127 hectares (314 acres) of new terminal, 3.55km new break water, and four deep-water berths for container ships with up to 16m draught and 20,000 TEUs capacity.

In one of our last Fender articles we looked at larger vessels and the impact they have on fenders. Can you recap?

Surprisingly, one aspect that has not significantly affected fender design over the last five to ten years is vessel sizes. Even though ship size has increased considerably in recent years, the slower berthing velocity of larger vessels has meant that the calculations for energy absorption required by fenders have remained relatively constant. Velocity is the most important factor in berthing energy calculations, and often more important than mass.