

Branching out

Frank Perdaen and Ilona van Drongelen, OVET, the Netherlands, detail how a dry bulk terminal in the Netherlands developed a new specialism in the screening and treatment of their clients' dry bulk products.

Being the operator of a dry bulk terminal, specialising in the storage and transhipment of coal, petcoke, anthracite and coke, OVET realises that its clients are not only interested in transhipment and storage of their products, but also in the treatment of their dry bulk. In order to distinguish themselves from other dry bulk terminals and to make it possible for their clients to deliver their products to very specific industries, OVET needed to invest in screening facilities for dry bulk.

How did OVET develop its specialism in screening?

OVET's terminal was founded as a storage place for a coke plant in Sluiskil (the Netherlands); the company has always

been focused on high value black dry bulk cargo such as coking coal, coke, petcoke and anthracite.

As more clients stored their products at the OVET terminal, not only was the transhipment and storage of such products required, but also other handlings of the dry bulk such as screening, blending and crushing.

Now almost 40 years ago, OVET started their screening operations at their terminal in Terneuzen (the Netherlands) by purchasing a screening installation jointly with one of their clients. Due to the availability of this installation, clients started to ship Petcoke to OVET in order to screen the material for several purposes, mostly for domestic heating and specific industries.

In 2001, OVET had the opportunity to replace the old screening installation with a brand new one at their terminal in



Figure 1. Please supply a caption.

Terneuzen. This new installation offered OVET the opportunity to take the products directly by floating crane, immediately after the screening process. This way of handling was very important to ensure a high quality, avoiding extra handling and degradation of the product.

The new screening installation consists of two types of screening installations:

The first type is a Hein Lehmann conventional screen, with three decks, a length of 6000 mm and a width of 2100 mm. The second type is a Hein Lehmann Liwell screen, with two decks and a size of 8820 x 2000 mm. The product will be screened on these installations in the size requested by the client and the oversize can be crushed on two different crushers:

The other is a smooth double roller crushing installation to crush sizes below 30 mm. The second one is a double mill crusher, which can crush the sizes 30 to 200 mm.

These two screening installations do not only have a higher capacity, but are also able to screen six sizes, for which there is a need on the market.

- 0 - 6 mm
- 6 - 12mm
- 12 - 22 mm
- 20 - 30 mm
- 30 - 60 mm
- Over 60 mm

Besides these typical sizes, OVET can screen all kinds of in-between sizes, upon request of the client. Together with the client, OVET's screening manager interprets the analyses of the product and discusses which screening size will be the best option for the product concerned to meet certain specifications. Here, the moisture of the cargo and the grain structure are of great importance to determine the correct screening media to be used.

Together with the extensive internal knowledge of the screening of dry bulk, which was built up during all these years, this screening installation became a great success.

In 1989, OVET expanded the terminal in Flushing and at the same time built a brand-new screening installation to screen five sizes. This was a fixed screening installation. However, as the terminal in Flushing expanded, the transport distances from the quay side to the screening installation and back, impacted the efficiency. Therefore, OVET decided to replace the fixed screening installation by two mobile screening installations that could be combined, in order to screen five sizes.

The first installation is a conventional double deck screening installation of 6000 x 2000 mm and the second one is a Hein Lehmann Liwell measuring 7500 x 2200 mm. With these installations combined, it is possible to screen five sizes, or three sizes per individual installation, which has turned out to function very well. The screening installations can be placed next to the stored cargo which reduces the transport distances enormously, with great economic and environmental benefits.

Moreover, in this way OVET is able to screen two different parcels at the same time.

The following sizes are typical on these installations:

- 0 - 6 mm
- 6 - 12mm
- 12 - 22 mm
- 22 - 30 mm
- 30/+ mm

Crushing

After the screening operation, some output can contain pieces which are too big for the purpose of the client. In that case, the cargo can be crushed. For example, if a client needs his product to be all under 6 mm, the total cargo can be crushed and, if necessary, be screened again to make sure all the pieces bigger than 6 mm are removed. This process of screening and crushing can be repeated a few times. The crushing of the cargo can take place immediately after the first screening operation or the cargo can be crushed by taking it from the stock pile. Crushing is not only used on the biggest fractions of a screening output, but also on fractions with an in-between size. In this case, the fraction which needs to be crushed, will immediately be put into the crusher during the screening process and will be re-screened directly afterwards in to smaller fractions.

The crushing operation on the in-between sizes can be done on following fractions:

- 12 - 22 mm
- 20 - 30 mm
- 30 - 60 mm

The crushing operation on the top size can be done following sizes:

- Over 60 mm
- Over 90 mm

What is very important in the crushing process, is the type of crushing machine that will be used, the tuning and the revolution per minute of the roller, in order to get the maximum percentage of the desired fraction and to produce as little as possible 0 - 6 mm during the crushing process.

What else?

Besides coal, petcoke, anthracite and coke, OVET also screens wood pellets. This is a totally different job as a lot of dust is released during the screening process. In particular, wood pellets used for domestic heating need to be screened and can only contain a maximum dust percentage of 1% as private consumers are used to a high-quality pellet in their burner. Wood pellets shipped in bulk however, can contain up to 10% dust, which can be acceptable for power plant, but not for domestic users.

Most industrial end users work with conveyor belts to transport coal to their storage yard or furnaces. Conveyor belts are very sensitive to sharp and heavy materials such as scrap or rocks. Ferrous metals can be removed by using de-ironing installations above the belt, but big heavy pieces and non-ferrous contaminants, such as rocks or wood, need to be screened out of the cargo. One of the services OVET performs for their clients is to screen coal products contaminated with rocks or other contaminants in order to prevent end users' conveyor belts from breaking down.

So, dry bulk cargos are not only screened to deliver the correct sizes to certain industries, but also to prevent breakdowns on industrial installations. By adding value to the products, OVET distinguish themselves from other dry bulk terminals. Moreover, by offering their expertise in the screening process, they can assist their customers in optimising their operations as much as possible. ^WC



Figure 2. Please supply a caption.

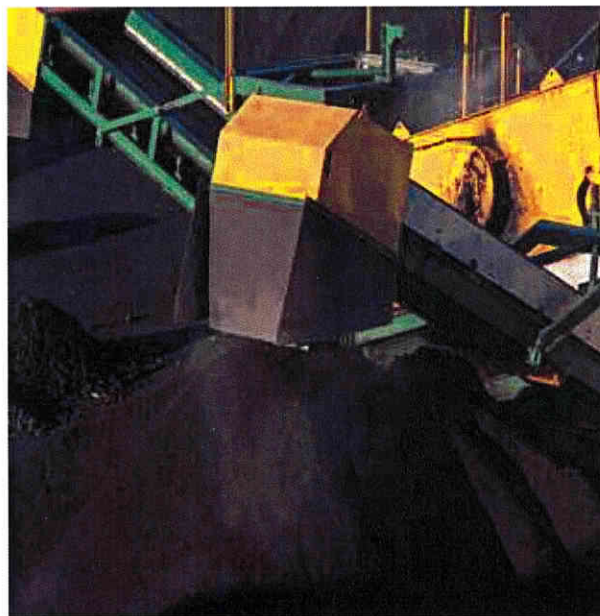


Figure 3. Please supply a caption.