

Safe and clean loading/dischARGE

Recent developments in equipment and components for transferring dry bulk products to and from road tankers

An important recent innovation in road powder tanker discharge has been the introduction of the MH6 screw compressor system, the outcome of a collaboration between Mouvex of France and Hydrocar of Italy. A catalyst in this development was the European Union's Euro 6 legislation which was introduced in June 2007 and will come into full effect in 2014. Euro 6 imposes stricter limits on exhaust, evaporative and crank-case emissions from road vehicles. For this reason, fleet owners are constantly seeking smaller equipment to install on their trucks.

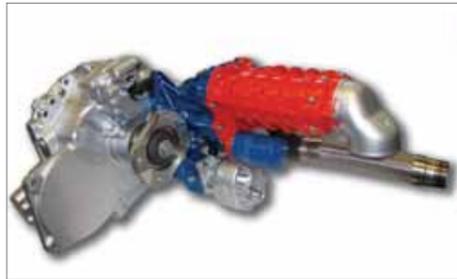
The resulting MH6 is said to be the world's first combined screw compressor/PTO unit that is compatible with a truck's gearbox, making it especially suitable for dry bulk discharge operations. According to Mouvex it is 70% lighter than competitive screw compressor designs and it is also fast in operation. Belgium-based bulk logistics operator De Dijcker earlier this year installed MH6 units on 15 of its road cement tankers and a further 15 vehicles are to be similarly equipped during the coming months (see front cover).

Stefan De Herdt, who works for Humblet Hydraulics, Kontich, Belgium, the firm which installed the MH6s on the De Dijcker fleet, commented: "The MH6 is unique because it is a close-coupled machine attached to a PTO that gives benefits today and in the future with Euro 6. It is possible to be installed on every type of truck: 4x2, 6x2, 6x4, 8x4 and short wheelbase."

He went on: "We were attending the unloading of a truck with the MH6 for De Dijcker and we spoke to the driver. He told us he was very satisfied with the results. He said the temperature was good, the noise was better than the others and the speed of unloading was the same as before. In fact, the noise level was so low you could speak while standing beside the truck without any interference. We even put our hands on the hose between the truck and the compressor and the hose was not too hot." The managing director of Humblet Hydraulics said that, in his opinion, the MH6 can pay for itself in four to five years, taking into account the increased payloads trucks can carry thanks to the 200kg weight reduction.

Abrasion-resistant suction/transport hose
Norres Schlauchtechnik, Gelsenkirchen, Germany, has just extended its range of suction and transport hoses with the introduction of the AIRDUC® PUR-INOX 351 MHF-AS hose grade which is capable of electrostatic discharge. Owing particularly to its electrical and surface resistance <math>< 10^9 \Omega</math>, it is recommended for transporting combustible bulk materials. The hose is at the same time well suited for use in hazardous areas.

This latest hose has optimised flow properties and a smooth interior as well as being highly abrasion-resistant. The wall is made from permanently antistatic premium ether-polyurethane and is capable of electrostatic discharge in accordance with TRBS 2153. It also exhibits approximately two and a half to five times



The MH6 from Hydrocar and Mouvex is the world's first combination screw compressor/power take-off unit that is compatible with a truck's gearbox

better abrasion resistance than most rubber materials and is three to four times better than the majority of soft PVC materials in this respect. The hose consequently achieves an optimal throughput of aggressive solids such as dust, powder, fibres or chips.

The hose wall is food grade in conformity with EU Directive 2002/72/EC – a vital prerequisite for applications in the food and pharmaceutical industries. In addition to this, the complete hose has been approved by an independent testing laboratory according to EU Directive 2002/72/EC, including amending Directive 2007/19/EC. Not only is it odourless and tasteless, it also contains neither softeners nor halogens.

The AIRDUC PUR-INOX 351 MHF-AS achieves excellent low-temperature flexibility – better than comparable ester-polyurethanes – and withstands any temperature from around minus 40° to plus 90°C. At the same time, the hose is resistant to microbial attack and hydrolysis as well as to oil, benzene and chemicals. Thanks to its good resistance to UV and ozone, it is also optimally suited for outdoor work. It is kink-proof in daily use and has a very small bending radius.

It is produced with a transparent wall as standard. Customer-specific product markings can be provided on request. The hose is identified with the GREEN icon, meaning it can optionally be made from a 'bioplastic' derived from renewable raw materials. In this case, the approvals may deviate from those for the standard types.

Retractable loading chutes supplied to Hungary

With regard to loading of powder tankers, Cimbria Bulk Equipment of Denmark has over the past few years delivered several loading chutes to Hungary in collaboration with its local partner, Holimex.

Magyar Cukor Zrt, which is part of Agrana, needed equipment for loading sugar into tankers and railcars. The solution was a delivery of two Moduflex loading chutes type S300 in AISI 304 grade stainless steel. The chutes are equipped with food-grade modules, and as the product has a high risk of explosion, the chute is configured for ATEX zones. The chute outlet is equipped with a FlexFill which on one hand optimises filling by spreading the material inside the tanks and on the other hand also functions as a closing cone, which



Dino powder tanker loader from Van Beek

means that besides ensuring that no foreign bodies can get into the chute when not in use, it prevents residual material dropping out after loading. Furthermore, the chutes are equipped with a FlexVib, a vibrator that is activated after loading has stopped and which considerably reduces residual material in the chute.



Retractable Moduflex loading chute from Cimbria Bulk Equipment recently supplied to Agrana, Hungary

In another recent contract, the Hungarian company Hungrana Kft required discharge equipment for loading powder and gluten into both open and closed trucks from the same installation. Both products are fine powders which generate a lot of dust and are particularly difficult to load on to flatbed trucks. The solution was two Moduflex loading chutes type D300 with integrated filter. The chutes are equipped with a multi-outlet for both open and closed loading, and a rotating indicator mounted in the chute outlet acts as a level control. The chutes have a loading capacity within the range 100-250m³ depending on the powder being loaded.

Moduflex 'plug and play' solution

More recently Cimbria Bulk Equipment was contacted by Aalborg Portland A/S, a worldwide leader in the white cement industry. The company needed a solution for its new outloading station in Korsør, Denmark. The station is unmanned and Aalborg Portland therefore needed autonomous outloading equipment that is easy to operate for the truck drivers.

The solution was the installation of a 'plug and play' system from Cimbria consisting of a Moduflex F300 loading chute. The F300 model is

constructed with an integrated fully self-contained filter system that is equipped with its own fan with regulating valve and pressure tank ensuring that the filter is continuously kept clean. The filter module is retractable, and is therefore of compact dimensions. As a result the loading chute only requires a low headroom.

By means of standard parts the chute has been customised to allow it to meet the user's specific needs. It has been equipped with two NPG modules which have a working range of up to 130°C, good wear protection qualities and a high degree of chemical resistance. In order to ensure virtually complete dust-proof outloading, the chute was supplied with a FlexSeal, an inflatable seal mounted on the chute outlet for tanker truck loading which ensures an active sealing between chute outlet and tanker truck inlet. Furthermore, the chute is supplied with FlexClose in order to avoid dust emission when the chute is being retracted.

According to Portland, the company is very satisfied with the installation and the loading operation is running smoothly.

Mobile loading rigs

Van Beek of the Netherlands is continuing to achieve buoyant sales of its rubber-tyred Dino bulk loaders which provide a clean, fast and safe method for transferring bulk products from sacks or bulk bags directly into road tankers. With this system there is no need for workers to climb on top of the vehicle. Over 350 of these mobile truck loaders have been sold to date and each machine is tailored to suit the requirements of the operator in terms of capacity, dimensions and surface finish (food-grade, abrasion-resistant, etc). Units have even been supplied with integral sampling systems.



AIRDUC PUR-INOX 351 MHF-AS hose from Norres Schlauchtechnik



Compared to traditional screw compressors, the MH6 is quieter and generates less heat

Van Beek	www.van-beek.nl
Cimbria Bulk Equipment	www.cimbria.com
Hydrocar	www.hydrocar.com
Mouvex	www.mouvex.com
Norres	www.norres.com