

## A Successful Weight-Loss Solution

MH6 SERIES SCREW COMPRESSORS RELIABLY DELIVER NECESSARY WEIGHT REDUCTION AND IMPROVED DRIVER COMFORT THAT THE SCHMIDT GROUP REQUIRES FOR ITS 800-TRUCK DRY-BULK FLEET

*By Philippe Voilly*



Responding to the stricter on-road diesel-emissions standards and weight requirements of the new Euro 6 regulation, as well as the safety and comfort needs of its drivers, The Schmidt Group has outfitted its dry-bulk truck fleet with MH6 Series Screw Compressors (inset) from Movex® and Hydrocar.

It has been more than two decades now since new European Union (EU) directives began regulating the amount of emissions that on-road diesel-powered trucks can expel into the atmosphere. The first, Euro 1, came into being in 1992, and the EU has now progressed to Euro 6, which governs all trucks that have been manufactured for on-road use in European countries since the beginning of 2014. With that being said, most of the trucks that currently traverse European roads are of the Euro 4 or Euro 5 variety, whose regulations came into effect in 2005 and 2008, respectively.

Specifically, these European Union directives, no matter their stage, put limits on the amount of carbon monoxide (CO), nitrogen oxides (NOx), hydrocarbons (HC) and particulate matter (PM) that can be expelled into the atmosphere through the exhaust of diesel-powered trucks. Over the years, these limits have gotten stricter as the

members of the European Union have looked for ways to lower the amount of impurities that find their way into the continent's air.

For example, in Euro 1 the CO, HC, NOx and PM thresholds were 4.5, 1.1, 8.0 and 0.612 grams per kilowatt hour (g/kWh),

### QUICK FACTS

- Company:** The Schmidt Group
- Location:** Ludwigshafen, Germany
- Market:** Dry-Bulk Transport
- Distributor:** Dienstleistung Warenwirtschaft Spedition (DWS) GmbH, Heppenheim, Germany
- Challenge:** The Schmidt Group needed to lower the overall weight of its trucks in order to meet the new Euro 6 regulation.
- Solution:** *MH6 Series Screw Compressor offered 70% weight reduction versus previous equipment.*



The Schmidt Group's Ludwighafen, Germany, facility features 60 storage silos, the contents of which the company's 800-strong fleet of dry-bulk trucks and trailers transport to customers all over Europe.

respectively. By comparison, the specifics of the Euro 6 regulation place the amount of CO emissions at 1.5 g/kWh, HC at 0.13 g/kWh, NOx at 0.40 g/kWh and PM at 0.01 g/kWh.

These constantly changing emission thresholds have caused truck fleets to reexamine how their vehicles are outfitted. In addition to new engine models that are designed to reduce emissions, an ancillary consequence regards the actual weight of the vehicle and its payload, which is also governed by EU regulation.

## Tippling The Scales

"Euro 6 is a regulation for limiting exhaust in Europe, and we are really taking care of pollution," explained Sascha Pachnicke, Product Manager for Dienstleistung Warenwirtschaft Spedition (DWS) GmbH, Heppenheim, Germany, since 2006 a distributor of compressor equipment for use on dry-bulk trucks, trailers and silo containers. "Through these regulations to control exhaust there is less space on the truck left because the exhaust system on a Euro 6 truck is much bigger and heavier than on the Euro 5, for example. The Euro 6 regulation was created to have cleaner air coming out of the exhaust, yet you are only allowed to carry 40 tons. If the truck is heavier, you have to reduce some of the weight."

That has created a balancing act for the trucking fleets that transport dry-bulk materials and products across the continent. Specifically, most truck chassis that are outfitted with transport tanks have a maximum weight limit of 14 tons. Meanwhile, most customers request from their shippers the ability to handle a minimum payload of 25 tons. Much more than the upper limit of either threshold, and you are bumping up against the 40-ton regulatory ceiling.

The trick, then, is to use a truck and trailer that is as light as possible, allowing it to not only carry at least 25 tons, but oftentimes more. This is a benefit for both the end-user, who gets more product shipped at one time, and the shipper, who realizes an economic benefit from being able to ship larger payloads.

One shipping company that has been threading the needle of the EU directives regarding diesel emissions since the dawn of the Euro 1 era is The Schmidt Group. Founded in 1948 in Heilbronn, Germany, where its corporate headquarters remain, The Schmidt Group offers transport services via road tankers and silo containers, which are contracted to ship all types of dry-bulk goods, including, but not limited to, plastic pellets, cement, lime, starch, powder, sugar and animal food.

The Schmidt Group has grown to consist of a fleet that features 800 trucks, 150 of which are used to transport hazardous chemicals, 5,000 intermodal containers, 28 subsidiary locations situated throughout Europe and eight regional dispatch centers. In total, The Schmidt Group annually delivers 4.6 million metric tons (10.1 billion pounds) of dry-bulk products.

A member of The Schmidt group family for nearly half its existence or, to be exact, 30 years, Michael Hoyer is the company's Fleet Manager and has responsibility for the entire fleet of rolling stock, including ensuring that all vehicles meet the tenets of the various EU diesel-emission directives.

"There was a significant change when the Euro 5 emission systems came, but then by 2014 the new Euro 6 comes, which means that the same truck has a weight increase of between 200 and 300 kilograms (400 to 660 pounds)," said Hoyer. "Therefore, Schmidt was looking for a technical solution to having the same payload while not reducing the benefits of the application or the size of the system. The main point was to find out how the minimum payload of 25 tons could be realized without exceeding the overall weight."



Michael Hoyer, left, Fleet Manager for The Schmidt Group, and André Saam, Dry-Bulk Fleet Manager, have optimized the weight and driver comfort in its dry-bulk fleet by switching to MH6 Series Screw Compressors from Movex® and Hydrocar.

## Making Weight

One area that Hoyer and The Schmidt Group targeted for potential weight reduction was the truck-mounted compressors that were being used to load and unload the tanks and silo containers. The compressors The Schmidt Group was using were rather complicated to install and maintain, and required a mounting frame and bracket, and special shaft, which added to the overall weight of the system.

As luck would have it, a trip to a trade fair in 2013 led to the discovery of the perfect compressor solution.

“We were attending a trade fair and DWS presented us with the new MH6 technology from Movex® and Hydrocar,” recalled Hoyer. “A standard compressor has a weight of around 300 kilograms, but the MH6 has a total weight of 80 to 100 kilograms (177 to 220 pounds), which delivers the required weight savings.”

Specifically, the “MH6” is the MH6 Series Screw Compressor, which Auxerre, France-based Movex, part of PSG®, a Dover company, Oak-brook Terrace, IL, USA, developed in conjunction with Bologna, Italy-based power takeoff (PTO) manufacturer Hydrocar in 2010. The MH6 is the world’s first all-in-one screw compressor/PTO unit, and was developed as a weight-saving answer to the new Euro 6 regulations. DWS has been the official distributor for Movex equipment in southwest Germany since 2009 and was one of the first companies to put an MH6 compressor in the field.

In addition to the upwards of 70% weight reduction offered by the MH6, other operational benefits include the absence

of free-turning drive parts, which increase operator safety; no need for additional installation space; no need for separate oil changes since the system is integrated into the truck’s gearbox; no need for mounting brackets and frames, or cardan shafts; quieter operation; and compatibility with a wide array of truck configurations, from 4x2 short wheelbase to larger 6x2 and 6x4 designs. Flow rates range from 325 m<sup>3</sup>/h to 600 m<sup>3</sup>/h (85,850 to 158,500 gph), and the MH6 can handle solids up to 15 mm (0.6") in diameter and 60 mm (2.4") in length.



The Schmidt Group's truck fleet carries such diverse dry-bulk products as plastic pellets, sugar, powder, cement, starch and animal food to end-users all across Europe.

The Schmidt Group tested an MH6 compressor on one of its vehicles throughout 2013 and the results spoke for themselves: "At the end of the year, the MH6 showed in the day-to-day testing that what was promised was reached," said Hoyer. "The conclusion was that during the one year of testing we were very well supported by Movex and DWS, and had real communication with our drivers and fleet management on how the MH6 works, and at the end of the day, it was a good relationship and we came to the conclusion that this was the way to move forward, with the MH6."

The reduced weight of the MH6 is also holds ancillary benefits for The Schmidt Group's fleet drivers.

"With the weight benefit, it was possible for Schmidt to increase the size of the cabin, the comfort of the cabin, to give more benefits to the driver to feel more comfortable, more safe for long-distance driving with no risks in using the MH6," said Hoyer. "It was a target of ours to support the employees and motivate them for the global benefit of the organization and our customers."

## Conclusion

The most successful weight-loss programs are those that target specific areas to trim, then identify the best ways to reach those weight-reduction goals without adversely affecting the whole organism. In that way, the MH6 Series Screw Compressor is the perfect weight-loss solution for dry-bulk haulers like The Schmidt Group.

"Due to the weight reduction you can put more load on the truck so you can gain more money through transporting or unloading; that's an extra 200 kilograms on one truck, which can also be used for more luxury in the cabin for the driver," said Pachnicke.

From his perspective, Hoyer is looking forward to the day when every Schmidt Group truck is outfitted with an MH6 compressor—and has even offered to help Movex and Hydrocar field test the next-generation MH Series compressor, the MH10, which is currently in development.



MH6 Series Screw Compressor from Movex® and Hydrocar.

"Schmidt is always looking for the newest technical solution for all of its equipment and because of the capabilities of the MH6 we are proud to work with the Movex and DWS organizations," Hoyer said. "The target is clearly to work with Movex in the future, to standardize The Schmidt Group on these compressors."

## About the Author:

*Philippe Voilly is the Market & Product Manager DM for Movex® and PSG®. He can be reached at [Philippe.Voilly@psgdover.com](mailto:Philippe.Voilly@psgdover.com) or +33 3 86 49 86 93. Headquartered in Auxerre, France, Movex was incorporated in 1906 and is a leading manufacturer of positive displacement pumps and compressors for the transfer of liquids or dry-bulk products worldwide. Movex is part of PSG which is comprised of several leading pump companies, including Abaque™, Almatec®, Blackmer®, Ebsray®, Finder, Griswold™, Maag, Movex®, Neptune™, Quattroflow™ and Wilden®. For more information on Movex at [www.movex.com](http://www.movex.com) and PSG at [www.psgdover.com](http://www.psgdover.com). Hydrocar, a brand of Interpump Hydraulics SpA, is headquartered in Bologna, Italy, with a very precise purpose: offer new power take-off mechanisms and devices to a variety of hydraulic systems for industrial vehicles. The hundreds of models created over the years and the many configurations applied to its components allow Hydrocar to confidently state that this objective has been positively fulfilled. The constantly increasing number of trucks around the world equipped with Hydrocar PTOs and pumps offers the greatest satisfaction for so many years of hard work and commitment. To contact Hydrocar regarding the MH6, please use [mhcompressor\\_info@hydrocar.com](mailto:mhcompressor_info@hydrocar.com).*

*For more on the MH6, go to [www.mhcompressor.com](http://www.mhcompressor.com).*



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