Media Release

Oerlikon Leybold Vacuum delivers vacuum technology for high-speed ground transportation system

Hyperloop: Transport into the Future

September 3rd, 2015 – Oerlikon Leybold Vacuum, vacuum pioneer based in Cologne, imparts extensive expertise in vacuum technology to one of the most challenging transportation projects of the future. The German-American visionary Dirk Ahlborn, CEO of Hyperloop Transportation Technologies, has set the goal of making the seemingly utopian idea of Tesla founder Elon Musk become reality: From 2018 onward, people shall travel with aircraft speed through a reduced pressure tube system.

Before any implementation, however, a multitude of tests and calculations for the vacuum conditions are required, before the Hyperloop track will be built in Quay Valley, California starting in 2016, transporting the inhabitants of this conceptual city. The track will be an eight kilometers long tunnel, to which the vacuum pumping equipment from Oerlikon Leybold Vacuum is connected.

Using optimum vacuum conditions with an expected pressure range between 100 mbar and 1 mbar, the air resistance against the transport capsule will be reduced and thus the total energy demand of the system is significantly lowered.

The selection of a suitable vacuum system for such a project is essential both for the establishment of the test track, but also for subsequent permanent use. During operation, the safety factors, ease of maintenance, operating costs and sustainability are important parameters, which need to be considered. Careful consideration of these issues in the design and product development are an integral part for project management with Leybold Vacuum. The experiences gained from a variety of long-term research projects contribute to assess the optimum vacuum level needed.

Moreover, the accumulated vacuum expertise of a 165 years old technology leader is put to task: For the pumping-out times, the energy requirements and the recommended configuration, Oerlikon Leybold has already performed simulations.

"With our unique simulation software PASCAL we can interpret the entire Hyperloop-conditioning in every detail and thus calculate the required vacuum equipment for optimum operation. In addition, we are contact partners already involved during the run-up phase for all the design issues on vacuum engineering and for the subsequent implementation, "explains Carl Brockmeyer, Head of Business Development and Leader for this ambitious project at Oerlikon Leybold Vacuum. Just by taking advantage of existing and proven pumps and systems, a variety of vacuum combinations are possible, with dry compressing, as well as with conventional oil-sealed vacuum pumps.

Oerlikon Leybold Vacuum sees a high potential in the technology, and since vacuum technology is needed, the company aims to contribute to the success of Hyperloop. "There is a very special motivation in contributing to something fundamentally new which can revolutionized the traditional means of transportation," says Dr. Martin Füllenbach, CEO of Oerlikon Leybold Vacuum.

Companies such as Oerlikon with their ample experience have the best opportunities to implement such projects with their resources, products and related know-how. This is precisely the reason why the project managers of Hyperloop search for strong partners such as Oerlikon Leybold Vacuum in order to let a vision become reality.

Transportation Tube

Planned testing Grounds Quay Valley

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For further information, please contact:

Carl Brockmeyer
Head of Business Development
T: +49 221 347 1292
F: +49 221 347 31292
carl.brockmeyer@oerlikon.com
www.oerlikon.com/leyboldvacuum

Christina Steigler
Corporate Communications
T: +49 221 347 1261
F : +49 221 347 31261
christina.steigler@oerlikon.com
www.oerlikon.com/leyboldvacuum

About Oerlikon
Oerlikon (SIX: OERL) is a leading global technology Group, focusing on providing market-leading technologies and services for surface solutions, manmade fibers manufacturing, drive systems and vacuum pumps and components in growth markets. These cutting-edge technologies benefit customers by improving their product performance, productivity, efficient use of energy and resources, and also by contributing to a more sustainable environment. A Swiss company with over 100 years of tradition, Oerlikon has a global footprint of over 15 500 employees at more than 200 locations in 36 countries and sales of CHF 3.2 billion in 2014. The company invested CHF 121 million in R&D in 2014 and has over 1 300 specialists developing innovative and customer-oriented products and services.

Oerlikon Leybold Vacuum offers a broad range of advanced vacuum solutions for use in manufacturing and analytical processes, as well as for research purposes. The Segment's core capabilities centre on the development of application- and customer-specific systems for the creation of vacuums and extraction of processing gases. Fields of application are coating technologies, thin films and data storage, analytical instruments and classic industrial processes.