Media Release

Internationally leading scientists appointed to Oerlikon's Scientific Advisory Board (SAB)

Oerlikon systemizes search for the next mega trend

Pfäffikon SZ, March 7, 2008 – ***With the realignment of its Research & Development as well as through the formation of a high-ranking staffed Scientific Advisory Board (SAB), Oerlikon is strengthening its innovative capabilities. The goal is to detect oncoming mega trends as early as possible in order to systematically develop groundbreaking innovations. The development of environmentally-friendly technologies (Clean Technologies) and a greater use of nanotechnology represent key research aspects in the process. Effective immediately, the SAB, lead by Professor Werner Martienssen from the University Frankfurt am Main, shall provide consultation to CEO Dr. Uwe Krüger and Executive Vice President R&D, Dr. Andreas Widl, and keep Oerlikon linked to international cutting-edge research. "We are now establishing the foundations needed to systemize future successes such as our thin-film solar technology," says Dr. Uwe Krüger, CEO of Oerlikon, who himself holds a PhD in Physics. "Perhaps in five years, we'll be able to provide clean-tech solutions that have CVD coatings and nano textile fibers as their basis, or produce photovoltaic elements from organic materials," says Dr. Krüger.***

The Oerlikon Corporation is already today among the most research-intense industrial corporations in the world. Its investments in R&D in 2007 amounted to more than CHF 250 million, which corresponds to a rate of 4.7 percent of sales. Approximately 1,500 scientists and engineers are busy working on Oerlikon's products of tomorrow; the number of pending patent families grew up to 25 percent in 2007. Oerlikon thus holds a top position among the leading companies and invests more then double the average amount into the future (see attachment).

Expansion of the time and thematic horizon

Oerlikon is today a technological leader in all segments, whether it is with its revolutionary solar modules made of thin-film silicon, with coating technologies such as the P3e^{TM}, or its completely newly developed wire bonders for the further processing of semiconductor elements, its uninterrupted dual clutch transmissions or integrated textile machines for the production of non-woven fabrics. "Our profitable growth is essentially due to groundbreaking innovations – Oerlikon possesses the unique capability to consistently invent itself anew, over and over again," says CEO Uwe Krüger.

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Until now, Oerlikon's R&D efforts have been focused upon product-related activities. Today approximately 95 percent of all resources flow into this area. Also the linkage with the leading global scientific society was not previously conducted systematically. "Both these considerations have now persuaded us to launch the Scientific Advisory Board and to shift to a long-term innovation management that is thematically broader and more efficient," says Executive Vice President Dr. Andreas Widl. "We are broadening our horizons, both in terms of time and content, in order to now develop the technologies and products that will open up entirely new markets and applications in the years to come", according to Widl. Moreover, the immense synergy potential in this area will be made even more accessible through the central coordination of corporate development. "We have many starting points from which to expand the internal cooperation in the area of R&D using the existing joint product development structure," states Widl.

The central technology and competence fields encompass Oerlikon's 14 business units. Surfaces, interface effects, functional materials and technical engineering solutions play a significant role throughout, whether for textile machines, thin-film solar, vacuum pumps, coating or transmissions. That is why nanotechnology has increasingly established itself as a cross-section discipline at Oerlikon. Initial attempts to equip textile fibers with specific functions, such as electrical conductivity, UV-ray protection and flame retardation, using nano particles appear to be very promising. "We believe in nanotechnology and intend to fully utilize the possibilities of this fascinating discipline," states Oerlikon's CEO Krüger.

This example truly demonstrates the new opportunities opening for Oerlikon through systematic and coordinated research throughout the various business fields. It is conceivable that textiles can be produced with nano particles that would function as sensors on the body – keyword, smart textiles – a prospect that could lead to completely new applications. Cost-effective solar modules on flexible substrates could lend a further boost to the use of the environmentally-friendly solar energy. Nanotechnology could also potentially revolutionize the processes of energy storage and transport. "As the technology and market leader for surface coating processes, Oerlikon is in a unique position to investigate such radically new solutions with long-term R&D projects that have the potential to open up totally new markets," states Krüger.

To achieve such technological quantum leaps quickly, efficiently and in a targeted manner and to market them successfully, Oerlikon will henceforth enter into new types of cooperation. Firstly, the cooperation with leading scientific institutions will be increased, while secondly, Oerlikon shall

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enter close partnerships with seed and start-up companies up to and including joint ventures. The establishment of a Scientific Advisory Board (SAB) is the most decisive step towards the development of a worldwide knowledge network. “The SAB will make a very active contribution and provide its know-how to help Oerlikon come up with groundbreaking innovations in the next five years,” states SAB Chairman Professor Werner Martienssen.

The Oerlikon SAB consists of:

Professor Werner Martienssen PhD., Johann Wolfgang Goethe University Frankfurt am Main, Germany (SAB Chairman)

Prof. Martienssen represents the research areas of material sciences, chaotic systems and quantum optics. He is a member of the “Deutsche Akademie der Naturforscher Leopoldina” in Halle and the “Akademie der Wissenschaften zu Göttingen”, also in Germany. In 1991, he received an honorary doctorate from the University of Dortmund and the “Deutsche Physikalische Gesellschaft” awarded him the Robert Wichard Pohl Prize in 2001. Two of his earlier students and co-workers have been awarded the Nobel Prize: Gerd Binning (Munich) received the Nobel Lauriat in Physics in1986 and Horst Störmer (New York) in1998.

Prof. Albert Pisano, University of California at Berkeley, USA

Professor Pisano is Chair of the Department of Mechanical Engineering at the University of California at Berkeley with a joint appointment to the Department of Electrical Engineering and Computer Science. His specialty areas include micro electromechanical systems (MEMS) and nanotechnology. He is the founder of five start-up companies in that field.

Prof. Peter Chen, Swiss Federal Institute of Technology, Zurich (ETH)

Professor Chen is Vice President of ETH Zurich, Professor for Physical-Organic Chemistry and a member of the Research Commission. He was at Yale University and Harvard University prior to that and specializes in the non-linear dynamic, planning and synthesis of molecules and is also a consultant to international biotechnology corporations.

Prof. Georg Färber, Technical University Munich, Germany.

As the Chair in Real-time Computer Systems, Prof. Färber focuses this department’s research in the areas of bio-analogue sensor systems, tele-presence and cognitive automobiles. He has been awarded the Heinz Maier-Leibnitz Medal and is the founder of a computer business.

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Prof. Christian Brecher, Rheinisch-Westfälische Technische Hochschule (RWTH Aachen University), Germany

Prof. Brecher is Chair of Machine Tools in the Laboratory of Machine Tools and Production Engineering (WZL) and is also Director and Head of the Division for Production Machinery at the Fraunhofer-Institut für Produktionstechnologie (IPT). In addition to the “Springorum-Denkmünze” and the “Borchers-Plakette” of the RWTH Aachen, he was awarded the “Studienpreis” of the Verein Deutscher Werkzeugmaschinenfabriken (VDW) and the “Otto-Kienzle-Gedenkmünze” of the Wissenschaftliche Gesellschaft für Produktionstechnik (WGP).

Clean environmental technologies as developmental goals

A central developmental goal for the reoriented Oerlikon Research and Development is to recognize the long-term emerging markets for clean environmental technologies (Clean Technologies) early on and to occupy these with own processes. In addition to thin-film solar processes, clean technologies already play an important role within Oerlikon today:

- Energy savings in textile machines: With the slogan “e-Save” Oerlikon develops textile solutions with significantly lower energy usage. New aggregates, such as the texturizing machine from Oerlikon Barmag, reduce energy consumption by up to 40 percent.
- Zero-emissions vehicle: Oerlikon Graziano has signed a long-term contract with TH!NK Technology, the Norwegian manufacturer of emissions-free vehicles for the delivery of special transmissions.
- More efficient engines: The robust surface coatings from Oerlikon Balzers are increasingly used in the manufacture of internal combustion engines and help to boost the durability by a factor of around 10 and also reduce fuel consumption by up to 4 percent.
- Wind energy: Oerlikon Fairfield successfully placed its unique competence in transmission manufacturing within the market for wind turbines and has signed a long-term contract with Winery, a Siemens subsidiary.
- Climate research: Oerlikon Space developed special sensors that are used inside satellites for climate research.
- Vacuum pumps for the solar market: Oerlikon Vacuum has successfully established itself as a primary supplier in the booming solar market, both with components for the manufacturing of silicon wafers as well as for the production of thin-film modules.

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This field of clean technologies shall be strategically expanded in the coming years. “I see an enormous potential for our company here. Particularly with the many technologies and competencies within Oerlikon, we are especially well suited to pursue radically new approaches towards finding solutions”, says CEO Krüger

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About Oerlikon

Oerlikon (SWX: OERL) is among the world's most successful industrial high-tech companies focusing on machine and systems engineering. Oerlikon stands for leading industrial solutions and cutting-edge technologies in textile production, thin film coating, propulsion, precision and vacuum technology. As a company with Swiss roots and a 100-year tradition with at the End of 2006 CHF 4.8 billion in sales, nearly 20,000 employees at 170 locations in 35 countries, Oerlikon has evolved into a global player today. The company is ranked first or second in each of its respective markets.

R&D Background: Facts and figures

R&D Spending as a percentage of sales

Company	Value	Source
Oerlikon	**4.7%**	[1]
ABB	3.2%	[2]
Alstom	3.2%	[3]
GE	2.3%	[2]
Hitachi	3.9%	[4]
Pfeiffer-Vacuum	4.0%	[5]
Rieter	4.0%	[2]
Siemens	4.7%	[1]
Sulzer	1.5%	[1]

[1] Annual Report 2007
[2] Annual Report 2006
[3] Annual Report 2006/07 (April-March)
[4] Q1-Q3 2007 (April-Dec)
[5] Q1-Q3 2007 (Jan-Sep)

Oerlikon: Annual comparison of number of patent families

2005	198
2006	171
2007	213

Oerlikon: Annual comparison of number of R&D-Employees

2005	1 444
2006	1 545
2007	1 547

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Country comparison: R&D Spending as a percentage of GDP (2004)

Country	In % of GDP
Israel	4.5
Sweden	4.0
Finland	3.5
Japan	3.2
Switzerland	**2.9**
United States (US)	2.7
Denmark	2.6
Germany	2.5
Austria	2.3
Singapore	2.3
France	2.2
Canada	1.9
Belgium	1.9
United Kingdom (UK)	1.9
Netherlands	1.8
Norway	1.8
Italy	1.2
Spain	1.1
Portugal	0.8
Total OECD	2.3
EU-25	1.8
EU-15	1.9

Source: Federal Statistical Office (FSO): Switzerland's R&D – Indicators Science and Technology

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