

Reishauer will Enhance Investment in China

莱斯豪尔将加大对华投资

—— Interview with Mr. Markus Wehrle, President of Reishauer Group

—— 访瑞士莱斯豪尔集团总裁、董事会主席威尔利先生

齿轮的发展要追溯到公元前。西安半坡博物馆展示的齿轮，迄今已有 5000 年的历史。远古时代人们为了传递动力，发明了齿轮。这一发明实现了转动的传递，齿轮成为现代机械传动中的重要组成部分。大至宇宙飞船，小至手表、精密仪器，从国防机械到民用机械，从重工业机械到轻工业、农业机械，无不广泛地采用齿轮传动。齿轮具有恒功率输出、承载能力大、寿命长、可靠性高、结构紧凑等优点，是机械产品中所占比重最大的一种传动装置。齿轮从发明到现在经历了无数次更新换代，主要向高速、重载、平稳性、体积小、低噪等方向发展。齿轮制造工艺的发展很大程度上表现为精度等级与生产效率的提高。齿轮是机器的基础件，其质量、性能、寿命直接影响整机的技术经济指标，齿轮因其形状复杂、技术问题多，制造难度较大，所以齿轮制造水平在很大程度上反映一个国家机械工业的水平。

齿轮的加工方法很多，但主要方法有滚齿、插齿、剃齿和磨齿，其他还有铣齿、刨齿、梳齿、挤齿、珩齿和研齿等。近年来，在加工技术，如硬齿面技术、计算机数控技术等方面的发展，已使各种加工方法出现了崭新面貌。磨齿是获得高精度齿轮最有效和最可靠的方法。发达国家都用硬齿面齿轮，磨齿成为高精度齿轮的主要加工方法。蜗杆砂轮磨齿精度达 DIN3-4 级，效率高，适用于中、小模数齿轮磨齿。磨齿机采用数控（CNC）技术，可使磨齿机操作简便，减少调整和停机时间，提高了效率和自动化程度，获得了稳定和可靠的精度，使齿轮磨齿工艺发生了深刻变革。当今蜗杆砂轮磨齿机制造水平的代表



瑞士莱斯豪尔公司董事会主席威尔利先生
Mr. Markus Wehrle, President of Reishauer Group

□本刊记者：黄晏陵

是瑞士莱斯豪尔公司。

10 年前，我社采访了瑞士莱斯豪尔公司北京代表处首席代表孟立女士，并发表了题目为“久盛不衰的两大法宝：诚信服务客户 技术精益求精”的文章。10 年后，适逢 2015 年是瑞士与中国建交 65 周年，在 2015 年第十四届中国国际机床展览会期间，记者采访了瑞士莱斯豪尔集团总裁、董事会主席威尔利先生，一同出席采访的还有北京代表处首席代表孟立女士。莱斯豪尔公司十分重视此届机床展，多位公司高管全程出席，瑞士驻华大使戴尚贤先生亲临莱斯豪尔展位参观指导。公司展位面积大于往届，共带来三台世界上最先进的机床进行展示，其中有一台 RZ60/90 是第一次来中国展出，是世界上最快、最小

的磨齿机，采用双主轴结构和高灵敏度双啮合传感器，采用宽砂轮和多头金刚石滚轮修形方式且包括工件甩油及上下料，全过程能实现 10 秒钟最短循环；RZ260 数控磨齿机适用于汽车领域，最高采用 7 头砂轮，高速切削，特别是采用独创的双工件主轴结构，大幅提高生产效率的同时，最大限度地降低了磨削时间；全新概念的柔性滚齿中心 FHC180，是专门为乘用车变速箱制造而设计的、完全成熟的高速滚齿机床。其设计的精髓在于集滚齿、倒棱和去毛刺于一身，并且采用环保的干式滚削技术。据悉，这三台机床展会上全已售出。瑞士莱斯豪尔集团总裁、董事会主席威尔利先生非常亲和、平易近人。采访前威尔利先生告诉记者，孟立女士为莱斯豪尔工作已超过 20 年，是莱斯豪尔在中国的形象代言人，因其为中国进口机床事业所做出的卓越贡献，先后被中国的国家级媒体评选为“中国经济百名杰出人物”、



公司高管合影 Senior Executives

“中国经济新领军人物”。以下是记者与威尔利先生的采访对话。

记者：请介绍一下贵公司这 10 年来在华发展概况？有哪些新变化？

威尔利先生：莱斯豪尔与中国的业务往来已超过 50 年，最早是国家与国家之间的贸易往来。50 年来，莱斯豪尔的各种机型源源不断的运往中国。近 10 年来莱斯豪尔公司获得飞速发展，把最新的机型出口到中国来，涉及到众多应用领域，包括航空航天、机床制造业、汽车摩托车制造业、船舶工业、印刷机械和纺织工业及减速机领域等等，特别在汽车领域，与中国的许多汽车零部件企业有长期合作。在瑞士总部，有一条生产线专门为中国的汽车零部件企业服务。中国年产汽车达 2000 万台，已成为全球最大的汽车制造大国和汽车市场，全球著名的汽车企业都到中国来投资建厂，主要的汽车零部件也在中国制造。发动机、变速箱要求高效、高速，这对加工齿轮的磨床要求具备高精度、高性能。莱斯豪尔是最强的、主要的、也是唯一的顶尖磨齿机床提供企业。为了应对不断上升的环保要求，公司每年不断研究开发新技术，满足、实现新要求。DCT 双离合器正流行，中国政府也在大力推广。我们也非常高兴看到越来越多的高档变速箱企业在中国投资建厂。电动车的整个驱动系统是一个崭新的设计，噪音必须减到零。因此，电动车的新技术将会非常强大，所以我们必须适应这一领域的新要求。公司涉及的应用领域多涉及领先的尖端科技。

记者：中国是一个有 13 亿人口的最大发展中国家，既是一个消费大国，又是一个制造大国，机床需求市场巨大，面对激烈的市场竞争，贵司有何独特竞争优势？

威尔利先生：我们是怎么去赢得市场呢？首先，要敢于去接受挑战。第二，要有能力接受挑战。第三，要完全明白理解市场。最后，要了解用户的问题在哪里，懂得怎么去解决。总的来说要能够解决用户的问题。公司不光销售机床，还要提供一系列的附件，如配套的刀具、先进的磨削技术，并能承担全部责任。要时刻研究开发新产品新技术，不可松懈。只有这样，才能牢牢地抓住我们的客户。人才是公司最宝贵的财富，要给员工很好的培训机会，很好的奖励激励机制，调动大家的积极性和主动性。还要不断的创新机床、刀具、磨削技术，不断的进步。莱斯豪尔的经营哲学是：连续不断的进步、创新。不断关注机床、刀具、磨削技术，三者缺一不可。

记者：知识变成财富是一个十分复杂的过程，承担这一使命的正是企业领导人的任务。请结合您这些年的管理经验，谈谈个人的体会和见解？

威尔利先生：技术上的创新，从想法到实现，一般需要 15 年时间。从想法到有价值的发明，有的 5 年后又回到原始的创新上来。公司经理人的职位很高，更高职位的公司高管，大多已 50-60 岁了，大学毕业后工作了 30-40 年。他们的知识 80% 是陈旧的老知识，必须连续不断地去更新知识。公司高管只有掌握最新的知识，才能保证所领导的企业在正确的道路上朝着正确的方向发展。公司领导人、高管、企业骨干必须关注市场、关注技术、关注经济走势、关注员工，也要关注竞争对手在做什么。

记者：中国已成为全世界最具吸引力的投资目的地，投资环境优越，市场潜力巨大，贵公司未来还将有哪些发展计划？

威尔利先生：莱斯豪尔在全球的战略布局是，欧洲占三分之一，美洲占三分之一，亚洲占三分之一。我们对公司在华的发展充满信心。中国的用户是世界上最好的用户。2014 年 5 月，我们将瑞士莱斯豪尔公司北京代表处升格为莱斯豪尔齿轮磨削技术（北京）有限公司，计划近几年内在北京投资 600 万 -800 万瑞士法郎，成立一个产品展示技术培训基地，为用户提供一系列的配套服务，包括备品备件，





瑞士驻华大使戴尚贤先生亲临莱斯豪尔展位参观指导 Mr. Jean Jacques de-Bardel, the Swiss Ambassador in China visited the booth of Reishauer Beteiligungen

机床维修、技术支持及用户培训等等，把服务做得更好，与用户真正的融为一体。

久负盛誉二百年，独领风骚在今朝。瑞士莱斯豪尔公司成立于1788年，已走过了自1945年发明世界上第一台蜗杆砂轮磨齿机至今的227年，是欧洲历史最悠久的机床制造厂，拥有多项专利技术，是世界上处于遥遥领先地位的蜗杆砂轮磨齿机制造厂。二百多年来，莱斯豪尔一直坚持质量保证、产品创新、供货保障、以客为本。国际上代表当今蜗杆砂轮磨齿机制造水平的首推瑞士莱斯豪尔公司，其代表产品有RZ60/90 / RZ160 / RZ260 数控双主轴齿轮磨床、RZ410/ RZ550 四门式数控齿轮磨床、RZ800/RZ1000 数控齿轮磨床等。其拥有自己独立的液压夹具、金刚石及CBN工具厂和砂轮厂。我们期待莱斯豪尔公司进一步加大对华投资力度，为提升中国的制造业水平，加强中瑞两国的经贸合作做出更大的贡献！与中国一起成长，共赢共荣！

Gears can be traced back to B.C. The gears displayed at Ban Po Museum in Xi'an, China, have a history of 5000 years so far. In ancient times, surprisingly people had an idea about gear-shaped artifacts. Later, this invention realized rotatory transmission and gears have become an important factor for modern mechanical transmission. From spacecraft to watches, all precise instruments, from national defense equipment to civil machinery and from heavy industry machinery to light industry and agricultural machinery, they all extensively adopt gear drive. With such advantages as constant power output, large bearing capacity, long service life, high reliability and compact conformation, gear is a driving device accounting for the largest percentage in machinery products. Since its invention, gear has experienced numerous updates and replacements, developing in such directions as high speed, heavy load, stability, compactness and low noise. The development of gear manufacturing process is largely expressed in the improvement of accuracy grade and production efficiency. Gears are basic parts of a machine:



their quality, performance and service life directly impact the technical and economical indexes of the complete machine; due to complicated shape, multiple technical problems and complex geometric manufacture of gears, the manufacturing level of gears reflects the mechanical industry level of a nation to a great extent.

Processing methods of gears vary, but the major techniques are gear hobbing, gear shaping, gear shaving and gear grinding as well as gear milling, gear shaper cutting, gear combing, gear squeezing, gear honing and gear lapping etc. In recent years, the development of process technologies such as hard gear surface finishing and computer digital control technology leads to great changes in various processing methods. Gear grinding is the most effective and reliable method to obtain high accuracy gears. All the developed countries apply hardened gears, so hard gear grinding has become a major processing method for high accuracy gears. The accuracy of worm wheel grinding reaches DIN Class 2-3 and high efficiency, so it is applicable to grinding of medium and micron gears. Gear grinding machines adopt digital control (CNC) technology, which facilitates the operation of gear grinding machines, reduces adjustment and shutdown time, improves efficiency and automaticity and achieves stable and reliable precision, so deep transformation has occurred to the gear grinding process. Today, Reishauer is the main representative for developing and manufacturing

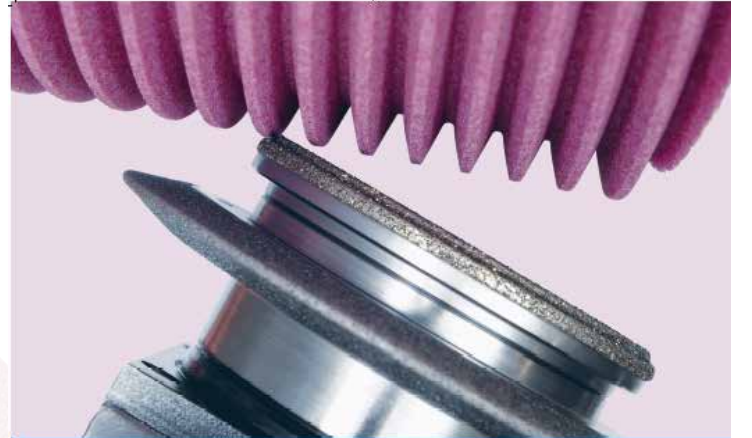


continuous generation gear grinding machines, after Reishauer has invented this gear grinding technology in 1945.

Multinationals in China interviewed Ms Meng Li, Chief Representative of Reishauer Ltd. Beijing Representative Office and published the article ten years ago titled as "Two Magic Weapons for Long-lasting Prosperity: Serve the Clients with Integrity and Pursue for Technical Excellence". Just at the 65th anniversary for establishment of diplomatic relation between Switzerland and China now ten years later, Multinationals in China interviewed Mr. Markus Wehrle, President and Chairman of Reishauer Group during CIMT 2015 (The 14th China International Machine Tool Show) accompanied by Ms Meng Li. Reishauer Group attached great importance to this trade fair: numerous senior executives were present all through the show and Mr. Jean Jacques de-Bardel, Swiss Ambassador to China visited the booth of Reishauer and offered valuable advice. The booth was larger than two years ago, with three world-leading machine tools at display: a RZ 60/90 was shown in China for the first time; it's the fastest and most compact gear grinding machine in the world. It adopts the double-spindle concept and high-sensitivity double gearing sensors as well as wide grinding wheel and multi-head diamond dressing tool for profiling. It also includes a workpiece oil cleaning station and workpiece loading and unloading automation, resulting in the fact that the whole grinding process enables the realization of the shortest cycle time within less than 10 seconds. The RZ 260 digital controlled gear grinding machine is mainly applicable to the transmissions of the automotive industry, it adopts 7-step grinding wheel for high speed grinding, and the original dual-spindle concept



瑞士精密齿轮磨削



瑞士精密刀具



in order to reduce grinding time and improve output and efficiency of the production process; and the displayed brand-new-concept flexible gear hobbing center FHC 180 is a fully mature gear hobbing machine tool manufactured and designed especially to hob shaft gears for passenger car gearboxes. The design soul lies in the productive two-workspindle-concept and the integration of the single operations gear hobbing, chamfering and deburring and adopts environment-friendly dry processing. It is learned that the three machine tools have all been sold out on the show to Chinese customers. Wehrle is quite amiable and easy-going. Before the interview, Wehrle tells Multinationals in China that Ms Meng Li has worked for Reishauer for over 20 years and is the representative and image spokesperson of Reishauer AG in China; due to her excellent contribution to this part of the machine tool business in China, she has been selected as "Chinese Economy 100 Elite" and "Chinese Economy New Leader" by Chinese national media successively. Below is a transcript of the interview between Multinationals in China and Wehrle.

Multinationals in China: Would you please introduce the general development situations and new changes of your company in recent 10 years?

Wehrle: The business relation and transaction between Reishauer and China has lasted more than 50 years, with the trade contacts between the two countries at the earliest. Over the past 50 years, various machine types in the gear and thread grinding field have been sold and installed in China. During the recent 10 years, Reishauer has achieved rapid development, exported the latest and most advanced machine generation to China, involving numerous application fields such as

aerospace, machine tool manufacturing industry, automotive and motorcycle industry, shipping industry, printing machinery and textile industry and reduction gears industry. However, today it is the automotive industry which is Reishauer's main customer and so Reishauer has conducted long-term cooperation with multiple automotive parts enterprises in the power transmission field in China. The Swiss Headquarter is equipped with grinding machines especially for testing required by automobile parts enterprises in China. China is now manufacturing 24 million vehicles annually and has become the largest car manufacturing power and automobile market globally; the world-noted automobile enterprises have flocked into China for investment and design as well as manufacture of major automobile components in China. Engines and gearboxes require high efficiency and high speed operation capacities and structures, which must be based on high accuracy and high performance grinding machines to process gears. Reishauer Group today is the strongest and top machine tool provider



along the entire manufacturing process of gearboxes: Soft turning and hobbing with built-in chamfering, laser-welding, flow-hardening, hard turning, bore turning and grinding, hard-finishing grinding and gear polishing. Each cycle time along the complete manufacturing process is optimized by means of automation systems adapted to the workpiece features and the customer's requirements. To satisfy the continuously increasing environmental requirements, the company continuously conducts R&D for new and cost-saving technologies to meet and realize new requirements. Today, DCT transmissions (dual-clutch transmission) is in popularity and Chinese Government is promoting it vigorously as well. We are really glad to see the investment and construction of increasing high-grade gearbox enterprises in China. The entire driving system of electro mobility is of brand-new design, where the noise level of the gearbox must be reduced to zero. Therefore, the new technologies of electro and hybrid transmission will be quite powerful, so we must also adapt to the new requirements in this field. Most of application areas for the company involve the currently leading high technologies.

Multinationals in China: As the largest developing country with the population of 1.3 billion, China is a large consumption power as well as a large manufacturing power with enormous demand for machine tools. Faced with fierce market competition, what special competitive advantages does your Corporation enjoy?

Mr. Wehrle: How do we gain market share? Firstly, dare to take challenges; secondly, have the ability to take risks; thirdly, comprehend the market; and finally, realize what the client's problem is and how to solve it. In general, we need to be able to understand and tackle the client's problems. Our Company not only sells machine tools, but also provides the necessary auxiliary systems such as loader and oil filter device, but also all the necessary tooling such as clamping fixtures, dressing tools and grinding wheels. In addition, over the last 60 years our group has build a vast knowledge base to support customers with the required process parameters and – as an important result - we are taking full responsibility of the output results specified and required by our customers. To serve our clients also in the future, we have to research and develop new products and technology at all times. As the most precious treasure in our Corporation is talent and experience, we need to provide our employees with excellent training opportunities and incentive mechanism to arouse their enthusiasm and personal initiative. We also need the best and most efficient machine tool, tooling and grinding technology to work together for the highest added value in favor of the customer and for continuous progress. The corporate philosophy and mission of Reishauer is continuous progress and innovation. We need to pay focused attention to machine tool, tools and grinding technology, any of which is indispensable in the Corporate Circle of Competences.



Multinationals in China: It is a rather complex process to turn knowledge into wealth, and it is just the task of the leaders to implement the transformation. Please tell us your own



experience and view on that in combination with your multiple years of management experience.

Wehrle: According to the Diffusion Theory it usually takes about 15 years to diffuse and spread a real technological innovation in the market. During the innovation process of turning ideas into valuable, usable inventions, some ideas will come back to original innovation after 5 years. Graduating from college 30-40 years ago, today's senior executives - mostly at the age of 50-60 - suffer from stale and outdated knowledge, so they have to update it persistently. Only if they have mastered the latest state-of-the-art knowledge it is insured that our Corporation is heading in the correct direction and on the correct way. Corporative leaders, senior executives and backbones have to review and study the markets, the progress in technology, economic trends, involve all employees and know what the competitors are doing.

Multinationals in China: China has become the most attractive investment destination with excellent investment environment and enormous market potential in the world. What is your new development layout in the future?

Mr. Wehrle: The global strategic layout of Reishauer Group is that Europe, America and Asia represent one third of the global business respectively. We are fully confident in our investment and development in China. Chinese clients are the best in the world. In 2014, we upgraded our Beijing Representative Office to Reishauer Gear Grinding Technology (Beijing) Co., Ltd and there are plans to invest CHF 6 to 8 million in the near future to establish a more generous infrastructure and platform in order to serve our customers in China better and faster as far as after-sales service is concerned such as spare parts, maintenance, technical support and training. We are also going to set up a show room where testing and trials could be run in China together with the customers.

Our corporation has enjoyed a high reputation since Reishauer's invention of the Continuous Generation Gear Grinding Process in 1945 which is today the state-of-the-art technology for hard-gear-finishing of advanced power transmissions. Established in 1788, Reishauer AG has a history of 227 years. As one of the oldest machine tool manufacturer in Europe with numerous patented designs and technologies, it is the world-leading worm wheel grinding machine manufacturer. For more than 200 years, Reishauer has been adhering to guaranteed high precision, product innovation, usage availability and customer orientation. Nowadays, Reishauer is the No. 1 representative for worm wheel grinding machine used in the automotive and power transmission industry worldwide; its representative products are the machine tools RZ 60/90, RZ 160, RZ 260 CNC-controlled double spindle gear grinding machines, RZ 410, RZ 550 CNC-controlled one-spindle gear grinding machines for truck and train transmissions and RZ 800 and RZ 1000 gear grinding machines for wind power and ship transmissions. Reishauer established its subsidiaries to develop, design and manufacture workpiece clampings, diamond dressing tools and grinding wheels. In addition, Reishauer designs and assembles different types of loading



systems and integrated automation for transferring gears within the customer's pant. We expect that Reishauer will increase its investment in China in the years to come, and make greater contribution to elevating Chinese manufacturing industry and strengthening the economic and trade cooperation between China and Switzerland. We hope that our Corporation can grow together with China as well as achieve win-win progress and common prosperity.

RZ 550 齿轮磨床

Reishauer 齿轮磨削工艺的最佳柔性设计



瑞士精度 齿轮磨削

1945:

瑞士莱斯豪尔公司创造性发明了连续展成磨齿机

2015:

莱斯豪尔始终掌握尖端技术，保持精湛技艺。无论现在与未来，先进的磨削工艺，完美的工装刀具，使得莱斯豪尔磨齿机品质始终如一，久负盛名并不断延续。



Reishauer AG

莱斯豪尔齿轮磨削技术（北京）有限公司

北京市朝阳区建外大街 22 号

赛特大厦 1710 室

电话：010-65157175

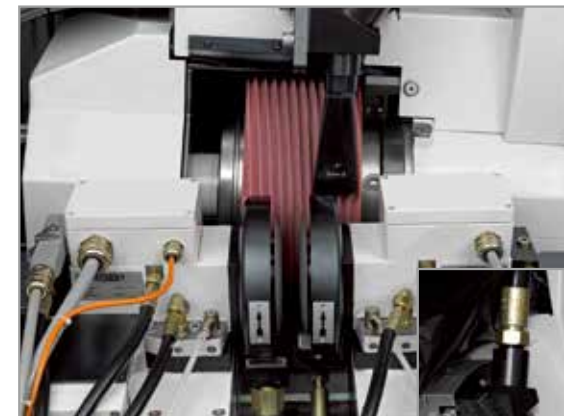
传真：010-65157174

china@reishauer.com

www.reishauer.com



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