
SENSORS
RIEGL

40 YEARS
OF DISRUPTIVE INNOVATION IN 3D

It takes persistence to be a scientist with stellar academic records. It takes divergent thinking to be a disruptive innovator. It takes confidence to be a business tycoon. It takes the highest degree of proficiency to be a skilled pilot. And it takes a formidable combination of all these virtues to be Dr Johannes Riegl.

"My goal was to have the freedom to realize my vision and ideas in the field of laser ranging technology, unhindered by constraints as given when working within an organization other than my own," reels off free-spirited visionary Dr Riegl.

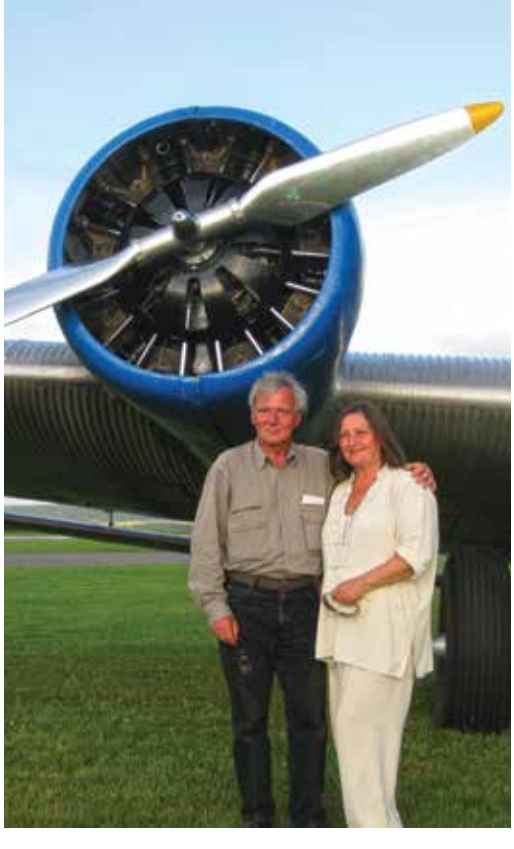
Studying radar and communications engineering in the year 1964-69 from the prestigious Vienna University of Technology provided him the means to quench his thirst for innovation. Here, he pioneered development of the essential circuitry — in principle, unchanged to this day — for driving a semiconductor laser transmitter. Young Dr Riegl also began gathering the first of many national and international patents based on his research. From 1970 to 1972 he developed the first miniaturized laser distance meters, and in 1975 when GPS was not yet available, he developed and designed a rangefinder for use in hydrographic surveying.

However, 1978 was the turning point year, after being encouraged by university colleagues to start his own company; with a handful of students he left to start Riegl Laser Measurement Systems (LMS). Based on his R&D work at Vienna University of Technology they began developing industrial and the first surveying applications.

Dr Riegl and a very early Laser Distance Meter, the RF90 with trigger handgrip, 1984

Dr Riegl and his son Johannes Riegl Jr. who is the Chief Marketing Officer are leading the company into a new era of advancements

Dr Riegl presenting latest innovations at a RIEGL LiDAR user conference in Hong Kong



Dr Riegl's better half Eva Riegl has always been a source of unflinching support

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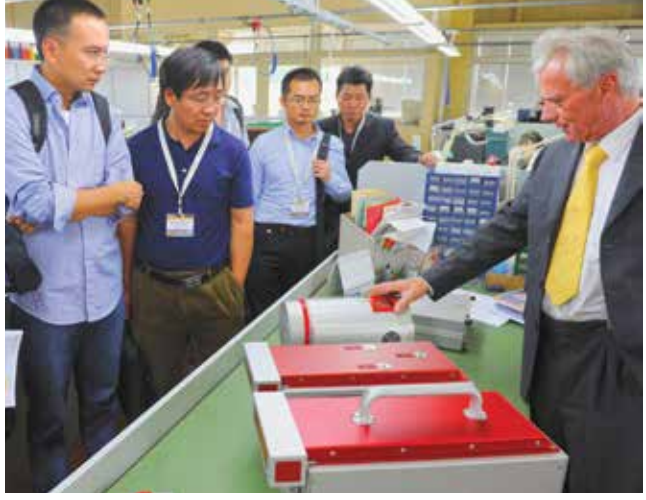
The difference between something good and something great is attention to detail. Dr Riegl knows this all too well. It is still the guiding principle on which he established the now internationally-renowned RIEGL Group. "I was rather young. I managed the finances with much audacity. You could even say some amount of hubris. I had achieved every academic degree to be expected reasonably for that age. And I was convinced of my visions and, if I may say so in all modesty, my talents," Dr Riegl smiles.

The transition from the well-sheltered status of an academician to a start-up entrepreneur wasn't easy, but it was most certainly worth it.

At a point, while making a sales presentation, a manager of one of Riegl's main competitors today asked,



Top: Dr Riegl showing a delegation of visitors from China sensors at Riegl facilities in Austria

Left: Dr Riegl and Dr Ullrich (CTO) in front of the VMX turnkey mobile mapping system

"Why do we need to know Dr Riegl?" This simple question became a driving force in Dr Riegl 's life.

In 1979, Dr Riegl began experimenting with digital signal processing. In time, RIEGL technology was broadly adopted for such uses as tunnel profiling, rifle scopes, cargo cranes and cargo ship docking, and an application for determining the distance to the ground for a commercial airliner on a landing approach. Handheld 'binoculars' came in 1982. Applications capable of withstanding high heat, such as needed in the steel industry, were also developed.

"The big breakthrough came around 20 years ago. Our focus from so-called 'single point' measurements like range finding and distance or speed measurement shifted into the field of 2D and 3D laser scanning. And in 2004, we had the successful commercial launch of the LMS-Q 560, having been the first really compact airborne laser scanner engine with an up-to-date pulse repetition rate and providing full echo signal digitization and

Dr Riegl and Dr Ullrich, Chief Technology Officer and Senior Vice President (then Technical Director) with RIEGL's first commercially available 3D scanner LMS-Z210 for surveying and for industrial applications, 1998

> The biggest achievement of RIEGL is the fact that we have been able, again and again, to prove ourselves to be a leading innovator in the field of LiDAR technology for nearly four decades now

subsequent waveform processing," Dr Riegl remembers.

Soon after, Dr Riegl trained to be a pilot.

"There was a need and the opportunity for RIEGL to acquire and to operate our own plane for testing airborne LiDAR systems — a very nice, modern twin-engine plane. I, of course, also wanted to fly myself — in principle the same motivation like dozens of years ago when starting the firm!," he recalls.

Along the years, Dr Riegl has received several offers of a buyout. He still does! But, the answer is always a stern 'No'. He is of the opinion that, RIEGL is best-suited to fulfil the requirements of the customers and of the market as a standalone firm and an acquisition would have hampered innovation. Which is why, going public is also out of question.

"I was told that going public means to be damned to rapid success. And that is exactly what I did not want —

Dr Riegl receives Lifetime Achievement Award at 2017 Geospatial World Forum for his significant contributions towards the geospatial industry globally

As an accomplished academician, Dr Riegl has always rooted for innovation in RIEGL products

One of the many awards for RIEGL over the years, in this case an award for the first fully integrated Airplane/ LiDAR combinated system with Diamond Aircraft

to restrict so much my personal and my firm's freedom." This freedom is what has been fuelling innovation at RIEGL for decades now.

An intensely private man, whose hobbies include flying and water skiing may reveal an intrepid streak, is circumspect when it comes to giving advice. His success speaks quietly for itself. The $50 million RIEGL Group has more than succeeded in what Dr Riegl set out to do in 1978. Integrating technologies and data that has been gathered, processed and presented in a cost-efficient and timely manner is an equation that works.

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And in the able hand of Dr Riegl and his dynamic management team, the trend of innovation with RIEGL LiDAR is set to continue for the future.