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Quota Zero

G. Damiracco, *Quota Zero* high-altitude jacket, Gratio Zero Espace, 2007

featuring the *Pro-Hand*[®] integrated glove-sleeve system, composed of the *Quota Zero Shell* water and wind resistant outer layer (made of different materials to provide comfort, protection, and a thermoregulatory function), and three different interchangeable inner

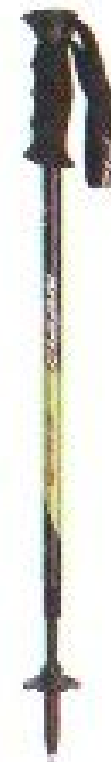
padding layers for thermal insulation: *High Performance* for extreme harsh weather conditions; *Acrogel Design System*, both extremely lightweight while highly insulating; and *Blue Air*, with a porous structure which absorbs the body's moisture and gradually releases it to the surface.



Compact

R&D, *Compact* trekking telescopic poles, Fizan, 2007

made of 3 telescopic tubes \varnothing 17-15-14 mm in aluminum alloy 7001 with an extension from 58 to 132 cm, it is the lightest in the world (only 158 g), characterized by the special locking system *Fixy* (patented by Fizan) and the ergonomic *Eva grip* with neoprene strap





Courmayeur, at the foot of Mont Blanc. In fact, the family of blacksmiths made the daring choice to set aside their traditional ware of agricultural tools and focus on mountaineering. Descendants of the Grivel family succeeded each other in managing the firm over subsequent generations, until 1982, when Gioacchino Gobbi, the son of the renowned mountain guide Toni Gobbi and owner of a mountain sports equipment store in Courmayeur, bought up the historic brand together with partners. Gioacchino's goal was to restore the brand to its proud tradition, as it had fallen on hard times, unable to keep up with foreign competition. As a prime example of his success, in 2008 Grivel purchased Rossignol's ski-poles factory in Verrayes, renaming the company Ski Poles Verrayes Srl, now led by Gioacchino's thirty year old son Oliviero. Grivel has therefore expanded its product offering to encompass ice axes, crampons, but also safety equipment such as ice screws and helmets. The company specialty are however crampons,

which have been in production since 1909 when Henry Grivel design a pair on the request of a British engineer, Oskar Eckenstein. Twenty years later, Henry's son Laurent created a system of spikes on the front of the crampon, allowing the mountaineer to tackle an ice face frontally, and in 1936 his brother Amato produced a pair made of a nickel chrome molybdenum alloy, an exceptionally light weight design for its time fittingly name *Superleggero* Grivel, a product which represents a milestone in the history of mountaineering. Grivel's new ownership followed up with another landmark after having acquired the famed brand, designing the *Super Courmayeur* ice axe in 1982, with interchangeable blades, and in 1986 the first ice axe with a curved ergonomic handle followed by handles in carbon. In 1996 another breakthrough, *The Machine*, a revolutionary ice axe imitated by all manufacturers, succeeded by *Monster* in 2004; a family of ice axes with flexible handles which became almost extensions of the athlete's own arms. Innovation has also marked the crampon sector, in which Grivel resumed its industry leading role with *Rambo* in 1993, featuring a platform designed to reduce vibrations and fatigue of the calf muscles, followed by *Rambo Comp* in 1999, designed specifically for competition.



GZE - GRADO ZERO ESPACE

www.gzespace.com

GZE is a company which conducts research, consulting and prototyping, aerospace industries. Its research is focused on materials and technologies, so as to act as a link and agent for technological transfer between engineering and every day use, a role which it plays by cooperating closely with all entities involved in advanced research, from laboratories and universities to the European Space Agency, together with the more "creative" realm, such as inventors, engineers, designers, and companies themselves. GZE is involved in applications of hi-tech materials, fibres and textiles, ranging from sports to safety equipment, furniture and accessories, the nautical and medical sectors. Among the different fields in which it is involved, GZE is active in the design of high resistance fibres and thermoactive polymers or alloys, in which sensors can be integrated, so-called e-textiles, which can be employed to measure vital parameters,

an example of which is a t-shirt created with the Milan Polytechnic able to monitor patients' heartbeat, breathing and transpiring rates, applications which open new frontiers in medical research. In this realm of hi-tech materials, GZE in cooperation with the European Aerospace Agency has developed undergarments such as bras designed by Giada Dammacco which feature different form memories based on programmed parameters, thus able to adapt depending on the wearer's temperature or other mechanical inputs. These products could for instance find medical applications, such as diagnosing the presence of nodules, whereas the model conceived for sports could relay information on a patient's heart rate. Giada Dammacco has been responsible for the development of this product line since 2004, and has also created other items for use in sports, such as the *S1 Suit* for sailing in 2007, or equipment for high-altitude expeditions such as the *Absolute Frontiers II* (2005) and *Quota Zero* (2008), the balaclava *K-Cap* (2006-07), up to the *Aerogel Design System* (2007). This specific composite textile is a lightweight and isolating material, protecting the wearer up to temperatures of 50 degrees below zero. It is a membrane able to modify its molecular structure based on temperature, just like the pores of our own skin. This clothing for expeditions