



## Repair and replace with innovation design

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*Since 2001, BELRON®, the world's largest vehicle glass repair and replacement (VGRR) company, has enjoyed a successful partnership with a worldwide provider of integrated design and innovation skills, PDD to bring technical research, innovation and cutting-edge product design to the world of vehicle glass repair and replacement. With over 50 projects completed together, PDD assists BELRON® in retaining its global lead through innovation in equipment and technology.*

BELRON® is the only dedicated provider of VGRR services operating on a global basis, generating revenues of €1,507.3 million in 2006. With operations in 28 countries across four continents, BELRON® specialises in the replacement of irreparably damaged glass and the repair of chipped windscreens using the industry-leading Glass Medic® repair system. Knowledge and understanding of the industry and excellence in every aspect of service provision drives BELRON® towards innovative design.

It is through cross border collaboration and sharing of resources, ideas and best practice that BELRON® supports all business activity within its various worldwide business units. Through the implementation of jointly-developed strategies, The BELRON® Group is able to grow and develop as a global business.

Chris Davies, Head of Innovation and Technical Research, BELRON® explains, "Every four seconds a BELRON® business replaces a piece of glass or repairs a windscreen. We have over 1,600 service centres and 7,100 mobile repair vehicles serving over eight million motorists worldwide with our call centres handling 40 calls every minute. Our vision is to be the world's number one choice for vehicle glass."

PDD has been working with BELRON Technical® for over six years. Davies, who initiated the partnership continues, "We have worked on over 50 projects with PDD and have developed a strong partnership with them during that time. When we meet a company who can deliver fantastic service, we will work with them continually and PDD are exceptional."

Established for over 27 years PDD provides integrated design and innovation skills, working with organisations worldwide to develop novel and advantageous products, services and business processes. The partnership between BELRON® and PDD is based on productive design development with outstanding success rates, as Davies explains, “Our initial project with PDD involved developing a revolutionary way to remove windscreens using light. While we were confident with the optics aspect of the project, we needed PDD’s expertise on the product design.” Davies continues, “Based on this initial project and the strong working relationship, we now turn to PDD automatically on the majority of our development projects.”

Belron has benefited from PDD’s integrated design and innovation approach which includes observational research. Davies comments, “PDD has undertaken initial context research for BELRON® and has recently worked on projects involving measuring the strength of glass. They took on the challenge and within a matter of days we had significant results.”

Currently BELRON® and PDD are working together on several innovation projects including new ways to measure repair quality. Davies comments, “We are investigating an innovative way to measure the success of a repair using an optical device. For the quality of repair project we called on PDD to provide consultancy, as we already had advanced electronics and an indication of what the shape of the device should be.”

The shape had to be adjusted to accommodate all the internal components in the correct position within the device. The device incorporates a camera that photographs the repair site before and after repair and compares it digitally to get a quality figure. Working very closely with the industrial design concept, that BELRON® had agreed upon with various BELRON® companies around Europe, PDD liaised with the electronics consultants and adjusted design slightly to provide a practical engineered solution.

Tim Court, PDD Operations Director comments, “We made ergonomic models for testing, then having finalised layouts with the electronics company, we used the optical layouts to design the final product with complete mechanical detailing; following this we built the prototype. Having put together the instruction leaflets and the assessment reports, PDD will be managing the field file for BELRON® and collating all the responses.”

BELRON® and PDD have also been working on projects around resin cartridges used to repair cracks in windscreens. Davies explains, “Fixing a windscreen when it is chipped is

vital as this chip can crack meaning that the windscreen must be replaced. The windscreen is becoming an ever increasingly important element of the car in terms of structure. In order to save on vehicle weight the glass is a more integral structural component of the design."

Autoglass®, BELRON®'s service company in the UK, has a system of pumping a small amount of clear resin into a windscreen crack which restores much of the structural integrity of the windscreen. The piece of equipment used evacuates the damage site and allows the resin to be pumped into the crack. BELRON® found that the resin capsule mouldings were inconsistent, the sealing of the mouldings was inconsistent and the resin capsules were leaking in transit and in use. Court explains, "BELRON® approached PDD to production manage and quality assure the capsules. By measuring what they had and by looking at the limitations of the capsules, the aim was to improve production and enable a better yield with less rejects."

Court continues, "PDD adjusted the design of the capsule and made various modifications. We also helped with the selection of good quality materials, managed the production of new moulds and undertook the quality management going forward. Now that the capsule is more robust in manufacture, there is no longer any concern with leakage as the amount of repairs undertaken by BELRON® continues to grow rapidly."

This first project, which supported the need for more repair capsules, led to BELRON® requiring a new capsule filling machine. PDD managed the design and manufacture of a new filling machine – where capsules are loaded in at one end and sorted using vibrations to ensure they are all vertical. The capsules are then filled, capped and checked automatically using lasers, then output ready for packaging. Using the new higher quality capsules, which are produced more efficiently BELRON® now has a much lower capsule reject rate.

There are many future projects planned between the two complementing businesses and Davies believes that part of the success of this partnership is down to the fantastic customer service PDD offers; he concludes, "From the start the PDD team has been dedicated to BELRON® almost as if they are BELRON® employees themselves. They really understand what we are looking for and how we want it delivered. PDD has made the effort to go out and meet the BELRON® workers and branch managers and actually get to know our business, and I do think that such a commitment is extraordinary and key to the exemplary results that PDD continues to deliver."

-ENDS-

### **About PDD Group Ltd**

Founded in 1980, and based in Hammersmith, West London, PDD provides integrated design and innovation skills and works with organisations worldwide to develop novel products, services and business processes that drive revenues and create competitive advantage.

PDD targets markets that are undergoing rapid change, for example, those affected by the shift from mature to emerging markets, rapid technological change, climate & environmental issues and demographic changes.

PDD is an award winning agency, collecting eight awards in the last 12 months, and is certified to BSI 13485 medical quality assurance certification and quality assured to ISO 9001.

PDD has worked with over 200 clients in the last three to four years and today has approximately 30 active projects. Top customers in 24 countries include Orange, LG, Bristol-Myers Squibb, Nestle, Belron, Ford, Gillette, Samsung, Vocollect and Merck Serono.

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