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Electric vehicles help service CERN's accelerator tunnel

TRANS-LIFT, a small yet innovative Danish production company built 15 electric vehicles for the renowned research center CERN which lies on the border between Switzerland and France. The TRANS-LIFT vehicles are specially customized to fulfill CERN's daily transportation needs throughout their 27-kilometer long and 100-meter deep accelerator tunnels.

CERN needed a way to solve daily transportation and maintenance tasks in their 27 kilometer long accelerator tunnels. CERN needed vehicles that could work efficiently inside the tunnel's limited maneuvering space, and they sought widely throughout Europe for a supplier that could fulfill their special requirements. The Danish company TRANS-LIFT was chosen by CERN above other much larger transportation solution providers. Six months later, TRANS-LIFT delivered 15 fully customized electric vehicles to CERN – all built exactly according to CERN's original specifications plus their modifications along the way.

Special requirements and dual functionality

CERN's electric vehicles function as carriers for personnel who need to service the pipes every day. Additionally, they are used to pull trailers up to and down from the surface and into the tunnel. This means that they must be both easy to handle and powerful. CERN had very special requirements for the vehicles due to the limited space inside the tunnels. The enclosure's narrowness and low-hanging pipes made it impossible for two manned vehicles to pass each other. A vehicle could be parked to the side under the fixed pipelines, but the pipes were positioned at a level too low for a person to sit on the vehicle
while maneuvering it into this only free space.

TRANS-LIFT designs a driverless solution

Therefore, CERN needed vehicles with a special feature that enabled them to be maneuvered easily using a remote control. With this feature, a vehicle could be driven “driverless” to a space under the pipes where the free height is only 90 cm. And, in this way, vehicles could be maneuvered out of the way, and two vehicles could pass each other when necessary. Complying with CERN’s wish for simple operation, TRANS-LIFT developed a handy “joystick” operating solution, so that anyone could easily control the vehicles in all directions and required situations.

Close collaboration with the customer ensures the best results

TRANS-LIFT worked directly with CERN’s experienced personnel who followed the whole process from design to production. CERN sent two representatives to review and approve the initial prototype – thereby giving CERN the chance to suggest adjustments and to influence the final design. Close collaboration and TRANS-LIFT’s unique flexibility ensured that CERN received the exact solution they needed, despite the complex requirements involved.

- Our experience with CERN makes us believe that other Big Science facilities can also benefit from our customized electric vehicles,” says Annette Jonsson, Administrative Director of TRANS-LIFT.

Customer satisfaction with TRANS-LIFT and their solutions was confirmed when CERN later ordered six new vehicles, with a different wheel-type but otherwise of the same design and suite of functionalities.