



Our long-standing client Pandrol leapt into action to create a life-saving mechanised breathing aid to fight COVID-19. We are proud to have helped.

Mechanised breathing aid helps fight COVID-19

In such difficult times, every organisation needs to do what it can to support the global fight against COVID-19. At Aldermans we're proud to do our bit too.

For over 15 years we have been a supply chain partner of Pandrol. Part of the Delachaux Group, Pandrol is a global engineering company that defines the industry standard across rail fastening systems and aluminothermic welding. When manufacturers were asked to consider how they could support the healthcare sector, the company was quick to respond.

Applying their engineering skills, the Plymouth-based team rapidly developed designs for a mechanised breathing aid. Unlike a ventilator, a mechanised breathing aid can be used without invasive intubation. The device pushes a steady flow of oxygen into the lungs via a face mask while the patient is conscious. Using such a device relieves pressure on the healthcare system, as fewer patients need intensive care treatment in hospital and, in some cases, can even be treated at home.

Rapid design

Aldermans was first contacted about the new product development in April 2020 when Pandrol's Purchasing & Logistics Manager, Mike Timson, approached us about the device and explained the need for a rapid prototype for testing.

As an existing supplier to Pandrol we already had the trust of the customer, who knew we had the expertise, speed and efficiency needed for the task. Of course, no factory visits or face-to-face discussions were permitted, so all discussions and planning were undertaken remotely.

Pandrol provided us with the designs, which our design team reviewed to ensure that the parts could be manufactured to the customer's expectations.

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Overcoming challenges

The unit presented two particular challenges. Firstly, it contained a difficult radius, which had to be thought out carefully under time pressure. Secondly, the unit was designed to be self-jigging (no separate welding jig would be used to position the parts accurately during fabrication) - hence the tolerances across all parts had to be extremely accurate.

To ensure rapid production we dedicated a small team to the task, under the supervision of our Operations Manager, Shane Heaney. With a streamlined process, they focused on producing the parts rapidly and accurately.

Thanks to our stock holding of popular raw materials, we were able to use mild steel stocks held on site. The parts were cut on our Amada fibre laser cutting machine, before progressing to assembly by our fabrication team – all with the support of our toolroom, admin and design colleagues.

Record delivery time

From the first enquiry to the final delivery of the prototype took just five working days (and actual production time was clocked at an impressive 10 hours!).

The metal assembly we created – pictured here – was to be combined with other parts at Pandrol, before being tested. However, initial feedback from the customer has been very favourable. Two versions of the device have been prototyped, both made with common parts; one is pneumatic and the other electrical.

The breathing aid has been fully tested and is now under review by healthcare professionals. It has been built with the developing world in mind and will be made available on an 'open source' basis, with the primary aim of supporting countries which would struggle to ramp up ventilator production locally.



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“I have to say, the metalwork looks superb, thanks to the guys there for the quick turnaround and their inputs.”

Richard Robertson
MD of Equipment & Control
Pandrol