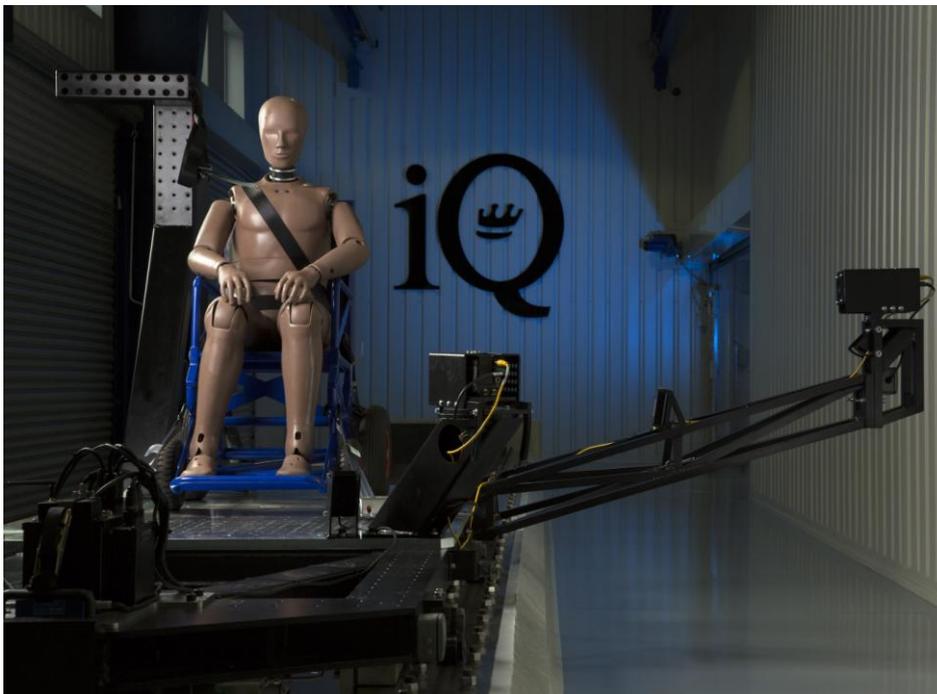


GD Premiair selected for testing environment

The state of the art iQ Research Centre for Q'Straint is the new home of two GD Premiair 68S high pressure compressor units. They provide the high pressure air for an industry leading 12" accelerator crash simulation system. For 30 years Q'Straint has developed the world's most effective wheelchair passenger safety solutions for public and private transport and is a global company. Gardner Denver worked in conjunction with Q'Straint and HYGE™ to successfully implement a complex turnkey solution.



Application Details

This was a technical and complicated installation at Q'Straint but managed successfully by Gardner Denver.

The two Premiair 68S's provide the crash simulation system with 24 cfm (41 m³/hr) at 4,351 psi (300 bar). The air is stored in a number of cylinders to provide the air demanded by the system.

The air is drawn from the cylinders and fed into the system, providing compressed air which develops 225,000lbs of thrust – the acceleration being 20 times faster than a Formula 1 racing car.

The two Premiair 68S's were modified with the separators and filters removed from the units and relocated on a separate plinth. This allowed the compressors to be installed in a much smaller area, reducing the compressor footprint size.

Benefits-at-a-glance

- Fast recharge times for air cylinders
- Gardner Denver turnkey solutions expertise
- Low vibration and noise levels
- Small compressor footprint
- Reliable air quality and supply

Application-at-a-glance

- 1,441cfm (41 m³/hr) at 4,351psig (300barg)
- 4 stage, 3 cylinder operation
- Variable load capability
- Vee belt driven 20HP (15kW) motor
- Compressor speed – 1450rpm

Customer
Q'Straint

Location
Whitstable,
Kent, UK

Application
Crash simulation system

Product
Premiair 68S

Customer Benefit
Confidence in consistent air supply and fast air cylinder recharge time.



“ We are delighted not only with the efficiency of the GD Premiair compressors but also the technical team’s ability to understand an unusual application and design a flexible turnkey solution to an aggressive time plan.

Steve Todd, Q'Straint Project Manager

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Application Details

The crash simulation system operates using two cylinder stages. The compressed air enters the rear cylinder at 3200 psig (220 barg). Using a pin and seal arrangement the air trigger breaks the seal and air from the rear cylinder is released into the front cylinder. The ram accelerates the sled down the rail system to achieve the required acceleration profile.

Compressed air is also used to stop the sled by engaging a carbon braking system. The ram and rail system is anchored to an 80 ton concrete and steel mass aligned to one thousandth of an inch per metre of rail. This provides a test facility operating up to a maximum of 66mph at 60G, with normal test conditions operating at 30mph and 25G. The sled can be fitted with a complete vehicle shell with a wheelchair installed or a wheelchair on its own. High speed HD cameras are fitted on the sled so that the test results can be monitored in ultra slow motion.

The turn key installation included the entire pipe work system and control panel which was located in a separate control room allowing the compressors to be operated in a safe environment rather than from the test floor.

It was the technical system and legislative expertise of Gardner Denver staff which gave Q'Straint the confidence to specify the GD Premiair compressor to safely support this state of the art facility.