Three new technical centres of excellence

Pandrol continues to build on its reputation for technical innovation and new product development by establishing three centres of excellence: Worksop in the UK for fastenings, Hudiksvall in Sweden for equipment and control and Raismes in France for welding.

→ TESTING TO STANDARDS

Testing is carried out to international standards such as CEN (Europe), AREMA (USA), RTRI (Japan), CRCCC and CARS (China) and any other local railway authorities.

Not only does Pandrol have an extensive and enviable test laboratories worldwide, we also employ technicians with extensive experience, degrees and affiliations to their relative professional institution, such as the institute of Mechanical Engineers.

The test laboratory has a technical support team, such as Product Development and Material Scientists on site that can advise on material selection and condition. The laboratory can offer the full suite of tests for any standard, including severe environmental, impact attenuation and electrical resistance testing.

Pandrol has the ability to run a full suite of tests in house, without the need to subcontract, providing customers with the highest level of service.

→ SWEDEN

The new Centre of Engineering Excellence for the development of rail infrastructure equipment and controls is based at Hudiksvall in Sweden.

This is part of Pandrol's commitment to the development of equipment which improves productivity and supports the increased mechanisation of rail infrastructure.

The test laboratory features a number of test rigs and tracks including:

- An indoor test rig for simulation of worst-case track conditions, which can be altered to suit many track gauges.
- An indoor test track.
- Outdoor test track for standard gauge.
- An instrument for impedance (Ω) measuring according to European rolling stock standards.
- Capacity to rapidly build temporary track panels for any track gauge.
- Cordless electronical weighing system with four channel measuring capability.

A number of pieces of equipment have already been tested in our facility in Sweden including rail converted excavators, clipping machines, sleeper changing attachments and rail trailers.

The laboratory can simulate actual track conditions as the test rigs can be tilted to simulate different tracks, slopes and gauges. The test tracks can be adapted to suit different sleeper types and different clip assemblies, offering complete flexibility. The Sweden laboratory tests to EN15746 and draws on the competence and extensive experience of the Pandrol technical team based there.

> Our new laboratory has an industry-leading engineering department and a workshop where we can develop and prototype equipment. This supports our rail customers in managing their rail assets more efficiently, increasing uptime and maximizing availability of the railway.
>
> **Erika Berg** / Managing Director of Pandrol Sweden

> We have a strong and skilled team of engineers who are experts in developing rail equipment products for customers around the world. By concentrating our research and development activity in Hudkisvall, we can accelerate our equipment product development and focus our energies on market leading innovation.
>
> **Oliver Dolder** / Equipment and Control Product Line Director

→ FRANCE

Pandrol has established two test laboratories in France for aluminothermic welding. One laboratory performs tests on the raw materials and the other analyses the welds. The type of testing carried out in the first laboratory is granulometry and also measure of the oxidation of the iron oxide. In addition, tests are carried out on the material being used to manufacture the moulds. This laboratory also carries out analysis on the welds (microscopy and electronic microscope) using highly sophisticated equipment for measuring the size of particles under electronic microscope (with magnification up to 200,000).

Featuring two test rigs, this laboratory performs product tests of raw materials, assesses the mixture for manufacturing the moulds and also carries out inspection of the welds. The second laboratory tests the welds for hardness, ultrasonic inspection, chemical analysis and slow bend. The equipment in the laboratory measures the hardness of the welds and provides an ultrasonic test, and also the chemical analysis with a spectrometer. For the welds tested, Pandrol performs two tests per batch, with weld testing carried out during the manufacturing process. High accuracy is retained as all equipment used to measure in the laboratories is calibrated and both laboratories operate to ISO9001 version 2015.

→ UNITED KINGDOM

In the UK, the former Product Testing Laboratory was expanded with the addition of new rigs to increase capacity and flexibility. The laboratory was redesigned in accordance with Lean Manufacture to enable a smooth work flow. The testing laboratory is also a showroom for customers to visit and observe their assemblies being tested. The new controllers can display exactly what is being tested, as well as the deflections and loads being applied.

The UK Fastening Systems Development and Testing Laboratory has the capability for suites of tests to be carried out on Pandrol brand rail fastening assemblies to ensure compliance with national and international standards. This includes, but not exclusively, BS EN 13481 and BS EN 13146 on concrete, timber and steel bearers/sleepers including slab track fastening systems.

This extensive testing facility ensures that the rail fastening assembly meets the necessary standard and trackwork specification required on a specific project.

The UK laboratory also has the facility to carry out testing on individual components, such as the rail pad, clips etc. which can be tested to ensure it exhibits the desired characteristics and properties.

All components are inspected before, during and after the tests. A typical test will run for 12 days and will include:

- Vertical stiffness
- Dynamic stiffness
- Clamping force
- Longitudinal rail restraint
- Repeated load test (3 m cycles)
- Electrical resistances
- Torsion
- Attenuation of impact
- Severe environmental test
- Vertical load test (Cast in compounds)

The UK laboratory features a suite of all servo and computer-controlled rigs, which can be used singly or in regimes involving two or three actuators that are synchronised to apply sequential loads to the components or full assemblies under test. The laboratory has seven test rigs, which are used to simulate vertical and horizontal components of loads with rail displacement measured using state of the art data acquisition systems.