

Single-Cylinder Research Engines

Combustion research and mechanical testing of engine parts for diesel, gasoline and alternative fuels

Hydra

Standard and custom engine designs for light-duty applications

Proteus

Standard and custom engine designs for heavy-duty applications

Atlas II

Fully customisable designs for large-engine applications

Prometheus Marine

Off-highway and power generation applications – medium speed

Who we are

Ricardo is a global engineering and strategic, technical and environmental consultancy business with a value chain that includes the niche manufacture and assembly of high-performance products. Our ambition is to be the world's pre-eminent brand in the development and application of solutions to meet the challenges in the transportation, energy and scarce resource sectors.

Drawing on over 100 years of commitment to research and development, Ricardo's team of over 2,900 professional engineers, consultants, scientists and support staff delivers class-leading and innovative products and services for the benefit of a broad customer base.

This includes the world's major transportation original equipment manufacturers and operators, supply chain organizations, energy companies, financial institutions and government agencies.

The delivery of our products and services is made possible through our people, who are at the heart of our business and are the bedrock of our success. Ricardo cultivates the talent, the innovation, and the engineering and scientific excellence of its professionals and invests in their development for the benefit of the individual, our organization and its stakeholders. Ricardo's community is bound together and driven by its corporate values of Respect, Integrity, Creativity & Innovation, and Passion.

Ricardo has over 2,900 staff worldwide



What we do



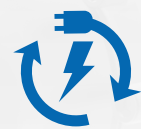
Engines



Vehicle Systems



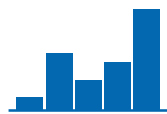
Driveline & Transmission Systems



Hybrid & Electric Systems



Critical Systems



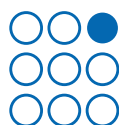
Strategic Consulting



Environmental Consulting



Energy Consulting



Independent Assurance



Test Services

Product range

Sir Harry Ricardo, the founder of the present-day Ricardo plc, built his first single-cylinder engine in 1902. From that time on, first he, and then the company he founded, designed and built a steady stream of engines for investigation into the fundamentals of engine operation.

Ricardo's investigational work covers the whole spectrum, from fundamental studies of combustion, heat flow and thermal stressing through to straight performance development – which today encompasses fuel economy improvement, emission control and noise reduction – as well as durability and reliability testing. Ricardo has many

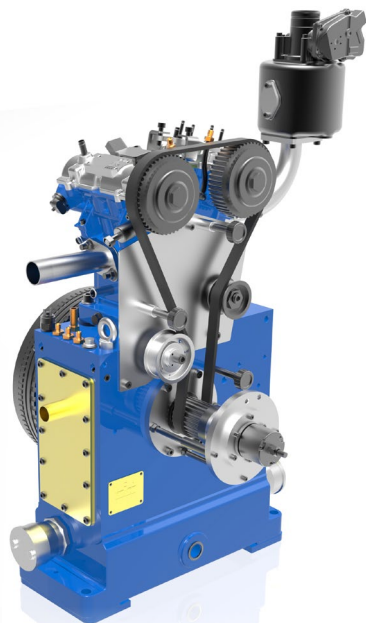
single-cylinder and multi-cylinder engine test beds and extensive workshops to enable it to make all the special parts required for experimental work.

We offer four single-cylinder engine families – light duty, medium duty, heavy duty and a large engine for marine applications – known as Hydra, Proteus, Atlas and Prometheus respectively.

The Hydra, Proteus, Atlas and Prometheus ranges comprise standard designs as well as custom versions, designed specifically to satisfy particular requirements of individual customers.

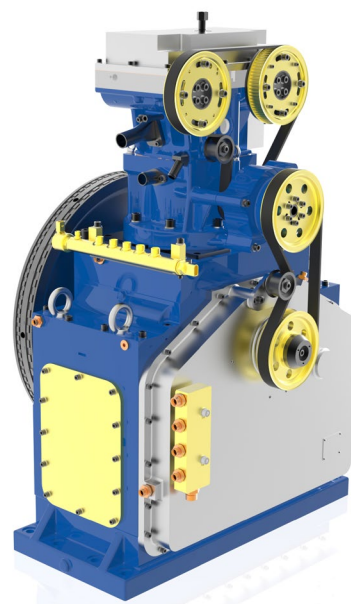
Hydra

0.5 litre with bores from 65mm to 110mm and stroke up to 110mm for passenger cars, low-carbon vehicles, off-highway and power generation applications



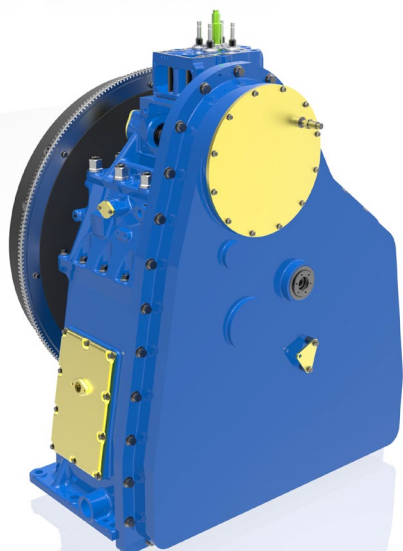
Proteus 300

1–3 litre with bores from 120mm to 145mm and strokes from 130mm to 170mm for heavy-duty vehicles, off-highway and power generation applications



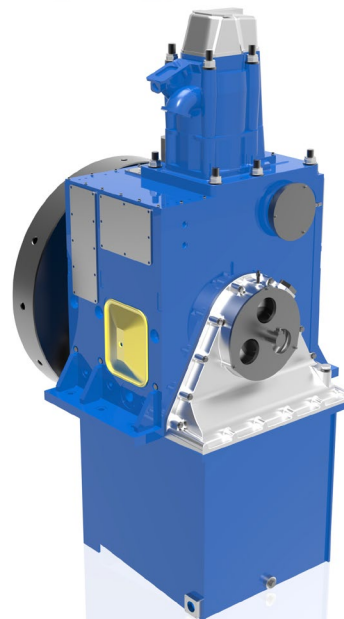
Atlas II

Bores of 150mm to 200mm and strokes of up to 280mm, 3–10 litre for marine, off-highway and power generation applications (high speed)



Prometheus

Bores of 200mm to 300mm and strokes of up to 1500mm, 10 litre+ for marine, off-highway and power generation applications (medium speed)



Typical market sectors for single-cylinder engine testing

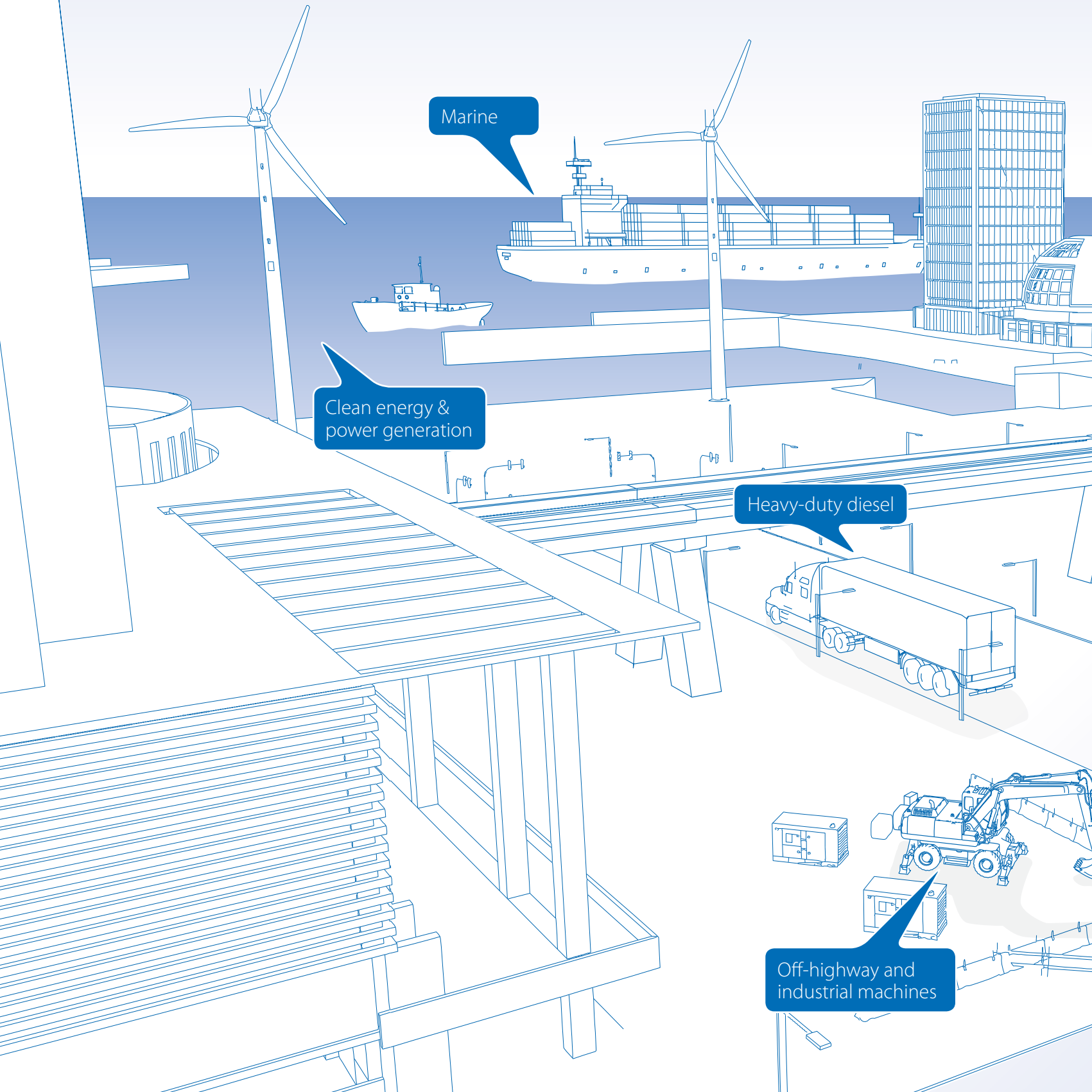
A single-cylinder engine is a low-cost product compared to a multi-cylinder engine

Allows for bespoke technology to be trialled and tested

Research tool for combustion research, new bowls, fuel injection systems, port geometry and varying compression ratios

Single-cylinder engines allow for quick and flexible set-ups and trying new ideas

Advanced research covering optical techniques to investigate e.g. fuel spray patterns



Marine

Clean energy & power generation

Heavy-duty diesel

Off-highway and industrial machines

Educational tool for teaching graduates or non-engineers in engine testing techniques

Fuel and lubricant development

Product development e.g. material selection

Eliminates the issue of cylinder-to-cylinder variations in advanced combustion research

Academic institutions

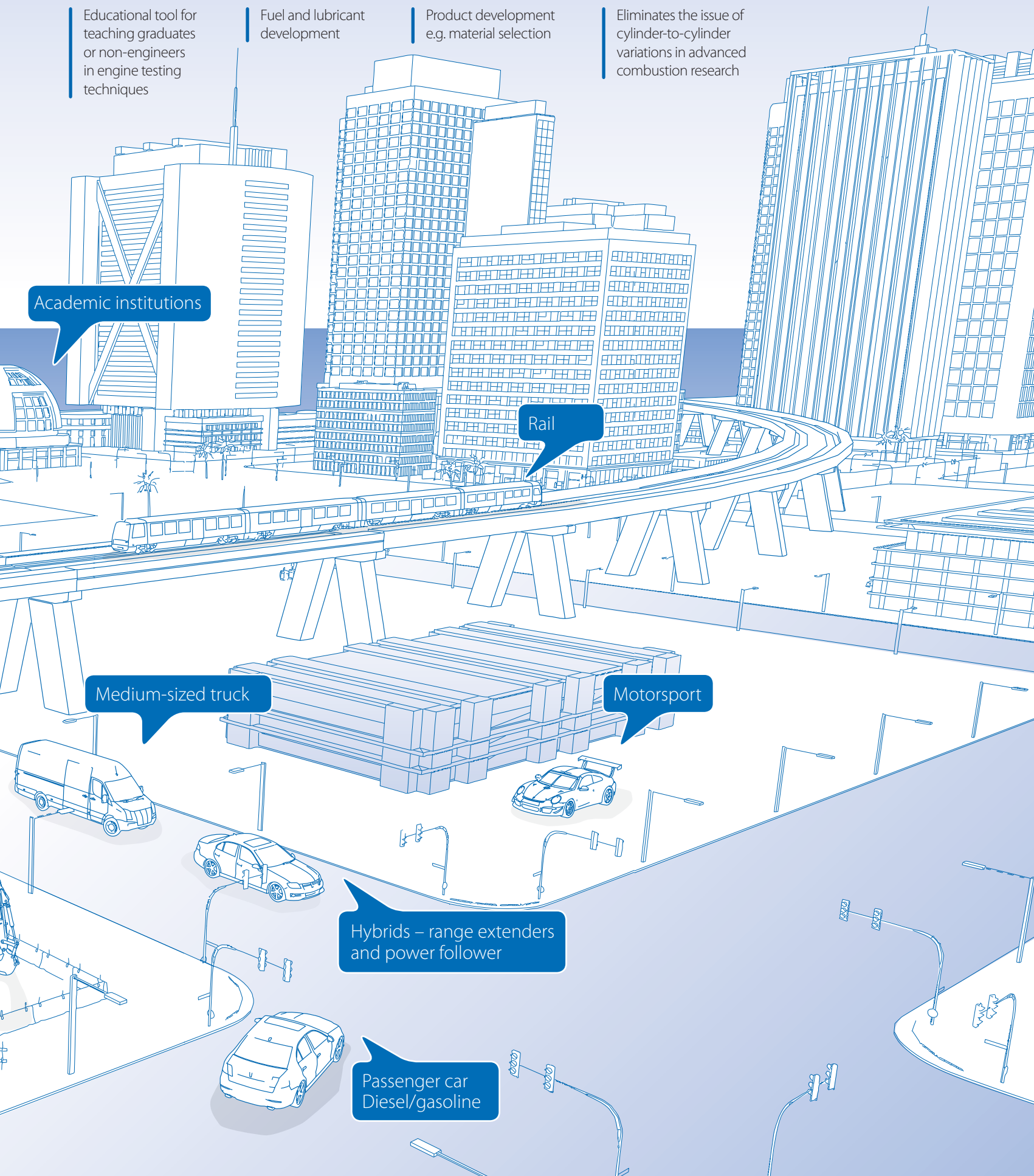
Rail

Medium-sized truck

Motorsport

Hybrids – range extenders and power follower

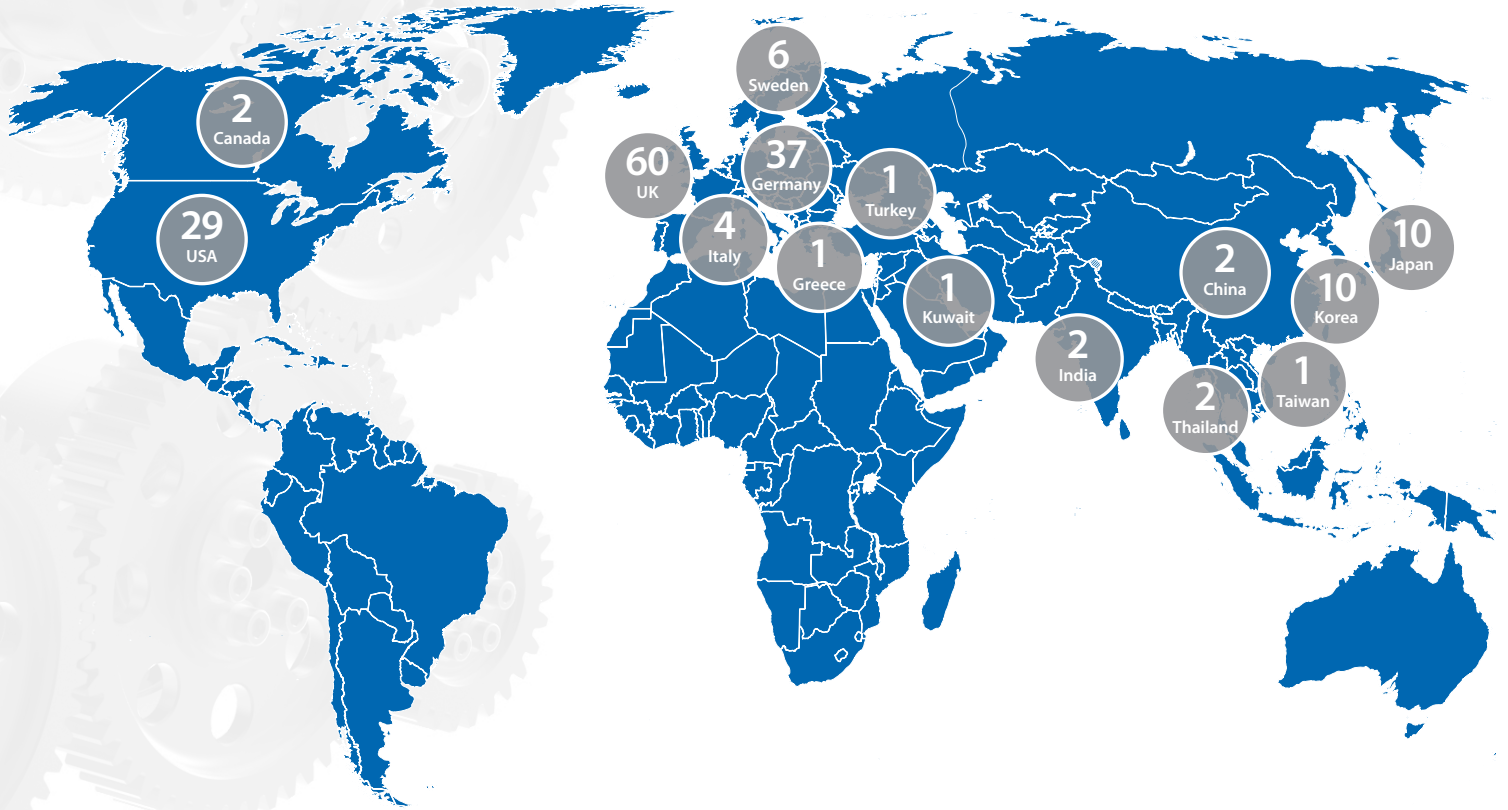
Passenger car Diesel/gasoline



Where our single-cylinder engine products are being used

More than 600 Ricardo single-cylinder engine products are deployed worldwide.

The map below shows where some of our 180 Hydra products are located around the world.



Optical products

Ricardo has over 60 years of experience of in-cylinder photography in both diesel, gasoline and alternative fuels. Various techniques have been employed in this work and considerable expertise has been developed, giving valuable insights and increased understanding of air motion, fuel spray behaviour and fuel quality criteria.

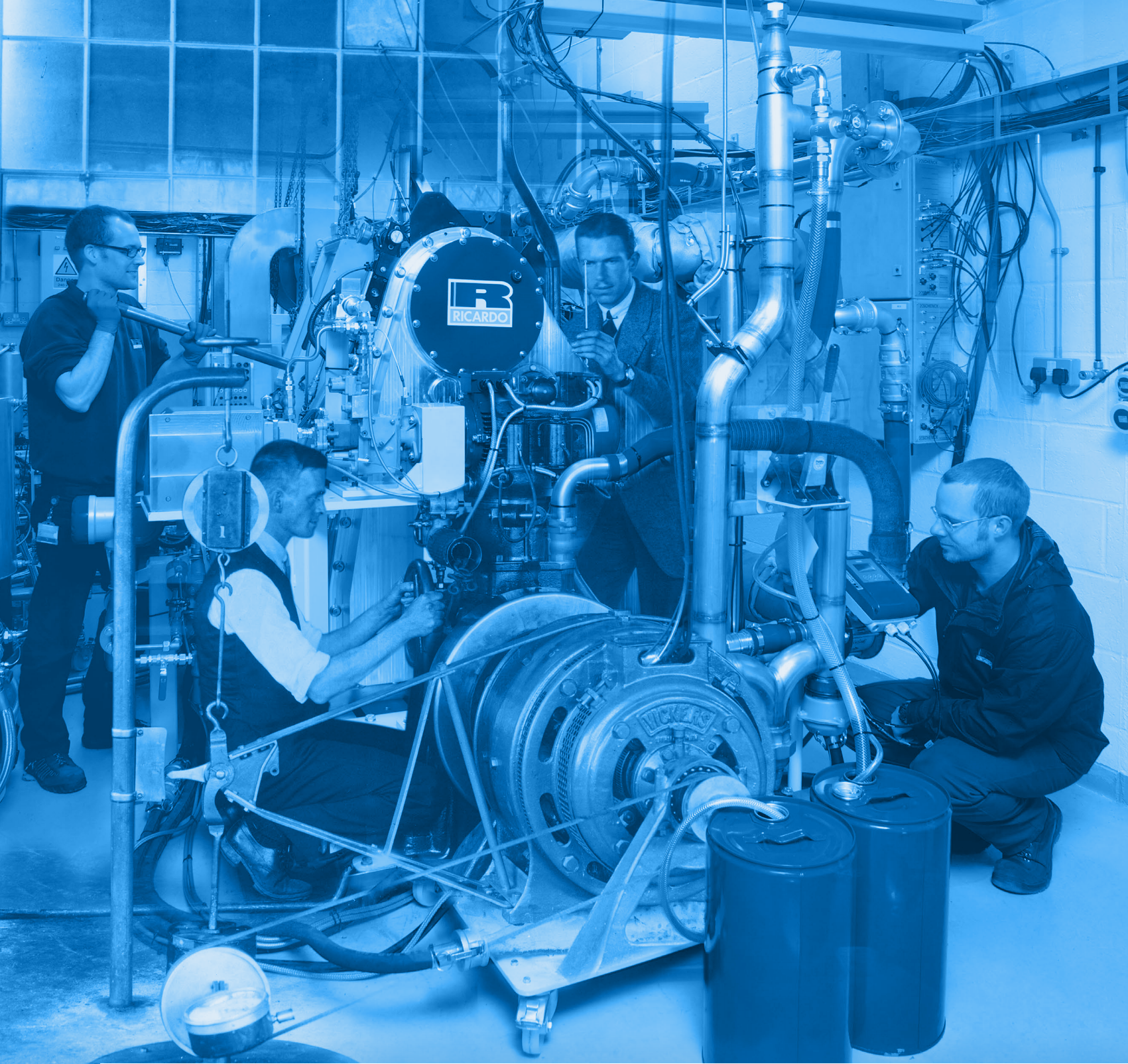
Future products

In order to maintain our leading edge, we review and update our designs to meet customer expectations and the needs of the future. Our policy of continuous development and the monitoring of ever-changing requirements, for example higher cylinder pressures, means you can be sure the right products will be available from Ricardo.

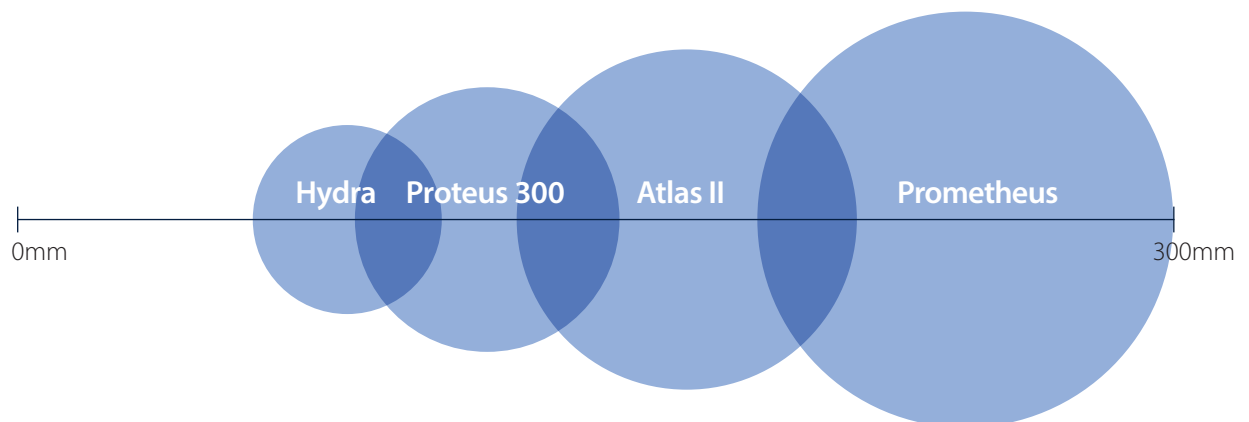
Support

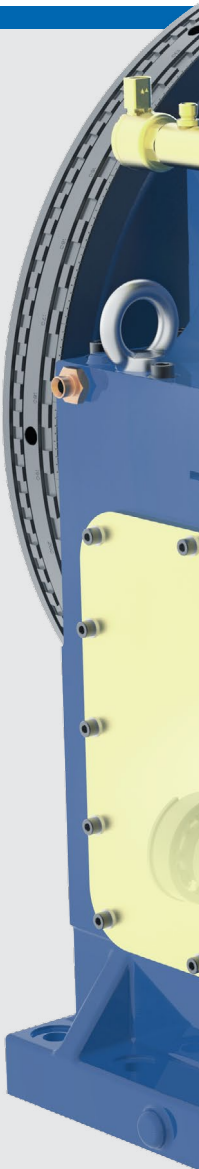
In addition to the supply of standard and custom hardware, a wide range of services can be provided to assist testing operations for the single-cylinder engine including:

- Spares availability assured for past, current and future specifications
- Supply of conversion kits
- Supply of test stands and test equipment
- Full suite of training courses to support clients' single-cylinder training needs



Cylinder bore range (mm)





Single-Cylinder Research Engines

Find out more

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