Let’s reimagine data centre cooling

Discover how our single-phase immersion cooling fluids can help you improve cooling performance, boost energy and water efficiency, and enable heat re-use.

Castrol ON

The data centre cooling revolution begins here

The next generation of data centres requires a cooling revolution. Operational energy costs are one of the biggest outgoings for data centres.

40% of a data centre's total energy consumption can be required for cooling.

In addition to energy consumption, water consumption is an increasing focus for data centres. Reducing both water and energy consumption is essential, as data centre owners and operators look to boost energy efficiency and reuse waste heat. New solutions need to be found, especially for areas where water is scarce. Efficient cooling is key for sustainable operations, but none of this can come at the cost of operational disruption, as 100% uptime must be maintained.

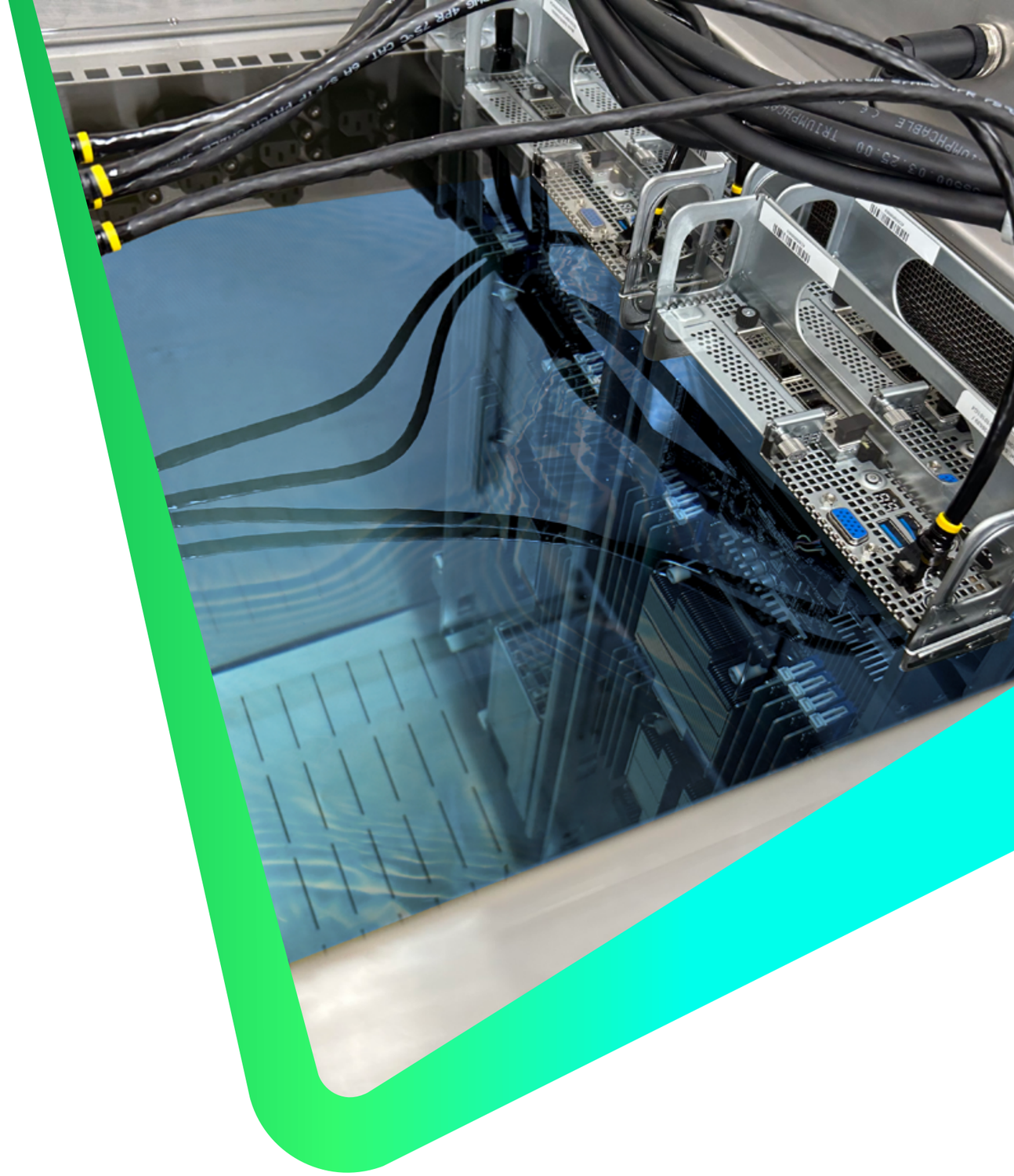
This is a challenge on a global scale.

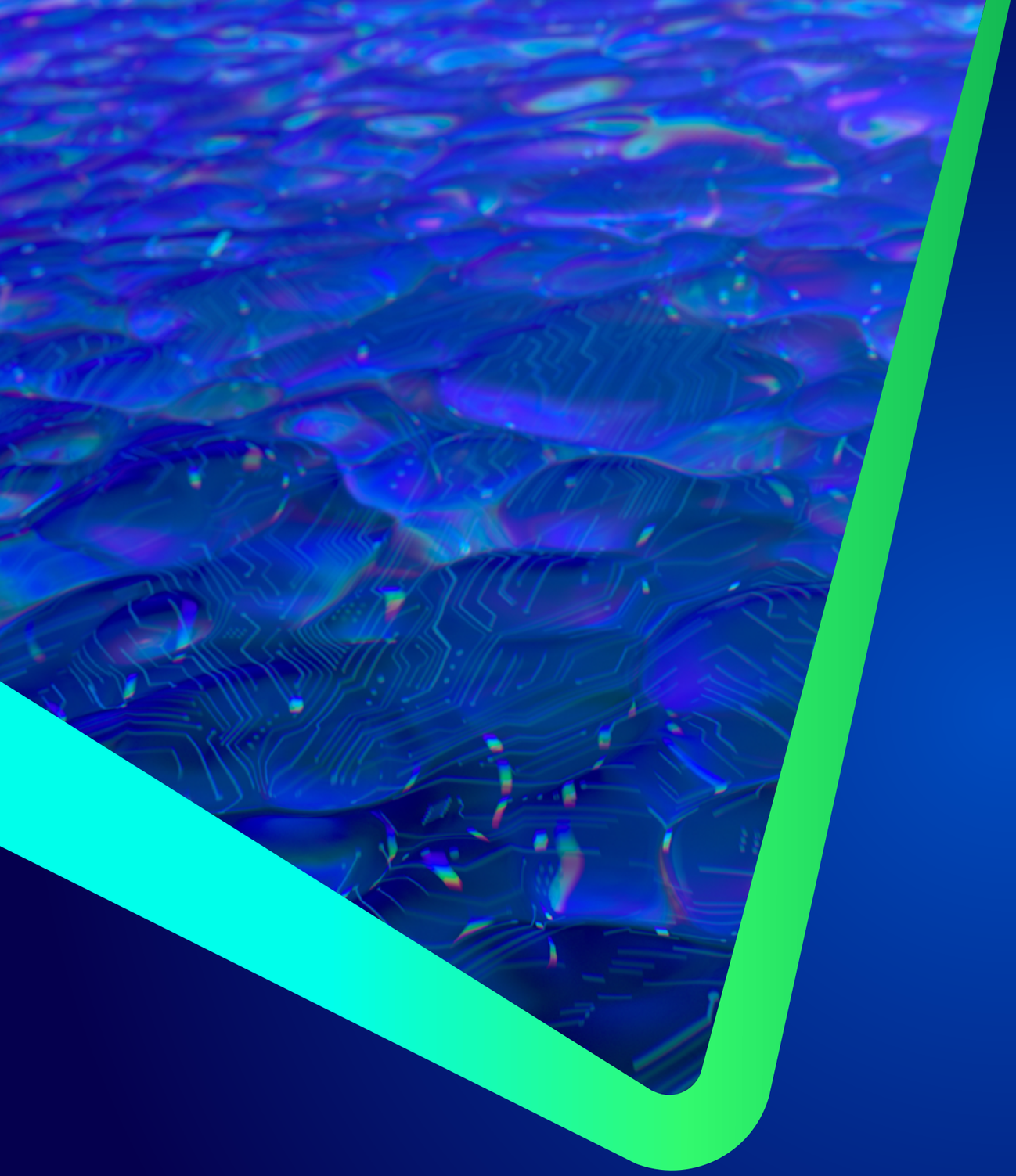
2% of the global electricity consumption in 2021 can be attributed to data centre operations – together with the data transmission network – according to the International Energy Agency.

And as the industry grows, this share is expected to rise.

Meanwhile, the growth of edge and hyperscale computing combined with the next generation of power dense chips means traditional cooling techniques are not the most efficient. More complex data processing is putting bigger demand on data centre performance. Air cooling – up to now the industry standard method of cooling data centres – is no longer as effective in these conditions and will reach its performance limit with the next generation of server chips.

The time is right to embrace new, innovative technology that improves water and energy efficiency without compromising a data centre's uptime.





Castrol ON Immersion Cooling Fluids

Together with our customers and partners, Castrol is defining the future of data centres with immersion cooling fluids that deliver reliable cooling performance while reducing energy and water usage.

Castrol ON range of immersion cooling fluids are single-phase dielectric coolants with improved thermal management performance, combined with safety and high lifetime stability, that will transform the use of efficient immersion cooling for high-performance data centres. Castrol ON fluids have been proven for use with leading tank and rack-based liquid cooling solutions.

Key product features include:

Low viscosity. Castrol ON Immersion Fluids have low viscosity, efficient heat transfer and good pumpability.

Proven thermal properties: Our range offers proven thermal properties across the operating temperature range. Castrol DC15 and DC20 are hydrocarbon-based formulations with a relatively high thermal conductivity.

Strong electrical characteristics: These deliver excellent electrical insulation and high flash point to protect against breakdown and ignition. The fluids have a low dielectric constant and electrical conductivity, ensuring electrical safety during operation.

High fluid stability: Formulated to provide high oxidation resistance to maintain performance over the fluid lifetime.

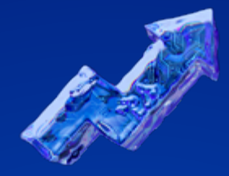
Proven material compatibility: Our fluids are compatible with a range of elastomers, plastics and metals, and high oxidation resistance maintains performance over the fluid lifetime. Material compatibility tests are conducted at bp and in collaboration with specialised test houses.

Low GWP/ODP: All Castrol ON fluids are in line with Castrol's PATH360 sustainability programme, which emphasises our commitment to save waste, reduce carbon emissions, and improve people's lives.

How you benefit from Castrol ON range of fluids

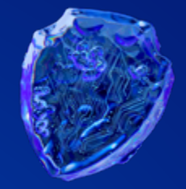
Savings

Our immersion cooling technology minimises water usage and cuts energy usage and costs, which improves efficiency and lowers the total cost of ownership (TCO) over the operational duration of the facility.



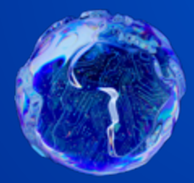
Superiority

Great performance defines our range of thermal management fluids, helping to maximise uptime and operational security.



Safety

Data centre safety is critical, which is why our engineers can help to minimise risk.



Serviceability

Castrol has a true global footprint. We offer technical and analytics support around the world, making your technology easy to maintain and manage throughout the whole life cycle.

Simplicity

Our relationship with our strategic global partners gives you an integrated offering from one trusted partner, making data centre management simpler than ever.

A true global partner you can trust

Castrol is your global, long-term strategic partner for data centre success.

Fluids and technology excellence

- Low viscosity fluids maximising energy efficiency and thermal performance
- Ensured equipment protection by world-class testing and data availability
- Ability to develop bespoke formulations to suit your needs

Industry partnerships and fluid approvals

- Fluid approved by key industry players, such as Submer and GRC
- Network of strategic industry partners and collaborators, including The Research Institute of Sweden (RISE)

Global reach and support

- Castrol's global reach and manufacturing footprint
- Ability to provide support on a global scale throughout the whole life cycle

Co-development and testing capabilities

- Co-engineering fluids with customers, universities and manufacturers unlocks performance gains
- State-of-the-art technology facilities and partner network for testing of fluids and hardware

Learn more about our immersion cooling fluids at castrol.com/immersioncooling
Or contact us at ImmersionCooling@bp.com

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