



SABRE

United Kingdom

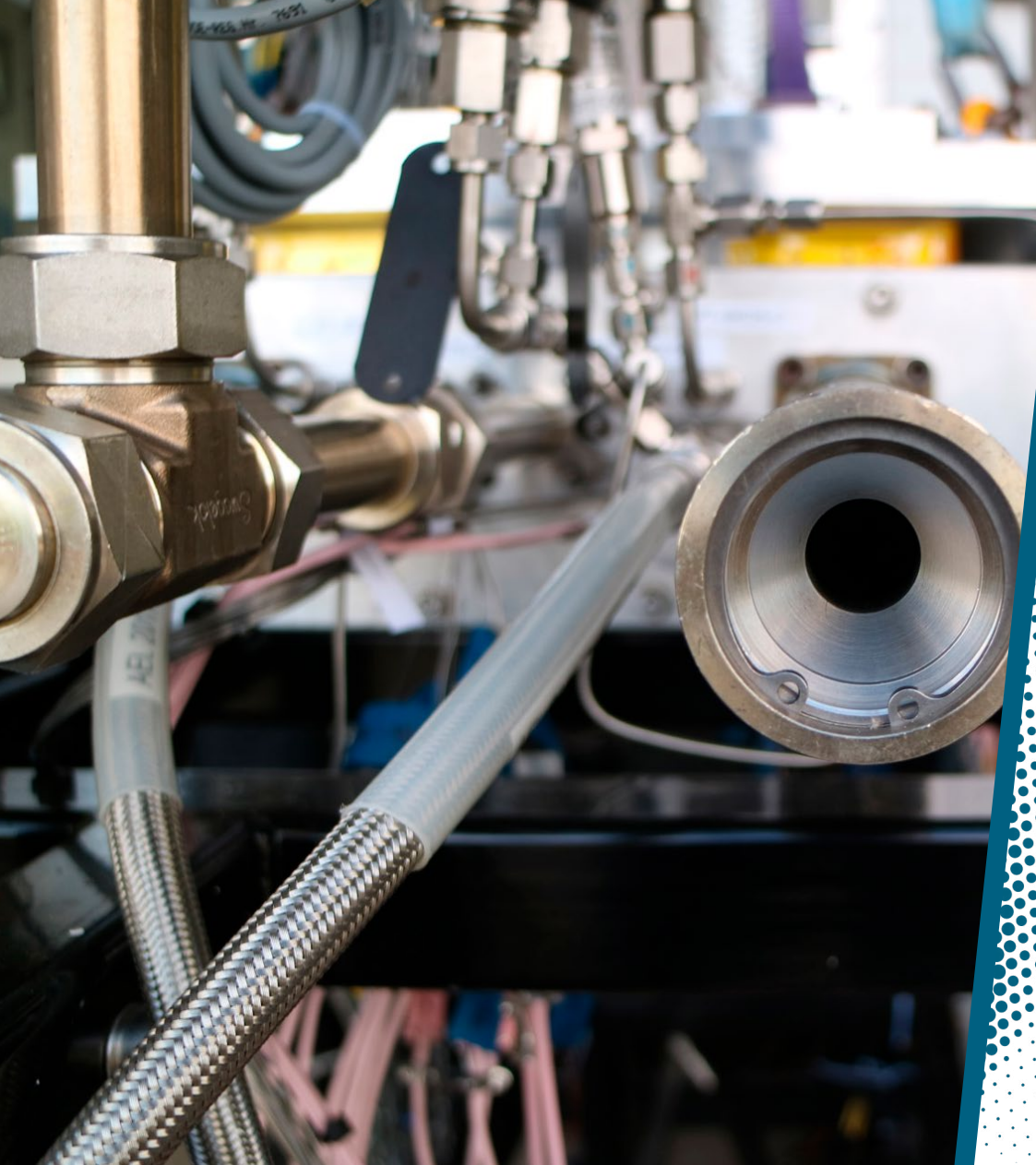
S U C C E S S S T O R Y



CRYOSPAIN

SABRE / UK





SABRE (UK)

Synergetic Air Breathing Rocket

Undoubtedly one of our most exciting and challenging success cases, working on this SABRE project marks a historic moment for Cryospain.

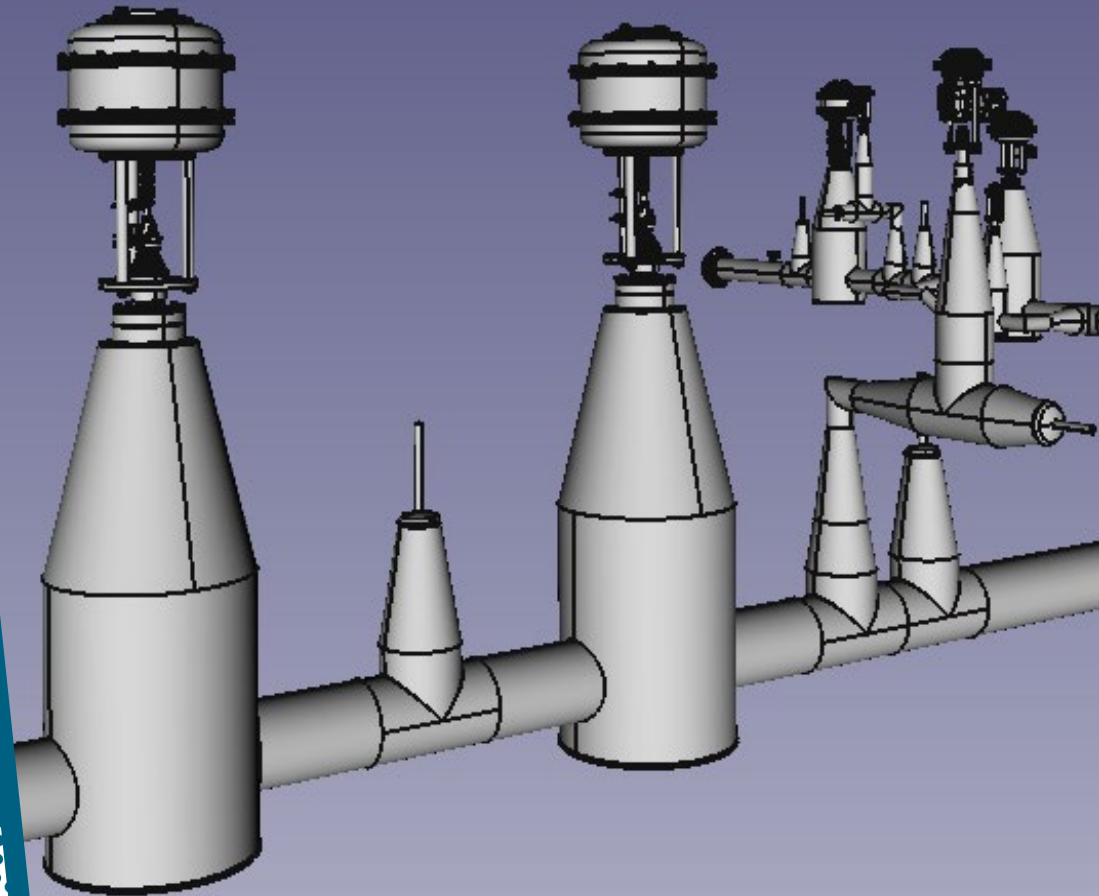
A British aerospace company needed to conduct tests for a SABRE (Synergistic Air-Breathing Rocket Engine). This revolutionary propulsion system requires Helium and Hydrogen, both in liquid state, for its operation.

The project

SABRE technology, a concept under development by our clients, consists of a **hypersonic hybrid pre-cooled air-breathing rocket engine**.

What is revolutionary about this engine technology is its ability to cool the incoming air with velocities up to Mach 5.5 from 1000 °C to -150 °C in a fraction of a second.

The operation of this engine is based on a heat exchanger capable of cooling the **inlet air to -150 °C (-238 F) to provide oxygen for mixing with the hydrogen** and thus provide the jet thrust during atmospheric flight before switching to stored liquid oxygen when in space.



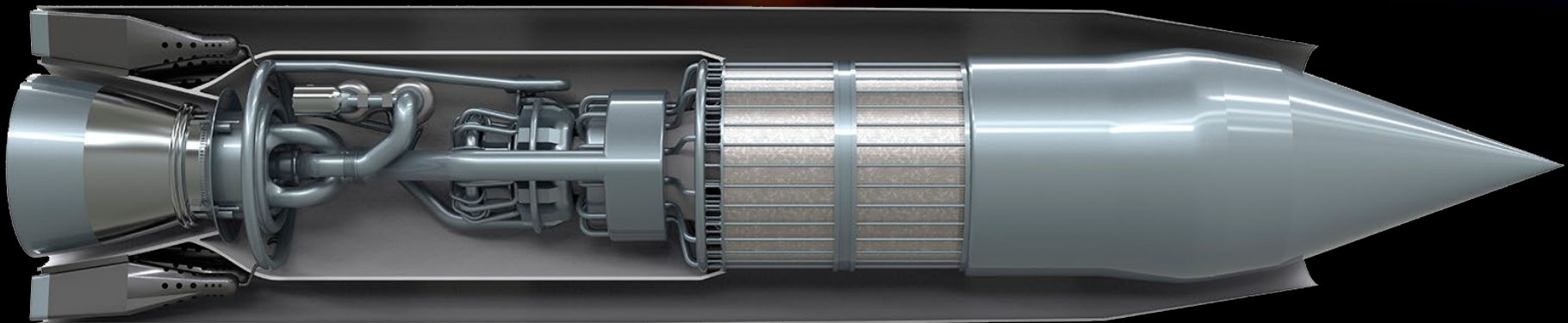
The solution

Cryospain is an industry-leader in **pipe-in-pipe technology**. Our client knew they could rely on us to provide the right technological solution and the highest standards of safety.

We produced and supplied the following pipes (ahead of schedule and tailored exactly to the requirements of the project):

- 38m of DN25 and 20m of DN100.

This choice of pipe-in-pipe solution allows for fluids to be transported while retaining their liquid state and minimizing boil-off.



The results

Our engineering department was put to the test by this extremely challenging project. In order for the client's project to be successful, our calculations needed to be 100% accurate.

The client was delighted with the results and recognized the level of quality our team achieved on the pipe-in-pipe system.

Our engineers could be proud of a **job well done** in a difficult yet innovative and exhilarating project.

To see more success cases like this, head over to our [news section](#).



Business lines

ENGINEERING TAILORED TO THE NEEDS OF THE CRYOGENIC SECTOR



Storage



Cryoline



Distribution



Plants & Stations



Tailor-made products



Services



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