



# MAST Upgrade

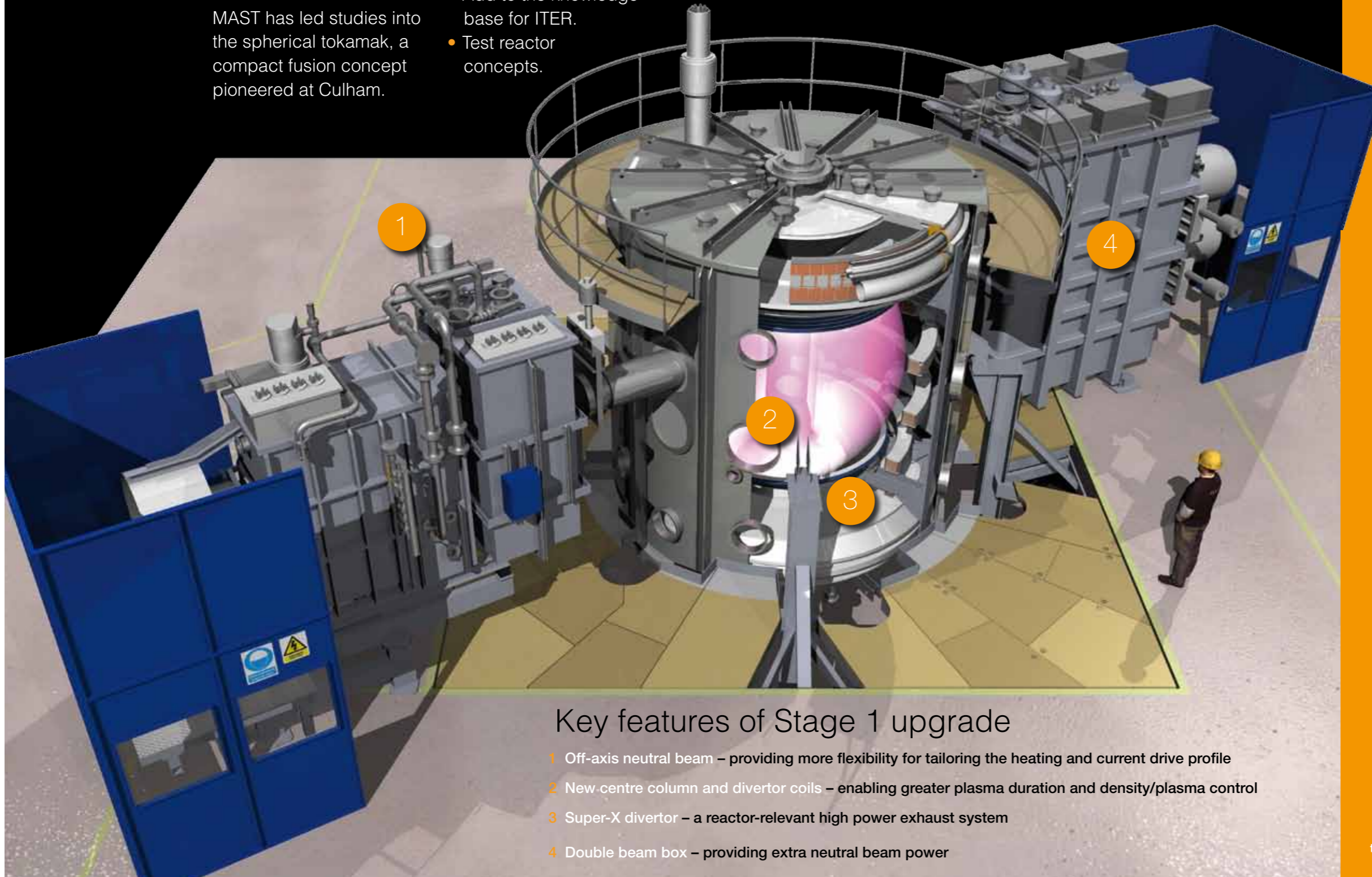
Advancing compact fusion sources

The Mega Amp Spherical Tokamak (MAST) is the centrepiece of the UK's fusion programme.

MAST has led studies into the spherical tokamak, a compact fusion concept pioneered at Culham.

Now a major machine upgrade will enhance MAST's role in international research:

- Make the case for a fusion Component Test Facility.
- Add to the knowledge base for ITER.
- Test reactor concepts.



## Key features of Stage 1 upgrade

- 1 Off-axis neutral beam – providing more flexibility for tailoring the heating and current drive profile
- 2 New centre column and divertor coils – enabling greater plasma duration and density/plasma control
- 3 Super-X divertor – a reactor-relevant high power exhaust system
- 4 Double beam box – providing extra neutral beam power



## X marks the spot

MAST Upgrade will be the first tokamak to trial the Super-X divertor, an innovative plasma exhaust system. Super-X is better at handling the hot particles escaping the machine and could be adopted by future devices including the DEMO prototype power plant.



Detail of Super-X divertor showing particle exhaust path

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