

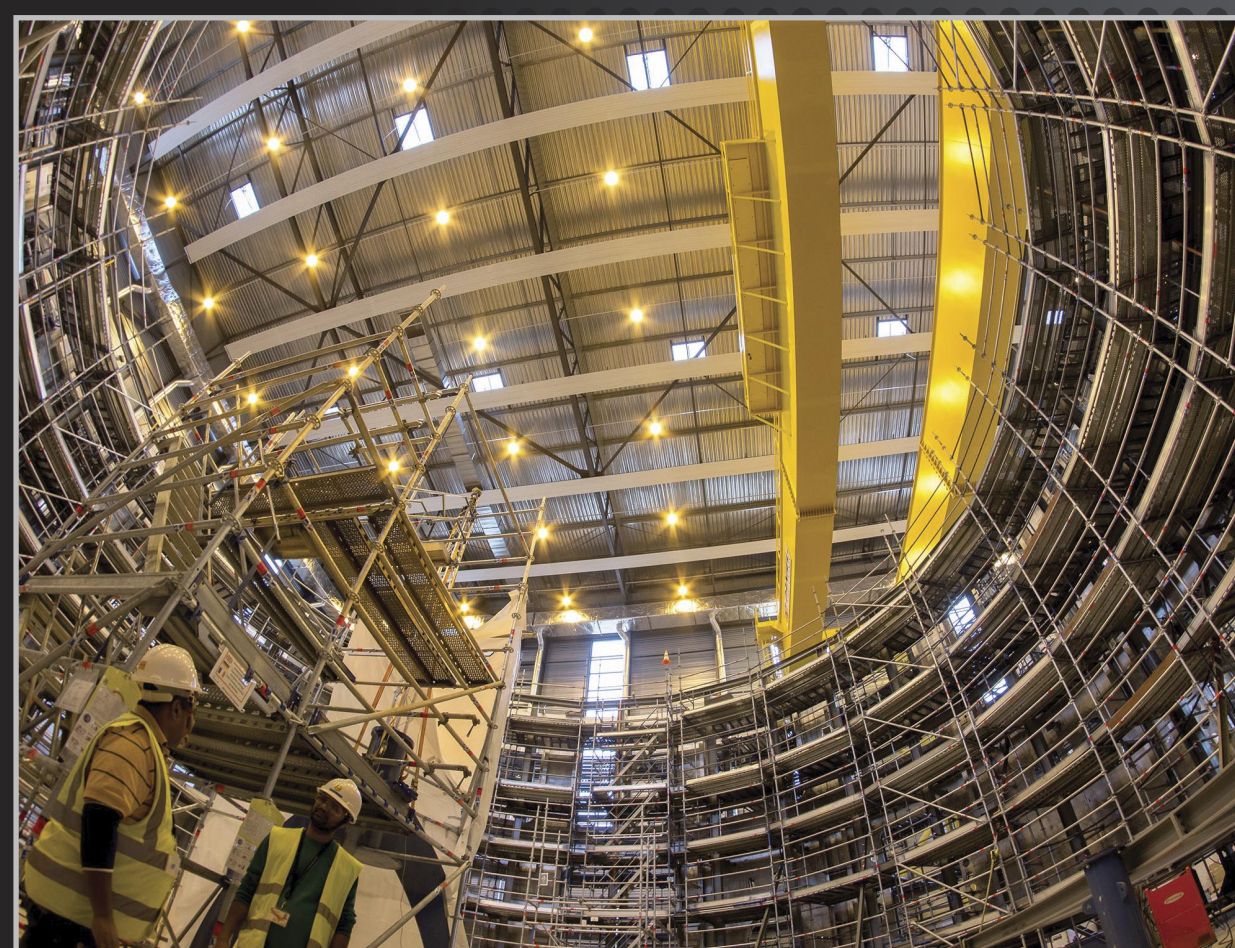
ITER MACHINE

THE CRYOSTAT

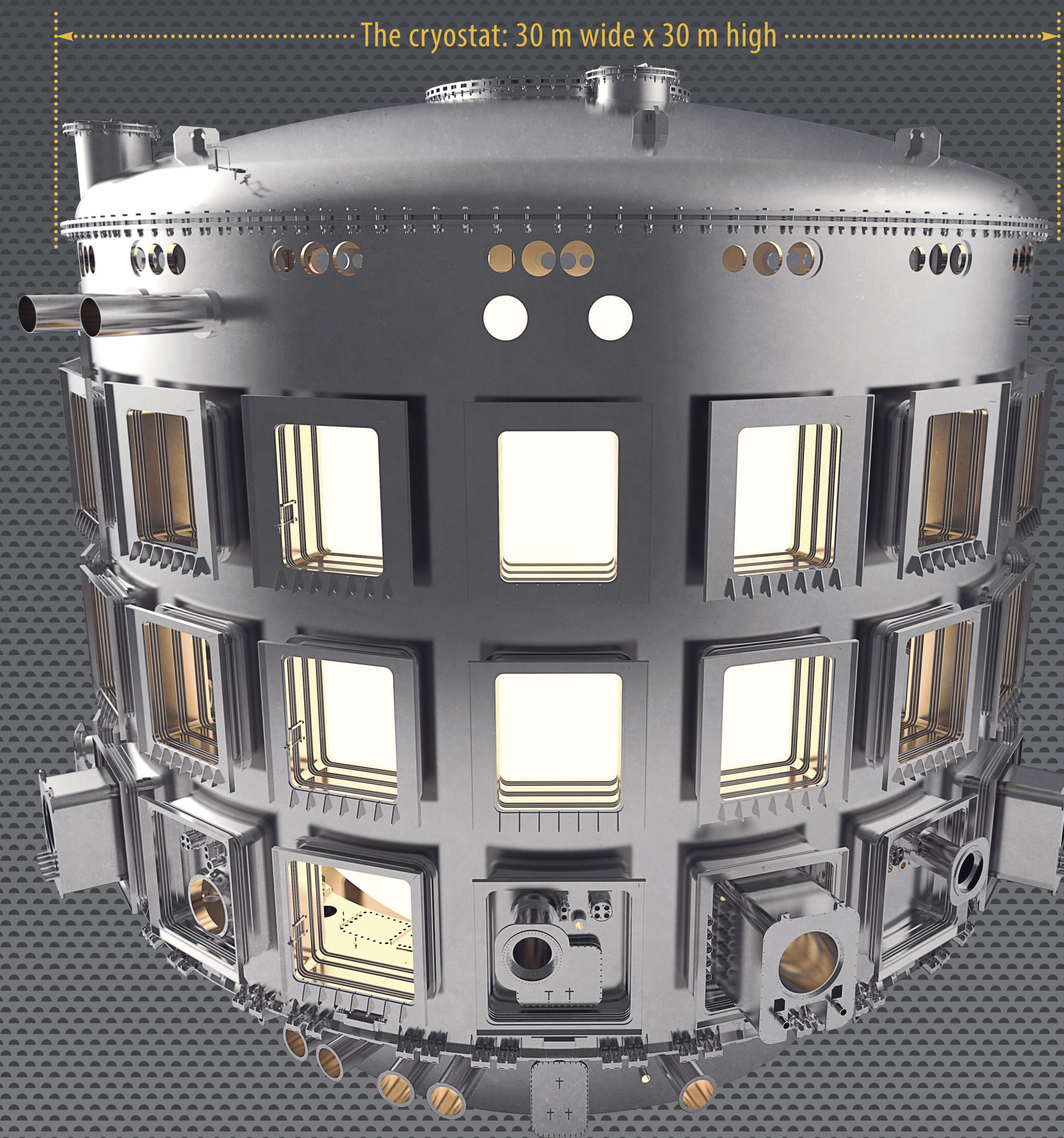
The stainless steel **cryostat** surrounds the ITER vacuum vessel and superconducting magnets and ensures an ultra-cool, high-vacuum environment. With a volume of 16,000 m³ it will be the world's largest stainless steel high-vacuum pressure chamber. Dozens of large penetrations in the structure, as well as hundreds of smaller openings, will allow access for systems and maintenance. The 30 m x 30 m ITER cryostat weighs 3,850 tonnes; its base section – 1,250 tonnes – will be the single largest load of ITER Tokamak assembly.



The assembly of the ITER cryostat is progressing under the responsibility of the Indian Domestic Agency, whose scope includes the fabrication, assembly, welding and testing of the four major cryostat sections, as well as final in-pit installation and welding.



The four main sections of the cryostat are the base (top photo), lower cylinder (pictured), upper cylinder and top lid. In all, 54 steel segments that are manufactured in India and shipped to ITER for on-site assembly in the Cryostat Workshop.

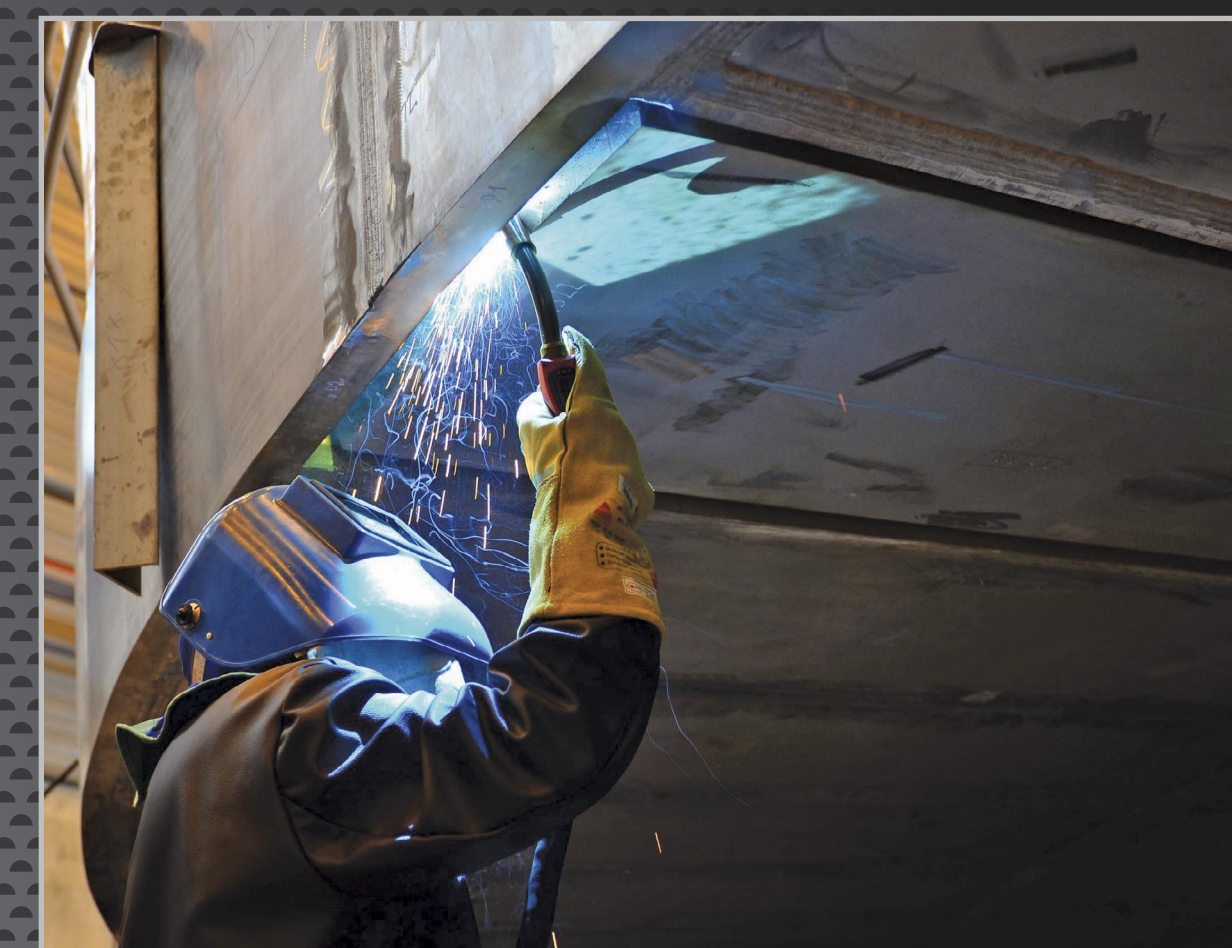


CRYOSTAT NUMBERS

Provides an ultra-cool, high-vacuum environment for the ITER Tokamak and superconducting magnets

Ranks as the largest stainless steel high-vacuum chamber ever built (16,000 m³)

Encloses a vacuum environment that is millions of times less dense than our atmosphere, created by powerful cryopumps



Over one kilometre of welds will be necessary to assemble the segments into sectors in the Cryostat Workshop at ITER. Given the importance of high vacuum in the cryostat, each weld is verified through multiple leak detection techniques.

CRYOSTAT VACUUM: MILLIONS OF TIMES LESS DENSE THAN OUR ATMOSPHERE.