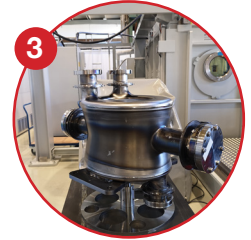


NEW TECHNOLOGIES FOR THE HIGH-LUMINOSITY LHC



CIVIL ENGINEERING

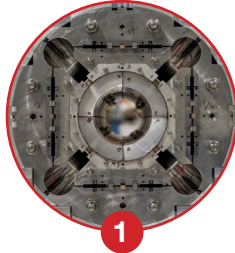
2 new 300-metre service tunnels and 2 shafts near to ATLAS and CMS.



"CRAB" CAVITIES

16 superconducting "crab" cavities for the ATLAS and CMS experiments to tilt the beams before collisions.

LHC TUNNEL



FOCUSING MAGNETS

12 more powerful quadrupole magnets for the ATLAS and CMS experiments, designed to provide the final focusing of the beams before collisions.



CMS

ATLAS



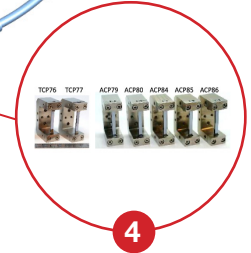
SUPERCONDUCTING LINKS

Electrical transmission lines based on a high-temperature superconductor to carry the very high DC currents to the magnets from the powering systems installed in the new service tunnels near ATLAS and CMS.



COLLIMATORS

15 to 20 additional collimators and replacement of 60 collimators with improved performance to reinforce machine protection.



CRYSTAL COLLIMATORS

New crystal collimators in the IR7 cleaning insertion to improve cleaning efficiency during operation with ion beams.

