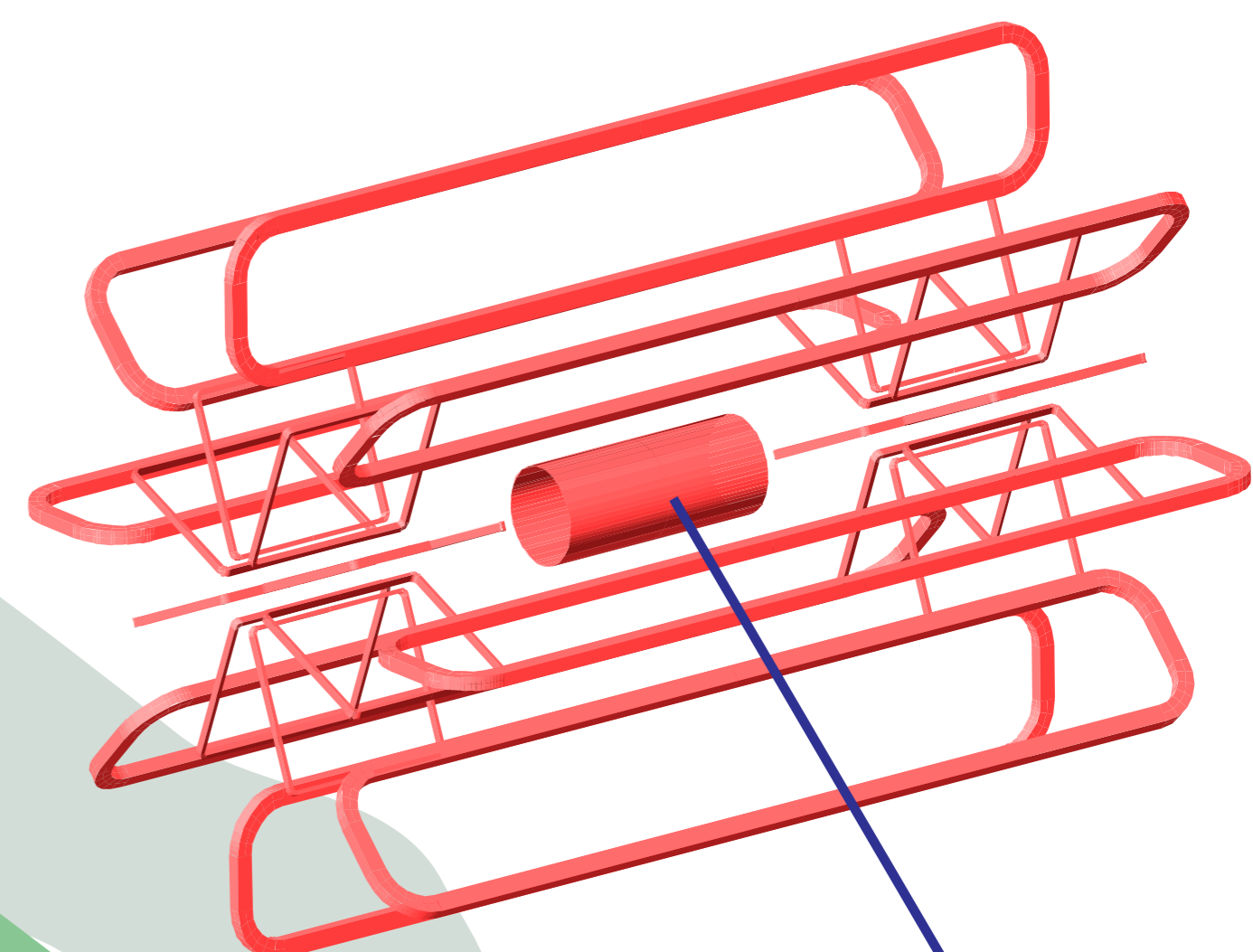




AT THE CENTRE OF THE DETECTOR

The superconducting solenoid is at the centre of the ATLAS detector, the magnet system part nearest to the proton-proton interaction point. It is designed to provide the inner detector trackers with a 2 tesla strong axial magnetic field at the collision point.



Central Solenoid



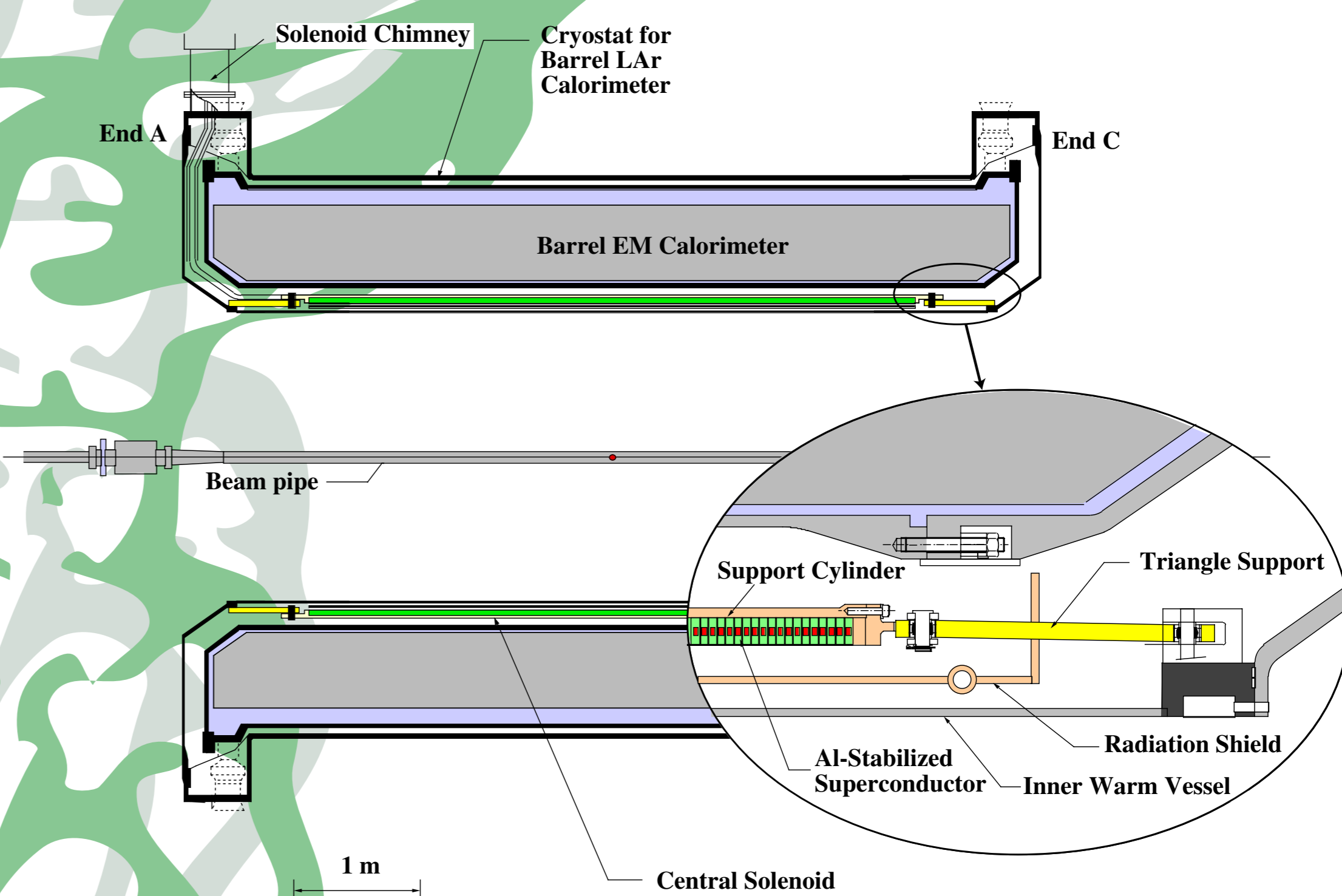
STATE OF THE ART MAGNET

The Central Solenoid is a conduction cooled superconducting solenoid based on a thin-walled construction for minimum thickness in order to enhance particle transparency. The superconducting cable has been fabricated in four units of 3000 meters length which required three joints to complete the coil winding.

COMBINED CRYOSTAT

It is of vital importance to reduce material build-up so that the Central Solenoid does not disturb the energy measurements in the outer calorimeters. A solution was found in a combined cryostat with the liquid argon electro-magnetic calorimeter. The realization of the solenoid has been challenging due to its tight integration with the calorimeter.

All connections are made through the proximity cryogenics dewar situated on top of a 10 meter long chimney.



Main Parameters:

Magnetic field:	2.0 T
Operating current:	7600 A
Operating temperature:	4.8 K (-268 °C)
Coil length:	5.300 m
Coil inner radius:	1.229 m
Coil thickness:	45 mm
Stored energy:	39 MJ
Weight:	5.6 ton
Conductor length:	9 km