configurations, have emerged successfully from initial tests and experimentation based on a number of alternate concepts. Both variations offer very efficient use of the magnetic fields and the potential for smaller, less expensive magnet systems and simpler engineering, in general, leading to less costly commercial fusion devices.

The reverse-field-pinch concept is similar in appearance to the tokamak, but the magnetic fields are applied in such a way that plasma fuel can be confined with greater magnetic efficiency. Fuel in a device based on this concept might be heated to fusion temperatures without the use of auxiliary heat sources.

The stellerator/torsatrons are toroidal devices in which the magnetic coils are wound at an angle around the toroidal plasma vessel. The advantage of this arrangement is that plasma control is simplified, and the devices can operate in steady state instead of in pulses.