

FACT SHEET

Hypersonic Weapons



Hypersonic weapons are weapons travelling at hypersonic speed – at between 5 and 25 times the speed of sound, about 1 to 5 miles per second. Below such speeds, weapons would be characterized as subsonic or supersonic, while above such speeds, the molecules of the atmosphere disassociate into a plasma which makes control and communication difficult.

Directed-energy weapons such as lasers may operate at higher speeds but are considered a different class of weaponry.

There are multiple types of hypersonic weapon:

- hypersonic glide vehicle : missiles which maneuver and glide through the atmosphere at high speeds after an initial ballistic launch phase
- hypersonic cruise missiles: cruise missiles which use air-breathing engines such as scramjets to reach high speeds
- hypersonic aircraft using air-breathing engines such as scramjets to reach high speeds
- guns which fire guided projectiles. These may be developments of traditional artillery or novel technologies such as railguns.
- ballistic missiles traveling at high speeds during its atmospheric reentry

Currently China, India, Iran, Russia, and U.S. have developed fully functional hypersonic weapons in the form of glide vehicles, ballistic missiles, rail guns and air breathing cruise missiles having their own respective independent programs and have demonstrated sustained hypersonic combustions.

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