

Info Brief: India Nuclear Capable Missile

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The institutional foundation of India's missile programme was laid with the establishment of the Defence Research and Development Organization ([DRDO](#)) in 1958 and the Indian Space Research Organization ([ISRO](#)) in 1969. A major development came in 1983 with the launch of the Integrated Guided Missile Development Programme (IGMDP), led by Dr. A.P.J. Abdul Kalam, which [paved the way](#) for India's indigenous missile program, including the Agni series. However, the DRDO remains the principal organization responsible for missile research and development.

India has one of the most diversified missile capabilities in the nuclear domain, including short-range tactical missiles, intermediate-range ballistic missiles, long-range ballistic missiles, intercontinental-range ballistic missiles, and submarine-launched ballistic missiles (SLBMs). For the development of cruise missile, New Delhi has a BrahMos, a joint venture between Russia's NPO Mashinotroyeniya and India's DRDO, started in 1998. The operational control of these delivery system rests with the tri-service Strategic Forces Command (SFC), [established in 2003](#).

New Delhi missile modernization programme has evolved not only through quantity expansion but also through significant quality enhancement ensuring survivability, and operational readiness.

The [shift](#) from liquid-fuel to solid-fuel propulsion, the use of road-mobile, rail based, canisterized launch systems, improved guidance, advanced navigation systems, and the creation of longer-range ballistic missiles have placed India's nuclear forces on a readiness posture.

The give below table provides a brief overview of India's tested nuclear capable missiles

Missile	Class	Operational Status	Targeting Range (km)	Payload Capacity (kg)	Propulsion System
Land-Based Ballistic Missiles					
Prithvi-II	SRBM	Active	250 – 350	500 - 1,000	Single-stage Liquid
Agni-I	SRBM	Active	700 - 1,200	1,000	Single-stage Solid
Agni-II	MRBM	Active	2,000 - 3,500	820 - 2,000	Two-stage Solid
Agni-III	IRBM	Active	3,000 - 5,000	2,500	Two-stage Solid

Agni-IV	IRBM	Active	3,500 - 4,000	800 - 1,000	Two-stage Solid
Agni-V	ICBM	Active	5,500 - 8,000	1,500	Three-stage Solid
Agni-P	MRBM	Pre-induction trials	1,000 - 2,000	1,000 - 1,500	Two-stage Solid
Submarine-launched Ballistic Missile					
K-15	SLBM, SRBM/MRBM	Active	700 - 750	500 - 800	Two-stage Solid
K-4	SLBM, IRBM	Active	3,500 - 4,000	Up to 2,500	Two-stage Solid
Cruise Missile					
BrahMos* (Dual Capable)	Supersonic Cruise	Active	290 - 900	200 - 300	Solid booster + Liquid ramjet

From India's growing quantitative and qualitative missile capabilities, three broad themes can be extracted: extended range, technological advancement (MIRV capability, canisterisation, and solid-fuel propulsion), and the strengthening of the sea-based component of the nuclear triad. Moreover, this continuous expansion reflects how New Delhi has benefited from the exceptionalism policies of its allies, which provide access to dual use missile technology including Space Launch Vehicles (SLV), Polar Space Launch Vehicles (PSLV), and Geosynchronous Satellite Launch vehicles (GSLV), that directly helped to expand its missile capabilities.

This modernization has profound implications for strategic stability, both within South Asia and beyond. Within the region, it can instigate an arms race and reinforce an action-reaction cycle between Pakistan and India. Beyond the region, the extension of its missile reach to the intercontinental range (Agni-V), raises concerns for major stakeholders.