

S-400 Triumph: The ‘Sudarshan Chakra’



Armed with three types of missiles to create a layered defence, the S-400 Triumph (NATO reporting name: SA-21 Growler) is an air defence missile system developed by Almaz Central Design Bureau of Russia. Alexander Lemanskiy of Almaz-Antey was the Chief Engineer on the S-400 project. Essentially an upgrade of the S-300 series of Surface-to-Air Missile (SAM) systems, the system, August 2007 onwards replaced the S-300P and S-200 air defence systems of the Russian Army.

A deal to purchase S-400 systems by India was first reported in October 2015. On 15 October 2016 (during the BRICS Summit) India and Russia signed an Inter-governmental Agreement (IGA) for the supply of five S-400 regiments to India. On 1 July 2018, the Defence Acquisition Council (DAC), chaired by the then Defence Minister Nirmala Sitharaman, cleared the procurement. On 26 September 2018, the Cabinet Committee on Security (CCS), headed by the Prime Minister Narendra Modi cleared the acquisition. The US\$5.43 billion deal was formally signed on 5 October 2018.

Capable of simultaneous engagement of 36 targets, the system can engage all types of aerial targets including aircraft, unmanned aerial vehicles (UAV), and ballistic and cruise missiles within the range of 400 km, at an altitude of up to 30 km. The rapidly deployable system again is standalone in nature and integrates a multifunction radar, autonomous detection and targeting systems, anti-aircraft missile systems, launchers, and Command & Control (C&C) centre. For its stellar performance in the short yet sharp conflict with Pakistan in May 2025 an additional two regiments of the system may be procured.

The S-400 air defence missile system uses four new missile types in addition to the missiles of the S-300PMU system. The first missile inducted for the system was the

semi-active radar homing (SARH) 48N6DM (48N6E3) missile. It is an improved variant of the 48N6M with powerful propulsion system to destroy airborne targets within the range of 250 km. The active radar homing (ARH) 40N6E anti-ballistic missile (ABM) of the S-400 has a claimed range of 400km and in addition specifically targets hostile airborne force multipliers at great distances like Airborne Early Warning & Control (AEW&C), Joint-Surveillance Target Attack Radar (J-STARS), and support jammer platforms.

On 10 May 2025, a 40N6E intercepted and destroyed a hostile Pakistan Air Force (PAF) Saab 2000 Erieye AEW&C aircraft approximately 314 km inside Pakistani airspace. To engage with direct impact at fast moving targets such as fighter aircraft with a high hit probability, the S-400 Triumph also launches ARH 9M96E and 120 km ranged ARH 9M96E2 medium range SAM systems. These SAM systems can engage targets flying as low as 10 metres.

The S-400 system is named Sudarshan Chakra in Indian service, after Lord Vishnu's lethal discus reflecting its precision and power and is unified with the Integrated Air Command & Control System (IACCS). Each battalion is composed of two batteries. Each battery is equipped with 6 launchers, radar and a control centre with 128 missiles. A battalion has a total of 16 vehicles. India bought a total of 60 launchers with around 6,000 missiles including 9M96E2, 48N6E2, 48N6E3 and 40N6E. In July 2024, during an air defence exercise of the Indian Air Force (IAF), the S-400 system 'shot down' 80% of the 'aggressor aircraft'.

The 55K6E Command & Control (C&C) system of the S-400 Triumph is based on the Ural-532301 mobile command post vehicle, equipped with Liquid Crystal Display (LCD)