





DRDO

Defence
Research &
Development
Organisation

MINISTRY OF DEFENCE

In pursuit of self-reliance and successful indigenous development of Defence requirements

There has been quantum jump in India's military might in recent years, generating effective deterrence and providing crucial leverage of technology. Thanks to DRDO, with its watchword "Balasya Mulam Vigyanam" meaning the source of strength is science, Defence Research and Development Organisation (DRDO), the R&D wing of Ministry of Defence has been working steadfastly since 1958 for nation's security and self-reliance in terms of science & technology for military services.

Founded with the vision to empower India with cutting-edge defence technologies, DRDO has been equipping our armed forces with State-of-art weapon systems and equipment in accordance with the strategic requirements. It has a matured network of laboratories dedicated for defence technologies in the areas like: aeronautics, armaments, electronics, combat vehicles, missiles, advanced computing, radars, sonars, special materials, naval systems, life sciences etc.



Anti-Satellite Missile “Mission Shakti”

Mission Shakti is the story of the challenges involved in developing the country’s first anti-satellite missile through untiring efforts of DRDO scientists who worked round-the-clock to meet the target. The mission was one of the most complex operations undertaken by DRDO in which a missile launched from ground had to hit and neutralise a fast-moving satellite with pinpoint accuracy in orbit hundreds of kilometres away.

India's space programme is critical for India's security as well as its economic and social development. Mission Shakti was an important milestone in this direction. DRDO successfully neutralised a satellite in space with its anti-satellite (ASAT) missile on 27th March, 2019 under Mission Shakti. The successful mission demonstrated DRDO’s technical prowess and ability to defend country’s assets in space, the fourth dimension of warfare. Through this Mission, India joined an exclusive group of nations who have such capability.

4+ generation fighter aircraft “TEJAS”

Tejas is the indigenously developed fighter aircraft operational with Indian Air Force. Tejas was designed to fill a huge void of 20 years, in indigenous fighter aircraft development and technologies since “HF24 Marut”.

Today, the Nation is self-reliant in most of the contemporary military fighter aircraft technologies and this has been possible largely due to the Tejas programme. This has given confidence to the “aeronautical engineering/scientific community” in the country; to go ahead with other big ticket Indigenous fighter aircraft programmes. Thus, the Tejas aircraft program has made India one of the few countries in the world to have indigenously developed fighter aircraft.

It has also saved the country billions of dollars in foreign exchange. It has generated large direct and indirect employment in the country over the past 30 years [including Maintenance, Repair and Overhaul – MRO] as well as during production, creating jobs in MSMEs. Future indigenous military fighter aircraft programmes will also contribute tremendously to the national pursuit of self-reliance and advanced technology development.



The Magnificent Bouquet of Missiles

Prithvi was India's first indigenously developed ballistic missile developed under the Integrated Guided Missile Development Program (IGMDP). The missile was developed to meet the Indian Army's requirements for a reliable surface-to-surface short-range missile with high accuracy.

The first flight of Prithvi took place on February 25, 1988. The test was successful, following the predicted trajectory and hitting a designated terminal area. In 1996, India formally inducted the missile into service.

Dhanush (Prithvi II)

Dhanush is the naval version of Prithvi missile. It is a short-range, ship-based ballistic missile that entered service in 2010.

The maiden flight of Prithvi gave a boost to other projects of IGMDP. The Re-Entry technology demonstrator vehicle (Agni) was configured as a two stage vehicle. The Re-Entry vehicle was designed with Re-Entry control surface to have Re-Entry Manoeuvre.

BrahMoS a supersonic cruise missile

BrahMoS is a universal long range supersonic cruise missile system that can be launched from land, sea and air. BRAHMOS has been jointly developed by DRDO, India, and NPOM-Russia.



MAIN FEATURES OF BrahMoS

BrahMoS is world's fastest anti-ship cruise missile currently in operation.

The system has been designed as Anti-Ship and Land-Attack roles. BrahMoS is deployed with the armed forces.

The missile has supersonic speed all through the flight, leading to shorter flight time, consequently ensuring lower dispersion of targets, quicker engagement time and non-interception by any known weapon system in the world. It operates on 'Fire and Forget Principle', adopting varieties of flights on its way to the target. Its destructive power is enhanced due to large kinetic energy on impact.

Main Battle Tank "Arjun"

MBT Arjun is a Made in India and Made for India, family of tanks developed by DRDO to provide India with an MBT as an armoured fighting vehicle.

MBT Arjun offers the troops a State-of-the-art tank with superior firepower, high mobility and excellent protection. Due to its excellent performance at the highly challenging operational conditions in harsh desert environment, MBT Arjun has been named as a “Desert Ferrari” by tank experts. The primary variant Arjun Mk-1 entered service long back and now the latest MBT Arjun Mk-1A is set to enter the armed forces.

MBT Arjun has supremacy over the opponents in tank-to-tank battle scenario in Indian subcontinent terrains since this is extensively tested in Indian terrains and desert condition.

Electronic Warfare Systems

DRDO has developed multiple EW systems for Indian Armed Forces. EW is an important expertise which has made country self-sufficient in the this critical component of modern warfare. Under Nowav EW programme “Samudrika”, DRDO has developed seven Electronic Warfare (EW) systems, which includes three ship-borne systems (Shakti, Nayan & Tushar) and four air-borne systems (Sarvadhari, Sarang, Sarakshi & Nikash).

Indian Navy is in the process of inducting Shakti and Nayan Systems. The 1st Shakti production system was handed over by Hon’ble Prime Minister to the Chief of Naval Staff on 19 November, 2021 during ‘Rashtra Raksha Samarpan Parv’. It has been installed on an Indian Naval ship. In addition, many other EW systems are being developed by DRDO for various scenarios and applications.

Modular Bridges

DRDO has developed many bridges of different class to overcome different terrains and to aid the Indian soldiers during war and peace. One of the bridges developed by DRDO is mechanically launched single-span 46m MLC-70 modular bridge with variable length from 14m to 46m. The bridge superstructure, launching nose and bank seat beams were tested and all user evaluation trials were completed. Acceptance of Necessity (AoN) has been approved by The Defence Acquisition Council (DAC). The system was handed over by Hon’ble RM to the Armed Forces in December 2021, during ‘Defence Iconic week’ as part of Azadi ka Amrut Mahotsav.



Short Span Bridging System-10m

The vehicle-mounted, multi-span, mechanically launched mobile bridging system is designed for speedy deployment and retrieval under tactical conditions. The 10m bridging system consists of two foldable bridge segments, a launching system and pier system mounted onto re-engineered 8x8 chassis. The system is capable of negotiation by all in-service vehicles including MBT Arjun. It is also compatible with Sarvatra bridging system to negotiate intermittent span ranging from 10m to 75m in the step of 5m as a multi-span bridge. The launching operation is carried out manually or with an electrical system.

Torpedo

DRDO has developed many torpedoes like Varunastra & TAL. The new variant under stages of development is Advanced Lightweight Torpedo (ALWT), which is an anti-submarine torpedo.

Capable of being launched from helicopter and ship, ALWT has dual speed capability and endurance.



Pinaka Mk-I (Enhanced Range) Rocket System

Flight stability and range performance of the enhanced range version of the rocket system were proven in flight trials conducted during the year. Rockets were realized through industry partner for assessing accuracy & consistency of rocket.

