

## Jindal Defence in JV with Brazil's Taurus Armas for making small arms

*Initial investment of \$5 million, production to start by September*

*By Aditi Divekar*

Mumbai: Delhi-based Jindal Defence, part of O P Jindal Group, today announced its foray into small arms manufacturing in India via a joint venture (JV) agreement with Taurus Armas S.A., of Brazil.

With an initial investment of \$5 million in a project that is to be developed in phases, the agreement proposes setting up a plant at Hisar (Haryana). The venture has equity participation from Jindal Defence and Taurus Armas S.A, in the equity ratio of 51:49.

This move by the Abhyuday Jindal-promoted Jindal Defence is expected to bolster Indo-Brazil cooperation in the strategic defence sector, the former said in a release today.

The JV company will make small arms in India based on transfer of technology from Taurus to achieve localisation of production in accordance with the Defence Procurement Procedures, said the release.

This partnership aims to maximise existing domestic opportunities in the small arms manufacturing sector and provide significant support to the ongoing and future modernisation plans of the Armed Forces, particularly the Indian Army, the Para-Military, and State Police Forces.

Further, this move is in sync with the government's vision of greater private sector participation in defence hardware manufacturing.

While the production of the arms will take place in Hisar, the venture is expected to come up with its production by September FY21, said a source close to the development.

"The JV company envisages creation of world-class infrastructure along with adoption of best manufacturing practices to achieve perfection in design and engineering, and achieve high quality standards. Moreover, with the technological expertise emerging with this JV, we aim to support the emerging demands of the Indian Armed Forces", the release quoted Abhyuday Jindal as saying.

Currently, Abhyuday Jindal is also the managing director of Jindal Stainless Limited.

Jindal has been eyeing the defence space for a while now. In 2017, as part of its expansion strategy, Jindal Stainless had plans to enter defence, nuclear energy and aerospace among other niche segments.

In March 2017, Jindal Stainless had signed a licence agreement with the Defence Research & Development Organisation (DRDO) to make High Nitrogen Steel (HNS) for armour applications, at the Hisar plant. DRDO was to transfer the technology.

[https://www.business-standard.com/article/companies/jindal-defence-in-jv-with-brazil-s-taurus-arms-for-making-small-arms-120012701228\\_1.html](https://www.business-standard.com/article/companies/jindal-defence-in-jv-with-brazil-s-taurus-arms-for-making-small-arms-120012701228_1.html)



### A NEW VENTURE FOR JINDAL

- The JV proposes setting up of plant in Hisar
- The project is to be developed in phases
- This move by Jindal Defence is expected to bolster Indo-Brazil cooperation in the strategic defence sector

## Republic Day parade underlines India's shift from Russian to US weaponry

*By Ajai Shukla*

New Delhi: The all-time high participation of American-origin aircraft in Sunday's Republic Day parade, alongside a noticeably reduced Russian presence, underlines the growing shift in India's weapons procurement priorities.

While the Indian arsenal continues to field large number of legacy Russian weapons platforms, the new weaponry being inducted is mainly of US or Indian origin.

The American aircraft in the parade included the newly arrived CH-47F Chinook heavy-lift helicopter, the AH-64E Apache attack helicopter, C-130J Super Hercules special operations aircraft and the C-17 Globemaster III strategic airlifter. In addition, the navy's tableau featured the P-8I Poseidon multi-mission maritime aircraft.

In contrast, the parade featured only three Russian aircraft – the Sukhoi-30MKI and MiG-29UPG fighters and the Mi-17V5 medium-lift helicopter. Russian Ilyushin-76 and Antonov-32 transport aircraft also remain in the Indian Air Force's (IAF's) fleet, but were absent, with the more contemporary American C-130J and C-17s being preferred for the parade.

There was also significant participation by Indian-built aircraft, including the Dhruv advanced light helicopter (ALH), its weaponised version called the Rudra, Dornier light transport aircraft, and Jaguar fighter-bombers – all built by Hindustan Aeronautics Limited (HAL). The Netra airborne early warning (AEW) aircraft, developed by the Defence R&D Organisation (DRDO) on a Brazilian Embraer business jet was also showcased in the parade.

Meanwhile, the IAF tableau featured the indigenous light combat aircraft. The IAF has finalised, and is shortly slated to sign with HAL, an approximately Rs 26,000 crore order for 83 Tejas Mark 1A fighters.

Similarly, ground systems participation, which has traditionally featured a large number of Russian weapons platforms, was noticeably biased towards indigenous and non-Russian weaponry. The only Russian ground systems featured were the T-90S Bhishma tank and BMP-2 infantry combat vehicle – which both continue to form the backbone of India's armoured forces.

Meanwhile, Indian systems included the new K-9 Vajra-T self-propelled medium artillery gun (designed by South Korea and built by Larsen & Toubro in India), the Ordnance Factory's Dhanush medium artillery gun and the DRDO's Sarvatra assault bridge and eponymous Short Span Bridging System. The DRDO's promising Advanced Towed Artillery Gun System (ATAGS), which participated last year, was conspicuous by its absence.

There was a strong Indian flavour to missile and air defence systems as well. There was a debut appearance for the DRDO-developed Anti-Satellite Weapon (ASAT), which was ostentatiously tested last March in the so-called Mission Shakti – arousing international criticism, albeit shortlived, for allegedly creating space debris.

In the air defence arena, which was dominated by a range of Russian missiles for half a century, this year's parade featured only DRDO's Akash missile system, which is being deployed in numbers on the China border, even as an upgraded version is developed. Also on display was the DRDO's eponymous Air Defence Tactical Control Radar (ADTCR), which will control the air defence campaign, being used for surveillance, detection, tracking, identifying and engaging enemy aerial targets from multiple command posts and missile launchers.

However, a new Russian air defence system could well occupy centre stage in next year's parade, with delivery of the first Russian S-400 Triumf missile units slated for late-2020. India has defied strong pressure from Washington in going ahead with the purchase of five S-400 units from Russia for \$5.43 billion.

In addition to the large number of weapons systems that debuted in this year's parade – including the Chinook and Apache helicopters, the K-9 Vajra-T and the DRDO's promising Astra missile (in the DRDO's tableau) – the military scored two other significant firsts on Sunday.

For the first time, the prime minister paid homage to soldiers, sailors and airmen who had laid down their lives for the country at a new location – the National War Memorial that was inaugurated last February. Until now, prime ministers have paid homage at the Amar Jawan Jyothi (eternal flame) memorial at India Gate.

Also unprecedented was the presence of a tri-service Chief – the newly created appointment of Chief of Defence Staff (CDS), to which former army chief, General Bipin Rawat, was appointed on the new year. The prime minister and president were, for the first time, received by four general rank officers – the CDS and the three service Chiefs.

## IISc build through-the-wall radar on chip smaller than grain of rice

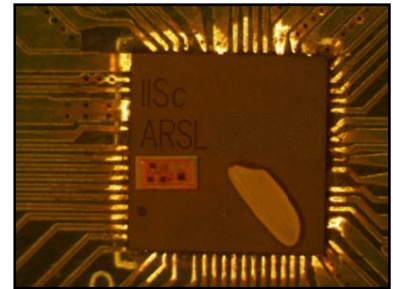
By Chethan Kumar

Bengaluru: Researchers at the Indian Institute of Science (IISc), in a significant breakthrough, have developed a "through-the-wall" radar (TWR), built on a chip smaller than a grain of rice.

The team of scientists was led by Gaurab Banerjee, associate professor at the Department of Electrical Communication Engineering.

Developed using Complementary Metal Oxide Semiconductor (CMOS) technology, this radar has a single transmitter, three receivers, and an advanced frequency synthesizer capable of generating complex radar signals, all packed together into a tiny chip.

Its small size, researchers said, can enable mass production at a low cost. "Such radars can have wide-ranging applications in the defence sector, as well as areas such as healthcare, transportation and agriculture," a statement IISc shared with TOI, reads.



"Only a handful of countries in the world today have the ability to put the entire electronics of radar on a chip," says Banerjee.

The TWR imaging has always been one of the most challenging radar design problems, Banerjee says, explaining: "For one, the signal can get significantly damped while passing through walls. To overcome this, radio waves consisting of a large number of frequencies need to be used, which can complicate the design. "

" ...These radars also use a more complex signal, known as a chirp, which requires customized electronics such as a microwave transmitter, a receiver and a frequency synthesizer. "

With their design, the IISc team has now managed to squeeze all of these electronic components into a single, tiny chip. They used new architectural and circuit design techniques to overcome challenges specific to radars – such as the design of a wide fractional bandwidth transceiver, the statement reads.

"The same design techniques that have enabled smaller and cheaper smart phones can now be used to miniaturize the complex electronics of a radar system into a small chip," says Banerjee.

Although the chip was originally developed for airport security-related applications, Banerjee's group is also exploring applications in other areas such as healthcare.

For instance, it can be used to monitor the health of elderly people.

"It might be possible for a centrally-placed TWR system to scan the house, and construct a model of when a person is standing or sitting down. If there is a sudden change in gait due to a fall, it can trigger an alarm," says Banerjee, adding that it could also monitor breathing and respiration rates and assess the severity of a fall.

This research was funded by the IMPRINT programme of the Government of India, with additional financial contributions from the Ministry of Human Resource Development (MHRD) and the Defence Research and Development Organization (DRDO).

Bharat Electronics Limited (BEL), a defence PSU, has been an active industrial partner in this IMPRINT project since its inception.

<https://timesofindia.indiatimes.com/india/iisc-build-through-the-wall-radar-on-chip-smaller-than-grain-of-rice/articleshow/73670592.cms>

## **Assam: Tezpur University to host mega food convention**

The Association of Food Scientists & Technologists (India), AFSTI Tezpur Chapter, is going to organize the 27<sup>th</sup> Indian Convention of Food Scientists and Technologists (ICFoST).

The event is hosted by the Department of Food Engineering and Technology, Tezpur University in Assam's Sonitpur district from January 30 to February 1, 2020.

The theme this year for the convention is 'Raising Agro-processing and Integrated Novel Technologies for Boosting Organic Wellness (RAINBOW)'.

This theme will focus mainly on the integrated development of organic capital of the nation, especially the Northeast to promote agro-processing, food safety and the advanced technologies for enhancing the organic wellness.

During the conference, over 50 leading food scientists, researchers and policy makers from across the country will share their experience and knowledge and the young students will share their innovative ideas to fulfil the objectives of the convention.

Some of the prominent names include CFTRI, Mysuru, DRDO, New Delhi, DFRL, Mysuru, IIT, Kharagpur, IIFPT, Thanjavur, NIFTEM, Sonipat and SLIET and many more.

The food industry personnel from across the country are also attending the convention for bridging the gap between academia and industry.

These include Exelon Foodbio Advisors Private Limited, Mumbai, Marico Mumbai, Kaleesuwari Refinery Private Limited, Chennai, Food Ingredient Specialities Private Limited, Chennai, Adani-Wilmar, Suhana, FIL and Johnson & Johnsen.

NABARD and FSSAI are also actively participating in the event.

A Food and wellness expo will also be organized during the convention.

The convention will be inaugurated on January 30 at Tezpur University in the presence of Dr AK Singh, DG Life Sciences, DRDO as Chief Guest.

The organizing patrons, Prof Vinod Kumar Jain, the Vice Chancellor, Tezpur University, Dr KSMS Raghavarao, director, CSIR-CFTRI, Mysuru and Dr Anil DuttSemwal, director DRDO-DFRL, Mysuru and president of AFSTI, Dr V Baskaran will grace the inaugural event.

AFSTI officials said the AGBM of the AFSTI will also be organized during the conference.

<https://nenow.in/north-east-news/assam/assam-tezpur-university-to-host-mega-food-convention.html>