

= Shivalik @-@ class frigate =

The Shivalik class or Project 17 class is a class of multi @-@ role frigates in service with the Indian Navy . They are the first stealth warships built in India . A total of three ships were built between 2000 and 2010 , and all three were in commission by 2012 .

The Shivalik class , along with the seven Project 17A frigates currently being developed from them , are projected be the principal frigates of the Indian Navy in the first half of the 21st century . All ships of the class were built by Mazagon Dock Limited . The class and the lead vessel have been named for the Shivalik hills . Subsequent vessels in the class are also named for hill @-@ ranges in India .

Originally conceived as a successor to the Talwar @-@ class frigates , the Shivalik @-@ class frigates feature improved stealth features and land attacking capabilities .

= = Design and description = =

Project 17 was conceived in the 1990s to meet the Indian Navy 's need for a class of stealthy frigates that were to be designed and built in India . The Directorate of Naval Design ( DND ) ' s specifications for the project called for a class of " 5000 ton stealth frigates ( Project 17 ) incorporating advanced signature suppression and signature management features " . The first three units were formally ordered by the Indian Navy in early 1999 .

Shivalik 's design embodies many firsts in Indian ships . Shivalik is the first Indian naval vessel to use a combined diesel or gas ( CODOG ) propulsion system . The CODOG gearboxes were designed and built by Elecon Engineering .

The main features of the class are its stealth characteristics and land @-@ attack capability . The ships incorporate structural , thermal and acoustic stealth features . The vessels use 10 gigabit LAN for their network .

There has also been an increased emphasis on crew comfort in this class of ships with more spacious accommodation being provided . Also , INS Shivalik is the first ship in the Indian Navy with chapati- and dosa @-@ makers on board .

= = General characteristics and propulsion = = =

The Shivalik @-@ class frigates have a length of 142 @. @ 5 m ( 468 ft ) overall , a beam of 16 @. @ 9 m ( 55 ft ) and a draft of 4 @. @ 5 m ( 15 ft ) . The ships displace about 4 @, @ 900 tonnes ( 4 @, @ 800 long tons ; 5 @, @ 400 short tons ) at normal load and 6 @, @ 200 tonnes ( 6 @, @ 100 long tons ; 6 @, @ 800 short tons ) at full load . The complement is about 257 , including 35 officers .

They use two Pielstick 16 PA6 STC Diesel engines and two GE LM2500 + boost turbines in CODOG configuration providing a total of 47 @, @ 370 shp ( 35 @, @ 320 kW ) of power . This allows the ships to reach a maximum speed of 32 knots ( 59 km / h ; 37 mph ) .

= = Electronics and sensors = = =

The Shivalik @-@ class frigates are equipped with a wide range of electronics and sensors . These include :

- 1 x MR @-@ 760 Fregat M2EM 3 @-@ D radar
- 4 x MR @-@ 90 Orekh radars
- 1 x ELTA EL / M @-@ 2238 STAR
- 2 x ELTA EL / M @-@ 2221 STGR
- 1 x BEL APARNA

In addition , the ships use HUMSA ( hull @-@ mounted sonar array ) , ATAS / Thales Sintra towed array systems and the BEL Ajanta Electronic Warfare suite .

= = Armament = = =

The Shivalik class frigates are equipped with a mix of Russian , Indian and Israeli weapon systems . These include the 76mm Otobreda naval gun , Klub and BrahMos supersonic anti ship missiles , Shtil 1 anti aircraft missiles , RBU 6000 anti submarine rocket launchers and 6 × 324 mm ILAS 3 ( 2 triple ) torpedoes . A 32 cell VLS launched Barak SAM and AK 630 act as Close in weapon systems ( CIWS ) . The ships also carry two HAL Dhruv or Sea King Mk . 42B helicopters .

= = Construction and service = =

All the three ships of the class were constructed at the Mazagon Dock Limited . The construction of the lead ship , Shivalik , commenced in December 2000 . The ship 's keel was laid in July 2001 and was launched in April 2003 . It underwent sea trials in February 2009 before being commissioned in April 2010 . The second ship , Satpura , was laid in October 2002 . It was launched in June 2004 and commissioned in August 2011 . The third and final ship , Sahyadri , was laid in September 2003 , launched in May 2005 and commissioned in July 2012 . All the three ships are named after hill ranges in India : Shivalik after the Sivalik Hills , Satpura after the Satpura range and Sahyadri after the Sahyadri range commonly called Western Ghats .

The lead ship of the class , INS Shivalik , was deployed in the North West Pacific for JIMEX 2012 ( Japan India Maritime Exercise ) with four other ships which included INS Rana , a Rajput class guided missile destroyer , INS Shakti , a Deepak class fleet tanker , and INS Karmuk , a Kora class corvette , and took part in India 's first bilateral maritime exercise with Japan . The Japanese Maritime Self Defence Force ( JMSDF ) was represented by two destroyers , one maritime patrol aircraft and a helicopter . After the deployment in the north Pacific , the battle group was deployed in the South China Sea . As part of India 's Look East policy , the ships visited the Shanghai port on 13 June 2012 , for a five day goodwill tour . INS Shakti served as the fuel and logistics tanker to the three destroyers . The ships left the port on 17 June 2012 . Before leaving the port , the ships conducted a routine passage exercise with the People 's Liberation Army Navy .

The second ship , INS Satpura , participated in the Malabar 2012 exercise with the United States Navy along with the Indian destroyers INS Ranvir , INS Ranvijay , corvette INS Kulish and replenishment oiler INS Shakti . The other ships which participated in the exercise included Carrier Strike Group ( CSG ) 1 of the US Navy , consisting of : USS Carl Vinson , embarked Carrier Air Wing ( CVW ) 17 , the Ticonderoga class guided missile cruiser USS Bunker Hill and the Arleigh Burke class guided missile destroyer USS Halsey . Military Sealift Command 's fast combat support ship USNS Bridge also provided support for the exercise .

INS Shivalik participated in the PLAN 's 65th anniversary celebrations held in Qingdao sailing 400 miles from Port Blair without any assistance from support ships . India , Indonesia and China conducted three high level exercises including anti hijack exercise .

= = Ships = =

= = Gallery = =