

Preliminary Assessment of Pakistan's Fatah-3 Supersonic Cruise Missile

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Introduction: Fatah-3

Pakistan's Fatah-3 supersonic cruise missile, reportedly based on Chinese technology, was unveiled by its Army Rocket Force Command (ARFC) on 07 May 2026, which marked the first anniversary of Islamabad's four-day battle with India in 2025. The missile also claims to have the capability to counter India's BrahMos, which has a superior operational supersonic strike capability.¹

The other reported capabilities of this missile include a terminal velocity ranging from Mach 2.5 to Mach 4, sea-skimming and terrain-hugging flight profile, ability to make computations for multilayer interception, engagement sequencing, and radar tracking difficult. It also claims to reduce the time taken for conventional air-defence networks to intercept it.²

Estimated Operational and Design Specifications of Fatah-3

Fatah-3's anticipated range is between 290 and 450 kms because of its integrated ramjet propulsion system and solid-fuel launch booster. It can be fired from a mobile launcher equipped with two missile canisters, minimising susceptibility to counterattacks and enabling crews to easily relocate before and after firing. The missile's low-altitude flight profile, which keeps it near land and sea surfaces to minimise detection, are intended for land attack as well as maritime strike operations.³

The design of this Fatah-3 missile closely resembles a solid fuel ducted ramjet missile system. It has two air-intake ducts with booster section below principal missile section. Traditional cruise missiles usually do not carry a ducted ramjet intake unless required range is very less (below 50-100 kms). Further, there is absence of any deployable fins on missile's surface body, which makes it hard to explain how long it can have its sea-skimming or terrain-hugging capabilities. It is also to be considered that SFDR engines have limited range as compared to liquid fuel ramjet engine-based missiles, for example BrahMos.

Is Fatah-3 Pakistan's First True Cruise Missile?

Media reports suggest that Fateh-1 and Fateh-2, two of the family's earlier missiles, were guided rocket artillery systems with the range of 140-400 kms. Being a cruise missile, Fateh-3 operates more like a pilotless aircraft. According to Abdullah Khan from Pakistan Institute for Conflict and Security Studies, this missile marks a significant advancement in Fatah family

from rocket artillery to real cruise missile capability. He adds that this missile represents a significant improvement in precision-strike capability of Pakistan's rocket forces.⁴ However, since Fatah-3 is being suspected to be based on China's HD-1 missile, it may not be completely an indigenous missile for Pakistan.

Fatah-3 vs BrahMos: A Comparison

Whenever Pakistan introduces a weapon system, it usually draws a comparison with corresponding Indian system, eventually claiming that it is at par or superior to the Indian variant. Since Fatah-3 is presumed to be a variant of HD-1, which is of Chinese origin, it is important to understand the feature on its parent missile. The HD-1 was first test fired in 2018 and was dubbed as an 'Aircraft Carrier Killer' by the Chinese. As per Chinese claims, HD-1 reached the predicted values for its flying characteristics during supersonic cruising. It was anticipated that HD-1 would compete with Indo-Russian joint venture-based missile BrahMos on global defence market.⁵

Wei Dongxu, a military analyst based in Beijing, had informed local media that HD-1's solid fuel ramjet engine uses less fuel than other supersonic cruise missiles available in the market, potentially making it lighter, faster, and less costly than BrahMos.⁶ The Chinese were putting emphasis on fuel economics and cost of manufacturing rather than operational capabilities like lethality, kinetic impact, propulsion, guidance, control, manoeuvrability, smart detection, radar jamming features, etc., which are present only in BrahMos.

Pakistan might theoretically borrow a reliable supersonic precision-strike missile. However, recreating speed and range is only one aspect of matching BrahMos capabilities. The ecosystem surrounding BrahMos, including its satellite-backed targeting and guidance, airborne surveillance, integrated command systems, and multi-platform deployment, are other reasons for its superiority.⁷

Furthermore, the hype generated for Fatah-3 by the local media, Chinese and Pakistani military analysts, and government agencies of Pakistan could be a tactic by both Islamabad and Beijing to sell its overrated defence systems to other gullible countries. Regional news outlets suspect that timing of this missile's introduction could be linked with West Asian crisis. Fatah-3 missile display could be a hint towards Pakistan becoming China's front-line agent for selling its weapons to the Gulf nations.⁸

Challenges to BrahMos and Indian Air-Defence

Pakistan purposefully combined strategic messaging, force-posture signalling, and conventional deterrent optics into a single event targeted concurrently at India by publicly showcasing Fatah-3 through ARFC. Fatah-3 weighs between 1.2 and 1.5 tonnes, which is

significantly less than BrahMos, which normally weighs more than 2.5 tonnes depending on its operational type and launch configuration. Some defence analysts claim that Fatah-3 could force India to reconsider future investments in layered missile defence infrastructure while undermining presumptions of unilateral Indian dominance in highspeed conventional strike warfare.⁹

A Pakistani newspaper went on to unilaterally claim that even sophisticated systems like Barak-8 and Sudarshan air-defence network could be challenged by Fatah-3's capabilities. It reports that Barak-8's reaction time could be tested by supersonic sea-skimming and terrain-hugging at Mach 4. The tracking radars of Barak-8 could be overloaded by numerous oncoming missiles.

India's planned integrated air and missile-defence infrastructure is symbolised by Sudarshan Chakra. Through artificial intelligence-enabled networks, it seeks to connect S-400, Akash, Barak-8, and other systems. It will take years to reach full operational maturity. India's air-defence is dealing with several issues at once. Radar horizons prevent low-flying supersonic threats from being detected early. Rapid manoeuvring makes intercept solutions even more difficult.¹⁰

Limitations of Fatah-3

Fatah-3's missile's range is mostly limited to theatre-level conventional strike operations, therefore, despite its substantial operational consequences, it does not significantly change the wider strategic balance between India and Pakistan. The degree to which Pakistan has mastered ramjet propulsion, seeker integration, guidance systems, and large-scale missile production without ongoing Chinese technical help is still up for debate. Any incoming Fatah-3 strikes could still be significantly constrained by contemporary and evolving integrated air-defence systems in India, especially networked architectures that combine long-range observation radars, layered interceptors, and electronic-warfare capabilities.¹¹

Conclusion

As observed, the main limitation of Fatah-3 lies in its propulsion system. Since it uses a solid-fuel ramjet, it utilises solid-fuel block in the combustion chamber. This solid fuel block is of fixed mass and, therefore, combustion and propulsion will always be limited. This means that thrust, range, ability to manoeuvre, and strike moving targets for Fatah-3 will always be constrained. Without extra fuel, it will lose kinetic energy and, therefore, become vulnerable for air-defence systems.

BrahMos, which uses a liquid-fuel ramjet engine technology, offers superior throttle control and a better specific-impulse, which means fewer drops of fuel burned for longer

range along with excellent throttle control and smooth interchange between flight profiles. Solid-fuel ramjet missiles are always used globally for air-to-air and surface-to-air interceptor roles rather than as a cruise missile or an anti-ship missile. Pakistan unfortunately does not realise these basic technical concepts and, therefore, the hype of Fatah-3 could be safely managed through effective and smart air-defence tactics and policies.

Endnotes:

¹ Aditya Shukla, "Pakistan Unveils FATAH-3 Supersonic Cruise Missile Modelled on Chinese Technology", *Wion News*, 08 May 2026, accessed 01 Jun 2026, <https://www.wionews.com/world/pakistan-unveils-fatah-3-supersonic-cruise-missile-modelled-on-chinese-technology-know-in-detail-1778221723060>

² Ibid.

³ Akhsan Erido Elezhar, "Pakistan Debuts 'Fatah-3' Cruise Missile Channelling China's HD-1", *NextGen Defense*, 11 May 2026, accessed 01 Jun 2026, <https://nextgendefense.com/pakistan-fatah-cruise-missile/>

⁴ "Not Just Another Rocket: Why Fateh-3 Is Pakistan's First True Cruise Missile", *Sputnik International*, 08 May 2026, accessed 01 Jun 2026, <https://sputnikglobe.com/20260508/not-just-another-rocket-why-fateh-3-is-pakistans-first-true-cruise-missile-1124095808.html>

⁵ Jeremy Chin, "China Test Fires HD-1 Supersonic Cruise Missile", *Missile Threat*, Center for Strategic and International Studies, 18 Oct 2018, accessed 01 Jun 2026, <https://missilethreat.csis.org/china-test-fires-hd-1-supersonic-cruise-missile/>

⁶ Ibid.

⁷ Yashasvi Vasistha, "Fatah-3 vs BrahMos: Why Pakistan Can't Match India's Missile Edge", *The Times of India*, 15 May 2026, accessed 01 Jun 2026, <https://timesofindia.indiatimes.com/defence/news/fatah-3-vs-brahmos-why-pakistan-cant-match-indias-missile-edge/articleshow/131115297.cms>

⁸ Gabriel Honrada, "Pakistan's Fatah-3 May Open Gulf Door to Chinese Missiles", *Asia Times*, 11 May 2026, accessed 01 Jun 2026, <https://asiatimes.com/2026/05/pakistans-fatah-3-may-open-gulf-door-to-chinese-missiles/>

⁹ "Pakistan Unveils Fatah-3 Supersonic Missile Based on China's HD-1, Challenging India's BrahMos Dominance in South Asia", *Defence Security Asia*, 07 May 2026, accessed 01 Jun 2026, <https://defencesecurityasia.com/en/pakistan-fatah-3-supersonic-missile-china-hd1-challenges-india-brahmos/>

¹⁰ "Can India's Multi-Layer Air Defence Stop Pakistan's Fatah-3", *Times of Islamabad*, 11 May 2026, accessed 01 Jun 2026, <https://timesofislamabad.com/11-05-2026/can-indias-multi-layer-air-defence-stop-pakistans-fatah-3/>

¹¹ *Defence Security Asia*, Ibid.

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