

Major Iranian Air Defense Missile Systems, 2023

Name (type)	Altitude	Associated missile	Unveiling date (service entry)	Detection range (km)	Tracking range (km)	Targets simultaneously detected/tracked/engaged	Min firing range (km)	Max firing range (km)	Max engagement altitude (km)	Notes
Mersad-1/2, Qader (SAM)	Low-mid	Shahin, Shalamcheh, Sayyad-2	Apr. 2010	150	80	100/?/2	N/A	40-45, 75	18	Used by the Islamic Republic of Iran Air Defense Force (IRIADF). Can be paired with Najm-804 (or mobile Kavosh search radar, 110-150 km) and Hafez (110-250 km detection and 80 km tracking range) long-range phased array 3D search radars. Qader is the truck-mounted mobile version. Associated reverse-engineered radars reportedly include the Kashef, Jooya, and Haadi, a high power illuminator radar (HPIR) with 80 km range.
Raad-1 (SAM)	Mid	Taer-1 (50 km), 3M9/9M9 Kub (24 km)	Sept. 2012	N/A	N/A	?/1/1	3	24-50	14-23	Used by the Islamic Revolutionary Guard Corps Aerospace Force (IRGCASF). Employs a combination of radar and electro-optical (EO) tracking to guide its missiles up to 50 km. Each battery has five transporter erector launchers (TELs) and a fire control unit.
Ya Zahra-3 (SAM)	Low	Shahab-e Thaqeb	Jan. 2013	N/A	N/A	N/A	0.5	8.6-11	5.5-10	IRGCASF and IRIADF. Iranian copy of Chinese semi-mobile FM-80, itself a copy of French Crotale. Beam-rider radar guidance with EO tracking.
Herz-eh Nohom (SAM)	Low	Shahab-e Thaqeb	June 2013	N/A	N/A	N/A	0.5	10-12	6-10	IRGCASF. Fully mobile version of Ya Zahra with passive radar guidance and EO tracking

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Raad-2 (SAM)	Mid	Taer-2A	Apr. 2014	80 (EO)	N/A	?/1/1	N/A	24-50	14-50	IRGCASF. Coupled with Sepehr-14 EO passive tracking system (55-80 km range) and passive homing (missile).
Tabas (SAM)	Low-mid	Taer-2A/2S, 3M9/9M9 Kub (24 km)	May 2014 (2015)	60	N/A	100/100/4	N/A	75, 30	27	IRGCASF. Can be linked with Bashir search radar. Full battery can reportedly fire eight missiles simultaneously at four targets.
3rd of Khordad/ Khordad-3 (SAM)	Mid-high	Taer-2/2B, Sayyad-2/2C/2CM, Taer-3 (ER) (2022)	May 2014	200	150	?/4/4	5	50, 105, 75, 105, 200	25-30	IRGCASF. Uses a mix of TELs and transporter erector launchers and radars (TELARs); in Sep. 2022, a larger, heavier TEL with four boxed missile canisters was unveiled. With active array search and fire-control radar. Reportedly used to shoot down U.S. RQ-4 drone over the Strait of Hormuz, and can operate independently. Recently equipped with EO day/night tracking system. Can be linked with Bashir S-band search radar with 350 km detection range. Missiles in active radar and command-guided versions. Was trialed on the deck of a ship in 2020.
Talash-1 (SAM)	Mid-high	Sayyad-2	2015 (Jan. 2016)	150	N/A	N/A	35	75	N/A	IRIADF. Used to protect high-value assets against a variety of aerial targets. Can be linked with S-200's K-1 Square Pair engagement radar (270 km range).
Sayyad (SAM)	Mid-high	Sayyad-2, Sayyad-3C	Sept. 2016	N/A	N/A	150/6/6	N/A	50-150	27	IRGCASF variant of Talash, with Najm-804 X-band target acquisition and engagement phased array track-while-scan (TWI) radar with 150/100 km range and Sayyad fire-control radar.

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Misagh-3 (MANPADS)	Low	N/A	Jan. 2017	N/A	N/A	N/A	N/A	5	3.5	Includes a laser proximity fuse and a 5 kg warhead. Licensed copy of Chinese QW-1.
Talash-2 (SAM)	Mid-high	Sayyad-2, Sayyad-3	(July 2017)	150	N/A	N/A	35	75-200	25-27	IRIADF.
Talash-3 (SAM)	Mid-high	Sayyad-2, 5V21 (S-200)	N/A	150	N/A	N/A	35	75	25	IRIADF. Upgraded S-200 with new radar and missiles.
Talash-4 (SAM)	Mid-high	Sayyad-3C	July 2017	N/A	N/A	N/A	35	120	27	IRIADF. Probably developed into Khordad-15. Claimed ability to engage ballistic and semi-ballistic missiles. Includes Ofogh fire-control radar capable of engaging low-radar-cross-section (RCS) targets. Can replace S-200. Sayyad-3 reportedly has semi-active and active homing modes.
“Item 358” (air defense cruise missile)	Low-mid	N/A	2018	N/A	N/A	N/A	N/A	N/A	N/A	Jet-powered anti-drone/helicopter missile. Launched using rocket booster, then follows target using inertial and satellite navigation and EO homing. Detonates either after impact or by using an optical or laser proximity fuse array. Shipped to Houthis since at least 2018; also in service with Iraqi militias and probably Hezbollah.
15th of Khordad/ Khordad-15 (SAM)	Mid-high	Sayyad-2, Sayyad-3C, Sayyad-3	June 2019 (Jan. 2020) (June 2019)	150 (85 stealth)	120 (45 stealth)	6/6	N/A	75-120	27-150	IRIADF. Major upgrade of Talash. First operationally fielded in Nov. 2021. “Quick reaction system” equipped with Najm-802 phased array radar. Claimed abilities include detecting stealth aircraft at 85 km, tracking them at 45 km, and tracking/engaging drones and ballistic/cruise missiles. Tailored to protect large cities and critical infrastructure.

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Bavar-373 (SAM)	High	Sayyad-2, Sayyad-3, Sayyad-4, Sayyad-4B	Aug. 2019	320	260	300/100/6-9	N/A	75, 120, 200, 300	27	IRIADF. Under upgrade. Vertical-launch “air dominance” weapon with claimed ability to track/engage high-altitude and stealth aircraft, helicopters, drones, and anti-radiation/ballistic/cruise missiles with 360-degree coverage. Includes command vehicle, search radar, engagement radar, and up to six launchers with four rounds in separate canisters. Can be paired with Sairan Meraj-4 (M-4) active array S-band radar (claimed 450 km detection range, 130 km detection altitude, detects ballistic missiles at 1,200 km). Its LPI AESA fire-control radar has a max detection range of 320 km. Tracking range is 260 km. Can also receive targeting data from Alim passive radar.
Madjid	Low	AD-08 (IIR)	Sep. 2020 (Oct. 2021)	15	12 (30 with Kashef-99 radar)	4/4/4	0.7	8	6	IRIADF. Pickup-truck-mounted point-defense anti-cruise missile and drone system with EO search and tracking. Can be linked to Kashef-99 search radar. Up to four missiles with imaging-infrared seekers.
9th of Dey	Low	9th of Dey	May 2021	N/A	N/A	?/8/8	5	20-30	10	IRGCASF. New version of Khordad-3 with up to eight boxed 9th of Dey short-range command-guided missiles with laser-proximity-fuses. Each battery consists of four mobile launchers. Radar/EO guidance linked to Qods long-range (500 km) target acquisition radar. Capable of engaging stealth drones, helicopters, cruise missiles, and standoff munitions; designed to counter large-scale missile attacks.

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Mersad-16	Low-mid	Shalamcheh-2	Oct. 2021	N/A	N/A	100/?/2	N/A	40	N/A	IRIADF. Highly mobile. Remote-controlled triple-launcher with Hafez phased array target acquisition radar (250 km range). Used to counter fast, low-flying targets such as cruise missiles and drones. High-altitude version under development.
Dezful	Low	9M331 or local copy	Oct. 2021	27	N/A	48/10/2	0.1	12	6	IRGCASF. Anti-cruise missile and drone system. Truck-mounted Tor-M1 with radar and EO/thermal imager. In Apr. 2022, IRIADF unveiled a version mounted on a larger truck.
Jowshan (passive Khordad-15)	N/A	N/A	Oct. 2021	N/A	N/A	N/A	N/A	N/A	N/A	IRIADF. "Upgraded" version of Khordad-15 with passive radar and missile guidance system.
Zoobin	Low-mid	N/A	Feb. 2022	30	N/A	100/8/8	N/A	20	N/A	IRIADF. Advanced all-in-one mobile point-defense system with 360-degree coverage and vertical launcher with eight missiles. Capable of intercepting low-flying planes, suicide drones, cruise missiles, and standoff munitions. An eventual naval version is likely.