

MANPADS - Man-portable air-defense systems

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System nomenclature	Sakr Eye	HN-5A	HN-5B	QW-1	QW-2	QW-3 / FL-2000	QW-4		QW-11	QW-18	FN-6	FN-16 / HY-6
Country of Origin	Egypt	China	China	China	China	China	China		China	China	China	China
Developer	Sakr Factory	CNPMIEC	CNPMIEC	CNPMIEC	CNPMIEC	CNPMIEC	CNPMIEC		CNPMIEC	CNPMIEC	CASIC	CASIC
Entered service	1986	1985	1987	1994	1998	2005	Development		2002	2002	n.k.	n.k.
Users	Egypt	China and other 7 countries	China and other 5 countries	China	China and other 2 countries	China and other 1 country	China		China	China and other 1 country	China and other 5 countries	2 countries
Weight [complete system] [kg]	15.0	13.3	16.5	16.0	18.4	n.k.	n.k.		18.1	18.0	16.1	18.0
Weight [missile] [kg]	9.9	9.2	10.3	10.8	11.3	23.0	n.k.		10.7	10.8	10.8	n.k.
Length [m]	1.44	1.44	1.43	1.48	1.59	2.10	n.k.		1.45	1.53	1.49	1.70
Diameter [mm]	72	72	72	71	72	71	n.k.		71	71	71	71
Wing Spann [mm]	300	300	300	n.k.	72	n.k.	n.k.		n.k.	n.k.	n.k.	n.k.
Max. flight speed [m/s]	430	430	410	600	600	750	660		600	600.00	600	600
Engagement range [m]	500 - 4,400	600 - 3,400	600 - 4,400	500 - 5,000	500 - 6,000	800 - 8,000	500 - 6,000		500 - 5,000	500 - 5,000	500 - 5,500	500 - 6,000
Engagement altitude [m]	30 - 2,400	50 - 2,300	50 - 2,500	30 - 4,000	30 - 4,000	10 - 4,000	5 - 4,000		30 - 4,000	30 - 4,000	15 - 3,800	10 - 4,000
Warhead	1.17kg FRAG-HE	1.17kg FRAG-HE	1.8kg FRAG-HE	1.42kg FRAG-HE	1.42kg FRAG-HE	continuous-rod	FRAG-HE		1.42kg FRAG-HE	1.42kg FRAG-HE	FRAG-HE	FRAG-HE
Fuze type	Impact	Impact	Impact	Impact	Impact	Impact & proximity	Impact		Impact & proximity	Impact & proximity	Impact	Impact
Guidance system / seeker	IR [2nd Generation]	IR [1st Generation]	IR [2nd Generation]	IR [2nd Generation]	IR+UV [3rd Generation]	SACLOS via Laser	imaging IR [4th Generation]		IR	two color infrared seeker	IR [2nd Generation]	IR+UV [3rd Generation]
Remarks	Improved SA-7	Improved SA-7	Improved SA-14	based on russian SA-16	-	-	latest improved QW-1		Improved QW-1	Improved QW-11	based on french Mistral	-

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System nomenclature	Mistral 1	Mistral 2	Grom-2			Type 91 Kin Sam	KP-SAM Shin-Gung / Chiron	SA-7A Grail / 9K32 Strela-2	SA-7B Grail / 9K32M Strela-2M	SA-14 Gremlin / 9M36 Strela 3	SA-16 Gimlet / 9K310 Igla-1
Country of Origin	France	France	Poland	Romania	Serbia	Japan	South Korea	Russia	Russia	Russia	Russia
Developer	MBDA	MBDA	Zaklady Metalowe MESKO	AAR Autonomia	Yugoimport	Kawasaki HI & Toshiba	LIG Nex1 / LG Corp.	KBM Kolonna	KBM Kolonna	KBM Kolonna	KBM Kolonna
Entered service	1989	1997	1995	1990's	late 1980's	1994	2005	1968	1974	1974	1981
Users	France and other 18 countries	France and other 7 countries	Poland and other 1 country	Romania	Serbia and other 3 countries	Japan	South Korea and other 1 country	Russia and other 13 countries	Russia and other 56 counties	Russia and other 34 counties	Russia and other 27 counties
Weight [complete system] [kg]	24.0	24.0	16.5	15.0	16.0	17.0	24.3	13.3	14.6	16.0	18.7
Weight [missile] [kg]	17.8	18.7	10.5	9.8	9.9	15.5	14.0	9.2	10.6	10.3	10.8
Length [m]	1.86	n.k.	1.71	1.43	1.43	1.43	1.68	1.44	1.44	1.43	1.59
Diameter [mm]	91	91	72	72	72	80	80	72	72	72	72
Wing Spann [mm]	190	200	190	300	n.k.	n.k.	160	300	300	300	160
Max. flight speed [m/s]	830	865	650	500	500	630	660	430	430	410	570
Engagement range [m]	300 - 5,300	300 - 6,000	500 - 5,500	500 - 4,500	4,200	5,000	5,500	600 - 3,400	500 - 4,200	600 - 4,300	600 - 5,400
Engagement altitude [m]	15 - 3,000	5 - 4,500	10 - 3,500	30 - 2,300	15 - 2,300	5,000	7,000	50 - 1,500	50 - 2,300	10 - 3,500	10 - 3,500
Warhead	3kg FRAG-HE	FRAG-HE	1.27kg FRAG-HE	1.17kg FRAG-HE	1.32kg FRAG-HE	Annular blast fragmentation	2.5kg FRAG-HE	1.17kg FRAG-HE	1.17kg FRAG-HE	1.8kg FRAG-HE	1.27kg FRAG-HE
Fuze type	Impact & proximity	Impact & proximity	Impact	Impact & proximity	Impact	IR+UV [3rd Generation]	Impact & proximity	Impact	Impact	Impact	Impact
Guidance system / seeker	IR+UV [3rd Generation]	IR+UV [4th Generation]	IR+UV [3rd Generation]	IR	IR [2nd Generation]	IR+UV [4th Generation]	IR+UV [4th Generation]	IR [1st Generation]	IR [1st Generation]	IR [2nd Generation]	IR [3rd Generation]
Remarks	-	Improved Mistral 1	Based on russian SA-18	Improved russian SA-7	Improved russian SA-7	Based on U.S. FIM-92 Stinger	-	-	Improved SA-7A	-	-

System nomenclature	SA-18 Grouse / 9K38 Igla	SA-24 Grinch / 9K338 Igla-S	RBS-70 Mk.2	RBS-70 / Bolide	Blowpipe	Javelin	Starburst	Starstreak	FIM-43A Redeye	FIM-92A/B Stinger	FIM-92E Stinger [RMP]
Country of Origin	Russia	Russia	Sweden	Sweden	UK	UK	UK	UK	USA	USA	USA
Developer	KBM Kolonna	KBM Kolonna	Saab Bofors Dynamics	Saab Bofors Dynamics	Shorts Missile Systems	Shorts Missile Systems	Thales Air Defence	Thales Air Defence	General Dynamics	General Dynamics / Raytheon	General Dynamics / Raytheon
Entered service	2002	1977 / 1993	1977 / 1993	2004	1975	1984	1997	1966	2004	1966	1981
Users	Russia and other 32 countries	Russia and other 6 countries	Sweden and other 20 countries	Sweden and other 4 countries	UK and other 12 countries	UK and other 4 countries	UK and other 3 countries	UK and other 2 countries	USA and other 11 countries	USA and other 25 countries	USA and other 12 countries
Weight [complete system] [kg]	18.8	19.0	35.1	27.5	21.9	15.4	15.2	16.8	8.2	15.7	15.8
Weight [missile] [kg]	10.6	11.1	16.5	n.k.	11.1	12.7	12.7	n.k.	13.3	10.1	10.1
Length [m]	1.71	1.71	1.32	1.35	1.32	1.39	1.39	1.52	1.39	1.52	1.52
Diameter [mm]	72	72	106	76	76	76	76	127	70	70	70
Wing Spann [mm]	160	n.k.	320	275	275	275	275	275	140	91	91
Max. flight speed [m/s]	570	600	520	660	500	520	n.k.	1,150	580	730	730
Engagement range [m]	500 - 5,200	500 - 6,000	250 - 6,000	200 - 8,000	500 - 5,500	300 - 7,000	300 - 7,000	300 - 7,000	600 - 3,500	200 - 4,300	300 - 5,000
Engagement altitude [m]	10 - 3,500	10 - 3,500	0 - 3,000	0 - 3,000	10 - 2,500	10 - 3,000	10 - 3,000	10 - 5,000	50 - 2,700	30 - 3,500	30 - 3,800
Warhead	1.27kg FRAG-HE	2.3kg continuous-rod	1.1kg shaped charge	shaped charge & FRAG-HE	2.74kg FRAG-HE	2.74kg FRAG-HE	2.74kg FRAG-HE	Three explosive Darts	1.06kg FRAG-HE	3.0kg FRAG-HE	Annular blast fragmentation
Fuze type	Impact delay	Impact & proximity	Impact Delay	Impact & proximity	Impact	Impact	Impact & proximity	Impact delay	Impact	Impact	Impact
Guidance system / seeker	IR+UV [3rd Generation]	IR+UV [3rd Generation]	SACLOS via Laser	SACLOS via Laser	MCLCS via Radio command	SACLOS via Radio command	SACLOS via Laser	SACLOS via Laser	IR [1st Generation]	IR [2nd Generation]	IR+UV [3rd Generation]
Remarks	-	-	-	-	-	Improved Blowpipe	Improved Javelin	-	Being retired	FIM-43 replacement	Improved FIM-92A/B

Key:
 FRAG-HE: Fragmentation High Explosive
 IR: Infrared
 MCLCS: Manual Command to Line of Sight
 SACLOS: Semi-Automatic Command to Line of Sight
 UV: Ultraviolet