

= AASM =

The Armement Air @-@ Sol Modulaire ( Air @-@ to @-@ Ground Modular Weapon ) ( AASM ) " Hammer " is a French Precision @-@ Guided Munition developed by Sagem Défense Sécurité . AASM comprises a frontal guidance kit and a rear @-@ mounted range extension kit matched to a dumb bomb . The weapon is modular because it can integrate different types of guidance units and different types of bombs .

The basic version features a 250 @-@ kilogram ( 550 lb ) bomb plus hybrid inertial navigation system ( INS ) / Global Positioning System ( GPS ) guidance . Other variants add infrared homing or laser guidance to increase accuracy ; there are also versions with 125 @-@ kilogram ( 276 lb ) , 500 @-@ kilogram ( 1 @,@ 100 lb ) or 1 @,@ 000 @-@ kilogram ( 2 @,@ 200 lb ) bomb bodies .

It entered service in 2007 with the French Air Force and Naval Aviation , from Rafale and Mirage 2000 . In 2011 , AASM was given the name HAMMER ( Highly Agile Modular Munition Extended Range ) . Chosen for commercial reasons , the English acronym is also used in French . The French pronunciation of " AASM " was deux @-@ A @-@ S @-@ M or A @-@ deux @-@ S @-@ M.

= = Development = =

The program started in 1997 , when the Délégation Générale pour l'Armement ( DGA ) , the French defense procurement agency , launched an international competition on the design for the weapon . In 2000 , a contract was awarded to SAGEM for an initial lot of AASM GPS / INS bomb kits , expected at the time to be delivered from 2004 and to enter service the following year .

= = = Validation = = =

A test campaign to validate in flight the main performances of this AASM variant started on December 6 , 2004 and ended on July 26 , 2005 .

While demonstrating excellent results , this campaign showed the need to change some of the aerodynamic features of the weapon . To compensate for delays in AASM deliveries in 2008 France ordered dual @-@ mode ( laser- and GPS / INS @-@ guided ) GBU @-@ 49 Enhanced Paveway II kits for integration with Mirage 2000D and Rafale fighter @-@ bombers . The GPS / INS + IIR guided version completed its qualification tests on July 9 , 2008 after three firings at the DGA 's missile test range in Biscarosse . This 250 kg IR version performed a night launch from a Rafale fighter @-@ bomber at DGA 's Biscarosse test range in December 2010 .

According to Sagem , the weapon was launched at a range of more than 50 km from the target , which was hit within one meter . A 125 kg version was successfully test fired on January 27 , 2009 , and a laser guided variant was air @-@ launched for the first time on June 17 , 2010 .

= = = Cost = = =

According to French Senate 's Comité des Prix de Revient des fabrications d'Armement ( CPRA ) cited by the daily La Tribune , the total cost of the AASM program including development costs and the delivery of 2348 kits is ? 846m . On that basis the per @-@ weapon cost is \$ 300 @,@ 000 or twelve times the cost of the comparable American JDAM , although the latter has been manufactured in much larger quantities ( ~ 250 @,@ 000 kits ) and would be reasonable to expect a drastic reduction of the price of the French munition if larger contracts are signed and economies of scale are achieved .

The 2012 defence budget presented to the Senate reported the project had cost ? 592.2m ( ~ US \$ 800m ) with a unit cost of ? 164 @,@ 000 , or ? 252 @,@ 000 including development costs .

= = Variants = =

AASM comes in several variants according to its size and the type of guidance used .

The current model features a 250 kg bomb matched to a nose @-@ mounted guidance kit and a rear @-@ mounted range extension kit , containing a rocket booster and enlarged fins . There is also a 125 kg , first tested in 2009 , and a proposed 1000 kg version .

As for guidance , the basic version combines data from a Global Positioning System ( GPS ) receiver and an inertial navigation system ( INS ) unit through Kalman filtering , achieving a 10 metres ( 32 ft 10 in ) circular error probability ( CEP ) . This " decametric " all @-@ weather variant is complemented by a " metric " day / night fair weather version which adds infrared homing ( IIR ) guidance that matches the target area with a target model stored in its memory for a 1 metre ( 3 ft 3 in ) CEP .

A third version uses laser guidance instead of IIR allowing it to hit moving targets with more precision . It was qualified in April 2013 .

On October 2010 , these versions were given alphanumeric designations with the INS / GPS version becoming the SBU @-@ 38 ( SBU = Smart Bomb Unit ) , the INS / GPS / IIR version becoming the SBU @-@ 54 and the INS / GPS / SALH version becoming the SBU @-@ 64 ; the system as a whole was renamed Hammer to make it more appealing to export customers .

= = Operational use = =

The first order for AASM was placed by the DGA in 2000 for a total of 744 units ; deliveries started in 2007 after a two @-@ year delay in development . In 2009 a second order for 680 units was placed , by the end of that year deliveries had reached 334 .

= = = Afghanistan = = =

AASM made its combat debut on April 20 , 2008 , during the War in Afghanistan when a Rafale fighter fired two in support of ground troops .

= = = Libya = = =

On 24 March 2011 it was reported that an AASM missile fired from a Dassault Rafale was used to destroy a Libyan Air Force G @-@ 2 / Galeb light ground attack / trainer jet , the first Libyan warplane to challenge the no @-@ fly zone during the 2011 Libyan civil war , on the runway just after the plane had landed at Misrata Airport .

On 6 April 2011 , it was reported that a AASM missile fired from a Dassault Rafale was used to destroy a Libyan tank at a range of 55 km .

In Libya , 225 AASM bombs have been fired

" Also referred to as the Hammer , the AASM weapon has impressed during the campaign to date . Incorporating a precision guidance kit and propulsion system , the design will eventually be available for use with standard bombs weighing between 125kg and 1,000kg , although a 250kg version is the only one currently in service . Sagem cites a range capability of more than 32nm from high altitude , or 8nm from low level . Launches can also be made from an off @-@ axis angle of up to 90 ° , while up to six weapons can be fired against individual targets in a single pass and with just one trigger press . " And " Libya represents the first opportunity for the French air force to employ the Thales Damocles targeting pod , although the Navy gave the system its combat debut over Afghanistan in late 2010 . "

= = Operators = =

= = = Current operators = = =

Egypt  
France

Morocco  
Qatar