100% Successful at Stopping Overruns!

Courtesy of Yeager Airport

• Proven reliability • Predictable performance • Safe and effective • 10 saves in 10 attempts

Zodiac Arresting Systems
ZODIAC AEROSYSTEMS
zodiacaerospace.com

ZODIAC AEROSPACE

THE ONLY PROVEN EMAS SOLUTION

www.emasmax.com

EMASMAX is a bed of customized cellular cement material, designed to crush under the weight of an aircraft, thus providing predictable, controlled deceleration. Once stopped, EMASMAX's unique material allows passengers and crew members to exit the aircraft safely and for the aircraft to be easily removed from the arresting system.

Since no two runways are identical, each EMASMAX application is engineered and customized in length, depth and strength to provide optimum performance for the aircraft traffic at each airport.

EMASMAX is typically the full width of the runway and the arrestor bed is located at the end of the runway. On long runway safety areas (RSAs), the system is sized for 70-knot performance. On short RSAs, EMASMAX utilizes the space available for maximum stopping capability.

An EMASMAX arrestor bed can reduce the 1,000-ft. RSA requirement to 600-ft. or less.

EMASMAX is conditioned to withstand the elements. The system is crowned for drainage, sealed with a Jet Blast Resistant (JBR) coating for durability, and can be supported by a maintenance program to ensure a long life.

Winter weather conditions do not affect the system's performance and snow can be easily removed with commercially available equipment designed for use on the bed.

OVERRUNS ARE DANGEROUS AND EXPENSIVE

Runway downtime, repair costs, and liability. These are just a few of the expenses that come into play after an overrun has occurred.

That's why EMASMAX is tailored for optimum performance and maximum efficiency. The controlled deceleration achieved with EMASMAX reduces the risk of personal injury and damage to the aircraft. Yet, the bed remains accessible by rescue and recovery vehicles, so runway downtime is minimized

Consider a Gulfstream G-IV overrun with 7 passengers and 3 crew members on board: no one was injured and damage to the $25 million jet was minimal. The average settlement for a lost life in an accident is $2.5 million. Without EMASMAX, this could have been a fifty million dollar tragedy with 10 families losing loved ones.

FACT: TEN EMAS ARRESTMENTS HAVE SAVED A TOTAL OF 245 LIVES AND MILLIONS OF DOLLARS OF HIGH-VALUE ASSETS.

AS OF SEPTEMBER 2016, OVER 100 EMAS SYSTEMS HAVE BEEN INSTALLED WORLDWIDE

From 24° to 64° of latitude and between 165°W and 121°E.
A proven solution from 9 ft to 11,312 ft (3,448m) of altitude.

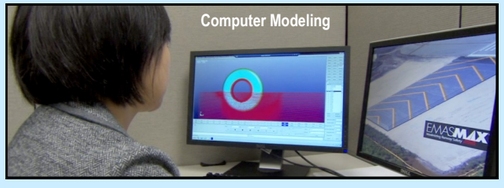
THE WORLD'S FIRST AND ONLY EMAS THAT HAS SAFELY STOPPED AIRCRAFT IN REAL EMERGENCY SITUATIONS AT COMMERCIAL AIRPORTS.

QUALITY AND EXTENDED PRODUCT LIFE

With the release of EMASMAX in 2007, Zodiac Arresting Systems improved the quality of the product while providing added value. This 3rd-generation upgrade, with jet blast resistant coating, greatly succeeded in reducing maintenance, along with extending the life cycle, without compromising performance.

Maintenance training and semi-annual inspections are provided by Zodiac Arresting Systems over the first year. The company also offers field strength testing capability as an option to evaluate the condition of EMAS beds, enabling airports to make informed decisions regarding maintenance and product life.

It is significant to note that a number of EMAS beds in service are 10 or more years old and are deemed perfectly viable and capable of stopping aircraft safely. We offer a full range of services including design, production, installation and technical support.



Extensive computer modeling of over 100 factors, including aircraft fleet mix, determines the strength of each EMAS bed. Cold/hot testing ensures that the EMAS material retains its characteristics in extreme temperature variations.

A 70-YEAR LEGACY OF AVIATION SAFETY

Zodiac Arresting Systems is widely recognized as the world's leading authority on energy absorption, particularly regarding military and commercial aircraft arresting systems. From the earliest days of aviation and for over seventy years, we have developed products for the controlled deceleration of aircraft, including the Space Shuttle and Concorde.

NOTABLE INSTALLATIONS

JFK International Airport, New York, USA

An initial partner and the first EMAS customer, the Port Authority of New York & New Jersey has witnessed several safe arrestments, including 3 on the same bed at JFK.

Jiuzhai Huanglong Airport, Sichuan Province, China

Built for 737 type airplanes, JZH had a new requirement to also accept 757s. In 2006, the Chinese government installed 2 EMASMAX beds to mitigate the risk from the cliffs at both runway ends.

Madrid-Barajas International Airport, Madrid, Spain

In 2007, 2 beds were installed at the end of runway 32. Although they had the full recommended RESA length, the airport made the choice of operational efficiency and safety by protecting the taxiways and nearby terminals.

Songshan Airport, Taipei City, Taiwan

In 2008, the installation of EMASMAX at the end of runway 10 allowed the airport to accept larger aircrafts without building in the inhabited areas surrounding the airport.

San Francisco International Airport, CA, USA

In 2015, the airport chose to close the 2 main runways simultaneously in order to install 4 EMAS beds. Coordination between the airport, contractor and ZASA allowed the airport to reopen the runways ahead of schedule.

FAA Policies

On November 30, 2005, a new federal legislation was signed into law requiring all Part 139 commercial service airports to have either adequate RSA or an arrestor bed by 2015. For most Part 139 commercial service airports, the FAA requires a 1,000-foot long Runway Safety Area (RSA) at the end of each runway. Many airports cannot comply with this safety area length requirement due to naturally occurring obstacles, such as rivers, highways, railroads and populated areas.

In the past, obtaining a 1,000 foot long RSA was FAA's first choice, regardless of the cost. However on March 15, 2004, FAA issued a dramatic policy change under Order No. 5200.9 "FINANCIAL FEASIBILITY AND EQUIVALENCY OF RUNWAY SAFETY AREA IMPROVEMENTS AND ENGINEERED MATERIAL ARRESTING SYSTEMS."

This policy provided EMAS equivalency and places a dollar limit on how much can be spent on RSA improvements. It also requires life cycle cost analysis to determine the most cost effective solution, whether it is EMAS or a 1,000-foot long safety area.

With the standard EMAS solution, an EMAS with stopping capability of 70 knots and a safety area only 600 feet long would be required, provided vertical guidance is available for undershoot protection. The policy also introduces the need to evaluate a non-standard EMAS whenever a standard solution (1000 ft RSA or standard EMAS) cannot be achieved within the maximum feasible cost. FAA believes that EMAS can still provide acceptable safety enhancement as long as 40 knots stopping capability is provided with the non-standard EMAS solution.

EMAS is AIP-eligible and is described in FAA Advisory Circular AC150/5220-22B "Engineered Materials Arresting System." This circular provides a performance specification for this system, along with some rationale as to its purpose and applications. EMASMAX fully satisfies this Advisory Circular and the FAR Part 139 requirements.

International Policies: ICAO, EASA, etc.

According to ICAO's updated Annex 14 Aerodromes Standard and EASA (European Aviation Safety Agency) Certification Specifications and Guidance Material for Aerodromes Design, EMAS/arresting systems, such as EMASMAX, are now officially accepted as an Alternative Means of Compliance to a RESA (Runway End Safety Area).

- EMAS/arresting systems are permitted to be installed within the runway strip, a critical factor when RESAs are non-existent or severely constrained.

IFALPA, IATA and ACI are all on record as recommending deployment of arrestor systems such as EMAS when it is impractical to meet ICAO RESA lengths. Airports with adequate RESAs can also benefit, as the installation of an EMAS provides a means of reducing the length of a RESA, potentially freeing up valuable area for other airport projects such as runway extensions.

Courtesy of the Port Authority of NY & NJ

Zodiac Arresting Systems

Certified ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007

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Mastering The Elements

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