Worldwide Operations
KONGSBERG is an international corporation with strong Norwegian roots. Collaboration with our global customers, partners and suppliers is essential in our success as is developing a clear understanding of our end users and the operational environment where they use our technologies. These factors are driving forces behind the corporation’s international success.

Support in the Extreme
KONGSBERG contributes to improved safety, security and performance in demanding and complex missions. We achieve this through an in-depth knowledge of our customer’s objectives and the needs of the operator, and by meeting their challenges with the right systems, services and technological solutions.
The AMRAAM Extended Range expands the NASAMS engagement envelope.
NASAMS

NASAMS is the world’s first operational Network Centric Short to Medium Range Ground Based Air Defence System.

Unique features
NASAMS features net centric architecture, multiple simultaneous engagements and beyond visual range (BVR) capabilities, closely integrated and adapted to a country’s adjacent weapons and command and control systems. The NASAMS network expands the defended area and enhances the total fighting capability of the armed forces.

NASAMS has since the introduction in Norway been on a path of continuous evolution. The current NASAMS customer base consists of eleven (11) countries, including five NATO and/or EU members.

A total of fifteen (15) nations have acquired the KONGSBERG command and control solution adapted to their requirements.

The most recent capability, demonstrating NASAMS path of evolution, is the AMRAAM Extended Range missile (AMRAAM ER). AMRAAM ER significantly extends the engagement volume of NASAMS and proves the flexibility of the architecture and the ability to introduce new capabilities to counter current and future threats.

The System
A standard NASAMS unit has a modular design comprising a command post the FDC, an active 3D radar AN/MPQ-64F1 Sentinel, a passive electro-optical and infrared sensor and a number of missile canister launchers with AMRAAM missiles.

Normally, a number of NASAMS fire units are netted together in a uniquely designed "hard-real-time" communication network to ensure minimum latency over large distances for maximum system performance utilizing the unique capabilities of the AMRAAM missile.

Flexible mission configuration
NASAMS is by nature a highly mobile system designed with focus on operational flexibility for protection of Air Bases, Sea Ports, Populated Areas, other High Value Assets and Army Forces. NASAMS has proven interoperability with Higher Echelon units and longer range systems, such as Patriot. The modular design permits mission oriented task force organization of NASAMS, allowing the operators to maximize the effect of the components and tailor the system to the task.

Continued active mission
NASAMS has been protecting Washington DC 24/7 since 2005 demonstrating extreme reliability and with very high availability.

NASAMS is designed for operations in artic, sub tropic and desert conditions.
Extreme Performance for Extreme Conditions

Photo: Thomas Kjemperud/Norwegian Armed Forces
NETWORK CENTRIC AIR DEFENCE SYSTEM
KONGSBERG/Raytheon offers a fielded and proven NASAMS system with capability to protect several areas and high-value assets separated by large distances.

Unprecedented fire power, low manning requirements, redundancy and flexibility are typical NASAMS characteristics enabled by the relatively small and agile components comprising the system. The NASAMS’ ability to protect static and mobile assets, opens for a range of roles and missions.

**Dual use AMRAAM Missile**

NASAMS employs the Raytheon AMRAAM as the basic missile, identical to the AMRAAMs used on fighter aircraft. The dual-use concept has operational advantages and reduces logistics cost.

**Defends a large geographical area**

The radar and launcher elements can be deployed over a large area separated by more than 20 kilometres from the FDC, providing an extended coverage with few elements. Dispersed elements increase its survivability against enemy air and ground attacks.
NASAMS is on a path of continuous evolution.

NASAMS is designed to evolve with the development of technology and can integrate with or utilize future technology when available. This can be future active or passive radars and sensors, Sense & Warn capability, and a wide range of effectors (e.g. longer and shorter range missiles, C-RAM, etc.). The evolution is enabled by the open architecture in the FDC.

The FDC is a true Multi Domain Command & Control component and can, pending on desired configuration, support a wide range of missions; GBAD, Army counter fire operations, coastal defence, air surveillance, airspace management and others.
The KONGSBERG FDC command post and networking technology are selected by several nations globally. Experience and practical knowledge from these programs are embedded in NASAMS and ensure proven interoperability with a nation’s higher echelon and allied NATO/EU forces.

NASAMS is in operational use in Norway, Spain, USA, the Netherlands, Finland and one undisclosed customer. The system is in production for Oman, Lithuania, Indonesia, Australia and Qatar. NASAMS is in use with both Armies and Air Forces around the world. In addition Poland, Greece, Sweden and Turkey operate the KONGSBERG Command and Control solution for various weapon systems.
### NASAMS FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Status of NASAMS</strong></td>
<td>In production and in operational use. Selected by 11 customers.</td>
</tr>
<tr>
<td><strong>NASAMS Tests &amp; Tactical firings</strong></td>
<td>218 (&gt; 90% success)</td>
</tr>
<tr>
<td><strong>AMRAAM Dual use (without any modification)</strong></td>
<td>Fighter Aircraft and NASAMS</td>
</tr>
<tr>
<td><strong>AMRAAM Combat kills</strong></td>
<td>&gt; 13</td>
</tr>
<tr>
<td><strong>Target sets</strong></td>
<td>UAVs, Helicopters, Cruise Missiles, UCAVs, Aircraft</td>
</tr>
<tr>
<td><strong>NASAMS Architecture</strong></td>
<td>Open SW &amp; HW architecture, COTS, Network Centric</td>
</tr>
<tr>
<td><strong>Simultaneous multiple engagements</strong></td>
<td>72</td>
</tr>
<tr>
<td><strong>Mission of Reference</strong></td>
<td>&gt; 120,000 hours demonstrated (continuous operations (24/7), ongoing mission)</td>
</tr>
<tr>
<td><strong>Transportability</strong></td>
<td>Air (C-130 and helicopter), Sea and Land</td>
</tr>
<tr>
<td><strong>Data links (implemented and in use)</strong></td>
<td>Link 16, JRE, Link 11, Link 11B, LLAPI, ATDL-1</td>
</tr>
<tr>
<td><strong>Mission Planning Tool</strong></td>
<td>Embedded and stand alone (PC)</td>
</tr>
</tbody>
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### 11

**NASAMS User nations**

### 38

**AMRAAM User nations**

### 15

**Air Defence C2 user nations**