

ATI 425[®]-MIL Titanium Universal Pintal Adapter Prototype



White Paper

Enabling Advanced Lightweight Systems for the US Army

ABOUT THE SOLUTION

In 2010, the Armament Research, Development and Engineering Center (ARDEC) and ATI Defense worked closely to develop a new, lightweight Universal Pintal Adapter (UPA) made from ATI 425[®]-MIL titanium alloy. The adapter will be used with ARDEC's Objective Gunner Protection Kit (OGPK).

The OGPK is an armored system fielded to protect tactical vehicle gunners from current and emerging threats. It integrates with the turret ring of multiple platforms, including Humvees and Mine Resistant Ambush Protected (MRAP) vehicles. The UPA is a common component used to mount both the forward gun shield of the OGPK and standard weapons, including the M2, MK19, M240B and M249.

Through an initiative to create a lighter and more agile component, a titanium-based UPA prototype was developed by ATI Defense for evaluation by the Army. This prototype delivered a 45% weight reduction compared with the current carbon steel version presently fielded with the kit.

The OGPK is one of many protective solutions developed by ARDEC in support of the military's operations in Afghanistan and Iraq.

The low-density and high-strength characteristics of titanium provide significant advantages for military systems where weight and ballistic integrity are critical. In an effort to help U.S. Army research organizations, such as ARDEC, achieve their weight reduction objectives, ATI Defense is striving to enhance the applicability of non-aerospace grade titanium for a wide variety of military platforms.

ATI 425[®]-MIL Alloy was developed to provide a new, versatile and high-performance titanium alloy meeting the cost and availability demands of the defense industry.

ATI 425[®]-MIL titanium has tensile strength comparable to 6-4 titanium, the most common titanium alloy, with the added benefit of higher ductility so that, unlike 6-4 titanium, ATI 425[®]-MIL Alloy can be cold worked into complex shapes. ATI 425[®]-MIL titanium offers customers a new set of design solutions for improving manufacturability and reducing weight while maintaining survivability in a wide range of land, sea and air defense applications.



The Universal Pintal Adapter was made from ATI 425[®]-MIL Alloy for use with ARDEC's Objective Gunner Protection Kit (OGPK) and serves the purpose of mounting both the forward gun shield of the OGPK and standard weapons.

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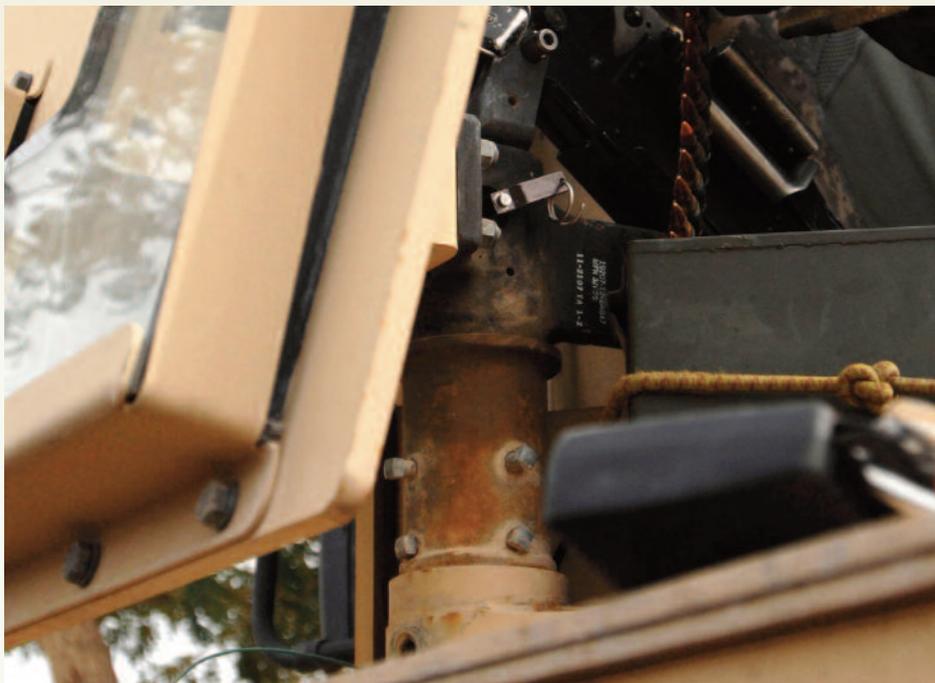
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ATI 425[®]-MIL Alloy plate is hot-rolled and annealed on ATI's 110-inch (2.8-meter) mill and is available in thicknesses ranging from 0.188 to 4 inches (4.7 to 101.6 millimeter). ATI 425[®]-MIL Alloy is classified as class 4 armor plate by the MIL-DTL-46077G specification and has proven to exceed all ballistic requirements for all thickness ranges.

ATI 425[®]-MIL Alloy has also proven to exceed AMS 6946 specification minimums.

ATI 425[®]-MIL Alloy is also available in sheet gauges, which are continuously cold-rolled and annealed in coil lengths of up to 2,500 feet to create products that offer a unique combination of strength, formability and tighter gauge tolerances. This compares to 6-4 titanium sheet which is pack rolled in lengths of 20 feet or less.

Full specifications and technical datasheet on this game changing alloy are available at www.ATIdefense.com.



The use of ATI 425[®]-MIL titanium alloy instead of carbon steel to manufacture the Universal Pintal Adapter results in a 45% weight reduction for this component.

ABOUT ATI

ATI serves the needs of government defense departments and defense contractors in the U.S. and allied countries with a stable, vertically-integrated supply of specialty metal and armor products. Products include military grades of titanium, specialty steels, nickel-based alloys, zirconium, tungsten and other specialty metals suitable for structural, ballistic armoring, and corrosive-environment applications on the ground, in the air, and at sea. Other products include machined, formed, welded, cast, forged and fabricated parts, kits, components and subcomponents.

ABOUT ARDEC

ARDEC is an internationally acknowledged hub for the advancement of armaments technology and engineering innovation. As one of the specialized research, development and engineering centers within the U.S. Army Materiel Command, ARDEC has the responsibility for meeting this critical demand. ARDEC's workforce provides lifecycle support for nearly 90 percent of the Army's lethality used every day by U.S. Warfighter.

ARDEC's mission is to develop and maintain a world-class workforce to execute and manage integrated life cycle engineering processes required for the research, development, production, field support and demilitarization of munitions, weapons, fire control and associated items. This is in direct support of RDECOM's mission to get the right technology to the right place, at the right time for the Warfighter.

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