



BP6:33[®]

Ballistic Resistant Steel NIJ Standard 0108.01



In today's world of hit and run tactics by vandals, thieves and terrorists; solid, reliable materials must be used to defeat these threats and to protect both person and property. BP6:33 is expressly designed for this purpose. With its unique metallurgical characteristics, it can be cut cold and welded using normal shop practices and still retain its high hardness, without loss of ballistic properties. BP6:33 will defeat a wide range of commercial and military threats such as handguns, rifles, automatic weapons, and fragmentation.

BP6:33 is Astralloy Steel Products' proprietary grade of ballistic armor plate. BP6:33 is independently tested to meet the National Institute of Justice Standards 0108.01 (Level III) and is listed with the Underwriters Laboratories (Standard 752). BP6:33 can be modified to meet testing levels UL 6 & 7, as well as test level NIJ IV at customer's request on specific gauges. Please call us for additional information.

Chemical Composition* – % Weight								Physical Properties
C	Mn	P	S	Si	Ni	Cr	Mo	Min. Hardness
.29	1.20	.015	.010	.40	4.00	2.00	.50	477 BHN

BP6:33 Ballistic Steel Plate	Mil-DTL-46100 Carbon Steel Plate
* Higher hardness and toughness through chemistry	* Hardness is achieved at the expense of toughness
* Air hardenable - no heat treatment required after hot forming to return to minimum hardness	* Must be re-quenched and tempered after hot forming
* Ease of forming	* Difficult to work
* Good weldability - reduced heat affected zones	* Welding creates vulnerable heat affected zones
* Excellent ductility	* Reduced ductility
* Resistant to atmospheric corrosion	* More vulnerable to atmospheric corrosion

Note: The data contained in this document is accurate at time of printing, and intended for use as a general guide.
* Typical maximum values. Mill certifications are available upon request.



BP6:33

FORMING

BP6:33 can be formed using either a brake press or by roll forming. Because of its high toughness, BP6:33 forms to shapes not possible with other high strength steel alloys, even those with hardnesses as low as 321 BHN. Although modern melting practices minimize directional differences in the mechanical properties of BP6:33 plate, cross grain forming is preferred, especially when cold forming to tight radii. During cold forming, allow 4½ times the brake press power required for forming the same thickness and size of mild steel. Also, when forming cold, an allowance should be made for “spring back”.

Forming should be done hot (1600°F minimum) if the bend radius is less than 24 times the thickness of the plate, or if the forming equipment does not have adequate power to overcome 172,000 psi yield strength. Unlike other quenched and tempered alloy steels, BP6:33 can be hot formed then left in the press to cool. It will retain its original properties without additional heat treat processes.

WELDABILITY

As with other high strength steels, welding of BP6:33 requires special considerations. When welded with proper techniques, BP6:33 provides significant advantages over other ballistic steels. Because of its’ air-hardened ability, the hardness of the heat affected zone is similar to that of the base metal, virtually eliminating concern for soft zones next to the weld.

APPLICATIONS

Some of the many applications where BP6:33 has been successfully used are:

- * Add-On Armor Packages
- * Armored Cars/Limos
- * Armored Personnel Carriers
- * Armored Railroad Cars
- * Armored Trucks/Trailers
- * Bank Counters/Cages/Boxes
- * Body Armor Vest Inserts
- * Bullet Resistant Shields
- * Computer/Instrument Rooms
- * Doors & Louvers
- * Embassy Installations
- * Firing Ranges/Targets
- * Guard Towers
- * HMMWV Countermine Kits
- * Safe Rooms
- * Security Vans
- * Security/Guard Buildings
- * Nuclear Installations
- * Up-Armored HMMWVs

Astralloy is a world leader in the supply and fabrication of high strength ballistic armor plate as well as wear-resistant steels used in mining, steel, and pulp and paper industries. BP6:33 is a high strength steel armor plate which sets the standards for security in both the military and commercial sectors.

PROCESSING CAPABILITIES

- * Plasma Cutting
- * Oxy Fuel Cutting
- * Laser Cutting
- * Forming
- * Drilling
- * Welding

www.astralloy.com

Toll Free: 1.866.587.6970

Sales: 724.230.5100 | sales@astralloy.com

