

Material Information



Carbon Steel A36

Introduction

Carbon Steel A36, also known as ASTM A36 or A36/A36M, is a carbon structural steel specification widely used for plates, shapes, and bars in welded, bolted, and general structural applications. It is known for its useful strength, good weldability, and suitability for general fabrication. A36 is commonly selected for fabricated metal components where structural performance, availability, and cost-effective production are important.

Advantages

Good strength, weldability, and general fabrication characteristics make Carbon Steel A36 suitable for a wide range of structural and sheet metal fabricated components. It can be cut, bent, drilled, welded, and formed using conventional fabrication processes. Its established use in structural construction and general engineering also makes it a practical material for brackets, supports, frames, plates, and other fabricated components.

Disadvantages

Carbon Steel A36 has limited inherent corrosion resistance and can rust when exposed to moisture or corrosive environments without suitable protection. Its formability is generally less extensive than that of dedicated drawing or deep-forming sheet steels, particularly for complex shapes. In addition, A36 is intended primarily as a structural steel specification, so the exact material form, thickness, and applicable requirements should be confirmed before using it for a specific sheet metal fabrication process.

Tolerance

We offer tolerances as tight as $\pm 0.005"$. Tighter tolerances are available upon manual review.

Recommendation

The combination of useful structural strength, good weldability, established fabrication practices, and broad availability makes Carbon Steel A36 suitable for sheet metal fabricated parts used in construction, industrial equipment, machinery, transportation, agricultural equipment, and general engineering applications. It is particularly appropriate for brackets, supports, frames,

mounting plates, guards, and other components where structural performance is more important than maximum formability.

Material Specifications (For reference only.)	
Tensile strength	400 to 550MPa
Elongation at Break	20%
Hardness	119 to 159 HB
Yield strength	250MPa
Density	7.85 g/cm ³

Attention

Carbon Steel A36 is supplied according to a structural steel specification, and the applicable product form and requirements should be verified before fabrication. When welding A36, a welding procedure suitable for the grade and intended service should be used. Because A36 has limited corrosion resistance, parts exposed to outdoor, humid, or corrosive environments should receive an appropriate protective coating, paint, plating, or other surface treatment. For highly formed components, the selected material condition, thickness, and forming method should also be evaluated to reduce the risk of deformation or cracking.

Applications

3DSPRO finds people using Carbon Steel A36 to make functional parts and prototypes in the following industries and applications.

Construction and structural fabrication:

Structural brackets, support plates, frames, base plates, mounting components, guards, and other fabricated parts used in buildings, equipment structures, and general construction.

Industrial equipment and machinery:

Machine bases, equipment supports, brackets, frames, covers, guards, mounting plates, and other fabricated components requiring useful structural strength and good weldability.

Transportation and agricultural equipment:

Mounting brackets, supports, frames, protective guards, structural plates, and other fabricated components subjected to mechanical loads and demanding service conditions.

General engineering and fabrication:

Panels, enclosures, brackets, supports, plates, fixtures, and other fabricated metal components that benefit from A36's combination of structural performance, weldability, and broad availability.