



# EB-450<sup>®</sup>

## Chemical Composition\* – % Weight

C	Mn	P	S	Si	Ni	Cr	Mo
.27	1.00	.025	.010	.20	.70	1.75	.30

## Physical Properties – Typical Values at 68°F

BHN Hardness	Tensile Strength	Yield Strength	Elongation in 2"	Charpy Test Toughness Index	Reduction of Area
418 – 495	235 ksi	190 ksi	12%	28 ft. lbs. @ RT 20 ft. lbs. @ -40°F	42%

## Benefits

- \* Higher wear resistance, when compared to conventional steels, due to its uniform hardness.
- \* Easy to weld with normal low hydrogen simple techniques.
- \* May be flame cut with oxyacetylene, plasma or similar methods.
- \* Cold formable with heavy presses or rolls.
- \* The high hardness and toughness in combination with its high friction coefficient, reduces maintenance costs.
- \* EB-450 may be easily cut, welded, machined and cold formed, as required.

EB-450<sup>®</sup> is a liquid quenched and tempered, through-hardened up to 3", high impact alloy steel with excellent abrasion-resistant properties. Its balanced boron, modified nickel-chrome moly chemistry is ideal for achieving an optimum hardness to toughness ratio.

EB-450 boasts a longer wear life due to its through-hardness which is more uniform than what is found in conventional carbon/manganese steels. This quench-hardened material is competitively priced for optimum cost/wear ratios. This steel's resistance to atmospheric corrosion further reduces surface pitting. EB-450 is field proven in extremely abrasive bulk handling installations.



# EB-450®

## CUTTING

The most common cutting methods for EB-450 plate are flame and plasma. For a successful cut, use the procedures and fuel recommended by equipment vendors.

As a precaution, the EB-450 plates must be pre-heated before cutting. Thicknesses of up to 1" require a temperature of 250°F (120°C) and larger thicknesses require a temperature of 300°F (140°C).

Normally, for anti-abrasive applications, these cut methods provide a precision range of +/- 1/8" along the length and width. For applications where stricter tolerances are required, please consult our technical department.

## DRILLING

EB-450 requires slow speeds for better drilling. Feed and speed must be maintained constant.

For optimum drilling results, we recommend using low rpm speeds for tools, short stem bits and generous cutting lubrication. Bits with carbide inserts provide longer life; however, a good quality high speed bit is enough.

To re-sharpen the tool, a rake angle between 135° and 150° and negative exit is recommended. Speed must be between 10 – 20 SFPM (surface feet per minute). For example, when drilling 3/4", the feeding must be between 0.004" and 0.008" per revolution.

## MANUFACTURING

Despite the high toughness of EB-450, it is possible to bend it with a hydraulic press and cold form it. We recommended bending it transverse to the rolling direction marked on each plate.

The internal minimum radius for forming EB-450 is:

- \* When bending transverse to the rolling direction, the minimum radius is 6 times the thickness of the plate.
- \* When bending parallel to the rolling direction, the minimum radius is 12 times the thickness of the plate.
- \* To cold bend the EB-450 plate to 90°, form in gradual steps without exceeding the recommended minimum radius.

## WELDING

The EB-450 is readily weldable by following some basic welding guidelines.

To prevent cracking during the welding process, the following three areas should be controlled:

1. Eliminate hydrogen pick-up in the weld metal during welding.
2. Minimize stress in the weld joint.
3. Use proper preheat and interpass temperatures and avoid rapid cooling of the weld area following welding.

While welding the EB-450 product, we recommend the use of skip welding and backstep welding procedures, as well as minimizing the heat input.

## THICKNESS

EB-450 is stocked in thicknesses ranging from 1/4" to 3-1/2". Additional thicknesses available upon request.



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