

# SHEFFIELD™ WEAR PLATE 400 BHN

## “THE BRAKE-DIE WEAR PLATE”

Sheffield Wear Plate 400 BHN is a custom chemistry product that is purchased in dedicated mill heat lots. That chemistry is published in this brochure. The chemistry, as shown in this brochure, is much like a 4320 Alloy Brake-Die. **Sheffield Wear Plate 400 BHN** undergoes a full Quench & Temper thermal treatment. Most lean chemistry commercial grade wear plate products have completely dropped the tempering phase.

The chemistry of **Sheffield Wear Plate 400 BHN** has been engineered to allow a high temperature tempering phase at the mill. It is tempered at 750°F/850°F.

*High temperature tempering builds TOUGHNESS. High temperature tempering allows **Sheffield Wear Plate 400 BHN** to resist the softening effects of elevated temperature to 800°F. (Most commercial AR plate begins to soften and warp at 300°F).*

**Sheffield Wear Plate 400 BHN** will resist sliding abrasion and abrasive impact. It is an unusually tough product that responds well to all methods of fabrication.

**Excellent response to oxy, plasma and laser cutting** Resistance to warp means computer controlled cutting systems will follow a flat surface, even when multiple parts are involved.

**Plasma Burn Thin Gage To Exact Requirements (1/8", 3/16" and 1/4")**

**Sheffield Wear Plate 400 BHN** allows smooth drilling and machining. The brake-die type chemistry eliminates hard and soft spots that cause problems in cold work operations.

**Past Protected Trade Name Of Pyramid Steel Company – Mango™ Plate**

## COMPARE KEY ELEMENTS

MATERIAL	C	MN	CU	SI	NI	CR	MO
4320 BRAKE DIE	.22	.65		.3	1.65	.5	.3
<b>SHEFFIELD 400 BHN</b>	<b>.22</b>	<b>1.4</b>	<b>.25</b>	<b>.3</b>	<b>1.2</b>	<b>.5</b>	<b>.5</b>
AR400 COMMERCIAL	.14	.4	.10	.4	.08	.06	.25 MAX

**NOTE:** If you are making short & medium run dies from alloy and tool steel products that require pre-machining, hardening, tempering, and finish machining, consider **Sheffield Wear Plate 400 BHN** in thickness' over ½" thick. Eliminate most of the work and non-productive time. Machine it as received from North American Steel, and put it right in service.

**“SHEFFIELD WEAR PLATE 400 BHN - a no-nonsense wear plate product that is not smoke & mirrors.”**

## Typical Physical Properties\*

Hardness.....	360/425 BHN
Tensile Strength.....	200,000 P.S.I.
Yield Strength.....	185,000 P.S.I.
Elongation .....	16%
Reduction of Area.....	46%
Impact (388 BHN).....@ 70F	38 to 45 Longitudinal
.....@ -50F	16 to 25 Longitudinal
Carbon Equivalency .....	52

## Stock Thickness

1/8"*	3/16"*	1/4"	3/8"	1/2"	5/8"	3/4"
1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	

\*1/8" plate is a modified analysis product, available as 60" x 120" only; 3/16" plate is available only as 48" x 144" and 96" x 144".

## Stock Sizes

48" x 96"	72" x 144"*	96" x 144"
48" x 144"	72" x 288"*	96" x 240"
48" x 288"		96" x 288"

\*INQUIRE

# SHEFFIELD™ WEAR PLATE 400 BHN



## Specify Sheffield brand wear plate when you require:

- Extended service life in highly abrasive applications.
- Strong uniform welds and warp-free assemblies.
- Excellent resistance to sliding abrasion and impact.
- Deep and uniform hardening to eliminate dangerous hard and soft spots.

A product that will warp less and fracture less in hot fabrication process. **Note: Sheffield Wear Plate 400 BHN** is resistant to the softening effects of high temperature service to approx. 800°F. Other wear plates begin to lose physical properties and begin to warp at approx. 300°F.

A greater balance of deep hardening and ductility, to resist shock.

Predictable response to variable fabrication processes that involve both cold working and hot work.

Additional information regarding welding, forming, and machining can be found on the following pages in this technical data book:

- Machining ..... See Page 50
- Welding ..... See Page 51
- Forming.....See Page 51

The following is a list of field proven applications where **Sheffield Wear Plate 400 BHN** has performed extremely well, even under the toughest of conditions.

- Wheelabrators
- Chute Liners
- Truck Beds
- Shovels
- Scrapers
- Screens
- Conveyors
- Grader Blades
- Logging Skids
- Baffle Plates
- Dipper Liners
- Bucket Liners
- Mold Boards
- Crusher Parts
- Hoppers
- Fork Lift Blade Liners

## Typical Chemical Analysis\*

C	Mn	S	Ph	Si
.22	1.40	.002	.010	.30
Ni	Cr	Mo	Cu	Ti
1.20	.50	.50	.25	.03

\* Boron, Vanadium, Aluminum and Columbium at mill discretion (Chemistry modification on certain sizes and configurations due to processing restrictions may apply.)

## Carbon Equivalency (52)

One of the lowest in the industry. This insures “formability”, and is the leading indicator of the “user friendly” properties of the plate.