LAMINITE®

WEAR RESISTANT MATERIAL

HENSLEY®

ORIGINAL AND TOUGH BEYOND EXPECTATION

LAMINITE®
WEAR RESISTANT MATERIAL

EXTREME PROTECTION FOR EXTREME APPLICATIONS

Laminite® is designed to protect your equipment from impact and high abrasion damage.

Laminite® is a combination of high chromium white iron metallurgically bonded to a mild steel backing plate. The white iron has a hardness of at least 700 Brinell providing incredible abrasion resistance protection to your equipment. The mild steel is easily weldable with minimal preparation, and it acts as a cushion for the white iron, enabling it to handle impact and abrasion in the most extreme applications.

This unique product was created for the Australian mining and quarry industries by Hensley Industries Australia (formerly Mason & Cox) in 1971 and is now marketed in North America through authorized Hensley dealers.

Laminite®'s established reputation as a solution for impact and high abrasion in the mining and quarry industries is rapidly expanding to the steel, cement, sugar cane and wood chip industries.

Laminite® is available in standard sizes and styles and can be used in combination to protect most impact and high abrasion areas. In addition, certain **Laminite®** products can be cut or bent, prior to welding, to help customize the protection on the machine.

Custom **Laminite®** can be designed to user's specifications.

Long-life **Laminite®** gives you extreme protection for extreme applications and lets you work harder longer.

APPLICATIONS

- Weld-on Adapters and Wear Caps
- Dragline Bucket Protection
- Shovel Bucket Protection
- Loader Bucket Protection
- Excavator Bucket Protection
- Conveyor Chute Liners
- Feeder Deck Plates
- Quarry and Mining Grizzly Screens
- Gyratory and Jaw Crusher Liners
- Tub Grinders

TECHNICAL SPECIFICATIONS

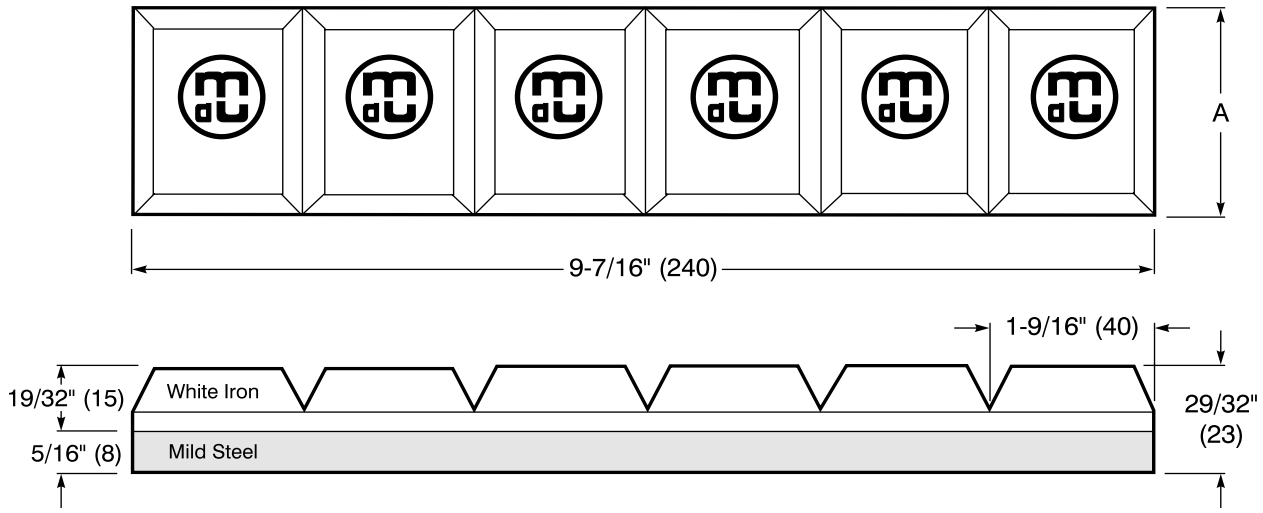
Lamination of chrome moly white iron metallurgically bonded to a mild steel backing plate achieving a high strength joint.

White iron: modified As2027 15/3 Cr Mo with finished minimum hardness of 700 BHN (63 Rc) and containing primary carbides up to 1500HV.

"CHOCKY" BARS

- **Easy to cut** - allowing you to customize the protection to different specifications.
- **Easy to bend** - offers protection on a contoured surface. Use Chocky Bars with pre-notched backing plate.
- **Available in 5 sizes** - with either standard or pre-notched backing plate.

See pp. 11-12 for instructions on bending and cutting

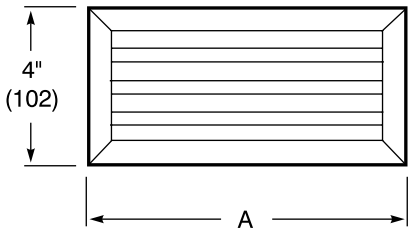


PART NO.	INCHES(MM)	WEIGHT	
	A	LBS	KGS
CB40	1-9/16 (40)	3.1	1.4
CB40N*	1-9/16 (40)	3.1	1.4
CB50	1-31/32 (50)	4.2	1.9
CB50N*	1-31/32 (50)	4.2	1.9
CB65	2-9/16 (65)	5.28	2.4
CB65N*	2-9/16 (65)	5.28	2.4
CB100	3-15/16 (100)	9.5	4.3
CB100N*	3-15/16 (100)	9.5	4.3
CB130	5-1/8 (130)	12.3	5.6
CB130N*	5-1/8 (130)	12.3	5.6

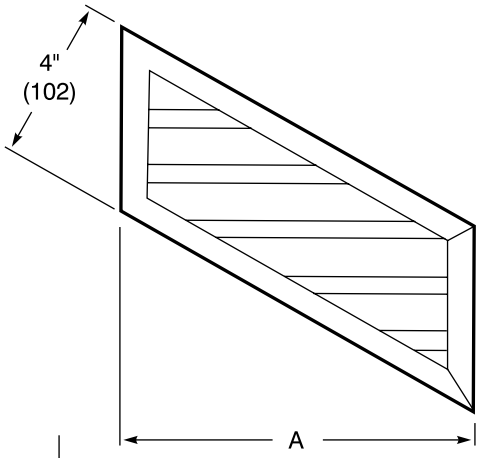
*NOTE: Chocky bar with pre-notched backing plate to make it easier to break apart, separate or bend.

SKID BARS

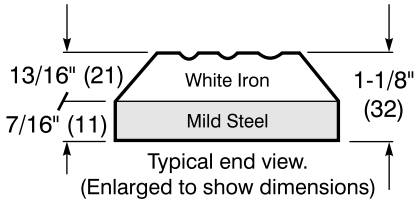
- Ideal for bucket bottom protection.
- Trapezoidal shape offers optimum protection for spade bucket lips
- 3 standard sizes in rectangular and trapezoidal shapes.



Type 1
Center



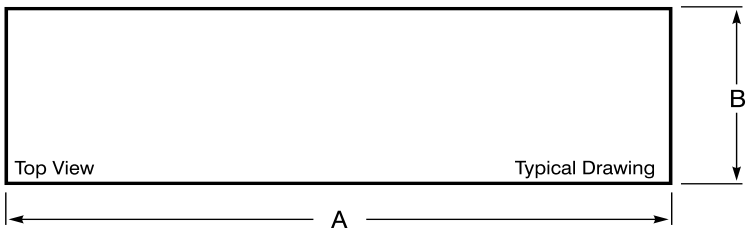
Type 2
SB XXXR - right hand (shown)
SB XXXL - left hand



Typical end view.
(Enlarged to show dimensions)

PART NO.	TYPE	INCHES(MM)	WEIGHT	
		A	LBS	KGS
SB403	1	8-3/8 (212)	6.3	2.9
SB404L	2	8-1/2 (216)	8.4	3.8
SB405R	2	8-1/2 (216)	8.4	3.8
SB406	1	12 (305)	9.7	4.4
SB407L	2	12-3/16 (310)	17.0	7.7
SB408R	2	12-3/16 (310)	17.0	7.7
SB409	1	6 (152)	5.0	2.3
SB410L	2	6 (152)	8.4	3.8
SB411R	2	6 (152)	8.4	3.8

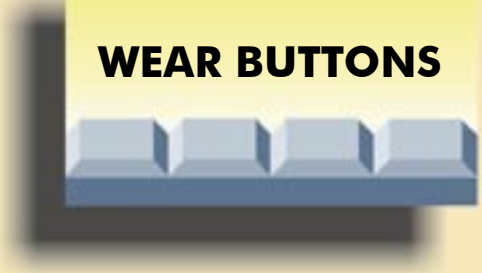
WEAR BARS

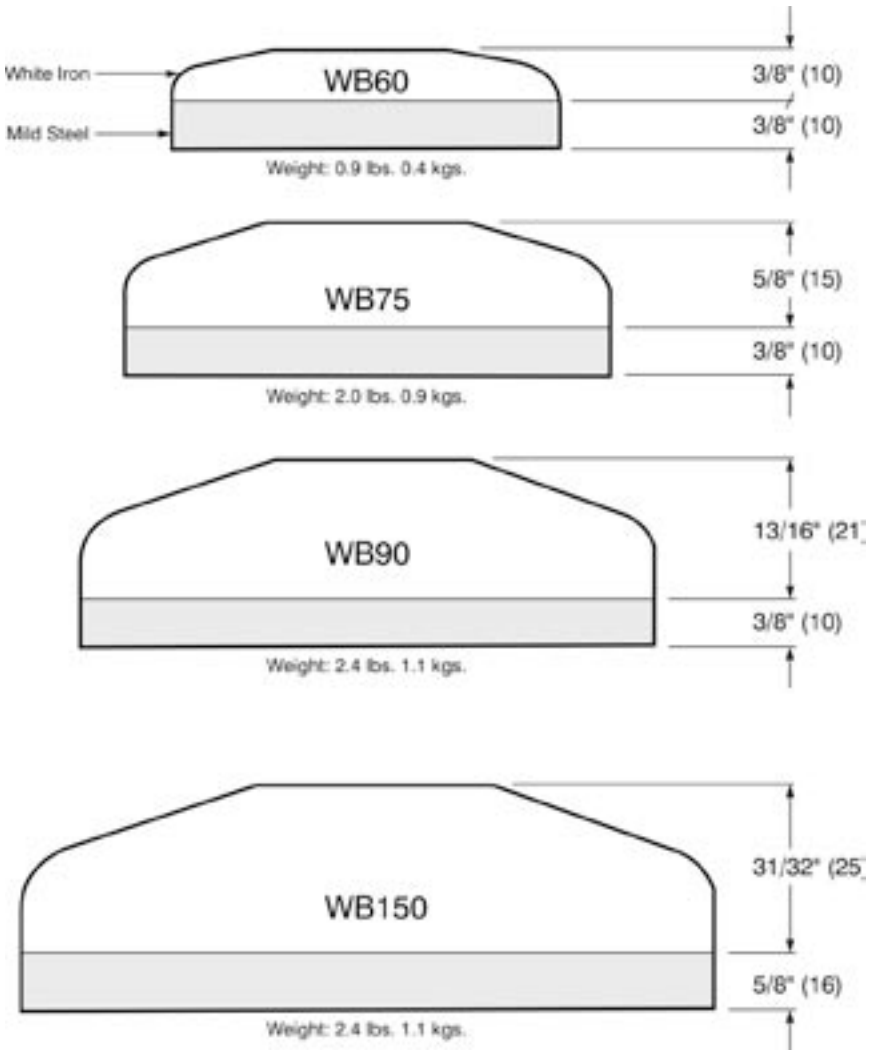


PART NO.	DIMENSIONS - INCHES (MM)					WEIGHT	
	A	B	C	D	E	LBS	KGS
DLP4	12-5/16 (312)	1-1/2 (38)	1 (25)	3/8 (10)	1-3/8 (35)	5.7	2.6
DLP125	9 (230)	2 (50)	1-1/2 (38)	15/32 (12)	1-31/32 (50)	9.0	4.1
DLP184	5-7/8 (150)	3 (76)	1-1/8 (29)	3/8 (10)	1-1/2 (39)	7.0	3.2
DLP201	17 (432)	2 (50)	1-1/8 (28)	3/8 (10)	1-1/2 (39)	15.5	7.0
DLP201A	17 (432)	2 (50)	1-1/2 (38)	15/32 (12)	1-31/32 (50)	17.8	8.1
DLP205	11 (279)	3 (76)	7/8 (22)	3/8 (10)	1-1/4 (32)	11.6	5.3
DLP270	10 (254)	2 (50)	3/8 (10)	5/16 (8)	11/16 (18)	4.0	1.8
DLP295	6 (152)	1-1/2 (38)	1 (25)	5/16 (8)	1-5/16 (33)	3.5	1.6
DLP352	8 (203)	8 (203)	7/8 (22)	1-3/8 (36)	2-1/4 (58)	39.4	17.9
DLP453	11-13/16 (300)	2 (50)	1-1/2 (38)	3/8 (10)	1/78 (48)	12.6	5.7
DLP569	8 (203)	3 (76)	1 (25)	3/8 (10)	1-3/8 (35)	9.3	4.2
DLP619	6 (152)	3 (76)	1-13/16 (46)	3/8 (10)	2-3/16 (56)	10.8	4.9
DLP995	12 (305)	5-7/8 (150)	11/16 (18)	7/32 (6)	29/32 (24)	19.8	9.0
DLP1191	11-13/16 (300)	1 (25)	5/8 (15)	5/16 (8)	15/16 (23)	3.2	1.5
DLP2015	5-1/2 (140)	3-1/2 (89)	3/4 (19)	1/2 (13)	1-1/4 (32)	6.6	3.0

- Available in 15 different sizes, shapes and thicknesses to address virtually all protection needs.
- Strategic placement of wear bars causes “rock box” protection or “dirt on dirt” protection.

WEAR BUTTONS





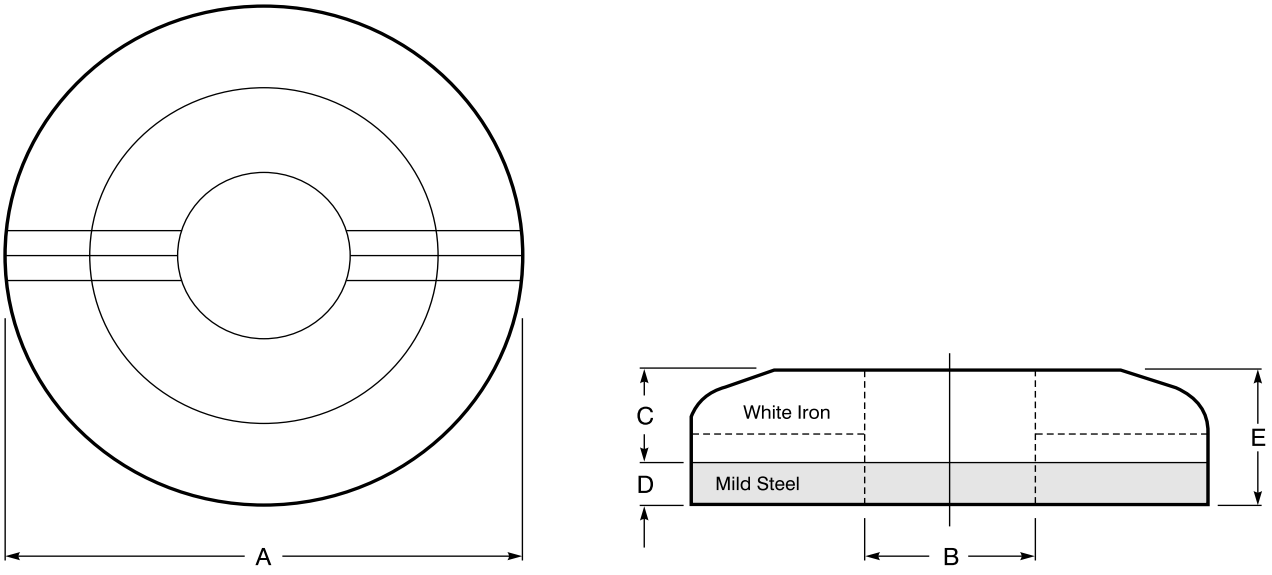
DIAMETER IN INCHES (MM)

WB 60 = 2 3/8” (60) WB 75 = 2 3/4” (75) WB 90 = 3 1/2” (90) WB150 = 5 29/32" (150)

- Ideal for smaller areas requiring wear resistant material
- Requires less welding time and material
- 4 sizes from 60mm to 150mm in diameter.

BOLT PROTECTORS

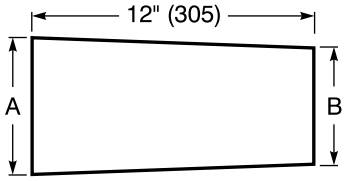
- Developed for secure and adequate protection of exposed nuts & bolts used on cutting edges and similar applications
- Alternative - Can be cut in half and placed in front of exposed nuts and bolts in a U-shaped configuration.

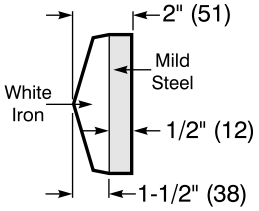


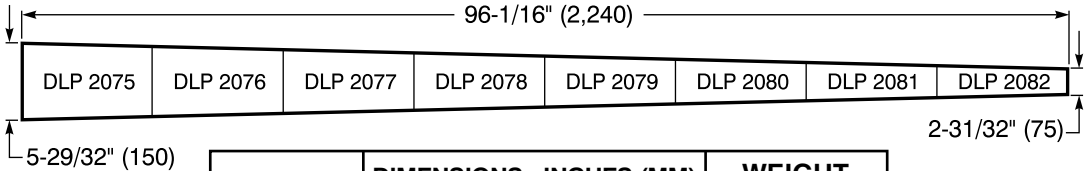
TYPICAL DRAWINGS

PART NO.	DIMENSIONS - INCHES (MM)					WEIGHT	
	A	B	C	D	E	LBS	KGS
DLP1920	3 (75)	1 (25)	3/4 (19)	1/4 (6)	1 (25)	1.5	0.7
DLP1921	4 (100)	2 (50)	11/16 (17)	5/16 (8)	1 (25)	3.0	1.4
DLP1994	4 (100)	2-3/4 (70)	1 (25)	1/4 (6)	1-1/4 (32)	2.0	0.9

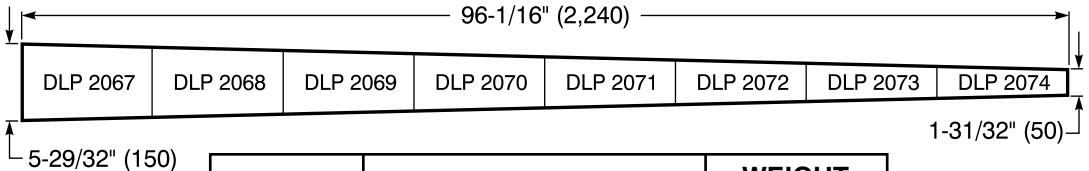
GRIZZLY BARS







PART NO.	DIMENSIONS - INCHES (MM)		WEIGHT	
	A	B	LBS	KGS
DLP2075	5-29/32 (150)	5-1/2 (141)	21.2	9.6
DLP2076	5-1/2 (141)	5-5/32 (131)	19.8	9.0
DLP2077	5-5/32 (131)	4-13/16 (122)	18.2	8.3
DLP2078	4-13/16 (122)	4-7/16 (113)	16.9	7.7
DLP2079	4-7/16 (113)	4-1/16 (103)	15.4	7.0
DLP2080	4-1/16 (103)	3-11/16 (94)	14.0	6.4
DLP2081	3-11/16 (94)	3-5/16 (84)	12.5	5.7
DLP2082	3-5/16 (84)	2-31/32 (75)	11.2	5.1



PART NO.	DIMENSIONS - INCHES (MM)		WEIGHT	
	A	B	LBS	KGS
DLP 2067	5-29/32 (150)	5-13/32 (137.5)	20.5	9.5
DLP 2068	5-13/32 (137.5)	4-15/16 (125)	19.1	8.7
DLP 2069	4-15/16 (125)	4-7/16 (112.5)	17.2	7.8
DLP 2070	4-7/16 (112.5)	3-15/16 (100)	15.2	6.9
DLP 2071	3-15/16 (100)	3-7/16 (87.5)	13.4	6.1
DLP 2072	3-7/16 (87.5)	3 (75)	11.4	5.2
DLP 2073	3 (75)	2-1/2 (62.5)	9.5	4.3
DLP 2074	2-1/2 (62.5)	2 (50)	7.7	3.5

- Standard sizes minimize customer cost versus custom shapes.
- Peaked profile offers longer wear life and greater material deflection.

APPLICATIONS

"Chocky" bars on a dragline bucket lip protecting adapters (below) and bucket edges (left).

Skid bars to protect the underside of a loader bucket (left).

Grizzly bar caps installed on an iron ore grizzly screen (right).

Custom wear plates stud bolted in an iron ore chute loader (left).

APPLICATIONS

Wear bar and “chocky” bar configuration on bottom of dragline bucket (right).

“Chocky” bars on a loader bucket (left).

Wear buttons on 950 series Parabolic® adapters (below)

“Chocky” bars to protect dozer moldboard (above).

“Chocky” bars and wear bars on a dragline shackle (left).

LAMINITE® BENDING DETAILS

RECOMMENDED BENDING PROCEDURES FOR

"CHOCKY" BARS ONLY!

READ BENDING INSTRUCTIONS COMPLETELY

NOTE: FOR EXTREME CURVES (RADII LESS THAN 12" [305mm]), OR INSIDE CURVES, IT IS ADVISABLE TO USE THE PRE-NOTHCED "CHOCKY BARS OR TO NOTCH THE MILD STEEL BACKING PLATE OPPOSITE THE "V" TO ASSIST BENDING **(Fig.A)**.

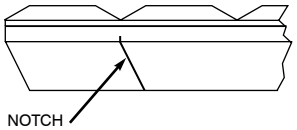


Fig.A

1. Clean the surface to which "chocky" bar will be welded.

2a. **For outside curves:** Tack weld one end of "chocky" bar (per welding procedures) in at least 3 places using at least **15mm** of weld in each deposit **(Fig.1)**. Hammer down unwelded end of bar so that the bar bends and follows the curve **(Fig.2)**.

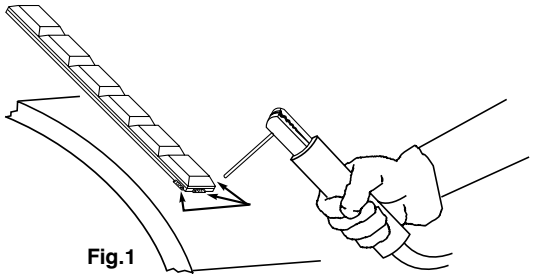


Fig.1

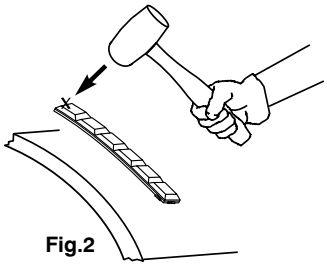


Fig.2

2b. **For inside curves:** Tack weld one end of "chocky" bar (per welding procedures) in at least 3 places using at least **15mm** of weld in each deposit **(Fig.3a)**. Starting in the center strike bar so that the bar bends and follows the curve **(Fig.3b)**.

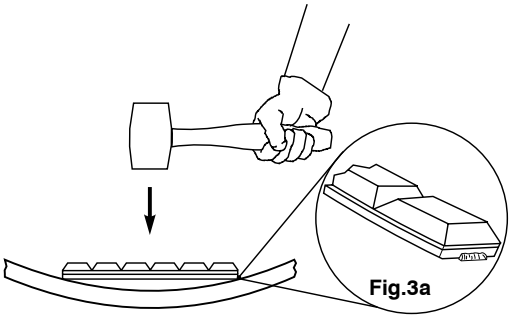


Fig.3b **Fig.3a**

3. Stitch weld (per welding procedures) until bar is firmly in place.

NOTE: White iron may crack during bending. This is normal.

Hensley recommends you always use a soft-face hammer and ANSI-approved (Z87.1) eye protection during cutting and bending procedures.

LAMINITE® CUTTING DETAILS

RECOMMENDED CUTTING PROCEDURES FOR
WEAR BARS and "CHOCKY" BARS ONLY!

High pressure abrasive water cutting is the preferred cutting method when available. If not available, cutting by abrasive disc is recommended.

Thermal cutting using an oxyacetylene torch, arc-air or plasma is **NOT recommended due to high localized heat input and high risk of cracking and delamination.**

READ ALL CUTTING PROCEDURES COMPLETELY!

CUTTING "CHOCKY" BARS

1. Place "chocky" bar in vise/clamp.
2. Cut through to white iron bond area **(Fig.1)**.
3. Wrap "chocky" bar with a rag and carefully hit it with a hammer. The piece should break cleanly at the notch.

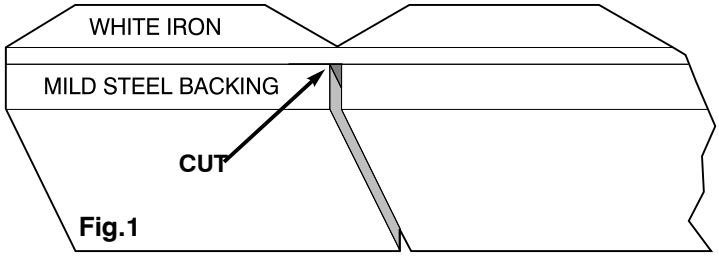


Fig.1

CUTTING WEAR BARS

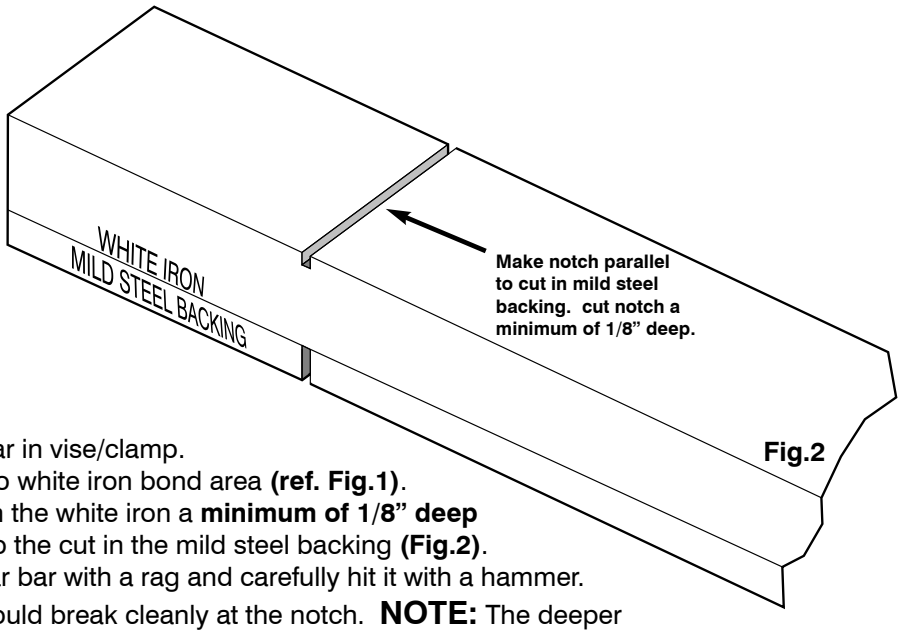


Fig.2

1. Place wear bar in vise/clamp.
2. Cut through to white iron bond area **(ref. Fig.1)**.
3. Cut a notch in the white iron a **minimum of 1/8" deep** and parallel to the cut in the mild steel backing **(Fig.2)**.
4. Wrap the wear bar with a rag and carefully hit it with a hammer. The piece should break cleanly at the notch. **NOTE:** The deeper the notch in the white iron, the cleaner the break.

Hensley recommends you always use a soft-face hammer and ANSI-approved (Z87.1) eye protection during cutting and bending procedures.

LAMINITE® WELDING DETAILS

RECOMMENDED WELDING PROCEDURES

READ ALL PROCEDURES COMPLETELY!

Hensley recommends you always use a soft-face hammer and ANSI-approved (Z87.1) eye protection during cutting and bending procedures.

1. Ensure that the surface to which the Laminite® will be attached is as flat as possible and the area to be welded is clean.

2. Clamp and tack weld Laminite® into position.

3. Stitch weld, laying 2" (51mm) max length on each run, alternating ends or similiar to minimize heat imput. **Do not** deposit weld within **2mm** from the joint line between white iron and steel backing plate **(Fig. 1)**.

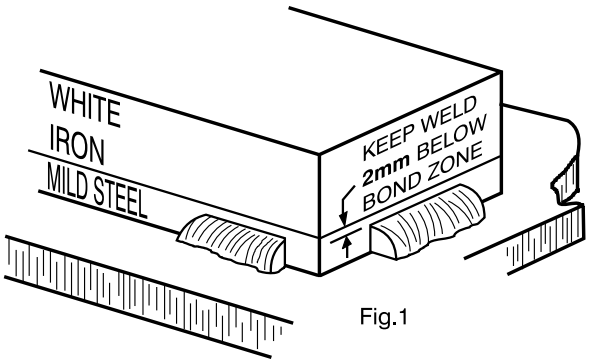


Fig.1

4. **DO NOT WELD CONTINUOUSLY**- Continuous welding may cause warpage, delamination and cracking.

5. If a complete peripheral weld is required, use stitch weld method as per step 3.

6. WELDING RODS **HENSLEY RECOMMENDS LOW HYDROGEN WELD RODS OR GAS COVERED CORED WIRE.**

Gas shielded solid MIG wire - 3/64" (1.2 mm) dia. max.
Flux cored wire - 1/16" (1.6 mm) dia. max.
Low hydrogen electrode - 1/8" (3.25 mm) dia. max.

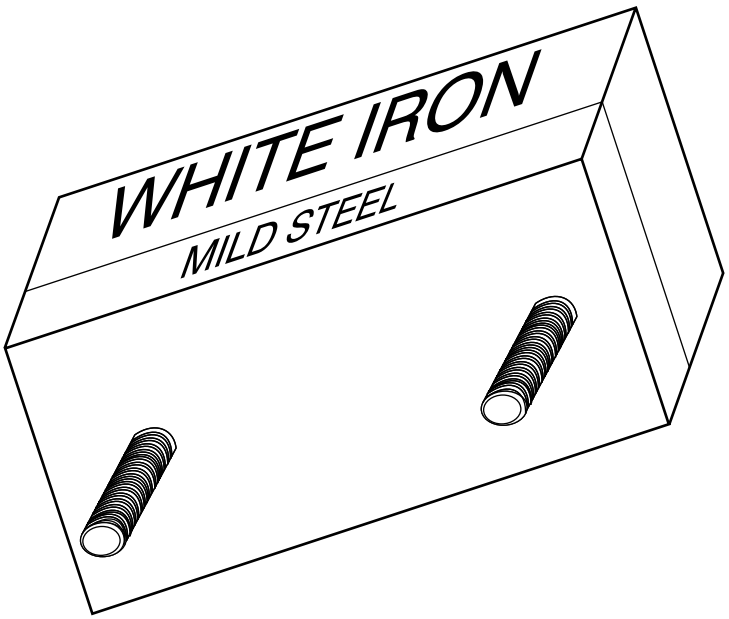
WELDING PROCEDURE OVERVIEW

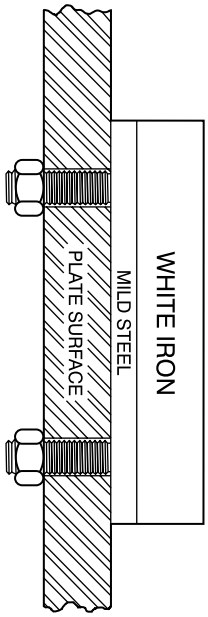
1. **READ PROCEDURES COMPLETELY**
2. TACK WELD INTO POSITION
3. STITCH WELD WITH 2" (51mm) MAX. LENGTH ON EACH RUN
4. MAINTAIN 2MM GAP BETWEEN WELD AND JOINT LINE
5. COMPLETE PERIPHERAL WELD IF REQUIRED

CAUTION! TOO MUCH HEAT INPUT MAY CAUSE CRACKING AND SEPERATION

LAMINITE® STUD-BOLTING FEATURE

Hensley can furnish stud-bolting for Laminite® pieces that cannot be welded. Stud-bolting is a common practice for creating a continuous wear assembly surface, without exposing a nut or bolt to the wear resistant activity.





NOTES

SAFETY FIRST: Hensley Industries recommends that you use a soft-faced hammer **and** ANSI-approved (Z87.1) eye protection while using our products.

YOUR AUTHORIZED HENSLEY DEALER

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