

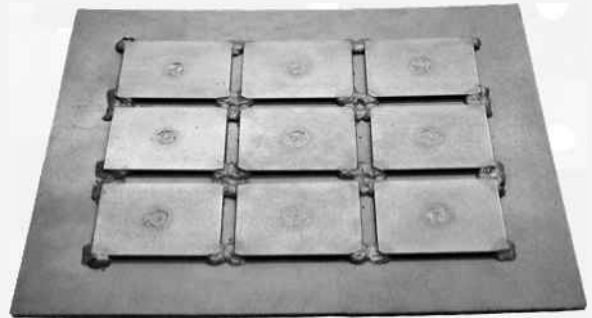
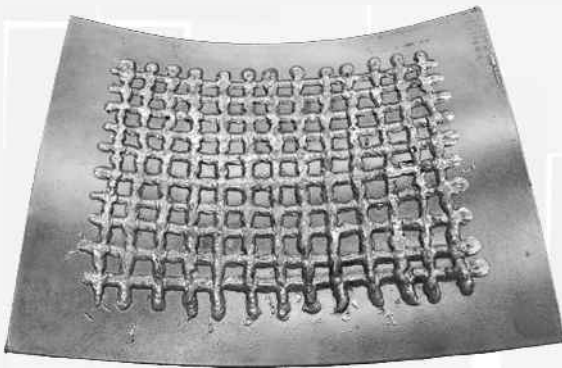
# COST STUDY

## KENCO Wear Patch versus Hardfacing

Kenco Wear Patch and hardfacing are two popular methods of protecting metal surfaces from abrasive wear. Such wear is common in the operation of heavy construction equipment and aggregate processing.

### Cost Study - Method

Two identical 1/4" thick A-36 steel plates were chosen for installation of Kenco Wear Patch and hardfacing. Kenco's popular WP-340 Wear Patch was selected against Stoody 21 hardfacing. Installation was performed over an area 10" X 13" on a flat test bench that did not require out of position welding. The test plates were not restrained.



### Cost Study - Results

Kenco Wear Patch took 4.5 minutes to install - hardfacing took 66.0 minutes. The Kenco Wear Patch test plate remained virtually flat. The Wear Patch pieces are securely fastened and the test area is well protected with 60 Rockwell C wear metal. The hardfacing test plate warped and distorted significantly from the welding heat input and shrinkage.

### Cost Study - Observations

Wear Patch installation does not distort base metal. The stress from excessive and repeated hardfacing can cause cracks and distortion of base metal and equipment. Out of position welding will only accentuate the installation cost difference between Kenco Wear Patch and hardfacing.

### Kenco Wear Patch Benefits:

- ▣ Requires less than 10% the time of hardfacing to install
- ▣ No warping of parent metal
- ▣ No locked in welding stress
- ▣ 60-62 Rockwell C is harder than hardfacing material
- ▣ Does not suffer dilution with parent metal
- ▣ Much easier to install than hardfacing, especially when out of position welding is required

# COST DATA

## KENCO Wear Patch versus Hardfacing

### Cost Comparison

	<u>Hardfacing (Stoody 21)</u>	<u>Wear Patch (WP-340)</u>
<b>Material</b>		
Quantity used in test	3.1 lbs	9 pcs.
7018 Weld Rod / Mig=wire (approx 1#)	-	\$3.50
Unit Price	\$6.99	\$3.96
Total material cost	\$21.67	\$39.14
<b>Labor</b>		
Installation time (minutes)	66.00	4.50
Labor Cost per hour (substitute your shop rate if not \$80.00)	\$80.00	\$80.00
Total Labor Cost	\$88.00	\$6.00
Total Cost	\$109.67	\$45.14

### Quantity of wear metal protection

	<u>Hardfacing (Stoody 21)</u>	<u>Wear Patch (WP-340)</u>
Dimension (each piece)	3/16" X 14 "	3/16" X 3" X 4"
Quantity used in test	3.1 lbs	9 pcs.
Total square inches of wear metal applied	91.50	108.00
Total cubic inches of wear metal applied	8.11	20.25

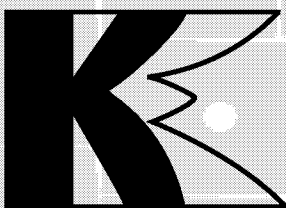
### Hardness of wear metal protection

	<u>Hardfacing (Stoody 21)</u>	<u>Wear Patch (WP-340)</u>
Hardness - rated	52-56 Rockwell C	60-62 Rockwell C
Hardness - tested (hardfacing - single pass)	*46-53 Rockwell C	61-63 Rockwell C

\*This test is based on a single hardfacing pass. Because of the dilution of the parent metal into the weld, more than one pass is required to achieve the rated hardness.

### Wear Study Data Summary

- Hardfacing material and labor costs are over 2.5 times higher than Kenco Wear Patch
- Wear Patch provides more than twice the wear metal of hardfacing
- Wear Patch is more than 10 points harder on the Rockwell C scale than hardfacing



**Kenco Engineering, Inc.**  
*Solving Wear Problems Since 1957*  
P.O. Box 1467  
Roseville, CA 95678  
800-363-9859  
[www.kencoengineering.com](http://www.kencoengineering.com)