ESCO®

ESCO Grader Blade Products

Table Showing Relationship Between Throw-away Metal and Wear Metal of Various Curved Grader Blade Sections

Section Wt. per Ft.	1" x 8" DBC Thru-Hardened 25.26 lb	3/4" x 8" SBC Special-Hardened 19.48 lb	3/4" x 8" DBC Thru-Hardened 18.63 lb	5/8"-7/8" x 8" X-TRA EDGE Special-Hardened 19.92 lb	5/8" x 8" DBC 15.70 lb	1/2" x 8" DBC 12.79 lb
Throw-away metal per foot	11.11 lb = 44%	8.19 lb = 42%	8.19 lb = 44%	6.70 lb = 34%	8.70 lb = 43%	5.40 lb = 42%
Wear metal per foot	14.15 lb = 56%	11.29 lb = 58%	10.44 lb = 56%	13.22 lb = 66%	9.00 lb = 57%	7.39 lb = 58%

Section Wt. per Ft.	5/8"-7/8" x 8" X-TRA EDGE Special-Hardened 19.92 lb	3/4" x 6" SBC Special-Hardened 14.55 lb	3/4" x 6" DBC Thru-Hardened 13.18 lb	5/8" x 6" DBC 11.04 lb	1/2" x 6" DBC 8.81 lb
Throw-away metal per foot	6.70 lb = 34%	8.19 lb = 56%	8.19 lb = 62%	6.70 lb = 61%	5.40 lb = 61%
Wear metal per foot	13.22 lb = 66%	6.36 lb = 44%	4.99 lb = 38%	4.34 lb = 39%	3.41 lb = 39%

All weights and percentages are approximate.

The following are comparisons between ESCO Special-Hardened Blades and other blade sections.

- 5/8"-7/8" x 8" X-TRA EDGE Blades generate 40% less throw-away than a 1" x 8" DBC yet provides 94% as much useable wear metal.
- 5/8"-7/8" x 8" X-TRA EDGE Blades generate 18% less throw-away than 3/4" x 8" blades, yet provides 26% more useable wear metal.
- 5/8"-7/8" x 8" X-TRA EDGE Blades outweigh the 5/8" x 8" blades by only 27%, yet has the identical amount of throw-away while providing 47% more useable wear metal.
- 5/8"-7/8" x 8" X-TRA EDGE Blades weigh only 56% more than the 1/2" x 8" blades, yet has only 24% more throw-away while providing 78% more useable wear metal.
- 5/8"-7/8" x 8" X-TRA EDGE Blades have an identical amount of throw-away as the 5/8" x 6" blades, yet provides 3 times as much useable wear metal.
- 5/8"-7/8" x 8" X-TRA EDGE Blades have only 24% more throw-away than the 1/2" x 6" blades, yet provides almost 4 times as much useable wear metal.
- 3/4" x 6" ESCO SBC blades have the identical amount of throw-away as the 3/4" x 6" double bevel curved blades, yet provides 27% more useable wear metal.

Comparison of Estimated Wear Life of ESCO Curved Steel Grader Blade Sections (based on wearable steel)

		Available Blade Options														
		Carbon Good Wear – Moderate Impact							Thru-Hardened Good Wear – Severe Impact					Flame-Hardened Best Wear – Moderate Impact		
	Blade Size Used	DBC 1/2"x8"	DBC 5/8"x6"	DBC 5/8"x8"	DBC 3/4"x6"	DBC 3/4"x8"	DBC 1/2"x8"	SBC 5/8"x6"	DBC 5/8"x6"	DBC 5/8"x8"	DBC 3/4"x6"	DBC 3/4"x8"	DBC 1"x8"	X-TRA-EDGE 5/8"-7/8" x8"	SBC 3/4"x6"	SBC 3/4"x8"
DBC Carbon	1/2"x6"								1.3	2.6	1.5	3.1	4.2	6.6	3.2	5.6
	1/2"x6"	x	2.2	1.3	2.6	1.5	3.1	2.2	-0.4	1.2	-0.3	1.4	1.9	3.0	1.5	2.6
	1/2"x8"	-0.5	x	-0.4	1.2	-0.3	1.4	*	x	2.1	1.2	2.4	3.3	5.2	2.5	4.4
	5/8"x6"	-0.2	1.7	x	2.1	1.2	2.4	1.7	-0.5	x	-0.4	1.2	1.6	2.5	1.2	2.1
	5/8"x8"	-0.6	-0.2	-0.5	x	-0.4	1.2	-0.2	-0.1	1.8	x	2.1	2.8	4.5	2.2	3.8
SBC Carbon	3/4"x6"	-0.3	1.5	-0.1	1.8	x	2.1	1.5	-0.6	-0.1	-0.5	x	1.4	2.2	x	1.8
	3/4"x8"	-0.7	-0.3	-0.6	-0.1	-0.5	x	-0.3	*	1.7	-0.1	2.0	2.7	4.3	2.0	3.6
DBC Thru-Hardened	5/8"x6"	-0.4	1.4	*	1.7	-0.1	2.0	1.4	-0.4	1.2	-0.3	1.4	1.9	3.0	1.4	2.6
	1/2"x8"	-0.5	x	-0.4	1.2	-0.3	1.4	*	x	2.1	1.2	2.4	3.3	5.2	2.5	4.4
	5/8"x6"	-0.2	1.7	x	2.1	1.2	2.4	1.7	-0.5	x	-0.4	1.2	1.6	2.5	1.2	2.1
	5/8"x8"	-0.6	-0.2	-0.5	x	-0.4	1.2	-0.2	-0.1	1.8	x	2.1	2.8	4.5	2.2	3.8
X-TRA-EDGE® Flame-Hardened	3/4"x6"	-0.3	1.5	-0.1	1.8	x	2.1	1.5	-0.6	-0.1	-0.5	x	1.4	2.2	x	1.8
	3/4"x8"	-0.7	-0.3	-0.6	-0.1	-0.5	x	-0.3	-0.7	-0.4	-0.7	-0.3	x	1.6	-0.2	1.4
SBC Flame-Hardened	1"x8"	-0.8	-0.5	-0.7	-0.4	-0.7	-0.3	-0.5	-0.8	-0.6	-0.8	-0.5	-0.4	x	-0.5	-0.2
									-0.6	-0.2	-0.5	x	1.3	2.1	x	1.8
									-0.8	-0.5	-0.7	-0.5	-0.3	1.2	-0.4	x

DBC = Double bevel curved
SBC = Single bevel curved
X-TRA EDGE = A form of DBC
x = same wear (4% plus or minus equates to same wear
* = See sales representative

Note: *All data presented are estimations only, and do not constitute a performance guarantee. Soil conditions, condition and speed of machine, operator performance, and blade angle can all affect wear rates.*

Examples of how to use this chart:

1) Presently using a 5/8" x 6" DBC-Carbon; but would like to use a X-TRA EDGE Blade 5/8"-7/8" x 8" Flame-Hardened. What could be expected for increased wear?

   Answer: 5.2 times the wear of a 5/8" x 6" DBC-Carbon. (330% increase)

2) Presently using a X-TRA EDGE Blade 5/8"-7/8" x 8" Flame-Hardened. What would be the expected wear if a 1" x 8" DBC Thru-Hardened blade was used?

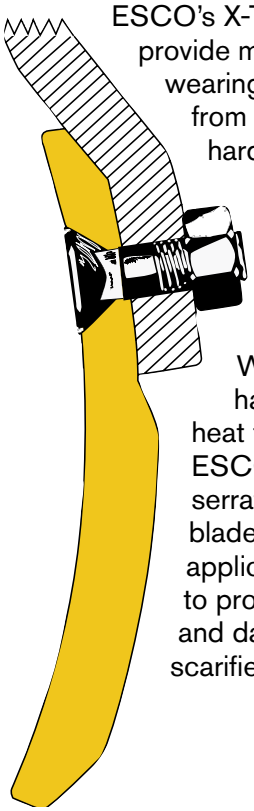
   Answer: -0.4 times the wear of a X-TRA EDGE Blade 5/8"-7/8" x 8" Flame-Hardened. (40% decrease)

3) Presently using a 5/8" x 8" DBC-Carbon; but would like to use a X-TRA EDGE Blade 5/8"-7/8" x 8" Flame-Hardened. What could be expected for wear?

   Answer: 2.5 times the wear of a 5/8" x 8" DBC-Carbon. (150% increase)

Grade More Miles Per Dollar

with ESCO's Special-Hardened X-TRA EDGE™ Blades



ESCO's X-TRA EDGE Grader Blades provide more usable wear metal on the wearing edge to reduce waste. Made from fine grain steel and special-hardened for maximum resistance to abrasion, the X-TRA EDGE blade is self sharpening and non-curling. Its superior wear resistance means fewer blade changes – and lower costs.

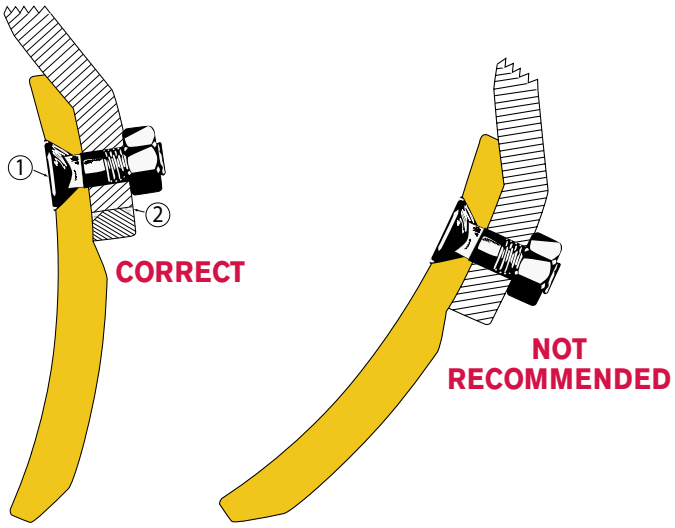
Whether you specify special-hardened, carbon, or MaxTemp® heat treated thru-hardened steel, ESCO blades have a flat, curved, serrated, or X-TRA EDGE grader blade to fit your machine and your application. ESCO also offers end bits to protect the moldboard from wear and damage, as well as a selection of scarifier shanks and tips.

Installing Grader Blades

1. Check the moldboard for wear, bends or kinks. A damaged moldboard does not provide adequate support for the blade and may lead to poor performance or breakage. Weld build-up worn areas with low hydrogen electrodes until the blade has full bearing on the moldboard. Moldboards with bends or kinks need to be straightened.
2. It is essential to use Grade 8 heat treated bolts and nuts when installing blades. They will not stretch when tightened or during operation. Insert bolts and tighten from the center towards the ends. All bolts must be tightened securely. Even one loose bolt can cause a blade to chatter and may lead to breakage. If holes are worn or elongated, use only flat, hardened washers under the nut. ***Do not use lock washers.***

Operation Tips

Following are some operation tips to avoid the major causes of blade breakage and excessive wear. Use these tips to insure maximum blade life and performance.



1. Position the moldboard so the cutting edge is as vertical as possible, consistent with good blade operation. This will prevent undue stress on the blade, maintain a sharper cutting edge, and reduce the chance of excess wear or breakage. See the illustrations above.
2. Using a grader or dozer in reverse with the blade on the ground puts undue stress on the bolts and blade, and may cause breakage. Neither the blades or machines are designed to grade while backing up.
3. Today's machines have increased weight and horse-power. Be sure the right weight or thickness of blade is selected to insure the best performance.
4. When a machine uses a reversible blade, do not burn off the bolt heads. The heat from burning can embrittle the blade at each bolt hole and may lead to breakage.
5. Avoid impact with manholes, bridge expansion plates, railroad tracks and other immovable objects found in roadways. Such impacts may result in blade breakage or damage to the machine.

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