



H&L Mesabi proudly serves Minnesota, Wisconsin & Upper Michigan as the premier custom wear specialist in construction, governmental and mining applications

H&L Mesabi Road Maintenance Guide



H&L Mesabi offers one of the largest selections of snow plow blades and grader blades specifically designed for Airport, DOT, County, Township and City municipalities.

Cutting Edge Applications

Carbide Cutting Edges

Steel Cutting Edges

Wear Comparison Charts

Notes from the Road

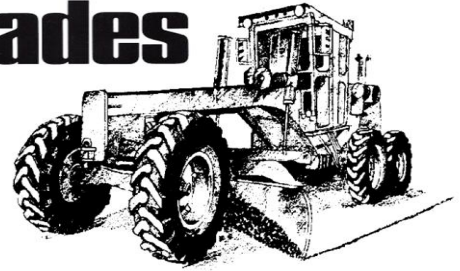
Writing Specifications

HLMESABI.COM

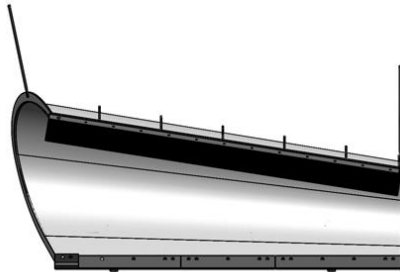
Snow Plow Blades



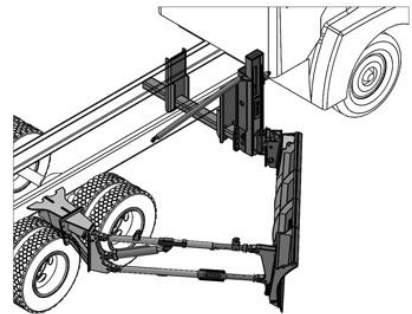
Grader Blades



Cutting Edge Applications



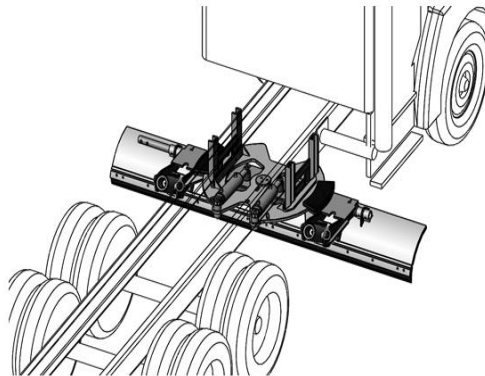
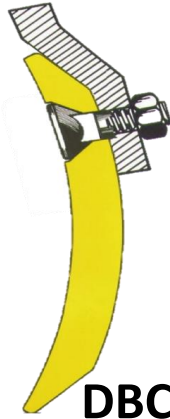
SEF
Square Edge Flat



Extra Edge



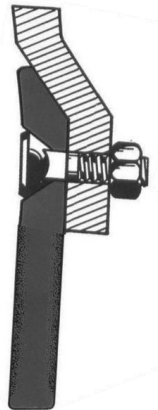
DBC
Double Bevel Curve












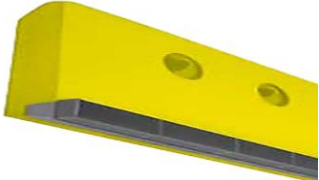







SBC
Single Bevel Curve

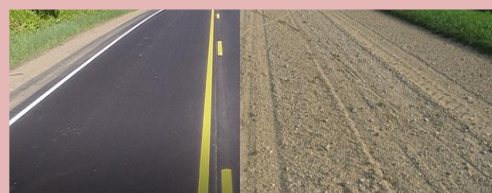
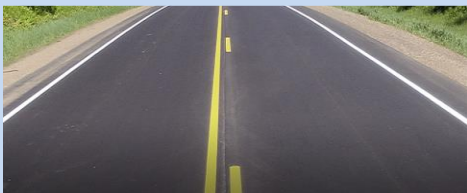


SBF
Single Bevel Flat



Carbide Cutting Edges

| | | |
|---|---|--|
|  | <u>Carbide Inserted</u> 3/4" x 6" SEF 3/4" x 6" SBF 7/8" x 5" SEF 7/8" x 5" SBF |   |
|  | <u>Carbide Inserted & Embedded</u> 3/4" x 6" SEF 3/4" x 6" SBF 7/8" x 5" SEF 7/8" x 5" SBF |   |
|  | <u>Armored Carbide Inserted</u> 7/8" x 5" SEF 7/8" x 5" SBF |   |
|  | <u>Dual Inserted Carbide</u> 7/8" x 5" SEF 7/8" x 5" SBF |  |
|  | <u>I.C.E</u> 7/8" x 5" SEF 7/8" x 5" SBF |  |
|  | <u>Carbide Inserted & Embedded</u> 3/4" x 6" SBC |  |
|  | <u>Carbide Inserted</u> 3/4" x 6" SBC |  |



Steel Cutting Edges

H&L Mesabi offers three types of steel cutting edges suited specifically for your road maintenance applications.

Types of Steel

Carbon/Forged Temp®

General Purpose
(Rc 25-33)

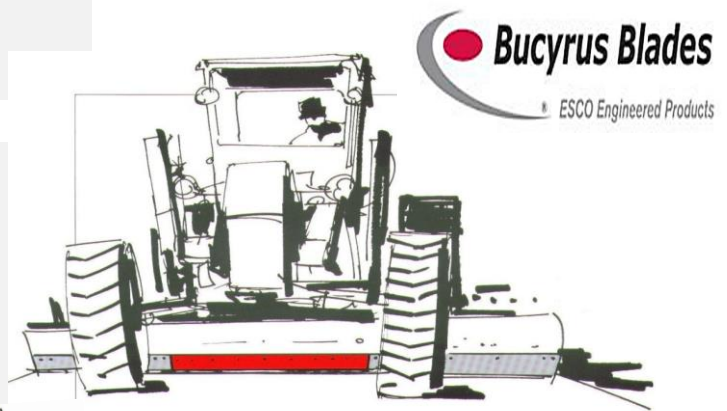
Thru-Hardened/Max Temp®

Good Abrasion & Heavy Impact
(Rc 43-50)

Flame Hardened/Surface Hardened

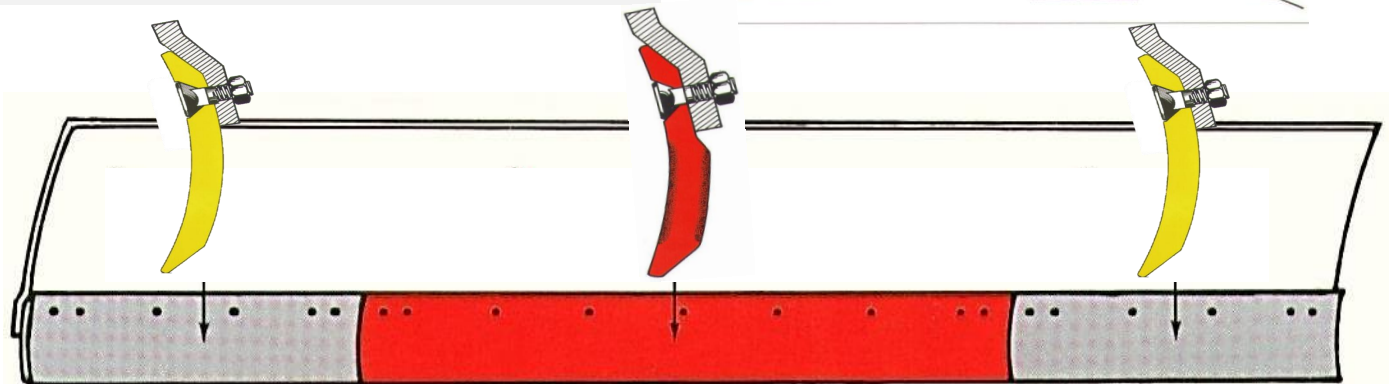
Heavy Abrasion & Mild Impact
(Rc 58-65)

Bucyrus Blades Patented Process!



3-Piece Grading System

Putting the “Muscle in the Middle” allows for more consistent & even wear along the cutting edge



Carbon/Forge Temp®
5/8" x 8" DBC

Flame Hardened/FH62
5/8—7/8" x 8" XDBC
Extra Edge

Carbon/Forge Temp®
5/8" x 8" DBC

Wear Comparison Chart—Curved Blades



COMPARISON OF ESTIMATED WEAR LIFE OF CURVED STEEL GRADER BLADES

(Based on wearable steel)



AVAILABLE BLADE OPTIONS





BLADE
PRESENTLY
BEING
USED
↓

CARBON GOOD WEAR—MODERATE IMPACT

THRU-HARDENED GOOD WEAR—SEVERE IMPACT

FLAME-HARDENED BEST WEAR— MODERATE IMPACT

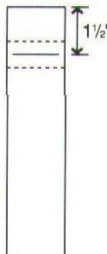
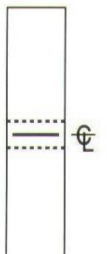

| | | | | | | | | | | | | | | | | | |
|--|---------|------|------|------|------|------|-----|------|------|------|------|-----|-----|-----|-----|-----|-----|
| <div>DBC CARBON</div> <div></div> | 1/2"x6" | x | 2.2 | 1.3 | 2.6 | 1.5 | 3.1 | 2.2 | 1.3 | 2.6 | 1.5 | 3.1 | 4.2 | 3.9 | 6.6 | 3.2 | 5.6 |
| | 1/2"x8" | -0.5 | x | -0.4 | 1.2 | -0.3 | 1.4 | ★ | -0.4 | 1.2 | -0.3 | 1.4 | 1.9 | 1.8 | 3.0 | 1.5 | 2.6 |
| | 5/8"x6" | -0.2 | 1.7 | x | 2.1 | 1.2 | 2.4 | 1.7 | x | 2.1 | 1.2 | 2.4 | 3.3 | 3.0 | 5.2 | 2.5 | 4.4 |
| | 5/8"x8" | -0.6 | -0.2 | -0.5 | x | -0.4 | 1.2 | -0.2 | -0.5 | x | -0.4 | 1.2 | 1.6 | 1.5 | 2.5 | 1.2 | 2.1 |
| | 3/4"x6" | -0.3 | 1.5 | -0.1 | 1.8 | x | 2.1 | 1.5 | -0.1 | 1.8 | x | 2.1 | 2.8 | 2.6 | 4.5 | 2.2 | 3.8 |
| | 3/4"x8" | -0.7 | -0.3 | -0.6 | -0.1 | -0.5 | x | -0.3 | -0.6 | -0.1 | -0.5 | x | 1.4 | 1.3 | 2.2 | x | 1.8 |
| <div>SBC CARBON</div> <div></div> | 5/8"x6" | -0.4 | 1.4 | ★ | 1.7 | -0.1 | 2.0 | 1.4 | ★ | 1.7 | -0.1 | 2.0 | 2.7 | 2.5 | 4.3 | 2.0 | 3.6 |
| | 1/2"x8" | -0.5 | x | -0.4 | 1.2 | -0.3 | 1.4 | ★ | -0.4 | 1.2 | -0.3 | 1.4 | 1.9 | 1.8 | 3.0 | 1.4 | 2.6 |

| | | | | | | | | | | | | | | | | | |
|---|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|
| <div>DBC THRU-HARDENED</div> <div></div> | 5/8"x6" | -0.2 | 1.7 | x | 2.1 | 1.2 | 2.4 | 1.7 | x | 2.1 | 1.2 | 2.4 | 3.3 | 3.0 | 5.2 | 2.5 | 4.4 |
| | 5/8"x8" | -0.6 | -0.2 | -0.5 | x | -0.4 | 1.2 | -0.2 | -0.5 | x | -0.4 | 1.2 | 1.6 | 1.5 | 2.5 | 1.2 | 2.1 |
| | 3/4"x6" | -0.3 | 1.5 | -0.1 | 1.8 | x | 2.1 | 1.5 | -0.1 | 1.8 | x | 2.1 | 2.8 | 2.6 | 4.5 | 2.2 | 3.8 |
| | 3/4"x8" | -0.7 | -0.3 | -0.6 | -0.1 | -0.5 | x | -0.3 | -0.6 | -0.1 | -0.5 | x | 1.4 | 1.3 | 2.2 | x | 1.8 |
| | 1"x8" | -0.8 | -0.5 | -0.7 | -0.4 | -0.7 | -0.3 | -0.5 | -0.7 | -0.4 | -0.7 | -0.3 | x | -0.1 | 1.6 | -0.2 | 1.4 |
| <div>X-TRA EDGE® THRU-HARDENED</div> <div></div> | 5/8" to 7/8"x8" | -0.8 | -0.4 | -0.7 | -0.3 | -0.6 | -0.2 | -0.4 | -0.7 | -0.3 | -0.6 | -0.2 | 1.1 | x | 1.7 | -0.2 | 1.5 |
| <div>X-TRA EDGE FLAME HARDENED</div> <div></div> | 5/8" to 7/8"x8" | -0.9 | -0.7 | -0.8 | -0.6 | -0.8 | -0.5 | -0.7 | -0.8 | -0.6 | -0.8 | -0.5 | -0.4 | -0.4 | x | -0.5 | -0.2 |
| <div>SBC FLAME HARDENED</div> <div></div> | 3/4"x6" | -0.7 | -0.3 | -0.6 | -0.2 | -0.5 | x | -0.3 | -0.6 | -0.2 | -0.5 | x | 1.3 | 1.2 | 2.1 | x | 1.8 |
| | 3/4"x8" | -0.8 | -0.6 | -0.8 | -0.5 | -0.7 | -0.5 | -0.6 | -0.8 | -0.5 | -0.7 | -0.5 | -0.3 | -0.3 | 1.2 | -0.4 | x |

Wear Comparison Chart—Flat Blades



COMPARISON OF ESTIMATED WEAR LIFE OF FLAT STEEL PLOW BLADES (Based on wearable steel*)

| | | BLADE PRESENTLY BEING USED ↓ | AVAILABLE BLADE OPTIONS | | | | | | | | | | | | |
|---|---|--|---|---------|---------|---------|---------|---------|-------|--|---------|---------|-------|---|-------|
| | | | CARBON-SEF GOOD WEAR-MODERATE IMPACT | | | | | | | THRU-HARDENED-SEF GOOD WEAR-SEVERE IMPACT | | | | FLAME-HARDENED-SEF BEST WEAR-MODERATE IMPACT | |
| | | | 1/2"x6" | 5/8"x6" | 3/4"x6" | 1/2"x8" | 5/8"x8" | 3/4"x8" | 1"x8" | 5/8"x6" | 5/8"x8" | 3/4"x8" | 1"x8" | 3/4"x8" | 1"x8" |
| <div>SEF</div> <div>EDGE PUNCHED (1½" GAUGE)</div> <div></div> <div>OR</div> <div>CENTER- LINE PUNCHED</div> <div></div> | C A R B O N O R T H R U - H A R D E N E D (IF AVAILABLE) | 1/2"x 6" | x | 1.3 | 1.5 | 1.7 | 2.1 | 2.5 | 3.3 | 1.3 | 2.1 | 2.5 | 3.3 | 5.0 | 6.7 |
| | | 5/8"x 6" | -0.2 | x | 1.2 | 1.3 | 1.7 | 2.0 | 2.7 | x | 1.7 | 2.0 | 2.7 | 4.0 | 5.3 |
| | | 3/4"x 6" | -0.3 | -0.2 | x | 1.1 | 1.4 | 1.7 | 2.2 | -0.2 | 1.4 | 1.7 | 2.2 | 3.3 | 4.4 |
| | | 1/2"x 8" | -0.4 | -0.3 | -0.1 | x | 1.3 | 1.5 | 2.0 | -0.3 | 1.3 | 1.5 | 2.0 | 3.0 | 4.0 |
| | | 5/8"x 8" | -0.5 | -0.4 | -0.3 | -0.2 | x | 1.2 | 1.6 | -0.4 | x | 1.2 | 1.6 | 2.4 | 3.2 |
| | | 3/4"x 8" | -0.6 | -0.5 | -0.4 | -0.3 | -0.2 | x | 1.3 | -0.5 | -0.2 | x | 1.3 | 2.0 | 2.7 |
| | | 1"x 8" | -0.7 | -0.6 | -0.6 | -0.5 | -0.4 | -0.3 | x | -0.6 | -0.4 | -0.3 | x | 1.5 | 2.0 |
| | <div>FLAME- HARDENED</div> <div></div> | 3/4"x 8" | -0.8 | -0.8 | -0.7 | -0.7 | -0.6 | -0.5 | -0.4 | -0.8 | -0.6 | -0.5 | -0.4 | x | 1.3 |
| | | 1"x 8" | -0.9 | -0.8 | -0.8 | -0.8 | -0.7 | -0.6 | -0.5 | -0.8 | -0.7 | -0.6 | -0.5 | -0.3 | x |

EXAMPLES OF HOW TO USE THIS CHART:

- 1) Presently using a 5/8" x 6" SEF but would like to use a 3/4" x 8" Flame-Hardened. What could be expected for increased wear?

ANSWER: 4.0 times the wear of a 5/8" x 6" SEF carbon.
(300% increase.)

- 2) Presently using a 1/2" x 8" SEF carbon but would like to use a 3/4" x 6" SEF carbon. What could be expected for increased wear?

ANSWER: -0.1 times the wear of a 1/2" x 8" SEF carbon.
(-10% decrease.)

NOTE: All numbers presented are guidelines only, and do not constitute a guarantee. Surface conditions, speed of machine, use of runners and operator performance can affect wear relationships.

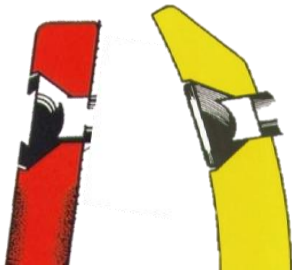
*Based on a cutting edge gauge of 1 1/2" or center-line with a 1 1/2" moldboard support below the centerline of holes on the moldboard.

LEGEND: SEF=Square Edge Flat
x=Same Wear

Notes from the Road

The Top Bevel

When a top beveled cutting edge is used with Front & Wing plows, **Frost Heaving** may occur—a process where dirt and ice pack into the exposed top bevel, stretch the plow bolts, and loosen the cutting edge from the moldboard.



Gauge Lines

1-5/8" gauge has **6%** more usable steel than a 1-7/8" gauge.
1-5/8" gauge and **9%** more usable steel than a 2" gauge.

Front & Wing Plows: 2" and 1-1/2" gauges

Grader & Underbody Plows: 1-5/8" gauge

Shoes & Runners

Moldboard shoes and plow runners add **Extra Protection** for cutting edges, thus lessening change-outs and down-time.



Carbide x Gravel

Carbide cutting edges perform excellent in gravel conditions as long as the leading edge is protected.



Writing Specifications

H&L Mesabi works with road maintenance departments to ensure annual cutting edge orders are specifically suited for their application.

The Importance of Detailed Specifications

Assembly:
Blade Type:
Steel Type:
Carbide Type:
Thickness:
Height/Width:
Length:
Hole Size:
Gauge Line:
Quantity:

Optional Specifications:
Manufacturing
Delivery

*"Looking for pricing on 4'
Carbides"*

For Underbody Plow Assembly:
Carbide Inserted & Embedded
SBF 7/8" x 5" x 4'
5/8" cntsk holes 1-5/8" Gauge
Quantity: ##



Avoid that last minute panic and **Order Early!**

Thank you for your consideration and support of H&L Mesabi.
We look forward to being of service.

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