

# ***Kalkaska County Road Commission***

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*The Kalkaska County Road Commission is an Equal Opportunity Provider and Employer*

## **SPECIFICATIONS FOR BLADE BIDS**

The following specifications describe requirements for cutting edges and wear surfaces for various pieces of equipment.

**Delivery** – Please state estimated delivery date.

**Payment Terms** – Bid prices should be FOB Kalkaska County Road Commission and include payment terms.

**Note** – The Kalkaska County Road Commission reserves the right to accept or reject any or all bids, to waive any irregularity or defect in a bid, or to accept the bid which is in the opinion of the Kalkaska County Road Commission in the best interest of the Road Commission.

**Note** – Each blade Section shall be identified with manufactures mark, stamped or stenciled. All blades must be manufactured in the United States of America. Bidder must supply certificate of North American sourced materials, certificate of quality with material analysis and all MDS sheets.

**Questions regarding the following blade specifications should be directed to Tony Moses, Shop Foreman at the Kalkaska County Road Commission, at [tmoses@kalkaskaroad.org](mailto:tmoses@kalkaskaroad.org). Sealed bids will be accepted by the Kalkaska County Road Commission until 9:00a.m., August 6, 2018. Sealed, plain envelopes MUST BE CLEARLY MARKED ‘BLADE BIDS’.**

### **SPECIFICATIONS FOR SINGLE BEVEL GRADER CUTTING EDGES:**

**BLADE:** 3/4” thick curved single bevel, counter sunk holes, manufactured from the highest quality 15B30 steel with an added thru-hardness will extend the entire length of the blade. Thru-hardened steel that delivers maximum protection against breakage.

**LENGTH & WIDTH:** Length of the blade to be stated at time of order in feet, depending on make and model of plow blades needed. Width of blade shall be 8”.

**HARDNESS:** The Rockwell Hardness C- Scale from 42-52 and have a Brinell Hardness of (HBW 10/3000) from 390– 520.

**PUNCH:** All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16”. Non-accumulative; hole size, 11/16” for 5/8” or 27/32 for 3/4” bolts & spacing shall be DOT-standard.

### **SPECIFICATIONS FOR DOUBLE BEVEL GRADER CUTTING EDGES:**

**BLADE:** 5/8" or 3/4" thick curved single bevel, counter sunk holes, manufactured from the highest quality 15B30 steel with an added thru-hardness will extend the entire length of the blade. Thru-hardened steel that delivers maximum protection against breakage.

**LENGTH & WIDTH:** Length of the blade to be stated at time of order in feet, depending on make and model of plow blades needed. Width of blade shall be 6" or 8".

**HARDNESS:** The Rockwell Hardness C- Scale from 42-52 and have a Brinell Hardness of (HBW 10/3000) from 390– 520.

**PUNCH:** All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16". Non-accumulative; hole size, 11/16" for 5/8" or 27/32 for 3/4" bolts & spacing shall be DOT-standard.

### **SPECIFICATIONS FOR CURVED SINGLE BEVEL CARBON CUTTING EDGES:**

**BLADE:** 5/8" or 3/4" thick curved single bevel, counter sunk holes, manufactured from the highest quality 1074 steel with an added flame hardness. The hardened pass will extend the entire length of the blade, the pass will be on the front and back side of the blade, the depth of the hardness pass should be about 1/8" deep, and the pass will be approximately 5/8 inch above the engaging edge.

**LENGTH & WIDTH:** Length of the blade to be stated at time of order in feet, depending on make and model of plow blades needed. Width of blade shall be 6" or 8".

**HARDNESS:** The Rockwell Hardness C- Scale from 20-32 and have a Brinell Hardness of (HBW 10/3000) from 179– 301.

**PUNCH:** All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16". Non-accumulative; hole size, 11/16" for 5/8" bolts or 27/32" for 3/4" & spacing shall be DOT-standard.

### **SPECIFICATIONS FOR CURVED DOUBLE BEVEL CUTTING EDGES:**

**BLADE:** 5/8" or 7/8" thick curved double bevel, counter sunk holes, manufactured from the highest quality 15B30 steel with an added thru hardness will extend the entire length of the blade. Thru-hardened steel that delivers maximum protection against breakage.

LENGTH &  
WIDTH:

Length of the blade to be stated at time of order in feet, depending on make and model of plow blades needed. Width of blade shall be 8”.

HARDNESS:

The Rockwell Hardness C- Scale from 42-52 and have a Brinell Hardness of (HBW 10/3000) from 390–520.

PUNCH:

All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16”. Non-accumulative; hole size, 11/16” for 5/8” bolts or 27/32” for 3/4” & spacing shall be DOT-standard.

**SPECIFICATIONS FOR HI-CARBON REVERSE CURVE CUTTING EDGES (WING BLADE):**

BLADE:

5/8” Reverse Curved double bevel; counter sunk holes on reverse side. Material to be steel AISI C-1084 quality within the chemistry specifications.

LENGTH &  
WIDTH:

Length of the blade to be stated at time of order, depending on make and model of plow blades needed. Width of blade shall be 8”.

HARDNESS:

The Rockwell Hardness C- Scale from 20 – 32 and have a Brinell Hardness of (HBW 10/3000) from 179 – 301.

PUNCH:

All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16”. Non-accumulative; hole size, 11/16” for 5/8” bolts & spacing shall be DOT-standard.

**SPECIFICATIONS FOR CARBIDE INSERTED CUTTING EDGES:**

BLADE:

Cutting edges will be tungsten carbide inserted with a 1” pass, with carbide Embedding (impregnation) on front side of cutting edge. The groove for the carbide inserts shall be milled in the center of the blade edge. The embedding shall be crushed carbide that shall be the “blocky” type which penetrates and compacts in the mold matrix. The crushed carbide shall be applied in a hot-wire(TIG) processed to a puddle depth of 3/16” in the parent metal.

LENGTH &  
WIDTH:

Length of the blade to be stated at time of order in feet, depending on make and model of plow blades needed.

CARBIDE:

The insert shall be high shock WC grade of Tungsten carbide with 10-12% Cobalt content Hardness shall be 87.5 (minimum) to 89.0 (maximum)

Rockwell "A" scale Traverse Rupture Strength shall be 350,000 to 4000,000.

**PUNCH:** All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16". Non-accumulative; hole size, 11/16" for 5/8" bolts or 27/32" for 3/4" & spacing shall be DOT-standard.

**SPECIFICATIONS FOR SHOES:**

**HARDENED:** Manufactured of Class 40 Gray Iron, modified with Chrome to increase strength and wear life. Brinell Hardness is 235 – 245.

**NI-HARD:** Manufactured of type 2 Ni-Hard - White Iron, increases the wear life up to 100% as well as the hardness/strength.

Wing Shoes are designed to be worn with either the reverse curve or flat square edge blade.

Plow Shoes are available with single ear, double ear, flat-no ear as well as the round mushroom.

**SPECIFICATIONS FOR FLAT-SQUARE CUTTING EDGES:**

**BLADE:** 1/2", 5/8" or 3/4" flat square edge plow blades, counter sunk holes, manufactured from the highest quality hot rolled steel bars.

**LENGTH &  
WIDTH:**

Length of the blade to be stated at time of order in feet, depending on make and model of plow blades needed. Width of blade shall be 6" or 8".

**STEEL:** Material to be hot rolled steel bars AISI 1084 quality.

**HARDNESS:** Cutting edge Rockwell 23 to 33 Brinell 241-310.

**HOLE PUNCH:** All blades shall be furnished with appropriate bolt holes counter-sunk as required per Society of Automotive Engineers specification no. J740. Hole spacing dimensional tolerances shall be +/- 1/16". Non-accumulative; hole size, 11/16" for 5/8" bolts & or 27/32" for 3/4" bolts spacing shall be DOT-standard.