

The following specifications apply:

Lots One through Eight: Items manufactured by one of the manufacturers listed below are the only approved brands. Bids containing items from other brands shall be found non-responsive and will be rejected by the state.

Caterpillar, Kennemetal, Black Cat, Bucyrus, or Valk Manufacturing

Lot Nine: Only Caterpillar Part Number 109-3124 is acceptable. Bids containing items from other brands for this lot shall be found non-responsive and will be rejected by the state.

Lot Ten: Items manufactured by one of the manufacturers listed above are the only approved brands. **Lot Ten is new and was created with the issuance of Amendment Two on April 8, 2020. This lot contains 6 foot single and dual carbide insert blades that have been removed from Lots Six and Seven.**

LOT ONE: REGULAR CURVED BLADES

- Blades shall be heat treated, through hardened, with a Rockwell hardness of 43 to 55 or a Brinell hardness of 408 to 548, and rated EXTREME SERVICE.
- Blades shall be either top punched as specified in the order.
- Blades shall have the following bolt hole spacing: the first two holes on each end of the blade shall be 3" inches apart; the remaining holes shall be 6" inches apart. Example: (3-3-6-6).
- Bolt holes shall be square and countersunk.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

1-a: 3 feet	1-b: 4 feet	1-c: 6 feet	1-d: 7 feet	1-e: 8 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

1-f: 8 inches

The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

1-g: 3/4 inch	1-h: 1 inch
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The blades shall be curved with double bevel sections with standard AASHTO highway punching and as identified on the bid schedule, shall be one of the following standard sizes:

1-i: 5/8 inch diameter bolts	1-j: 3/4 inch diameter bolts
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LOT TWO: REGULAR FLAT BLADES / HEAT TREATED

- Blades shall be heat treated, through hardened, with a Rockwell hardness of 43 to 55 or a Brinell hardness of 408 to 548.
- Blades shall be either top punched or center punched, as specified in the order.
- Blades shall have the following bolt hole spacing: the first two holes on each end of the blade shall be 3" inches apart; the remaining holes shall be 6" inches apart (3-3-6-6).
- Bolt holes shall be square and countersunk.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

2-a: 4 feet	2-b: 5 feet	2-c: 6 feet	2-d: 7 feet	2-e: 8 feet
2-f: 9 feet	2-g: 10 feet	2-h: 11 feet	2-i: 12 feet	2-j: 14 feet

The width of the blade identified on the bid schedule shall be one of the following standard sizes:

2-k: 6 inches	2-l: 8 inches	2-m: 10 inches
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The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

2-n: 1/2 inch	2-o: 3/4 inch	2-p: 7/8 inch	2-q: 1 inch
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The blades shall be flat sections with standard AASHTO highway punching and as identified on the bid schedule, shall be one of the following standard sizes:

2-r: 5/8 inch diameter bolts	2-s: 3/4 inch diameter bolts
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LOT THREE: REGULAR FLAT BLADES / HIGH CARBON

- Blades shall be high carbon with a Rockwell hardness of 24 to 36 or a Brinell hardness of 247 to 337.
- Blades shall be either top punched or center punched, as specified in the order.
- Blades shall have the following bolt hole spacing: the first two holes on each end of the blade shall be 3" inches apart; the remaining holes shall be 6" inch apart (3-3-6-6).
- Bolt holes shall be square and countersunk.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

3-a: 9 feet	3-b: 10 feet	3-c: 12 feet	3-d: 14 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

3-e: 5 inches	3-f: 6 inches	3-g: 8 inches
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The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

3-h: 5/8 inch	3-i: 3/4 inch	3-j: 7/8 inch	3-k: 1 inch
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The blades shall be flat sections with standard AASHTO highway punching and as identified on the bid schedule, shall be one of the following standard sizes:

3-l: 5/8 inch diameter bolts	3-m: 3/4 inch diameter bolts
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LOT FOUR: SCARIFIER BLADES WITH 1.4" TOOTH WIDTH

- Blades shall be heat treated, through hardened with a Rockwell hardness of 38 to 50 or a Brinell hardness of 357 to 488.
- Blades shall be either top punched as specified in the order.
- Blades shall have 1.4 inch tooth width
- Blades shall have the following bolt hole spacing: the first two holes on each end of the blade shall be 3" inches apart; the remaining holes shall be 6" inches apart (3-3-6-6).
- Bolt holes shall be square and countersunk.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

4-a: 3 feet	4-b: 4 feet	4-c: 6 feet	4-d: 7 feet	4-e: 8 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

4-f: 8 inches

The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

4-g: 3/4 inch	4-h: 1 inch
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The blades shall be curved, double bevel sections, with standard AASHTO highway punching and as identified on the bid schedule, shall be one of the following standard sizes:

4-i: 5/8 inch	4-j: 3/4 inch
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The teeth shall be of straight design with 1 inch spacing. The teeth shall be 1.4 inch wide and as identified on the bid schedule shall be one of the following standard sizes:

4-k: 1.4 inches long	4-l: 2.5 inches long	4-m: 4.25 inches long
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LOT FIVE: SCARIFIER BLADES WITH 2.5" TOOTH WIDTH

- Blades shall be heat treated, through hardened, with a Rockwell hardness of 38 to 50 or a Brinell hardness of 357 to 488.
- Blades shall be either top punched as specified in the order.
- Blades shall have 2.5 inch tooth width.
- Blades shall have the following bolt hole spacing: the first two holes on each end of the blade shall be 3" inches apart; the remaining holes shall be 6" inches apart (3-3-6-6).
- Bolt holes shall be square and countersunk.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

5-a: 3 feet	5-b: 4 feet	5-c: 6 feet	5-d: 7 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

5-e: 8 inches

The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

5-f: 5/8 inch	5-g: 3/4 inch	5-h: 1 inch
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The blades shall be curved, double bevel sections, with standard AASHTO highway punching and as identified on the bid schedule, shall be one of the following standard sizes:

5-i: 5/8 inch	5-j: 3/4 inch
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The teeth shall be of straight design with 1-1/2" spacing. The teeth shall be 2.5 inch wide and as identified on the bid schedule shall be one of the following standard sizes:

5-k: 2.5 inches long	5-l: 4.25 inches long
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LOT SIX: SINGLE CARBIDE INSERT BLADES

- Blades shall be flat, hot rolled steel, must meet or exceed grade SAE 1020 specifications.
- Blades shall be top punched 1.5" inches from the top of the blade to the center of the line of bolt holes.
- The first two holes on each end of the blade shall be 3" inches apart, center-to-center, the remaining holes shall be 6" inches apart center-to-center. Example: (3"-3"-6"-6"-6"-6"-3"-3").
- The slots for the carbide inserts shall be milled in the center of the blade edge.
- The inserts shall be high shock WC grade Tungsten Carbide with 11% to 12.5% cobalt content.
- The carbide density shall be 14.1 (min.) to 14.6 (max.) gms/cc.
- The carbide insert hardness shall be from 87.5 (min.) to 89.0 (max.) on the Rockwell "A" scale.
- The inserts shall be of trapezoidal design and measure approximately .635" inches high x .365" inches thick x 1" inch long.
- The bottom angle shall be 25 degrees with a 1/16" inch minimum nose radius.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

6-a: 3 feet	6-b: 4 feet	6-c: 5 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

6-d: 5 inches	6-e: 6 inches	6-f: 8 inches
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The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

6-g: 3/4 inch	6-h: 7/8 inch	6-i: 1 inch
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The blades shall be punched with square countersunk holes and as identified on the bid schedule, shall be one of the following standard sizes:

6-j: 5/8 inch diameter bolts	6-k: 3/4 inch diameter bolts
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LOT SEVEN: DUAL CARBIDE INSERT BLADES

- Blades shall be flat, hot-rolled steel, must meet or exceed SAE 1020 specifications.
- Blades shall be top punched 1.5" inches from the top of the blade to the center of the line of bolt holes. The first two holes on each end of the blade shall be 3" inches apart, center-to-center, the remaining holes shall be 6" inches apart center-to-center. Example: (3"-3"-6"-6"-6"-6"-3"-3").
- The top edge of the blade (opposite the carbide edge) shall be beveled at a 32 degree angle leaving an approximately .34 inch blunt dimension at the end of the blade to fit to motor grader moldboards.
- There shall be two rows of Tungsten carbide inserts brazed into an open-faced recess along the entire bottom edge of the blade.
- The front row of inserts shall be rectangular and measure approximately .75" inches high x .32" inches thick with each insert approximately 2" inches long.
- The front row of inserts shall be a grade SP341 Macro crystalline type WC, tungsten carbide insert with a hardness of 83.5 - 85.0 on the Rockwell "A" scale.
- The second rear row of inserts shall be trapezoidal and measure approximately .63" inches high x .38" inches thick with each insert approximately 1" inch long.
- The bottom angle shall be 25 degrees with a 1/16"inch minimum nose radius.
- The second row of inserts to be a high shock WC grade of tungsten carbide with 11% to 12.5% cobalt content with a hardness from 87.5 (min.) to 89.0 (max.) on the Rockwell "A" scale.
- Blade thickness shall be 7/8 inch.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

7-a: 2 feet	7-b: 3 feet	7-c: 4 feet	7-d: 5 feet	7-e: 6 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

7-f: 5 inches	7-g: 6 inches	7-h: 8 inches
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The thickness of the blade identified on the bid schedule shall be the following standard size:

7-i: 7/8 inch

The blades shall be punched with square countersunk holes and as identified on the bid schedule, shall be one of the following standard sizes:

7-j: 5/8 inch diameter bolts	7-k: 3/4 inch diameter bolts
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LOT EIGHT: SINGLE CARBIDE INSERT BLADES-CURVED

- Blades shall be curved, hot rolled steel, must meet or exceed grade SAE 1020 specifications.
- Blades shall be top punched 1.5" inches from the top of the blade to the center of the line of bolt holes.
- The first two holes on each end of the blade shall be 3" inches apart, center-to-center, the remaining holes shall be 6" inches apart center-to-center. Example: (3"-3"-6"-6"-6"-6"-3"-3").
- The slots for the carbide inserts shall be milled in the center of the blade edge.
- The inserts shall be high shock WC grade Tungsten Carbide with 11% to 12.5% cobalt content.
- The carbide density shall be 14.1 (min.) to 14.6 (max.) gms/cc.
- The carbide insert hardness shall be from 87.5 (min.) to 89.0 (max.) on the Rockwell "A" scale.
- The inserts shall be of trapezoidal design and measure approximately .635" inches high x .365" inches thick x 1" inch long.
- The bottom angle shall be 25 degrees with a 1/16" inch minimum nose radius.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

6-a: 3 feet	6-b: 4 feet	6-c: 5 feet	6-d: 6 feet
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The width of the blade identified on the bid schedule shall be one of the following standard sizes:

6-d: 5 inches	6-e: 6 inches	6-f: 8 inches
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The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

6-g: 3/4 inch	6-h: 7/8 inch	6-i: 1 inch
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The blades shall be punched with square countersunk holes and as identified on the bid schedule, shall be one of the following standard sizes:

6-j: 5/8 inch diameter bolts	6-k: 3/4 inch diameter bolts
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LOT NINE: CATERPILLAR PART NUMBER 109-3124 ONLY

All blades in this lot are brand specific.

Only **Caterpillar Inc. Part Number 109-3124** will be accepted.

No substitutions.

LOT TEN-A: SIX FOOT LONG SINGLE CARBIDE INSERT BLADES

- Blades shall be flat, hot rolled steel, must meet or exceed grade SAE 1020 specifications.
- Blades shall be top punched 1.5" inches from the top of the blade to the center of the line of bolt holes.
- The first two holes on each end of the blade shall be 3" inches apart, center-to-center, the remaining holes shall be 6" inches apart center-to-center. Example: (3"-3"-6"-6"-6"-6"-3"-3").
- The slots for the carbide inserts shall be milled in the center of the blade edge.
- The inserts shall be high shock WC grade Tungsten Carbide with 11% to 12.5% cobalt content.
- The carbide density shall be 14.1 (min.) to 14.6 (max.) gms/cc.
- The carbide insert hardness shall be from 87.5 (min.) to 89.0 (max.) on the Rockwell "A" scale.
- The inserts shall be of trapezoidal design and measure approximately .635" inches high x .365" inches thick x 1" inch long.
- The bottom angle shall be 25 degrees with a 1/16" inch minimum nose radius.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be the following standard size:

10A-a-c: 6 feet

The width of the blade identified on the bid schedule shall be one of the following standard sizes:

10A-b: 6 inches

10A-c: 8 inches

The thickness of the blade identified on the bid schedule shall be one of the following standard sizes:

10A-d: 3/4 inch

10A-e: 7/8 inch

The blades shall be punched with square countersunk holes and as identified on the bid schedule, shall be one of the following standard sizes:

10A-f: 5/8 inch diameter bolts

10A-g: 3/4 inch diameter bolts

LOT TEN-B: SIX FOOT LONG DUAL CARBIDE INSERT BLADES

- Blades shall be flat, hot-rolled steel, must meet or exceed SAE 1020 specifications.
- Blades shall be top punched 1.5" inches from the top of the blade to the center of the line of bolt holes. The first two holes on each end of the blade shall be 3" inches apart, center-to-center, the remaining holes shall be 6" inches apart center-to-center. Example: (3"-3"-6"-6"-6"-6"-3"-3").
- The top edge of the blade (opposite the carbide edge) shall be beveled at a 32 degree angle leaving an approximately .34 inch blunt dimension at the end of the blade to fit to motor grader moldboards.
- There shall be two rows of Tungsten carbide inserts brazed into an open-faced recess along the entire bottom edge of the blade.
- The front row of inserts shall be rectangular and measure approximately .75" inches high x .32" inches thick with each insert approximately 2" inches long.
- The front row of inserts shall be a grade SP341 Macro crystalline type WC, tungsten carbide insert with a hardness of 83.5 - 85.0 on the Rockwell "A" scale.
- The second rear row of inserts shall be trapezoidal and measure approximately .63" inches high x .38" inches thick with each insert approximately 1" inch long.
- The bottom angle shall be 25 degrees with a 1/16"inch minimum nose radius.
- The second row of inserts to be a high shock WC grade of tungsten carbide with 11% to 12.5% cobalt content with a hardness from 87.5 (min.) to 89.0 (max.) on the Rockwell "A" scale.
- Blade thickness shall be 7/8 inch.

In addition to the above, and, as identified on the bid schedule:

The length of the blade identified on the bid schedule shall be one of the following standard sizes:

10B-a: 6 feet

The width of the blade identified on the bid schedule shall be one of the following standard sizes:

10B-b: 6 inches

The thickness of the blade identified on the bid schedule shall be the following standard size:

10B-c: 7/8 inch

The blades shall be punched with square countersunk holes and as identified on the bid schedule, shall be one of the following standard sizes:

10B-d: 5/8 inch diameter bolts