Accusize Industrial Tools 2104-1010x10

Accusize Industrial Tools DCMT21.51 TiN Coated Carbide Inserts User Manual

1. Introduction

This manual provides essential information for the proper use, installation, operation, and maintenance of Accusize Industrial Tools DCMT21.51 TiN Coated Carbide Inserts. These inserts are designed for precision turning and finishing applications in various industrial settings. Please read this manual thoroughly before using the product to ensure safe and effective operation.



Image: A blue plastic box containing 10 golden TiN coated carbide inserts, labeled 'Accusize Industrial Tools 6104-1010 / DCMT21.51'.

2. Key Features

The Accusize DCMT21.51 TiN Coated Carbide Inserts offer several advantages for machining operations:

- **Quantity:** Supplied in a box of 10 pieces (Model 2104-1010).
- **Coating:** Features a durable TiN (Titanium Nitride) coating for enhanced wear resistance and extended tool life.
- **Grade:** C5 Grade Coated, suitable for a wide range of materials.
- **Standardization:** Conforms to ANSI: DCMT21.51 and ISO: DCMT070204 standards.
- **Design:** 55° rhombic shape with a 7° positive clearance, optimized for efficient turning and finishing applications.

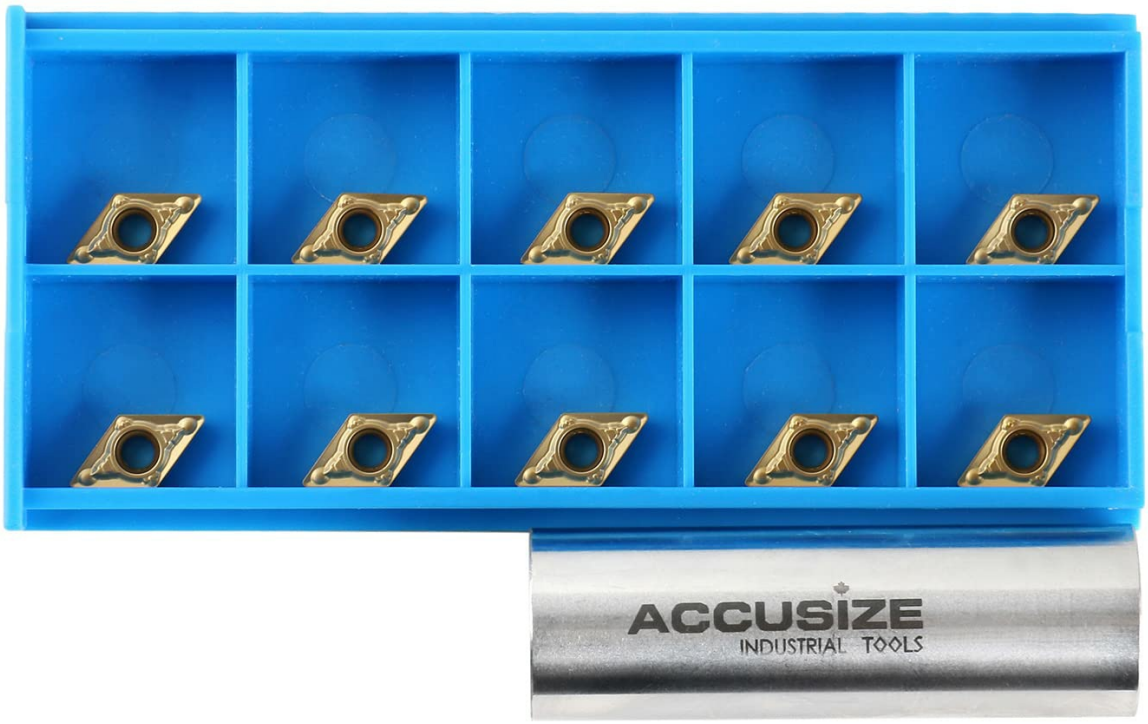


Image: A top-down view of the 10 carbide inserts neatly arranged within their blue plastic storage case.



Image: A single DCMT21.51 carbide insert placed beside a Canadian dollar coin, illustrating its compact size.

3. Specifications

Attribute	Detail
Model Number	2104-1010x10
ANSI Designation	DCMT21.51
ISO Designation	DCMT070204
Coating	TiN Coated
Grade	C5 Grade Coated
Shape	55° Rhombic
Clearance Angle	7° Positive
Product Dimensions	1.57 x 0.79 x 3.94 inches (Box)
Item Weight	0.71 ounces
Manufacturer	Accusize Co., Ltd.



Image: The reverse side of the product packaging, displaying detailed specifications and safety warnings for the carbide inserts.

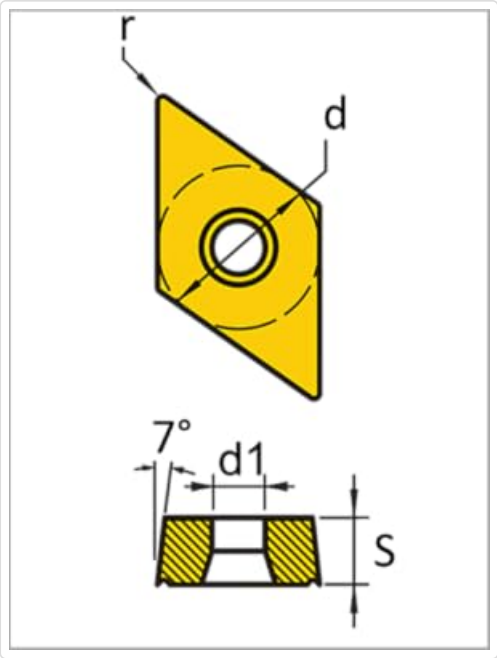


Image: A technical drawing illustrating the key dimensions of a DCMT insert, including inscribed circle diameter (d), hole diameter (d1), thickness (s), and nose radius (r).

4. Setup and Installation

Accusize DCMT21.51 inserts are designed for use with compatible tool holders, such as the SDNCN type. Proper installation is crucial for optimal performance and safety.

1. **Select the Correct Tool Holder:** Ensure your turning tool holder is compatible with DCMT inserts. The Accusize 7 pc/set Indexable Carbide Turning Tool Set, specifically the SDNCN tool holder, is a suitable match.
2. **Clean the Holder Pocket:** Before inserting, ensure the insert pocket on the tool holder is clean and free of debris, chips, or coolant residue. This ensures proper seating of the insert.
3. **Position the Insert:** Place the DCMT21.51 insert into the tool holder pocket, aligning the central hole with the screw hole on the holder.
4. **Secure the Insert:** Use the appropriate screw and wrench (typically provided with the tool holder) to securely fasten the insert. Tighten the screw firmly but do not overtighten, as this can damage the insert or holder.
5. **Verify Seating:** After tightening, visually inspect the insert to ensure it is seated flush and stable in the holder pocket, with no gaps or wobbling.



Image: A diagram illustrating different types of tool holders, including the SDNCN type, which is compatible with DCMT inserts.



Image: A close-up view of an Accusize tool holder with a DCMT carbide insert properly installed and secured.

5. Operation Guidelines

These TiN coated carbide inserts are designed for efficient turning and finishing. Follow these guidelines for optimal performance:

- **Material Compatibility:** These inserts are suitable for turning various materials, particularly steel, due to their TiN coating and C5 grade.
- **Cutting Parameters:** Refer to the recommended cutting parameters for steel on the product packaging:
  - **Cutting Speed (Vc):** 262 - 590 surface feet per minute (sfm)
  - **Axial Depth of Cut (ap):** 0.012 - 0.118 inches
  - **Feed Rate (f):** 0.002 - 0.006 inches per revolution (ipr)
- **Insert Rotation:** When a cutting edge becomes dull, simply rotate the insert in the holder to expose a fresh, sharp edge. This maximizes the lifespan of each insert.
- **Coolant Use:** For best results and extended tool life, use appropriate coolant during machining operations.
- **Safety Precautions:** Always wear appropriate personal protective equipment (PPE), including safety glasses and gloves, during operation. Ensure adequate ventilation.



Image: A detailed view of ten individual DCMT21.51 TiN coated carbide inserts, highlighting their rhombic shape and central hole.

6. Care and Maintenance

Proper care and maintenance will prolong the life of your carbide inserts and ensure consistent performance:

- **Cleaning:** After use, clean inserts to remove any chips, swarf, or coolant residue. A soft brush or compressed air can be used.
- **Storage:** Store inserts in their original protective packaging in a dry, clean environment to prevent damage and corrosion.
- **Handling:** Handle inserts carefully to avoid chipping or damaging the cutting edges. Carbide is brittle and can break if dropped or mishandled.
- **Safety Warning:** Grinding of carbide inserts produces hazardous dust. Always use adequate ventilation and wear appropriate respiratory protection, eye protection, and gloves when handling or grinding these tools. Refer to the Material Safety Data Sheet (MSDS) for more information.



Image: A side profile view of several DCMT21.51 carbide inserts, showing their thickness and geometry.

7. Troubleshooting

If you encounter issues during the use of your carbide inserts, consider the following common problems and solutions:

- **Poor Surface Finish:**
  - Check if the cutting edge is dull; rotate the insert to a fresh edge.
  - Verify that cutting parameters (speed, feed, depth of cut) are appropriate for the material and operation.
  - Ensure the insert is securely fastened in the tool holder.
  - Check for proper coolant application.
- **Short Tool Life:**
  - Ensure cutting parameters are within recommended ranges. Excessive speed or feed can lead to premature wear.

- Verify proper chip evacuation; chip buildup can cause excessive heat and wear.
- Confirm the correct insert grade and coating for the material being machined.
- Ensure adequate coolant flow.

- **Insert Chipping or Breakage:**
  - Check for excessive vibration in the machine or workpiece setup.
  - Ensure the insert is not overtightened in the holder.
  - Verify that the depth of cut is not too aggressive for the insert and material.
  - Inspect the tool holder for damage or wear that could affect insert seating.

8. Warranty Information

Specific warranty details for Accusize Industrial Tools DCMT21.51 TiN Coated Carbide Inserts are not provided in this manual. For information regarding product warranty, please refer to the product packaging, the manufacturer's official website, or contact Accusize Industrial Tools customer support directly.

9. Customer Support

For further assistance, technical inquiries, or to report any issues with your Accusize Industrial Tools DCMT21.51 TiN Coated Carbide Inserts, please contact Accusize Industrial Tools customer support.

You can often find contact information on the product packaging or by visiting the official Accusize Industrial Tools store page:

Accusize Industrial Tools Store on Amazon

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