MULTICAM
A Kongsberg PCS Company

PM100 CNC Router

MULTICAM PM100 CNC Router User Manual

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Product Information

Specifications:

- Product Name: CNC Router
- Application: Signage production, custom furniture production, prototype manufacturing
- Materials: Wood, acrylic, aluminum, non-ferrous metals, foam, etc.
- Features: High precision, versatility, can engrave, carve, cut out letters and shapes

Product Usage Instructions

Signage Production

Signage production is a popular application for CNC routers due to their high precision and versatility in handling different materials. Here are some ways to utilize your CNC router for signage production:

Materials used in signage

- **Engraved Signs:** Utilize CNC routers to engrave intricate designs, text, and logos into materials like wood, acrylic, aluminum, etc., for detailed and durable signs.
- **3D Signs:** Create 3D signs by carving designs out of materials to add a tactile element and depth to the design.
- **Cut-Out Letters and Shapes:** Precisely cut out letters and shapes from various materials to create custom signs with individual letters or logos attached.
- **Wayfinding and Informational Signage:** Use CNC routers to create durable and aesthetically pleasing wayfinding and informational signs for public spaces.

Custom Furniture Production

CNC routers can also be used for custom furniture production. Here's how you can leverage your CNC router for this purpose:

Applications of custom furniture production

- **Creating Detailed Designs:** Program CNC machines to carve intricate designs into furniture pieces for decorative details.
- **Joinery:** Utilize CNC machines to create different types of furniture joints with precision for strong and high-quality furniture.
- **Drilling and Boring:** Perform precise drilling and boring operations for hardware fittings.
- **Creating Templates:** Use CNC machines to create templates or jigs for consistency in production processes.

Prototype Manufacturing
CNC routers are beneficial for prototype manufacturing. Here's how you can make the most of your CNC router for prototyping:

- Create rapid, accurate, and high-quality prototypes from various materials.
- Offer cost-effective and flexible solutions for designers, engineers, and product developers.

Frequently Asked Questions (FAQ)

- **Q: Can a CNC router work with materials other than wood?**
  A: Yes, CNC routers can work with a variety of materials including acrylic, aluminum, non-ferrous metals, and foam.

Signage Production

Signage production is popular application for CNC routers due to their high precision and versatility in handling different materials. They can be used to create both indoor and outdoor signs in a wide variety of styles and sizes.

Materials used in signage

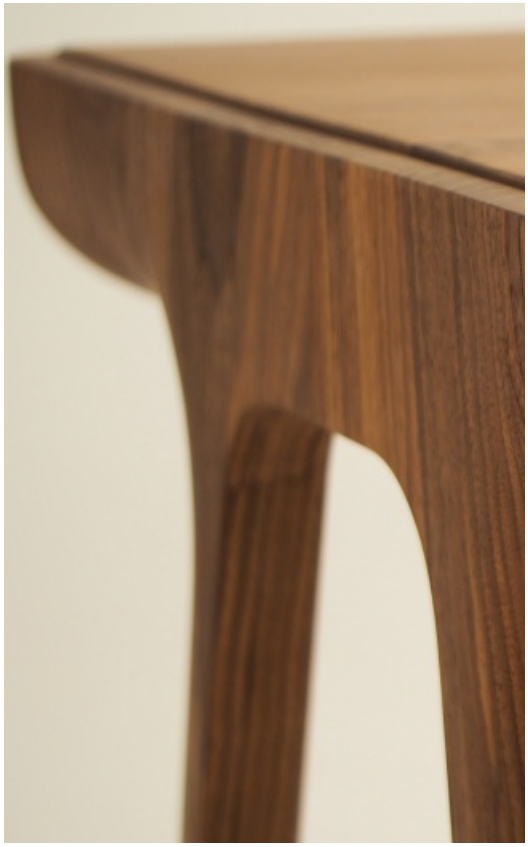
- **Engraved Signs:** CNC routers can engrave intricate designs, text, and logos into a variety of materials, including wood, acrylic, aluminum, and more. This is ideal for creating detailed and durable signs.

- **3D Signs:** With a CNC router, 3D signs can be made by carving designs out of a material. These types of signs offer a tactile element and add a level of depth to the design.
- **Cut-Out Letters and Shapes:** CNC machines can precisely cut out letters and shapes from a variety of materials, making it possible to create custom signs with individual letters or logos attached to a backing material or mounted directly on a wall. CNC machines can also be used to create the front panels of illuminated signs, including cutting out the design that will be lit.
- **Wayfinding and Informational Signage:** In public spaces like parks, hospitals, and schools, CNC machines can create durable, easy-to-read, and aesthetically pleasing wayfinding and informational signs.

Signage applications
CNC routers can work with a broad range of materials that are commonly used for signs:

- wood
- acrylic & plexiglass
- aluminum & other nonferrous metals
- foam

Custom Furniture Production



Companies can use CNC routers to produce high-quality custom furniture pieces that can be sold at a premium price.
CNC routers can work with a wide variety of materials, including various types of wood, acrylics, and non-ferrous metals. This gives customers a wide range of choices and allows for significant customization.
CNC machines are crucial in the custom furniture industry, enabling the creation of intricate designs, precise cuts, and perfect fits that can be consistently reproduced.

Applications of custom furniture production

Creating Detailed Designs: CNC machines can be programmed to carve intricate designs into the surfaces of furniture pieces, such as decorative details on table tops or chair backs, or the intricate patterns found in more ornate styles of furniture. Joinery: CNC machines can create different types of furniture joints with great precision. This includes dovetail joints, mortise and tenon joints, and more. The accuracy of the CNC machine ensures that the joints fit together perfectly, creating strong and high-quality furniture. Drilling and Boring: CNC machines can perform precise drilling and boring operations, such as creating holes for dowels or screws, or drilling the recesses for hinges and other hardware. Creating Templates: In some cases, CNC machines can be used to create templates or jigs. These can then be used in the production process to ensure consistency, especially in a production line that includes manual processes.

Prototype Manufacturing

Prototyping is a critical stage in the development process of new products. CNC routers can help to create rapid, accurate, and high-quality prototypes from a variety of materials, offering a cost-effective and flexible solution to designers, engineers, and product developers.

Materials used in prototyping

- **Wood and MDF:** These materials are commonly used in the early stages of prototyping when the focus is on the form and size of the object. They are cost-effective and easy to work with.
- **Plastics:** This includes materials like ABS, acrylic, PVC, and polycarbonate. Plastics are often used in prototyping for consumer products, electronics casings, and more because they can provide a closer approximation of the final product.
- **Foam:** It can be used for creating large prototypes or models, especially in the architectural or automotive industries.
- **Non-Ferrous Metals:** Materials like aluminum, brass, and copper can be used when the prototype needs to closely match the properties of the final product.

Architecture Model Making

CNC routers have transformed the field of architectural model making by making it possible to create precise, detailed models quickly and cost-effectively. They can handle a wide variety of materials, making them versatile

tools for this application:

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Engraving Services
With a CNC machine, a company can offer custom engraving services to a wide variety of clients, from businesses to individual customers, making it a versatile and potentially profitable service.

CNC machines can create precise and custom designs on various materials (wood, non-ferrous metals, stone, glass, acrylics…) that would be difficult or time-consuming to do manually.

Examples of items that can be engraved
Promotional products, personalized gifts, industrial applications (serial numbers, barcodes, or other identifying information), awards & trophies, memorials.

Custom Coffin Design

Using a CNC machine to create custom coffins allows businesses to offer a unique, personalized touch to a product that traditionally has limited customization options. A CNC machine can be used to cut and engrave a wide range of materials, enabling a high degree of customization in coffin design.

Materials

- **Wood:** Most traditional coffins are made from wood, and a CNC machine can be used to create intricate designs or personal inscriptions on a wooden coffin. Types of wood used can range from lower-cost options such as pine or oak, to premium hardwoods like mahogany or walnut.
- **MDF or Plywood:** For more cost-effective options, MDF or plywood can be used. These materials can still be customized and engraved with a CNC machine, but are less expensive than solid wood.

Designing & Selling 3D Wall Panels

3D wall panels are a trendy and eye-catching way to add texture, depth, and interest to a room.
They can be created in an almost infinite variety of designs and made from different materials, making them a versatile decor option.

Materials used in 3D wall panel production

- **Wood and MDF:** Wood or Medium-Density Fiberboard (MDF) can be used to create warm and inviting 3D wall panels. They can be left natural, stained, or painted, offering a wide range of finishes.
- **Acrylics and Plastics:** These materials offer a modern, sleek look and can be used to create more contemporary designs. They're also easy to clean and maintain.
- **Aluminum and Other Non-Ferrous Metals:** Metal panels can provide a more industrial or high-end look. They're also durable and easy to clean.

Boat Building

CNC machines have become an integral part of modern boat building. Their high precision and consistency, as well as the ability to work with a wide range of materials, make them perfect for creating various components of boats.

Materials used in boat building

- **Wood:** This traditional boat building material is still widely used today, especially for interior components and on smaller crafts. CNC machines can easily work with wood to create intricate designs and precise cuts.
- **Plywood:** Plywood is often used in modern boat building due to its relative affordability and strength. A CNC machine can cut plywood into the exact shapes needed for boat parts, ensuring a perfect fit.
- **Foam:** High-density foam can be used to create lightweight, buoyant parts. CNC machines can precisely shape this foam, and it can then be coated in fiberglass or another material for added strength.
- **Non-Ferrous Metals:** Materials like aluminum are commonly used in boat building, particularly for components like hulls on certain types of boats. CNC machines can accurately cut and shape these materials.

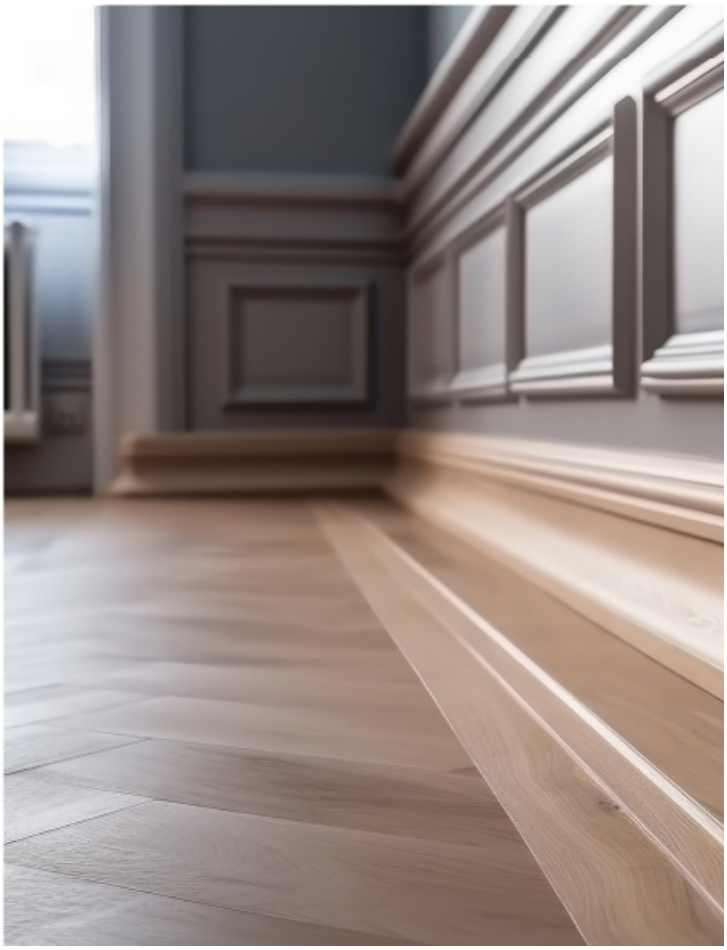
Creating Molds
CNC routers can be used to create molds for mass production of items in industries like ceramics, plastics, and others.

Creating molds with a CNC machine has revolutionized many industries, from manufacturing to entertainment. The precision, repeatability, and speed offered by CNC machines make them perfect for creating complex and detailed molds.

A wide range of materials can be used for molds: aluminum, wood and MDF, High- Density Urethane (HDU) Foam, plastics. CNC routed molds are part for injection molding, vacuum forming, concrete casting, fiberglass molding etc.

Restoration Work

CNC machines have become an invaluable tool in restoration work due to their ability to recreate parts with high precision and replicate historical designs that might be impossible to produce manually.



Whether it’s restoring old buildings, vintage cars, antiques, or any other items, CNC machines can help to recreate parts that are no longer available or repair parts that are damaged.

Materials used in restoration

- **Wood:** For restoration of old furniture, historic buildings, or vintage boats, CNC machines can work with various types of wood to recreate detailed pieces or larger structural elements.
- **Metals:** In the restoration of vintage cars or machinery, a CNC machine can cut and shape non-ferrous metals to create parts that are no longer in production.
- **Plastics:** For items such as vintage radios, toys, or other memorabilia, CNC machines can be used to carve plastics to replace damaged or missing parts.

Crafting Stamps and Dies

Crafting stamps and dies is a niche application for CNC machines, but one that offers a lot of potential for custom and artisanal products. Both stamps and dies are tools used to shape or imprint a design onto another material.

Applications of CNC Machines in crafting stamps and dies

- **Custom Stamps:** CNC machines can be used to carve intricate designs into rubber or other materials to create custom stamps. These could be used for personalizing stationery, branding products, or making crafts.
- **Embossing Dies:** Embossing dies are used to create a raised design on paper, leather, or other materials. CNC machines can be used to carve the design into a piece of metal or other material.
- **Cutting Dies:** Cutting dies are used to cut a particular shape out of a material, like paper or fabric. CNC machines can be used to create highly precise cutting dies in a variety of shapes.
- **Hot Foiling Stamps/Dies:** These are used in conjunction with a hot foiling machine to transfer metallic foil onto a material, usually paper or leather. The CNC machine can create a custom stamp or die from a metal like brass.

Specialty Manufacturing for Artists

Many artists may need precision parts for installations, sculptures, or other art pieces.

CNC machines can be a boon to artists, helping them to create intricate, precise, and reproducible works of art in a variety of mediums. Whether an artist is working in two dimensions or three, a CNC machine can bring their vision to life with precision and repeatability that would be impossible to achieve by hand.

Applications of CNC Machines in art production

- **Sculpture:** Artists can use CNC machines to create intricate three-dimensional pieces with a high degree of precision.
- **Engraving & Etching:** CNC machines can be used to engrave or etch detailed designs onto the surface of a variety of materials, adding depth and texture to a piece of art.
- **Relief Carving:** A CNC machine can be used to create a relief carving, a type of work where the design is carved into the surface of a material, creating a 3D effect.
- **Installation Art:** Artists creating large-scale installations can use CNC machines to fabricate parts of their works, whether it's cutting shapes out of sheet materials or creating large, carved elements.
- **Replication:** If an artist needs to create multiples of the same piece – for instance, for a series or an edition – a CNC machine can ensure that each piece is exactly like the others.

Automotive Parts

Companies can specialize in making custom or hard-to-find parts for cars and motorcycles.

CNC machining plays a critical role in the creation of custom or hard-to-find automotive parts. These may be parts for older models where replacements are no longer available, parts for custom-built or modified vehicles, or parts that have been designed for performance or aesthetic enhancements.

Some applications

- **Classic Car Restoration:** Owners of classic or vintage cars often face difficulties in finding replacement parts. CNC machines can recreate these hard-to-find parts from original blueprints or by reverse-engineering an existing part.
- **Modified Vehicles:** Custom cars or heavily modified vehicles may require unique parts that are not mass-produced. CNC machines allow for the design and manufacture of these parts to the exact specifications of the modifier.
- **Aesthetic Enhancements:** Custom grilles, emblems, trim pieces, or other aesthetic enhancements can be produced with CNC machines to the exact design requested by the owner.

Kid-Friendly & Sustainable Wooden Toys

Creating eco-friendly and kid-friendly wooden toys is an excellent way to use a CNC router. This combines the desire of many parents to provide safe, non-toxic toys for their children, with an interest in sustainable and environmentally friendly products.

Some Examples

- **Puzzles:** From simple shape puzzles for toddlers to more complex jigsaw puzzles for older kids.
- **Blocks:** Building blocks of various shapes and sizes. These can be left plain, painted in bright colors, or even have letters and numbers engraved on them.
- **Model Kits:** For older kids, model kits of cars, airplanes, or buildings can be created. These would come with instructions and would provide not only a toy but also a fun project.
- **Educational Toys:** Many parents and educators appreciate toys that are fun but also provide educational value. This could include toys for learning the alphabet, numbers, shapes, or even more complex concepts for older children.
- **Artistic Toys:** Creative toys like simple musical instruments, drawing templates, or art-related puzzles can be crafted.
- **Playsets:** Small playsets, like a group of animals, a set of vehicles, or a little cityscape, can all be crafted from wood.

Production of Custom Doors and Windows
Highly customized or uniquely designed doors and windows can be produced using CNC routers. They enable precise and consistent fabrication of these items, even in complex designs, offering a wide range of customization possibilities.

Some applications

- **Custom Frames:** CNC machines can accurately manufacture window and door frames to any specification, ensuring a perfect fit and high-quality finish.
- **Engraving and Decorative Work:** Intricate designs, such as those seen on high-end wooden doors or in decorative window panels, can be created with a CNC router.
- **Hardware Openings:** Precise openings for hardware (hinges, handles, locks) can be cut into the door or window frame using a CNC machine.
- **Glazing Channels:** For windows, the CNC machine can create precise channels into which the glass will be fitted.
- **Panel Creation:** For panel doors, a CNC machine can create the panel grooves and the panels themselves.

Movie & Theater Set Design
CNC routers are becoming increasingly popular in the world of movie and theater set design due to their versatility, precision, and ability to quickly and efficiently produce parts of any size and complexity.

They can handle a variety of materials, making them suitable for a wide range of applications.

Some examples

- **Backdrops & Scenery:** CNC routers can be used to create large-scale backdrops or pieces of scenery. This can include anything from a realistic city skyline to an abstract, fantastical landscape.
- **Furniture:** Custom furniture can be created using a CNC machine, allowing set designers to match the style and period of the piece exactly.
- **Signage:** CNC machines can create custom signage for use in the set, from store signs to road signs to posters and billboards.
- **Detailed Engravings:** CNC machines can be used to engrave detailed patterns or designs onto set pieces, adding depth and interest.
- **Sculptures and Large 3D Elements:** Large blocks of foam or wood can be carved into intricate shapes to create statues, large props, or other 3D elements on the set.

Custom Display Cases

Creating custom display cases for museums, high-end stores, or collectors. CNC routers are integral in the production of custom display cases, often used for showcasing products in retail spaces, displaying personal collections at home, or exhibiting artifacts in museums. These display cases can be tailored to specific dimensions and design preferences, making each piece unique and purposeful.

Some applications

- **Custom Sizing:** One of the key advantages of CNC machining is the ability to produce cases in any desired size or shape, fitting the exact dimensions of the space or items to be displayed.
- **Intricate Design Work:** CNC machines can carve intricate designs into the frame or base of a display case, adding aesthetic value and making each piece unique.
- **Precision Cuts for Assembly:** CNC routers make precise cuts that ensure all pieces fit together perfectly. This is crucial for the professional look and stability of the case.
- **Grooves and Channels:** CNC machines can create grooves and channels where glass or acrylic panels will be inserted, ensuring a secure fit.
- **Mounting Options:** Depending on the design, a CNC machine can be used to create mounting options for the display case, such as wall-mounting brackets or base stand components.
- **Custom Shelves or Dividers:** Within the display case, custom shelves or dividers can be made using a CNC machine, tailored to the specific items that will be displayed.
- **Engraving:** Engraving services can be offered for personalization or branding purposes, adding a name, logo, or message to the display case.

Film & TV Props
CNC machines are indispensable in the film and TV industry, particularly for the creation of props. CNC routers provide an invaluable combination of precision, flexibility, and efficiency, allowing for the production of highly detailed and realistic props.

Some examples

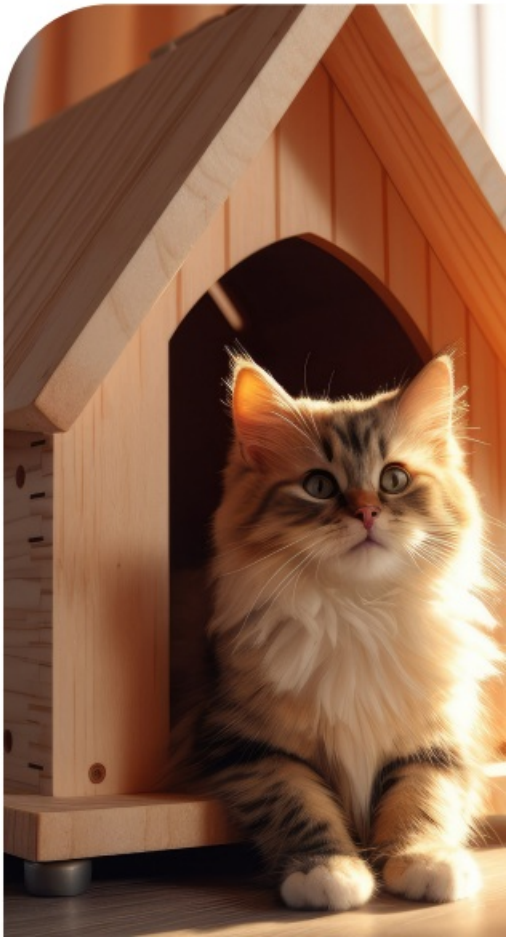
- **Set Pieces:** Large elements of a set, such as statues, architectural details, or large devices, can be created using a CNC machine.
- **Detailed Props:** Items that need intricate detailing, such as alien technology or ancient artifacts, can be

precisely machined using CNC technology.

- **Weapons:** Swords, shields, guns, and other weapons can be made from lightweight, safe materials using a CNC machine.
- **Model Making:** CNC machines are used to create models of larger set pieces or even entire sets for planning and visual effects reference.
- **Replicas:** For historical films or shows, accurate replicas of artifacts or period-specific items can be created.

Creating Pet Products

From custom pet beds to name tags, there is a market for bespoke pet products made with a CNC router.



CNC routers provide a great way to create a range of personalized items for pet owners. The versatility of these machines allows for creativity in design and the use of various materials.

Here’s how you can target the pet owner market

- **Custom Pet Tags:** Personalized pet tags can be created using a CNC router, including engraving the pet’s name, owner’s phone number, or any other specific details. These can be made from various materials like metal or plastic.
- **Pet Toys:** Durable pet toys, especially for dogs, can be created using materials such as hard plastics. Unique shapes or personalized features can make these items attractive to pet owners.
- **Pet Beds:** A CNC router can be used to create unique, custom-sized pet beds from materials such as wood. These can be personalized with the pet’s name or any other design preferred by the owner.
- **Bird Houses:** For bird owners or those who enjoy wild birds in their yards, customized birdhouses can be a great niche. These can be intricately designed with the help of a CNC router.

- **Pet Gates:** Pet owners often need gates to restrict their pets' movement around the house. Customized and personalized pet gates can be created using a CNC router.
- **Aquarium Decorations:** For fish owners, unique aquarium decorations can be created using a CNC router, making their aquariums stand out.
- **Pet Memorials:** Pet memorials, such as engraved plaques or headstones, can be a meaningful offering for pet owners who have lost their pets.

Leasing CNC Time
If the CNC router isn't being used full-time, the company can lease out time on it to other businesses or hobbyists. Leasing CNC time (also referred to as CNC machine time rental or CNC services), is a business model where companies who own CNC machines rent out usage time on these machines to other businesses / individuals who need CNC machining but don't have the necessary equipment or expertise. This can be a very profitable business model, given the high costs of purchasing, operating, and maintaining CNC machines.

Want to know more?
Visit www.multicam.com/contact to talk to one of our experts and find out how to choose the perfect CNC router.

www.multicam.com

Documents / Resources

	MULTICAM PM100 CNC Router [pdf] User Manual PM100 CNC Router, PM100, CNC Router, Router

References

- CNC Cutting Machines for Your Application & Budget | MultiCam - MultiCam Inc.
- Contact Us - MultiCam Inc.
- User Manual