cool-novo™

**Novetec Group Limited**
**諾維達有限公司**

Your Trustworthy And Affordable Medical And Sporting Lines

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# Manufacturing Process

## Freezer (Chilling) Unit

**REV. 1/2025**

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The Chilling Units are excellent addition to any collection of cold therapy products. These chilling units are economical and effective way to freeze and store packs, made to help you freeze vinyl and heavy-duty urethane cold packs as well as hot & cold compresses at the proper temperature. The packs keeping in the freezers are in a chilled ready-to-use state. These are front-loaded that provide fast and effective cold on packs.

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IEC certified, available in 2 chilling units, 1.13 cubic foot ( 32L) and 2.8 cubic foot ( 80L) capacity for your selection to plan on room for storing cold packs. Providing a smaller and a larger capacity unit is ideal for the busy clinic, department, athletic training room or emergency rooms.

The freezers maintain a therapeutic cold temperature range of -18C to 0C ( -0.4F to 32F)

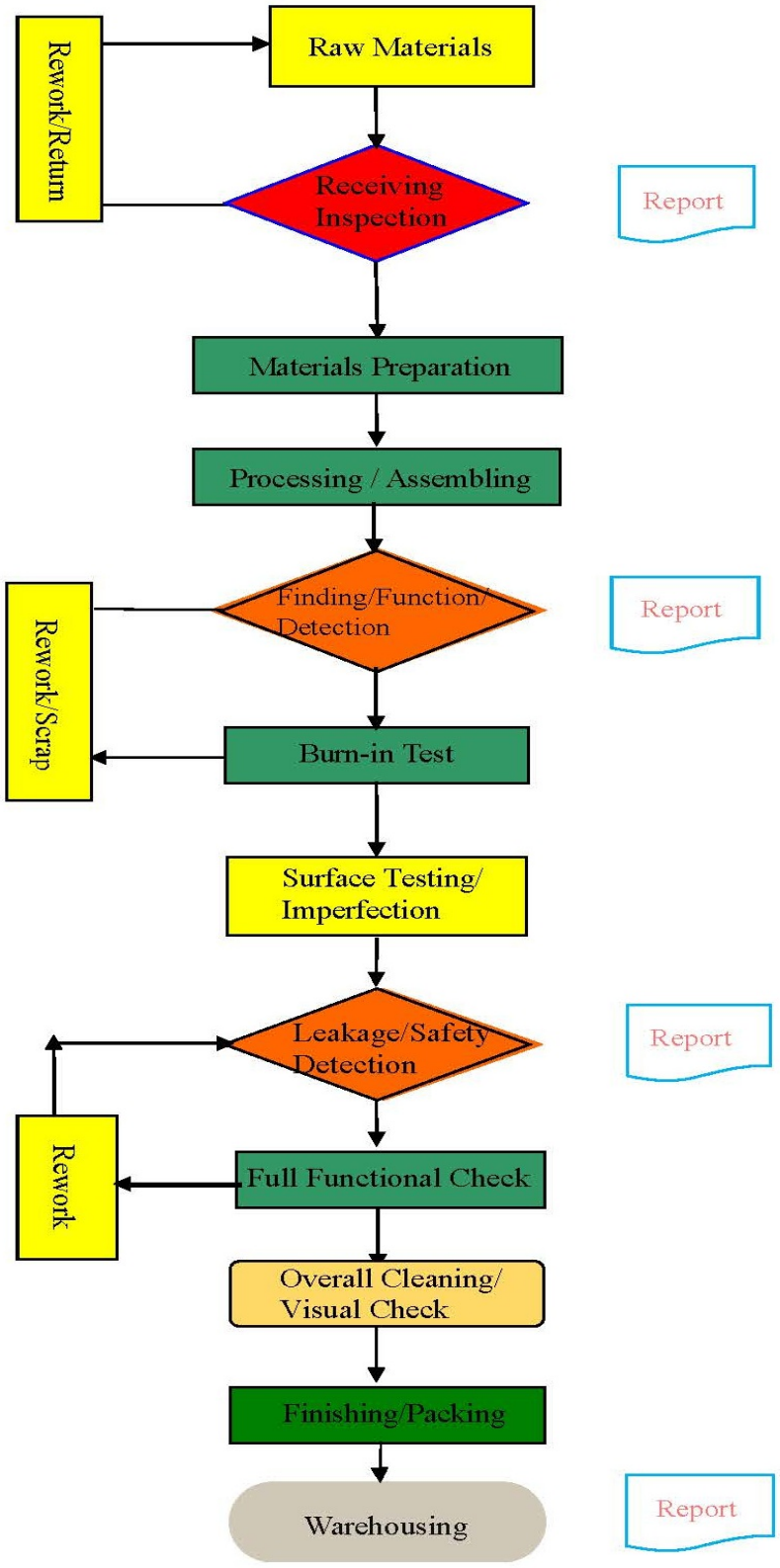
The freezers can always keep your cold packs frozen and ready for cold therapy treatment in any time with a freezer and chilling unit tucked conveniently away in your office.

# Manufacturing Process

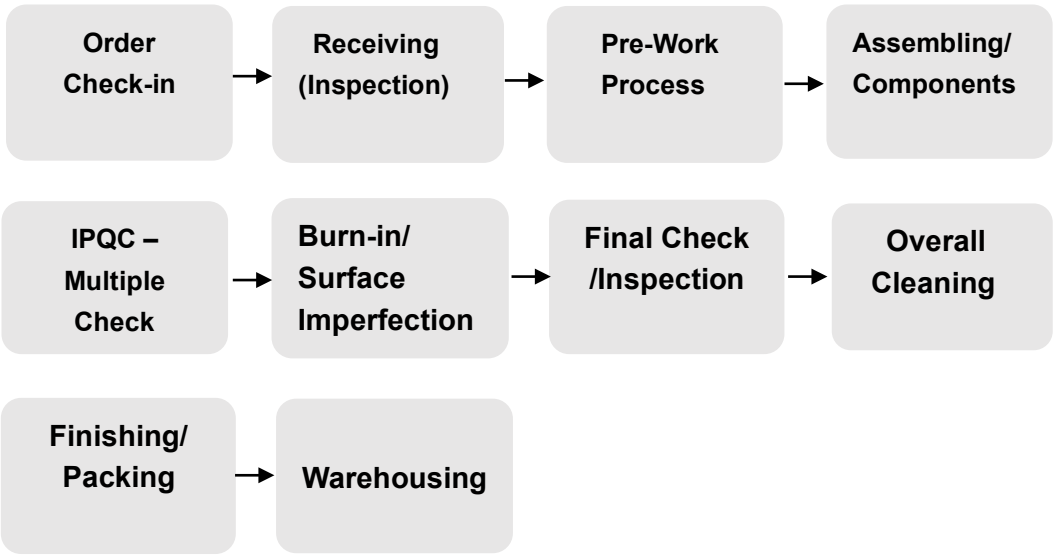
## Chilling Unit

| Key Process | Process Flow | Check Points / Criteria | Remarks |
|---|---|---|---|
| Receiving Order | Validate order quantity and relevant details | Check / prepare / ordering of all necessary materials / components | Alert suppliers on material quality and on time delivery |
| Receiving Inspection | IQC Sampling Inspection | Check all relevant materials as per BOM; specs and requirements | Record issue, if any, update and alert supplier. Reject and return any defective materials/components if found and recorded for tracabiltiy |
| Pre-Work | All relevant materials | Metal and alloy, frame and casing imperfection check.<br>Metal components for right types of screws and fastening mechanism.<br>Structure check and validate.<br>Insulation Materials: To enhance energy efficiency.<br>Refrigerants: Environmentally friendly options are preferred. | Checking as per specs and confirm to requirements |
| | Electrical Components / Wiring | Electrical Components: For the control systems and power supply. The cables, wires and all fastening mechanism are checked | Make sure all components are to specs and within allowable tolerances |
| | Assembly Equipment and Fabrication | Check and prepare all work tools / fixtures for assembling.<br>Cutting and Shaping: Using tools and machines to cut and shape metals and other materials. | Assembly line clean up and make ready for assembling and checking |
| Assembling | Straightly in accordance with the approval steps | Welding and Assembly: Joining metal parts to form the unit's frame.<br>Component Manufacturing: Producing heat exchangers, compressors, and evaporators.<br>Component Integration: Assembling the compressor, evaporator, condenser, and other pertinent parts.<br>Electrical Wiring: Installing the control systems and electrical wiring.<br>Refrigerant Charging: Filling the unit with the appropriate refrigerant. | All the steps are carefully processed and assembled |
| IPQC Multiple Check Points | As per the Testing Standards | Leak Detection: Checking for refrigerant leaks and ensuring airtight seals.<br>Performance Testing: Verifying that the unit meets cooling capacity and energy efficiency standards.<br>Safety Inspections: Ensuring compliance with safety regulations and standards. | Visual and equipment checking as to the requirements |
| Surface Testing / Imperfection | As per product requirements | Surface appearance for casing and assembled parts | Product should be up to the standard in appearance |
| Final Check | | Operate on-off durable check/ Burn-in Testing | All confirms to the specs |
| Overall Cleaning | Clean with specified detergent | Visual check | Strictly to the requirements |
| Finishing and Packing | Export grade carton with strapping as per the requirements | Finishing: Applying protectives and aesthetics visual checking and examination<br>Labeling: Attaching necessary labels and instructions.<br>Packaging: Safely packing the unit for transportation to prevent damage. | Strictly to the requirements |
| Distribution | The chilling units are ready for distribution as per scheduling | Logistics Planning: Coordinating the transportation and delivery to retailers or end-users.<br>Inventory Management: Ensuring adequate supply and tracking shipments. | Strictly to the requirements |

# Process Flowchart



## Process Flow, Major Steps:

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Manufacturing involves a series of meticulously planned steps to ensure efficiency, reliability, and safety.

## Essential Stages:

### 1. Fabrication of Components

The fabrication phase involves creating the various parts needed for the chilling unit:

- Cutting and Shaping: Using tools and machines to cut and shape metals and other materials.
- Welding and Assembly: Joining metal parts to form the unit's frame.
- Component Manufacturing: Producing heat exchangers, compressors, and evaporators.

### 2. Assembling

Once components are fabricated, the assembly process begins:

- Component Integration: Assembling of compressor, evaporator, condenser, and other necessary parts.
- Electrical Wiring: Installing of control systems, sensors and electrical wiring.
- Refrigerant Charging and Measurement: Filling the unit with appropriate refrigerant.

## 3. Testing and Quality Control

Before a chilling unit can be released, it must undergo intensive testing.

**Major Steps:**

- Leakage Detection: Checking for refrigerant leaks and ensuring airtight seals.
- Performance Testing: Verifying that the unit meets cooling capacity and energy efficiency standards.
- Safety Inspections: Ensuring compliance with safety regulations and standards.

## 4. Finishing and Packaging

- Finishing: Applying coatings or paint for protection and aesthetics.
- Labeling: Attaching necessary labels and instructions.
- Packaging: Safely packing the unit for transportation to prevent damage.

**END**

**REV. 1/2025**