



Nordic Freeze can save time and money when repairs or new installations are needed on piping systems. Nordic Freeze freezes the water in the pipe to form a temporary stop valve made of ice. With Nordic Freeze there is no need to drain the system or shut off the supplies, so you get through the work much faster and easier. Nordic Freeze is clean, fast and effective.



## General Information

The technique by which one or more temporary ice plugs are used to isolate sections of a piping system is recognized as the most effective method of maintenance and repair, eliminating totally the need to drain down the lines. Nordic Freeze is a simple, easy to use and economical pipe freezing system. The equipment permits freezes to be made on a wide variety of pipe sizes through 203mm (8") diameter. Nordic Freeze uses liquid carbon dioxide as the refrigerant which is stored in refillable cylinders. Nordic Freeze is widely used by building owners, hotels, hospitals, plant maintenance supervisors and service contractors.

Nordic Freeze equipment consists of a flexible, insulated nylon jacket, high pressure hose and siphon tube cylinder containing liquid carbon dioxide (CO<sub>2</sub>). The jacket is wrapped around the pipe to be frozen and then connected by the hose to the CO<sub>2</sub> cylinder. When the cylinder valve is opened, liquid CO<sub>2</sub> is discharged through the special jet in the jacket and forms solid CO<sub>2</sub> (dry ice) which is trapped by the insulated jacket and packs around the pipe. Because dry ice has an extremely low temperature of -78° C (-109° F), the water within the pipe is quickly frozen to form a secure ice plug.





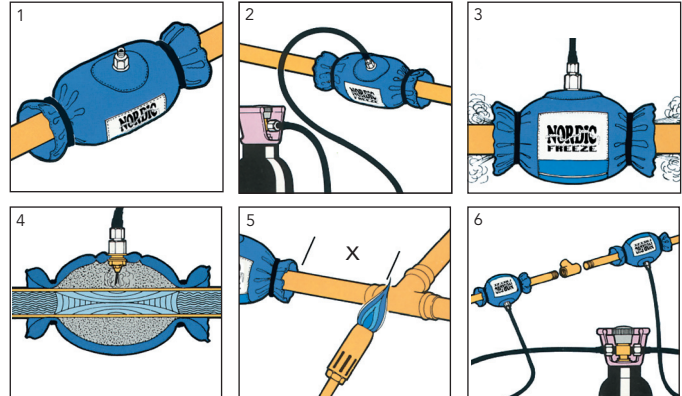
There is a range of six jackets to suit all pipe sizes through 203mm (8") diameter. Together with two cylinder capacities, carrying bag, protective gloves, high pressure hose, tee connector, safety glasses, rubber mallet, valve adapters and timing log, Nordic Freeze is a truly versatile maintenance package which saves valuable time and money. Nordic Freeze is economical to use. A single freeze on 12mm (1/2") diameter pipe will use about 454gm (1lb) of CO2. A full capacity cylinder should provide sufficient CO2 for 5 to 10 freezes on this pipe size.

**NOTE: Freeze times and CO2 consumption will vary and are dependent on room and water temperature. Use caution and always have extra CO2 on hand.**



Average Freezing Times For Different Pipe Sizes

Pipe Size	Total Time Required
12mm (1/2")	8 Minutes
19mm (3/4")	8 Minutes
25mm (1")	18 Minutes
38mm (1 1/2")	24 Minutes
50mm (2")	30 Minutes
76mm (3")	84 Minutes
101mm (4")	124 Minutes



## Portable Pipe Freezing Process

1. The high pressure hose is connected between the jacket and the CO2 cylinder. Special settings prevent CO2 leakage.
2. The correct jacket is selected for the pipe to be frozen and is secured to the pipe using the Velcro straps and Buckle assembly.
3. The cylinder valve is opened and the jacket void fills with solid CO2. Any gaseous CO2 produced escapes through the ends. CO2 injection times depend mainly on the pipe size. For 12mm (1/2") diameter pipe, the injection and freezing time required to produce an ice plug would be approximately 8 minutes. On 50mm (2") diameter pipe, the ice plug is formed in about 30 minutes. These times apply to metal pipes and static water at room temperature. Plastic pipes are extremely difficult to freeze and should be avoided.
4. Once the ice plug has formed and providing the jacket is left in position, no further injections will normally be required for 10 to 20 minutes, depending on ambient temperature. To secure the plug for longer than this a further injection of CO2 can be made. There is no danger of the pipe bursting with Nordic Freeze since only the water immediately beneath the jacket is frozen.
5. With the section isolated by the ice plug, work can proceed with the repair. The jacket should be positioned as far as possible from any work requiring a torch, to ensure satisfactory solder flow. When the job is finished, simply remove the jacket and the ice plug will melt away within minutes. Dimension "X" should be a minimum of 16 inches or 12 pipe diameters providing there is room.
6. To isolate a valve or fitting or insert a replacement, two Nordic Freeze jackets are used. The tee setting enables the jackets to be connected to one cylinder.