



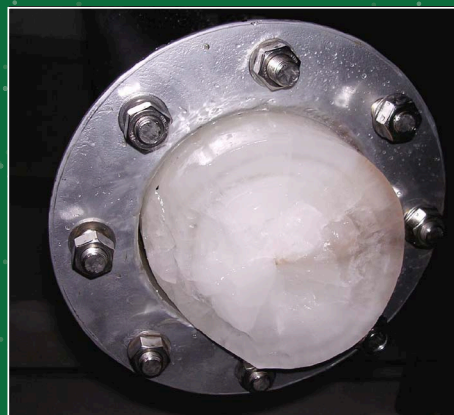
4" FREEZE JACKET (QF 104)



LIQUID CO2 INJECTION



DRY ICE



4" DIAMETER ICE PLUG

## Qwik -Freezer™ Pipe Freezing Tables

The tables below are for typical freezing of static water at 68°F in Schedule 40 steel pipe. Higher temperatures will require additional injection and waiting periods. Plastic pipe will take up to 3 times longer. Refer to Operating Manual for detailed instructions. For freezing applications on pipes larger than 8" (203mm) in diameter, please contact COB Industries for information.

### 3/8" to 3" FREEZING TABLE

PIPE JACKET Pipe Size	QF101 (8 INCHES)		QF102 (12 INCHES)		QF103 (14 INCHES)	
	1/2" (12.5mm)	3/4" (18.75mm)	1" (25mm)	1 1/2" (27.5mm)	2" (50mm)	3" (75mm)
No. of Injections	2	2	3	4	3	6
Injection Time	1 min	1 min	1 min	1 min	5 min	5 min
Waiting Time	3 min	3 min	5 min	5 min	5 min	5 min
Total Time Required	8 min	8 min	18 min	24 min	30 min	60 min
Approx CO <sub>2</sub> Required	1 lb	1 lb	3 lbs	6 lbs	18 lbs	36 lbs

### 4" to 8" FREEZING TABLE

PIPE JACKET Pipe Size Size	QF104 (20 INCHES)		QF106 (28 INCHES)		QF108 (33 INCHES)	
	3" (75mm)	4" (100mm)	5" (125mm)	6" (150mm)	7" (175mm)	8" (203mm)
No. of Injections	6	7	9	11	15	17
Injection Time	6 min	8 min	12 min	12 min	12 min	12 min
Waiting Time	8 min	10 min	8 min	8 min	8 min	8 min
Total Time Required	84 min	126 min	190 min	220 min	310 min	340 min
Approx CO <sub>2</sub> Required	42 lb	65 lb	243 lbs	297 lbs	405 lbs	475 lbs

## Qwik -Freezer™ Pipe Freezing Kits

### 3/8" to 3" PIPE FREEZING KITS

These kits contain the following standard accessories: gloves, rubber mallet, timing log, safety glasses, operating manual, and carrying case. Individual items (jackets) may also be ordered separately. Double freeze kits available through 8". Please contact factory.

KIT NO.	QF101 8" (203mm) Jacket	QF102 12" (305mm) Jacket	QF103 14" (356mm) Jacket	QF800 Hose (10ft)	QFAL 20 20lb. CO <sub>2</sub> Cylinder	QF801 Valve Adapter
<b>QF1500</b>	1	1	-	1	1	1
3/8" (9.375mm) to 1 1/2" (37.5mm) pipe						
<b>QF2000</b>	-	1	-	1	1	1
3/4" (18.75mm) to 1 1/2" (37.5mm) pipe						
<b>QF2200</b>	-	2	-	2	2	2
3/4" (18.75mm) to 1 1/2" (37.5mm) pipe (Double Freeze)						
<b>QF3000</b>	1	1	1	2	2	2
3/8" (9.375mm) to 3" (75mm) pipe						

## Qwik -Freezer™ Pipe Freezing Kits

### 4" to 8" PIPE FREEZING KITS

These kits contain the following standard accessories: gloves, rubber mallet, timing log, safety glasses, operating manual, and carrying case. Individual items (jackets) may also be ordered separately. Refer to the price list for a complete parts listing.

KIT NO.	QF101 8" JKT (203mm)	QF102 12" JKT (305mm)	QF103 14" JKT (356mm)	QF104 20" JKT (508mm)	QF106 28" JKT (711mm)	QF108 33" JKT (838mm)	QF800B Hose (16ft)	QF801 Valve Adaptor	QF802 T- Connector	QF815 Timing Board	QFL50 50lb CO <sub>2</sub> Cylinder
<b>QF4000</b>	1	1	1	1	-	-	*	2	2	1	2
3/8" to 4" pipe											
<b>QF4100</b>	-	-	-	1	-	-	*	2	2	1	2
3" to 4" pipe											
<b>QF6000</b>	1	1	1	1	1	-	4	4	2	1	6
3/8" to 6" pipe											
<b>QF6100</b>	-	-	-	-	1	-	3	4	2	1	6
5" to 6" pipe											
<b>QF8000</b>	1	1	1	1	1	1	4	4	2	1	12
3/8" to 8" pipe											
<b>QF8100</b>	-	-	-	-	-	1	4	4	2	1	12
7" to 8" pipe											

\* All 4" kits come with 10 ft Hoses

## Accu-Freeze™ (patented) The Controlled Liquid Nitrogen Pipe Freezing System

- Larger diameter pipe
- Challenging freezes (glycol, oil, etc.)
- Controls the temperature of the pipe wall

Accu-Freeze® was created to meet a specific need in the nuclear industry for "controlled pipe freezing". In other words, the ability to freeze pipes to create an ice plug while controlling the temperature that the pipe wall is subjected to. Accu-Freeze Kits include a digital controller and a solenoid header assembly that allow the operator to actually set and control the temperature of the pipe wall. The system then automatically injects the necessary amounts of LN2 required to freeze the pipe to the programmed temperature. The system can also be operated from remotely. Accu-Freeze is used by nuclear facilities and power plants across the USA and Europe and by the US Navy on nuclear powered vessels. Accu-Freeze was also used by NASA for an urgent hydraulic line repair on the Space Shuttle Atlantis while on the launch pad. Standard Accu-Freeze Kits are available for up to 12" diameter pipe (can be modified to accommodate larger pipe diameters) and can be used to freeze fluids with lower freeze points than water such as glycol.

