

TDW Freeze Plugging Services

TDW Services, Inc.



Formerly Freeze Service, Inc.

For decades, T.D. Williamson, Inc. has been known as the trusted leader in piping system maintenance and repair. The company provides a number of innovative solutions and alternatives to shutting down a vital segment of a company's plant processes. And TDW recognizes that companies need a cost-effective method of completing this maintenance to preserve budgets.

If a line is out of commission for too long, the money and time lost can be hard to recover, whether it's in a petrochemical plant, nuclear power facility or commercial buildings. TDW has a viable alternative and solution to consider.

TDW Freeze Plugging Services, a division of TDW, provides a service, which allows pipe maintenance or line modification quickly and efficiently.

Freeze plugging literally means freezing a section of fluid within the line to form a plug and isolate the problem area so repairs can be made. Once the work is completed, the plugs are thawed and the line is back in operation.



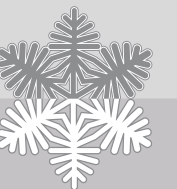
TDW Freeze Plugging Services

The Maintenance Advantage

Establishing a solid freeze plug and maintaining the ice plug for the duration of the project is the key to a successful pipe freezing. TDW Freeze Plugging Services solid plugs are constantly monitored and designed to withstand up to 8,000 psig line pressure, or 225,000 pounds of force.

What benefit does Freeze Service bring to our customers? Freeze plugging means:

- No need to shut down plant processes to perform maintenance or line modifications.
- Job completion without draindown or refill time and no loss of fluids.
- Freezing a portion of the line's fluid to create a solid freeze plug.
- Continuous monitoring of plugs to withstand up to 8,000 psig line pressure.
- Standard freeze plugs range in size from 1/2-inch to 48-inches outside diameter.



TDW Freeze Plugging Services

The Personnel Advantage

All TDW Freeze Plugging Services crews are refinery, chemical and nuclear trained to your standards. They are experienced and work as teams, with safety as their first priority. Each project is analyzed and coordinated with the project engineer. Certified procedures are implemented to ensure quality control assurance throughout the pipe freezing operation.

For decades, T.D. Williamson, Inc. has been known as the trusted leader in piping system maintenance and repair. The company provides a number of innovative solutions and alternatives to shutting down a vital segment of a company's plant processes. And TDW recognizes that companies need a cost-effective method of completing this maintenance to preserve budgets.

If a line is out of commission for too long, the money and time lost can be hard to recover, whether it's in a petrochemical plant, nuclear power facility or commercial buildings. TDW has a viable alternative and solution to consider.

TDW Freeze Plugging Services, a division of TDW, provides a service, which allows pipe maintenance or line modification quickly and efficiently.

Freeze plugging literally means freezing a section of fluid within the line to form a plug and isolate the problem area so repairs can be made. Once the work is completed, the plugs are thawed and the line is back in operation.



TDW Freeze Plugging Services The Market Advantage

Where can this innovative method of repairing problems be used? Most industrial and commercial applications are likely customers, including:

- Chemical and petrochemical plants
- Nuclear power plants
- Water and sewage treatment
- Hotels and apartment complexes
- Office buildings
- Refineries
- Fossil fuel power plants
- Hospitals and institutions
- Malls and shopping centers
- Paper mills
- Fire protection systems
- Schools
- And more ...

A variety of pipe materials also can be used:

- Carbon steel
- Cast and ductile iron
- Copper
- 1/2- to 48-inch O.D.
- Stainless steel
- Aluminum
- Lead
- Vertical, horizontal and inclined
- Transite
- Coated and lined pipe
- Titanium
- Out of round
- And more ...

A wide range of fluids also can be considered:

- Water and treated water
- Brine
- Glycols
- Chemicals
- Sewage
- Oils and petroleum products
- Heavier hydrocarbons
- Slurries
- And more ...

TOP: Technician applies freeze jacket to line. MIDDLE: Freeze temperature reduction is monitored. BOTTOM: Diagonal frost line indicates ice plug is forming. Once freezing is complete, repairs can be made.



TDW Freeze Plugging Services The Equipment Advantage

TDW Freeze Plugging Services technicians use Freezall™ Pro-Plug Kits, portable pipe freezing equipment, to isolate the line. A Freezall pipe jacket is wrapped around the pipe and connected with a hose to a carbon dioxide canister. The liquid CO₂ forms solid ice plugs at -109° F (-78° C). Freezall is a safe, effective method of maintaining pipe systems.

Freezall can be purchased separately for in-house technicians to complete maintenance jobs.

Remember, CO₂ is heavier than air and care should be taken to provide good ventilation, especially in confined and low areas such as trenches, crawl spaces, etc.

Typical Pipe Freezing Times for Water and CO₂ Consumption

Pipe Size	1/2"	6"	8"	12"	14"	20"
Freeze Time (hrs.)	0.1	0.8	1.5	3.0	4.0	8.0
CO ₂ Consumption (lbs.)	1	279				

TDW Freeze Plugging Services

The Solid Solution

Call TDW's Freeze Plugging Services at **800-828-1988** for a cost-effective alternative for maintenance problems. Or visit our Web site at www.pipefreezing.com for more information.

TDW also designs and manufactures engineered systems to monitor, pig, tap, plug and inspect essential piping systems. TDW provides services for these core business components. But in addition, TDW offers services such as in-line inspection, line freezing, leak detection, in field welding, project management, pipeline maintenance consulting and a host of related activities.

USA Service Centers

Toll Free - **800-828-1988**
Atlanta, GA - **678-344-4055**
Baton Rouge, LA - **225-272-3021**
Chicago, IL - **630-820-2500**
Houston, TX - **281-470-0791**
Los Angeles, CA - **562-986-5741**
New Castle, DE - **302-594-9880**
San Francisco, CA - **925-372-7531**
Tulsa, OK - **918-447-5000**

Latin America Service Centers

MEXICO - **(52) 555.587.8944**
VENEZUELA - **(58241) 838.9164**
BRAZIL - **(5521) 2209.4015**

Asia / Pacific Service Centers

INDIA - **(91) 265.224.322**
CHINA - **(86) 10.6524.5230**
SINGAPORE - **(65) 6364-8520**
AUSTRALIA - **(61) 3-9481-9600**

Europe / Africa / Middle East Service Centers

RUSSIA - **7095-737-65-93**
ENGLAND - **(44) 1-142/518060**
FRANCE - **(33) 388.19.72.38**
HUNGARY - **(36) 1-463-5058**
CZECH REPUBLIC - **(42) (2) 410.21.522**
GERMANY - **(49) 711/931 9611**
POLAND - **(48) 22/625.72.09**
ITALY - **(39-02) 953-44-109**
BELGIUM - **(32) 67/28.36.11**
HOLLAND - **(31) 79/422.556**
UNITED ARAB EMIRATES - **(971) 2.627.66.00**



P.O. Box 2217, Tulsa, OK 74101-2217
www.tdwilliamson.com
email: info@www.tdwilliamson.com