FreezePro®

Frost Protection Systems

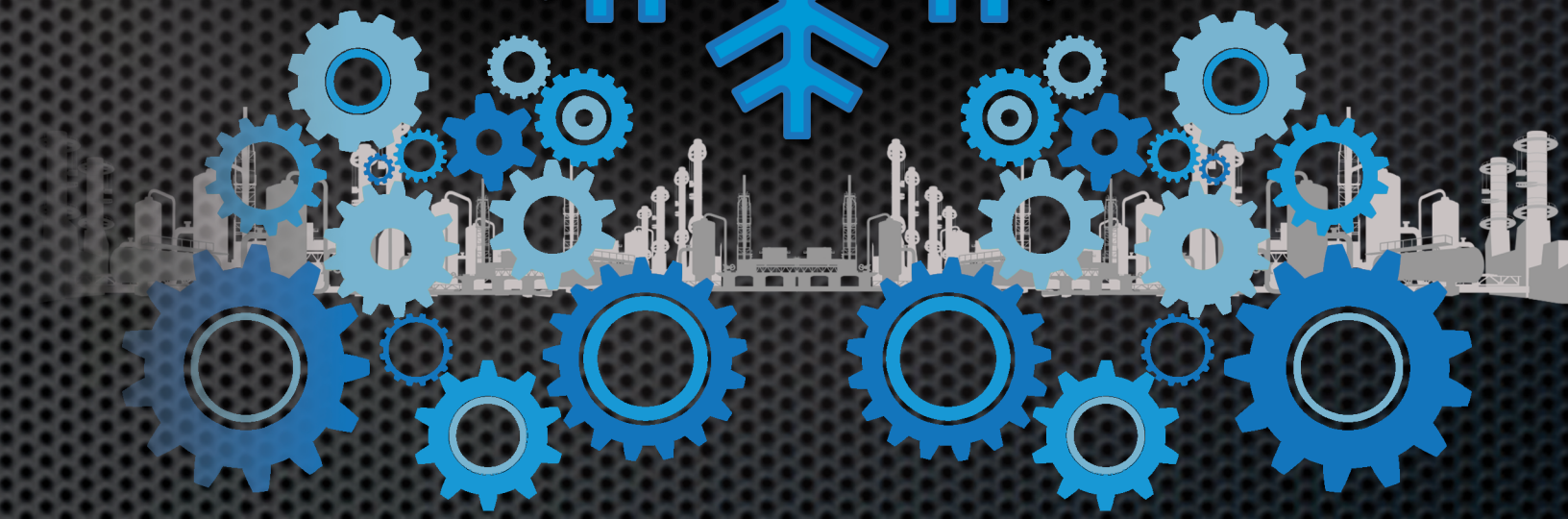


TABLE OF CONTENTS

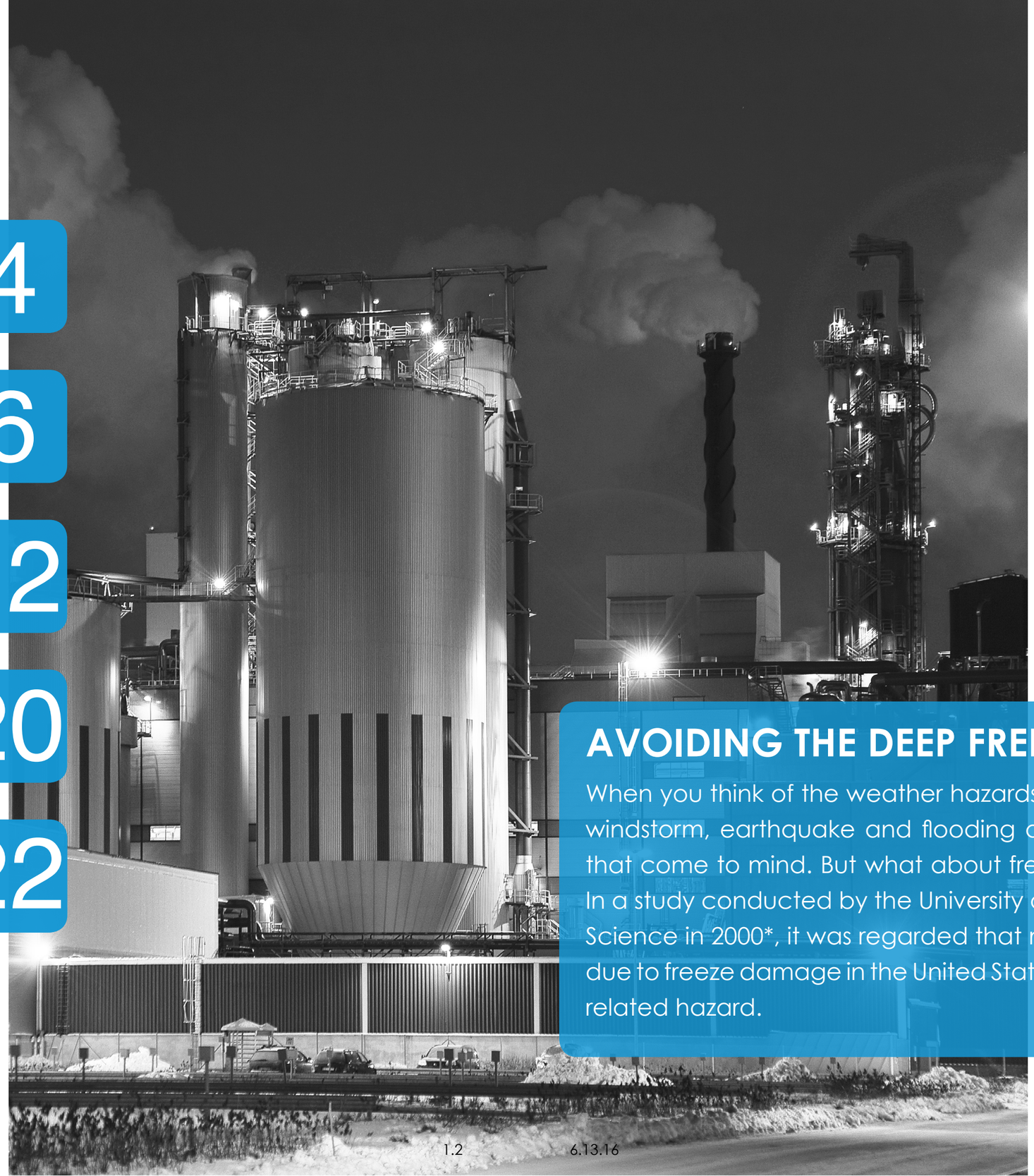
The Energy Problem 4
The difficult truth about energy consumption ... and the solution

FreezePro® Frost Protection Systems 6
Simple and quick insulation for your pipe runs and valve fittings

How to Measure 12
Measuring FreezePro® products

How to Install 20
Installing FreezePro® products

FreezePro® Accessories 22
FreezePro® product line accessories



FREEZEPRO® FROST PROTECTION SYSTEMS:

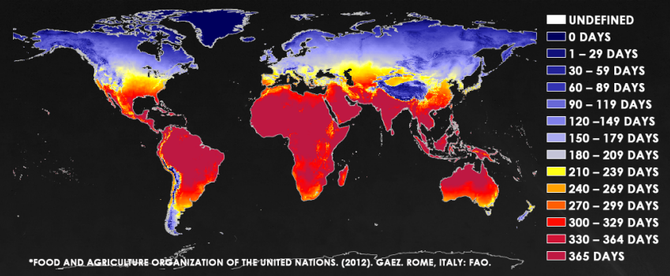
AVOIDING THE DEEP FREEZE:

When you think of the weather hazards that threaten a facility, fire, windstorm, earthquake and flooding are certainly among the first that come to mind. But what about freeze-ups and snow loading? In a study conducted by the University of California for Atmospheric Science in 2000*, it was regarded that more economic losses occur due to freeze damage in the United States than to any other weather related hazard.

The Hard Reality and a Difficult Truth:

When the winter chill sets in, companies lose profits, productivity and valuable equipment due to freezing temperatures. While such harsh conditions cannot be eliminated entirely, their destructive impact on a facility and its operations can be prevented — or at least controlled — through sound preplanning.

GEOGRAPHICAL DISTRIBUTION OF THE AVERAGE LENGTH OF FROST FREE PERIOD.



*FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. (2012). GAEZ. ROME, ITALY: FAO.

NATURAL DISASTER LOSSES IN THE UNITED STATES

As of July 1, 2015	Number of Events	Fatalities	Estimated Overall Losses (US $millions)	Estimated Insured Losses (US $million)*
Severe Thunderstorm	38	66	7,000	5,100
Winter Storms & Cold Waves	**11**	**80**	**3,800**	**2,900**
Flood, Flash Flood	10	4	500	150
Earthquake & Geophysical	1	-	-	-
Tropical Cyclone	2	4	100	60
Wildfire, Heat Waves, & Drought	18	-	1,300	Minor market loss
Totals	**80**	**154**	**12,600**	**8,200**

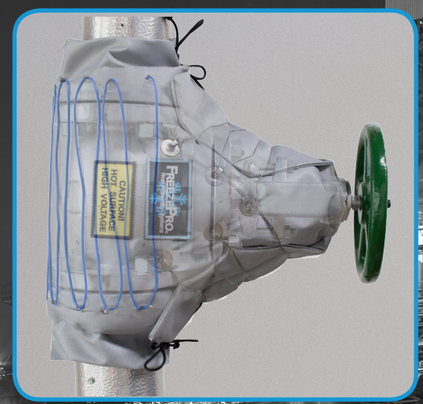
*Source Property Claim Services (PCS) as of 7.7.2015 © 2015 Munich Re

The Predicament:

Every pipe or vessel is subject to heat loss when its temperature is greater than the ambient temperature. While an insulated pipe can withstand cold temperatures longer than an uninsulated pipe, the contents of the pipe will cool to the temperature of the surrounding environment. If the air temperature remains low enough for an extended period, the results can be both costly and inconvenient.

The Solution:

When unusual conditions make it impractical to maintain protection with just insulation, then a heat tracing system is required. The purpose of heat tracing is to replace that heat lost through the thermal insulation to maintain the desired temperature difference. When heat tracing and thermal insulation are paired together, the results produce a two-in-one system to protect against damage caused by freezing temperatures.



Insulation saves over 600 times more energy each year than all of the compact fluorescent lights (CFLs), ENERGY STAR Appliances and ENERGY STAR Windows combined. (U.S. Environmental Protection Agency, ENERGY STAR Homes. Calculations performed by B. McNary, October 2006.)

FREEZEPRO® FROST PROTECTION SYSTEMS:

Most industrial fluids or substances have rigorous storage and temperature requirements. Cold temperatures can be particularly troublesome especially when maintaining valuable or volatile substances with varied temperature requirements. When these temperature or humidity sensitive articles are transported, stored, or handled in extreme temperature conditions, then damage can occur. This can be avoided by simply installing an insulated heating system/jacket on applications that are susceptible to severe weather conditions.

FreezePro® Frost Protection Systems provide superior heating solutions for a multitude of applications that are vulnerable to harsh or cold weather conditions. FreezePro® Frost Protection Systems offer an all-in-one energy efficient insulation solution to minimize downtime, reduce costs, increase revenues, and improve operational efficiencies.

Unlike most removable insulation systems, FreezePro® Frost Protection Systems come in standard, universal sizes that are available for off-the-shelf delivery. FreezePro® Frost Protection Systems are designed to fit an array of sizes — and can be used on almost any application that requires freeze or frost protection, temperature or chemical stability, and stress free bonding or flexible encapsulation.

DID YOU KNOW …

There are two corrective maintenance types – planned (proactive) and unplanned (reactive) maintenance. Unplanned, breakdown maintenance costs are 3-9 times more expensive than planned maintenance costs.

***Take a look at our "Cost Comparison Breakdown" example in the table below to see how much you can save with just one FreezePro® Frost Protection Systems Insulation Jacket.**

COST COMPARISON BREAKDOWN
Unplanned Maintenance vs. Planned Maintenance

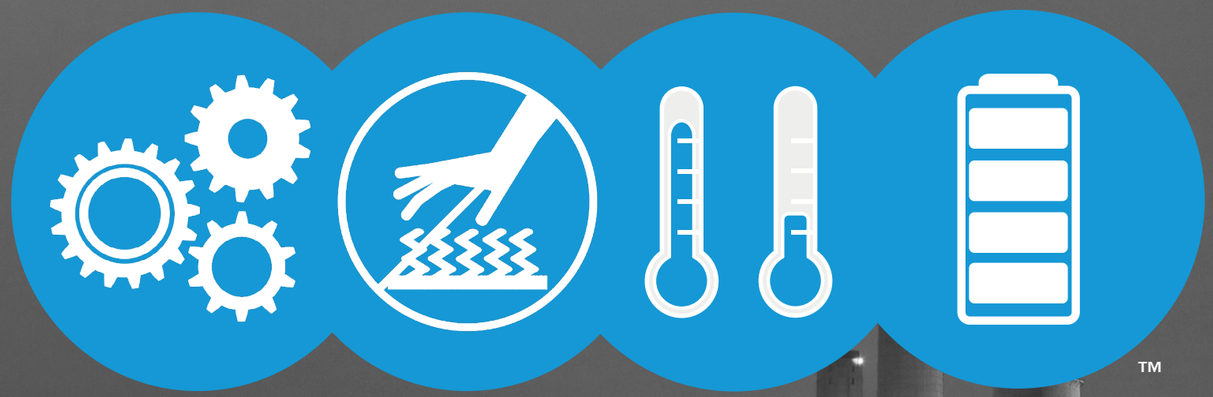
ITEM:	6-Inch Flanged Gate Valve	UNITS:	1
UNPLANNED MAINTENANCE (REACTIVE) COSTS			
	LOW ($):	AVERAGE ($):	HIGH ($):
Labor costs (Removal/Installation):	$1,000	$2,000	$3,000
Material costs (Parts/Equipment):	$500	$1,000	$1,500
TOTAL COSTS (LABOR + MATERIAL)	$1,500	$3,000	$4,500
PLANNED MAINTENANCE (PROACTIVE) COSTS			
ITEM:	DESCRIPTION:	UNITS:	TOTAL:
FPV3618	FreezePro® Valve 36"L x 18"W	1	$295.98
COST SAVINGS COMPARISON			
	LOW ($):	AVERAGE ($):	HIGH ($):
TOTAL COST SAVINGS:	$1204.02	$ 2704.02	$4204.02

When used as a preventive maintenance product, FreezePro® Frost Protection Systems pay for themselves immediately upon the first freeze of winter. No other prevention type product will pay for itself as quickly — and with as little upfront effort — as FreezePro® Frost Protection Systems.

FREEZEPRO® FROST PROTECTION SYSTEMS ARE USED TO PERFORM ONE OR MORE OF THE FOLLOWING FUNCTIONS:

PREVENT OR REDUCE DAMAGE TO EQUIPMENT

FACILITATE TEMPERATURE CONTROL OF A PROCESS



CONTROL SURFACE TEMPERATURES FOR PERSONNEL PROTECTION AND COMFORT

CONSERVE ENERGY BY REDUCING HEAT LOSS OR GAIN

™

Using FreezePro® Frost Protection Systems IN ...

- Agriculture and food
- Pharmaceuticals
- Refineries
- Chemical plants
- Plastics
- Pulp and paper mills
- Textiles
- Metal processing
- Rubber
- Shipbuilding
- Power generation
- Power plants
- Food processing
- Refineries
- Education / Schools
- Healthcare / Hospitals
- Refrigeration storage
- Biomedical
- Solar plants
- Container
- Material handling
- Cement and asphalt

Using FreezePro® Frost Protection Systems ON ...

- Valves
- Flanges
- Fittings
- Strainers
- Pipes
- Totes
- Tanks
- Buckets
- Drums
- Barrels
- Filters and regulators
- Pumps
- Manifolds
- Diesel exhaust fluid systems
- Sight glasses
- Concrete curing

FREEZEPRO® FROST PROTECTION SYSTEMS:

FreezePro® Frost Protection Systems deliver a barrier of uniform, directional heat where it is needed most - to tanks, pipelines, drums, buckets, IBC totes, and other temperature sensitive equipment. The advanced, all-in-one design of FreezePro® eliminates the need for multiple product purchases and simplifies the entire implementation process while saving time and money. The end result is an efficient heating solution with the most cost-effective method for minimizing damage caused by harsh or freezing temperatures.

» FreezePro® Frost Protection Systems are used to **PROTECT KEY COMPONENTS FROM FREEZING** and help prevent costly damage from occurring.

» FreezePro® Frost Protection Systems create a **SAFER WORKING ENVIRONMENT** for your employees and increase equipment lifespan by protecting key components from extreme temperatures.

» FreezePro® Frost Protection Systems are made with **STANDARD, READILY AVAILABLE, OFF-THE-SHELF COMPONENTS** that can be easily configured for almost any application requirement.

» FreezePro® Frost Protection Systems are **COMPLIANT WITH OSHA SAFE-TOUCH STANDARDS** for exposed surfaces (if there is a potential for injury).

» FreezePro® Frost Protection Systems deliver an **INCREASED CONTROL OF PROCESS TEMPERATURES** to enhance production capacity by maintaining temperatures and minimizing heat loss to keep equipment running at optimal temperatures.

» FreezePro® Frost Protection Systems **ALL-IN-ONE DESIGN SIMPLIFIES THE OVERALL SYSTEM CONFIGURATION REQUIREMENTS** and eliminates the need for additional/expensive add-ons.

When used as a preventive maintenance product, FreezePro® Frost Protection Systems pay for themselves immediately upon the first freeze of winter. No other prevention type product will pay for itself as quickly — and with as little upfront effort — as FreezePro® Frost Protection Systems.

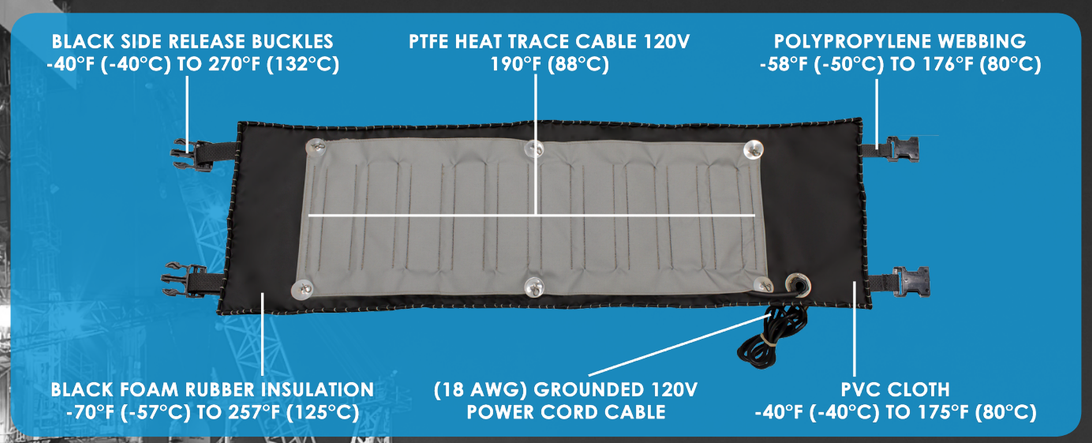
FREEZEPRO® FROST PROTECTION SYSTEMS:

FreezePro® Valve & Wrap Insulation Jackets are constructed in three layers:

- The primary inner layer (hot face) is made of Gray / Grey Silicone -65°F (-54°C) to 500°F (260°C).
- The middle layer is made of IceRock -40°F (-40°C) to 1000°F (538°C).
- The primary inner layer (hot face) is made of Gray / Grey Silicone -65°F (-54°C) to 500°F (260°C).

FreezePro® Tote & Drum Insulation Jackets are constructed in three layers:

- The primary inner layer (hot face) is made of PVC Cloth -40°F (-40°C) to 175° F (80°C).
- The middle layer is made of Black Foam Rubber -70°F (-57°C) to 257°F (125°C).
- The primary inner layer (hot face) is made of PVC Cloth -40°F (-40°C) to 175° F (80°C).



FREEZEPRO® WRAP:

FreezePro® Wrap Insulation Jackets are suitable for straight sections of pipe, which do not involve complex shapes, such as flanges, couplings, and the like.

Applications:

- Fittings
- Pipes
- Manifolds
- Flanges
- Strainers
- Valve & pipeline strainers
- Ball reducers
- Industrial HVAC equipment
- Reducing sockets
- Sockets parallel & taper
- Hex nipples
- Bronze screw valves
- Flange strainers
- Steam traps:
  - Thermo-dynamic steam traps
  - Float & thermostatic steam traps
  - Balanced pressure steam traps
  - Inverted bucket steam traps
  - Bimetallic steam traps

FREEZEPRO® TOTE TANK:

FreezePro® Tote Tank Insulation Jackets are designed to ensure temperature stability for temperature-sensitive products during the transport, handling, and storage of chemicals, fluids, and bulk materials.

Applications:

- IBC tote tanks
- Pallet tanks
- PVC tanks
- Container components
- Stainless steel totes
- Tote tanks
- Portable tanks
- Vertical tanks
- Horizontal tanks
- Bulk containers
- Plastic containers
- Intermediate bulk containers

*OPTIONAL
FREEZEPRO® INSULATION LIDS SOLD SEPARATELY

FREEZEPRO® VALVE:

FreezePro® Valve Insulation Jackets are designed to fit closely with tight joints on complex shapes, such as valve fittings, strainers, T and Y joints, and the like.

Applications:

- Manual Valves:
  - Stopper-type closure — globe, needle
  - Vertical slide — gate
  - Rotary type — ball, plug, butterfly
  - Flexible body — diaphragm
- Check Valves:
  - Lift check
  - Swing check (single and double plate)
  - Tilting disc
  - Diaphragm
- Other:
  - Bonnet valves
  - Control valves
  - Bronze screw valves
  - T-Fitting
  - Knife valves
  - Y strainers
  - Industrial HVAC equipment
  - Fittings
  - Pumps
  - Sight glasses
  - Manifolds
  - Filters & regulators
  - Desuperheaters

FREEZEPRO® DRUM:

FreezePro® Drum Insulation Jackets are designed to ensure temperature stability for temperature-sensitive products during the transport, handling, and storage of chemicals, fluids, and bulk materials.

Applications:

- 55-gallon barrels
- 55-gallon drums
- 55-gallon steel drums
- Composite containers
- 1-gallon buckets
- 5-gallon buckets
- 10-gallon buckets

*OPTIONAL
FREEZEPRO® INSULATION LIDS SOLD SEPARATELY

SIMPLICITY
BREEDS
USABILITY

USER-FOCUSED DESIGN

HOW TO MEASURE FOR FREEZEPRO® WRAP:

Selecting the right size FreezePro® Wrap for your equipment is a lot easier than you might think. All you need is a tape measure, and you are ready to go!

Click Here For Video Tutorial: How to Measure FreezePro® Wrap

1. Measure for either the (1) CIRCUMFERENCE OR (2) DIAMETER:

CIRCUMFERENCE

OR

DIAMETER

NOTE: It does not matter which method of measurement you decide to use, just remember that you only need to find your measurement using one of the two ways mentioned above.

2. Measure for the DESIRED WIDTH:

WIDTH

NOTE: After measuring either the circumference or diameter, you also need to measure for the desired width to determine the width of the application you want to insulate.

WARNING: When installing or measuring for FreezePro® Wrap, please follow all safety precautions and use proper and adequate protective safety aids such as: protective gloves and suitable protective clothing. Never use a metal tape for measuring purposes. Failure to do so may result in injury.

3. Find the right FreezePro® Wrap:

NOTE: Now that you have your measurements, you can use the graph below to help you find the appropriate FreezePro® Wrap part number. Diameter and circumference (length) measurements are listed in the table rows vertically and width measurements are listed in the table columns horizontally.

WIDTH

CIRCUMFERENCE	DIAMETER	6in (152mm)	12in (305mm)	18in (457mm)	24in (610mm)
0in - 6in (0mm-152mm)	0in-2in (0mm-51mm)	FPW 1206	FPW 1212	FPW 1218	FPW 1224
6in-13in (152mm-330mm)	2in-4in (51mm-102mm)	FPW 1806	FPW 1812	FPW 1818	FPW 1824
13in-19in (330mm-483mm)	4in-6in (102mm-152mm)	FPW 2406	FPW 2412	FPW 2418	FPW 2424
19in-25in (483mm-635mm)	6in-8in (152mm-203mm)	FPW 3006	FPW 3012	FPW 3018	FPW 3024
25in-31in (635mm-787mm)	8in-10in (203mm-254mm)	FPW 3606	FPW 3612	FPW 3618	FPW 3624
31in-38in (787mm-965mm)	10in-12in (254mm-305mm)	FPW 4206	FPW 4212	FPW 4218	FPW 4224
38in-44in (965mm-1118mm)	12in-14in (305mm-356mm)	FPW 4806	FPW 4812	FPW 4818	FPW 4824
44in-53in (1118mm-1346mm)	14in-17in (356mm-432mm)	FPW 6006	FPW 6012	FPW 6018	FPW 6024

FOR EXAMPLE:

The **CIRCUMFERENCE** (length) is 20in and the desired width is 12in = **FPW 3012.**

OR

The **DIAMETER** (length) is 6in and the desired width is 12in = **FPW 3012.**

FreezePro®

¾" S.S. SHARP POINT HOG RINGS

¾" S.S. SHARP POINT HOG RING is ideal for industrial applications where fastening or tie-downs are desired. It features sharp tips for piercing capabilities and is resistant to rust.

Part # CR

302/304 S.S. SAFETY LOCK WIRE

TYPE 302/304 S.S. SAFETY LOCK WIRE is used as a method of reinforcing fasteners and other parts for stability during use. Our .051" diameter safety wire is thick, reliable, and ideal for use with our safety wire pliers for enhanced installation.

Part # SSLW304

S.S. LACING ANCHORS & WASHERS

S.S. LACING ANCHORS & WASHERS are used in the manufacturing of removable insulation blankets. The anchor is pressed through the insulation material and locked in place with a lacing washer. Lacing wire is used to secure the blanket by lacing the wire through the hook.

Part # LHW

Accessories

PTFE HEAT TRACE CABLE

PTFE SELF-REGULATING HEAT TRACE CABLE products are designed to supply a specified amount of heat at any point along their length in direct response to local temperature variations. These heat trace cables can maintain temperatures up to 190°F (88°C) and provide frost protection or temperature maintenance of piping, tanks, and equipment.

Part # HE-C-08, HE-C-09, HE-C-10

45-DEGREE HOG RING PLIERS

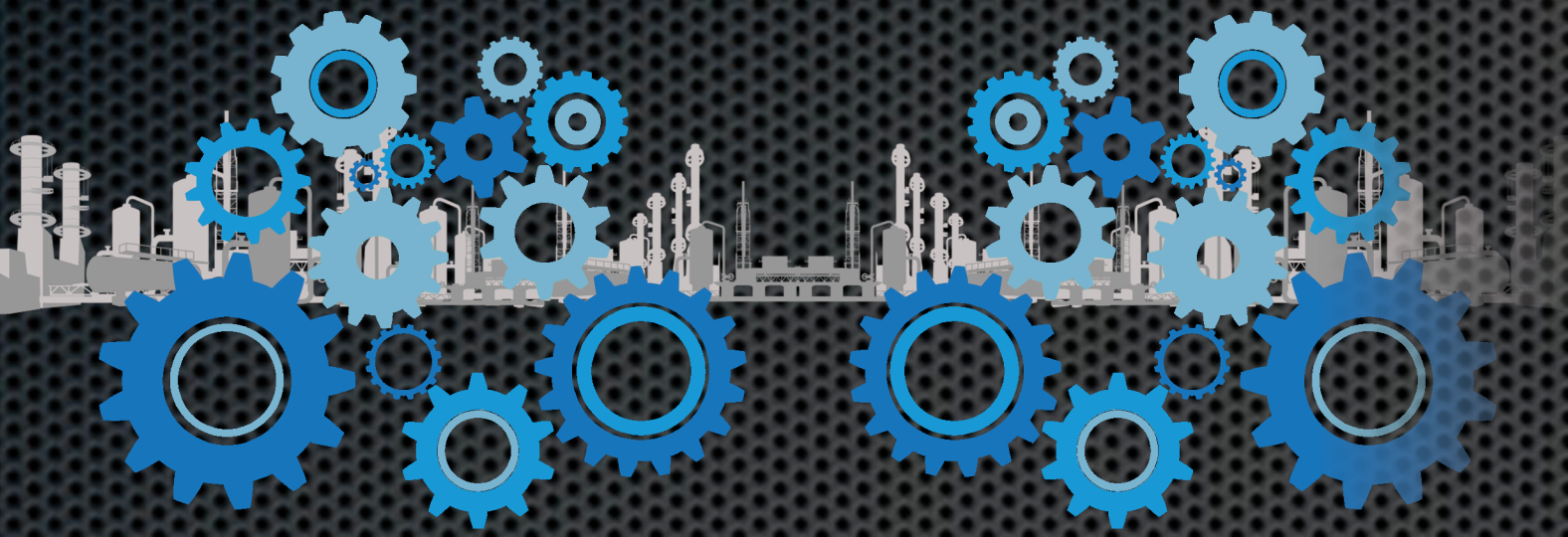
45-DEGREE HOG RING PLIERS are spring loaded to hold the ring in jaws during use. Its unique 45-degree tilt allows for added access to move in tight spaces. The cushion grip handle makes this product easy to use while keeping your hands comfortable.

Part # CRP-45

ETC SINGLE STAGE CONTROLLER- NEMA TYPE 4X

ETC SINGLE STAGE CONTROL- NEMA TYPE 4X is a microprocessor based temperature controller suitable for switching 120Volts at up to 16Amps for heating or cooling applications making it suitable for a wide range of applications. This is a great universal controller for any application where switching 120Volts or temperatures outside that of a normal home thermostat are required. The sensor with an 8' foot cable and instructions are included with the unit.

Part # HE-C-01



UniVest® Insulation Systems:
Specifically designed to meet heat and process requirements for high-temperature applications.

FirePro® Fire Protection Systems:
Specifically designed for passive fire protection and fireproof applications compliant with the UL 1709 testing standard.

ISOCOVERS Insulation Systems:
Specifically designed to meet heat and process requirements for high-pressure steam applications.