

## Protect Your Vacuum System

Foreline traps are used to prevent harmful substances generated or resident in vacuum systems from damaging vacuum pumps and/or your work:

### Pump Damage

Liquid, water, solvents, and acids can cause serious damage to a vacuum pump:

- Vapors can condense to liquids within vacuum pump as a natural result of gas compression
- Liquid can be accidentally aspirated into the pump
- Particulates can become lodged in a pump mechanism

TRAP SELECTION TABLE			
Potential Pump Contaminants	Acid Neutralization Trap <sup>1</sup>	Cold Traps	
		Dry Ice Slurry (-79°C)	Liquid Nitrogen (-198°C)
Water	Excellent	Excellent	Excellent
Organics	Not Recommended	Excellent	Excellent
Acidic	Not Recommended	Fair	Excellent
Oil Backstreaming <sup>2</sup>	Not Recommended	Excellent	Excellent

**Key**

Excellent
Fair
Not Recommended

**Notes:**  
 1. Limits Pressure to 10<sup>-2</sup>torr  
 2. Prevents pump oil from contaminating Application during prolonged deep vacuum or pump shutoff.

## Protect, Improve Your Vacuum Application

### Oil Back Streaming

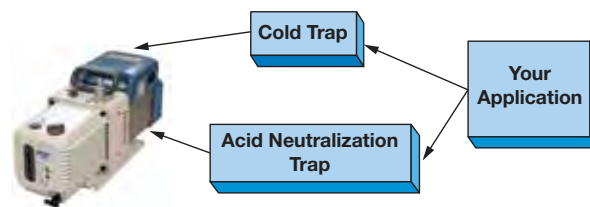
Oil molecules can migrate from an oil lubricated vacuum pump back into the vacuum system when operated at sustained vacuum levels of 1x10<sup>-2</sup>torr (1.33x10<sup>-2</sup>mbar) or deeper for long periods.

### Pump Shutoff Back Migration

When a vacuum pump is shut off, contamination (oil, line substances) can back up into your work if unprotected by pump/system anti-suckback devices and traps.

### Pump Efficiency

Cold traps lower vapor pressure, enabling higher vacuum with the same work from the pump.



## Dry Ice / Isopropanol Trap (-79°)



- Recommended for freeze dryers, vacuum manifolds, concentrators, etc.
- Uses dry ice or liquid nitrogen as refrigerant
- Removable center make trapping surface easy to clean

**DRY ICE/LIQUID NITROGEN COLD TRAP** is an effective foreline cold trap for vacuum manifolds or Schlenk Lines. The trap has a large 3 quart (2.8 liters) center well for the dry ice/isopropyl alcohol slurry or liquid nitrogen; traps up to 1.5 liter condensate. With dry ice cold temperature may be maintained for up to 12 hours depending upon the vapor load. With liquid nitrogen cold temperature can be maintained for up to 2 hours depending upon the vapor load.

Tube Needed	Diam.	Height	Diameter	In/Out Offset	Trap CAT. No.
7/16"	10	8.25"	10.75"	3.5	1420H-14

Tube CAT. No. 331040-5

## Acid Neutralization Trap



- ISO NW flange connection
- Calcium Hydroxide element
- Element changes from white to bluish-transparent when spent
- Configure with prior cold trap to reduce loading

ISO Size	Capacity	Trap	Replacement Element CAT. No.	Pump Connector Kit for Trap CAT. No. <sup>1</sup>
NW 16	To 2 cfm (57 l/min.)	1420H-21	1420E-02	302201
NW 25	To 12 cfm (340 l/min.)	1420H-20	1420E-01	302202

Note: 1. Includes hinge clamp, centering ring and elbow. Use with CHEMSTAR® vacuum pumps.

### Application Note for Cold Traps

Cold traps employing a dry ice slurry or liquid nitrogen are effective as long as the refrigerant level is maintained. If the trap warms up while the pump is running, all of the trapped condensables will be ingested by the vacuum pump, contaminating the oil.

Cold traps must be cleaned out at the end of each day. If the pump is run overnight, the trapped condensables will ultimately be ingested by the pump as the trap warms up. Cleaning a Dry Ice Slurry/Liquid Nitrogen trap is easy. The steps are: 1. Turn off the pump. 2. Leak air into the trap from the application side. 3. Remove the center well and polypropylene ring to a hood. The center well can be washed off into a beaker or the condensables can be allowed to evaporate in the hood or added to the laboratory waste.

# Peristaltic - Fluid Transfer Pumps

## Models 3100/3200

### Replacement Cartridges for Models 3100/3200

Material	Silicone	PVC
Applications	Biofluids / Food	General Lab, Viscous Fluids
Tubing I.D. (Flow Rate Range)	Tubing Cartridges (5 each) CAT. No.	Tubing Cartridges (5 each) CAT. No.
1.6mm (3-30 ml/min) - 5 pack	3432K-01	3434K-01
3.2mm (10-130 ml/min) - 5 pack	3432K-02	3434K-02
4.8mm (30-300 ml/min) - 5 pack	3432K-04	3434K-04



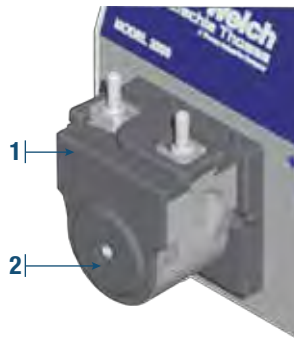
3100



3200

### Service Kit CAT. No. 3200K-02 for Models 3100/3200

ID	Qty.	Description
1	1	Pump Head
2	1	Roller Carrier
3	1	Lock
4	1	Rolling Band



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