

Foreline Traps

General Information



Custom water and metal sieve multistage trap



Electropolish finish is available on all traps

Since 1962, Nor-Cal Products has been designing and building standard and custom foreline traps for the vacuum industry. These traps range in complexity from the sealed coaxial traps, which prevent oil backstreaming, to the triple-pass water cooled traps, which remove condensable gasses that contaminate mechanical pump oil or other parts of the system. Often times our customers see a 200% increase in preventative maintenance intervals after installing one of these traps.

All traps disassemble easily with a Viton O-ring and V-clamp, with the exception of our sealed coaxial metal sieve traps which have a one piece body. The two piece body allows for easy removal for cleaning or filter replacement.

The standard trap body finish is beadblast. Electropolish inside and out is available upon request. Electropolished traps are easier to clean because the surface is more highly polished than the standard beadblast finish. Nickleplating is also available for additional corrosion resistance.



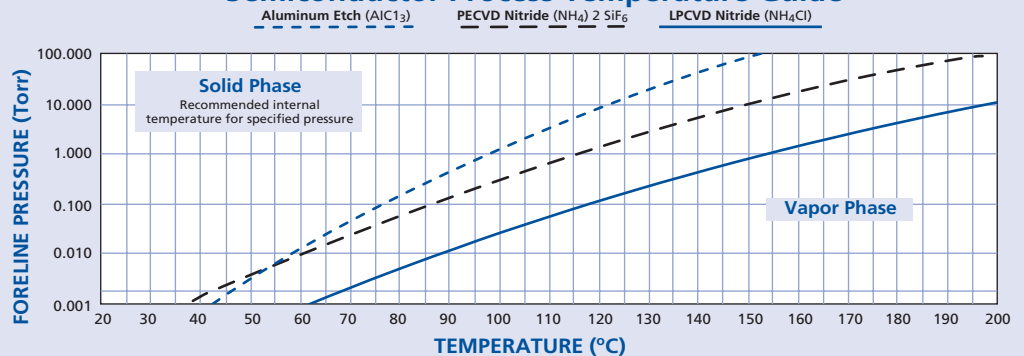
TIG Fusion Welding

Trap Selection Guide

TRAP TYPE	METAL SIEVE		MOLECULAR	COLD		PARTICULATE	
	STAINLESS STEEL	COPPER	ZEOLITE	LN ²	H ² O	POLYESTER	FIBERGLASS
FILTER MATERIAL							
OIL BACKSTREAM	••	••	••	•••			
WATER VAPOR			••	•••			
ORGANICS				••	•		
ACID VAPORS				••			
PARTICLES <149°C	•	•				•••	•••
PARTICLES <370°C	•	•					•••
CONDENSIBLES - LOW VAPOR PRESSURE	••	••		•••	•••		
CONDENSIBLES - HIGH VAPOR PRESSURE	•	•		•••	•		

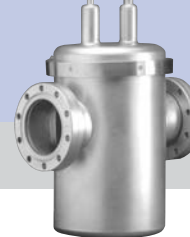
Blank - Trap is not appropriate for this application • - Good performance for this application
 •• - Better performance for this application ••• - Best performance for this application

Semiconductor Process Temperature Guide



All dimensions are in inches (mm) & weights are in pounds (kg), unless otherwise noted.





LPCVD/TEOS trap and a heated foreline

Comprehensive Downstream Solutions

Our experience coupled with a broad product offering allows us to integrate components, providing comprehensive solutions to semiconductor fabs and equipment manufacturers. To improve overall system performance and achieve customer defined goals, a thorough evaluation of the system is conducted. A detailed worksheet is posted on our website for you to download. Answer these questions before calling your Nor-Cal representative. This worksheet will greatly assist us in calculating your cost of ownership model. A cost of ownership model can show payback as a result of increased tool utilization and decreased planned and unplanned maintenance costs. To download the worksheet, go to www.n-c.com and select Services.

Foreline traps, thermal products, Intellisys pressure control valves, Genesis soft start valves and weldments can be provided as turnkey modules. Thermal and vacuum characterization can be performed at Nor-Cal before the assembly is supplied, leak checked, blanked off and clean room packaged.

Custom Foreline Traps

Standard trap designs are readily altered or custom models are designed and fabricated to improve performance for your specific application. Some examples are described below. Call for more information or to discuss your specific needs.

Liquid Recovery Traps

Nor-Cal has provided many types of condensation traps for liquid collection before they enter the pump. Often they have valves or drains to allow the liquid to be collected and reused. Some of the liquids collected include photoresist, oil and tantalum.

High Capacity Particulate Traps

Nor-Cal can provide high-capacity particle traps with multi-liter capacities for applications with large particle loads, such as silicon wafer processing.

High Capacity Water Cooled Traps

Semiconductor CVD equipment manufacturers require high wafer counts between preventative maintenance. Unlike other manufacturers who offer one solution to fit a number of applications, Nor-Cal will design high-capacity water-cooled traps to achieve specific customer-stated goals. Port geometry, capacity, conductance and efficiency are adjusted in order to produce the optimal design for the application. Examples of processes we have provided solutions for include TiN barrier layer deposition, LPCVD Nitride and III-Vs MOCVD.

Liquid Nitrogen Traps

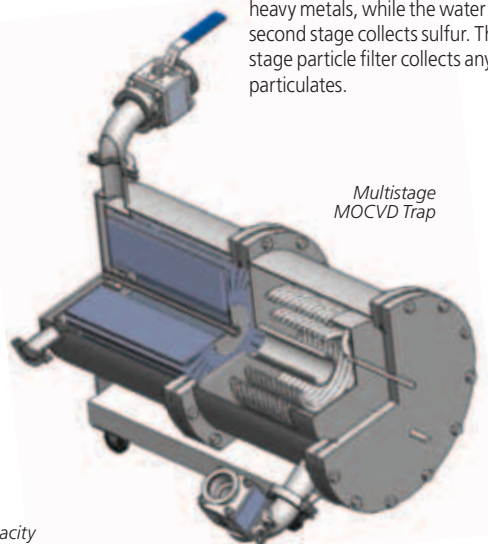
High capacity liquid nitrogen traps can be furnished for customers who require larger LN₂ capacity to extend the time between refills or larger trapping capacity for condensible by-product.

Multistage Traps

Multistage traps can be furnished for processes that require a combination of trap media, such as water-cooling and particle filtration. The trap shown here was developed for a GaAs, GaN, AsP MOCVD processes. The first stage collects the heavy metals, while the water cooled second stage collects sulfur. The third stage particle filter collects any fine particulates.



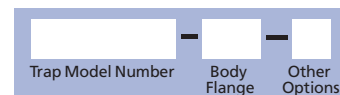
High capacity particulate trap



Multistage MOCVD Trap

Foreline Trap Options

When ordering a trap with options, please follow the option tree below. **Note:** All options are not available on some body sizes or trap types.



Example: FTPA-6-2002-NWB-BF-L7

Body Flange Option

OPTION	FITS BODY OD
-BF	4 (101.60)
-BF	6 (152.40)
-BF	8 (203.20)

These ISO clamp style flanges are an alternative to V-clamps. Not available on sealed coaxial metal traps, or 2 or 4 1/2 inch (50.8 - 114.3mm) trap bodies.

Other Options

These options are trap type specific

Copper Sieve Option

OPTION	FITS TRAP TYPE
-CS	Metal sieve

The standard metal sieve filter is stainless steel. Copper metal sieve filters are available at no additional cost for most metal sieve traps.

240 Volt Heater Option

OPTION	FITS TRAP TYPE
-240V	Molecular sieve

The standard molecular sieve trap regeneration heater is 120V. 240V heaters are available as an option at no additional cost. Other voltages available.

Quick Disconnect Option

OPTION	FITS TRAP TYPE
-QD	Water cooled

Immediately shuts off water flow from both directions for single-handed, no-spill removal of a water cooled trap from the system for preventative maintenance or O-ring replacement.

Fiberglass Particulate Filter Option

For temperatures up to 370°C

OPTION	FITS TRAP TYPE
-F	Particulate

High Capacity Particulate Filter Option

OPTION	FITS TRAP TYPE
-L7	Particulate

This fiberglass filter provides a reservoir for applications with heavy particle loads that might block the inlet.