KINTEK

Ptfe/Pfa Tubing Catalog

Contact us for more catalogs of PTFE(Teflon) Products, Sample Preparation & Filtration, Reaction & Synthesis Equipment, High-Purity & Trace Analysis, Custom Machining Services, General Consumables & Seals, Electrochemistry & New Energy Testing, Basic Labware & Containers, Fluid Transfer, Tubing & Valves, etc.

KINTEK

COMPANY PROFILE

>>> About Us

From everyday basic labware (beakers, measuring cylinders, crucibles, dishes, reagent/wash bottles, centrifuge and digestion tubes), high-purity trace analysis instruments, and cleaning/storage tanks, to comprehensive fluid transfer components (tubing, fittings, valves), sample prep and filtration tools (separatory funnels, burettes, filters, pipettes, tweezers, spatulas), and general consumables (stirring bars, O-rings, gaskets, seal tapes, caps, septa), extending all the way to advanced derivative and reaction apparatus like standard or custom electrochemical cells, battery testing fixtures, electrode accessories, hydrothermal synthesis liners, microwave digestion vessels, microchannel reactors, and condensation/reflux devices, KINTEK manufactures virtually all imaginable laboratory supplies crafted from PTFE and PFA. Backed by end-to-end custom CNC fabrication, we are equipped to deliver absolutely everything from complex non-standard machined parts and bespoke laboratory setups to high-volume orders, maintaining an exclusive and absolute focus on high-performance fluoropolymer materials.

High Purity Pfa Nmr Sample Tubes With Precision Ptfe Caps For Strong Corrosion Resistance And High Temperature Laboratory Applications

Item Number: PL-CP193

Introduction

Engineered for extreme chemical resistance, these high-purity PFA NMR tubes with PTFE caps ensure sample integrity in aggressive environments. Perfect for trace analysis, they offer superior thermal stability and customizable dimensions for demanding industrial and research laboratory applications.

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Application	Description	Key Benefit
Hydrofluoric Acid Analysis	Monitoring chemical reactions involving HF which would etch and destroy glass NMR tubes.	Complete material resistance to HF etching.
Trace Metal Detection	Analysis of high-purity chemicals in the semiconductor industry where PPT-level purity is required.	Extremely low background leaching levels.
Petrochemical Refining	Testing of complex wastewater and oil-based samples containing corrosive sulfur compounds.	Durability against aggressive organic solvents.
Pharmaceutical Synthesis	Monitoring the synthesis of active pharmaceutical ingredients (APIs) in acidic or basic environments.	Prevention of sample contamination and degradation.
Polymer Research	Investigating high-temperature polymer melt behaviors and reaction kinetics.	Stability at elevated temperatures up to 260°C.
Environmental Monitoring	Analyzing hazardous waste and soil extracts containing high concentrations of volatile contaminants.	Secure PTFE seal prevents loss of volatiles.
Alkaline Sample Testing	Conducting NMR studies on high-pH solutions like 1M sodium hydroxide.	No silica leaching or tube degradation from bases.

Parameter	Specification Detail for PL-CP193
Model Identifier	PL-CP193
Tube Material	High-Purity Perfluoroalkoxy (PFA)
Cap Material	Polytetrafluoroethylene (PTFE)
Standard Outer Diameter (OD)	5 mm (Fully Customizable)
Standard Inner Diameter (ID)	4 mm (Fully Customizable)
Wall Thickness	0.5 mm (Custom Options Available)
Length	Customizable to client requirements
Operating Temperature Range	-200°C to +260°C
Chemical Resistance	Near-universal (Acids, Bases, Solvents)
Surface Finish	Smooth, non-stick, low-friction

Application	Description	Key Benefit
Parameter	**Specification Detail for PL-CP193**	
Fabrication Method	Precision Extrusion and CNC Machining	
Purity Grade	Trace analysis quality	

High Purity Pfa Nmr Sample Tubes With Ptfe Caps Corrosion Resistant Fluoropolymer Labware

Item Number: PL-CP42

Introduction

Secure your trace analysis with high-purity PFA NMR tubes and precision-machined PTFE caps. Engineered for extreme corrosion resistance and thermal stability, these customizable fluoropolymer components ensure zero-contamination sample handling in demanding laboratory environments.

Learn More

Application	Description	Key Benefit
NMR Spectroscopy	Analysis of complex molecular structures using sensitive NMR probes where glass might cause interference.	High signal-to-noise ratio and zero ion leaching.
Trace Metal Analysis	Handling and storage of high-purity acids and reagents for ICP-MS or ICP-OES sample preparation.	Eliminates background contamination from the vessel material.
Semiconductor Processing	Storage and transport of ultra-pure wet chemicals used in wafer cleaning and etching processes.	Maintains chemical grade integrity under harsh conditions.
Pharmaceutical Synthesis	Reaction monitoring and sample storage for drug development involving corrosive precursors.	Excellent resistance to organic solvents and reactive intermediates.
Environmental Testing	Preparation of environmental samples containing volatile organic compounds (VOCs) or heavy metals.	Superior sealing prevents loss of volatile analytes.
Hydrofluoric Acid Digestion	Analytical procedures involving HF where traditional borosilicate glass tubes would be etched or destroyed.	Total material resistance to fluorine-based acids.
Cryogenic Research	Handling of samples at extremely low temperatures for physical chemistry and materials science.	Maintains flexibility and seal integrity at sub-zero temperatures.

Parameter	Specification Detail (PL-CP42 Series)
Model Identifier	PL-CP42
Tube Material	High-Purity PFA (Perfluoroalkoxy)
Cap Material	Polytetrafluoroethylene (PTFE)
Standard Outer Diameter (OD)	5.0 mm (Customizable upon request)
Standard Inner Diameter (ID)	4.0 mm (Customizable upon request)
Maximum Operating Temperature	+260°C (500°F)
Minimum Operating Temperature	-200°C (-328°F)
Chemical Resistance	Universal resistance (except molten alkali metals and elemental fluorine)
Fabrication Method	Precision CNC Machining & Specialized Extrusion
Customization Options	Length, diameter, wall thickness, and specialized cap venting

Application	Description	Key Benefit
Parameter	**Specification Detail (PL-CP42 Series)**	
Trace Element Profile	Parts-per-billion (ppb) to parts-per-trillion (ppt) purity levels	

Pfa Chromatography Column Series And Corrosion Resistant Resin Exchange Column With Filter Frit Support For Trace Analysis Customizable

Item Number: PL-CP405

Introduction

High-purity PFA chromatography column series featuring corrosion-resistant resin exchange capabilities and customizable filter frit supports. Engineered for trace analysis and aggressive chemical processing, this system ensures zero contamination and superior chemical stability in demanding laboratory environments.

Learn More

Application	Description	Key Benefit
Trace Metal Analysis	Preparation of geological or environmental samples for ICP-MS and ICP-OES analysis.	Zero background contamination for sub-ppb detection limits.
Semiconductor Purification	Removal of metallic impurities from photoresists, etchants, and high-purity chemicals.	Guaranteed chemical compatibility with ultra-pure reagents.
Pharmaceutical Synthesis	Ion exchange and resin-based purification of active pharmaceutical ingredients (APIs).	Prevention of organic leachables from entering the drug product.
Isotope Geochemistry	Precise separation of strontium, neodymium, and lead isotopes using resin-packed columns.	High recovery rates and sharp separation peaks for accurate dating.
Rare Earth Element Extraction	Multi-stage separation of lanthanides using tandem column configurations.	Efficient series processing with minimal dead volume between stages.
Nuclear Chemistry	Separation of radioactive isotopes and handling of highly corrosive radioactive wastes.	Long-term durability under radiation and aggressive acid exposure.
Environmental Monitoring	Concentration of trace pollutants from large volumes of aqueous or organic samples.	Durable, reusable components that withstand field and lab conditions.
Specialty Chemical R&D	Testing new resin chemistries in a chemically inert environment to evaluate performance.	Flexibility to customize column dimensions for experimental scale-up.

Specification Category	Parameter Details for PL-CP405
Model Identification	PL-CP405 (Base Series for Custom Configuration)
Primary Material	High-Purity Perfluoroalkoxy (PFA)
Accessory Materials	PTFE Frits / Sieve Plates, Customizable Support Stands
Column Dimensions	Fully Customizable (Diameter, Length, Wall Thickness)
Connection Types	PFA Compression Fittings, Flanged Ends, or Custom Threading
Frit Pore Sizes	Tailored to Resin Mesh Size (Customizable)
Configuration Options	Single Column, Series (Tandem), Parallel Multi-Channel
Temperature Resistance	-200°C to +260°C
Pressure Rating	Dependent on wall thickness and custom design requirements

Application	Description	Key Benefit
Specification Category	**Parameter Details for PL-CP405**	
Chemical Compatibility	Universal (Except molten alkali metals and fluorine at high temperatures)	
Fabrication Method	Precision CNC Machined / Custom Molded Components	
Surface Finish	Ultra-smooth interior (Ra < 0.5μm available upon request)	

Corrosion Resistant Pfa Tubing 1/4 Inch Custom Molded Welded Fluid Transfer Components

Item Number: PL-CP377

Introduction

Experience superior chemical inertness with our custom-molded PFA tubing solutions. Engineered for 1/4 inch applications and advanced welding processing, these corrosion-resistant components guarantee ultra-high purity and long-term reliability in the most demanding industrial fluid transfer environments.

Learn More

Application	Description	Key Benefit
Semiconductor Processing	Transport of ultra-pure deionized water and aggressive etching chemicals during wafer fabrication.	Prevents metal ion contamination and ensures process stability.
Fuel Cell Testing	Handling of hydrogen and high-humidity gases in fuel cell test stands and energy research.	Resistance to high-humidity corrosion and low gas permeability.
Pharmaceutical Synthesis	Fluid transfer in reactors for the production of active pharmaceutical ingredients (APIs).	FDA-compliant material purity and resistance to organic solvents.
Environmental Monitoring	Collection and transport of air and water samples for trace-level pollutant analysis.	Low adsorption ensures accurate quantification of trace analytes.
Petrochemical Analysis	Handling of high-temperature hydrocarbons and corrosive catalysts in laboratory pilot plants.	High thermal stability and robust mechanical performance.
Chemical Manufacturing	Custom manifolds for the distribution of bulk acids and bases in industrial pilot lines.	Leak-proof welded connections and custom-tailored geometries.
High-Precision Chromatography	Delivery of mobile phases and samples in advanced analytical instrumentation.	Minimized pressure loss and consistent fluid dynamics.

Specification Category	Parameter Details for PL-CP377	Value/Range
Model Identification	Product Identifier	PL-CP377
Material Properties	Base Material	High-Purity Perfluoroalkoxy (PFA)
Dimensions	Standard Outer Diameter	1/4 Inch (Customizable)
	Wall Thickness	Custom Specification (Molded to Order)
	Length	Custom Continuous Lengths or Pre-cut Segments
Customization Options	Molding Capabilities	Full Custom Mold Development Available
	Processing	Thermal Welding, Flaring, CNC Machining
	Fitting Integration	Integrated PFA Fittings or Welded Junctions
Performance Metrics	Operating Temperature	-200°C to +260°C
	Chemical Resistance	Near-Universal (Excluding molten alkali metals)
	Surface Finish	Ra ≤ 0.25 µm (Smooth Bore)

Application	Description	Key Benefit
Specification Category	**Parameter Details for PL-CP377**	**Value/Range**
Compliance	Cleanliness Standards	Trace Analysis Grade / Semiconductor Grade
	Fabrication Method	High-Precision CNC and Custom Injection/Compression Molding

Custom Pfa Tubing 1/4 Inch High Purity Corrosion Resistant Fluoropolymer Tube With Welding And Machining Services

Item Number: PL-CP178

Introduction

Precision 1/4 inch PFA tubing offering universal chemical resistance and high transparency. Customizable through expert welding and mold opening, these corrosion-resistant tubes ensure reliable fluid transfer in semiconductor and pharmaceutical environments for demanding industrial applications.

Learn More

Application	Description	Key Benefit
Semiconductor Manufacturing	Delivery of ultra-pure water (UPW) and aggressive etching chemicals like HF in cleanroom environments.	Zero metallic contamination and chemical stability.
Pharmaceutical Processing	Transfer of active pharmaceutical ingredients (APIs) and solvents in sterile synthesis environments.	USP Class VI compliance and ease of sterilization.
Trace Metal Analysis	Used as sample lines in ICP-MS and ICP-OES instruments where sample purity is paramount.	Lowest levels of leachable ions and trace elements.
Chemical Pilot Plants	Temporary and permanent piping for testing new catalytic processes involving corrosive intermediates.	Rapid custom fabrication and leak-proof welding.
Battery Technology	Handling of volatile and corrosive electrolytes during the assembly and testing of lithium-ion cells.	Resistance to organic carbonates and lithium salts.
Environmental Monitoring	Continuous sampling of groundwater or industrial effluent containing unknown contaminants.	Long-term durability against environmental stress cracking.
Laboratory Fluidics	Bespoke connections for complex distillation or reflux apparatus requiring heat and chemical resistance.	Custom configurations and high-temperature tolerance.

Feature	Specification Detail (PL-CP178 Series)
Model Number	PL-CP178
Base Material	Virgin Ultra-High Purity PFA (Perfluoroalkoxy)
Standard Diameter	1/4 Inch (OD/ID variants available)
Customization Options	Fully Customizable Dimensions and Wall Thicknesses
Fabrication Services	Custom Mold Opening, Precision CNC Machining, IR/Butt Welding
Service Temperature	-200°C to +260°C (-328°F to +500°F)
Chemical Compatibility	Resistance to all common solvents, acids, and bases
Surface Finish	Ra ≤ 0.25 µm (Standard Ultra-Smooth Bore)
Compliance	FDA/USP Class VI Grade Material Available
Pressure Rating	Dependent on wall thickness and temperature (Customized to spec)
Visual Property	High Transparency / Translucent

Corrosion Resistant Pfa Nmr Tubes With Ptfe Caps For High Temperature Trace Analysis Applications

Item Number: PL-CP407

Introduction

Premium PFA NMR tubes featuring precision-engineered PTFE caps designed for superior chemical resistance and high-temperature stability. Our custom-fabricated solutions ensure zero contamination for sensitive trace analysis and aggressive chemical research across all major industrial laboratory sectors.

Learn More

Application	Description	Key Benefit
NMR Spectroscopy	Analysis of aggressive or high-purity samples where glass silica interference must be avoided.	Zero background interference from glass-related ions.
Semiconductor Processing	Handling of high-purity acids and etching solutions used in wafer cleaning and fabrication.	Prevents metallic contamination at the parts-per-trillion level.
Pharmaceutical Research	Storage and analysis of complex organic compounds and reactive intermediate metabolites.	Maintains sample stability without surface adsorption.
Petrochemical Analysis	Testing of crude oil derivatives and corrosive catalysts under elevated thermal conditions.	High temperature resistance and chemical durability.
Trace Element Analysis	Sample preparation and storage for ICP-MS and other high-sensitivity analytical techniques.	Eliminates leaching of boron, sodium, and other trace elements.
Battery Research	Testing of aggressive electrolytes and molten salts in energy storage development.	Resists degradation from highly reactive chemical environments.
Environmental Monitoring	Analysis of soil and water samples containing volatile organic compounds (VOCs).	Exceptional seal integrity prevents loss of volatiles.

Parameter	Specification Detail	Model Identification
Model Identifier	Standard Configuration	PL-CP407
Tube Material	High-Purity Perfluoroalkoxy (PFA)	PL-CP407
Cap Material	Polytetrafluoroethylene (PTFE)	PL-CP407
Internal Diameter (ID)	4 mm	PL-CP407
Outer Diameter (OD)	5 mm	PL-CP407
Temperature Range	-200°C to +260°C	PL-CP407
Chemical Resistance	Universal (Except molten alkali metals)	PL-CP407
Fabrication Method	Precision CNC Machining & Extrusion	PL-CP407
Customization	Available (Dimensions, Caps, Fittings)	PL-CP407
Surface Finish	Ultra-Smooth, Low-Friction	PL-CP407
Trace Metal Content	< 0.1 ppb (Standard Grade)	PL-CP407
Pressure Rating	Dependent on wall thickness and temperature	Customizable

Application	Description	Key Benefit
Parameter	**Specification Detail**	**Model Identification**
Length	Standard and Bespoke Lengths Available	Customizable

High Performance Pfa Coiled Spring Tubing And Custom Ptfe Fabrication Services With Welded Fittings And Precision Bent Components

Item Number: PL-CP397

Introduction

High performance PFA coiled spring tubing and custom PTFE fabrication services provide exceptional chemical resistance and thermal stability. Our precision welded fittings and custom bent components ensure leak proof performance for high purity industrial fluid handling systems and critical laboratories.

Learn More

Application	Description	Key Benefit
Semiconductor Processing	Transport of ultra-pure chemicals and deionized water in wafer cleaning and etching stages.	Zero metal ion contamination and high chemical resistance.
Fuel Cell Research	Handling of hydrogen and humidified gases in high-temperature testing environments.	Prevents corrosion and maintains gas purity for accurate data.
Pharmaceutical Synthesis	Custom manifolds and coiled lines for the sterile transfer of active pharmaceutical ingredients (APIs).	FDA-compliant materials with non-stick, easy-clean surfaces.
Analytical Instrumentation	Specialized tubing and fittings for high-performance liquid chromatography (HPLC) and gas chromatography (GC).	Minimal peak broadening and low adsorption of trace analytes.
Chemical Manufacturing	Custom-fabricated reaction vessels and drainage systems for aggressive acid processing.	Long-term durability in environments that destroy stainless steel.
Aerospace Engineering	Lightweight, fire-resistant fluid lines for hydraulic or fuel systems in extreme environments.	High strength-to-weight ratio and wide temperature tolerance.
Medical Device Components	Custom-molded fluoropolymer parts for diagnostic equipment and high-purity fluid delivery.	Biocompatible and resistant to aggressive sterilization protocols.

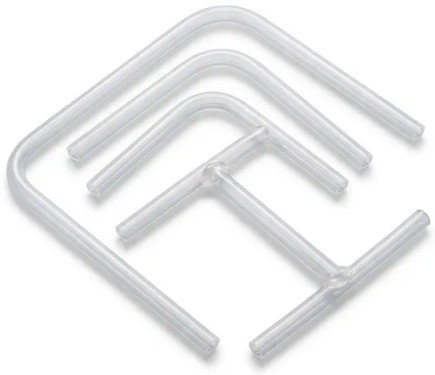
Property	PTFE Specification	PFA Specification
Specific Gravity	2.10 - 2.20 g/cc	2.12 - 2.17 g/cc
Melting Point	327°C (621°F)	305°C (581°F)
Tensile Strength	2990 - 4970 psi	3600 - 4500 psi
Hardness (Shore D)	55D	60D
Water Absorption (24h)	0.01%	<0.01%
Coefficient of Friction	0.110	0.200
Dielectric Constant	2.1	2.1

Parameter	Description / Capability
Product Item Number	PL-CP397

Application	Description	Key Benefit
Property	**PTFE Specification**	**PFA Specification**
Parameter	**Description / Capability**	
Customization Type	Fully Customizable per User Specification	
Tubing Geometries	Straight, Coiled (Spring), Bent (Molded), Multi-Lumen	
Fabrication Methods	CNC Machining, Heat Welding, Molded Bending, Flaring	
Coil Dimensions	Custom Inner Diameter (ID), Outer Diameter (OD), and Extended Length	
Welding Integration	Integrated PFA Fittings, Manifolds, and Flanges	
Tolerance Levels	Precision Machining up to ±0.05mm depending on geometry	
Connection Interfaces	NPT, BSP, Flared, or Custom Welded Connections	
Surface Finish	High-purity smooth-bore finish for anti-adsorption	

High Purity Pfa Coiled Tubing Custom Ptfe Machining Pfa Welding And Precision Bending Solutions

Item Number: PL-CP37



Introduction

Premium PFA coiled tubing and custom fluoropolymer fabrication solutions for semiconductor and chemical processing. Expert CNC machining, precision welding, and tailored bending services ensure high-purity fluid transfer and zero-leakage performance in corrosive environments. Contact us for bespoke industrial specifications today.

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Application	Description	Key Benefit
Semiconductor Wet Etching	Transporting ultra-high purity acids and solvents to silicon wafers during the cleaning and etching phases.	Zero ionic contamination and resistance to HF/HNO3 mixtures.
Pharmaceutical Synthesis	Handling reactive intermediates and sterile fluids in custom glass or stainless steel reactor interfaces.	Superior biocompatibility and ease of sterilization for cleanroom use.
Chemical Distribution Systems	Managing the bulk transfer of aggressive chemicals from storage tanks to point-of-use stations.	Long-term durability and leak-proof welded connections for operator safety.
Laboratory Instrumentation	Providing flexible, space-saving fluid lines for autosamplers, HPLC, and mass spectrometry systems.	High flexibility with minimal internal volume and no leaching of plasticizers.
Environmental Trace Analysis	Sampling and digestion of environmental samples using high-purity vessels and transfer lines.	Exceptional material cleanliness ensuring accurate detection of trace elements.
Heat Exchanger Components	Custom-coiled PFA tubing used in immersion heaters or cooling coils for corrosive baths.	High thermal conductivity relative to wall thickness and total chemical immunity.
Aerospace Fluid Systems	Specialized fuel and hydraulic lines required to operate in extreme temperature and vacuum conditions.	Weight reduction and maintenance of mechanical integrity in harsh environments.

Specification Category	Details for PL-CP37 Series
Base Materials	Virgin PFA (Perfluoroalkoxy), Virgin PTFE (Polytetrafluoroethylene)
Fabrication Methods	CNC Machining, Thermal Bending, PFA Fusion Welding, Custom Molding
Tubing Configurations	Coiled (Spring), Straight, Multi-core, Corrugated (Custom Available)
Available Diameters	Fully Customizable (Metric and Imperial sizing per request)
Wall Thickness	Tailored to pressure requirements and flexibility needs
Operating Temperature	-200°C to +260°C (Material Dependent)
Chemical Compatibility	Universal (except molten alkali metals and fluorine at high temperatures)
Compliance	Semiconductor-grade purity, USP Class VI material options
Fitting Interfaces	Welded PFA joints, Flared, Compression, or NPT/BSP Threaded
Maximum Pressure	Dependent on custom wall thickness and operating temperature

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