

TrueSeal™ Kynar® PVDF Fittings

Application data and comparison versus stainless steel

Parker's TrueSeal™ Kynar® PVDF range of fittings is the only push-to-connect fluoropolymer fitting on the market and brings the ease of a push-to-connect fittings to new markets. The fitting range offers unique solutions for applications with high temperatures, strong chemical concentrations or oxidizers such as ozone.

TrueSeal™ Kynar® PVDF fittings are particularly well suited to replace stainless steel in corrosive environments.

Key benefits of TrueSeal™ Kynar® PVDF products versus stainless steel:

- Non-corroding with no need to passivate
- Non-wetting/easy release
- Chemically inert
- Minimal metallic content yields minimal leaching
- Can be cleaned with aggressive chemicals
- Broad range of process equipment components
- Increased purity performance over time
- Smoother surface finish

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TrueSeal™ Kynar® PVDF fittings versus stainless steel

	TrueSeal™ Kynar® PVDF fittings	Stainless steel
Corrosive environments	Well suited	Does not hold up well, stains
Passivation required to aid in corrosion resistance?	No passivation required	Passivation required
Does it wet well?	Yes, smooth finish releases dirt easily	No, rougher surface finish holds dirt
Efficiency of fluid transfer	Efficient due to its smooth surface	Less efficient due to rough surface
Promotion of biomass growth	Does not promote biomass growth; perfect for UHP water applications for biopharm and semiconductor markets	Rough surface promotes biomass growth
Dirtiest effluent water	At startup; gets cleaner over time due to low leachables and extractables in the material	Cleanest at startup; metal ions break free over time, called rouging

ENGINEERING YOUR SUCCESS.

Water and beverage applications

Kynar® PVDF and Kynar Flex® PVDF

Properties

- Resistant to most chemicals and solvents
- Low permeability to most gases and liquids
- High thermal stability
- Mechanical strength at elevated temperature
- Cold weather impact strength (specific to Kynar Flex®)
- High purity
- High abrasion resistance
- Readily processible, formable, and weldable
- Resistant to sunlight degradation
- Resistant to nuclear radiation
- Resistant to fungus
- Low flame and smoke characteristics

Chemical compatibility

- Chlorine
- Methyl chloroform
- Hydrochloric acid
- Salt water
- Chlorobenzene
- Sodium hypochlorite
- Hot sugars
- Sulfuric acid <98%
- Chlorinated salts
- Phosphoric acid
- Hydrofluoric acid
- Metallic chlorides
- Acid mixtures
- Diesel/biodiesel
- Bromine (gaseous)
- Bromine water
- Hydro bromic acid
- Bromobenzene
- Brominated salts
- Iodine
- Salicylic acid
- <50% Acetic acid
- Methyl alcohol
- Chromic acid
- Nitric acid
- Deionized water (DI)
- Other fuel mixtures

Benefits

Totally resistant*	Resistant with conditions
Water	Ketones Amines Strong bases "Fuming acids"
Strong acids	
Strong oxidants	
Halogens	
Aromatics and aliphatics	
Hydrocarbons	
Ozone	
Sterilization resistance: ozone, UV, gamma, steam, chemicals	
Mechanical: flexibility, toughness, abrasion resistance	

* Chemical resistance includes resistance to swelling, permeation, and stress cracking.

Kynar® PVDF connectors

Water and beverage systems

- Safely handles steam up to 145°C without loss of properties over many cycles.
- Commonly used to handle 16-18 me ohm-cm deionized water in Semiconductor and Pharmaceutical Facilities since 1982.
- Meets ASTM F-1673 chemical testing requirements for laboratory waste drainage systems (water combined with acids, bases, hydrocarbons, chlorinated cleaning solutions, & ketones)
- NSF 61 Listed for Drinking Water System Components
- FDA Listing for repeat contact with food

Typical applications

Chemical Related	Why Used
Pulp & Paper	Bleaching chemicals
Metal Preparation	High temperature acids
Petrochemicals	Alkylation acids, hydrocarbon mixtures, H ₂ S (Low permeation)
Food & Beverage	FDA listing, steam cleaning, acidic foods
Wastewater	Chemical mixtures, outdoor exposure, chlorine, caustics
Potable Water	NSF 61, low leachables & extractables, UV, ozone, Cl ₂
Pesticides	Halogen resistance, low permeation
General Chemical	pH <1 to 12, or 13.5 with Kynar Flex®
Purity Related	
Semiconductor	High purity water, acids, ozone, FM4910
Pharmaceutical/Biotech	Ozone, steam cleanable, FDA, resists biomass growth
Flame Retardant	
Institutional/Plenum	Acid waste drainage, ASTM E84 0-10 rating

Fluoropolymer comparison

Water and beverage connectors

Common sterilization chemicals

Chemical	Kynar® PVDF	PFA	PTFE
Ethylene oxide (EtO)	Excellent	Excellent	Excellent
Peracetic acid	Good	Excellent	Excellent
Hydrogen peroxide	Excellent	Excellent	Excellent
Ozone	Excellent	Excellent	Excellent
Chlorine dioxide	Excellent	Excellent	Excellent

Common sterilization processes

Process	Temperature	Kynar® PVDF	PFA	PTFE
Pasteurization	Up to 194°F	Excellent	Excellent	Excellent
Boiling	212°F	Excellent	Excellent	Excellent
Autoclave	249.8°F	Good	Excellent	Excellent
Dry heat ovens	482°F	Poor	Good	Good

- = Excellent
- = Good
- = Poor

