

# 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

## Contact Information:

Parker Hannifin Corporation  
**Fluid System Connectors Division**  
300 Parker Drive  
Otsego, MI 49078

phone 269 694 6555  
fax 269 694 4614  
fscsales@parker.com

www.parker.com



## TrueSeal™ Kynar® PVDF fittings versus stainless steel

	TrueSeal™ Kynar® PVDF fittings	Stainless steel
<b>Corrosive environments</b>	Well suited	Does not hold up well, stains
<b>Passivation required to aid in corrosion resistance?</b>	No passivation required	Passivation required
<b>Does it wet well?</b>	Yes, smooth finish releases dirt easily	No, rougher surface finish holds dirt
<b>Efficiency of fluid transfer</b>	Efficient due to its smooth surface	Less efficient due to rough surface
<b>Promotion of biomass growth</b>	Does not promote biomass growth; perfect for UHP water applications for biopharm and semiconductor markets	Rough surface promotes biomass growth
<b>Dirtiest effluent water</b>	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            | • Bromine (gaseous)    |
| • Methyl chloroform   | • Bromine water        |
| • Hydrochloric acid   | • Hydro bromic acid    |
| • Salt aater          | • Bromobenzene         |
| • Chlorobenzene       | • Brominated salts     |
| • Sodium hypochlorite | • Iodine               |
| • Hot sugars          | • Salicylic acid       |
| • Sulfuric acid <98%  | • <50% Acetic acid     |
| • Chlorinated salts   | • Methyl alcohol       |
| • Phosphoric acid     | • Chromic acid         |
| • Hydrofluoric acid   | • Nitric acid          |
| • Metallic chlorides  | • Deionized water (DI) |
| • Acid mixtures       | • Other fuel mixtures  |
| • Diesel/biodiesel    |                        |

## Benefits

Totally resistant*	Resistant with conditions
Water	Ketones
Strong acids	Amines
Strong oxidants	Strong bases
Halogens	“Fuming acids”
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 <sub>2</sub> 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 <sub>2</sub>
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)	Green	Green	Green
Peracetic acid	Yellow	Green	Green
Hydrogen peroxide	Green	Green	Green
Ozone	Green	Green	Green
Chlorine dioxide	Green	Green	Green

- Green = Excellent
- Yellow = Good
- Red = Poor

Common sterilization processes

Process	Temperature	Kynar® PVDF	PFA	PTFE
Pasteurization	Up to 194°F	Green	Green	Green
Boiling	212°F	Green	Green	Green
Autoclave	249.8°F	Yellow	Green	Green
Dry heat ovens	482°F	Red	Yellow	Yellow

