

stärkeTM

PVDF Piping System

for Chemical and Industrial Applications

- Pipes
- Fittings
- Valves



FEATURES

PVDF (Polyvinylidene Fluoride) piping systems are renowned for their outstanding performance in demanding industrial applications due to several distinctive features:

✓ **Exceptional Chemical Resistance:**

PVDF pipes can withstand long-term exposure to aggressive chemicals, acids (like concentrated sulfuric and hydrochloric acids), alkalis, bromines and organic solvents, making them highly suitable for corrosive fluid transport in chemical production and industrial processes.

✓ **High Temperature Tolerance:**

They serve reliably in a broad temperature range: Typically, from -40°C up to 140°C, with short-term resistance even at 150°C. This ensures safe usage for both hot and cold fluids in challenging environments.

✓ **Superior Mechanical Strength and Durability:**

PVDF provides high mechanical strength, impact resistance, and pressure tolerance, often exceeding 16 bar, and can withstand heavy stress without deforming.

✓ **Lightweight and Easy Installation:**

PVDF pipes are approximately 70% lighter than comparable metal pipes which streamlines handling and installation, reducing labor and associated costs.

✓ **UV and Weather Resistance:**

The material is highly resistant to ultraviolet (UV) light and environmental weathering, supporting outdoor installations without need for extra protection.

✓ **High Purity and Hygiene**

PVDF pipes are approximately 70% lighter than comparable metal pipes which streamlines handling and installation, reducing labor and associated costs.

✓ **Versatility and Compatibility:**

Suitable for joining with various fusion and welding techniques (socket, butt, IR fusion), PVDF systems support flexible, leak-proof, and robust connections for diverse pipeline requirements—from potable water to high-purity processing.

✓ **Low Maintenance and Longevity:**

Minimal scaling, fouling, and corrosion means less frequent maintenance and reduced downtime. PVDF systems can last over 20 years, offering excellent lifecycle cost advantages despite higher initial investment.

APPLICATIONS

- ✓ **Chemical Processing:**
Used to handle and transport aggressive chemicals (acids, bases, solvents), minimizing leaks and ensuring long-term durability in corrosive environments such as acid production, organic synthesis, and chemical waste handling.
- ✓ **Pharmaceutical Manufacturing:**
Employed for conveying pharmaceutical-grade fluids and ultrapure water. PVDF's hygienic, non-toxic properties and compliance with relevant standards ensure contamination-free transport and system integrity.
- ✓ **Semiconductor and Electronics:**
Critical for delivering ultrapure water and chemicals during semiconductor fabrication, as PVDF does not support microbial growth and has exceptionally low extractables, meeting stringent industry purity standards.
- ✓ **Oil and Gas:**
Used in offshore platforms, refineries, and chemical injection lines for its robust resistance to hydrocarbons, saltwater, and high temperature environments.
- ✓ **Food and Beverage**
Applied in FDA-compliant fluid transfer systems in food manufacturing and beverage processing, due to PVDF's high purity and bacterial resistance.
- ✓ **Power Generation:**
Utilized for transporting process fluids and chemicals in both thermal and nuclear plants, thanks to PVDF's high thermal stability and chemical inertness.
- ✓ **Metal Finishing/Electroplating:**
Handles acid lines and plating baths with high resistance to corrosion and abrasion.
- ✓ **Laboratory/Research:**
Preferred for high purity chemical transport in analytical and research labs.
- ✓ **Renewable Energy (PV industry):**
Ensures safe fluid transport in solar panel manufacturing and other clean energy applications due to UV resistance and durability.
- ✓ **Nuclear Power Industry:**
PVDF piping systems play crucial roles in nuclear facilities for handling radioactive waste and aggressive chemical environments. The material's radiation resistance and chemical inertness make it suitable for nuclear reactor waste management applications.

PVDF PIPES, FITTINGS & VALVES



PVDF Pipe



PVDF 90° Elbow



PVDF 45° Elbow



PVDF Coupling



PVDF End Cap



PVDF Tee



PVDF Reducer



PVDF Stub End



PVDF Union



PVDF Van Stone Flange



PVDF Y strainer



PVDF Ball Check Valve



PVDF Union Ball Valve



PVDF Butterfly Valve
(Lever)

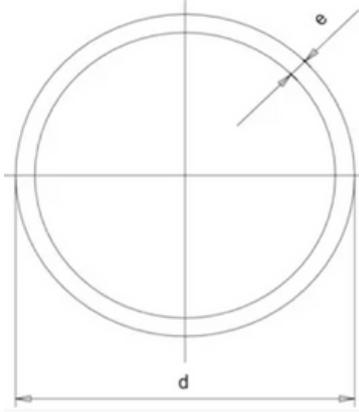


PVDF Butterfly Valve
(Gear)



PVDF Diaphragm Valve

PVDF PIPE DIMENSIONS



Size (in)	d (mm)	e (mm)	
		SDR21/PN16	SDR33/PN10
½	20	1.9	-
¾	25	1.9	-
1	32	2.4	-
1-¼	40	2.4	-
1-½	50	3	-
2	63	3	-
2-½	75	3.6	-
3	90	4.3	-
4	110	5.3	3.4
5	140	6.7	4.3
6	160	7.7	4.9
8	200	9.6	6.2

PVDF MATERIAL PROPERTIES CHART

Typical Property	Value	Unit	Test Method
Density	1.78	g/cm ³	ASTM D792
Tensile Modulus	1700 – 2300	MPa	ASTM D638
Tensile Strength at Yield	45 – 55	MPa	ASTM D638
Tensile Strength at Break	35 – 55	MPa	ASTM D638
Tensile Elongation at Yield	5 – 10	%	ASTM D638
Tensile Elongation at Break	> 50	%	ASTM D638
Taber Abrasion Resistance (1000 cycles, 1000 g, CD-10 Wheel)	5-10	mg	ASTM D4060
Charpy Notched Impact Strength (23 °C)	40 – 120	j/m	ASTM D6110
Notched Izod Impact Strength (23 °C)	110	j/m	ASTM D256
Durometer Hardness (Shore D, 1 sec, 2,00 mm)	73 – 80		ASTM D2240
Water Absorption	<0.04	%	ASTM D570
Physiologically Safe	YES		

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