

**stärke**<sup>TM</sup>

# PPH Piping System

for Chemical and Industrial Applications

- Pipes
- Fittings
- Valves



## FEATURES AND BENEFITS

- ✓ **Superior Quality Materials:**  
Using high-quality PPH raw materials ensures that the fittings have excellent tensile strength, durability, and chemical resistance.
- ✓ **Resistant to Stress Cracking:**  
Starke PPH has the ability to resist stress cracking and enhances the reliability of our fittings, even under high-stress conditions.
- ✓ **Easy Welding and Installation:**  
The welding properties of PPH make it easier to join pipe fittings, reducing installation complexity.
- ✓ **Working Temperature Range:**  
PPH fittings are stable up to around 100°C, making them suitable for hot water, chemical systems, and other moderate temperature applications.
- ✓ **Practical Testing for Quality Assurance:**  
Performing tests ensures the final product meets the required standards for real-world applications.
- ✓ **Chemical Resistance:**  
Performing tests ensures the final product meets the required standards for real-world applications.
- ✓ **Corrosion Resistance:**  
Unlike metal pipes, PPH will not rust or corrode when exposed to moisture or chemicals, leading to longer service life.
- ✓ **Lightweight:**  
PPH pipes are lighter than metal pipes, making them easier to handle and install.
- ✓ **Cost-Effective:**  
PPH provides a cost-effective solution for industries that require a balance between performance and budget.
- ✓ **Low Maintenance:**  
Due to their durability and resistance to many types of degradation, PPH pipes require less maintenance than other types of pipes.

## APPLICATIONS

- ✓ **Chemical Processing:**  
 Transporting aggressive chemicals, acids, and solvents.  
 Handling chemical reaction vessels, filtration, and mixing systems.
- ✓ **Water Treatment:**  
 Used in water filtration, desalination, and wastewater treatment plants.  
 Transporting treated water or chemicals in water systems.
- ✓ **Food & Beverage Industry:**  
 Safe for transporting food-grade liquids like milk, juices, and soft drinks.  
 Used in beverage production, dairies, and sterilization systems.
- ✓ **Pharmaceuticals:**  
 Piping for fluid transfer in pharmaceutical manufacturing.  
 Safe for handling sensitive, sterile compounds and water for injection (WFI) systems.
- ✓ **HVAC Systems:**  
 Transporting hot water in heating systems and air conditioning units.
- ✓ **Aquaculture:**  
 Used in water circulation and fish farming systems for both fresh and saltwater.
- ✓ **Pulp & Paper Industry:**  
 Transporting chemicals and pulp slurry in the paper manufacturing process.
- ✓ **Marine & Offshore:**  
 Corrosion-resistant piping for marine applications, including onboard fresh water and drainage systems.
- ✓ **Hydraulic Systems:**  
 Fluid transfer in hydraulic systems requiring durable, corrosion-resistant piping.
- ✓ **Electronics & Electrical:**  
 Used as conduit or insulation for electrical cables and systems.
- ✓ **Waste Management:**  
 Transporting industrial waste, including slurry and wastewater, in treatment plants and disposal systems.
- ✓ **Semiconductor and PV Solar:**  
 For double containment piping with PE pipes.  
 WTP/ETP Plants and chemical piping

## PROPERTIES

- ✓ **Chemical Resistance**  
 High resistance to most chemicals, including acids, alkalis, and solvents. Suitable for transporting chemicals such as hydrochloric acid, sulfuric acid, and others, depending on concentration.
- ✓ **Temperature Resistance**  
 Max Operating Temperature: PPH piping can withstand continuous temperatures of up to 90°C (194°F) and can handle short-term spikes up to 100°C (212°F).
- ✓ **Mechanical Properties**  
 Tensile Strength: Typically in the range of 30-45 MPa, which provides excellent strength under pressure. Stiffness: High stiffness, which makes PPH pipes structurally strong but can also make them prone to cracking under impact or stress.
- ✓ **Durability**  
 Long Service Life: PPH pipes have a long lifespan and can remain functional for many years, even under harsh conditions.
- ✓ **Corrosion Resistance**  
 Non-corrosive: Unlike metals, PPH piping does not corrode, making it ideal for environments with aggressive chemicals and moisture.
- ✓ **Flexibility & Ease of Installation**  
 PPH piping is relatively lightweight, which makes handling and installation easier compared to metal piping systems. Easier to fabricate and weld compared to other plastic materials like PVC.
- ✓ **Density**  
 Density: Typically around 0.9-0.91 g/cm<sup>3</sup>, which makes it less dense than water, allowing it to be lighter than most other piping systems.
- ✓ **Electrical Properties**  
 Insulating: PPH pipes are electrically non-conductive, which is useful in systems where electrical conductivity could be a concern.
- ✓ **Welding & Joining**  
 PPH pipes can be welded using methods like butt welding, electrofusion, or socket welding, which provide strong, leak-resistant joints. Joining requires proper technique to avoid leaks and ensure the integrity of the system.
- ✓ **Cost**  
 PPH is typically more affordable than other high-performance plastics like PVDF, making it a cost-effective option for many industrial applications.

**PPH PIPES, FITTINGS & VALVES**



PPH Pipe



PPH 90° Elbow



PPH 45° Elbow



PPH Socket



PPH End Cap



PPH Tee



PPH Reducer



PPH Stub End



PPH Reducing Tee



PPH Loose Flange



PPH Blind Flange



PPH Ball Check Valve



PPH FTA



PPH MTA



PPH Union



PPH Y strainer



PPH Union Ball Valve



PPH Butterfly Valve (Lever)



PPH Swing Check Valve

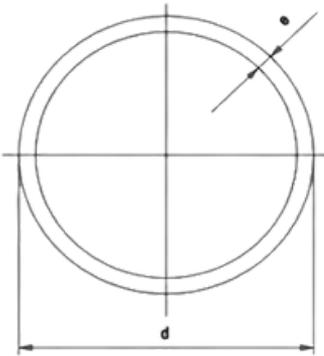


PPH T Type Strainer

Socket Fittings: 20mm – 160mm  
 Butt Fittings: 200mm – 315mm  
 Fabricated Fittings: 20mm – 400mm  
 Valves: 20mm – 400mm

\*Images are illustrative and may not represent actual design

## PIPE DIMENSIONS



STANDARD: DIN 8077-78

Pipe OD d (mm)	Pipe Thickness "e" (mm)				
	High Pressure Pipes			Low Pressure Pipes	
	SDR7/PN16	SDR11/PN10	SDR17.6/PN6	SDR26/PN4	SDR41/PN2.5
20	2.80	1.90			
25	3.50	2.30			
32	4.40	2.90	1.80		
40	5.50	3.70	2.30	1.80	
50	6.90	4.60	2.90	2.00	
63	8.60	5.80	3.60	2.50	
75	10.30	6.80	4.30	2.90	
90	12.30	8.20	5.10	3.50	2.20
110	15.10	10.00	6.30	4.20	2.70
125		11.40	7.10	4.80	3.10
140		12.70	8.00	5.40	3.50
160		14.60	9.10	6.20	4.00
180		16.40	10.20	6.90	4.40
200		18.20	11.40	7.70	4.90
225		20.50	12.80	8.60	5.50
250		22.70	14.20	9.60	6.20
280		25.40	15.90	10.70	6.90
315			17.90	12.10	7.70
355			20.10	13.60	8.70
400			22.70	15.30	9.80

## PPH MATERIAL PROPERTIES CHART

Properties	Value	Unit	Test Method
Density	0.90 - 0.91	g/cm <sup>3</sup>	ISO1183
Melt Flow Rate (230°C / 2.16kg)	0.3 - 0.7	g/10min	ISO1183
Tensile Modulus	1700	MPa	ISO527
Tensile Strength at Yield	>28	MPa	ISO527
Tensile Strength at Break	>32	MPa	ISO527
Elongation at Yield	>8	%	ISO527
Elongation at Break	>80	%	ISO527
Notch impact strength (23°C)	>40	KJ/m <sup>2</sup>	ISO179
Shore Hardness	70	Shore-D	ISO868
Heat deflection Temperature	100	°C	ISO306
Vicat Softning Temperature	158	°C	ISO306

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