

# PVC and CPVC

## Piping System Product Overview

**CORZAN**<sup>®</sup>  
INDUSTRIAL SYSTEMS



# Pipe

In a world of constant technological change, some things are better left unchanged. High quality PVC and CPVC pipe produced with proven technical know-how is a classic example.



## PVC Industrial Pipe

We use our own custom blend of PVC compound to ensure that desirable physical properties are maintained with every production run. GF's Harvel PVC piping exhibits exceptional consistent quality with uniform properties; making it the preferred choice of fabricators and custom houses. Our product line has grown to include standard and custom extrusions of PVC pipe in schedules 40, 80, and 120; as well as SDR series pipe produced to 13.5, 21, 26 and 41 dimensions.

GF's Harvel PVC pipe is ideal for numerous applications including chemical processing, aquaculture, water and waste water treatment, potable water systems, agricultural, irrigation, plating, and many other industrial applications involving corrosive fluid transfer.

Size range:

1/8"–24" Schedule 40/80

1/2"–8" Schedule 120

3/4"–8" SDR 21

1"–24" SDR 26

18"–24" SDR 41

Connections/Options:

Plain end, belled end, gasketed, threaded, and roll grooved pipe; custom lengths available

## CPVC Industrial Pipe

CPVC pipe is produced from a specialty blend of Corzan® CPVC material with unique physical properties desirable for piping applications (i.e., improved impact resistance and excellent fire resistance capabilities).

GF's Harvel CPVC Schedule 40 and Schedule 80 piping systems are a complete solution with pipe, valves, and fittings, and can handle a variety of applications, temperatures, and pressure requirements. CPVC pressure pipe has an upper working temperature limit of 200°F (210°F intermittently), or approximately 60°F above that of Type I Grade I PVC. As with all thermoplastic piping systems, CPVC's ability to withstand pressure varies with pipe diameter, wall thickness, and temperature.

Size range:

1/4"–24"

Connections/Options:

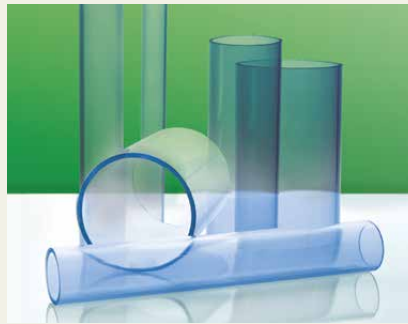
Plain end, belled end, and custom lengths



Corzan® is a registered trademark of The Lubrizol Corporation

# Pipe

Key to our technological advantage are superbly equipped on-site laboratories at each of our manufacturing sites.



## EnviroKing® UV Resistant Clear PVC Pipe

Harvel Clear™ Rigid PVC piping provides a versatile, cost-effective alternative for many piping applications, particularly those where visual monitoring of processes is critical.

The benefits of rigid PVC piping are well recognized: exceptional corrosion resistance; smooth interior walls for unimpeded flow and reduced sediment buildup; non-contaminating for purity applications; fast, reliable solvent-welded connections; good pressure-bearing capability; and ease of handling and installation, to name a few.

All of these important benefits are now available in a unique product with optimum clarity. This clarity provides the all-round visibility that specialized applications demand — whether it be clean room applications, sight glass, dual-containment, visual leak detection systems, or various other processing applications where continuous monitoring is necessary.

Size range:  
¼"–12" Schedule 40  
¼"–6" Schedule 80

Connections/Options:  
Plain end; belled end and custom lengths available

## EnviroKing® UV Resistant Clear PVC Pipe

EnviroKing® UV has been developed as a clear PVC piping that is suitable for exposure to sunlight. Unique UV blocking technology reduces harmful ultraviolet light wavelengths from penetrating the clear plastic while allowing beneficial wavelengths through. EnviroKing® provides an optimal solution to a wide variety of green energy applications such as low-pressure piping for algae production in photobioreactors or as durable transparent containment vessels in pressure applications.

Typical uses are found in algae cultivation, carbon capture technologies, biofuel production facilities, university research laboratories, research and development centers, sight glass, and other applications where visual monitoring of processes is necessary. Produced in IPS dimensions fully compatible with standard Sch 40 PVC fittings

Size range:  
2"–12" thin wall  
½"–6" Schedule 40

Connections:  
Plain end

## Duct Systems: PVC and CPVC

Engineered to offer a unique set of physical properties, GF's Harvel seamless extruded duct systems provide an array of industries with a lightweight, long-lasting, and cost-effective option for corrosive fume exhaust and drain handling systems.

GF's Harvel PVC duct provides excellent resistance to corrosion for industrial (i.e. plating) and institutional (laboratory) applications. It can safely carry a maximum service temperature of 140°F.

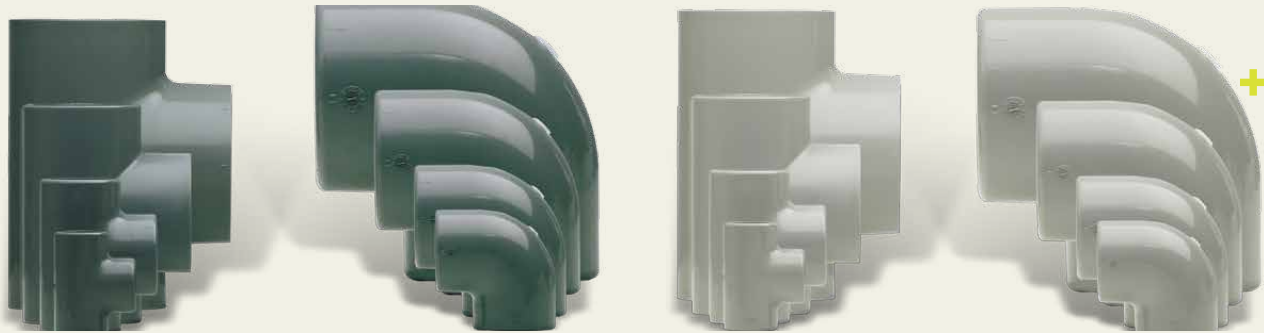
Our Corzan® CPVC duct has exceptional fire resistance (low flame spread and smoke generation characteristics), high heat distortion temperature and good mechanical strength. It can safely carry a maximum service temperature of 200°F (210° intermittently), making it ideal for hot corrosive fume handling systems in applications as diverse as metal finishing and plating to microelectronics..

Size range:  
PVC: 6"–24"  
CPVC: 6"–24"

Connections/Options:  
Plain end; custom lengths available

# Fittings

Our injection molding capabilities and tool shop expertise allow us to offer a diverse portfolio of high quality molded fittings.



## PVC Schedule 80

Polyvinyl Chloride (PVC) is one of the most broadly used thermoplastic materials common to many industries. PVC is highly resistant to acids, alkalis, alcohols, and many other corrosive materials. Our high quality PVC Schedule 80 piping systems are used in numerous pressure applications involving chemical processing, water and waste water treatment, chilled water, potable water, plating, and many other industrial applications involving corrosive fluid transfer. A wide array of component configurations and size ranges provide complete system solutions for use in aggressive applications.

Size range:  
¼"–24" Schedule 80

Connections:  
Solvent cement, threaded, flanged



## CPVC Schedule 80

Chlorinated Polyvinyl Chloride (CPVC) is simultaneously light, flexible, tough, and exceptionally corrosion-resistant. CPVC is highly resistant to acids, alkalis, alcohols, and many other corrosive materials. With its ability to withstand higher temperatures than PVC applications, CPVC is used in media temperatures up to 200°F (210°F intermittently) and can typically be found in hot and cold water distribution systems, chemical processing, hot corrosive waste streams and other corrosive applications requiring elevated temperature use. Our diverse portfolio of high quality Schedule 80 components provide system solutions for use in demanding applications of this type, such as water systems, hot acid distribution, and waste systems.

Size range:  
¼"–24" Schedule 80

Connections:  
Solvent cement, threaded, flanged



## PVC Schedule 40

Schedule 40 PVC systems provide the same inherent corrosion resistance as Schedule 80 PVC, but offer material saving for use in less demanding applications. Our diverse product line offering of Schedule 40 components enable cost effective solutions for use in lower pressure piping applications. Schedule 40 systems can typically be found in water and waste water treatment, aquaculture, water parks, swimming pools, agriculture, irrigation, marine applications, commercial roof and bridge drainage applications to name a few.

Polyvinyl Chloride (PVC) is one of the most broadly used thermoplastic materials, common to many industries. PVC is highly resistant to acids, alkalis, alcohols, and many other corrosive materials. It can be easily installed for chemical distribution and drainage, service piping, and irrigation systems.

Size range:  
½"–24" Schedule 40

Connections:  
Solvent cement, threaded

## Superior Ductility

GF fittings not only meet the technical requirements established by NSF and ASTM, but we also recognize that our customers require fittings with a high impact resistance. Our fittings are produced and tested to exceed industry standards for ductility and throughout each production batch, this is tested and confirmed. Working with our customers to recognize their needs, such as drill-and-tapping, continues to drive us to provide the most technically sound product on the market.

# Fittings

We are constantly innovating and improving our product offering, providing the system solutions you need.



## PVC Clear

PVC clear components for a system approach to containment, leak detection, sight glass, and other applications where visual monitoring of process conditions is needed.

Size range:  
½"–8"

Connections:  
Solvent cement



## Type 375 Union

Schedule 80 Union Type 375 fittings in PVC or CPVC are specifically engineered to connect with the Type 375 True Union Ball Valves. The unions and ball valves are ideally suited for basic applications encompassing the water processing/treatment sector, as well as other applications involving water.

Size range:  
½"–2"

Connections:  
Solvent cement, threaded

## DoubleSafe™ Transition Fittings

DoubleSafe™ Metal-to-Plastic Transition Fittings are the best way to transition between Schedule 80 PVC or CPVC and brass or stainless steel. DoubleSafe™ transition fittings feature 316 stainless steel or brass inserts molded inside the vinyl body—not inserted mechanically—for the most precise fit possible. And each fitting has two interior o-rings to allow for thermal expansion and contraction, for double the leak protection.

We make transitioning between systems simple. The spigot design allows unlimited configurations with standard components, and the molded wrench flats allow easy installation with common tools. The internal interface between the metal insert and the molded plastic body has a deep, interlocking texture, so that the two components are strongly interlocked to reduce the potential for damage caused by over-torquing.

Size range:  
½"–2"

Connections:  
Spigot × FPT

## Van Stone Flange

GF offers the most comprehensive and well-designed Van Stone Flange portfolio in the market. We have completely re-engineered the product line to provide a robust product that can withstand field conditions without breaking. Our use of a CPVC flange ring produced to very precise dimensions ensures a consistent fit with both PVC and CPVC hubs. Also, our comprehensive installation instructions and torque recording stickers take the guess work out of the installation and inspection process.

Size range:  
½"–24"

Connections:  
Solvent cement, spigot, threaded





# Valves

Our new generation of high quality valves feature more safety, simplicity and efficiency.



## Ball Valve Type 546

The ball valve Type 546 is yet another innovative product developed by GF Piping Systems; it comprises extensive experience and the latest technology.

A broad spectrum of product features provides you with quality, flexibility, and reliability, in addition to modularity. The ball valve Type 546 is the fully developed result of GF Piping Systems' 40 years experience in plastic.

The ball valve Type 546 is part of a modular system that satisfies your requirements on operational reliability as well as those on eco-friendliness and cost-effectiveness.

- Pneumatically or electrically actuated
- Limit switches for manual or actuated valve
- Lockable handle
- Handle extension
- Control ball for throttling applications available up to 2"

Size range:  
3/8"-4"

Connections:  
Solvent cement, threaded, flanged

## Ball Valve Type 375

Complement valve to the ball valve Type 546 for non-critical applications. The ball valve Type 375 offers you a basic PVC true union ball valve. Actuation is not available for the 375.

- Available from 1/2" to 6" (6" venturied)
- Handle with integrated tool for removing/adjusting the union bushing
- Full port design
- Compact length
- Blow-out proof stem

Size range:  
3/8"-6" PVC  
1/2"-2" CPVC

Connections:  
Solvent cement, threaded, flanged

## Diaphragm Valves

The new Generation Diaphragm Valve of GF Piping System sets new standards regarding safety, efficiency and simplicity.

Instead of the commonly used four metal screws it has a central union nut; this non-corrosive connection is characterized by homogeneous temperature behavior, and even surface pressure.

The optimal flow geometry offers double the Cv values. With almost linear flow characteristics this guarantees stable processes.

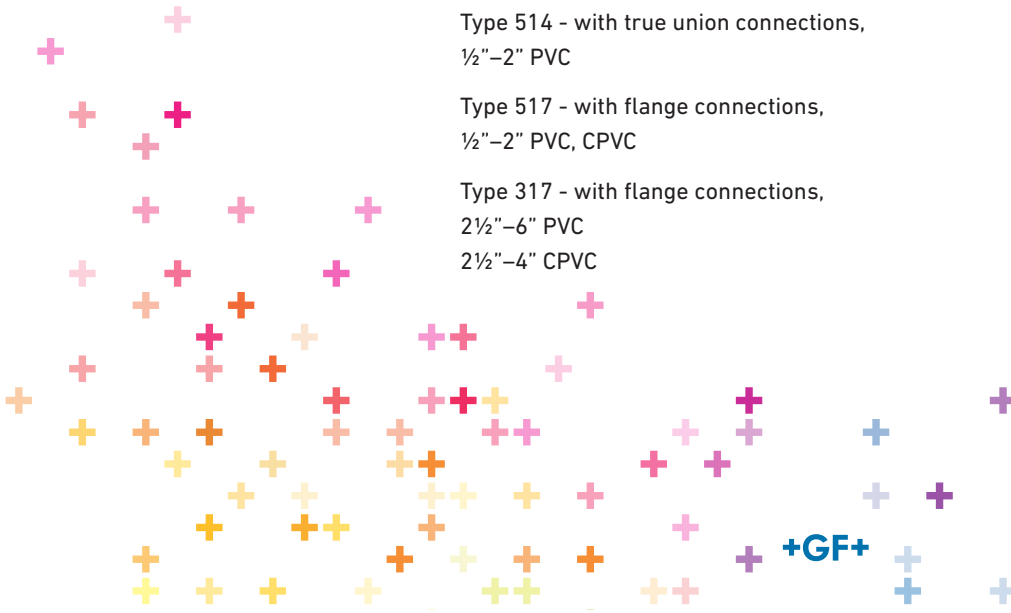
Standard equipment like a lockable handwheel, a two-colored indicator and an interface for a self-adjusting limit switch set new standards in terms of user-friendliness.

Also available with pneumatic actuation.

Type 514 - with true union connections,  
1/2"-2" PVC

Type 517 - with flange connections,  
1/2"-2" PVC, CPVC

Type 317 - with flange connections,  
2 1/2"-6" PVC  
2 1/2"-4" CPVC



# Valves

We are always working on the next innovative valve product, utilizing extensive experience and the latest technology.



## Butterfly Valves

The 567/568 type series of butterfly valves has a comprehensive range of products for wafer and lug style applications.

Our systems modular design principle allows you to exchange individual system components – fast, easily and at very little expense.

- 50% lower actuation torque compared to a centric butterfly due to the double eccentric operating principle
- Optional integrated electric position indicator in the mounting flange
- All components which are in contact with the media are made of piping materials, minimizing permeation
- Functional hand lever made of glass-fiber-reinforced polypropylene (PP-GF 30) with 5° ratchet setting, lockable

Manual valve available with hand lever or reduction gear, or pneumatically or electrically actuated

Size range/Connections:  
Type 567 Wafer style: 2"–24"  
Type 568 Lug style: 2"–12"



## Check Valves

**Cone check valves 561 and 562** feature safety, simplicity and efficiency.

- Self closing check valve
- Integrated spring for horizontal installation
- Optimized flow design
- Corrosion resistant and high pressure rating
- Wide selection of material for best chemical resistance
- Foot valve option

Size range:  
3/8"–4"

Connections:  
Solvent cement, threaded

**Wafer check valve 369** is designed for large installations, demands low service effort, and is compact. The size range, simple installation ability, unique spring option for horizontal mounting, and excellent flow characteristics, make it an ideal check valve solution for a variety of applications.

The gate check valve can be installed either horizontally or vertically.

- Self closing (gravity, water column)
- Simple installation between standard flanges
- Optimized sealing (flange seal)
- Optional spring in 316 stainless steel or Hastelloy C

Size range: 1 1/2"–12" PVC



## Actuation

We offer a wide variety of choices for your application needs.

Pneumatic actuation is available for all of our ball, butterfly, and diaphragm valves.

### Pneumatic Options

- Position feedback
- Emergency manual override
- Positioner
- Pilot Valve
- Connection to AS-i bus system

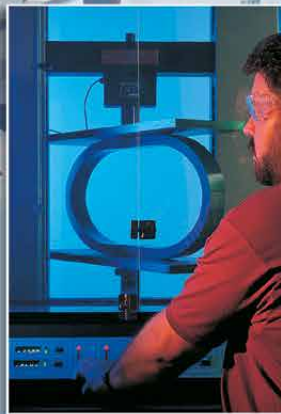
Electric actuation is available for all of our ball and butterfly valves.

### Electric Options

- Position feedback switches
- Fail-safe return battery backup
- Positioner
- Actuator diagnostics
- Connection to AS-i bus system

# Quality

Highly sophisticated on-site testing laboratories feature industry-leading technology and equipment developed



## Flattening Resistance

Uniform strength and product consistency are continually monitored through rigorous testing on all products.



## Hydrostatic Testing

Our highly sophisticated pressure chambers measure the extreme pressure-bearing capability of all pipe sizes up through 24-inch diameters.



to our exclusive engineering specifications.



### Impact Resistance

Durability and toughness are continually verified for each production run. Rigorous drop-impact testing at various temperatures is one way to ensure our products exceed industry standards.

# Sample Specification

## PVC and CPVC Industrial Pipe and Fittings

### PVC Industrial Pipe and Fittings: Schedule 80

All PVC Schedule 80 pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784, trade name H707 PVC. The pipe shall be manufactured in strict compliance to ASTM D1785, consistently meeting and/or exceeding the Quality Assurance test requirements of this standard with regard to material, workmanship, burst pressure, flattening, and extrusion quality. All PVC Schedule 80 pipe shall meet the requirements of NSF Standard 14, CSA Standard B137.3 rigid PVC pipe for pressure applications and shall bear the mark of these listing agencies. The pipe shall also have a flame spread rating 0–25 when tested in accordance with CAN/ULC S102.2. The pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer. Standard lengths of pipe sizes 6" and larger shall be beveled each end by the pipe manufacturer. All pipe shall be stored indoors after production at the manufacturing site until shipped from factory. This pipe shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications. All pipe shall be manufactured by Georg Fischer Harvel LLC. PVC Sch 80 socket fittings shall meet or exceed the dimensional and performance requirements of ASTM D2467. All PVC Schedule 80 threaded fittings shall meet or exceed the dimensional and performance requirements of ASTM D2464. All fittings shall be listed with NSF under standards 14/61 and shall carry the NSF seal for Potable Water.

### PVC Industrial Pipe and Fittings: Schedule 40

All PVC Schedule 40 pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784, trade name H707 PVC. The pipe shall be manufactured in strict compliance to ASTM D1785 and D2665 (where applicable), consistently meeting and/or exceeding the Quality Assurance test requirements of these standards with regard to material, workmanship, burst pressure, flattening, and extrusion quality. All PVC Schedule 40 pipe shall meet the requirements of NSF Standard 14, CSA Standard B137.3 rigid PVC pipe for pressure applications and shall bear the mark of these listing agencies. The pipe shall also have a flame spread rating 0–25 when tested in accordance with CAN/ULC S102.2. The pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer. Standard lengths of pipe sizes 6" and larger shall be beveled each end by the pipe manufacturer. All pipe shall be stored indoors after production at the manufacturing site until shipped from factory. This pipe shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications. All pipe shall be manufactured by Georg Fischer Harvel LLC. PVC Sch 40 socket fittings shall meet or exceed the dimensional and performance requirements of ASTM D2466. All PVC Schedule 40 threaded fittings shall meet or exceed the dimensional and performance requirements of ASTM D2464. All fittings shall be listed with NSF under standards 14/61 and shall carry the NSF seal for Potable Water.

### Schedule 40 & 80 CPVC Industrial Pipe and Fittings

All Schedule 80 and CPVC Schedule 40 pipe and fittings shall be manufactured from CORZAN® Type IV, Grade I Chlorinated Polyvinyl Chloride (CPVC) compounds with Cell Classification of 23447 per ASTM D1784. The pipe shall be manufactured in strict compliance to ASTM F441 and the fittings in strict compliance to ASTM F439, consistently meeting the Quality Assurance test requirements of these standards with regard to material, workmanship, burst pressure, flattening, and quality. The pipe and fittings shall be produced in the USA using domestic materials, by an ISO 9001 certified manufacturer, and shall be stored indoors after production, at the manufacturing site, until shipped from factory. The pipe and fittings shall carry the NSF National Sanitation Foundation (NSF) Standard 14 and 61 listings for potable water applications. All pipe and fittings shall be manufactured by Georg Fischer Harvel LLC.



Assessed to ISO 9001  
LPCB Ref. No. 270 – Harvel Plastics Easton  
LPCB Ref. No. 455 – Harvel Plastics Bakersfield



member  
**iapd**  
international association  
of plastics distribution

# Sample Specification

## PVC and CPVC Specialty Pipe and Fittings

### Clear PVC Pipe and Fittings: Schedule 40 & 80

All PVC Schedule 40 & Schedule 80 CLEAR pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784. The pipe shall be manufactured in strict compliance to ASTM D1785, consistently meeting and/or exceeding the applicable Quality Assurance test requirements of this standard with regard to material, dimensions, workmanship, burst pressure, flattening, and extrusion quality. The pipe shall be manufactured in the USA by an ISO 9001 certified manufacturer. All PVC CLEAR pipe shall be packaged immediately after its manufacture to prevent damage, and shall then be stored indoors at the manufacturing site until shipped from factory. All pipe shall be manufactured by Georg Fischer Harvel LLC — no equal. Clear PVC Schedule 40 fittings shall meet the dimensional requirements of ASTM D2466. All Sch 80 Clear PVC fittings shall meet the dimensional requirements of ASTM D2464 (threaded) and ASTM D2467 (socket) as applicable.

### EnviroKing® Clear PVC Piping

All transparent pipe used for photobioreactor or other outdoor applications shall be manufactured from a PolyVinyl Chloride (PVC) compound with a minimum Cell Classification of 11553 per ASTM D1784. This material shall be a UV stabilized PVC material and shall exhibit a slight blue tint. The pipe shall be manufactured to iron pipe size diameters in either ThinWall pipe dimensions that have been optimized for light transmission, or Schedule 40 pipe dimensions as applicable. The pipe shall be manufactured in the USA by an ISO 9001 certified manufacturer. All PVC clear pipe shall be packaged immediately after its manufacture to prevent damage, and shall then be stored indoors at the manufacturing site until shipped from factory. All pipe shall be manufactured by Georg Fischer Harvel LLC, trade name EnviroKing™ UV ThinWall™, or EnviroKing™ UV Schedule 40 as applicable — no equal.

### PVC Duct: Extruded Round

All exhaust duct piping, sizes 6" through 24", shall be PVC seamless extruded type, as manufactured by Georg Fischer Harvel LLC. This duct pipe shall be extruded from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784, trade name H707 PVC. All extruded PVC duct shall have a maximum flame spread rating of 25 or less per ULC S102.2. All PVC extruded duct pipe shall meet Georg Fischer Harvel published standards with regard to material and dimensions, and shall carry a maximum temperature rating of 140°F. All extruded duct pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer, and shall be stored indoors at the manufacturing site until shipped from the factory. All extruded PVC duct pipe shall be marked with the manufacturer's name or identifying symbol.

### CPVC Duct: Extruded Round

All exhaust duct piping, sizes 6" through 24", shall be CPVC seamless extruded type, as manufactured by Georg Fischer Harvel LLC; trade name Harvel® Corzan® Duct. Exhaust duct shall be extruded from a Type IV, Grade I Chlorinated Polyvinyl Chloride (CPVC) compound with a Cell Classification of 23447 per ASTM D1784; trade name Corzan® CPVC. All extruded duct shall have a maximum flame spread rating of 5 or less and a maximum smoke generation of 25 or less per ULC S102.2. All extruded duct shall meet Georg Fischer Harvel published standards with regard to material and dimensions, and shall carry a maximum temperature rating of 200°F. All extruded duct pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer, and shall be stored indoors at the manufacturing site until shipped from the factory. All extruded CPVC duct pipe shall be marked with the manufacturer name or identifying symbol, and the Corzan® CPVC material trademark.



AFSA  
NFPA  
NFSA



Corzan® is a registered trademark of  
The Lubrizol Corporation

# Portfolio

Products	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"	16"	18"	20"	24"	
PVC Pipe	Sch 40																										
	Sch 80																										
	Sch 120																										
	SDR 21																										
	SDR 26																										
	SDR 41																										
Clear PVC Pipe	Sch 40																										
	Sch 80																										
EnviroKing UV Pipe	Thin wall																										
	Sch 40																										
PVC Duct																											
CPVC Pipe	Sch 40																										
	Sch 80																										
CPVC Duct																											
FlameTech Pipe	Sch 40																										
	SDR 21																										
PVC Fittings	Sch 80																										
	Sch 40																										
Clear PVC Fittings	Sch 40																										
CPVC Fittings	Sch 80																										
Ball Valves	Type 546																										
	Type 375																										
	COLORO																										
Diaphragm Valves	Type 514																										
	Type 517																										
	Type 317																										
Butterfly Valves	Type 567																										
	Type 568																										
	Type 563																										
Check Valves	Type 561/562																										
	Type 369																										

\* Type 567 14"-24" in Polypropylene only

We continuously test new designs, formulations, and processes to make pipe stronger, fittings lighter, and systems more adaptable. We're investing in new tooling and equipment and studying new technologies that expand the already wide range of applications served by GF products.



## GF Piping Systems

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