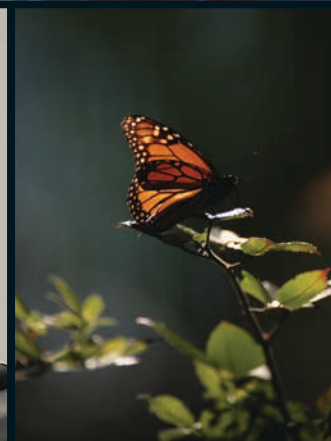


ACID WASTE PIPING SYSTEMS



INDUSTRIAL SYSTEMS

YOUR LAB SPECIALIST

- Enfield™ Electrofusion Acid Waste Systems FRPP & NRFPP
- Labline® Mechanical-Joint Acid Waste System FRPP
- Plenumline™ Mechanical Joint Acid Waste System FR-PVDF
- Encase™ Double Containment System PP & FRPP
- Neutratanke® Neutralization Tanks HDPE & PP
- Floway™ Drains PP
- Neutrasytem2™ Monitoring



We build tough products for tough environments®



Integrated Total Laboratory SOLUTIONS

For more than 30 years, IPEX has been supplying industrial, commercial, school and hospital laboratories throughout North America with high-quality, easy-to-install acid waste systems designed to handle a wide variety of chemicals and pH levels.

Our comprehensive line of dedicated acid waste conveyance, neutralization and monitoring systems offers innovative features not available with any other system. In fact, IPEX Enfield™ electrofusion and Labline® mechanical joint systems have long been recognized as the industry benchmark for performance and reliability, and are among the most widely specified systems in North America. Also available through IPEX is the next generation, E-84 compliant Plenumline™ system, made of flame retardant PVDF for extremely demanding applications such as return-air plenums.

The complete range of IPEX integrated total solutions for acid waste applications also includes our Neutratanke® neutralization tanks, Neutrasystem2™ pH monitoring system and Floway™ drains, as well as Encase™ double containment systems.

Increasingly stringent government and industry standards, along with the widespread public desire to minimize the impact of chemical waste on the environment, continues to make compliance a vital concern for our customers.

- IPEX offers a complete range of pipe and fittings in a variety of materials to suit any acid waste application.
- With the ability to handle intermittent temperatures from -10°F to 212°F and self-extinguishing properties, our flame-retardant polypropylene (FRPP) systems are ideally suited for all above-grade laboratory applications.

- With identical chemical/temperature properties for below-grade installations, our non-flame-retardant polypropylene (NFRPP) is the material of choice.
- Specifically designed and approved for use in return-air plenums or higher temperature/higher concentration applications, IPEX offers a flame-retardant polyvinylidene fluoride (FR-PVDF) system.

Compared to conventional ductile iron and borosilicate glass systems, all three IPEX thermoplastic materials exhibit excellent resistance to a wide range of chemicals with pH from 1 to 13 and will not corrode, rust, pit or scale and offer much greater flexibility/impact resistance. The result: far easier installations, low maintenance and substantial cost savings over the life of the systems.

YOUR FULL-SPECTRUM ACID WASTE SPECIALIST

ENFIELD™

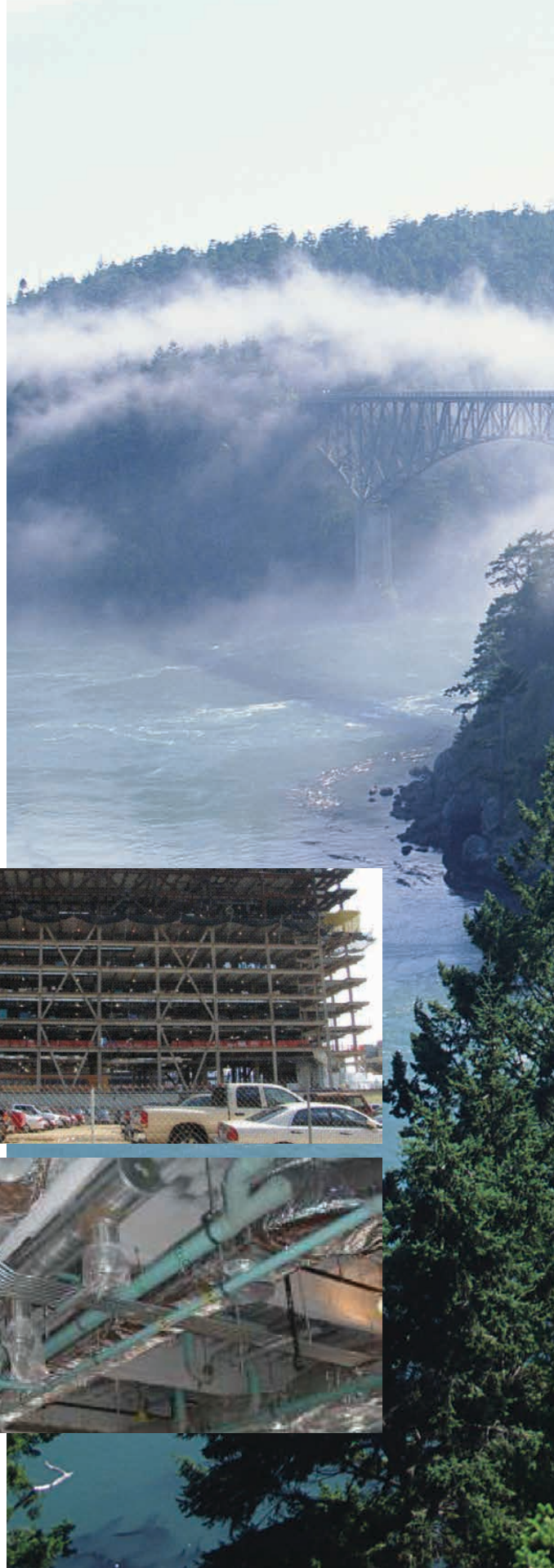
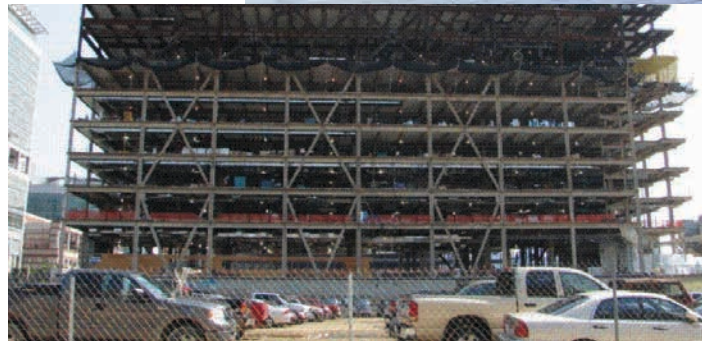
LABLINE®

PLENUMLINE™

FLOWAY™

NEUTRATANK®

NEUTRASYSTEM2™



ENFIELD™ ELECTROFUSION ACID WASTE SYSTEMS

ENFIELD™

Enfield electrofusion fittings are molded with an integral resistance wire in the socket, with jointing completed by energizing the resistance wire via a microprocessor controlled Enfusion Control Unit. The result of these innovations is an unparalleled level of joint reliability and repeatability. Enfield has proven over time that it produces the optimum level of performance where it matters most – at the joint interface. It offers unprecedented control of jointing – controlled fit, controlled temperature and controlled time.



Enfield offers polypro fittings, constructed with a heavy gauge resistance wire that is integrally molded into the socket. These are considered to be the premier fittings on the market.

ADVANTAGES

POSITIVE RELIABLE JOINTS made in 2 minutes – installation time is reduced

SEVERAL JOINTS CAN BE MADE AT ONE TIME

PROVEN RELIABILITY for over a decade

ENFIELD IS MANUFACTURED FROM POLYPROPYLENE

which has an operating temperature range from -10°F to 212°F.

*This allows systems to be flushed with boiling water

HEAVY GAUGE RESISTANCE WIRE molded into sockets – no loose components, controlled fusion of joints

EASY CONNECTING heavy duty socket terminal posts complete with protection ears

MICROPROCESSOR CONTROLLED ENFUSION UNIT ensures secure joints and joint repeatability

MATCHED SYSTEM – high quality pipe and fittings are matched to give ease of installation and long term reliability

EASY TO INSTALL – even in difficult areas

INSTALLED COST 50% LESS THAN GLASS

BREAKAGE FACTOR ELIMINATED

MAINTENANCE FREE



SHORT FORM SPECIFICATIONS

GENERAL

Acid waste drain and vent system, as shown on drawings, shall be NSF listed and CSA certified Schedule 40, polypropylene as manufactured by IPEX. System to include pipe supplied in 10 ft. lengths (or 20 ft lengths if NFRPP is specified), fittings, traps and neutralization tanks from the same manufacturer. It shall also include recommended adapters to connect to other piping materials, where applicable.

MATERIAL

Pipe shall be made from NSF listed Type 110 or 210, flame retardant polypropylene conforming to ASTM D4101, with a maximum average flame spread of zero seconds and a maximum extent of burning of 13 mm, in accordance with ASTM D635. Matched fittings shall be made from NSF listed flame retardant polypropylene with average maximum burn time of 80 seconds and maximum extent of burning of 20 mm in accordance with ASTM D635.

If NFRPP pipe is specified, it shall be made from NSF 14 listed and CSA certified Schedule 40 PP as manufactured by IPEX. Pipe shall comply with ASTM F1412 and material used shall comply with the material requirements of ASTM D4101.

FITTINGS

Fittings shall be NSF listed and have an integral heavy gauge, nickel/chrome electrical resistance wire molded in place in the fitting body. Copper wire elements, loose wire or other loose joint components, are prohibited. Fittings shall be Enfield or approved equal.

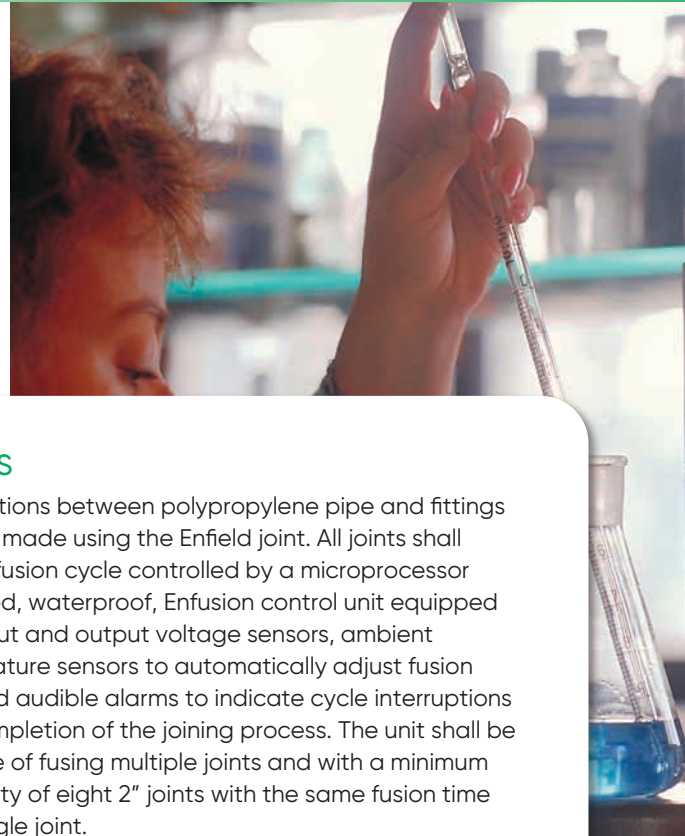
JOINTS

Connections between polypropylene pipe and fittings shall be made using the Enfield joint. All joints shall have a fusion cycle controlled by a microprocessor operated, waterproof, Enfusion control unit equipped with input and output voltage sensors, ambient temperature sensors to automatically adjust fusion time and audible alarms to indicate cycle interruptions and completion of the joining process. The unit shall be capable of fusing multiple joints and with a minimum capability of eight 2" joints with the same fusion time as a single joint.

Connections between polypropylene and other piping materials shall be made using Enfield adapters according to manufacturer's (IPEX) recommendations. All electrofusion machines shall be third party certified by UL and CSA.

INSTALLATION AND TESTING

Installation and testing shall be in accordance with the contract drawings, the manufacturer's recommendations and the local plumbing codes. Testing with compressed air is prohibited. The entire system shall be installed free of stress and in proper alignment. Horizontal supports shall provide a wide bearing area and be free of burrs or sharp edges. Support spacings shall be in accordance with the manufacturer's recommendations and local plumbing codes. Vertical piping shall have riser clamps at each floor. Pipe supports should be installed so that horizontal piping is in uniform alignment and with a uniform slope of at least 1/8" per foot or in accordance with the local plumbing codes.



LABLINE® MECHANICAL JOINT ACID WASTE SYSTEMS

LABLINE®

Labline® (Mechanical Joint) has displaced the more expensive and difficult to install glass and metal systems. Gone is the need for fusing, caulking or welding of joints. Joining of the Labline System is complete in just 30 seconds and once the nut is locked into place, the end-user is assured of many years of trouble-free service. Yet, because it is a mechanical joint, the system can be easily dismantled and re-used, making it ideal for modular designs and for systems that may require re-modeling in the future.

i Both Labline® and Plenumline™ contain no-heat Elastolives™ for quick installation and high performance.

ADVANTAGES

30 SECOND JOINTING – save on installation time

PROVEN RELIABILITY for over 30 years

LABLINE IS MANUFACTURED FROM POLYPROPYLENE which has an operating temperature range from -10°F to 212°F.* This allows systems to be flushed with boiling water

ALL PLASTIC CONSTRUCTION – no galvanic action, electrolysis or corrosion in the joint

SIMPLE, INEXPENSIVE, NON-TEMPERAMENTAL TOOLS

EASY TO INSTALL, even in difficult areas

MASTERED BY PLUMBERS IN MINUTES.

No pre-heating required to install olive

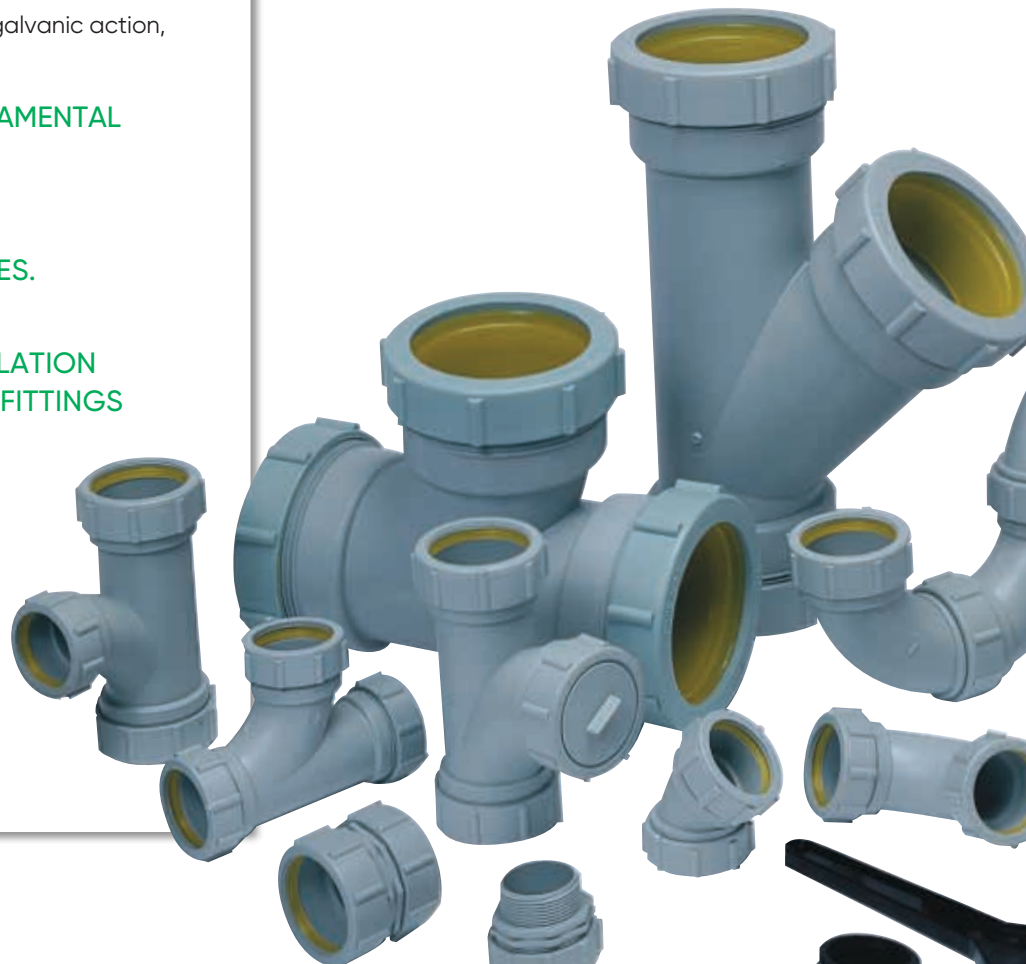
SYSTEM CHANGES DURING INSTALLATION CAN BE DONE WITHOUT SPOILING FITTINGS

CAN BE DISASSEMBLED AND RE-USED

IDEAL FOR MODULAR SYSTEMS

IDEAL FOR REMODELING

MATCHED SYSTEM – high quality pipe and fittings are matched to give ease of installation and long term reliability



SHORT FORM SPECIFICATIONS

GENERAL

Acid waste drain and vent system, as shown on drawings, shall be NSF listed, Schedule 40, polypropylene as manufactured by IPEX to include pipe supplied in 10 ft. lengths (or 20 ft lengths if NFRPP is specified), and matched fittings, traps and neutralization tanks from the same manufacturer. It shall also include recommended adapters to connect to other piping materials, where applicable.

MATERIAL

Pipe shall be made from NSF listed Type 110 or 210, flame retardant polypropylene conforming to ASTM D4101, with a maximum average flame spread of zero seconds and a maximum extent of burning of 13 mm, in accordance with ASTM D635. Matched fittings shall be made from NSF listed flame retardant polypropylene with average maximum burn time of 80 seconds and maximum extent of burning of 20 mm in accordance with ASTM D635.

If NFRPP pipe is specified, it shall be made from NSF 14 listed and CSA certified Schedule 40 PP as manufactured by IPEX. Pipe shall comply with ASTM F1412 and material used shall comply with the material requirements of ASTM D4101.

FITTINGS

Fittings shall be NSF listed, be of all plastic construction and be designed to lock into a machined groove on the mating piping. All fittings shall have integrally molded union connections. No metallic grab rings or clamps shall be allowed. Fittings containing EVA (ethylene vinyl acetate) are strictly prohibited. Couplings shall not be added to make mechanical joint fittings. Fittings shall be Labline or approved equivalent.

JOINTS

Connections between polypropylene pipe and matched fittings shall be made using the Labline Joint.

INSTALLATION AND TESTING

Installation and testing shall be in accordance with the contract drawings, the manufacturer's recommendations and the local plumbing codes. Testing with compressed air is prohibited. The entire system shall be installed free of stress and in proper alignment. Horizontal supports shall provide a wide bearing area and be free of burrs or sharp edges. Support spacings shall be in accordance with the manufacturer's recommendations and local plumbing codes. Vertical piping shall have riser clamps at each floor. Pipe supports shall be installed so that horizontal piping is in uniform alignment and with a uniform slope of at least 1/8" per foot, or in accordance with the local plumbing codes.



PLENUMLINE™ MECHANICAL JOINT ACID WASTE SYSTEMS

PLENUMLINE™

Plenumline mechanical joint acid waste systems easily displace costly and difficult-to-install glass and metal systems. With Plenumline, time-consuming methods associated with conventional heavy and brittle systems are replaced by a time proven mechanical joint that takes only 30 seconds to complete. Once the Plenumline nut is locked in place, the end-user is assured of many years of trouble-free service. In addition, mechanical joint systems can easily be dismantled and re-used, making Plenumline ideal for modular designs and future expansions.



IPEX Plenumline is a robust acid waste system, made from flame-retardant PVDF thermoplastic, designed for challenging conditions, including highly restrictive return air plenum applications and high-temperature corrosive chemical waste situations.

ADVANTAGES

IDEALLY SUITED TO PLENUM APPLICATIONS

30-SECOND JOINTS SHORTEN INSTALLATION TIME

MANUFACTURED FROM FLAME RETARDANT PVDF, which has an operating temperature range from -40°F (-40°C) to 285°F (140°C). With this high upper limit, Plenumline systems can be flushed with boiling water.

ALL-PLASTIC CONSTRUCTION ELIMINATES GALVANIC ACTION, ELECTROLYSIS AND CORROSION IN THE JOINT.

EASY TO INSTALL, even in tight areas, by using simple, inexpensive tools. Mechanical joints are mastered by plumbers in minutes; no pre-heating is required to install the new blue elastolive.

MODULARIZED DESIGN means Plenumline components can be disassembled and re-used. In addition, system modifications during installation can be performed without damaging fittings.

HIGH-QUALITY PIPE AND FITTINGS are matched to simplify installation and extend long-term reliability.

FLAME RETARDANT PVDF material exhibits a flame spread index of 5 and smoke development index of 35 as tested in accordance with ASTM E84 and UL723.



SHORT FORM SPECIFICATIONS

GENERAL

Acid waste drain and vent system, as shown on drawings, shall be IAPMO listed, Schedule 40, FR-PVDF as manufactured by IPEX to include pipe supplied in 10 ft. lengths and matched fittings, traps and neutralization tanks from the same manufacturer. It shall also include recommended adapters to connect to other piping materials, where applicable.

MATERIAL

Pipe and fittings shall be made from Kynar 740-02, flame retardant PVDF conforming to ASTM F 1673, with a limiting oxygen index (LOI) of 60, Resin must have a vertical burn rating of 94 V-0. Kynar 740-02 resin based on testing to ASTM E84 (UL 723) must have surface burning characteristics greater than or equal to a flame spread 5 and smoke development 35.

FITTINGS

Fittings shall be third party certified to ASTM F 1673 and ASTM E84, and IAPMO approved, be of all plastic construction and a tapered elastic retaining ring shall be designed to lock into a machined groove on the mating piping. All fittings shall have integrally molded union connections. No metallic grab rings or clamps shall be allowed. Fittings shall be Plenumline™ or approved equal.

INSTALLATION AND TESTING

Installation and testing shall be in accordance with the contract drawings, the manufacturer's recommendations and the local plumbing codes. Testing with compressed air including air booster over water is prohibited. The entire system shall be installed free of stress and in proper alignment. Horizontal supports shall provide a wide bearing area and be free of burrs or sharp edges. Support spacings shall be in accordance with the manufacturer's recommendations and local plumbing codes. Vertical piping shall have riser clamps at each floor. Pipe supports shall be installed so that horizontal piping is in uniform alignment and with a uniform slope of at least 1/8" per foot, or in accordance with the local plumbing code requirements.



FLOWAY™ POLYPROPYLENE FLOOR DRAINS

POLYPROPYLENE FLOOR DRAINS

For efficiently managing chemical spills, our Floway™ adjustable and non-adjustable polypropylene drain ports are specially designed to feed into IPEX acid waste systems.

ADVANTAGES

RATED FOR PEDESTRIAN TRAFFIC AND AVAILABLE IN SIZES FROM 2" TO 6".

FLOWAY™ DRAINS CAN BE OPTIONALLY CONFIGURED WITH ADJUSTABLE STRAINERS, ROUND FUNNELS, SEDIMENT BASKETS AND PLAIN END OR THREADED OUTLETS.

ADJUSTABLE FEATURE ALLOWS EASY LEVELING AFTER POURING OF FINISHED FLOORS



ACCESSORIES

A complete range of accessories are available for use with IPEX acid waste systems, including:

- Oval and round cupsinks, faucets, solids interceptors, expansion joints and a wide selection of cobra clips, dilution traps, spacers, hangers and,
- Transition adapters are also available for interfacing with glass or iron systems.



MATERIALS AND ATTRIBUTES CHART

Resin	Color	Schedule	Length (inches)	Size (inches)	ASTM Rating	Classification
FRPP	Green	40	10/20	1-1/2 to 12	V-1	Self extinguishing. Does not support combustion after flame is removed.
NFRPP	Black	40/80	20	1-1/2 to 12	V-2	Suitable for locations where no burning classification is required.
FR-PVDF	Blue	40	10	1-1/2 to 4	V-0	Self extinguishing. Meets ASTM E-84. Suitable for areas such as return-air plenums and other specialized applications.

IPEX acid waste systems are designed and manufactured to meet or exceed the requirements of the following standards organizations. A comprehensive list of compliance approvals is available on request.

Consult the IPEX Chemical Resistance Guide, available at ipexinc.com, for compatibility of our acid waste systems with over 900 chemicals, at a full range of temperatures and concentrations.



SALES AND CUSTOMER SERVICE

IPEX Inc

Toll Free: (866) 473-9462

ipexna.com

About the IPEX Group of Companies

As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the world's largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have earned a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX group products are:

- Electrical systems
- Telecommunications and utility piping systems
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems
- PVC, CPVC, PP, PVDF, PE, ABS, and PEX pipe and fittings

Products are manufactured by IPEX Inc.

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This literature is published in good faith and is believed to be reliable. However, it does not represent and/or warrant in any manner the information and suggestions contained in this brochure. Data presented is the result of laboratory tests and field experience.

A policy of ongoing product improvement is maintained. This may result in modifications of features and/or specifications without notice.



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