

FLUOROPOLYMER HEAT EXCHANGERS AND TUBING

Products for High Purity and Corrosive Applications

The Original Fluoropolymer Heat Exchanger Manufacturer

- Shell-and-Tube
- Slimline Coils
- Supercoils
- Minicoils
- Fluoropolymer Tubing and Pipe
- Reactor Coils

SHELL-AND-TUBE

AMETEK Shell-and-Tube heat exchangers with tubing made of corrosion-resistant fluoropolymers are ideal for heating, cooling and condensing chemically aggressive and high purity process streams. Typical applications include: DI water and other high purity solutions; sulfuric, hydrofluoric, nitric, hydrochloric and other acids; caustic and other alkalis; halogenated compounds; salt solutions, and organic compounds.

AMETEK Shell-and-Tube heat exchangers are single-pass designs incorporating flexible fluoropolymer tubing fused at both ends to form a honeycomb structure. Units are also available with fluoropolymer-lined shells for high efficiency heat interchange between two corrosive process streams; an ideal way to recover waste heat and to reduce energy costs.



30-SERIES SHELL-AND-TUBE

SPECIFICATIONS

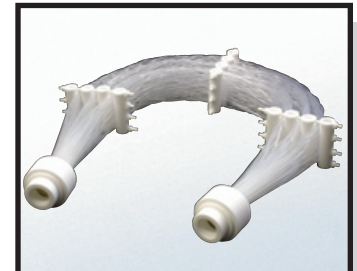
Shell diameters for standard units range from 3 to 14 in. (76 to 350 mm); shells are available in carbon or stainless steel, fiberglass or other materials. Nominal tube length is from 2 to 24 ft. (0.6 to 7.3 m). Tubing diameters range from 0.10 to 0.375 in. (2.54 to 9.5 mm) in either FEP, PFA or Q-Series models.

Heat Transfer Area – 5.1 to 1104 ft.2 (0.5 to 103 m²) in standard units.

SUPERCOILS

AMETEK Supercoil Heat Exchangers are designed for heating and cooling a wide range of metal finishing solutions. Supercoil applications include: electroplating, electroforming, and electroless plating baths; acidic and alkaline solutions

for etching, chemical milling, anodizing, cleaning, stripping, electropolishing, and similar operations. AMETEK Supercoil designs incorporate bundles of flexible, multi-braid 3-1/2 inch (89 mm) thick coils which can be installed into virtually any type of tank configuration. Braids are separated by spacers for optimum thermal performance. The inherently high electrical resistances of fluoropolymers help Supercoils resist the effects of stray currents in electroplating tanks.



SUPERCOIL

SPECIFICATIONS

Supercoils are available in lengths from 3 to 16 ft. (0.9 to 4.0 m) with 100 to 280 tubes of FEP, PFA or Q-Series resin; tubes are 0.10 in. (2.54 mm) in diameter. End connections are available in PTFE or stainless steel.

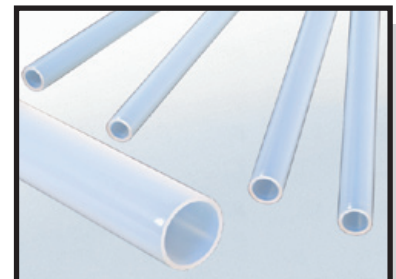
Heat Transfer Area – 6.5 to 113 ft.2 (0.6 to 10.5 m²).

FLUOROPOLYMER TUBING AND PIPE

AMETEK Fluoropolymer Tubing and Pipe provides excellent mechanical, electrical, chemical, corrosion, and friction resistance, and is ideal for high purity semiconductor/electronic, medical, food and beverage, chemical

and other applications. AMETEK Fluoropolymer Tubing is available in industrial and heavy wall thickness, standard, metric and fractional sizes. Fluoropolymer Pipe is available in 5 and 10 foot lengths in schedule 40 and 80 specifications. Temperature ranges are from -275° to 500°F.

Available in FEP, PFA, PVDF, PTFE, and high purity resins.



FLUOROPOLYMER PRODUCTS

FEP Series coils are considered inert to corrosive chemicals. Contact an AMETEK representative for chemical resistance data on your specific application. Q-Series heat exchangers are inert to most corrosive chemicals except for certain concentrated hot, oxidizing acids.

REACTOR COILS

AMETEK Reactor Coils are designed for immersion heating and cooling of corrosive fluids in agitated process vessels or storage tanks. Reactor coils are ideal for crystallization of corrosive liquids including: removal of Glauber's salt (sodium sulfate decahydrate) from rayon spin baths; removal of sodium chloride in purification of 50% caustic; separation of iron sulfate from spent pickle liquor. During the crystallization process, the slippery fluoropolymer tubing flexes from agitation causing crystals to dislodge. The heat transfer characteristics permit precise control of crystal size while improving crystallization efficiency.



**REACTOR COIL
MODEL R500**

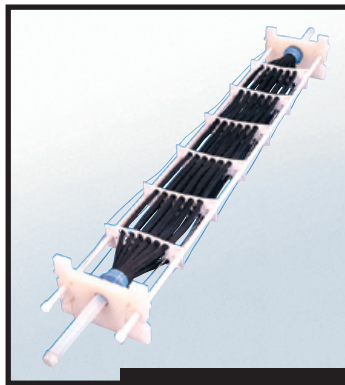
SPECIFICATIONS

Reactor coils are available in lengths from 4 to 16 ft. (1.2 to 4.9 m), with bundles of 160 to 500 tubes, 0.1 or 0.125 in. (2.54 to 3.12 mm) in diameter. End connections can be either PTFE or stainless steel and can be mounted completely immersed in a process solution or through a vessel wall. Reactor coils are available with FEP or PFA tubes.

Heat Transfer Area – from 14 to 245 ft.² (1.3 to 22.8 m²).

SLIMLINE COILS

AMETEK Slimline Heat Exchangers are widely used in the metal finishing and processing industries and are especially suited to steel pickling applications. The basic properties of fluoropolymers resist corrosion and combat fouling, extend heat exchanger service life, and improve value-in-use through reduced maintenance costs. AMETEK Slimline Q-Series heat exchangers are made from a proprietary resin that combines improved durability with increased temperature and pressure capability, de-



SLIMLINE COIL

livering high thermal efficiency and performance.

Q-Series coils handle steam heating applications without de-superheating and are especially suited to batch and continuous pickling applications.

SPECIFICATIONS

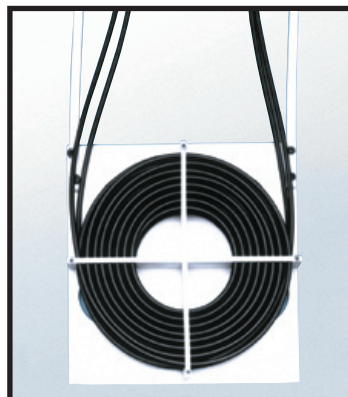
Slimline Coils are available in lengths from 4 to 16 ft. (1.2 to 4.9 m) in U-shape and straight configurations. Slimlines are available with FEP, PFA or Q-Series tubes.

Heat Transfer Area – 34 to 255 ft.² (3.2 to 23.7 m²).

MINICOILS

AMETEK Minicoils made with fluoropolymer tubing are used to control temperatures in laboratory baths and small production tanks where corrosion is a concern. Applications include etching, precious metal plating, and DI water rinse tanks in semiconductor manufacturing.

FEP, PFA, PVDF or Q tubing laced to support sheets forms a compact, lightweight design that resists contamination and



Q-SERIES MINICOIL

prolongs the service life of the installation. High thermal efficiency means smaller units requiring less tank space. Minicoils are available in several coil configurations.

SPECIFICATIONS

Available in 12, 15, and 18 inch sizes.

Heat Transfer Area – from 2.1 to 10.0 ft.² (0.195 to 0.929 m²).

Fluoropolymer resins are generally considered inert to most chemicals. Under certain conditions of pressure and temperature, or combinations of chemicals, fluoropolymer tubing should not be used. Please contact AMETEK for discussion of your specific process to be certain that our products are appropriate for your intended use.

Adequate ventilation should be used where fluoropolymers are heated during tube repairs. Flu-like symptoms may occur from exposure to vapors evolved from fluoropolymers at very high temperatures, up to 800°F or from smoking materials that contain particles of fluoropolymers. Symptoms pass within 48 hours and are the only adverse effects observed in humans to date. Unheated fluoropolymers are essentially inert and are nonirritating to the skin.

This information set forth herein is furnished free of charge and is based on technical data which AMETEK believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with your use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

AMETEK®

CHEMICAL PRODUCTS

455 CORPORATE BOULEVARD, NEWARK, DELAWARE 19702 U.S.A.

TEL: (302) 456-4431 • (800) 441-7777 • FAX: (302) 456-4444 • www.ametekfpp.com • E-mail: info.haveg@ametek.com

© 2008, by AMETEK, Inc. All rights reserved.
608PDF (040074)