



## PRODUCT INFORMATION

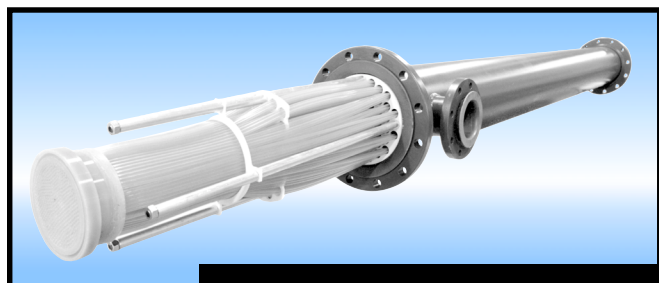
# Products for High Purity and Corrosive Applications

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

## SHELL-AND-TUBE

AMETEK Shell-and-Tube heat exchangers with tubing made of corrosion-resistant TEFLON 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 alkalies; halogenated compounds; salt solutions, and organic compounds.

AMETEK Shell-and-Tube heat exchangers are single-pass designs incorporating flexible tubes of TEFLON fused at both ends to form a honeycomb structure. Units are also available with TEFLON-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

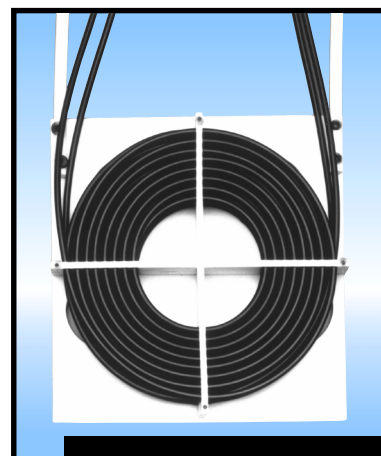
Shell diameters for standard units range from 3 to 14 inches (76 to 350 mm); shells are available in carbon or stainless steel, fiberglass or other materials. Nominal tube length is from 2 to 24 feet (0.6 to 7.3 m). Tubing diameters range from 0.10 to 0.375 inches (2.54 to 9.5 mm) in either FEP or Q-Series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

**Heat Transfer Area**—5.1 to 1104 ft<sup>2</sup> (0.5 to 103 m<sup>2</sup>) in standard units.

## MINICOILS

AMETEK Minicoils made with tubing of TEFLON 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 or Q Tubing laced to support sheets forms a compact, lightweight design that resists contamination and prolongs the service life of the installation. High thermal efficiency means smaller units requiring less tank space. Minicoils are available in several coil configurations.



**Q-SERIES MINICOIL**

## SPECIFICATIONS

Available in 12, 15 and 18 inch sizes.

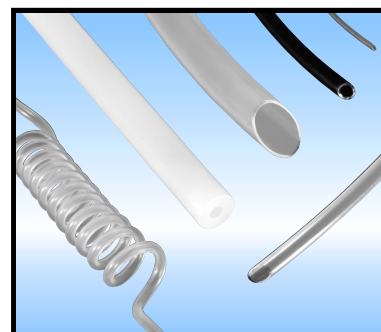
**Heat Transfer Area**—from 2.1 to 10.0 ft<sup>2</sup> (0.195 to 0.929 m<sup>2</sup>).

## FLUOROPOLYMER TUBING

AMETEK Fluoropolymer Tubing provides excellent mechanical, electrical, chemical, corrosion, and friction resistance, and is ideal for high purity electronic, medical, food and beverage, chemical and other applications.

AMETEK Fluoropolymer Tubing is available in industrial and heavy wall thickness, standard and fractional sizes.

Temperature ranges are from -275° to 400° F. Available in FEP, PFA, TEFZEL<sup>®</sup> and high purity PFA resins.



**FLUOROPOLYMER TUBING**

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.

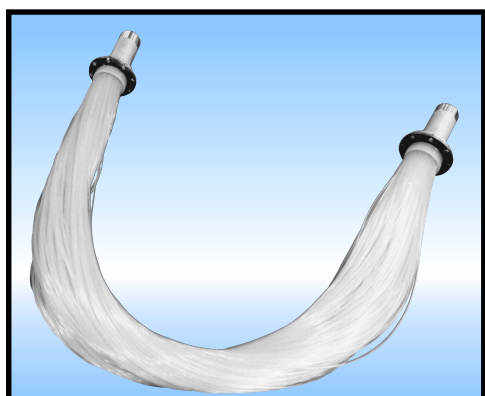
## REACTOR COILS

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 tubes of TEFLON flex from agitation causing crystals to dislodge. The heat transfer characteristics permit precise control of crystal size while improving crystallization efficiency.

## SPECIFICATIONS

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

**Heat Transfer Area**—from 14 to 245 ft<sup>2</sup> (1.3 to 22.8 m<sup>2</sup>).



**REACTOR COIL MODEL R500**

## SUPERCOILS

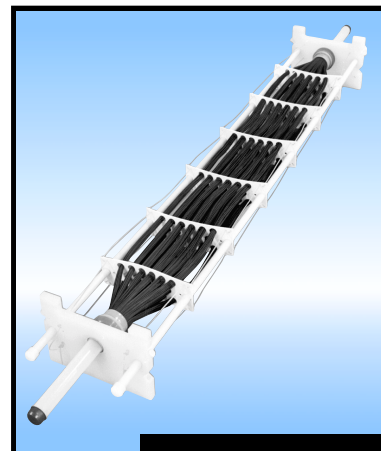
AMETEK Supercoil heat exchangers are designed for heating and cooling a wide range of metal finishing solutions. Supercoil applications include: electroplating, electroforming and electroless plating baths; acidic and alkaline solutions for etching, chemical milling, anodizing, cleaning, stripping, electropolishing 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 resistance of TEFLON helps Supercoils resist the effects of stray currents in electroplating tanks.

## 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 characteristics of TEFLON 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, delivering 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.



**SLIMLINE COIL**

## SPECIFICATIONS

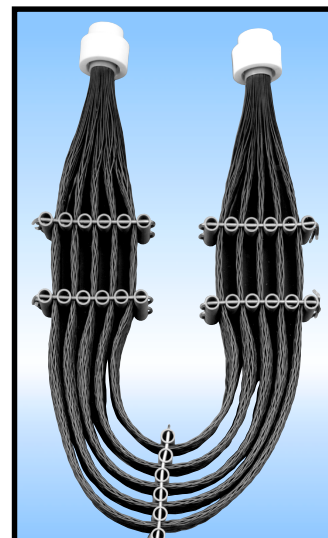
Slimline Coils are available in lengths from 4 to 16 feet (1.2 to 4.9 m) in U-shape and straight configurations. Slimlines are available with FEP or Q-Series tubes.

**Heat Transfer Area**—34 to 255 ft<sup>2</sup> (3.2 to 23.7 m<sup>2</sup>)

## SPECIFICATIONS

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

**Heat Transfer Area**—  
6.5 to 113 ft<sup>2</sup> (0.6 to 10.5 m<sup>2</sup>).



**SUPERCOIL MODEL 280**

Fluoropolymer resins are generally considered inert to most chemicals. Under certain conditions of pressure and temperature, or combinations of chemicals, fluoropolymer heat exchangers should not be used. Similarly, water or steam should be free of particulates and other materials which may cause impediments to flow and consequential damage to or failure of the exchanger. Please contact AMETEK for discussion of your specific process in or to be certain that our products are appropriate for your intended use.

Recommended instructions for safe handling of AMETEK heat exchangers of TEFLON® are contained in the Installation, Operation, Maintenance Manual (IOM) provided with your unit. As with any manufacturing process, a periodic audit should be conducted to assure all safety and government regulations are met. 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 TEFLON. 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. Additional copies of the IOM Manuals or copies of TEFLON Fluorocarbon Resins — Safety in Handling and Use by Du Pont Co. can be obtained from AMETEK.

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**AMETEK®**

**CHEMICAL PRODUCTS**

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