



Standard **Xchange**
a xylem brand

ITT Standard

the new
standard in

Heat Transfer Equipment

Century® Series Heat Exchangers



Pre-engineered & custom-engineered heat exchangers, designed to TEMA specs.

Engineered for life

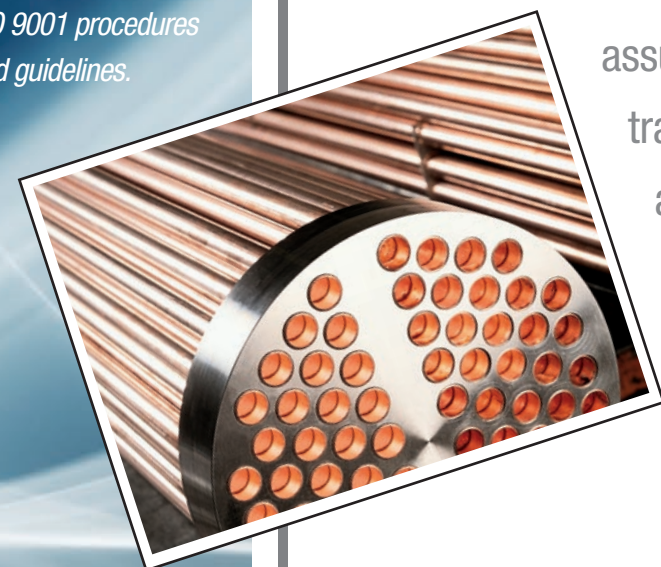
Southgate
Process Equipment, Inc.

Century[®] Series HEAT Exchangers

As the recognized leader in heat exchanger products, systems and technology, ITT Standard has been providing state-of-the-art solutions to heat transfer problems for more than 75 years.

Today, the company is devoted exclusively to the design, engineering and manufacture of shell-and-tube, gasketed plate, brazed plate and air-cooled heat exchanger products. ITT Standard heat exchangers are engineered and manufactured by experienced craftsmen who have been devoted to the science of heat transfer not just for years, but for generations. And because we offer such a wide assortment of

different heat exchanger designs, we can assure you of getting the optimum heat transfer solution to your specific application, without bias toward any one particular (or proprietary) product line.



ITT Century Series heat exchangers are manufactured with the highest standards of quality. ITT Standard was the first North American heat exchanger manufacturer to be certified under ISO 9001 procedures and guidelines.

Design | FLEXIBILITY

The Century Series — the flexible answer to heat transfer problems.

Flexible in design, **Century heat exchangers** are capable of handling high pressures and temperatures, as well as a wide variety of fluids and gases. Based on a mechanically straightforward design, they offer a virtually limitless array of choices in terms of performance, materials, options and features.

Century heat exchangers combine choice of options and control of custom design with economies of standardization and production, to give you the precise heat exchanger you need at the lowest cost.

Century series heat exchangers can be designed and manufactured to the standards and guidelines of the following: TEMA (Tubular Equipment Manufacturers Association), ASME (American Society of Mechanical Engineers), API (American Petroleum Institute), ABS (American Bureau of Shipping), The Pressure Equipment Directive (97/23/EC), USN (U.S. Navy) and others. At ITT Standard, we work directly with these organizations, and frequently offer our facilities — particularly our advanced thermal research laboratory — along with our expertise to help set, clarify and implement standards that contribute to the overall strength of the heat transfer industry.

Design | EXPERIENCE

Custom-design flexibility with off-the-shelf economy.

The continuous flow of design innovations and refinements, the availability of a variety of new construction materials, and an expanding array of “non-traditional” applications have made the task of heat exchanger selection more complex than ever before.

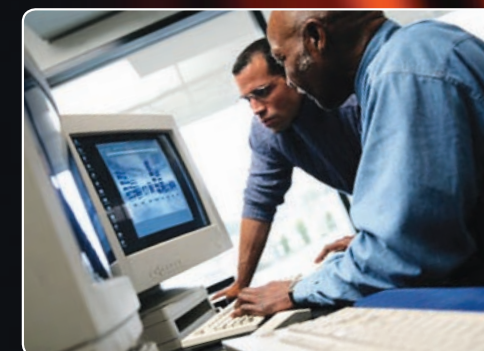
Engineers are increasingly finding answers to these challenges in the Century Series heat exchangers from ITT Standard. This line of products offers a vast range of combinations in design, performance, materials and options for virtually any heat transfer problem.

Whatever the application requires, chances are there's a Century Series heat exchanger that's right for the job:

- Fixed or floating tubesheet, single- or multi-pass, straight or U-tube, fixed tubesheet or removable bundle
- Steel or stainless, copper or bronze, nickel or exotic alloys, Hastelloy[®], Monel[®] or titanium



ITT Standard is headquartered in one of the largest and best-supported heat exchanger centers in the world.



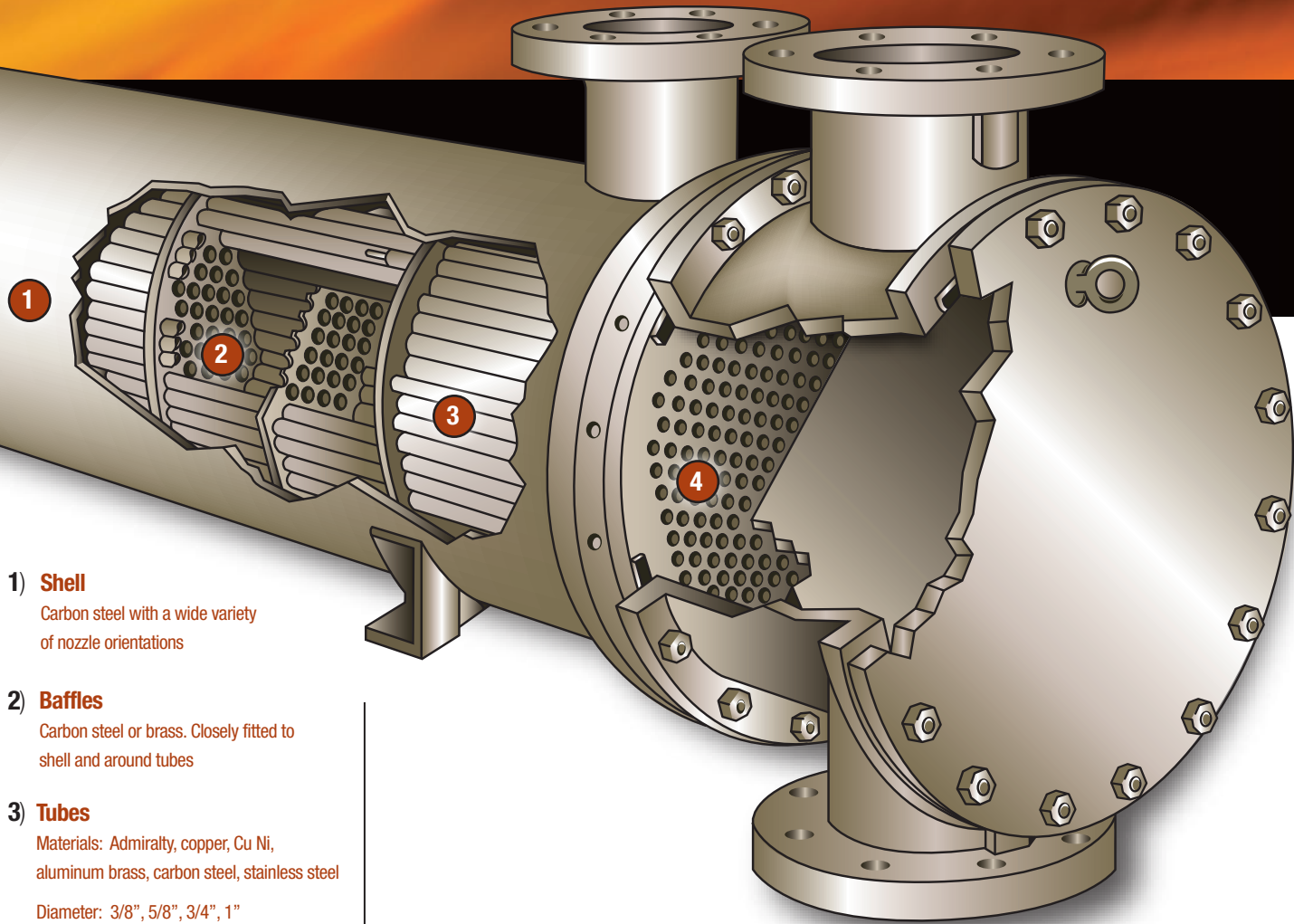
Our design staff and computerized selection process will help you choose the best heat exchanger for your application.



Century Series heat exchangers are manufactured with rugged construction for tough day-to-day operations.



High standards of quality are found in every aspect of manufacturing, packaging and shipping.



- 1) **Shell**
Carbon steel with a wide variety of nozzle orientations
- 2) **Baffles**
Carbon steel or brass. Closely fitted to shell and around tubes
- 3) **Tubes**
Materials: Admiralty, copper, Cu Ni, aluminum brass, carbon steel, stainless steel

Diameter: 3/8", 5/8", 3/4", 1"
Tube pitch: Triangular, square or rectangular.
Tubes can be bare or Low-Fin
- 4) **Tubesheet**
Carbon steel, Muntz metal, cupro-nickel, naval brass, stainless steel

Heat Exchanger SELECTION

Selecting the right heat exchanger.

Your ITT Standard representative has complete information on Century Series and other heat exchanger products to help you meet your particular application requirements. The latest industry standards and computer technology help us provide the most accurate heat transfer calculations. We can use commercial heat transfer programs such as BJAC® and HTRI®, or programs based upon research from our own heat transfer laboratory for complete, accurate and timely heat transfer ratings.

Our advanced thermal research lab is one of the largest and best equipped facilities in the industry. Staffed by a team of experienced chemical, mechanical and metallurgical engineers, it is used to solve heat transfer problems and identify opportunities for product improvement and development. It is also made available to industry groups, to develop standards and guidelines for product design, manufacturing and testing.

CENTURY CPK SERIES

- Straight tube, removable bundle, packed floating tubesheet.
- Single or two pass tube arrangements for maximum efficiency over a wide variety of tube side flow rates.
- Standard shell sizes from 3 inches through 31 inches in diameter; custom designs up to 60 inches in diameter.
- Available in horizontal and vertical installations as well as stacked assemblies.

Century CPK Standard Design Capabilities

	Design Pressure	Design Temperature
Tube side	75 – 450 psi 517 – 3,102 kPa	-20 – 650° F -29 – 343° C
Shell side	75 – 300 psi 517 – 2,068 kPa	-20 – 650° F -29 – 343° C

TEMA Type AEW or BEW.
Can meet TEMA "B", "C" and "R",
ASME Section VIII Div. 1 "U" stamp
and ASME Section III "N" stamp.

Advantages:

Floating tubesheet allows differential expansion between the shell and tubes.

Maximum tube count per shell diameter.

Shell side can be steam or mechanically cleaned.

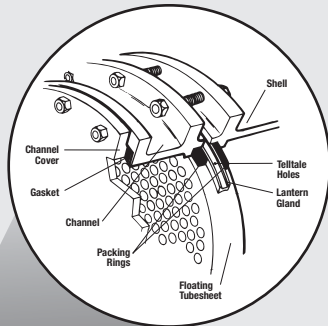
Bundle can be easily replaced or repaired.

Less costly than full internal floating head type construction.

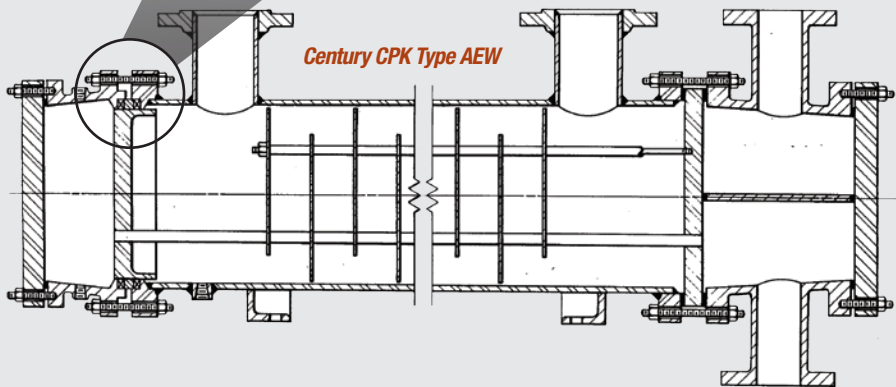
Limitations:

Both shell side and tube side exposed to packing. Volatile and/or toxic fluids should be avoided.

Packing limits design pressure and temperature for both shell and tube sides.



Externally Sealed Floating Tubesheet





CENTURY C100

TEMA Type AEP or BEP.
Can meet TEMA "B", "C" and "R",
ASME Section VIII Div. 1, and
ASME Section III "N" stamp.

Advantages:

*Floating tubesheet allows
differential expansion
between the shell and tubes.*

*Shell side can be steam
or mechanically cleaned.*

*Bundle can be easily
repaired or replaced.*

*Less costly than full
internal floating
head-type construction.*

*Only shell side fluids
are exposed to packing.*

*Volatile or toxic fluids
possible on tube side.*

*Provides large bundle
entrance area.*

Limitations:

*Shell side limited to
non-volatile and/or
non-toxic fluids.*

*Shell side packing
limits design pressure
and temperature.*

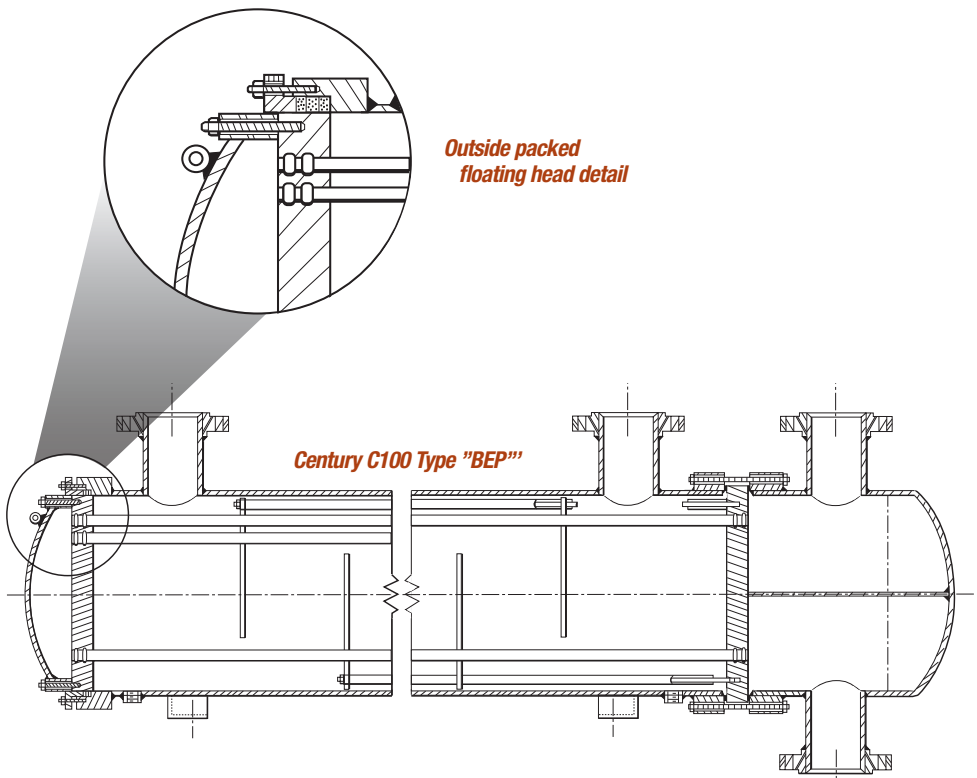
*Less surface per given shell
and tube size than TEMA
type AEW or BEW designs.*

- Straight tube, removable bundle, outside-packed floating head.
- Single- or multi-pass tube arrangements for maximum efficiency over a wide variety of tube side flow volumes.
- Standard shell sizes from 8 inches through 42 inches in diameter; custom designs up to 60 inches in diameter.
- Available for horizontal or vertical mounting.

Century C100 Standard Design Capabilities

	Design Pressure	Design Temperature
Tube side	75 – 450 psi	-20 – 650° F
	517 – 3,102 kPa	-29 – 343° C
Shell side	75 – 300 psi	-20 – 650° F
	517 – 2,068 kPa	-29 – 343° C

Note: Custom designs to 3,600 psi/24,816 kPa and 1000° F/538° C,
depending on shell diameter and design temperature.



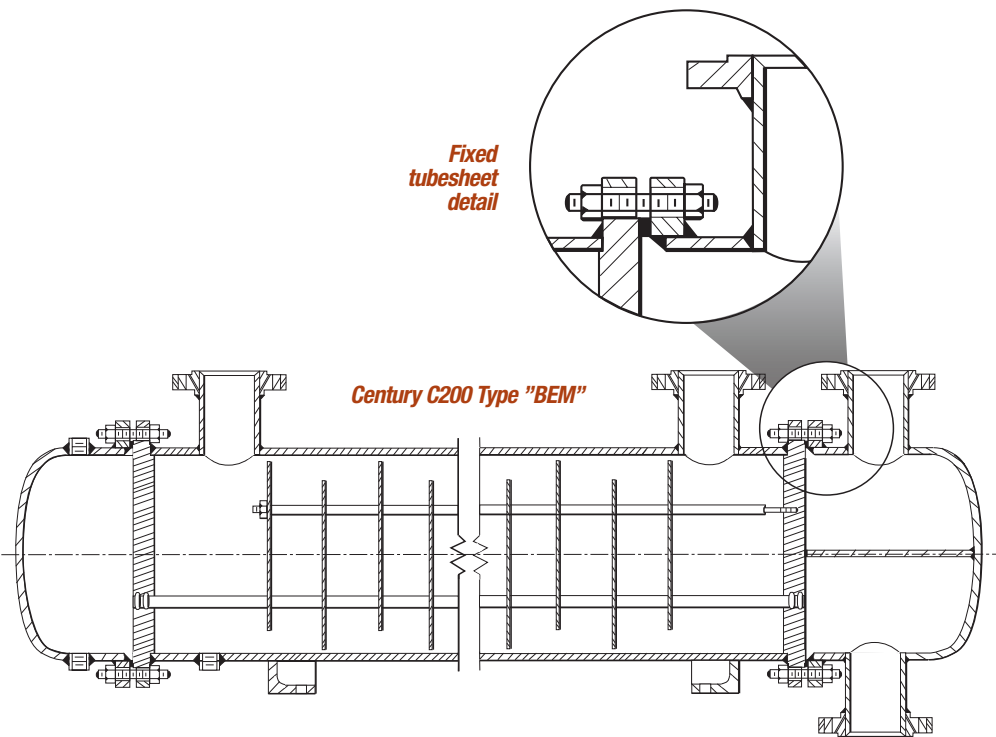
CENTURY C200 | C210

- Straight tube, fixed tubesheet, removable channel or bonnet (C200) or integral channel (C210).
- Single- or multi-pass tube arrangements for maximum efficiency over a wide variety of tube side flow volumes.
- An expansion joint can be added to compensate for severe temperature differentials.
- Standard shell sizes from 5 inches through 42 inches in diameter; custom designs up to 60 inches in diameter.
- Available for horizontal or vertical mounting.

Century C200 and C210 Standard Design Capabilities

	Design Pressure	Design Temperature
Tube side	75 – 450 psi	-20 – 650° F
	517 – 3,102 kPa	-29 – 343° C
Shell side	75 – 300 psi	-20 – 650° F
	517 – 2,068 kPa	-29 – 343° C

Note: Custom designs to 3,600 psi/24,816 kPa and 1000° F/538° C,
depending on shell diameter and design temperature.



TEMA Type AEM, BEM or NEN.
Can meet TEMA "B", "C" and "R",
ASME Section VIII Div. 1, and
ASME Section III "N" stamp.

Advantages:

*Less costly than removable
bundle exchangers.*

*Provides maximum heat
transfer surface area per
given shell and tube size.*

*Easily interchangeable
with designs of various
other manufacturers.*

*Tube side can be steam
or mechanically cleaned.*

*Only tube side fluids are
exposed to gaskets.
Volatile or toxic fluids
possible on shell side.*

*Easy accessibility for tube
side cleaning and inspection.*

No packed joints.

Limitations:

*No provision for differential
expansion of tubes and shell
without expansion joint.*

*Shell side can be cleaned
by chemical means only.*

CENTURY C300 C320

TEMA Type AEU or BEU.
Can meet TEMA “B”, “C” and “R”,
ASME Section VIII Div. 1, and
ASME Section III “N” stamp.

Advantages:

Allows for differential thermal
expansion between shell and
tubes, as well as between
individual tubes.

High heat transfer surface
area for given shell and
tube size.

Capable of withstanding
thermal shock.

The most economical of all
shell-and-tube exchangers,
and the least expensive of
all basic designs.

Shell side can be steam or
mechanically cleaned.

Bundle can be removed
for shell side cleaning
and maintenance.

Limitations:

Individual tube replacement
is difficult.

Cannot be made single-pass
on tube side, so true counter-
current flow is not possible.

Draining tube side is difficult
in vertical (head-up) position.

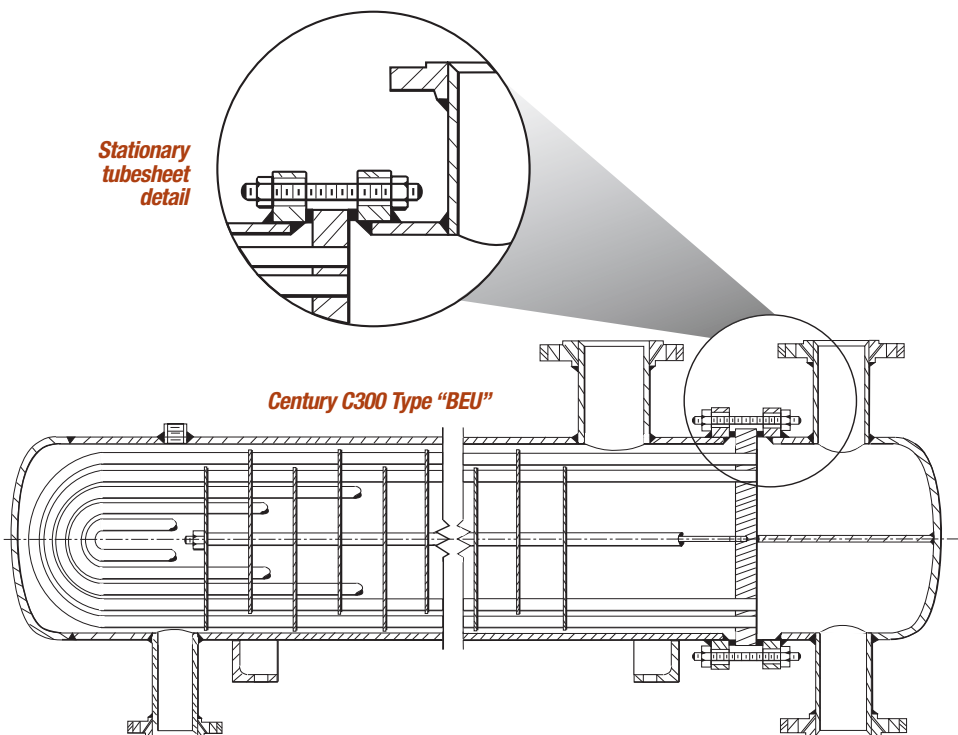
Tube side can be cleaned by
chemical means only.

- U-tube, removable bundle (C300) or suction-heater (open-end shell) construction (C320).
- Multi-pass tube arrangements for maximum efficiency over a variety of tube side flow volumes.
- The C320 is much like the C300, but has an open-end shell and special tube layout for tank suction heating applications.
- Standard shell sizes from 5 inches through 42 inches in diameter; custom designs up to 60 inches in diameter.
- Available for horizontal or vertical mounting.

Century C300 and C320 Standard Design Capabilities

	Design Pressure	Design Temperature
Tube side	75 – 450 psi 517 – 3,102 kPa	-20 – 650° F -29 – 343° C
Shell side	75 – 300 psi 517 – 2,068 kPa	-20 – 650° F -29 – 343° C

Note: Custom designs to 3,600 psi/24,816 kPa and 1000° F/538° C,
depending on shell diameter and design temperature.



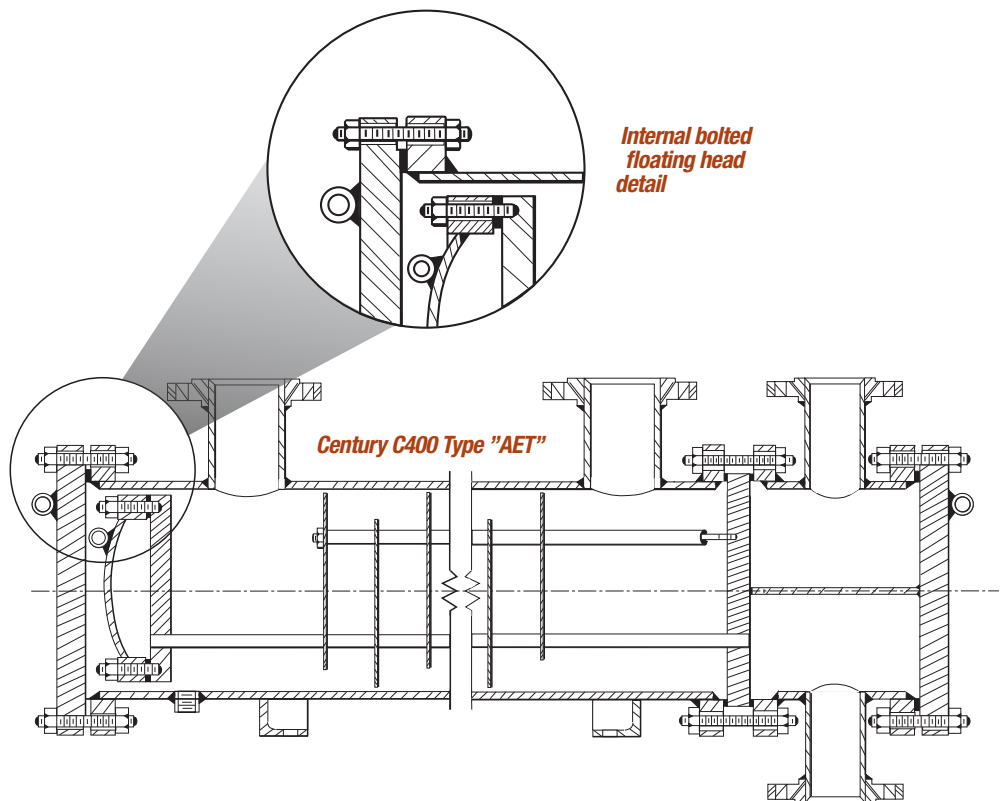
CENTURY C400

- Straight tube, internally bolted floating head, pull-through construction with removable bundle.
- Multi-pass tube arrangements for maximum efficiency over a wide variety of tube side flow volumes.
- Standard shell sizes from 8 inches through 42 inches in diameter; custom designs up to 60 inches in diameter.

Century C400 Standard Design Capabilities

	Design Pressure	Design Temperature
Tube side	75 – 450 psi 517 – 3,102 kPa	-20 – 650° F -29 – 343° C
Shell side	75 – 300 psi 517 – 2,068 kPa	-20 – 650° F -29 – 343° C

Note: Custom designs to 3,600 psi/24,816 kPa and 1000° F/538° C,
depending on shell diameter and design temperature.



TEMA Type AET or BET.
Can meet TEMA “B”, “C” and “R”,
ASME Section VIII Div. 1, and
ASME Section III “N” stamp.

Advantages:

Bundle can be
removed from shell for
cleaning or maintenance.

Lack of packed joints
allows for handling volatile
or toxic fluids.

Large bundle entrance area.

Allows for differential
thermal expansion
between shell and tubes.

Bundle can be pulled without
removing floating head cover.

Limitations:

Less heat transfer surface
area for given shell and tube
size than other removable
bundle designs.

The costliest of all basic types
of heat exchanger designs.

Gasket leak detection not
possible on floating head.

CENTURY C500

TEMA Type AES or BES.
Can meet TEMA “B”, “C” and “R”,
ASME Section VIII Div. 1, and
ASME Section III “N” stamp.

Advantages:

Higher heat transfer surface
area per given shell and tube
size than pull-through designs
(AET or BET Types).

Allows for differential thermal
expansion between the shell
and tubes.

Lack of packed joints allows
for handling volatile and/or
toxic fluids.

Provides multi-pass tube
arrangements.

Bundle can be removed
for shell side cleaning
and maintenance.

Limitations:

Shell cover, clamp ring and
floating head cover must be
removed prior to removing
bundle. This results in higher
maintenance cost compared
to “pull-through” designs
(AET or BET).

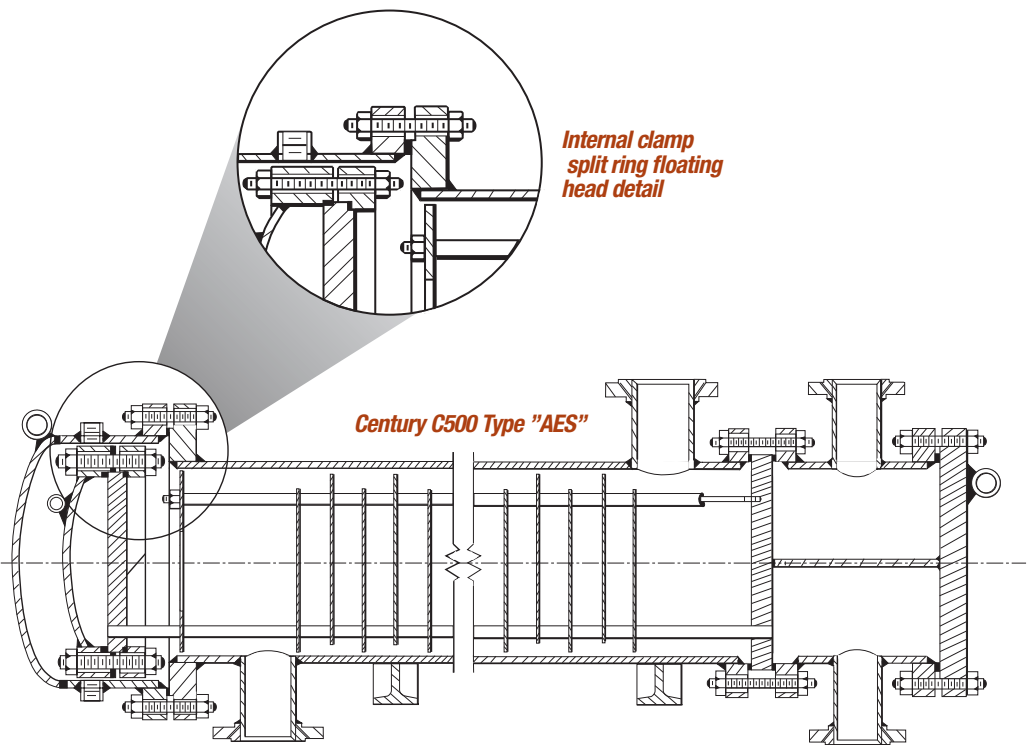
More costly than fixed
tubesheet and U-tube
designs.

- Straight tube, internal clamp split ring, floating head, removable bundle.
- Multi-pass tube arrangements for maximum efficiency over a wide variety of tube side flow volumes.
- Standard shell sizes from 6 inches through 42 inches in diameter; custom designs up to 60 inches in diameter.
- Available for horizontal or vertical mounting.

Century C500 Standard Design Capabilities

	Design Pressure	Design Temperature
Tube side	75 – 450 psi	-20 – 650° F
	517 – 3,102 kPa	-29 – 343° C
Shell side	75 – 300 psi	-20 – 650° F
	517 – 2,068 kPa	-29 – 343° C

Note: Custom designs to 3,600 psi/24,816 kPa and 1000° F/538° C,
depending on shell diameter and design temperature.



CENTURY® SERIES HEAT EXCHANGERS

Century® Series heat exchangers are available with a wide range of custom features,
design variations, special materials and options to meet virtually any heat transfer requirement.

Drawing on more than 75 years of thermal and mechanical design experience and heat transfer
expertise, ITT Standard engineers have developed an unequalled range of choices to help you
select the precise heat exchanger you need to meet your specific requirements.

MATERIALS STANDARD DESIGNS

Shells

- Steel, 304SS, 316SS, 304LSS, 316LSS
up to 42-inch diameter.

Bonnets/channels

- Steel, 304SS, 316SS, 304LSS, 316LSS,
Cast Iron, Cast Bronze, Ductile Iron.

Tubesheets

- Aluminum Bronze, 90/10 Cu Ni, Muntz,
RNB, 304SS, 316SS, 304LSS, 316LSS, Steel.

Tubes

- Carbon Steel, Stainless Steel, Nickel and
Nickel Alloys, Titanium and other Alloys.
Bare and Lo-Fin Tubing.

CAPABILITIES

- Hydraulic tube expansion
- Seal and strength welding of tubes
to tubesheet
- Expansion joints (flanged and flued head
as well as bellows type)
- Surface finish analysis
- Heat transfer test laboratory (4,000 ft2)
- Helium leak testing
- Radiographic, ultrasonic and magnetic
particle testing (sub-contracted)
- API oil flushing

DESIGN CAPABILITIES CUSTOM DESIGNS

Materials

- Stainless steel(s) (including Alloy 20, 317SS, AL6XN,
904LSS, etc.) • Hastelloy • Titanium • Monel
• 90/10 CuNi • 70/30 CuNi • Inconel • Incoloy®
• Avesta 254SMO

(Note: Weld qualifications may have to be developed.)

Diameter

- Up to 42 inches for standard designs;
custom designs up to 60 inches.

Length

- Up to 30 feet for standard steel designs and 21 feet
for standard stainless steel designs; custom designs
up to 40 feet.

Temperature

- From -20° F (-29° C) up to 650° F (343° C) with
standard designs; custom designs from
-300° F (-184° C) up to 1000° F (538° C).

Weight

- 30 tons maximum.

SPECIFICATIONS

- ASME Section III “N” stamp
- ASME Section VIII Division 1
- TEMA Classes “B,” “C” and “R”
- API
- ABS
- US Navy (Mil C-15730)
- The Pressure Equipment Directive (97/23/EC)

Not all options are
available on all
Century® Series
units; consult your
ITT Standard
representative or
the factory.



Models of efficiency.

Engineered/customized
heat exchangers
for process and other
heating/cooling
applications.



Plateflow®
plate-and-frame
exchangers.



Pre-engineered
shell-and-tube heat
exchangers for general
heating and cooling.



Heat transfer coils.



FanEx® and AirEx® air/oil,
air/air, or air/water
heat exchangers.



For more information on this product please contact:

Southgate Process Equipment, Inc.

87 Hickory Springs Industrial Dr.
Canton, GA 30115
Phone: (770) 345-0010
Email: Sales@southgateprocess.com
Website: www.southgateprocess.com

Standard  **change**
a xylem brand

Formally ITT Standard, American Standard, and Ross

HEAT EXCHANGERS AND PRESSURE VESSELS

STANDARD XCHANGE (formerly ITT STANDARD)	Commercial and engineered (TEMA) shell and tube heat exchangers. Plate and frame heat exchangers with various material combinations, gasketed, welded and double wall designs. Brazed plate heat exchangers with standard and customized designs.
MUNTERS/ DES CHAMPS	Air to air economizers , tubular and plate style for high temperature applications.
HEAT EXCHANGER DESIGN, INC	Longitudinally finned hairpin and double pipe heat exchangers, large shell and tube heat exchangers, tank heaters and suction heaters . TEMA B, C, and R.
INDUSTRIAL HEAT TRANSFER, INC	Finned tube heat transfer coils with continuous plate fin design. Many combinations of metals and custom designs.
ENERQUIP, LLC	Shell and tube heat exchangers, all stainless steel sanitary designs for pharmaceutical and food applications.
ELANCO	Spiral heat exchangers, welded plate and shell, ASME VIII.
J D COUSINS, INC.	Large fabricated tanks and shell and tube heat exchangers for chemical, power and general industrial.
FABSCO	Air cooled forced draft finned tube heat exchangers. ASME VIII and API 661.
CIRCLE-S PRODUCTS	Dry-Flo moisture separators , coalescers, receivers and dry types in stock and custom sizes. Surge tanks , small tanks and ASME VIII pressure vessels .

PACKAGED SYSTEMS & COMPONENTS

SPIRAX SARCO, INC.	Steam control and condensate recovery systems, steam traps, control valves, regulators .
ADVANTAGE ENGINEERING, INC	Industrial chillers , air and water cooled in complete packaged systems. Standard and custom designs. Cooling Towers, Temperature Control Units, Pump/Reservoirs Systems .
KERR PUMP & SUPPLY	Custom designed skid mounted packaged systems with controls, filters, tanks, pumps, heat exchangers, etc.
ITT NEO-DYN & ITT CONOFLOW	Regulators, transducers, actuators, positioners, temperature switches and pressure switches .
GAUMER COMPANY	Electric heaters , custom and stock. Immersion, circulation, duct, strip and band heaters . Packaged systems with optional controls.