### **CPK Series Heat Exchangers**



High thermal efficiency.

Rugged construction.

Flexible design.

Standard dependability.



Standard Xchange



# **CPK Flexibility**

Baffles Carbon steel or brass. Closely fitted to shell and around tubes

**Packing rings** 

Molded neoprene

Lantern gland /

**Cradles** 

Cast or fabricated steel

Molded nylon or cast iron

Shell

Carbon steel with a wide variety of nozzle orientations

#### 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











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Pattern availability must be verified for specific cast materials to obtain optional channel orientation. Dimensions on fabricated channels vary slightly. Two-pass channels Stationary end

#### **Channels**

Wide variety of channel connection orientations available in both single- and two-pass units. Channels can be cast iron (steel cover), cast bronze (bronze cover or liner), fabricated stainless steel or fabricated carbon steel.



**Note:** To obtain optional channel nozzle orientation, pattern availability must be verified for specific cast materials.



\*\* When using cast iron channels in 6" thru 17" diameter units only, and specified as Commercial Standard for liquid-to-liquid, nonpulsating, nonshock service test pressure will be 160 psi-1104 kPa.
\*\*\* Alternate 600 psi shell side design pressure, and 900 psi test

\*\*\* Alternate 600 psi shell side design pressure, and 900 psi test pressure, can be furnished for 5" thru 12" diameters only, with fabricated steel or cast ductile iron channels. Catalog dimensions do not apply for this 600# design.

) or (

# **CPK Design Flexibility** (3" to 31" shell diameters)



## One-pass CPK

UNIT SIZE &		-				_	-	-	_		J			
LENGTH	A	В	BR	L L	UU	U	E	F	G	н	HOLES	ĸ	NPT	FLG
03120 04120 05120 06120	3.50 4.50 5.56 6.62	6.38 7.38 9.12 10.12	- - - 8.00	2.62 3.38 3.88 7.25	- - - 4.00	3.00 4.12 4.75 5.25	.88 1.38 1.38 1.38	1.50 2.25 2.25 2.25	1.50 2.50 2.50 4.50	3.00 4.00 4.00 6.00	(2) .50 x .75 (2) .62 x .88 (2) .62 x .88 (2) .62 x .88	.19 .31 .31 .31	.75 1.00 1.00 -	- - - 2.00
08120 10120 12120 13120 15120 17120	8.62 10.75 12.75 14.00 16.00 18.00	12.12 14.25 16.25 17.50 19.50 21.62	10.12 12.12 14.25 17.50 19.50 21.62	8.25 9.75 11.00 11.75 12.75 13.75		6.50 7.50 8.50 10.50 11.50 12.00	1.38 1.38 1.38 2.00 2.00 2.00	2.25 2.25 2.25 3.25 3.25 3.25 3.25	4.50 5.50 6.50 7.50 8.50 9.50	6.00 8.00 9.00 9.75 10.75 11.75	(2) .62 x .88 (2) .62 x .88 (2) .62 x .88 (2) .62 x .88 (2) .75 x 1.25 (2) .75 x 1.25 (2) .75 x 1.25	.31 .38 .38 .38 .38 .38 .38		4.00 6.00 4.00 6.00 6.00 6.00
19120 21120 23120 27120 31120	20.00 22.00 24.00 27.75 31.75	23.62 25.75 27.75 31.62 35.62	21.62 25.75 25.38 31.62 35.62	14.75 16.00 17.00 19.25 21.25		13.00 13.69 15.00 17.00 19.00	2.75 2.75 2.75 1.50 1.50	4.00 4.00 4.00 5.00 5.00	10.50 13.50 13.50 15.00 17.00	12.75 15.50 15.50 17.00 19.00	(2) .75 x 1.25 (2) .75 x 1.25 (2) .75 x 1.25 (2) .75 x 1.25 (4) .88 DIA. (4) .88 DIA.	.50 .50 .50 .54 .54	- - - -	8.00 8.00 8.00 10.00 10.00



## Two-pass CPK

UNIT SIZE &	_	_				_	_	_			J			L
LENGTH	A	В	BB	C	CC	D	E	F	G	Н	HOLES	К	NPT	FLG
03120 04120 05120 06120 08120 10120 12120 13120 15120	3.50 4.50 5.56 6.62 8.62 10.75 12.75 14.00 16.00	6.38 7.38 9.12 10.12 12.12 14.25 16.25 17.50 19.50	- 8.00 10.12 12.12 14.25 17.50 19.50	2.62 3.38 3.88 7.25 8.25 9.75 11.00 11.75 12.75	- - 3.75 - - - - - - -	3.00 4.12 4.75 5.25 6.50 7.50 8.50 10.50 11.50	.88 1.38 1.38 1.38 1.38 1.38 1.38 1.38 2.00 2.00	1.50 2.25 2.25 2.25 2.25 2.25 2.25 2.25 3.25 3	1.50 2.50 2.50 4.50 4.50 5.50 6.50 7.50 8.50	3.00 4.00 4.00 6.00 6.00 8.00 9.00 9.75 10.75	(2) .50 x .75 (2) .62 x .88 (2) .75 x 1.25 (2) .75 x 1.25	.19 .31 .31 .31 .31 .38 .38 .38 .38 .38	.75 1.00 1.00 - - - - - -	- 2.00 4.00 6.00 6.00 6.00 6.00
17120 19120 21120 23120 27120 31120	18.00 20.00 22.00 24.00 27.75 31.75	21.62 23.62 25.75 27.75 31.62 35.62	21.62 21.62 25.75 25.38 31.62 35.62	13.75 14.75 16.00 17.00 19.25 21.25	- - - - -	12.00 13.00 13.69 15.00 17.00 19.00	2.00 2.75 2.75 2.75 1.50 1.50	3.25 4.00 4.00 4.00 5.00 5.00	9.50 10.50 13.50 13.50 15.00 17.00	11.75 12.75 15.50 15.50 17.00 19.00	(2) .75 x 1.25 (2) .75 x 1.25 (2) .75 x 1.25 (2) .75 x 1.25 (4) .88 DIA. (4) .88 DIA.	.38 .50 .50 .50 .54 .54	-	6.00 8.00 8.00 10.00 10.00

Please note: Catalog dimensions are subject to variation. For construction purposes, use only certified drawings.

Use this catalog as a starting point; if you don't see what you need, please contact us. We've built heat exchangers for applications too numerous to mention. We'd be happy to build one for you.

#### **Designed for flexibility**

Standard CPK exchangers are available with shell diameters ranging from 3" to 31", and with single- or two-pass channels. To meet the most detailed and exacting requirements, you'll find a variety of options. These include variations in nozzle orientations, tube layouts, tube lengths, materials, and baffle spacings. They're all preengineered to meet the precise conditions of your application. CPK exchangers can be constructed to comply with the standards of the ASME Pressure Vessel Code, Section VIII; TEMA; API; U.S. Coast Guard; and the American Bureau of Shipping Regulations.



Figure 1: Construction detail of the packed end shows floating tubesheet, packing rings and lantern gland with telltale leak-off holes. Channel and cover construction permits quick access to tubes without disturbing packing.



Figure 2: CPK exchangers are designed to allow easy access to the inside of the tubes without breaking piping connections. Just unbolt and remove the channel cover plate.



Figure 3: Removable tube bundle permits easy examination of tubes and shell interior.



### **CPK SERIES OPTIONS**



Figure 4: Vertical mounting legs.



Figure 5: Spacer cradles for stacking arrangements.



Figure 6: Twin cooler arrangements with interconnecting piping & transfer valve.



Figure 7: Detail of double tubesheet construction.

CPK Series heat exchangers are ideal for a wide variety of applications. They feature high thermal efficiency, rugged construction for tough day-to-day operations, and convenience of inspection and servicing. They are designed with standard pullthrough, externally-packed floating head construction to prevent fluid intermixing and allow for tube expansion.

#### Some of the numerous applications for CPK heat exchangers:

- Heating and cooling electrolytes
- Boiler blowdown or contaminated condensate
- Intercoolers or aftercoolers for compressors

#### They're also popular as coolers for:

- Brine
- Fresh water (jacket water)
- Engine and turbine lube oil
- Seal oil
- Hydraulic coupling fluid
- Hydraulic circuit oil

#### **Easy product selection**

ITT Standard keeps a complete inventory of preengineered components, ready for immediate use. We can provide special materials, mountings, or features. Whatever your needs, the CPK Series is versatile enough to meet them.

If desired, our engineers can work directly with your engineering staff. To help you select the right model, we'll review your detailed specifications and operating requirements. Then, using our fully computerized selection process, we'll recommend the best heat exchanger for your specific application.



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.





CPK Series heat exchangers are manufactured with rugged construction for tough day-today operations.

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



All dimensions are in inches.

CHANNEL CONNECTIONS 6" EXCHANGER M-PIPE TAF CC



CPK ONE - PASS BONNETS

М		N &	в	D	c	22	Ŧ		v	w	v
NPT	FLG	NPT	F	n	3	33	I	U	v	vv	^
1.25	-	.38	6.25	-	-	-	112.12	125.00	122.0	108.0	6.25
2.00	-	.38	6.75	-	-	-	111.75	126.00	122.0	107.0	7.25
2.50	-	.38	7.50	-	-	-	111.62	127.00	121.0	107.0	8.00
3.00	-	.38	-	3.12	7.88	8.38	110.75	133.25	118.0	107.0	8.25
-	4.00	.38	-	4.50	11.50	11.88	108.25	140.62	115.0	106.0	10.75
-	6.00	.75	-	5.50	13.88	14.12	106.00	145.00	113.0	106.0	12.00
-	6.00	.75	-	5.50	12.62	12.88	108.25	144.75	113.0	106.0	11.75
-	8.00	.75	-	8.25	14.25	14.50	105.88	151.12	109.0	105.0	13.00
-	8.00	.75	-	8.50	14.50	14.62	105.62	151.75	108.0	105.0	13.25
-	8.00	.75	-	8.50	14.50	14.62	105.62	151.75	108.0	105.0	13.25
-	8.00	.75	-	6.75	14.12	14.00	102.50	144.12	113.0	103.0	12.25
-	8.00	.75	-	9.25	16.50	17.00	102.38	154.38	107.0	102.0	15.00
-	8.00	.75	-	6.75	14.50	14.62	102.25	144.88	112.0	102.0	13.00
-	12.00	.75	-	12.88	22.12	20.25	97.88	165.88	101.0	102.0	18.25
-	16.00	.75	-	14.88	24.38	22.38	97.25	173.75	97.0	101.0	20.50



#### BONNET CONNECTIONS 3" -4" & 5" EXCHANGERS





	м	N & 0	D	D	c	т		v	\A/	v
NPT	FLG	NPT	Г	n	3		U	v	vv	^
1.00		38	6.25	-	-	112.12	125.00	122.0	108.0	6.50
1.25	-	.38	7.25	-	-	111.75	126.00	121.0	107.0	7.50
2.00	-	.38	8.00	-	-	111.62	127.00	121.0	107.0	8.50
2.00	-	.38	-	2.62	7.00	110.75	127.88	119.0	107.0	7.25
-	2.00	.38	-	3.00	11.25	108.25	131.38	117.0	106.0	10.50
-	3.00	.75	-	3.75	11.88	106.00	132.38	116.0	106.0	10.00
-	3.00	.75	-	3.75	12.00	106.00	132.62	116.0	106.0	10.00
-	4.00	.75	-	6.25	12.25	105.88	137.38	113.0	105.0	11.00
-	4.00	.75	-	6.50	12.50	105.62	138.12	112.0	105.0	11.25
-	6.00	.75	-	7.50	13.50	105.62	140.12	110.0	105.0	12.25
-	6.00	.75	-	5.50	13.38	103.00	135.62	114.0	103.0	11.75
-	6.00	.75	-	8.25	15.50	102.38	141.25	109.0	102.0	14.00
-	6.00	.75	-	6.38	14.50	102.25	138.62	112.0	102.0	13.00
-	8.00	.75	-	10.75	20.00	97.88	150.38	105.0	102.0	16.25
-	8.00	.75	-	11.12	20.62	97.25	151.62	104.0	101.0	16.75

M-NPT

### **DETERMINING SIZE**

While the charts show selected heat exchanger models with tube lengths of 120 inches, CPK heat exchangers are available with virtually any tube length.

For example, the number 08120 designates a heat exchanger with a unit size of 08 (A = 8-5/8''shell diameter) and tube length of 120". If a tube length of 96" is needed, the designation would be 08096. You would also deduct 24" (120'' - 96'' = 24'') from dimensions U, T and W. If a tube length of 144" is required, the exchanger size would be 08144. In this case, you would add 24" to dimensions U, T and W.

Since product improvement is a continuing effort at ITT Standard, we reserve the right to make reasonable changes of any kind without notice.

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

> Plateflow<sup>®</sup> plate-and-frame exchangers.

### Models of efficiency.

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

Heat transfer coils.

FanEx<sup>®</sup> and AirEx<sup>®</sup> 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: <u>Sales@southgateprocess.com</u> Website: <u>www.southgateprocess.com</u>









#### HEAT EXCHANGERS AND PRESSURE VESSELS

STANDARD XCHANGE (formerly ITT STANDARD)	Commercial and engineered (TEMA) <b>shell and tube</b> heat exchangers. <b>Plate and frame</b> heat exchangers with various material combinations, gasketed, welded and double wall designs. <b>Brazed plate</b> 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 <b>hairpin</b> and <b>double pipe</b> heat exchangers, large <b>shell and tube</b> heat exchangers, <b>tank heaters and suction heaters</b> . TEMA B, C, and R.
INDUSTRIAL HEAT TRANSFER, INC	Finned tube <b>heat transfer coils</b> 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 industria
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	<b>Custom designed</b> skid mounted <b>packaged systems</b> 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.