

UC/UCV Series – U-Tube, Bare Tube Bundle, Shell & Tube Coolers

0916

The UC/UCV Series features U-tube Heat Exchangers which allow the shell and tube bundle to expand and contract independently with temperature fluctuation. This reduces temperature dependent stresses, so they are ideal in applications with large temperature differentials. These series offer a wide variety of material options for utilizing multiple cooling water requirements for oil or steam applications.

The U-tube bundle allows for the tube bundle to be removed without disturbing unit mounting and shell side connections. This allows for ease of maintenance to clean the unit or replacing the tube bundle with a new one.

For application and sizing help, please contact the TTP Application Engineering group at 1-262-554-8330 or ttp-appsengineering@apiheattransfer.com.

UC/USSC Series:

This is the standard version that comes with NPT ports for shell and tube side connections, which are in line with each other on the shell. Available in both Steel and Stainless Steel construction. Some typical examples for UC units include quench oil coolers, liquid to liquid heaters, and barrel oil coolers for plastic extrusion machines.

UCA/USSCA Series:

Same construction as the UC series, but the shell connection are ASME/ANSI Flange and NPT on the tube side. Again, they are in line with each other on the shell.



How to Order

Model Series

Steel Construction

UC - NPT Shell Connections x NPT Tube Connections
UCA - ASME/ANSI Flange Shell Connections x NPT Tube Connections
UCV-600/800/1000 - Inlet and Outlet NPT Shell Connections Rotated 180° x NPT Tube Side Connections
UCV-1200/1700* - ASME/ANSI Flange Inlet and NPT Outlet Shell Connections Rotated 180° x NPT Tube Side Connections
 * UCV models have Stainless Steel shells.

Stainless Steel Construction

USSC - NPT Shell Connections x NPT Tube Connections
USSCA - ASME/ANSI Flange Shell Connections x NPT Tube Connections
USSCV-600/800/1000 - Inlet and Outlet NPT Shell Connections Rotated 180° x NPT Tube Side Connections
USSCV-1200/1700 - ASME/ANSI Flange Inlet and NPT Outlet Shell Connections Rotated 180° x NPT Tube Side Connections

612, 624, 812, 824, 836, 1012, 1024, 1036, 1218, 1224, 1236, 1248, 1724, 1736, 1748, 1760
 (Contact Factory for Application and Sizing Information)

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Model Size Selected

Baffle Spacing

Tubeside Passes

T - Two Pass
F - Four Pass

Cooling Tube Material

Blank - Copper
CN - CuNi
SS - Stainless Steel

End Bonnet Material

Blank - Cast Iron
B - Bronze
SB - 316 Stainless Steel

Tube Sheet Material

Blank - Steel
W - CuNi
S - 316 Stainless Steel

Zinc Anodes

Blank - None
Z - Zinc Anode

UCV/USSCV Series:

This series is more suitable for steam applications with the inlet port on top and the outlet port rotated 180° on the bottom of the shell. This allows for water condensate to drain easily.

600/800/1000 sizes have NPT shell and tube side connections. 1200/1700 sizes have Inlet shell connection combination of ASME/ANSI Inlet and NPT outlet, again rotated 180° from each other. The tube side is NPT. A typical example for UCV units is steam to liquid heaters. Note: All UCV models come with Stainless Steel shell material.

Features

Steam & large temperature differentials

“U” tube

Removable tube bundle for servicing

Replacement bundles can be ordered separately. Contact Factory

3/8" Tubes

Built-in expansion chamber

Threaded or flanged connections

Mounting brackets included (May be rotated in 90° increments)

Steel shell assembly

Product Options

Wide variety of materials available

Custom sizes/designs

Ratings

UC Series

Maximum Operating Pressure - Shell Side 250 PSI

Maximum Operating Pressure - Tube Side 150 PSI

Maximum Operating Temperature 400°F

UCV Series

Maximum Operating Pressure - Shell Side

600, 800, 1000 250 psi
1200, 1700 150 psi

Maximum Operating Pressure - Tube Side 150 PSI

Maximum Operating Temperature 400°F

Materials

UC/UCV Series

Tubes Copper

Tube Sheets Steel

Shell Steel/316L stainless steel (UCV)

Shell Connections Steel

Baffles Stainless steel

End Bonnets Cast iron

Mounting Brackets Steel

Gaskets Non-asbestos fiber/nitrile rubber

Nameplate Aluminum foil

USSC/USSCV Series

Tubes 316L stainless steel

Tube Sheets 316L stainless steel

Shell 316L stainless steel

Shell Connections 316L stainless steel

End Bonnets 316L stainless steel

Mounting Brackets Steel

Gaskets Non-asbestos fiber/nitrile rubber

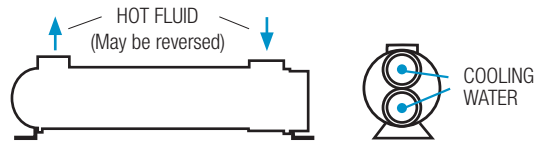
Nameplate Aluminum foil

Dimensions

UC Applications

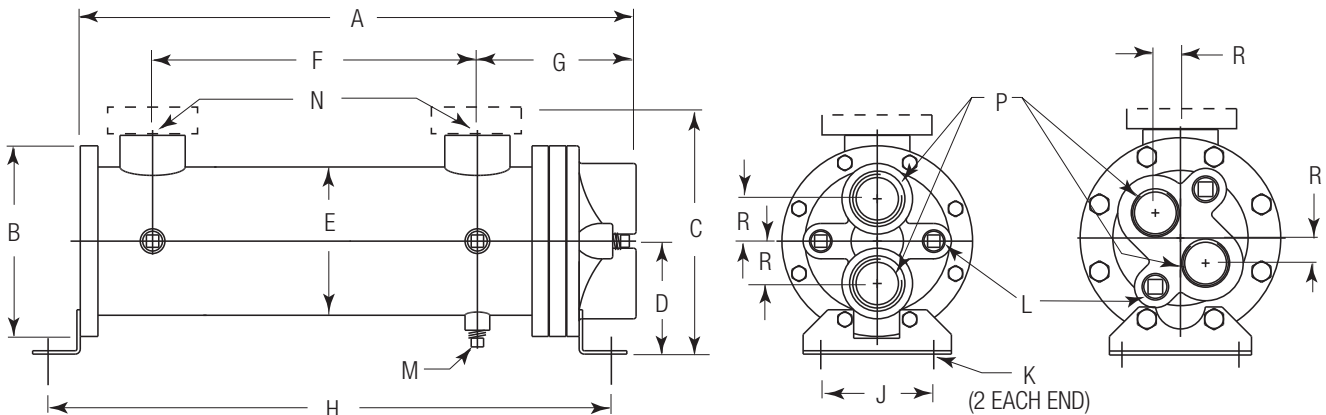
U-Tube Heat Exchangers allow the shell and tube bundle to expand and contract independently with temperature fluctuation. This reduces temperature dependent stresses so they are ideal in applications with large temperature differentials. Some typical examples for **UC** units include quench oil coolers, liquid to liquid heaters, and barrel oil coolers for plastic extrusion machines. The removable bundle design allows for easier cleaning of the shell side cavity when the bundle is removed.

Piping Diagram



Specific applications may have different piping arrangements. Contact factory for assistance.

UC Two Pass



UC/UCA-600/1000/1700 Series

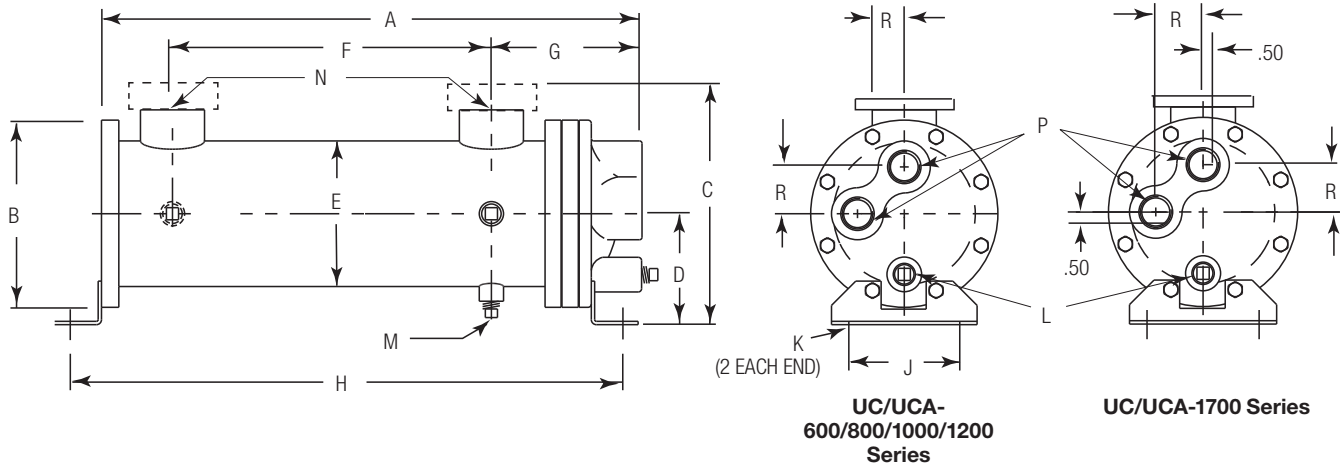
UC/UCA-800/1200 Series

Model	A	B Dia.	C		D	E Dia.	F	G	H	J	K	L NPT	M NPT	N NPT	P NPT	R	FT ² Surface Area
			NPT	ASME* Flange													
612	17.22	4.50	5.38	6.75	2.75	3.25	11.25	4.03	17.66	3.25	.44 Dia	(2) 3/8	(3) 1/4	1	1	—	2.4
624	29.22	4.50	5.38	6.75	2.75	3.25	23.25	4.03	29.66	3.25	.44 Dia	(2) 3/8	(3) 1/4	1	1	—	4.7
812	19.47	6.00	6.75	8.25	3.50	4.25	12.00	4.97	19.65	3.50	.44 Dia	(2) 3/8	(3) 1/4	1	1 1/4	0.75	4.0
824	31.47	6.00	6.75	8.25	3.50	4.25	24.00	4.97	31.65	3.50	.44 Dia	(2) 3/8	(3) 1/4	1 1/2	1 1/4	0.75	7.9
836	43.47	6.00	6.75	8.25	3.50	4.25	36.00	4.97	43.65	3.50	.44 Dia	(2) 3/8	(3) 1/4	1 1/2	1 1/4	0.75	11.9
1012	19.68	6.75	7.75	9.25	4.00	5.25	11.50	5.62	19.94	4.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	1 1/2	1 1/2	1.50	7.4
1024	31.68	6.75	7.75	9.25	4.00	5.25	23.50	5.62	31.94	4.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	1 1/2	1 1/2	1.50	14.5
1036	43.68	6.75	7.75	9.25	4.00	5.25	35.50	5.62	43.94	4.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	1 1/2	1 1/2	1.50	21.5
1218	26.22	7.75	8.75	10.38	4.50	6.25	17.38	5.89	26.12	5.00	.50 x .75 Slot	(2) 1/2	(3) 3/8	2	2	1.10	15.3
1224	32.22	7.75	8.75	10.38	4.50	6.25	23.38	5.89	32.12	5.00	.50 x .75 Slot	(2) 1/2	(3) 3/8	2	2	1.10	21.1
1236	44.22	7.75	8.75	10.38	4.50	6.25	35.38	5.89	44.12	5.00	.50 x .75 Slot	(2) 1/2	(3) 3/8	2	2	1.10	31.3
1248	56.22	7.75	8.75	10.38	4.50	6.25	47.38	5.89	56.12	5.00	.50 x .75 Slot	(2) 1/2	(3) 3/8	2	2	1.10	41.6
1724	34.69	10.50	11.58	13.00	5.75	8.62	23.50	7.81	34.27	7.00	.62 x .88 Slot	(2) 1/2	(3) 3/8	3	2 1/2	2.25	47.7
1736	46.69	10.50	11.58	13.00	5.75	8.62	35.50	7.81	46.27	7.00	.62 x .88 Slot	(2) 1/2	(3) 3/8	3	2 1/2	2.25	70.1
1748	58.69	10.50	11.58	13.00	5.75	8.62	47.50	7.81	58.27	7.00	.62 x .88 Slot	(2) 1/2	(3) 3/8	3	2 1/2	2.25	92.5
1760	70.69	10.50	11.58	13.00	5.75	8.62	59.50	7.81	70.27	7.00	.62 x .88 Slot	(2) 1/2	(3) 3/8	3	2 1/2	2.25	114.8

*150# ASME/ANSI Flange (Optional). NOTE: We reserve the right to make reasonable design changes without notice. Consult factory. All dimensions are inches.

Dimensions

UC Four Pass



Model	A	B Dia.	C		D	E Dia.	F	G	H	J	K	L NPT	M NPT	N NPT	P NPT	R	FT ² Surface Area
			NPT	ASME* Flange													
612	17.20	4.50	5.38	6.75	2.75	3.25	11.25	4.01	17.66	3.25	.44 Dia	—	(3) 1/4	1	3/4	1.00	2.4
624	29.20	4.50	5.38	6.75	2.75	3.25	23.25	4.01	29.66	3.25	.44 Dia	—	(3) 1/4	1	3/4	1.00	4.7
812	19.47	6.00	6.75	8.25	3.50	4.25	12.00	4.97	19.65	3.50	.44 Dia	(2) 3/8	(3) 1/4	1 1/2	3/4	0.75	4.0
824	31.47	6.00	6.75	8.25	3.50	4.25	24.00	4.97	31.65	3.50	.44 Dia	(2) 3/8	(3) 1/4	1 1/2	3/4	1.25	7.9
836	43.47	6.00	6.75	8.25	3.50	4.25	36.00	4.97	43.65	3.50	.44 Dia	(2) 3/8	(3) 1/4	1 1/2	3/4	1.25	11.9
1012	19.50	6.75	7.75	9.25	4.00	5.25	11.50	5.43	19.95	4.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	1 1/2	1	1.69	7.4
1024	31.50	6.75	7.75	9.25	4.00	5.25	23.50	5.43	31.95	4.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	1 1/2	1	1.69	14.5
1036	43.50	6.75	7.75	9.25	4.00	5.25	35.50	5.43	43.95	4.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	1 1/2	1	1.69	21.5
1218	26.22	7.75	8.75	10.38	4.50	6.25	17.38	5.89	26.12	5.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	2	1 1/2	2.00	15.3
1224	32.22	7.75	8.75	10.38	4.50	6.25	23.38	5.89	32.12	5.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	2	1 1/2	2.00	21.1
1236	44.22	7.75	8.75	10.38	4.50	6.25	35.38	5.89	44.12	5.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	2	1 1/2	2.00	31.3
1248	56.22	7.75	8.75	10.38	4.50	6.25	47.38	5.89	56.12	5.00	.50 x .75 Slot	(2) 3/8	(3) 3/8	2	1 1/2	2.00	41.6
1724	34.69	10.50	11.58	13.00	5.75	8.62	23.50	7.81	34.27	7.00	.62 x .88 Slot	(2) 3/8	(3) 3/8	3	2	2.50	47.7
1736	46.69	10.50	11.58	13.00	5.75	8.62	35.50	7.81	46.27	7.00	.62 x .88 Slot	(2) 3/8	(3) 3/8	3	2	2.50	70.1
1748	58.69	10.50	11.58	13.00	5.75	8.62	47.50	7.81	58.27	7.00	.62 x .88 Slot	(2) 3/8	(3) 3/8	3	2	2.50	92.5
1760	70.69	10.50	11.58	13.00	5.75	8.62	59.50	7.81	70.27	7.00	.62 x .88 Slot	(2) 3/8	(3) 3/8	3	2	2.50	114.8

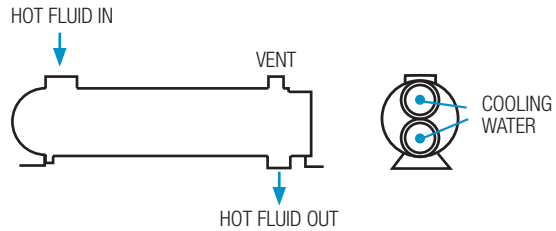
*150# ASME/ANSI Flange (Optional). NOTE: We reserve the right to make reasonable design changes without notice. Consult factory. All dimensions are inches.

Dimensions

UCV Applications

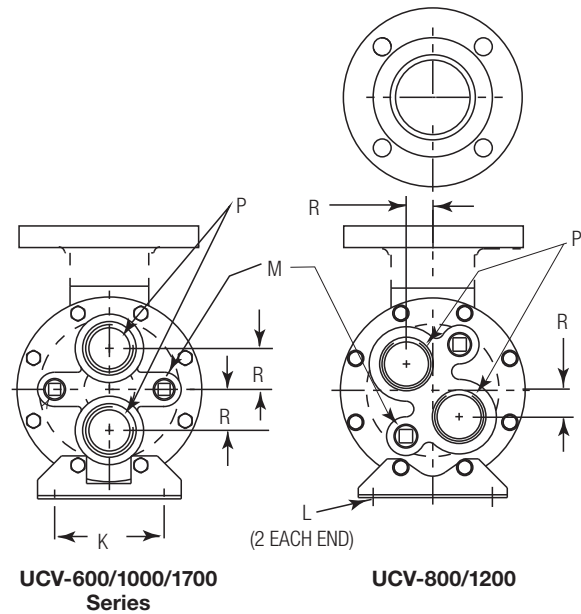
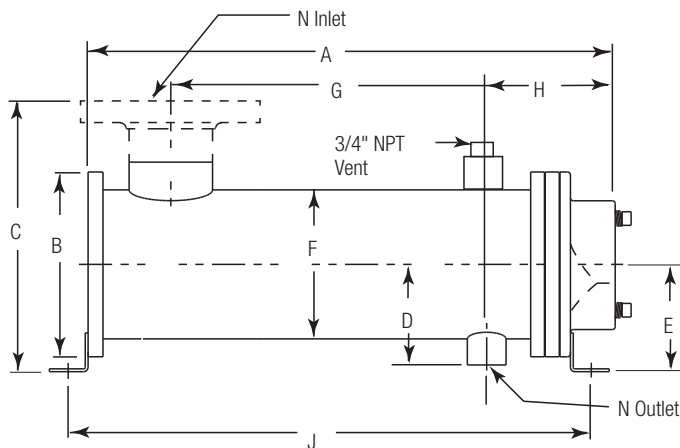
U-Tube Heat Exchangers allow the shell and tube bundle to expand and contract independently with temperature fluctuation. This reduces temperature dependent stresses so they are ideal in applications with large temperature differentials. A typical example for **UCV** units is steam to liquid heaters. The removable bundle design allows for easier cleaning of the shell side cavity when the bundle is removed.

Piping Diagram



Specific applications may have different piping arrangements. Contact factory for assistance.

UCV Two Pass

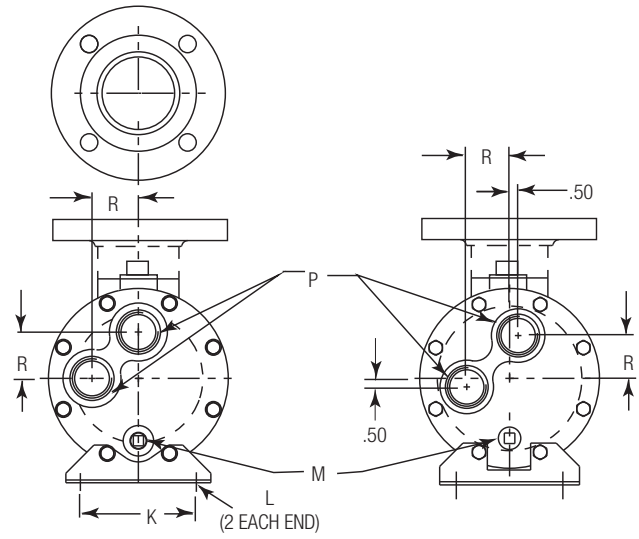
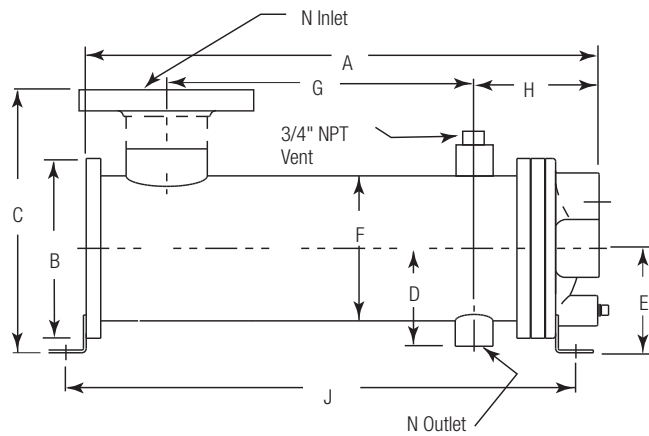


Model	A	B Dia.	C	D	E	F Dia.	G	H	J	K	L	M NPT	N		P NPT	R	FT ² Surface Area
													Inlet	Outlet			
612	17.22	4.50	5.25	2.62	2.75	3.25	11.00	4.00	17.66	3.25	.44 Dia	(2) 3/8	1 1/4	3/4	1	—	2.4
624	29.22	4.50	5.25	2.62	2.75	3.25	23.00	4.00	29.66	3.25	.44 Dia	(2) 3/8	1 1/4	3/4	1	—	4.7
812	19.47	6.00	6.75	3.15	3.50	4.25	12.38	4.60	19.65	3.50	.44 Dia	(2) 3/8	1 1/2	3/4	1 1/4	.75	4.0
824	31.47	6.00	6.75	3.15	3.50	4.25	24.38	4.60	31.65	3.50	.44 Dia	(2) 3/8	1 1/2	3/4	1 1/4	.75	7.9
836	43.47	6.00	6.75	3.15	3.50	4.25	36.38	4.60	43.65	3.50	.44 Dia	(2) 3/8	1 1/2	3/4	1 1/4	.75	11.9
1012	19.68	6.75	7.77	3.70	4.00	5.25	11.50	5.37	19.94	4.00	.50 x .75 Slot	(2) 3/8	2	1	1 1/2	1.50	7.4
1024	31.68	6.75	7.77	3.70	4.00	5.25	23.50	5.37	31.94	4.00	.50 x .75 Slot	(2) 3/8	2	1	1 1/2	1.50	14.5
1036	43.68	6.75	7.77	3.70	4.00	5.25	35.50	5.37	43.94	4.00	.50 x .75 Slot	(2) 3/8	2	1	1 1/2	1.50	21.5
1218	26.22	7.75	11.38	4.22	4.50	6.25	17.38	5.38	26.12	5.00	.50 x .75 Slot	(2) 1/2	3*	1	2	1.10	15.3
1224	32.22	7.75	11.38	4.22	4.50	6.25	23.38	5.38	32.12	5.00	.50 x .75 Slot	(2) 1/2	3*	1	2	1.10	21.1
1236	44.22	7.75	11.38	4.22	4.50	6.25	35.38	5.38	44.12	5.00	.50 x .75 Slot	(2) 1/2	3*	1	2	1.10	31.3
1248	56.22	7.75	11.38	4.22	4.50	6.25	47.38	5.38	56.12	5.00	.50 x .75 Slot	(2) 1/2	3*	1	2	1.10	41.6
1724	34.69	10.50	14.00	5.58	5.75	8.62	23.00	7.31	34.27	7.00	.62 x .88 Slot	(2) 1/2	4*	1 1/2	2 1/2	2.25	47.7
1736	46.69	10.50	14.00	5.58	5.75	8.62	35.00	7.31	46.27	7.00	.62 x .88 Slot	(2) 1/2	4*	1 1/2	2 1/2	2.25	70.1
1748	58.69	10.50	14.00	5.58	5.75	8.62	47.00	7.31	58.27	7.00	.62 x .88 Slot	(2) 1/2	4*	1 1/2	2 1/2	2.25	92.5
1760	70.69	10.50	14.00	5.58	5.75	8.62	59.00	7.31	70.27	7.00	.62 x .88 Slot	(2) 1/2	4*	1 1/2	2 1/2	2.25	114.8

*150# ASME/ANSI Flange. NOTE: We reserve the right to make reasonable design changes without notice. Consult factory. All dimensions are inches.

Dimensions

UCV Four Pass



UCV-600/800/1000/1200 Series

UCV-1700 Series

Model	A	B Dia.	C	D	E	F Dia.	G	H	J	K	L	M NPT	N		P NPT	R	FT ² Surface Area
													Inlet	Outlet			
612	17.20	4.50	5.25	2.62	2.75	3.25	11.00	3.98	17.66	3.25	.44 Dia	(2) 3/8	1 1/4	3/4	3/4	1.00	2.4
624	29.20	4.50	5.25	2.62	2.75	3.25	23.00	3.98	29.66	3.25	.44 Dia	(2) 3/8	1 1/4	3/4	3/4	1.00	4.7
812	19.47	6.00	6.75	3.15	3.50	4.25	12.38	4.60	19.65	3.50	.44 Dia	(2) 3/8	1 1/2	3/4	3/4	1.25	4.0
824	31.47	6.00	6.75	3.15	3.50	4.25	24.38	4.60	31.65	3.50	.44 Dia	(2) 3/8	1 1/2	3/4	3/4	1.25	7.9
836	43.47	6.00	6.75	3.15	3.50	4.25	36.38	4.60	43.65	3.50	.44 Dia	(2) 3/8	1 1/2	3/4	3/4	1.25	11.9
1012	19.50	6.75	7.77	3.70	4.00	5.25	11.50	5.18	19.95	4.00	.50 x .75 Slot	(2) 3/8	2	1	1	1.69	7.4
1024	31.50	6.75	7.77	3.70	4.00	5.25	23.50	5.18	31.95	4.00	.50 x .75 Slot	(2) 3/8	2	1	1	1.69	14.5
1036	43.50	6.75	7.77	3.70	4.00	5.25	35.50	5.18	43.95	4.00	.50 x .75 Slot	(2) 3/8	2	1	1	1.69	21.5
1218	26.22	7.75	11.38	4.22	4.50	6.25	17.38	5.38	26.12	5.00	.50 x .75 Slot	(2) 3/8	3*	1	1 1/2	2.00	15.3
1224	32.22	7.75	11.38	4.22	4.50	6.25	23.38	5.38	32.12	5.00	.50 x .75 Slot	(2) 3/8	3*	1	1 1/2	2.00	21.1
1236	44.22	7.75	11.38	4.22	4.50	6.25	35.38	5.38	44.12	5.00	.50 x .75 Slot	(2) 3/8	3*	1	1 1/2	2.00	31.3
1248	56.22	7.75	11.38	4.22	4.50	6.25	47.38	5.38	56.12	5.00	.50 x .75 Slot	(2) 3/8	3*	1	1 1/2	2.00	41.6
1724	34.69	10.50	14.00	5.58	5.75	8.62	23.00	7.31	34.27	7.00	.62 x .88 Slot	(2) 3/8	4*	1 1/2	2	2.50	47.7
1736	46.69	10.50	14.00	5.58	5.75	8.62	35.00	7.31	46.27	7.00	.62 x .88 Slot	(2) 3/8	4*	1 1/2	2	2.50	70.1
1748	58.69	10.50	14.00	5.58	5.75	8.62	47.00	7.31	58.27	7.00	.62 x .88 Slot	(2) 3/8	4*	1 1/2	2	2.50	92.5
1760	70.69	10.50	14.00	5.58	5.75	8.62	59.00	7.31	70.27	7.00	.62 x .88 Slot	(2) 3/8	4*	1 1/2	2	2.50	114.8

*150# ASME/ANSI Flange. NOTE: We reserve the right to make reasonable design changes without notice. Consult factory. All dimensions are inches.