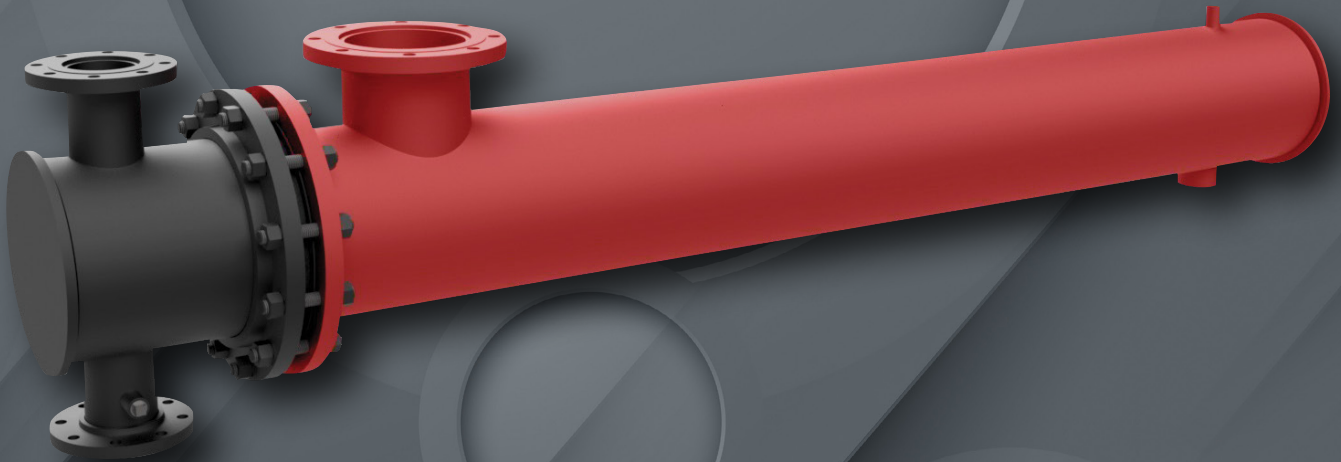


Heat Exchangers

Shell and Tube



a **nudyne** company



We are RECO Commercial Systems

The Water Heater and Pressure Vessel Experts

We are recognized as one of the country's leading suppliers of water heaters and pressure vessels for the commercial, institutional, industrial, pulp and paper, oil and gas, power generation and chemical industries. In fact, it is hard to find an industry, market, or application today that doesn't rely on the quality, safety, and convenience that RECO Commercial Systems brings to their most critical services and processes.

The RECO CS Heat Exchangers

Reco CS shell and tube heat exchangers are designed to provide the most efficient heat transfer possible along with the ultimate in long term durability and reliability.

Applications

Process and domestic hot water applications

Schools, sports centers, hotels, hospitals, casinos, commercial laundry, pulp and paper mills, chemical plants, food processing, office complexes, apartment buildings.



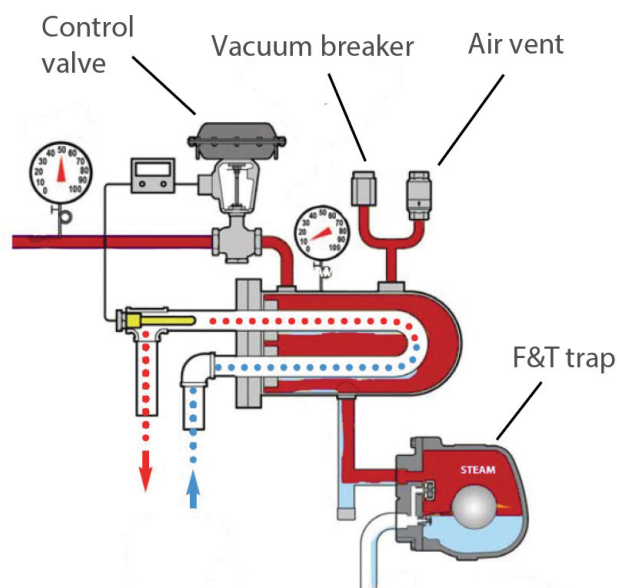
RECO CS heat exchangers are used for generating domestic hot water or for process heating. They improve performance in three ways:

- **Optimum Heat Transfer** – standard and custom units are carefully designed using HTRI software and Computational Fluid Dynamics software to ensure that the most efficient heat transfer is obtained and fluid velocities are restricted to avoid erosion of the tubes and shell.
- **Reliability** – our heat exchangers are meticulously manufactured with decades of experience. Our ASME welders fabricate the shells and element heads and are renowned for their quality of work. Tube-sheets are CNC machined in our factory with strict quality control. Tube to tube-sheet sealing is achieved by RECO developed SuperSeal tube technology to ensure a positive, leak-tight seal. All heat exchangers are fully tested prior to shipment.
- **Longevity** – careful design and material selection ensure our heat exchangers will be in service for many years to come.

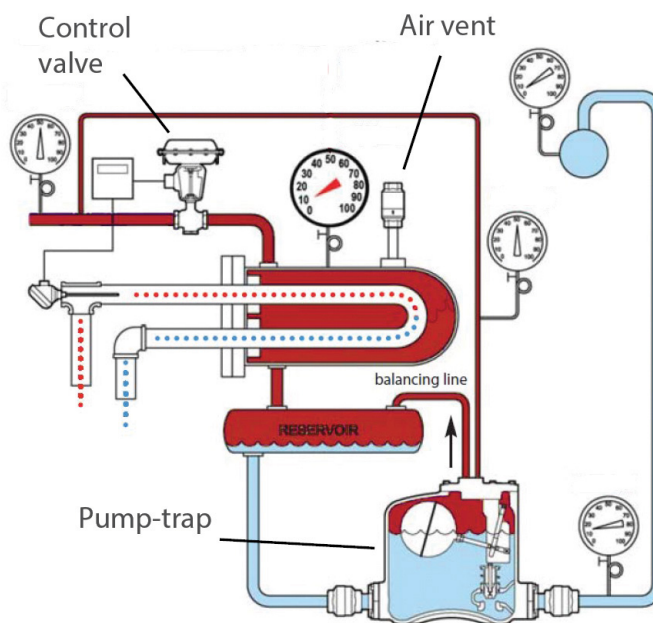
Typical Heat Exchanger Installation

The correct installation of a heat exchanger along with its associated ancillaries is critical to obtain its most efficient performance and longevity. Provided fluid flow is maintained, liquid-to-liquid exchangers are generally fairly robust. Steam is an extremely efficient heating medium but particular care must be taken with the installation to ensure the best operation. Primary considerations are:

- 1 Ensure all air is properly vented, especially if steam is in the shell. A simple air vent located at the top of the shell achieves this.
- 2 Ensure adequate steam pressure is supplied to the heat exchanger. While steam carries more heat energy at lower pressures, low pressures can cause problems if the system has not been properly designed or the steam pressure drops further due to a change in the steam system.
- 3 Ensure condensate is properly drained from the heat exchanger. Many installations operate well when a correctly sized float & thermostatic steam trap is used to drain condensate. A vacuum breaker should also be installed to ensure condensate continues to drain under very low load conditions. If condensate needs to be lifted to an overhead condensate return line, a pump-trap combination may be required to prevent back-up of condensate in the heat exchanger.



Installation with steam trap



Installation with pump-trap

RECO Commercial Systems Shell & Tube Heat Exchangers

KEY FEATURES	
Materials	Our standard heat exchangers have a carbon steel shell and copper tubes. We also offer stainless/duplex shells and copper-nickel, stainless steel or carbon steel tubes.
Specifications	Designed ASME B & PV Code, Section VIII, Division I.
Ratings	Standard is ASME 150. Higher ratings available.
Finish	Our standard finish is red oxide primer.
Options	Saddles, custom finishes, controls packages.

Standard

- National Board registered. Optional CRN registration.
- Designed using Computational Fluid Dynamics (CFD) for optimum fluid flow and heat transfer.
- All tube-sheets are double grooved for optimum sealing reliability.

Customized options

- Shells can be designed for higher pressure rating or with additional corrosion allowances.
- Custom sizes and connections are available.
- Available in 2, 4 or 6 pass configurations.
- Can be designed with the heating/cooling fluid in the shell or the tubes depending on the application.
- Special exterior coatings and colors available.
- Supports can be provided to suit specific seismic requirements.
- Controls packages can be provided for a complete installation.

Product Series	Heating/ Cooling Fluid	No. of Passes	Element	Element Length	Shell Material	Tube Material	Tube Type
HX = Shell and tube heat exchanger	S = Steam W = Water O = Oil	2 = Two 4 = Four	Diameter: Inches	Inches	CS = Carbon Steel SS = Stainless Steel XX = Custom	CU = Copper CN = Copper Nickel SS = Stainless Steel CS = Carbon Steel	SW = Single Wall DW = Double Wall

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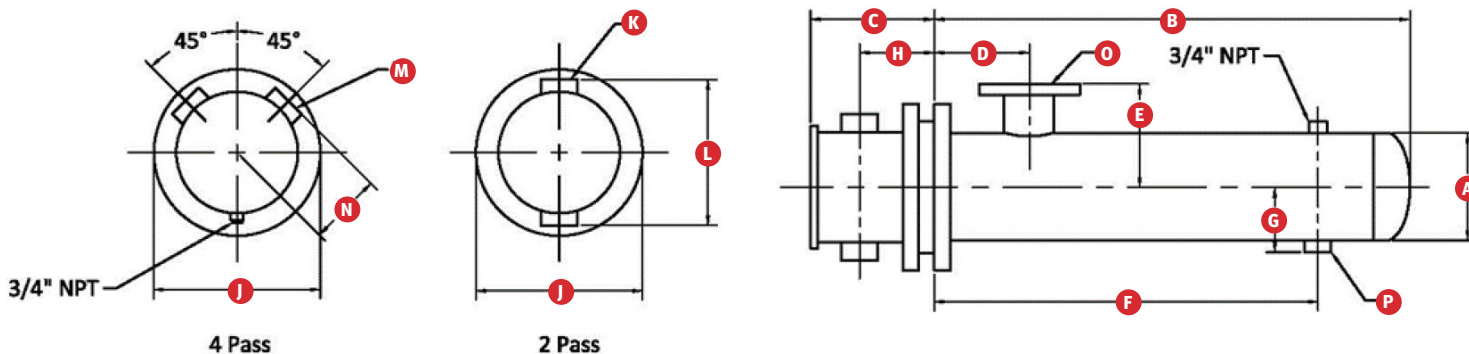
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Dimensions of heat exchangers



4 inch diameter (3/4" OD single wall)

MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-4024	HXS-4-4024	1.5T	9	1T	4	8	5	4.5	9	5	19.5	4	4	24.5	1.25T	1T	3.6	2.9	85
HXS-2-4036	HXS-4-4036	1.5T	9	1T	4	8	5	4.5	9	5	31.5	4	4	36.5	1.25T	1T	5.5	4.5	100
HXS-2-4048	HXS-4-4048	1.5T	9	1T	4	8	5	4.5	9	5	43.5	4	4	48.5	1.25T	1T	7.5	6.1	115
HXS-2-4060	HXS-4-4060	1.5T	9	1T	4	8	5	4.5	9	5	55.5	4	4	60.5	1.25T	1T	9.5	7.6	130
HXS-2-4072	HXS-4-4072	1.5T	9	1T	4	8	5	4.5	9	5	67.5	4	4.5	72.5	1.5T	1T	11.4	9.2	145
HXS-2-4084	HXS-4-4084	1.5T	9	1T	4	8	5	4.5	9	5	79.5	4	4.5	84.5	1.5T	1T	13.4	10.8	160
HXS-2-4096	HXS-4-4096	1.5T	9	1T	4	8	5	4.5	9	5	91.5	4	4.5		1.5T	1T	15.3	12.3	175
HXS-2-4108	HXS-4-4108	1.5T	9	1T	4	8	5	4.5	9	5	103.5	4	4.5	108.5	1.5T	1T	17.3	13.9	190
HXS-2-4120	HXS-4-4120	1.5T	9	1T	4	8	5	4.5	9	5	115.5	4	4.5		1.5T	1T	19.3	15.5	205

6 inch diameter (3/4" OD single wall)

MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-6024	HXS-4-6024	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	18.5	5	4	25	1.5T	1T	9.9	8.8	153
HXS-2-6036	HXS-4-6036	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	30.5	5	4	37	2T	1T	15.0	13.6	183
HXS-2-6048	HXS-4-6048	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	42.5	5	4	49	2.5T	1T	20.1	18.3	213
HXS-2-6060	HXS-4-6060	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	54.5	5	4	61	2.5T	1T	25.2	23.0	243
HXS-2-6072	HXS-4-6072	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	66.5	5	4.5	73	3T	1T	30.3	27.7	273
HXS-2-6084	HXS-4-6084	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	78.5	5	4.5	85	3T	1T	35.4	32.4	302
HXS-2-6096	HXS-4-6096	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	90.5	5	4.5	97	3T	1T	40.5	37.1	332
HXS-2-6108	HXS-4-6108	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	102.5	5	4.5	109	3T	1T	45.7	41.8	362
HXS-2-6120	HXS-4-6120	2T	11.5	1.5T	5.625	8.625	5.5	6.625	11	5	114.5	5	4.5	121	3T	1T	50.8	46.5	392

Dimensions of heat exchangers

8 inch diameter (3/4" OD single wall)

MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-8024	HXS-4-8024	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	18	6	6.8125	25	2T	1T	17.6	16.0	205
HXS-2-8036	HXS-4-8036	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	30	6	6.8125	37	2.5T	1T	27	24.7	254
HXS-2-8048	HXS-4-8048	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	42	6	7.25	49	3T	1T	36.4	33.3	302
HXS-2-8060	HXS-4-8060	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	54	6	9.0625	61	4F	1T	45.8	41.9	399
HXS-2-8072	HXS-4-8072	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	66	6.125	9.0625	73	4F	1.25T	55.3	50.6	448
HXS-2-8084	HXS-4-8084	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	78	6.125	9.0625	85	4F	1.25T	64.7	59.2	496
HXS-2-8096	HXS-4-8096	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	90	6.125	9.0625	97	6F	1.25T	74.1	67.9	544
HXS-2-8108	HXS-4-8108	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	102	6.125	9.0625	109	6F	1.25T	83.5	76.5	593
HXS-2-8120	HXS-4-8120	3T	14.5	2T	6.6875	10.125	6.125	8.625	13.5	8	114	6.125	9.0625	121	6F	1.25T	93.0	85.1	641

10 inch diameter (3/4" OD single wall)

MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-10024	HXS-4-10024	3T	17	3T	8.5	10.375	6.375	10.75	16	8	17	7	8.5	25	3T	1T	29.8	26.0	357
HXS-2-10036	HXS-4-10036	3T	17	3T	8.5	10.375	6.375	10.75	16	8	29	7	10.625	37	4F	1T	45.9	40.1	442
HXS-2-10048	HXS-4-10048	3T	17	3T	8.5	10.375	6.375	10.75	16	8	41	7.25	10.625	49	4F	1.25T	62.0	54.2	517
HXS-2-10060	HXS-4-10060	3T	17	3T	8.5	10.375	6.375	10.75	16	8	53	7.25	10.625	61	6F	1.25T	78.1	68.4	600
HXS-2-10072	HXS-4-10072	3T	17	3T	8.5	10.375	6.375	10.75	16	8	65	7.6875	10.625	73	6F	1.5T	94.2	82.5	675
HXS-2-10084	HXS-4-10084	3T	17	3T	8.5	10.375	6.375	10.75	16	8	77	7.6875	10.625	85	6F	1.5T	110.3	96.7	750
HXS-2-10096	HXS-4-10096	3T	17	3T	8.5	10.375	6.375	10.75	16	8	89	7.75	10.625	97	6F	2T	126.4	110.8	824
HXS-2-10108	HXS-4-10108	3T	17	3T	8.5	10.375	6.375	10.75	16	8	101	7.75	10.625	109	6F	2T	142.5	124.9	899
HXS-2-10120	HXS-4-10120	3T	17	3T	8.5	10.375	6.375	10.75	16	8	113	7.75	10.625	121	6F	2T	158.6	139.1	974

12 inch diameter (3/4" OD single wall)

MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-12036	HXS-4-12036	4F	24	3F	12	15	10.125	12.75	19	10	29	8.25	12	38	4F	1.25T	65.4	59.7	648
HXS-2-12048	HXS-4-12048	4F	24	3F	12	15	10.125	12.75	19	10	41	8.25	12	50	6F	1.25T	88.6	80.9	756
HXS-2-12060	HXS-4-12060	4F	24	3F	12	15	10.125	12.75	19	10	53	8.625	12	62	6F	1.5T	111.7	102.1	856
HXS-2-12072	HXS-4-12072	4F	24	3F	12	15	10.125	12.75	19	10	65	9	12	74	6F	2T	134.9	123.3	955
HXS-2-12084	HXS-4-12084	4F	24	3F	12	15	10.125	12.75	19	10	77	9	12	86	8F	2T	158.1	144.5	1070
HXS-2-12096	HXS-4-12096	4F	24	3F	12	15	10.125	12.75	19	10	89	9	12	98	8F	2.5T	181.2	165.8	1170
HXS-2-12108	HXS-4-12108	4F	24	3F	12	15	10.125	12.75	19	10	101	9	12	110	8F	2.5T	204.4	187.0	1269
HXS-2-12120	HXS-4-12120	4F	24	3F	12	15	10.125	12.75	19	10	113	9	12	122	8F	2.5T	227.6	208.2	1369

Dimensions of heat exchangers

14 inch diameter (3/4" OD single wall)

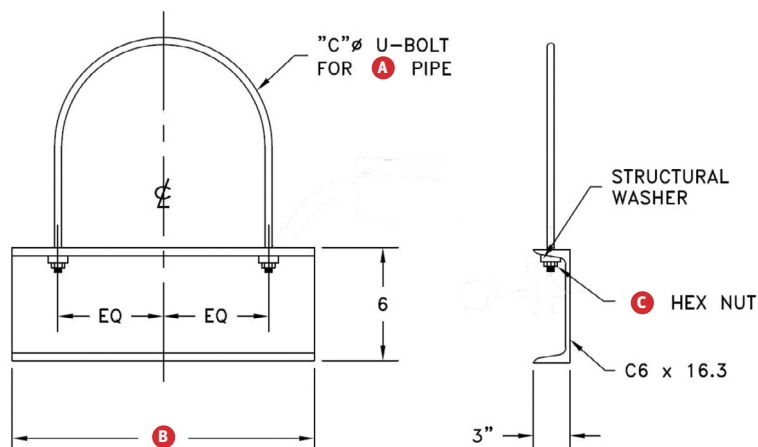
MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-14036	HXS-4-14036	6F	26	4F	13	18.375	12.375	14	21	10.5	29	8.75	13	39	6F	1.25T	78.5	69.7	839
HXS-2-14048	HXS-4-14048	6F	26	4F	13	18.375	12.375	14	21	10.5	41	9.5	13	51	6F	2T	106.8	94.8	954
HXS-2-14060	HXS-4-14060	6F	26	4F	13	18.375	12.375	14	21	10.5	53	9.5	13	63	6F	2T	135.0	119.9	1070
HXS-2-14072	HXS-4-14072	6F	26	4F	13	18.375	12.375	14	21	10.5	65	9.5	13	75	8F	2T	163.3	145.1	1199
HXS-2-14084	HXS-4-14084	6F	26	4F	13	18.375	12.375	14	21	10.5	77	9.75	13	87	8F	2.5T	191.6	170.2	1314
HXS-2-14096	HXS-4-14096	6F	26	4F	13	18.375	12.375	14	21	10.5	89	9.75	13	99	8F	2.5T	219.8	195.3	1430
HXS-2-14108	HXS-4-14108	6F	26	4F	13	18.375	12.375	14	21	10.5	101	9.75	13	111	10F	2.5T	248.1	220.5	1566
HXS-2-14120	HXS-4-14120	6F	26	4F	13	18.375	12.375	14	21	10.5	113	10.25	13	123	10F	3T	276.4	245.6	1681

16 inch diameter (3/4" OD single wall)

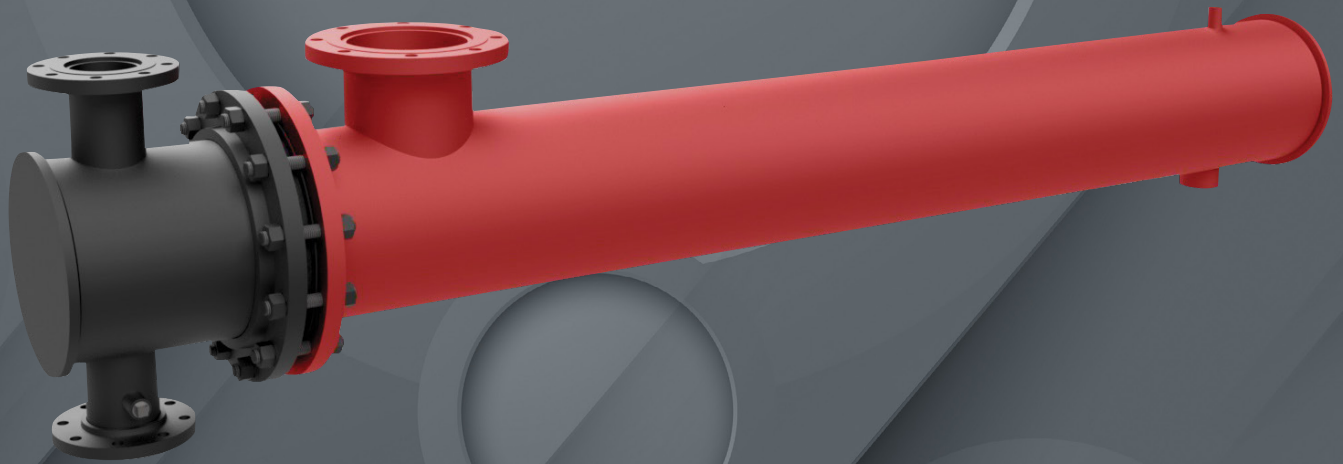
MODEL NUMBER		FABRICATED ELEMENT HEAD						DIMENSIONS (INCHES)									HEATING SURFACE (SQ.FT.)		SHIPPING WEIGHT (LBS.)
2-PASS	4-PASS	2-PASS		4-PASS				2 AND 4-PASS									2-PASS	4-PASS	
		K	L	M	N	C	H	A	J	D	F	G	E	B	O	P			
HXS-2-16036	HXS-4-16036	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	29	10.25	14.25	39.5	6F	1.5T	105.9	101.5	1018
HXS-2-16048	HXS-4-16048	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	41	10.5	14.25	51.5	6F	2T	144.3	138.4	1163
HXS-2-16060	HXS-4-16060	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	53	10.625	14.25	63.5	8F	2.5T	182.8	175.4	1323
HXS-2-16072	HXS-4-16072	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	65	10.625	14.25	75.5	8F	2.5T	221.3	212.3	1468
HXS-2-16084	HXS-4-16084	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	77	10.625	14.25	87.5	10F	2.5T	259.8	249.2	1634
HXS-2-16096	HXS-4-16096	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	89	11.25	14.25	99.5	10F	3T	298.3	286.1	1779
HXS-2-16108	HXS-4-16108	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	101	11.25	14.25	111.5	10F	3T	336.8	323.0	1924
HXS-2-16120	HXS-4-16120	6F	28.5	4F	14.25	19.625	13.625	16	23.5	11	113	11.25	14.25	123.5	10F	3T	375.2	359.9	2069

FOR SIZES 18" TO 30" CONSULT FACTORY

Dimensions of standard tanks



Heat Exchanger Diameter (in.)	A	B	C
4	4	8	0.50
5	5	9	0.50
6	6	10	0.50
8	8	12	0.50
10	10	14	0.75
12	12	16	0.88
14	14	18	0.88
16	16	20	0.88



To learn more, contact us or any one of our
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