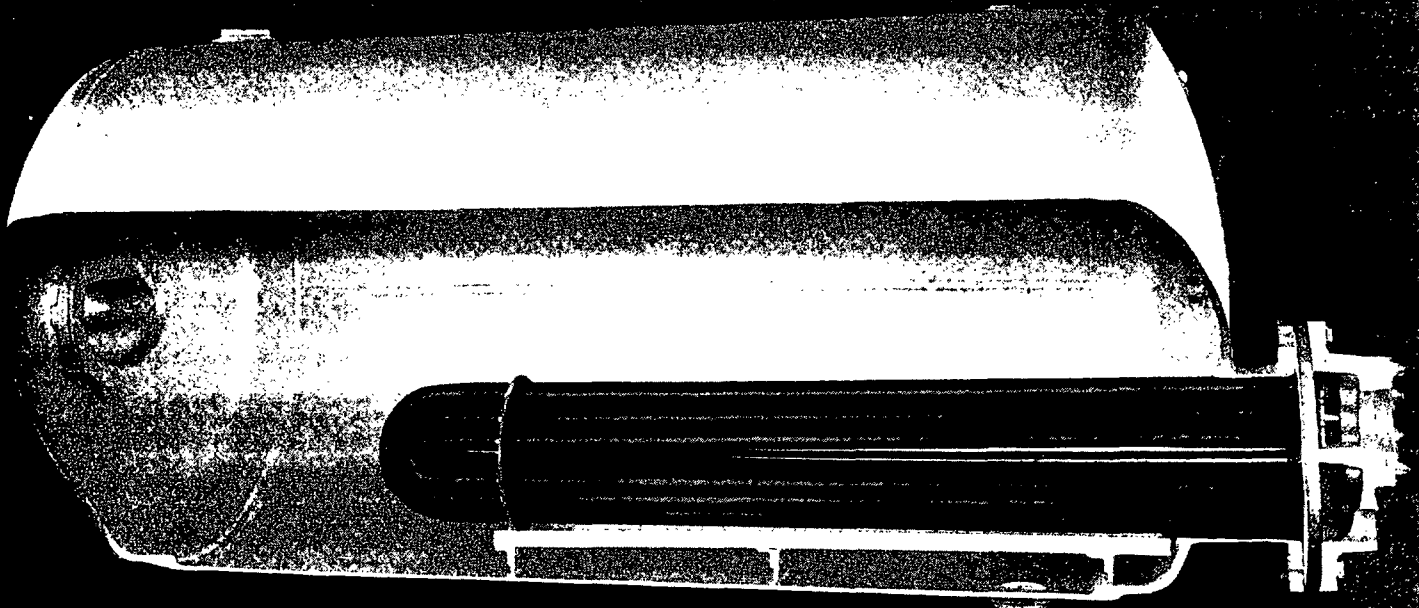
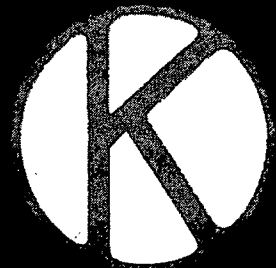


KEWANEE

STORAGE WATER HEATERS

PLAINTIFF'S EXHIBIT

ASI-1227



CATALOG No. 94

KEWANEE BOILER CORPORATION

KEWANEE, ILLINOIS

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Eastern District Office, 40 West 40th St., New York City 18

BRANCHES IN 64 CITIES

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CATALOG No. 94b

5 40—20M
2 41—5M
1 46—5M

KEWANEE

STORAGE WATER HEATERS

• Kewanee Storage Tank Heaters are used wherever quantities of hot water are required and exhaust or live steam is available, as for instance in:

HOTELS	DORMITORIES	OFFICE BUILDINGS
APARTMENT HOUSES	PUBLIC BUILDINGS	BATH HOUSES
SCHOOLS	HOSPITALS	LARGE RESIDENCES
CLUB BUILDINGS	LAUNDRIES	INDUSTRIAL PLANTS

**STANDARD
STORAGE TANK
HEATERS**

STANDARDIZED UNITS

Kewanee offers a line of Storage Tank Water Heaters in sizes and pressure classifications which adequately cover all service requirements.

The manufacture has been standardized to keep the costs low, and by eliminating useless duplication in keeping with the present day trend, selection of the proper size and type of Storage Tank Heater is simplified and time is saved.

Thus it is possible to fit any operating condition with one of these standard units in which all the latest improvements in design and construction are incorporated.

APPLICATION

The Kewanee Storage Tank Water Heater is ideally suited for any installation where hot water is used at irregular intervals. It is designed especially so the water can be heated over a long period. Its ample storage capacity then insures plenty of hot water any time

without producing a peak demand or overload on the boilers or other steam supply.

The success of this heat exchange method of heating water has been proven thru its universal adoption by architects and engineers as the most practical and economical means of supplying hot water for hotels, laundries, apartment houses, schools and other applications where hot water is required in large volume.

OPERATION

The Kewanee Storage Tank Heater consists of a tubular heating element inserted in a storage water tank. Steam passing through the tubes raises the temperature of the water circulating around them.

The storage tank water may be maintained at any required temperature by means of a regulating valve which automatically controls the steam supply. Exhaust steam from pumps and other auxiliaries or live steam from the boilers can be used for heating the coil.

Kewanee STANDARD STORAGE TANK HEATERS

MATERIALS AND CONSTRUCTION

HEATING ELEMENTS

The Kewanee Heating Elements are constructed of heavy gauge copper tubing bent into a U-Bend shape to provide for the expansion of the tubes in service. Tubes are securely rolled into tube sheet and held in place by support plates to prevent vibration and wear. Steam bonnets are of heavy design accurately machined and there are no internal gaskets or joints to leak or give trouble.

The coil element rests securely in place on guides and is easily removable.

The amount of heating surface recommended for any capacity is ample according to standard practice based on laboratory and field tests.

SHELLS

Standard Kewanee Storage Tank Heaters, Non-Code design, are constructed with shell plate and heads of ample thickness or as given in the table below when conforming with A.S.M.E. Boiler Code Formulae for Unfired Pressure Vessels.

WELDED STEEL CODE TANKS—TYPE "W"

(All Dimensions are in Inches)

WORK PRESSURE	100 LBS.		125 LBS.		150 LBS.	
	SHELL DIAMETER	THICKNESS SHELL HEADS	SHELL	THICKNESS HEADS	SHELL	THICKNESS HEADS
	24"	1/4" 3/8"	1/4"	3/8"	1/4"	7/16"
	30"	1/4" 3/8"	1/4"	7/16"	5/16"	1/2"
	36"	1/4" 7/16"	5/16"	1/2"	3/8"	9/16"
	42"	5/16" 1/2"	3/8"	9/16"	7/16"	5/8"
	48"	5/16" 1/2"	3/8"	5/8"	1/2"	11/16"
	54"	3/8" 9/16"	7/16"	11/16"	9/16"	3/4"
	60"	3/8" 5/8"	1/2"	3/4"	9/16"	13/16"

REQUIRED THICKNESS for given working pressure

● The plate thicknesses shown in the tables above are used by Kewanee in storage tanks for working pressures of 100, 125, 150 lbs. with ample factor of safety, when shell and heads are figured in accordance with the formulae of A.S.M.E. Code for Unfired Pressure Vessels. For given working pressure and a given shell diameter, the thicknesses of shell and heads remain the same regardless of the tank length.

For working pressures higher than listed, refer to the nearest Kewanee representative or the home office, Kewanee, Illinois.

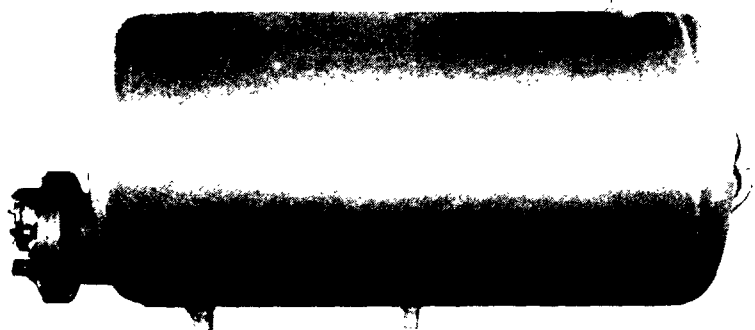
SUPPORTS

All Kewanee Horizontal Storage Tank Heaters are equipped with supporting cradles. These are designed to distribute evenly the weight of the tank filled with water. Standard cast cradles are provided with cored holes for bolting to standard flange pipe legs furnished by customer, or special saddles to accommodate other anchor supports can be made up at slight additional cost. Steel saddles used on 54" tanks and larger.

STANDARD STORAGE TANK HEATERS



KEWANEE



Kewanee Type "W" Welded Storage Heater

**WELDED
STEEL**
Kewanee Type "W"

TANK

Material—High quality steel plate shell and heads.

Welding—Electric fusion welded seams.

Openings—Standard handhole or manhole and connections as shown on page 6.

KEWANEE Welded Steel Storage Tank Heaters Type "W" are furnished in standard sizes as shown in the following pages.

PAINTING

Outside Only—Rust-resisting aluminum paint.



Kewanee Heating Element with Steam Bonnet

HEATING ELEMENT

Material—The heating surface in Kewanee Heating Elements is seamless drawn U-Bend copper tubing— $1\frac{1}{4}$ -inch O.D.—No. 16-gauge; $\frac{1}{2}$ -inch space is provided between all tubes at no added cost for extra circulation clearance and the free horizontal pass makes cleaning easier. Steam bonnets are cast iron.

See Page 7 for capacities, construction details and dimensions.



End Section of Heating Element U-Bend $1\frac{1}{4}$ " Copper Tubing 16-gauge showing full $\frac{1}{2}$ " bridge between each tube and thru clearance for cleaning between rows.

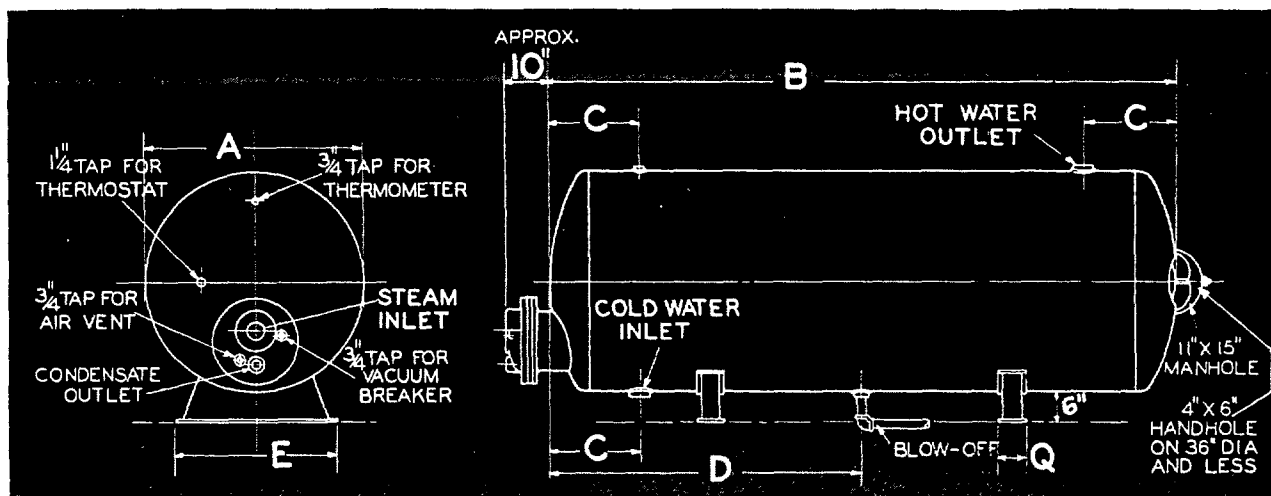
TYPICAL SPECIFICATION

Storage tank heaters shall have shells constructed of high quality steel plate electric fusion welded. Shell and head thickness shall be Kewanee standard or in strict accordance with formulae of A.S.M.E. Code for Unfired Pressure Vessels and designed for a working pressure of lbs. per sq. in. Shells shall be " dia. by " long with a storage capacity of gallons.

Shell thickness shall be not less than "
Head thickness shall be not less than "

Heating element shall contain sq. ft. of heating surface made up of $1\frac{1}{4}$ " 16-gauge copper U-Bend tubing with $\frac{1}{2}$ " spacing, and have capacity to heat gallons per hour of water from ° F. to ° F. with steam at lbs. per sq. in. gauge.

KEWANEE STANDARD STORAGE TANK HEATERS



SIZES, CAPACITIES, DIMENSIONS AND CONNECTIONS

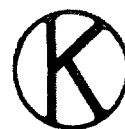
HEATER NO.	STORAGE CAPACITY GALLONS	TANK SIZE A X B DIA. LGTH.	C	D BLOW-OFF	E	Q	WATER INLET AND OUTLET	BLOW-OFF	AUXILIARY TAPPING SIZE
2404	95	24 x 48	14	24	24	5 1/4	2 1/2	1 1/2	1
2405	118	24 x 60	14	30	24	5 1/4	2 1/2	1 1/2	1
2406	141	24 x 72	14	36	24	5 1/4	2 1/2	1 1/2	1
2407	164	24 x 84	14	42	24	5 1/4	2 1/2	1 1/2	1
3005	180	30 x 60	16	30	30	5 1/4	2 1/2	1 1/2	1
3006	215	30 x 72	16	36	30	5 1/4	2 1/2	1 1/2	1
3007	255	30 x 84	16	42	30	5 1/4	2 1/2	1 1/2	1
3008	285	30 x 96	16	48	30	5 1/4	2 1/2	1 1/2	1
3606	310	36 x 72	16	36	36	5 3/4	3	1 1/2	1
3607	365	36 x 84	16	42	36	5 3/4	3	1 1/2	1
3608	415	36 x 96	16	48	36	5 3/4	3	1 1/2	1
3609	475	36 x 108	16	54	36	5 3/4	3	1 1/2	1
3610	500	36 x 120	16	60	36	5 3/4	3	1 1/2	1
4207	500	42 x 84	16	42	42	6 3/8	3	2	1 1/2
4208	575	42 x 96	16	48	42	6 3/8	3	2	1 1/2
4209	650	42 x 108	16	54	42	6 3/8	3	2	1 1/2
4210	720	42 x 120	16	60	42	6 3/8	3	2	1 1/2
4212	860	42 x 144	16	72	42	6 3/8	3	2	1 1/2
4214	1000	42 x 168	16	84	42	6 3/8	3	2	1 1/2
4810	940	48 x 120	18	60	48	6 3/4	4	2 1/2	1 1/2
4812	1125	48 x 144	18	72	48	6 3/4	4	2 1/2	1 1/2
4814	1300	48 x 168	18	84	48	6 3/4	4	2 1/2	1 1/2
5410	1190	54 x 120	18	60	33	6	4	2 1/2	1 1/2
5412	1425	54 x 144	18	72	33	6	4	2 1/2	1 1/2
5414	1665	54 x 168	18	84	33	6	4	2 1/2	1 1/2
6010	1400	60 x 120	20	60	36	6	4	2 1/2	1 1/2
6012	1700	60 x 144	20	72	36	6	4	2 1/2	1 1/2
6014	2000	60 x 168	20	84	36	6	4	2 1/2	1 1/2
6016	2240	60 x 192	20	96	36	6	4	2 1/2	1 1/2

See Price Sheet for weights.

All dimensions in inches.

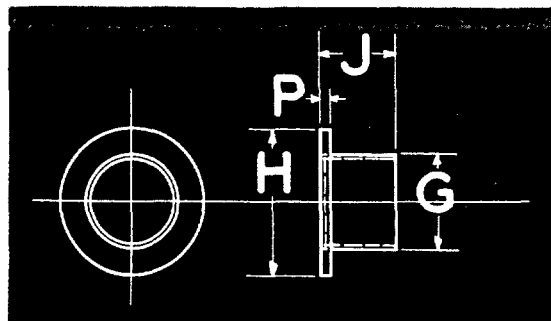
Shell openings ASME Code over 125 lb. W. P. and over 3" dia. are flanged nozzles.

STANDARD STORAGE TANK HEATERS

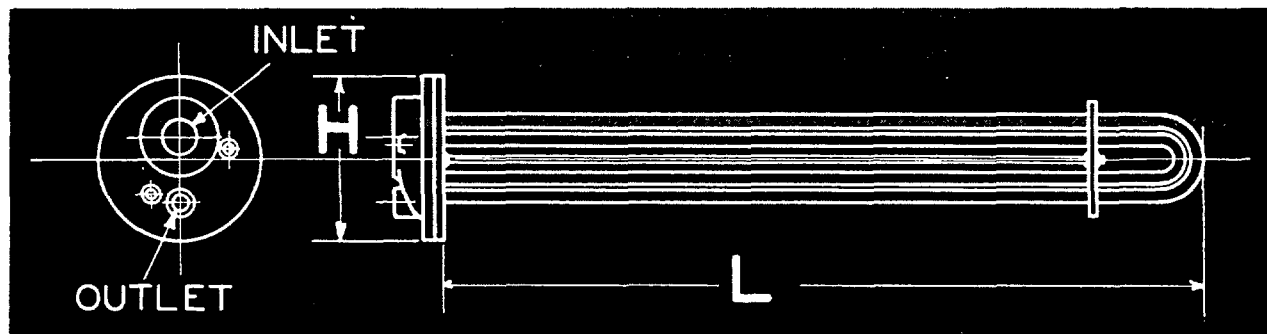


KEWANEE

COIL ELEMENT NOZZLE



COIL SIZE	J MAX.	P	H	FLANGE	BOLTING
			DIAM.	NO.	SIZE
A—	10	15/16	12 3/4	8—	3/4
B—	12	15/16	16	12—	7/8
C—	12	15/16	19	12—	7/8
D—	12 1/2	13/16	21 1/2	12—	1
E—	14	15/16	27	20—	1 1/8
F—	14	17/16	30	20—	1 1/4



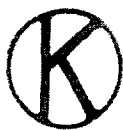
KEWANEE HEATING COIL ELEMENT TUBE SPACE ONE-HALF INCH

COIL SIZE NO.	HEATING CAPACITY G.P.H. 40° TO 180° F. WITH STEAM AT ATMOSPHERIC PRESSURE	HEATING SURFACE IN SQ. FT.	HORIZONTAL TANK MINIMUM LENGTH	H OUTSIDE DIA. TUBE SHEET	L LENGTH BACK OF TUBE SHEET	G O. D. NECK IN TANK	STEAM INLET	CONDENSATE OUTLET
A — 2.5	50	2.5	18	12 3/4	15	7 3/4	2	1
A — 5	100	5	30	12 3/4	30 1/2	7 3/4	2	1
A — 10	200	10	66	12 3/4	61	7 3/4	2	1
B — 15	300	15	56	16	55 1/2	10 1/2	2 1/2	1 1/4
B — 20	400	20	52	16	52 1/2	10 1/2	2 1/2	1 1/4
B — 25	500	25	66	16	66	10 1/2	2 1/2	1 1/4
C — 30	600	30	60	19	61 1/2	12 1/2	4	2
C — 40	800	40	60	19	57 1/2	12 1/2	4	2
D — 50	1000	50	60	21 1/2	62	15	5	2 1/2
D — 75	1500	75	78	21 1/2	77	15	5	2 1/2
D — 100	2000	100	102	21 1/2	102 1/2	15	5	2 1/2
E — 150	3000	150	90	27	88	19 3/4	8	4
E — 200	4000	200	114	27	117	19 3/4	8	4
E — 250	5000	250	114	27	113 1/2	19 3/4	8	4
F — 300	6000	300	102	30	102 1/2	22 1/2	10	5

(All Dimensions in Inches)

Openings 2 1/2" and smaller are pipe thread. Larger openings furnished with companion flange.

KEWANEE



STANDARD STORAGE TANK HEATERS

CONVERSION TABLES to determine capacity of Kewanee Heating Elements

Conversion basis is 20 gallons of water heated by one sq. ft. of element surface from 40° to 180° F. in 1 hour, using steam at atmospheric pressure.

The Size of Kewanee Heating Coil for any Hot Water capacity at the desired temperature is easily determined by using the figures from following tables representing:

GALLONS of WATER heated in 1 hour—

—up to Tank Outlet temperatures from the Inlet water temperatures

—by each sq. ft. of Coil Surface with given steam pressures.

For example: to calculate the amount of Coil heating surface required to heat 2,000 gallons per hour of water from 50° F. to 130° F. with steam at 15-lb. gauge pressure:

From the table for 15-lb. steam pressure under the column Inlet Temperature 50° F. opposite Outlet Temperature of 130° F. 82.0 gallons of water will be heated per hour by one sq. ft. of Coil heating surface.

Dividing 2,000 gallons required per hour by 82.0 gives 24.4 sq. ft. total Coil heating surface.

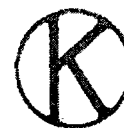
From page 7, select size B-25 heating element which has 25 sq. ft. of heating surface and a length of 66".

If the storage tank is at least 66" long, the B-25 heating element is the proper one to use for the above conditions. If the storage tank is only 60" long, a C-30 heating element which has 30 sq. ft. of heating surface and is 60" long is the size to select.

GALLONS of WATER per sq. ft. of COIL SURFACE heated per hour

OUTLET TEMP.	INLET TEMPERATURE						
	40°	50°	60°	70°	80°	90°	100°
0-LB. GAUGE STEAM PRESSURE							
100°	78.4	91.4	110.4	141.0	204.0	394.0	
110°	64.4	72.6	84.2	101.8	130.4	188.0	360.0
120°	53.6	59.4	67.0	77.4	93.0	119.0	172.0
130°	45.2	49.4	54.4	61.2	70.4	84.4	108.0
140°	38.6	41.4	45.0	49.6	55.4	63.6	76.2
150°	32.8	35.0	37.4	40.6	44.4	49.6	56.8
160°	28.0	29.6	31.4	33.4	36.1	39.2	43.8
170°	23.8	24.8	26.2	27.6	29.4	31.4	34.2
180°	20.0	20.8	21.4	22.5	23.7	25.1	26.8
190°	16.3	16.8	17.3	18.0	18.7	19.6	20.6
200°	12.6	12.9	13.2	13.5	14.0	14.5	15.0
2-LB. GAUGE STEAM PRESSURE							
100°	88.4	103.0	124.6	161.0	230.4	452.0	
110°	72.6	82.1	95.4	115.0	148.2	216.2	414.0
120°	71.0	67.4	76.0	88.0	106.0	135.6	195.8
130°	51.6	56.2	62.1	71.1	81.0	97.0	123.8
140°	44.1	50.4	51.5	56.8	63.9	73.6	88.0
150°	37.8	40.4	43.3	47.0	51.6	57.8	66.3
160°	32.6	34.3	36.4	39.0	42.1	46.2	51.5
170°	27.9	29.2	30.7	32.5	34.7	37.4	40.8
180°	23.7	24.6	25.7	27.0	28.5	30.3	32.4
190°	19.9	20.5	21.3	22.1	23.1	24.2	25.7
200°	16.2	16.6	17.1	17.6	18.2	19.0	19.8
5-LB. GAUGE STEAM PRESSURE							
100°	93.0	108.2	131.4	170.6	247.0	468.0	
110°	76.6	87.4	101.6	122.8	158.4	229.0	440.0
120°	64.2	71.4	81.0	94.2	114.2	145.8	212.0
130°	54.6	59.8	66.4	74.6	86.8	104.6	133.2
140°	47.0	50.8	55.2	61.2	68.6	80.0	95.2
150°	40.4	43.2	46.8	50.4	55.6	62.4	72.2
160°	35.0	37.1	39.5	42.4	45.8	50.4	56.4
170°	30.2	31.8	33.4	35.6	38.2	41.0	45.2
180°	26.0	27.2	28.4	29.9	31.6	33.8	36.4
190°	22.2	23.0	23.9	24.9	26.2	27.6	29.2
200°	18.6	19.2	19.8	20.5	21.3	22.2	23.4
10-LB. GAUGE STEAM PRESSURE							
100°	117.4	136.6	167.4	216.0	317.0	604.0	
110°	97.2	110.6	129.0	155.6	203.0	290.0	566.0
120°	82.0	91.2	103.6	119.4	145.4	188.2	268.0
130°	70.2	74.6	84.8	95.8	112.0	134.6	172.8
140°	60.2	64.8	70.8	78.4	88.8	102.8	123.6
150°	52.4	56.0	60.2	65.8	72.6	82.0	94.4
160°	45.7	48.2	51.6	55.6	60.2	66.2	74.4
170°	39.7	41.8	44.4	47.0	50.4	54.6	60.2
180°	34.8	36.6	38.0	40.2	42.4	45.4	49.2
190°	30.1	31.3	32.6	34.1	35.8	37.9	40.4
200°	25.9	26.7	27.6	28.8	30.0	31.5	33.2
210°	22.0	22.5	23.2	23.9	24.8	25.8	27.0
15-LB. GAUGE STEAM PRESSURE							
100°	124.8	145.2	176.8	230.0	332.0	648.0	
110°	103.6	117.2	136.4	167.6	216.0	310.0	620.0
120°	87.0	97.2	111.0	129.0	155.8	203.0	292.0
130°	75.2	82.0	91.4	103.6	120.0	145.2	188.0
140°	65.0	70.2	76.6	84.8	96.0	112.0	135.0
150°	56.6	60.4	65.2	71.0	79.0	88.8	103.6
160°	49.6	52.4	56.0	60.8	66.0	72.8	82.0
170°	43.4	45.6	48.4	51.6	55.4	60.8	66.8
180°	38.2	39.8	42.0	44.2	47.2	50.8	54.8
190°	33.4	34.8	36.2	38.2	40.2	42.6	45.6
200°	29.2	30.4	31.3	32.6	34.3	36.0	38.2
210°	25.2	26.0	26.8	27.8	29.0	30.1	31.7
20-LB. GAUGE STEAM PRESSURE							
100°	130.4	153.0	188.0	242.0	358.0	686.0	
110°	109.2	123.4	143.6	176.0	230.0	332.0	648.0
120°	92.0	102.6	117.4	136.6	164.8	211.0	310.0
130°	79.2	87.2	96.4	109.0	127.8	155.6	199.0
140°	69.0	74.4	81.4	90.6	102.6	119.6	143.4
150°	60.2	64.4	69.6	75.8	84.4	96.0	111.0
160°	52.6	56.2	59.8	65.0	70.8	78.2	88.2
170°	46.6	49.2	52.0	55.4	59.8	65.4	72.2
180°	41.0	43.0	45.2	48.0	51.2	55.2	59.8
190°	36.3	37.8	39.4	41.4	44.0	46.8	50.2
200°	32.0	33.2	34.4	36.0	37.8	39.8	42.4
210°	28.0	28.9	29.9	31.0	32.4	33.8	35.6

STANDARD STORAGE TANK HEATERS



KEWANEE

GALLONS of WATER per sq. ft. of COIL SURFACE heated per hour

OUTLET TEMP.	INLET TEMPERATURE						
	40°	50°	60°	70°	80°	90°	100°
25-LB. GAUGE STEAM PRESSURE							
100°	156.0	183.2	223.0	290.0	424.0	824.0	772.0
110°	131.6	157.8	172.6	212.0	276.0	394.0	772.0
120°	110.4	122.4	139.4	164.0	201.0	258.0	378.0
130°	94.8	104.2	115.6	131.6	152.2	188.0	242.0
140°	82.6	89.4	98.0	119.6	123.4	144.6	175.6
150°	72.4	77.4	84.0	92.0	102.0	115.8	134.0
160°	64.0	67.8	72.4	78.8	85.8	95.2	108.0
170°	56.6	59.6	63.0	67.4	73.0	79.8	88.0
180°	50.0	52.4	55.4	58.6	62.6	67.4	73.6
190°	44.4	46.4	48.4	51.0	54.0	57.6	62.0
200°	38.4	40.8	42.4	44.6	46.8	49.4	52.4
210°	34.7	35.9	37.2	38.6	40.4	42.2	44.6

30-LB. GAUGE STEAM PRESSURE							
100°	162.0	188.2	232.0	306.0	440.0	868.0	824.0
110°	134.2	154.4	180.6	219.0	289.0	424.0	824.0
120°	114.6	128.0	146.0	171.0	208.0	270.0	393.0
130°	98.4	101.0	121.2	137.0	160.0	194.4	252.0
140°	85.8	93.6	102.0	114.0	129.0	150.6	183.2
150°	75.4	81.0	88.0	96.6	107.2	121.6	142.4
160°	66.8	71.2	76.0	82.6	90.4	100.2	114.0
170°	58.8	62.6	66.4	71.4	77.0	84.0	93.6
180°	52.6	55.4	58.6	62.0	66.4	71.6	78.0
190°	46.8	48.8	51.6	54.2	57.4	61.2	66.0
200°	41.8	43.4	45.2	47.4	49.8	53.0	56.2
210°	37.0	38.3	39.8	41.6	43.4	46.2	48.0

40-LB. GAUGE STEAM PRESSURE							
100°	173.0	201.0	246.0	324.0	460.0	946.0	868.0
110°	144.6	164.0	191.2	232.0	306.0	448.0	868.0
120°	122.6	136.8	156.0	183.2	224.0	290.0	424.0
130°	105.8	116.4	129.0	147.2	172.8	212.0	276.0
140°	92.4	101.0	110.4	122.6	139.6	164.0	201.0
150°	81.6	87.6	94.8	103.4	116.6	131.4	152.9
160°	72.2	76.8	82.4	89.4	98.2	109.6	123.8
170°	64.2	67.8	72.4	77.2	84.0	92.0	102.2
180°	57.4	60.2	64.0	67.8	72.6	78.8	85.8
190°	51.2	53.8	56.2	59.4	63.2	65.4	73.0
200°	45.8	47.8	50.0	52.4	55.2	58.6	62.8
210°	41.2	42.6	44.4	46.2	48.4	51.0	54.0

50-LB. GAUGE STEAM PRESSURE							
100°	183.2	216.0	264.0	344.0	504.0	966.0	868.0
110°	151.4	172.8	201.0	252.0	324.0	472.0	868.0
120°	129.0	146.0	164.0	194.4	236.0	306.0	452.0
130°	108.6	123.4	136.8	156.0	183.2	223.0	290.0
140°	98.2	106.4	116.4	131.6	149.0	172.8	212.0
150°	86.8	93.0	101.0	111.2	124.8	141.2	164.0
160°	76.8	81.6	87.6	96.0	105.0	116.4	133.0
170°	68.4	72.4	77.2	83.2	90.4	99.0	109.6
180°	61.2	64.8	68.4	72.8	78.0	85.0	92.6
190°	55.2	57.6	60.6	64.4	68.4	73.0	78.8
200°	49.4	51.6	54.0	56.8	59.8	64.0	67.8
210°	44.6	46.4	48.2	50.2	53.0	55.6	59.0

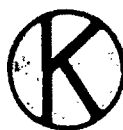
OUTLET TEMP.	INLET TEMPERATURE						
	40°	50°	60°	70°	80°	90°	100°
60-LB. GAUGE STEAM PRESSURE							
100°	188.0	224.0	270.0	353.0	520.0	1024.0	984.0
110°	158.0	180.4	215.0	264.0	344.0	504.0	984.0
120°	134.0	150.4	172.8	201.0	252.0	324.0	572.0
130°	116.4	129.0	144.0	164.0	194.2	236.0	306.0
140°	102.2	111.0	122.6	137.0	156.4	183.0	224.0
150°	90.4	97.0	106.6	116.6	130.4	149.0	162.8
160°	81.0	85.8	92.6	101.0	110.6	123.4	139.6
170°	72.0	76.0	81.8	87.6	94.6	105.0	116.6
180°	64.6	68.4	72.2	77.2	82.6	89.4	98.2
190°	58.2	60.8	64.2	68.4	72.4	77.6	84.0
200°	52.6	54.8	57.4	60.6	64.0	67.8	73.0
210°	47.4	49.4	51.6	53.8	56.6	60.0	63.6

80-LB. GAUGE STEAM PRESSURE							
100°	201.0	236.0	290.0	378.0	556.0	1090.0	1046.0
110°	168.4	194.2	228.0	276.0	366.0	540.0	1046.0
120°	146.0	162.0	186.0	220.0	264.0	344.0	514.0
130°	126.0	139.6	156.0	178.0	208.0	252.0	336.0
140°	110.4	120.4	133.4	149.0	168.2	201.0	242.0
150°	98.2	106.0	114.6	127.0	142.6	162.0	188.2
160°	87.6	93.6	101.0	109.8	120.4	134.0	152.4
170°	78.0	83.2	89.0	95.8	104.4	114.6	128.4
180°	70.8	74.8	79.2	84.6	90.4	98.0	109.0
190°	64.0	67.0	70.8	74.8	80.2	85.8	93.6
200°	58.0	60.6	63.4	66.8	70.8	75.4	81.0
210°	52.6	54.8	57.0	59.8	63.0	66.4	71.0

100-LB. GAUGE STEAM PRESSURE							
100°	216.0	252.0	306.0	400.0	588.0	1226.0	1170.0
110°	178.8	204.0	242.0	298.0	392.0	568.0	1170.0
120°	153.6	172.8	194.4	224.0	282.0	366.0	556.0
130°	134.4	146.0	164.0	188.0	224.0	269.0	354.0
140°	117.4	128.0	141.2	158.0	180.6	215.0	264.0
150°	104.0	113.0	122.6	135.6	152.4	172.8	204.0
160°	93.0	99.6	108.0	117.2	129.0	144.0	164.0
170°	83.6	89.4	95.2	103.0	111.0	122.6	137.0
180°	75.4	79.6	85.0	91.0	98.0	106.4	116.6
190°	68.4	72.0	76.0	81.0	86.2	92.4	101.0
200°	62.4	65.2	68.2	72.4	76.8	81.8	88.0
210°	56.8	59.2	62.0	64.8	68.4	72.4	77.2

125-LB. GAUGE STEAM PRESSURE							
100°	224.0	264.0	324.0	424.0	624.0	1260.0	1226.0
110°	188.2	216.0	252.0	314.0	408.0	624.0	1226.0
120°	164.0	183.4	208.0	248.0	306.0	392.0	582.0
130°	142.6	156.0	175.2	201.0	238.0	290.0	380.0
140°	124.6	137.0	149.0	168.4	194.2	228.0	276.0
150°	111.2	120.4	131.6	144.0	162.0	185.2	216.0
160°	99.6	106.4	114.6	124.8	138.2	156.0	178.0
170°	89.2	94.8	102.0	109.8	120.4	131.4	149.0
180°	81.0	85.8	91.4	97.0	105.0	114.8	127.0
190°	73.6	77.2	81.8	86.8	93.0	101.0	109.6
200°	67.4	70.4	74.0	78.0	83.2	88.6	94.8
210°	61.2	64.0	66.8	70.4	74.2	79.2	84.0

KEWANEE



STANDARD STORAGE TANK HEATERS

HOT WATER REQUIRED

for fixtures of
various types
of buildings

The table below indicates the quantity of hot water at 180° F. which it is customary to allow for various fixtures in different types of buildings. These quantities have been compiled on the basis of maximum demand and in the bottom two lines of the table are shown the average heating capacity and average storage capacity that should be provided.

Maximum Gallons of Hot Water per Hour per Fixture

FIXTURE	TYPE OF BUILDING													
	APART- MENT HOUSE	CLUB	DEPART- MENT STORE	DORM- ITORY	GA- RAGE	GYM- NASIUM	HOS- PITAL	HOTEL	INDUS- TRIAL PLANT	LAUN- DRY	OFFICE BUILD- ING	PUBLIC BATH	RESI- DENCE	SCHOOL
PANTRY SINK..	10	20					20	20					10	20
KITCHEN SINK ..	10	20					20	30	20				10	10
SLOP SINK	20	20	20	15			20	30	20	20	15	15	15	20
WASH BASIN (PRIVATE).....	3	3	3	3	3	3	3	3	3	3	3	3	3	3
WASH BASIN (PUBLIC).....	5	8	8	10	12	12	8	10	15	20	10	15		18
BATH TUB.....	15	15		30		30	15	15	30			40	15	
SHOWER BATH.....	50	200	100	200	150	200	100	100	200			200	50	200
LAUNDRY TUB (STATIONARY) ..	25	35		35			40	40		40			25	
LAUNDRY TUB (REVOLVING) ..	75	75		100			120	150		150		100	75	
WASH RACKS ..	30				50				40	30				

DISH WASHER . . . 300 Gallons per hour for serving capacity 500 people

AVERAGE HEATING CAPACITY COMPARED TO MAXIMUM DEMAND.....	30%	50%	50%	75%	80%	80%	60%	50%	90%	100%	20%	100%	50%	30%
AVERAGE STORAGE CAPACITY COMPARED TO MAXIMUM DEMAND.....	100%	75%	75%	50%	60%	50%	50%	30%	50%	30%	100%	50%	100%	50%

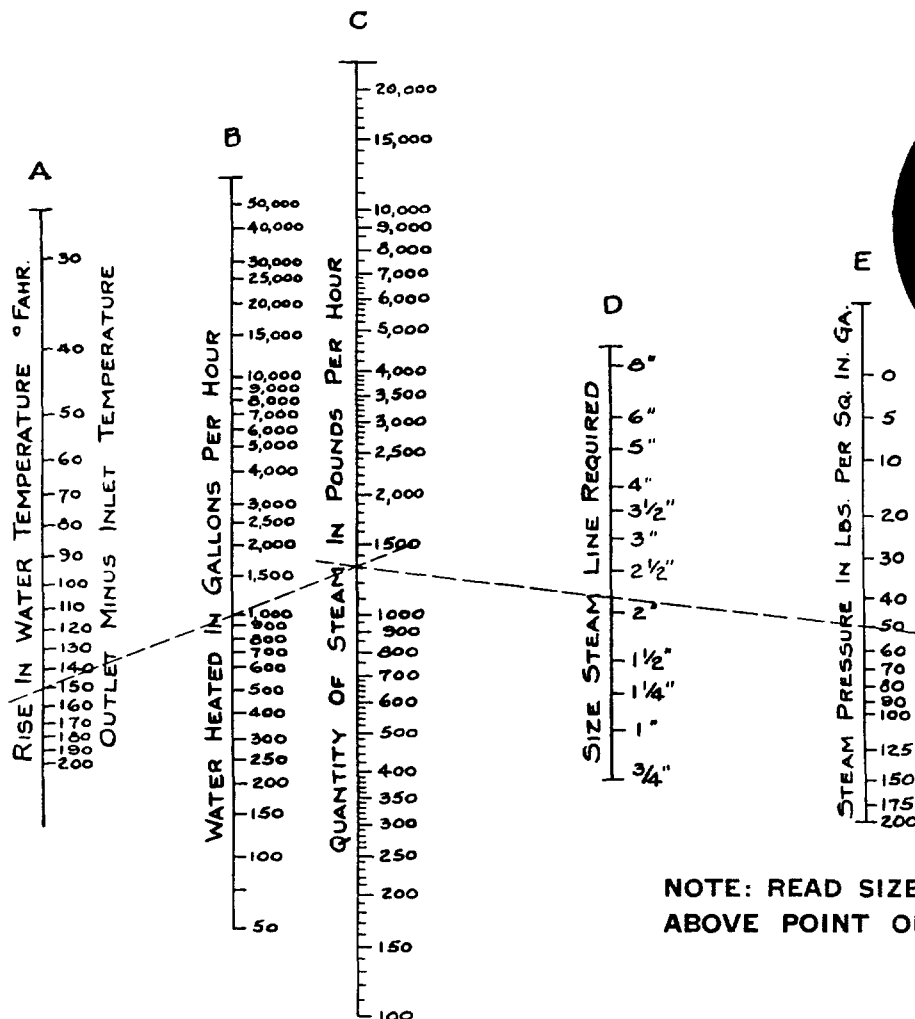
Typical Example—an apartment house with the following fixture and exhaust steam available at atmospheric pressure.

20 Kitchen Sinks.....	@ 10 =	200 gals./hr.
4 Slop Sinks.....	@ 20 =	80 gals./hr.
20 Private Wash Basins.....	@ 3 =	60 gals./hr.
20 Bath Tubs.....	@ 15 =	300 gals./hr.
10 Shower Baths	@ 50 =	500 gals./hr.
6 Laundry Tubs (Stationary).....	@ 25 =	150 gals./hr.
1 Wash Rack	@ 30 =	30 gals./hr.

Total Maximum Hourly Demand	1320 gals./hr.
30% Heating Capacity.....	= 396 gallons per hr.
100% Storage Capacity.....	= 1320 gallons per hr.

Select a Kewanee Size 4814 Storage Tank Heater, 1,300 gallons storage capacity equipped with a Kewanee B-20 Heating Element which, from table page 7, is

capable of heating 400 gallons per hour of water 40° to 180° with steam at 0 lb. gauge.



STEAM LINE REQUIRED

how to determine size

**NOTE: READ SIZE OF STEAM LINE
ABOVE POINT OF INTERSECTION.**

By the use of the above chart, the size of steam supply line required for any size of storage tank heater can be easily determined.

For example—to determine the size of the steam line required for a storage tank heater to heat 1000 G.P.H. of water from 40° to 190° F. with steam at 50-lb. gauge.

A straight line drawn through 150° water rise on column A and 1000 gallons per hour of water heated on column B intersects column C at 1300, this indicates that 1300-lb. per hour of steam is required. Another straight line drawn through the 1300-lb.

per hour point on column C thus determined and 50-lb. per sq. in. steam pressure on column E crosses column D at a point that indicates a 2½" steam line is required.

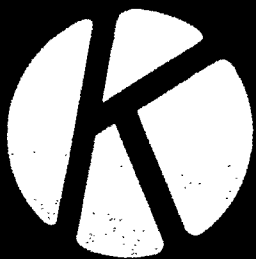
The value of the 1300-lb. per hour of steam required as determined from column C is most useful to check the load on the boiler or other steam supply.

To insure best regulation always install a temperature regulator one size smaller than the steam supply line as indicated by the above chart.

FOR EFFICIENT OPERATION

**BE SURE THAT CONDENSATE DISCHARGE AND STEAM TRAP ARE OF
AMPLE SIZE AND CAPACITY**

A. I. A. FILE NO. 29 D25



KEWANEE

STORAGE

WATER

HEATERS

CATALOG No. 94

A. I. A. FILE NO. 29 D25

28799