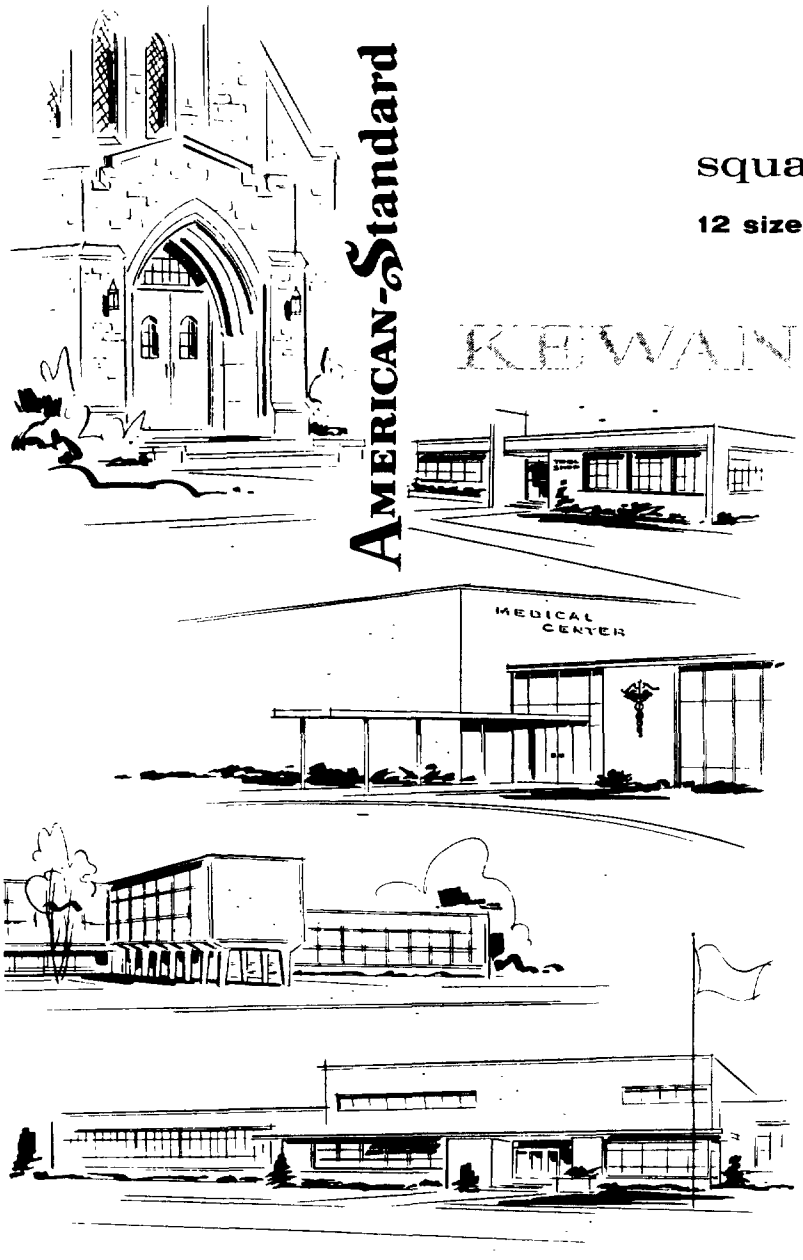


AMERICAN-Standard

square-heat type series

12 sizes—243,000 to 1,350,000 Btuh

KEWANEE BOILER

versatility... ability

to burn any fuel . . . ability to deliver efficiently far beyond rated capacity . . . makes this boiler ideal for any medium size building. Kewanee Type R Boilers are giving economical, trouble-free service in thousands of office and store buildings, schools, motels, hospitals, small factories, etc.

It operates at top efficiency with oil, gas, or coal. Coal may be hand or stoker fired. Change from one fuel to another, or from mechanical to hand firing, or back again, can be made quickly, inexpensively.

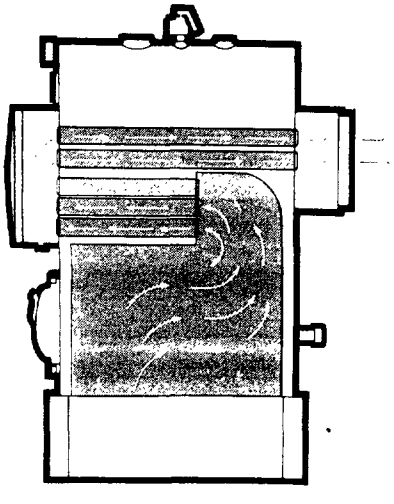
Teamed with radiant baseboards, wall, floor or ceiling coils or panels, convectors or conventional radiators, Kewanee Square Heat Type R provides a sturdy steel heart for the system. It can be pushed far beyond rated capacity yet operate at full efficiency.

The result of nearly a century of experience, this boiler offers the medium size building all the heating dependability and economy for which Kewanee Boilers have always been famous.

A.S.M.E. and S.B.I. Code requirements have been followed to the last detail. But more than that, Kewanee guarantees performance well beyond any code requirements.

three pass design

Kewanee 3 pass design assures maximum heat transfer from fuel to water. The large firebox provides complete mixing of fuel and air. Combustion is complete—all fuel burns—before the hot gases enter the fire tubes. In the first pass gases travel from front to rear in the firebox. The second pass is from rear to front in the bottom bank or direct tubes. The third pass is from front to rear in the return tubes. This longer gas travel transfers maximum BTU's to water.



take a [illegible] at a [illegible]

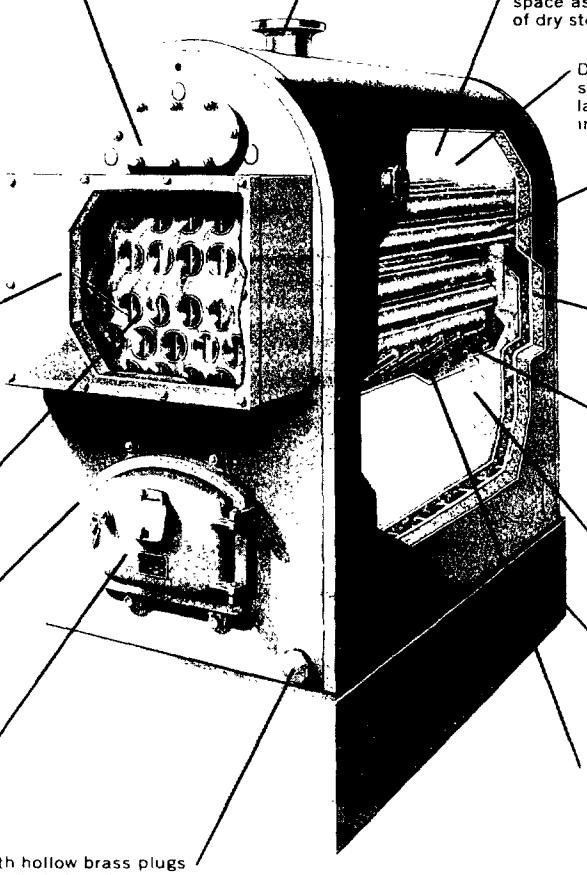
Note these features.

The husky shell tells of extra sturdiness. Inside you see the many features that pack so much efficiency into comparatively small space.

At every level of rated capacity . . . even at loads far above nominal ratings . . . Kewanee Square Heat Type R operates at full efficiency.

Hydrostatically tested at 60 psi, it operates up to 15 psi steam or 30 psi hot water.

The smoke hood has two cleanout openings and a circular rear outlet that fits standard size smoke pipe.



Coil opening provides for installation of either tank type or instantaneous water heating coil.

150 lb. American Standard flange on Nos. 3R9 thru 3R12.

High and abundant steam space assures ample reserve of dry steam.

Disengaging area at the water surface is unbroken, and large enough to prevent priming.

Longer gas travel through two passes of heavy gauge tubes is a plus value in secondary heating surface that assures greater fuel savings.

Optional—wrap-around steel jacket with mineral fiber insulation.

Rapid circulation in wide, free waterways sweeps steam bubbles up without turbulence to the unbroken disengaging area at the water line.

Large, high firebox provides plenty of space for complete, economical combustion.

Exceptionally sturdy steel base is reversible for front or rear firing.

Crown sheet arched upward affords greater height for better combustion. Also it is self-draining and cleaning.

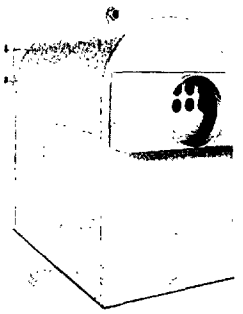
Steel flue access cover with insulation securely keyed in place. (Stoker and hand fired boilers have cast iron flue doors and frames).

Spinner blades in oil-gas boilers 3R1 to 3R8 inclusive . . . swirl hot gases against tube walls assuring maximum heat transfer.

Shell is extra heavy, quality steel plate for strength and dependability.

Insulated cast iron fire door. Stoker and hand fired boilers have cast iron fire doors with liners and door slides for secondary air.

Cleanout openings with hollow brass plugs and rubber gaskets located at each corner.



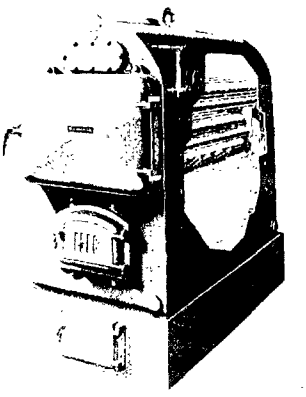
REAR VIEW SHOWING SMOKE OUTLET AND OBSERVATION OPENING

Round rear smoke outlet, in standard pipe size, provided for ease in making breeching connection. (Top outlet optional.) Cleanout furnished on side of smoke hood.

Two inch capped tube welded in rear water leg to provide observation opening. A one-eighth inch plugged opening is located in the tube for draft gauge connection.

FRONT VIEW SHOWING DOORS FOR STOKER OR HAND FIRING

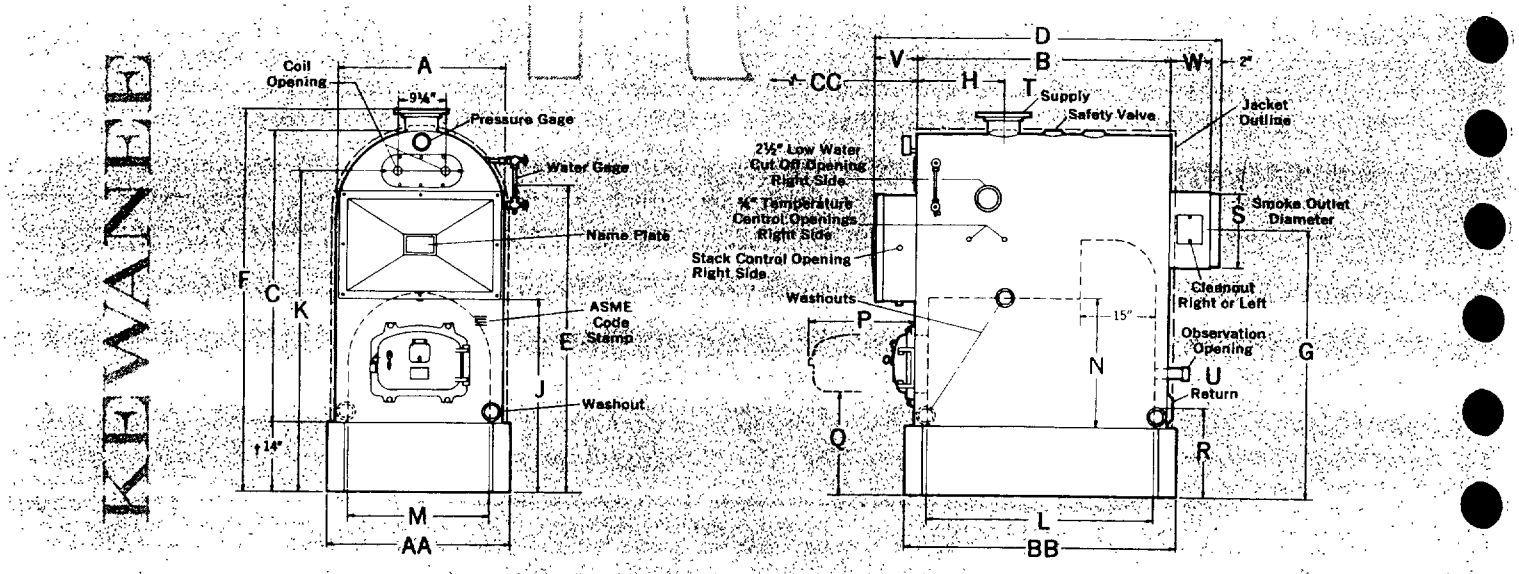
Designed for top efficiency when stoker or hand fired, Type R Boilers for solid fuel firing are provided with a cast iron, latch-type flue door . . . cast iron fire door with liner and secondary air slides.



28509

square·heat | type | series

KEWANEE



ratings—mechanically fired—oil, gas or stoker

BOILER NUMBER		3R1	3R2	3R3	3R4	3R5	3R6	3R7	3R8	3R9	3R10	3R11	3R12
SBI Net Rating—Steam	Sq. Ft.	1010	1240	1460	1690	2020	2480	2930	3380	3940	4500	5060	5620
Steam or Water	MBtuh	243	297	351	405	486	594	702	810	945	1080	1215	1350
Gross Output	MBtuh	324	396	468	540	648	792	936	1080	1260	1440	1620	1800
*Firing Rate—Oil.	Gph	2.9	3.5	4.2	4.8	5.8	7.1	8.4	9.6	11.2	12.9	14.5	16.1
—Gas.	MBtuh	405	495	585	675	810	990	1170	1350	1575	1800	2025	2250
—Stoker	Lb. per hr.	36	44	52	60	72	88	104	120	140	160	180	200
Heating Surface (SBI min)	Sq. Ft.	53	65	77	88	106	129	153	177	206	236	265	294
Furnace Volume (SBI min)	Cu. Ft.	8.2	10.0	11.8	13.6	16.4	20.0	23.6	27.3	31.8	36.3	40.9	45.4
Firebox Volume above Mudring	Cu. Ft.	8.8	10.4	12.0	13.5	17.2	20.1	23.0	26.3	32.6	37.0	41.1	45.3
Safety Valve Capacity	Lb. Steam per hr.	324	396	468	540	648	792	936	1080	1260	1440	1620	1800

*Firing rates calculated to develop gross output based on 140,000 Btu Oil; 12,000 Btu Coal.

dimensions and data—inches

BOILER NUMBER	3R1	3R2	3R3	3R4	3R5	3R6	3R7	3R8	3R9	3R10	3R11	3R12
A —Boiler Width Overall	30½	30½	30½	30½	35	35	35	35	41½	41½	41½	41½
B —Boiler Length	30½	36½	42½	48½	42½	50½	58	67	56½	64½	72	79½
C —Boiler Height	65½	65½	65½	65½	73	73	73	73	82	82	82	82
D —Boiler Length Overall	48½	54½	60½	66½	61½	69½	77	86	77½	85½	93	100½
E —Water Line Height	55½	55½	55½	55½	62½	62½	62½	62½	70½	70½	70½	70½
F —Steam or Water Supply Height	66½	66½	66½	66½	73½	73½	73½	73½	86	86	86	86
G —Smoke Outlet Height	48	48	48	48	54	54	54	54	60	60	60	60
H —Steam or Water Supply	10	12	14	16	14	17	19	22	16	18	20	24
J —Floor to bottom of smokebox	34½	34½	34½	34½	39	39	39	39	44½	44½	44½	44½
K —Coil Connection Height	57½	57½	57½	57½	64½	64½	64½	64½	72½	72½	72½	72½
L —Firebox—Length	25½	31½	37½	43½	37½	45	53	62	51	59	66½	74
M — —Width	24	24	24	24	28	28	28	28	35	35	35	35
N — —Height	21½	21½	21½	21½	26	26	26	26	31	31	31	31
P —Opened Firedoor to Boiler	21½	21½	21½	21½	21½	21½	21½	21½	27	27	27	27
Q —Floor to bottom of Firedoor	19½	19½	19½	19½	21	21	21	21	21½	21½	21½	21½
R —Return Height	17½	17½	17½	17½	18	18	18	18	18	18	18	18
S —Smoke Outlet Diameter	12	12	12	12	15	15	15	15	18	18	18	18
T —Steam Supply Size	4	4	4	4	4	4	4	4	6**	6**	6**	6**
U —Return Size	3	3	3	3	4	4	4	4	4	4	4	4
V —Smokebox Depth—Front	8	8	8	8	9	9	9	9	10	10	10	10
W — —Rear	8	8	8	8	8	8	8	8	9	9	9	9
AA—Base—Width	32½	32½	32½	32½	36½	36½	36½	36½	44	44	44	44
BB— —Length	34½	40½	46½	52½	46½	54½	62	71	60	68	75½	83
CC—Tube Replacement Space Front & Rear	31½	37½	43½	49½	43½	51½	59	68	57	65	73	80
Chimney—Diameter	10	11	12	12	13	14	15	16	16	17	18	18
—Height Ft.	30	35	35	40	35	40	40	45	35	40	45	50
Outside Surface to Cover Sq. Ft.	38	43	48	53	58	65	73	82	82	90	99	107
Approximate Weight, Unjacketed Lb	1500	1650	1800	1950	2250	2475	2725	3000	3375	3650	3850	4200

**150 Lb. American Standard Flange. Eight ¾ in. bolts, 9½ in. bolt circle

†For other base heights add to vertical dimensions F, K, J, E, Q, R and G.

Bases of 20, 24 and 30 in. height available for mechanical firing at additional cost

28510

Standard and Optional Equipment

ALL 3R SERIES BOILERS

1. 14" high steel base
2. Rear smokebox with circular rear outlet
3. Rear observation opening
4. Flue cleaner with handle
5. Washout plugs
6. Washout plug wrench

1. Extra base heights—20", 24" and 30"
2. Wrap-around insulating jacket
3. Water heating coils
4. Water heater tappings
5. Wing induced draft fan
6. Rear smokebox with top outlet

OIL AND GAS FIRED BOILERS

1. Steel access flue cover with insulation
2. Cast iron firedoor with insulation
3. Spinner blades for 3R1 thru 3R7—
   Direct tubes only for 3R8

STOKER AND HAND FIRED BOILERS

1. Cast iron flue door with insulation
2. Cast iron firedoor with liner and slides
3. Shaking grates and ash door (hand fired only)

STEAM BOILERS

1. Safety valve
2. Compound steam and vacuum gauge
3. Water gauge and glass

1. No. 767MM low water cut off

WATER BOILERS

1. Relief valve(s)
2. Combination altitude gauge and thermometer

1. No. 63BMM low water cut off

Typical Specifications
Type R Boilers

The contractor shall furnish and install No. 3R Kewanee Square-Heat Type R Boiler(s) for (oil) (gas) (stoker) (hand fired) firing. Boiler(s) shall contain not less than sq. ft. of heating surface and have a net SBI rating of sq. ft. Not less than cu. ft. firebox volume above mud ring.

Boiler shall be of three pass firebox design and constructed in accordance with the A.S.M.E. Code for (15 lb. steam) (30 lb. water). Boiler shall be inspected during construction by an authorized inspector and after completion shall be subjected to a 60 lb. hydrostatic test and stamped with all identifying markings and symbols as required by the latest edition of the A.S.M.E. Code.

Boiler to be furnished with in. high steel base. Front flue access cover with refractory securely keyed in place and of size permitting easy access to all firetubes. Rear smokebox shall have a cleanout opening on the side and be provided with a circular rear outlet. Observation opening to be provided in rear of boiler.

Boiler trimmings shall consist of the following:

For steam: Safety valve, compound steam and vacuum gauge, water gauge glass assembly.

For water: Relief valve(s) as required by A.S.M.E. Code for low pressure boilers, combination altitude gauge and thermometer.

Optional: Boiler to be provided with wrap-around steel jacket with 1" mineral fiber insulation. Jacket designed so as to permit either installation or removal without disconnecting supply or return piping.

28511

SQUARE•HEAT BOILERS—horizontal right or left discharge (dimensions in inches)

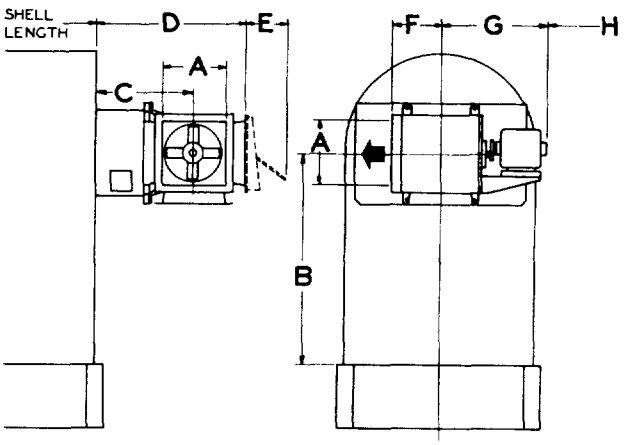
BOILER NUMBER	3R1	3R2	3R3	3R4	3R5	3R6	3R7	3R8	3R9	3R10	3R11	3R12
Inducer Number*												
Oil or Gas Boiler	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	14DL-¼	14DL-¼	14DL-¼	14D-¼	14D-¼
Stoker Boiler	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	14D-¼	14D-¼	14D-¼	14D-¼	14D-¼
Fan Motor Size												
—60 Cycle—1 Phase												
110V hp	⅙	⅙	⅙	⅙	⅙	⅙	⅙					
110/220V hp								¼	¼	¼	¼	¼
A—Outlet Size	10 Dia.	10 Dia.	10 Dia.	10 Dia.	10 Dia.	10 Dia.	10 Dia.	14	14	14	14	14
B—Bottom Boiler to Center of Outlet	32½	32½	32½	32½	37½	37½	37½	37½	44	44	44	44
C—Boiler Head to Center of Outlet	16	16	16	16	16	16	16	20½	21½	21½	21½	21½
D—Overall Space Requirement	24	24	24	24	24	24	24	31½	32½	32½	32½	32½
E—Barometric Damper	9½	9½	9½	9½	9½	9½	9½	9	9	9	9	9
F—Boiler CL to Outlet	9½	9½	9½	9½	9½	9½	9½	10⅝	10⅝	10⅝	10⅝	10⅝
G—Boiler CL to Motor End	15½	15½	15½	15½	15½	15½	15½	23	23	23	23	23
H—Fan Removal Clearance	14	14	14	14	14	14	14	19½	19½	19½	19½	19½

INDUCED DRAFT FANS

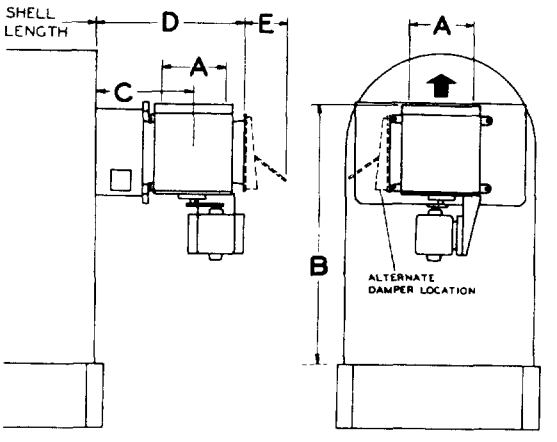
Wing Draft Inducers for Kewanee Square-Heat Type "R" boilers provide precise draft control . . . eliminate need for tall stacks. Air Cooled Bearings—pre-sealed and pre-lubricated require no lubrication. Spring Mounted Motor—dustproof, multispeed, brushless . . . maintains correct fan belt tension. Note: 10 DI-⅙ fan is equipped with constant speed motor and adjustable pitch sheave for speed regulation—no spring loaded base. Permanent Mounting—furnished for either horizontal right or left, or vertical discharge as specified. Barometric dampers at extra cost.

Inducers listed are based on sea level elevation, sized for firing up to and including 141.5% of SBI rating with oil, gas or stoker. Controls other than multispeed controller, not furnished as standard equipment. Orders must specify operating line voltage, cycle and phase. Stack and breeching weights must be supported independently.

horizontal right or left discharge



vertical discharge—mounted on smokebox



SQUARE•HEAT BOILERS—vertical discharge (dimensions in inches)

BOILER NUMBER	3R1	3R2	3R3	3R4	3R5	3R6	3R7	3R8	3R9	3R10	3R11	3R12
Inducer Number*												
Oil or Gas Boiler	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	10DI-⅙	14DL-¼	14DL-¼	14DL-¼	14D-¼	14D-¼
Stoker Boiler	10DI-⅙	10DL-⅙	10DL-⅙	10DL-⅙	10DL-⅙	10DL-⅙	10DL-⅙	14D-¼	14D-¼	14D-¼	14D-¼	14D-¼
Fan Motor Size												
—60 Cycle												
110V hp	⅙	⅙	⅙	⅙	⅙	⅙	⅙					
110/220V hp								¼	¼	¼	¼	¼
A—Outlet Size	10 Dia.	10 Dia.	10 Dia.	10 Dia.	10 Dia.	10 Dia.	10 Dia.	14	14	14	14	14
B—Bottom Boiler to Outlet	41¾	41¾	41¾	41¾	46¾	46¾	46¾	48	54¾	54¾	54¾	54¾
C—Boiler Head to Center of Outlet	16	16	16	16	16	16	16	20½	21½	21½	21½	21½
D—Overall Space Requirement	24	24	24	24	24	24	24	31½	32½	32½	32½	32½
E—Barometric Damper	9½	9½	9½	9½	9½	9½	9½	9	9	9	9	9

*Fan sizes based on sea level elevation for firing up to and including gross output rating with oil, gas or stoker.

28512

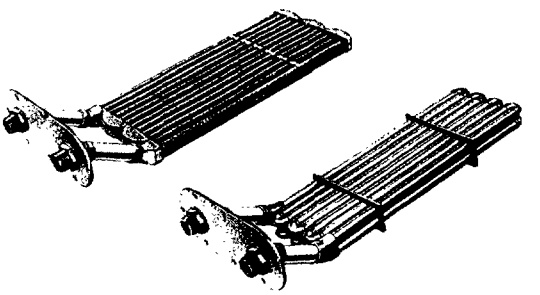
square-heat type coil selection chart

FAMILIES OR BATHS	2	3	4	6	8	10	12	14	16	19	22	24	28	32	36	40	44
Gallons in 3 Hours — 40° to 140°F BW 180°F	60	90	120	180	240	300	360	420	480	560	640	720	840	960	1080	1200	1320
Gallons in 3 Hours — 40° to 140°F BW 212°F	100	150	200	300	400	500	600	700	800	933	1067	1200	1400	1600	1800	2000	2200
Gallons in 3 Hours — 40° to 180°F BW 210°F	48	72	96	144	192	240	288	336	384	448	512	576	672	768	864	960	1096
Coil Number	KT-60	KT-90	KT-120	KT-180	KT-240	KT-300	KT-360	KT-420	KT-480	KT-560	KT-640	KT-720	KT-840	KT-960	KT-1080	KT-1200	KT-1320
Inlet & Outlet Diameter—Inches	1	1	1½	1½	2	2	2	2	2	2	2	2½	2½	2½	2½	2½	2½
Overall Length—Inches	30	30	24	30	29	32	38	41	44	50	56	45	51	57	63	69	75
3R1	1	1	1	1	1												
3R2	1	1	1	1	1	1											
3R3	1	1	1	1	1	1	1	1									
3R4	1	1	1	1	1	1	1	1	1			1					
3R5	1	1	1	1	1	1	1	1									
3R6	1	1	1	1	1	1	1	1	1			1					
3R7	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
3R8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
3R9	1	1	1	1	1	1	1	1	1	1		1	1				
3R10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
3R11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3R12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

domestic hot water . . . all year 'round!

Every Kewanee Square-Heat Boiler is arranged for easy installation of Indirect Water Heating Coils (either tankless or storage tank type) which can be fitted at any time by simply removing coil opening cover plate and bolting coil in place.

For Gravity Circulation with storage tank, check the table above. For instantaneous Flow, see table below.



RESIDENTIAL RATINGS—Based on intermittent draw of hot water with short peak demands

FAMILIES OR BATHS	1-2	4	6	15	25	35	45	52	65	78	92	105	120	130	140	150	160	170	180	190
Gallons Per Hour 40° to 140°F BW 180°F.	240	300	380	480	600	720	840	920	1080	1240	1400	1560	1740	1860	1980	2100	2220	2340	2460	2580

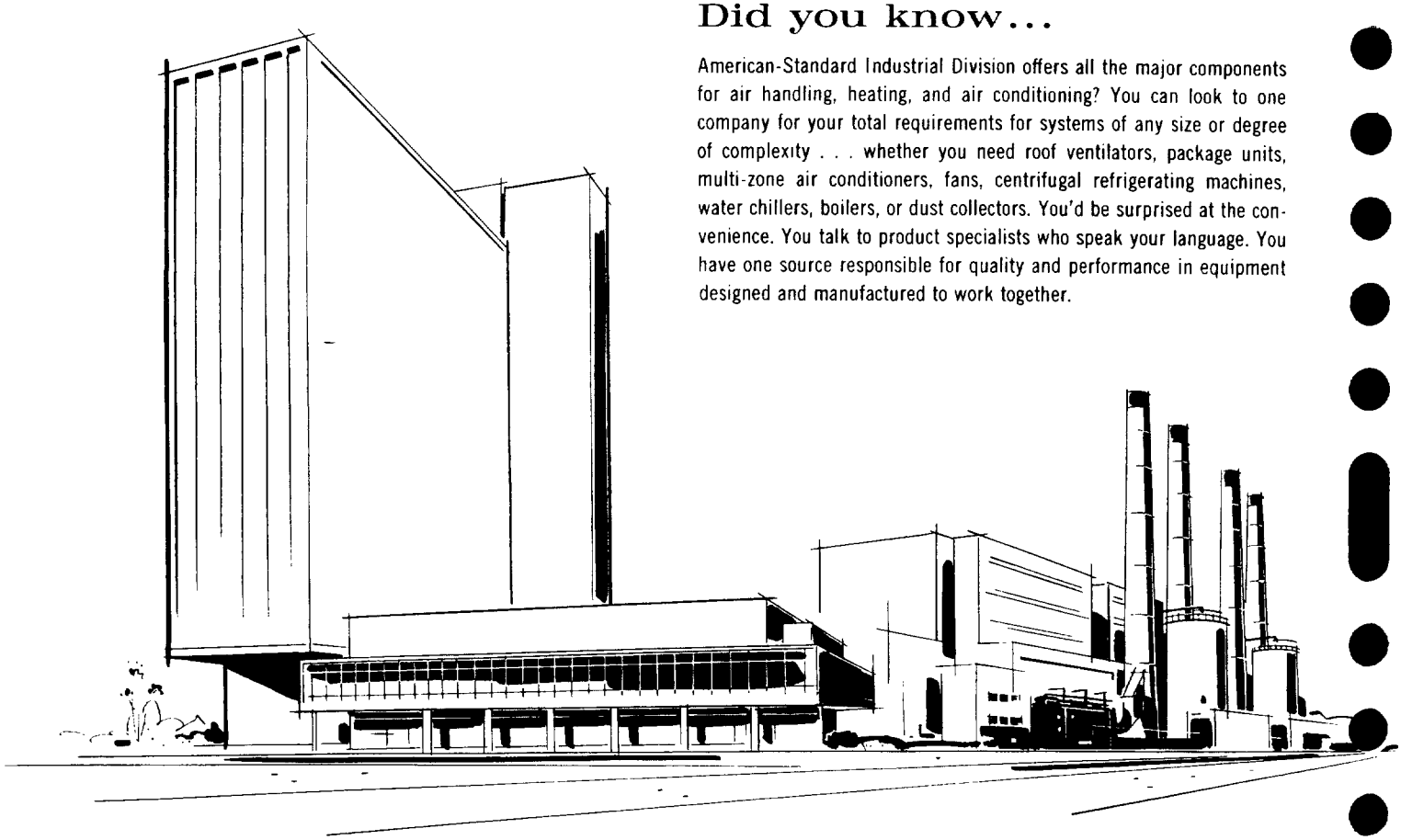
COMMERCIAL RATINGS—Based on continuous draw of hot water with long peak demands

Gallons Per Hour — 40° to 140°F BW 180°F	180	225	270	360	450	540	630	690	810	930	1050	1170	1305	1395	1485	1575	1665	1755	1845	1935
Gallons Per Hour — 40° to 140°F BW 212°F	300	375	450	600	750	900	1050	1150	1350	1550	1750	1950	2175	2325	2475	2625	2775	2925	3075	3225
Gallons Per Hour — 40° to 180°F BW 210°F	144	180	216	288	360	432	504	552	648	744	840	936	1044	1116	1188	1260	1332	1404	1476	1548
Coil Number	K1-240	K1-300	K1-360	K1-480	K1-600	K1-720	K1-840	K1-920	K1-1080	K1-1240	K1-1400	K1-1560	K1-1740	K1-1860	K1-1980	K1-2100	K1-2220	K1-2340	K1-2460	K1-2580
Inlet & Outlet Diameter—Inches	1	1	1¼	1¼	2	2	2	2	2	2	2	2	2½	2½	2½	2½	2½	2½	2½	2½
Overall Length—Inches	26	29	26	29	36	39	45	45	51	57	63	69	55	58	61	64	67	70	73	76
3R1 3R2	1	1	1	1																
3R3	1	1	1	1	1	1														
3R4	1	1	1	1	1	1	1	1												
3R5	1	1	1	1	1	1														
3R6	1	1	1	1	1	1	1	1												
3R7	1	1	1	1	1	1	1	1	1	1			1							
3R8	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1				
3R9	1	1	1	1	1	1	1	1	1				1							
3R10	1	1	1	1	1	1	1	1	1	1	1		1	1	1					
3R11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
3R12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

INSTRUCTIONS: Read across top section of table to find desired coil capacity. Read down column until you reach correct boiler size. If number appears in that box, coil will fit. The number represents the maximum quantity of coils boiler will accommodate

Did you know...

American-Standard Industrial Division offers all the major components for air handling, heating, and air conditioning? You can look to one company for your total requirements for systems of any size or degree of complexity . . . whether you need roof ventilators, package units, multi-zone air conditioners, fans, centrifugal refrigerating machines, water chillers, boilers, or dust collectors. You'd be surprised at the convenience. You talk to product specialists who speak your language. You have one source responsible for quality and performance in equipment designed and manufactured to work together.



INDUSTRIAL DIVISION

SALES OFFICES IN ALL PRINCIPAL CITIES

Executive offices: **Detroit 32, Michigan**

In Canada American-Standard Products (Canada) Ltd
Toronto 4, Ontario
Canadian Sirocco Products

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

28514