Form No. 2300-7
(Rev. 2/99)

Gas, il or Dual Fuel Fired

Bryan Water-Pak Indirect Systems

360,000 BTU to 4,500,000 BTU Inputs
199 to 3,533 Gallons Storage Capacity

BRYAN BOILERS

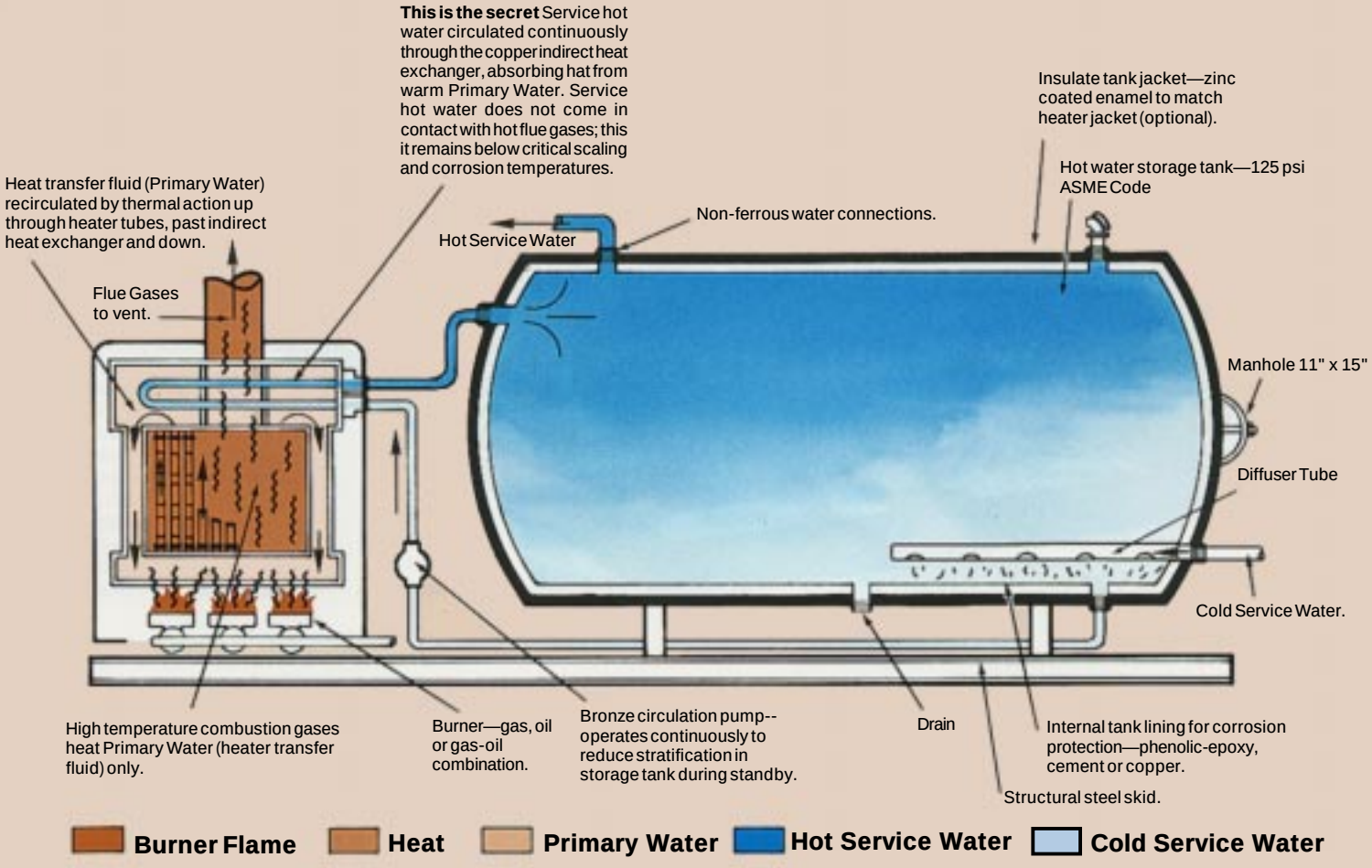
Originators of the "Flexible Water Tube" design

Bryan's exclusive features make Water-Pak so efficient

Faster heat transfer—Unique design of Bryan water tubes transmits the first blast of heat from flame to water much faster than this action occurs in ordinary heaters.

Bryan heat exchanger—constructed of heavy copper tubing, the efficient Bryan heat exchanger is bolted to the heater shell. Designed for two or six pass flow with low pressure drop, this exchanger easily handles the entire BTU output of the heater, or any

Bryan Water-Pak "indirect storage water heating" is scale-free, corrosion-free and trouble-free



Water-Pak Selection

Water-Pak units are built to furnish a very wide selection of recovery rates, storage capacities and configurations. Both horizontal and vertical tanks are available to best fit into the space allocation. In addition to the combination of "settings" 'shown below, other combinations, arrangements and sizes are possible. Fuel selection includes gas (atmospheric or forced draft), oil. dual gas-oil and electric.

1. Select Heater Mode! based on "Heater Specifications" table below.
2. Select storage capacity from "Storage Tank Specifications" tables, horizontal or vertical tank depending on space considerations.
3. Choose appropriate "Setting" from "Heater-Tank Setting" diagrams below.

Selection procedure example:

A requirement of 800 gph at 100° rise. Storage capacity 1000 gallons. Fuel, gas. Tank lining, cement.

1. From "Heater Specifications" table, select heater Model No, CL-120WT Gas, rated at 820 gph, 40° to 140° rise.
2. From the "Storage Tank Specifications" tables, suppose you select the 1045 gallon horizontal tank.
3. Then the setting shown in diagram "AH" (horizontal tank) would be appropriate.

Specify:

Water-Pak System CL-120WT-G-1045-AH-CM-IN

Recovery Heater Model	Fuel *G—gas* *O—oil* GO—gas-oil	Storage Section Size (gals.)	Setting	Tank Lining CM—cement PH—phenolic CP—copper	Tank Insulated Jacket

HORIZONTAL STORAGE TANK SPECIFICATIONS
(Dimensions in inches. See note 2)

Capacity in gallons	Tank dia.	Tank length including insulation	Tank height	D Tapping location	F Relief valve tapping	G Hot outlet tapping	J Cold inlet tapping	K Tapping location
199	30	78	50	25	3/4	1 1/2	1 1/2	46
387	36	102	56	25	3/4	2	2	68
520	42	102	62	29	3/4	2	2	62
802	42	150	62	30	3/4	2 1/2	2 1/2	108
1045	48	150	68	32	1 1/2	2 1/2	2 1/2	104
1546	54	174	75	30	1 1/2	2 1/2	2 1/2	132
2188	60	198	80	30	1 1/2	3	3	156
2699	72	174	92	34	1 1/2	3	3	124
3533	72	222	92	34	1 1/2	3	3	172

VERTICAL STORAGE TANK SPECIFICATIONS
(Dimensions in inches. See note 2)

Capacity in gallons	Tank dia.	Tank length including insulation	Tank height	D Tapping location	F Relief valve tapping	G Hot outlet tapping	J Cold inlet tapping	K Tapping location
199	30	78	50	25	3/4	1 1/2	1 1/2	46
387	36	102	56	25	3/4	2	2	68
520	42	102	62	29	3/4	2	2	62
802	42	150	62	30	3/4	2 1/2	2 1/2	108
1045	48	150	68	32	1 1/2	2 1/2	2 1/2	104
1546	54	174	75	30	1 1/2	2 1/2	2 1/2	132
2188	60	198	80	30	1 1/2	3	3	156
2699	72	174	92	34	1 1/2	3	3	124
3533	72	222	92	34	1 1/2	3	3	172

Note 2: All dimensions subject to change without notice. These dimensions are approximate only. Consult factory for certified drawings once design is esiablished.

See applicable layout sheets for detailed dimensions

HEATER SPECIFICATIONS

Heater Model	Heater Capacity, Gallons per hour (see notes)					
	Heater Input MBH	80° to 140° Rise	60° to 140° Rise	40° to 140° Rise	400° to 160° Rise	40° to 180° Rise
D/F350WT	350	550	415	330	N/A	N/A
D/F450WT	450	720	540	430	N/A	N/A
D/F650WT	650	1040	785	625	N/A	N/A
F850WT	850	1360	1025	820	N/a	N/A
CL75WT	750	1200	900	720	600	515
CL90WT	900	1440	1080	865	720	620
CL120WT	1200	1920	1440	1150	950	820
CL150WT	1500	2400	1800	1440	1200	1030
CL180WT	1800	2900	2160	1730	1440	1240
CL210WT	2100	3380	2540	220	1680	1440
K/RV250	2500	400	3000	2400	2000	1715
K/RV300	3000	4800	3600	2880	2400	2060
K/RV350	3500	5600	4200	3360	2800	2400
K/RV400	4000	6400	4800	3840	3200	2745
RV450	4500	7200	5400	4320	3600	3085

Note 1: Contact factory for ratings at other conditions.

Note 2: Heater is not intended to provide the temperature increases shown about instantly, but will raise the temperature of the gallons listed to final storage temperature within one hour.

Note 3: Select adequate storage tank capacity to handle peak demad. Keep in mind that, typically, only 75% of tank capacity is usable storage.

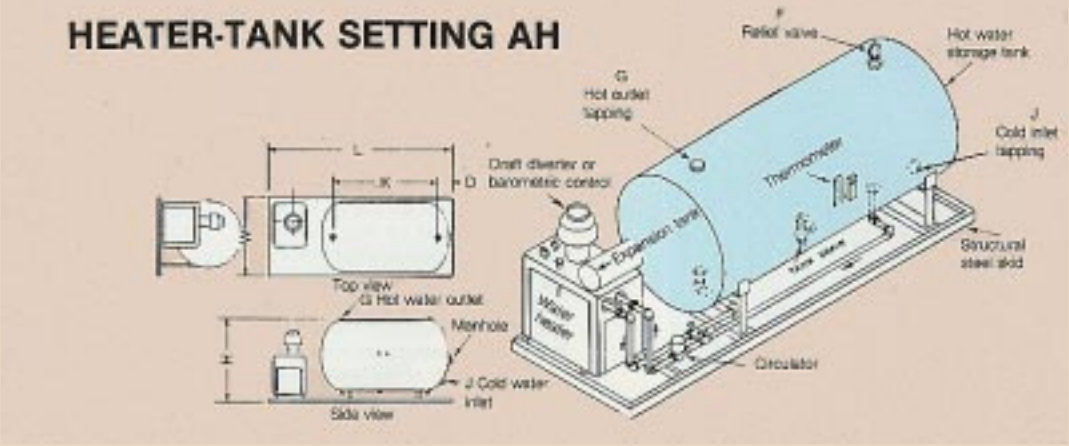
Note 4: D Series and CL75 Series are forced draft only.

Note 5: F Series are atmospheric gas-fired only.

CL Series Atmospheric (Jacket and tube access panels removed to illustrate water tube configuration)

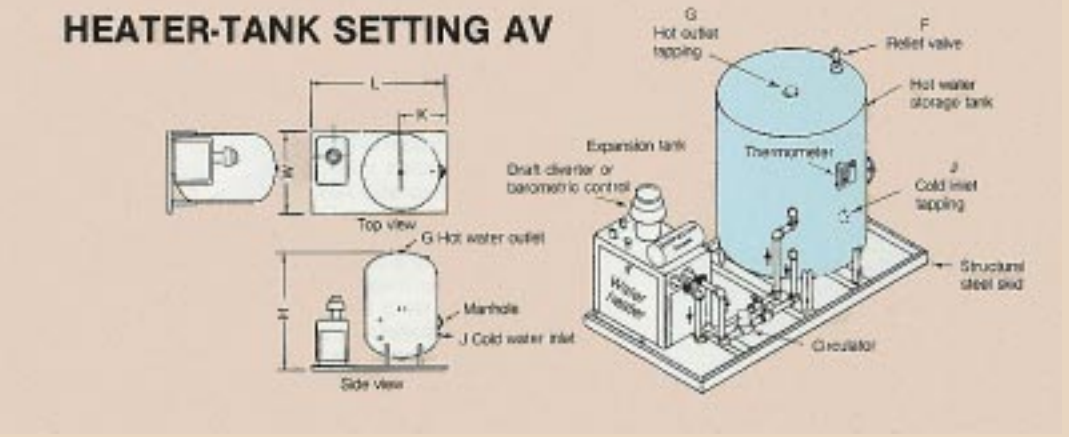
CL Series Forced draft (Jacket and tube access panels removed to illustrate water tube configuration)

HEATER-TANK SETTING AH



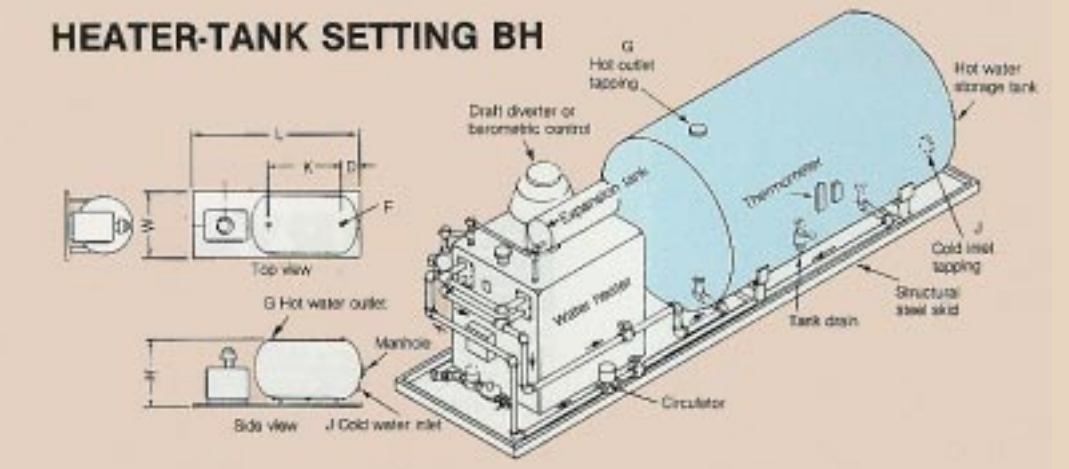
Approximate dimensions of package-Length, width and height will vary, depending on the heater/ tank combination chosen for the application, SETTING AH:
L =width of required heater plus length of tank required plus approximately 14' between heater and tank for service area. W= tank diameter plus 6" for jacket and insulation if this option is chosen. Or, the length of the heater required, whichever is greater. H= dimension shown in "Horizontal Storage Tank Specifications" table. in nearly all instances the tank height will be greater than the chosen heater. *See Note 2*

HEATER-TANK SETTING AV



Approximate dimensions of package-Length, width and height will vary, depending on the heater/ tank combination chosen for the application.
SETTING AV: L= width of required heater plus diameter of tank required plus approximately 14" between heater and tank for service area. W= tank diameter plus 6" for jacket and insulation if this option is chosen. Or, the length of the heater required, whichever is greater. H= dimension shown in "Vertical Storage Tank Specifications" table. The tank height will be greater than the chosen heater. *See Note 2*

HEATER-TANK SETTING BH



Approximate dimensions of package— SETTING BH:
L= length of required heater plus length of tank required plus approximately 14" between heater and tank for service area. W= tank diameter plus 6" for jacket and insulation if this option is chosen. Or, the width of the heater required, whichever is greater. H= dimension shown in "Horizontal Tank Specifications" table. In nearly all instances the tank height will be greater than the chosen heater. *See Note 2*

Bryan Water-Pak brings packages efficiency to large volume hot water needs.

Hotels, motels, apartments, schools, industries, hospitals, institutions, restarants, laundries, packing plants get abundant, clean , low maintenance ho water at low cost.

The Bryan Water-Pak is a completely packaged system comprised of the indirect Water Heater, Storage Tank and Circulation Piping, all mounted on a structural steel skid. All components are factory wired and assembled, requiring field hookup only of the cold and hot service water connections, the electrical supply, fuel source, and the vent connection. The Bryan Water-Pak utilizes the superior "Indirect" feature of the water heater, resulting in a highly efficient and scale-free operation. The service water does not come in contact with the high temperature heating surfaces, consequently, there is little possibility of scale and corrosion. Thousands of Bryan Indirect Water Heaters have been installed during the past 40 years, most all of them still rendering efficient service.

The Bryan Water-Pak is engineered to provide a compact packaged unit for large volume water heating requirements.

Available in many selections of Heater-Tank combinations, horizontal or vertical. Designed for long life, low maintenance and continued maximum efficiency performance.

Each component of the Bryan Water-Pak is easily replaceable. The entire unit need not be replaced, as is often required by other types of water heater equipment.

Storage tanks and water heaters comply with the recommendations of ASHRAE 90-75.

Rely on Bryan for...

COMPACT EFFICIENCY—Floormiser designs that require an absolute minimum of valuable space.

VERSATILITY—Gas or oil fired: or dual-fired, gas-oil.

TROUBLE-FREE SERVICE—Since service water does not come in contact with high-temperature heating surfaces, corrosion and scale are virtually eliminated.

LONG LIFE—Bryan zinc coated casings, steel boiler tubing, copper heat exchangers, copper interconnecting piping and cement or phenolic epoxy lined storage tanks are constructed of the finest materials available to assure years of cost-saving durability.

CONVIENCE PACKAGING—Automatic Bryan Water-Paks are shipped completely assembled, wired and tested lo reduce installation time and labor costs.

EASY MAINTENANCE—Bryan "flexible water tubes" are easily removable and replaceable, requiring minimum service space.

APPROVAL—Bryan Water-Pak systems are designed to ASME requirements.

The years ahead will make you glad you selected Bryan

How to specify Bryan Water-Pak Indiect Storage Water Heater Systems

THE WATER HEATER(s) shall be Bryan Indirect Water-Pak System, Model _____. Each heater shall have a capacity of _____GPH at a_____°F to _____°F rise with a firing rate of _____ BTU and _____ gallons storage capacity. It shall be factory assembled and wired with interconnecting piping and controls. The only field connection requirements shall be the cold water inlet, hot water outlet, fuel, electrical and vent. The indirect water heater shall be manufactured and stamped in strict accordance with ASME Code, Section IV. Heater water tubes shall be easily removable and replaceable without requiring welding or rolling.

THE WATER HEATER shall be furnished complete with one or more indirect heat exchangers installed in the upper drum of the heater, heat exchangers being capable of absorbing 100% of the total heater output. Heat exchangers shall be attached to heater shell by means of a gasket and stud type connection and shall be easily removable and replaceable.

THE WATER HEATER is to be complete with an insulated metal jacket, consisting of not less than 1 ^"fiberglass insulation and aheavy gauge zinc-coated steel easing, painted with a suitable hea-t-resist-ing primer and lacquer. Complete jacket and insulation shall be readily removable and re-installed il necessary. Combustion space shall be lined with insulating tile or board and no part of the jacket shall be exposed to the products of combustion.

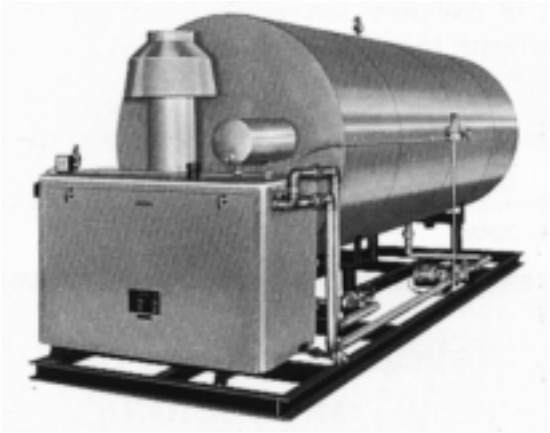
THE STORAGE TANK section shall be manufactured in strict accordance with ASME Unfired Pressure Vessel Code Section VIII, for a maximum working pressure of _____ psi. Storage tank shall be lined with (Cement) (Phenolic Epoxy) (Copper). All threaded connections shall be stainless steel. Storage tank shall be mounted in a (horizontal) (vertical) position. A 12")(16" rnanhole shall be provided on tanks 42" diameter or larger.

STORAGE TANK INSULATION - shall be factory installed 3" fiberglass insulation with zinc coated steel jacket. (Optional: furnished and field applied by the contractor.)

AN ALL BRONZE CIRCULATING PUMP shall be installed to provide circulation between the storage tank and the water heater. All piping shall be copper and brass. The water heater, the storage tank and all pip-ing and accessories shall be mounted on a full-length structural steel channel base.

THE WATER-PAK SYSTEM shall include the following fittings and trim:

1. Combination thermometer and pressure gauge on heater.
2. Temperature gauge on storage tank.
3. ASME-rated hot water pressure relief valve on heater.
4. ASME-rated hot water pressure relief valve on heat exchanger.
5. ASME-rated hot water pressure relief valve for tank. 6. Adequately sized expansion tank.
7. Low water cutoff on heater.
8. Automatic heater fill valve.
9. Heater water temperature control.
10. High limit temperature control.
11. Tank temperature control.
12. Shutoff valves between heater and tank.
13. Heater and tank drain valves.



ATMOSPHERIC GAS BURNER AND CONTROL

THE GAS BURNER UNIT shall be an integral part of the water heater. Burner shall be for operation with natural draft, requiring no motor or blower. The burner is to be equipped with an automatic electrically operated gas valve, a gas pressure regulator and manual shutoff valve. Gas pilot safety control shall shut down burner in case of pilot failure. A suitable barometric draft control or draft diverter shall be furnished.

FORCED DRAFT BURNER AND CONTROL EQUIPMENT

THE BURNER shall be Underwriters' Laboratories listed suitable for operation with No. lor No. 2 fuel oil, natural gas, LPG, or other as required. Burner shall be complete with a blower for supplying sufficient combustion air with normal draft con-ditions. The burner shall be com-plete with automatic ignition. Refractory type combustion chamber to be installed in heater base, constructed ol high temperature insulating refractory.

OPTIONAL ACCESSORIES AND CONTROL EQUIPMENT

The following additional controls and accessories shall be furnished:

1. Hi-low-off,two-stage,gasburner controls.
2. Modulating burner controls.
3. Electronic pilot safety controls on atmospheric gas burner (standard with heaters 450 MBH and larger).
4. Electronic combustion safety controls on oil burner (standard with units exceeding l0 gph firing rate).
5. Induced draft fan of proper capacity.
6. Special insurance approval controls (FM, IRI, etc.).
7. Arrangements for space heating and service water heating—multi-purpose system.

The complete "Water-Pak" unit shall be factory assembled and furnished by the Bryan Steam Corporation. The manufacturers representative shall be responsible for furnishing startup and instruction service on the job.

BRYAN BOILERS

Bryan Steam Corporation—Since 1916
P.O.Box 27, Peru, Indiana 46970-0027 U.S.A.
Phone: 765-473-6651 • Internet: www.bryanboilers.com
Fax: 765-473-3074 • E-mail: bryanboilers@iquest.net

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