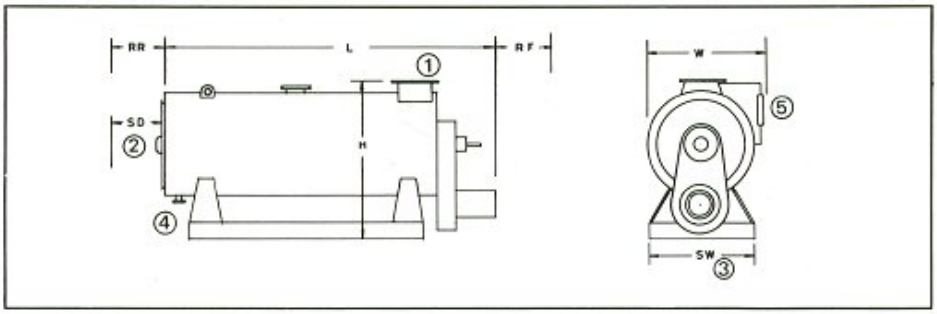
CYCLOTHERM®

C Series - Steam

RATINGS & DIMENSIONS



RATINGS Model Number	C–500	C–700	C–1000	C–1400	C–1725	C–2100	C–2800	C–3500	C–4400
Rated Horsepower	15	20	30	40	50	60	80	100	125
Lbs. Steam/Hr F&A 212°F.	518	690	1035	1380	1725	2070	2760	3450	4313
BTU Output/Hr–Thousands	502.5	670	1005	1340	1675	2010	2680	3350	4188
EDR–Gross–Steam–Sq. Ft.	2090	2790	4185	5580	6970	8370	11160	13950	17450
Firing Rates:									
#2 Oil–140,000 BTU/Gal.	4.5	6	9	12	15	18	24	30	38
#4 Oil–145,000 BTU/Gal.				11.5	14.5	17.3	23	29	36.5
#6 Oil–150,000 BTU/Gal.							22.5	28	35
Natural Gas–1000 BTU/Cu.Ft.	628	838	1255	1675	2095	2510	3350	4190	5235
DIMENSIONS									
L–Overall Length	6'-3"	6'-5"	7'-11"	9'-3"	9'-10"	10'-10"	11'-9"	13'-0"	13'-10"
RR–Retube–Rear	2'-6"	2'-6"	4'-0"	5'-0"	5'-5"	6'-5"	7' - 1"	8'-3"	9'-0"
RF–Retube–Front	9"	9"	2'-3"	3'-2"	3'-8"	4'-8"	5'-1"	6'-2"	6'-11"
SD–Swing Rear Door				22"	23"	23"	2'-1"	2'-1"	2'-1"
W–Overall Width	3'-5"	3'-11"	3'-11"	4'-2"	4'-5"	4'-5"	4'-9"	5'-2"	5'-8"
SW–Stripped Width	2'-7"	3'-1"	3'-1"	3'-4"	3'-7"	3'-7"	3'-10"	4'-4"	4'-10"
H–Overall Height	4'-0"	4'-5"	4'-5"	5'-0"	5'-6"	5'-6"	5'-8"	6'-1"	6'-3"
Diam. Steam Outlet–15#	3"	3"	4"	6" FLG	6" FLG	6" FLG	6" FLG	8" FLG	8" FLG
Diam. Steam Outlet–150#	1½"	1½"	2"	3"	3"	3"	4" FLG	4" FLG	4" FLG
Diam. Bottom Blow-off	1¼"	1¼"	1¼"	1¼"	1¼"	1¼"	1½"	1½"	1½"
Diam. Gas Vent	8"	8"	8"	10"	10"	10"	14"	14"	18"
Est. Shipping Weight–Lbs.	1600	1800	2100	2800	3400	4000	6000	7600	10,000

RATINGS Model Number	C–5200	C–7000	C–8700	C–10500	C–12000	C–13800	C–17500	C–21000	C–26000
Rated Horsepower	150	200	250	300	350	400	500	600	750
Lbs. Steam/Hr F&A 212°F.	5175	6900	8625	10350	12075	13800	17250	20700	25875
BTU Output/Hr–Thousands	5025	6700	8375	10050	11725	13400	16750	20100	25125
EDR–Gross–Steam–Sq. Ft.	20920	27900	34900	41850	48820	55800	69750	83700	97640
Firing Rates:									
#2 Oil–140,000 BTU/Gal.	45	60	75	90	105	120	150	180	209
#4 Oil–145,000 BTU/Gal.	43.5	58	72.5	87	101.5	116	145	174	202
#6 Oil–150,000 BTU/Gal.	42	56	70	84	98	112	140	167	195
Natural Gas–1000 BTU/Cu. Ft.	6285	8370	10460	12555	14650	16750	20925	25100	29300
DIMENSIONS									
L–Overall Length	15'-6"	17'-6"	17'-0"	19' - 0"	21'-0"	20'-6"	21'-0"	23'-0"	28'-6"
RR–Retube–Rear	9'-9"	11'-9"	9'-0"	11'-0"	13'-0"	12'-6"	11'-8"	13'-8"	18'-8"
RF–Retube–Front	7'-3"	9'-3"	5'-0"	7'-0"	9'-0"	8'-6"	7'-4"	9'-4"	9'-6"
SD–Swing Rear Door	2'-6"	2'-6"	2' - 10"	2' - 10"	2' - 10"	2' - 10"	4' - 0"	4' - 0"	4'-0"
W–Overall Width	6'-5"	6'-5"	7'-3"	7'-3"	7'-3"	7'-5"	8'-4"	8'-4"	9'-7"
SW–Stripped Width	5'-6"	5'-6"	6'-5"	6'-5"	6'-5"	6'-11"	7'-3"	7'-3"	8'-2"
H–Overall Height	7'-0"	7'-0"	8'-7"	8'-7"	8'-7"	8'-11"	9'-6"	9'-6"	10'-10"
Diam. Steam Outlet–15#	10"FLG	10"FLG	10"FLG	12"FLG	12"FLG	12"FLG	12"FLG	12"FLG	12"FLG
Diam. Steam Outlet–150#	5" FLG	5" FLG	5" FLG	6" FLG	6" FLG	6" FLG	8" FLG	8" FLG	8" FLG
Diam. Bottom Blow-off	2"	2"	2"	2"	2"	2"	2-2"	2-2"	2-2"
Diam. Gas Vent	18"	18"	22"	22"	26"	26"	28"	31"	35"
Est. Shipping Weight – Lbs.	14,000	17,000	18,500	22,000	24,000	26,000	30,000	37,000	45,000

Do not use for Construction: subject to change without notice. Certified Prints provided upon request.

1. All Gas Vents round, flanged.
2. 15 HP, 20 HP and 30 HP not hinged.
3. With all side mounted controls and piping removed.
4. Rear Blow-down only – Sizes 15 - 400 HP. – 500 - 750 - Front and Rear.
5. Water Column and Control Panel as shown on modulated unit; opposite side on-off units.

General Specifications

BOILERS

DESCRIPTION:
Cyclotherm Steam and Hot Water Generators are firetube type of horizontal two pass construction with centrally located furnace around which return tubes are arranged concentrically. Pressure vessels are of all welded construction—built in conformity with ASME Boiler code—will meet state and local codes when specified.

BLOWER:
Forced draft fan directly connected to motor, includes starter.

STRUCTURAL STEEL BASE:
No foundation or excavation required.

INTERNAL CONSTRUCTION:
Steam: Dry pipe and feed water inlet baffles.
Hot Water: Internal distribution header which guarantees uniform flow of water across entire length of furnace and return tubes resulting in uniform temperature differentials. All return tubes - 3" standard.

REFRACTORY:
Required only for lining of burner head, furnace extension and rear cover, due to Cyclotherm two-pass design and patented Cyclonic Combustion principle.

INSULATION:
Entire pressure vessel is covered with fiberglass insulation over which is fitted a metal jacket.

TRIM FURNISHED:
Steam: Safety valve(s), steam pressure gauge assembly, water column with water gauge, water column blowdown valve, water column try-cocks, and vent valve.
Hot Water: Combination water and relief valve, temperature—altitude gauge, and vent valve.

CONTROLS

CONTROL PANEL:
Metal drip proof cabinet with hinged cover. Mounted on unit with wiring diagram inside cover. Four (4) indicating lights.

OPERATING CONTROL:
Steam—Pressuretol
Water—Aquastat
High limit manual reset Pressuretrol

COMBUSTION CONTROL:
Combination programming device and electronic combustion control. Provides complete safety. In event of operational interruption closes fuel valves and stops burner motor. Burner cannot re-cycle until restart button is manually depressed.

AIR SAFETY SWITCH:
Automatically closes main fuel valve and stops burner if air supply is interrupted.

MODULATING CONTROLS:
80 H.P. and up
Stream—Modulating Pressuretrol
Water—Modulating Aquastat

MODUTROL MOTOR:
Operates air valve and fuel regulating valve. Synchronized to automatically supply burner with proper amount of air and fuel at all firing rates.

FEED WATER PUMP CONTROL:
(Steam unit only) Automatically controls feed pump to maintain boiler water level.

LOW WATER CUTOUT CONTROL:
Shuts down burner in event of low water.

BURNERS

IGNITION SYSTEM:
Oil: Light oil up to 1675 MBH—Direct electric—consists of 10,000 volt secondary voltage ignition transformer with two ignition electrodes.
Gas: All gas units, light oil (80 H.P.), heavy oil and combination—gas pilot assembly consisting of 6000 volt ignition transformer, ignition electrode, pilot solenoid valve and pilot gas regulator.

LIGHT OIL:
Fuel oil gravity 26-40 API 15 to 750 H.P.; modulation STD 80 H.P. and up (see controls).
Pilot Assembly: See ignition system.
Nozzle Type: On/off type (to 60 H.P.) variable capacity modulating type (80 H.P. and up).
Fuel Oil Pump Assembly: Rotary gear type strainer(s), relief valve, gauge(s). Up to 60 H.P. driven off blower motor. 80 H.P. and up modulated-separate motor including starter.
Oil Solenoid Valve: For automatic shutoff of oil to burner (all models).
Oil Flow Regulating Valve: All modulated units 80 H.P. and up (see modulation under controls)

GAS:
For natural, mixed, manufactured, and LP gases—non-premix type.
Pilot Assembly: Gas pilot refer to ignition system above.
Burner Nozzle: On/off up to 60 H.P. Modulating 80 H.P. and up.
Gas Shutoff Valve: Motorized type provides automatic shut off of gas to main burner.
Gas Flow Regulating Valve: On modulated units only 80 H.P. and up (see modulation under controls).
Gas Cock. Plug type.

#4 OIL:
API 24-26 40 H.P. and up.
Pilot: Gas pilot. Refer to ignition system.
Oil Atomizing Nozzle: Up to 60 H.P. — On/off operation. 80 H.P. and up modulating.
Fuel Oil Pump: Similar to heavy oil pump (see above).
Electric Preheater: Thermostatically controlled. Assures constant flow and proper temperature of fuel to burner nozzle.
Oil Solenoid Valve: For automatic shutoff of oil to burner.

HEAVY OIL:
Fuel Oil 8-23 API 80 H.P. and up.
Pilot: Gas pilot refer to ignition system.
Oil Atomizing Nozzle: Variable capacity type all units modulated.
Fuel Oil Pump: Complete assembly includes motor driven gear type pump, pressure and vacuum gauges, relief valve, strainer(s), motor, and starter. Also included is pump selector switch for manual—off—automatic operation.
Oil Preheaters: Electric and steam or hot water—thermostatically controlled. Installed on boiler.
Oil Temperature Switch: Allows oil to be re-circulated through by-pass solenoid valve so as to maintain proper oil temperature.
Oil Safety Switch: May be set for minimum oil-temperature. Automatically closes fuel valves and shuts down burner whenever oil temperature drops below fixed setting.
Oil Solenoid Valve: For automatic shutoff of oil to burner.

COMBINATION OIL AND GAS:
All equipment listed for oil and gas burner except as follows: up to 60 H.P. on/off operation. 80 H.P. and up modulated operation. Flip switch changeover to 600 H.P.

GENERAL INFORMATION

INSPECTION:
All Cyclotherm units are built to conform with ASME code specifications. Various State and City boiler codes and regulations, as well as Federal regulatory statutes, are complied with. All units are stamped with a National Board number; all oil or combination units are listed by the Underwriters' Laboratories, Inc., and carry Class B label. Manufacturers' Data Reports on ASME forms are filed with proper authorities as required.
Elevation: Cyclotherm Generators are designed to produce full capacity up to 3000 feet elevation.
Guarantee Operating Efficiency: The standard Cyclotherm models have been fire-tested and certified for performance, capacity and efficiency in accordance with those agencies establishing the highest industry standards. All units are pre-tested prior to shipment.
Cyclotherm Package Steam and Hot Water Boilers are guaranteed to operate at a minimum of 80% thermal efficiency. Average units in the field today, operating on oil are at 83% plus efficiency.
Painting: Cyclotherm Steam Generators are finished with Metallic heat-and-rust resistant paint.

OPTIONAL EQUIPMENT:
Surface blowdown valves.
Stack thermometer.
Bottom blowdown valve and piping.
Gas pressure regulator (main)
Steam outlet valve.
Auxiliary hot water heaters.
Electronic circuit monitor—lights and alarm
Flue gas monitor—in control panel
Lead-lag systems
Feedwater pump sets
30 additional optional features available

SPECIAL CONDITIONS:
Specifications are descriptive and not a representation. Equipment described or the equivalent will be furnished. CYCLOTHERM DIVISION, Oswego Package Boiler Co., Inc. reserves the right to alter, without notice, dimensions, designs and components of CYCLOTHERM units.

ORDERING:
Please be sure to specify all this information:

1. Size and type.
2. Design pressure.
3. Pressure control setting—STEAM.
   Aquastat setting—GPM.
   Temperature differential.
4. Safety valve setting.
5. Elevation.
6. Voltage.
7. Type and grade of fuel.
8. B.T.U. value of fuel, gas or oil available; gas pressure if used.
9. Type of inspection other than ASME or Nat'l. Board.
10. Special features or equipment.