



The Carnot Group

ABN 91 090 511 103

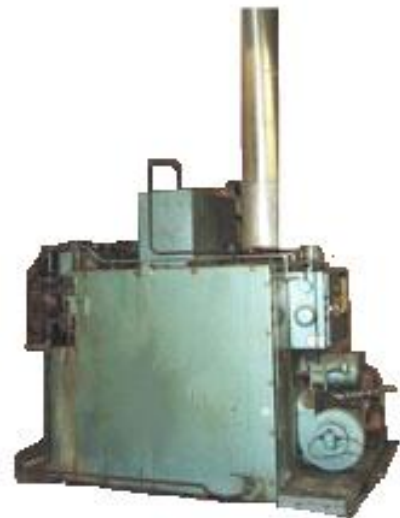
Engineering Solutions

TCG Boiler Hire

Whatever your steam needs we deliver



Electric Boilers



Diesel Boilers



LPG Boilers

Boiler Hire

TCG provides a steam boiler rental service for planned or emergency steam production. Our boilers range in capacity from 30kW to 3000 kW. All the boilers are rated to a capacity of 10 bar. TCG utilise a range of modern boiler designs in the fleet. The boilers are well maintained and each is independently assessed on an annual basis. Inspection certificates will be supplied on request.



Why Hire?

Often, there is a need for a temporary steam boiler or hot water heating boiler plant to replace or augment a permanent system for one of the following reasons:

- Unplanned outages for emergency repair.
- Planned outages for repair, maintenance or upgrades.
- Increased capacity requirements to handle peak loads.
- Testing of a new process or production run.
- Research and development projects.
- Delays in bringing new systems on line.

The benefits of hiring or leasing

- Lower equipment and ownership costs.
- Flexibility in directing capital resources
- Hire expenses may be tax deductible

Our Range

Our boilers come in a range of sizes up to 3000 kW. Boilers larger than 500 kW are diesel fired or gas fired.

Table 1 TCG Boiler Sizes

	Capacity (kW)				
Fuel	30	60	120	160	500 -3000
Electric					
LPG					
Diesel					

Selecting the boiler that's right for you

Information to assist you in selecting the boiler capacity to meet your needs is outlined below. Our qualified staff are happy to provide assistance should you need it.

Size

To calculate the size of the boiler required for the task use the following formula

$$P = \dot{m} \times c_p \times (T_o - T_i)$$

where

P is the boiler power in kW

m is the mass flow rate of the liquid to be heated in kg/s

c_p is the specific heat of the fluid in kJ/kg.K. The specific heat of water is 4.2kJ/kg.K

T_o is the required temperature in °C

T_i is the inlet or starting temperature in °C

Hot Water Production

Our range of steam boilers can provide hot water production through the simple addition of a TCG supplied heat exchanger and pump kit. This is supplied at no extra charge and easily mounts alongside the boiler.

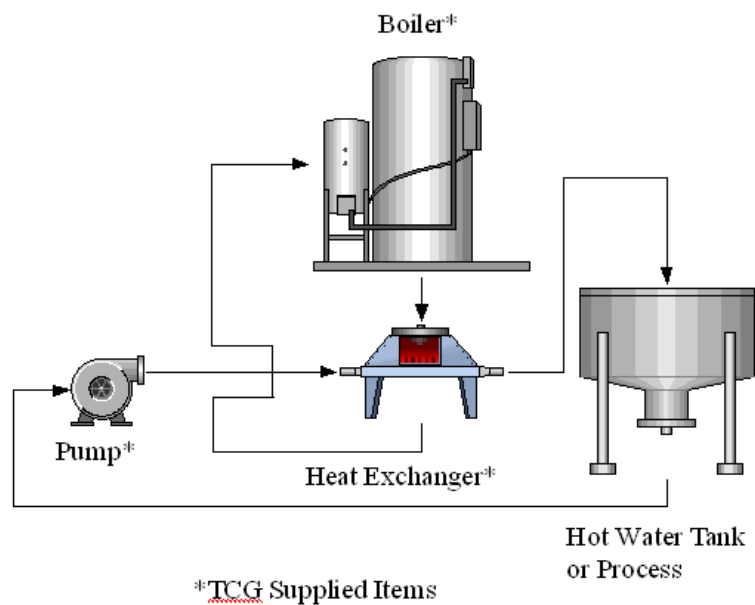


Figure 1 Typical system for hot water provision

Fuel Type

Electric

Electric boilers have no by-products of combustion associated with fossil fuels and are therefore ideally suited for operation in enclosed spaces. Electric steam boiler hire systems are ideal for the industrial or commercial user that have a small steam requirement and are looking for a rental solution to meet the company's steam process needs. The electric boilers require 3 phase power and this will need to be connected to the site supply by a qualified electrician. An alternative arrangement is to provide auxiliary power from a portable diesel generator.

LPG

Liquefied Petroleum Gas (LPG) is a very clean burning fuel that results in much less maintenance than oil burners or diesel burners. In all states of Australia the connection of LPG for industrial use is regulated. Application for connection of the boiler to the supply will be made by TCG on your behalf but this process does take time. The generally lower operating cost and lower maintenance of LPG fired boilers make them ideal for longer installation periods of more than a week. LPG supply can be organised by TCG if required.

Diesel

Diesel fired boilers offer the convenience of immediate steam. The boilers are supplied with bunded fuel tanks. Diesel supply can be organised by TCG if required.

Boiler Fuel Cost & Consumption Comparison

The following table lists typical fuel consumption and costs for each of the boilers assuming maximum operating conditions.

Table 2 Maximum Hourly Fuel Consumption Costs (\$/hr)

Fuel	Price	MJ/L	efficiency	Boiler Size (kW)									
				30		60		120		160		500	
				litre/hr	\$/hr	litre/hr	\$/hr	litre/hr	\$/hr	litre/hr	\$/hr	litre/hr	\$/hr
Electricity	15 ¢/kw.hr	-	95%	-	\$4		\$8		\$15		\$20		\$63
LPG	60 ¢/litre	25.4	80%	5	\$3	11	\$6	21	\$13	28	\$17	89	\$53
Diesel	100 ¢/litre	38.6	80%	3	\$3	7	\$7	14	\$14	19	\$19	58	\$58

Installation

The boilers are usually trucked to site and then craned into position. The following is the responsibility of the hirer:

- Connection of potable water supply capable of the minimum flow rate shown below where no condensate return exists
- Connection of electricity
- Connection of steam lines

Table 3 Installation Details

Size (kW)	Length x Width x Height (mm)	Weight (kg)	Minimum Feed Water Supply (litres/min)
30, 60, 120	1500 x 1000 x 1800	400	4
160	3700 x 1710 x 4210 (inc removable stack)	2000	5
500	2650 x 2133 x 5000 (inc removable stack)	4250	13

Operation & Training

Our boilers are fully compliant with AS2593 and are classified as unattended. TCG staff will provide appropriate training in the use of the boiler during the commissioning process. All boilers are supplied with the following:

- Automatic dosing pumps and water treatment chemicals
- Comprehensive manual with hazard ID
- Wiring schematics

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