

These appliances comply with the requirements of SANS 1539.  
LPGSASA Permit number: 1051-213-1-RSA-17-A



## User instructions for Totalai 6,10,12,16 and 20 litre Type D water heaters

Read these instructions carefully before installing and using  
the appliance, and retain them for future reference



**FOR OUTDOOR INSTALLATION ONLY**

## 1. Introduction

Thank you for purchasing your new Totai Gas Instantaneous Water Heater manufactured to the highest standards and fully tested in South Africa to ensure compliance with the South African Standard. This appliance is designed to give the user years of trouble free and efficient service. Please read the following instructions carefully . It is important to note that this appliance must be installed by a registered LP gas installer as indicated below. The manufacturer and /or its agents and distributors will not be held responsible for injuries or damages caused by faulty or incorrect installation or use of the appliance.

## 2. Technical data

Model Type	Type D all models				
Model number	13/GWH6LCB	13/GWH10LCB	13/GWH12LCB	13/GWH16LCB	13/GWH20LCB
Gas Type	LPG all models				
Operating pressure	2,8 kPa all models				
Heat input	43,2 MJ/h	72 MJ/h	86,4 MJ/h	115 MJ/h	144 MJ/h
Gas consumption	0,92 gk/h	1,53 kg/h	1,84 kg/h	2,44 kg/h	3,06 kg/h
Heater capacity	6 litres/min	10 litres/min	12 litres/min	16 litres/min	20 litres /min
Gas supply hose	8 mm LPG hose all models				
Gas connection	G 1/2" thread all models				
Water pressure range	0.015 - 0.080 Mpa all models				

### Important information for the user

Read these instructions carefully before using the appliance and retain them for future reference. This appliance consumes oxygen when in use and it is important that it is only used in a well ventilated area for the efficient performance of the appliance and for the safety of the occupants of the area. **Note that this water heater may only be installed outdoors.**

**This appliance may only be installed by a registered LP Gas installer.** All registered installers are issued with a card carrying their registration number. Ask to be shown the card before allowing the installation work to commence and make a note of the Installer registration number. Upon completion of the installation, the installer is required to explain the operational details of the appliance together with the safety instructions. You will be asked to sign acceptance of the installation and be provided with a completion certificate. You should only sign for acceptance of the installation when the installation is completed to your satisfaction.

Note that your invoice is required in the event that you wish to make a guarantee claim.

### Important information for the installer.

This appliance may only be installed by a LP Gas installer registered by SAQCC Gas, the government appointed registering body for all gas installers. The appliance must be installed in accordance with the requirements of SANS 10087-1 and any fire department regulations and/or local bylaws applicable to the area. If in doubt, check with the relevant authority before undertaking the installation. Upon completion of the installation you are required to fully explain and demonstrate to the user the operational details and safety practices applicable to the appliance and the installation.

The appliance has been designed specifically for use with LPG and may not be used with Towns Gas or Natural Gas. Read these instructions carefully before commencing the installation. **Note that this appliance is designed for use with a flue and may not be used if a flue is not fitted in accordance with these installation instructions. Note that this water heater may only be installed outdoors.**

For detailed installation instructions refer to section 6 of this manual.

## Notes

## Fault Finding Chart

Cause		Malfunction	A	B	C	D	E	F	G	H	I	J		
Improper Operation	Gas supply valve is closed												Open gas supply valve	
	Water Supply valve is closed		•										Open water supply valve	
	Incorrect regulation method of water temperature					•							Increase gas volume and reduce water volume	
							•						Increase water volume and reduce gas volume	
	Electrical cut out switch has not been reset		•											Reset electrical cut out switch
Incorrect setting of water switch		•											Turn water control knob to hot	
Surroundings	Residual air in gas supply pipe		•	•									Repeat start up procedure until the gas comes through.	
	Inadequate fresh air supply to burners				•									Improve ventilation and air supply
	Gas Pressure	Too high	•	•		•		•						Ensure gas supply is at 2,8 kPa
		Too low			•	•					•			Ensure gas supply is at 2,8 kPa
	Water Pressure	Too high				•								Reduce water supply pressure
		Too low	•	•		•					•	•		Increase water supply pressure
	Inadequate gas supply	Gas valve is half open					•							Open gas valve fully
		Gas pipe is too long					•							Reduce length of gas supply pipe
		Diameter of joints in gas pipe too small					•							Increase diameter of joints in gas pipe
		incorrect choice of pressure relief valve					•							Models greater than 8 l/min require a PRV of 1,2m <sup>3</sup> /h
	Simultaneous gas consumption by several appliances					•								Reduce the number of appliance using the gas at the same time as the water heater
	Blockage in water supply pipe		•				•							Check for blocked water filter and clean if required
	Blockage in water pipe downstream of water heater .e.g shower		•				•							Check for blockages in pipe or shower
Blockage in flue vent pipe								•					Ensure flue pipe is clear of obstruction e.g birds nest	
Inadequate battery voltage		•	•	•									Replace the batteries	
Water supply temperatures too low					•								Reduce water volume	
Safety Protection	Earth Leakage switch trips		•	•									Call Service Technician	
	Overheat sensor shuts down water heater				•									
	20 min timeout kick in and shuts down water heater				•									
Other Causes												•	Call Service Technician	

### 3. Safety Information

- **The Total Gas Instantaneous Water heater must be securely affixed to a solid external non combustible wall only.**
- For the 6 litre and 10 litre models the gas supply will require at least 1 x19 kg LPG cylinder for efficient performance. It is however preferable if extended usage is required to install 1 x 48 LPG cylinder. For the 12 litre, 16 litre and 20 litre models the gas supply will require at least 1 x 48 kg LPG cylinder for efficient performance. For colder climates it is preferable to use 2x 48 kg cylinders both connected at the same time.
- Do not use this appliance if it is leaking gas (see notes below on how to check for a gas leak).
- Keep young children away from the appliance when in use.
- In the event of a burnback, where the flame burns back to the jets, immediately turn off the gas supply at the isolation valve on the gas line. After ensuring the flame is extinguished, re-light the appliance in the normal manner. Should the appliance again burn back, close the isolation valve and call a service technician to examine the appliance. Do not use the appliance again until the service technician has declared that it is safe to do so.
- If there is an apparent gas leak, (smell of gas) close the isolation valve on the appliance. Make sure that there are no naked flames within 5 metres of the appliance and check for leaks as described below.
- Never check for gas leaks with a naked flame as this is extremely dangerous.
- To check for a gas leak, use a brush dipped in a soapy water solution (e.g. water with dishwashing liquid added) and apply the solution to all the joints in the system. If there is a leak then turn off the gas supply at the isolation valve which the installer will provide as a part of the installation. Call a service technician to examine the appliance and do not use the appliance until the service technician has declared that it is safe to do so.
- Should you suspect a leak at the cylinder connections then apply the soapy water solution to the visible joints such as where the regulator fits into the cylinder or where the regulator fits into the flexible hose, or the joints on the manifold, if fitted. If there is a leak, then a bubble or bubbles will form. If you are unable to stop a leak at this point then turn off the cylinder valve or valves and call a service technician to correct the fault. As with leaks inside the premises do not use the appliance until the service technician has declared that it is safe to do so.
- Ensure that the appliance is used away from flammable materials.
- Do not remove the model rating plate that is attached to your appliance. This contains important information in addition to the serial number of the unit which the manufacturer will require should you need to make a service call.
- Only use this appliance outdoors in a well ventilated area for the efficient operation of the appliance and the safety of the occupants of the area in which it is used.

### 4. Lighting and operating the appliance

- If at any time during the igniting process, or during use, you smell gas, immediately turn off the gas supply to the appliance at both the gas flow knob and the gas system shut off or isolation valve, and do not use the appliance until it has been checked for gas leaks as described above in section 3 above. It is preferable that this be done by a qualified gas service technician.
- This appliance is fitted with a battery powered electronic ignition device for lighting the burners. Two 1,5 v batteries are required - Type D (R 20 ).
- To light the burners for the first time, ensure the ignition batteries are in place, and that the On/Off switch on the bottom of the water heater is in the On position (see Fig 6). Set the gas flow control on the front panel to the medium position. Turn on the water flow control valve. (See Fig 6).
- Now open the hot water tap on of one of the installed water withdrawal points. This will automatically ignite the burners. Use the burner viewing window to check that the burners are alight. (see Fig 1)
- Once the burners are lit and hot water is flowing, adjust the rotary gas control to achieve the required water temperature. (See Fig. 4). By experiment, and by adjusting the settings on the gas control, users will soon establish the optimum settings. Use the temperature display on the front of the water heater to see the effect of adjustments made to the gas control setting.

- When the hot water is turned off inside the house the burners will shut down. Opening a hot water tap again will automatically ignite the burners without any need to access the settings on the water heater.
- Once initially set, the only time the user will need to adjust anything on the water heater is if the gas control valve is set too high or to low.
- Be aware that where the temperature of the cold water is very low, e.g. in winter conditions, then an increased gas flow setting will be required to achieve the desired hot water temperature.

## 5. Turning off the appliance

- To turn off the appliance simply turn off the water flow control valve and this will automatically shut down the burners.
- It is important to note that when shutting down the water heater, if for just a short period, the water in the heater will still be hot. Take care when restarting the water heater to avoid the possibility of scalding due to the retained heat in the water that is still in the water heater.
- When shutting down the appliance for more than a short time, always turn off the water and the gas supply.
- **Important note:** As this heater is only to be installed outside, it is important in very cold conditions to first shut off the gas supply and then the water to allow the water to run out of the heater. Failure to do this could cause the water inside the heater to freeze up which may result in damage to the heater. To ensure that there is no water left in the heater open the excess water drain valve at the bottom of the heater and drain off the water. (see Fig 6). Don't forget to close the drain valve after the water has stopped draining from the water heater.

## 6. Installation

### 6.1 Introduction

- Failure to follow these instructions may result in damage or injury, malfunction of appliance or loss of warranty.
- If you are not a qualified installer, please contact a local licensed plumber for the water connections and a registered gas installer for the gas supply, piping and connections.
- Best installation practice is to determine the flue system layout and wall penetration required, before deciding where to place the heater. Only when you are sure that the flue layout will comply with the information in section 6.5 should the heater be mounted onto the wall.
- For your safety and efficient water heater operation, proper airflow to the heater must be provided.
- Locate the heater where flue layout, gas and plumbing pipework and connections are feasible. If possible locate the water heater in a such a way that the hot water pipes are kept as short as possible. This will avoid excessive heat loss, especially during cold weather and for the same reasons, it is always best practice to have the hot water pipes insulated.
- The water heater must be mounted outside on an external wall constructed from non-combustible material.
- The required water supply to this water heater is cold water. The water in the water heater will remain cold except for the times that hot water is being used.

### 6.2 Mounting the Water Heater

- Before mounting the water heater check that the selected position will provide the minimum clearances at each side and on the top of the heater as shown in Fig.2 . This will ensure that sufficient space is available when servicing the heater.
- The mounted position of the water heater should be such that the viewing window is between 1,4m & 1,6 m from the floor level. This will make it easy for users to check that the burners are alight. (See Fig. 3 )
- The water heater should be not closer than 500 mm to any flammable materials, or electrical plug points or appliances.
- Remove the cover and inspect the appliance to identify the mounting holes and visually inspect the components. Ensure that the flue terminal is clear.



View from rear of the 6 litre, 12 litre, 16 litre and 20 litre models showing the three keyhole shaped mounting holes at the top of the mounting panel, and the two horizontal slots at



View from rear of the 10 litre model showing the single keyhole shaped mounting hole at the top of the mounting panel, and the two horizontal slots at the bottom.

**Important note for all sizes.**  
When selecting the securing screws make sure that the screw heads are of sufficient diameter not to pass through the holes or the slots to avoid the risk of the water heater becoming detached from the wall

Fig. 8

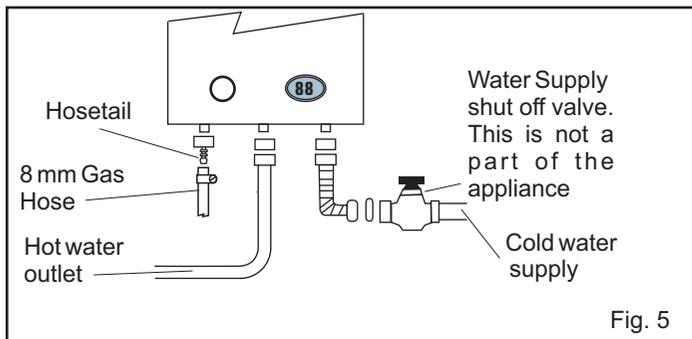


Fig. 5

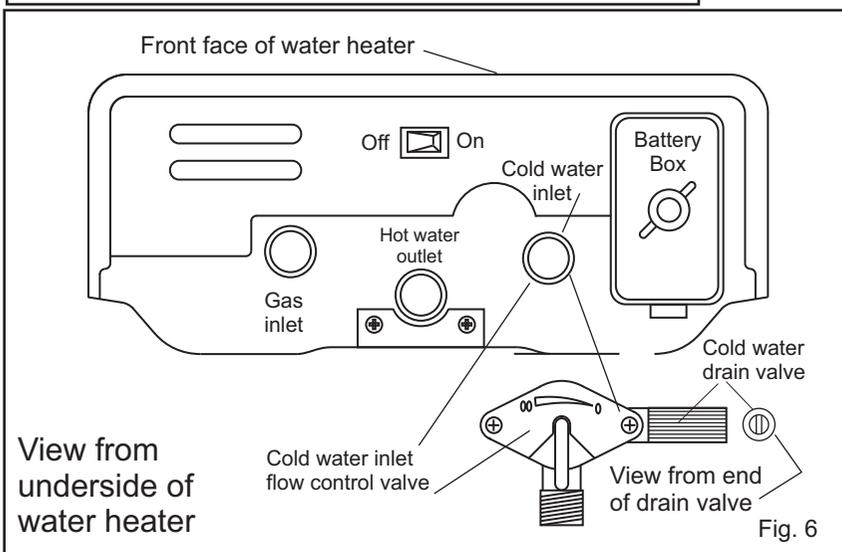


Fig. 6

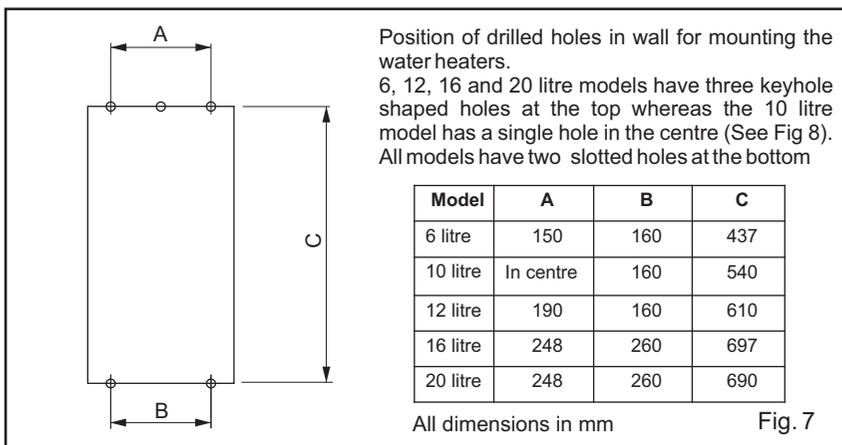


Fig. 7

- The Totai water heater is designed for mounting permanently on an outside wall. (See Fig. 3) for the best height from the floor)
- Mount the heater to the wall use appropriate wall anchors. See Fig.7 for anchor point hole centres. Note also the details of the mounting holes on the back of the heater. See Fig.8.
- A simple way to ensure correct alignment of the water heater is to:
  - Draw a horizontal pencil line on the wall for the top mounting holes(s).
  - Drill the hole(s) and fit the wall anchor(s) and suitable screw(s).
  - Offer the water heater up to the top screw(s) and hook the water heater over the screw(s) See Fig 8.
  - Check that the water heater position is suitable to make it easy to see the burner flame one lit and if this is a suitable height then with the water heater still in position, mark out the screw hole positions for the two bottom mounting holes.
  - Remove the water heater, drill the bottom holes and fit the wall anchors.
  - Place the water heater back in position, fit and tighten the mounting screws.

### 6.3 Gas supply, piping and connections

- Before connecting the gas supply, check the rating plate on the side of the heater to be sure the heater is rated for the same gas type to which the appliance is connected.
- **Note:** The Totai Gas water heater is not supplied with a regulator. Only a regulator that complies with SANS 1237 may be used in the installation.
- Only use a wall mounted LPG regulator that is rated to supply not less than 3 kg of gas per hour.
- **A normal 1 kg bullnose regulator will not be capable of providing sufficient gas and will starve the appliance resulting in poor performance.**
- Follow the guidelines in SANS 10087-1 to ensure that the gas pipe diameter is sufficient to give the required operating pressure at the appliance. Failure to observe this requirement may lead to poor appliance performance. The required gas pipe diameter will be dependant on the distance of the water heater from the cylinder(s).
- It is a requirement that a gas isolation valve be installed in the gas line close to the appliance in order to isolate the appliance from the gas supply in emergency situations or to facilitate maintenance on the appliance.
- For details of the gas connection points to the appliance, refer to Figs 5 & 6. Note that the gas supply must be connected to the left hand connection point on the bottom of the heater.
- Whilst it is allowable to connect the gas supply to the water heater using flexible gas hose, best practice is to use a copper pipe connected to the water heater with a suitable screwed gas fitting.

### 6.4 Water Supply and connections

- The water supply to the water heater should be clean and free of anything that could block the water passages in the heat exchanger. If in any doubt a water filter should be fitted in the supply line.
- A water isolation valve must be installed in the water supply line to enable the water heater to be isolated from the water supply in the event that the water heater needs to be removed for servicing.
- The water supply to the water heater is connected with a G 1/2" threaded connector.
- **Note:** The water heater needs a water supply pressure of between 15kPa & 80 kPa. The higher figure is typical of most municipal mains water supply. The lower figure accommodates installations where the water supply is from a gravity fed storage water tank not connected to a mains supply.

### 6.5 Flue: Materials and layout

- **The following information is critical to effective venting of the products of combustion to the outside. Failure to take note of this information may lead to the appliance not functioning correctly, and may also create an unsafe situation.**

- It is important that the flue exhausts to atmosphere above the roof level of the building in accordance with Figs. 2 & 3.
- Use only approved flue cowl or cap.
- Do not reduce the flue diameter. Measure the diameter of the flue connection outlet on the top of the water heater to establish the required flue pipe diameter.
- Do not connect the flue pipe to a flue pipe that is also connected to any other flued appliance.
- The flue exhaust outlet must be horizontal if no cowl is fitted in order to prevent the ingress of rainwater. The flue pipe exhaust must be above the roof level of the building to assist in the flow of flue gases. This will reduce the effect of high winds on the heater performance and prevent rain from entering the flue system. (see Figs. 2 & 3)
- Failure to meet the above requirements may result in damage to the appliance and which is not covered under the manufacturer's warranty.
- **Caution:** DK Gas Appliances (Pty) Ltd will not be responsible for incorrect installation of this appliances, and/or if a qualified installer does not install a vent system in accordance to this manual. This Installation Manual specifies the minimum vertical vent pipe length of 1,5 m.

### 7. Maintenance and Servicing

- There are no preset service intervals for this appliance, however it is recommended that the appliance be checked by a qualified service technician on an annual basis.
- Servicing of the appliance may not be carried out by unqualified persons. This may result in the creation of unsafe operating conditions.
- Do not modify the appliance in any way as to do so may make it unsafe.

### 8. Spares

- Use only spares supplied by the official distributor. The use of spares from other sources may result in unsafe operating conditions and will invalidate the supplier's warranty.

