

TOYOTOMI

Laser 73

9.5 kW Diesel Heater



- ◉ A Huge 9.5kW of Heat
- ◉ As Easy to use as a Light Switch
- ◉ Ultra Quiet
- ◉ Energy Efficient (92% Certified)
- ◉ No tall flue
- ◉ D.I.Y or Trade Install



www.avonheating.co.nz

0800 379 247

This is heating convenience at its very best !

A massive 9.5kW heat output (more than 2 Heat Pumps on a frosty morning)



- **Quieter than the quietest heat pump**
- **Just press a button - the rest is Automatic**
- **So clean and easy to use you wouldn't even know it's a diesel heater**
- **Burns ordinary Automotive diesel fuel**
- **Costs up to 50% less than Electric or Gas Heating to operate**
- **NO Diesel smell in the home EVER !**
- **No tall flue. Flue passes through outside wall, installs in minutes**
- **No hearth or fire surround required**
- **Installs on an outside wall**

The **Laser 73** is **\$3,890.00 including GST**. (Freight additional). Price includes installation accessories, i.e. a “through the wall” flue, a “GARBER” fuel filter and external fire safety valve... everything to “make it go” ... except the fuel tank and the 7.5mm (5/16”) diameter copper pipe which connects the tank to the heater.

*All prices quoted **include** 15.00% GST. Prices and GST are subject to change without notice.*



The **Laser 73** is approved by The EPA, (the Environmental Protection Authority a NZ Govt Dept), for installation anywhere in NZ. However, your local authority requires the installation of any combustion burner, i.e. gas, pellet, log fire or diesel burner, to be issued with Installation Consent. You have to pay the Local Authority their fee when you lodge the Consent Application, (each Council has different fees), and then the heater can be installed. In the Environment Canterbury district, the **Laser 73** is not only CLEAN HEAT APPROVED, but is the most efficient combustion heater in ECAN’s list of approved combustion heaters. Visit www.ecan.govt.nz.

After installation, your Local Authority Inspector will inspect the **Laser 73** installation and issue the Consent Certificate. If preparation of the Consent Application presents any difficulty, please call (0800-379-247) and Avon will assist or arrange preparation on your behalf.

INSTALLATION -- The **Laser 73** installs on an outside wall. No hearth or fire surround is necessary. A 3-pin plug (socket, 80 watts) is required. Flue extensions make Building Code compliance difficult to achieve, but any extensions up to 3m are possible.

The “balanced flue” passes through a 72mm hole through any outside wall. A balanced flue supplies the heater with combustion air from outdoors and takes the products of combustion (Diesel exhaust odours) outside. The unique design of the fully sealed heater combustion system ensures that there can **NEVER** be any diesel smells inside the home.

Because each installation is different, a site visit by an Avon Dealer is preferable, or for remote areas it is important to either e-mail or post photos. (Email to info@avonelectric.co.nz or mail to P.O. Box 19748, Woolston, Christchurch 8241).

It is best for photos to show the inside and outside the home, where the heater is to be located, and the outdoor area where the tank is to be located.

This will assist in providing all details re: your installation requirements.

Installation is relatively simple and does not require a specialist installer (as necessary for a heat pump), so we can easily arrange installation anywhere in NZ. Clients with basic DIY skills can install the **Laser 73** themselves (or we will arrange a local installer). Then, having seen the site or site photos, we advise what is required in regards to installation compliance. We provide detailed installation instructions, with photos and an installation plan. We can supply custom made tank mounting brackets and can lend the special pipe flare tools for the pipe connections.

FUEL TANK -- An external Fuel Tank is required. Numerous types and sizes are available. Avon offers a small 84-litre Toyotomi made Stainless Steel tank (\$795.00 incl. GST with fuel outlet and drain valves). Some Councils approve the use of a second hand fuel tank -- (try Trade Me!).

In some cities, Fuel Delivery Companies (who charge 5 to 15 cents below “pump prices”) will not deliver less than 200 litres, but the 84-litre Toyotomi tank is suitable if you arrange to fill the tank yourself. The Laser’s high efficiency and low fuel consumption makes providing your own diesel fuel, (a 20-litre plastic container is quite convenient), an attractive option for many homeowners, particularly Farmers and Contractors who use diesel elsewhere.

FUEL TANK INSTALLATION -- The **Laser 73** is supplied with a high quality fuel filter (for the tank) and a remote spring lever operated fire valve.

- a) The fuel tank must be installed "outside".
- b) The Tank "Vent" & Filler must be not less than 1 metre (39 inches) clear of any opening into the home. ("Opening" includes a fixed pane window)
- c) The tank must be secured in compliance with the Seismic Restraint Regulations to the foundations, an outside concrete path, or a dedicated concrete slab. (Avon can advise).
- d) The tank can be up to 100m from the heater, but may require an additional fire valve i.e. if the distance between tank and heater is extreme -- call Avon and outline your site.

One tank can supply several **Laser 73** heaters. I.e. Churches, halls, showrooms, offices and classrooms

Fuel flows to the **Laser 73** by gravity, thus... either the bottom of the fuel tank must be 400mm (16in) higher than the floor that the heater is installed upon (for a suitable gravity flow), OR a "fuel lifter" pump is required. The fuel lifter pump can "lift" fuel from a fuel tank that is as much as 8m (25 feet) below the floor on which the Laser is installed. The "fuel lifter" pump is \$900.00. It installs outside (is weatherproof) near the Laser and is fully automatic (approx. 220mm x 280mm x 150mm).

Securing the tank in compliance with seismic regulations may require a concrete base. If a concrete base or foundation mounting is required for the tank and you can arrange, then the complete Heater installation (in a typical site, within 15m of the heater) normally takes not more than one day. If you are a competent handy-person and can complete other parts of the installation to our directions, then more savings are possible. (Our Helpline advice is free)

ECONOMY -- Diesel has always been extremely energy efficient and cost effective. **To compare the operating cost of the **Laser 73** with electric heating**, apply the following formula...

A) Note the total cost of your power account, including GST. To identify the actual cost of electricity per Kilowatt-Hour (kW/Hr), **B)** Subtract the "daily charge" and **C)** divide that figure by the number of "units" used. Most Electricity suppliers charge between 20 to 35 cents per kW/hr.

Multiply your buying price of diesel per litre, by 1.08 (which is the maximum consumption of the **Laser 73** per hour on Hi-Fire). Divide the answer by 9.5 (max heat output of the Laser on "high fire"). Answer is the diesel equivalent cost of one "unit" of electricity when the Laser is on Hi-Fire.

To compare with electricity: - as at 19-1-16 in most of NZ, Diesel retails at \$0.93 per litre..... i.e. 93 (cents) x 1.08 (litres / hr on Hi-fire) divide by 9.5 (kW output) = 10.47 cents per Kilowatt-hour. Note: the Laser automatically "switches down" from Hi, 9.5kW to 6.6kW to 3.3kW, as the heated space "warms up". Because it is so powerful and efficient, it is unusual for the Laser to operate continuously on High for extended periods.

For most of NZ, (Hamilton and South), on the coldest winters days, the heat output of one Laser 73, is approximately equivalent to 2 x average heat pumps, i.e.... 9.5kW into the home continuously (compare costs!).

Avon Electric Ltd is a private company first established in 1939. We specialise in all types of Heating, Ventilation, Dehumidification etc. and market throughout NZ, Australia & the Pacific Islands. More at www.avonelectric.co.nz, www.cleanaire.co.nz and www.avonheating.co.nz

Our reputation for quality products and back up service is respected NZ wide. The **Laser 73** is a truly remarkable heater. Unless one knew that the Laser is a diesel heater, one would not readily identify or believe that the **Laser 73** is diesel fired, however, its appearance and finish is instantly recognisable as Japanese quality. Inside, its simple, but extremely clever technology, combined with performance unmatched by any other similar diesel heater, makes the **Laser 73** a product that is genuinely under rated. The **Laser 73** is sold with a three-year parts, labour, mileage warranty, with a further 2 years parts warranty on the Stainless Steel combustion chamber.

Your questions are welcome - please call 0800-379-247.

WARRANTY

PART 1) --- 2 YEARS FREE SERVICE

Avon (AVON Heating & Energy Ltd) warrants each Toyotomi Heater & all specific Toyotomi parts & accessories thereof, to be free from defects in materials or workmanship, in normal residential or light commercial service for 24 months from the date of delivery to the original retail purchaser, subject to the following terms & conditions:

This warranty does not extend to any defect or failure caused by others, ie.... Unreasonable use or abuse, failure to properly install, operate, or maintain the heater, its accessories, safety controls, fuel supply quality, or damage by power supply variations, in accordance with the Installation & Operating Instructions supplied with the Heater. This warranty does not extend to burner mats, gaskets, fuel filters, & other 'consumable accessories'.

PART 2) -- 5 YEAR LIMITED WARRANTY

After the expiry of the above 2 year warranty, and including the 'terms & conditions' in Part 2, Avon warrants the following components for a further 3 years ...

The stainless steel pressed & tubular sheet metal components comprising the Combustion Chamber, the Heat Exchanger and the Balanced Flue Assembly.

WHAT WE WILL DO

For items in Part 1) :- Avon will repair or replace at its discretion and meet reasonable costs of travel and the ordinary time of an Avon approved technician to return the heater to operation, when all faulty materials or parts claimed / replaced are returned to Avon intact within 20 days of the repair.

For Items in Part 2) :- Avon will repair or replace at its description any defective part as detailed in Part 2, delivered to your nearest Toyotomi Dealer or Service Company.

WHAT YOU MUST DO WHEN MAKING A WARRANTY CLAIM ...

Contact your supplier, or call our AVON (0800-379-247), quote the model and serial number of the Heater, and provide proof of the original date of purchase, and that you are the original retail customer. (see retail invoice, installation certificate etc.) Ensure that the defective part is well packaged, and returned, intact, via ordinary transport, to Avon. We will reimburse returned parts costs, on presentation of the transport receipt if the part is faulty.

WARRANTY EXCLUSIONS

In addition to the 'terms & conditions' detailed in Part 1, the foregoing expresses all other of Avon's obligations & liabilities with respect to the quality of the Toyotomi Heater and Toyotomi Accessories. All other warranties, loss of use, or any consequential losses whatsoever, that may be subject to any claim, are limited to the value (as on Avon's original invoice \$ value) of the Toyotomi Heater (Serial number), or Toyotomi accessory.

Any warranty or any other claim, must be received in writing by Avon Heating & Energy Ltd within one calendar month of the event to which the claim relates.

No one, other than by written authority of Avon Heating & Energy Ltd has authority to extend or alter the terms & conditions of this Limited Warranty in any way whatsoever

AVON Heating & Energy Ltd

P.O. Box 19748 or 25 Taurus Place, Christchurch

Freephone: 0800-379-247

Fx: 03-381-5596

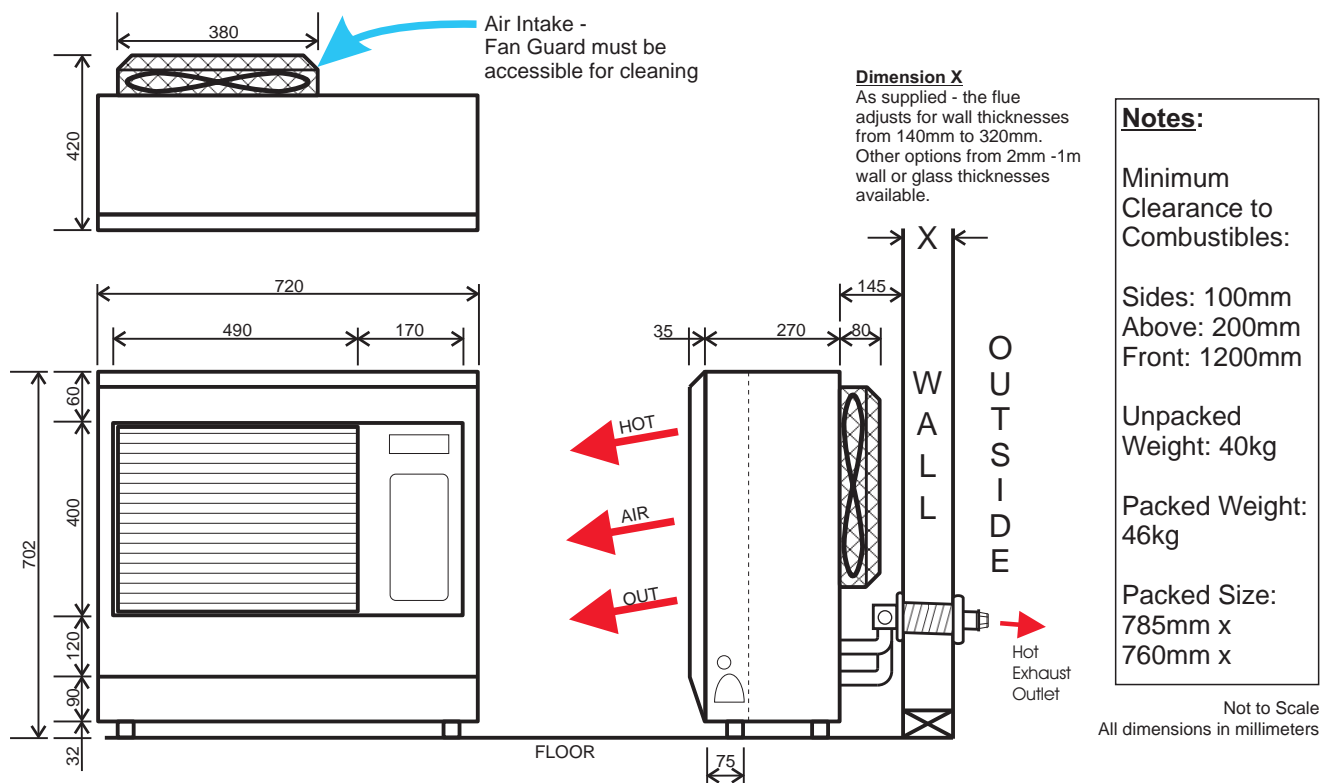
www.avonheating.co.nz

Email: info@avonheating.co.nz

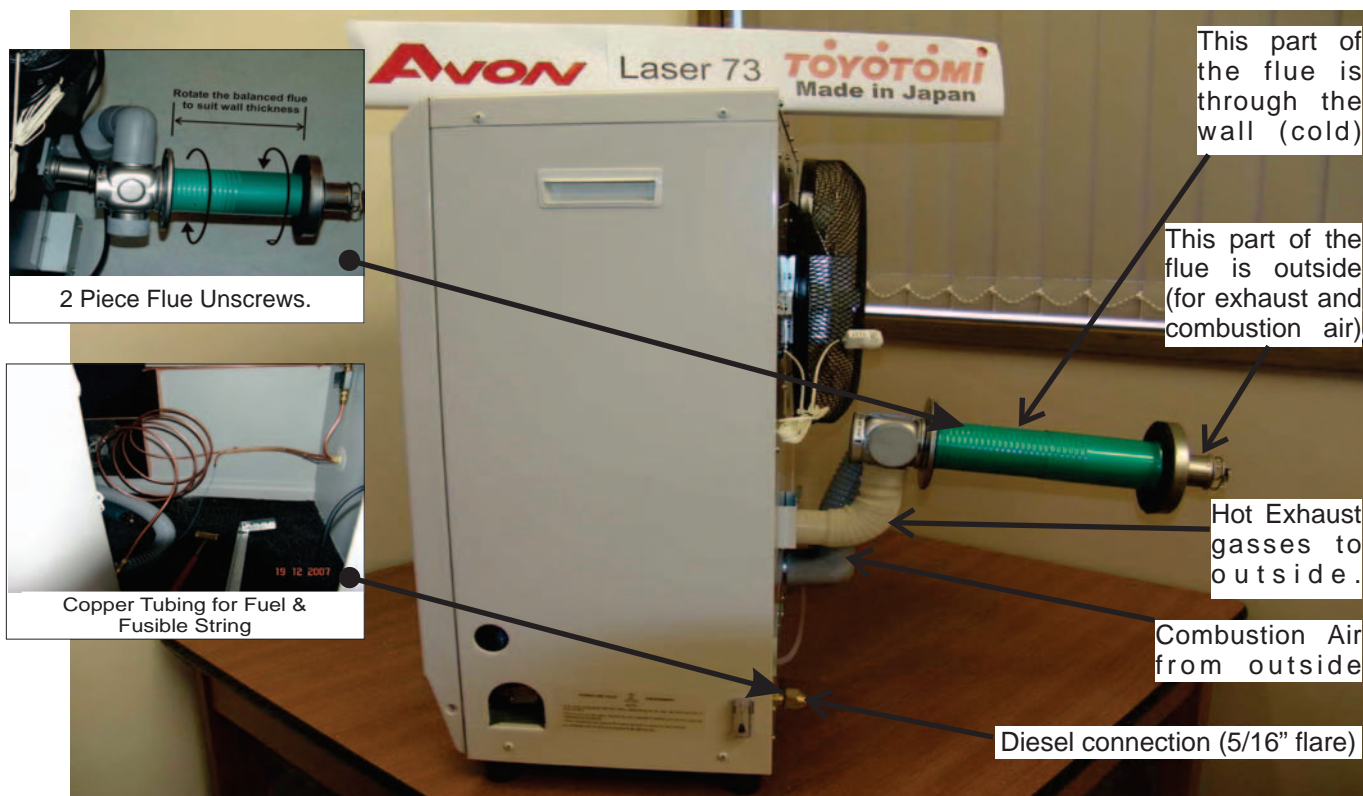
www.toyotomi.jp

E:\TOYOTOMI\Instructions & Manuals\Inserts\Avon Warranty.doc

LASER 73 Dimensions

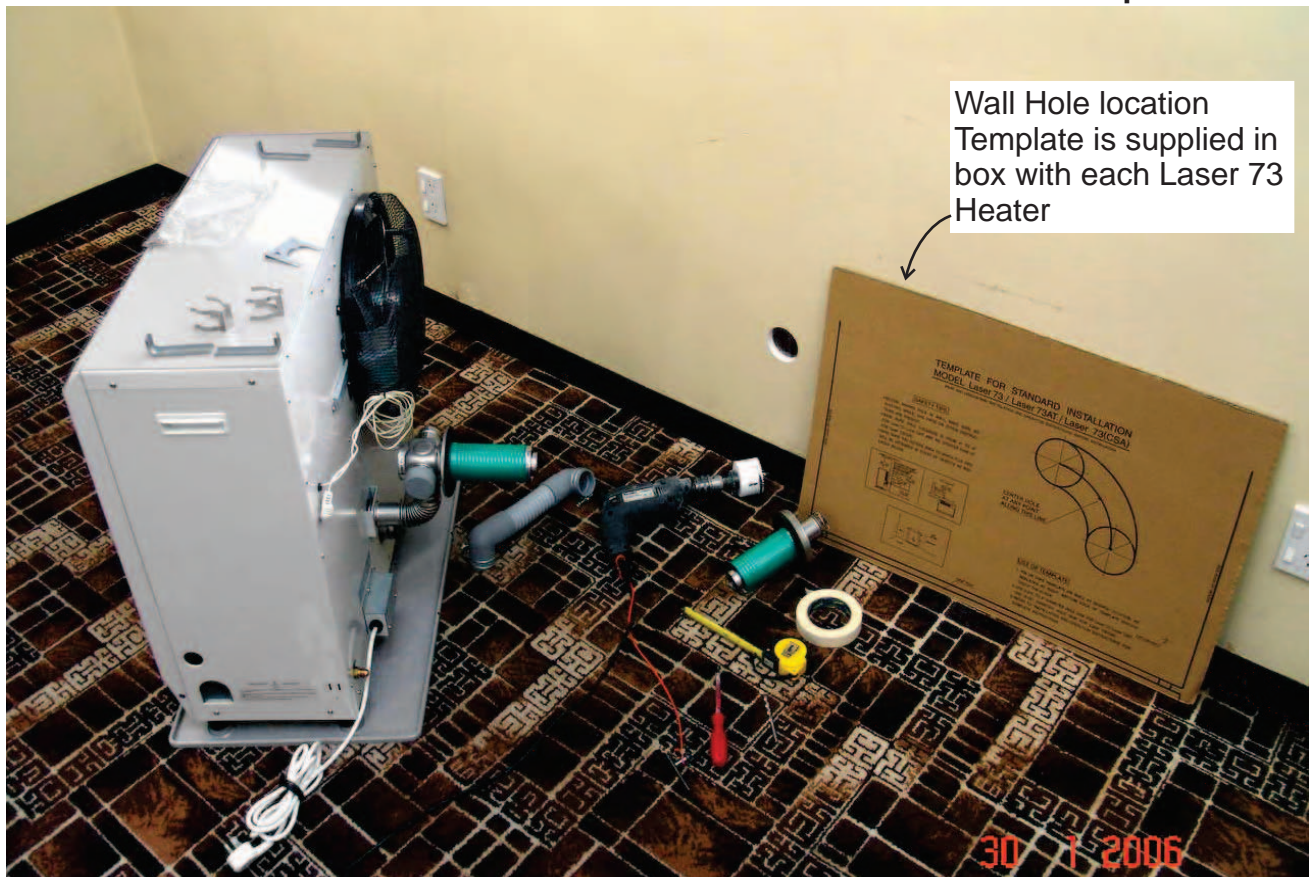


LASER 73 Rear Components



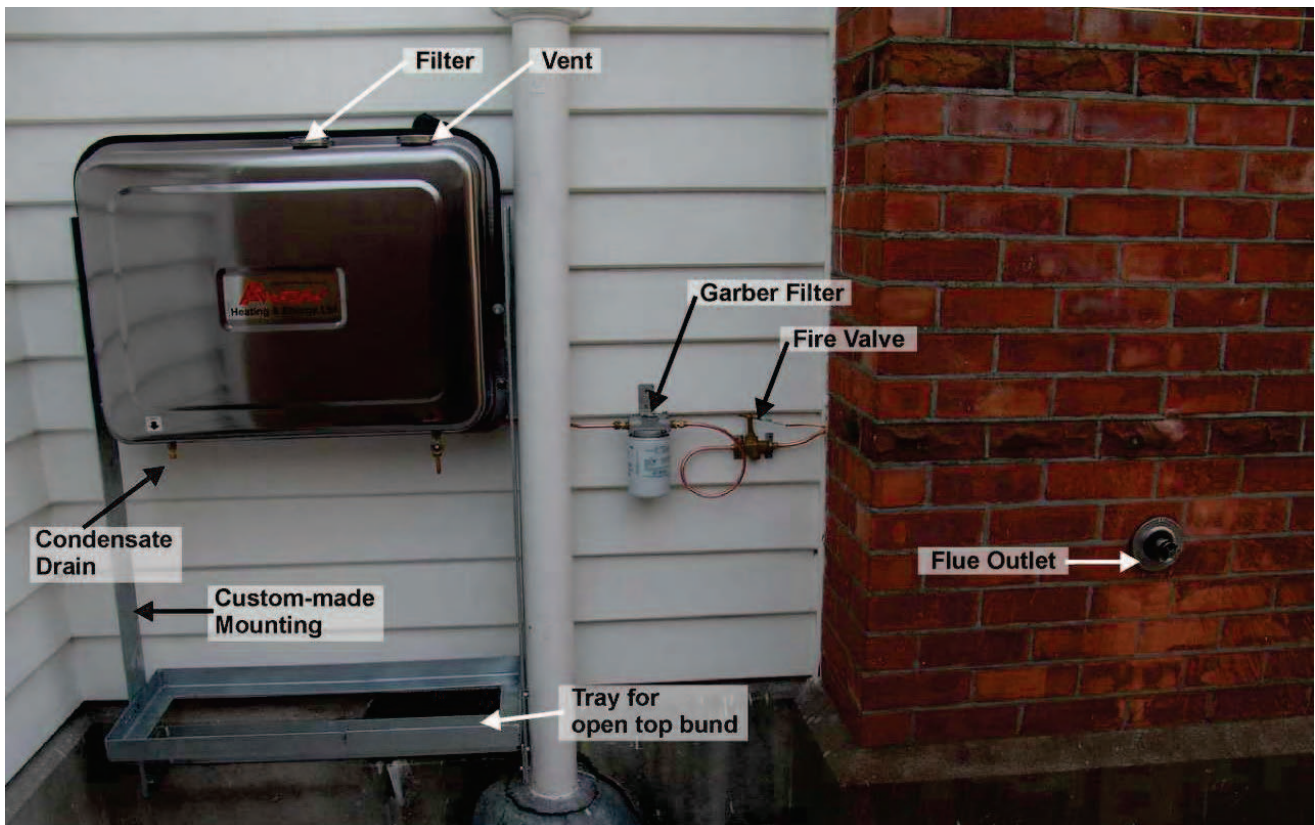
Installation in progress

“ Wall Hole Location” Template



Avon can arrange tradesman or provide detailed information for DIY installation

84L Diesel Fuel Tank



The Flue, Fuel Filter and Fire Safety Valve are all supplied with the Laser 73...(incl in price).

Laser 73 Installation Examples



Laser 73 Installation Examples



Laser 73 Installation Examples



LASER 73 with Custom Made Surrounds



Diesel Fuel Tanks

Many types and styles of fuel tanks are available from Avon, or from local suppliers.

Gravity causes fuel to flow to the heater. Fuel “Lifter Pumps” (for upstairs installations), are available from Avon.

Examples of Tank Installations



Daikins Plastic Tank



480L Bunded Fuel Tank



84 L Stainless Steel Fuel Tank

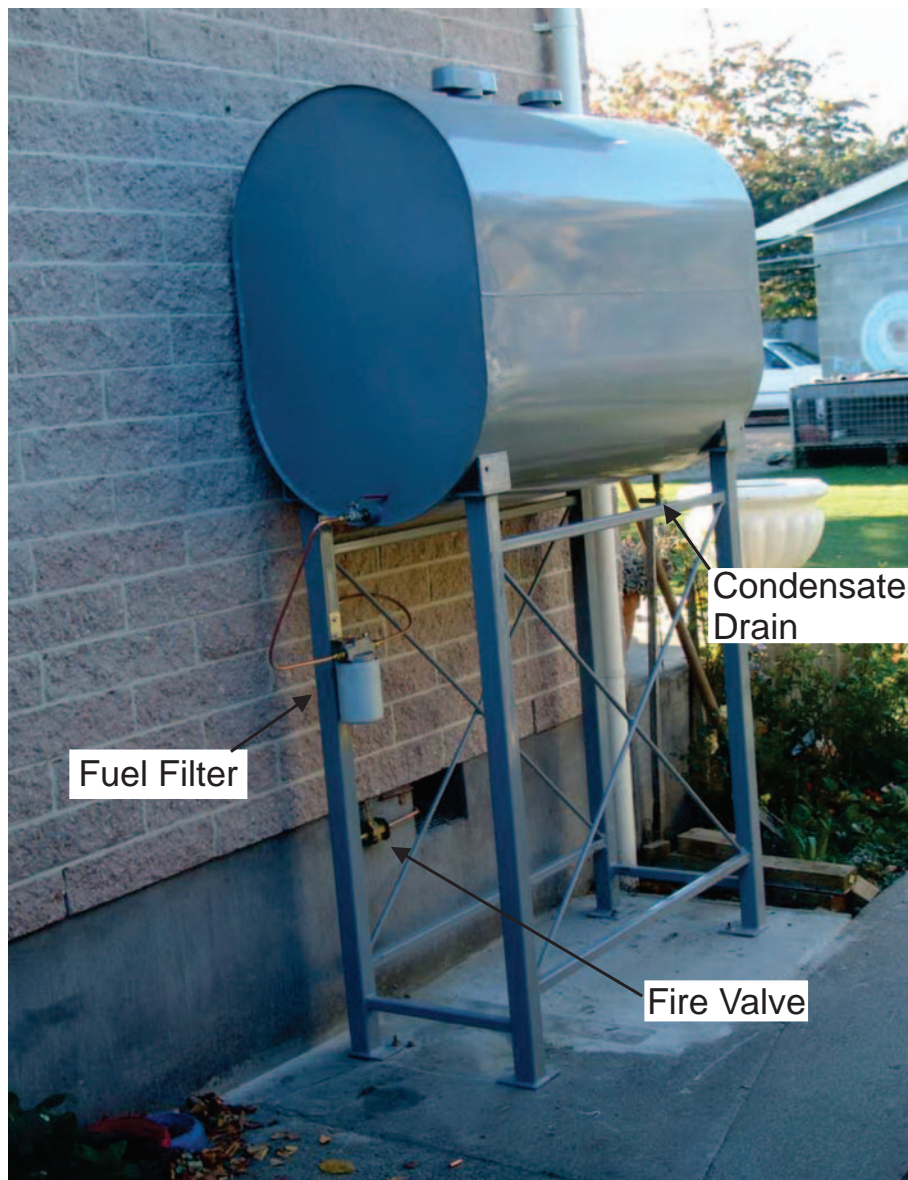


280 L Plastic Fuel Tank



Toyotomi 84 Litre Stainless Steel Tank installed in 120 year old cottage. Note “Bund” Tank as required by Christchurch City Council

Diesel Fuel Tank Installation Examples



Typical 450L Tank installation (note: Not in Christchurch*)



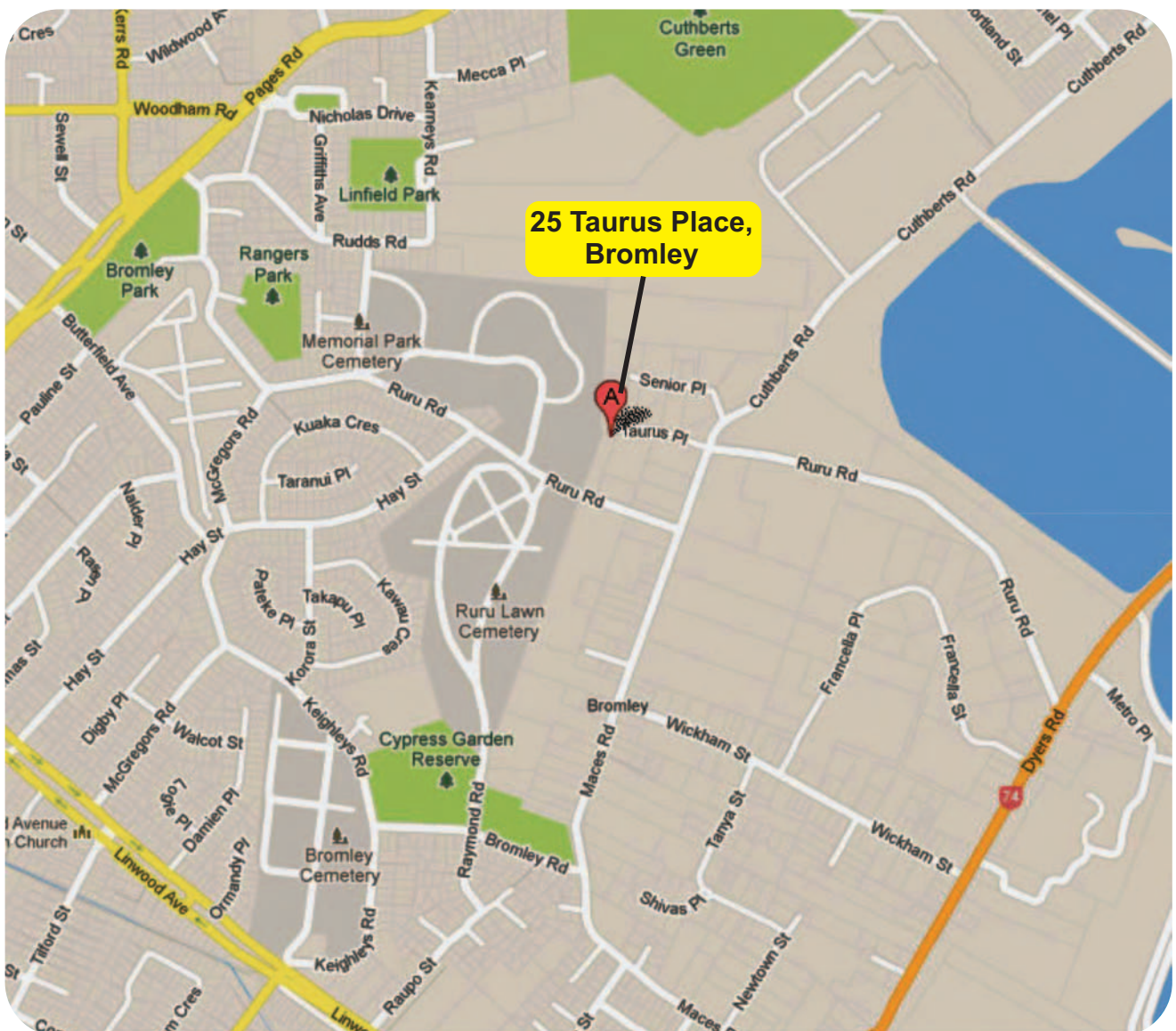
TROPICAIR 500L Fuel Tank with open Bund



Install Condensate Drain 15-20mm lower than fuel outlet end of tank

* "Bunded" tanks (a tank within a tank) are required by Christchurch and Nelson City Councils, please check with your local Authority to find out requirements for your area.

How to find us!



25 Taurus Place, Bromley, Christchurch

P: (03) 381-5595 | F: (03) 381-5596 | E: info@avonelectric.co.nz | W: www.avonheating.co.nz

TOYOTOMI

Laser 73

9.5 kW Diesel Heater

Made in Japan
(since 1991)

Heat Efficiency 92% (excl. Condensation losses)

Fuel Automotive Diesel Only

Heat Rating
High 9.5kW (32,400 BTU) 3 stage thermostat
Medium 6.6kW (22,500 BTU) automatically controls
Low 3.3kW (11,300 BTU) High, Med, Low

Fuel Consumption
High 1.08 litres/hr at 9.5kW
Medium 0.76 litres/hr at 6.6kW
Low 0.38 litres/hr at 3.3kW

CO2 Emissions
High 2.789 kg/hr
Medium 1.963 kg/hr
Low 0.981 kg/hr } Compare to any other heater!

Noise (dB @ 1m)
High 42dB
Med 36dB
Low 30dB

Electrical
Power Supply 230V / 50Hz
Ignitor 205 Watts
Continuous Burning 80 Watts

Fuel Tank External Tank (many options)

Flue Balanced Flue supplied (installs in ANY outside wall via 65mm dia hole)

Flue Extensions Refer to Avon

Dimensions (Packed)
720 (w) x 450 (d) x 700 (h) mm 40kg
800 (w) x 510 (d) x 770 (h) mm 46kg

APPROVALS

EPA: BUR0512

ECAN: CRC062469



NO TALL FLUE REQUIRED

CO2 Emissions for Various Fuels *

Diesel:	2.71kg (per litre)
LPG:	3.03 kg (per Kg)
Electricity:	4.50 kg (per 10kWh)

* Source: NZ Business Council for Sustainable Development www.nzbcscd.org.nz/climatechange

Prices & specifications are subject to change without notice

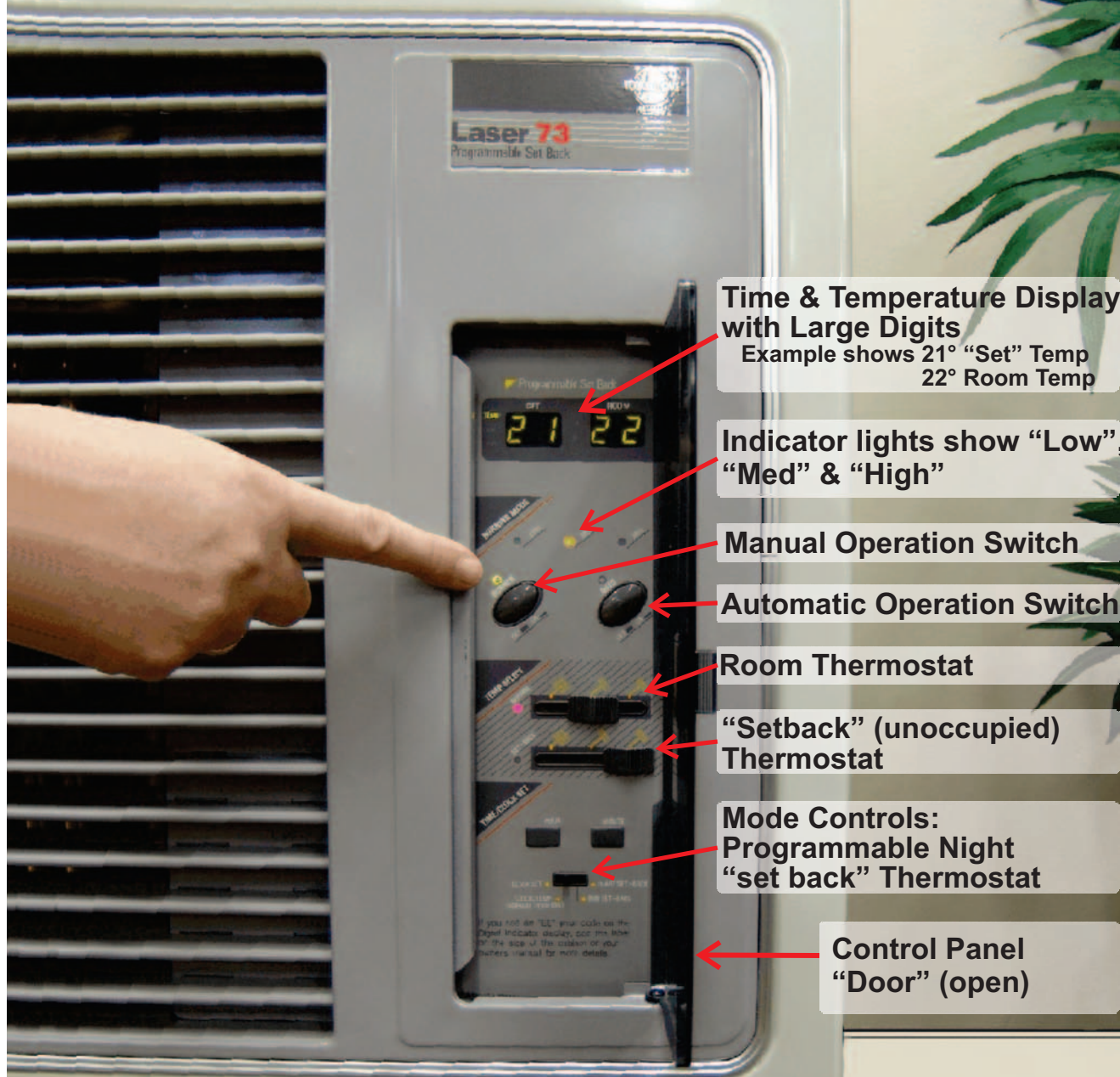
Heat directed downwards
warms your feet

TOYOTOMI

Laser 73

9.5 kW Diesel Heater

CONTROL PANEL
Time & Temperature
Controlled



Local Installer

DEALERS STAMP OR DETAILS HERE

Sole NZ Distributors

AVON
HEATING & ENERGY Ltd

25 Taurus Place
Bromley, 8062
Christchurch, NZ

Further inquiries 0800-379-247