Meridian Condensing Water Heaters

Sample Specification.

## General

Supply and fully commission a heating hot water unit complete with all piping, pumps, valves and controls to achieve fully stable and efficient operation to meet the performance specified.

The water heater shall be Meridian compact condensing manufacture as supplied by Automatic Heating Pty Ltd, and shall be capable of the performance and specified in the equipment schedule. These units shall be factory assembled complete with burner management, combustion chamber, flue connection, pumps, and safety valve and ancillaries necessary for proper and safe operation.

The water heater provided shall produce not less than the capacity nominated when operating at or within the design temperatures, flow and/or pressure conditions.

The water heater shall be built to the well proven standards and shall be engineered to meet all equivalent Australian Government regulations and Australian Standards and including:

AS3000 Australian Wiring Rules,

AS1375 Automatic Oil and Gas Burners

## Arrangement

Water heaters shall be high efficiency condensing type and shall be modular and designed to achieve a primary/secondary flow arrangement with **primary pump and circuit being within the unit**. The units shall be complete with burners, gas valves, combustion chambers, internal primary circulation pumps, internal isolation valves & controls. Internal flow / return header suitable for side by side connection to allow future capacity requirements. A common header shall be provided to allow for modular mounting arrangement.

The water heater shall be forced draft.

The water heater modules shall be suitable for floor or wall mounting, indoor or outdoor application (dependent upon water heater model)

An internal control panels shall be provided for the control and operation of the gas valves and fans.

## Construction

The construction of the water heaters shall be as follows;

Water heaters: Stainless steel.

Casing: Factory finish enamel painted coated electro coated galvanized steel to provide weather proof enclosure.

Insulation: Thermal and acoustic provided

Internal Circulation pump: **Inline.**

The unit shall include the following for ease of maintenance and servicing;

Access to the combustion chamber shall be via a removable access front panel.

The heater shall have a maximum system design pressure of 500kPa.

## Fittings.

The standard valves and fittings supplied with the water heater shall comprise: Water heater shall be complete with the following:

 Condensate drain to common drain when in cascade arrangement.

 Water flow pressure switch.

 One water heater control temperature transmitter for on/off and burner modulation.

Manual air vent.

## Environmental

Water heater shall be low noise in operation.

Water heaters shall be able to operate under all conditions and deliver less than 14ppm of NOx in the emissions.

## Burners

Burner operation shall be fully modulating. Combustion within the water heater shall take place under pressurized conditions thus eliminating the need for an induced draught fan. The burner features its own forced draught fan designed to overcome the air and flue gas pressure drop across the burner and water heater respectively.

The sequence of operation for the burner will be fully compliant to AS5601. All gas train components will comply with Australian Gas Association requirements.

The burner will be capable of the following turndown;

 Natural gas Refer to equipment schedules

## Controls

The water heater shall have a face mounted control panel containing;

Temperature controls,

LCD display for alarms, servicing, setpoints, specialist icons,

Manometer.

Water heater capacity shall be modulated through variable speed fans and air/gas ratio control valves.

Water heater shall comply with local Gas Supply Authority code AS5601 and Australian Gas Association approved components for a Type A appliance.

Standard burner management controls for the burners shall be as detailed in the equipment schedule;

 Integral PID temperature load control for modulation control,

 Gas filter supplied prior the gas valves and associated fittings

 Hi Limit Thermostat with manual reset.

All necessary temperature and pressure relief valves

Provision for Run and Fault status

Weatherproof for outdoor installations if required.

## Installation

The water heater shall be located and mounted in accordance with the requirements of the manufacturer and authorities requirements. The installation shall be complete with the following as minimum;

* Ventilation and outside air make up.
* Flues from the water heater discharging to outside terminating in an approval cowl.
* Connection the flow and return heating hot water system using vibration isolation.
* Gas connection using approved shut off and isolation valves.

The following should be included for efficient operation of the system;

* Hydraulic decoupler mounting arrangement complete with separate pump for the water heater,
* Air and dirt separators,
* Expansion tanks, pressure relief devices, makeup water systems including back flow prevention devices,
* Corrosion control and water treatment.

Water heater shall be fully commissioned to the manufacturer’s recommendations and authorities requirements by an approved commissioning agent including all submissions to relevant authorities. If required the water heater manufacturer shall be available for full commissioning of the water heater and system to satisfactory operation and gain approval for type A appliance by local authorities.

Flue outlet systems which both discharge the products of combustion to and draw the combustion air from the water heater room or directly from outside of the room (sealed burner only Meridian version). The unit shall have a trap fitted for the discharge of the condensation and flue shall be well sealed to stop any element of flues gas or condensation escaping using either a welded seam 316 Stainless steel or polypropylene heat proven plastic (known as ABS).

Equipment Schedule

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   |  M24 |  M32 |  M50 |  M75 |  M100 |  M120 |  M150 |
| Selection | Meridian | Meridian | Meridian | Meridian | Meridian | Meridian | Meridian |
| Type | Condensing | Condensing | Condensing | Condensing | Condensing | Condensing | Condensing |
| Designation | M24 | M32 | M50 | M75 | M100 | M120 | M150 |
| Internal / External  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Fuel | Nat Gas | Ngas/LPG | Ngas/LPG | Nat Gas | Ngas/LPG | Nat Gas | Nat Gas |
| Output Capacity (kW) | 25.3 | 31.8 | 50.28 | 75.8 | 97.1 | 120 | 157 |
| Input (MJ/hr) | 96 | 119 | 186 | 279 | 372 | 448 | 560 |
| Minimum Efficiency | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% |
| Water Temperature Entering | TBC | TBC | TBC | TBC | TBC | TBC | TBC |
| Water Temperature Leaving | TBC | TBC | TBC | TBC | TBC | TBC | TBC |
| Burner Type | Premixed | Premixed | Premixed | Premixed | Premixed | Premixed | Premixed |
| Gas Pressure (kPa) | 1.1 - 2.75 | 1.1 - 2.75 | 1.1 - 2.75 | 1.1 - 2.75 | 1.1 - 2.75 | 1.1 - 2.75 | 1.1 - 2.75 |
| Minimum Turn Down Ratio | 1:5 | 1:5 | 1:5 | 1:5 | 1:5 | 1:5 | 1:5 |
| Electrical Supply | 240/1/50 | 240/1/50 | 240/1/50 | 240/1/50 | 240/1/50 | 240/1/50 | 240/1/50 |
| Electrical Load (Watts) | 140 | 140 | 170 | 140 | 140 | 600 | 600 |
| Flue Material | SS316 | SS316 | SS316 | SS316 | SS316 | SS316 | SS316 |
| Dimension (WxDxH) | 450x306 x1061 | 450x306 x1061 | 495x526 x1091 | 495x526 x1091 | 495x526 x1091 | 550x895 x1243 | 550x895 x1243 |
| Condensate Neutralizer  | NH100 | NH100 | NH100 | NH100 | NH100 | NH350 | NH350 |