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July 27th 2009 ~ Monday Morning Minutes:

Laars NeoTherm Condensing Boiler Water Piping

Last week, this series of articles, outlined Primary Secondary Piping. Laars NeoTherm condensing high efficiency boilers uses primary secondary piping arrangements in their installation. Please refer to Laars manual 1218B before installing this product, since it contains complete instructions and safety precautions.

The NeoTherm may have a boiler mounted pump or a separate pump, supplied by others. This is the primary pump and is used to keep a constant flow of water through the boiler for a given temperature difference. If the flow rate is outside the design specifications of Laars, there will be operational problems or damage to the boiler. As an example, the chart below shows a 24 GPM in a 500,000 BTUH input Neo with a 40°F ΔT and 47 GPM for a 20°F ΔT requirement.

Size	Temperature Rise in °F									
	20°F		25°F		30°F		35°F		40°F	
	Flow gpm	H/L feet	Flow gpm	H/L feet	Flow gpm	H/L feet	Flow gpm	H/L feet	Flow gpm	H/L feet
285	27	25.5	22	17.5	18	14	15	10.5	13	8
399	38	28	31	20	25	14.5	22	11	19	9
500	47	24	38	16	32	12	27	9	24	8

Table 1: Flow rate chart from Laars document 1217D for NeoTherm Boilers

When piping these condensing boilers, it is important to use primary secondary piping and keep the pipe length to a minimum. This assures there is no affect on the boiler flow (primary), as the system flow rate (secondary) changes. In multiple boiler systems, it is advantageous to pipe condensing boilers in such a way that all boilers see the lowest inlet temperature. The lower the inlet temperature to the boiler, the higher the efficiency will be.

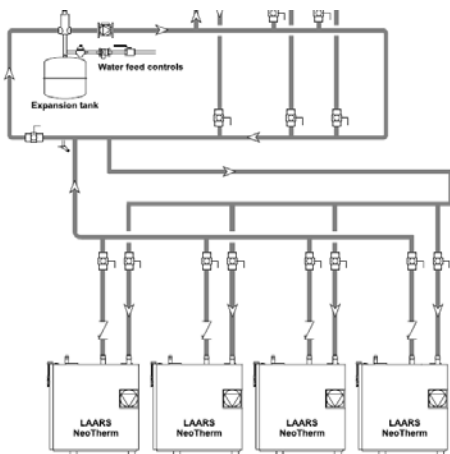


Figure 1: Multiple boiler piping arrangement from Laars 1218B manual

There are two close tees (12" apart or less) at the secondary piping. Each boiler receives the cooler return water for maximum efficiency. The primary piping is reverse return to assist in balancing the flow to each boiler.

In addition, Laars recommends the maximum piping distance from the piping takeoffs at the secondary system to the boilers be 15 feet (30 feet of total pipe) at the boiler connection pipe size. Contact R.L. Deppmann or your local Laars representative for more specific piping questions based on your Laars NeoTherm application.

**LAARS
NEOTHERM**
Commercial Modulating,
Condensing Boilers



NEOTHERM is a direct vent, sealed combustion, condensing boiler with 95+% AFUE that modulates with a 5 to 1 turndown.

The boiler features an ASME stainless steel heat exchanger, integral boiler pump (399 and 500 also available without pump) and low NOx emissions (10 ppm NOx), for a package that's easy to use, and is easy on our environment.



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