
TO: All Weil-McLain Distributors and Agents

FROM: Mike Boyd – Product Marketing Manager

SUBJECT: Beckett NX Burners - Improved Performance on Ultra Oil Direct Vent Applications

For the past two heating seasons, Weil-McLain's Ultra Oil and Beckett's NX burner combination have offered new solutions for direct vent applications. In an effort of continual improvement, Weil-McLain and Beckett have implemented performance enhancements and recommended settings associated with direct vent cold startup conditions. As a result, Weil-McLain made the following changes to our offering:

Beckett NX Burner Redesigned Throttle Cup

Beckett has designed a new throttle cup (see pictures below) through which cad cell readings are taken. The new mica-window throttle cup optically allows easier flame detection by the cad cell, which increases flame-sensing reliability. This mica-window is a mineral-based material that has an extremely high resistance and durability to high temperatures and pressures. Light from the flame easily travels through the mica-window to the cad cell. This new improved feature is included on all direct vent NX burners shipped from Weil-McLain, effective 9/21/07.



New Mica Window Throttle Cup



Previous Throttle Cup

Improved Performance for the Ultra Oil 4 NX Burner (Direct Vent Only)

Changing the nozzle size and pump pressure on the Ultra Oil size 4 with the NX direct vent burner yielded an improved performance:

Original Specification
Hago 1.00 X 70° B nozzle
Pump pressure: 140 psi

New Specification
Delavan 0.85 X 60° W nozzle
Pump pressure: 190 psi

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Ceramic Blanket (Direct Vent Only)

Ceramic blankets that increase the temperature in the combustion chamber have been common in oil applications for some time. These blankets help keep a more stable flame, resulting in a cleaner burner head.

In direct vent applications, Weil-McLain tested Ultra Oil boilers under extreme temperature conditions (oil temperatures of 20°F and air temperatures down to –10°F at the burner) with and without blankets. Units with the blanket installed performed better during testing than those without it. The blanket will now be shipped in the burner carton with all direct vent NX burners. The same size blanket will be used for the Ultra Oil 3, 4 and 5 units. A replacement blanket is available through Beckett, part# 31489.

NX Burner Set Up (Direct Vent Only)

The NX burner should be adjusted to match the listed %CO₂ based on the outside air temperature **during the initial installation setup**. For example, if it is 40°F outside when the boiler is installed, the burner should be set up for 11.25% CO₂.

Combustion Air Temperature (°F)	Recommended %CO₂
70 and up	12.00
60	11.75
50	11.50
40	11.25
30	11.25
20	11.00
10	10.75
0	10.50
-10	10.25
-20	10.00
-30	10.00

Weil-McLain recommends these settings in order to adjust for changes in combustion characteristics as the air temperature changes in the winter. So as the outside temperature changes, the CO₂ level will automatically adjust. This increases the reliability of direct vent installations in extreme cold-air conditions by ensuring that the air/fuel ratio remains in the operating range. These settings are recommended for the Ultra Oil/Beckett NX direct vent burner only.

If you have any burner operation questions, please contact Weil-McLain Technical Services at (219) 879-6561. For all other inquiries, please contact your Weil-McLain sales representative or area sales office.

Thank you for your continued support of Weil-McLain products and services.