

Compact yet perfectly matched, the NRV77 is the newest ebm-papst gas blower

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ebm-papst is expanding their line of gas-air ratio control assemblies with the new NRV77 developed for high efficiency gas-fired boilers rated up to 35kW (120,000 BTU/H). The assembly includes a modulating premix ready gas blower, air-gas venturi, and zero-governor gas valve. All three components are designed, manufactured and pre-assembled at our factory to provide a measured air-fuel mixture to the burner. ebm-papst is offering this system integration to eliminate the additional costs to source, assemble and support individual components from multiple suppliers. The NRV77 is developed from the new NRG77 premix ready gas blower and the GB055 E01 gas valve that are pneumatically coupled with a multi-venturi that supports a modulation range from 2kW (6,800 BTU/H) up to 35kW (120,000 BTU/H).

The NRG77 premix ready gas blower uses state of the art electrically commutated (EC) motor technology that includes a new single phase, high speed brushless DC motor that performs over a 10:1 speed range. The NRG77 was designed for increased rotational speed to achieve a wider modulation range with 6% reduction in energy consumption and a 10% reduction in overall size compared to



its predecessor. The motor is also separated from the scroll housing with a multi-positional vibration isolation system that insures quiet, vibration-free operation within the appliance. The two piece die cast aluminum housing and one piece backward-curved anti-static impeller compliment the motor design with a non-overloading characteristic required for wide modulation. Released this year to the global heating market, the NRG77 is available with electrical ratings of 24VDC, 120VAC, and 230VAC 50/60 Hz for the mains supply voltage with a low voltage speed and tachometer circuits for closed-loop speed control. Appropriate international safety agency certifications are available upon request.

The GB 055 E01 gas valve is the second component in the NRV77 assembly that offers a patented co-axial valve design for safety that delivers up to a 25% reduction in power consumption with a 10% reduction in size compared to its



predecessor. The gas valve provides two adjustment screws for setting high fire and low fire operation. The throttle adjustment provides a means to set the target carbon-dioxide at the maximum input rate and the offset adjustment provides a means to set the target carbon-dioxide at the minimum input rate with an inherent characteristic to limit carbon-monoxide to safe levels during blocked-flue conditions. The GB 055 E01 gas valve is available with electrical ratings of 24VDC, 24VRAC, 120VRAC, and 230VRAC 50/60 Hz for the solenoid coil voltage. Appropriate international safety agency certifications are available upon request.

The multi-venturi housing is designed to accept multiple inserts for a high turn down range typically required for condensing gas-fired boilers. Three inserts are currently available for three input ranges that are cost effectively manufactured by using a common tool mold with an adjustable restrictor to change the effective inside diameter of the venturi. The venturi housing, insert, and blower housing are all sealed with a liquid sealant that replaces multiple o-rings that would have been used in the past to insure no leakage of excess air or gas during proper operation.

The NRV77 completes the ebm-papst NRV series product line that includes multiple sizes to satisfy input rates up to 145kW (495,000 BTU/H).