

Nash Pumps & Compressors for Biopower



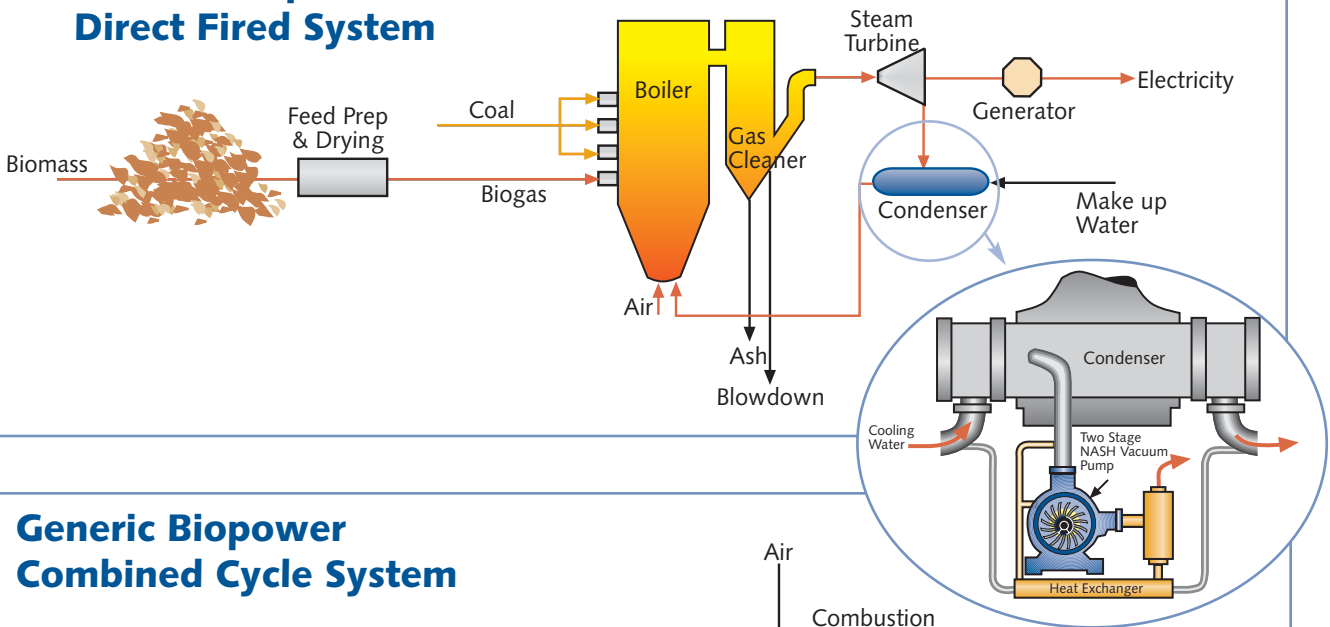
As companies explore co-firing systems, gasifiers and other possibilities, it should be remembered that equipment such as condenser exhauster systems remains the same. As the challenge to contain or reduce costs continues, especially in the biomass/biopower arena, money can be saved by using a Nash condenser exhauster, which saves energy when air leakage increases.

Biopower

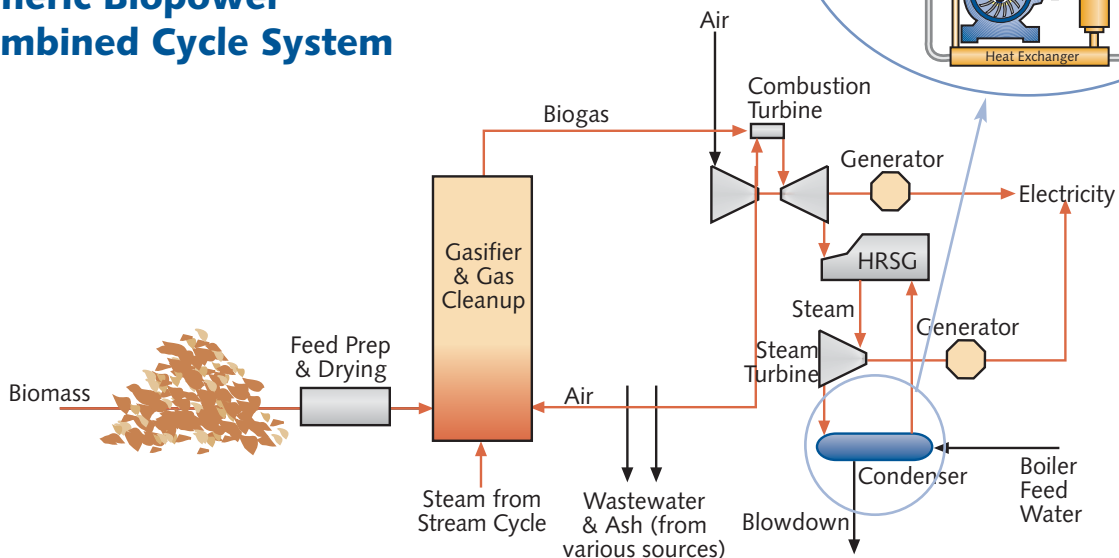
Interest in biopower, or the use of biomass to create electricity, continues to grow. Benefits include lower carbon, sulfur, NOx and methane emissions (the methane emissions reduction is actually a negative number, due to avoided decomposition processes (landfilling and mulching)).

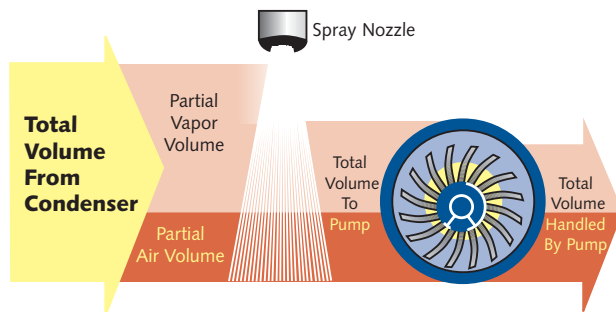
One accessible, low-cost option for biopower is co-firing with coal in existing boilers. Studies have shown that effective substitutions of biomass energy can be made for up to about 15% of the total energy input. This means that existing coal fired plants need only to modify their burner and feed intake systems.*

Generic Biopower Direct Fired System



Generic Biopower Combined Cycle System





Capacity Bonus: You get more capacity and save energy when water vapor is condensed ahead of the NASH pump. This performance bonus is made possible by NASH conical porting.

Another attractive biopower option is gasification. This involves the devolatilization and conversion of biomass, through the use of steam or air, to produce gas (biogas). The biogas is used as a fuel in a combined cycle power generation system. Existing coal plants play into this option as well, as the investments made in coal-based gasification combined cycle (GCC) systems are exploited.

Technology is continuously evolving in the biopower field. As companies explore co-firing systems, gasifiers and other possibilities, it should be remembered that equipment such as condenser exhauster systems remain the same.

As the race to contain or reduce costs continues, especially in the biomass/biopower arena, money can be saved by using a Nash condenser exhauster, which saves energy when air leakage increases.

Nash self-contained condenser exhauster packages in steam cycle plants efficiently remove inward air leakage from the condenser. The effect is to provide lower turbine backpressure, improve heat rates and reduce generating costs. The packages consist of a two-stage liquid ring vacuum pump, motor, air-liquid discharge separator, heat exchanger and associated controls.

Since more than two thirds of the gas drawn from the condenser is water vapor, the Nash conical ported design is ideal for handling this air-vapor mixture. Spray water condenses a substantial portion of the vapor ahead of the pump and, as that condensate passes through the pump as a liquid, pumping capacity is increased and energy saved. This is the Nash capacity bonus that is not possible with other pump designs.

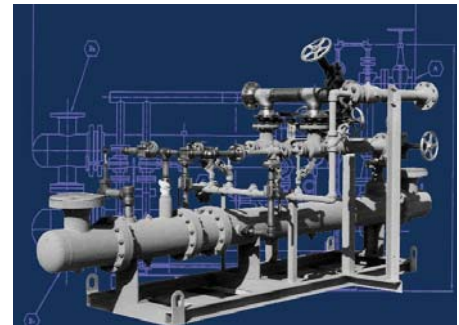
Nash condenser exhausters perform reliably, operate automatically and hold the condenser at the best possible vacuum during unexpected transients of air leakage. Reliability and dependability are both stressed as essential by The National Renewable Energy Laboratory.*

With over 100 years of experience in liquid ring pumps and compressors, Nash is still the supplier of choice.

A low cost alternative: NASH Steam Jet Air Removal Packages

When low cost reliability is your principal concern, Nash has two-stage, twin-element air removal packages to cover the complete range of HEI requirements. These pre-engineered packages have capacities from 3.0 SCFM to 15 SCFM (6 to 30 kg/hr).

Nash is the only manufacturer of a complete range of steam jets and liquid ring vacuum pumps and has the experience to help you select the best air removal equipment for your specific requirements. Engineering data, system layouts and cost comparisons are available from your Nash sales engineer.



* RL Bain, WA Amos, M Downing and RL Perlack *Biopower Technical Assessment: State of the Industry and Technology* National Renewable Energy Laboratory, Denver, CO, March 2003

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