

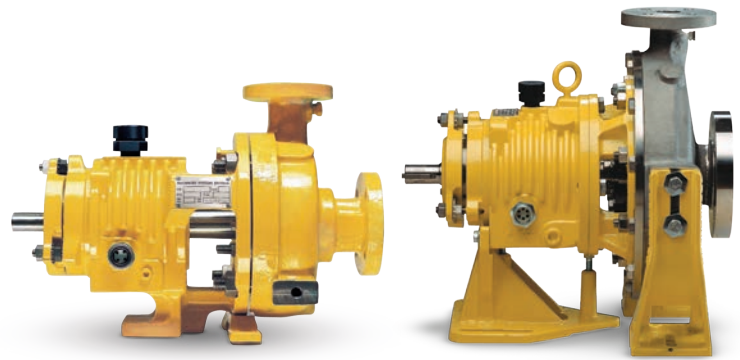
## Power Plants

### APPLICATION DOCUMENT

Power plants are large, hulking structures in which a great number of different applications must work harmoniously in order for the facility to safely and reliably produce the electricity that will power local homes, schools and businesses.

The following are among the many liquid-handling operations that take place on a daily basis at a power plant:

- **Drip/Condensate Return:** These are components in the power plant's heating and cooling system, where water and steam are used to make sure both ambient temperature and the temperature of the facility's large turbines are adequately regulated. In most cases, transfer lines are used to collect drip and condensate liquids and return them to the heating/cooling system via a closed-loop system.
- **Sluice Applications:** This application forces water through a sluice box as a way to clean it by forcing any solids to drop out of the water stream.
- **Line Slurries:** Many of the liquid chemicals that are used in power plants contain some form of particulate with varying levels of abrasiveness. When these particulates are part of a liquid stream, they create what is called a slurry. As these slurries are transferred, it is important that they not be allowed to settle lest they clog the piping and create flow disruptions.
- **Wastewater:** All power plants are constantly producing wastewater that is either cleaned and reused or removed from the facility. Most wastewater contains solids that must be separated from the water stream before it can be reconstituted or disposed.



FRAME S

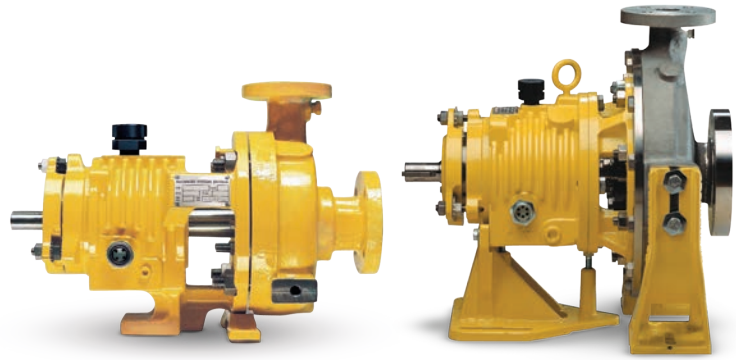
FRAME A/LD17

The one thing that all of these disparate operations require is a pump to help the transfer of the water or chemicals through the system piping. For many years, common centrifugal pumps have been the pumping technology of choice for these power-plant operations. However, these centrifugal pumps can have a common operational shortcoming that will hamper their operation – they are prone to seal failures that can lead to leaks that will slow or even shut down the specific operation, which puts the power plant's overall operational capabilities at risk.

A better solution can be Blackmer® Centrifugal Pumps. Blackmer Centrifugal Pumps have been designed around the mechanical seal, where 90% of centrifugal pump failures occur. The pumps are outfitted with oversized bearings for greater load capacities and extended bearing life. Additionally, their heavy-duty construction and low shaft-stiffness ratios prevent vibration during operation, which improves seal life. All these features deliver the widest operational window off the pump's Best Efficiency Point (BEP). Specifically, two models of Blackmer Centrifugal Pumps have exhibited the capacity to meet the needs of the many different liquid-handling operations in a power plant. Frame S pumps are available in four models, all of which feature mid-size frame strength in a small frame space, making them a perfect alternative to heavy-duty small-frame pumps. They are capable of producing flow rates up to 450 gpm (102 m<sup>3</sup>/hr). The Frame A/LD17 family has 11 models that They can achieve flow rates as high as 1,400 gpm (320 m<sup>3</sup>/hr). All models come with a five-year power-end performance assurance and one-year mechanical-seal performance assurance warranties.



# Power Plants



FRAME S

FRAME A/LD17

## COMPETITION

### • Other Centrifugal Pumps

Common centrifugal pumps fight a constant battle against seal failures and in the harsh operating conditions that are typical in power plants, those seals can fail as often as every three or four days, which creates cost, maintenance, cleanup, remediation and safety concerns for plant operators. Common centrifugal pumps can also experience extreme vibration when run at high speeds, which leads to noisy operation and premature wear that can result in breakdowns and downtime that will affect the efficacy of the power plant’s production processes.

## FROM THE FIELD

A power plant located in the Northeast United States was using a full roster of centrifugal pumps to perform the plant’s daily liquid-handling duties. Many of these pumps were experiencing almost predictable seal failures that would halt operations while leaving a mess behind by leaking wastewater.

For a solution, the plant’s operators began introducing Blackmer® Centrifugal Pumps into their daily operations. Namely, the Frame S and Frame A/LD17 models were brought in to replace the pumps from a competitor.

The result has been that the Blackmer Centrifugal Pumps – which are used in a wide array of applications, from line slurries and drip/condensate return to wastewater handling – have performed admirably, with none of the seal failures and resulting downtime that dogged the other centrifugal pump models. The ultimate outcome is that many of the old pumps have now been replaced by Blackmer Frame S and Frame A/LD17 pumps.

For more information on these additional solutions, visit us at [blackmer.com](http://blackmer.com).

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