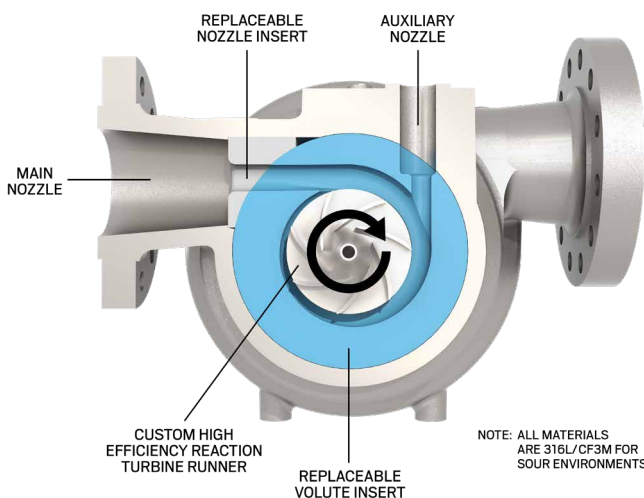
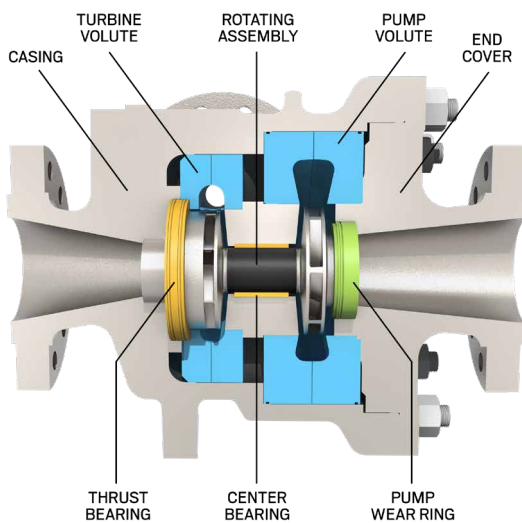
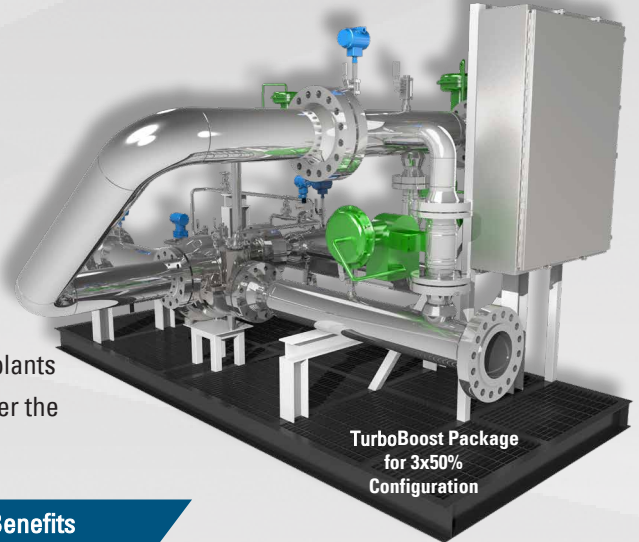


## TurboBoost System - Save Energy & Costs with TurboBoost

TurboBoost is a hydraulic system that recovers pressure energy and increases the reliability of pumping systems. In ammonia production, TurboBoost is used in CO<sub>2</sub> removal, while in gas processing, the system is used in acid gas & CO<sub>2</sub> removal. It helps plants save energy, reduce maintenance, and run more profitably. The core of TurboBoost is a proprietary liquid-to-liquid turbocharger. With three times the reliability of a traditional pump, the turbocharger recovers energy from the letdown of a high-pressure fluid and transfers it to a low-pressure fluid to reduce the energy required for pumping.

By replacing a pump and motor system with the simple and efficient TurboBoost, plants can expect millions of dollars in energy savings and a big drop in maintenance over the life of a plant. With TurboBoost, plants save up to 50% of electric power costs.



### TurboBoost Benefits

- Save energy - Reduce plant operating costs
- Improve reliability, availability, maintainability
- Lower carbon footprint and emissions to comply with regulations
- Explore new options in plant design
- Mitigate risk of electricity price fluctuations

### TurboBoost Features

- 10 year mean time to failure (MTTF) three times the 2.9 year MTTF of a typical high pressure pump
- Up to 80% efficiency
- Always at best efficiency point (BEP) within operating range
- Only one moving part
- No shafts exiting the casing
- No shaft seals, no seal leaks possible
- No seal support systems
- No alignment required
- Bearings self-lubricated by process fluid
- No external oil lubrication systems
- Rotating assembly speed unconstrained and self-regulating
- Very low vibration

### Estimated Savings with TurboBoost

Amine System Economics	Savings for 3x50% Pump Configuration	Savings for 2x100% Pump Configuration
Electric Power	50%	80%
Maintenance Savings in CO <sub>2</sub> Removal Unit	50%	20%

NOTE: 3x50% refers to a plant configuration using three parallel pumps; in this configuration, two pumps handle 50% flow each, with the third pump installed for redundancy (50% flow). 2x100% refers to a plant configuration using two pumps; in this configuration, a single pump will handle 100% flow, with the second pump installed for redundancy (100% flow).

## TurboBoost Solution - Gas Processing & Ammonia

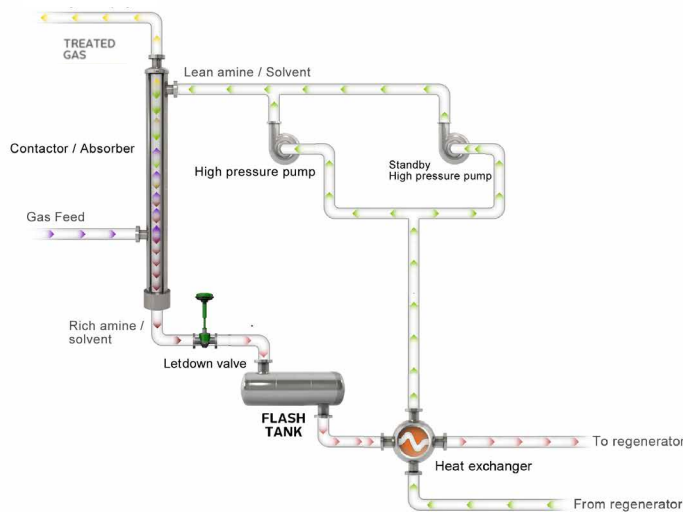
By recovering pressure energy in the acid gas removal, or gas sweetening process, TurboBoost helps midstream gas processors save energy and decrease maintenance. In addition to saving millions of dollars in energy cost, the TurboBoost system dramatically reduces maintenance, making plants more reliable.

Amine units are widely used to remove acid gases, H<sub>2</sub>S (hydrogen sulfide) and CO<sub>2</sub> (carbon dioxide) from raw natural gas by pumping lean amine into a highly pressurized contact vessel (typically to 1400 psi) where the amine reacts with the incoming gas stream and absorbs the H<sub>2</sub>S and CO<sub>2</sub>. The amine, rich in CO<sub>2</sub> / H<sub>2</sub>S exits the contactor and the pressure is reduced via a letdown valve to flash tank pressure (typically 100 psi or less). The large pressure differentials in CO<sub>2</sub>/acid gas removal present a unique opportunity to recover energy and produce substantial amounts of power.

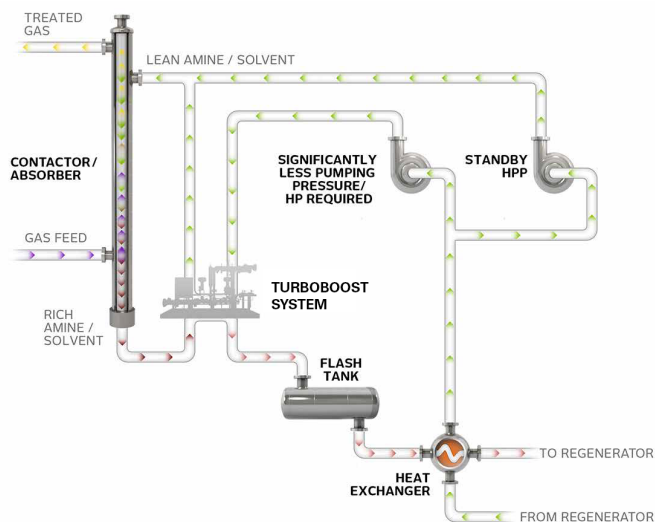
**How TurboBoost Works for Acid Gas Removal** - During the CO<sub>2</sub>/acid gas removal process, highly pressurized rich solvent from the contactor, or absorber, is directed into the turbine side of the turbocharger. Here, pressure that would normally be wasted is captured and converted into hydraulic energy. After depressurization, the rich solvent leaves the turbine and flows to the regenerator circuit. Lean solvent is directed into the TurboBoost system, where it enters the pump side of the turbocharger and is boosted to high pressure. The pressurized lean amine from the TurboBoost system is then routed directly to the contractor tower.

**STATUS  
QUO**

**(2 x 100%)**



**WITH  
TURBOBOOST**  
**(Up to 80%  
Power Savings)**



DXP Enterprises, Inc. leaders in design, engineering and manufacturing of pumping technology and package systems for the Oil and Gas Industry, has teamed up with FedCo. leaders in design, engineering and manufacturing of energy recovery devices. Through this relationship, we provide the most cost effective energy recovery solutions tailored specifically to your unique gas treating application requirements. Whether you are considering taking advantage of energy recovery by retrofitting an existing plant or greenfield development, we will design and provide you with the ultimate, cost effective, energy savings solution to meet your ROI objectives.