

CASE STUDY

Problem: When Gusher centrifugal self-primers kept losing prime and seals, another solution was needed and was needed fast!

BLACKMER SOLUTION



R. A. ROSS & ASSOCIATES, INC.
2231-A Ampere Drive, Louisville, KY 40299

Local packager puts Blackmer Pumps in tough oil field service



BlackmerSGL Series Ductile Iron Pump for refrigerants and other liquified gas service.

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When the Gusher centrifugal self-primers kept losing prime and seals another solution was needed and was needed fast! The original pumps, part of an OEM packaged skid, removed a mix of water with some heavy hydrocarbons to opposite of mostly hydrocarbon and some water from a liquid/vapor separating vessel.

Application...

Pumpage – Ambient temp water with some heavy hydrocarbons to mostly hydrocarbon and some water

- Some mixed phase pumping when some hydrocarbons cause vapor in suction (flow reduction may be realized base on amount of gas entrained in liquid)

20gpm @ 135psig discharge (0-5psi positive tank pressure)

Continued on page 2

Continued from page 1

Solution...

Blackmer liquefied gas pumps with custom bases and reducer/motor setup.

Pump: Blackmer SGLD2 ductile iron sliding vane pump with carbon vs. silicon carbide mechanical seals, HNBR elastomers, Duravane vanes, 2" NPT flange connections and Blackmer's cavitation suppression liner (LGL & SGL pumps)

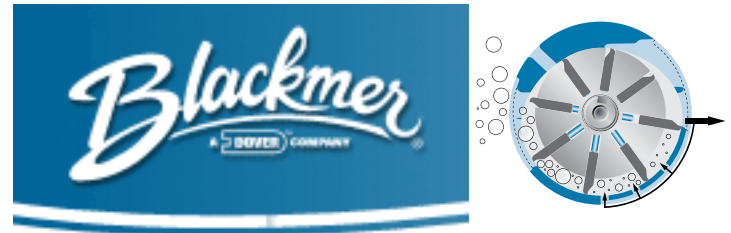
Reducer: NORD SK12 with 4.93:1 ratio for 355rpm output speed with 1750rpm motor.

Motor: Marathon Premium Eff. 5hp 3/60/230-460/1750rpm TEXP footless with 2:1 turndown.

VFD Controller: Toshiba ASD in NEMA 1 enclosure.

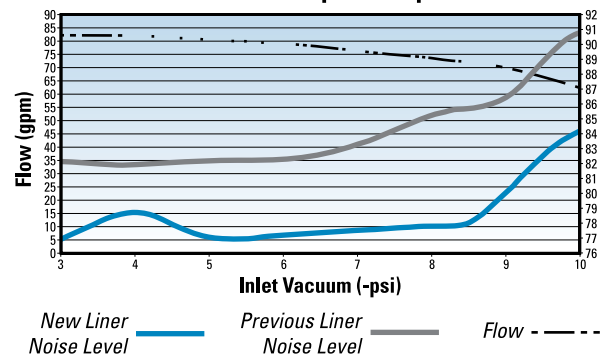
Formed Steel Base and Guard: The base was custom designed with a minimum height to allow for as much NPSHa as possible. The length and width of the base were also made specific too fit as far down into the skid as possible to reduce piping arrangement augmentation.

After only a short time in service, the benefit of the assemblies was apparent; no more pump failures, no more vapor lock, increased flow, and shortened cycle times. Shortly after this success more assemblies were ordered to retrofit other skid packages to utilize the Blackmer SGLD2 pump and all the benefits the pump provides in the application.



1.25-inch through 4-inch LGL pumps feature noise suppression liners. This patented technology reduces noise at its source by reducing the amount of cavitation in the pump. Reducing the cavitation level also reduces vibration and wear. The sudden collapse of vapor bubbles inside the pump is known as cavitation. By allowing a controlled amount of fluid at discharge pressure to bleed back toward the suction of the pump, the vapor bubbles are collapsed over a longer period time. The net result is less noise, less vibration and less wear. As shown in the chart, the reduction in noise level can be quite dramatic. Similar noise reductions have been measured in all the LGL pump sizes. Patent number: 6,030,191

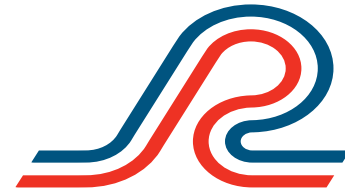
Flow and Noise vs. Inlet Vacuum
TLGLF3, 125 psi, 640 rpm



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R. A. ROSS & ASSOCIATES, INC.

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