

Recovery Plan

TESCORP MAKES BLACKMER® HD SERIES COMPRESSORS A KEY COMPONENT
IN ITS VAPOR-RECOVERY SYSTEMS

By Glenn Webb



Capturing fugitive vapors is becoming more important in nearly every market. The oil and gas industry continues to focus efforts on limiting emissions at the wellhead and tank battery sites.

For nearly 25 years, you could say that Vince Thomas' life has been a gas – namely since he has committed so much of his life to the safe handling, transfer, storage and recovery of hydrocarbon and industrial gases. Because of that commitment, he has watched his company, TESCOP, which was founded in 1987 in Tulsa, OK, USA, grow into an industry leader in the manufacture and sale of turnkey gas-compression and pump systems and packages that are used to capture, compress and transfer a wide array of gases, whether in a process or storage facility, or out in the field.

In that time, Thomas has also bore witness to a seismic shift in how fugitive emissions during hydrocarbon-gas handling are treated. In the old days, the introduction of fugitive emissions into the atmosphere during gas-transfer, evacuation or handling operations was treated as a fact of life, as was the need to occasionally vent or burn off excess gases. That mindset has changed in the past decade as the cost of many of these products, such as propane and

natural gas, have steadily increased. It makes much less sense now to allow potential profits to simply float away during product transfer or when tank batteries are allowed to leak or vent gas to the atmosphere.

On top of that, regulatory bodies such as the U.S. Environmental Protection Agency (EPA) have taken a greater interest in the type and amount of fugitive emissions that are entering the atmosphere. With that in mind, many industry insiders are anticipating that the day will come soon when the EPA will create enhanced regulations governing fugitive-emission releases. This increased attention to controlling fugitive emissions also received a boost in the propane market when the U.S. National Fire Protection Association's Section 58 pipeline-safety regulation – which went into effect in July 2011 – required storage tanks at bulk facilities to be outfitted with either internal valves or an Emergency Shutoff Valve. As these retrofits and plant upgrades were being completed,

many owners at bulk storage locations realized it would also be worthwhile to recover gas in tanks that was traditionally burned off with a flare system. Not only was this polluting the atmosphere, it was burning up valuable gas that many owners would prefer to recover.

This change in philosophy in how to regard fugitive emissions has led to an increased call for vapor-recovery systems that are designed to contain fugitive emissions and return them to a storage vessel, or a pipeline where they can be reused or sold, while prohibiting them from damaging the environment.

“There are an awful lot of areas in the country today where facilities can’t be operated unless a vapor-recovery system is in operation,” said Vince Thomas, owner of TESCORN. “Over the years, we have concentrated more on flare gas, vent and waste gas recovery systems, and this has created some pretty good business for us.”

A Longtime Partnership

The key component in any hydrocarbon gas vapor-recovery system is the compressor. Since 1990, TESCORN has made HD Series Reciprocating Gas Compressors from Blackmer®, Grand Rapids, MI, USA, its compressor of choice.

“We’ve had a long relationship with the team at Blackmer. They are highly knowledgeable about pumps and compressors, and this application expertise has helped us in many ways,” explained Thomas. “Going with Blackmer compressors has worked because they are compatible with many different gases, and they are truly a gas compressor, not just an air compressor that is being used as a gas compressor.”

The relationship between TESCORN and Blackmer has been such a positive one that a Blackmer HD Series single-stage reciprocating compressor is a standard piece of equipment on TESCORN’s BVR-1 Series Vapor-Recovery System, which is capable of handling flow capacities from 27 to 50 thousand standard cubic feet per day (MSCFD) of various gases at pressures up to 70 psig.

“Blackmer HD compressors are an ideal fit into a number of our applications, like the BVR-1 Series, where the motor speeds are 30 horsepower or below. The Blackmer compressors easily handle the flow and pressure capacities, while other machines are not as reliable,” said Thomas.

Blackmer HD Series Gas Reciprocating Compressors offer a number of features that enable them to provide efficient,



Tulsa, OK, USA-based TESCORN, is an industry leader in the manufacture and sale of turnkey gas-compression and pump systems used to capture, compress and transfer a wide array of gases. TESCORN’s systems feature Blackmer HD Series reciprocating gas compressors.

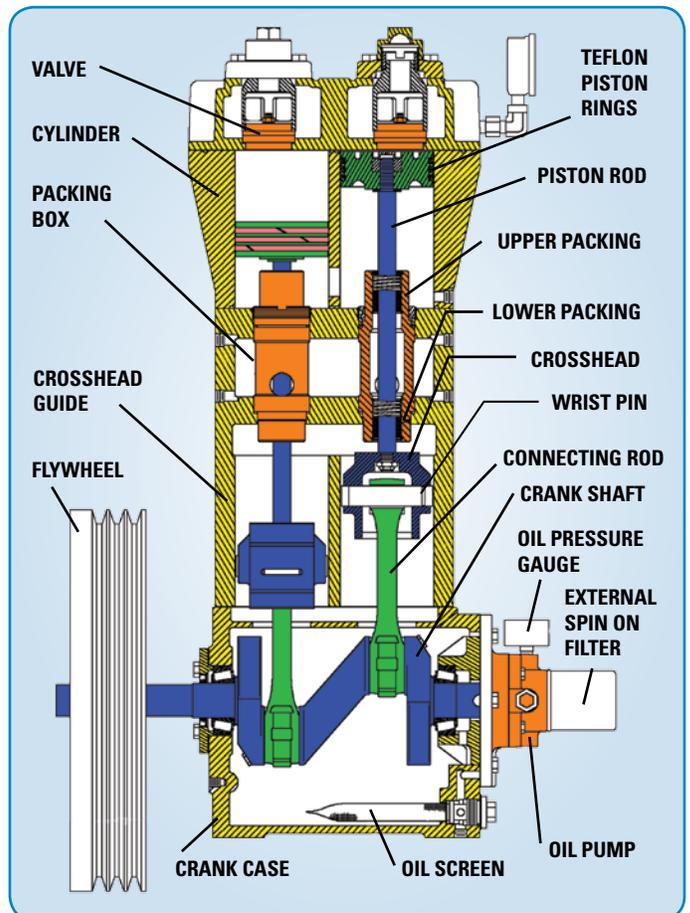
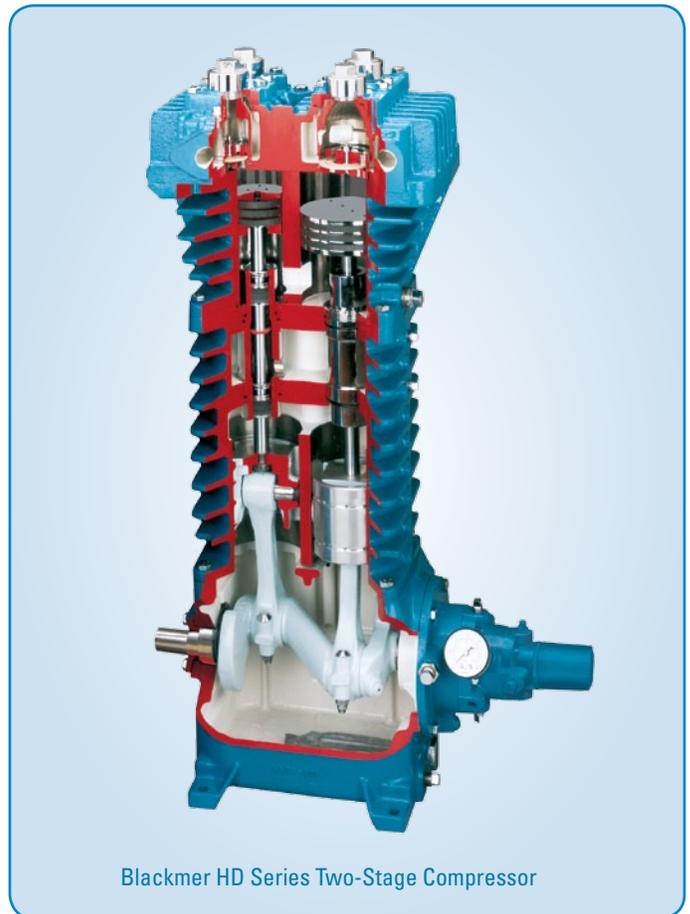
quiet, oil-free delivery in a wide range of gas applications. Among them:

- **Ductile-iron construction** for greater resistance to both thermal and mechanical shock
- **PEEK valves** that supply superior sealing characteristics, high efficiency and durability in oil-free gas applications
- **O-ring seals** that ensure positive sealing under severe operating conditions
- **Live-loaded piston-rod seals** that are wear compensating and maintain a constant sealing pressure around the piston rods with minimum friction
- **One-piece piston** that is connected to the piston rod with a single positive locking nut
- **Single or double compartment distance pieces** (or isolation chambers) that allow you to control gas from leaking into the crankcase, and escaping into the atmosphere.
- **Self-lubricating PTFE piston rings** that provide maximum sealing and extended life
- **Heavy-duty precision-ground crankshaft** with roller bearings and integral counterweights for smooth, quiet operation
- **Wrist pin needle bearings** that deliver longer life under high rod-load applications
- **ANSI flanges** for compatibility with CPI and refinery industry standards
- **Pressure-lubricated crankcase** that allows positive oil distribution to all running gear components for long life and minimal wear, with full-flow spin-on oil filter standard
- **Epoxy paint** for long life

All of these design characteristics make Blackmer's HD Series compressors the perfect choice for the transfer, boosting and recovery of a wide range of hydrocarbon and industrial gases, among them: propane, natural gas, butane, methane, methanol, isobutane, ammonia, chlorine and butadiene.

In The Field

One recent application where a vapor-recovery system from TESCORP featuring Blackmer HD compressors has enabled the end-user to successfully recover stock-tank vapors is at





TESCORP selects Blackmer compressors due to their high reliability.

a natural gas transfer location in Southern California. The customer's transfer process cannot be shut down, so the operation requires 100% redundancy.

Because of that operational requirement, TESCOP designed a fully instrumented duplex system that features a pair of non-lubricated Blackmer HD612C two-stage, air-cooled reciprocating gas compressors mounted on a skid. This duplex unit is a completely self-contained compression system that is suitable for use not only in stock-tank vapor recovery, but also in flare-gas recovery and medium-pressure process gas applications. The redundancy of the system allows one compressor to work full-time while the second is at 100% standby, or both compressors to work simultaneously at 200% capacity in emergency-flow situations.

The HD612C compressor delivers speeds as high as 700 rpm to the operation and has a suction pressure of 15.2 psia and discharge pressure of 130 psia, with an inlet temperature of 117°F (47.2°C) and outlet temperature of 241°F (116.1°C). Each compressor is driven with a V-belt drive system and a 15-horsepower motor, though only 10.4 hp is needed

for the operation. Gas coolers, inlet and interstage liquid traps, control valves and safety switches complete the features available in the system's turnkey package.

"If the vapor-recovery system isn't in operation, they can't run the site at all," said Thomas. "We picked Blackmer for this application because the compressors fit the application, and their reliability best fit the needs of the end-user. We shipped the unit in 2008, and it has been operating without fail since then."

Conclusion

At its simplest, recovering the vapors emitted by any type of hydrocarbon or industrial gas just makes sense. There are not only the monetary benefits, but there is also the peace of mind that is realized just from knowing that the safety of any personnel charged with handling these gases, as well as the overall environment, is increased. This increase in

the attention paid to vapor recovery has been a boon to companies like TESCOP, which have taken their industry expertise and, working in tandem with reliable partners like Blackmer, carved out a profitable niche in the growing world of hydrocarbon and industrial gas vapor recovery.

"We have a significant number of compressors in the field and knowing that they are Blackmers means that not only are the vapors getting recovered for our end-users, but they are doing so in the most efficient, economical and environmentally friendly way possible," said Thomas.

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