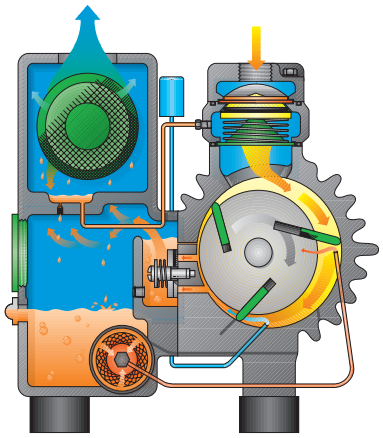
# Vacuum Pump Minimizes Resin Waste, Creates Better Molds and Meets NESHAP Requirements

The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations for the boat manufacturing industry have left many companies scrambling to change their building practices to meet the August 2004 deadline.

One of the best ways to meet compliance and rid workers of protective paper suits, air filtered masks, rubber boots and gloves are by using several vacuum techniques. One example is vacuum bagging, which is used to remove air and excess resin from the core or fabric in the curing process.

Another example is closed molding, which uses vacuum to distribute the resin through the reinforcing fabric placed between two mold surfaces to either saturate the fabric or fill the mold cavity. Some closed molding techniques being implemented include vacuum-assisted resin transfer molding (VARTM), resin-infusion molding process (SCRIMP) and vacuum assisted compression molding.



*R 5 Cutaway*

Vectorworks Inc., located in Titusville, Florida chose a Busch R 5 rotary vane vacuum pump to provide the vacuum necessary to perform these processes. Vectorworks provides design, engineering, machined tooling, molds and complete fabrication for the boat and yacht industry. They have a true "Concept to Completion" operation, which allows them to design yachts, build molds for boat manufacturers and construct completed mega yachts in excess of 100 feet in length.


"We chose to use vacuum, not just to comply with NESHAP, but to help control our cost of materials by minimizing resin waste. A side benefit is that this process creates a stiffer, stronger and lighter composite," said Kurtis Hopf, the Director of Operations for Vectorworks.

"We recently completed the molds used to form the hull and superstructure for a 136 foot, high speed mega yacht. It was essential that the hull be exceptionally strong and feather light to hit designed target speeds in excess of 50 miles per hour. The Busch R 5 0063 rotary vane vacuum pump was an extremely reliable source of vacuum, which was able to perform this process and meet our requirements. In addition, the pump was quiet and small enough to move from point-to-point inside the hull," said Hopf.

The Busch R 5 is a rugged, oil recirculating vacuum pump that is air cooled and it reaches an end vacuum of 29.3" Hg. The Busch R 5 also has a built-in four stage exhaust filtration system that provides a 99.9% oil-free exhaust and it is ideal for all of the vacuum intensive processes in the resin and molding industries. The R 5 is designed to run continuously for uninterrupted transfer of resin material and time-consuming curing processes. Kurtis Hopf agrees.

*R 5 0063 Vacuum Pump*

"The Busch R 5 vacuum pump requires very few preventative maintenance items and its performance and reliability have proven to us to be dependable in our environment"

**Busch, Inc**
516 Viking Drive
Virginia Beach, VA 23452
1-800-USA-PUMP
www.buschpump.com

BUSCH
Vacuum Pumps and Systems