

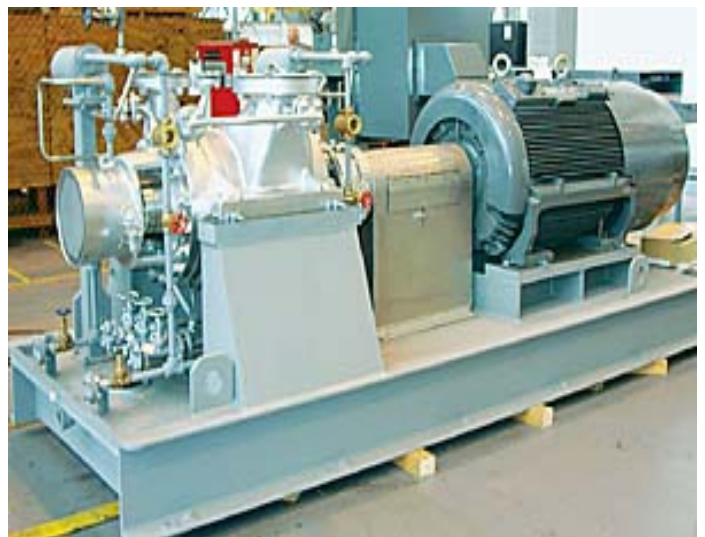
TURBO TRAC's Infinitely Variable Transmission

"IVT" provides GREATER EFFICIENCY and HIGHER PRODUCTIVITY

In today's energy intensive market, improving system productivity while reducing operating costs in pumping applications is key to staying ahead of the pack. Turbo Trac Systems' infinitely variable transmission (IVT) is a unique innovation that overcomes the constraints of current speed control methods in pumping applications and addresses tomorrow's challenges and environmental cost impacts.

The IVT delivers:

- ◆ A higher efficiency solution for applications with changing or uniform speed conditions thereby *Reducing Energy Consumption and Operating Cost;*
- ◆ A solution that is compatible with both high slip and premium efficiency motors providing easy, *Low Cost Adaption* to current systems;
- ◆ A *Speed Control Solution* with high through-put efficiency for systems driven by internal combustion engines;
- ◆ A robust solution for challenging electric power conditions and other environmental challenges (heat, dust, lightning) *Reducing Maintenance and Repair Cost;*
- ◆ A mechanical solution with increased reliability over electronic variable speed drives that increases productivity, *Reduces Operating Costs* and contributes to *Improved Profitability.*

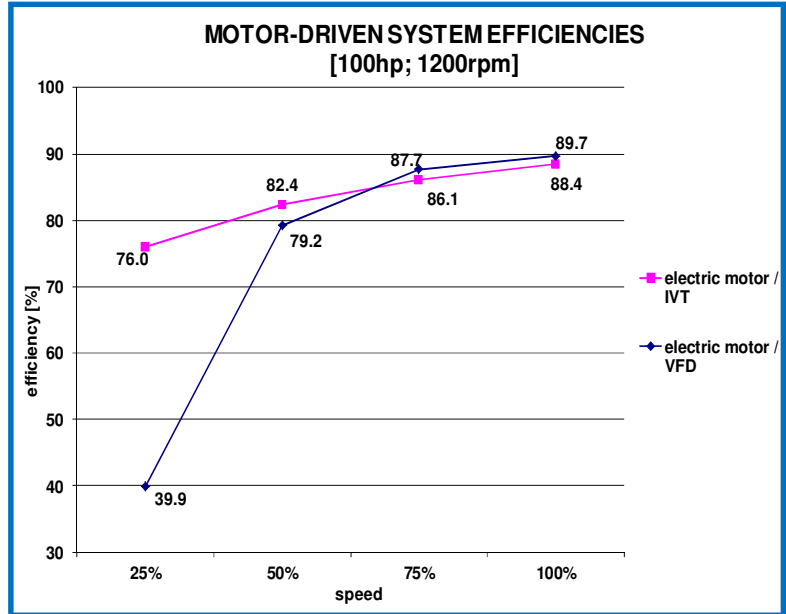


The IVT is mounted between the prime mover and the pump, allowing each unit to operate at its most efficient speed to match throughput requirements. It provides a seamless and infinitely variable change in speed to the pump (variable torque), without any interruption in power throughput. Conversely the IVT can be operated to provide constant speed to constant torque pump applications.

TURBO TRAC'S IVT PERFORMANCE

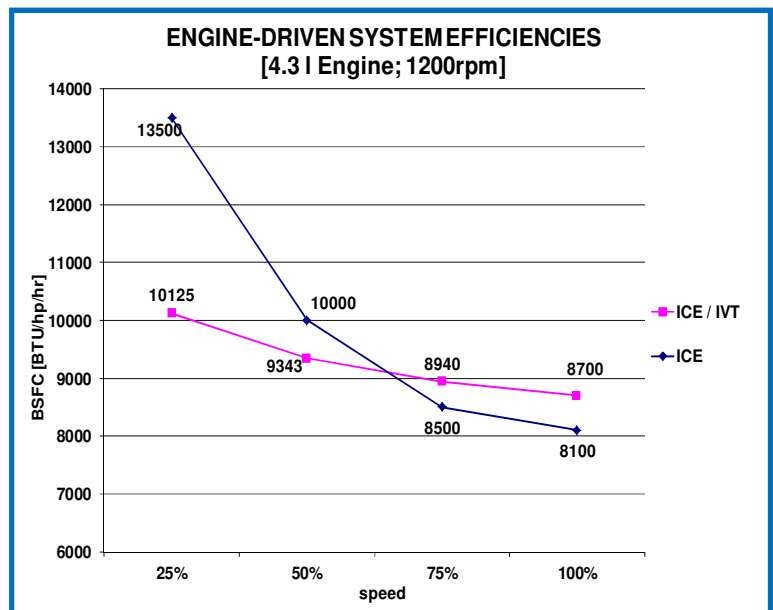
IVT plus Motor Performance

Turbo Trac's IVT introduction follows successful testing at the renowned Southwest Research Institute. Testing confirmed the IVT's advantages in speed regulation as well as the superior gains in system efficiency. Operators benefit from improved system productivity and substantial savings on maintenance and energy costs. The IVT achieved *peak mechanical efficiency of 93%*, with a *guaranteed resolution of 0.01% even in poor power quality conditions. No need to compensate poor throughput efficiency with oversized motors!* Similar system efficiency achievements were obtained at input speeds of 1800 rpm at 50, 75 and 100 HP.



IVT plus ICE Performance

Internal Combustion Engines (ICE) aren't very efficient with only 20% of the power produced by the burning fuel being useful and even less than that ever makes it to the pump. The unit coupled with an IVT will deliver the IVT's advantages in speed regulation and system efficiency. Operators benefit from reduced fuel consumption and substantial savings on maintenance and energy cost. The IVT will achieve *almost constant fuel consumption over the entire speed range. There is no need to compensate for poor throughput efficiency with oversized internal combustion engines!*



IVT improves Pump System Efficiency

The IVT operates at the same efficiency in both pump categories, positive displacement (variable torque) and dynamic (constant torque).

The IVT replaces the Variable Frequency Drive (VFD) and can be used with a constant speed, premium efficiency motor. Together, the IVT/ premium motor system will raise efficiency by 10% or more over the VFD/motor combination while providing better system productivity and reduced operating cost.

This provides the operator with a higher efficiency system than using other control devices.

In addition to higher productivity and lower operating costs, Turbo Trac's IVT also provides:

- ◆ Increased Reliability
- ◆ Ability to withstand harsh environments
- ◆ No impact from voltage sags
- ◆ No expensive electric conditioning equipment to protect control device
- ◆ No advanced electrical training required for operation



TurboTrac Systems

Energy transmissions ahead of the curve.™

Turbo Trac *offers prospective application partners the opportunity to test our units* in their own operational environment and according to their requirements. Contact us for a discussion of your application needs and let the IVT convince you of its benefits!

Turbo Trac's IVT offers attractive productivity and efficiency gains for:

- ◆ Pump Systems;
- ◆ Compressor Applications;
- ◆ Material Handling Applications;
- ◆ Industrial Fan Applications;
- ◆ Mining, Off-road, and Utility Vehicles;
- ◆ Offshore marine vessels; and
- ◆ Wind Turbines.

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