**Overview**

SPX Cooling Technologies offers a complete Marley VFD and motor upgrade aftermarket package for cooling towers that can significantly reduce energy costs compared to single or two-speed starters. This package provides a single-source solution, it’s easy to purchase and has a longer warranty than individually purchased components.

**Primary Benefits**

- **Significant Cost Savings** – The VFD package can lower operating costs as much as 30% compared to a two-speed motor system, or 70% compared to a single-speed motor system, while also qualifying for state and utility rebates in some regions.
- **Ease of Purchase** – Marley will assist by identifying both mechanical and electrical tower components required to make your single purchase order a smooth experience.
- **Support / Warranty** – Approved and supported by Marley and backed with a 3-year warranty that is twice the length of many VFD manufacturers.

**Benefit Detail**

**Cost Savings:**

- **Energy Costs** – up to 30% savings vs two-speed or 70% vs single-speed*
- **Process Costs** – VFDs maintain tighter cold water set-point temperature control than thermostats to minimize your process cost.
- **Rebates** – Multiple utilities provide rebates of up to 50% of the drive cost as an energy saving incentive.
- **Payback** – The payback considering the total cost savings associated with the VFD package can be as low as two years or less—use Marley’s UPDATE program to calculate your savings today!

*Based on UPDATE selection for a three-cell NC6405TAN with 40hp motor per cell running 24/7 for 5 years. Total water flow over the tower is 4500 GPM. Cost is $0.10 per kWh with an assumed annual interest rate of 3%. Cold water set point is 75°F, with an average wet-bulb temperature of 50.7°F, (average seasonal value for Cincinnati, Oh).
**Benefit Detail**

**Ease of Purchase:**
- Single-source supplier vs multiple purchase orders
- Cooling tower specific components identified by Marley
- Marley OEM quality and support
- Certified VFD startup assistance from ABB

**Marley Support and Enhanced Warranty:**
- Extensive Service Record database to identify needs
- Three-year material-only warranty that covers the entire package
- Additional VFD warranty coverage with certified startup assistance—material, labor and travel for VFD repair or replacement included
- Application and troubleshooting assistance from experienced Marley Controls team

**Application Range**
- Up to 150hp package includes the Marley Cooling Tower Duty Motor
- 200hp and higher includes a NEMA Premium Efficiency single-speed motor

**Special Design Considerations**
- Hand or Auto operation allows operator direct control of motor speed
- Soft start of motor—enables less wear to mechanical equipment and less noise than using across-the-line starters
- DV/DT output filter option is available for long lead lengths between VFD and fan motor
- Triless-design drive eliminates most nuisance faults (under-voltage, over-voltage, flying start, downdraft back drive) keeping the tower running
- Reduced fan speeds extend motor bearing life and pulls less airborne contaminants into the tower, minimizing maintenance shutdowns—overall sound levels of the tower are also reduced

**Methods of Operation**
- Stand alone system matched with RTD: No external controller required—status indicators and keypad display provide easy tower control
- Customer BMS controls speed of VFD: Let the Building Management System monitor the process temperature and control the VFD - 4-20 mA, 0-10 VDC analog speed signals - Modbus RTU, Johnson Controls N2, Siemens FLN (p1) and BACnet (MS/T) field bus communications

**Features and Options**
- UL Listed
- PWM drive with IGBT switching and integrated bypass design
- NEMA 12 indoor or NEMA 3R outdoor enclosure
- 208 through 575 VAC power choices
- 5% line impedance standard
- Main circuit breaker disconnect with provisions for lock-out tag-out padlocks
- Switch to isolate VFD from voltage supply when servicing