

Technical Note

Electrical

General Inverter Advantages

- 1) Reduces energy consumption through improved power factor. The inverter acts like a power factor correction capacitor. This is especially useful when the motor HP is considerably larger than the actual load HP
- 2) Eliminates high in-rush currents at starting. Since customer pays for peak demand, an inverter limits the starting peak and keeps the peak demand as low as possible – this can yield considerable savings, especially on high cyclic applications
- 3) Increases the available number of starts and stops by keeping motor cooler through the elimination of high in-rush currents
- 4) Eliminates expensive reversing contactors
- 5) Drastically improves brake life in cyclic applications, since brake acts to hold, not to stop
- 6) Provides soft start, which reduces shock and increases life on bearings and other components
- 7) Eliminates mechanical motor starters that require maintenance and are increasingly expensive relative to inverters – especially for 2-speed motors
- 8) Includes current overload protection for motor - user does not need to supply a starter.
- 9) Includes voltage overload protection for motor
- 10) Eliminates clutch/brakes and fluid couplings
- 11) Allows user to standardize on a few select ratios within his plant and fine tune exact speed with inverter – fewer spare parts
- 12) Provides variable speed without any wearing parts

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SEW Inverter Advantages

- 1) Reduces energy consumption through improved power factor. The inverter acts like a power factor correction capacitor. This is especially useful when the motor HP is considerably larger than the actual load HP. The lean DC bus of the SEW inverter allows it to have a better power factor than competitors.
- 2) Provides 100% torque at zero speed, so holding brake is eliminated
- 3) Monitors or limits torque very precisely in CFC mode – performs like an electronic shear pin*
- 4) Contains 24V supply output that can be used for customer's control circuit (with limited amp capacity). Thus, the customer does not have to supply his own 110V or 24V control circuit from a step-down transformer, eliminating the cost of transformer and wires.
- 5) Contains a separate brake output terminal (DB00) that provides 24V for use with a brake control circuit – PLC is unnecessary. This 24V signal is used to power a 24V contactor that switches the brake supply voltage. Many competitors do not have a control signal available from the inverter so the customer must use a PLC, or other method, with a competitor's inverter in order to control the brake.
- 6) Provides premagnetization* and postmagnetization* to prevent the gearmotor from free falling before the brake is applied or after the brake is released.
- 7) Provides thermal overload protection – standard on Movimot[®], optional on Movidrive[®].
- 8) Minimizes reflected wave phenomena by using Movimot[®], due to short motor leads.
- 9) Eliminates panel enclosure and all wires leading from it by using Movimot[®].
- 10) Offers considerable cost savings by eliminating a large amount of wiring when several Movimots are daisy-chained together within field distributors (decentralization).
- 11) Movitools[®] software tunes an SEW motor during commissioning by automatically adjusting the P-gain and Time constant to provide a stable system.
- 12) Movitools[®] software saves the user from having to perform elaborate manual calculations by automatically calculating the inertia of the system. This information allows the user to determine the motor-to-load inertia (J ratio).

* Indicates that feature may not be exclusive to SEW and may be available from a select competitor.

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- 13) Reduces programming time/knowledge when using Optional Application Modules
- 14) Uses IPOS^{plus} to eliminate a PLC, depending on application. Also Interfaces with a PLC for applications that still require the use of a PLC.
- 15) Contains an option to hold the carrier frequency at 16 KHz. Some competitors begin at 4 KHz, then switchover to 16 KHz. The switch is audible and undesirable in applications where noise is critical, such as theaters.
- 16) Adjusts for accumulation error that occurs when a single direction is continuously used, such as an indexing application.
- 17) Contains a safety circuit that meets EN954-1, Category 3 standards. Disconnects the output transistor of the inverter even if the input voltage is still present, so that the motor is unable to develop torque.
- 18) SEW warrants entire package from reducer to inverter – no finger pointing!
- 19) Includes free WindowsTM- based software for easy programming