

Screw Feeders

Variable Frequency Drive Controllers

Design & Sizing



Live Bottom Screws



**Ceramic Coated
Screw Feeder**

Torque is an applied force that tends to produce rotation and is measured in lb-ft or lb-in. All loads have a torsional requirement that must be met by the drive, the purpose of which is to develop enough torque to meet the requirements of the load.

An important component of the torsional requirement is “Starting Torque”, or “Break-Away Torque”, which is the amount of torque required to get the load



Quad Screw Feeder w/ Bin

moving. After the load is in motion, the torque demand will drop off to that which is required to handle the required capacity (Running Torque). Achieving this level of power may require the VFD to deliver up to 400% of rated motor current.

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Engineered Systems
Systems Engineering and Design

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Triple Screw Feeder



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Notes:

- 1.) It may be necessary to up-size the VFD one or two steps to provide the level of starting torque required for the application. Consult a TPI Design Engineer for assistance.
- 2.) Other than a higher initial cost, oversizing a VFD is never a bad idea; an upsized VFD will absolutely run cooler, which is always a positive step.

Definitions:

Starting torque (Break-away torque): torque required to start a load in motion (potentially 150% to 250% greater than the running torque).

Accelerating torque: torque required to bring the load to operating speed within a given time. Not normally a consideration in screw feeder applications.

Running torque: torque required to keep the load moving when uniformly loaded at a steady-state-rate and running at normal operating speeds.

Peak running torque: occasional torque spike required by the load, such as having an additional load dropped on a conveyor; a surge load.