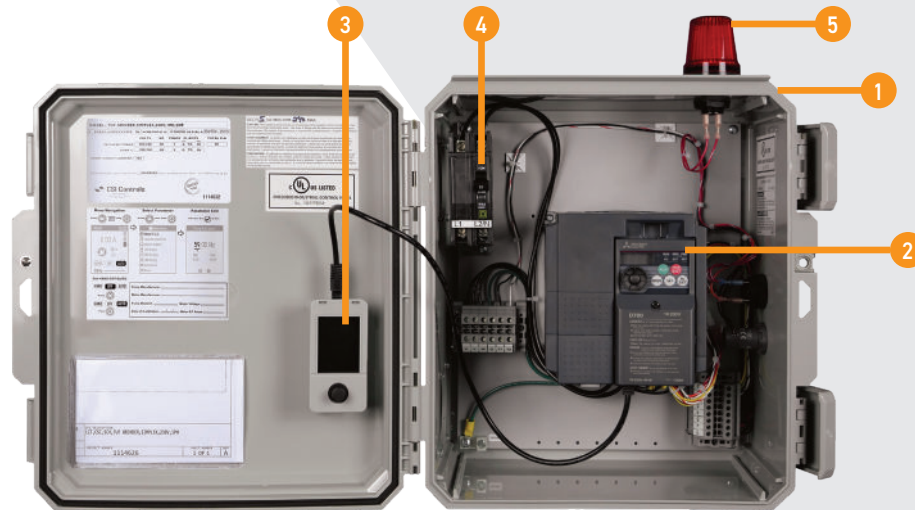


# TUF Grinder™ Simplex Control Panel

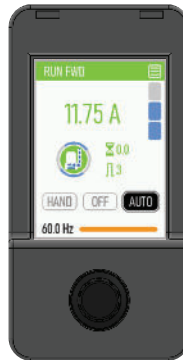
## Variable Frequency Drive for Grinder Pumps



The TUF Grinder™ Simplex Control Panels are available for single phase or for three phase incoming power. Both versions are designed to control a three phase sewage grinder pump in level control applications. Float switches activate a Variable Frequency Drive (VFD) to turn the pump on and off. If a high level alarm condition occurs, it activates the audible/visual alarm system. The TUF Grinder™ control panel is able to reverse on start to clear any debris in the impeller. In addition, it can detect high-amp conditions during pump run, indicative of clogging and automatically reverse the impeller. This is done momentarily and repeatedly until the binding material has been shredded to a size that can easily pass through the pump. This control method reduces clogging and potential failure resulting from a locked rotor.

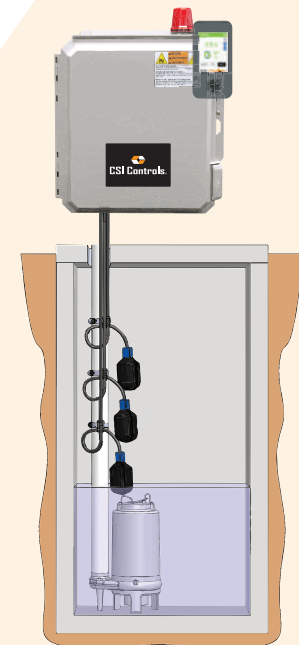
### FEATURES

- Quick start wizard for easy setup
  1. Enter motor amps (FLA)
  2. Enter motor horsepower (HP)
  3. Enter motor voltage (V)
  4. Perform motor auto-tuning
- Graphic color display (LCD):
  - High Brightness / Direct sunlight readable
  - Removable/handheld for easy programming
  - Pump run indication (FWD or REV)
  - Pump speed (Hz)
  - Pump current (A)
  - Float switch status
  - Elapse time meter/cycle counter
  - Message bar (Status & Alarm)
  - Alarm history
  - Password protection
  - Rotary button for easy menu navigation
- Quick connect terminals for ease of troubleshooting and service
- Pump dry run alarm
- Thermal cutout protection
- 2 or 3 float switch operation
- Pump motor overload protection
- Pump run high level alarm
- Max pump cycle time limiter
- 3 auto-reverse modes available (multiple modes can be selected)
  - Auto-reverse on start (clears the pump before starting the pump cycle)
  - Auto-reverse on stop (clears the pump after the pump cycle)
  - Auto-reverse on High Amps Detection (during a run cycle)



### COMPONENTS

1. Enclosure: NEMA 3R ultraviolet stabilized thermoplastic rated for outdoor use with mounting flanges, padlockable cover  
Note: See specifications on back side for sizing.
2. Variable Frequency Drive
3. LCD VFD display
4. Circuit breaker
5. LED beacon
6. Vents for VFD cooling (not shown)
7. Horn with Test/Silence button (not shown)



# CSI Controls®

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www.csicontrols.com

## TUF GRINDER™ SIMPLEX CONTROL PANEL

| Part #  | Model                         | Input Voltage     | Pump Rating       | HP     | Max Out. Amps | Enclosure Size | Shipping Weight |
|---------|-------------------------------|-------------------|-------------------|--------|---------------|----------------|-----------------|
| 1114632 | TUFGS-240-1-11                | 208-240V, 1 Phase | 208/230V, 3 Phase | 2      | 11A           | 14 x 12 x 6    | 18 lbs.         |
| 1114633 | TUFGS-240-1-17.8 <sup>1</sup> | 208-240V, 1 Phase | 208/230V, 3 Phase | 3-5    | 17.8A         | 18 x 16 x 10   | 33 lbs.         |
| 1114634 | TUFGS-240-1-28 <sup>1</sup>   | 208-240V, 1 Phase | 208/230V, 3 Phase | 7.5-10 | 28.0A         | 28 x 20 x 12   | 42 lbs.         |
| 1114635 | TUFGS-240-3-11                | 208-240V, 3 Phase | 208/230V, 3 Phase | 2      | 11A           | 14 x 12 x 6    | 18 lbs.         |
| 1114636 | TUFGS-240-3-16.5              | 208-240V, 3 Phase | 208/230V, 3 Phase | 5      | 16.5A         | 14 x 12 x 6    | 26 lbs.         |
| 1114637 | TUFGS-240-3-31.8              | 208-240V, 3 Phase | 208/230V, 3 Phase | 7.5-10 | 31.8A         | 18 x 16 x 10   | 33 lbs.         |

<sup>1</sup>Model not UL Listed

### SELECTING THE CORRECT VFD

1. Determine the number of phase and voltage available on site. If three phase is available, use models rated for three phase incoming power.
2. Select a pump with the same voltage rating as the incoming power (motor must be three phase).
3. Check pump motor nameplate Full Load Amps (FLA) for proper VFD sizing.
4. Select a VFD with an output amp rating equal or higher than motor FLA.

**SEE PRICE BOOK FOR LIST PRICE.**

### SPECIFICATIONS

**CONTROL:** VFD motor control (Sensorless Vector Control)  
 3 x Float Switch Inputs (Stop/Start/High Level)  
 1 x Thermal Cutout Input  
 1 x Aux Alarm Relay Output  
 Pump run/direction indication (FWD or REV)  
 Pump speed (Hz) and Amps (A) indication  
 Pump motor overload protection  
 Pump dry run alarm

**ENCLOSURE:** NEMA 3R ultraviolet stabilized thermoplastic rated for outdoor use with mounting flanges, padlockable cover

**ENVIRONMENTAL:** Surrounding air temperature: 14°F to 104°F (-10°C to 40°C)  
 Panel internal temperature: 14°F to 122°F (-10°C to 50°C)  
 Storage temperature: -4°F to 131°F (-20°C to 55°C)  
 Altitude: Maximum of 3,280 ft (1,000 m) above sea level

All conduits must be properly sealed to prevent sewer gas from entering the enclosure. Not rated for installation in hazardous locations.

**ELECTRICAL:** Input voltage: 240V nominal  
 208-240V 50Hz/60Hz, single phase for TUFGS-240-1 models  
 208-240V 50Hz/60Hz, three phase for TUFGS-240-3 models

**Note:** The output voltage cannot exceed the input voltage.

CSI Controls® recommends using the Control Duty Narrow-Angle Low Current Mechanical Control Switch or the Speed-E Connect™ Float Switch Connection System for backup float switches. For ordering information, please see our catalog pages at [www.csicontrols.com](http://www.csicontrols.com).



Toll Free: 888-342-5753  
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[www.csicontrols.com](http://www.csicontrols.com)

California Prop 65 requires the following: WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)