VFD SELECTION GUIDELINES

Guidelines for Pumping Applications

GENERAL:

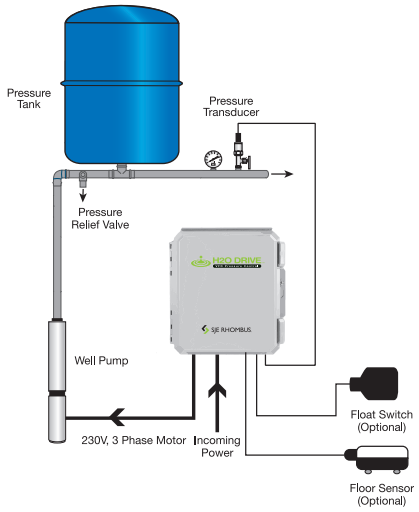
- The Horsepower (HP) rating of the VFD is for indication only. It is based on a standard NEMA B 4-pole motor. Use the motor nameplate amps for correct sizing.
- The voltage available on site must be the same voltage rating of the motor. If the incoming power is single phase, select the VFD rated for single-phase input.
- In all cases, the motor must be 3-phase.

SUBMERSIBLE WELL PUMP APPLICATIONS (H2O DRIVE)

- Check pump motor nameplate **Service Factor Amps (SFA)**
- Select a VFD with a maximum amps rating greater or equal to motor SFA.

Example: 5HP, 230V, 3-phase, 17.4 SFA well pump, incoming power: 240V, single phase

Part #	Model	HP	Max Amps	Sine Filter	Input	Pump Rating
1076917	RD150[1]	0.5 - 1.5	7.5A	No	240V, 1 Phase	208/230V, 3 Phase
1076918	RD300[1]	2.0 - 3.0	11.6A	No	240V, 1 Phase	208/230V, 3 Phase
1076919	RD500	5.0	17.8A	No	240V, 1 Phase	208/230V, 3 Phase
1107747	RD750	7.5	28.0A	No	240V, 1 Phase	208/230V, 3 Phase
1107690	RD1000	10	35.0A	No	240V, 1 Phase	208/230V, 3 Phase
1107691	RD1500	15	55.0A	No	240V, 1 Phase	208/230V, 3 Phase
1107750	RD150SF	0.5 - 1.5	7.5A	Yes	240V, 1 Phase	208/230V, 3 Phase
1107751	RD300SF	2.0 - 3.0	11.6A	Yes	240V, 1 Phase	208/230V, 3 Phase
1107752	RD500SF	5.0	17.8A	Yes	240V, 1 Phase	208/230V, 3 Phase
1107748	RD750SF	7.5	28.0A	Yes	240V, 1 Phase	208/230V, 3 Phase
1107692	RD1000SF	10	35.0A	Yes	240V, 1 Phase	208/230V, 3 Phase
1107693	RD1500SF	15	55.0A	Yes	240V, 1 Phase	208/230V, 3 Phase



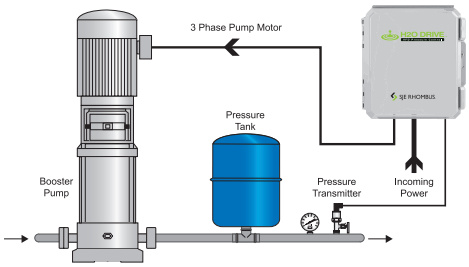
2 selections are possible. RD500 or RD500SF (with output Sine Filter from long motor cables applications and additional noise reduction). Note: For operation above 60Hz. Consult the pump manufacturer for pump and VFD sizing.

BOOSTER PUMP APPLICATIONS (H2O DRIVE)

- Check pump motor nameplate **Full Load Amps (FLA)**
- Select a VFD with a maximum amps rating greater or equal to motor FLA.

Example: 2HP, 230V, 3-phase, 7.0 FLA booster pump, incoming power: 240V, single phase

Part #	Model	HP	Max Amps	Sine Filter	Input	Pump Rating
1076917	RD150[1]	0.5 - 1.5	7.5A	No	240V, 1 Phase	208/230V, 3 Phase
1076918	RD300[1]	2.0 - 3.0	11.6A	No	240V, 1 Phase	208/230V, 3 Phase
1076919	RD500	5.0	17.8A	No	240V, 1 Phase	208/230V, 3 Phase
1107747	RD750	7.5	28.0A	No	240V, 1 Phase	208/230V, 3 Phase
1107690	RD1000	10	35.0A	No	240V, 1 Phase	208/230V, 3 Phase
1107691	RD1500	15	55.0A	No	240V, 1 Phase	208/230V, 3 Phase



The RD150 is the correct selection. Even though the HP rating is lower, the amp rating of the VFD is greater than the motor FLA.

SJE RHOMBUS®

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VFD SELECTION GUIDELINES

Guidelines for Pumping Applications

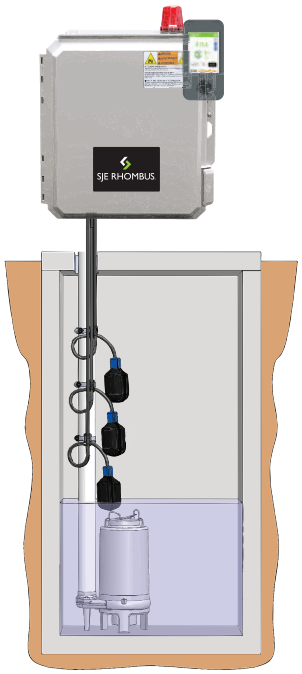
SUBMERSIBLE WASTEWATER PUMP APPLICATIONS (VARIOSPEED® GRINDER)

- Check pump motor nameplate **Full Load Amps (FLA)**
- Select a VFD with a maximum output amps rating greater or equal to motor FLA.

Example: 2HP, 230V, 3-phase, 10.3 FLA grinder pump, incoming power: 240V, single phase

Part #	Model	Input Voltage	Pump Rating	HP	Max Out. Amps
1107914	VSGS-240-1-11	208-240V, 1 Phase	**208/230V, 3 Phase**	**2**	**11A**
1107915	VSGS-240-1-17.8[1]	208-240V, 1 Phase	**208/230V, 3 Phase**	**3-5**	**17.8A**
1113571	VSGS-240-1-28[1]	208-240V, 1 Phase	**208/230V, 3 Phase**	**7.5-10**	**28.0A**
1107916	VSGS-240-3-11	208-240V, 3 Phase	**208/230V, 3 Phase**	**2**	**11A**
1107917	VSGS-240-3-16.5	208-240V, 3 Phase	**208/230V, 3 Phase**	**5**	**16.5A**
1107918	VSGS-240-3-31.8	208-240V, 3 Phase	**208/230V, 3 Phase**	**7.5-10**	**31.8A**

The VSGS-240-1-11 is the correct selection.



FREQUENTLY ASKED QUESTIONS

Can I oversize the VFD?
Yes, it is possible to use a larger VFD on a smaller pump. The general guideline is that you can go down to 25% of rated VFD output.

Example. You can use a 25A motor on a 100A rated VFD. Note that the current measurement and overload protection become less accurate as you use smaller motors.

Use the same VFD for 200V, 208V, 230V, 240V?
Yes. Our VFDs are grouped into 2 classes: 200V (170 to 264V), 400V (325 to 528V). The 200V class VFD can operate all the variations of 200V motors. Keep in mind that you cannot increase the incoming voltage through the VFD.

Example. If you have 208V power, you will only be able to get a maximum of 208V out of the VFD. You therefore should use a 208V rated pump. The motor amp rating is higher at lower voltages. Make sure that you size the VFD on the Amps ratings at 208V and not 230V.

What about Locked Rotor Amps (LRA)?
This value pertains to across-the-line starters, running the pump at full speed (60Hz) and full voltage 230Vac. This Locked Rotor Amps value is not applicable with VFD operation, as the motor starts at 0Hz and 0V then ramps up. Should the motor approach an overload condition while it is running, it will automatically slow down to avoid tripping. The LRA value at low speed and low voltage is significantly less then than the value published by the motor manufacturer. The LRA value is therefore not taken into consideration when selecting a VFD.