

COMMANDER® PRO VARIABLE FREQUENCY DRIVES

FW1677
0920
Supersedes
1219

DESIGNED FOR THE PROFESSIONAL PUMP INSTALLER

- Easy to read diagnostic display
- Increases flow as demand increases
- Available with pressure switch or pressure transducer
- Adjustable constant pressure
- Automatic pump and motor protection
- Superior cooling and dust protection
- Meets Part 15 Class A FCC electronic interference standards
- Programming lockout for secure operation
- Tamper proof cover
- Automatic fan designed to maximize cooling
- NEMA 3R for indoor/outdoor use



VS and TVS Series
Variable Frequency Drives and Systems



FCC Part 15 Class A



Commander® Pro Variable Frequency Drives

Shrouded venting for superior cooling

Key hole mount for fast, easy installation

Metal shielding, in conjunction with filtering, facilitates meeting FCC Part 15 Class A requirement

Stored memory for effective troubleshooting analysis

Spacious wiring area for easy installation

Heat baffle design efficiently directs air flow to maximize cooling for longer electronic component life.

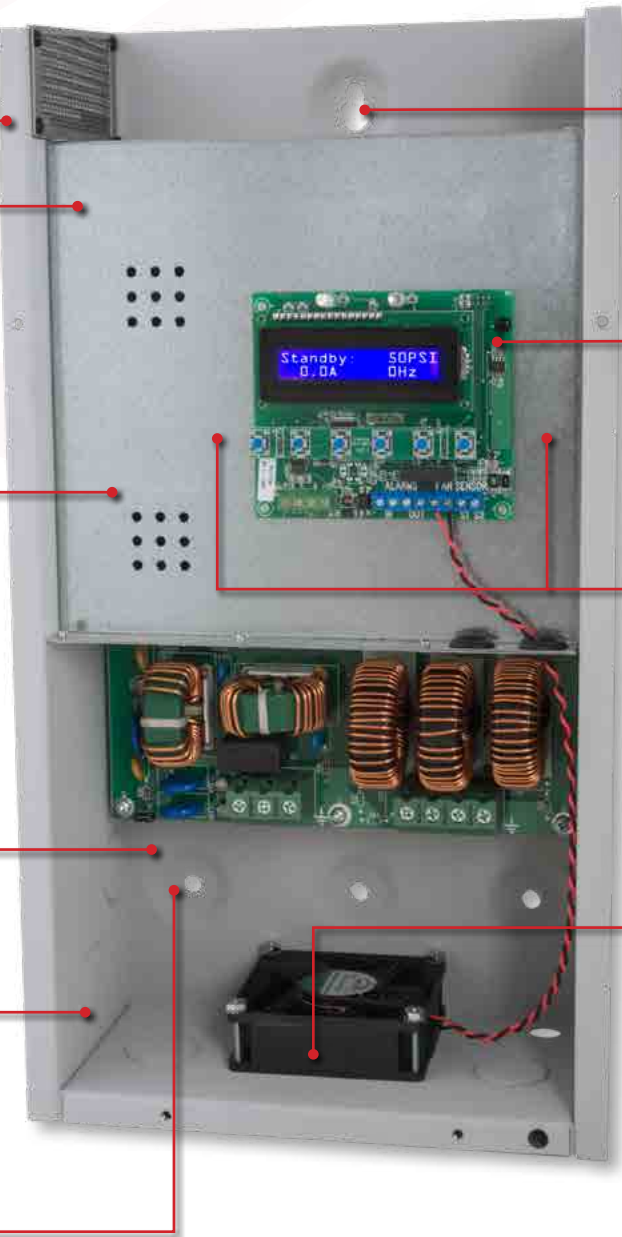
Bottom and side knockouts support 3/4" and 1" conduit

Temperature sensitive intelligent fan operates as necessary for quieter operation, energy conservation and reduced maintenance costs.

Additional holes for easy mounting on studs, poles, etc. with easy-access hardware

Easy to use programming buttons

Status indication in easy-to-understand text (not codes)



Commander® Pro Variable Frequency Drives

1.5, 2, 3 and 5 HP Constant Pressure Systems for Home, Irrigation & Deep Well Applications

The Commander Pro VS and TVS series of pre-packaged constant pressure water systems are designed specifically for demanding applications. These models are engineered to provide a constant pressure water supply from as deep as 950' or at flows from 2 to 325 GPM.

These systems feature Flint & Walling 4" submersible pump end, pressure transducer or pressure switch, single phase input and NEMA 3R enclosures

Applications include:

Residential Water Systems

- City-like water pressure
- Smaller tank saves space

Geothermal Systems

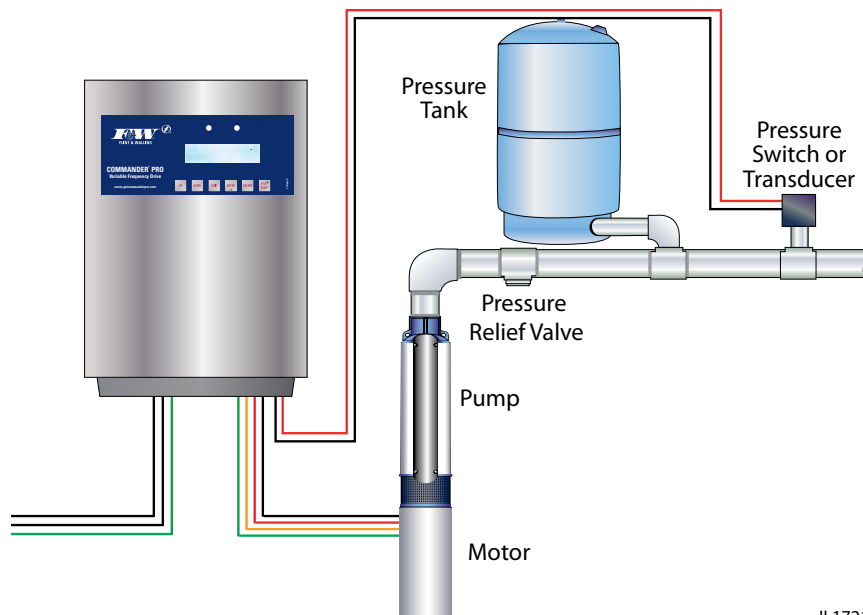
- No need for large buried tanks
- Eliminates pressure cycling

Lawn Irrigation Systems

- Even distribution of water in zones
- Eliminates need for separate system

Water Treatment Systems

- More efficient back flushing
- No need for multiple pumps



IL1721

Wire Sizing

The maximum allowable wire lengths for connection of controller to the main circuit box are given in the following table.

Maximum Wire Lengths Connecting the Controller to The Main Circuit Box (Based On 3% Voltage Drop At 230V)										
Motor HP	Copper Wire Size (AWG)	14	12	10	8	6	4	3	2	Circuit Breaker
1.5/2	Max. Length. (Ft.)		85*	140*	220	345	550	680	895	20 Amp
3				115*	180	285	455	560	740	25 Amp
5					115	185	290	360	470	40 AMP

* Wire with 90°C Insulation only



Commander® Pro Variable Frequency Drives

GENERAL SPECIFICATIONS

Commander Pro Series	Commander Pro 15 Series	Commander Pro 20 Series	Commander Pro 30 Series	Commander Pro 50 Series - VFD Only
Model Number	TVS15	TVS20	TVS30	TVS50
Horsepower	Up to 1.5 HP Three Phase	Up to 2 HP Three Phase	Up to 3 HP Three Phase	Up to 5 HP Three Phase
Input Voltage	200 – 250 V Single Phase			
Input Frequency	60/50 Hz			
Input Amps (RMS)	11 Amps	19 Amps	23 Amps	35 Amps
Input Power (Idle)	35 Watts	65 Watts	65 Watts	70 Watts
Output Phase	3-wire Single Phase: 1/2 HP – 2 HP			
	Up to 1.5 HP Three Phase	Up to 2 HP Three Phase	Up to 3 HP Three Phase	Up to 5 HP Three Phase
Output Frequency	Variable (30 – 80 Hz) Three Phase, (30 - 60 Hz) 3 Wire Single Phase			
Pressure	25 – 80 PSI (preset to 50 PSI) all units			
Ambient Temp. Range	-20° C (-4° F) to 50° C (122° F)			

City-like water pressure for rural water systems in one complete package

Systems include:



Commander Pro Variable Frequency Drive with advanced electronics. NEMA 3R enclosure.



Factory specified pump end for optimal performance and efficiency.



Proven water-lubricated motor. Performance matched for long life. Specified to avoid overload.

Pressure switch¹



¹024545 - Pressure switch kit w/lead

¹023049 - Pressure switch only

Pressure transducer²

or



²024586 - Pressure transducer kit (0-100PSI), factory installed

²024577 - Pressure transducer only (0 - 100 PSI)

²024587 - Pressure transducer kit (0-300 PSI)

²024585 - Pressure transducer only (0-300 PSI)



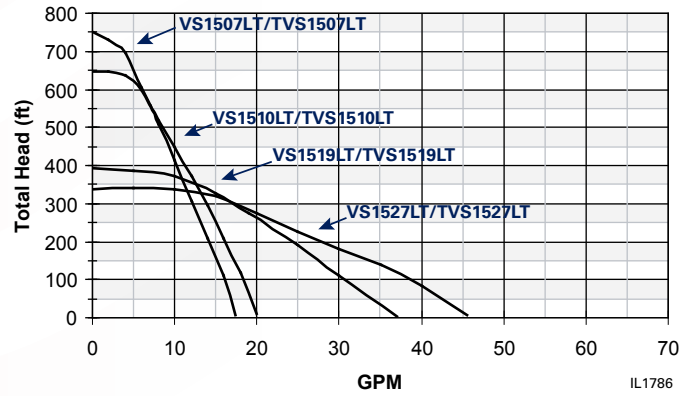
DIMENSIONS

Model	Disch.	Pump Dia.*	Pump Length	Motor Dia.	Motor Length	Total Length
VS1507LT TVS1507LT	1-1/4"	3.88"	19.4"	3.75"	11.8"	31.2"
VS1510LT TVS1510LT	1-1/4"	3.88"	18.9"	3.75"	11.8"	30.7"
VS1519LT TVS1519LT	1-1/4"	3.88"	17.0"	3.75"	11.8"	28.8"
VS1527LT TVS1527LT	1-1/4"	3.88"	15.3"	3.75"	11.8"	27.1"

* Including Cable Guard

For models with pressure transducer, add a "T" prefix to the model, i.e. TVS1507LT.

NEMA 3R.

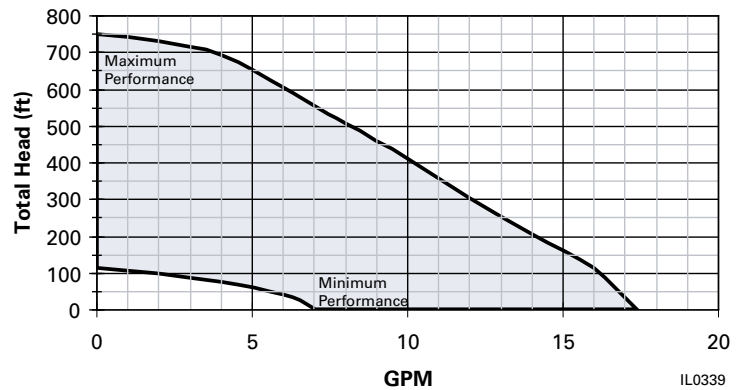


IL1786

Pumping Depth in Feet	GPM @ Pressure Sensor Setting					Max. Shut-Off (PSI)
	30	40	50*	60	70	
						324
20	16.3	16.0	15.6	15.1	14.6	
40	16.1	15.6	15.1	14.6	14.1	
60	15.7	15.2	14.7	14.2	13.7	
80	15.3	14.8	14.2	13.8	13.3	
100	14.8	14.3	13.8	13.3	12.9	
120	14.4	13.9	13.4	12.9	12.5	
140	14.0	13.5	13.0	12.5	12.1	
160	13.5	13.1	12.6	12.1	11.7	
180	13.1	12.7	12.2	11.8	11.3	
200	12.7	12.3	11.8	11.4	10.9	
220	12.3	11.9	11.5	11.0	10.6	
240	12.0	11.5	11.1	10.6	10.2	
260	11.6	11.1	10.7	10.3	9.8	
280	11.2	10.8	10.3	9.9	9.4	
300	10.8	10.4	9.9	9.5	9.0	
350	9.9	9.4	8.9	8.4	7.9	
400	8.9	8.3	7.9	7.4	6.9	
450	7.8	7.3	6.8	6.4	5.9	
500	6.7	6.3	5.8	5.4	5.0	
550	5.8	5.3	4.9	4.4	3.7	
600	4.8	4.3	3.5	1.5	-	
650	3.3	.8	-	-	-	

* Factory preset 50 PSI

Model VS1507LT, TVS1507LT

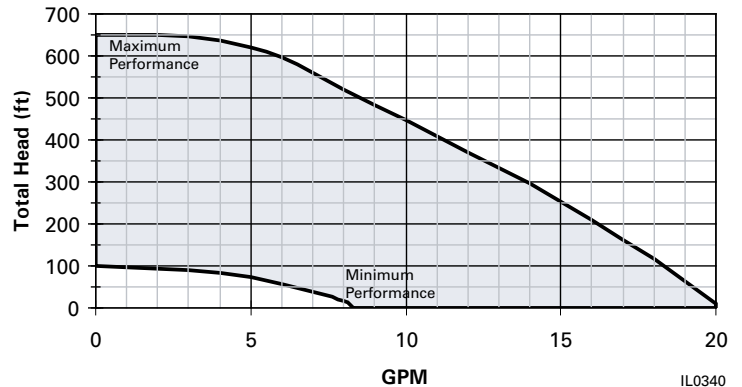


IL0339

Pumping Depth in Feet	GPM @ Pressure Sensor Setting					Max. Shut-Off (PSI)
	30	40	50*	60	70	
						280
20	18.6	18.1	17.8	17.2	16.8	
40	18.2	17.7	17.2	16.7	16.2	
60	17.8	17.2	16.8	16.2	15.8	
80	17.3	16.8	16.3	15.8	15.3	
100	16.9	16.4	15.8	15.3	14.8	
120	16.4	15.9	15.4	14.9	14.4	
140	16.0	15.5	14.9	14.4	13.8	
160	15.6	15.0	14.4	13.9	13.4	
180	15.1	14.6	14.0	13.4	12.8	
200	14.8	14.1	13.5	12.9	12.2	
220	14.1	13.8	12.9	12.3	11.8	
240	13.6	13.0	12.4	11.8	11.2	
260	13.1	12.5	11.9	11.3	10.7	
280	12.6	12.0	11.4	10.8	10.2	
300	12.0	11.4	10.8	10.3	9.6	
350	10.8	10.1	9.5	8.8	8.2	
400	9.4	8.8	8.1	7.5	7.0	
450	8.2	7.4	6.3	6.3	5.5	
500	6.8	6.2	4.0	3.9		
550	5.1	3.8				

* Factory preset 50 PSI

Model VS1510LT, TVS1510LT



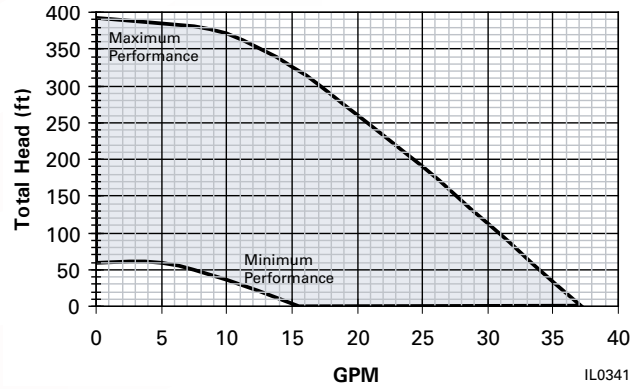
IL0340



Pumping Depth in Feet	GPM @ Pressure Sensor Setting					Max. Shut-Off (PSI)
	30	40	50*	60	70	
						169
20	31.8	30.0	28.5	27.2	26.3	
40	30.2	28.7	27.4	26.0	24.2	
60	29.0	27.5	26.0	24.5	22.7	
80	27.7	26.3	24.6	23.0	21.2	
100	26.5	25.0	23.1	21.5	19.5	
120	25.2	23.0	21.6	20.0	18.0	
140	23.7	22.0	20.0	18.5	16.8	
160	22.1	20.2	18.5	17.0	15.2	
180	20.6	18.7	17.2	15.2	13.5	
200	19.0	17.5	15.7	13.9	11.4	
220	17.7	16.0	14.0	11.9	7.0	
240	16.3	14.4	12.0	9.9		
260	14.6	12.5	9.0			
280	12.7	9.9				
300	10.3					

* Factory preset 50 PSI

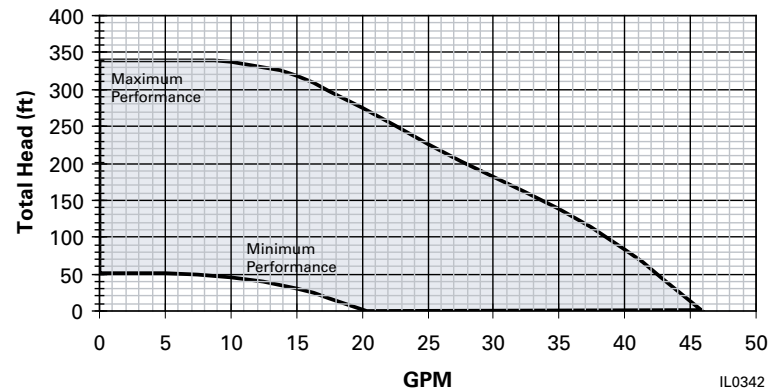
Model VS1519LT, TVS1519LT



Pumping Depth in Feet	GPM @ Pressure Sensor Setting					Max. Shut-Off (PSI)
	30	40	50*	60	70	
						146
20	39.5	37.5	35.4	33.0	30.0	
40	37.9	35.6	33.2	30.5	27.4	
60	36.0	33.5	30.9	28.0	25.0	
80	34.0	31.2	28.2	25.3	22.8	
100	31.5	28.6	25.6	23.1	20.6	
120	29.1	25.6	23.5	21.2	18.9	
140	26.4	23.8	21.4	19.2	16.9	
160	24.2	21.8	19.5	17.2	14.4	
180	22.1	19.8	17.5	15.1		
200	20.0	17.9	15.3	14.5		
220	18.2	15.9	10.3			
240	16.2	11.8				
260	13.0					

* Factory preset 50 PSI

Model VS1527LT, TVS1527LT

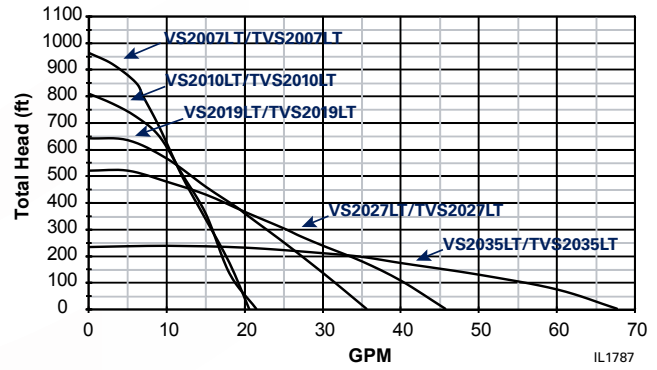


DIMENSIONS

Model	Disch.	Pump Dia.*	Pump Length	Motor Dia.	Motor Length	Total Length
VS2007LT TVS2007LT	1-1/4"	3.88"	22.60"	3.75"	13.62"	36.22"
VS2010LT TVS2010LT	1-1/4"	3.88"	20.25"	3.75"	13.62"	33.87"
VS2019LT TVS2019LT	1-1/4"	3.88"	18.25"	3.75"	13.62"	31.87"
VS2027LT TVS2027LT	1-1/4"	3.88"	16.85"	3.75"	13.62"	30.47"
VS2035LT** TVS2035LT**	2"	3.88"	12.56"	3.75"	13.62"	26.18"

* Including cable guard

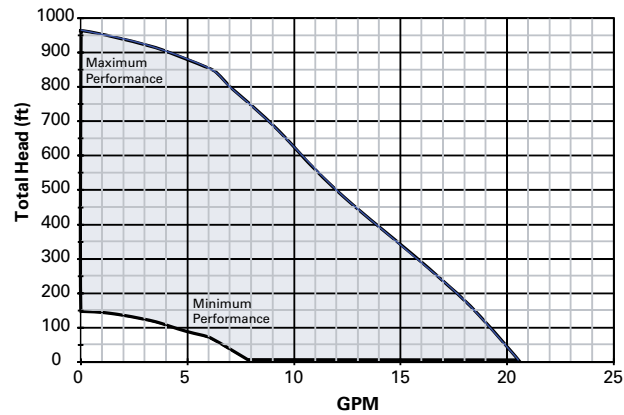
** VS2035LT/TVS2035LT does not include an internal check valve
For models with pressure transducer, add a "T" prefix to the model, i.e. TVS2007LT
NEMA 3R.



Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Max. Shut-Off (PSI)
	40	50*	60	70	
					417
50	18.5	18.2	17.8	17.4	
100	17.7	17.3	16.9	16.4	
150	16.8	16.4	15.9	15.5	
200	15.9	15.4	15.0	14.5	
250	14.9	14.5	14.0	13.6	
300	13.93	13.5	13.0	12.6	
350	12.95	12.6	12.1	11.7	
400	12.05	11.7	11.3	11.0	
450	11.24	10.9	10.5	10.2	
500	10.46	10.1	9.7	9.4	
550	9.65	9.3	9.0	8.6	
600	8.87	8.5	8.1	7.7	
650	7.99	7.6	7.1	6.8	
700	7.05	6.7	6.4	5.7	
750	6.31	5.6	4.6	3.5	
800	4.44	3.3	1.9		
850	1.74				

*Factory preset to 50 PSI

Model VS2007LT, TVS2007LT

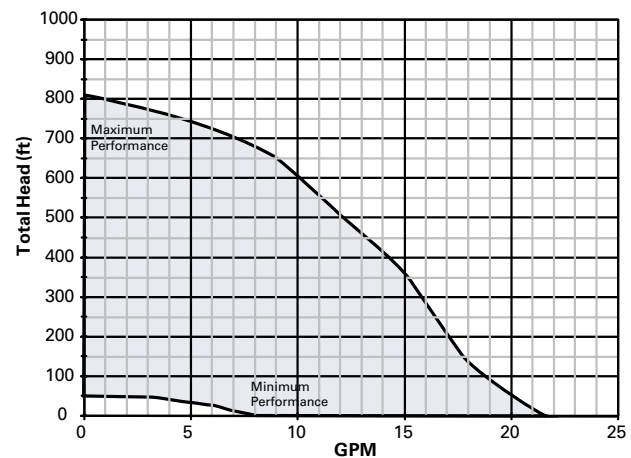


IL0872

Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Max. Shut-Off (PSI)
	40	50*	60	70	
					351
50	17.9	17.5	17.2	16.9	
100	17.1	16.9	16.6	16.3	
150	16.5	16.3	15.9	15.7	
200	15.9	15.6	15.3	14.9	
250	15.3	14.9	14.5	14.0	
300	14.37	13.9	13.4	13.0	
350	13.43	12.9	12.4	11.9	
400	12.25	11.8	11.4	10.9	
450	11.31	10.8	10.4	9.9	
500	10.33	9.8	9.3	8.7	
550	9.17	8.6	7.7	6.7	
600	7.56	6.5	5.4		
650	5.01				

*Factory preset to 50 PSI

Model VS2010LT, TVS2010LT



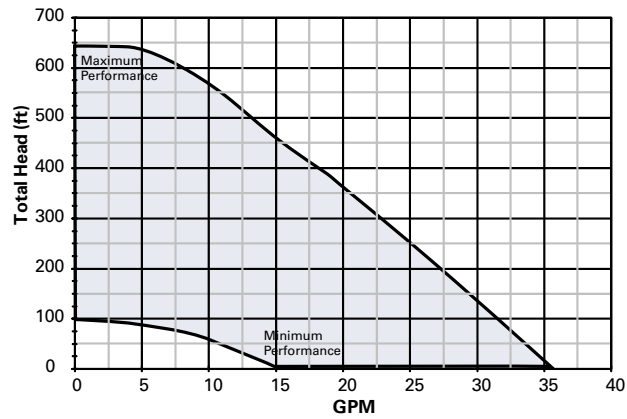
IL0873



Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Max. Shut-Off (PSI)
	40	50*	60	70	
					278
50	29.8	28.8	27.8	26.8	
100	27.6	26.5	25.6	24.5	
150	25.4	24.4	23.4	22.3	
200	23.2	22.1	21.0	19.9	
250	20.9	19.7	18.7	17.5	
300	18.5	17.3	16.1	15.0	
350	15.9	14.8	13.7	12.7	
400	13.6	12.5	11.5	10.3	
450	11.2	10.0	8.8	7.3	
500	8.5	7.0			

*Factory preset to 50 PSI

Model VS2019LT, TVS2019LT

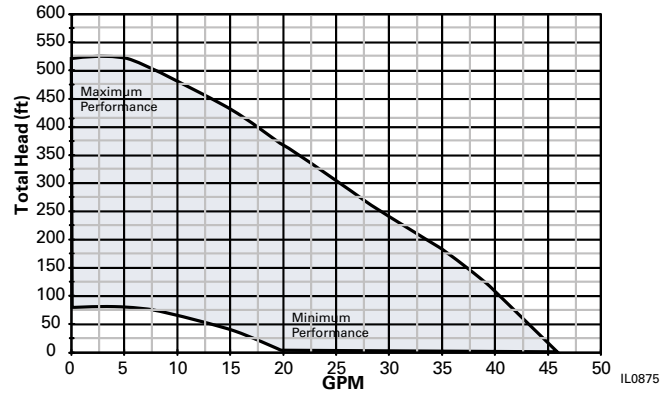


IL0874

Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Max. Shut-Off (PSI)
	40	50*	60	70	
					226
50	37.9	36.3	34.6	32.4	
100	34.1	32.1	30.1	28.2	
150	29.8	28.0	26.1	24.6	
200	26.0	24.1	22.2	20.4	
250	21.9	20.0	18.5	16.7	
300	18.18	16.4	14.5	12.1	
350	14.15	11.8	9.2	6.7	
400	8.75	6.2			

*Factory preset to 50 PSI

Models VS2027LT, TVS2027LT



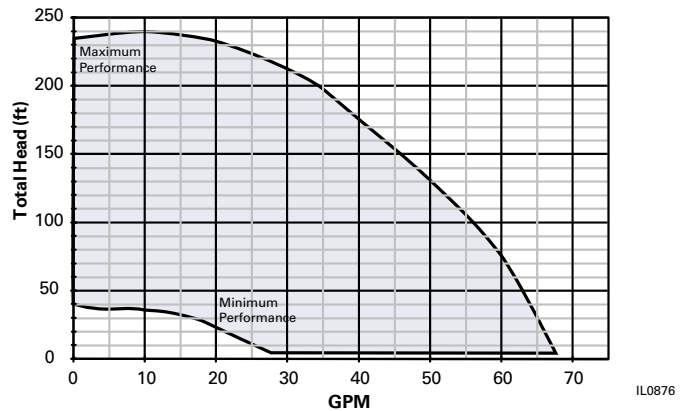
IL0875

Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Max. Shut-Off (PSI)
	40	50*	60	70	
					102
25	52.9	48.0	42.8	37.5	
50	47.8	42.2	37.1	30.2	
75	41.8	36.9	29.4	16.6	
100	36.4	28.6	14.3		
125	28.5	9.8			

*Factory preset to 50 PSI

**VS2035LT does not include an internal check valve

Models VS2035LT, TVS2035LT



IL0876



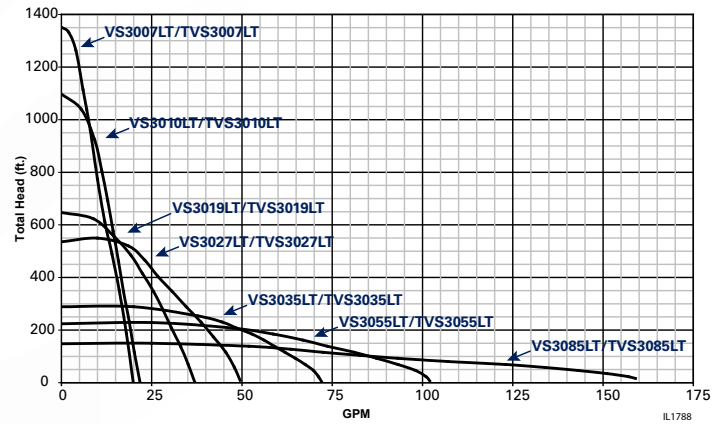
DIMENSIONS

Model	Disch.	Pump Dia.*	Pump Length	Motor Dia.	Motor Length	Total Length
VS3007LT TVS3007LT	1-1/4"	3.88"	26.00"	3.75"	16.06"	42.1"
VS3010LT TVS3010LT	1-1/4"	3.88"	24.25"	3.75"	16.06"	40.3"
VS3019LT TVS3019LT	1-1/4"	3.88"	18.25"	3.75"	16.06"	34.3"
VS3027LT TVS3027LT	1-1/4"	3.88"	18.90"	3.75"	16.06"	35.0"
VS3035LT** TVS3035LT**	2"	3.88"	14.25"	3.75"	16.06"	30.3"
VS3055LT** TVS3055LT**	2"	3.88"	14.50"	3.75"	16.06"	30.6"
VS3085LT** TVS3085LT**	2"	3.88"	14.50"	3.75"	16.06"	30.6"

* Including Cable Guard

**VS3035LT, VS3055LT & VS3085LT do not include an internal check valve.

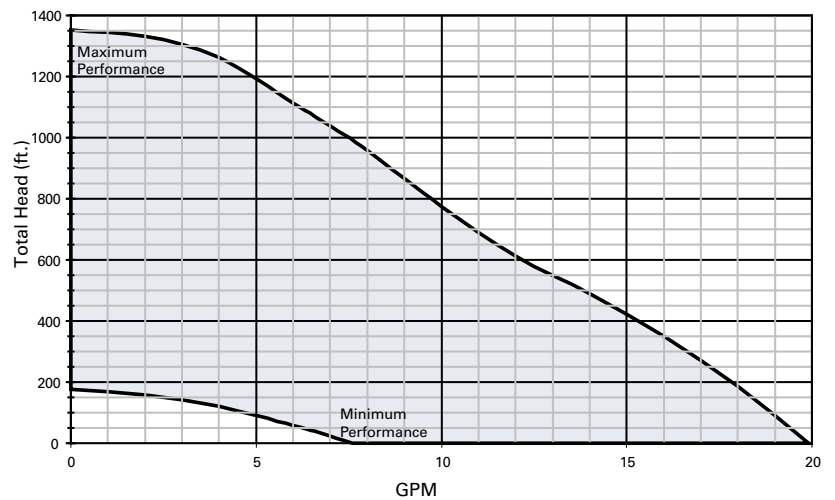
For models with pressure transducer, add a "T" prefix to the model, i.e. TVS3007LT NEMA 3R.



Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Maximum Shut Off (PSI)
	40	50*	60	70	
					585
100	18.0	17.7	17.4	17.2	
150	17.4	17.1	16.8	16.5	
200	16.8	16.5	16.2	15.8	
250	16.1	15.8	15.5	15.1	
300	15.4	15.1	14.7	14.4	
350	14.7	14.3	13.9	13.6	
400	13.9	13.5	13.2	12.8	
450	13.1	12.8	12.4	12.1	
500	12.4	12.1	11.7	11.4	
550	11.7	11.4	11.1	10.8	
600	11.0	10.7	10.4	10.2	
650	10.4	10.1	9.8	9.6	
700	9.8	9.5	9.2	9.0	
750	9.2	8.9	8.7	8.4	
800	8.6	8.4	8.1	7.9	
850	8.1	7.8	7.6	7.3	
900	7.5	7.3	7.0	6.7	
950	7.0	6.7	6.4	6.1	
1000	6.4	6.1	5.8	5.5	
1050	5.8	5.5	5.1	4.8	
1100	5.1	4.7	4.4	4.0	
1150	4.3	3.9	3.4	2.8	
1200	3.3	2.7	1.7		
1250	1.4				

*Factory preset to 50 PSI

Model VS3007LT, TVS3007LT



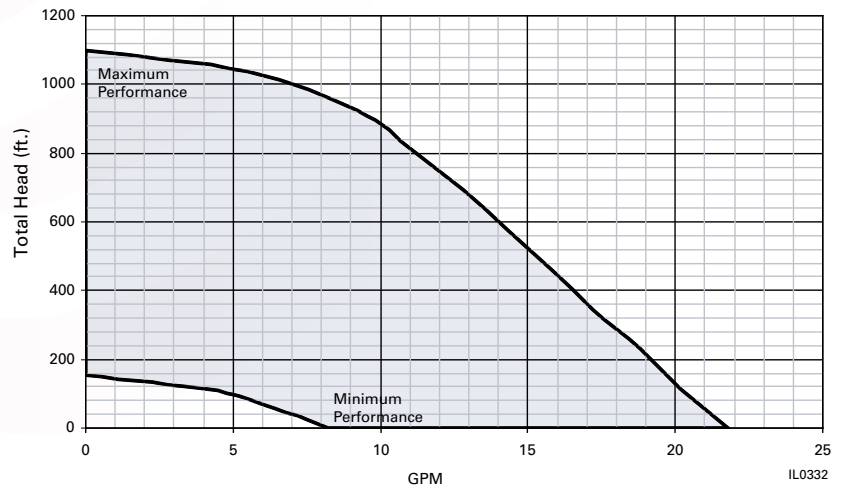
IL0845



Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Maximum Shut Off (PSI)
	40	50*	60	70	
					473
100	19.2	18.8	18.6	18.4	
150	18.4	18.2	17.8	17.7	
200	17.8	17.7	17.3	17.1	
250	17.3	16.9	17.2	16.3	
300	16.7	16.2	16.0	15.8	
350	16.1	15.8	15.3	15.2	
400	15.3	15.1	14.9	14.5	
450	14.8	14.4	14.1	13.9	
500	14.1	13.8	13.6	13.1	
550	13.5	13.1	12.8	12.6	
600	12.8	12.5	12.3	11.9	
650	12.2	11.8	11.5	11.2	
700	11.3	11.1	10.7	10.3	
750	10.6	10.2	10.0	9.5	
800	9.9	9.4	8.9	8.1	
850	8.7	8.1	7.5	6.5	
900	7.2	6.5	5.3		
950	5.3	4.5			

*Factory preset to 50 PSI

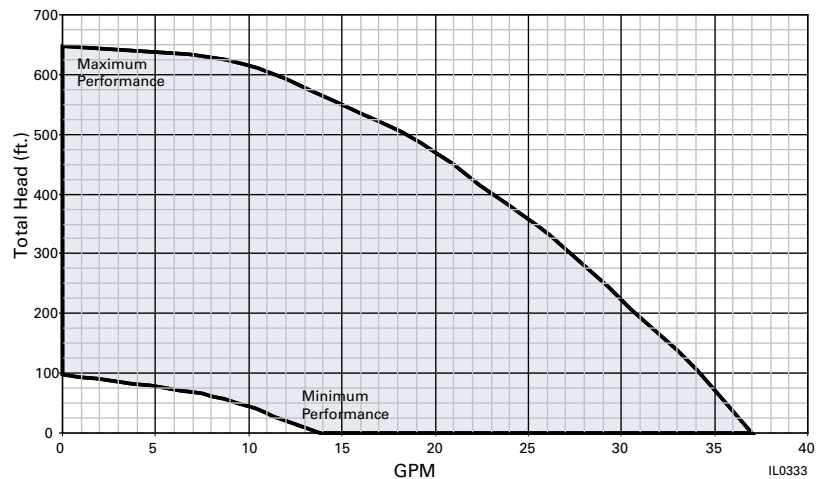
Model VS3010LT, TVS3010LT



Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Maximum Shut Off (PSI)
	40	50*	60	70	
					280
25	33.8	32.7	32.2	31.3	
50	32.7	32.0	31.2	30.3	
75	32.3	31.2	30.5	29.1	
100	30.9	30.3	29.3	28.6	
150	29.2	28.4	27.7	26.8	
200	27.4	26.6	25.8	24.8	
250	25.7	24.6	23.8	22.5	
300	23.5	22.4	21.5	20.5	
350	21.3	20.2	19.2	17.6	
400	18.9	17.3	15.6	13.9	
450	15.6	13.8	12.4	10.0	
500	12.0	9.9			

*Factory preset to 50 PSI

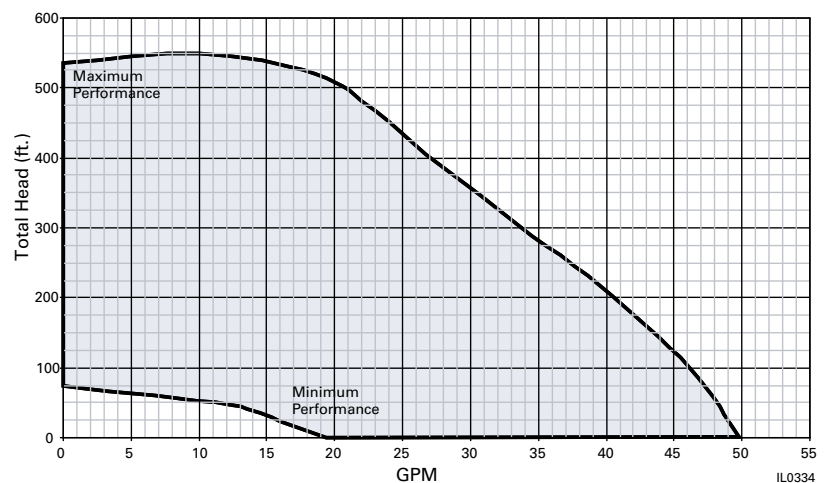
Model VS3019LT, TVS3019LT



Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Maximum Shut Off (PSI)
	40	50*	60	70	
					233
25	45.3	43.9	42.6	41.3	
50	43.8	42.5	41.2	39.9	
75	42.4	41.1	39.8	37.3	
100	41.0	39.7	38.2	36.5	
150	37.9	36.1	34.6	33.0	
200	34.4	32.6	31.2	29.7	
250	31.0	29.5	27.7	26.2	
300	27.4	25.8	24.7	23.5	
350	24.4	23.2	21.5	19.7	
400	21.3	19.0			

*Factory preset to 50 PSI

Model VS3027LT, TVS3027LT

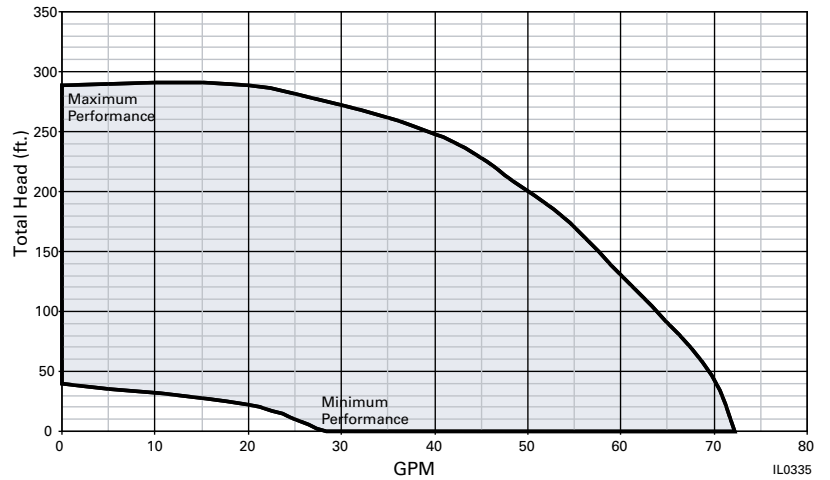


Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Maximum Shut Off (PSI)
	40	50*	60	70	
					122
25	62.0	58.0	56.0	52.0	
50	58.0	56.0	52.0	47.0	
75	56.0	52.0	47.0	42.0	
100	52.0	47.0	42.0	33.0	
125	47.0	42.0	33.0	21.0	
150	42.0	32.0	19.0		
175	32.0	15.0			

*Factory preset to 50 PSI

**Does not include an internal check valve

Model VS3035LT, TVS3035LT

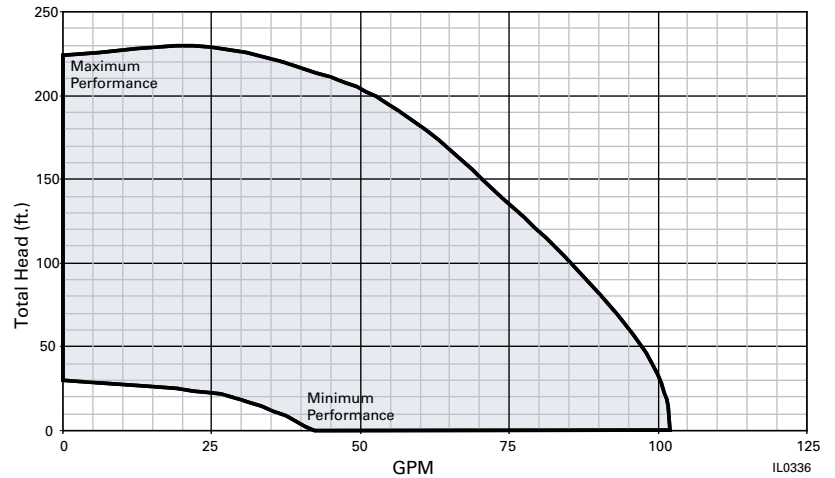


Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting				Maximum Shut Off (PSI)
	40	50*	60	70	
					98
25	81.0	73.0	66.0	57.7	
50	72.0	65.0	56.7	44.1	
75	64.3	56.0	43.0		
100	55.4	42.0			
125	40.9				

*Factory preset to 50 PSI

**Does not include an internal check valve

Model VS3055LT, TVS3055LT

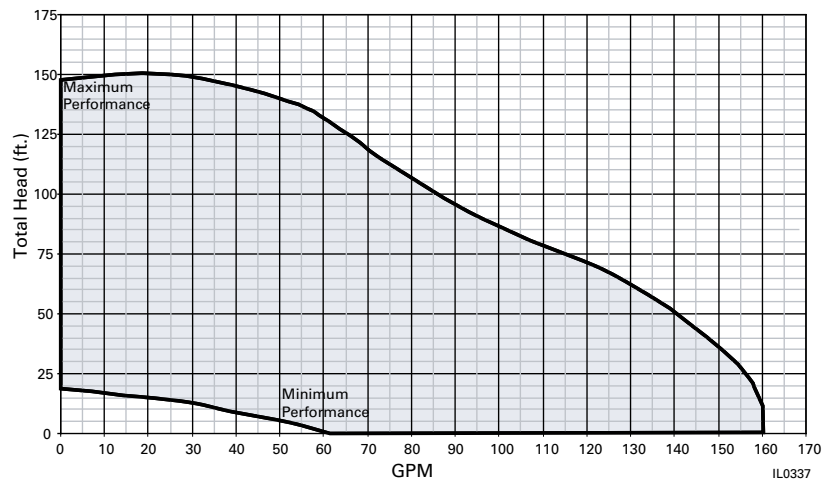


Pumping Depth in Feet	Maximum GPM @ Pressure Sensor Setting			Maximum Shut Off (PSI)
	30	40	50*	
				64
0	122.0	95.0	73.0	
5	117.0	87.0	69.0	
10	108.0	83.0	64.0	
15	103.0	78.0	60.0	
20	97.0	75.0	54.0	
25	92.0	72.0	46.0	
30	86.0	68.0	38.0	
35	82.0	63.0		
40	78.0	55.0		
50	68.0	45.0		

*Factory Preset to 50 PSI

**Does not include an internal check valve

Model VS3085LT, TVS3085LT



Commander® Pro Variable Frequency Drives

Controls purchased separately. . .
One Year Limited Warranty

Package Systems. . .
Pump End and Motor: 5 Year Limited Warranty
Drive: 3 Year Limited Warranty



**"LT" System
less tank**

VS PACKAGE		VS DRIVE		PUMP END			MOTOR		SWITCH/ TRANSDUCER
MODEL	GPM	MODEL	GPM	DESIGN	PART #	STAGES	PART #	HP	
VS1507LT TVS1507LT	7	VS15 TVS15	07	SS	4F07S07	14	M137458	1.5	024545 024586*
VS1510LT TVS1510LT	10	VS15 TVS15	10	SS	4F10S07	12	M137458	1.5	024545 024586*
VS1519LT TVS1519LT	19	VS15 TVS15	19	SS	4F19S10	9	M137458	1.5	024545 024586*
VS1527LT TVS1527LT	27	VS15 TVS15	27	SS	4F27S10	7	M137458	1.5	024545 024586*
VS2007LT TVS2007LT	7	VS20 TVS20	07	SS	4F07S10	18	M137462	2	024545 024586*
VS2010LT TVS2010LT	10	VS20 TVS20	10	SS	4F10S10	15	M137462	2	024545 024586*
VS2019LT TVS2019LT	19	VS20 TVS20	19	SS	4F19S15	12	M137462	2	024545 024586*
VS2027LT TVS2027LT	27	VS20 TVS20	27	SS	4F27S15	10	M137462	2	024545 024586*
VS2035LT TVS2035LT	35	VS20 TVS20	35	SS	4F35S10	4	M137462	2	024545 024586*
VS3007LT TVS3007LT	7	VS30 TVS30	07	SS	4F07S15	24	M139424	3	024545 024586*
VS3010LT TVS3010LT	10	VS30 TVS30	10	SS	4F10S15	20	M139424	3	024545 024586*
VS3019LT TVS3019LT	19	VS30 TVS30	19	SS	4F19S20	16	M139424	3	024545 024586*
VS3027LT TVS3027LT	27	VS30 TVS30	27	SS	4F27S20	12	M139424	3	024545 024586*
VS3035LT TVS3035LT	35	VS30 TVS30	35	SS	4F35S15	5	M139424	3	024545 024586*
VS3055LT TVS3055LT	55	VS30 TVS30	55	SS	4F55S15	4	M139424	3	024545 024586*
VS3085LT TVS3085LT	85	VS30 TVS30	85	SS	CP15085RP	3	M139424	3	024545 024586*

*024586 - Factory installed pressure transducer kit (0-100PSI).

Optional 0-300PSI pressure transducer kit available (P/N 024587)

All complete Commander® Pro Packages carry a 5 year limited warranty on pump & motor, and 3 year limited warranty on control.

For models with pressure transducer, add a "T" prefix to the model, i.e. TVS1507LT

Accessories

Part Number	Description
024600	Z Control Gateway - Allows for wireless connectivity & real time alerts
024532	Pest Control Kit to keep insects and pests from nesting in drive

DOE Compliance

PUMP MODEL	Impeller Dia.	P.E.I.vL
(T) VS2035	3.072"	0.59
(T) VS3035	3.072"	0.53
(T) VS3055	3.075"	0.56
(T) VS3085	3.070"	0.61

