

Pressure Bed Design

Property Owner: Terry Christle Date: 5/17/2022

Site Address: 28665 456th Pl. Aitkin MN 56431 PID: 07-1-119100


Comments: New House 4 Bedroom , 1820 2/compartment tank

instructions: = req'd input = input or default = calculated field *** = installer info

- 1) bedroom Type Residential System
- 2) GPD design flow
- 3) Garbage disposal or pumped to septic
Install Jacobson 1820 Compartment tank
- 4) *** Gallon septic tank (minimum) Tank options: effluent filter req'd
- 5) GPD/ft² Soil Loading Rate ft² bed req'd, or ft² LUG minimum
(must match soil boring log)
- 6) *** ft desired bed width, leads to a ft bed length
(25' maximum)
- 7) *** ft lateral spacing ft perforation spacing (maximum 3 for both)
 manifold connection
- 8) *** laterals feet long perfs / lateral perfs total
(1/2 perf means the first perf starts at the middle feed manifold)
- 9) *** inch perfs at feet residual head gives gpm flow rate per perforation
(If bed has > 1' of cover, increase residual head for cleanout req's)
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = , line #8 must be less --> ERROR
- 10) doses per day (4 minimum)
- 11) gallons per dose (treatment volume)
- 12) 1.00 inch diameter laterals (or smaller) will meet "5x pipe volume"
*** inch diameter laterals (or smaller) must be used to meet "4x pipe volume" requirement
1.25 inch diameter laterals (or smaller) will meet "3x pipe volume"
- 13) *** feet of inch supply line leads to gallons of drainback volume
("top feed" to control the drainback)
- 14) gallons TOTAL pump out volume (treatment + drainback)
- 15) feet vertical lift from pump to dispersal area, leads to a
- 16) *** GPM @ feet of head, Pump requirement
(>50 gpm may require additional 3-6' head allowance for discharge assy)

- 17) *** 666 gal Dose tank (minimum) at 15.85 gpi
- 18) *** 9.6 inch swing on Demand float, or Timed dosing of 4.2 min ON (confirm pump rate with drawdown
<100% of design flow requires a larger OFF time) 2.9 hrs OFF test and adjust as necessary)
- 19) 12 inches of from bottom of tank to "pump OFF" float, and/or to cover pump
- 20) *** 22 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
- 21) *** 25 inches from bottom of tank to "Hi Level" float (add 5-15 inches if Time Dosed)
- 22) 270 gallons reserve capacity (after High Level Alarm is activated)
- 23) 84 inches, or 7.00 ft. to Redox or other limiting condition (This must match the soil boring log)
- 24) 36 inches, or 3.00 ft. of vertical separation required
leads to bottom of rock no more than:
- 25) *** 48 inches, or 4.0 ft. Below existing grade **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 26) *** 9 inches of rock below the pipe
3 inches of rock to cover the pipe
- 27) Overall Dimensions: 19.0 ft. wide by 41.0 ft. long Pressure Bed
- 28) *** Rock Bed materials:
19 ft. by 41.0 ft. by 12 inches total, plus 20% gives 35 yd³ or *1.4= 49 ton

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

	Brummer Septic LLC.	L-1347	5/17/2022
Designer Signature	Company	License#	Date

Installer Summary

gallon Septic tank (minimum) effluent filter | Install Jacobson 1650
0

gallon Dose tank (minimum) at gpi

GPM @ ft. of head, Pump required

inch swing on Demand float or minutes ON time & hours OFF time

inches from bottom of tank to "pump ON" float, or inches to "timer ON" float

inches from bottom of tank to "Hi Level Alarm" float

ft. of inch supply line with manifold connection

laterals inch diameter feet long ft lateral spacing

inch perfs ft perforation spacing

Effluent filter & alarm

clean out & valve box assembly

Pressure Bed:

ft. wide by ft. Long

Bottom of rock no more than:

inches, or ft. Below existing grade

inches of rock below the pipe

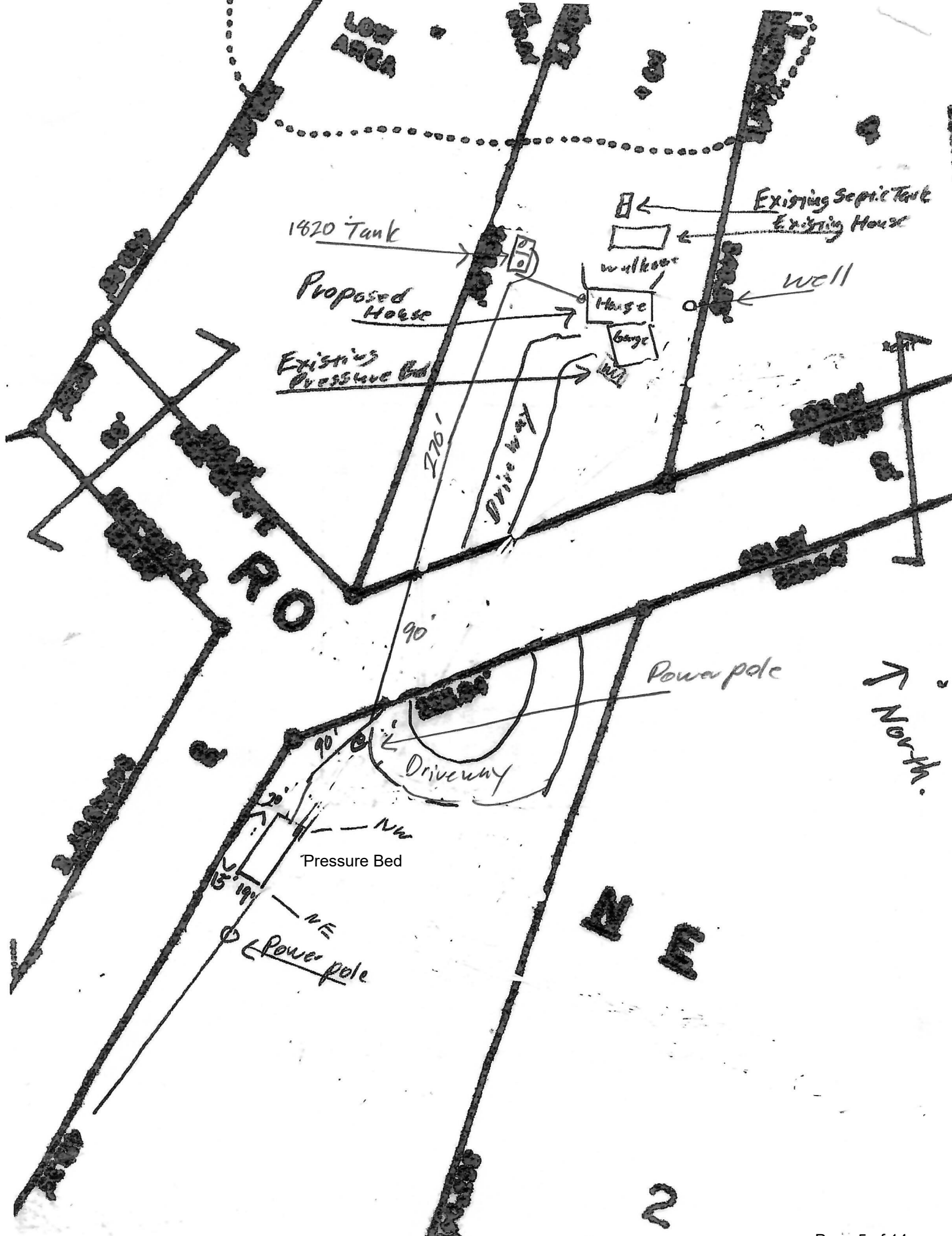
Overall Dimensions: ft. wide by ft. long Pressure Bed

Rock Bed materials: yd³ or *1.4= ton

INSPECTOR CHECKLIST - Pressure bed

- WELL setbacks: 20' to pressure tested sewer line (5 psi for 15 min)
50' to everything 100' to dispersal area with shallow well
- PROPERTY LINES setback: 10' to everything
- Road setback: outer ditch, or 33' from center of township road, or 65' from center of cnty road
- LAKE / BLUFF setback: 20' for bluff. Lakes: gen 50', rec 75', nat 150'. Protected wetland 50'.
- Building setbacks: 10' for everything, 20' for dispersal area.
- WATER LINE under pressure 10' to bed, tank & sewer line.

- Sewer line & baffle connection (no 90's, 3' between 45's, slope of 1/8"/ft, or 1" in 8', or 1' in 96'.
(no depth req's, clean out every 100', Sch 40 D2665 or F891)
- Septic tank and risers (water tight, insulated, proper depth, existing verified by pumping)
mfg _____ 1000 gallons effluent filter req'd _____
- Riser over outlet, riser over inlet, 6"+ inspection pipe over any remaining baffles.
- Yes _____ effluent filter & alarm
- Dose tank risers and piping (water tight, insulated, proper depth, drainback)
mfg _____ 666 gallons
- dose pump _____ 36 gpm 64 head VERIFY PUMP CURVE 4.2 M on 2.9 H off
- float setting drop 9.6 inches
LABEL pump requirements and drawdown on riser or panel
- Cam lock, weep hole, supply line access (no hard 90, pipes reachable from grade)
- supply pipe sloped 1/8"+, supported by sch40 sleeve, and buried 6"+.
- splice box / control panel / electrical connections
- Bed dimensions 19 X 41.0
- Rock depth below pipe 9 inches
- Rock bottom elevation 48.0 inches from Grade to bottom of rock (max)
- cover depth of 12"+ VERIFY
- 6 laterals (1-2' from edge of rock)
- 1.5" inch pipe size (bigger is ok but do not exceed 4 times pipe volume)
- 3.0 ft lateral spacing
- 3/16 inch perforations (smaller is ok)
- 3.0 ft perforation spacing
- Air inlet at end of laterals, and at top feed manifold. VERIFY
- clean outs (deep bed 2' of head) (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY
- Abandon existing system if necessary
- monitoring plan and type _____

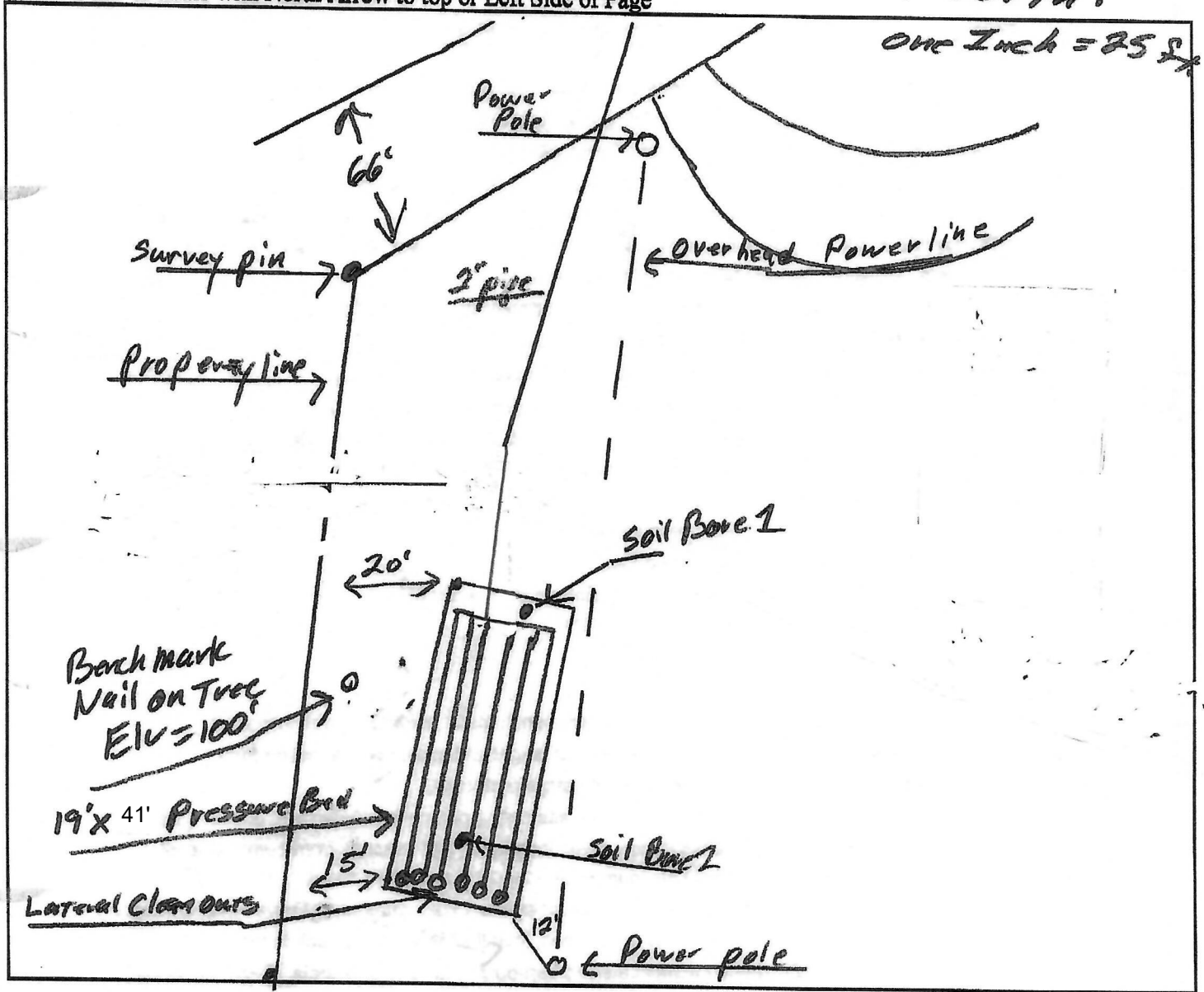


Pressure Bed Design

Property Owner: Terry Christle

Please Draw to Scale with North Arrow to top or Left Side of Page

↑ North.



Please show all that apply (Existing or Proposed):

- | | | |
|---|---------------------------|-----------------------------------|
| Wells within 100 ft. of a Drainfield | Disturbed/Compacted Areas | Access Route for Tank Maintenance |
| Water lines within 10 ft. of a Drainfield | Component Location | Property Lines |
| Drainfield Areas | OHW | Structures |
| Boring Locations | Lot Easements | Setbacks |

Elevations:

Benchmark Elevation: *Elv = 100' Nail on tree*

Elevation of Sewer Line at House:

Tank Inlet Elevation:

Drainfield Elevation: *Bottom of Rock Bed Elv = 97'*

ump Elevation:

Pump Discharge Elevation: *Pressure Bed 97.7'*

Restricting Layer Elevation:

Designer Signature: *Jeffe [Signature]*

License Number: L-1347

Date: 12/6/2021

Mound Design Notes - Aitkin county

Property Owner: Terry Christle

Date: 12/6/2021

Site Address: 28665 456th Pl. Aitkin MN 56431

PID: 07-1-119100

Comments: Type I Pressure Bed = 4 Bedroom House Plus 1 bedroom (Future Shed)

- 1 This is a type I Pressure Bed for a proposed 4 bedroom House.
Existing septic tank to be pumped and removed, existing drainfield to be abandon.
Existing wells will be +50' to tanks and pressure bed,. Tanks will be +10' to property lines and roads.
Pressure bed will be +15' from road. Pressure bed will be almost under Overhead power lines.
- 2 **Installer Or Owner will mark where 2" supply pipe crosses road for Utility Company's locates (both sides)**
- 3 **Installer Or Owner will mark the pressure bed location for Utility Company's locates (4 corners)**
- 4 Description of system. Pressure bed will be sized for 4 bedrooms
House will have 4 Bedrooms, Septic tank will be 1820 2/Compartment tank, gravity flow
Install pump with 34 GPM at 62 ft of head with 8 doses per day.
- 5 Bench Mark (Elv. = 100') is nail on tree near pressure bed area.
- 6 Soil separation is plus 84" with area of pressure bed Flat.
The Pressure bed area will be 19 ft. wide and 41 ft. long. Bottom of rock Elv 97'.
Elevation of the bottom of the rock bed should be approx. 97'
- 7 The area size of the rock bed is 19' x 41' .
Cover rock bed with fabric and 12" to 18" of soil.
Installer to double check bench mark. Installer should confirm bench mark height Elv. with inspector.
Installer should record bench mark Elv. and bottom of rockbed height on installation inspection form.
- 8 It is important that the soils do not get compacted, and area stays protected.
- 9 The Jacobson 660 Pump tank, install the pump for 8 demand doses
per day. approx. 152 gallons per dose, 9.6 inches of tank level. Install alarm at 3 inches from pump on level.
Install all manholes, inspection pipes and clean-outs to grade or above. (Recommend 4" above Finished Grade)
- 10 Install 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to tank.
Install 2" laterals with 9" of rock under them. (Install Lateral clean-outs at far end of laterals. Recommended)
There are 6 laterals in a 19 ft wide rockbed.
- 11 **Drill 3/16" perf holes spaced 3 ft. apart.**
Install 4" inspection pipe to bottom of rock bed, secure in rock bed and raise to above final grade.

Owner is responsible to maintain protection of bed area through construction of house and septic system.

Designed to Aitkin Co. and MPCA recommendations and requirements.


Designer Signature

Brummer Septic LLC.
Design Company

L-1347
License#

Mound Design Notes - Aitkin county

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Site Address: 28665 456th Pl. Aitkin MN 56431

PID: 07-1-119100

Comments: Type I Pressure / Bed 4 bedroom / 3/16th Perf Holes

Elevation

Elv. = 100' Benchmark Nail on Tree near Pressure Bed
Elv. = 98.7' Grade at Tree with Benchmark Nail.
Elv. = 98.4' Grade at Soil Bore #1
Elv. = 98.9' Grade at Soil Bore #2
Elv. = 98.5' Grade at NW Pressure bed
Elv. = 98.9' Grade at NE Pressure bed
Elv. = 98.5' Grade at SW Pressure bed
Elv. = 99' Grade at SE Pressure bed
Elv. = 97' Bottom of Rockbed Elevation
Elv. = 93.6' East side of Road Ditch Bottom
Elv. = 94.5' Center line of Road approx. where 2" pipe will cross
Elv. = 92.5' Grade near Driveway West Side
Elv. = 71.5' Grade at 1820 2/Compartment septic tank
Elv. = 70.5' Estimated 1820 Septic tank Inlet
Elv. = 65' Estimated Pump Elevation. (Discharge Elv. = 97.7')
Elv. = 74' Grade at Proposed walk-out elevation of new house.
Elv. = 80.3' Top of Deep Well Cap NW of Proposed House
Elv. = 78.6' Grade at Deep Well.

Owner is responsible to maintain protection of bed area through construction of house and septic system.

Installer or Owner to mark both sides of road where supply pipe crosses 456th Pl.

Designed to Aitkin Co. and MPCA recommendations and requirements.



Designer Signature

Brummer Septic LLC.

Design Company

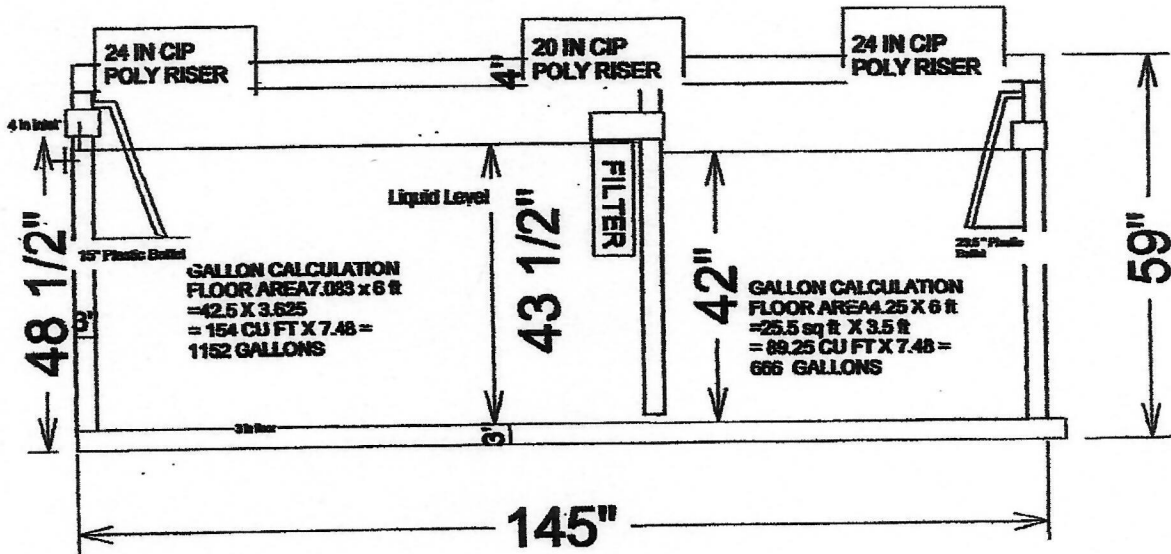
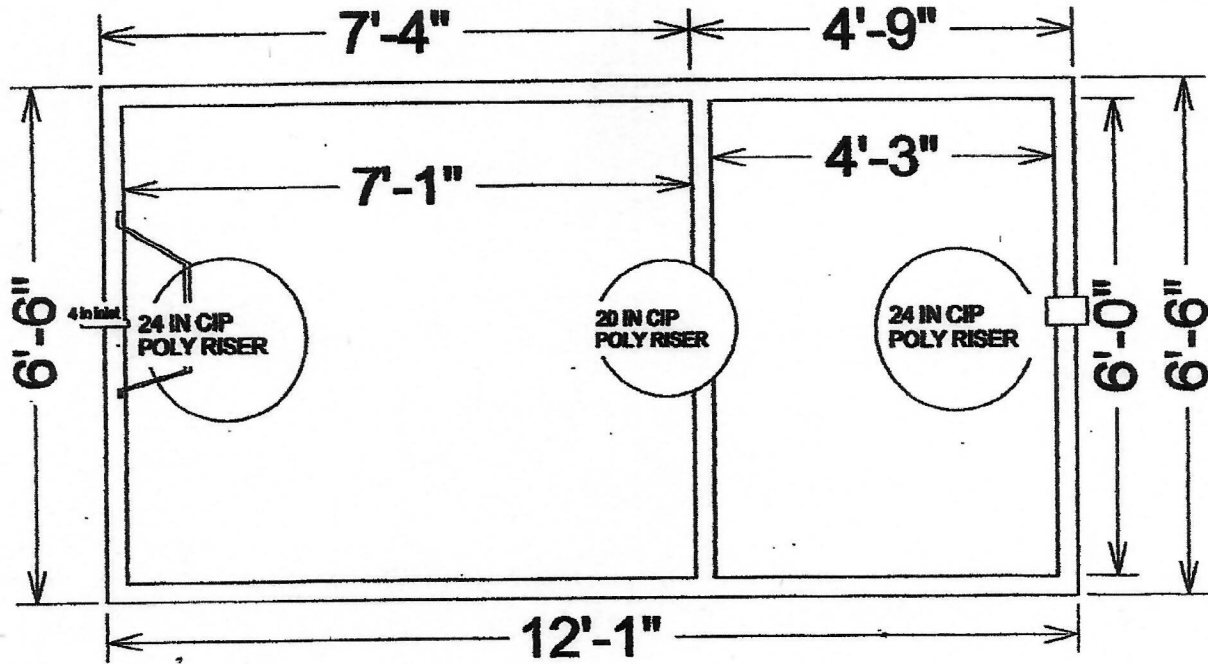
L-1347

License#

1820 Gallon 2 Compartment Septic Tank

Weight: 13,780 Lbs

TOP VIEW



666 gal. / 42" = 15.85 GPI

SIDE VIEW

Drawings Owned BY Jacobson Precast, Inc.
36641 HWY 169, Aitkin, Mn 56431

8:22

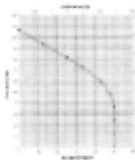


septictankparts.com



Home > Submersible Pumps > Sewage Grinder Pumps >

Liberty LSG202A Grinder Pump

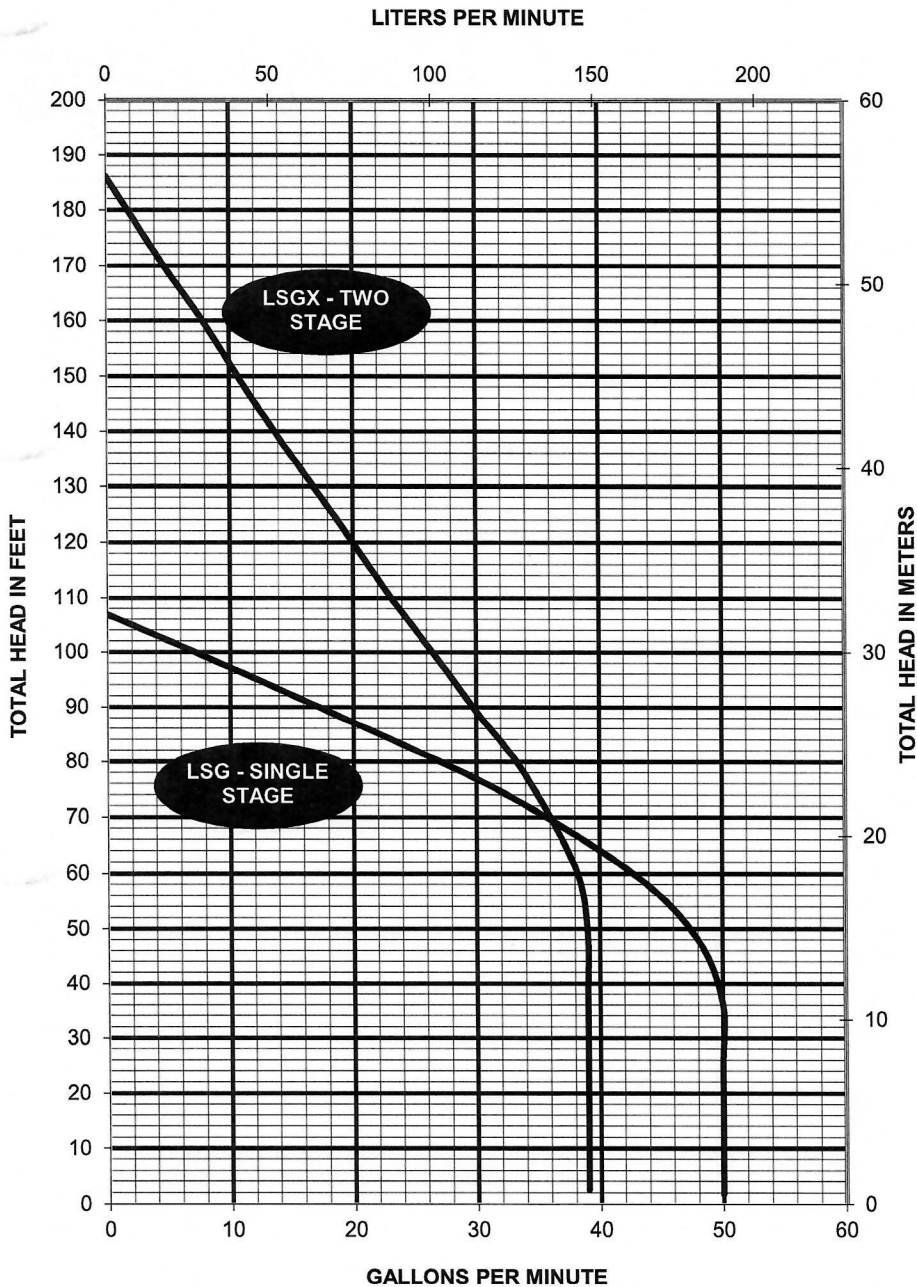
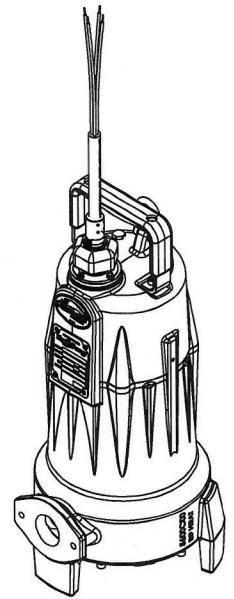


Pump Specification

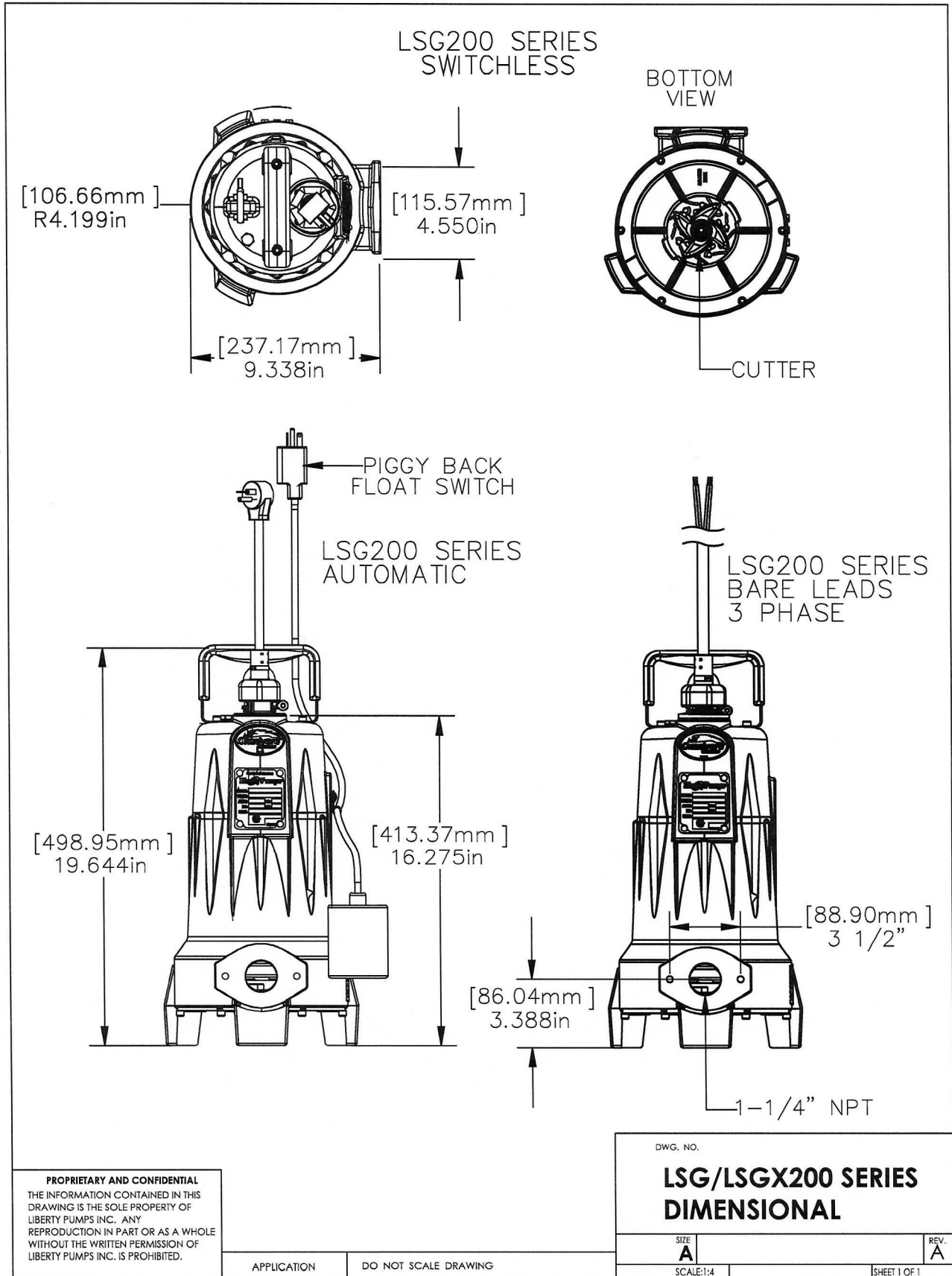
LSG200-Series (Single-Stage)

LSGX200-Series (2-Stage)

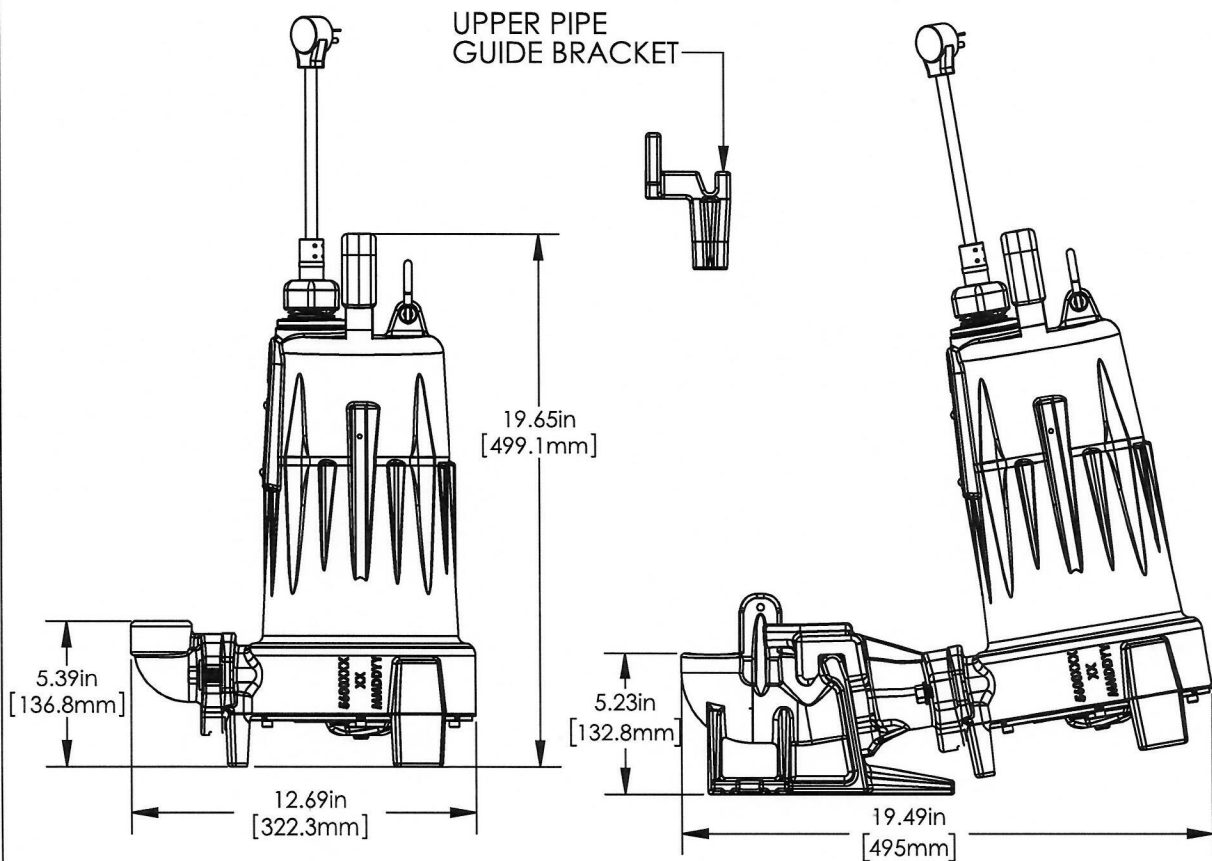
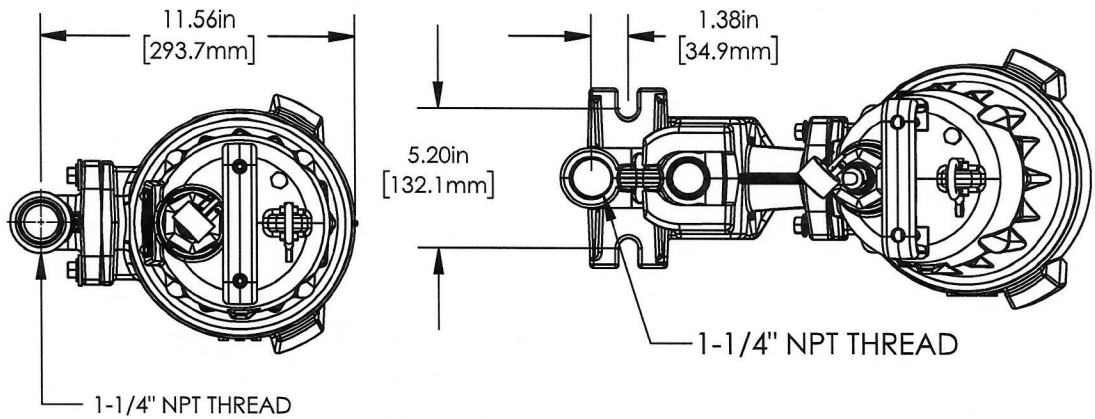
Omnivore® 2 HP Submersible Grinder Pumps



LSG/LSGX-Series Dimensional Data



LSG/LSGX-Series Dimensional Data



G90 OPTION

GR20 OPTION



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APPLICATION DO NOT SCALE DRAWING

LSG200 SERIES DIMENSIONAL G90/GR20 OPTIONS			
DWG. NO.			
SIZE A	DATE:	REV. A	
SCALE:1:4	WEIGHT:	LBS	SHEET 1 OF 1

LSG/LSGX-Series Electrical Data

MODEL	HP	VOLTAGE	PHASE	SF	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH OPTIONS [FT]	DISCHARGE	AUTOMATIC
LSG202A	2	208/230	1	1.0	15	53	105°C / 221°F	B	25	1-1/4" NPT + FLANGE	YES
LSG202M	2	208/230	1	1.0	15	53	105°C / 221°F	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSG202M-C ¹	2	208/230	1	1.0	15	53	135°C / 275°F	B	35/50	1-1/4" NPT + FLANGE	NO
LSG203M	2	208/230	3	1.0	10.6	61	N/A	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSG204M	2	440-480	3	1.0	5.3	31	N/A	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSG205M	2	575	3	1.0	4.9	31	N/A	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSGX202A	2	208-230	1	1.0	15	53	135°C / 275°F	B	25	1-1/4" NPT + FLANGE	YES
LSGX202M	2	208-230	1	1.0	15	53	135°C / 275°F	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSGX202M-C ¹	2	208-230	1	1.0	15	53	135°C / 275°F	B	35/50	1-1/4" NPT + FLANGE	NO
LSGX203M	2	208/230	3	1.0	10.6	61	N/A	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSGX204M	2	440-480	3	1.0	5.3	31	N/A	B	25/35/50	1-1/4" NPT + FLANGE	NO
LSGX205M	2	575	3	1.0	4.9	31	N/A	B	25/35/50	1-1/4" NPT + FLANGE	NO

1 LSG202M-C and LSGX202M-C are for external capacitor applications and require the use of control panels fitted with properly matched capacitors and start relays. Consult Liberty Pumps catalog for proper panel model when ordering. For retrofit applications, order Liberty Pumps Start Kit #K001316 which includes the correct Start Capacitor, Run Capacitor, and Potential Start Relay. In all cases, control panels must be constructed per applicable UL and/or CSA standards and be installed per NEC.