L&J TECHNOLOGIES

A Cognesense Brand

VALVE SIZING REPORT

1. PROJECT INFORMATION

Project Name: test

Project ID: 16

Created: 6/3/2026

Report Generated: 13/3/2026

2. MODEL INFORMATION

Model: 94210 Hinged Pressure Emergency Vent and Manway Cover

Model Number: 34

3. UNITS USED

Measurement Type	Unit
Distance	feet
Temperature	fahrenheit
Liquid Volume	barrels
Vapor Flow	scfh
Liquid Flow	barrels-per-hour
Pressure	inches-of-water

4. TANK PARAMETERS

Parameter	Value
Tank Type	vertical
Diameter	57 feet
Height/Length	48 feet
Tank Capacity	21815.4 barrels
Wet Area	5372.1 $feet^2$

5. FLOW PARAMETERS

Parameter	Value
Pump In Rate	37500 barrels-per-hour
Pump Out Rate	39652 barrels-per-hour
Additional Flow (Pressure)	0 scfh

Parameter	Value
Additional Flow (Vacuum)	0 scfh
Normal Vent Credit	271340.6 scfh

6. PRESSURE/VACUUM SETTINGS

Setting	Value
Set Point Pressure	2.5 inches-of-water
Max Pressure	3.21 inches-of-water
Percent Over Pressure	28.400%
Set Point Vacuum	0 inches-of-water
Max Vacuum	0 inches-of-water
Percent Over Vacuum	10%

7. FLOW CALCULATION RESULTS

Parameter	Value
PRESSURE FLOW RESULTS	
Displacement Flow	785461.3 scfh
Thermal Flow	0 scfh
Additional Flow	0 scfh
Total Required Flow	514120.7 scfh
VACUUM FLOW RESULTS	
Displacement Flow	0 scfh
Thermal Flow	0 scfh
Additional Flow	0 scfh
Total Required Flow	0 scfh

8. VALVE SIZING RESULTS

Parameter	Value
PRESSURE SIDE	
Valve Size	20 Inch
Quantity	1
Unit Flow @ Max Pressure	578754.4 scfh
Total Flow @ Max Pressure	578754.4 scfh
Oversize Percentage	11.2%

Parameter	Value
TOTAL FLOW ALL UNITS	
Total Pressure Flow All Units	578754.4 scfh

9. CALCULATION METHOD & PARAMETERS

Parameter	Value
Sizing Method	sixth
API Edition	API 2000 6th Edition
Latitude Zone	Between 42° N&S
Insulation Factor	1
Vapor Pressure	Higher Hexane or Unknown (>0.73 psi, 5.0 kPa)
Molecular Weight	0.03 g/mol
Vapor Temperature	0 F°
Vapor Flow Pressure	0 inches-of-water
Storage Temperature	Below 77F° (25C°)
Operating Pressure	Equal to or below 1PSI (7kPa)
Environmental Factor	1.0
Latent Heat of Vaporization	144.0 BTU/lb
Absolute Temperature	581.18 Rankine
Relative Molecular Mass	86.17 g/mol
Flash Point Above 100F	No
PSI Above 1.0	No
Split to Multiple Valves	No
Force Same Size Combo	Yes
Allow Split Combo	No

10. NOTES & REMARKS

Calculation Notes:

- **This report was automatically generated by the WinSize Valve Sizing Tool**
- **All calculations are based on API 2000 standards and industry best practices**
- **Valve sizing includes appropriate safety margins and oversizing percentages**
- **Flow rates are calculated based on tank parameters and process conditions**
- **For emergency scenarios, fire exposure calculations are included where applicable**
- **Contact engineering support for questions about specific calculations**