

**H & H TECHNICAL LLC.**  
**1949 SUGERLAND DRIVE, SUITE 134**  
**SHERIDAN, WY. 82801**  
**(307) 672-0743**

**PUMP DATA SHEET**

JOB NUMBER **965** DATE **12/10/13**

TAG **P-420, P-430** PURPOSE **GLYCOL INJECTION PUMPS**

VENDOR  
 MANUFACTURE  
 MODEL

FLUID DATA

PHYSICAL DATA

|                       |          |
|-----------------------|----------|
| SUCTION PIPING SIZE   | 2"       |
| DISCHARGE PIPING SIZE | 1"       |
| CLASS                 | THREADED |
| MAWP                  | 600 PSIG |
| TEMPERATURE RATING    | 50/300°F |
| PUMP MATERIAL         |          |
| IMPELLER MATERIAL     | NA       |
| IMPELLER SIZE         | NA       |
| PLUNGER SIZE          |          |
| PLUNGER MATERIAL      |          |
| PLUNGER STROKE        |          |
| PLUNGER SPM           |          |

|                |              |
|----------------|--------------|
| SUCTION HEAD   | 1.5 FT       |
| DISCHARGE HEAD | 600 PSIG MAX |

ELECTRICAL DATA

|            |      |
|------------|------|
| MOTOR HP   |      |
| MOTOR TYPE | TEFC |
| RPM        |      |
| VOLTAGE    | 380  |
| HZ         | 50   |
| PHASE      | 3    |

COMMENTS

ONE PUMP RUNNING, ONE PUMP 100% STANDBY  
 QUOTE TO INCLUDE PACKAGING, SUCTION AND DISCHARGE  
 PULSATION DAMPERS NORMAL  
 OPERATING PRESSURE WILL BE 450 PSIG  
 CONDISHIONS GIVEN AT RIGHT ARE FOR THE DISCHARGE  
 FLUID

| Mole Fraction                 |               | %           |
|-------------------------------|---------------|-------------|
| Nitrogen                      |               | 0.00        |
| Carbon Dioxide                |               | 0.00        |
| Methane                       |               | 0.00        |
| Ethane                        |               | 0.00        |
| Propane                       |               | 0.00        |
| i-Butane                      |               | 0.00        |
| n-Butane                      |               | 0.00        |
| i-Pentane                     |               | 0.00        |
| n-Pentane                     |               | 0.00        |
| n-Hexane                      |               | 0.00        |
| n-Heptane                     |               | 0.00        |
| n-Octane                      |               | 0.00        |
| n-Nonane                      |               | 0.00        |
| Water                         |               | 46.27       |
| Ethylene Glycol               |               | 53.73       |
| Therminol 55                  |               | 0.00        |
| Oxygen                        |               | 0.00        |
| Property                      | Units         |             |
| Temperature                   | °F            | 100.00      |
| Pressure                      | psia          | 469.70      |
| Mole Fraction Vapor           | %             | 0.00        |
| Mole Fraction Light Liquid    | %             | 100.00      |
| Mole Fraction Heavy Liquid    | %             | 0.00        |
| Molecular Weight              | lb/lbmol      | 41.68       |
| Mass Density                  | lb/ft^3       | 67.89       |
| Molar Flow                    | lbmol/h       | 39.28       |
| Mass Flow                     | lb/h          | 1637.29     |
| Vapor Volumetric Flow         | ft^3/h        | 24.12       |
| Liquid Volumetric Flow        | gpm           | 3.01        |
| Std Vapor Volumetric Flow     | MMSCFD        | 0.36        |
| Std Liquid Volumetric Flow    | sgpm          | 3.00        |
| Compressibility               |               | 0.05        |
| Specific Gravity              |               | 1.09        |
| API Gravity                   |               | -3.39       |
| Enthalpy                      | Btu/h         | -6340121.90 |
| Mass Cp                       | Btu/(lb*°F)   | 0.69        |
| Ideal Gas CpCv Ratio          |               | 1.19        |
| Dynamic Viscosity             | cP            | 5.57        |
| Kinematic Viscosity           | cSt           | 5.12        |
| Thermal Conductivity          | Btu/(h*ft*°F) | 0.18        |
| Surface Tension               | lbf/ft        | 0.00        |
| Net Ideal Gas Heating Value   | Btu/ft^3      | 684.96      |
| Net Liquid Heating Value      | Btu/lb        | 5654.91     |
| Gross Ideal Gas Heating Value | Btu/ft^3      | 789.24      |
| Gross Liquid Heating Value    | Btu/lb        | 6604.27     |