



innovation in  
geotechnical  
instrumentation

## Calibration Record

RST Instruments Ltd., 11545 Kingston St., Maple Ridge, British Columbia, Canada V2X 0Z5  
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### Vibrating Wire Piezometer

Customer: PT. Unggul Ejawantah Industri  
Model: VW2100-1.0-HD  
Customer ID: PZ 21  
Serial Number: VW57102  
Mfg Number: P110136  
Range: 1.0 MPa  
Temperature: 23.0 °C  
Barometric Pressure: 1023.9 millibars  
Work Order Number: 220592  
Cable Length: 210 meters  
Cable Markings: 21665 m to 21877 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004HDL  
Thermistor Type: 3 kΩ

| Applied Pressure (MPa) | First Reading (B units) | Second Reading (B units) | Average Reading (B units) | Calculated Linear (MPa) | Linearity Error (% FS) | Calculated Polynomial (MPa) | Polynomial Error (% FS) |
|------------------------|-------------------------|--------------------------|---------------------------|-------------------------|------------------------|-----------------------------|-------------------------|
| 0.000                  | 8714                    | 8714                     | 8714                      | 0.002                   | 0.17                   | 0.000                       | 0.02                    |
| 0.200                  | 7870                    | 7871                     | 7870                      | 0.199                   | -0.06                  | 0.200                       | -0.03                   |
| 0.400                  | 7020                    | 7021                     | 7021                      | 0.399                   | -0.14                  | 0.400                       | -0.02                   |
| 0.600                  | 6166                    | 6167                     | 6166                      | 0.599                   | -0.11                  | 0.600                       | 0.01                    |
| 0.800                  | 5308                    | 5309                     | 5308                      | 0.800                   | 0.00                   | 0.800                       | 0.03                    |
| 1.000                  | 4449                    | 4450                     | 4449                      | 1.001                   | 0.13                   | 1.000                       | -0.02                   |
| Max. Error (%):        |                         |                          |                           |                         | 0.17                   |                             | 0.03                    |

Linear Calibration Factor: CF = 2.3438E-04 MPa/B unit  
Temperature Correction Factor: Tk = 2.0333E-04 MPa/°C rise

#### Polynomial Gage Factors:

A = -6.3635E-10 MPa/(B unit)<sup>2</sup>      B = -2.2601E-04 MPa/B unit      C = \_\_\_\_\_ MPa

Pressure is calculated with the following equations:

Linear:  $P = CF(L_0 - L) - Tk(T_0 - T) + (S_0 - S)$

Polynomial:  $P = A(L^2) + B(L) + C - Tk(T_0 - T) + (S_0 - S)$

Users must establish site zero readings for calculation purposes

Polynomial C = - [A(L<sub>0</sub><sup>2</sup>) + B(L<sub>0</sub>)]

L<sub>0</sub>, L = initial (installation) and current readings, in B units

T<sub>0</sub>, T = initial (installation) and current temperature, in °C

S<sub>0</sub>, S = initial (installation) and current barometric pressure readings, in MPa

B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts

B units = Hz<sup>2</sup>/1000      ie: 1700 Hz = 2890 B units

|                        | Date (dd/mm/yy) | VW Reading (B units) | Temperature (°C) | Baro (mbar) |
|------------------------|-----------------|----------------------|------------------|-------------|
| Shipped Zero Readings: | 29-Mar-19       | 8716                 | 21.4             | 1027.7      |

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1

Technician: I. Kurchavov *IK*

Date: 29-Mar-19



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