

P_{piezo} 、 P_{static}

Define Boundary Regions

| Reg# | Type | Name |
|------|----------|-------------------------|
| 0 | Wall | Default_Boundary_Region |
| 1 | Outlet | negative_vel_inlet |
| 2 | Pressure | Pressure_inlet |
| 3 | Inlet | R_V |
| 4 | Inlet | R_-V |
| 5 | Inlet | L_-V |

☒ Region Setup ☐ Plot Boundary

Region Type: Region Name:

Options:

Option **Envir Press** **Mean**

Pressure (Pa): # Av Intervals:

Turb. Intensity: Length (m): Turb. Switch:

Temp. (K): Temp. Switch:

$$P_{piezometric} = P_{static} - \text{DENSITY} * (\text{GRVX} * (X - X_0) + \text{GRVY} * (Y - Y_0) + \text{GRVZ} * (Z - Z_0))$$

where DENSITY is the datum density defined above at location (X0,Y0,Z0), and GRVX, GRVY and GRVZ are the gravitational acceleration components defined by the ACCELERATION command.

$$P_{piezo} = P_{static} - \rho * g * h$$

表压 = 静压 - ρgh ，如果没有打开 **Buoyancy**，则表压和静压相等。

Environment On的说明

2. *Envir Press* — option **On** means that the supplied value is treated as
- (a) total environmental pressure (static or piezometric plus dynamic pressure) under inflow conditions
 - (b) normal static or piezometric pressure under outflow conditions

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Region Setup Plot Boundary

Region Type: **Pressure** Region Name: Pressure_inlet

Options: **Standard**

Option: **Envir Press** Mean: Off

Piezo: ☐ **On** ☐

Pressure (Pa): 0 # Av Intervals: 1

Turb. Intensity: 0.03 Length (m): 0.5 Turb. Switch: TI/Length

Temp. (K): 260 Temp. Switch: Temp.

选择**Envir Press**为**On**。

(a) 当**Pressure**边界实际情况为入流条件时:

选择**P_{piezo}**时: 填入**GUI**的压力值= **P_{piezo}** + 动压

选择**P_{static}**时: 填入**GUI**的压力值= **P_{static}** + 动压

(b) 当**Pressure**边界实际情况为出流条件时:

选择**P_{piezo}**时: 填入**GUI**的压力值= **P_{piezo}**

选择**P_{static}**时: 填入**GUI**的压力值= **P_{static}**

Mean on和off的区别

3. Mean

- (a) **Off** signifies that pressure is constant over the boundary and equal to the supplied value
- (b) **On** signifies that a piezometric pressure distribution over the boundary is to be extrapolated from the solution domain interior. The mean of this profile will be equal to the supplied value. Note that *Option Piezo* must also be selected in this case.

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◆ Region Setup ◆ Plot Boundary

Region Type: Pressure Region Name: Pressure_inlet

Options: Standard

Option: Piezo Envir Press: On **Mean: Off**

Pressure (Pa): 0 # Av Intervals: 1

Turb. Intensity: 0.03 Length (m): 0.5 Turb. Switch: TI/Length

Temp. (K): 260 Temp. Switch: Temp.

(a) 选择**Mean**为**Off**时:

压力值在边界上均匀分布, 且都等于填入**GUI**的值。

(b) 选择**Mean**为**On**时:

压力值 (P_{piezo}) 在边界上的分布是根据流场内部的结果外推得到, 边界上的平均值等于填入**GUI**的值。
 注意当**Mean**选择为**On**时, 必须选择**Piezo**。