**Table 1.1** Compressors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equipment # / Title** | **C-101** | **C-102** | **C-103** | **C-104** |
| **MOC** | CS | SS | CS | CS |
| **Driver Rate (kW)** | 52.4 | 268 | 67.3 | 992.4 |
| **Efficiency (%)** | 90 | 90 | 72 | 72 |

**Table 1.1** Pumps

|  |  |
| --- | --- |
| **Equipment # / Title** | **P-101 A/B** |
| **Type** | Centrifugal |
| **Efficiency (%)** | 40 |
| **Driver Rate (kW)** | 0.097 |
| **MOC** | CS |
| **Pressure at Discharge (barg)** | 3 |

**Table 1.2** Heat Exchanger

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Equipment ID / Title** | **E-101** | **E-102** | **E-103** | **E-104** | **E-105** | **E-106** | **E-107** | **E-108** |
| **Type** | S/T Floating Head | S/T Floating Head | S/T Floating Head | S/T Floating Head | S/T Floating Head | S/T Floating Head | S/T Floating Head | S/T Floating Head |
| **Tube/Shell Side MOC** | CS/CS | SS/CS | CS/CS | CS/CS | CS/SS | SS/CS | CS/CS | SS/CS |
| **Heat Transfer Area(m2)** | 77.60 | 24.72 | 36.39 | 18.71 | 124.98 | 174.53 | 125.80 | 2.69 |
| **Duty(kW)** | 94 | 246.7 | 207.7 | 114.38 | 242 | 865 | 135 | 220 |

**Table 1.1** Electrolysis Unit

|  |  |
| --- | --- |
| **Equipment # / Title** | **R-101** |
| **Type** | Alkaline electrolyzer |
| **Cell Voltage (V)** | 3.75 |
| **Current Density (A/cm2)** | 0.5 |
| **Current per electrolyzer (kA)** | 30.9 |
| **Operating Electricity per module (kW)** | 2202 |
| **Number of elecrolyzer’s per module** | 19 |

**Table 1.1** Reactor

|  |  |
| --- | --- |
| **Equipment # / Title** | **R-102** |
| **Type** | Plug-flow reactor |
| **MOC** | SS |
| **Bed Void Fraction** | 0.4 |
| **Max Operating Pressure (barg)** | 30 |
| **Max Operating Temperature (°C)** | 468 |
| **Volume ()** | 3.72 |
| **Length (m)** | 2.68 |
| **Diameter (m)** | 1.33 |

**Table 1.5** Storage Tank

|  |  |
| --- | --- |
| **Equipment ID / Title** | **TK-101** |
| **MOC** | CS |
| **Type** | Bullet |
| **Volume ()** | 341 |
| **Max Pressure (barg)** | 17.2 |
| **Overall Length (m)** | 41.1 |
| **Outer Diameter (m)** | 3.35 |

**Table 1.5** Absorbers

|  |  |  |
| --- | --- | --- |
| **Equipment # / Title** | **T-103** | **T-104** |
| **Bed void fraction:** | 0.32 | 0.32 |
| **MOC** | CS | CS |
| **Number of tubes:** | 29 | 29 |
| **Tube length (m):** | 1 | 1 |
| **Diameter length (m):** | 0.5 | 0.5 |

**Table 1.5** Vessels

|  |  |  |  |
| --- | --- | --- | --- |
| **Equipment # / Title** | **V-101** | **V-102** | **V-103** |
| **Type** | Vertical | Vertical | Vertical |
| **MOC** | CS | CS | CS |
| **Volume ()** | 184.5 | 86.7 | 0.208 |
| **Diameter (m)** | 4.28 | 3.33 | 0.45 |
| **Length (m)** | 12.84 | 9.98 | 1.34 |

**Table 1.5** Adsorption Towers

|  |  |  |
| --- | --- | --- |
| **Equipment # / Title** | **T-101** | **T-102** |
| **Bed void fraction:** | 0.615 | 0.615 |
| **MOC** | CS | CS |
| **Volume ()** | 3.9 | 3.9 |
| **Diameter (m)** | 0.82 | 0.82 |
| **Length (m)** | 7.38 | 7.38 |

|  |  |
| --- | --- |
| **Equipment # / Title** | **D-101** |
| **Type** | Plate and Frame Mist Filter |
| **Area (m2)** | 2.8 |

|  |  |
| --- | --- |
| **Equipment # / Title** | **D-102** |
| **Type** | Baghouse Dust Collector |
| **Vapor Flow Rate (m3/s)** | 0.016 |

Offsite wet scrubber for ammonia waste gas treatment

|  |  |
| --- | --- |
| **Equipment # / Title** | **Scrubber** |
| **Type** | Wet |
| **Height (m)** | 2.45 |
| **Diameter (m)** | 0.49 |
| **Maximum Vapor Flow Rate (m3/min)** | 28.4 |
| **Absorbent** | Water |