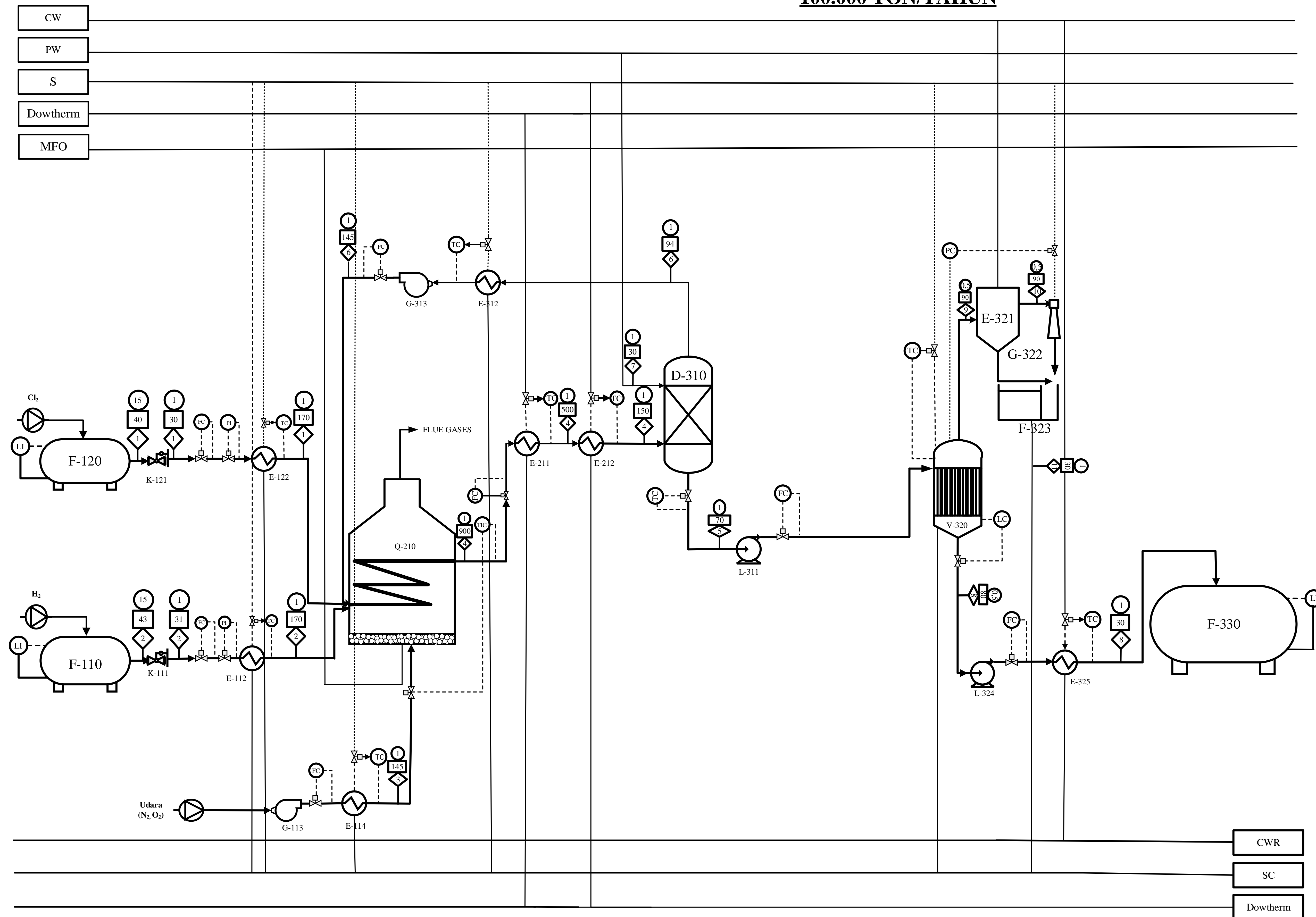


**PABRIK HCl DARI HIDROGEN DAN KLOLIN DENGAN PROSES DIRECT SYNTHETIC HYDROGEN AND CHLORINE KAPASITAS 100.000 TON/TAHUN**



Keterangan :

|  |                 |  |                       |
|--|-----------------|--|-----------------------|
|  | Temperatur ; °C |  | Aliran Massa ; kg/jam |
|  | Tekanan ; atm   |  | Steam Condensat       |
|  | Steam           |  | Cooling Water Return  |
|  | Cooling Water   |  |                       |
|  | Process Water   |  |                       |

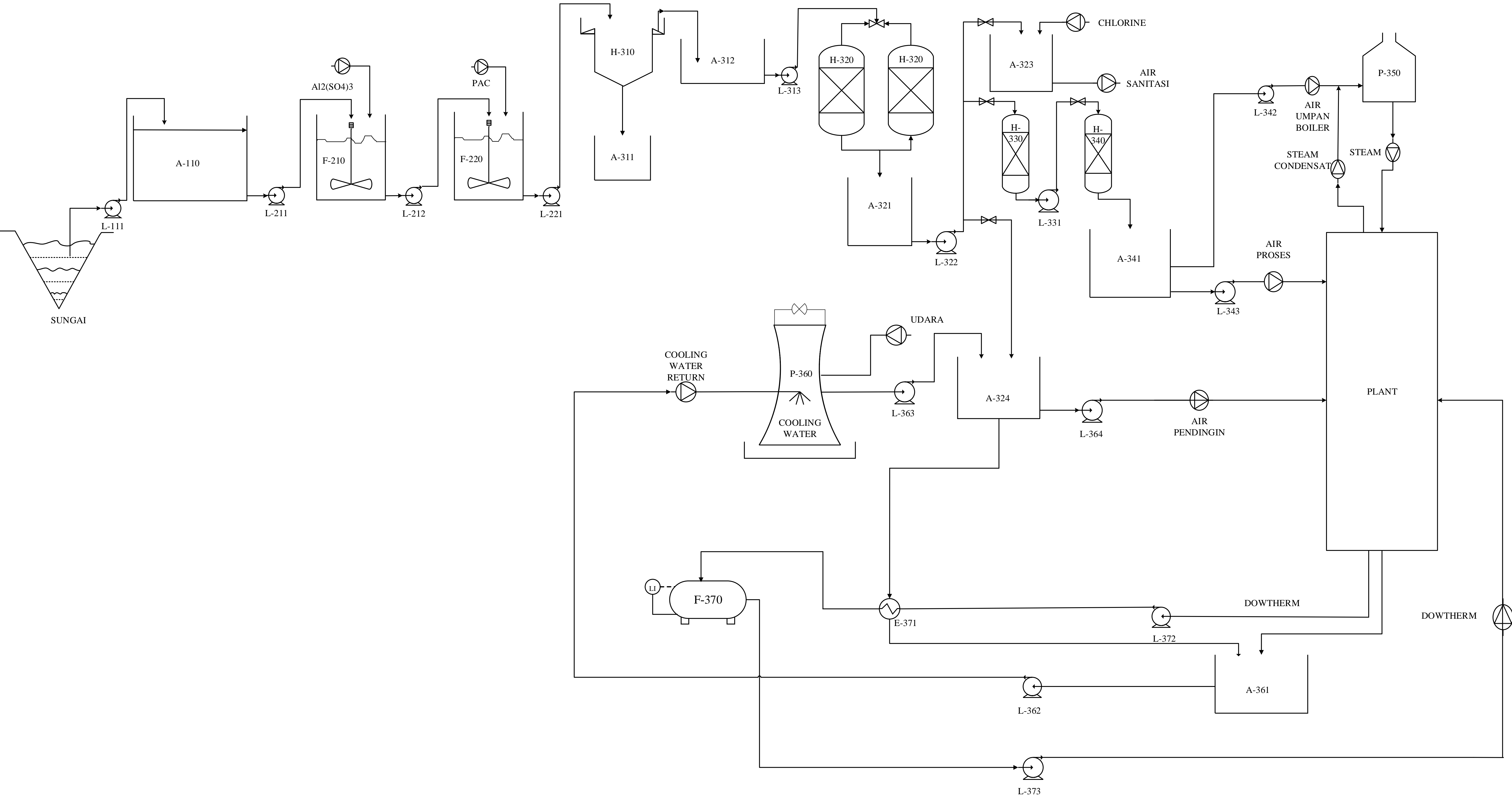
| No | Kode Alat | Nama Alat                         |
|----|-----------|-----------------------------------|
| 1  | F-110     | Tangki Penyimpanan Bahan Hydrogen |
| 2  | F-120     | Tangki Penyimpanan Bahan Chlorine |
| 3  | K-111     | Expansion Valve 1                 |
| 4  | G-113     | Blower 1                          |
| 5  | K-121     | Expansion Valve 2                 |
| 6  | E-112     | Heater 1                          |
| 7  | E-122     | Heater 2                          |
| 8  | E-114     | Heater 3                          |
| 9  | Q-210     | Furnace                           |
| 10 | E-211     | Cooler 1                          |
| 11 | E-212     | Cooler 2                          |
| 12 | D-310     | Absorber                          |
| 13 | L-311     | Pompa 1                           |
| 14 | V-320     | Evaporator                        |
| 15 | E-312     | Heater 4                          |
| 16 | G-313     | Blower 2                          |
| 17 | L-324     | Pompa 2                           |
| 18 | E-325     | Cooler 3                          |
| 19 | E-321     | Barometrik Kondensor              |
| 20 | G-322     | Steam Jet Ejector                 |
| 21 | F-323     | Hot Well                          |
| 22 | F-330     | Tangki Penyimpanan HCl            |

FLOWSHEET PABRIK HCl DARI HIDROGEN DAN KLOLIN DENGAN PROSES DIRECT SYNTHETIC HYDROGEN AND CHLORINE KAPASITAS 100.000 TON/TAHUN

|                                 |   |
|---------------------------------|---|
| NAMA                            | Queen Moza Savitri Angraeni   |
| NPM                             | 20031010040   |
| DOSEN PEMBIMBING                |   |
| Prof. Dr. Ir. Ni Ketut Sari, MT |   |
|                                 | PROGRAM STUDI TEKNIK KIMIA<br>FAKULTAS TEKNIK & SAINS<br>UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN"<br>JAWA TIMUR<br>2024 |


| NOMOR KOMPONEN       | ALIRAN MASSA (KG/JAM) |                 |                   |                  |                   |                 |                   |                   |                   |                 |                   |
|----------------------|-----------------------|-----------------|-------------------|------------------|-------------------|-----------------|-------------------|-------------------|-------------------|-----------------|-------------------|
|                      | 1                     | 2               | 3                 | 4                | 5                 | 6               | 7                 | 8                 | 9                 | 10              | 11                |
| H <sub>2</sub>       |                       | 242,8561        |                   | 113,6961         |                   | 113,6961        |                   |                   |                   |                 |                   |
| Cl <sub>2</sub>      | 4588,9135             |                 |                   | 45,8891          |                   | 45,8891         |                   |                   |                   |                 |                   |
| O <sub>2</sub>       | 22,7151               | 171,1518        | 6212,6032         | 193,8669         |                   | 193,8669        |                   |                   |                   |                 |                   |
| H <sub>2</sub> O (g) | 22,7151               | 42,7879         |                   | 65,5031          |                   | 0,0066          |                   |                   | 10615,6664        | 106,1567        |                   |
| H <sub>2</sub> O (l) |                       |                 |                   |                  | 18570,2119        |                 |                   | 18504,7154        | 7954,5454         |                 | 10509,5098        |
| HCl                  |                       |                 |                   | 4672,1844        | 4671,7172         | 0,4672          |                   | 4671,7172         |                   |                 |                   |
| N <sub>2</sub>       |                       |                 | 23371,2217        |                  |                   |                 |                   |                   |                   |                 |                   |
| <b>TOTAL</b>         | <b>4634,3437</b>      | <b>456,7958</b> | <b>29583,8249</b> | <b>5091,1396</b> | <b>23241,9290</b> | <b>353,9259</b> | <b>18504,7154</b> | <b>12626,2626</b> | <b>10615,6664</b> | <b>106,1567</b> | <b>10509,5098</b> |

**FLWSHEET UNIT PENGOLAHAN AIR PABRIK HCl DARI HIDROGEN DAN KLOORIN DENGAN PROSES DIRECT SYNTHETIC HYDROGEN AND CHLORINE KAPASITAS 100.000 TON/TAHUN**



| Nomor | Nama Alat                         | Kode  |
|-------|-----------------------------------|-------|
| 1     | POMPA 1                           | L-111 |
| 2     | BAK PENAMPUNG AIR SUNGAI          | A-110 |
| 3     | POMPA 2                           | L-211 |
| 4     | TANGKI KOAGULASI                  | F-210 |
| 5     | POMPA 3                           | L-212 |
| 6     | TANGKI FLOKULASI                  | F-220 |
| 7     | POMPA 4                           | L-221 |
| 8     | CLARIFIER                         | H-310 |
| 9     | BAK PENAMPUNG FLOG                | A-311 |
| 10    | BAK PENAMPUNG AIR BERSIH          | A-312 |
| 11    | POMPA 5                           | L-313 |
| 12    | SAND FILTER                       | H-320 |
| 13    | BAK PENAMPUNG AIR BERSIH          | A-321 |
| 14    | POMPA 6                           | L-322 |
| 15    | BAK PENAMPUNG AIR SANITASI        | A-323 |
| 18    | BAK PENAMPUNG AIR PENDINGIN       | F-324 |
| 19    | TANGKI KATION EXCHANGE            | H-330 |
| 20    | POMPA 7                           | L-331 |
| 21    | TANGKI ANION EXCHANGE             | A-340 |
| 22    | BAK AIR DEMNERALISASI             | A-341 |
| 23    | POMPA 8                           | L-342 |
| 24    | POMPA 9                           | L-343 |
| 25    | BOILER                            | P-350 |
| 26    | COOLING TOWER                     | P-360 |
| 27    | BAK PENAMPUNG BEKAS AIR PENDINGIN | A-361 |
| 28    | POMPA 10                          | L-362 |
| 29    | POMPA 11                          | L-372 |
| 30    | POMPA 12                          | L-373 |
| 31    | TANGKI PENYIMPANAN DOWTHERM       | A-370 |
| 32    | COOLER DOWTHERM                   | E-371 |
| 33    | POMPA 13                          | L-363 |
| 34    | POMPA 14                          | L-364 |

**FLWSHEET PABRIK HCl DARI HIDROGEN DAN KLOORIN DENGAN PROSES DIRECT SYNTHETIC HYDROGEN AND CHLORINE KAPASITAS 100.000 TON/TAHUN**

|   |  |
|---|--|
| Nama  | Queen Moza Savitri Anggraeni               |
| NPM   | 20031010040                                |
| Dosen Pembimbing  | Prof. Dr. Ir. Ni Ketut Sari, MT            |
|  | PROGRAM STUDI TEKNIK KIMIA                 |
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|   | UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN" |
|   | JAWA TIMUR                                 |
|   | 2024                                       |