

FORMALDEHYDE EQUIPMENT LIST

In this paragraph are shown the main characteristics of the plant main equipment.

1. **Electroblowers VV701**

Service: gas circulation

Type: DF 91

Number: 5043

Construction year: 1971

Maker: TOSI – Legnano

$P_{asp} = 0.986$ ata

$P_{mand} = 1.47$ ata

Range = 61000 m³/h.

2. **Electric Motor**

Maker: ACEC

Type: AT 560 L 18 SP

Number: COGT 13013

Power 1200 KW – Tension 6000V – Current intensity 130 A – 2990 g/min.

3. **RPM multiplier**

Maker: BHS

Multiplication rapport: 1.953

Lubrication oil range: 35 – 40 lt/min a ca. 1.5 ate.

4. **Pre-evaporator E701**

Service: methanol evaporation-thermal recovery

Maker: ALFA-LAVAL France

Project condition:

Internal side:

Methanol + Air

$P = 0.5$ bar – Temp.= 99°C

Capacity: 2650 lt

Material: Inox steel AISI 304

Change area: 372 m²

External side:

formaldehyde solution

$P=5$ bar– Temp.=99°C

Capacity: 1700 lt

5. Recoverer F701

Service: air – methanol misture heating – reacted gas cooling – thermal recovery

Maker: SARTORI

Project condition:

Tubes side:

Reacted gas

P = 0.05 ate – Temp.= 310°C

Capacity: 5.4 m³

Material: Inox steel.

Mantle side:

Methanol + Air

P=0.17 ate–Temp.=200°C

Capacity: 7.6 m³

6. Reactors A701/A702/A703/A704/A705/A706/A707

Maker: COSM

Project condition:

Tubes side:

Methanol + Air

P = 0.17 ate – Temp.= 350°C

Capacity: 1 m³

Material: S.S.

Mantle side:

diathermic oil

P=0.6 ate–Temp.=310°C

Capacity: 1.34 m³

Material: C.S.

7. C701 Absorption column

Service: formaldehyde reacted gas absorption with water

Maker: OLSA

Made of 3 ring packed sections (TC1,TC2,TC3) and a fourth one section with 11 perforated plates – Liquid recirculation on the 3 packed sections.

Entries: 7th and 11st plate, demineralised water or aldeic waters from reacted gas bottom.

Project condition: P = 49035 Pa (gage) – Temp.= 200°C

Internal diameter: 4400 mm; Length: 25 mt.

Material: S.S. – C.S.

8. Boiler H701

Service: diathermic oil cooling – thermal recovery with M.P. vapor production

Maker: SAICI – Milan

Project condition:

Tubes side:

Diathermic oil

P = 1.3 ate – Temp.= 310°C

Total capacity 5.4 m³

Material: S.S.

Mantle side:

Water - Vapor

P= 4 bar – Temp.= 216°C

Material: C.S.

9. **PC 701 (PC 701R)**

Service: diathermic oil circulation

horizontal centrifuge pump

Maker: Gabbioneta – Number: 59375

Capacity: 500 m³/h Head: 16.5m Temp. 270-320 °C

Mechanical seal – Suction diameter 250 mm – Discharging diameter 200 mm

Electric motor

960 rpm/min – 47.5 Hp – 500V – 50 Hz – 53 A

10. **PC 702**

Service: demineralized water dispatch to boiler H 701

horizontal centrifuge pump

Maker: Aturia – Number: 71968

Capacity: 6 m³/h - Head: 6.5m Temp. 20 °C

Mechanical seal – Suction diameter 50 mm – Discharge diameter 200 mm

Electric motor T.I.B.B.

2900 rpm/min – 7.5 Kw – 500V – 50 Hz – 53 A

11. **PC 703 (PC 703R)**

Service: formaldehyde solution dispatch from. column C701 to tank SR20

horizontal centrifuge pump Gabbioneta – Number: 58837/8

capacity: 12-16 m³/h Head: 40-35m Temp. 20-60 °C

Mechanical seal – Suction diameter 50 mm – Discharge diameter 50 mm

Electric motor

2950 rpm/min – 5.5 Hp – 500V – 50 Hz – 7 A

12. **PC 704 (PC 704R) – PC 705 (PC 705R) – PC 706**

Service: formaldehyde solution recirculation in column C701

horizontal centrifuge pump Gabbioneta – Number: 59412/59424/59423

Capacity: 360 m³/h Head: 18m Temp. 60 °C

Mechanical seal – Suction diameter 250 mm – Discharge diameter 200 mm

Electric motor

1460 rpm/min – 45.5 Hp – 500V – 50 Hz – 49 A

13. **B 701**

Service: Diathermic oil heater

Maker : STANDARD and KESSEL type HoKv 700

Capacity : 600000 kcal/h

Optional included : oil re-circulating pump, control panel, gas regulating station

Total power installed 10.3 kW

Minimum gas pressure supply 1.5 bar

15. Oxygen analyzer

Maker : SIEMENS

Type : Oxymat 5F

16. F 703

Service: Plate heat exchanger 3rd column section

Maker : ALFA LAVAL

Type : A-HBM

Material : S.S.

Surface : 270 sq.mt.

N° of plates: 223

17. P 711

Service: MeOH feeding pump

Maker: Hermetic Pumpen

Type : CAM 25/6

Power 9.2 kW

Flowrate : min 2 m³/h 10 m³/h

Pressure head : at min flow 148 m; at max flow 138 m.

18. Spare parts

Everything which is available at plant site.