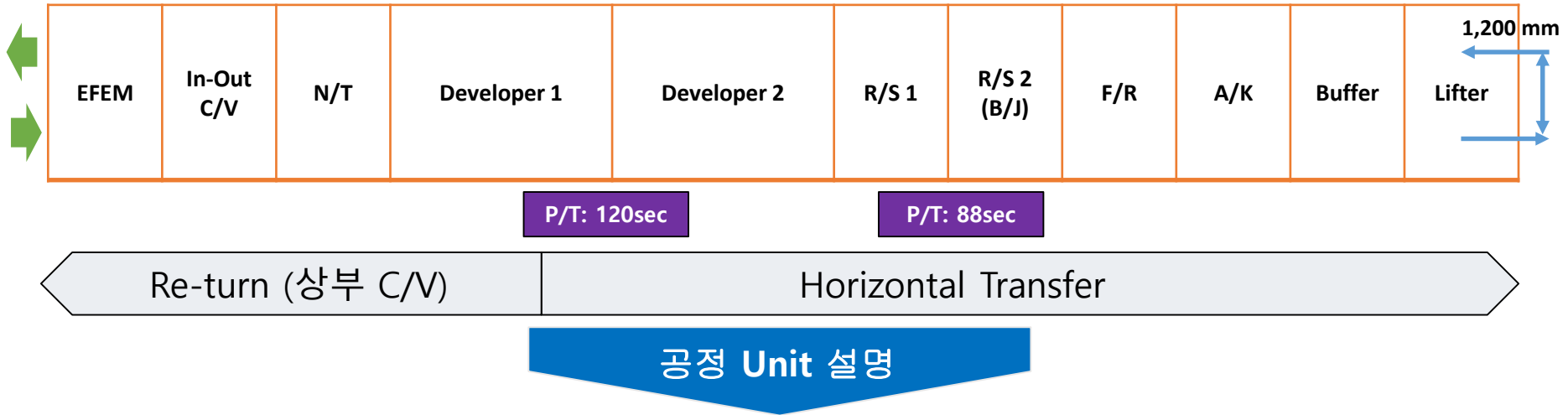


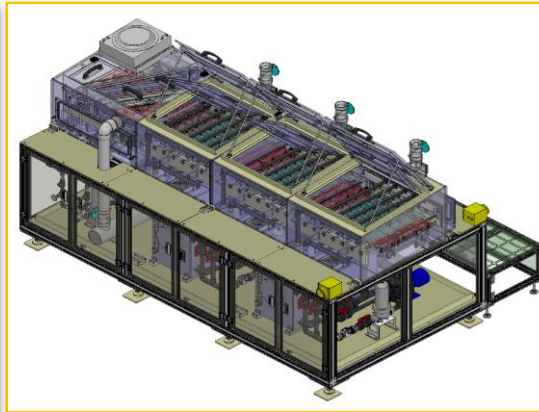
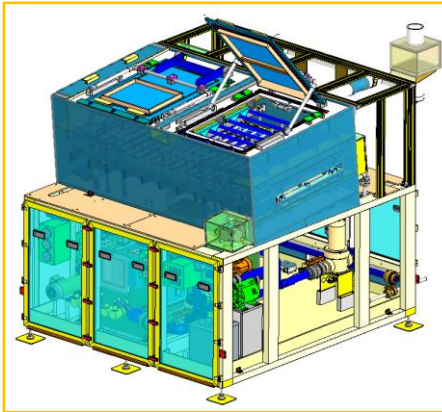
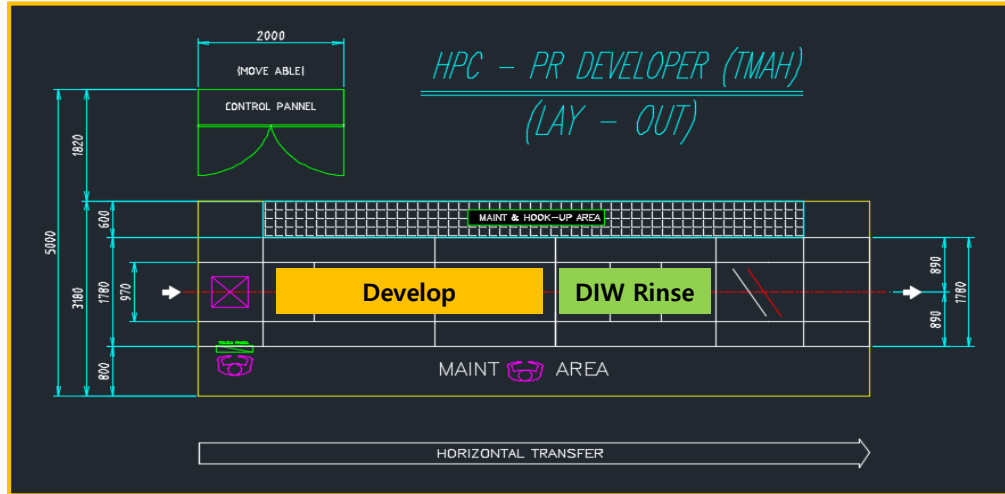
2. DFR Developer - Process



Unit	Contents
In-Out C/V	EFEM → Panel 공급받고 본 공정을 Start 공정 완료 후, 상부 CV를 통해 Re-Turn 실시
Neutral	Chemical 및 Fume 외부 유출을 차단
DFR Developer 1, 2	TMAH2.38%의 Chemical과 Nozzle Spray를 통해 Panel 표면의 미 노광부 DFR 제거
DIW Rinse 1	TMAH Chemical Shower 후 1차로 Shower Rinse를 실시하여 Chemical 성분 및 Particle 제거
DIW Rinse 2	1차 Shower Rinse 후 2차로 Rinse를 실시하여 Chemical 성분 및 Particle 제거

Unit	Contents
Final Rise	최종 DIW를 이용하여 Rinse를 실시 후 Air Knife Unit으로 이동
Air Knife	Blow Type Knife Nozzle 통해 Glass표면 건조 -1차 A/K : Normal Wind (1열) -2차 A/K : Hot Wind (2열) (50°C)
Buffer C/V	A/K 건조 완료 후 Glass를 Lifter로 고송 이송 (3,000 mm/min – Tack time save)
Lifter	최종 Developer Process 완료 후, 상부 C/V로 보내주는 Unit (Lifting Stroke : 1,200mm)
<p>➤ Process Time</p> <p>→ DFR Developer : 120sec</p>	

2. DFR Developer - Layout

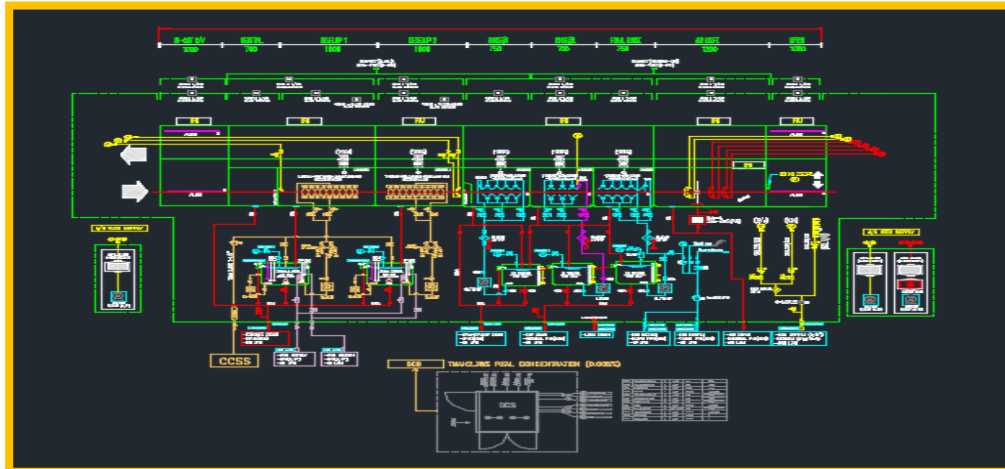
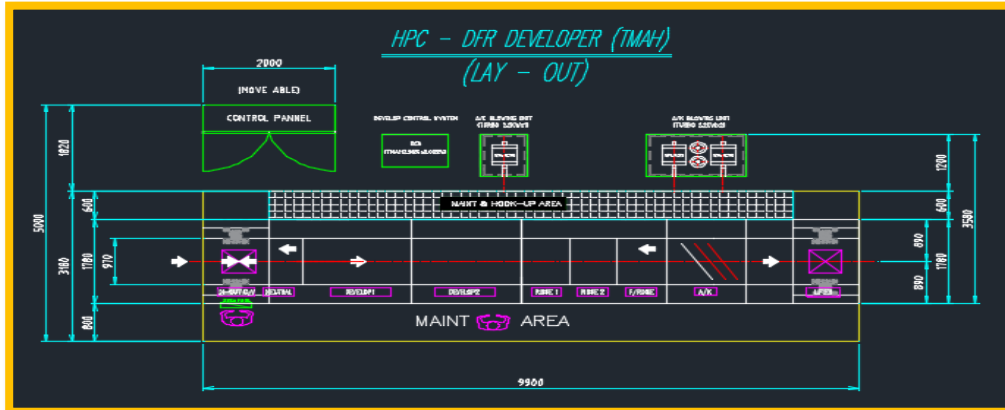


DFR Developer (Zone Length : 3,300L)

Tact time	78sec (27.6K/month)
DFR Dev' Process time	120sec
Chemical Solution	Na2Co3 0.9% +DIW
Using Temperature	30°C
Rinse time	88sec
Dry Solution	Blower (Normal. Hot)

- Chemical Spray : 애플릭스 CCSS
- Concentration Meter Install (Real time)
- Antistatic voltage : $\leq 50V$ (C/V stop)

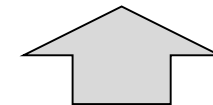
2. DFR Developer – P&ID



Utility	
Electric (KVA)	40 KVA (GPS) 5 KVA (UPS)
CDA (Clean Dry Air)	600 LPM (Day 720 m ³)
Chemical	Na ₂ CO ₃ 0.9% 0.45 LPM (day/0.54Ton)
DIW	35 LPM (day/42ton) Save mode : (day/18ton)

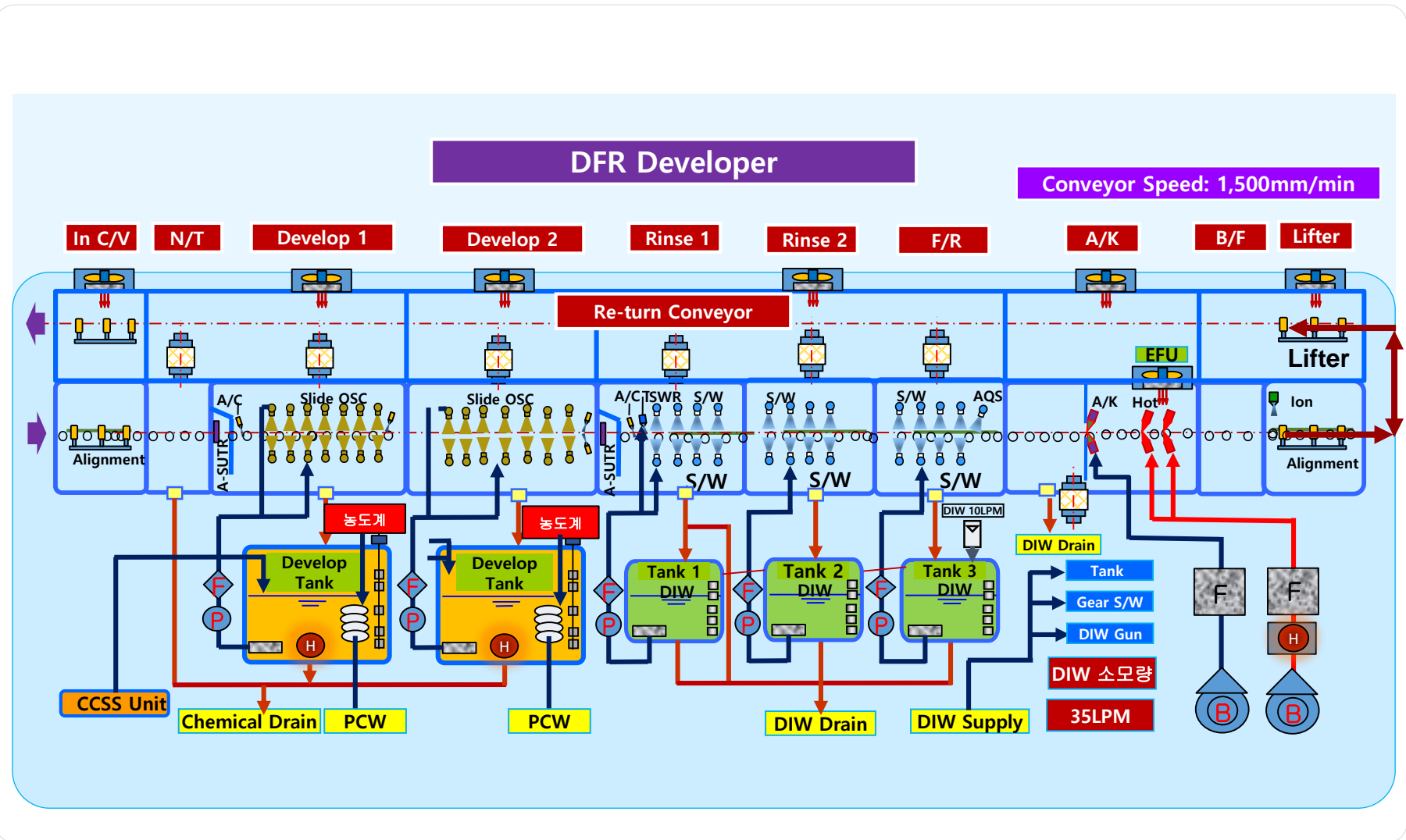
■ 30일 x 20Hr x 46 sheet = 27,600 sheet

■ 1Day = 920 Sheet

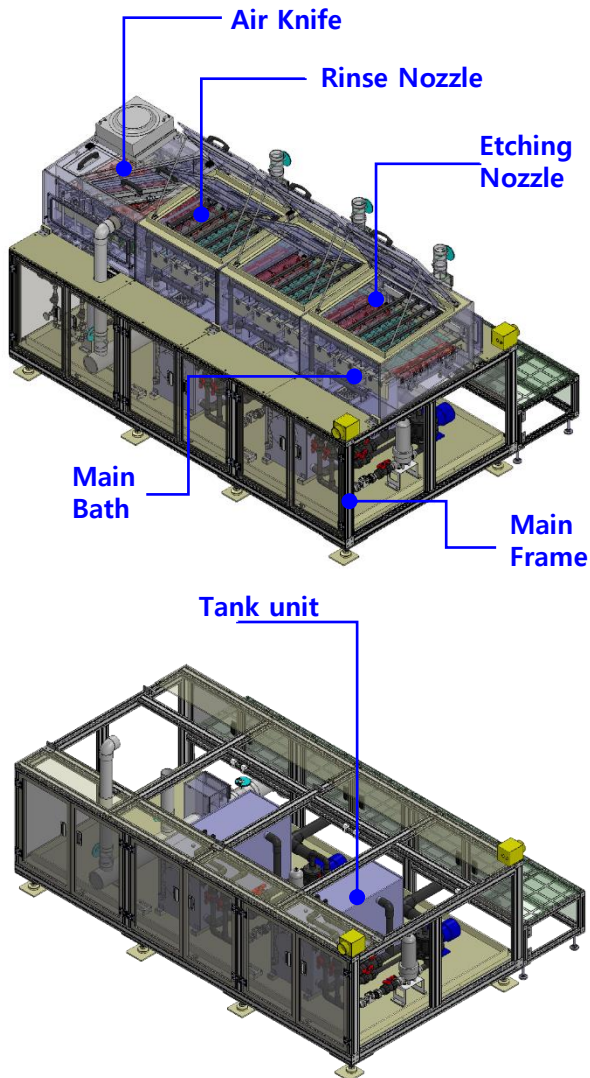


1 Day : 20Hr Standard

2. DFR Developer – Flow image



2. DFR Developer – Strong Point



Strong Point

1	Develop Fume Blocking	<ul style="list-style-type: none"> ■ Zone unit부 Auto Shutter 설치 ■ Fume 차단용 Air Curtain 설치 ■ Zone side부 Exhaust 설치
2	Develop Uniformity Good	<ul style="list-style-type: none"> ■ Nozzle Upper & lower Slide OSC (동일한 각도 속도 중요) ■ 2류체 노즐(B/J) 채택으로 미세 부분의 정확한 현상 및 세정 실현
3	Temperature Control	■ Heater & PCW PID Control ($\pm 1.0^{\circ}\text{C}$)
4	Concentration	■ Real Concentration read (Range alarm)
5	Warpage 대응	■ Upper 부 Push Roller unit 설치
6	Air Knife perfect dry	■ Blow Wind (Normal. Hot Wind) 선택
7	Utility (DIW) 소모량 최소화	■ Final Rinse 부 Pump shower+직수 샤워
8	Safety	■ Liquide Leakage sensor ETC

실시간 Sampling 기능

Chemical 농도, 탁도 측정

Chemical 농도 0.005%까지
make-up 유지