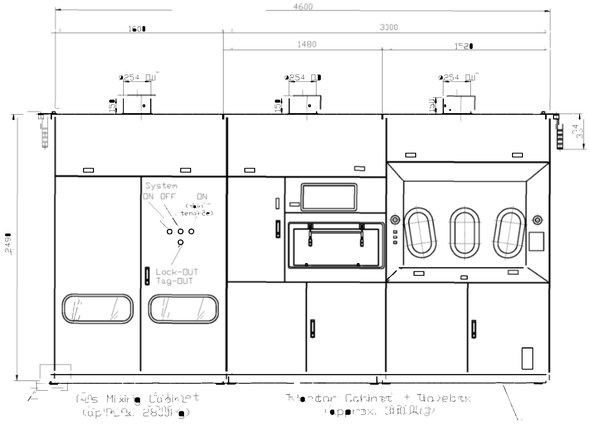
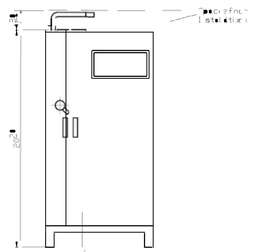
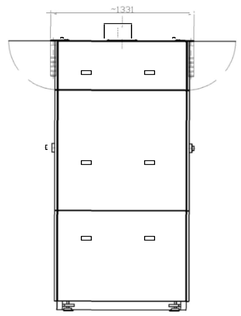
FIRST ANGLE PROJECTION





Side view of the Glovebox

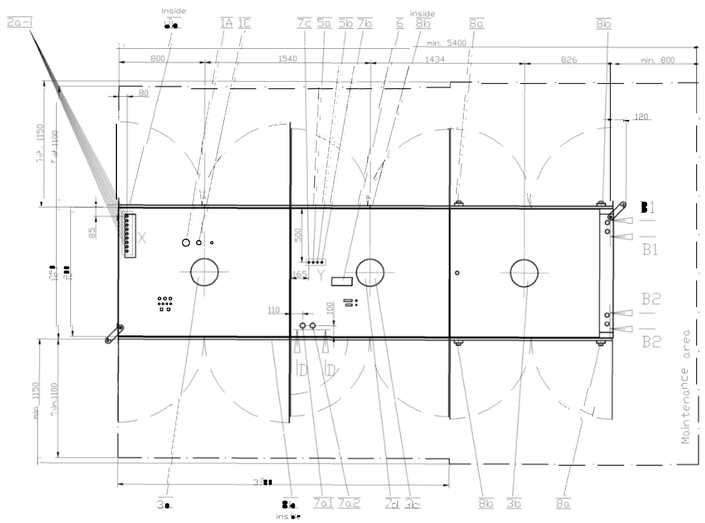


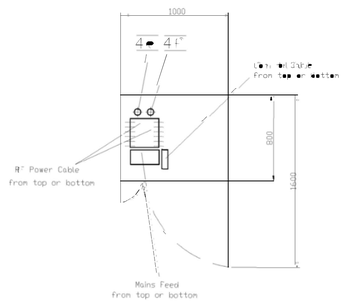
All cabinets have earthquake brackets!

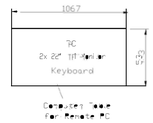
EpiCurveTT AR (2nd wavelength 405nm) is integrated

Cable length RF-Generator - Oscillator: total 25m (20m free cable length)

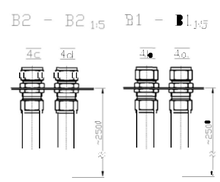
AFF is integrated

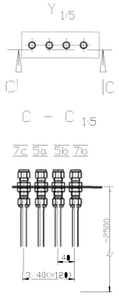


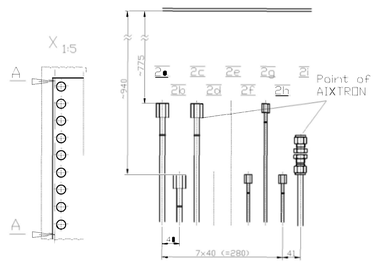


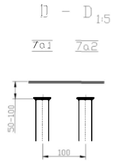


Facility Requirements for integration of Cl_2 (provided by customer)
- Nb flex tube to connect to infeeding GMS (e.g. drawing 22.00.702075)
- Ni gasket to connect to infeeding GMS (e.g. drawing 22.00.702075)
- Customer has to limit Chlorine gas feed velocities to 20m/s
- Leak tightness <10^{-9}mbar*l/s (welded)
- Cl_2-compatible stainless steel (electro polished)
- Dry Scrubber / Cl_2 Cartridge
  - Installed in series before existing abatement, in bypass to existing abatement or as splitted abatement system
  - Takes out Cl_2 and residual precursor
- Customer to install appropriate purifier in Cl2 supply to system









General Safety Requirements

Customer is responsible for:
1. Toxic Gas Monitoring for all utilized hydride gases according to gas mixing system
2. Hydrogen Monitoring
3. Scrubber Monitoring

Alarm signals - potential-free ("dry") contacts - to be provided by customer in order to interlock the MOCVD system.

For detailed description of all alarm inputs and outputs please see cause/effect diagram.

Spare Provision

8. Safety Push Down Button (with Guard Rings)
   a Process Stop Button
   b Emergency Off Button

Index	Modification	DCN	Date	Name
4	Table for Inertly Tool removed		31.08.16	LRoe
3	Vacuumtweezer space added as variable		15.08.16	LRoe
2	Compressor cable length changed		21.07.16	LRoe
1	Gas mixer flow & etc updated		03.06.16	LRoe
0	Released		23.03.16	LRoe

Rev.	Review	Date	Name
4	Released	31.08.16	LRoe
3	Released	15.08.16	LRoe
2	Released	21.07.16	LRoe
1	Released	03.06.16	LRoe
0	Released	23.03.16	LRoe

FINISH
Surface area Ra 3.2
DIN ISO 1302

Remove all sharp edges & burrs

DO NOT SCALE

ISO 128 A0

	Date	Name
Scale: 1:2½		
Drawn by:	17.03.16	LRoe
Checked:		
Standard:		

Material: Rev: 4

AIXTRON CONFIDENTIAL

Title: Installation plan AIX G5 HT (6x13wafer)

Sheet 1 / 1

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Installation Data

1. Power Supply

A Infeeding System:
provided by customer: 3/N/PE/60Hz ±1% / 208Volt ±10% (188V...228V) AC - Fuse: 125A
provided by AIXTRON: 3/N/PE/60Hz ±1% / 208Volt ±10% (188V...228V) AC - Fuse 100A
Max. Power consumption: 28kVA

B Infeeding RF-Heater (TruHeat MF7120)
provided by customer: 3/PE/50Hz/60Hz ±1% / 480Volt ±10% (432V...528V) AC - Fuse: 250A
provided by AIXTRON: 3/PE/50Hz/60Hz ±1% / 480Volt ±10% (432V...528V) AC - Fuse: 200A
Max. Power consumption: 147kVA

2. Gas Interface
VCR - AIXTRON provides: female
a N_2 Getter purified - 1/2" VCRF - 4.0 ... 7.0 barg-stabilized
b H_2 quality Pd-diffused - 1/2" VCRF - 4.0 ... 7.0 barg-stabilized
c NH_3 100% - 1/2" VCRF - 0.8 ... 2.0 barg-stabilized
highest quality according to "Blue Ammonia" by SOLVAY/AIXTRON
d space
e space
f SiH_4/H_2 200ppm - 1/4" VCRF - 3.0 ... 3.5 barg-stabilized
g N_2/N_2 - 1/4" VCRF - 3.0 ... 3.5 barg-stabilized
h Cl_2/N_2 5% purified - 1/4" VCRF - 3.0 ... 3.5 barg-stabilized
(with < 1ppb H_2O)
i N_2 tech - 1/2" Swagelok - 5.0 ... 3.5 barg
(N_2 3.5 low O_2 content)
(max. flowrate approx. 130slm (peak))

3. Ventilation
(customer has to limit H_2-flow to 200sln, NH_3-flow to 100sln, SiH_4/H_2 < 2% to 5slm, Cl_2/N_2 5% to 60slm)
a Gas Mixing Cabinet: 1x9 7/8" (Ø254mm OD / Ø250mm ID) - approx. 500m³/h
b Reactor Cabinet: 2x9 7/8" (Ø254mm OD / Ø250mm ID) - each approx. 500m³/h
containing minute amounts of hydrogen

4. Cooling Water (according to AIXTRON water specs)
tube fitting could be e.g from VK-low or Swagelok
a Inlet (max.) 8.0 barg, 1 1/4" tube fitting
minimum total flow 70l/min
temperature 17°-25°C, temperature stability: ±1°C
waterspecs for Al-free loop
b Outlet (max.) 2.5 barg, 1 1/4" tube fitting
(min. differential pressure 4 barg, @ required flow)
c Inlet Top-Ring-Bottom-Gasinlet: maximum 8.0 barg, 1 1/4" tube fitting
minimum total flow 72l/min
temperature 20°C, temperature stability ±1°C
waterspecs for Al-containing loop
d Outlet Top-Ring-Bottom-Gasinlet maximum 2.0 barg, 1 1/4" tube fitting
maximum temperature 40°C
(min. differential pressure 4 barg, @ required flow)
e Inlet Generator: 6 barg, min. 36l/min 3/4" Swagelok (TruHeat MF7120)
waterspecs for Al-free loop
f Outlet Generator: 3/4" Swagelok
(min. differential pressure 4 barg, @ required flow)
Moisture non condensing at room temperature
at lowest water temperature (see diagram in RF-Manual)

5. Gas Inlet Glovebox
a Forming gas (5% H_2 in N_2) - 0.3 ... 0.5 barg, 3/8" Swagelok
b Working gas (N_2 5.0) - 5 ... 6 barg, 3/8" Swagelok

6. Electrical connectors to RF Generator by AIXTRON
Two oscillator cables
One control cable

7. Process Gas Exhaust
a1 Process gas exhaust connected to Scrubber Hydride
DN40KF flange, 50-100mm below top of Reactor Cabinet
open line for continuous flow
He-leaktight ≤ $10^{E(-9)}$ mbarg l/s
Oxygen < 1ppm
line pressure atm > p > atm - 20 mbarg
a2 Process gas exhaust connected to Scrubber Pyro
DN40KF flange, 50-100mm below top of Reactor Cabinet
open line for continuous flow
He-leaktight ≤ $10^{E(-9)}$ mbarg l/s
Oxygen < 1ppm
line pressure atm > p > atm - 20 mbarg
b Exhaust GB Pump
3/8" Swagelok
c Exhaust Forming Gas
(should not be connected to 7a)
3/8" Swagelok
(Containing up to 5% H_2/N_2)
d Exhaust Vacuum Tweezer
1/4" tube internal to Cabinet Ventilation (3b)