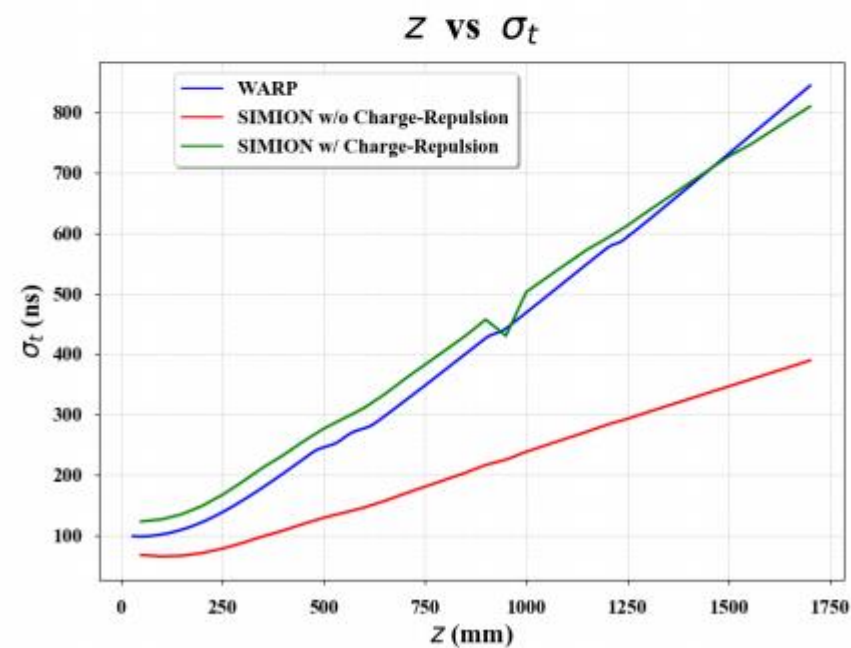
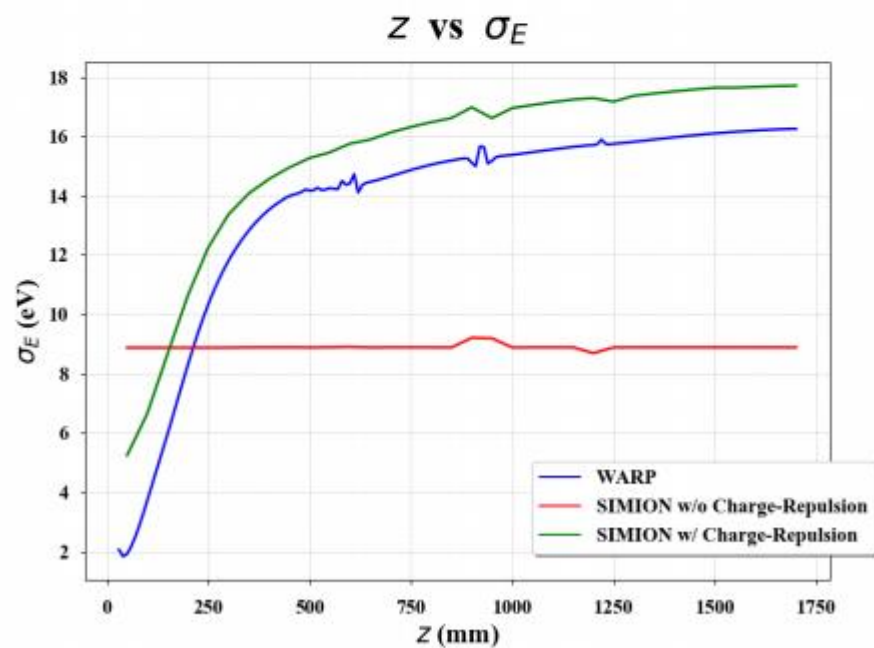
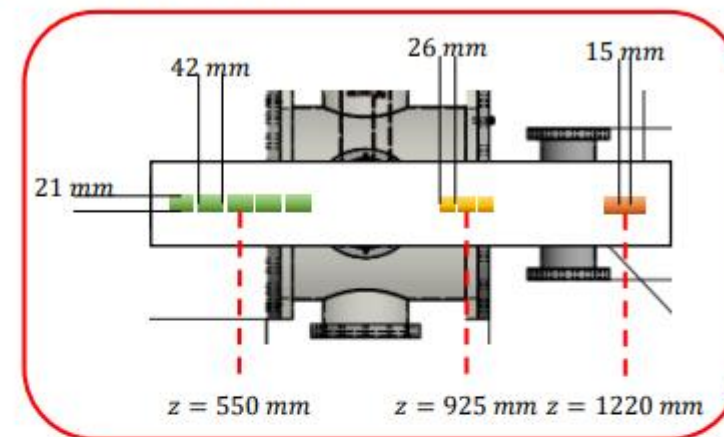


# GBAR Trap Meeting

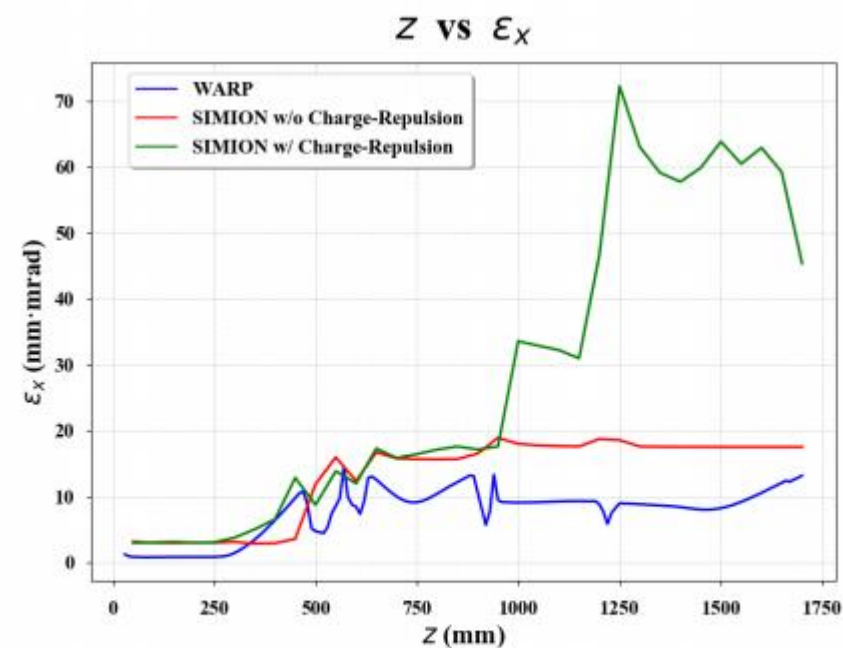
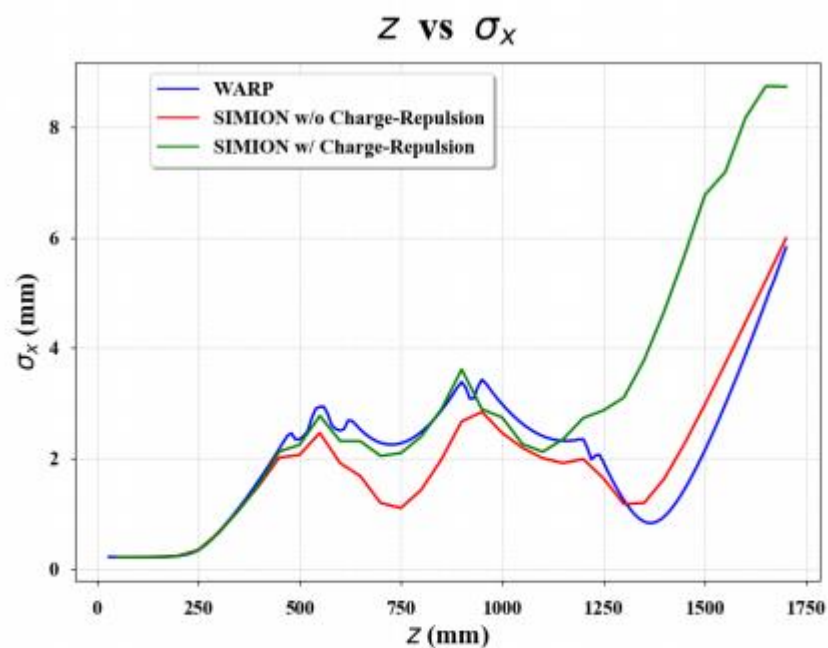
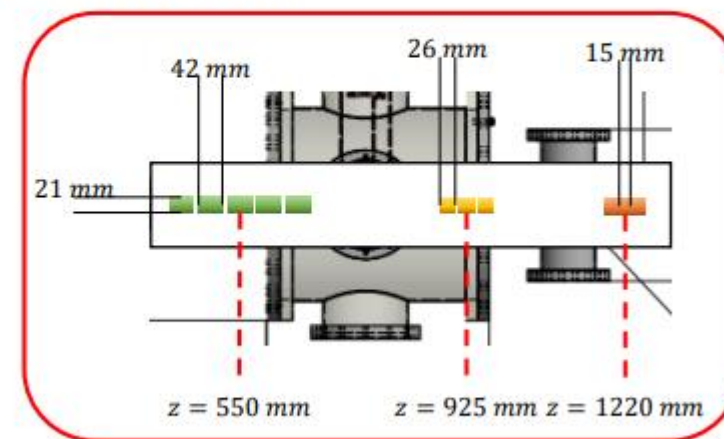
Seoul National University

11.Mar.2019

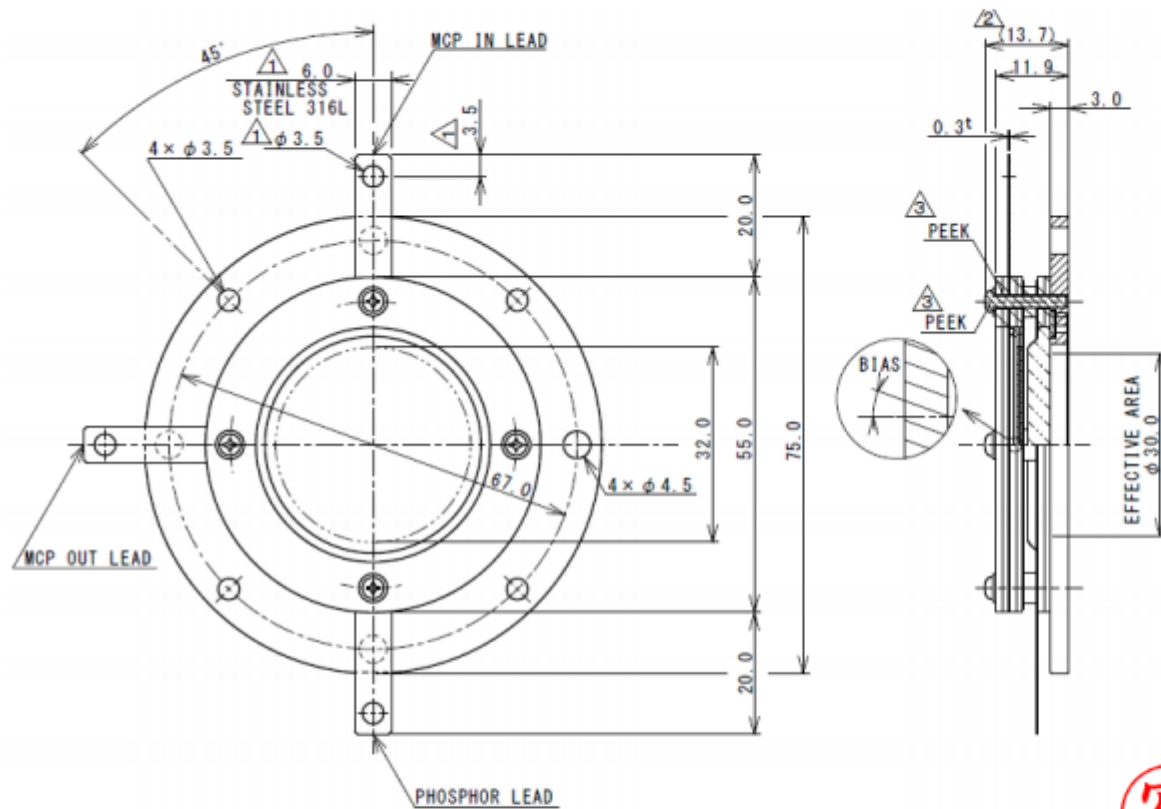
# Comparison between WARP & SIMION



# Comparison between WARP & SIMION



# MCP



MCP: F1208-01G  
 CD: 12  $\mu$ m  
 L/D: 40  
 BIAS ANGLE: 8 DEGREES  
 2 STAGE

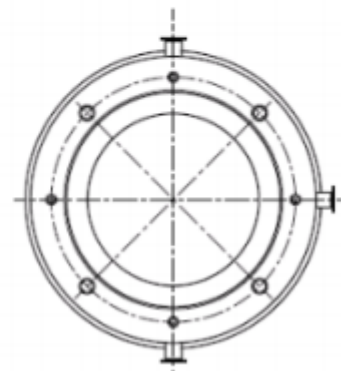
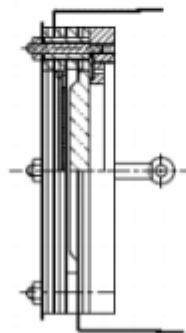
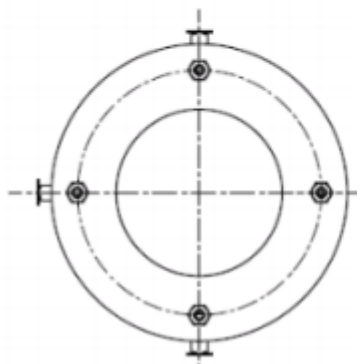
PHOSPHOR SCREEN  
 : P47 (ITO)

MAXIMUM VOLTAGE RATING  
 MCP IN-SUBSTRATE : 6.0 kV  
 MCP IN-MCP OUT : 2.0 kV  
 MCP OUT-PHOSPHOR : 4.0 kV  
 PHOSPHOR-SUBSTRATE: 6.0 kV

POTENTIAL (-)  
 MCP IN : -6.0 kV Max.  
 MCP OUT : -4.0 kV Max.  
 PHOSPHOR : GND  
 SUBSTRATE : GND

POTENTIAL (+)  
 MCP IN : GND  
 MCP OUT : +2.0kV Max.  
 PHOSPHOR : +6.0kV Max.  
 SUBSTRATE : GND

写



# MCP



Air Cylinder  
(L2271-4)



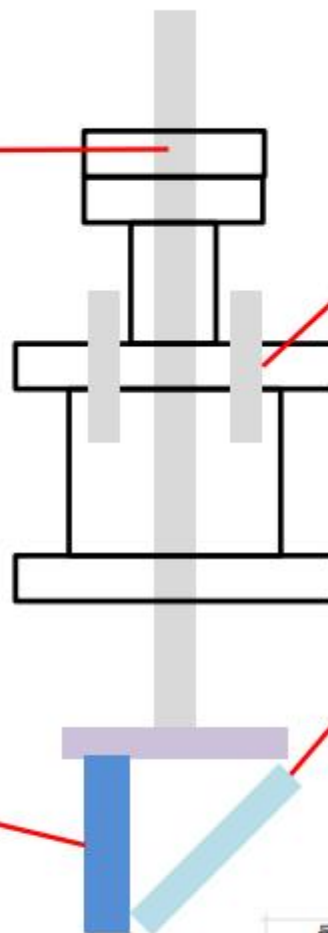
MCP + PS  
(F2224-21P)



CCD Camera  
(PCO.pixelfly)



Power Supply  
(SHV 30R – 3kV, 10kV)



Feedthrough  
SHV type ~10kV



Mirror  
(38.1X53.9mm, Al coated)

물품	구매업체	주요 성능	단가	개수	가격(VAT 제외)	가격(VAT 포함)
MCP	Hamamatsu	2stage, PS	8,300,000	1	8,300,000	9,130,000
Air Cylinder	넥스트론	4inch stroke	1,900,000	1	1,900,000	2,090,000
Power Supply	Convertech	3kV 10mA	1,820,000	1	1,820,000	2,002,000
		10kV 3mA	1,820,000	1	1,820,000	2,002,000
CCD Camera	PCO	1392X1040	?	1		
Mirror	Edmund	Al coated	25,100	2	50,200	55,220
Feedthrough	ATC	~10kV	172,000	4	688,000	756,800
Connector	ATC		129,000	2	258,000	283,800
					총합	16,319,820

Magnet

Valve operator

Pirani  
Gauge

NW25  
4-way  
cross

Penning  
Gauge



Valve

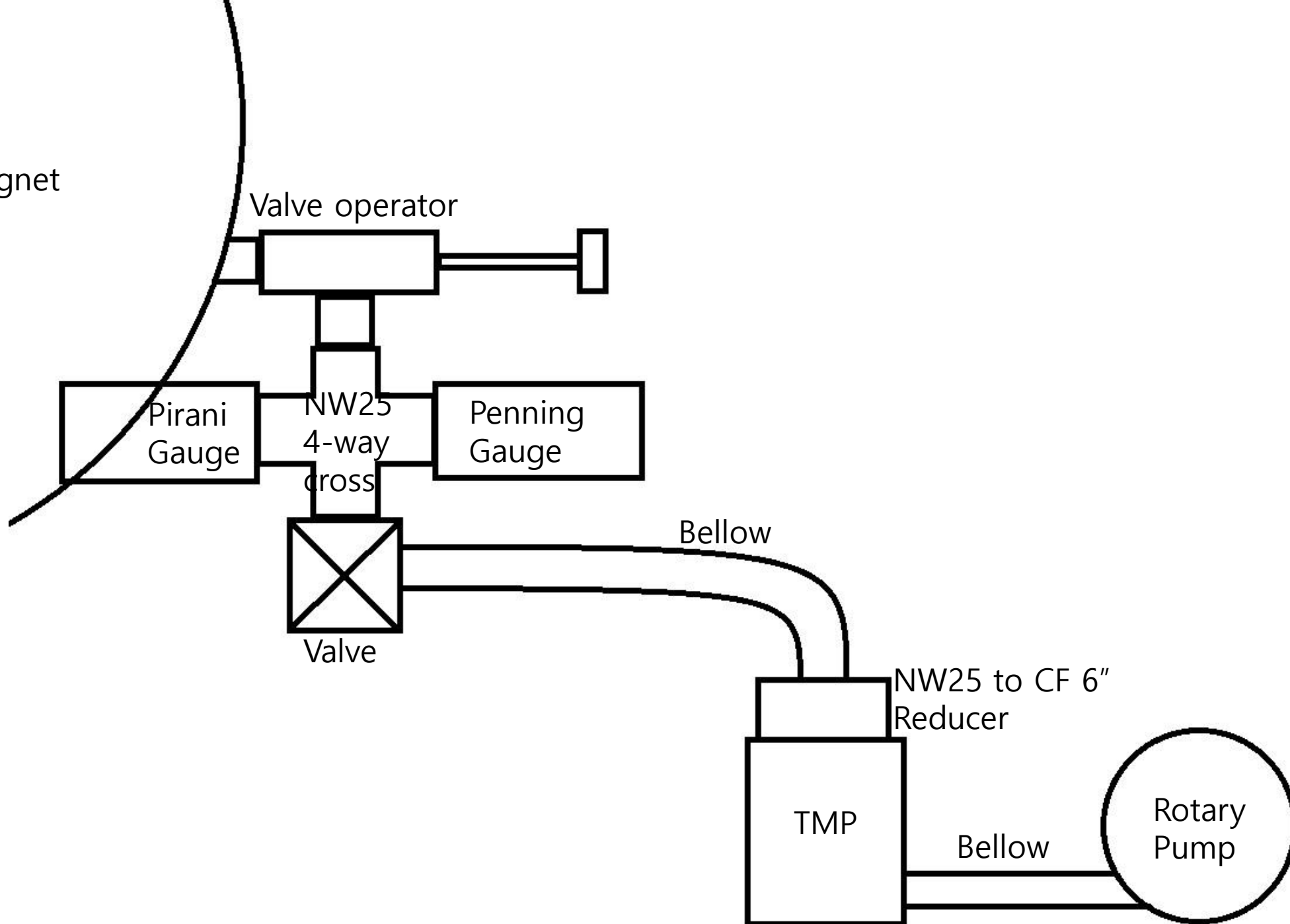
Bellow

NW25 to CF 6"  
Reducer

TMP

Bellow

Rotary  
Pump



# Magnet Vacuum System

- 정민실업
- MTS



內 譯				
品 名 及 規 格	數 量	單 位	單 價	金 額
1. NW25 수동 Valve				400,000
2. NW25 Four way Cross				250,000
3. NW25 Bellows 1M				350,000
4. DN100 + NW25				250,000

VACUUM SCIENCE LABORATORY  
UNIT OF JEONG MIN

合 計₩1,250,000 (VAT별도)



Magnet

Valve operator

Pirani  
Gauge

NW25  
4-way  
cross

Penning  
Gauge



Valve

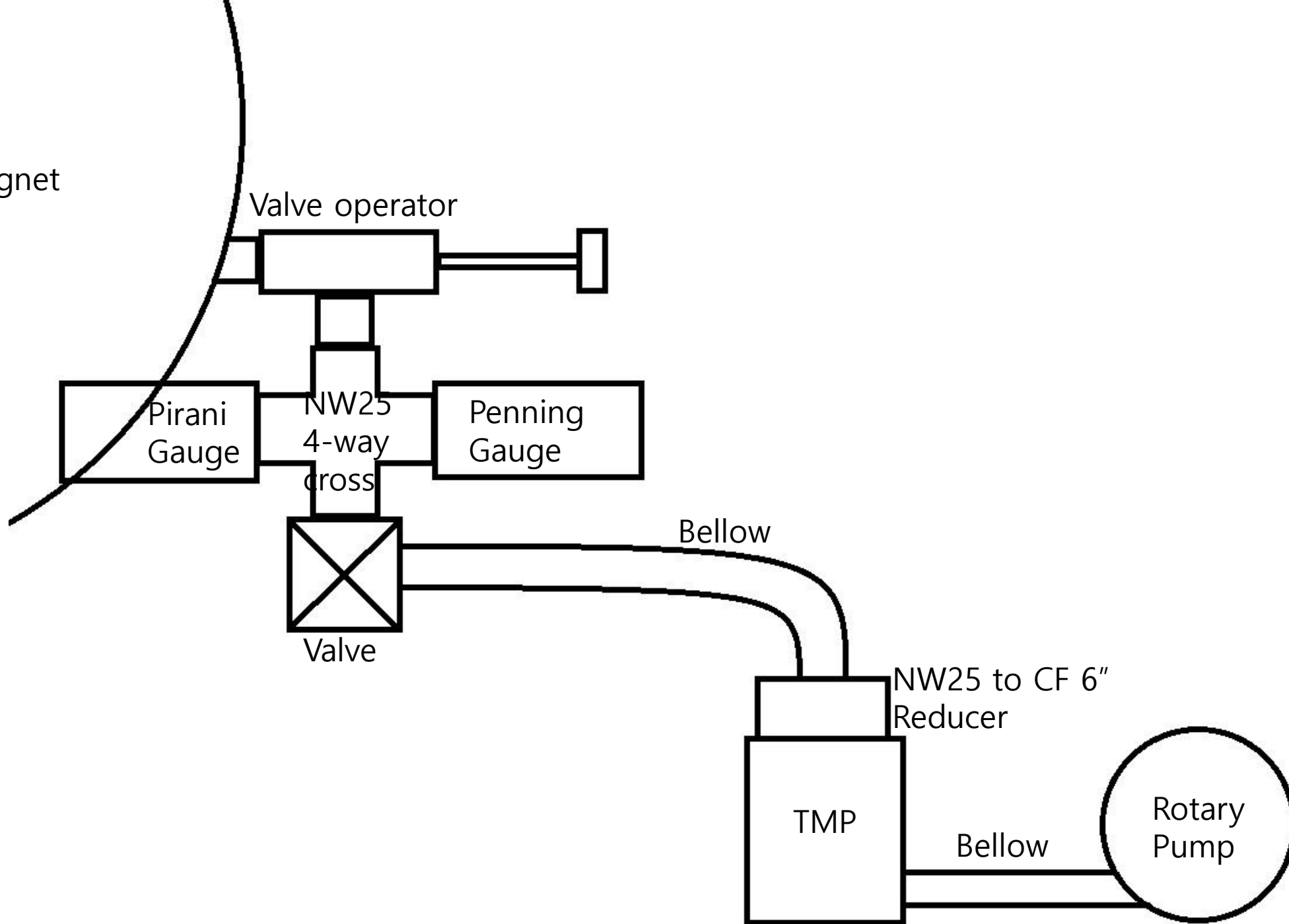
Bellow

NW25 to CF 6"  
Reducer

TMP

Bellow

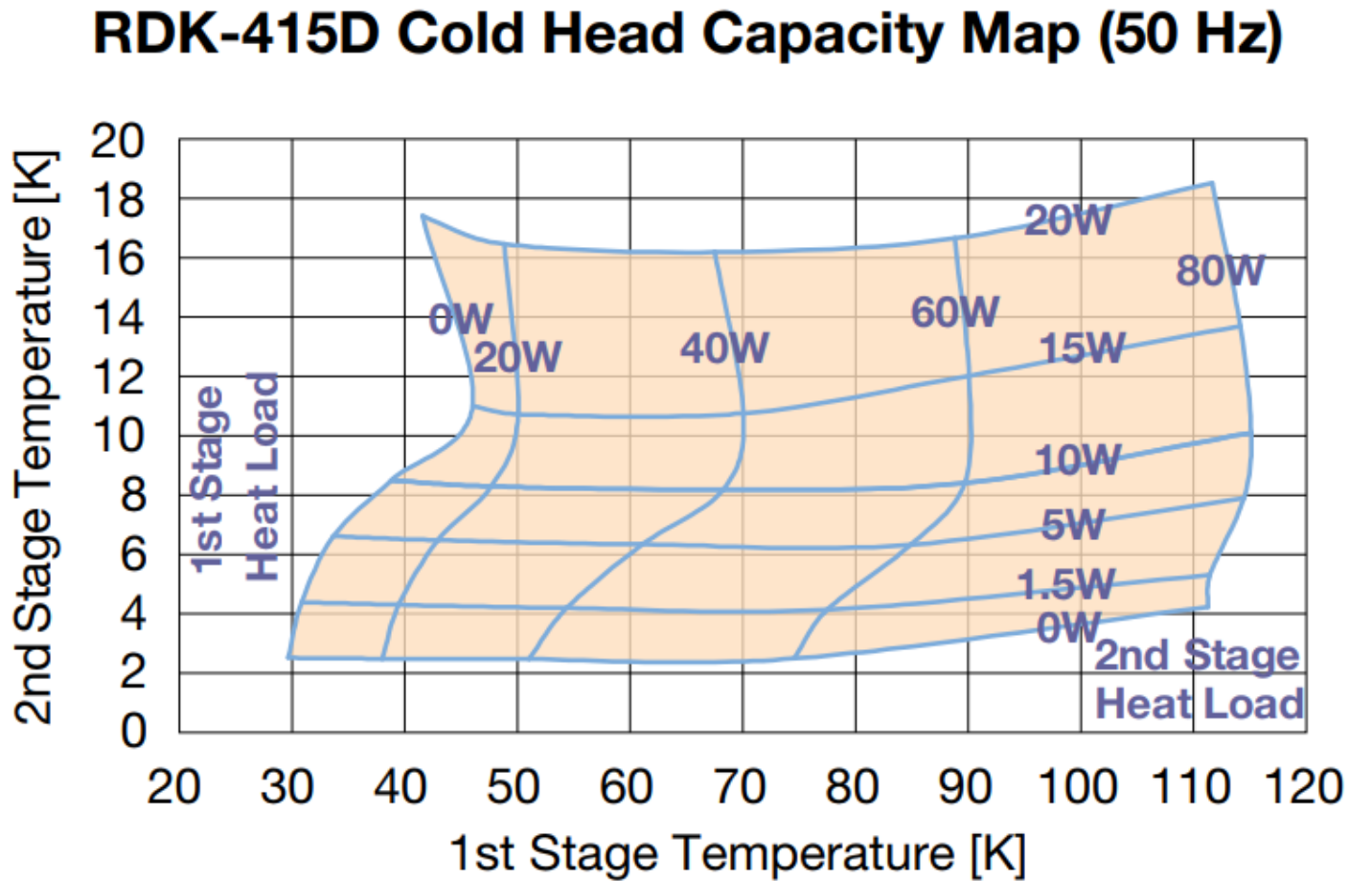
Rotary  
Pump





# Cu Cylinder Length

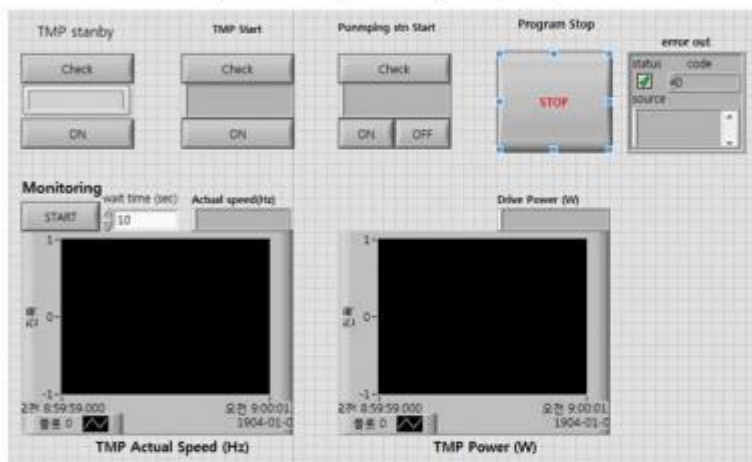
- Cooling Simulation



# Control vi

## TMP control vi

Path:바탕화면\LabVIEW\190308\TMP\_only.vi



### How to start

TMP stanby ON → TMP start ON → pumping stn start ON

### How to end

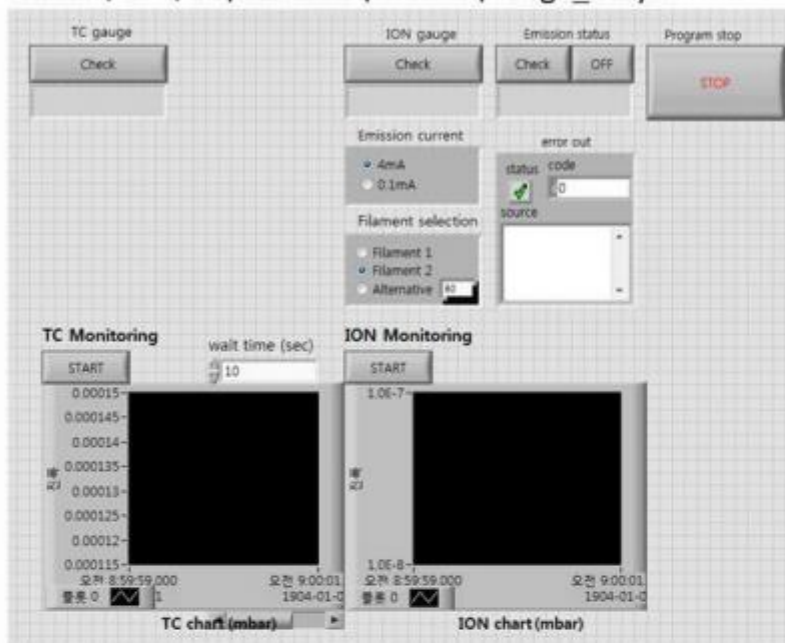
pumping stn start OFF → Monitoring

### How to Monitor

Set wait time and Start

## Gauge control vi

Path:바탕화면\LabVIEW\190308\Gauge\_only.vi



### TC gauge check

Check button below TC gauge

### Check Emission status

Emission status could be checked with check button below Emission status. If the emission current should be turned off, press off button.

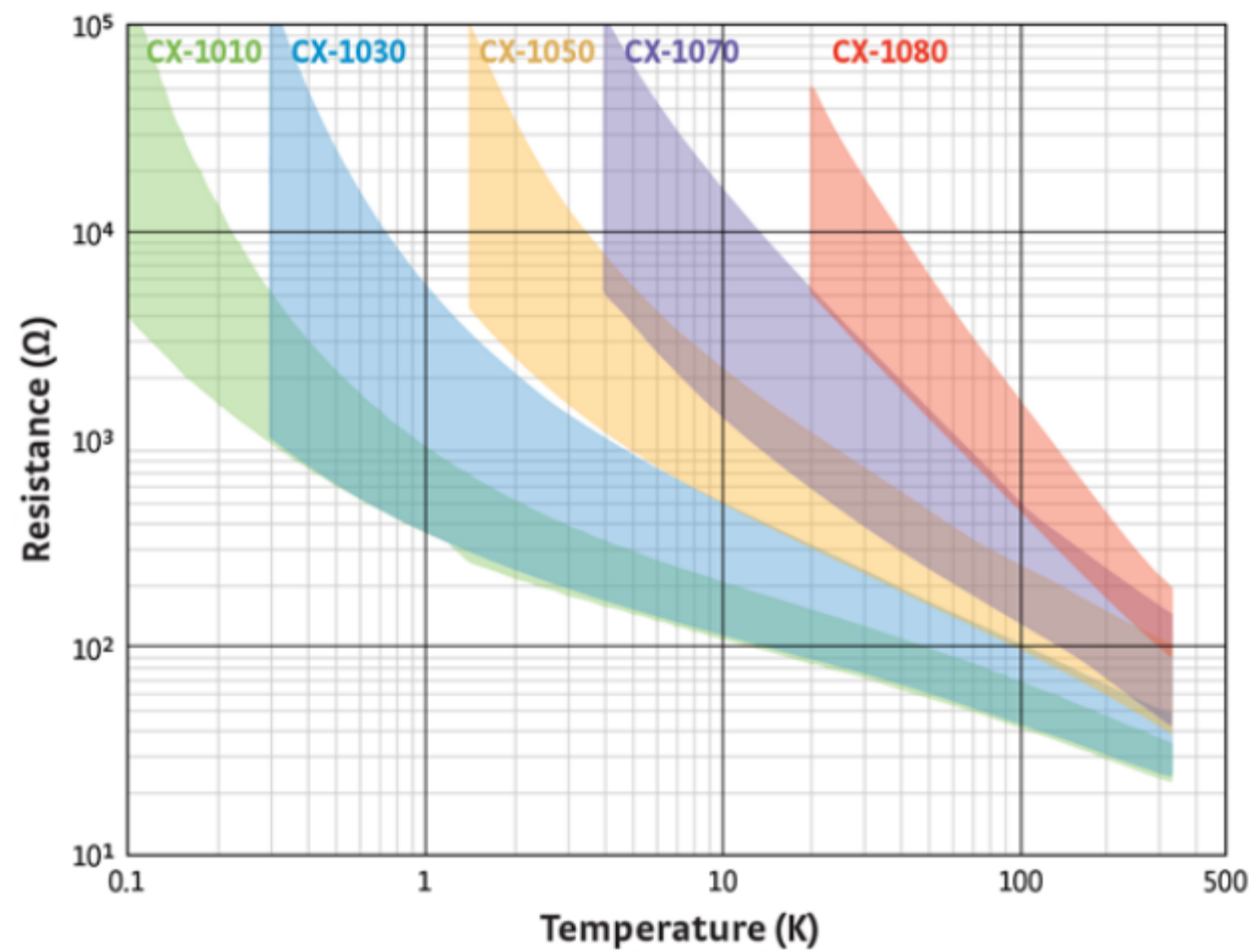
### ION gauge check

※ Be sure to TMP is on and wait enough time to get pressure lower than 1E-6 mbar or lifetime of filament could be shortened

1. Set Emission current (0.1 mA is recommended if pressure could be higher than 1E-6 mbar)
2. Select Filament (Alternative mode change between two FIL alternatively following number indicates switching time)
3. Press check button below ION gauge (There is 20 sec delay when FIL is turned ON.)
4. Press start button below ION Monitoring for monitoring.
5. Stop button will turn the emission current off and stop vi.

TMP & gauge control vi is revised

- Ion gauge alternative FIL mode
- Manual FIL status check and off
- Off FIL when vi stop



Thank You!