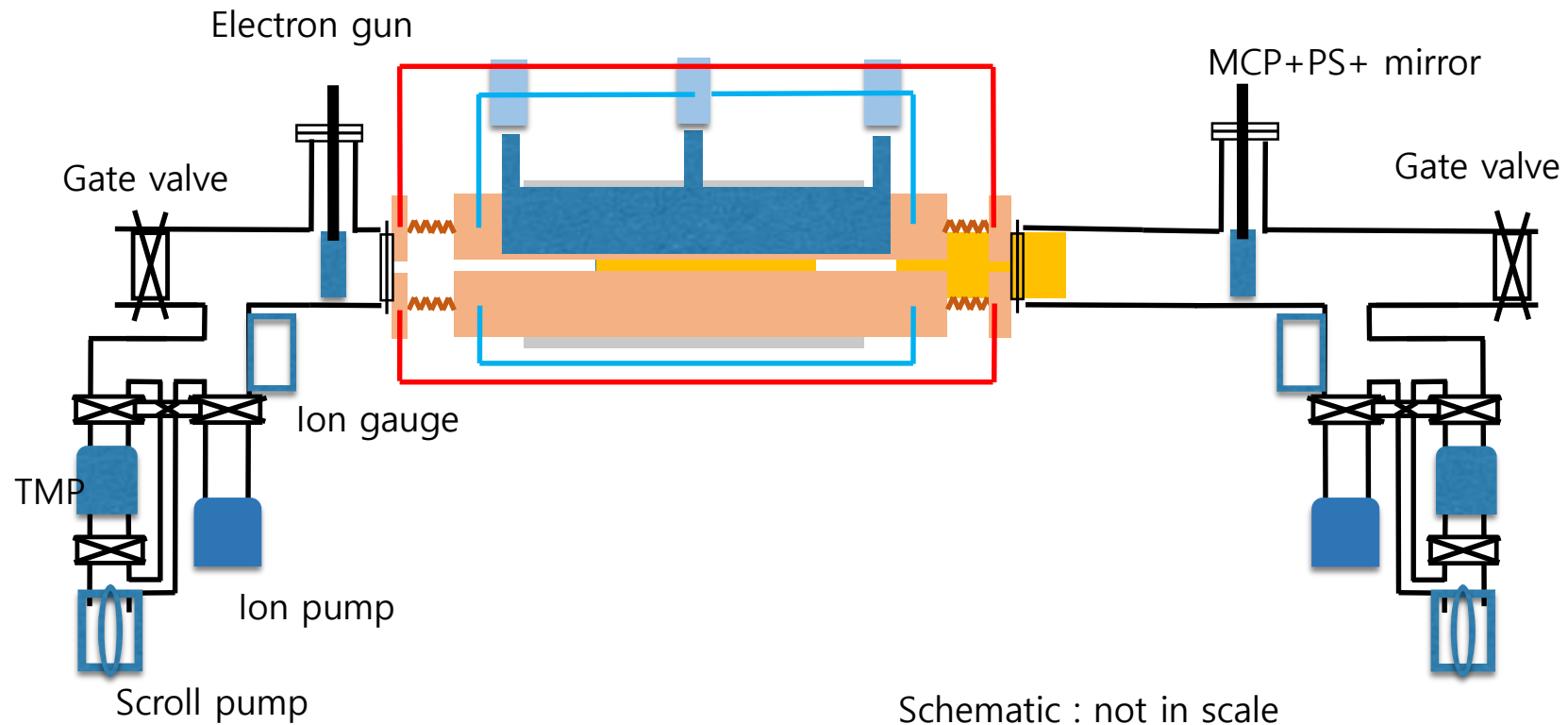


Vacuum System Test for GBAR antiproton trap

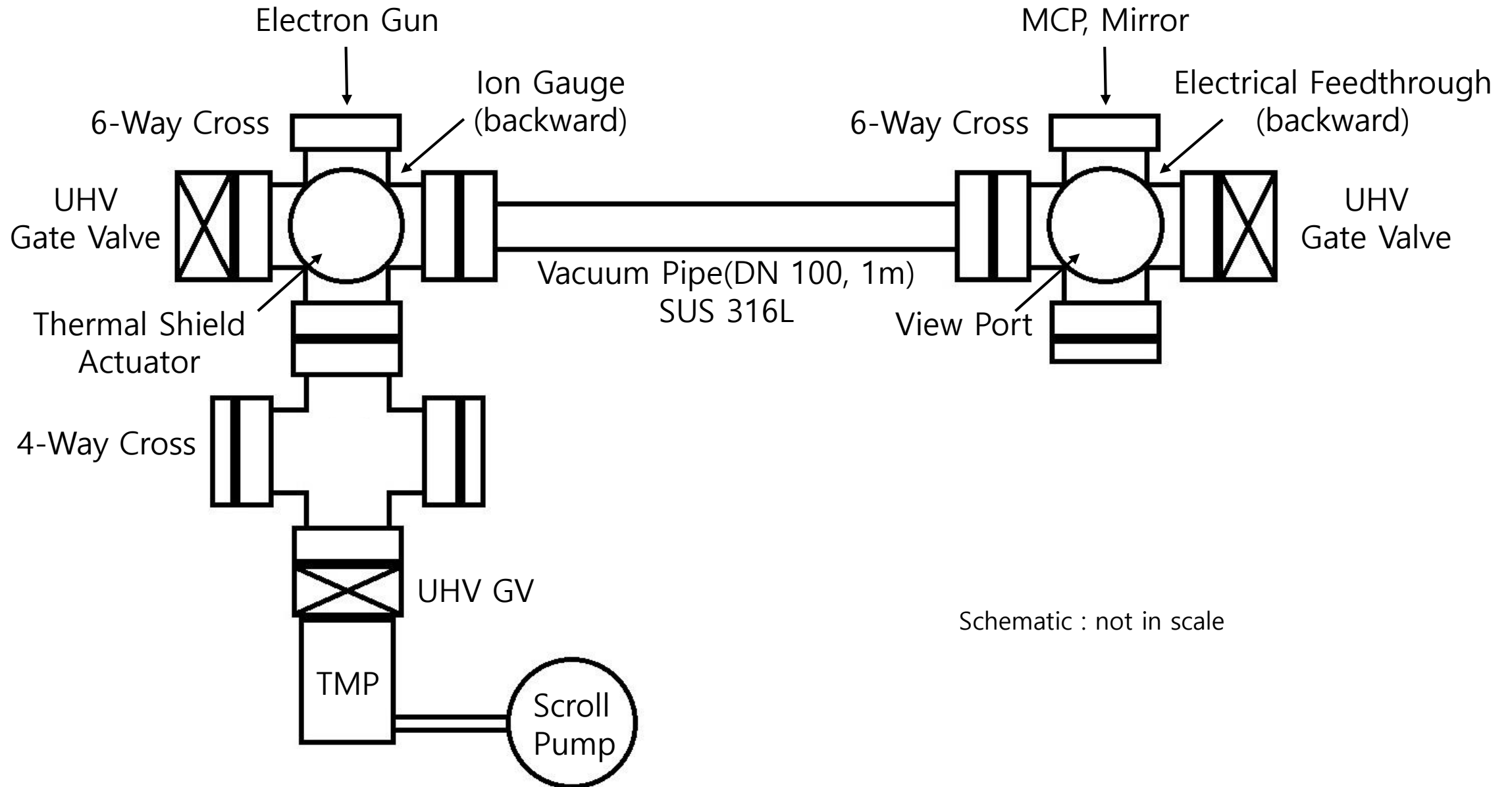
Seoul National University

11.Nov.2017

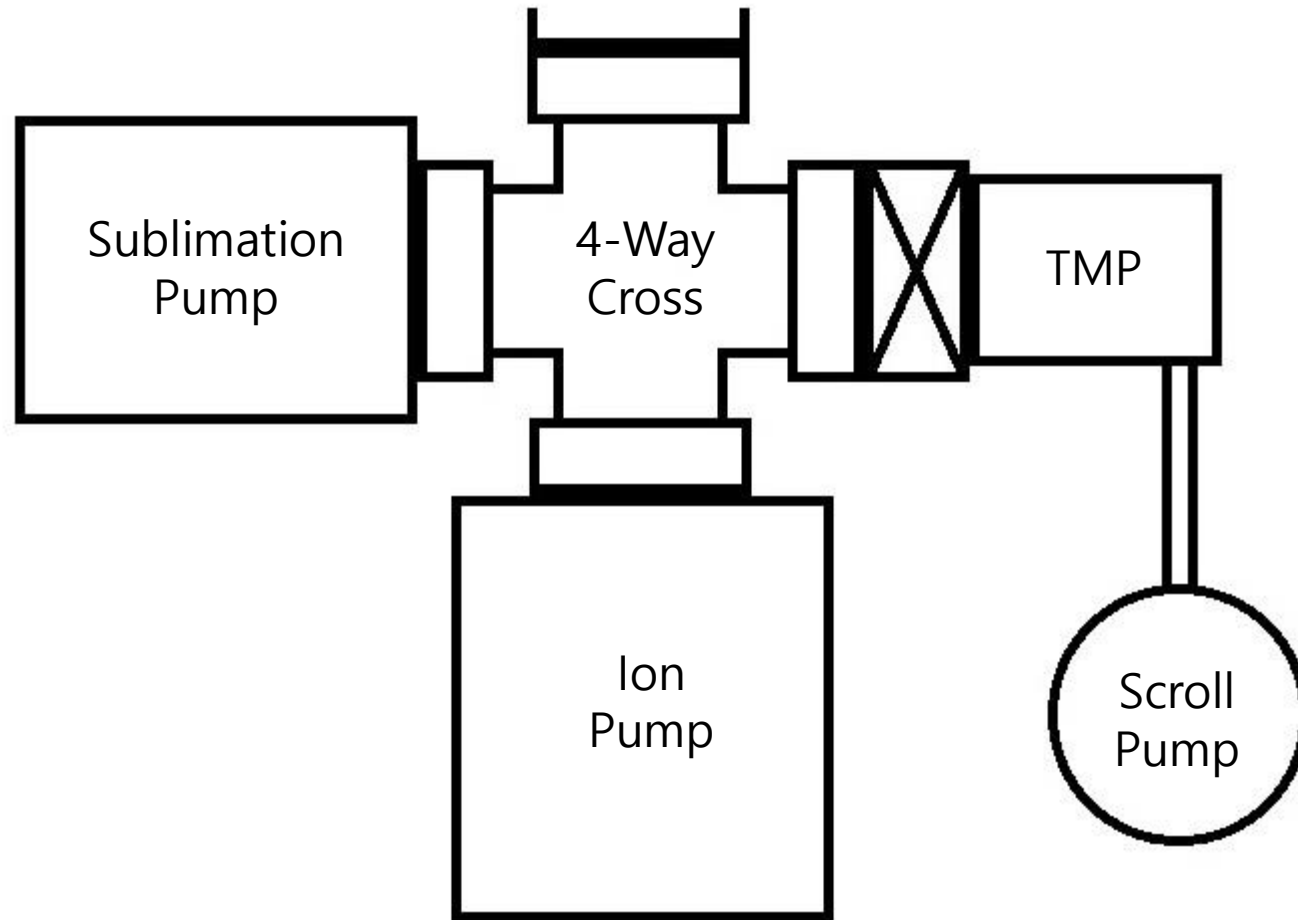
GBAR antiproton trap-Vacuum



Vacuum System Test



4-Way Cross When Using Ion Pump

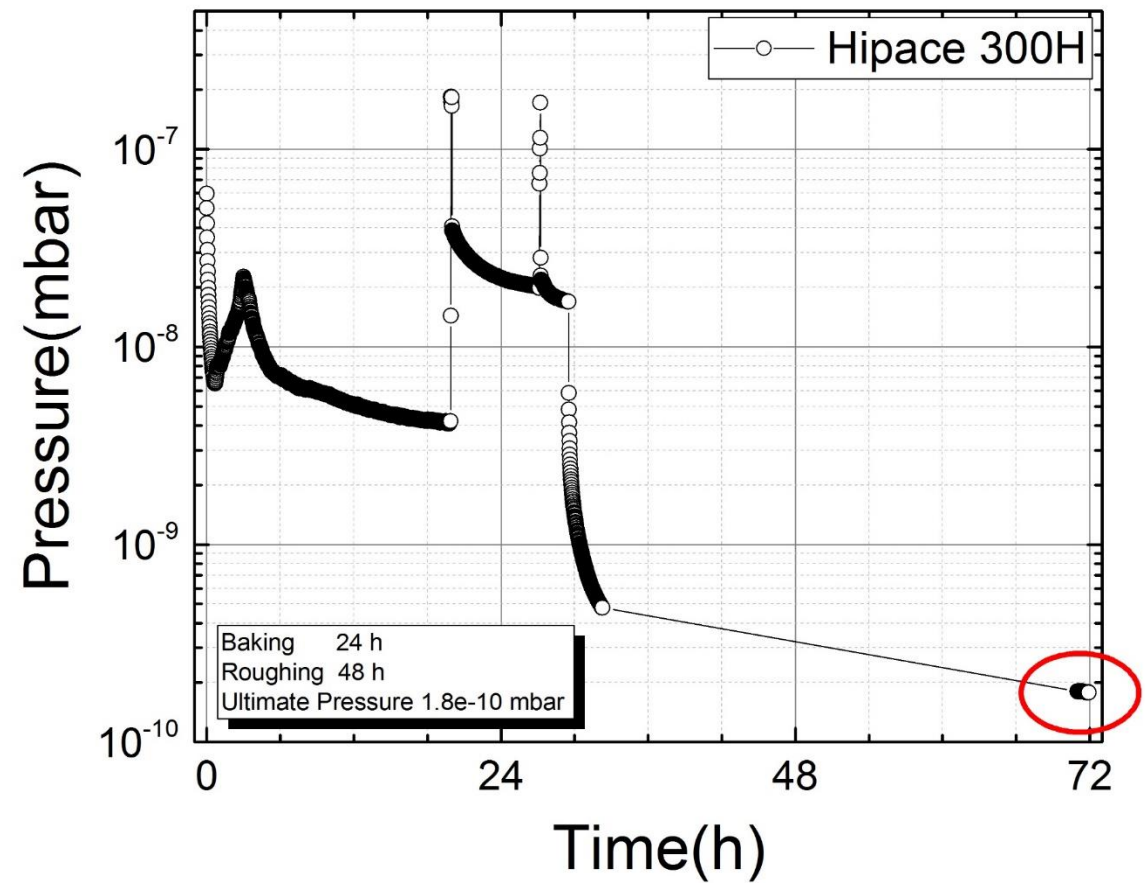
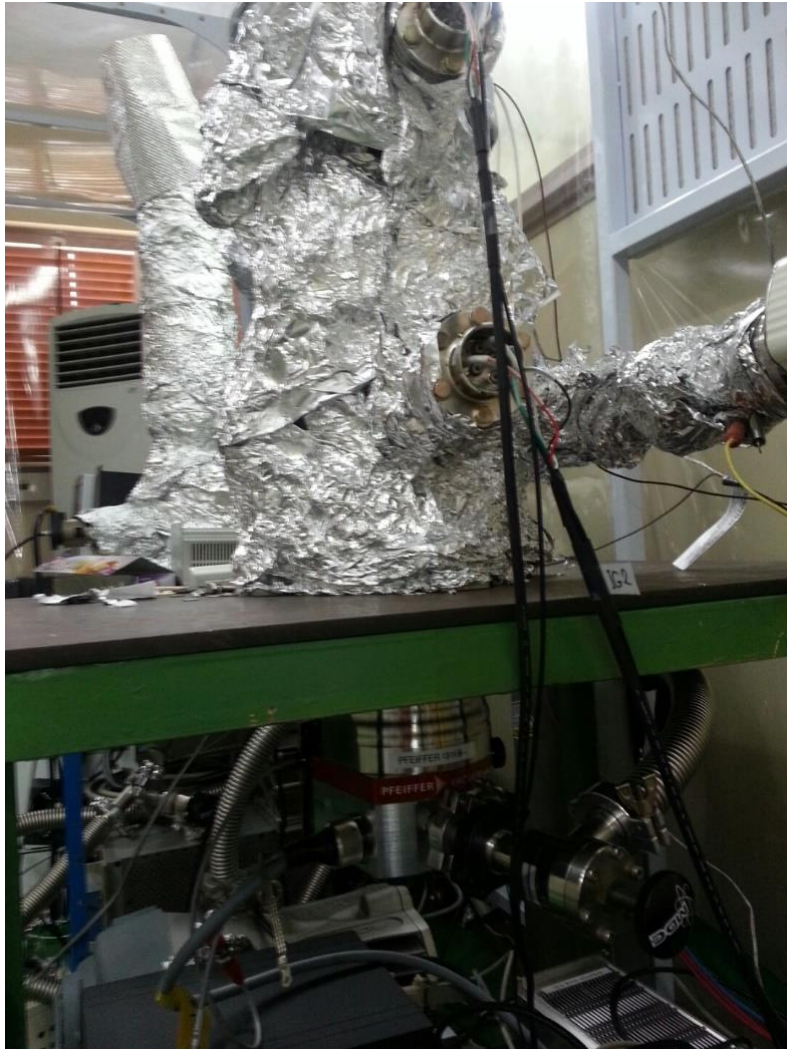


TMP만으로 원하는 진공도가
나오지 않을 경우를 대비한
4-way cross.

- The pressure we want to make is $10^{-9} \sim 10^{-10}$ Torr in room temperature.
- We ordered TMP, Scroll pump, Ion gauge on March.
- TMP : Pfeiffer HIPACE 300H
- Scroll pump : Agilent SH-110
- Ion-gauge : UHV-24p
- Material of the system : SUS 316L – Magnetization Problem.
- Ordered drawing and making to Jung-Min Sil Up

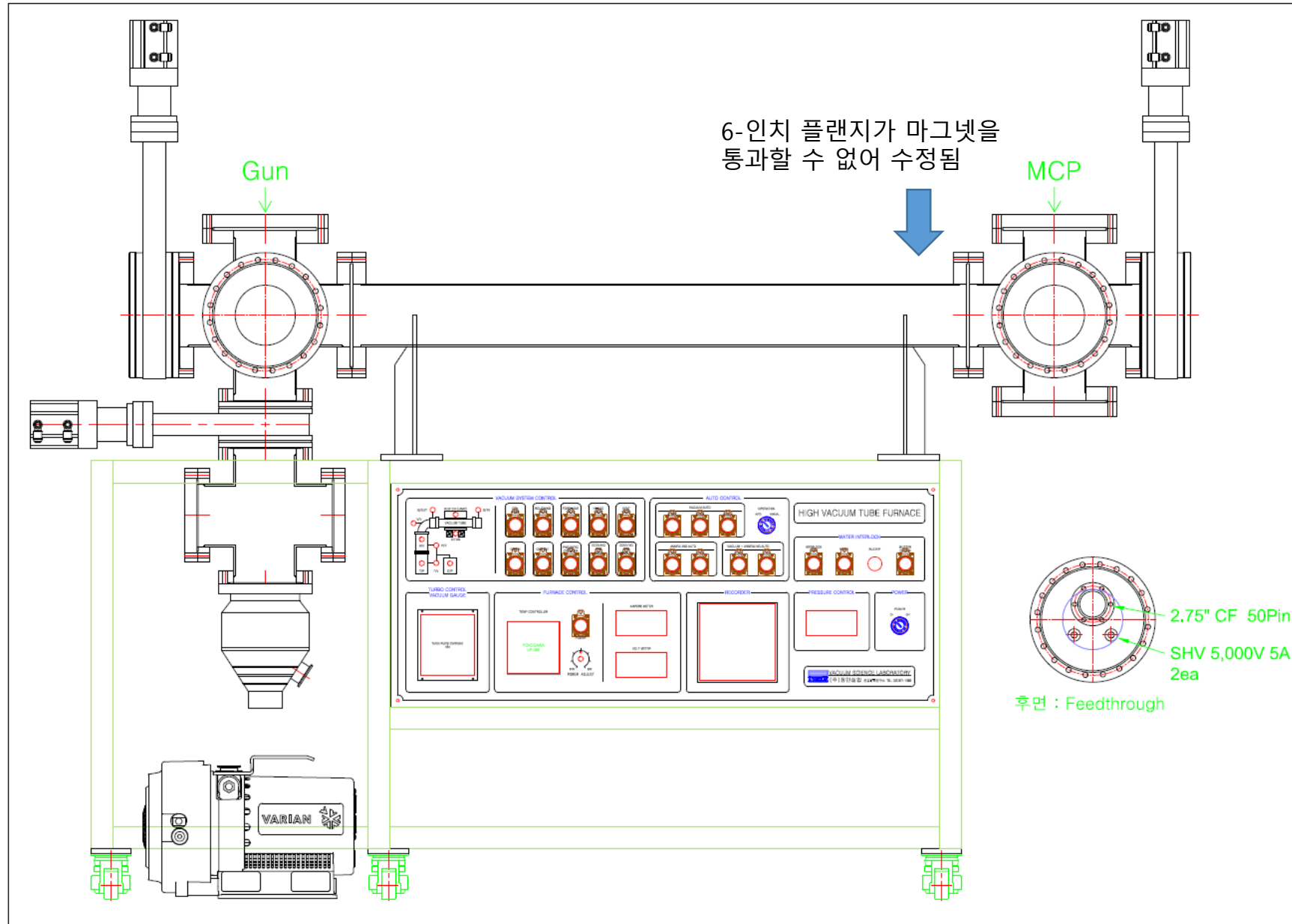
HIPACE 300H

Pohang Accelerator Lab

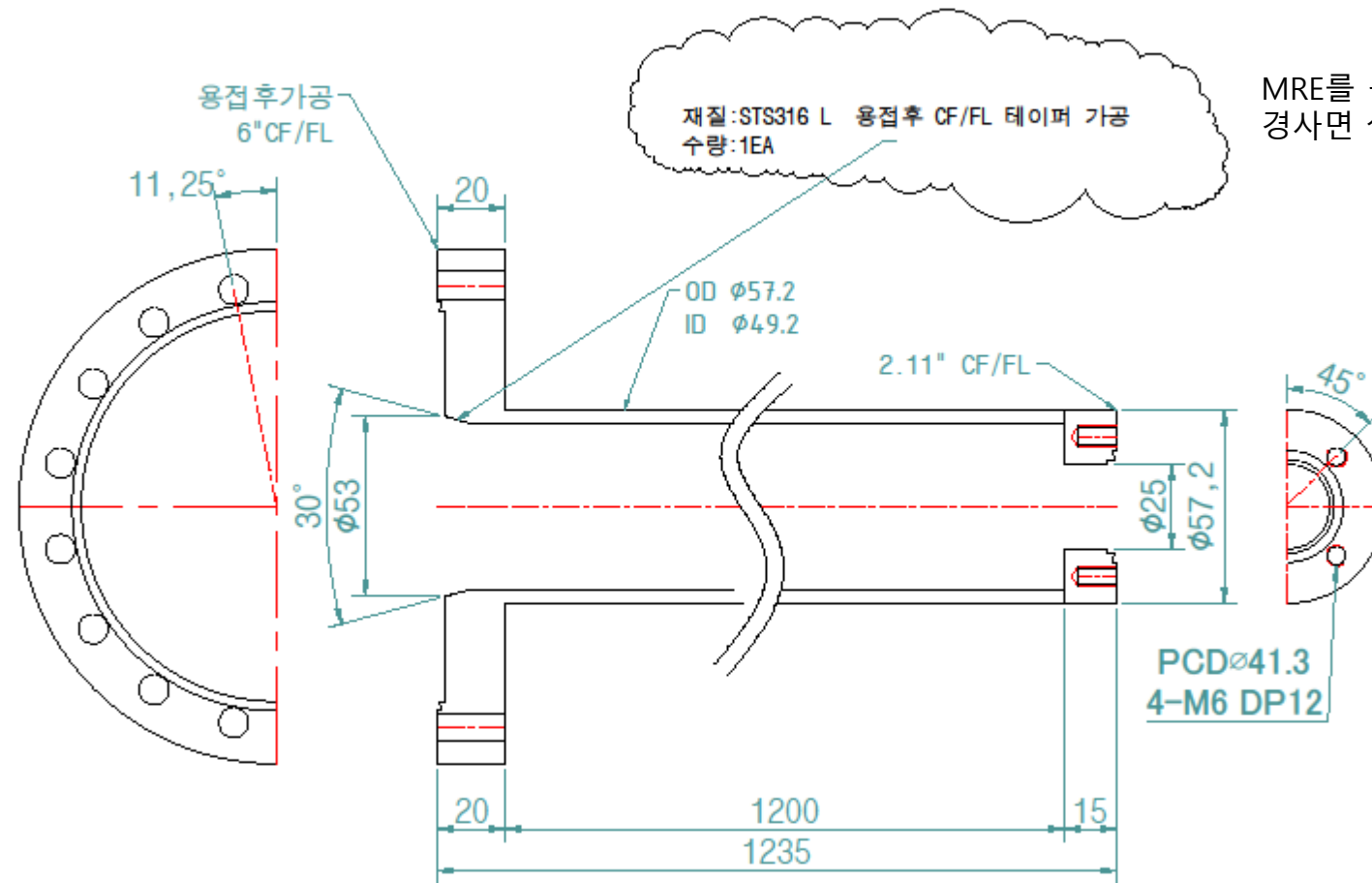


HiPace 300 H	DN 100 ISO-K	DN 100 CF-F	DN 100 ISO-F
Flange (in)	DN 100 ISO-K	DN 100 CF-F	DN 100 ISO-F
Flange (out)	DN 16 ISO-KF / G 1/4"		
Venting connection	G 1/8"		
Pumping speed for Ar	255 l/s		
Pumping speed for H ₂	220 l/s		
Pumping speed for He	255 l/s		
Pumping speed for N ₂	260 l/s		
Rotation speed ±2%	60,000 min ⁻¹		
Run-up time	3 – 3.5 min.		
Gas throughput at full rotational speed for Ar	0.5 hPa l/s		
Gas throughput at full rotational speed for H ₂	10 hPa l/s		
Gas throughput at full rotational speed for He	3.5 hPa l/s		
Gas throughput at full rotational speed for N ₂	1.5 hPa l/s		
Compression ratio for Ar	> 1 · 10 ¹³		
Compression ratio for H ₂	1 · 10 ⁷		
Compression ratio for He	2.5 · 10 ⁹		
Compression ratio for N ₂	> 1 · 10 ¹³		
Fore-vacuum max for Ar	25 hPa		
Fore-vacuum max for H ₂	15 hPa		
Fore-vacuum max for He	28 hPa		
Fore-vacuum max for N ₂	30 hPa		
Ultimate pressure according to PNEUROP	< 1 · 10 ⁻⁷ hPa	< 1 · 10 ⁻¹⁰ hPa	< 1 · 10 ⁻⁷ hPa
Weight	5.8 – 6.2 kg	7.8 – 8.2 kg	6.1 – 6.5 kg
Cooling method, standard	Air		
Cooling method, optional	Water		
Cooling water consumption	50 l/h		
Cooling water temperature	15 – 35 °C		
Interfaces	RS-485, Remote		
Protection category	IP54		
Permissible magnetic field max.	5.5 mT		
Sound pressure level	≤ 50 dB (A)		
Mounting orientation	in any orientation		
Operating voltage	24 V DC		

Vacuum System Test



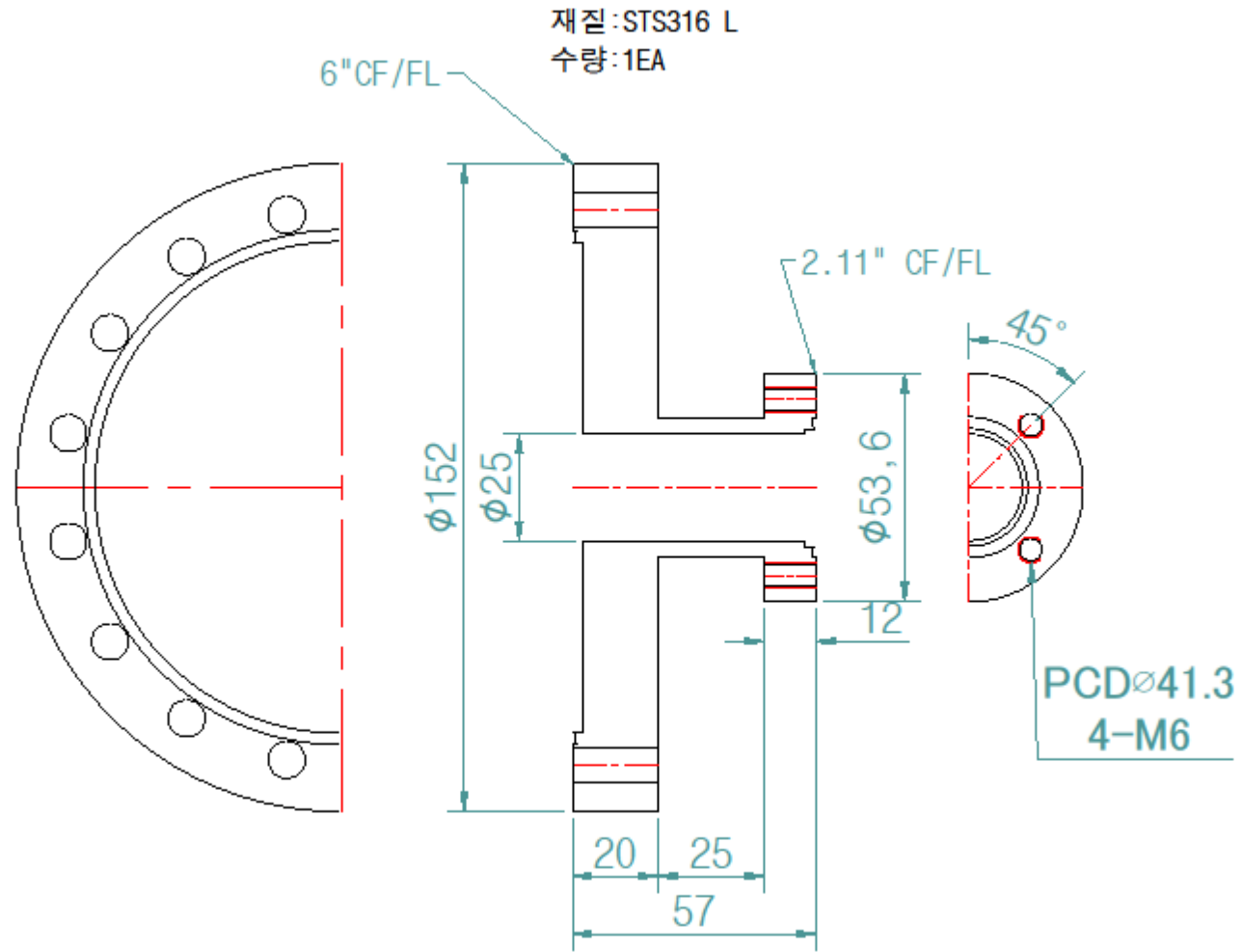
Vacuum Pipe



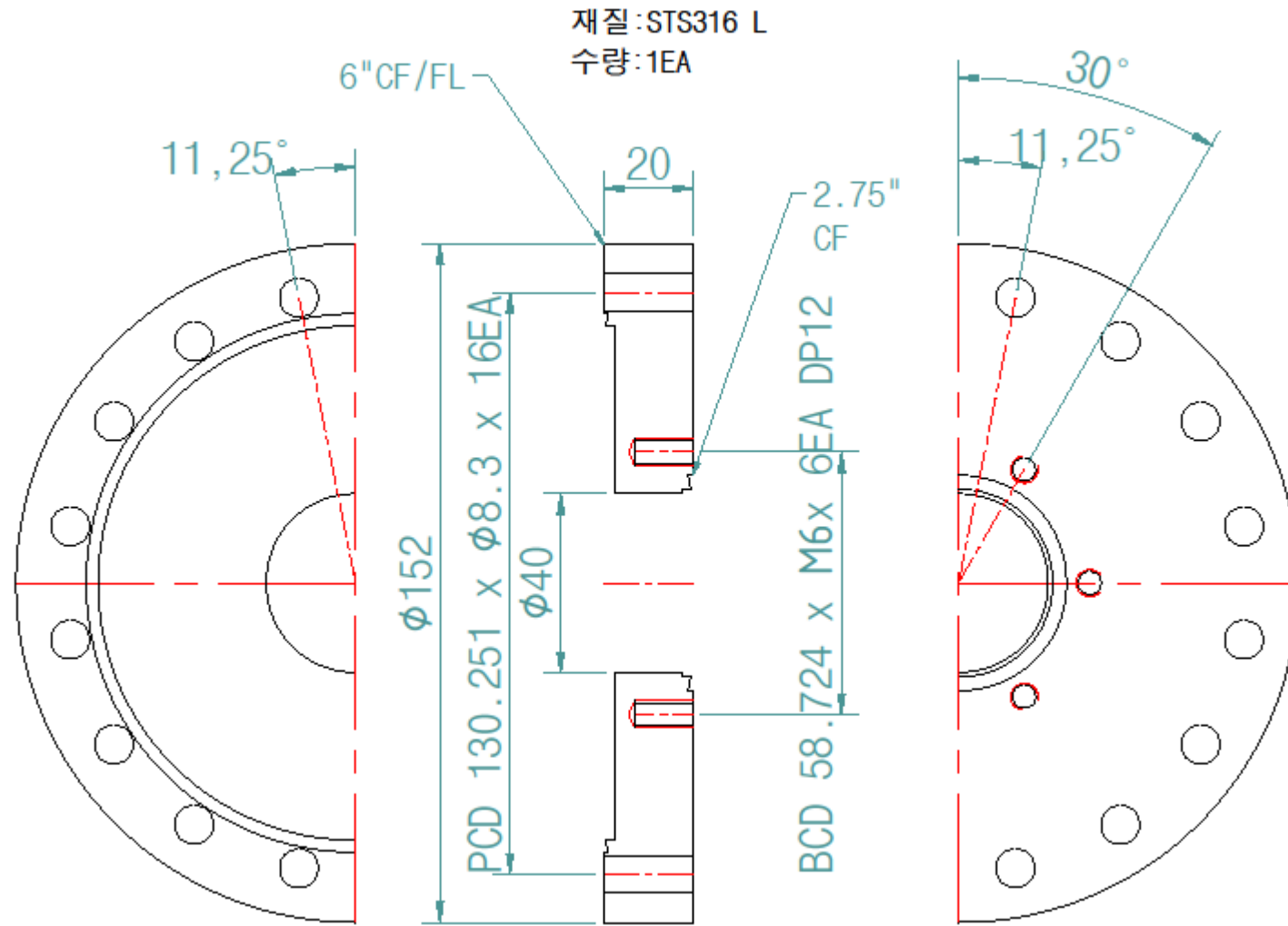
MRE를 원활히 넣기 위한
경사면 설계

마그넷을 통과하기 위한 2.11
인치 플랜지. 6 to 2.11
reducer를 통해 6way와 연결

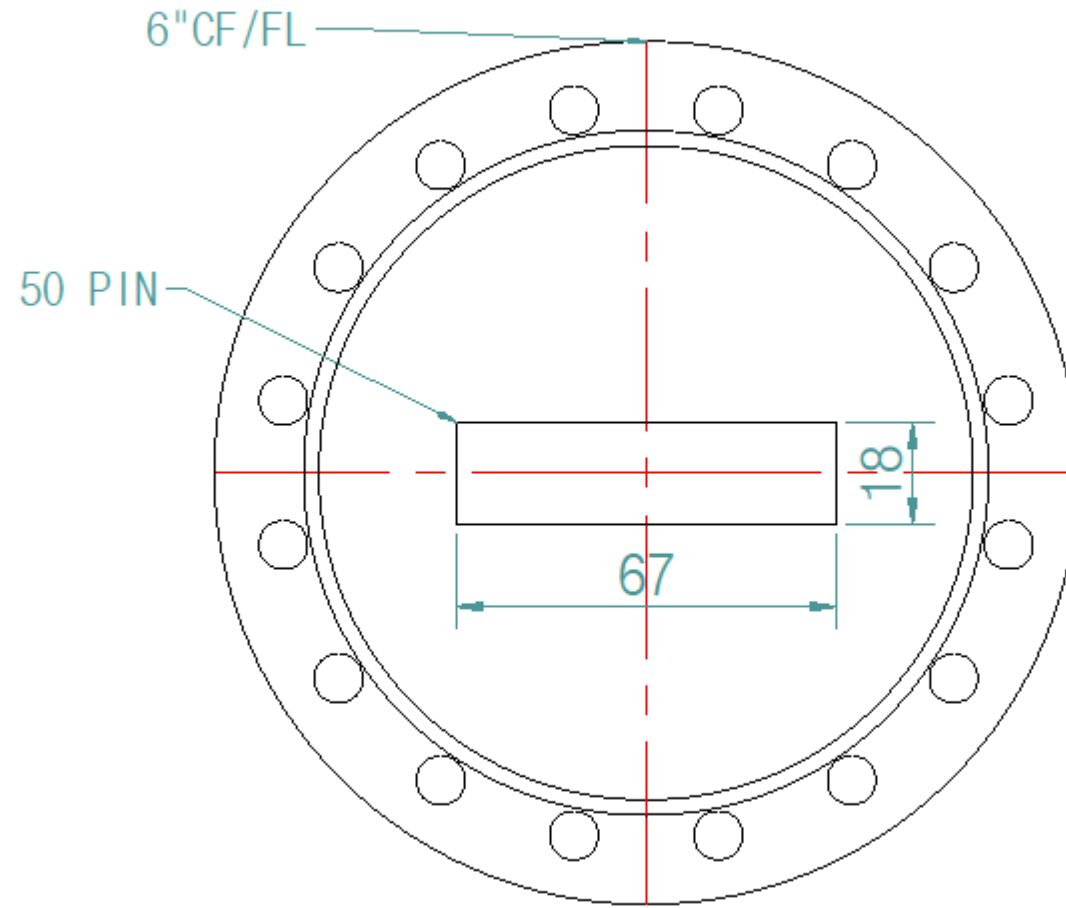
6 to 2.11 reducer for connecting pipe to 6-way cross



6 to 2.11 reducer for connecting ion-gauge to 6-way cross



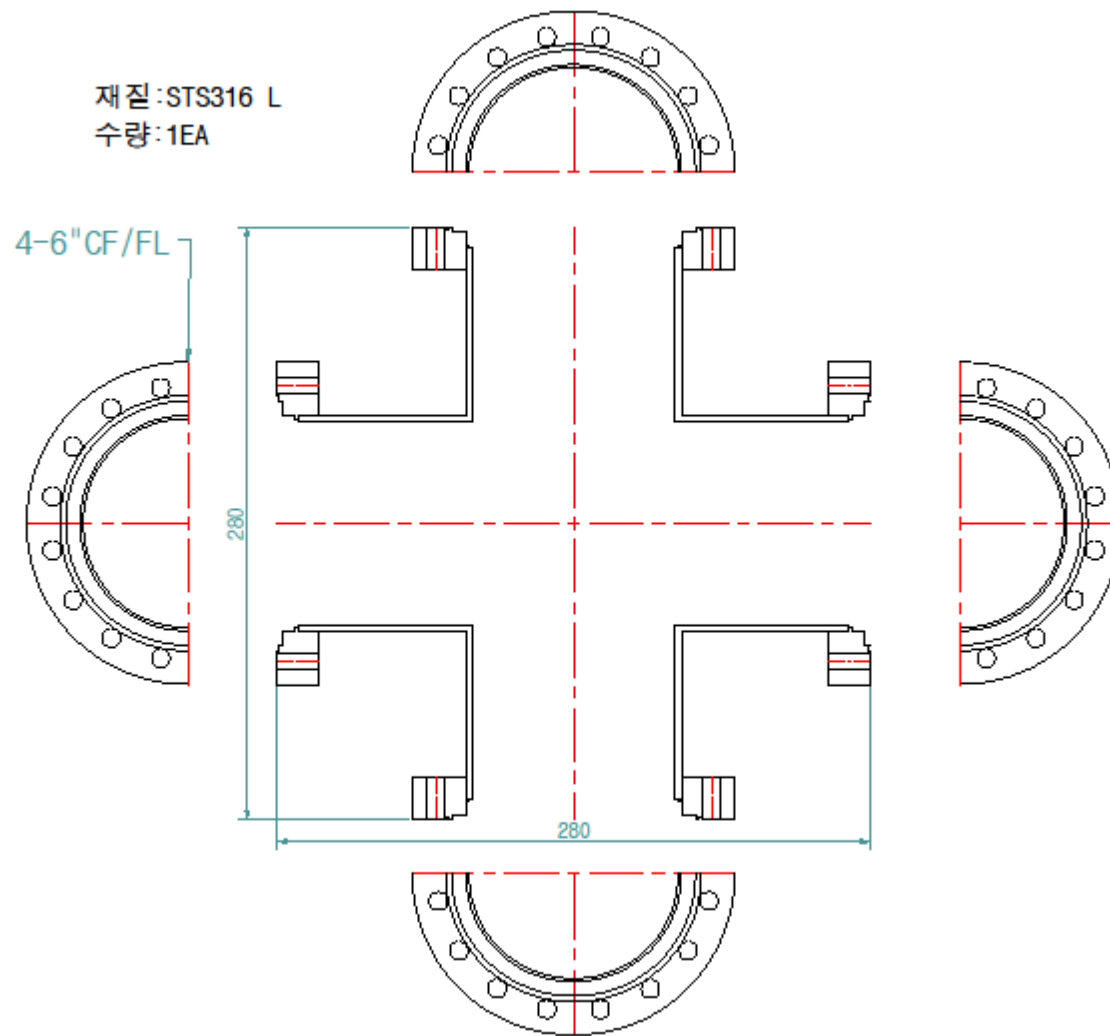
Electrical Feedthrough



5kV HV Electrical
Feedthrough를 2개 용접할
예정.

4-way cross

재질 : STS316 L
수량 : 1EA



見 積 書

원 동환님 귀하 (010-5168-9029)

PAGE : 1

見積 NO : 170901C

西紀 2017 年 09 月 01 日

서울대학교 貴中

(주) 정 민 실 업

金일천칠백오만원정 (VAT 별도)

진 공 과 학 연 구 소

VACUUM SCIENCE LABORATORY

UNIT OF JEONG MIN

貴社 月 日字 見積의뢰에 對하여
아래와 같이 見積書를 提出합니다.

납품 또는 완성기일

수 도 장 소

견 적 유 효 기 간

지 불 조 건

첨 부 서 류

서울시 영등포구 문래동5가 23-2

(정민 B/D V.S.L)

Tel : (02) 871-1988,9

Fax : (02) 871-1987

대표이사 이 정 민 (인)

품 명 : 6"CF + Ø57.2×Ø49.2×1,200 316L 외

內 譯

品 名 및 規 格	數 量	單 位	單 價	金 額
1. 6"CF+Ø57.2XØ49.2X1200 316L				2,000,000
2. 6"Gate Valve 316L	3	ea	2,500,000	7,500,000
3. 6"Blank 316L	3	ea	200,000	600,000
4. 6"View Port 316				1,600,000
5. 6"CF Cross 316L				1,800,000
6. Feed Through 6"				1,900,000
7. 6"CF +2.75"CF 316L				250,000
8. 배기라인 (Valve+Bellows+NW25→NW16 Adpter)				1,000,000
9. 2.11"→6" Reducer 316L				400,000

VACUUM SCIENCE LABORATORY

UNIT OF JEONG MIN

合 計₩17,050,000 (VAT별도)



QUOTATION

수 신 원동환 님
회 사 서울대학교
금액(Amount) 일금육백이십칠만원정
₩5,270,000
팩스번호(Fax)
전화번호(Tel) 010-5168-9029
납품기일(Delivery) 발주 후 4주 이내
지불방법(Payment) 30 Days from Invoice Date
유효기간(Validity) 발행후 2주
담당자 이병찬 (010-4782-7407)

Quotation Number : V-17053181
Quotation Date : 2017-08-24
사업자번호 : 119-87-01435
상호 ㈜비스텍(VISTECH)
대표 정혜인
주소 서울 금천 가산동 660 에이스하이엔드타워10 814
업태 도매,서비스,제조
전화 02-2622-8930 팩스 : 02-2622-8931
메일 branden.bcleee@gmail.com

Item No.	부 품 번 호 Part Number	품 명 Description	수 량 Qty	단 가 Unit	금 액 Amount	비 고 Remarks
1	<u>Component</u> Local Supply	CFF 6" 6-WAY, 316L -Cross, 6-way, 6IN. - Each axis one rotatable	2	2,850,000	5,700,000	
		소 부 가 세			5,700,000 570,000	
		총 계(VAT 포함)			6,270,000	

***검토하신 후, 구매를 원하시면 하단의 공란에 Sign하시어,Refax해 주시기 바랍니다.
상기와 같이 주문합니다.
주문자명: 서명