

VITZRO TECH
VITZRO NEXTECH

Company Profile



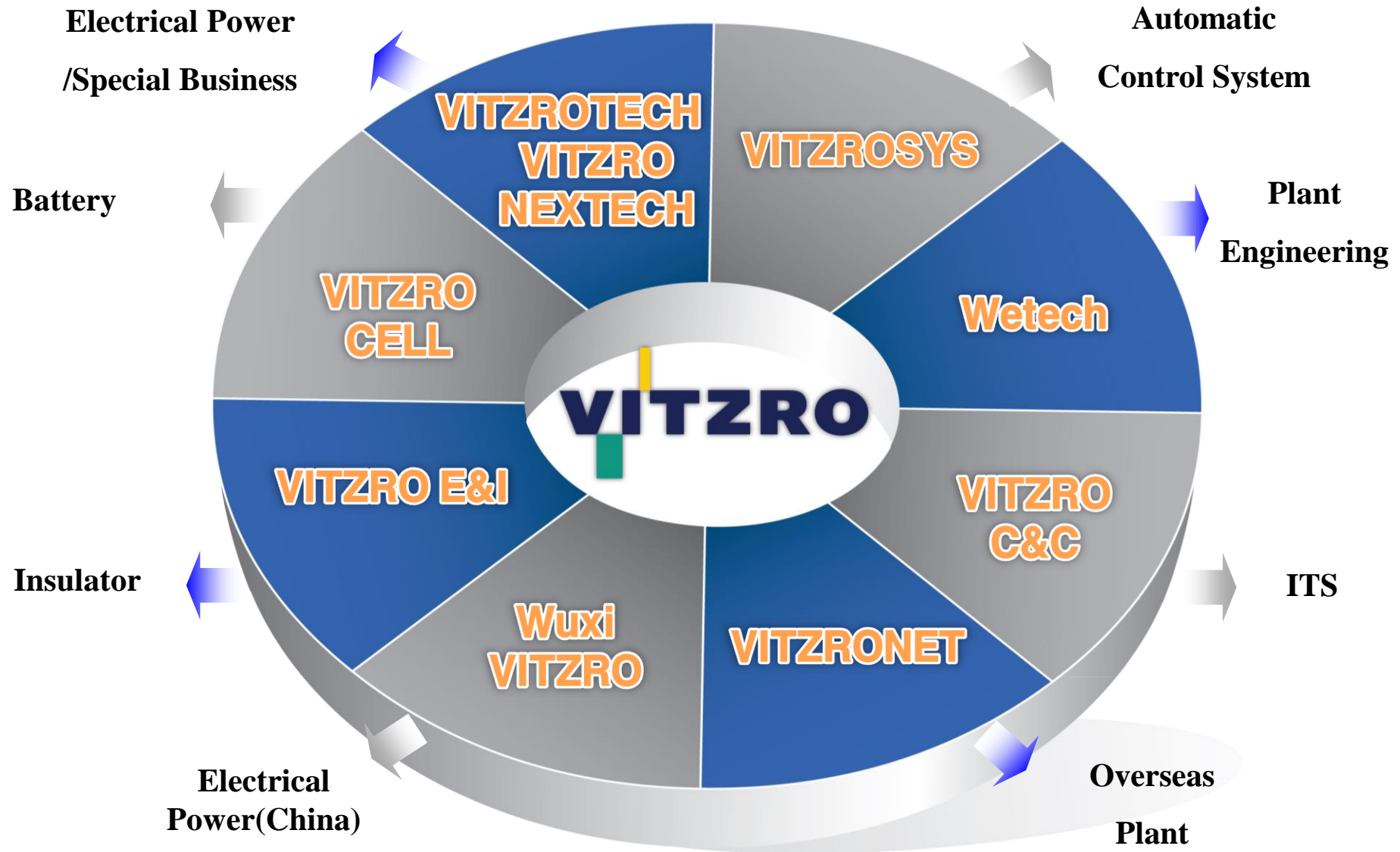


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- 2. Corporate Status (Vitzro Tech / Nextech)**
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VITZRO GROUP



◆ Group Turnover : 370million USD

◆ Number of Employee : 1,270



VITZROTECH
Corporate Status

- Company Name VITZROTECH Co.,Ltd
* VITZRO NEXTECH [Separated in 2017]
- Established Jan 30, 1968
- Chairman Soon sang Jang
- President Byung un Yoo, Sang kweon Lee
- Address 327, Byeolmang-ro, Danwon-gu, Ansan-si,
Gyeonggi-do, 425-833, Korea
- Employees 411
- Business Scope Electrical Power, Special product
(Accelerator, Plasma, Aerospace, Vacuum)
- Total Sales 210 million USD
- R&D Center 39 persons (13 doctors)
- Special Division 138 persons





History

1955~1999

with the name of

Kwangmyeong Electronics

- Vacuum Interrupter
- Insulation
- High Power Breaker
- Power Distribution
- RF Input Coupler (1997)



2000s ~ VITZROTECH

Listed on KOSDAQ (Korean Stock Market)

➤ Start Accelerator & Nuclear Fusion And Aerospace Business

- Manufacture of 350MHz, 2.5MV DTL Proton Accelerator
- Manufacture of High Power RF Klystron Component
- Manufacture of 350MHz, 4MV & 100MeV Proton Accelerator DTL
- Rocket Combustion Chamber & 30Ton Grade Rocket Engine Gas Generator



2010s ~ Total Solution for Accelerator & Nuclear Fusion

- 4th Generation Photon Accelerator
 - Accelerator Column, Waveguide, Beam Line Component
- Heavy Ion Accelerator
 - SRF Cavity, QWR, HWR, SSR Cryomodule, SSR Cavity
- Nuclear Fusion Device, Facility, Component
 - NBI-I, NBI-II, PFC, Ion Source
- Cryogenic
 - Distribution System (DB Box, Transfer Line, Control)
 - Rocket Engine Combustion Chamber (75ton Grade)



Main Core Technology [For Accelerator / Nuclear Fusion / Cryogenic / Aerospace]

	Item	Technology	Application
1	Machining	Precision Machining	Accelerator Components, DTL, Klystron, Rocket Engine
2	Joining	Vacuum Brazing Diffusion Bonding Electron beam welding	Klystron, RFQ, SLED, RF CAVITY, Waveguide, SIC Loader, Beam line Vacuum Component (Feedthrough, Valve) SRF CAVITY, Rocket Engine
3	Cryogenic	Cryogenic system design (P&ID) Heat transfer analysis Cryogenic system manufacturing Cryomodule accelerator design & fabrication	Cryomodule, Cryo component, Valve & Distribution box, Cryogenic transfer line, Heat-exchanger, Cryogenic system- integration
4	Surface Treatment	Cleanning, Degreasing, BCP, Electrical polishing	OFC, STS, Fe, Ceramic, Glass, kovar, Brazing alloy, Nb, SRF Cavity, Rocket Engine
5	Plating	Accelerator Part Cu/Ni Plating	DTL (Φ 600 x 2500L), Waveguide , Rocket Engine
6	Material	Bonding(Brazing, Diffusion) Welding(Tig , E-beam welding) Microstructure, Mechanical Property	Klystron, SLED, Beam Line Vacuum chamber, SRF Cavity PFC, Insulator, Rocket Engine
7	Heat Treatment	OFHC, STS Heat Treatment (Forging, HIP) Analysis Powder Metallurgy	RF & Vacuum Component Outgassing CuCr, W Sintering Material, Insulator, Rocket Engine
8	Analysis	RF, Fluid, Cooling, Stress, Electrical	Accelerator Component, Nuclear Fusion
9	System Integration	System Integration design, System Interfacing & Control	Cryogenic system integration BeamLine System, Cryomodule Plasma system, High Power Supply



Current Business Scope

Accelerator

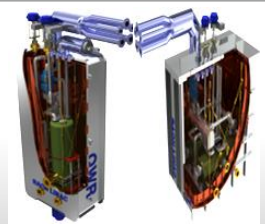
Photon Accelerator



Proton Accelerator

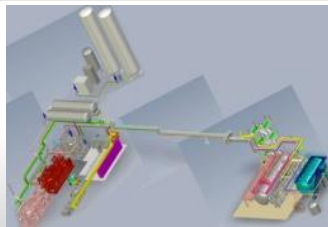


Heavy Ion Accelerator



Cryogenic

Cryo-plant



Cryomodule

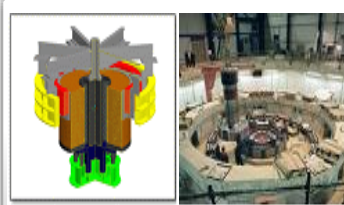


Cooling system

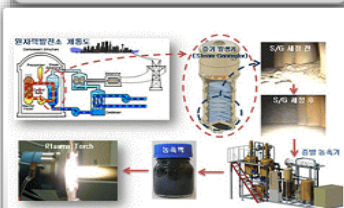


Plasma Application

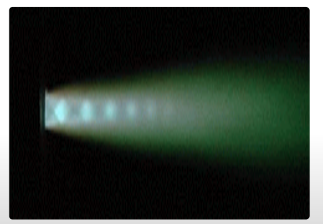
Nuclear Fusion



Radioactive Treatment



Plasma Torch



Aerospace

Rocket Engine



Test Facility

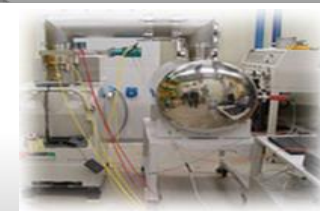


H.P Oxidizer Piping



Vacuum System

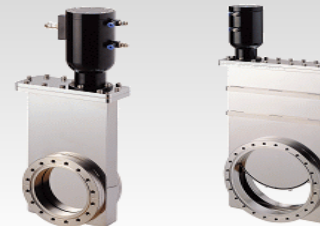
Vacuum System



Semiconductor



Vacuum Gate valve



Electric Power

High Power Breaker



Power Distribution



VI



Insulation



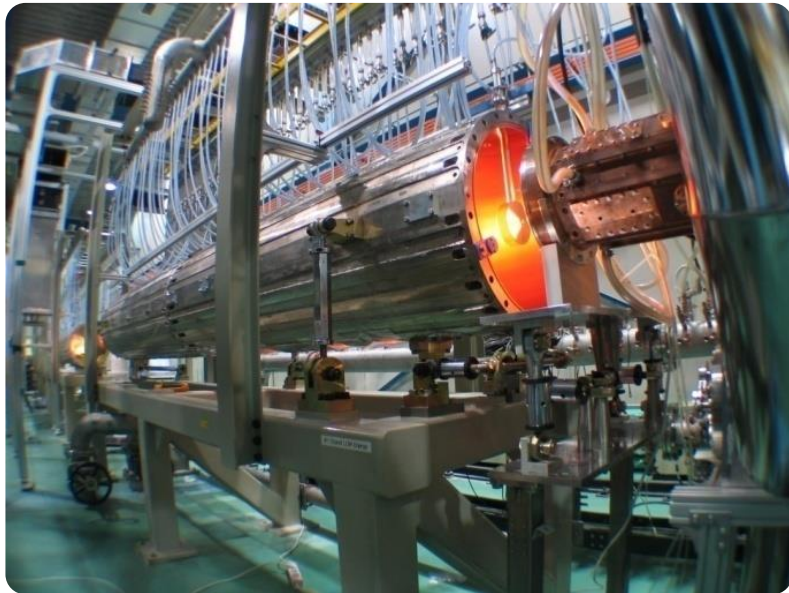


Main Business (Project)
Participation
- Experience -

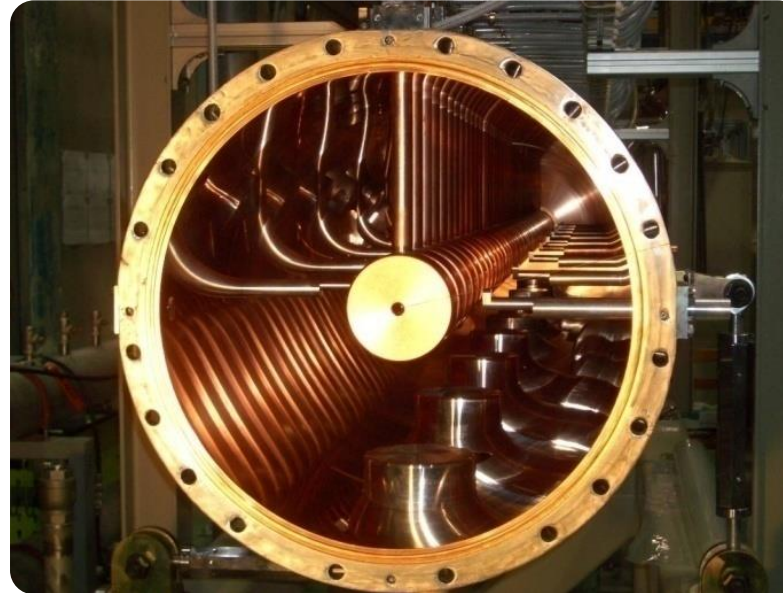
3. Main Business Participation (Project Experience)

 KOMAC – 350MHz, 100MeV Proton Accelerator including RFQ (2003 ~ 2010)

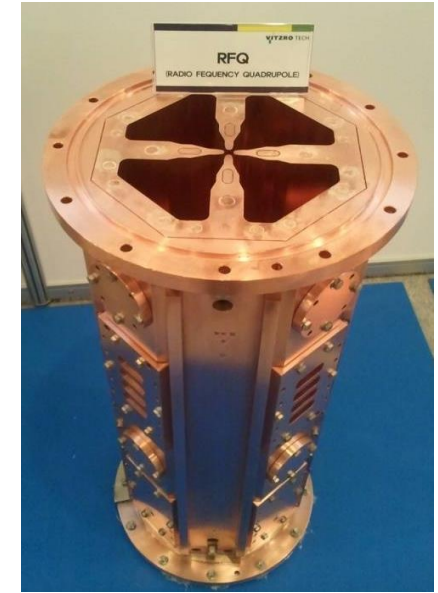
VITZROTECH developed & manufactured Linear Proton Accelerator (100MeV) thirdly after USA & Japan, also participate in photon & heavy ion accelerator



Linear Proton Accelerator
(RFQ, DTL, MEFT etc)



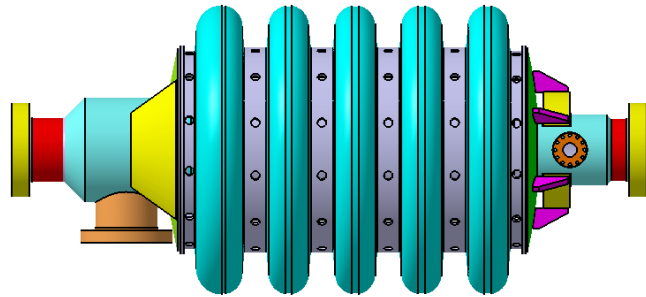
DTL
(Drift Tube Linear Accelerator)



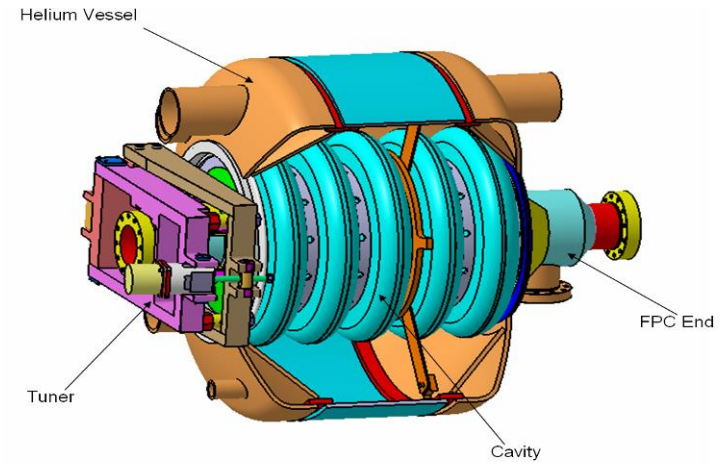
RFQ
- Frequency : 350MHz
- Vacuum : Less than 5×10^{-10} Torr



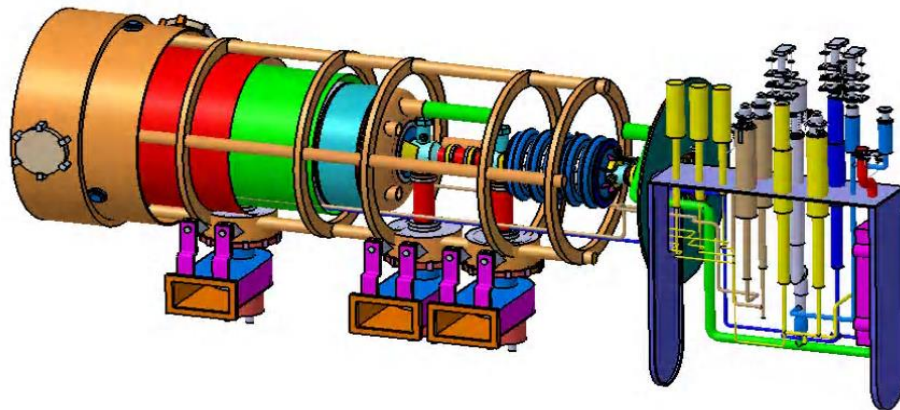
SRF Cavity for Proton Accelerator



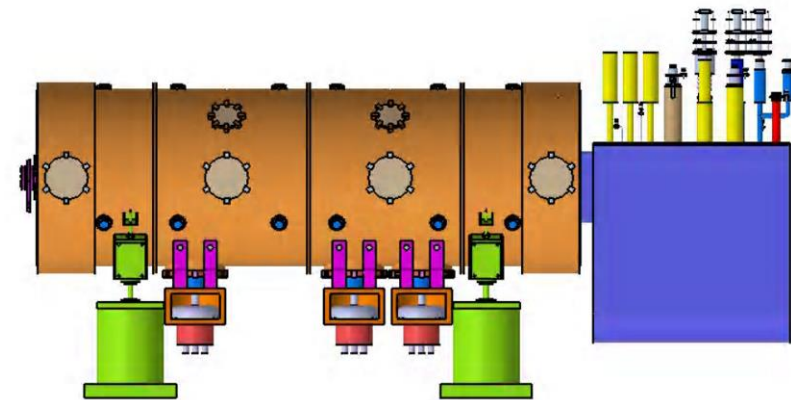
Five-cell elliptical cavity



Helium vessel



Three cavities per one cryomodule





Copper Cavity – 700 MHz

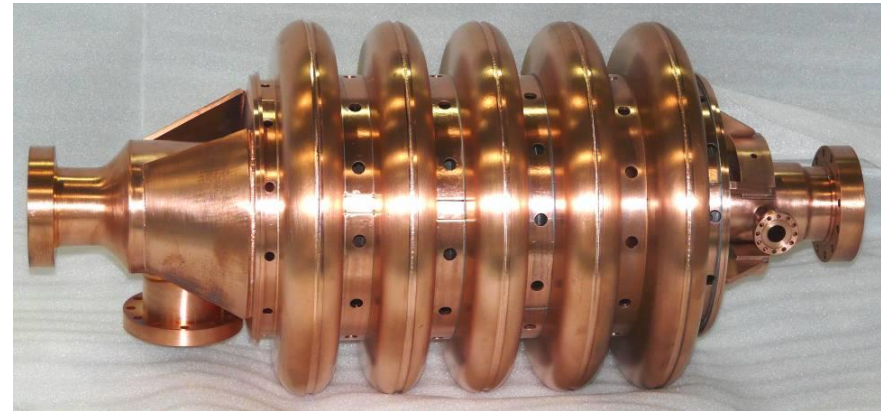
Prototype A



Used for

- RF properties measurement
- Establishment of fabrication procedure
- Testing cavity dies and fixtures
- Testing dumbbell tuning procedure
- Testing warm tuner

Prototype B



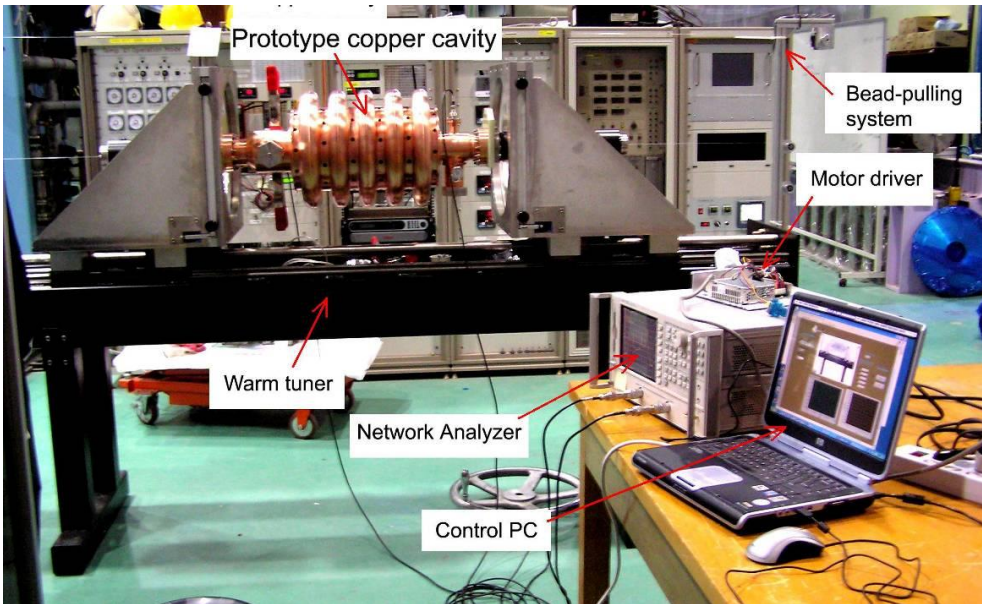
Used for

- Design confirmation
- RF measurement confirmation
- Production procedure check

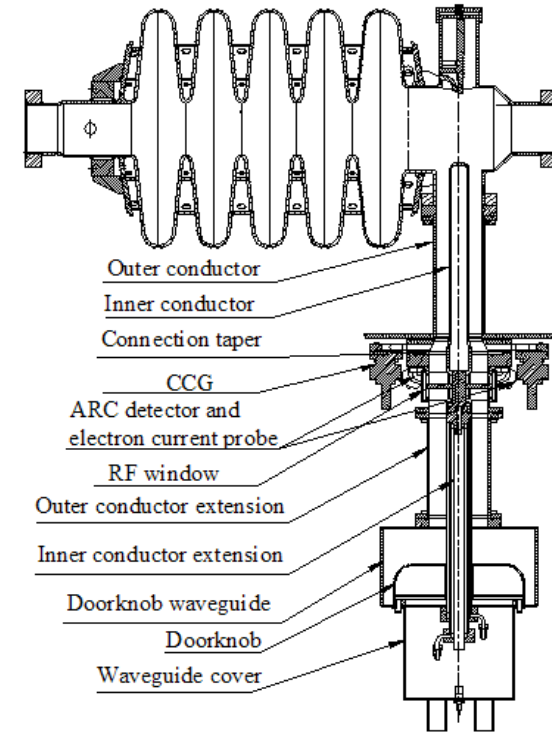
Tuning of RF Cavity



Dumbbell tuning method

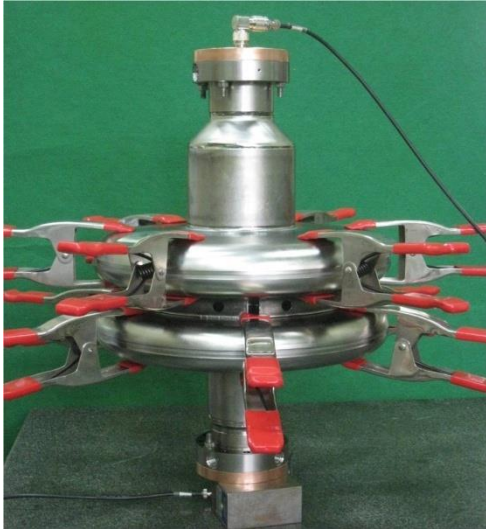


Field flatness measurement and warm tuning



FPC prototype

Superconducting RF Cavity & Cryomodule



Frequency measurement



Five Cell Superconducting RF Cavity



Cryostat for Vertical Test

3. Main Business Participation (Project Experience)

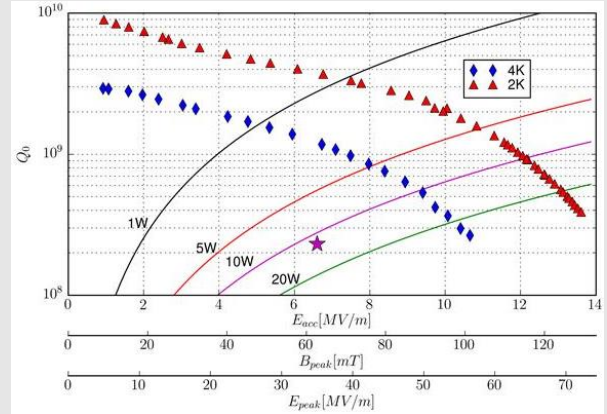
IBS RISP (Rare Isotope Science Project) – SRF QWR & HWR, SSR1 & SSR2 Cavity

➤ Design & Fabrication



Core Technology

1. Design & Analysis Engineering
2. Precision manufacturing technology for Nb Cavity
3. Precision EBW technology
4. BCP surface treatment & HPR technology
5. RF Test & Tuning technology
6. 10 Class Clean Room Process Technology



Specification	QWR	HWR
Total Length [mm]	1,030	1,046
Operating Frequency [MHz]	81.25	162.5
β	0.047	0.12
Vacc [MV]	1.1	1.4
Eacc [MV/m]	6.6	6
Design electrical surface field (Epeak) [MV/m]	35	35
Design magnetic surface field (Bpeak) [mT]	62	52
$Q_0/10^8$	2.3	10
Temperature [K]	4	2
Flange material / type	316L/CF	316L/CF

3. Main Business Participation (Project Experience)

IBS RISP (Rare Isotope Science Project) – SRF QWR & HWR Cryomodule, SSR Cryomodule

➤ Design & Fabrication for QWR / HWR1 / HWR2 / SSR2 Cryomodule



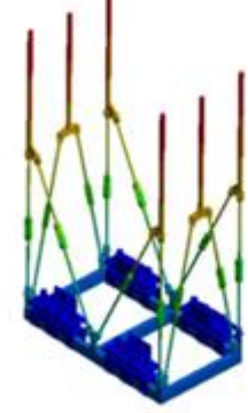
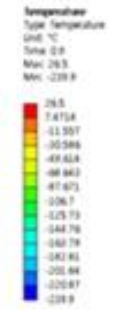
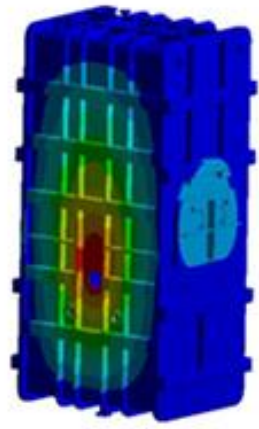
QWR Cryomodule



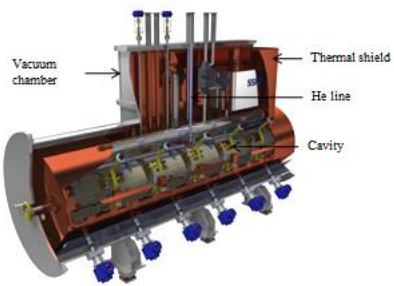
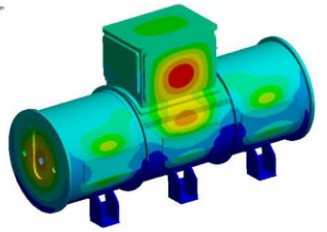
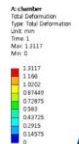
HWR 1 Cryomodule



HWR 2 Cryomodule



SSR 2 Cryomodule



Core Technology

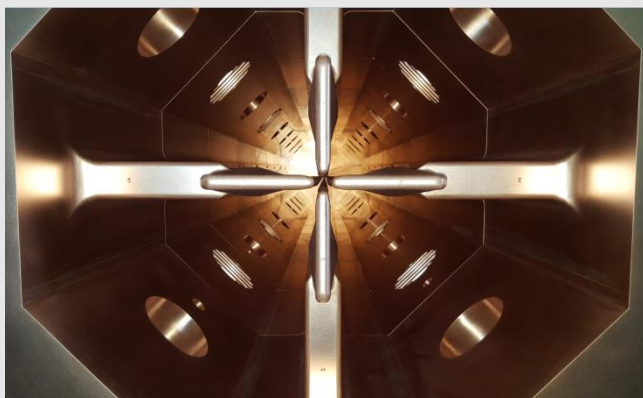
1. Analysis & Design technology for large sized Cryomodule
2. Design & Manufacturing technology for Cryogenic Vacuum Chamber
3. Precision alignment technology of Beam Line
4. Precise assembly technology under cleanliness

3. Main Business Participation (Project Experience)

IBS RISP (Rare Isotope Science Project) – Radio Frequency Quadrupole

- Max Power : 100 kW (CW)
- Frequency : 81.25 MHz

Vitzrotech Designed, fabricated, supplied and installed whole sets of RFQ for IBS RAON Project



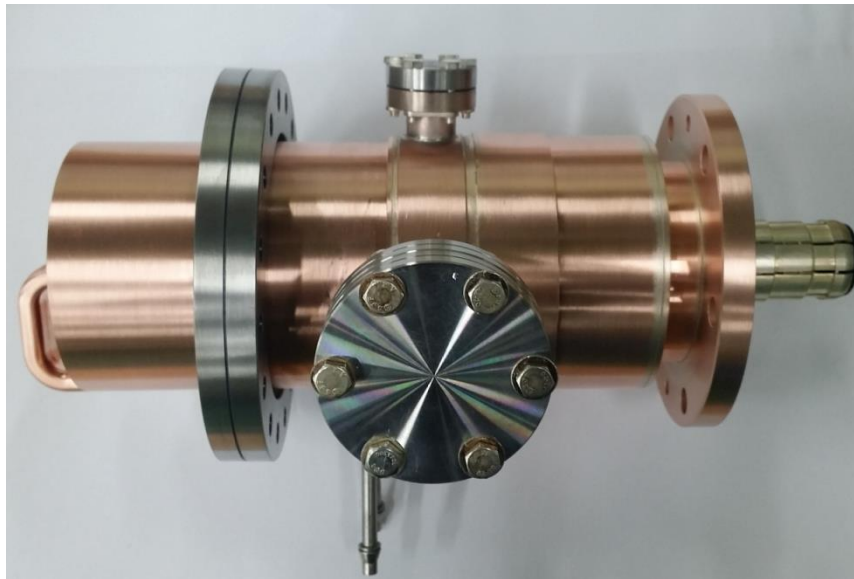
- Installed at IBS Site -

3. Main Business Participation (Project Experience)



Power Coupler for MEBT & Prototype RFQ

- Max Power : 30 kW
- Frequency : 81.25 MHz



MEBT Buncher normal conducting cavity

- Max Power : 30 kW
- Frequency : 81.25 MHz

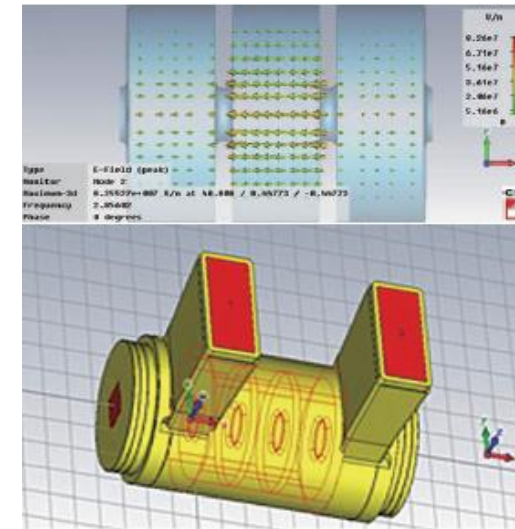
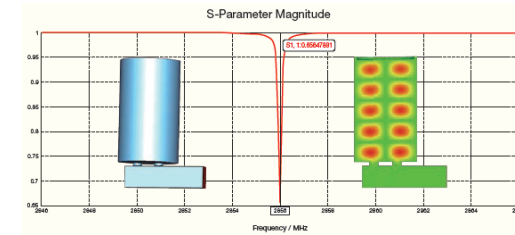


3. Main Business Participation (Project Experience)

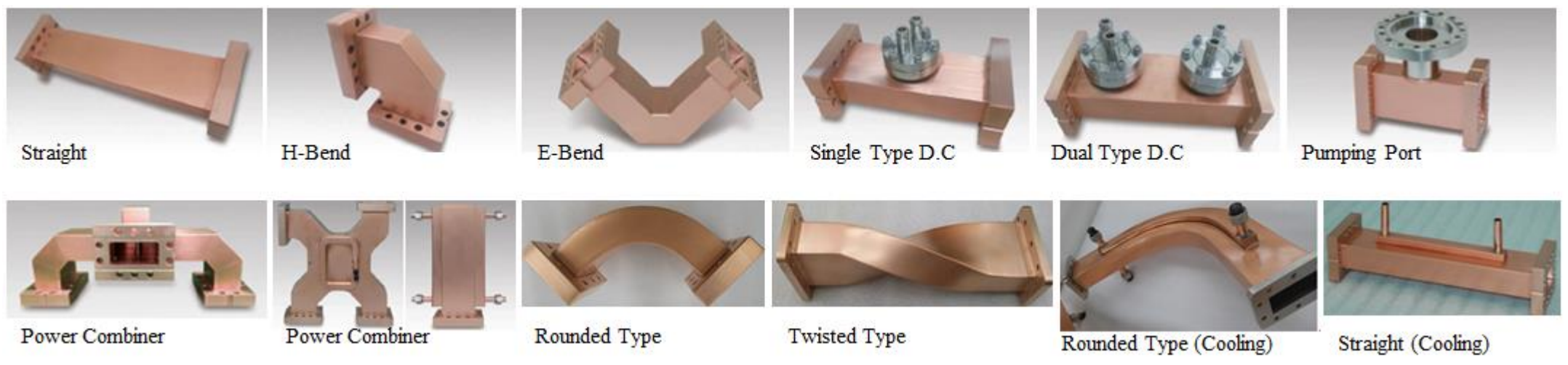
PAL 4th Generation XFEL - Accelerating Column & Waveguide Components



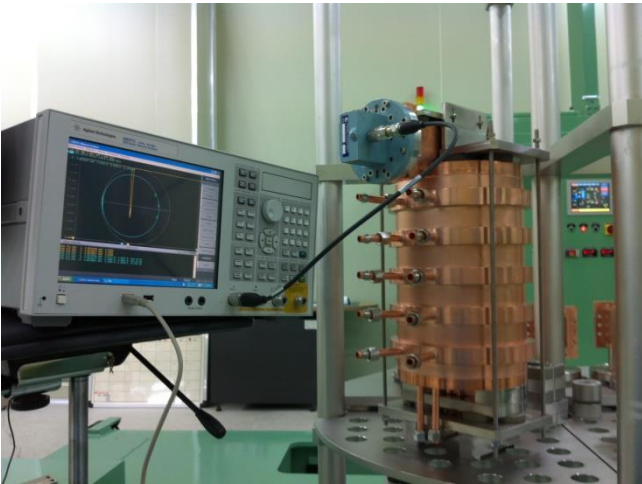
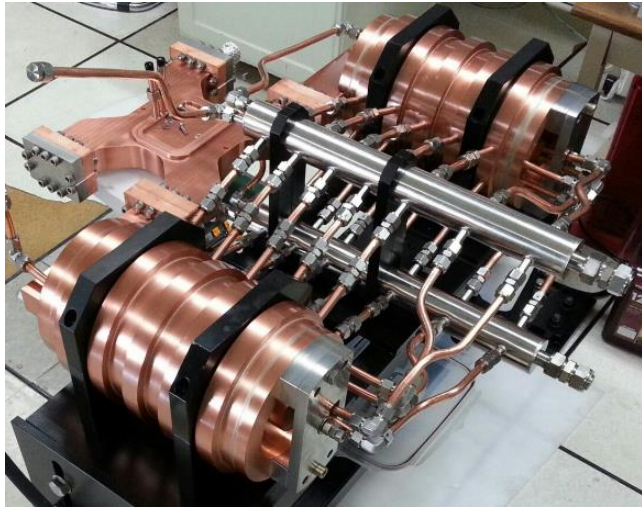
- Vitzrotech had participated in 4th Generation PAL XFEL
- Designed, Analyzed, Fabricated, Supplied, Installed **Accelerator Columns** [From Engineering to Installation]
- Fabricated, Supplied, Installed whole quantities of **Waveguide components and SLED Cavity**
- Fabricated, Supplied, Installed **Beam Line Systems**



Waveguide Component



 PAL 4th Generation XFEL – SLED Cavity



RF Inspection by Network Analyzer

● Mechanical Specification

Parameter	Value
Power Divider Length[mm]	380
Vacuum Leak Rate [Pa.m ³ /sec]	≤1.3E-11

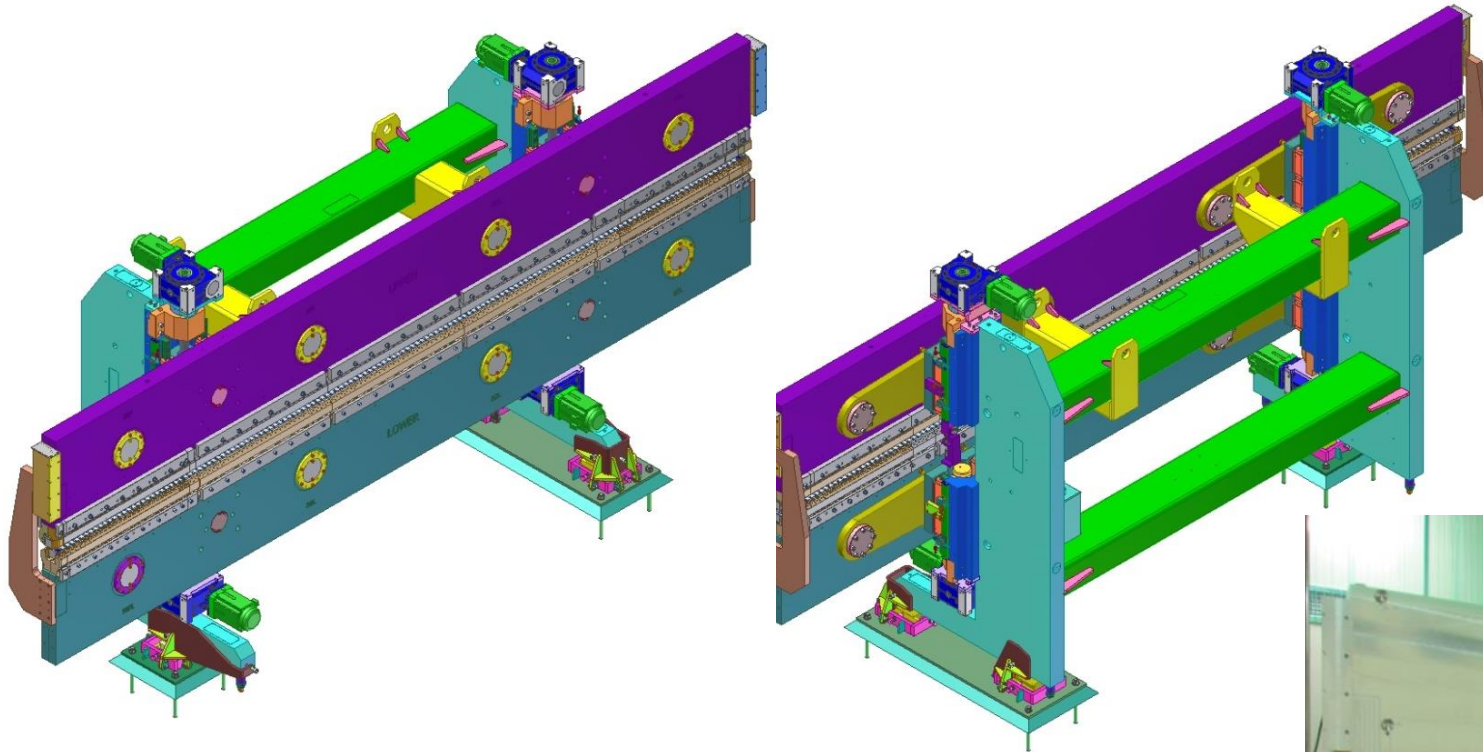
● Electrical Specification

Parameter	Value
Unloaded Q	>95,000
Coupling Coefficient	5.0±0.1
Cavity mode	TE 0,1,5
Operating Freq.[MHz]	2,856
Operating Temp.[°C]	30±0.1
Maximum Peak RF Power[MW]	320
Maximum average RF power[kW]	≤23
Detune	Enable

3. Main Business Participation (Project Experience)

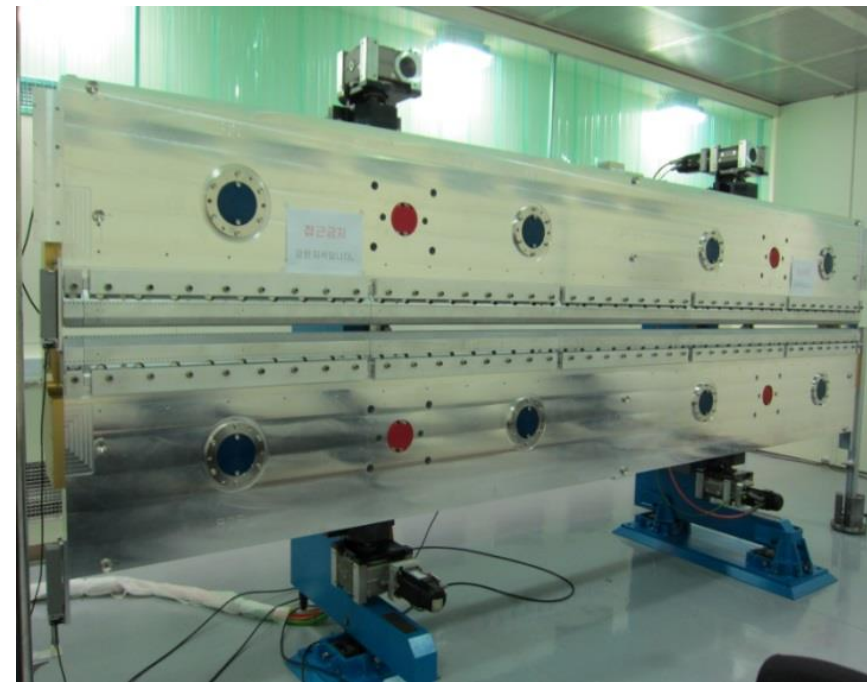


PAL 4th Generation XFEL – Undulator



● Specification

- Length : 5 m
- Gap Accuracy : 0.001 mm
- Magnetic Force : 100 kN



PAL 4th Generation XFEL – HXR & SXR Beam Line



Core Technology

1. Design Engineering
2. Surface machining of in-vacuum side
3. Cleaning for UHV Component including acid polish
4. Bake-out
5. Buffing & Honing
6. Precision assembly and brazing
7. Leak Test & RF Test

3. Main Business Participation (Project Experience)



PAL 4th Generation XFEL – Other Ultra High Vacuum Beam Line Component & Device



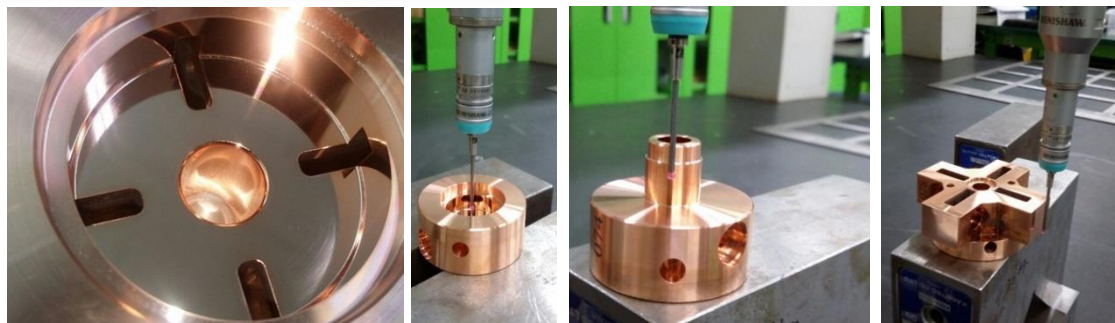
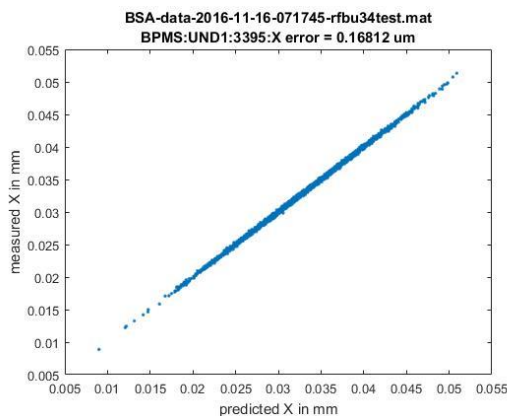
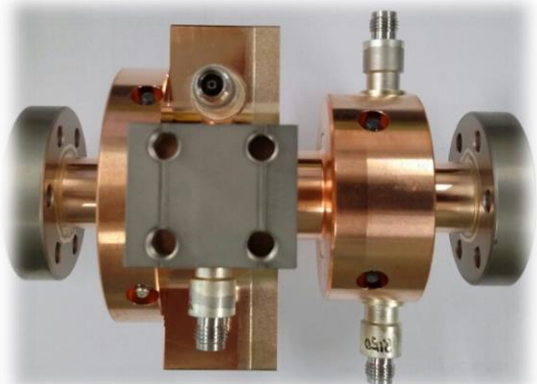
Core Technology

1. Design Engineering
2. Surface machining of in-vacuum side
3. Cleaning for UHV Component including acid polish
4. Bake-out
5. Buffing & Honing
6. Precision assembly and brazing
7. Leak Test & RF Test

3. Main Business Participation (Project Experience)

SLAC LCLS-II Project - X-Band Cavity RF BPM

- Vitzrotech manufactured and supplied X-Band RF BPM (Beam Position Monitor) for SLAC LCLS-II with core technologies such as precision machining, precision joining (Brazing), precision assembly and Tuning



Core Technology

1. RF Analysis, Design (CST)
2. Precision Machining (Mirror surface)
3. Surface Treatment for Ultra High Vacuum Component
4. Ultra Precision Assembly & Brazing (Feedthrough + Cavity Body)
5. RF Test & Tuning

● Dipole Cavity

Parameter	Value
Nominal Frequency TM_{110}	11.424 GHz
Tolerance TM_{110}	+/- 10 MHz
Q_L or Q_{total}	2000~3000
Cavity Coupling [β]	1.9-2.1
Q_0	5800-9300
Q_{ext}	2762-4894
X/Y Cross Talk	< -20 dB

● Reference Cavity

Parameter	Value
Nominal Frequency TM_{110}	11.424 GHz
Tolerance TM_{110}	+/- 10 MHz
Q_L	2000~3000
Cavity Coupling [β]	1.9-2.1
Q_0	5800-9300
Q_{ext}	2762-4894

SLAC LCLS-II Project - Stripline BPM

- Vitzrotech manufactured and supplied Stripline BPM for SLAC LCLS-II with core technologies such as precision machining, precision joining (Brazing), precision assembly and Tuning



Small Aperture BPM



Linac BC1/BC2 SLA BPM



Vacuum Tube Assembly



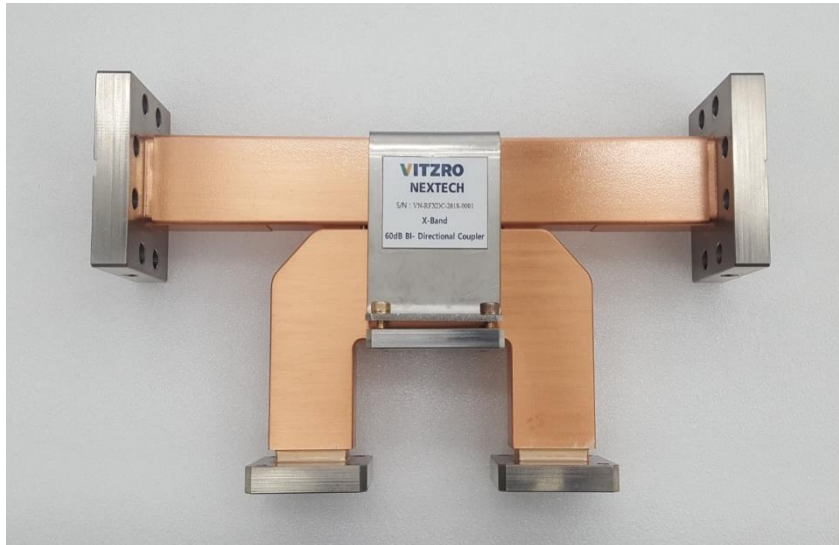
Core Technology

1. RF Analysis, Design (CST)
2. Precision Machining (Mirror surface)
3. Surface Treatment for Ultra High Vacuum Component
4. Ultra Precision Assembly & Brazing
(Feedthrough + Cavity Body)
5. RF Test & Tuning

Parameter	Value
Total Leak Rate	< 1 X 10 ⁻¹⁰ mbar*L/sec He
RGA (> 44 amu)	< 1 X 10 ⁻¹⁰ Torr
Maximum Electrical Offset	< 100 micron
Maximum Mechanical & Alignment Offset	< 100 micron

CERN – CLIC Project (X-Band)

- Vitzrotech developed and supplied X-Band Directional Coupler and High Power Load for CERN CLIC Project with precision machining, precision joining (Brazing), precision assembly and Tuning



Directional Coupler

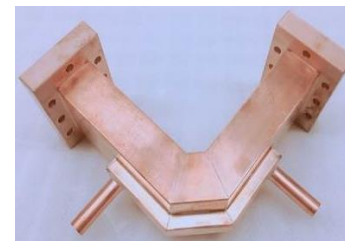
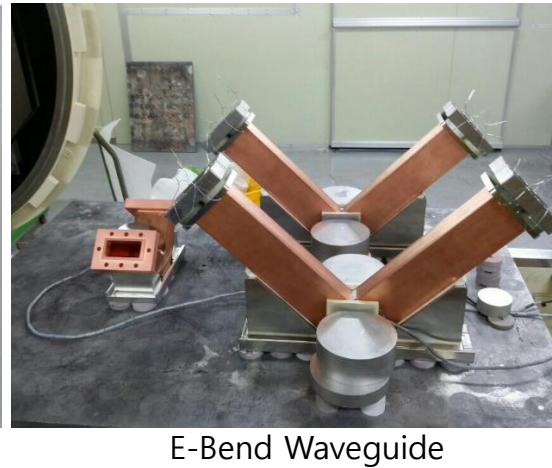
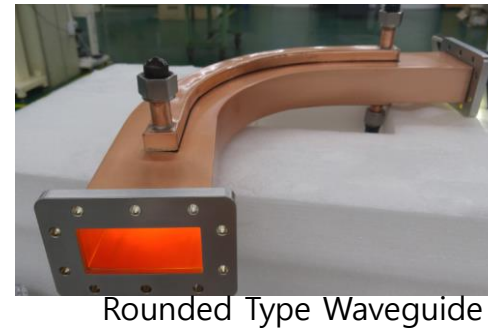
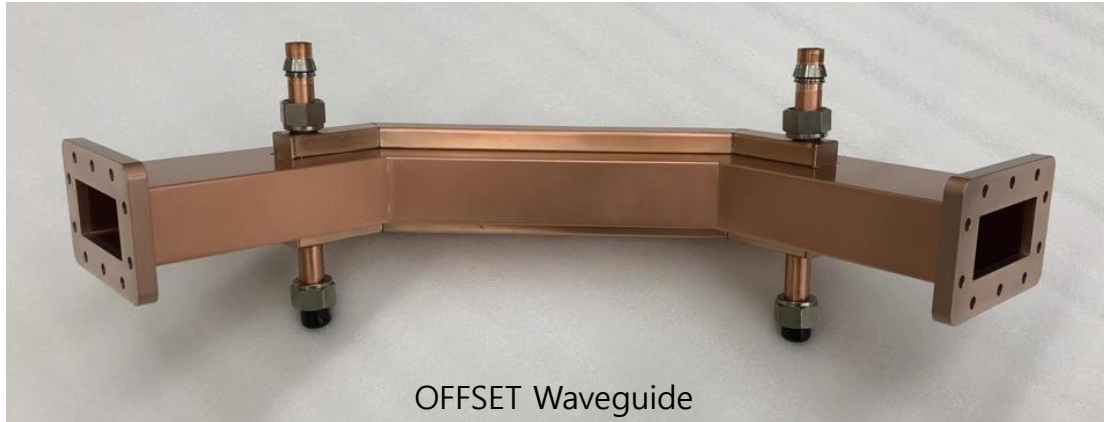


High Power Load

3. Main Business Participation (Project Experience)

ELETTRA Synchrotron – FERMI Project

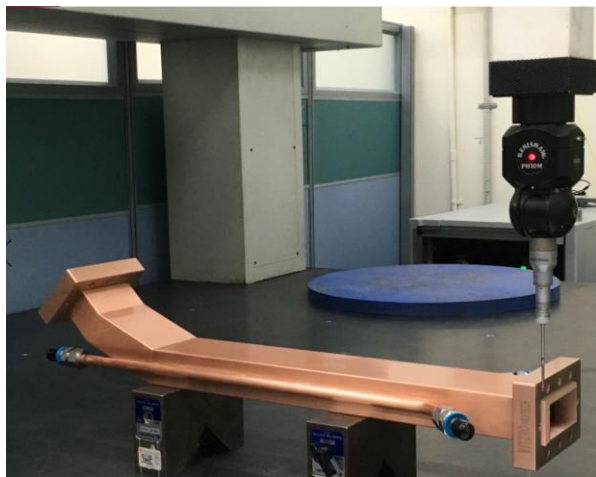
- Vitzrotech participated in Elettra Synchrotron's FERMI Project and supplied several kinds of the Waveguide components



3. Main Business Participation (Project Experience)

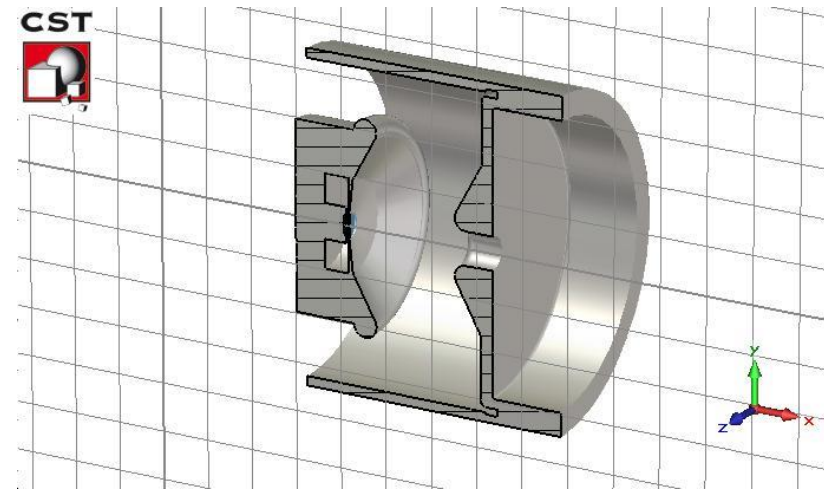
Diamond Light Source – Synchrotron LINAC Upgrade

- Vitzrotech supplied S-Band RF System for LINAC Upgrade of Diamond Light Source

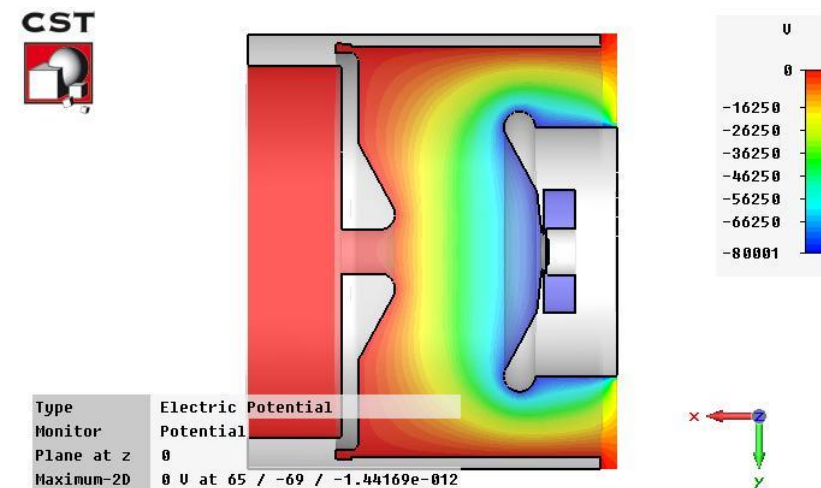


DC E-Gun

- Cathode Type: CPI Eimac Y-845
- Emission Area: 0.5 cm²
- Cathode Size: 8 mm
- Beam Voltage: 80 kV
- Max. Current: 1.25 A
- Routine Operation Current: 1.0 A



< E-gun 3D Modeling >



< E-field Simulation >



PLS-II Beamline System

Vacuum, Diagnostics, Cooling System (LCW), Control System, etc



PLS-II PTL Beam line

Screen monitor, window, Slit, etc
Vacuum : Less than 1×10^{-10} Torr



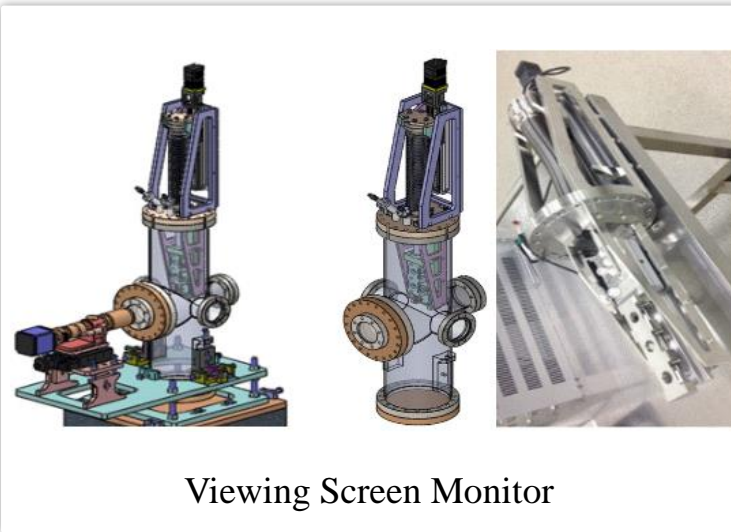
PLS-II Front-end Beam line

Photon shutter , Movable mask etc
Vacuum : Less than 1×10^{-10} Torr

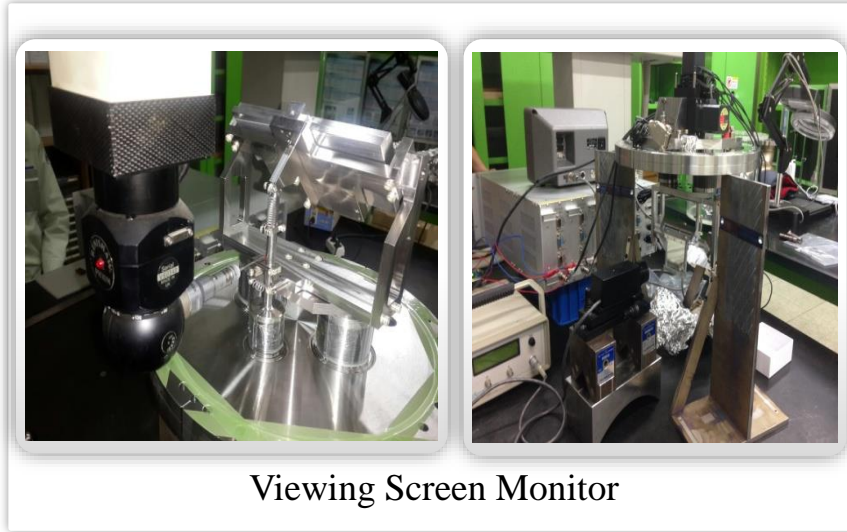


Beam Diagnostics & Optical Device

- Fabrication / Performance test / Installation of Beamline diagnostic device for PLS-II & XFEL
- Fabrication / Performance test / Installation of Optical device for PLS-II & XFEL



Viewing Screen Monitor



Viewing Screen Monitor

Beam Diagnostics

- Screen monitor, Wire Scanner, 4Axis Slit.,etc
- Accuracy: $<10\mu\text{m}$
- Vacuum : Less than $1 \times 10^{-10}\text{Torr}$

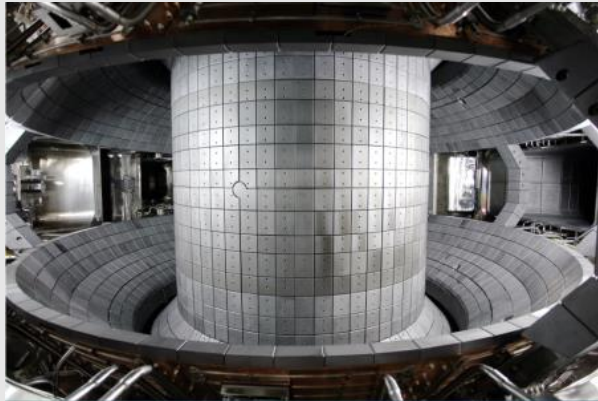
Beam Optical Device

- IR beam line mirror & Be Lens manipulator
- Accuracy : $<5\mu\text{m}$
- Vacuum : Less than $1 \times 10^{-10}\text{Torr}$

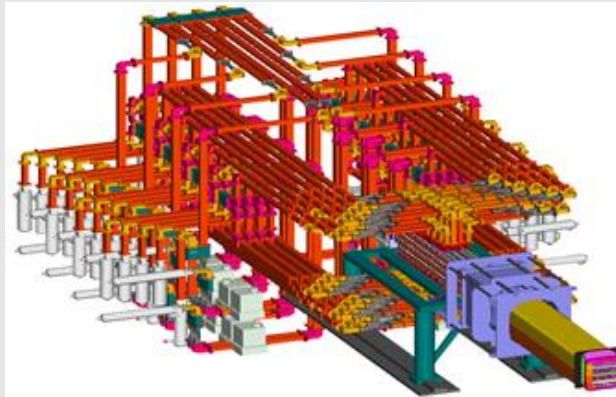
3. Main Business Participation (Project Experience)

Nuclear Fusion Project – KSTAR

- Vitzrotech has been participating in Nuclear Fusion Business for KSTAR & ITER through core technologies such as design & analysis engineering, precision machining, precision joining (Brazing, EBW), precision assembly, alignment and test



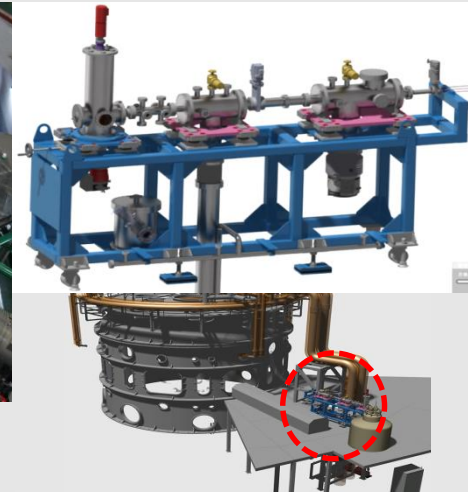
Plasma Facing Component (PFC)



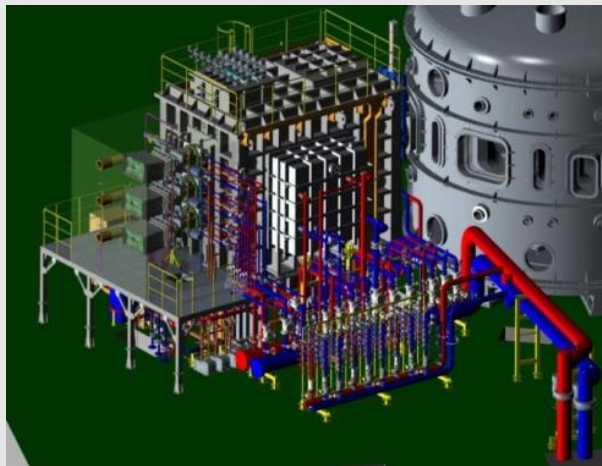
5GHz LHCD Power Divider Network & Antenna System



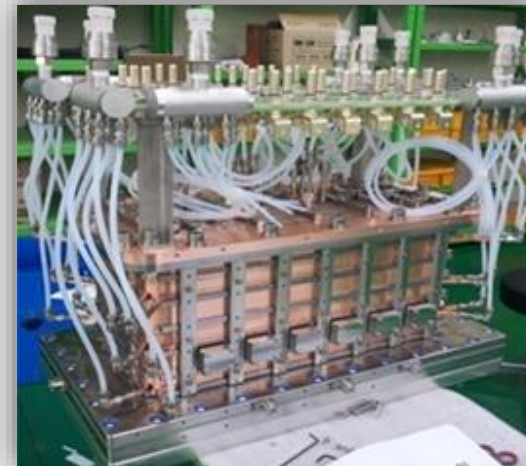
Fly-wheel Generator



Pellet Injector



NBI-II (Neutral Beam Injection) Heating & Beam line System



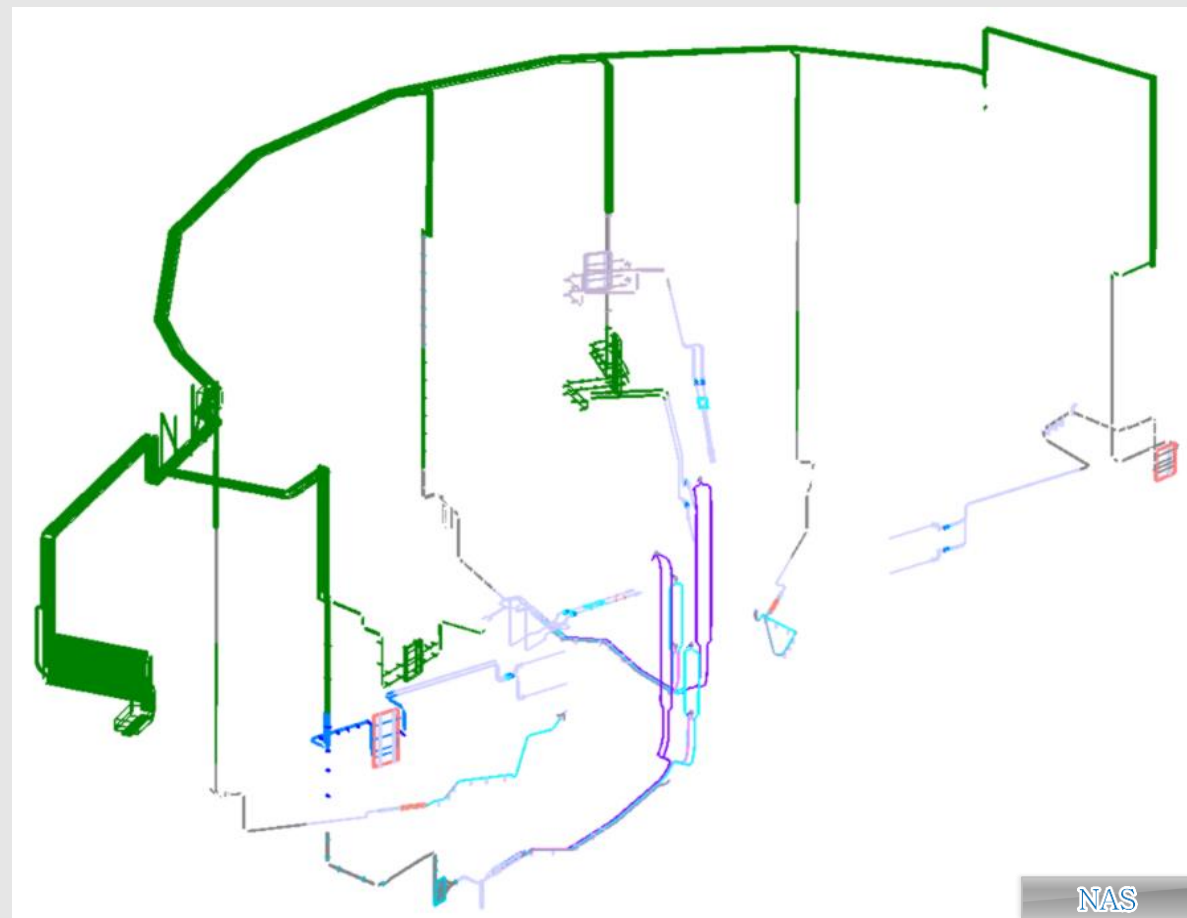
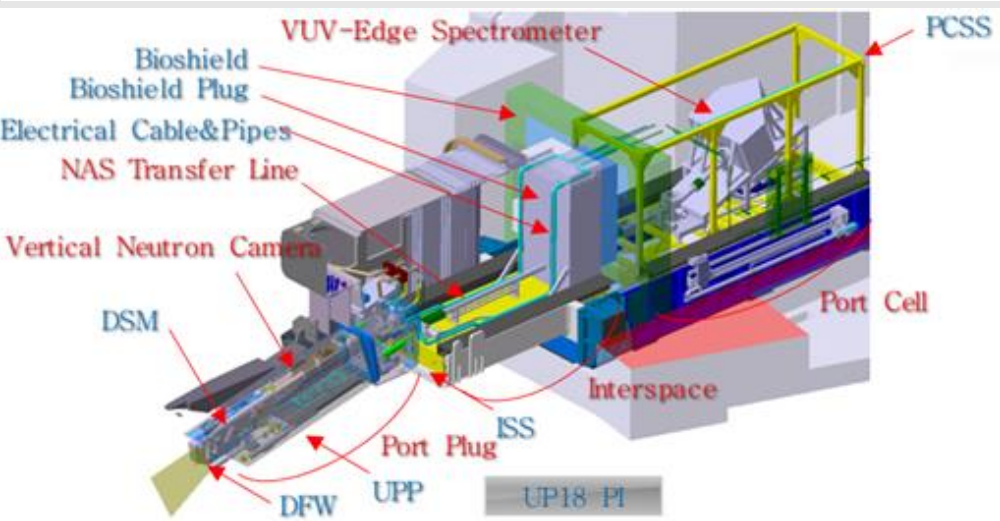
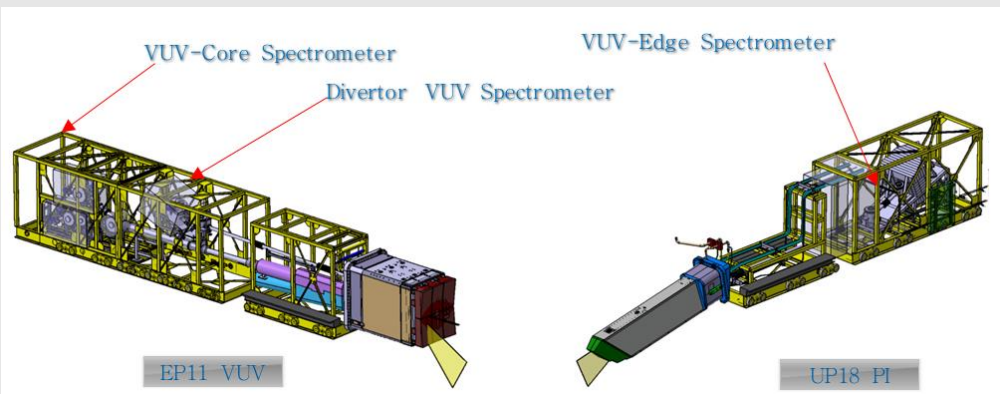
Ion Source

3. Main Business Participation (Project Experience)



Nuclear Fusion Project – ITER

- Vitzrotech is currently performing ITER Projects (K.O & I.O) with core technologies such as design & analysis engineering, precision machining, precision joining (Brazing, EBW), precision assembly, alignment and test

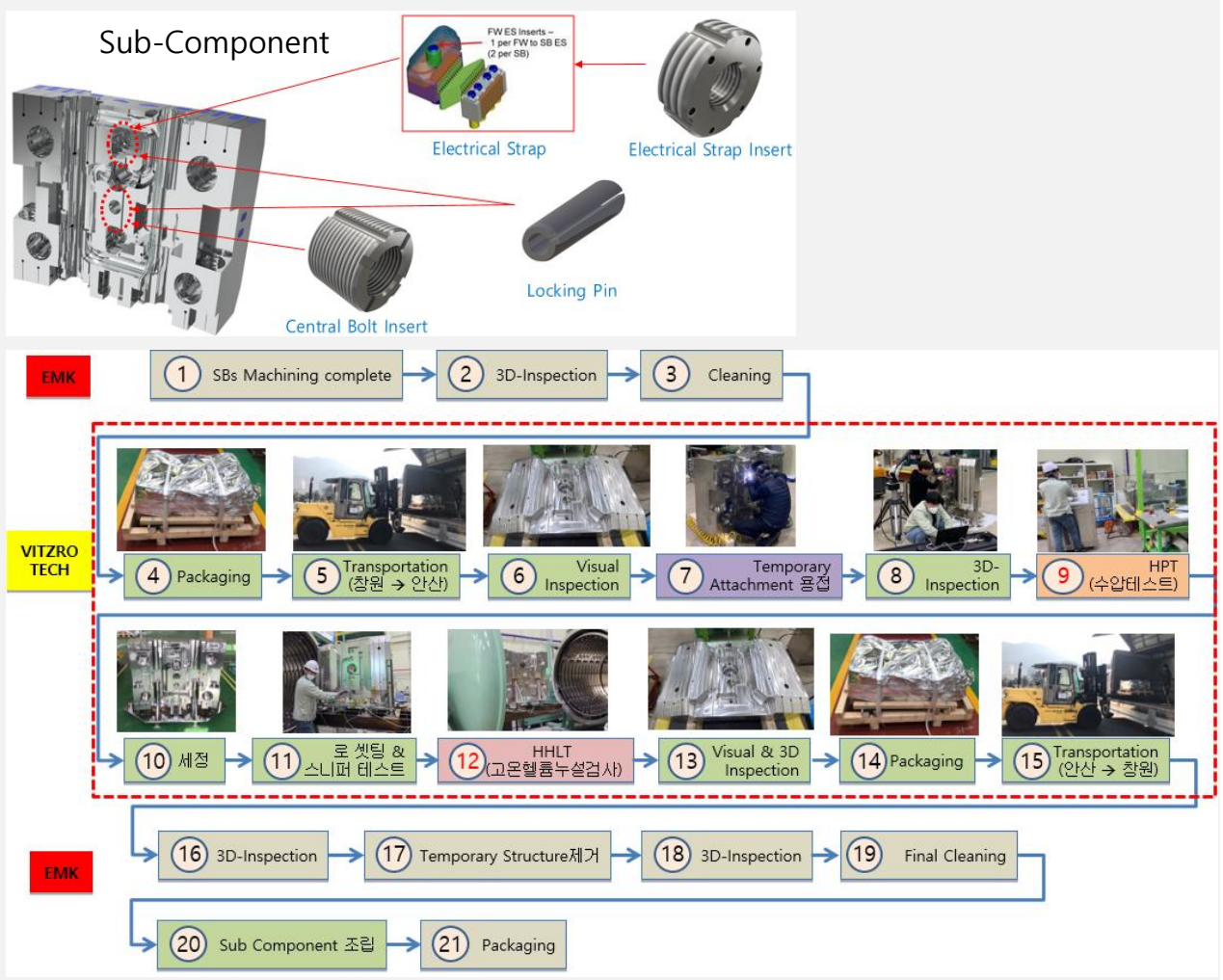
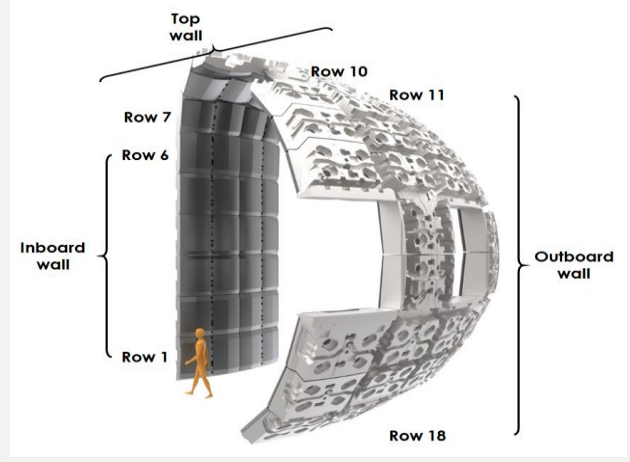


Final Design for ITER Diagnostics

3. Main Business Participation (Project Experience)

Nuclear Fusion Project – ITER

➤ Factory Acceptance Test & Manufacturing Sub-component

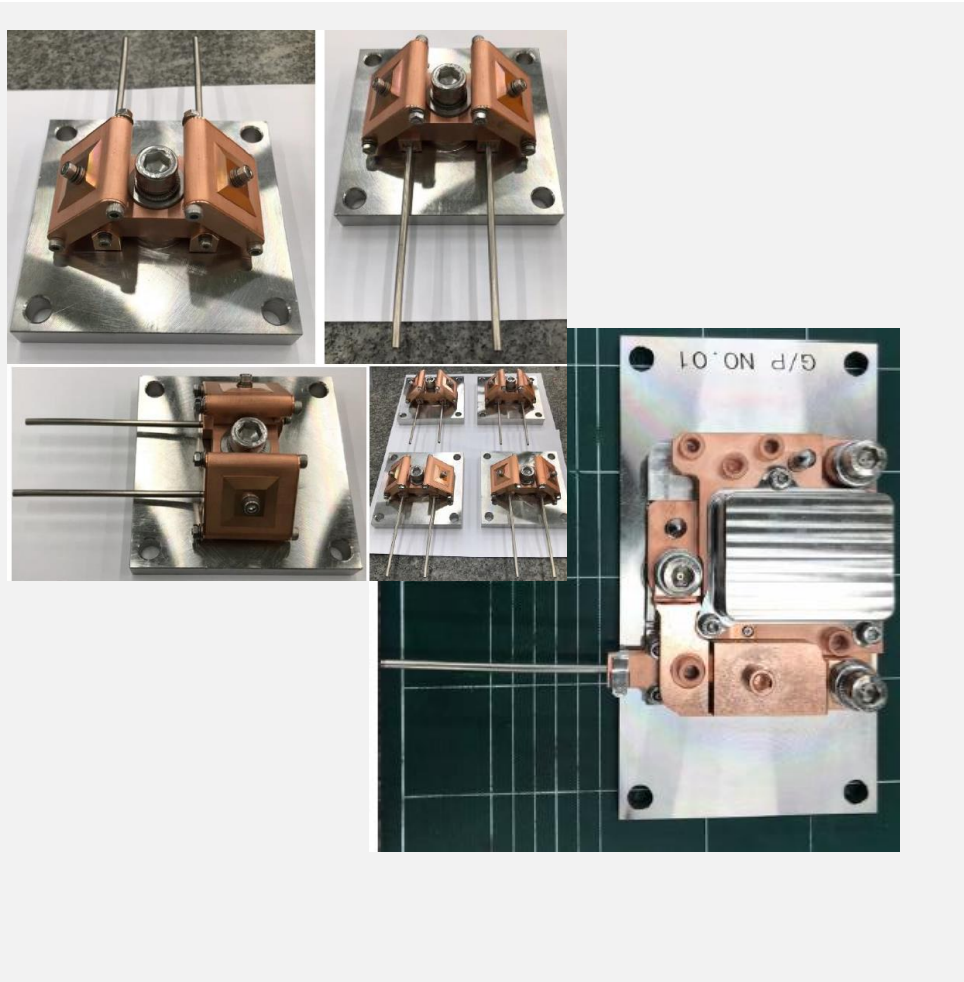


3. Main Business Participation (Project Experience)

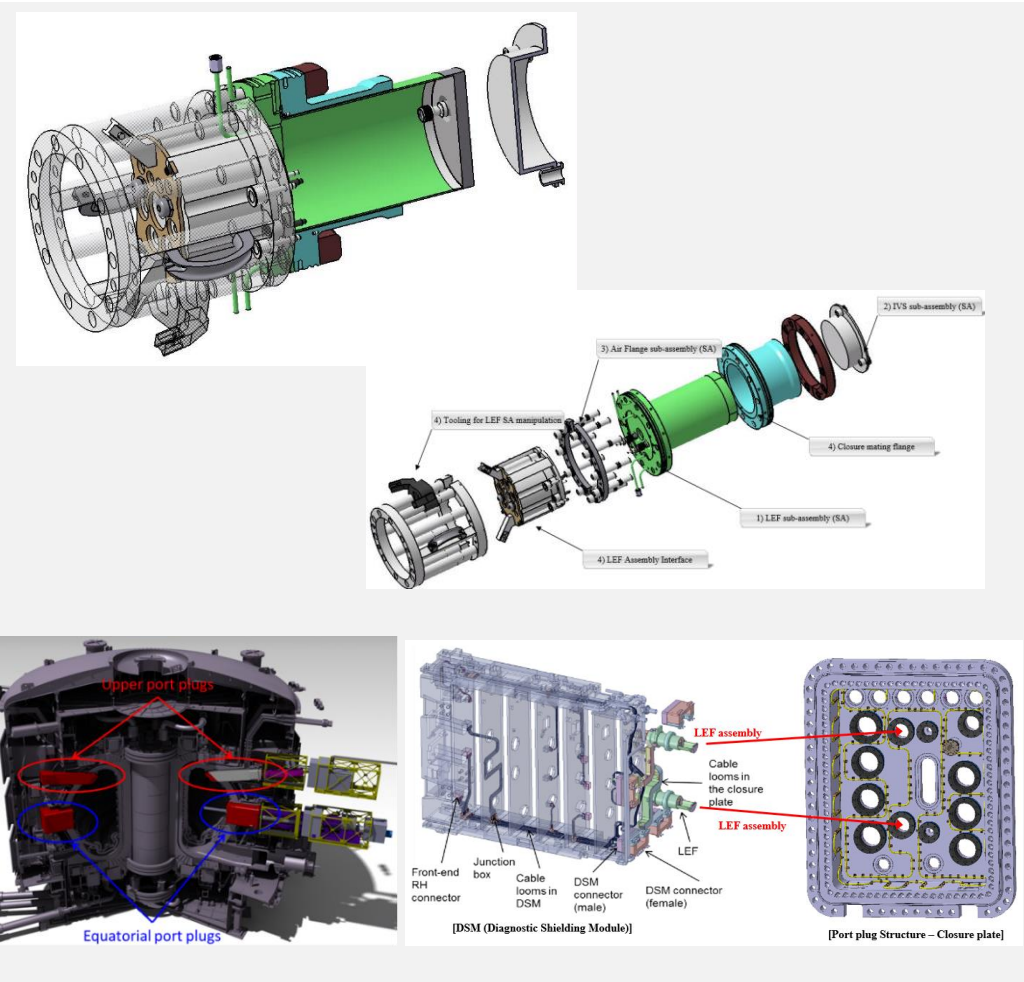


Nuclear Fusion Project – ITER

ITER Diagnostics Equipment – R&D



ITER Divertor Pickup Coils



LEVI Electrical Feedthrough

3. Main Business Participation (Project Experience)

Nuclear Fusion Project – ITER IVC BUSBAR

- Design, Qualification, Manufacture of ITER In Vessel Coil BUSBAR



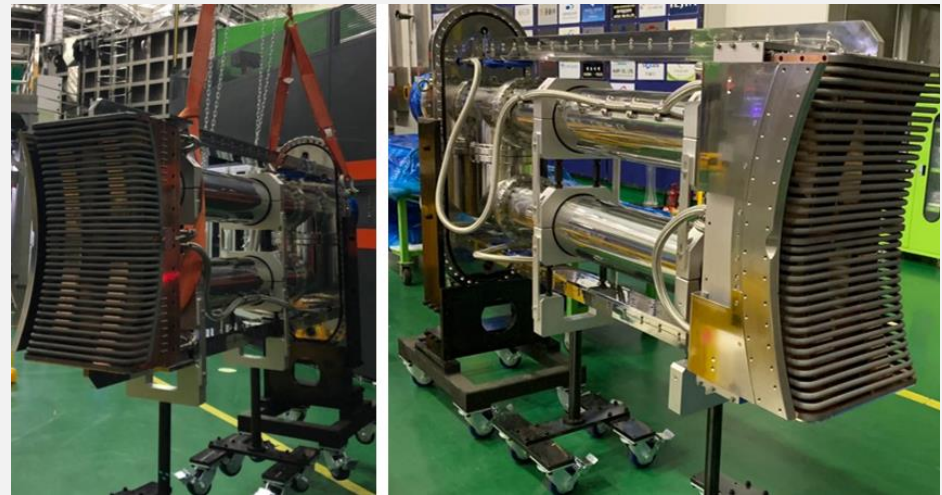
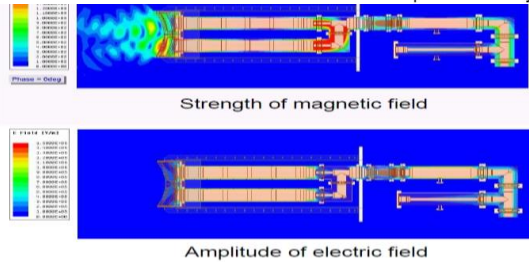
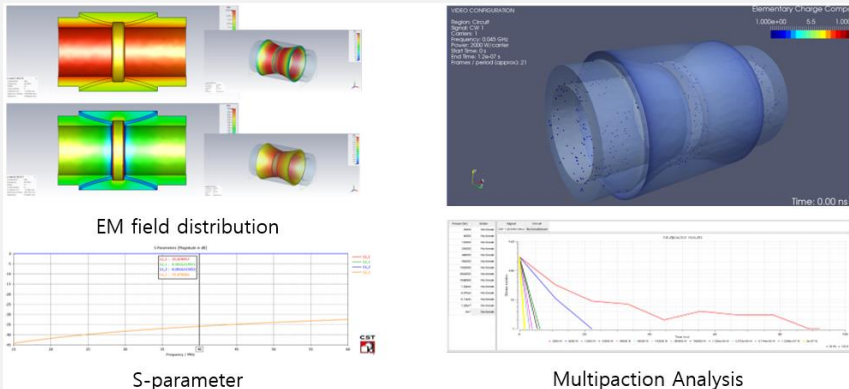
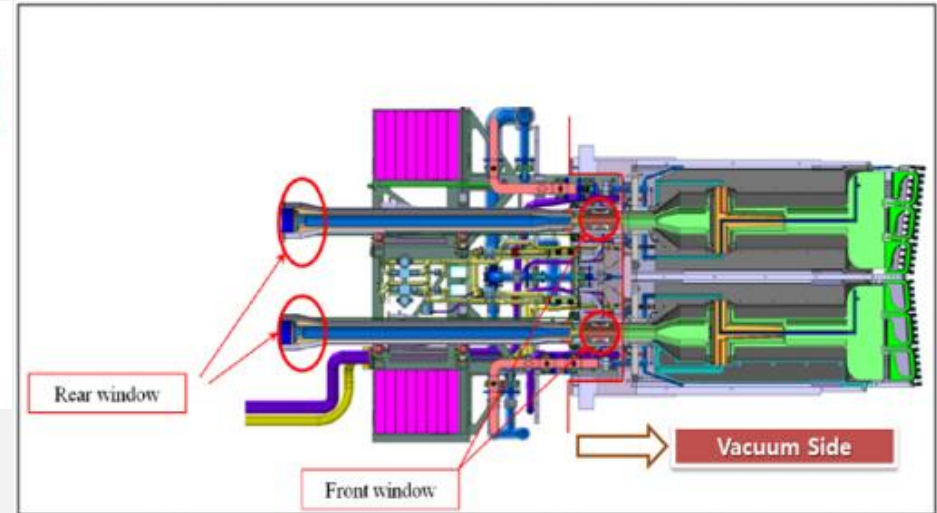
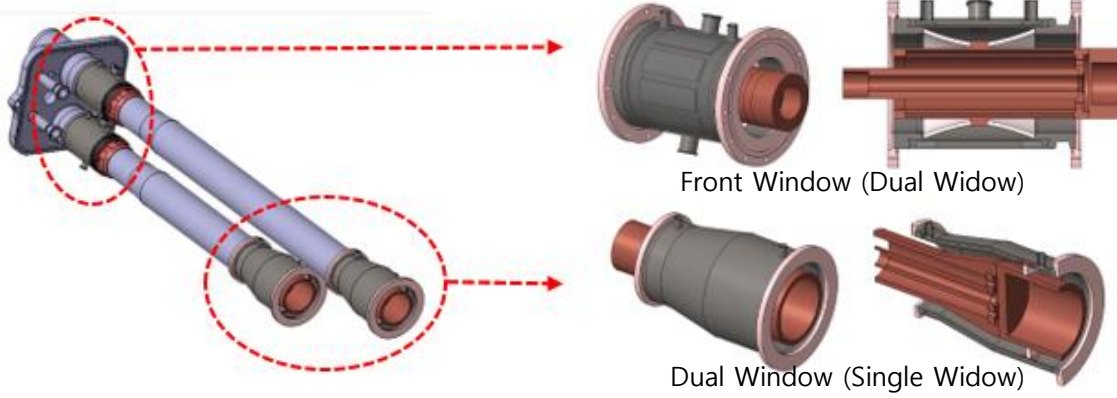
ITER IVC BUSBAR SYSTEM (Layout)



3. Main Business Participation (Project Experience)

Nuclear Fusion Project – ITER ICRF Window

➤ Design, Qualification, Prototyping, Series Production of ITER ICRF Window

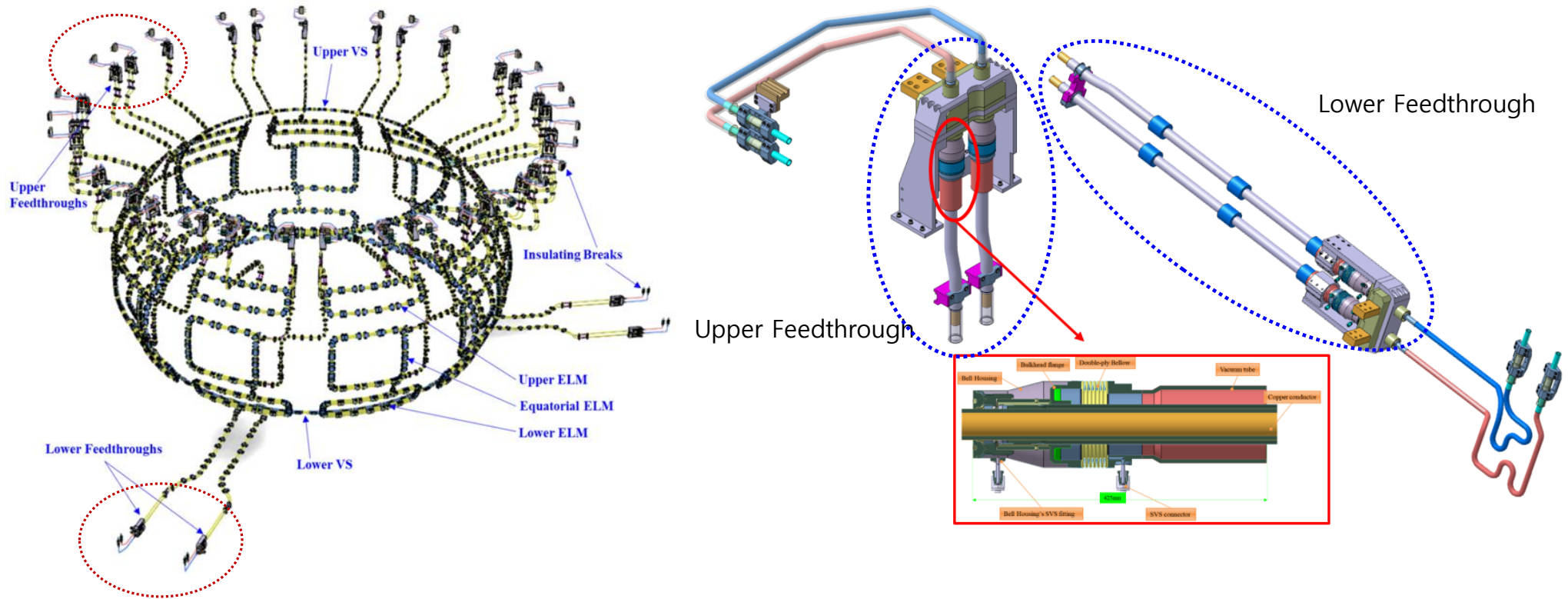


KSTAR ICRF Antenna [Vitzrotech]

3. Main Business Participation (Project Experience)

Nuclear Fusion Project – ITER IVC Feedthrough

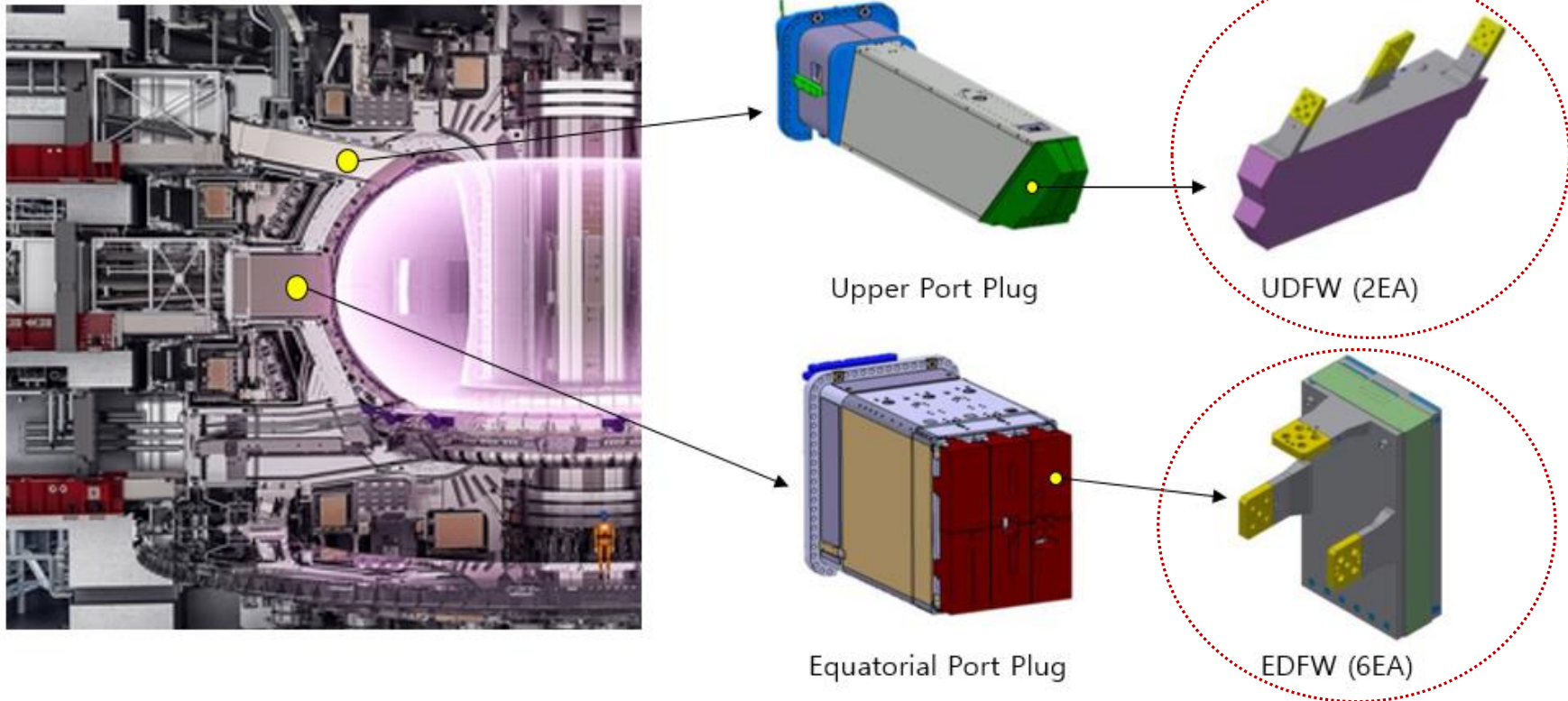
- Design, Qualification, Prototyping, Series Production of ITER ICRF Window (UPR Assy 5 Set, LWR Assy 32 Set + 2 feedthrough)



3. Main Business Participation (Project Experience)

Nuclear Fusion Project – ITER Diagnostic First Wall (DFW)

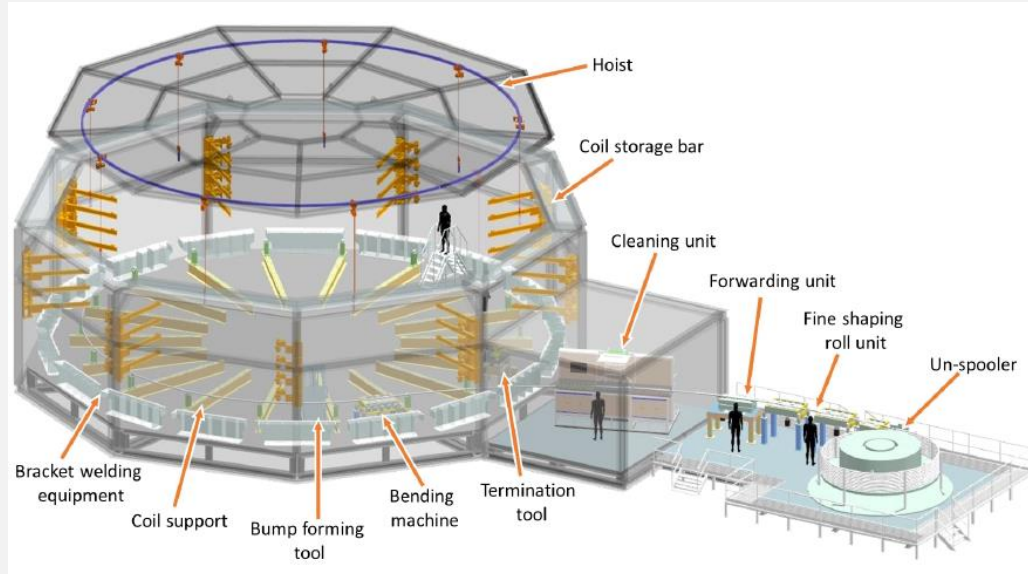
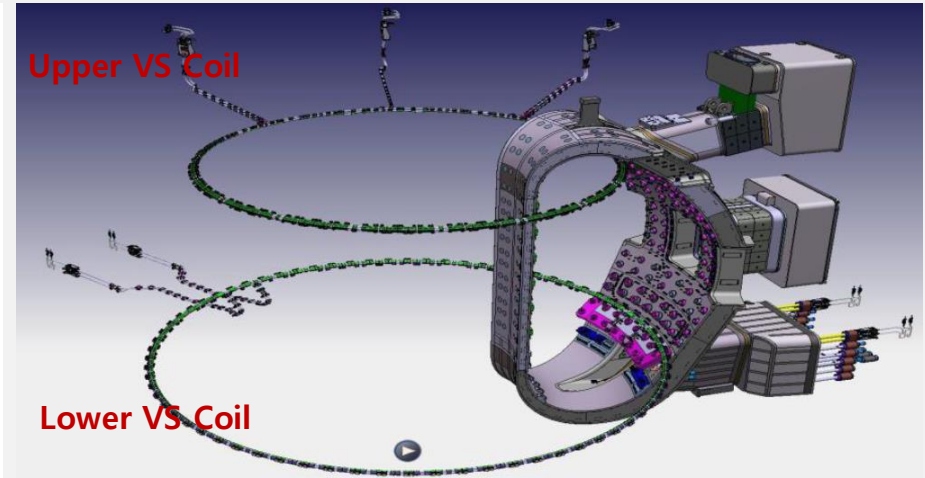
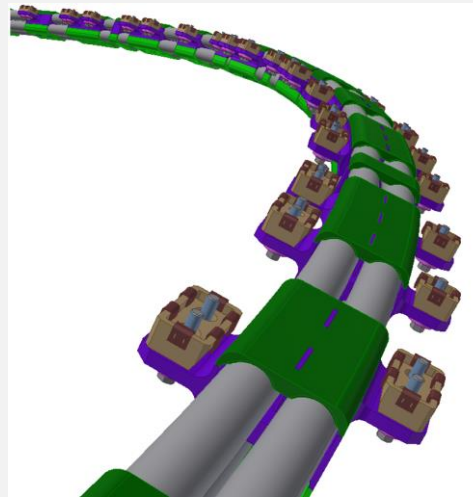
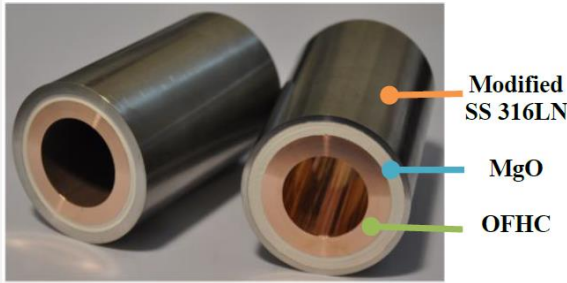
- Manufacturing Upper DFW : 28 Set
- Manufacturing Equatorial DFW : 54 Set



3. Main Business Participation (Project Experience)



Nuclear Fusion Project – ITER In-Vessel Vertical Stability Coils Prototyping, Manufacturing and Installation



Gate Valve

Vitzrotech is manufacturing the Gate Valve through vacuum technology and supplying to Samsung Electronics and Hynix.

Non-Semiconductor

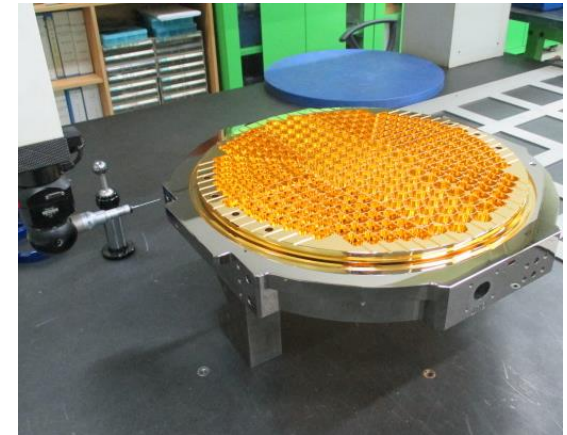


- Circular Gate Valve
- Rectangular Gate Valve
- Angle Valve

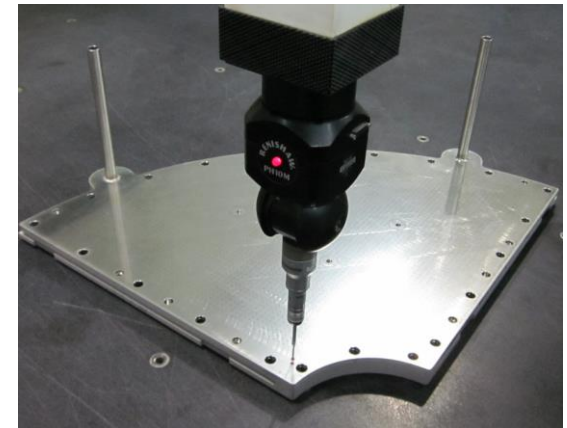


- Auto Bypass Valve
- Auto Protection Valve
- Controllers

Semiconductor



Heater Block



Cooling Plate

3. Main Business Participation (Project Experience)

Plasma Business

Vitzrotech has a lot of know-how and technologies for plasma through continuous R&D and also Vitzro is applying and expanding these to the application business like Waste-disposal equipment, Radioactive-waste disposal facility, Gas energy recovery plant.



Plasma Torch

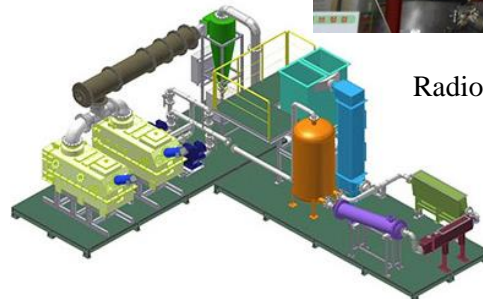
- ❖ Temperature : 4000K
- ❖ Power class : 30kW, 200kW, 300kWclass



Waste-disposal Equipment (Food garbage)



Radioactive-waste disposal facility



Gas Energy Recovery Plant

3. Main Business Participation (Project Experience)



Aerospace Business (Rocket Combustion Chamber) – with Korean Aerospace Research Institute

- Vitzrotech has been manufacturing the main equipments for Liquid Rocket Engine and participated in Korean Aerospace Projects through core technologies such as Design engineering, Precision machining, Special Bonding and Hydraulics examination test
- Vitzro’s Rocket combustion chambers, Gas generators and Heat exchanging exhaust systems were verified for the performance at Naro Space Center in Korea



Combustion Chamber
(For 7Ton Grade)



Combustion Chamber
(For 75Ton Grade)



Combustion Chamber
(For 85Ton Grade)



1 & 2 Stage – Gas Generator



3 Stage – Gas Generator



Combustion Chamber
(For 10Ton Grade)



Actual Test Image



IV

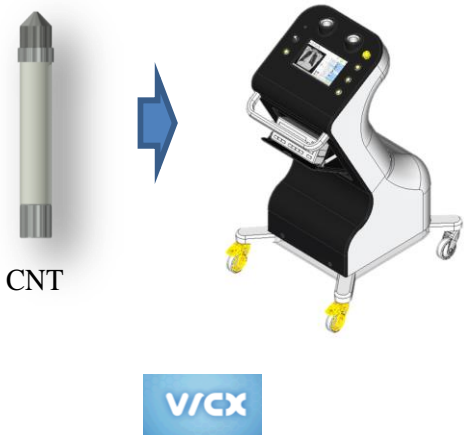
R & D Status

R&D Task based on the Experience in Accelerator & Nuclear Fusion Field

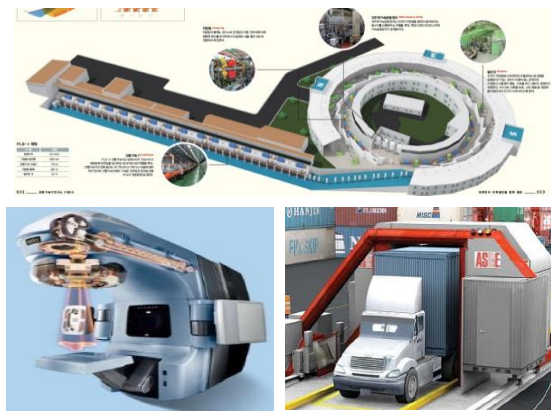
- Vitzrotech had participated and performed a lot of big projects in field of Accelerator & Nuclear Fusion. On the basis of these valuable experiences, Vitzrotech has been performing an R&D such as Medical Therapy Device, Small Sized Accelerator for Inspection, Cryogenic Parts, Aerospace Equipment and Defense Part, etc. through acquired Know-how and technology by performing Accelerator & Nuclear Fusion Projects.

Main R&D Product

Carbon Nanotube (CNT) X-Ray Brachytherapy for Cancer



X-Ray Detector



Cryogenic Control Valve



Power Coupler (For SRF Cavity)



- Operation environment :
 - Temp (2Kelvin), Vacuum (10^{-9} torr)
- Input Power : 4kW
- Operation Frequency : Lower than 1GHz



Facility
&
Certificate

Manufacturing Facility



Brazing Furnace



E-beam Welder(150kV)



Cleanroom for Storage



Machining(5 axis)



Clean Room(10000 class)



Clean Room(10 class)



Chemical Treatment (18M Ω)

Manufacturing Facility



BCP



HPR



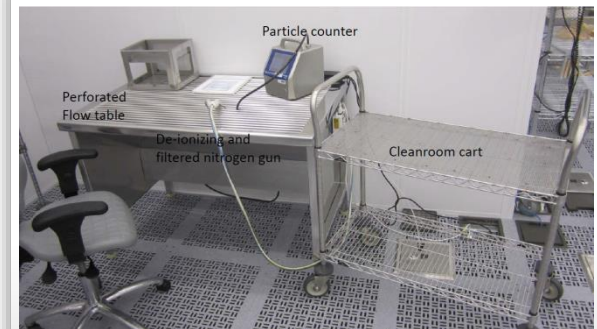
Particle Counter Handy



Particle Counter Fix



Ion Gun



Tools for 10 Class Clean room

Inspection Facility



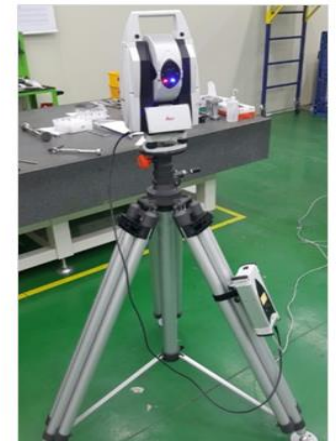
Microscope



3D Measurement



Leak Detector (He)



Laser Tracker



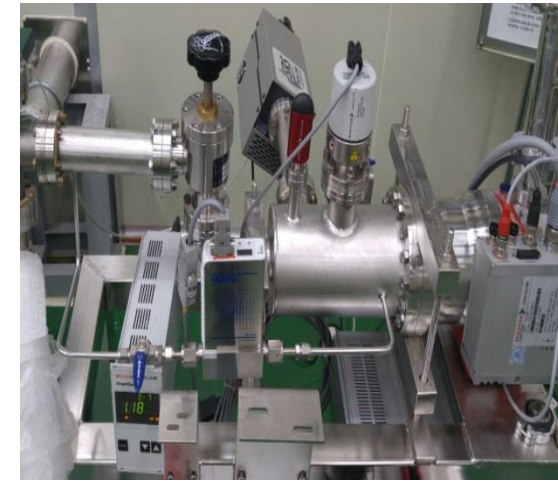
Water Flow Tester



He Pressure Test



Network Analyzer



RGA

Certification

Certification	Certified field	Date	Expiration	Authority
ISO9001	Quality management system	2018.05.23	2024.05.22	KPC
ISO14001	Environmental management	2018.05.23	2024.05.22	KPC
ASME	ASME U, U2, PP	2014.12.01	2023.11.17	ASME
KEPIC-EN	Electric Power Industry	2017.06.07	2023.06.06	Korea Electric Association
INNO-BIZ	Technical Innovation	2014.12.15	-	Gyeonggi SMBA
KS C 4613	Leakage circuit breaker	2009.09.16	-	KSA
KS C 8321	Distributing breaker	2009.09.16	-	KSA
KS C 4620	Low voltage circuit breaker	2011.02.09	-	KSA
V Check Mark	V Check Mark in KAS	2014.10.31	-	KESCO
Q-Mark	Panel (High, Low-tension)	2012.06.05	-	KTC
UL	MCCB	2012.07.09	-	Underwriters Laboratories Inc.

대한민국경제기술훈장사업(국가)에 선정된 우수기업에 대한 인증서 발급

인증번호 : KQC-9114

품질경영시스템 인증서

(주)비츠로테크
경기도 안산시 단원구 발원로 327

한국생산성본부인증원은 위 회사의 품질경영시스템이 기술원 인증표준과 법위에 적합함을 인증함.

인증표준 : KS Q ISO 9001:2015 / ISO 9001:2015

인증범위 : 우주항공부품, 원자력발전설비, 가솔기 및 플라즈마 장치, 진공시스템의 설계, 개발, 제조, 조립 및 서비스

최초인증일자 : 2018년 05월 23일 | 인증유효기간 : 2018년 05월 23일 ~ 2024년 05월 22일

발행일자 : 2023년 05월 14일

최상경 | 김사립장

김경욱 | 원장

KPC 한국생산성본부인증원
KOREA PRODUCTIVITY CENTER QUALITY ASSURANCE
서울특별시 중구 세종대로 39 서울생산성본부빌딩 12F
www.kpcqa.or.kr / TEL.02-738-9001

대한민국경제기술훈장사업(국가)에 선정된 우수기업에 대한 인증서 발급

인증번호 : KQC-1474

환경경영시스템 인증서

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경기도 안산시 단원구 발원로 327

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인증표준 : KS I ISO 14001 : 2015 / ISO 14001 : 2015

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최초인증일자 : 2018년 05월 23일 | 인증유효기간 : 2021년 05월 23일 ~ 2024년 05월 22일

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최상경 | 김사립장

김경욱 | 원장

KPC 한국생산성본부인증원
KOREA PRODUCTIVITY CENTER QUALITY ASSURANCE
서울특별시 중구 세종대로 39 서울생산성본부빌딩 12F
www.kpcqa.or.kr / TEL.02-738-9001

CERTIFICATE OF AUTHORIZATION

The named company is authorized by The American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Single Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Single Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:
VITZROTECH CO., LTD.
327, Byeolmang-ro, Danwon-gu
Ansan-si, Gyeonggi-do 15603
Republic of Korea

SCOPE:
Manufacture of pressure vessels at the above location only

AUTHORIZED: November 17, 2020
EXPIRES: November 17, 2023
CERTIFICATE NUMBER: 48827

Daniel E. Tuttle
Board Chair, Conformity Assessment

Managing Director, Conformity Assessment

The American Society of Mechanical Engineers

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COMPANY:
VITZROTECH CO., LTD.
327, Byeolmang-ro, Danwon-gu
Ansan-si, Gyeonggi-do 15603
Republic of Korea

SCOPE:
Manufacture of Class 1 and Class 2 pressure vessels at the above location only

AUTHORIZED: November 17, 2020
EXPIRES: November 17, 2023
CERTIFICATE NUMBER: 59074

Daniel E. Tuttle
Board Chair, Conformity Assessment

Managing Director, Conformity Assessment

The American Society of Mechanical Engineers

CERTIFICATE OF AUTHORIZATION

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COMPANY:
VITZROTECH CO., LTD.
327, Byeolmang-ro, Danwon-gu
Ansan-si, Gyeonggi-do 15603
Republic of Korea

SCOPE:
Fabrication and assembly of pressure piping at the above location only

AUTHORIZED: November 17, 2020
EXPIRES: November 17, 2023
CERTIFICATE NUMBER: 55900

Daniel E. Tuttle
Board Chair, Conformity Assessment

Managing Director, Conformity Assessment

The American Society of Mechanical Engineers

ISO 9001

ISO 14001

ASME U STAMP

ASME - U2

ASME PP

VITZRO TECH

Thank you!