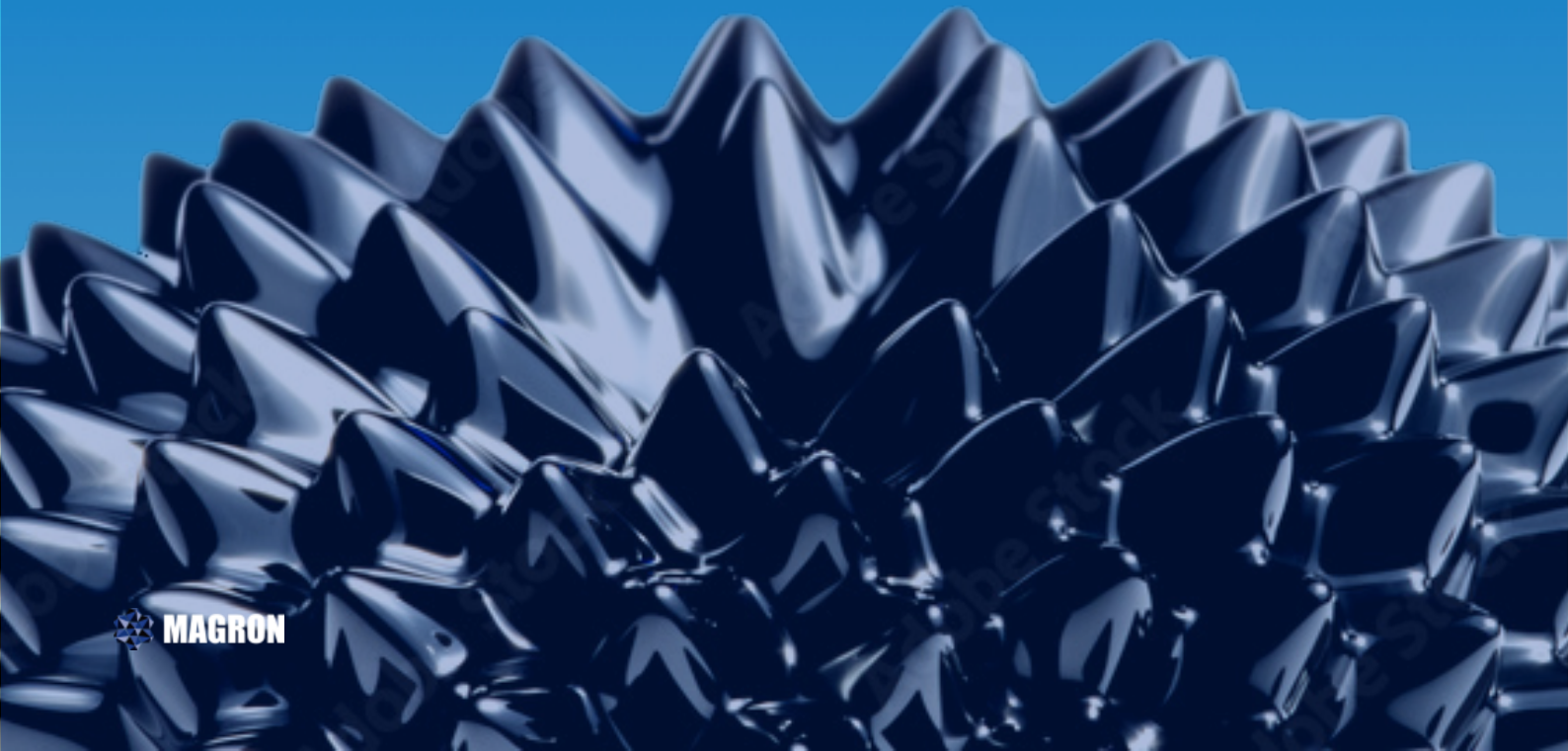
MAGRON

FERROFLUID

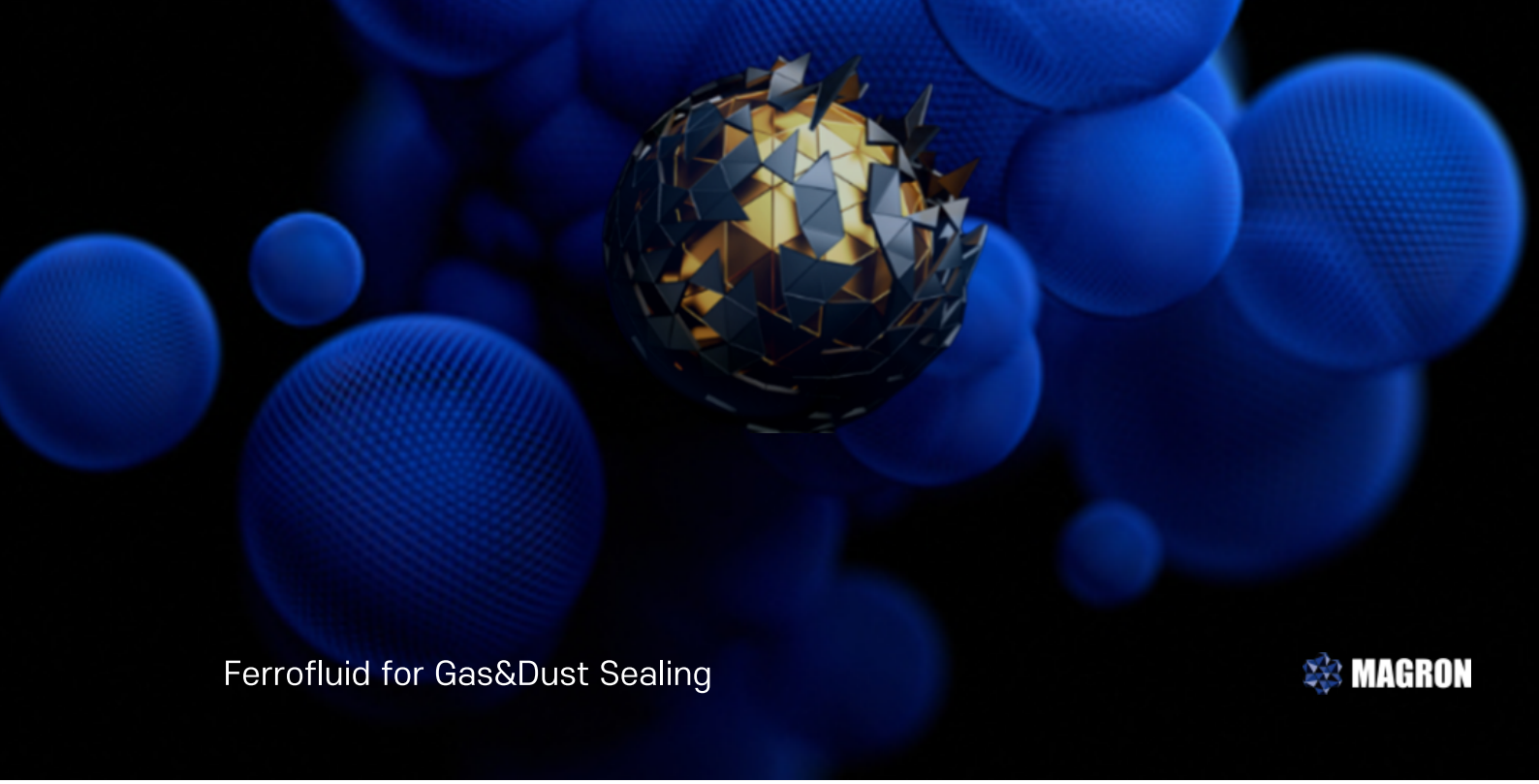
MAGRON
Catalog No. 20240926

For Gas & Dust sealing

- Feedthrough component
- Vacuum Seal component



MAGRON



Contents

Gas&Dust Sealing Specification

For Corrosive gas

Non-use of PFAS

Carrier fluid: Perfluore Polyether [PFPE]

Item	Saturation Magnetization	Viscosity	Vapor Pressure		Torr· L/s Helium gas leak	1 wt/% loss Temp. (TGA)	Pour point	Density
Model	Gauss	mPa.sec (cP) at 27℃	Pa at 20℃	Torr mmHg. at 20℃	Less than 1E-11	℃	℃	g/cm^3
MFF-M4251	**420**	**5,100**	**<5E-11**	**<3.75E-13**	**Ok**	**>280**	**<-40**	**2.198**
MFF-M5286	**520**	**8,600**	**<5E-11**	**<3.75E-13**	**Ok**	**>280**	**<-40**	**2.277**
MFF-KD3847	380	4,700	<5E-11	<3.75E-13	Ok	>260	<-40	2.17
MFF-KD4350	430	5,000	<5E-11	<3.75E-13	Ok	>260	<-40	2.17
MFF-KR4549	450	4,900	<5E-11	<3.75E-13	Ok	>230	<-40	2.2
MFF-R6085	600	8,500	<5E-11	<3.75E-13	Ok	>140	<-40	2.25
MFF-R5050	500	5,000	<5E-11	<3.75E-13	Ok	>140	<-40	2.2
MFF-R4020	400	2,000	<5E-11	<3.75E-13	Ok	>140	<-40	2.14

*1 wt/% loss Temp. (TGA): The temperature at which 1% of the weight is reduced by evaporation or vaporization during heating. (Measurement conditions: Heat up 10°C per minute with a TGA measuring instrument)

*Actual operating temperature varies depending on conditions such as temperature applied to the ferrofluid, RPM, shaft diameter, and operating time.

Please determine the operating temperature considering the above conditions.

*Besides the above products, we can make custom orders.

*We do not use PFAS (per- and polyfluoroalkyl substances) in our ferrofluid.

Advantages in Specific condition for each model

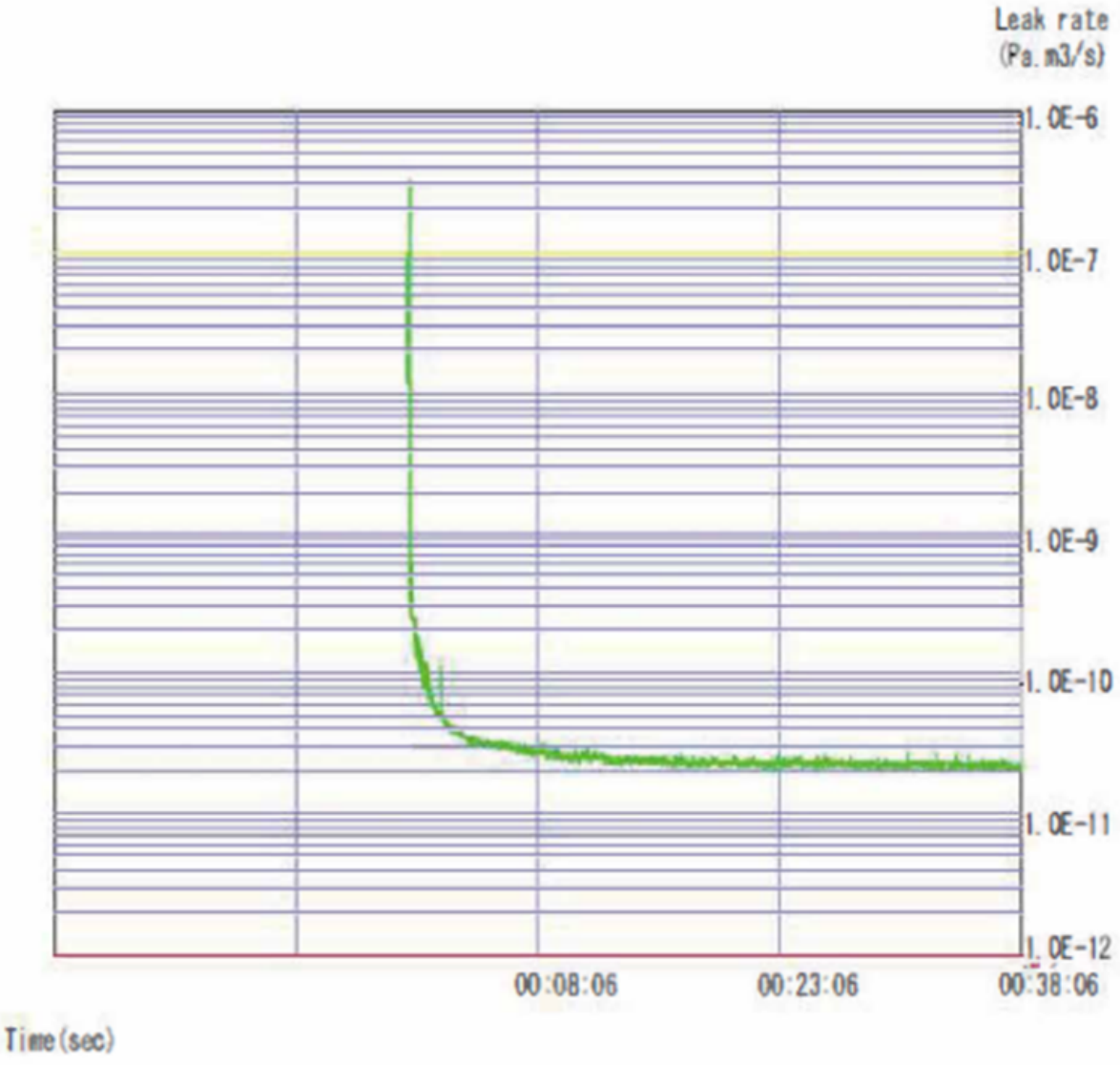
MFF Series	This series has excellent chemical resistance and radiation resistance.
MFF-M Series	World's Top Heat-Resistant Model for corrosive gas The vacuum exhaust time is short. (Time to reach 3.75E-13 Torr: 3~5 minutes)

MFF-M4251 Leak test data

Storing Datetime : 2024/07/03 14:20:50
Output Datetime : 2024/07/03 14:58:56

Setpoint1 : 1.0E-07 Setpoint2 : 1.0E-12

Main leak test data



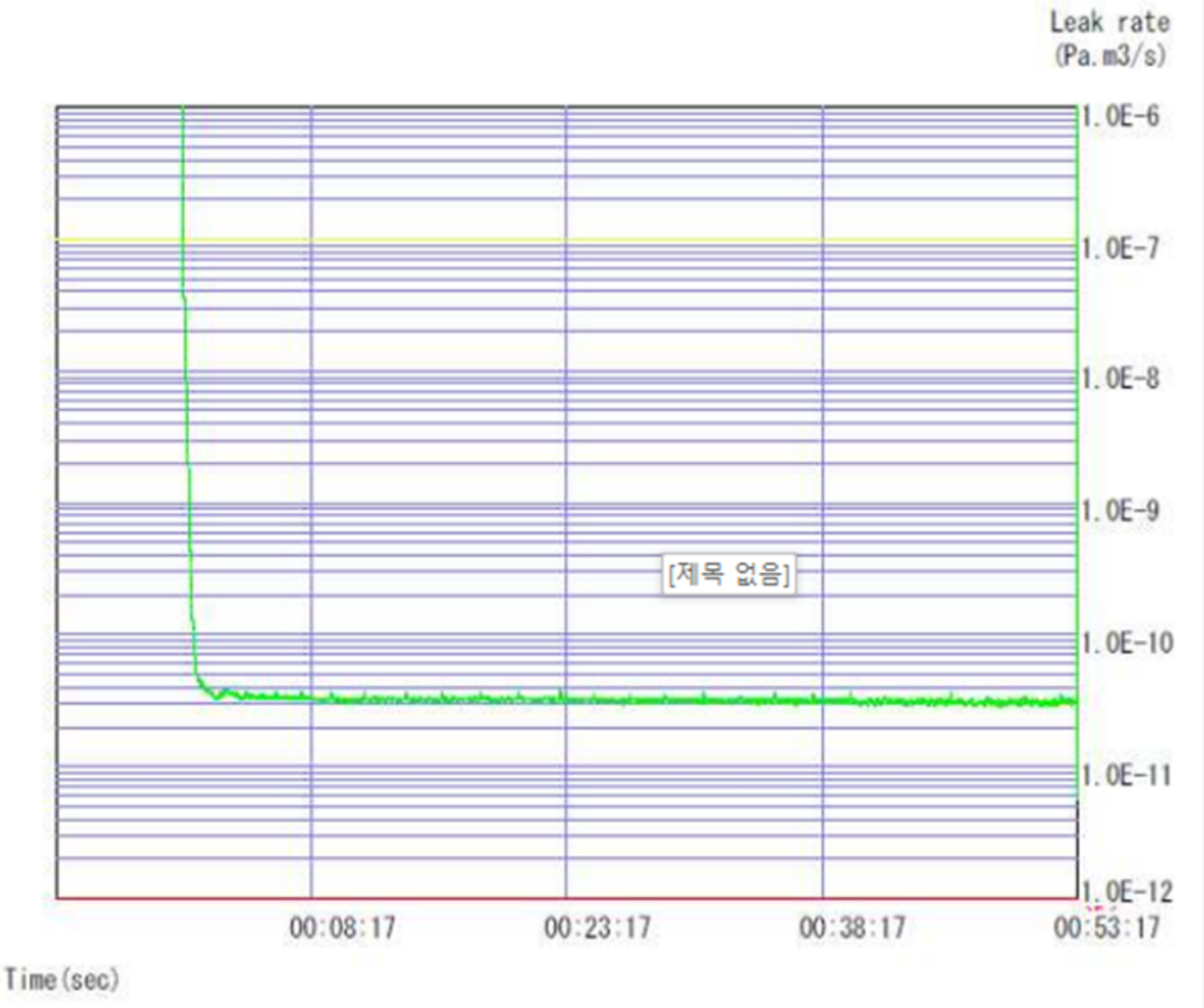
The vacuum evacuation time is short
and the vacuum level is maintained constant.

MFF-M5286 Leak test data

Storing Datetime : 2024/09/11 11:27:51
Output Datetime : 2024/09/11 12:21:08

Setpoint1 : 1.0E-07 Setpoint2 : 1.0E-12

Main leak test data



The vacuum evacuation time is short
and the vacuum level is maintained constant.

Gas&Dust Sealing Specification

For Non-Corrosive gas

Non-use of PFAS

Carrier fluid: MFS series - Silicon, MFH series - Hydrocarbon

Item	Saturation Magnetization	Viscosity	Vapor Pressure		Torr· L/s Helium gas leak	1 wt/% loss Temp. (TGA)	Pour point	Density
Model	Gauss	mPa.sec (cP) at 27°C	Pa at 20°C	Torr mmHg. at 20°C	Less than 1E-11	°C	°C	g/cm³
MFS-7390	730	9,000	<5E-11	<3.75E-13	Ok	200	<-40	1.50
MFS-6022 (MFS-630)	600	2,200	<5E-11	<3.75E-13	Ok	200	<-40	1.39
MFS-5009 (MFS-513)	500	900	<5E-11	<3.75E-13	Ok	200	<-40	1.31
MFS-4005 (MFS-407)	400	500	<5E-11	<3.75E-13	Ok	200	<-40	1.21
MFH-7730	770	3,000	<5E-11	<3.75E-13	Ok	170	<-40	1.52
MFH-6206	620	650	<5E-11	<3.75E-13	Ok	170	<-40	1.39
MFH-5002 (MFH-503)	500	210	<5E-11	<3.75E-13	Ok	170	<-40	1.30
MFH-4401	440	150	<5E-11	<3.75E-13	Ok	170	<-40	1.22

*1 wt/% loss Temp. (TGA): The temperature at which 1% of the weight is reduced by evaporation or vaporization during heating. (Measurement conditions: Heat up 10°C per minute with a TGA measuring instrument)

*Actual operating temperature varies depending on conditions such as temperature applied to the ferrofluid, RPM, shaft diameter, and operating time.

Please determine the operating temperature considering the above conditions.

*Besides the above products, we can make custom orders.

*We do not use PFAS (per- and polyfluoroalkyl substances) in our ferrofluid.

Advantages in Specific condition for each model

MFS-Series	This series has the world's best heat resistance for non-corrosive gas.
MFS-4005	One of the most used models.
MFH-5002	A model with very little rotational start torque even when started after being left unattended for a long time.

Grease type

For Non-Corrosive gas&dust sealing + lubrication

MFG-50	500		1E-10	7.5E-13	Ok	140	>400	-90	1.4

*It is not liquid, but has the same shape as grease.

TGA&DTA Grade

TGA

: Thermo Gravimetric Analysis

It measures the weight change of the sample according to temperature
while performing simultaneous thermal analysis.
In other words, you can know the amount of vaporization, evaporation, and oxidation
according to the temperature.
You can estimate the temperature available at high temperatures.

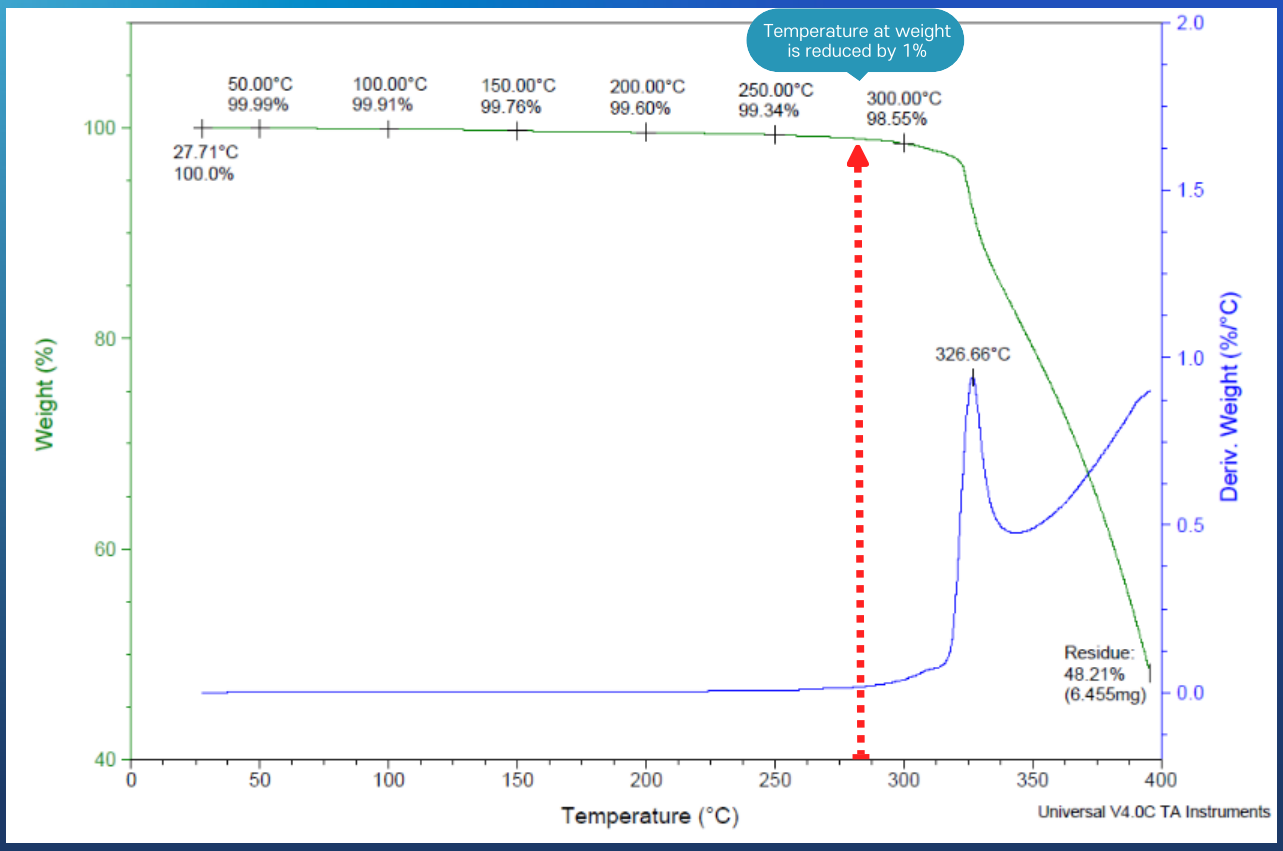
DTA

: Differential Thermal Analysis

It measures thermal decomposition temperature by endothermic heat and heat.
You can see the temperature at which phase change, reduction, decomposition, and oxidation occur.

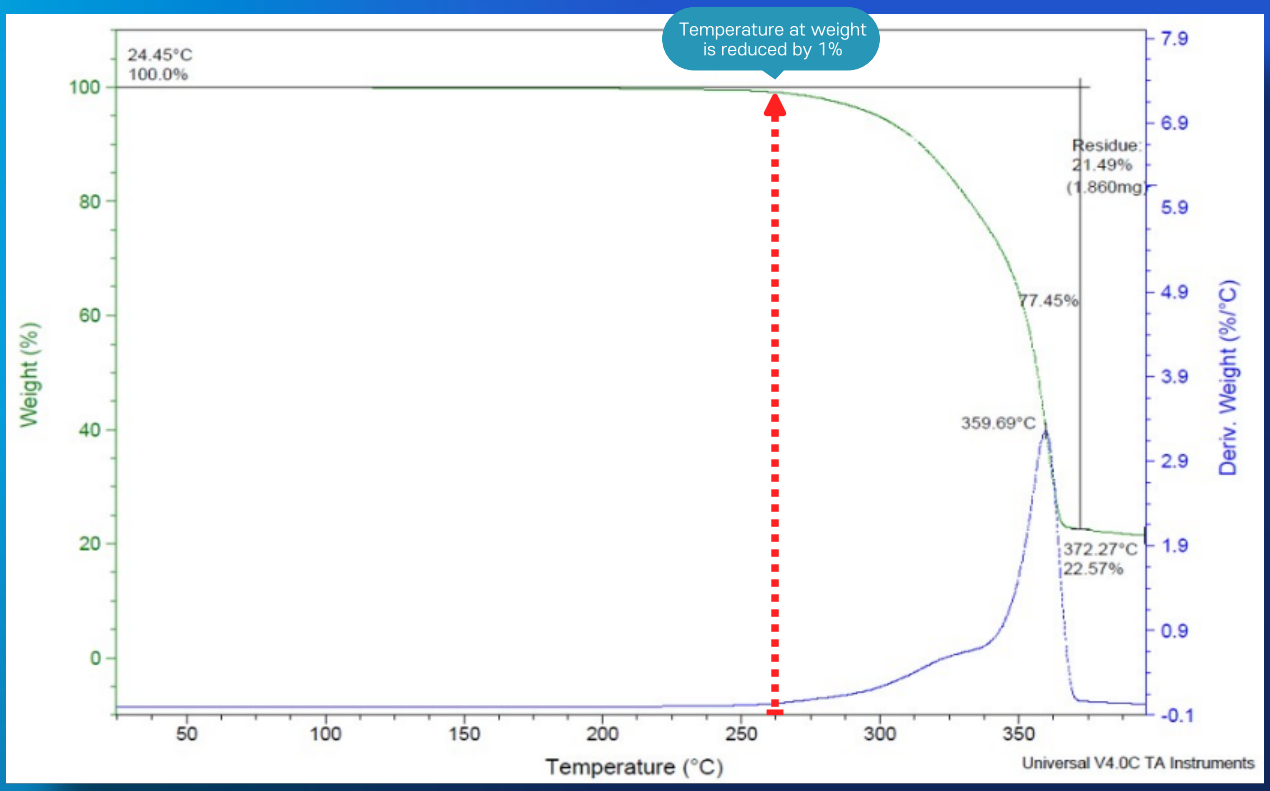
MFF-M Series

(Rising temperature per minute : 10°C)



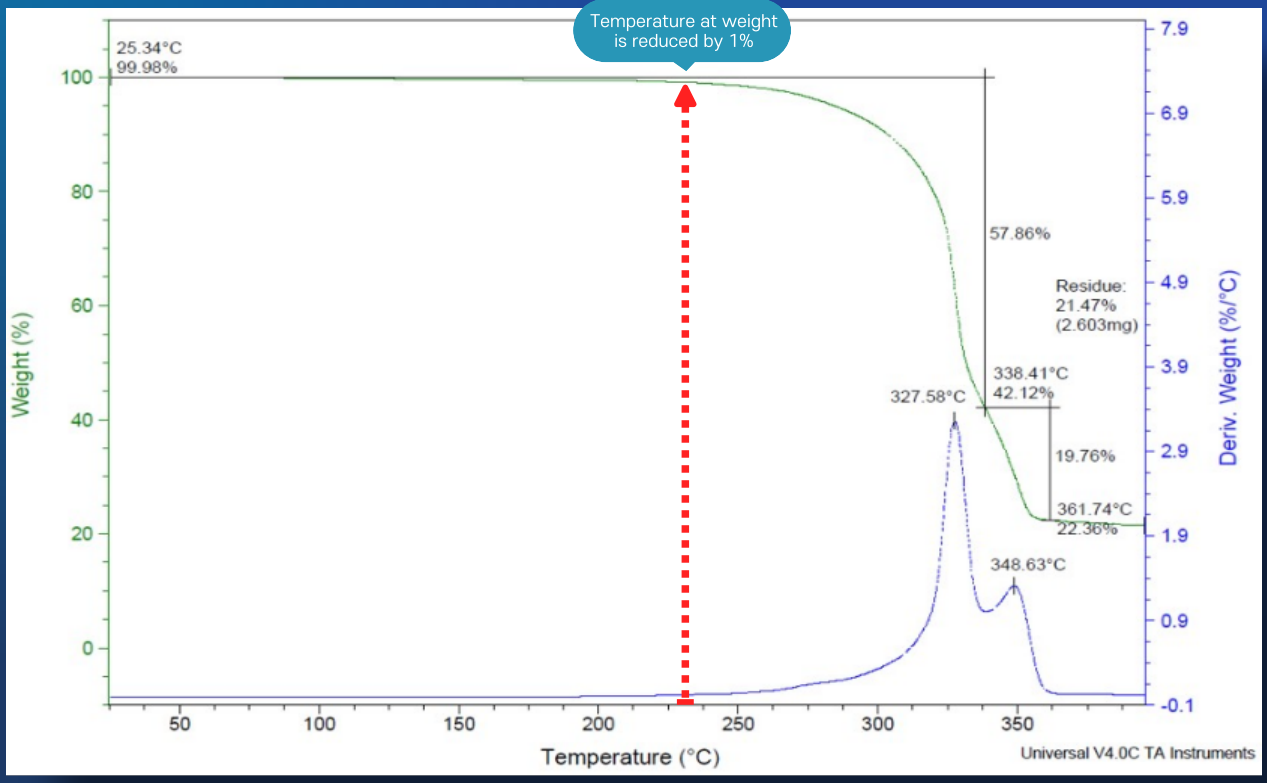
MFF-KD Series

(Rising temperature per minute : 10°C)



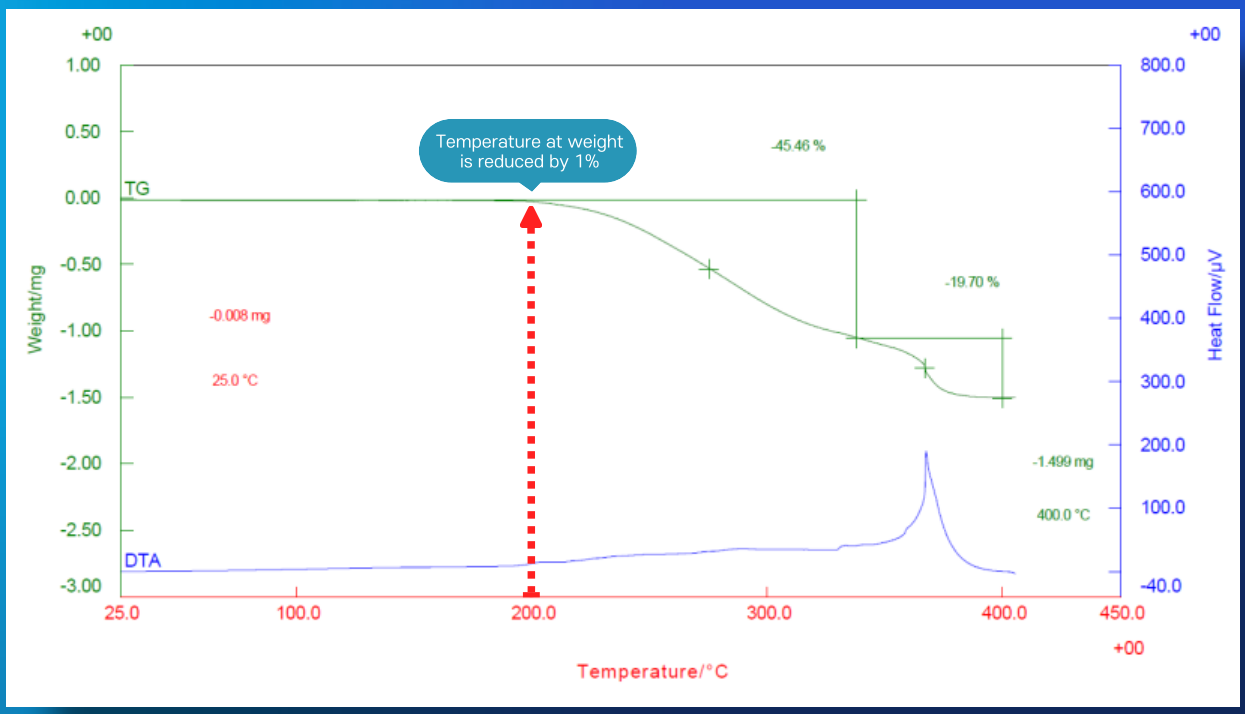
MFF-KR Series

(Rising temperature per minute : 10°C)



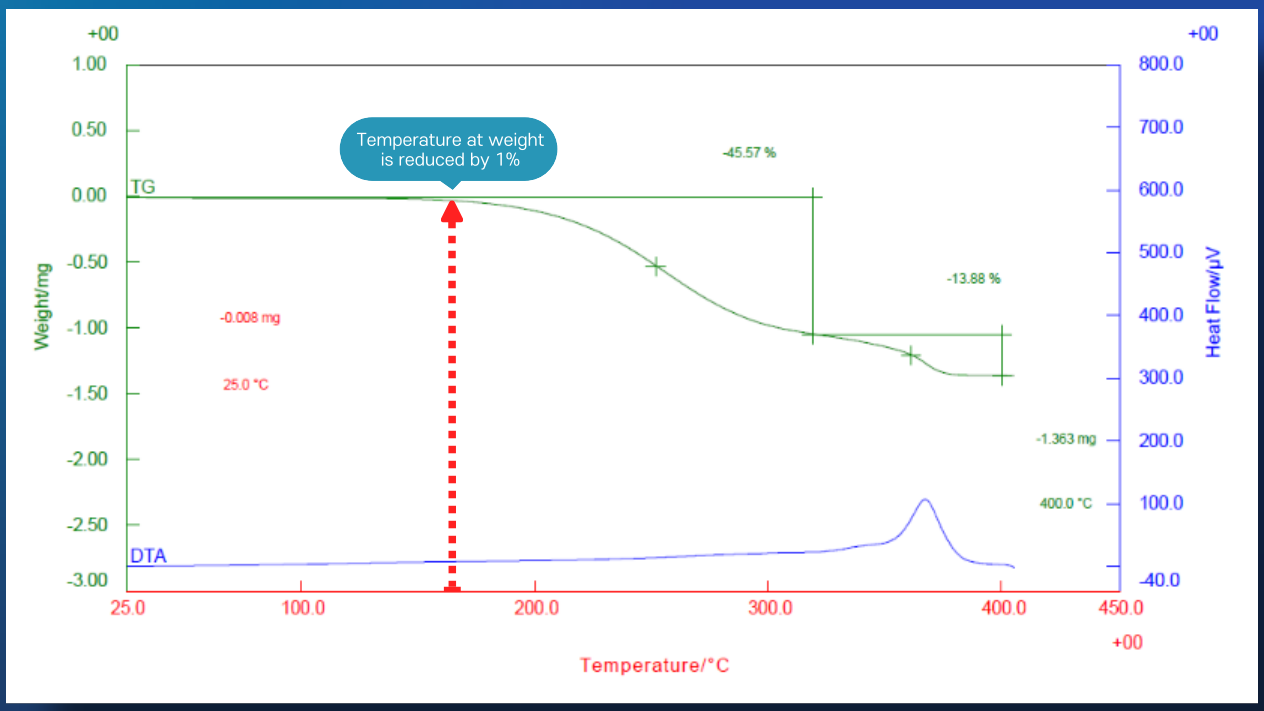
MFS Series

(Rising temperature per minute : 10°C)



MFH Series

(Rising temperature per minute : 10°C)



Ferrofluid Seal

What is Ferrofluid Seal?

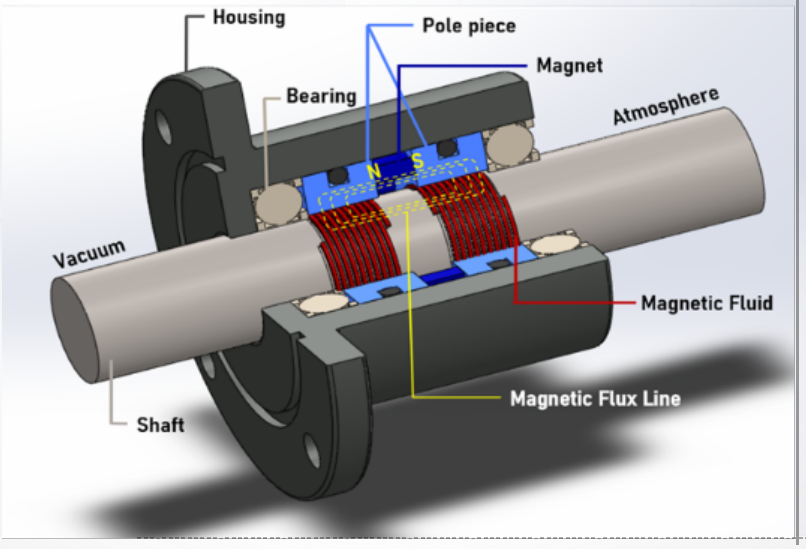
Ferrofluid Seal:

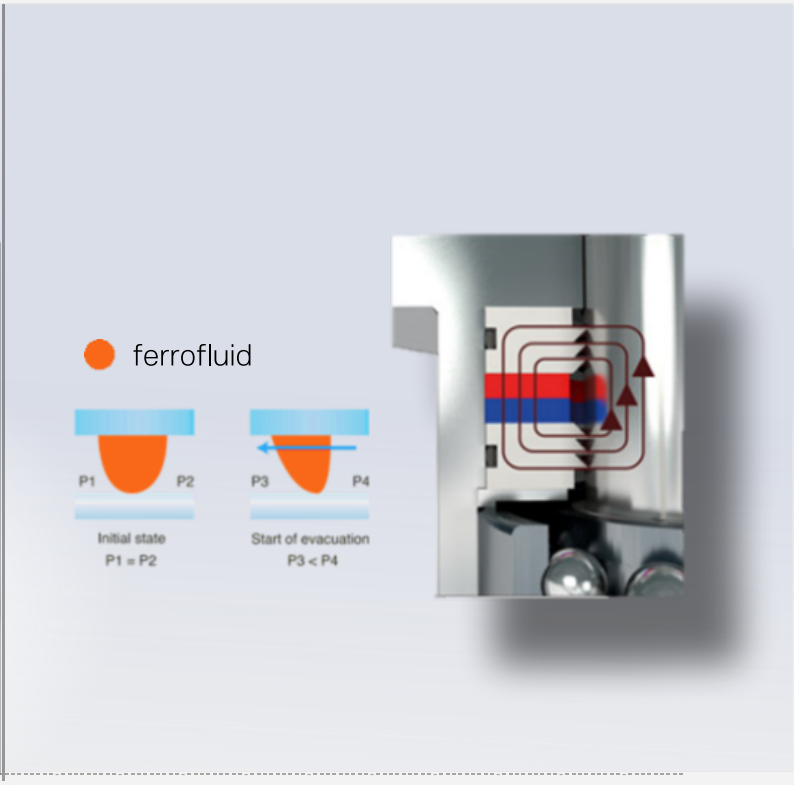
Ferrofluid seal is a component used to shield gases and dust in high vacuum. It creates a magnetic field with a magnet and a pole piece in the gap between the magnet and the axis of rotation. When magnetic fluid is injected into this gap, it forms the shape of a liquid O-ring and is a non-contact seal that acts as sealing. Typically, feedthrough uses several ferrofluid rings. Each ring has a pressure capacity that remains vacuumed, and the total pressure capacity is approximately equal to the sum of the pressure capacities of each ring. No friction increases facility, durability and blocks harmful gases and dust in ultra-high vacuum conditions.

Features & Avantages

- Maintaining extremely high vacuums
  극 고진공 유지
- Non-contact Sealing
  비접촉 밀봉
- Long life span
  긴 수명
- No friction
  마모 없음

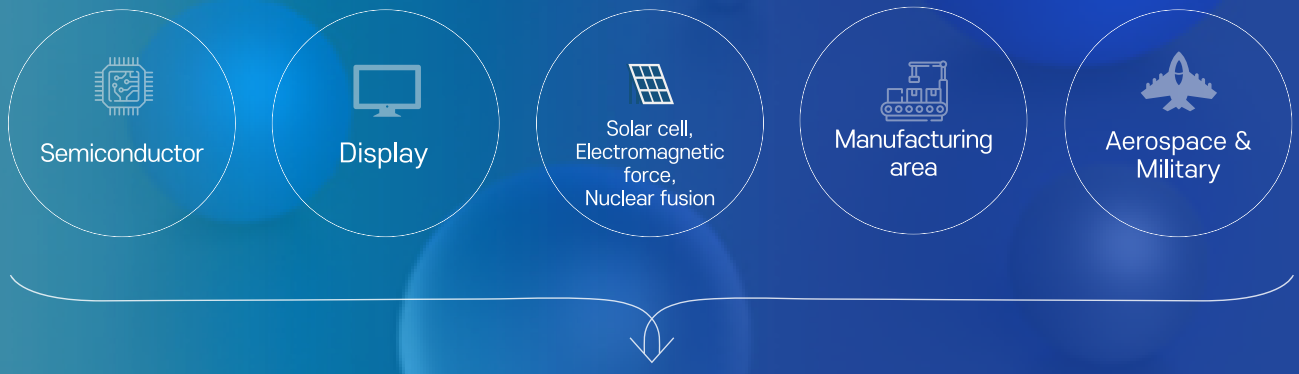
Feedthrough Parts Diagram





Application

Ferrofluid & Feedthrough application



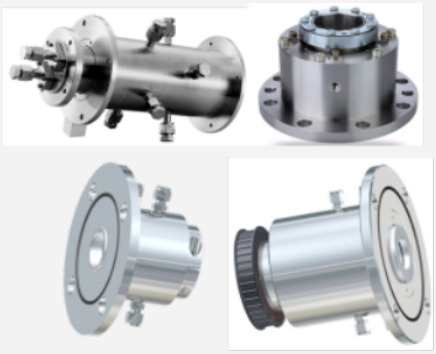
- CVD
- Sputtering system
- Ion implanter
- Etching system
- Vacuum transfer robot
- Arc discharge
- Ion beam system

- Film panel
- LED, OLED manufacturing equipment
- Anode x-ray generator
- Vacuum chuck

- Solar panel
- New energy battery

- Single crystal growth
- Vacuum furnace
- Stirring assembly

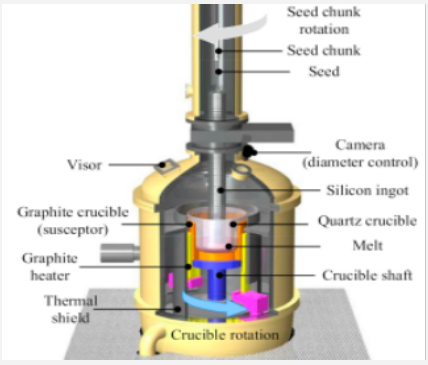
Feedthrough



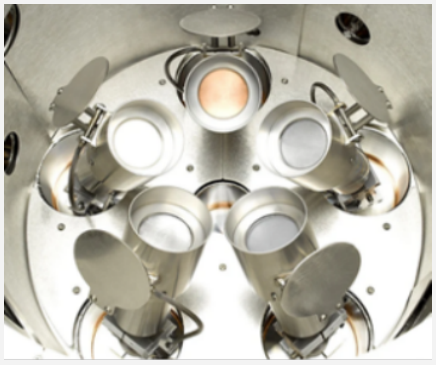
CVD

Ion implanter

Single crystal growth



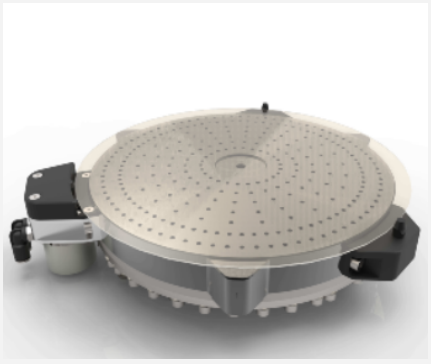
Sputtering systems



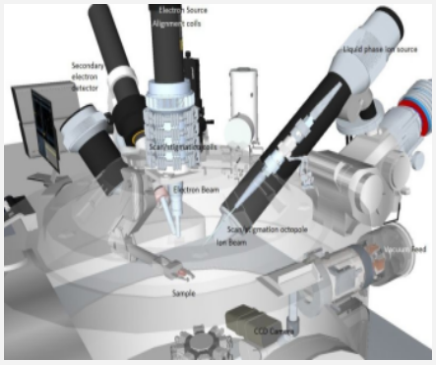
Etching system

Vacuum transfer robot

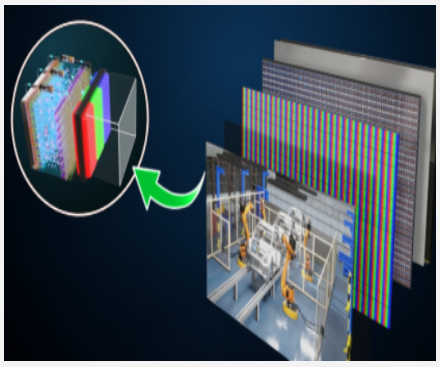
Vacuum chuck



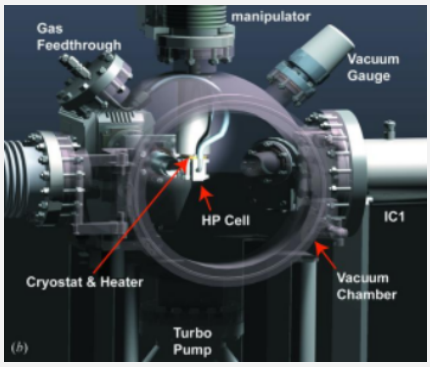
Ion beam system



LED, OLED Film panel



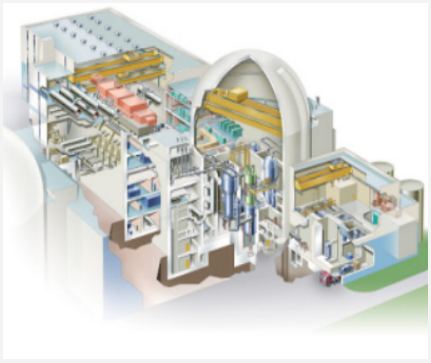
Anode x-ray generator



Solar panel

New energy battery

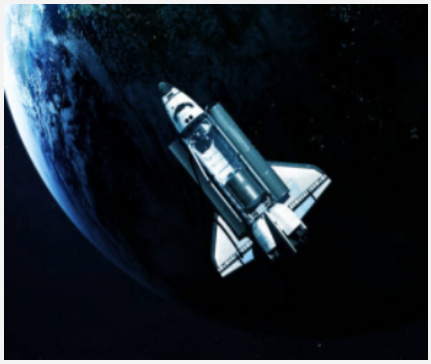
Nuclear power



Nuclear fusion

Medical equipment

Aerospace



Military

MAGRON

You can make an order with the spectificationsyou want

We constantly develop and release new products.

Company information

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