

MAGRON

FERROFLUID

MAGRON

Catalog No. 20240926

For Gas & Dust sealing

- Feedthrough component
- Vacuum Seal component

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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
			Pa at 20°C	Torr mmHg. at 20°C				
Model	Gauss	mPa.sec (cP) at 27°C	Pa at 20°C	Torr mmHg. at 20°C	Less than 1E-11	°C	°C	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

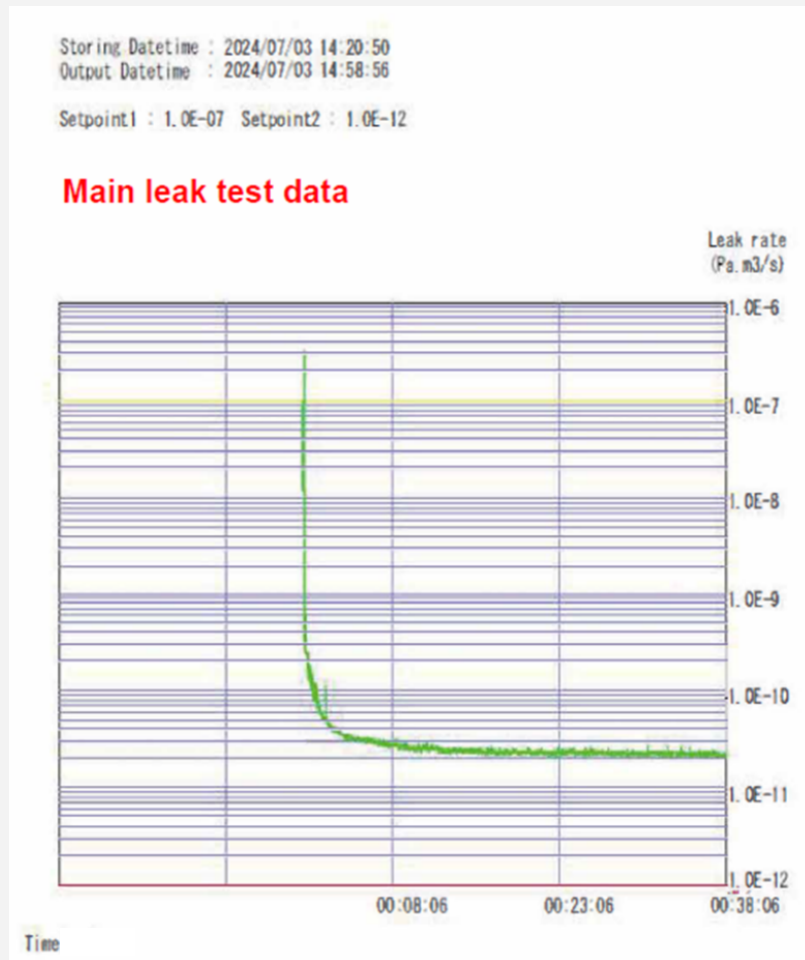
This series has excellent chemical resistance and radiation resistance.

MFF-M Series

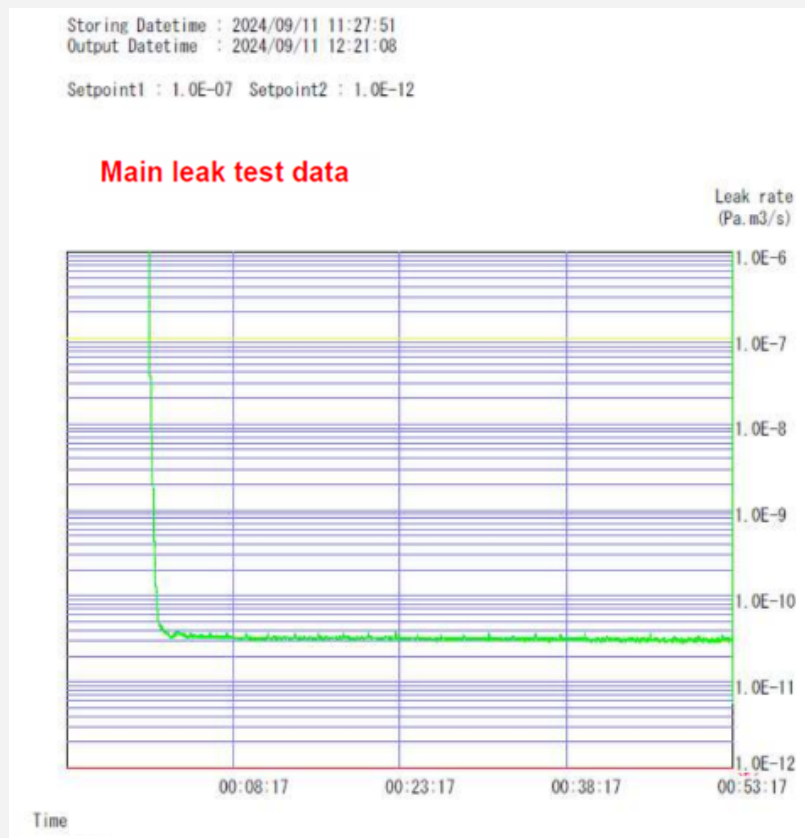
World's Top Heat-Resistant Model for corrosive gas

The vacuum exhaust time is short. (Time to reach 3.75E-13 Torr: 3~5 minutes)

MFF-M4251 Leak test data



MFF-M5286 Leak test data



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

Gas&Dust Sealing Specification

Non-use of PFAS

● For Non-Corrosive gas

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
			Pa at 20°C	Torr mmHg. at 20°C				
Model	Gauss	mPa.sec (cP) at 27°C	Pa at 20°C	Torr mmHg. at 20°C	Less than 1E-11	°C	°C	g/cm ³
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
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*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

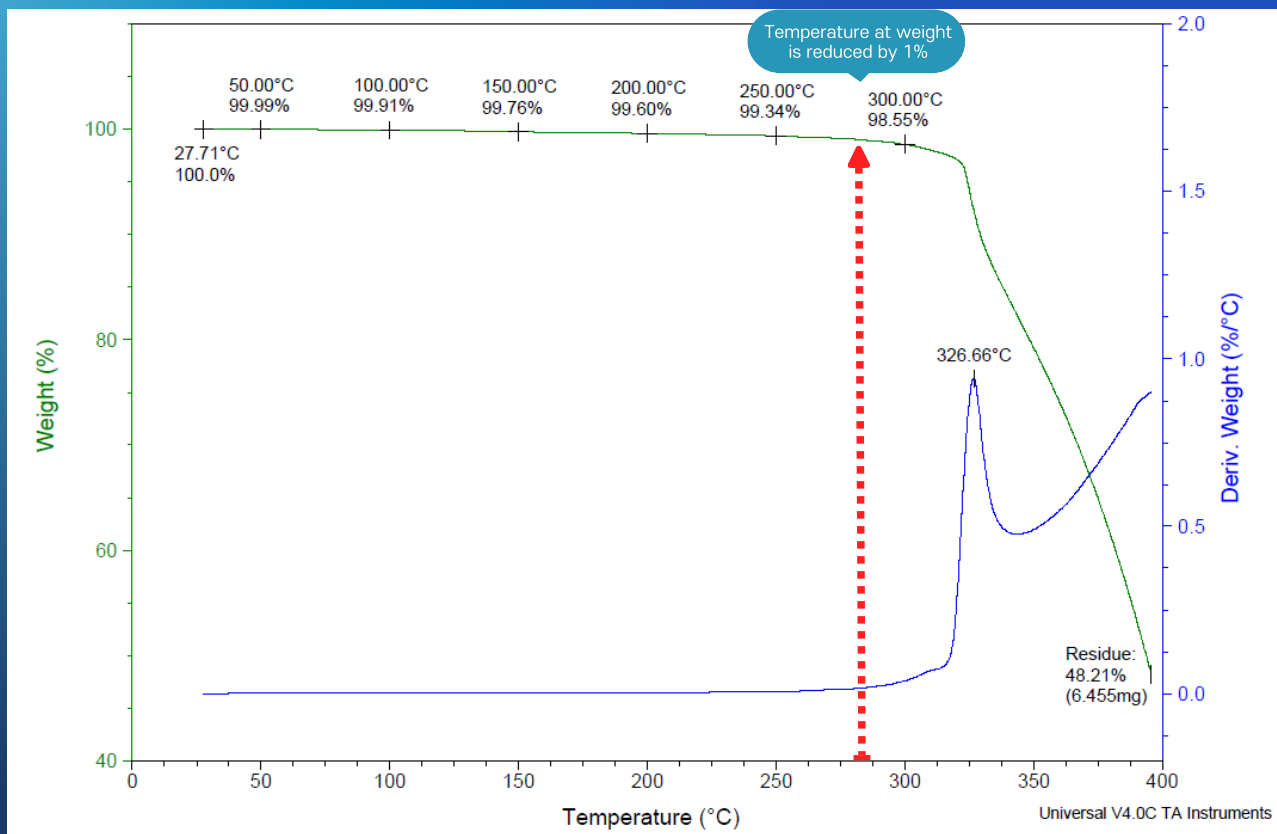
: Differential Thermal Analysis

It measures thermal decomposition temperature by endothermic heat and heat.

You can see the temperature at which phase change, reduction, decomposition, and oxidation occur.

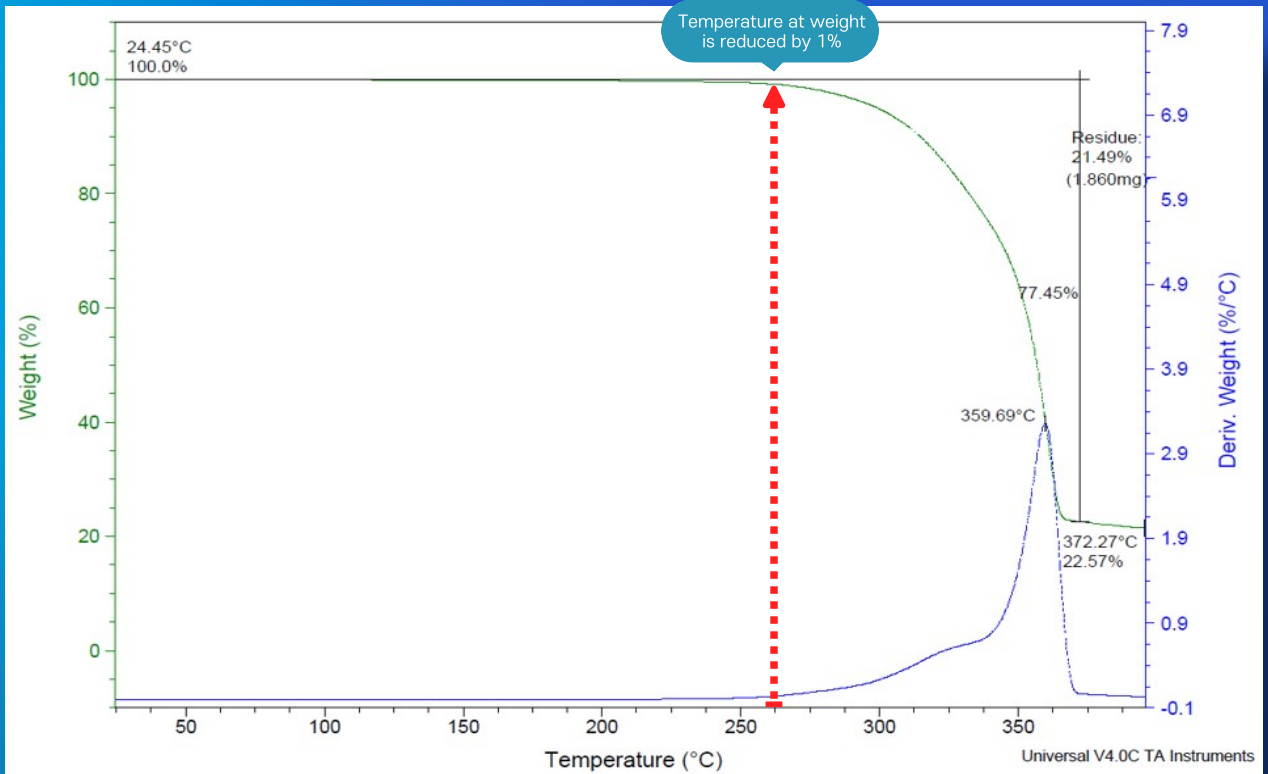
MFF-M Series

(Rising temperature per minute : 10°C)



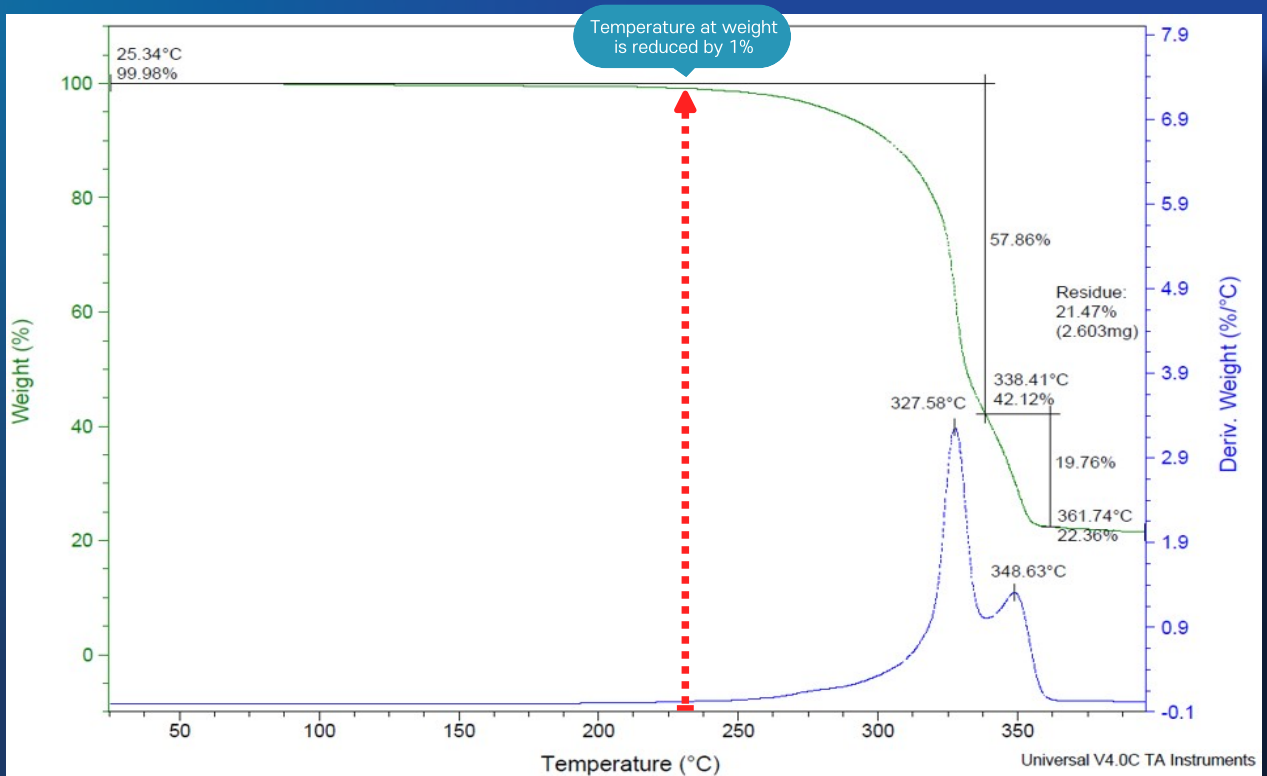
MFF-KD Series

(Rising temperature per minute : 10°C)



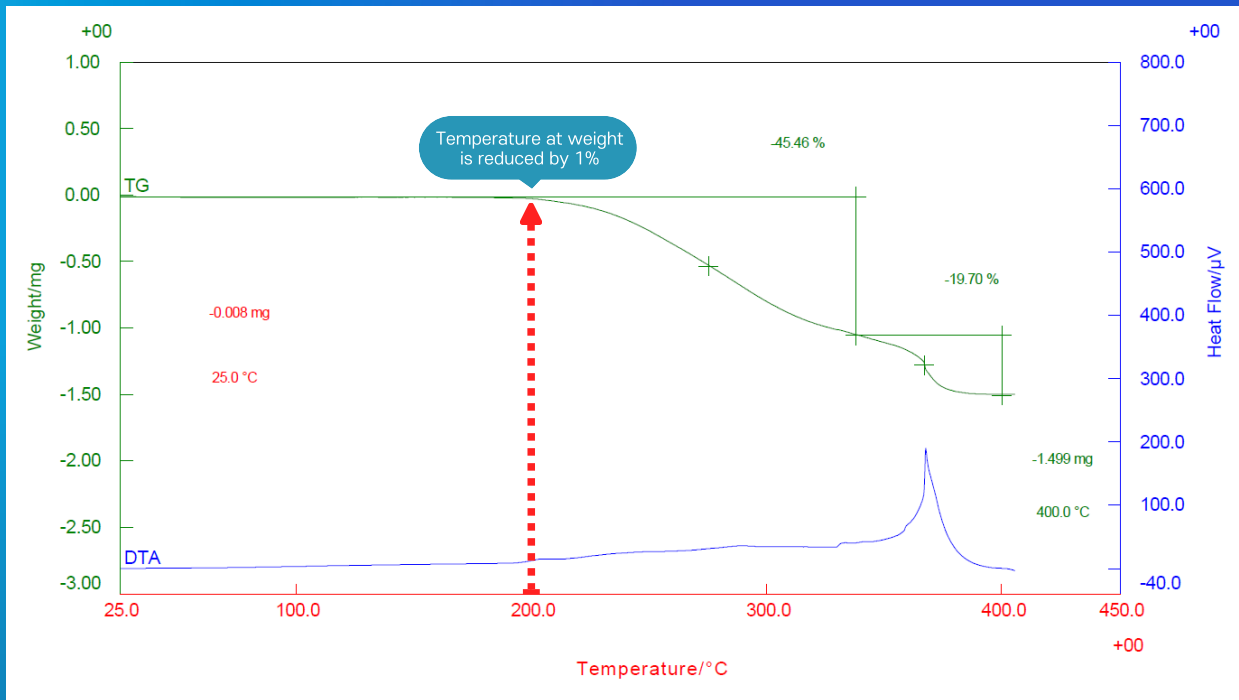
MFF-KR Series

(Rising temperature per minute : 10°C)



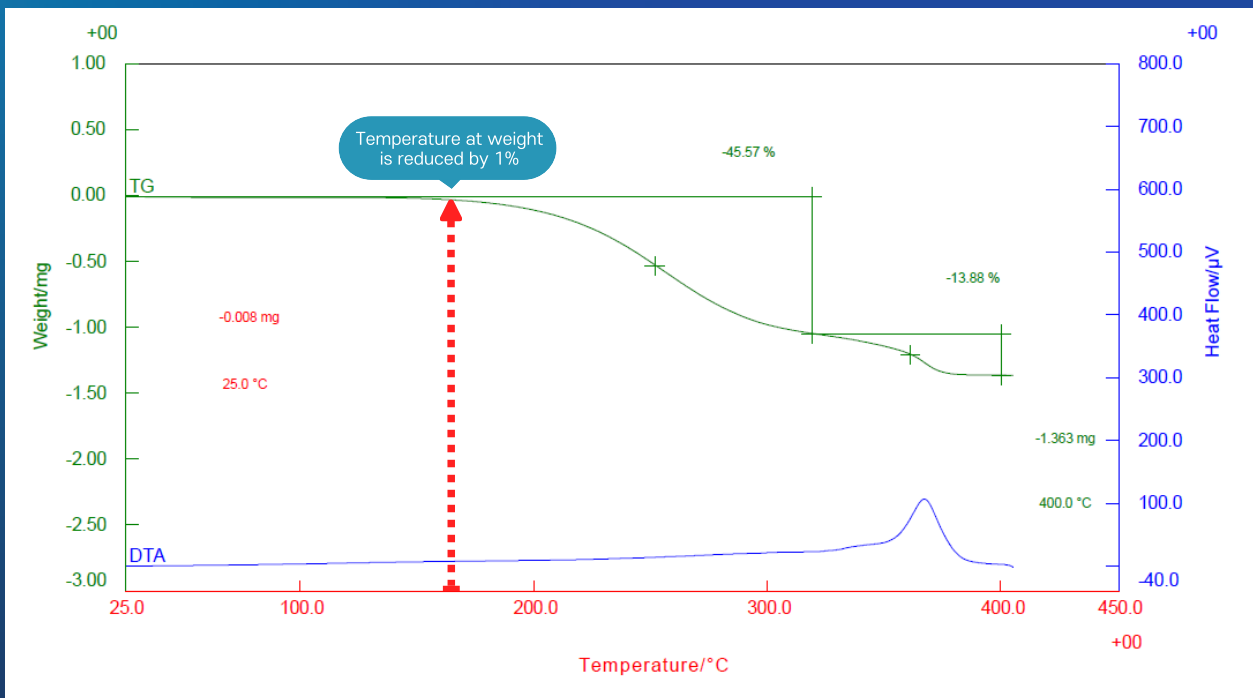
MFS Series

(Rising temperature per minute : 10°C)



MFH Series

(Rising temperature per minute : 10°C)



Ferrofluid Seal

What is Ferrofluid Seal?

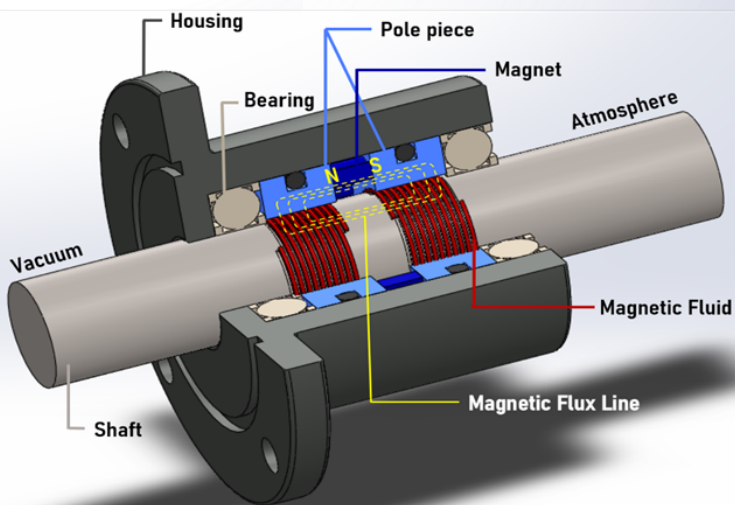
Ferrofluid Seal:

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.

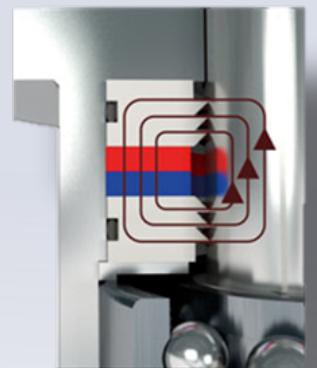
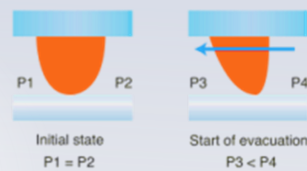
Features & Advantages



Feedthrough Parts Diagram

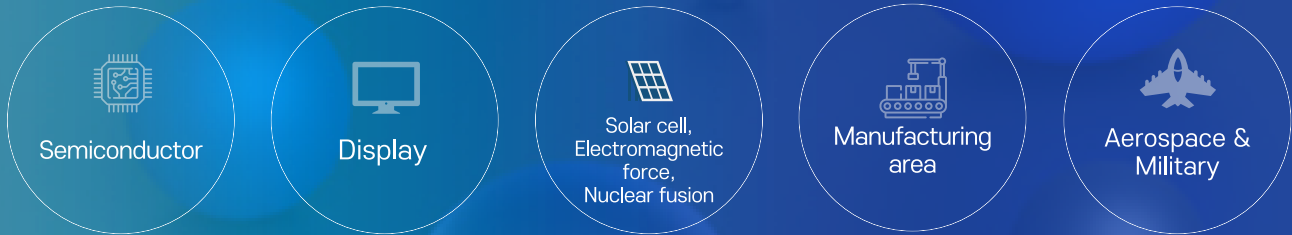


● ferrofluid



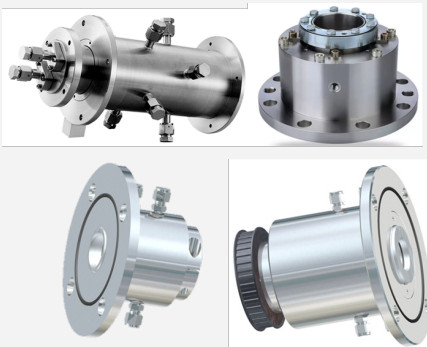
Application

Ferrofluid & Feedthrough application



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



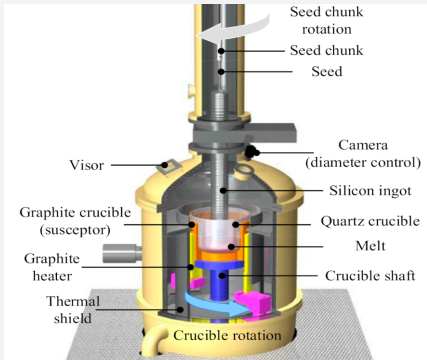
CVD



Ion implanter



Single crystal growth



Sputtering equipment



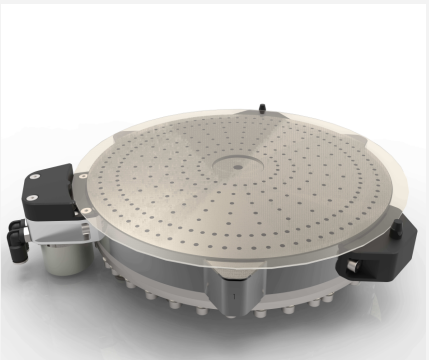
Etching equipment



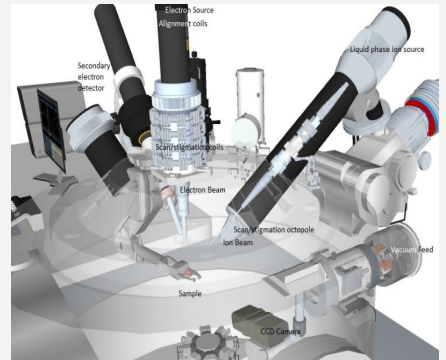
Vacuum transfer robot



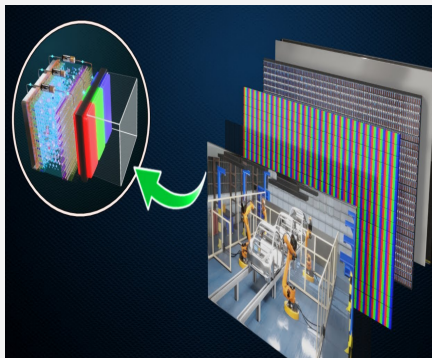
Vacuum chuck



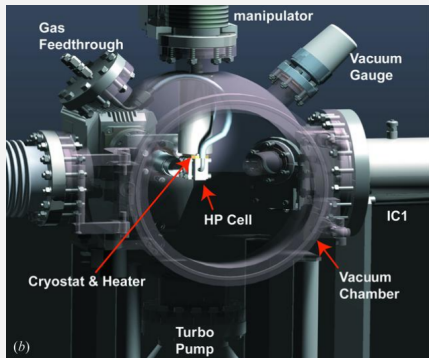
Ion beam equipment



LED, OLED Film panel



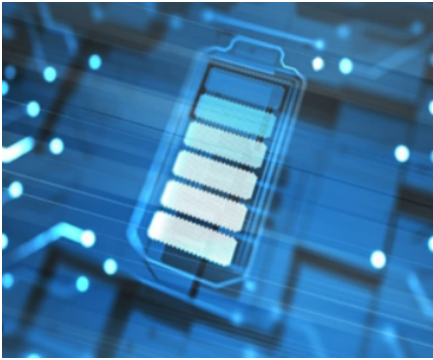
Anode x-ray generator



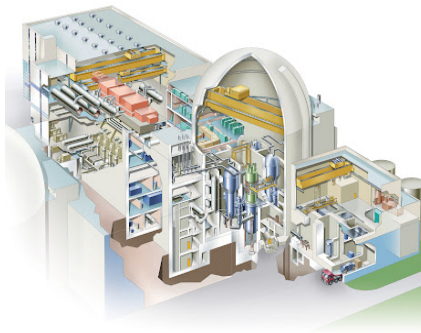
Solar panel



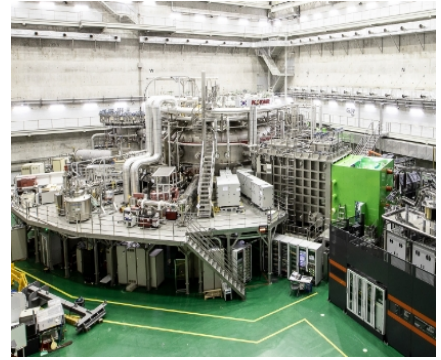
New energy battery



Nuclear power



Nuclear fusion



Medical equipment



Aerospace



Military




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Company information



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