Electromagnetic Separator Model CG(For powder process)

Electromagnetic Filter Model CS(For liquid process)

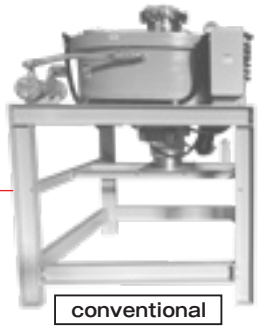
NMI

Nippon Magnetics,Inc.

Patented!! Electromagnetic separator CG (new Series)

Further evolving "electromagnetic separator"

Through enhanced research the new model increased coil cooling efficieneies.The current does not easily decrease, and the magnetic force decreases when it gets hot. (Cooling design has been patented.) It is also more compact in size than the conventional model.



conventional
CG-250HHH-1type

new model
CG-250HHH-3 type

Purpose

This is the most efficient model for removing fine iron particles from the powder. EMS is widely used in lithium-ion battery materials (cathode, anade, and electrode) as well as in the chemical/plastic, food, ceramic, and pharmaceutical industries.

Features

① The magnetized screens remove magnetic substances of several microns.
② Since the screen case is vibrated by vibrators, it can be used even with raw materials with poor fluidity.
③ Yield Loss of raw materials is minimal.
④ Tunning off the excitation power makes the screens with no magnetic and, it makes easy to clean the poor fluidity materials.

specification

① A Maghammer can be attached to materials with poor fluidity.
② Screen design and opening can be selected according to the raw material.
③ Variable magnetic force option is available.
④ Comes with a dedicated control panel.
⑤ Can also be combined with an automatic iron powder discharge system (AT-CG model).
⑥ CE compatible models are also available.

Model	CG-HHH-3α type	
	250HHH-3α	300HHH-3α
Magnetizing power (kW)	8.12	9.53
Magnetic flux density *1 ᵂ⁄₀ screens	Approximately 4,000GAUSS	
Magnetic flux density *2 ᵂ⁄ screens	16,650	16,500
#of Standard screens	17	17
Unit weight (kg)	Approximately 1,750(1,830)	Approximately 1,900(1,950)

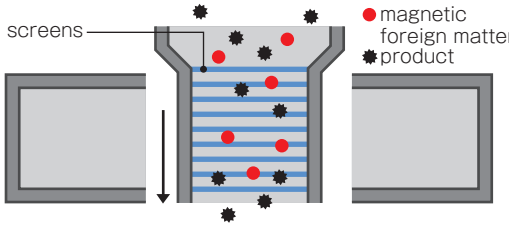
*The weight in parentheses is for AT specification.
*We can also manufacture magnets with a lower magnetic force than the above (variable magnetic force type).

The magnetic flux densities in the table above are measured or analyzed values when cold (exciting coil is cold).
*1: Magnetic flux density (peak value) with no element set
*2: Maximum cored magnetic flux density (analytical value) when using a 5mm screen. Depending on the measurement location, there are locations where the magnetic force is stronger or weaker. Core magnetic flux density varies depending on the structure, material, and measurement location of the element.

■ External dimensions of main models

Model	L1	L2	H1
CG-250HHH-3α	1,050(1.100)	1,100	1,420(1,800)
CG-300HHH-3α	1,200	1,200	1,430(1,830)

*() is for AT specification.



■ screens

① Standard screen: opening 5mm, 7mm, 10mm, 12mm, 15mm, 20mm
② Screen with ring: opening 5mm, 10mm, etc.
③ Honeycomb screen: Coarse, medium, coarse (up to 75 sheets can be set)
④ Micro pitch screen: 5mm, 10mm, 15mm etc.

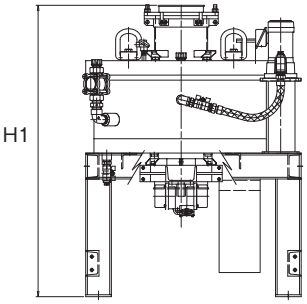

Standard screen

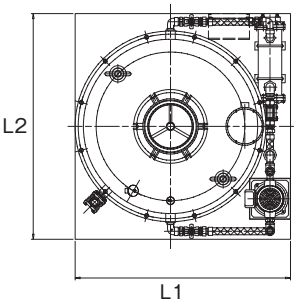

Screen with ring


Honeycomb screen


Micro pitch screen

*Other various elements are available as options.
You can choose according to your application.





Electromagnetic separator CG-X (high magnetic force model)


AT-CG-150X-1 type

Features

① Demonstrates maximum cored magnetic flux density of 18,000 gauss or more. (w/ screen when cold.) *2

② Removes magnetic foreign particles of several microns.

③ The cooling effect has been significantly improved, reducing the decrease in magnetic force when it is hot.

specification

① Various screens can be used.

② Optional automatic cleaning system (AT-CG type).

③ Combined with a chiller unit (optional), it can suppress the rate of current drop in high temp. Theretone, it is possible to stably maintain high magnetic force.

■ External dimensions of main models

Model	L1	L2	H1
CG-250X-1	1,800	1,600	1,220(2,020)
CG-300X-1	1,900	1,650	1,230(1,930)

*() is for AT specification.

The magnetic flux densities in the table on the right are measured or analyzed values when cold (exciting coil is cold).

*1: Magnetic flux density (peak value) with no element set

*2: Maximum magnetic flux density w/ screens (analytical value) when using 5mm screens. There are also locations where the magnetic force is stronger or weaker depending on the measurement location. Magnetic flux density varies depending on the element structure, material, and measurement location.

*3: Maximum number of screens when standard screens me used.

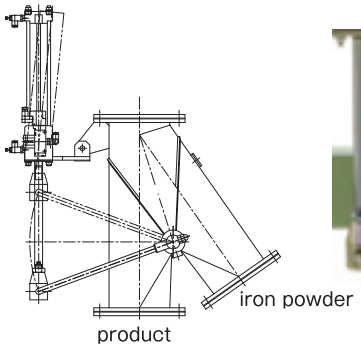
Model	CG-X type	
	250X-1	300X-1
Magnetizing power (kW)	17.5	19.7
Magnetic flux density *1 w/o screens	6,000GAUSS	
Magnetic flux density *2 w/ screens	19,500	18,500
# of standard screens *3	17	17
Unit weight (kg)	4,000(4,250)	4,000(4,800)

AT-CG (with automatic cleaning system)

Repeated operation is possible with variable time setlings

By temporarily stopping the flow of raw materials and combining an automatic discharge device with a timer, the machine can be operated repeatedly at any time, eliminating the need for manual cleaning. An optional MagHammer can help magnetic material dischanging by impact.

Product explanation video
From here ▶




Powder change dumper

Raw material supply

Magnet OFF Dumper swich

Magnet ON Dumper switch

Iron powder discharge


AT-CG-250HHH-3 type

Patented!! Magnetic filter CS (new series)

Purpose

Iron powder and fine iron powder mixed in the liquid are removed using magnetized magnetic filters. It can also be used for relatively high temperature and slurry materials.

Features

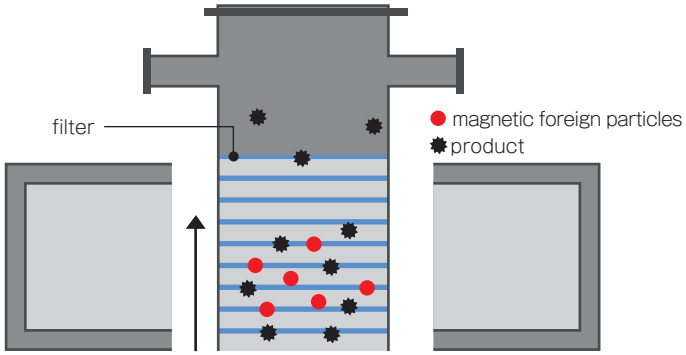
① The raw material passing through dozens of magnetic filters reslts in estremely effective removal of micron size magnetic particles.
② When the excitation power is off, the filter is no longer magnetized, therefore it' s easy to clean.

specification

① Filter design and opening pitch can be selected according to the raw material.
② Dedicated control panel
③ Can also be combined with automatic cleaning system (AT-CS type)
④ CE compatible model is also available.

Model	CS-HHH-3α	
	250HHH-3α	300HHH-3α
Magnetizing power (kW)	8.12	9.53
Magnetic flux density *1 w/o filters	Approximately 4,000GAUSS	
Magnetic flux density *2	13,000	
Number of filters *3	41	42
Unit weight (kg)	Approximately 1,800	Approximately 1,900

The magnetic flux densities in the table above are measured or analyzed values when cold (exciting coil is cold).
*1: Magnetic flux density (peak value) with no filtrs set
*2: Maximum magnetic flux density (analytical value) w/ filters when using standard filters.
There are also locations where the magnetic force is stronger or weaker depending on the measurement location. The magnetic flux density w/ filters varies depending on the structure, material, and measurement location of the element.



Raw material flow direction

■ Filters

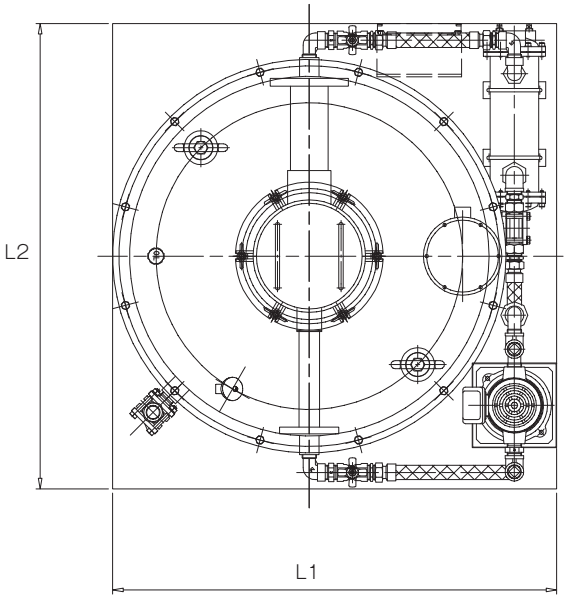
① Standard filter coarse, medium, coarse
② Stainless steel bulb

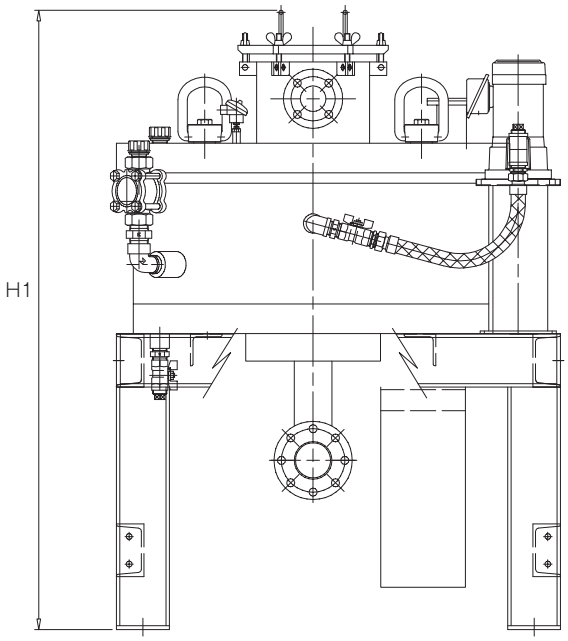
Standard filter (coarse, medium, coarse)

stainless steel ball

■ External dimensions of main models

Model	L1	L2	H1
CS-250HHH-3α	1,050	1,100	1,464
CS-300HHH-3α	1,200	1,200	1474





Magnetic filter CS-X (high magnetic force model)

Ideal for removing weak magnetic materials and trace amounts of iron particles!

Features

① Demonstrates maximum magnetic flux density of 20,000 gauss or more. (w/ filters when cold)
② Removes foreign particles of several microns.
③ The cooling effect has been significantly improved,reducing the decrease in magnetic force when it is hot.

specification

① Various filter selections.
② Can also be combined with automatic cleaning system (AT-CS type)
③ Combination with a chiller unit (optional), it can suppress the rate of current drop in high temp operation maintaining stable high magnetic force.

CS-250X
*Painting and SUS frame are optional.

Model	CS-X	
	250X-1	300X-1
Magnetizing power (kW)	15.13	19.7
Magnetic flux density *1 ″% filters	6,000GAUSS	
Magnetic flux density *2	20,000	
Standard number of filters	42	42
Unit weight (kg)	4,000	4,000

The magnetic flux densities in the table above are measured or analyzed values when cold (exciting coil is cold).
*1: Magnetic flux density (peak value) with no element set
*2: Maximum magnetic flux density (analytical value) w/ filters when using SUS balls. Magnetic flux density varies depending on the structure, material, and measurement location of the filters.

AT-CS (with automatic cleaning system)

The iron powder collected by the filter is automatically cleaned.

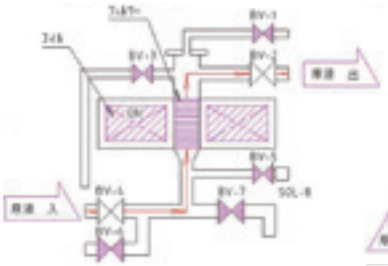
Features

By arranging two or more units in parallel, raw material supply is not interrupted. Continuous processing is possible. (FAT-CS)

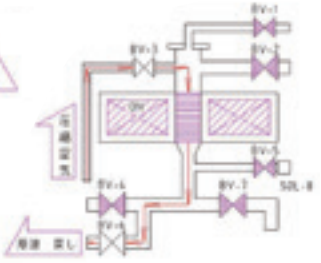
AT-CS-150型

Raw material supply/iron powder removal
↓
Raw material supply stop/raw material return
↓
Valve switching (solenoid valve)
↓
Bubbling cleaning/exhaust iron
↓
Cleaning completed

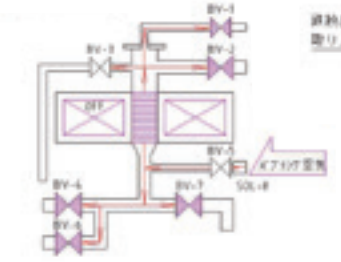
1 Undiluted solution sink



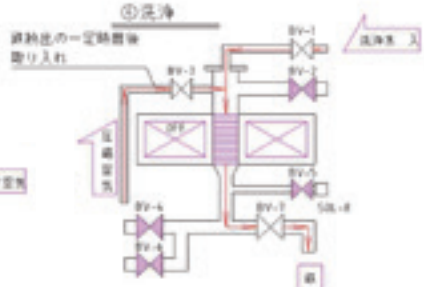
2 Return the stock solution



3 Bubbling



4 Washing



*Note: 1) The open/closed status of the valve is ⋈ closed ⋈ open 1) Compressed air is 0.4Mpa or higher. 3) ON and OFF indicate whether the coil is energized or not.

Patented Electromagnetic separator MINI

A new electromagnetic separator that replaces grate magnet!

overview

The new family of electromagnetic separators CG, CS, and MINI now available.
We have realized the MINI type while maintaining the performance.
Even if installation space is an issue, the MINI model will solve the problem.

Features

① Width (length and width) 1,000mm or less
② Weight 1,000kg or less
③ Magnetization power 3.4kW

specification

① Screen design and opening pitch can be selected according to the raw material.
② Comes with a dedicated control panel.
③ Can also be combined with AT system (automatic discharge device).

Electromagnetic separator model CG-150MINI	
Magnetizing power (kW)	3.4kW
Magnetic flux density *1 w/o screens	3,000 gauss
Magnetic flux density *2 w/ screens	14,000 gauss
# of Standard screens	10 pieces (standard 5mm)
Unit weight (kg)	700kg

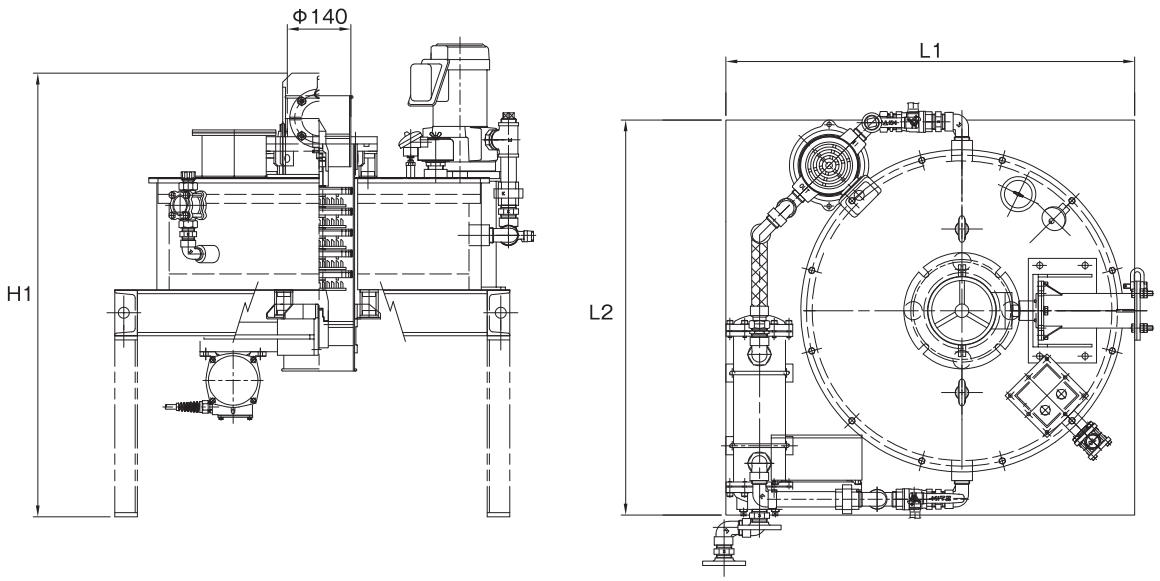
Magnetic filter model CS-150MINI	
Magnetizing power (kW)	3.4kW
Magnetic flux density *1 w/o screens	3,000 gauss
Magnetic flux density *2 w/ screens	12,000 gauss
# of Standard screens	22 sheets (coarse)
Unit weight (Kg)	500kg

Even more compact than the new model!

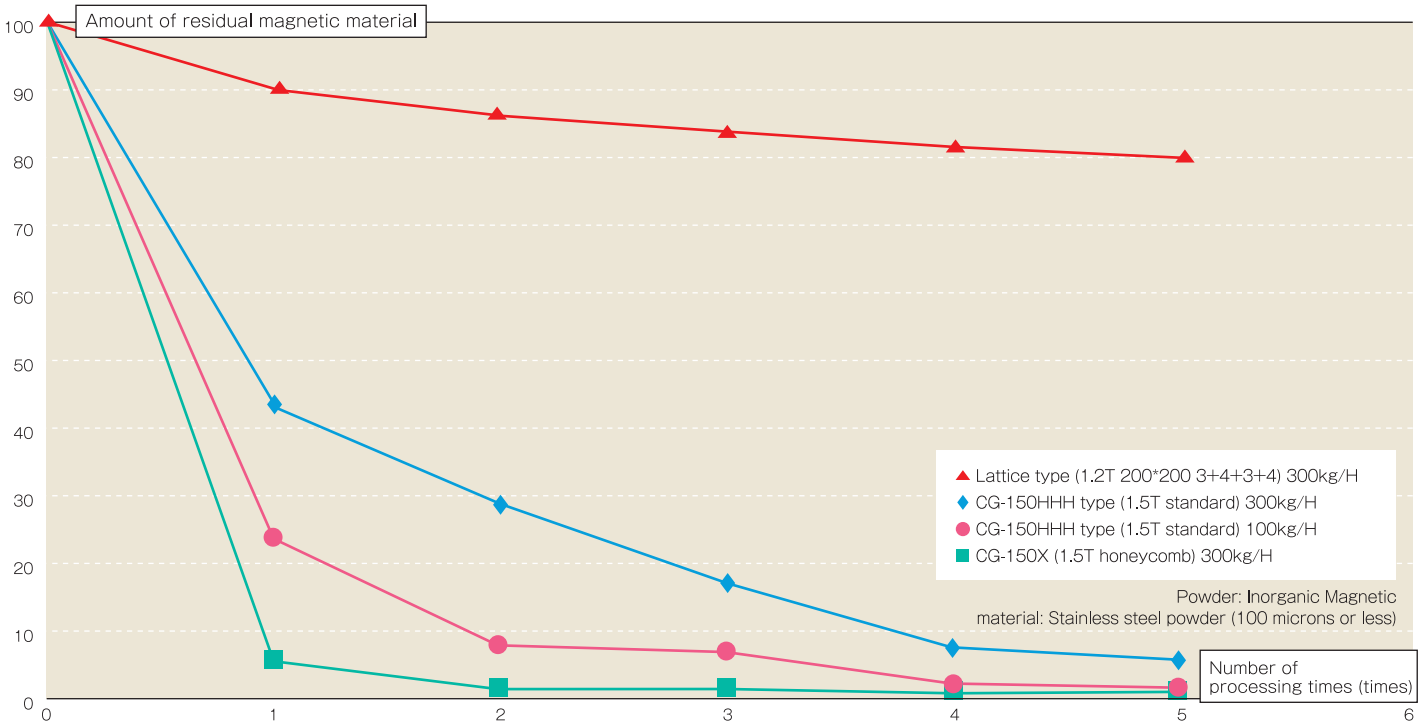
■ Main external dimensions

Model	L1	L2	H1
CG-150MINI	900	870	1,157
CS-150MINI	760	800	1,219

The above magnetic flux density is a measured value and an analysis value when it is cold (exciting coil is cold).
*1: Magnetic flux density (peak value) with no element set
*2: Maximum magnetic flux density (analytical value) w/ screens when using standard elements.
There are also locations where the magnetic force is stronger or weaker depending on the measurement location.
*3: Maximum number when standard elements are set.

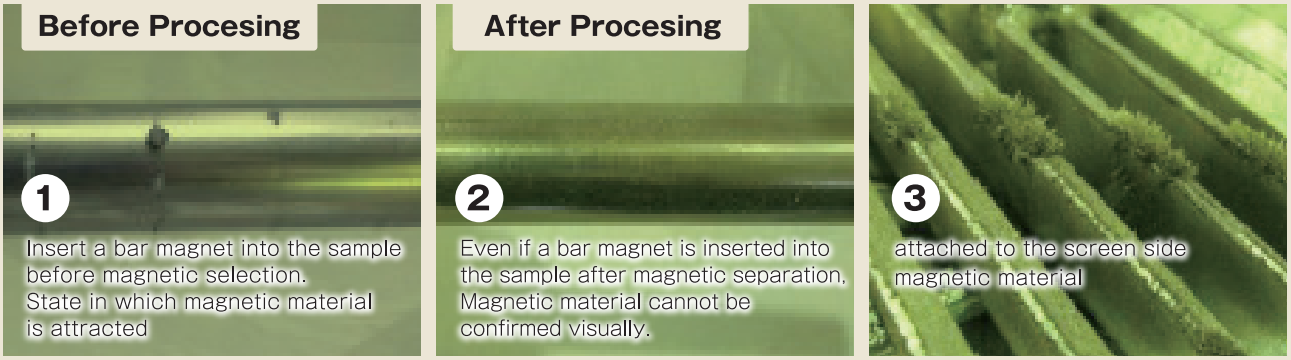


Comparison between permanent magnets and electromagnets

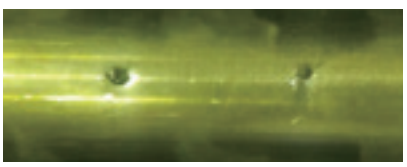


Thoroughly removes fine iron particles that could not be recovered with conventional permanent magnet iron removers.

■ Electromagnetic separator test example - Fine powder (50μm)

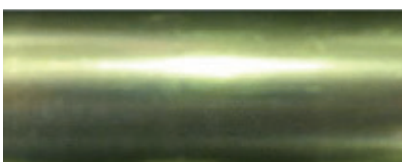


Magnetic filter test example: Slurry



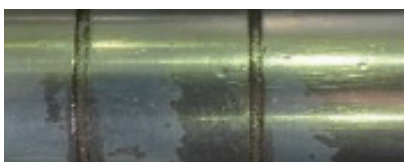
①Before Procesing

Insert a bar magnet into the sample before magnetic selection.



②After Procesing

Even if a bar magnet is inserted into the sample after magnetic separation, Magnetic material cannot be confirmed visually.

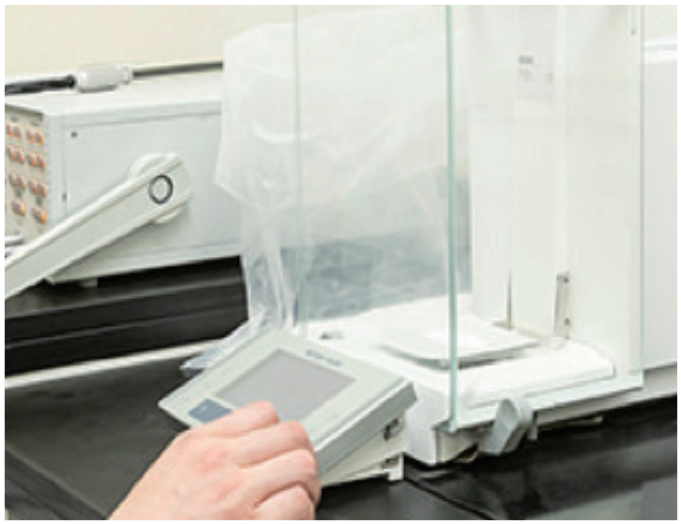


③Magnetic side

Put a bar magnet on the magnetic material side Magnetic materials whose recovery has been confirmed

Information on CG/CS sample test

We have a track record of sample testing of various raw materials.
We provide optimal sample tests based on our many years of experience.



Design, manufacture, and development manufacturer of magnet application equipment

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