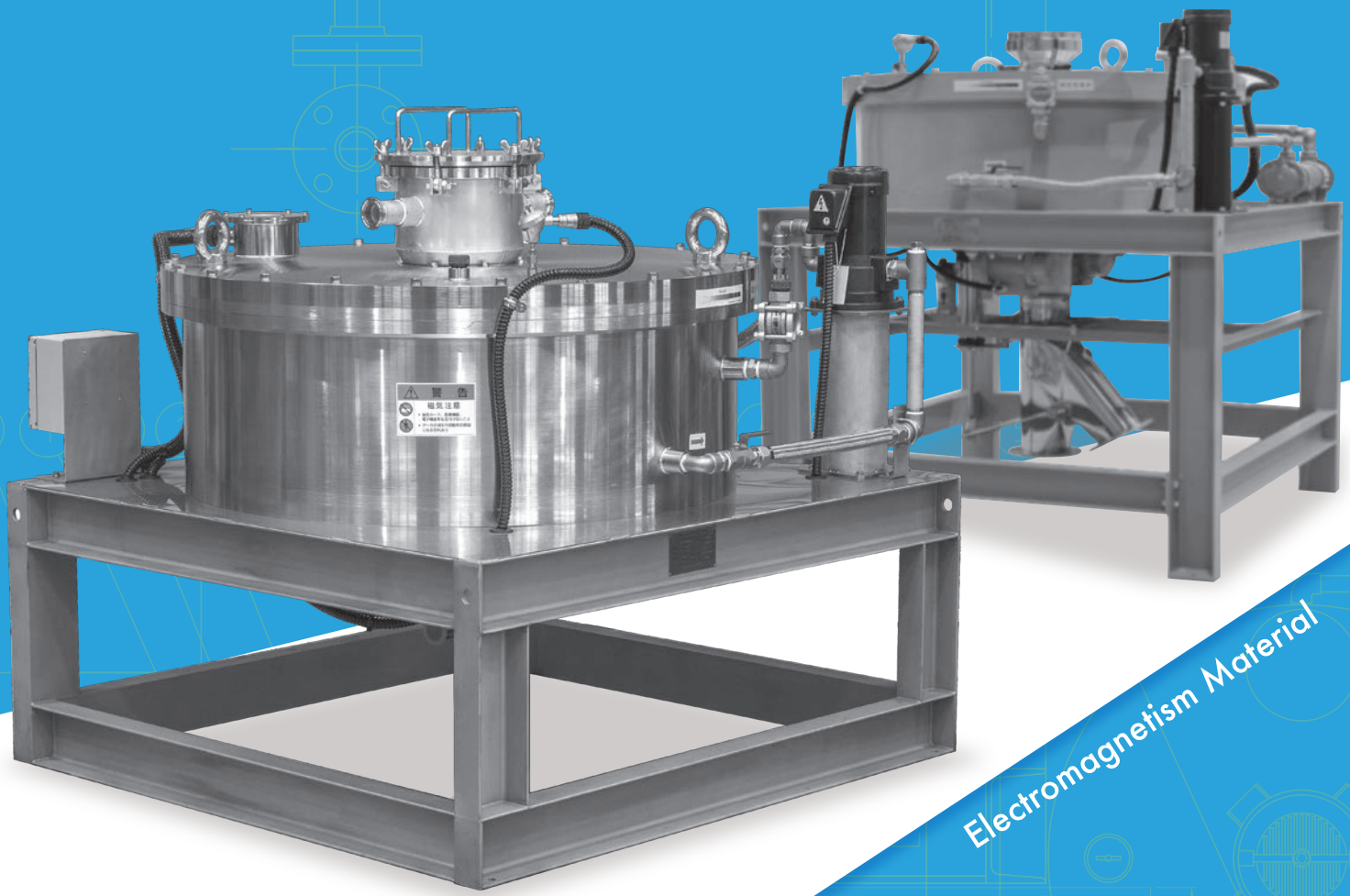
NMI

Magnet Filter model CS
Electromagnetic Separator model CG



Electromagnetism Material

Nippon Magnetics, Inc.

Electromagnetic Separator Model: CG

Fine iron powder from raw material!

Usage

Model CG is designed to remove fine iron powders from dry powdered materials to get the best results in food, chemical, plastic,ceramic, medical industries and many other.

Features

1. Electro-magnetized screens capture fine iron particles in the micron range
2. Vibration motors ensure effective and smooth flow of material through the screens.
3. Rate of feed material is controlled.

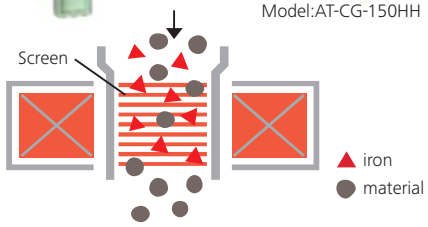
Specifications

1. Screen pitch can be selected for the best results.
2. Eight types of screens are available to achieve the best results.

CG is designed to get superior results from dry material.

It is difficult to separate iron fines with a grain size less than 0.1mm due to particle attraction and adhesion to the separator.
CG directs the magnetic flux to the center of the unit and enhances higher flux density without magnetic leakage. Vibration to filters ensures effective removal of iron during the cleaning process therefore improving screen flow rate.

Model:AT-CG-150HH

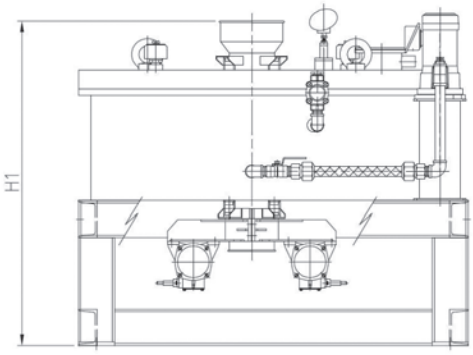


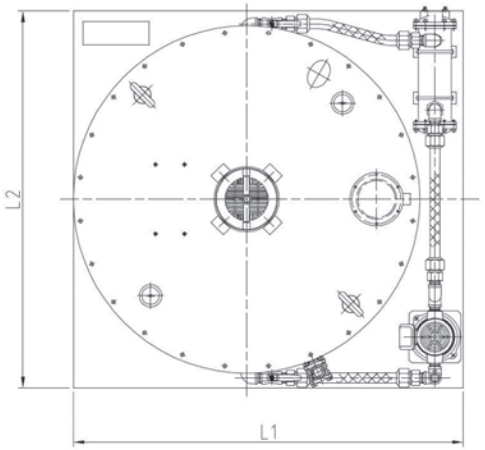
model / Specifications	CG			CG-H			CG-HH			CG-HHH		
	150-1	250-1	300-1	150H-1	250H-1	300H-1	150HH-1	250HH-1	300HH-1	150HHH-1	250HHH-1	300HHH-1
Magnetization power (kw)	0.49	0.68	0.81	2.17	2.9	3.3	4.12	5.39	6.09	6.11	8.1	9.53
Flux density (not screen)*1	800GAUSS			1,700GAUSS			2,400GAUSS			3,300GAUSS		
Flux density (on the screen)*2	6,000	6,500	6,500	11,500	11,500	11,000	13,500	14,500	13,500	15,500	16,000	15,500
Number of screens*3	13	11	11	15	13	13	18	16	16	20	17	17
Weight (kg)	300	400	450	800	1,200	1,300	1,500	1,700	1,900	2,000	2,500	2,800

The magnetic flux density in the above table is the measured value or analytical value measured when the coil is at room temperature.
*1.Magnetic flux density with no elements. (Maximum value)
*2.Maximum magnetic flux density when using standard screen. (Analysis value) There is a weakness depending on the place to measure.
*3.Maximum number when setting standard screen.

External dimensions of major equipment

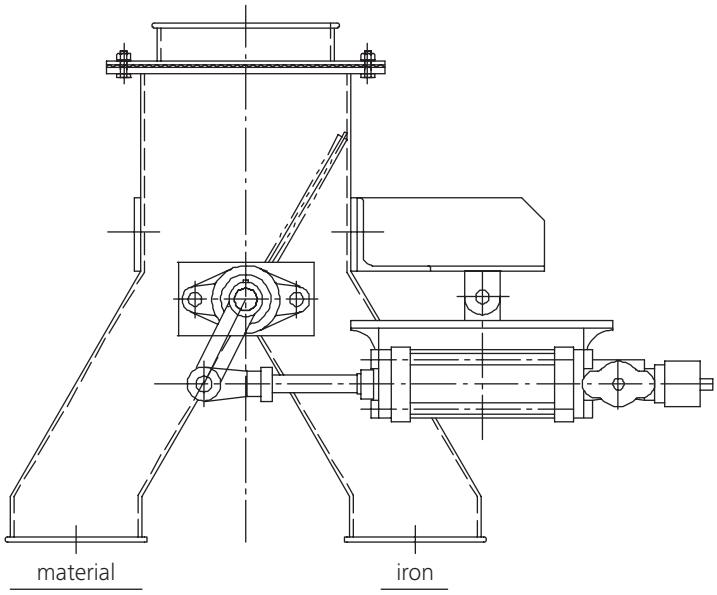
Model	L1	L2	H1
CG-150HHH	1,350	1,400	1,090
CG-250HHH	1,500	1,550	1,090
CG-300HHH	1,550	1,600	1,080



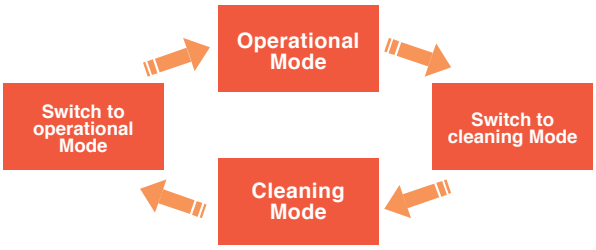


AT-CG (Automated dumper system)

Model AT-CG can be combined with a material feeder, an automated CG iron-powder release system and a timer to achieve a repeatable automated operation process at the desired interval.



Dumper model:PowChange (PC-MA)



Electromagnetic Separator Model: CG-X (High magnetic force type)

Features

1. Magnetic Field (With screen set) over 18,000 gauss.
2. Oil Controller improves cooling ability.

Specifications

model / Specifications	CG-X		
	150X-1	250X-1	300X-1
Magnetization power (kw)	13.4	17.5	19.7
Flux density (not screen) *1	6,000GAUSS		
Flux density (on the screen) *2	18,500	19,500	18,500
Number of screens *3	20	17	17
Weight (kg)	3,000	3,800	4,300

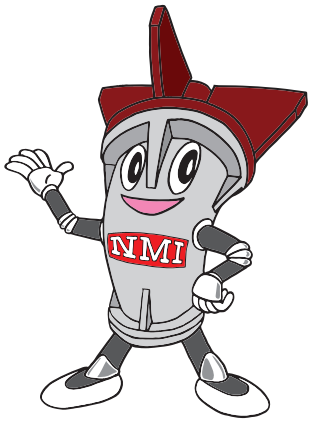
The magnetic flux density in the above table is the measured value or analytical value measured when the coil is at room temperature.
*1.Magnetic flux density with no elements. (Maximum value)
*2.Maximum magnetic flux density when using standard screen. (Analysis value) There is a weakness depending on the place to measure.
*3.Maximum number when setting standard screen.

Screen

①Standard screen：interval 5mm,7mm,10mm,12mm,15mm,20mm
②Honeycomb screen：Up to 75 pcs can be set.Patent number;5671755
③Ball type
＊It is also possible to select various magnetic elements.

Patented

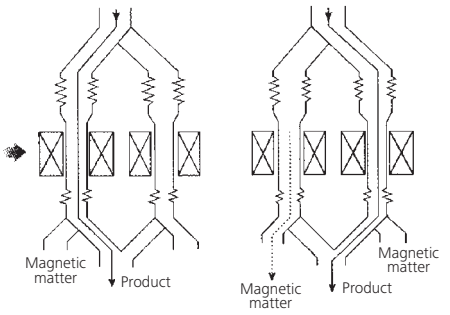
Standard screen



Continuous type FAT (with Feeder and Iron-Powder Dumoer)

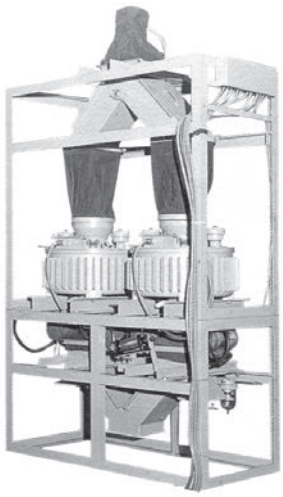
Two units can be installed side by side and operated continuously for use in continuous processing lines or when the material contains large quantities of iron powder and the attracted iron powder must be released frequently. An automated feeder is attached atop the magnetic separator CG, and a timer is set to a desired time to alternate the material flow to one of the two units for staggered iron removal. The iron powder is automatically released by the iron-powder dumper attached at the bottom of the CG.

Two CG units are placed Side by side to altemately remove/release the iron for continuous operation.
This method is suitable for continuous processing lines that handle materials containing large quantities of iron.



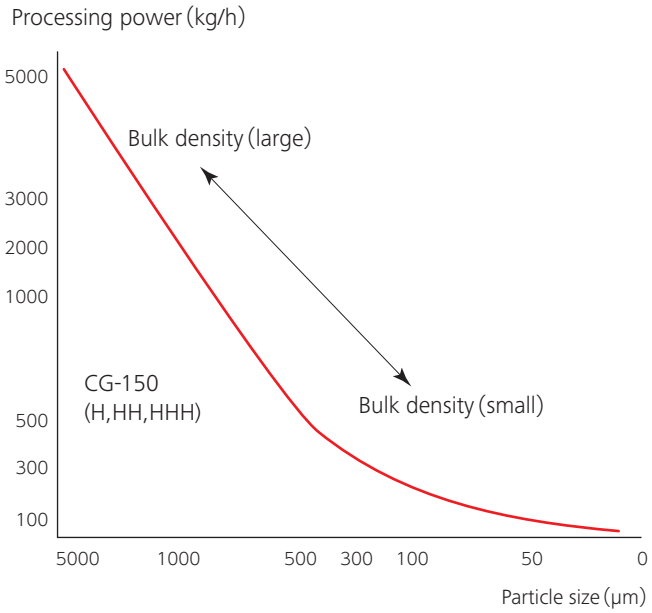
Shading indicates that the iron-remover is charged with electricity (i.e.magnetized).

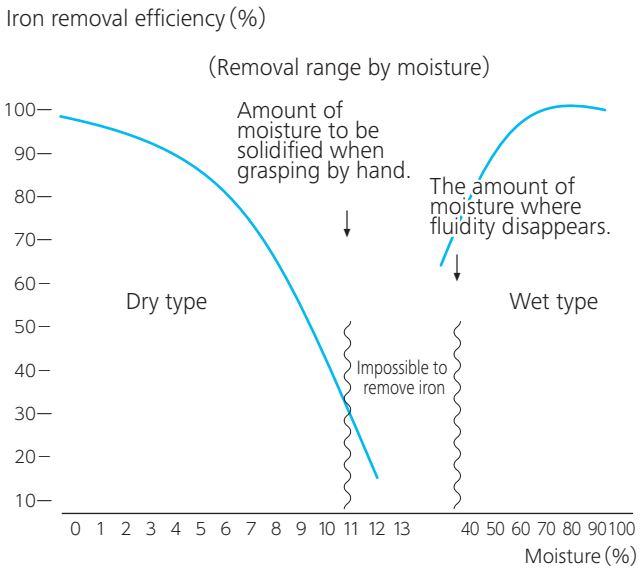
FAT-CG-250



■processing power

*It depends on conditions etc.





Electromagnetic Filter Model: CS

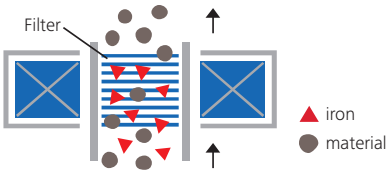
Fine Iron Powder Separation from Any Type of Wet Materials!!

Usage

Model CS is designed to separate fine iron powder in wet materials by electromagnetized filters. It can handle relatively high temp. materials and also slurries.
Fine iron powder can be removed by passing through multiple high efficiency magnetic filters (picture below) Also, the pitch size of magnetic filter can be changed for best results.

Features

Turning off the excitation current makes filter cleaning simple and easy.



CS-150HHH

model / Specifications	CS			CS-H			CS-HH			CS-HHH		
	150-1	250-1	300-1	150H-1	250H-1	300H-1	150HH-1	250HH-1	300HH-1	150HHH-1	250HHH-1	300HHH-1
Magnetization power (kw)	0.49	0.68	0.81	2.17	2.9	3.3	4.12	5.39	6.07	6.11	8.1	9.53
Flux density (not screen)*1	800GAUSS			1,700GAUSS			2,400GAUSS			3,300GAUSS		
Flux density (on the screen) *2	8,000	7,400	7,000	10,500	10,000	9,900	11,000	11,000	11,000	12,000	12,000	12,000
Number of screens*3	27	27	27	32	32	32	37	37	37	41	41	42
Weight (kg)	300	400	450	800	1,200	1,300	1,500	1,700	1,900	2,000	2,500	2,800

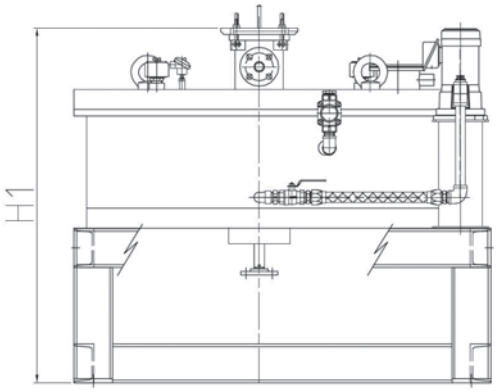
The magnetic flux density is at room temperature.
*1. Magnetic flux density with no elements (Maximum value)
*2. Maximum magnetic flux density when using the standard filter. (Analysis value) There is a weakness depending on the measurement point.
*3. Maximum number with standard filter.

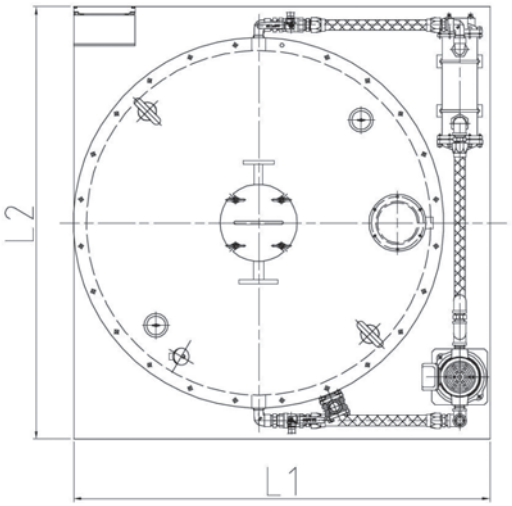
Filter

①Standard filter：Regular,Large,XL
②Ball type
＊It is also possible to select various magnetic elements.

■External dimensions of major equipment.

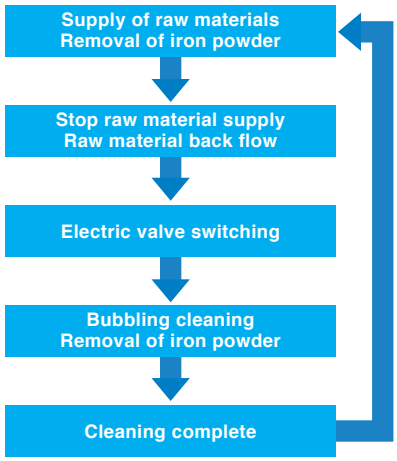
Model	L1	L2	H1
CS-150HHH-1	1,350	1,400	1,150
CS-250HHH-1	1,500	1,550	1,150
CS-300HHH-1	1,550	1,600	1,140





With automatic cleaning device (Type:AT-CS)

Automatic wash-out of captured iron contaminate.



Continuous processing is possible by using two units in parallel. (Type:FAT-CS)

AT-CS-150

Highest Grade Electromagnetic Filter Model:CS-X

Best separation results for weak magnetic material and find iron powder!!

Features

1. Magnetic metal of several microns can be removed.
2. Improved cooling efficiency.
3. Automatic washing option available.
4. Optional chiller unit suppresses current reduction.

Specifications

1. Magnetic elements selected according to application.
2. Regular, Large, XL and Ball type filters available.

Specifications \ Model		CS-X		
		150X-1	250X-1	300X-1
Magnetization power (kw)		13.4	17.5	19.7
Flux density (not screen) *1		6,000GAUSS		
Flux density (on the screen) *2		20,000GAUSS		
Number of screens *3		41	41	42
Size	L1	1,450	1,600	1,650
	L2	1,570	1,800	1,900
	H1	1,250	1,300	1,300
Weight (kg)		3,000	4,000	4,500

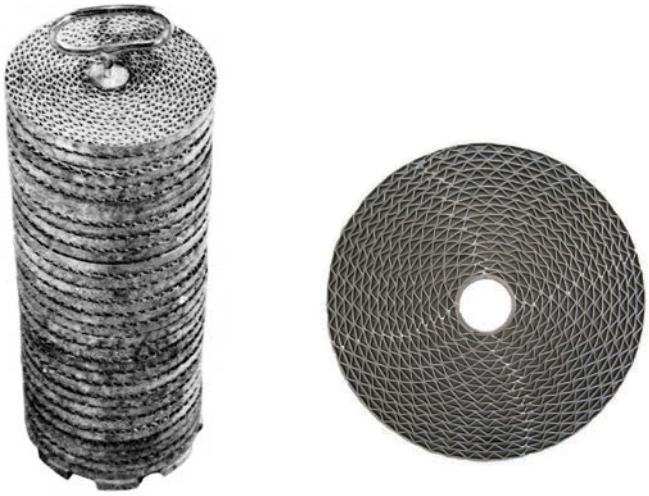
Model:CS-250X

* Optional customs paint is available.

The magnetic flux density is at room temperature.
*1. Magnetic flux density with no elements (Maximum value)
*2. Maximum magnetic flux density when using the standard filter. (Analysis value) There is a weakness depending on the measurement point.
*3. Maximum number with standard filter.

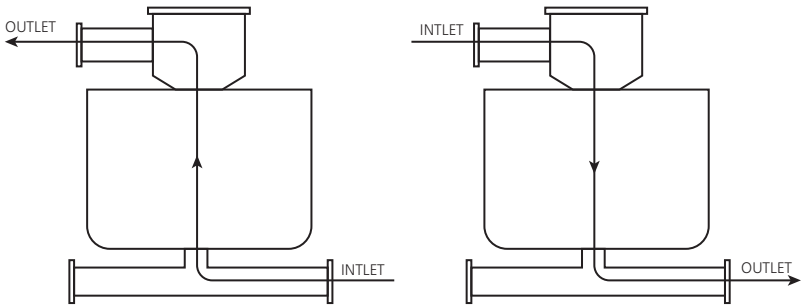
Filter screen

Filter screen types are usually selected to maximize the magnetic separation capability; however, the screen pitch and quantity can be adjusted based on the material.
There are 3 types of standard screens.
The standard SUS430 screen enhances corrosion resistance and separation capability. Additionally anti-corrosion and friction reduction processes can be added to the screens.



Example of use

The material can flow from the top to the bottom, but it can also be configured for bottom to top flow for greater efficiency.
It can be installed into the existing process line without needing additional pump pressure.
Complete filter cleaning requires switching off the power and removing the screen for water or pressure cleaning.

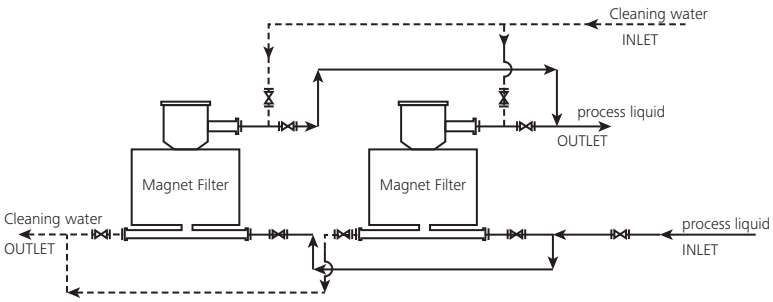


In case of pump use

In case of free flow

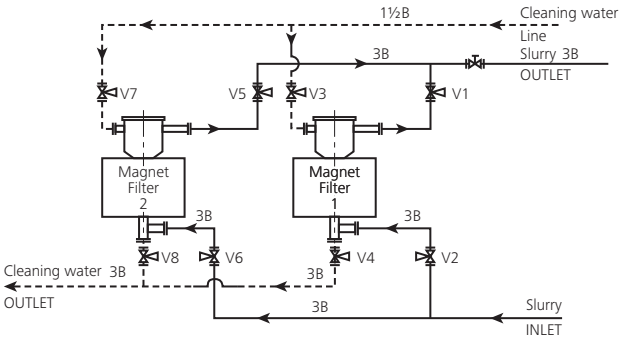
Continuous Process

Filtered iron particles will clog the screens.
Therefore, proper time setting for cleaning or having multiple unit layout will result maximum efficiencies.



Full Automation

A combination of timer and automated valve, or a combination of pressure switch and automated valve by using pressure difference of clogging can be used to set up fully automated process.



Iron Oxide

There are 3 kinds of iron oxide and its magnetic flux density.

Symbol	Crystal Structure	Magnetic Sensitivity	Magnetism (Gauss)
Feo	α	Undetectable	10,000～20,000G
Fe_2O_3	β	Difficult	10,000G
Fe_3O_4	γ	Good	500～1,000G

Comparison list of magnetic sensitivity on mineral substances

Material	Sensitivity	MATERIAL	Sensitivity
Iron	100	Chlorargyrite	.28
Magnetite	40.18	Argentite	.27
Franklinite	35.35	Orpiment	.24
Leucite	17.50	Pyrite	.23
Silicone	17.42	Sphalerite	.23
Pyrrhotite	15.43	Molybdenite	.23
Ilmenite	11.67	Apatite	.23
Biotite	8.90	Bornite	.22
Garnet	6.68	Willemite	.21
Wolframite	5.68	Tetrahedrite	.21
Hematite	4.64	Scheelite	.15
Limonite	3.21	Talc	.15
Chromite	3.12	Arsenopyrite	.15
Pyrolusite	2.61	Magnesite	.15
Ryodechrosite	1.93	Chalcopyrite	.14
Siderite	1.82	Cassiterite	.13
Corundum	1.40	Gypsum	.12
Manganite	1.36	Fluorite	.11
Rutile	.93	Zincite	.10
Platinum	.76	Chalcocite	.09
Dolomite	.57	Cuprite	.08
Calamine	.51	Orthoclase	.05
Quartz	.40	Crolite	.05
Cerussite	.30	Galena	.04

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