

FINE MAG series

NEW MAGNETIC SEPARATOR



FINE MAG series Magnetic Separator



K / KD / KS / KSD
F / FD / FS / FSD

Sludge Removal Capacity - Wringing Out Performance Increasing the Gap with Competitors.

- Maintains stable performance over the long-term.
- Highly efficient filtering accuracy.
- Extends the life of coolant.
- Tank cleaning frequency reduced.
- Works to prevent machine tool breakdowns.
- Reduction in the cost of running secondary filtering devices.
- A wide line-up capable of dealing with almost any processing and material types.
- Meets CE, CCC and UL standards.



Drive System: Durability improved! (PAT.)

- Reexamining the frame construction has led to the prevention of sludge and hard object mixing. Resistance to wear has been largely improved.



This is different!

Magnetic Drum Surface: Special hardening treatment! (PAT.)

Magnetic drum is not scratched.



Initial performance is maintained over the long-term. (Both purity and sludge water content.)
Squeeze roller also is not scratched.



This is different!

Squeeze Roller: Forced drive method employed.

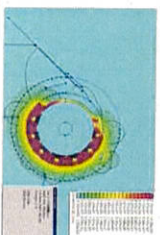


As the squeeze roller does not slip, the coolant recovery capacity has been increased substantially.



This is different!

Magnetic Field: Original magnet arrangement based on analytical technology.



Purity (adhering power) has been improved based on a scientifically developed high dimensional magnet arrangement.



This is different!

Secondary Filter Type Model KS • Model KSD

Merits of Introduction

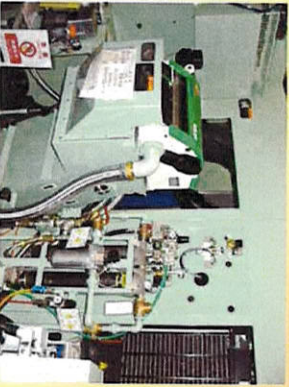
When cutting castings, more than 90% of the large-volume, very fine mud-like sludge (less than 100 μ) is recovered (weight ratio).

In cutting casting, as in grinding, a large volume of very fine mud-like sludge is generated. If this fine sludge is not removed, it negatively impacts the machine tool, pumps, blades, etc.



Because mud-like sludge is very fine (less than 100 μ), it can not be removed by drum filter chip conveyors.

If the **FINE MAG** is used for secondary filtering...



Result 1

- Machine Preventative Maintenance, Operation Ratio Is Improved.
- Tertiary Filter Life Greatly Increased.
- Product Defects Ratio Reduced
- Blade Life Increased.
- Maintenance Free

Result 2

- Recovery Ratio: More than 90%* (weight ratio)
- Consumption Parts: Unnecessary
- Recovered Sludge Condition: Dry
- High Pressure Cyclone Pump: Unnecessary
- >> Energy Reduction (CO₂ Reduction)

*In the case when the entire amount is filtered.

Shaving Processing Type Model KS • Model KSD

Merits of Introduction

Due to the P-Roller and Specially Arranged Magnetic Drum, the amount of chips that embed into the squeeze roller has been reduced.

Shaving Chips Actual Example

Using a Squeeze Roller for Steel Grinding



Factory cleanliness

Oil Content Ratio
Oil Quantity
4.1.3%
0.4L/Day

Chips embedded in roller.

Marvelous durability.

After 3 months of use.



Oil build-up in the sludge box.

Excellent squeezing result.

Using a P-Roller



Oil Content Ratio
Oil Quantity
22.9%
0.2L/Day

No chips embedded in roller.

After 1 year of use.



Oil does not build-up in the sludge box.

Results from Customers that use the P-Roller and Newly Arranged Magnetic Drum. (KS-4-1PX)

Using a Squeeze Roller for Steel Grinding

Using a P-Roller

Using a Squeeze Roller for Steel Grinding

Using a P-Roller

Oil Content Ratio
41.3%

Oil Content Ratio
22.9%

Retained Oil Amount
0.4L/日

Retained Oil Amount
0.2L/日

45%
down

50%
down

- Monitoring Time: From 03/2008 to 09/2008 (6 months)
- Monitoring Location: N Co., Ltd.
- Processing Conditions:
 - Material: 15
 - DD: 67/42
 - Machine: KS-4-1PX
 - Coilant: PW715 (Yoshida Chemical)
 - Chip Volume: 0.002kg/piece
 - Processing Quantity: 600pc/day
- Merits of Using P-Roller + Newly Arranged Magnetic Drum 0.002kg x 600 pieces = 1.2kg/day (Sludge discharge quantity from one day.)
 - Current: 0.24 x 60 days = 14.4 days
 - Oil: 0.4 x 60 days = 24 days
 - DD: 0.24 x 60 days = 14.4 days
 - 0.5kg x 0.8 (Sludge Gravity) = 0.4L/day
 - Oil removal quantity from one day)
 - 1.2kg x 0.25 (Oil Content Ratio) = 0.3kg/day
 - Oil removal quantity = 0.2L/day
 - (Oil removal quantity from one day)
- Merits of Using Squeeze Roller
 - Current: 0.24 x 60 days = 14.4 days
 - Oil: 0.4 x 60 days = 24 days
 - DD: 0.24 x 60 days = 14.4 days
 - 0.5kg x 0.8 (Sludge Gravity) = 0.4L/day
 - Oil removal quantity from one day)
 - 1.2kg x 0.25 (Oil Content Ratio) = 0.3kg/day
 - Oil removal quantity = 0.2L/day
 - (Oil removal quantity from one day)

TOTAL = 500L/year x 1 machine = JY740,000 Savings

* Demonstration machines are available. Any customer interested in becoming a monitor should please contact our nearest office.

NEW MAGNETIC SEPARATOR FINE MAG Series: Product Lineup

A Complete Lineup, with Powerful Support

Model K • Model F (Magnetic Drum Dia.: ϕ 140mm)
Standard Type (Fine Chips)

Features

- The Model K utilizes rare earth magnets, which have 10 times the magnetic energy of ferrite magnets.
- The Model F utilizes ferrite magnets.



24 - 36 Motor Position

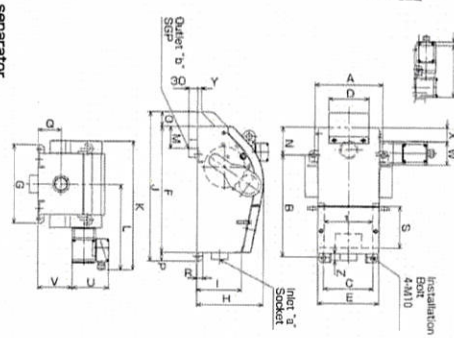
Model KS • Model FS (Magnetic Drum Dia.: ϕ 140mm)
Cutting Secondary Filtering • Shaving Process Type

Features

- A highly efficient design based on the analysis of magnet arrangement and shape which allows for improved adhering power.
- Reduction in the amount of chips sticking in the squeeze rolls, improving squeeze efficiency.
- Improvement of blade life leads to improvement in product quality.

Uses

- Filtering of fine sludge that contains cutting chips of casting, etc.
- Filtering of shaving coolant.
- Filtering of Magnetic sludge found in recovered coolant from a centrifugal separator.



Model 4 - 36 (Common for type K • F • KS • FS)

Size	Water Schdule	Flow Volume Motor																								Pipe Dia.	Weight (kg)				
		W	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W			X	Y	Z	
4	40	25	233	348	193	138	219	429	299	227	157	513	441	293	77	100	50	30	78	20	143	156	124	118	80	48	13	235	11/2	2	25
6	60	25	289	348	226	194	285	423	325	227	157	513	497	321	77	100	50	30	78	20	143	222	124	118	80	48	13	30	2	2	29
8	80	25	345	348	281	248	319	437	379	280	191	517	551	348	88	104	50	30	110	20	138	276	124	151	80	57	30	30	2	2	35
12	120	25	457	348	533	351	422	449	492	270	201	523	654	404	95	116	50	30	110	20	138	309	124	181	80	69	28	30	2	2	47
18	180	25	625	348	551	526	610	449	660	270	201	523	694	404	95	116	50	30	110	20	138	555	124	161	80	69	28	30	3	3	68
24	240	25	620	490	492	478	595	520	656	353	288	655	736	391	110	144	65	40	120	20	141	526	124	193	201	35	29	30	3	4	88
36	360	25	844	490	716	692	800	590	890	368	288	655	950	499	110	144	65	40	139	20	140	739	124	199	201	26	44	30	4	117	

Sludge Box Dimensions

Model	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
4/6	326	204	162	0.5kg
8	384	220	238	0.9kg
12	508	266	225	1.3kg
18	704	290	173	1.6kg
24	600	200	200	5.5kg
36	900	250	250	14.5kg

* Made from plastic for Models 4-18, and made from metal for Models 24, 36

Model 4 - 24 (Common for type KD • FD • KSD • FSD)

Size	Water Schdule	Flow Volume Motor																								Pipe Dia.	Weight (kg)				
		W	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W			X	Y	Z	
4	40	25	260	398	190	146	228	420	288	239	206	575	384	207	80	99	65	30	110	20	112	183	140	208	212	15	40	235	11/2	2	37
6	60	25	316	398	246	202	282	420	342	239	206	575	420	235	80	99	65	30	110	20	112	239	140	208	212	15	40	30	2	2	42
8	80	25	370	377	300	256	339	430	395	239	206	575	474	282	88	120	65	30	110	20	112	293	140	208	212	15	40	30	2	2	50
12	120	25	483	377	413	388	449	490	509	299	206	585	597	318	95	130	65	30	110	20	112	406	140	208	212	15	30	30	2	2	64
18	180	25	650	377	530	519	490	676	629	206	585	758	406	95	130	65	30	110	20	112	572	140	208	222	5	30	30	3	3	82	
24	240	25	844	490	716	692	800	590	890	353	288	655	950	499	110	144	65	40	140	20	140	739	124	193	201	26	29	30	3	4	117

* Made from plastic for Models 4-18, and made from metal for Model 24.

Sludge Box Dimensions

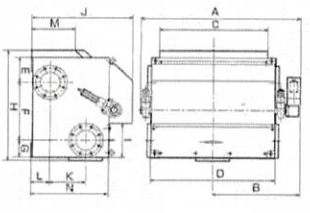
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18	704	290	173	1.6kg
24	600	250	250	14.5kg

* Made from plastic for Models 4-18, and made from metal for Models 24

Model SMK • Model SMF (Magnetic Drum Dia.: ϕ 319mm)
High Filter Accuracy Type

Features

- Large processing type for 500L/min - 1000L/min.
- Two models: Rare Earth (SMK), and Ferrite (SMF).
- 1,500L/min - 2,000L/min processing models are also available. Please contact us for details.
- Models to cope with rough and large chips are also available.



Model 50 - 100 (Common for type SMK • SMF)

Size	Water Schdule	Flow Volume Motor																								Pipe Dia.	Weight (kg)
		W	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Outlet	Outlet									
50	500	60	1105	603	733	898	175	403	120	772	240	700	280	130	302	540	5	5	282	100	1000						
75	750	60	1385	743	1032	1148	175	420	120	787	250	700	280	130	303	540	5	5	382	100	1000						
100	1000	60	1699	856	1257	1372	190	425	135	822	230	735	270	145	339	575	6	6	450	100	1000						

Please indicate one location (each) for Inlet and Outlet. Flanges other than those indicated will be optional.

Sludge Box Dimensions

Model	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
50	1000	300	300	270kg
75	1300	300	300	340kg
100	1400	300	300	360kg

* Made from metal

Model K Rare Earth Magnet

10 Times the Magnetic Energy

Rare earth permanent magnets are used, which compared to ferrite magnets, have 10 times the magnetic energy. Removal of difficult magnetized sludge, or high viscosity coolant is possible.

Actual Example

- Example using a Model K-36**
- Secondary filter became unnecessary.
 - Cleaning frequency of tanks cut in half.
 - Life of coolant doubled.
 - Work : Drive Shaft (SC/420)
 - Coolant : Oil-Based
 - Machine : Gear Grinder

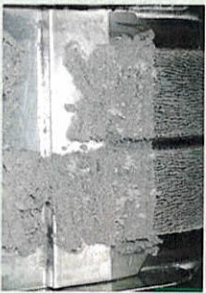


Model F Ferrite Magnet

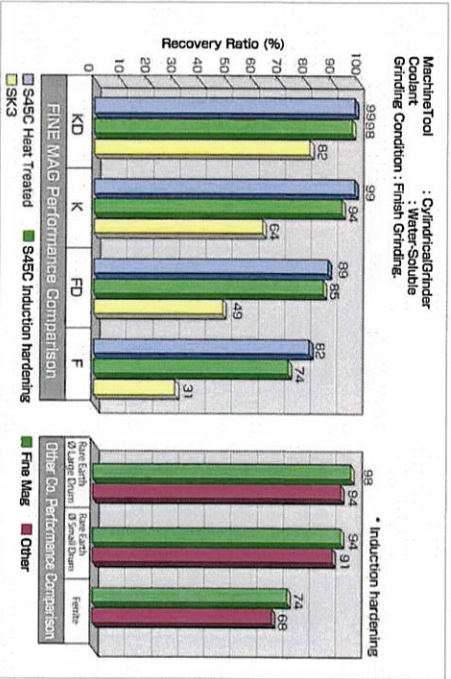
An economical, general-purpose type. Improved adherence power due to an efficient design (magnet arrangement and shape). Works well with all sludge except difficult magnetized sludge.

Actual Example

- Example using a Model F-4**
- Abrasive Stone life is doubled.
 - Secondary filter changeover frequency halved.
 - Product scratching eliminated.
 - Work : Machine Parts (S55C)
 - Coolant : Water-Soluble
 - Machine : Cylindrical Grinder



Sludge Recover Ratio Table

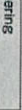


Model KD Actual Example



Before Filtering

1 Gradation = 10um



After Filtering

1 Gradation = 10um

Viscosity Processing Flow Table

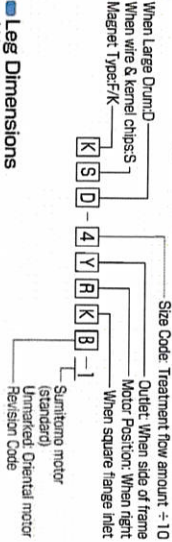
When using oil-based coolant, please refer to the following table (in the case of 40°C).

Machine Tool Type	Processing Flow (L/min)	Recovery Ratio
Super Finishing (4.8 - 5.9)	10	10
Honing (2.5 - 13.6)	20	15
Shaving (2.5 - 21.8)	30	20
Drill - Reamer - 1st Grinding (9.8 - 21.8)	40	25
Rolling (12.4 - 25.4)	50	30
Gear Grinding Thread Grinding (16.8 - 38.1)	60	30
	80	40
	100	45
	120	60
	160	80
	240	105
	270	120

Machine Selection (Based on Use)

Model	Magnet Type	Compatible Machine Tools	Sludge	Coolant	Recovery Ratio
K-4, KS-4	Rare Earth	1140, 1216	Lapping, Honing, Finish Grinding	Fines	94-99%
K-6, KS-6	Rare Earth	1140, 1216	Shank Grind, Gear Grinding, Thread Grinding, Colling, Secondary Treatment	Oil Based	94-99%
K-8, KS-8	Ferrite	1140, 1216	General Grinding	Water Soluble	82-95%
K-12, KS-12	Ferrite	1140, 1216	Shank Grind, Gear Grinding, Thread Grinding, Colling, Secondary Treatment	Oil Based	82-89%
K-18, KS-18	Ferrite	1140, 1216	Shank Grind, Gear Grinding, Thread Grinding, Colling, Secondary Treatment	Oil Based	82-89%
K-24, KS-24	Ferrite	1140, 1216	Shank Grind, Gear Grinding, Thread Grinding, Colling, Secondary Treatment	Oil Based	82-89%
K-36, KS-36	Ferrite	1140, 1216	Shank Grind, Gear Grinding, Thread Grinding, Colling, Secondary Treatment	Oil Based	82-89%

Model Indication (Example)



Leg Dimensions

(4 legs per machine. Bolts are M12)
Height Adjustment: 145-222 245-422 200-300 300-450 (mm)

Options

- P-Roller, Legs
- Outer Bottom of frame
- Motor Voltage: AC200V / 50/60Hz 5hp
- Motor Current value rating
- 25W - 4P
- 200V 50/60Hz: 0.25/0.22A (CE-UL-COCSH)
- 220V 50/60Hz: 0.26/0.23A (CE-UL-COCSH)
- 60W - 4P
- 200V 50/60Hz: 0.46/0.42A
- 220V 50/60Hz: 0.46/0.41A
- Reduction ratio: 1/1,000 Models 4-36
- (Common among all machines)
- Reduction ratio: 1/500 Models 50-100
- (Common among all machines)
- Accessories: One sludge box.
- Special Specifications
- Different Electrical Voltages: 300V - 400V - 415V - 440V 50/60Hz
- Square Flange Outlet
- Regarding others, please contact us.



Note of Caution

● To use correctly, please read the Operators Manual before using any of the machines.
* The data of this catalog is just one example based on test results. Actual results may differ depending on conditions.

Detailed information can be found regarding the FINE MAG at our FINE MAG specific website: <http://www.finemag.jp/>



Suntomo Heavy Industries Finetech, Ltd.

8230 Tamahina Ooshina Kurashiki-shi Okayama 713-8501 JAPAN
TEL +81-86-525-6281 FAX +81-86-525-6255
Internet: www.shi-fine.co.jp

Osaka Sales Office

3-1-31 Minami Suita Suita-shi Osaka 564-0043 JAPAN
TEL +81-6-6384-7200 FAX +81-6-6384-8849

Okayama Sales Office

8230 Tamahina Ooshina Kurashiki-shi Okayama 713-8501 JAPAN
TEL +81-86-525-6133 FAX +81-86-525-6139

*Finetech reserves the right to make changes to machine specifications without prior notice.



This catalog uses VEGETABLE OIL INK.