



Tianjin Innovator Environmental Engineering Co., Ltd

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The worldwide aluminium industry produces nearly six million tonnes of furnace waste each year. Known as dross, the residual waste material is produced from any process in which aluminium is melted, and is left behind after conventional recycling has been carried out.

More recovery=More profit

Our aluminium dross recycling equipment makes it economically viable to treat residual waste left after conventional recycling, offering cost savings and make contribution to the cause of environmental protection.

Tianjin Innovator International Trading Co., Ltd want to help the company find an economically viable solution to deal with their furnace dross.

high effective and speed aluminium dross recycling equipment



Can be extracted 90%(±5) of its metal from the aluminum dross

Innovator International has focused on providing a low-cost solution for processing aluminium waste. The aluminium industry is going to decreasingly burdened on what it can and can't do with its waste. Industry will reduce the waste output and possess a clean foundry environment.

Unique Design, Advanced Technology, Easy Operation, Durable Using. Used and validated by many enterprises, this equipment is fault-free and it can use 350 days per year. So industry may do not worry about equipment failure that is affected production.

Outstanding commercial efficiency ,save time and save labour It takes only several minutes to extract aluminium sufficiently from the furnace dross. And the investment cost can be paid back in several months according to the using frequency. Afterwards, the apparatus will create more wealth for you.

Environment protection The enterprise contributes to the world's environment protection. The high speed dross recycling package adopts cooling unit, classifying unit and dust collecting unit, thus, the maxima amount of dust produced in the smelting process can be sent to the dust collecting unit so that the dust will not drift away to cause pollution and affect the surrounding environment and human beings.

Residual dross=Extra payback

At the same time,through the classifying device of the equipment,the after-extracted dross residue can be processed to particles of different sizes to make desulfurizer which can be used to make steel and produce heat preservation agent. These saleable products will make extra payback.

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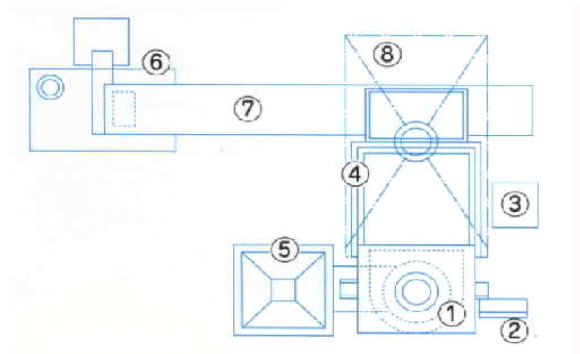
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All kinds of specifications,composes of different machines ,can operate as a complete set or be used separately

The enterprises can choose the complete set or the high speed dross recycling equipment itself .This can also achieve the goal of improving the aluminium recovery percentage efficiently ,increasing the economic benefit,and protecting the environment.

Especially the L type high speed dross recycling equipment which is designed specifically for the aluminium alloys casting enterprises.It has relatively small size and great efficiency,easy to operate and well accepted by the customers.

Aluminium dross recycling complete equipment consist of 8 parts



- ① High speed dross processor
- ② Operation panel
- ③ Oil pressure power plant
- ④ Conveyor
- ⑤ Cold dross input element
- ⑥ Classifying tank
- ⑦ Rotating cooler
- ⑧ Turning chamber shade

1. **High speed dross processor** To recover the aluminum solution in the hot dross which is produced in dissolving heater

1) The procedure of “heater installation → scratching the hot dross → reinstallation” is necessary for the removable pot.

2) Because removable pot is adopted, special maintenance and management are not required.

3)The patent of all-in-one moulded casting pot is adopted to prevent the horizontal cracking of the pot.

4) The structure and shape of dual-blade (patent) sufficiently improve the agitation efficiency.

- ① (Aluminium ingot manufacturer) highest recovery percentage 87%,
average recovery percentage $80 \pm 5\%$ (for metal contained aluminium)

- ② Processing period 5 ± 2 mins/pot

- ③The structure of inner blade and outer blade is adopted to improve the agitation efficiency.

- ④ The different rotating speed of the inner blade and the outer blade can also improve the agitation efficiency.

- ⑤ “△” shape is adopted for the section plane of the blade so that it can buck the dross lump





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effectively.

⑥Improving the agitation efficiency can reduce the failure of the blades.

5) The blades and mechanical chamber work as a whole so that no failure will be caused due to the vertical motion.

6) Gear conduction is used for the turning of blades so that the rotary moment can be doubled

7) The simple design of one piece of gear motor is used as the drive of the blades' turning (decelerator is used commonly nowadays).

8) Atmosphere dust control equipment is installed in the mechanical chamber.

2. **Turning device** discharges the dross residue that has been processed by the dross processor

1) The only device that can discharge the residue from the pot.

2) It is an indispensable device for the residue dross handling equipment.

3) The trenchless FL operation can be achieved by the turning device.

4)Dross residue can be discharged completely by 55°turning.

3. **Cold dross input device** The function of the device is to manage the temperature of the hot dross .Cooler is used for cooling the dross residue.

1) The only structure of automatically discharging when fully packed.

2)The failure rate of the vibration discharging device is 0.

3) The excess cold dross is transported to the bags after cooling.

4. **Cooler** The function of the device is to cool and classify the hot dross residue that aluminium has been extracted from it.

1) Amazing cooling effect, simple and easy cooling structure

2)The cooling efficiency can reach 85~95%,and the water consumption can be reduced to 150L/min by recycling.

3) $\phi 2000 \times 6500L$ (classification part 3500L) x 16 save the space ,and have the effect of 1) and 2) above

4) The precisely structure of the cooling pipe body can sustain rigorous hot dross.(right roundness less than 1%,rectangle less than 0.5%,class 1 steel plate, computer controlled automatic high level welding)

5) Open water draining system which is easy to manage(drainage pipe SUS304)

6) Naturally exhaust through air chimney, getting rid of the steam.

5. **Cold dross providing conveyor** This conveyor is used to deliver particles which have been cooled and classified .

1) Carry-scraper

2) Good capsulation, and is suitable for granular dross of different sizes

3) This conveyor has a superior endurance quality.

4) Wearproof steel plate is used at the R-shape part of the chest bottom to improve its durability





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6. **Spiral conveyor** This conveyor is used to deliver the fine and medium particles which have been cooled and classified.

- 1) To avoid delivery failure due to detention, overload or wear and tear during moving, the structure of monoeder bearing is adopted.
- 2) V-shape box can prevent failure.
- 3) Overload can be prevented.

7. Operating and control panel

- 1) The operating programme is based on the maximum work load and operating experience.
- 2) All the chain units pay much attention on security

8. Device as a whole

- 1) Because all the machines are placed on the ground, safe operation can be guaranteed and inspection and cleaning are easy to perform.
- 2) The design is tight
- 3) The folklift operation can be controlled to the minimum.

High speed dross processor

It is not affected by the temperature difference of the hot dross – independent new unit



- The dross can be inputted before the heater, so only one processing is needed
- The life of the pot is doubled(folklift mobile pot can be used)
- Dual blades and special technology are adopted so that the extracting yield can be improved by 10-20%
- The vertical moving of blades is achieved through the mechanical chamber, thus, failure can be reduced by a wide margin
- The opening area is small(0.8 m^2) and the dust collecting effect is significant
- Positive pressure dustproof unit is adopted for the driving part.



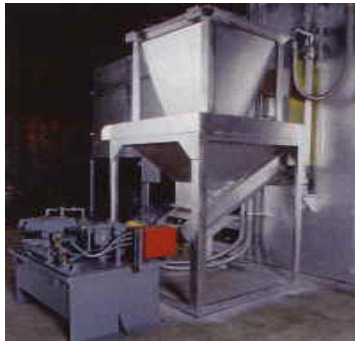


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Cold dross input device

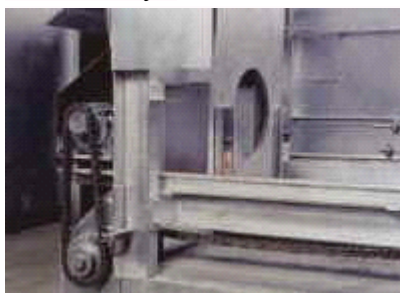
This is a device that can adjust temperature of the high speed dross processor during operation.



- To improve the operating environment
- To reduce the excessive labour
- To increase the input and improve security
- To increase the qualification rate of the product

Mobile turning device

This is a device that processes and then transports the hot dross in the high speed dross processor. The dross residue will be turned, discharged, and finally packed into the box automatically.



- Chain actuation is adopted to reduce the failure
- Decrease the production of dust
- Complete automation
- Tight design to save space
- Easy for fitting
- Improve the operating environment
- Tight design to save space
- Can pack the dross into the box automatically
- Oil pressure driving model to reduce failure
- Well sealed and easy for collecting dust

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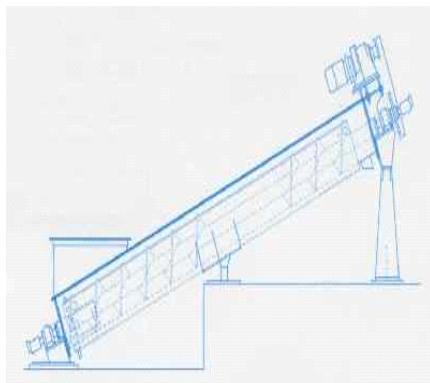
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Hot dross cooling device

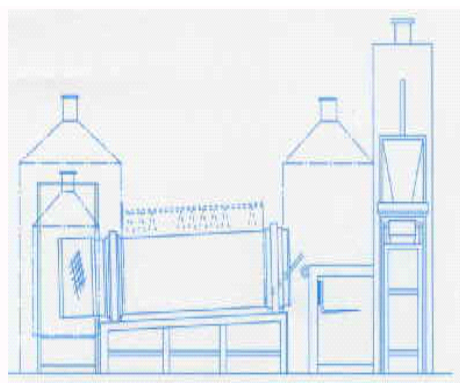
This is a device that automatically cools down the after-processed hot dross

Spiral type



- Outstanding cooling efficiency
- Processing period ((300g/10mins)
- Cooling efficiency 60%
- Good dust collecting effect
- There are many using examples

rotary kiln type



- Outstanding cooling efficiency
- Processing period ((300g/5mins)
- Classification device is not needed
- Conveyor is installed (after-classified feed stock can be taken-off)
- Pitting is not needed (F L works)





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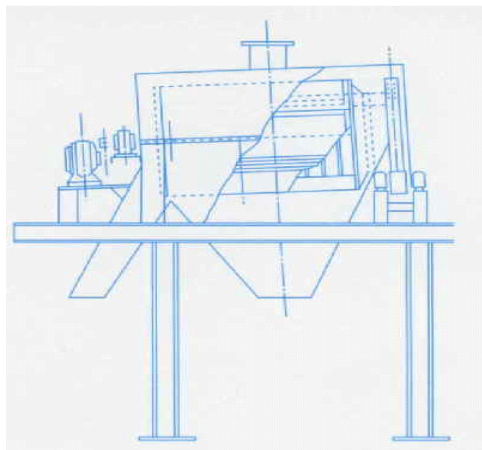
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Classification device

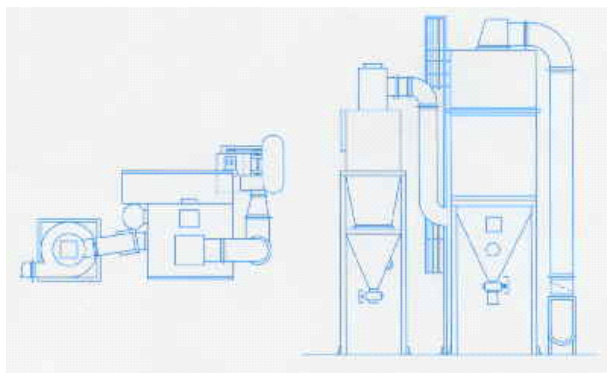
This is a device that can shake out 2-3 types of particles , thus, cold dross from the flat plate conveyer can be classified by it.



Model	T-1300	
Capacity	1.8t/H	
local	dimension	2050L×1600W×1900H 3.2t
	motor	1.5kw 200v
	Order option	Mesh screen UP under

Dust Collector Device

Dustproof device



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SPECIFICATION

	800type	700type	600type	350type	250type	150 horizontal	150 vertical
1.dross processor						Die-casting	Die-casting
①dimension (L/W/H)	1750/2000/6500	1750/2000/6500	1750/2000/6500	1600/1300/5500	1300/1200/4800	1000/2000/2500	1200/1000/3800
②motor	15-22kw	15kw	15kw	11kw	5.5kw	3.7kw	3.7kw
③pot dimension (ID/D deep)	Φ1120/1000	Φ1120/900	Φ1050/900	Φ900/700	Φ830/600	Φ680/490	Φ680/490
④pot capacity	0.8m ³	0.7m ³	0.6m ³	0.35m ³	0.25m ³	0.14m ³	0.14m ³
⑤process weight (1.3g/cc)	1050±100kg	910±100kg	780±100kg	450±50kg	320±50kg	180±30kg	180±30kg
⑥process time	7±3min	7±3min	7±3min	5±2min	5±2min	5±2min	5±2min
⑦rate of recovery on all dross	over50%	over50%	over50%	over50%	over50%	over50%	over50%
Completed equipment							
2.cooling device							
①dimension (OD/L)	Φ2000/4500	Φ2000/4000	Φ2000/4000	Φ2000/3000	Φ2000/3000		
②cooling function	over95%	over95%	over95%	over95%	over95%		
③process capacity	1.9m ³	1.6m ³	1.6m ³	1.3m ³	1.3m ³		
④process weight	2100±100kg	1750±100kg	1750±100kg	1500±100kg	1500±100kg		
⑤water volume	180±30/min	105±100/min	105±100/min	105±100/min	105±100/min		
3.mobile turning							
①turning weight	4.5t	4.5t	4.5t	3t	3t		
②turning time	3min	3min	3min	3min	3min		
③turning angle	55°	55°	55°	55°	55°		
4.cold dross input							
①cold dross volume	0.3m ³ /min	0.3m ³ /min	0.3m ³ /min	0.3m ³ /min	0.3m ³ /min		
②cold dross material	Residue,dry sand	Residue,dry sand	Residue,dry sand	Residue,dry sand	Residue,dry sand		
5.cold dross delivery							
①carry scraper	o	o	o	o	o		
②spiral	o	o	o	o	o		
6.operation board							
①button						o	o
②contact	o	o	o	o	o		
7.dimension (L/W)	12000/6000	12000/6000	12000/6000	10000/5000	8000/4000	2000/2000	2000/2000

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