

1. Summary

RCDB-5 electro-magnetic separator belongs to plate magnetic separator series, be called as magnetic separator as below.

It's a kind of manual-cleaning and with natural air ventilation feature. New heat conducting materials adopted, with unique magnetic core and optimized magnetic circuit design.

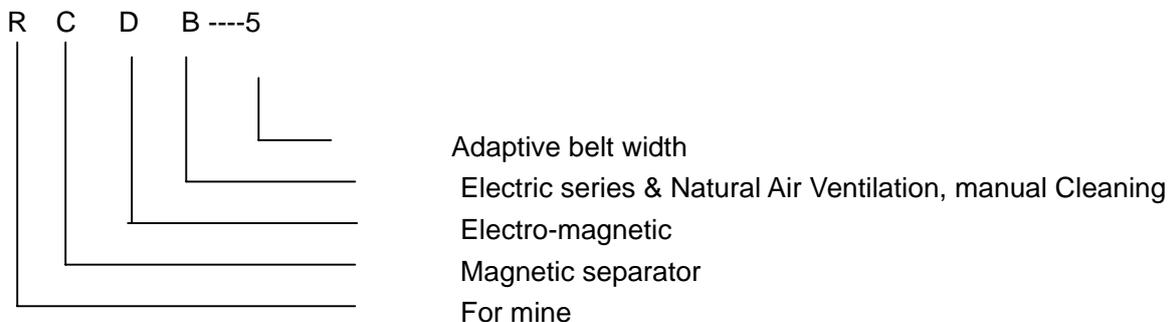
The magnetic separator is an elite, which is designed by ourselves through absorbing internal and abroad technology. The technical standard is according to JB/T7689-95.

The main features are better insulation performance, low temperature rise, rapid heat releasing, strong magnetic force and penetrations, light weight, strong attracting ability, low energy consumption, high separating rate etc. Automatic and program control can be realized, working stably.

This type of magnetic separator can be used with middle, high speed, thick material layer belt conveyor. It's requirement on surroundings is not very strictly yet. Good separation result will be gotten if working with metal detector. The magnetic separator can be suspend on the I steel beam or fixed on shelves.

Work with various kinds of conveyor belt, 0.1~35kg impurity iron can be remove from the incompact non-ferrous materials, which is a good choice for improving the quality of material, protecting the equipments in next step, be widely used in the fields of thermal power station, coal plant, metallurgy, glass plant, foodstuff and so on.

The signification of the model:



Model and Specification:

Model	RCDB-5
Adaptive Width	500mm

2. Structure and Working Principle (Attn: outline drawing Chart 1)

RCDB-5 Electro-Magnetic Separator

It is designed on the principle that closed coil with load can produce magnetic field. The exciting magnetic coil rolled around the iron core to be welded on the undersurface of yoke by the best cooling method. Release heat through shell and heat discharge exit. The under splint mantle is at the coil underside. Through reducer to drive the conveyor belt running, auto-removing iron realized. The magnetic separator makes up of magnetic system that composes of big, middle, small yoke, iron core, excited winding, and magnetizing shell, under splint, and supporting frame, belt, driving drum, driven drum, scraper, reducer sets etc.

3. Main Technical character

3.1 The technical character of main Body (RCDB-5)

Technical Parameter:

Item Para. Model	Adaptive Belt Width(mm)	suspendin g Height	Power of excitation	Isolation class	Working style	Outline Dimension	Weight
RCDB-5	500	150	≤ 1.8	F	Continuously	891mm*908mm*470mm(T)	550

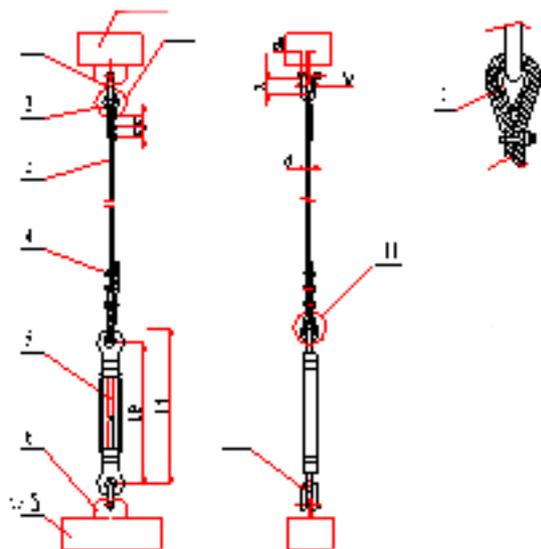
4. Suspending Device

4.1 Fit to suspend the equipment with 1tons main body

Item Para. Weight (t)	D Shape Steel Buckle	Steel Rope			Turn Buckle		
		GB1102 -74	Thimbles	Wire rope clips	Model	Adjustable Distance	
	M16	Dia. Of rope	GB5974.1-86 Dimension	GB5976- 86 Specificat ion			Min. L
1			9	10	10	3/4inch	568.5

4.3.4 Three kinds of suspending device (Pay attention to II)

RCDB-5 Electro-Magnetic Separator



1. Length of each suspending device is L, decided by consumer.
2. Notice of choosing 2.2
 - (1) Rope clip must assemble in the same direction.
 - (2) U shape bolt of rope clip must buckle on the end, and rig mount fixed on other side of working segment
 - (3) Quantity and distance of rope clip as follow chart

The dimension of rope clips (diameter of steel cable)	Quantity of rope clips of each group	The distance between Rope Clips (C)
≤ 19	3	(6-7). d
$> 19-32$	4	

1. D Shape Steel Buckle 2. Thimbles 3. Shackle Steel rope
 5. Steel rope clip 5. Turn buckle Steel cable 6. Ring

Single-Rail Single Trolley	DX-1.1-3 DX-1.Z1
Load Permitted (T)	3
Motor Power (kW)	0.4
Velocity (m/min)	10
Channel Steel Model (GB706-88)	20a-62C

5 Installation

5.1 Preparation

5.1.1 Choose installing position

Before installation, electrify the separator on the ground frist, confirm that every parts of it are all in normally running.

Notice: 1. Either horizontal installation or vertical installation, H can't exceed rated suspension height, otherwise it will affect separating results.

2. Either horizontal installation or vertical installation, crabwise angle.

5.1.1.1 Incline installation

The separator should be installed above the discharge end of belt conveyor. Rated suspension height $H=200\text{mm}$, obliquity $\alpha=15^\circ-30^\circ$. The height can be adjusted by the belt speed, material character, material size etc. If $H<200\text{mm}$ is impossible, better separating result will be gotten.

5.1.1.2 Horizontal installation

The separator should be installed above some place of the middle of belt conveyor, where the width is about 10m, can locate two collection boxes, also the two boxes can be move freely. No barrier on the upwards, rated suspension height $H \leq 200\text{mm}$.

5.1.2 Installed on tramroad

If the magnetic separator is fixed installed, which can be suspended on I steel beam or ceiling, no tramroad needed.

5.1.2.1 A single rail is needed for the magnetic separator to catch iron or drop to and fro.

5.1.2.2 Two individual I steel beams are needed for double belt conveyor working by turns.

The length of I steel beams is decided by the working spot. It should not affect the movement of catch iron and discharge iron.

Installing method of tramroad: according to the working spot to insert the rail on wall or on beam. Stable and fastness is basis requirement.

5.1.3 Non-magnetic head pulley of belt conveyor is better to be use under the condition of incline installation.

5.1.4 Up-bound non-magnetic pulley is better to use under the magnetic separator, wherever the separator be installed.

5.1.5 Tool Required

- ◆ Chain Block with lifting capability : 1 or 2 pieces.
- ◆ $\phi 10$ buckles: 4 sets.
- ◆ Basic tools for locksmith use: 1 set.

5.2 The installation sequence

5.2.1 Choose installing place

5.2.2 Setting up the moving rail

5.2.3 Installing trolley on the rail

5.2.4 Installing a manual lifter on the track in order to lift the separator

5.2.5 Contact the field cable to separator

5.2.6 Lifting the separator to the proper height

5.2.7 Using hanging parts to contact the trolley and the separator, then make the height equal or less than 200mm.

5.3 Install control panel

5.3.1 Choose install place by the condition of working spot. It should not be weatherworn. Keep it safe and convenience.

5.3.2 Model choose

Model: GLA-XIII parameter refer to the GLA-XIII OPERATION MANUAL

5.3.3 Connect separator to control panel

※ The cable between the power supply and control panel is decided by working spot.

6 Regulation and commissioning

6.1 Check the reliabilities of suspension device

6.2 Measure the suspension height, make $H \leq 200\text{mm}$. Under incline installation, the obliquity $\alpha = 15^\circ \sim 30^\circ$ should be regulated too.

RCDB-5 Electro-Magnetic Separator

6.3 Under horizontal installation, to make the undersurface of magnetic separator parallel with the conveyor belt. Either horizontal installation or vertical installation, the crabwise angle should less than 5°.

6.4 Keep the material parabola throw from the head pulley aim at the center of magnetic system.

6.5 If it is removable installation, check the reliability of tramroad stop device and the stability of trolley.

6.6 The center of magnetic separator should aim at the center of belt and the meatus of discharge box, when the trolley walking to catching position and discharging position.

* 6.7 Two separators are installed above one belt conveyor, whether the separator reach the designated position or not should be checked. Before put into production, must confirm that the separators without any problems after more than 10 times unload running.

*6.8 Do some man-made little trouble to check the light or sound alarm work or not.

6.9 Electrify the separator, no-load working should not less than 30 minutes. Check if the belt running off tracking, and the stability of it. After everything working normally, then separator may be put into production.

7 Trial running

7.1 Check the catching and removing capability and the veracity of working position.

7.2 Check if the walking trolley working on an even keel, and the limiting device in good condition.

7.3 Put some different shapes ferrous within the material conveyed if necessary to check the separator's ability. Adjust the suspend height and inline angle if necessary.

7.4 Check the separator is off -track or not, and the speed reducer is oil leak or not.

7.5 If no any problems are found within 24 hours during trial operation, you can start normal operation.

7.6 Start with-load is strictly forbidden. Start magnetic separator and then start the belt conveyor.

7.7 Check the connection degree of tightness every three months.

8 Failure analysis and know how on handle

Failure	Possible Reasons	How to handle	Remark
Catch & discharging ability	Suspending position or obliquity changed	Adjust Suspending position or obliquity	
Bad connection	For the vibration during catching and discharging iron	Connect the wire again	
Vibrancy	Connecting device becomes flexible	Reinforce the connecting device	

9. Caution

9.1 Disassembly the magnetic inside core is strictly prohibited.

9.2 During the second times connection, the diameter of cable should decided by the electric current. The cable must connect with terminals with cold press ends to assure good connection.

9.3 Don't disassemble the magnetic core for no damaging the magnetic performance of the

separator.

9.4 Don't bring any ferrous or easily magnetized matters e.g. watch, magnetic card and so on nearby the separator.

10. Repirement and maintenance

10.1 Check the terminal connection & check the cable worn out or not, exchange it termly.

10.2 Keep the connection in good condition, maintenance it termly.

10.3 The surface of the excitation coils should be cleaned periodically by strong wind or mechanical vibration. Wash by water is strictly forbidden, and avoid being affected with dampness

10.4 Keep ventilation and dryness.

11. Shipment and storage

11.1 Full closed shipment package is needed to avoid be rained.

11.2 Be stored in dry and draught storeroom.

12. Opening and Checking

(1) If the equipment and cable are in good condition?

(2) If the attached documents are complete?

The documents include:

a) Bill of packing list

b) Certificate of quality

c) Appurtenance's Criterion and Description

d) Operation manual

e) The Data About Ours Technical Service and Information Feedback.

Note: * means providing a reference.