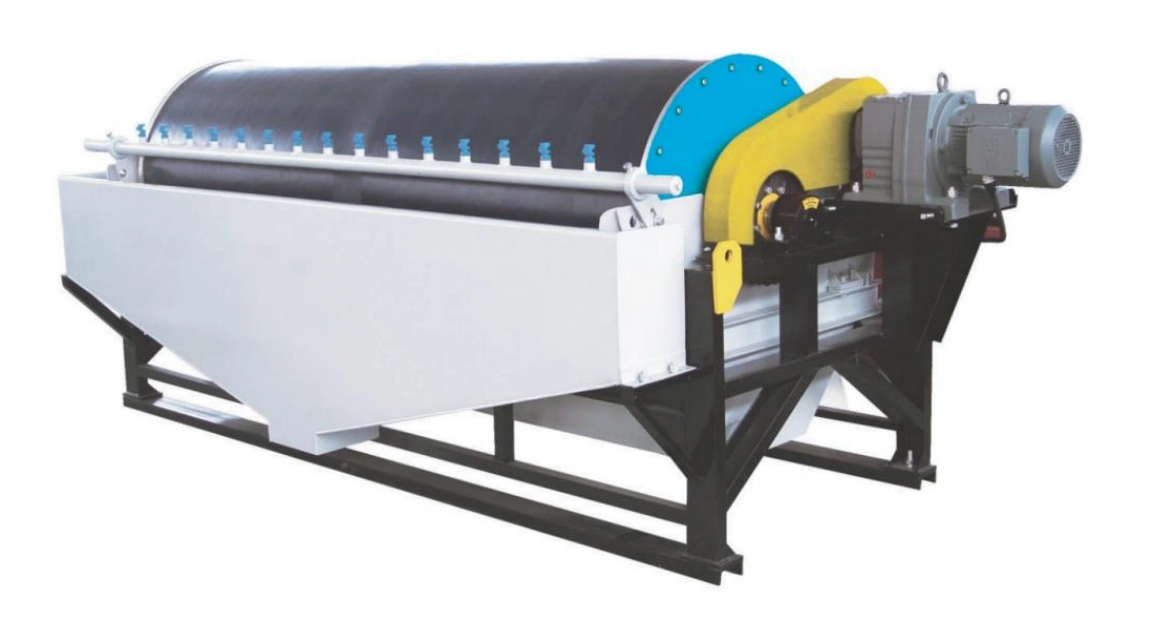
MINERAL PROCESSING / PERMANENT MAGNETIC SEPARATION

Wet Drum Magnetic Separator

Recover magnetite from slurry.
Match the drum and tank to your process.



Product illustration. Tank, magnetic circuit and supplied scope vary by application.

CTB REFERENCE SERIES / CTS AND CTN OPTIONS

A rotating drum and an internal permanent magnetic system separate suitable magnetic particles from a prepared slurry. Select around the feed, circuit duty, required recovery and concentrate quality.

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01 / PROCESS DUTY

Capture. Carry. Discharge.

A stationary magnetic assembly sits inside a rotating non-magnetic drum shell. The tank guides slurry through the active separation zone.

01 Capture magnetic particles

Slurry enters the tank. Magnetic force attracts suitable magnetic particles toward the drum surface; non-magnetic material follows the tank flow.

02 Carry the retained material

The rotating shell transports retained magnetic material out of the slurry. Actual feed and discharge directions depend on the tank arrangement.

03 Discharge separate products

Retained material moves beyond the effective magnetic zone and is released at the magnetic-product discharge. The non-magnetic stream leaves separately.

Where it fits in a magnetite circuit

Roughing: recover magnetic minerals from a prepared feed.

Cleaning: re-treat a magnetic product to improve quality.

Scavenging: assess recovery of remaining magnetic minerals from another stage's non-magnetic stream.

These are process duties, not fixed CTB / CTS / CTN assignments. The separator does not grind locked particles; mineral liberation remains essential.

02 / EQUIPMENT CONFIGURATION

Built around the duty.

Magnetic assembly

A stainless-steel-covered magnetic element with reference intensity options of 1,500-7,000 G (150-700 mT). Confirm the magnetic circuit, measurement position and duty; this range is not one setting for every model.

Wear protection

Construction options include double-layer stainless drum shells or abrasion-resistant rubber-lined shells, with aluminium or stainless-steel end flanges. Confirm the supplied materials and wear protection.

Bearing arrangement

Double-row self-aligning ball bearings support service access. Confirm lubrication, access space and the maintenance procedure for the selected configuration.

CTB series, with CTS / CTN options

CTB reference models are listed on the next page. CTS and CTN tank arrangements are also available. Confirm the flow drawing, drum rotation and intended process duty; CTB table values do not automatically apply to another tank.

Other suitable duties: removal of liberated magnetic iron contaminants from selected mineral slurries may be evaluated by testing. Weakly magnetic impurities may require a different separation method.

No universal feed-size limit, recovery rate or concentrate grade is specified here. These depend on the material, tank design and operating conditions.

03 / MODEL RANGE

Select by mass and slurry flow.

Reference CTB parameters. Capacity in t/h and slurry flow in m³/h are different measures. Confirm the t/h mass basis, including whether it refers to dry solids.

Model	Drum Ø × L mm	Speed r/min	Capacity* t/h	Slurry m³/h	Power kW	Weight kg
CTB-1015	1050 × 1500	21	38-50	110-180	5.5	3070
CTB-1018	1050 × 1800	21	45-60	130-200	5.5	3540
CTB-1021	1050 × 2100	21	52-70	150-240	5.5	4130
CTB-1024	1050 × 2400	21	60-80	160-280	5.5	4720
CTB-1027	1050 × 2700	21	70-90	180-320	7.5	5400
CTB-1030	1050 × 3000	21	80-120	240-400	7.5	6150
CTB-1218	1200 × 1800	19	60-75	160-260	5.5	5750
CTB-1224	1200 × 2400	19	80-110	240-380	7.5	6850
CTB-1230	1200 × 3000	19	100-140	260-460	11	8350
CTB-1236	1200 × 3600	17	120-165	300-550	15	9000
CTB-1240	1200 × 4000	17	130-180	240-600	15	9800
CTB-1245	1200 × 4500	17	150-200	390-690	18.5	11000
CTB-1540	1500 × 4000	15	200-300	500-900	22	12500
CTB-1545	1500 × 4500	15	240-350	600-1000	22	14000
CTB-1550	1500 × 5000	15	300-410	700-1200	30	15500

***Capacity basis:** confirm the mass basis of t/h and the operating feed conditions before using these ranges for equipment sizing. Supply dry-solids throughput, slurry flow, slurry density and solids concentration.

Reference values are not guaranteed performance for every ore. Final capacity, dimensions, installed power and supplied weight follow the confirmed configuration and quotation.

04 / PREPARE YOUR ENQUIRY

Start with the feed.

Send available data so Sortek can review the proposed duty, configuration and information still needed for selection.



Installation view. Equipment arrangement and access vary by project.

Material and target

Ore type, magnetic mineral content, feed Fe and SiO_2, and target product quality.

Duty and capacity

Flowsheet position; required dry-solids t/h; slurry m^3/h, density and solids concentration.

Size and liberation

Full particle-size distribution, maximum size and available mineralogical or separation tests.

Plant conditions

Electrical supply, water availability, installation space, access and existing drawings.

Selection balances recovery, product quality and throughput. Where recovered concentrate needs further cleaning, assess liberation and gangue carryover before selecting an additional elutriation stage.

DISCUSS YOUR APPLICATION

sales@sortektech.com

WhatsApp +86 17867401782

sortektech.com