**MINERAL PROCESSING / CONCENTRATE CLEANING**

# Elutriation Magnetic Separator

Controlled magnetic fields. Upward washing water.
A focused stage for magnetite concentrate upgrading.

**CLEANING AFTER MAGNETIC RECOVERY**

## Upgrade concentrate. Remove liberated gangue. Select with test evidence.

Also known as an automatic magnetic elutriation column or electromagnetic elutriation separator.



Product illustration.
Final configuration follows the quotation.

For magnetite plants reviewing concentrate quality, impurity carryover and the next cleaning stage. Performance depends on mineral liberation, feed characteristics and operating conditions.

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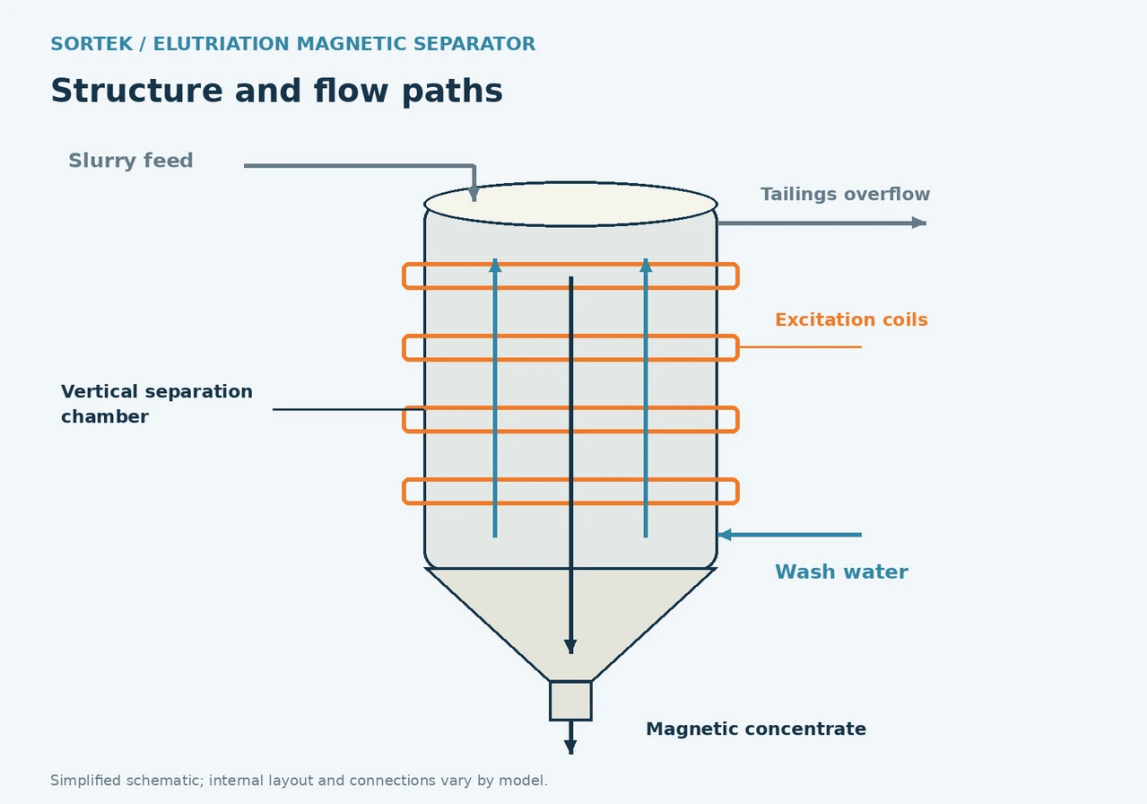
01 / UNDERSTAND THE EQUIPMENT

# Magnetic control. Hydraulic washing.




Simplified flow schematic. Internal layout and connections vary by model; this is not an installation drawing.

### 01 Feed and chamber

Slurry enters the vertical chamber. Upward wash water carries suitable liberated gangue toward the overflow.

### 02 Excitation coils

Controlled magnetic fields help retain magnetic particles and release entrained gangue from magnetic aggregates.

### 03 Wash-water zones

Zoned water supply supports hydraulic cleaning. Confirm water flow, pressure and quality for the selected duty.

### 04 Separate outlets

Magnetic concentrate moves toward bottom discharge; the non-magnetic overflow follows a separate path.

### 05 Measurement and control

Concentration measurements support adjustment. PLC and instrumentation scope follow the selected configuration.

### 06 Optional vision monitoring

Camera-based overflow monitoring can assist tailings-loss assessment after calibration for the ore.

The separator cleans a prepared feed; it does not grind locked mineral particles. The source specification describes a 304 stainless steel main body. Confirm the supplied material schedule and instrumentation scope in the quotation.

02 / MODEL RANGE

# Select around your feed.

Reference values for the CH-SWCXJ automatic magnetic elutriation column series. Final capacity and configuration require application-specific confirmation.

| Model | Cylinder Ø mm | Dry ore t/h | Listed kW | Water MPa | Water m³/h |
|---|---|---|---|---|---|
| CH-SWCXJ1000L | 1000 | 10-25 | 6 | ≥ 0.20 | 30-60 |
| CH-SWCXJ1200L | 1200 | 15-30 | 6 | ≥ 0.20 | 50-120 |
| CH-SWCXJ1400L | 1400 | 20-35 | 7.5 | ≥ 0.25 | 80-140 |
| CH-SWCXJ1600L | 1600 | 25-40 | 7.5 | ≥ 0.25 | 100-160 |
| CH-SWCXJ1800L | 1800 | 30-50 | 7.5 | ≥ 0.25 | 120-180 |
| CH-SWCXJ2000L | 2000 | 35-60 | 7.5 | ≥ 0.25 | 140-200 |
| CH-SWCXJ2200L | 2200 | 40-70 | 7.5 | ≥ 0.25 | 160-240 |

## Reference overall dimensions

| Model | L × W × H (mm) |
|---|---|
| CH-SWCXJ1000L | 1700 × 1700 × 4740 |
| CH-SWCXJ1200L | 1760 × 1760 × 4959 |
| CH-SWCXJ1400L | 2380 × 2380 × 5622 |
| CH-SWCXJ1600L | 2634 × 2634 × 6494 |
| CH-SWCXJ1800L | 2892 × 2892 × 7372 |
| CH-SWCXJ2000L | 3200 × 3200 × 7621 |
| CH-SWCXJ2200L | 3532 × 3532 × 8343 |

**Confirm before ordering:** electrical supply, operating water pressure, water quality, slurry concentration and installation clearances. Overall dimensions are not foundation or installation drawings. Water flow is not net fresh-water consumption; confirm recirculation and total connected load.

The reference series lists 380/220 V, feed slurry concentration ≥30% and concentrate slurry concentration 50-70%. Slurry concentration is not iron grade. Suitable feed size must be determined from particle-size distribution, mineral liberation and beneficiation tests.

03 / SELECTED APPLICATIONS

# Results in context.

Selected industrial applications. The figures describe specific flowsheet outcomes under reported operating conditions, not universal equipment guarantees.

AUSTRALIA / FLOWSHEET UPGRADE

## Higher throughput at a coarser P80

The revised circuit used CH-TNC2000 desliming elutriation columns, a different series from the CH-SWCXJ models on page 3. Results describe the plant line, not one separator.

| MEASURE | BEFORE | AFTER | CHANGE |
|---|---|---|---|
| **Single-line throughput** | 1,200 t/h | **1,500 t/h** | +25% |
| **Concentrate iron grade** | 63.56% | **65.92%** | +2.36 pp |
| **Grinding P80** | 30 µm | **42 µm** | 40% coarser |

Coarser P80 does not itself establish an energy-saving percentage. Actual energy and recovery performance require a consistent operating and sampling basis.

CHINA / CONCENTRATE CLEANING

## Higher iron grade, lower sulfur

A magnetic elutriation column replaced the final magnetic-column duty, treating the fine-screen undersize for further concentrate cleaning.

| MEASURE | BEFORE | AFTER | CHANGE |
|---|---|---|---|
| **Concentrate iron grade** | 63.54% | **66.35%** | +2.81 pp |
| **Concentrate sulfur** | 0.608% | **0.375%** | -38.3%* |

pp = percentage points. *Relative sulfur reduction, calculated from the reported before-and-after values. Impurity removal depends on mineral association and liberation.

**04 / PREPARE YOUR ENQUIRY**

# Start with your material.

Send the available information below. Initial data helps Sortek review the proposed duty and identify what still needs testing or confirmation.



Installation view. Instrumentation, control cabinets and access arrangements vary by supplied scope.

## Material and target

Ore type; magnetic mineral content; feed and target Fe, $SiO_2$ and relevant impurities.

## Capacity and circuit

Dry solids throughput (t/h), slurry flow ($m^3/h$), solids concentration and flowsheet position.

## Particle size and liberation

Particle-size distribution, grinding P80 and available mineralogical or separation test results.

## Plant services and space

Water pressure and quality; electrical supply; installation envelope; existing drawings or photos.

Confirm representative sampling, required sample quantity and test scope with Sortek before shipping material. No sample quantity, test fee or lead time is assumed in this guide.

**DISCUSS YOUR APPLICATION**

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