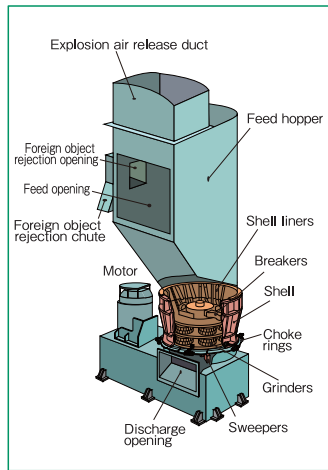


The shredder for effective metal scrap recycling

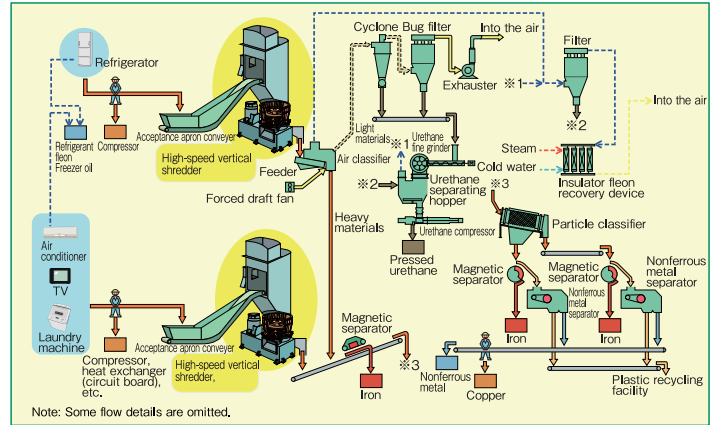
High-speed vertical shredder

Feature

- Because the breakers perform the primary shredding operation and the grinders carry out secondary and tertiary shredding, the shredder can handle almost any material that you can name at one time.
- Effective sorting by adjusting to the required particle sizes through multiple stages of grinder operation.
- Energy-saving vertical shredding structure with a wide opening enables efficient shredding of long or bulky scrap.



Main components of the shredder



House appliance recycling flow chart

Introductory Track Record

- In Japan, 15 units have been installed for recycling of house appliances, computers and information equipment, and 60 units for metal scrap recycling (e.g. automobiles, turning).
- We started sales activities overseas in fiscal 2007 and have sold a total of ten units in Indonesia, South Korea and China. (Units are to be shipped to China in November 2010.)

Effects

- In the case of 10 plants (iron ore production capacity: 24 tons/day) equipped with the shredders of a 48 tons/day capacity

It is more efficient to produce crude steel from scrap using electric furnaces than from iron ore with blast furnaces or converters. Choosing electric furnaces, therefore, leads to energy-savings and reduced CO₂ emissions due to the basic unit difference between blast furnaces and electronic furnace.

- ① Energy reduction in crude steel production (GJ/year) ÷ 1,055,000 GJ/year

$$\div 24 \times 10 \times 250 \times (5600 - 1400) \times 4.186 \div 1000$$

Assumptions:

Iron ore production: 24t/day per plant, Number of plants to be constructed: 10

Annual total number of days in operation: 250 days/year, Blast furnace steel energy basic unit: 5,600 Mcal/t, Electric furnace steel energy basic unit: 1,400 Mcal/t

- ② CO₂ reduction in crude steel production (t-CO₂/year) = 102,000 t-CO₂/year

$$= 24 \times 10 \times 250 \times (2.0 - 0.3)$$

Assumptions:

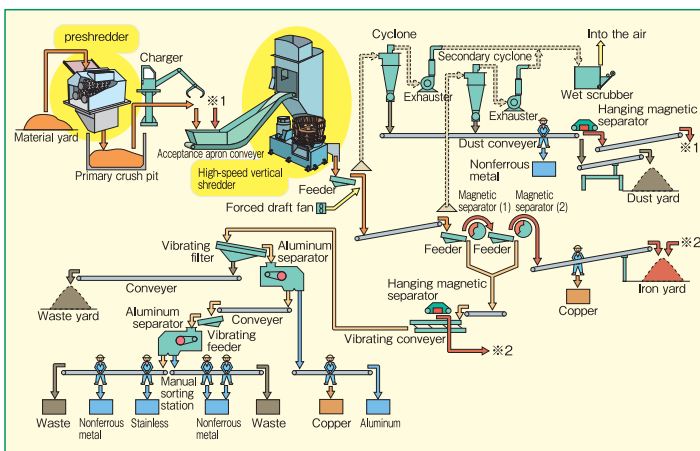
Blast furnace steel CO₂ basic unit: 2.0 t-CO₂/t

Electric furnace steel CO₂ basic unit: 0.3 t-CO₂/t

Overview (Technical principles, actions, etc.)

This metal scrap shredder/separator recovers resources from scrapped automobiles and house appliances. Particle shape and size distribution significantly affect sorting accuracy.

High-speed rotating shredder repeats shredding through impact, shearing, compression and friction forces. The shredder delivers effective sorting by adjusting to the required particle sizes through multiple stages of grinder operation and is installed at many plants throughout Japan.



Metal scrap recycling flow chart